

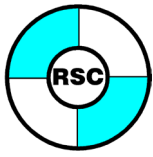
A map of California is shown in the background. The San Diego region, including Imperial, San Diego, and Riverside counties, is highlighted with a blue hatched pattern. Lines connect the text to specific locations on the map: one line points to the San Diego area, and two lines point to the Imperial Valley area.

2022 SAN DIEGO

**REGIONAL
STANDARD
DRAWINGS**

STANDARD DRAWINGS FOR AGENCIES IN THE SAN DIEGO REGION

Recommended by the Regional Standards Committee
Maintained and Published by the County of San Diego
Department of Public Works
November 2022
www.regional-stds.com



Regional Standards Committee Web Site: <http://www.regional-stds.com>

Mission Statement: Cost effective government through regional construction standards for San Diego area agencies.

FOREWORD

These 2022 San Diego Area Regional Standard Drawings (Regional Standard Drawings) have been prepared and adopted by the San Diego Regional Standards Committee (RSC) for use in the San Diego Region by local agencies. The San Diego Region is defined as the land area within the boundaries of the County of San Diego. **Each Agency decides which drawings it will approve for use on a project.**

The RSC was established under San Diego County Board of Supervisors Policy I-50 in 1973 and the County Department of Public Works provides coordination and staff for the Regional Standards Committee. The RSC membership is open to the City Engineers, Directors of Public Works, District Engineers and Heads of Engineering, or their designees, from the County of San Diego, Regional Cities, all Water and Sewer Districts, Utility Companies, Construction Associations, Consultants, and various private industry organizations within the San Diego Region. The RSC Chair is selected by the RSC members and serves a three-year term.

The Regional Standard Drawings are published every three years, however as changes are adopted updates are posted on the Web Site:

<http://www.regional-stds.com>

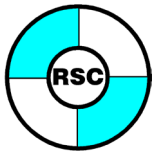
The Regional Standard Drawings publication for the year 2021 was unfortunately postponed to 2022 due to the COVID 19 pandemic.

The website also contains Information about membership, operating procedures, meeting schedules, agenda and minutes, standard drawings and Regional Supplements, a link to the Greenbook Committee, member agencies, and a form for submitting proposed revisions.

The 2022 Regional Standard Drawings continue to use English only units. The 2012 Edition discontinued the use of dual units and adopted English imperial units only.

Users of the Regional Standard Drawings are encouraged to submit proposed changes to the RSC online or by mail to:

County of San Diego
Department of Public Works
Attention: Ray A. Perdido, RSC Coordinator
5500 Overland Avenue, 3rd Floor, STE 0320
San Diego, CA 92123-1295
Ray.Perdido@sdcounty.ca.gov



The following is a list of the County of San Diego Coordinator and the subcommittee chairpersons who over the last three years have made this publication possible by integrating the input from all agencies in the County:

Ray A. Perdido	County of San Diego Coordinator	County of San Diego
Katie Odiorne	Website Manager	City of Coronado
Samson Engeda	Retaining Walls Committee Co-Chair	County of San Diego
Matt Widelski	Drainage Systems Committee Chair	City of Encinitas
Gean Na	Drainage Systems Committee Chair	Concrete Pipe
Krisando Equipado	Dry Utilities, Traffic, and Misc. Co-Chair	County of San Diego
Teala Cotter	Traffic Control Plans and Misc. Co-Chair	City of Oceanside
Krisando Equipado	General Surface Facilities Committee Chair	County of San Diego
Alaine James	Landscape and Irrigation Committee Chair	City of San Diego
Zoubir Ouadah	Traffic/Lighting/Electrical Committee Co-Chair	LLG
Gigi Finley	Traffic/Lighting/Electrical Committee Co-Chair	County of San Diego
Krisando Equipado	ADA Committee Chair	County of San Diego
Christina Olson	Water / Sewer Committee Chair	San Dieguito Water District

Samson Engeda, SE
Chair, San Diego Regional Standards Committee

PROPOSED REVISION TO THE REGIONAL STANDARDS		Draft No.
☐ Specification	☐ Drawing	Date
REASON FOR REVISION:		
SUBMITTED BY: NAME: _____ PHONE: _____ AGENCY: _____ ADDRESS: _____		
Subcommittee: _____ Date: _____ ☐ RECOMMENDED ☐ AS MODIFIED ☐ REJECTED	Regional Standards Committee Date: _____ ☐ RECOMMENDED ☐ AS MODIFIED ☐ REJECTED	

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WP-05	Slope Protection Installations
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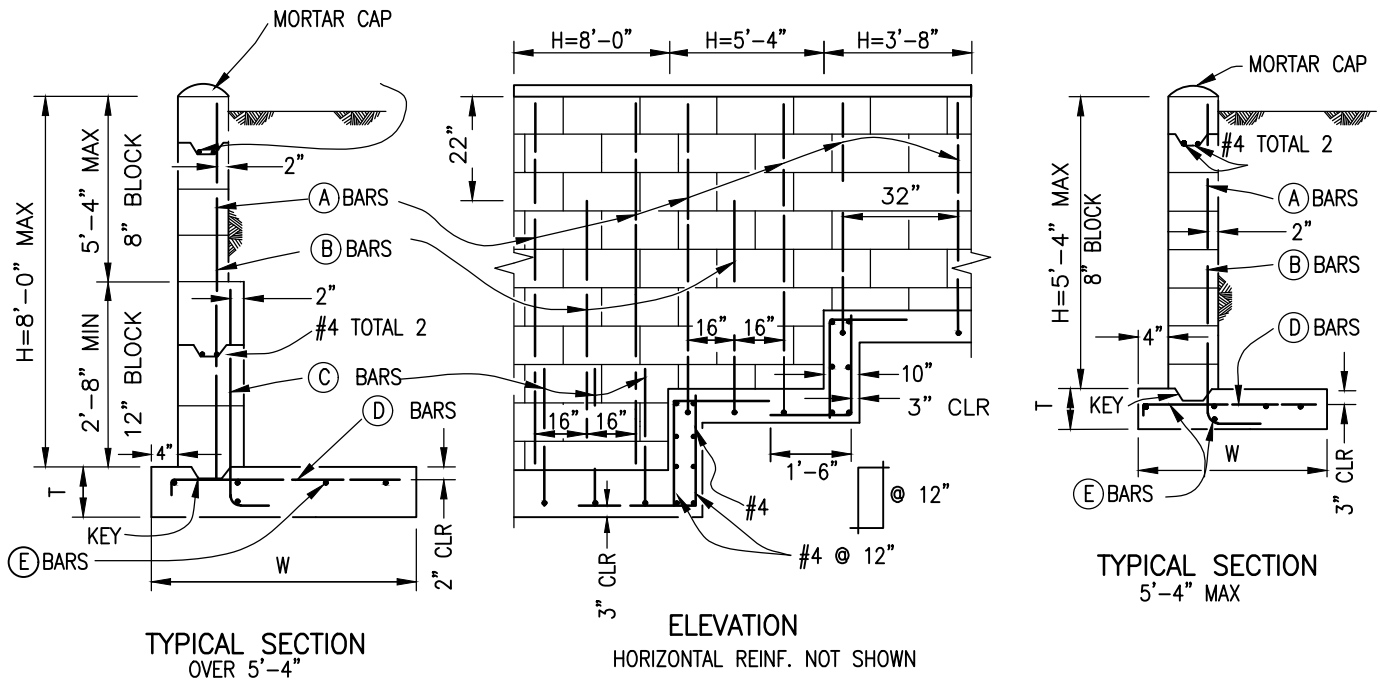
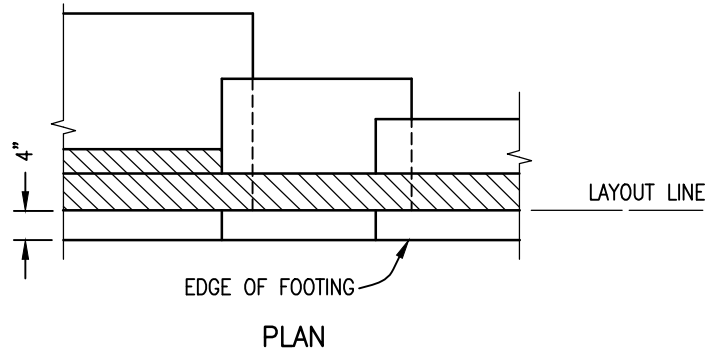
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APPENDIX A - TRAFFIC CONTROL PLANS

CONCRETE STRUCTURES

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	TS	T. Stanton	11/15	MASONRY RETAINING WALL TYPE 1 LEVEL BACKFILL WITH 10-IN HEEL	DRAWING NUMBER C-01
Updated	DH	T. Stanton	09/17		
Reviewed	RP	S. Engeda	03/22		

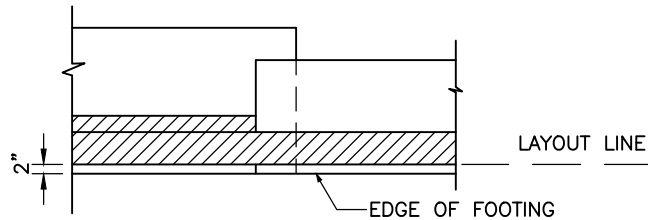
DRAWING NUMBER **C-02**



DIMENSIONS AND REINFORCING STEEL			
H (MAX)	3'-8"	5'-4"	8'-0"
T (MIN)	0'-8"	1'-1"	1'-3"
W (MIN)	2'-4"	3'-9"	5'-3"
(A) BARS	#4@32"	#5@16"	#4@24"
(B) BARS	—	#5@16"	#4@24"
(C) BARS	—	—	#6@16"
(D) BARS	#4@32"	#5@12"	#6@16"
(E) BARS	#4 TOTAL 4	#4 TOTAL 5	#4 TOTAL 6
MAX SOIL PRESSURE	1100 PSF	2500 PSF	3000 PSF

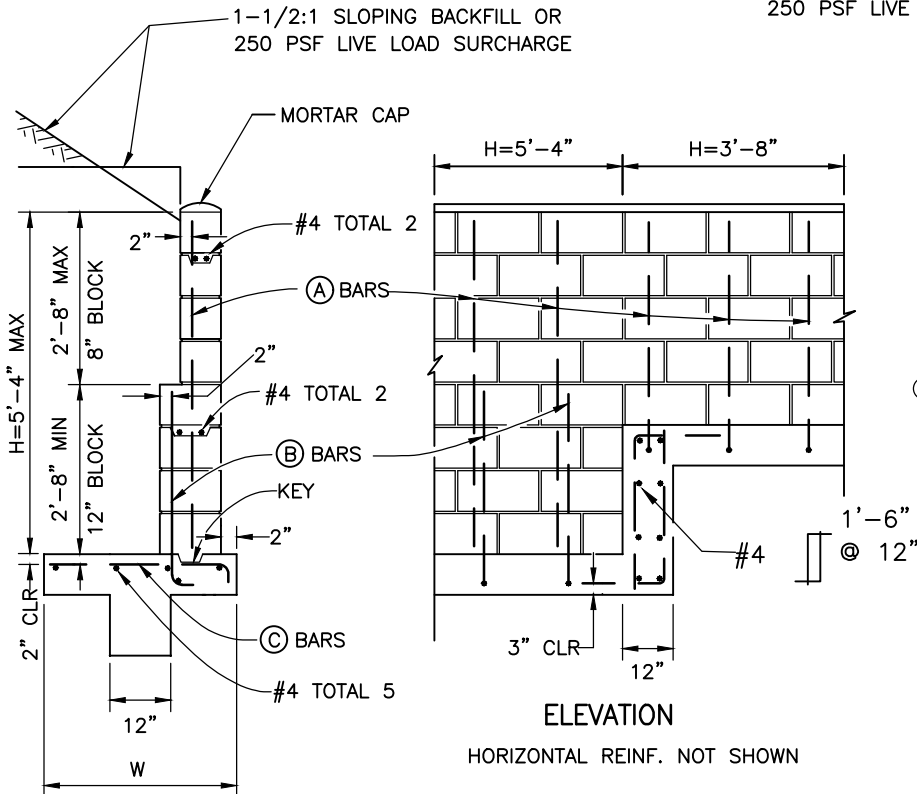
NOTES: 1. SEE C-7 AND C-8 FOR ADDITIONAL NOTES AND DETAILS.
2. FILL ALL BLOCK CELLS WITH GROUT.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75				
Reviewed	TS	T. Stanton	11/15	MASONRY RETAINING WALL TYPE 3 (LEVEL BACKFILL)		<i>Samson Engeda</i> 03/24/2022	
Updated	DH	T. Stanton	09/17			Chairperson R.C.E. 52241 Date	
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER C-03	



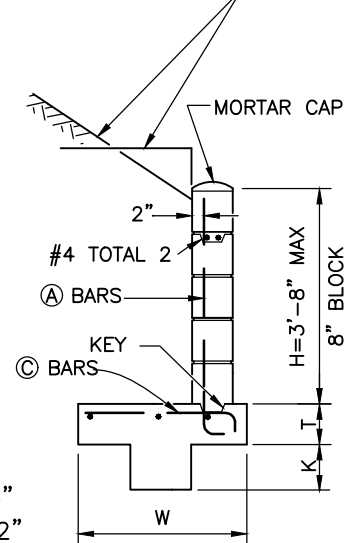
PLAN

1-1/2:1 SLOPING BACKFILL OR
250 PSF LIVE LOAD SURCHARGE



ELEVATION

HORIZONTAL REINF. NOT SHOWN



TYPICAL SECTION

3'-8" MAX

TYPICAL SECTION

OVER 3'-8"

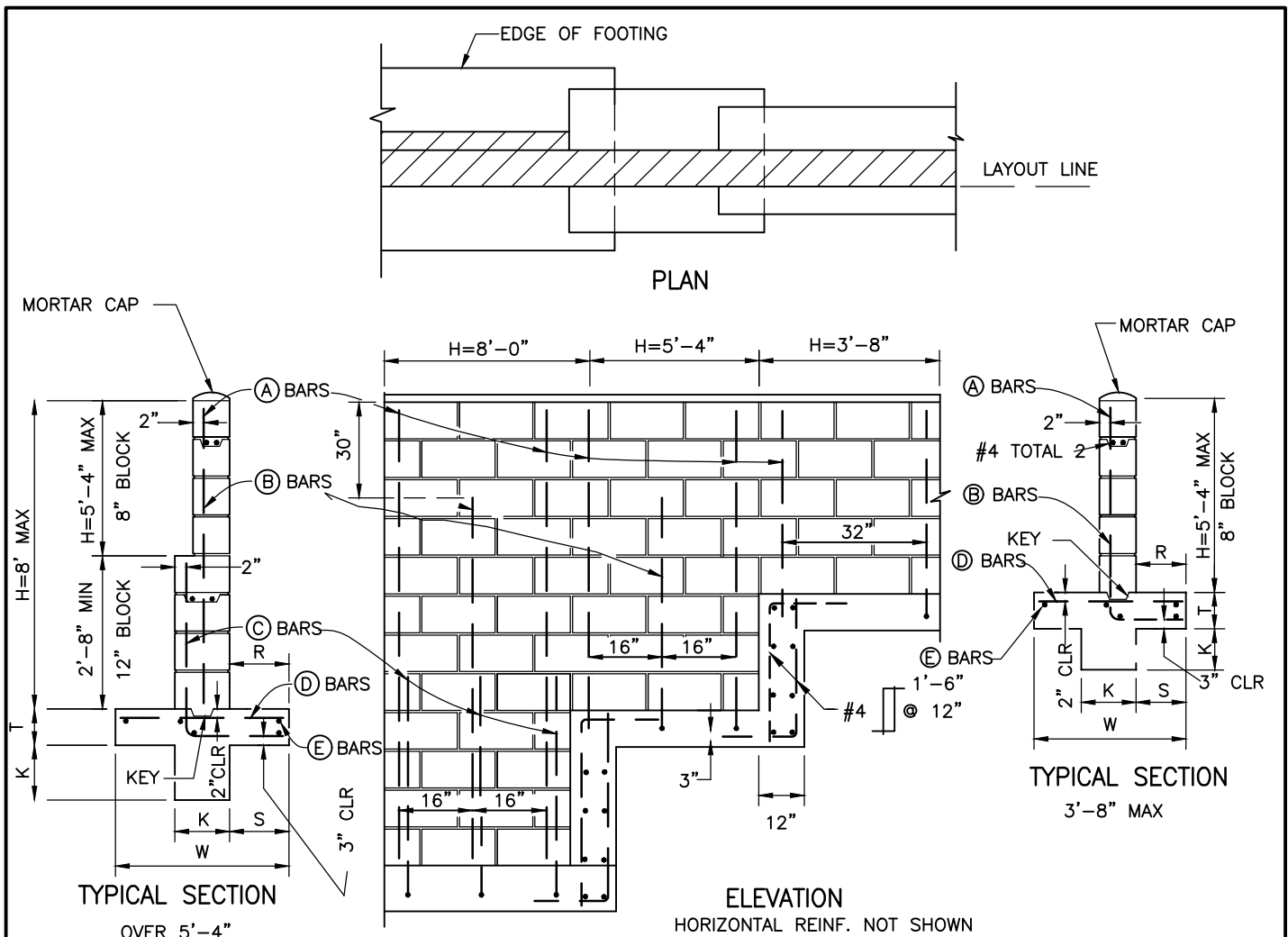
DIMENSIONS AND REINFORCING STEEL

H (MAX)	5'-4"	3'-8"
T (MIN)	0'-10"	0'-8"
W (MIN)	4'-0"	3'-0"
(A) BARS	#4@16"	#4@16"
(B) BARS	#6@16"	
SURCHARGE	sloping	live load
(C) BARS	#6@8"	#6@16"
K (MIN)	1'-0"	0'-8"
TOE PRESS.	2700 PSF	1900 PSF
		1700 PSF
		1430 PSF

NOTES:

- SEE C-7 AND C-8 FOR ADDITIONAL NOTES AND DETAILS.
- FILL ALL BLOCK CELLS WITH GROUT.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Parkinson	02/95	MASONRY RETAINING WALL TYPE 4 (LIVE LOAD SURCHARGE OR SLOPING BACKFILL)		<i>Samantha Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date	DRAWING NUMBER C-04
Reviewed	TS	T. Stanton	11/15				
Reviewed	DH	T. Stanton	09/18				
Reviewed	RP	S. Engeda	03/22				



DIMENSIONS AND REINFORCING STEEL			
H (MAX)	3'-8"	5'-4"	8'-0"
T (MIN)	0'-8"	0'-10"	1'-0"
W (MIN)	2'-1"	3'-1"	4'-3"
R	0'-9"	1'-2"	1'-5"
S	0'-8 1/2"	1'-1 1/2"	1'-7 1/2"
K	0'-8"	0'-8"	1'-0"
(A) BARS	#4@32"	#4@32"	#4@32"
(B) BARS	—	#4@32"	#4@32"
(C) BARS	—	—	#7@16"
(D) BARS	#4@32"	#4@16"	#4@16"
(E) BARS	#4 total 5	#4 total 5	#4 total 6
MAX TOE PRESSURE	774 psf	1,030 psf	1,660 psf

NOTES:

- SEE C-7 AND C-8 FOR ADDITIONAL NOTES AND DETAILS.
- FILL ALL BLOCK CELLS WITH GROUT.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Parkinson	2/95	MASONRY RETAINING WALL TYPE 5 (LEVEL BACKFILL)		 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	TS	T. Stanton	11/15			
Reviewed	DH	T. Stanton	09/18			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER C-05

DESIGN CONDITIONS:

Walls are to be used for the loading conditions shown for each type wall. Design H shall not be exceeded. Footing key is required except as shown otherwise or when found unnecessary by the Engineer. Special footing design is required where foundation material is incapable of supporting toe pressure listed in table.

DESIGN DATA:**Reinforced Concrete:**

$F_c=1200$ psi $F'_c=3000$ psi
 $F_s=20,000$ psi $n=10$

Reinforced Masonry:

$F'_m=600$ psi $F_m=200$ psi
 $F_s=20,000$ psi $n=50$
 Earth=120 pcf and Equivalent Fluid
 Pressure=36 psf per foot of height

Walls shown for 1 1/2:1 unlimited sloping surcharge are designed in accordance with Rankline's formula for unlimited sloping surcharge with a $\phi = 33^\circ 42'$.

REINFORCEMENT:

Intermediate grade, hard grade, or rail steel deformation shall conform ASTM A615, A616, A617. Bars shall lap 40 diameters, where spliced, unless otherwise shown on the plans. Bends shall conform to the Manual of Standard Practice, A.C.I.1. Backing for hooks is four diameters. All bar embedments are clear distances to outside of bar. Spacing for parallel bars is center to center bars.

MASONRY:

All reinforced masonry retaining walls be constructed of regular or light weight standard units conforming to the "Standard Specifications for Public Works Construction."

JOINTS:

Vertical control joints shall be placed at 32' intervals maximum. Joints shall be designed to resist shear and other lateral forces while permitting longitudinal movement. Vertical expansion joints shall be placed at 96' intervals maximum.

CONCRETE:

Footing concrete shall be 560-C-3250, using Type B aggregate when placing conditions permit.

BACKFILL:

No backfill material shall be placed against masonry retaining walls until grout has reached design strength or until grout has cured for a minimum of 28 days. Compaction of backfill material by jetting or ponding with water will not be permitted. Each layer of backfill shall be moistened as directed by the Engineer and thoroughly tamped, rolled or otherwise compacted until the relative compacting is not less than 90%.

FENCING:

Safety fencing shall be installed at the top of the wall as required by the agency.

INSPECTIONS:

Call for inspections as follows:

A. When the footing has been formed, with the steel tied securely in final position, and is ready for the concrete to be placed.

B. Where cleanout holes are not provided:

(1) After the blocks have been laid up to a height of 4' or full height for walls up to 5', with steel in place but before the grout is poured, and.....

(2) After the first lift is properly grouted, the blocks have been laid up to the top of the wall with the steel tied securely in place but before the upper lift is grouted.

Where cleanout holes are provided:

After the blocks have been laid up to the top of the wall, with the steel tied securely in place, but before grouting.

C. After grouting is complete and after rock or rubble wall drains are in place but before earth backfill is placed.

D. Final inspection when all work has been completed.

CONCRETE GROUT AND MORTAR MIXES:

Concrete grout shall attain a minimum compressive strength of 2,000 psi in 28 days and mortar shall attain 1,800 psi in 28 days.

All cells shall be filled with grout. Rod or vibrate consolidation. Bring grout within 10 minutes of pouring to insure grout to a point 2" from the top of masonry units when grouting of second lift is to be continued at another time.

MORTAR KEY:

To insure proper bonding between the footing and the first course of block, a mortar key shall be formed by embedding a flat 2 x 4 flush with and at the top of the freshly poured footing. The 2 x 4 should be removed after the concrete has started to harden (approximately 1 hour).

A mortar key may be omitted if the first course of block is set into the fresh concrete when the footing is poured, and a good bond is obtained.

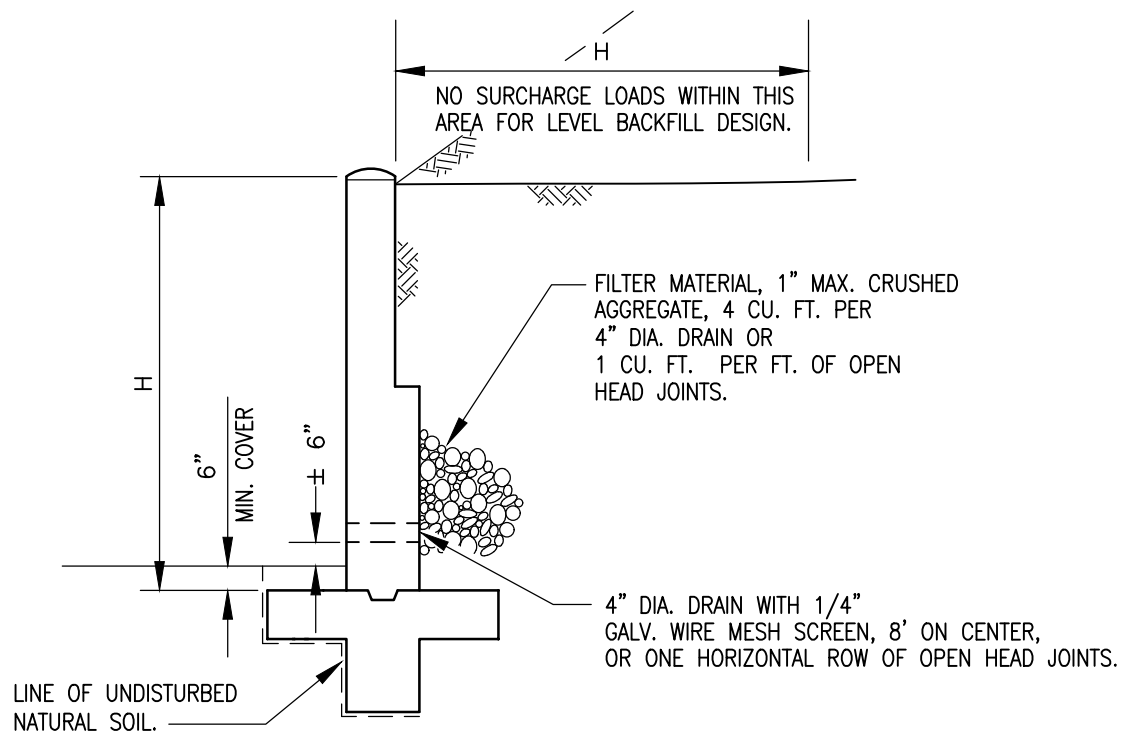
WALL DRAINS:

Wall drains shall be provided in accordance with Standard Drawing C-8.

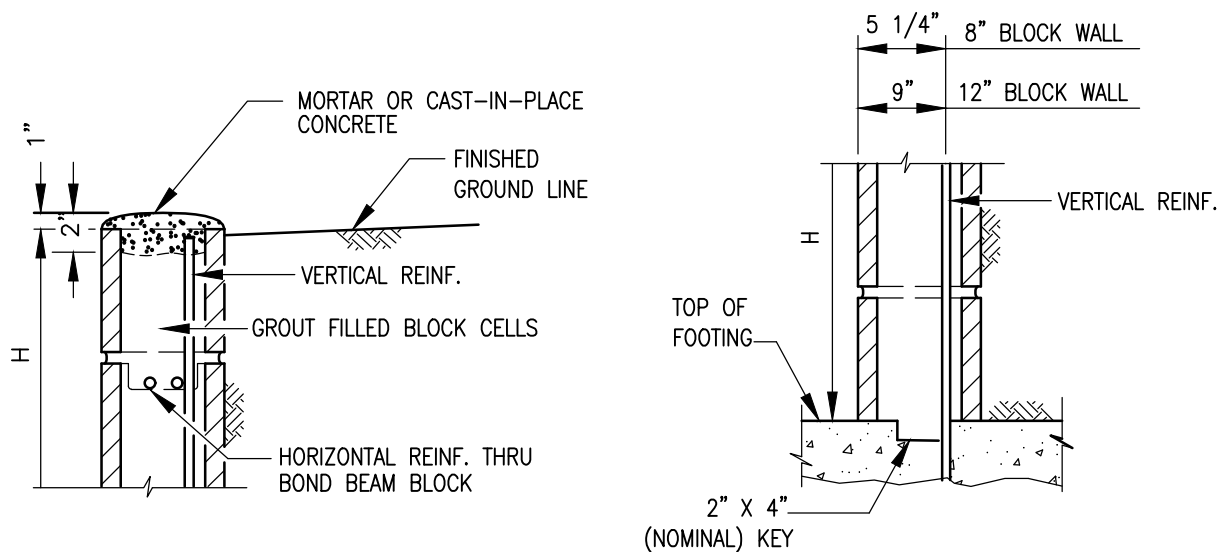
SOIL:

All footings shall extend at least 12" into undisturbed natural soil or approved compacted fill. Soil should be dampened prior to placing concrete in footings.

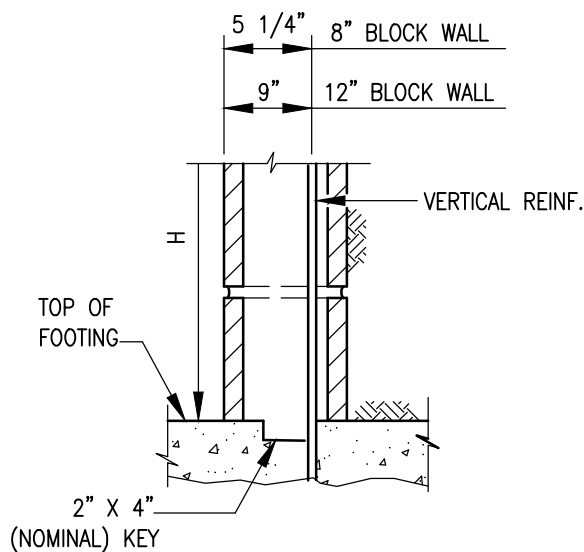
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		A. Kercheval	12/75	GENERAL NOTES FOR MASONRY RETAINING WALLS	
Reviewed	GT	T. Stanton	09/15		
Reviewed	DH	T. Stanton	09/18		
Reviewed	RP	S. Engeda	03/22		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
				 03/24/2022 Chairperson R.C.E. 52241 Date	
				DRAWING NUMBER C-07	



TYPICAL SECTION



CAP DETAIL

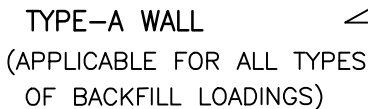


KEY DETAIL

NOTES:

1. ALL MASONRY RETAINING WALLS SHALL BE CONSTRUCTED WITH CAP, KEY AND DRAINAGE DETAILS AS SHOWN HEREON.
2. 4" DIAMETER DRAIN MAY BE FORMED BY PLACING A BLOCK ON IT'S SIDE.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		Kercheval	12/75	DETAILS FOR MASONRY RETAINING WALL	
Reviewed	TS	T. Stanton	11/15		
Reviewed	DH	T. Stanton	09/18		
Reviewed	RP	S. Engeda	03/22		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
				 03/24/2022 Chairperson R.C.E. 52241 Date	
				DRAWING NUMBER C-08	



TYPE-C WALL

ELEVATION

WALL TYPE	HEIGHT	BASE	CONCRETE CF/FT
A	1'-6"	1'-0"	1.50 cu ft.
	2'-0"	1'-0"	2.00 cu ft.
B	3'-0"	2'-4"	4.99 cu ft.
	4'-0"	2'-10"	7.66 cu ft.
	5'-0"	3'-4"	10.82 cu ft.
	6'-0"	3'-10"	14.49 cu ft.
C	3'-0"	1'-6"	3.75 cu ft.
	4'-0"	2'-0"	6.00 cu ft.
	5'-0"	2'-6"	8.75 cu ft.
	6'-0"	3'-0"	12.00 cu ft.

NOTE:
SEE C-10 FOR SECTION A-A, NOTES AND DETAILS.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75		GRAVITY RETAINING WALLS	 03/24/2022
Reviewed	TS	T. Stanton	11/15	Chairperson R.C.E. 52241 Date		
Reviewed	DH	T. Stanton	09/18	DRAWING NUMBER		C-09
Reviewed	RP	S. Engeda	03/22			

CONCRETE

CONCRETE SHALL BE 560-C-3250.

DESIGN CONDITIONS

WALLS ARE TO BE USED FOR THE LOADING CONDITIONS SHOWN FOR EACH TYPE WALL. DESIGN H MAY BE EXCEEDED BY SIX INCHES BEFORE GOING TO NEXT SIZE.

DESIGN DATA

FC = 1200 PSI

F'C = 3000 PSI

EARTH = 120 PCF

AND EQUIVALENT FLUID PRESSURE=36 PSF
PER FOOT OF HEIGHT

WALLS SHOWN FOR 1-1/2:1 UNLIMITED SLOPING SURCHARGE ARE DESIGNED IN ACCORDANCE WITH RANKINE'S FORMULA FOR UNLIMITED SLOPING SURCHARGE WITH $\phi = 42^\circ$.

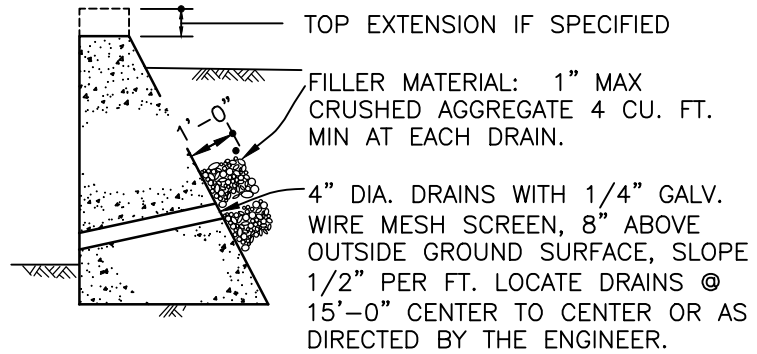
NOTE: MAXIMUM TOE PRESSURE UNDER WALL FOOTING = 1-1/2 TONS/SQ. FT. SPECIAL DESIGN REQUIRED WHERE FOOTING MATERIAL IS INCAPABLE OF SUPPORTING THIS PRESSURE.

EXCAVATION AND BACKFILL

COMPACTION OF BACKFILL MATERIAL BY JETTING OR PONDING WITH WATER WILL NOT BE PERMITTED.

EACH LAYER OF BACKFILL SHALL BE MOISTENED AS DIRECTED BY THE ENGINEER AND THOROUGHLY TAMPED, ROLLED OR OTHERWISE COMPACTED UNTIL THE RELATIVE COMPACTION IS NOT LESS THAN 90 PERCENT.

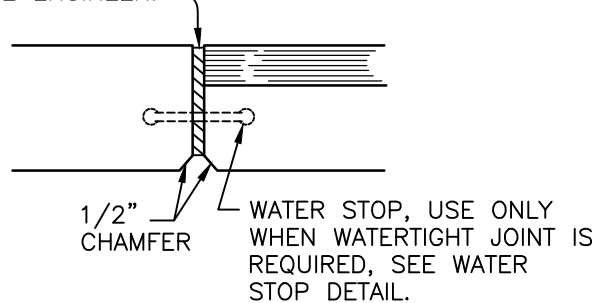
NO BACKFILL MATERIAL SHALL BE DEPOSITED AGAINST CONCRETE RETAINING WALLS UNTIL THE CONCRETE HAS DEVELOPED A STRENGTH OF 2,500 PSI IN COMPRESSION AS DETERMINED BY TEST CYLINDERS, OR UNTIL 28 DAYS AFTER WALL HAS BEEN PLACED.



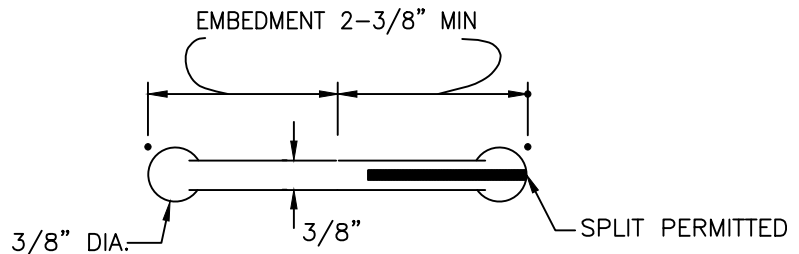
TYPICAL DRAINAGE

WHEN H IS GREATER
THAN 4'-0"

1/2" EXPANSION JOINT, FILL WITH PREMOLDED EXPANSION JOINT FILLER. LOCATE JOINTS AT APPROX. 30'-0" CENTERS OR AS DIRECTED BY THE ENGINEER.



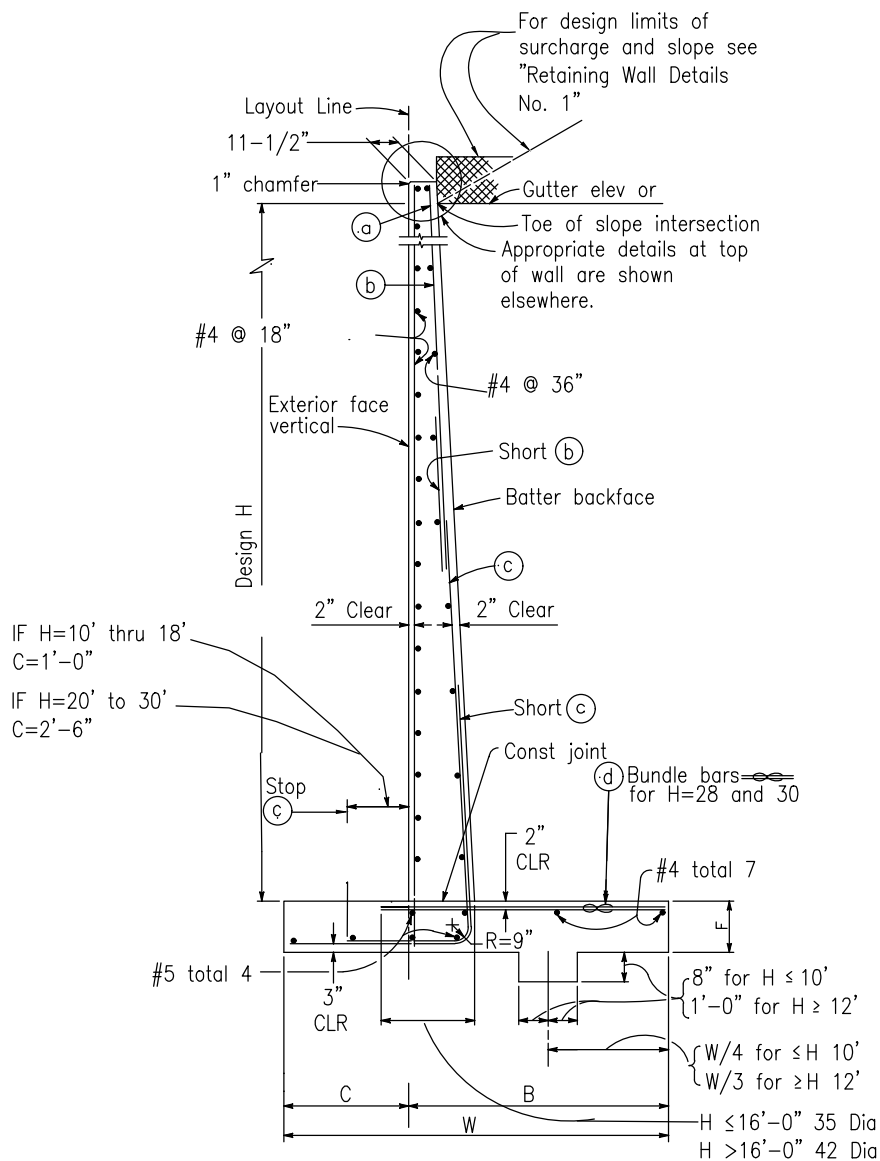
SECTION A-A



RUBBER WATERSTOP

USE ONLY WHEN WATERTIGHT
JOINT IS REQUIRED.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	GENERAL NOTES AND DETAILS FOR GRAVITY RETAINING WALLS		
Reviewed	TS	T. Stanton	11/15			
Reviewed	DH	T. Stanton	09/18			
Reviewed	RP	S. Engeda	03/22			
						<i>Samantha Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date
						DRAWING NUMBER C-10

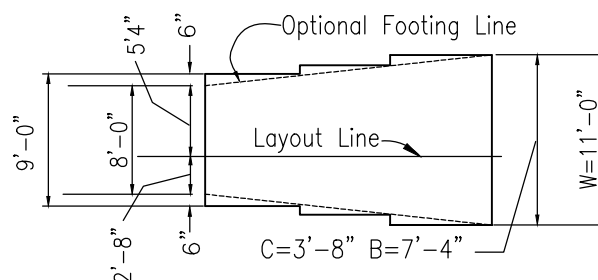


SPREAD FOOTING SECTION

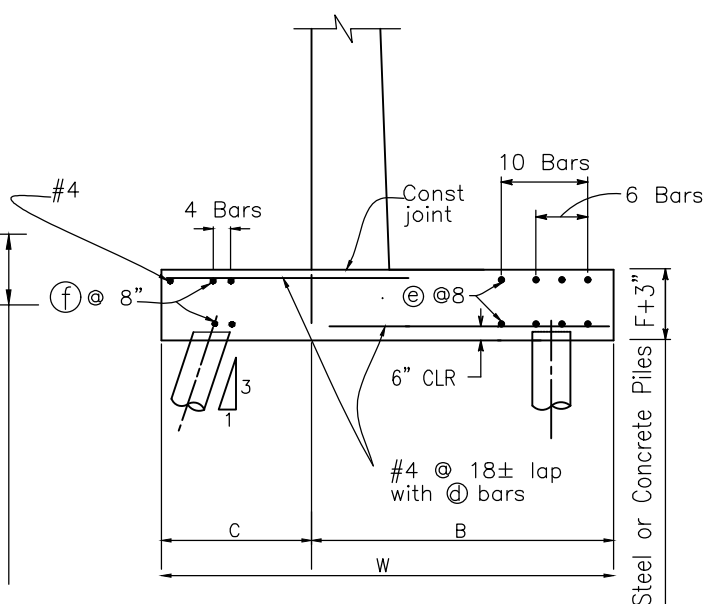
NOTES:

1. FOR DETAILS NOT SHOWN AND DRAINAGE NOTES SEE "RETAINING WALL DETAILS NO.1".
STANDARD DRAWINGS C-13A TO C-13D.
2. QUANTITIES APPLY TO DESIGN H PORTION AND EXCLUDE THE ADDED PORTION ABOVE "GUTTER ELEVATION".

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	REINFORCED CONCRETE RETAINING WALL TYPE 1 - SPREAD FOOTING		
Reviewed	TS	T. Stanton	11/15			
Reviewed	DH	T. Stanton	09/18			
Reviewed	RP	S. Engeda	03/22			
						Chairperson R.C.E. 52241 Date
						DRAWING NUMBER C-11B



FOR JOINTS REQUIRED, SEE DETAILS 3-3 AND 3-4, DRAWING C-15



H=4' THRU H=22'

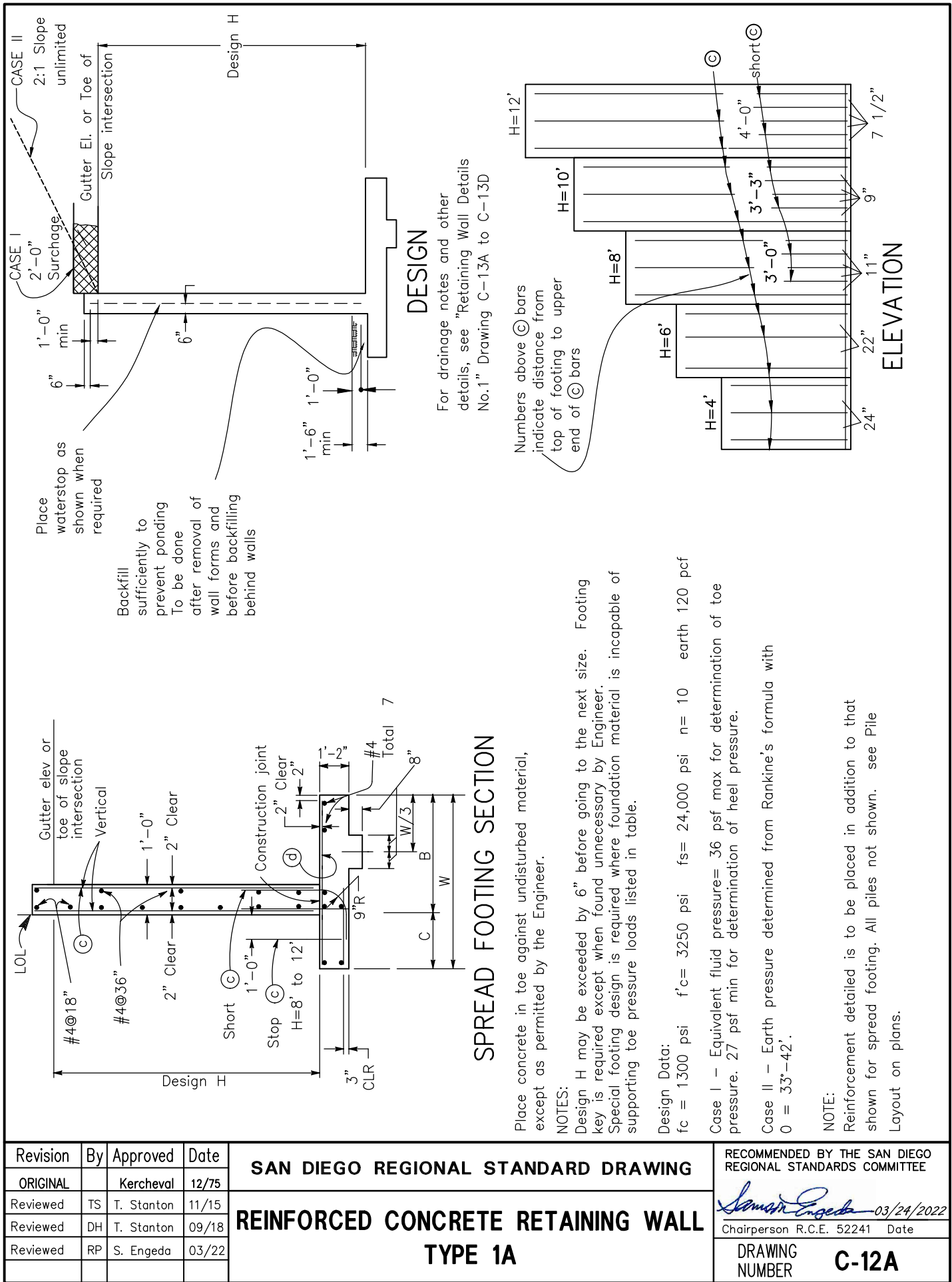
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING REINFORCED CONCRETE RETAINING WALL TYPE 1 - PILE FOOTING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		 Chairperson R.C.E. 52241 Date 03/24/2022
Reviewed	TS	T. Stanton	11/15		
Reviewed	DH	T. Stanton	09/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER C-11C

TABLE OF REINFORCING STEEL DIMENSIONS AND DATA														
Design H	*4'	6'	8'	10'	12'	14'	16'	18'	20'	22'	24'	26'	28'	30'
W	3'-2"	4'-2"	5'-2"	6'-2"	7'-2"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-3"	14'-3"	15'-3"	16'-9"
C	1'-0"	1'-4"	1'-8"	2'-0"	2'-4"	2'-8"	3'-0"	3'-4"	3'-8"	4'-0"	4'-5"	4'-9"	5'-1"	5'-5"
B	2'-2"	2'-10"	3'-6"	4'-2"	4'-10"	5'-4"	6'-0"	6'-8"	7'-4"	8'-0"	8'-10"	9'-6"	10'-2"	11'-4"
F Spread Ftg.	1'-2"	1'-2"	1'-2"	1'-2"	1'-2"	1'-3"	1'-3"	1'-4"	1'-4"	1'-6"	1'-8"	1'-11"	2'-2"	2'-4"
Batter	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	1/2:12	5/8:12	3/4:12	3/4:12	7/8:12
Ⓐbars	—	—	—	—	—	—	—	—	—	—	—	#6@24	#6@17	#6@16
Ⓑbars	—	—	—	—	#4@18	#6@30	#6@22	#7@22	#8@20	#8@16	#8@14	#8@12	#8@8-1/2	#8@8
Ⓒbars	#5@24	#5@24	#5@16	#5@9	#6@9	#9@15	#9@11	#10@11	#11@10	#11@8	#11@7	#11@6	#10@8-1/2	#10@8 ½
Ⓓbars	#5@24	#5@24	#4@16	#4@9	#5@9	#8@15	#8@11	#10@11	#10@11	#10@8	#10@7	#10@6	#9@8-1/2	#9@8 ½
Total Ⓔ bars	6-#6	6-#6	10-#7	10-#7	10-#7	10-#7	6-#7	6-#7	6-#7	6-#7	4-#7	4-#7	4-#7	4-#7
Total Ⓕ bars				4-#7	4-#7	4-#7	4-#7	4-#7	4-#7	4-#7	2-#7	2-#7	2-#7	2-#7
2' Level surcharge	Toe Pressure k/sf	1.6	1.9	2.2	2.3	2.8	3.3	3.5	4.0	4.3	4.6	4.9	5.3	6.2
2:1 unlimited slope	Toe Pressure k/sf	1.1	1.5	2.0	2.5	2.7	3.3	3.6	4.2	4.7	5.5	5.9	6.5	7.5
1-1/2:1 limited slope	Toe Pressure k/sf	1.3	1.7	2.1	2.5	2.9	3.4	3.8	4.3	4.8	5.4	5.8	6.5	7.5
Spread Footing	Steel lbs/ft.	17	20	28	37	51	80	105	147	187	246	303	407	507
	Conc cf/ft	8.9	12.5	16.3	20.2	25.4	30.1	34.6	40.1	45.0	52.1	63.3	77.0	104.8
Pile ftg.	Steel lbs/ft.	29	32	41	70	84	113	140	172	212	270	322	427	528
	Conc cf/ft	10.2	12.7	16.7	20.8	25.2	30.1	34.8	40.6	45.7	53.1	64.7	78.6	107.0

Note: Reinforcement detailed is to be placed in addition to that shown for spread footing. All piles not shown, see Pile Layout on plans. *For pile footing Design H=4' use same footing dimensions as Design H=6'

ⓧ Denotes a bundle of 2 bars

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	REINFORCED CONCRETE RETAINING WALL TYPE 1 - DIMENSION AND STEEL TABLE		 03/24/2022 Chairperson R.C.E. 52241 Date	DRAWING NUMBER C-11D
Reviewed	TS	T. Stanton	11/15				
Reviewed	DH	T. Stanton	09/18				
Reviewed	RP	S. Engeda	03/22				



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Reviewed	TS	T. Stanton	11/15
Reviewed	DH	T. Stanton	09/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING	
REINFORCED CONCRETE RETAINING WALL	
TYPE 1A	

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
 03/24/2022	
Chairperson R.C.E. 52241	Date
DRAWING NUMBER	C-12A

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Reviewed	TS	T. Stanton	11/15
Reviewed	DH	T. Stanton	19/18
Reviewed	RP	S. Engeda	03/22

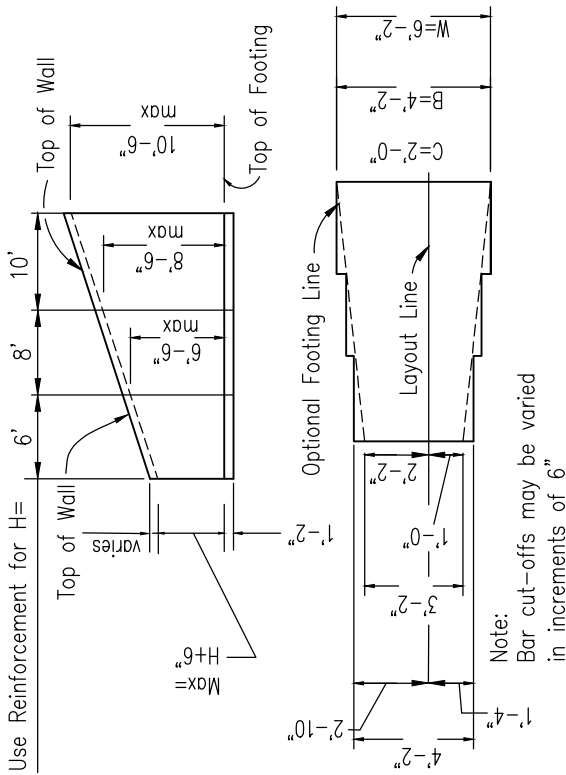
SAN DIEGO REGIONAL STANDARD DRAWING

REINFORCED CONCRETE RETAINING WALL TYPE 1A

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Saman Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **C-12B**



45T PILE FOOTING SECTION

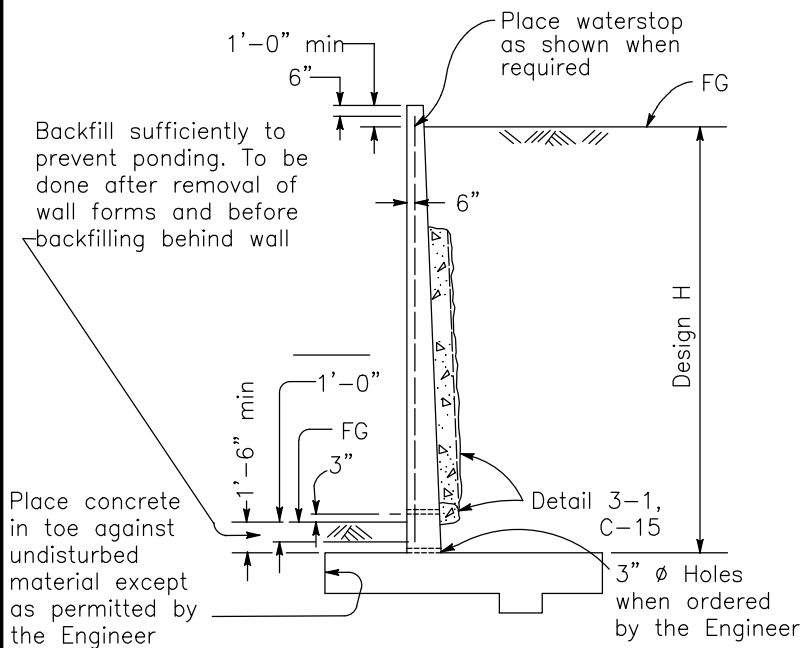
TYPICAL LAYOUT EXAMPLE

For joints required, see Details 3-3 and 3-4,
Std Dwg C-15

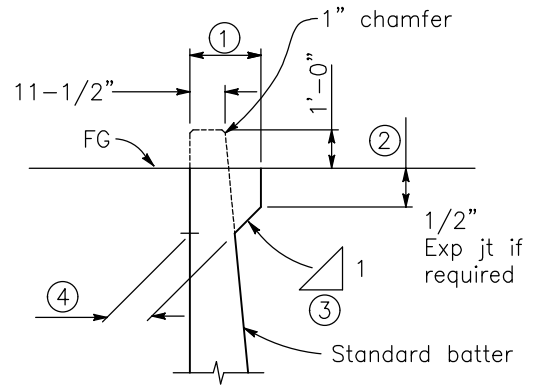
TABLE OF REINFORCING STEEL DIMENSIONS AND DATA

Design H	* 4'	6'	8'	10'	12'
W	3'-2"	4'-2"	5'-2"	6'-2"	7'-2"
C	1'-0"	1'-4"	1'-8"	2'-0"	2'-4"
B	2'-2"	2'-10"	3'-6"	4'-2"	4'-10"
© bars	#5@24"	#5@22"	#5@11"	#6@9"	#7@7'-1/2"
© bars	#5@24"	#5@22"	#5@22"	#7@18"	#8@15"
Total © bars	6-#6	6-#6	6-#6	10-#7	10-#7
Total © bars	6-#6	6-#6	6-#6	4-#7	4-#7
Case I - Toe Press.	1590psf	1930psf	2240psf	2550psf	2840psf
Case II - Toe Press.	1060psf	1460psf	1860psf	2280psf	2700psf
Spread Steel lbs/ft	15lb	21lb	27lb	46lb	70lb
Footing Conc CF/ft	8.6lb	11.8lb	14.9lb	18.1lb	21.3lb
Pile Ftg Steel lbs/ft	25lb	32lb	38lb	75lb	101lb
Conc CF/ft	9.9lb	11.9lb	15.3lb	18.8lb	22.2lb

Note:
Quantities apply to Design H portion and exclude the added portion above
"Gutter Elevation". *For pile footing Design H=4' use same footing dimensions as Design H=6'.



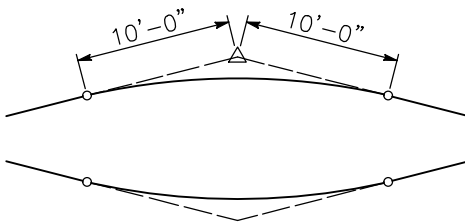
DESIGN AND DRAINAGE



Dimensions ①, ② and ③ to be as shown elsewhere in the project plans

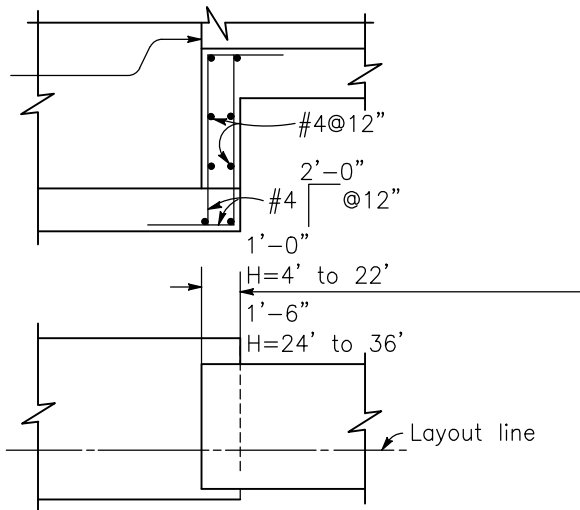
④ Stem width at base of haunch to be determined as shown

STEM WIDTH AT BASE OF HAUNCH

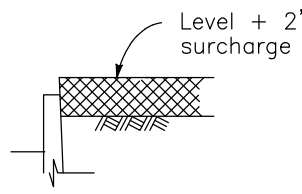


20' VC AT TOP OF WALL SLOPE CHANGE

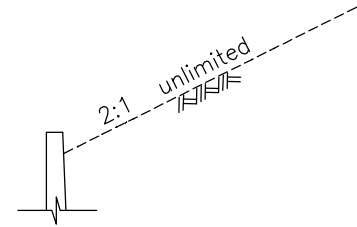
Where shown on the plans



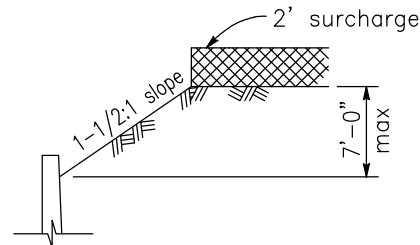
FOOTING STEP



CASE I



CASE II



CASE III

DETAIL OF DESIGN LOADING CASES

CASE I Level + 2' surcharge

CASE II 2:1 unlimited slope

CASE III 1-1/2:1 limited slope (7'-0" max height) + 2' surcharge

NOTE: Surcharge limits shown apply to retaining walls Type 1 and 3

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Reviewed	TS	T. Stanton	11/15
Reviewed	DH	T. Stanton	09/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

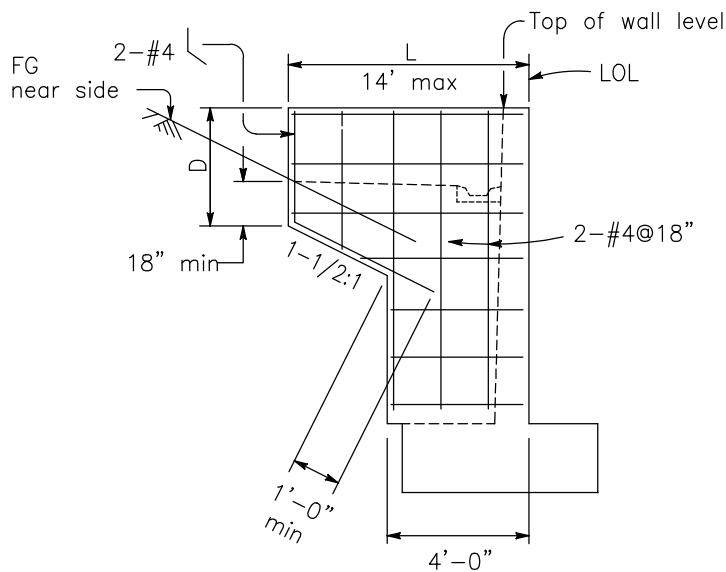
**REINFORCED CONCRETE
RETAINING WALL DETAILS No. 1**

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING NUMBER **C-13A**

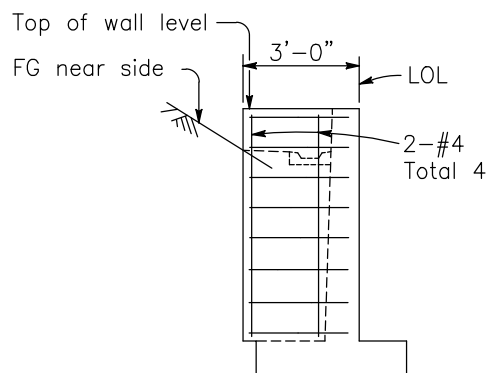
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	TS	T. Stanton	11/15	REINFORCED CONCRETE RETAINING WALL DETAILS No. 1	DRAWING NUMBER C-13B
Reviewed	DH	T. Stanton	09/18		
Reviewed	RP	S. Engeda	03/22		



ELEVATION

RETURN WALL TYPE A

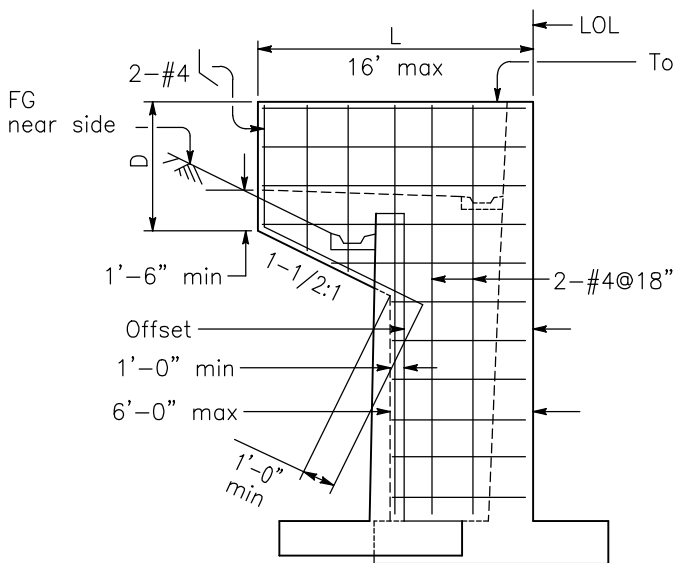
Use where H=8' or less



ELEVATION

RETURN WALL TYPE D

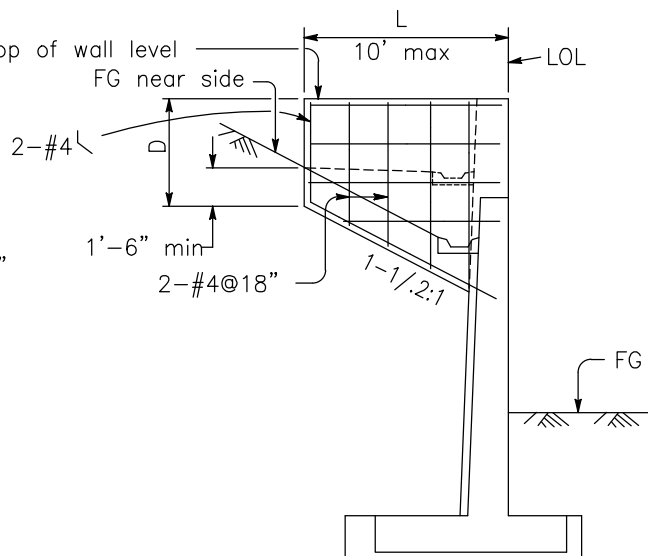
Use where H=6' or less



ELEVATION

RETURN WALL TYPE B

Use where H=10' or more on offset walls



ELEVATION

RETURN WALL TYPE C

Use where H=10' or more on straight walls

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Delete Metric	S.S.	T. Shell	03/11
Reviewed	TS	T. Stanton	11/15
Reviewed	RP	S. Engeda	03/22

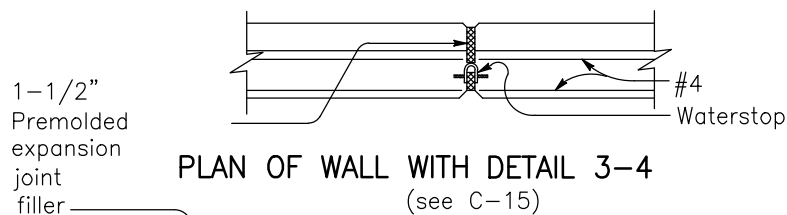
SAN DIEGO REGIONAL STANDARD DRAWING

REINFORCED CONCRETE RETAINING WALL DETAILS No. 1

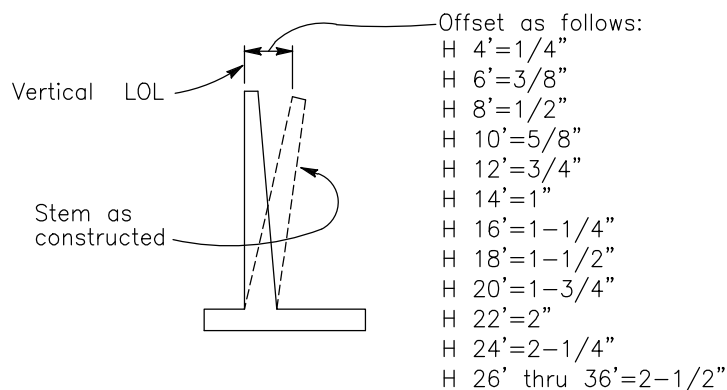
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Saman Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **C-13C**



PLAN OF WALL WITH EXPANSION JOINT ONLY



APPROX. WALL OFFSET VALUES

Not required for wall Types 3 and 4.
Values for offsetting forms to be determined by the Engineer.

NOTES

Design Conditions:

Design H may be exceeded by 6" before going to the next size. Special footing design is required where foundation material is incapable of supporting toe pressure listed in table. Return wall not required unless shown elsewhere.

Design Data:

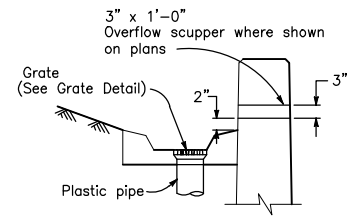
$f_c = 1300$ psi $f'_c = 3250$ psi $f_s = 24,000$ psi
 $n = 10$ earth = 120 pcf
 2' Surcharge:

Equivalent fluid pressure =

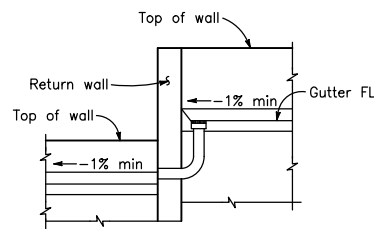
36 pcf maximum for determination of toe pressure.
 27 pcf minimum for determination of heel pressure.

Earth pressures for 2:1 unlimited slope, 1-1/2:1 slope, and 1-1/2:1 unlimited slope, determined from Rankine's formula with $\phi = 33^\circ - 42^\circ$.

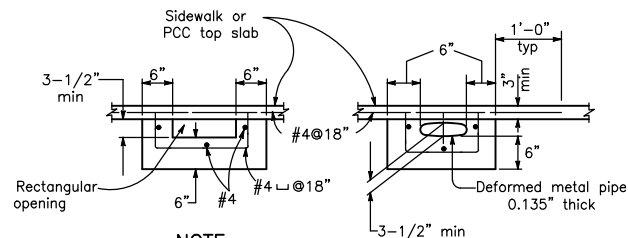
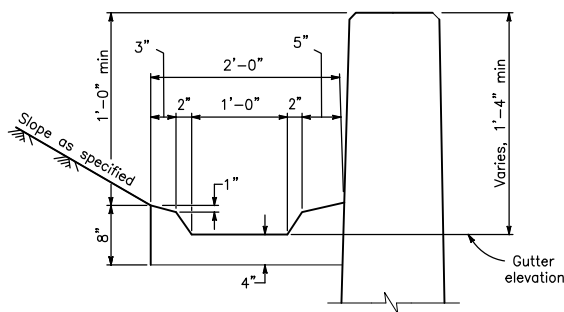
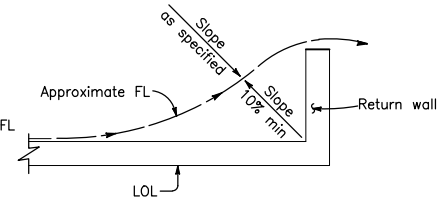
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	REINFORCED CONCRETE RETAINING WALL DETAILS No. 1		 03/24/2022 Chairperson R.C.E. 52241 Date
Delete Metric	S.S.	T. Shell	03/11			
Reviewed	TS	T. Stanton	11/15			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER C-13D



WALL DRAIN DETAIL



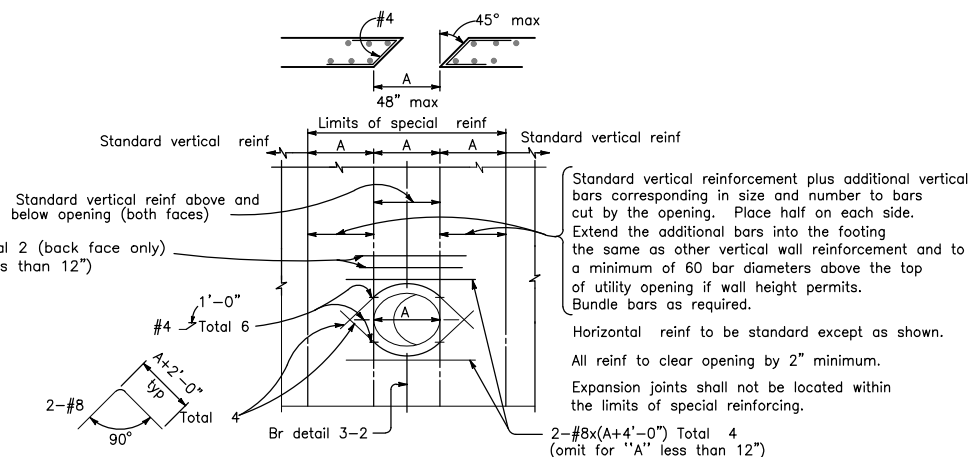
SECTION A-A



Area of opening to be not less than that of pipe from wall gutter. Make opening transition in wall. Edge opening in curb face to 3/4" minimum radius.



Sizes to fit standard hubs



Max size of opening (A) = 48" to be used in conjunction with C-13

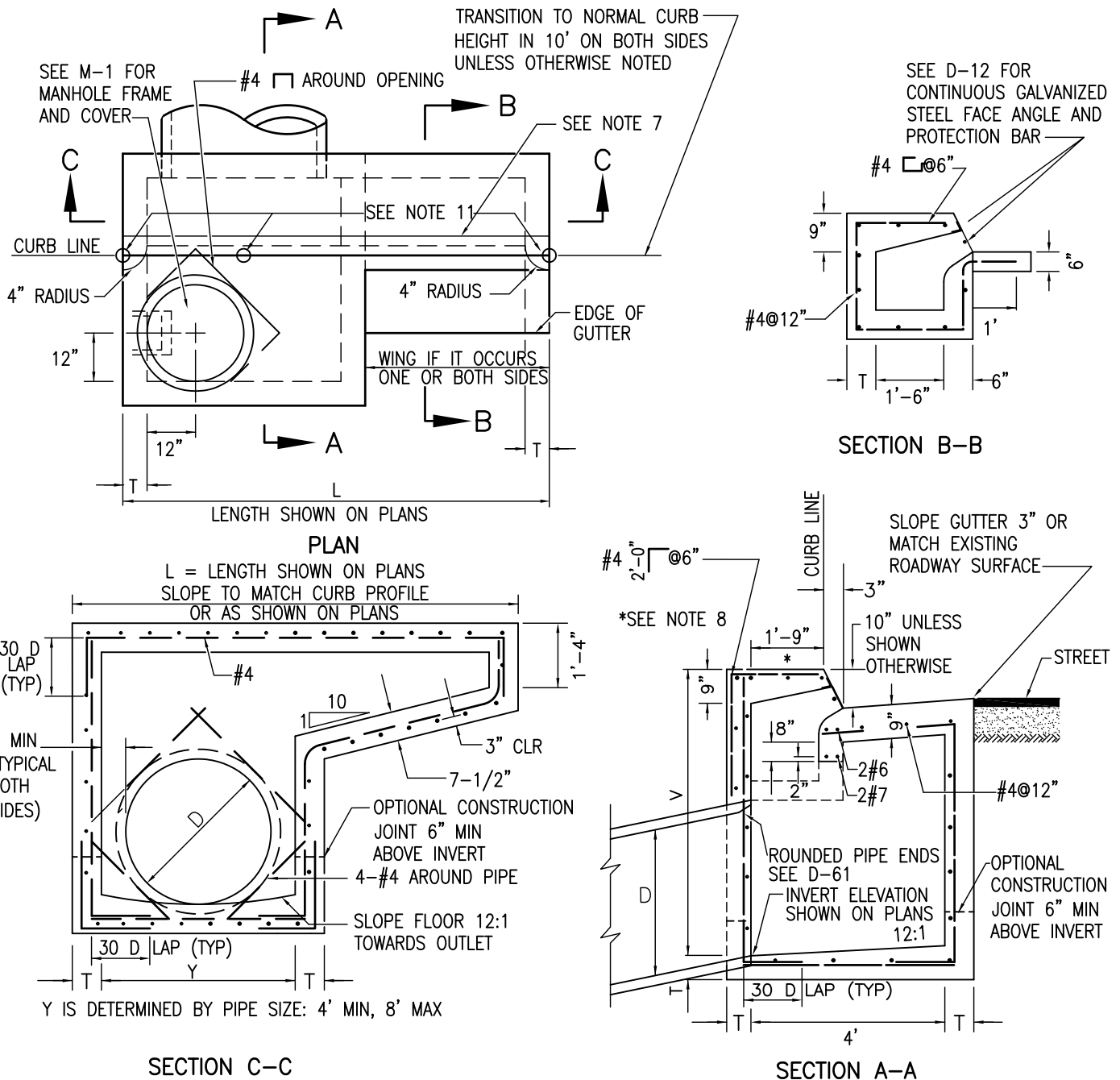
Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Delete Metric	S.S.	T. Shell	03/11
Reviewed	TS	T. Stanton	11/15
Reviewed	RP	S. Engeda	03/22

REINFORCED CONCRETE RETAINING WALL DETAILS No. 2

Somson Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING NUMBER **C-14**

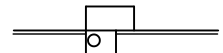
DRAINAGE SYSTEMS



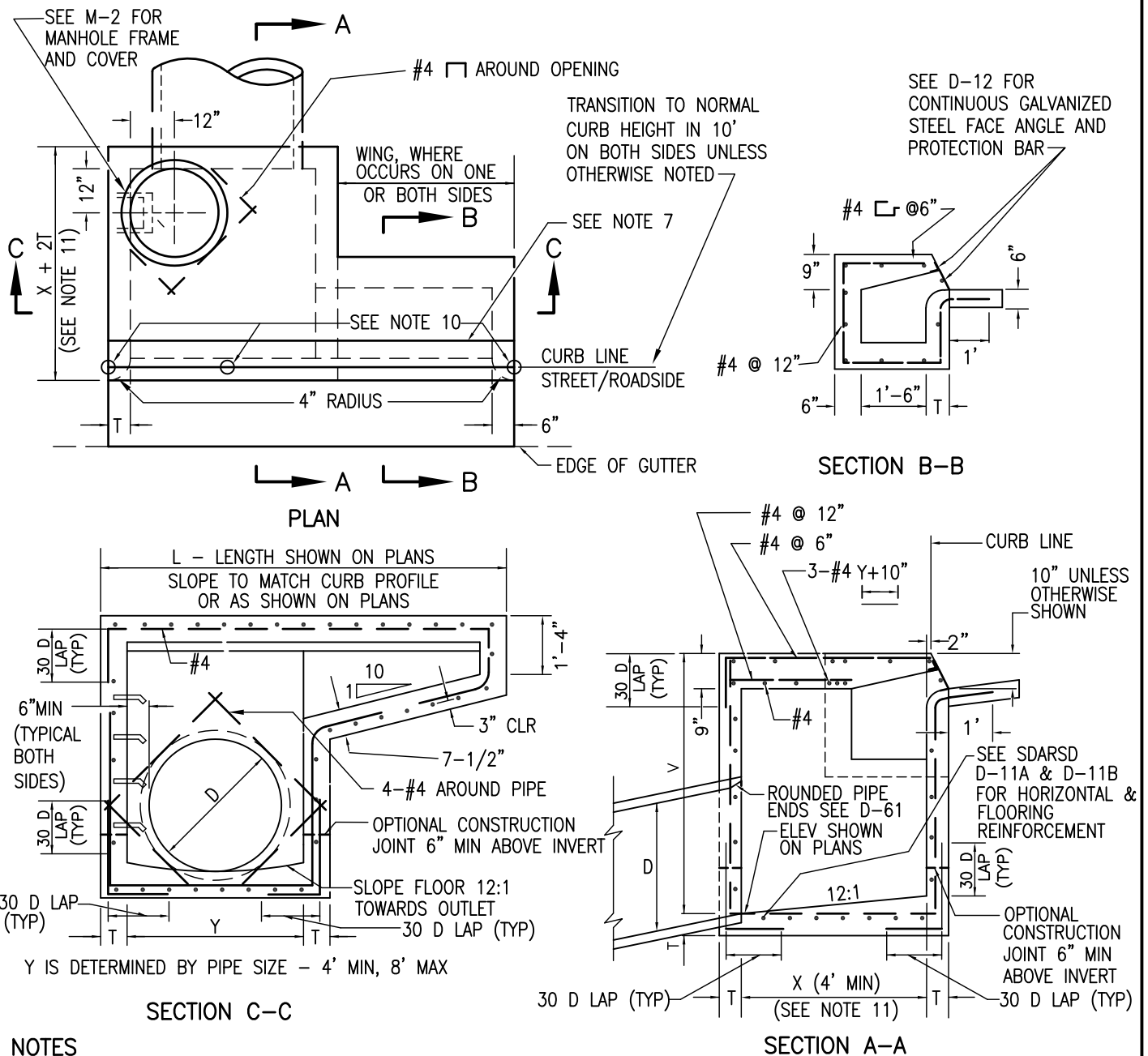
NOTES

- SEE D-11A, D-11B, & D-12 FOR ADDITIONAL NOTES AND DETAILS.
- TYPES ARE DESIGNED ON PLANS AS FOLLOWS: A (NO WING), A-1 (ONE WING), OR A-2 (TWO WINGS).
- EXPOSED EDGES OF CONCRETE SHALL BE ROUNDED WITH A RADIUS OF 1/2".
- STEPS SHALL BE INSTALLED WHEN V EXCEEDS 4'. SEE D-11A FOR DETAILS.
- CONCRETE GUTTER TO MATCH ADJACENT GUTTERS.
- AN EXPANSION JOINT SHALL BE PLACED AT THE ENDS OF THE INLET WHERE THE CURB IS TO ADJOIN.
- PROVIDE 1/4" TOOLED GROOVE IN TOP SLAB IN LINE WITH BACK OF ADJACENT CURB.
- SURFACE OF TOP SLAB TO MATCH SIDEWALK FINISH AND SLOPE.
- MAINTAIN 1-1/2" CLEAR SPACING BETWEEN REINFORCING AND CONCRETE SURFACE UNLESS OTHERWISE NOTED.
- IF REQUIRED BY LOCAL AGENCY, EXTEND TOP SLAB STEEL REINFORCEMENT 12" INTO ADJACENT SIDEWALK.
- ELEVATIONS SHALL BE SHOWN ON PLANS WHERE INDICATED BY "O" SYMBOL.

LEGEND ON PLANS



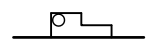
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			
Edited	T.R.	T. Regello	10/15	CURB INLET - TYPE A	 03/24/2022	
Edited	M.W.	M. Widelski	10/18		Chairperson R.C.E. 52241 Date	
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER	D-01



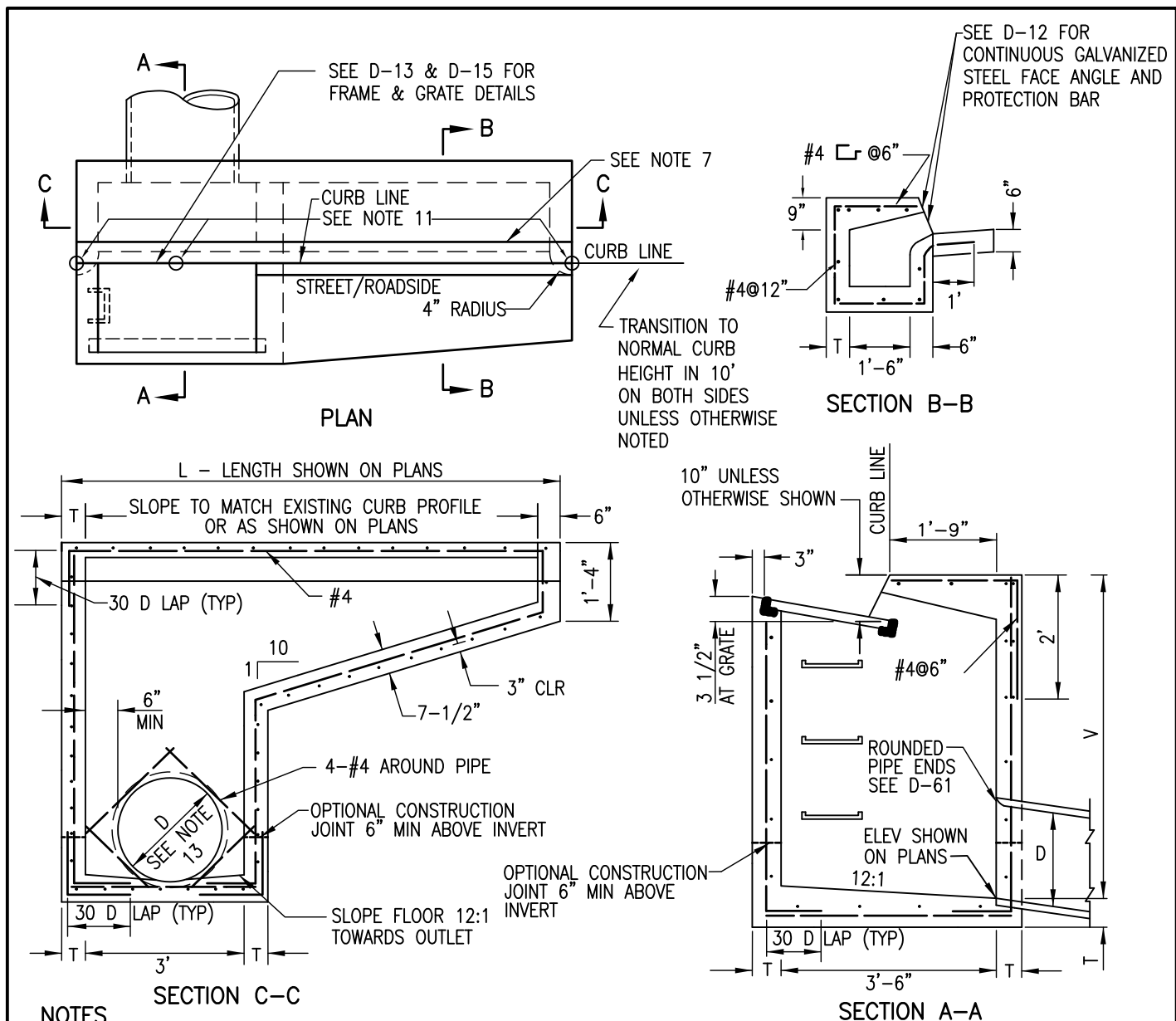
NOTES

- SEE D-11A, D-11B & D-12 FOR ADDITIONAL NOTES AND DETAILS.
- TYPES ARE DESIGNATED ON PLANS AS FOLLOWS: B (NO WING), B-1 (ONE WING) or B-2 (TWO WINGS).
- MAINTAIN 1-1/2" CLEAR SPACING BETWEEN REINFORCING AND CONCRETE SURFACE UNLESS OTHERWISE NOTED.
- STEPS SHALL BE INSTALLED WHEN V EXCEEDS 4'. SEE D-11A FOR DETAILS.
- CONCRETE GUTTER TO MATCH ADJACENT GUTTERS.
- AN EXPANSION JOINT SHALL BE PLACED AT THE ENDS OF THE INLET WHERE THE CURB IS TO ADJOIN.
- PROVIDE 1/4" TOOLED GROOVE IN TOP SLAB IN LINE WITH BACK OF ADJACENT CURB.
- SURFACE OF TOP SLAB TO MATCH SIDEWALK FINISH AND SLOPE.
- IF REQUIRED BY LOCAL AGENCY, EXTEND TOP SLAB STEEL REINFORCEMENT 12" INTO ADJACENT SIDEWALK.
- ELEVATIONS SHALL BE SHOWN ON PLANS WHERE INDICATED BY "O" SYMBOL.
- IF REQUIRED BY LOCAL AGENCY, ENLARGE CURB INLET TOP TO WIDTH OF ADJACENT SIDEWALK (X + 2T NOT TO EXCEED 5'-6") BY LENGTH OF INLET INCLUDING WING(S). REINFORCING STEEL SHALL BE EXTENDED ACROSS ENLARGED TOP TO CLEAR DISTANCES SHOWN.

LEGEND ON PLANS



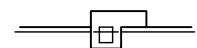
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	CURB INLET - TYPE B	 03/24/2022 Chairperson R.C.E. 52241 Date
Edited	M.W.	M. Widelski	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER D-02



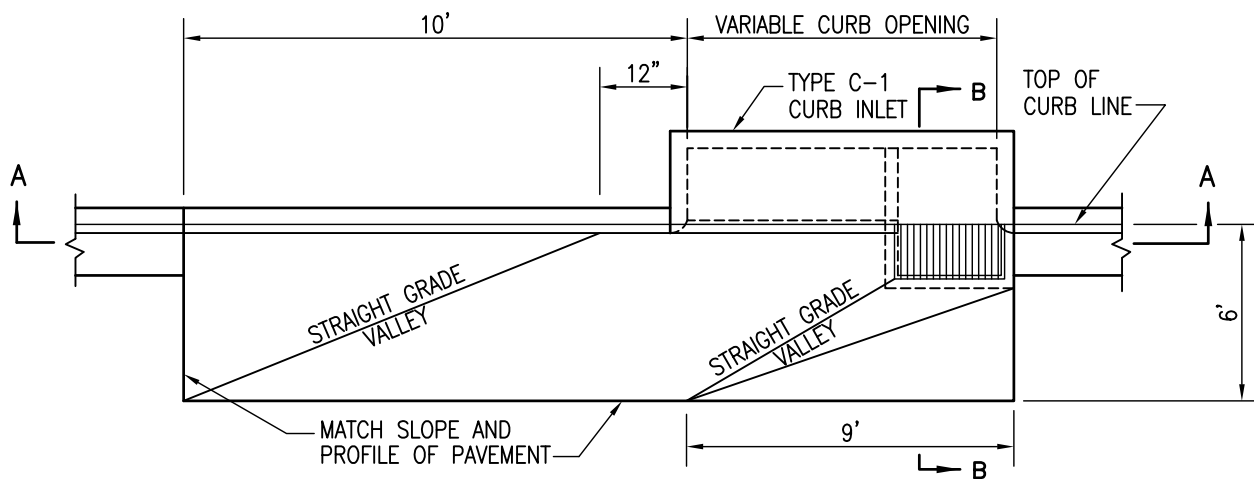
NOTES

- SEE D-11A THROUGH D-15 FOR ADDITIONAL NOTES AND DETAILS.
- TYPES ARE DESIGNATED ON PLANS AS FOLLOWS: C (NO WING), C-1 (ONE WING) or C-2 (TWO WINGS).
- EXPOSED EDGES OF CONCRETE SHALL BE ROUNDED WITH A RADIUS OF 1/2".
- STEPS SHALL BE INSTALLED WHEN V EXCEEDS 4'. SEE D-11A FOR DETAILS.
- CONCRETE GUTTER TO MATCH ADJACENT GUTTERS.
- AN EXPANSION JOINT SHALL BE PLACED AT THE ENDS OF THE INLET WHERE THE CURB IS TO ADJOIN.
- PROVIDE 1/4" TOOLED GROOVE IN TOP SLAB IN LINE WITH BACK OF ADJACENT CURB.
- SURFACE OF TOP SLAB TO MATCH SIDEWALK FINISH AND SLOPE.
- MAINTAIN 1-1/2" CLEAR SPACING BETWEEN REINFORCING AND CONCRETE SURFACE UNLESS OTHERWISE NOTED.
- WHERE INLET IS TO BE CONSTRUCTED ON GRADE AND CONCRETE APRON PER D-03B IS REQUIRED, LIFT DOWN-GRADE END OF GRATE AS SHOWN ON D-03B.
- IF REQUIRED BY LOCAL AGENCY, EXTEND TOP SLAB STEEL REINFORCEMENT 12" INTO ADJACENT SIDEWALK.
- ELEVATIONS SHALL BE SHOWN ON PLANS WHERE INDICATED BY "O" SYMBOL.
- DIAMETER "D" SHALL BE 24" MAXIMUM; FOR LARGER DIAMETER PIPES THIS DRAWING MUST BE MODIFIED.

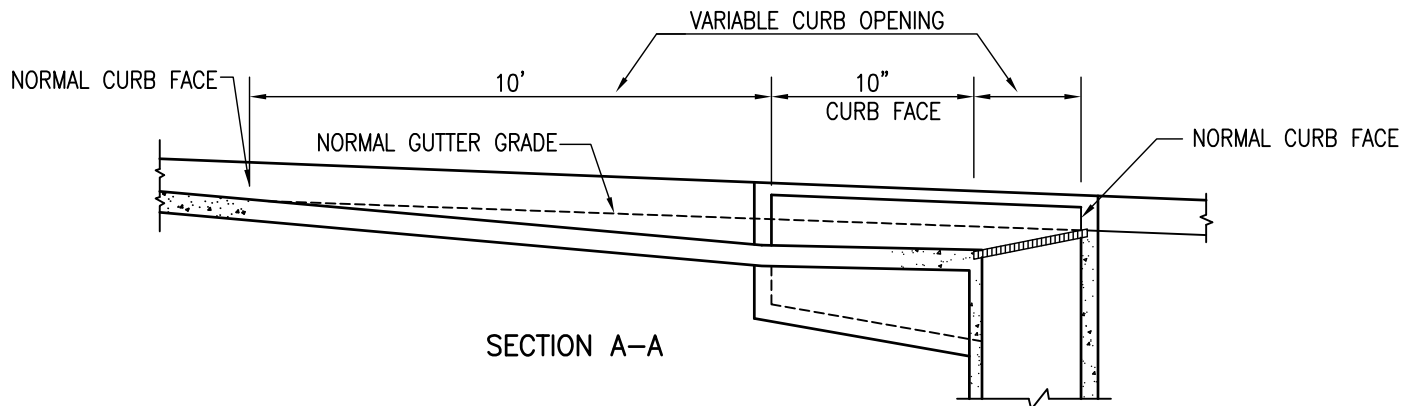
LEGEND ON PLANS



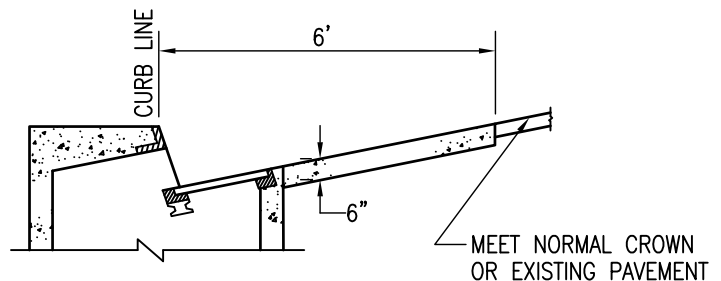
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	CURB INLET - TYPE C	<i>Samuel Engeda</i> 03/24/2022
Edited	M.W.	M. Widelksi	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER D-03A



PLAN



SECTION A-A



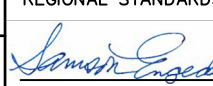
SECTION B-B

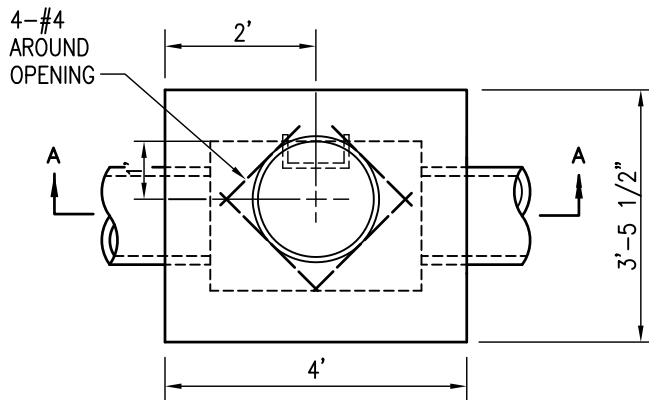
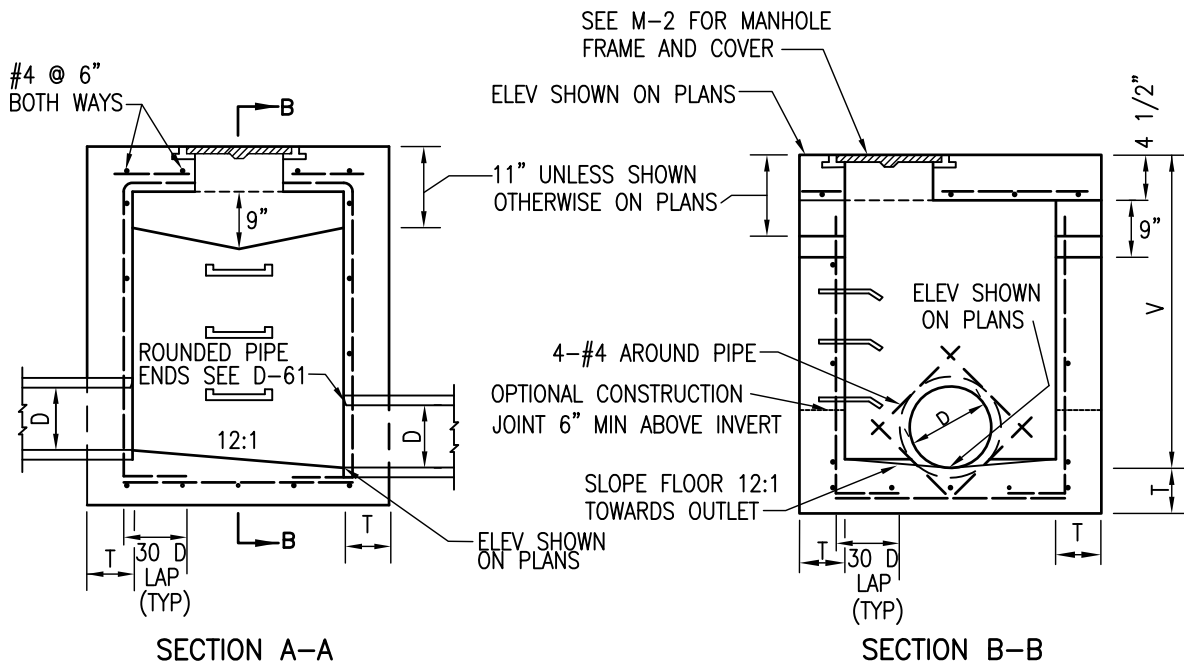
NOTES

1. CURB AND APRON TO BE MONOLITHIC POUR.
2. USE OF FALSE HEADER AT VALLEYS AND SLOPE BREAK LINE IS OPTIONAL.
3. EXTEND VERTICAL STEEL FROM INLET STRUCTURE INTO CONCRETE APRON AS SHOWN ON SECTION B-B OF D-03A.
4. CONCRETE SHALL BE 520-C-2500.

LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	CONCRETE APRON FOR TYPE C CURB INLET	 03/24/2022 Chairperson R.C.E. 52241 Date
Edited	M.W.	M. Widelski	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER D-03B

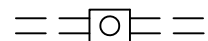


PLAN

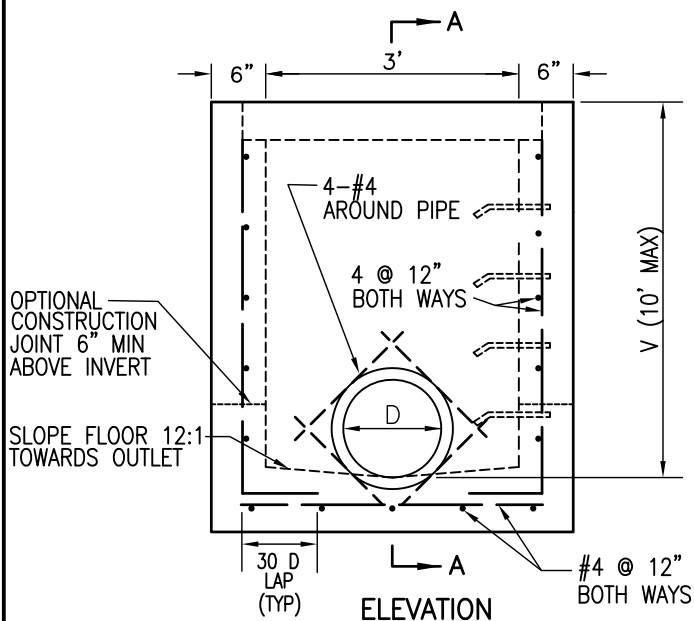
NOTES

1. SEE D-11A & 11B FOR ADDITIONAL NOTES AND DETAILS.
2. WHEN V EXCEEDS 4' STEPS SHALL BE INSTALLED. SEE D-11A FOR DETAILS.
3. EXPOSED EDGES OF CONCRETE SHALL BE ROUNDED WITH A RADIUS OF 1/2".
4. CONSTRUCT OPENINGS ON BOTH SIDES UNLESS OTHERWISE SHOWN ON PLANS.
5. MAINTAIN 1-1/2" CLEAR SPACING BETWEEN REINFORCING AND CONCRETE SURFACE.
6. INSTALL 1" STEEL PROTECTION BAR ACROSS OPENING.
7. DIAMETER "D" SHALL BE 18" MAX, FOR LARGER DIAMETER PIPES THIS DRAWING MUST BE MODIFIED. PIPE DIAMETERS TO BE SHOWN ON PLANS.
8. IF CONSTRUCTED ADJACENT TO SIDEWALK, THE SURFACE OF THE TOP SLAB OF THE CATCH BASIN SHALL MATCH THE SIDEWALK SLOPE AND FINISH.

LEGEND ON PLANS

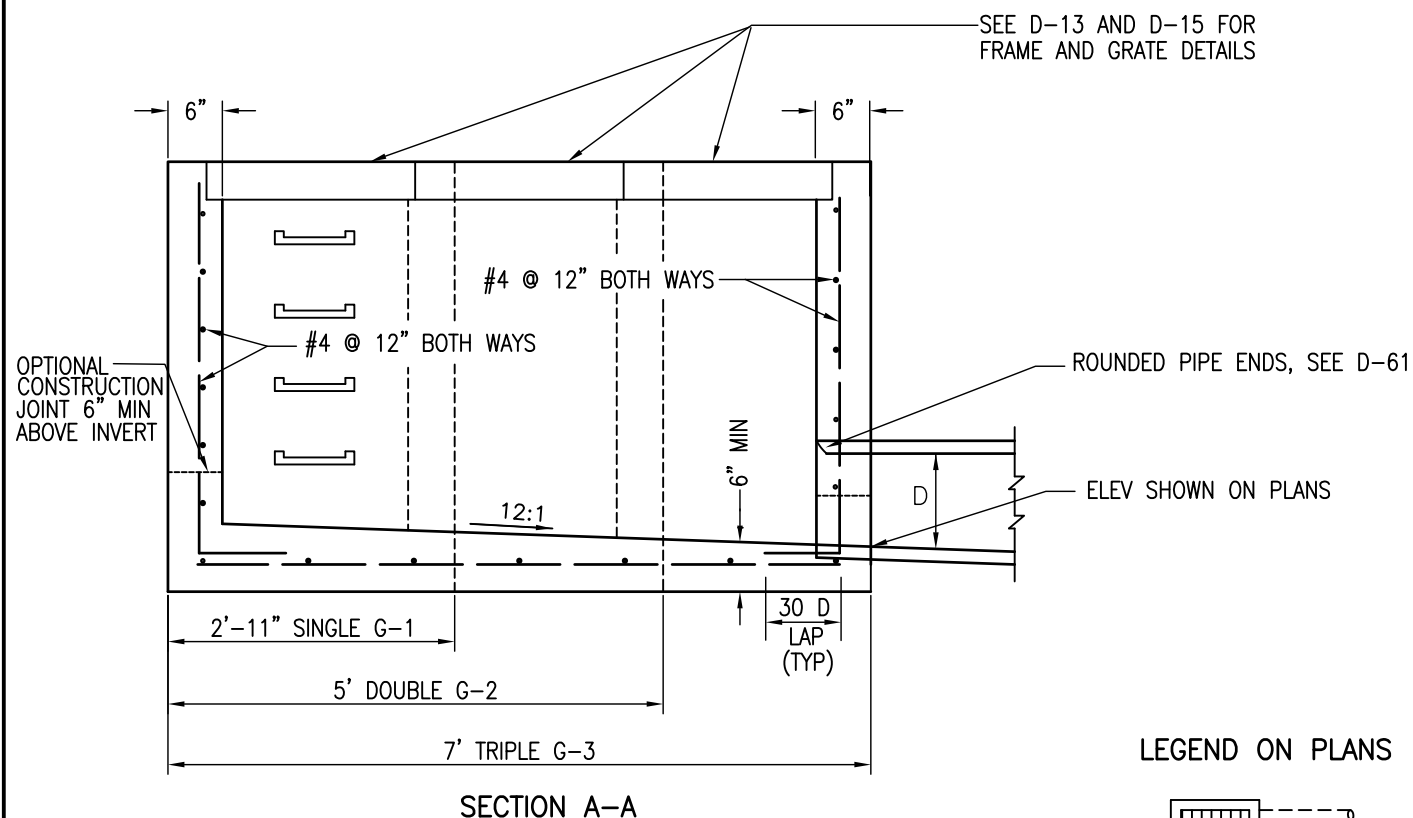


Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	CATCH BASIN - TYPE F		
Edited	T.R.	T. Regello	10/15			
Edited	M.W.	M. Wideliski	10/18			
Reviewed	RP	S. Engeda	03/22			
						Chairperson R.C.E. 52241 Date
						DRAWING NUMBER D-07

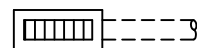


NOTES

1. SEE D-11A AND D-11B FOR ADDITIONAL NOTES AND DETAILS.
2. STEPS SHALL BE INSTALLED WHEN V EXCEEDS 4'. SEE D-11A FOR DETAILS.
3. MAINTAIN 1-1/2" CLEAR SPACING BETWEEN REINFORCING AND CONCRETE SURFACE.
4. INCREASE IN ALLOWABLE DEPTH SUBJECT TO APPROVAL BY LOCAL AGENCY.
5. SECTION A-A SHOWS 3 SIZES AND SHALL NOT IMPLY THAT AN INTERIOR WALL IS TO BE BUILT FOR THE STRUCTURES WITH DOUBLE OR TRIPLE FRAME AND GRATE.
6. EXPOSED EDGES OF CONCRETE SHALL BE ROUNDED WITH RADIUS OF 1/2".
7. DESIGNATE TYPES AS FOLLOWS: SINGLE G-1, DOUBLE G-2 OR TRIPLE G-3.
8. ONLY END BEARING GRATES SHALL BE USED. SEE D-15.



LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

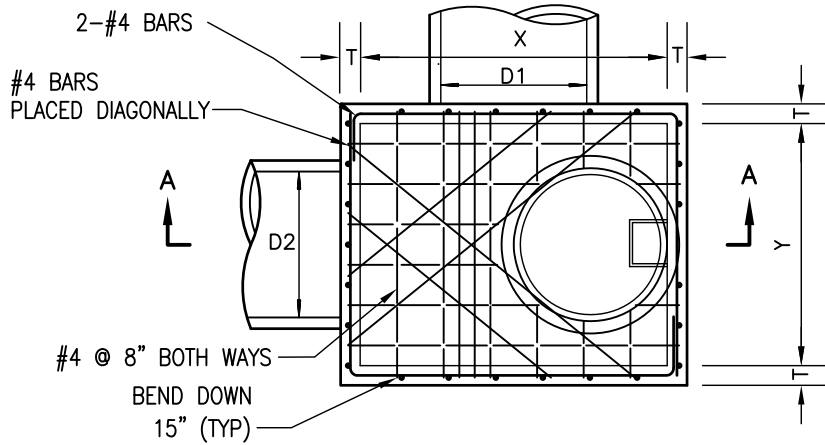
SAN DIEGO REGIONAL STANDARD DRAWING

CATCH BASIN - TYPE G

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

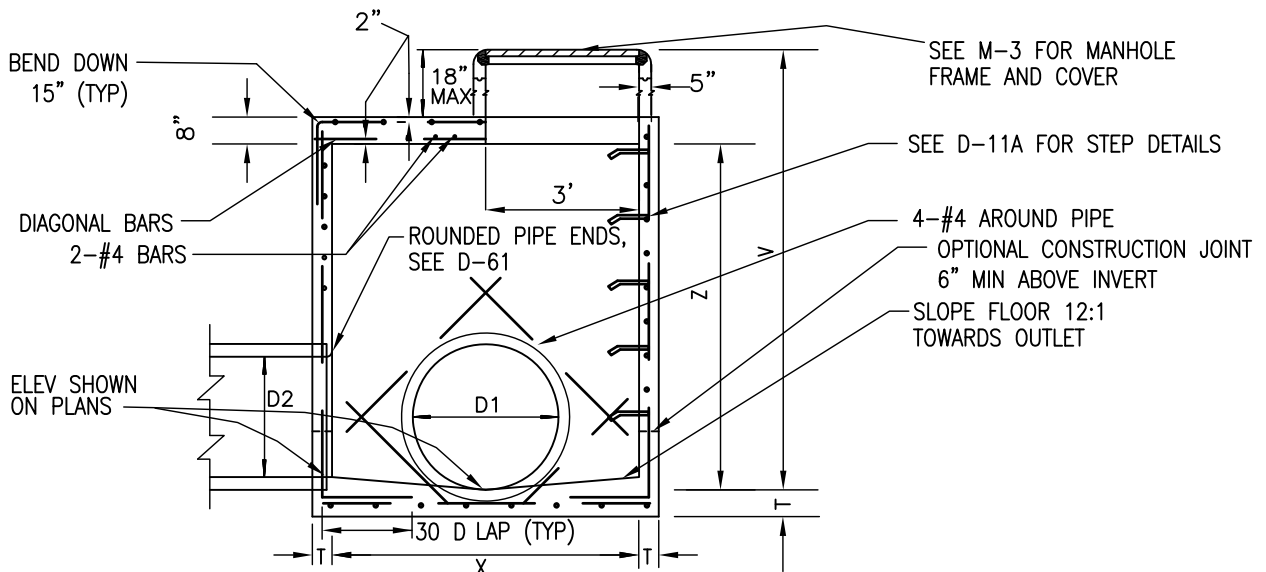
Susan Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING NUMBER **D-08**



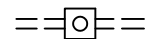
PLAN

TYPE	PIPE DIAMETER (D1)	X	Y (SEE NOTE 8)	Z (Max)
A4	UP TO 39"	4'	4'	6'
A5	42" TO 48"	5'	4'	6'
A6	51" TO 60"	6'	4'	6'
A7	63" TO 66"	7'	4'	7'
A8	69" TO 78"	8'	4'	8'



SECTION A-A

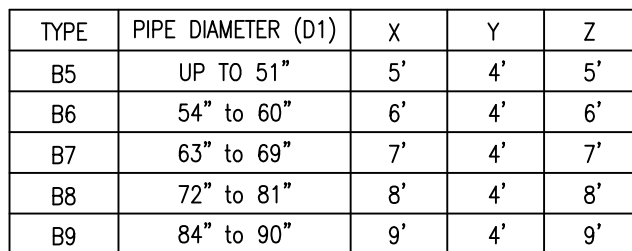
LEGEND ON PLANS



NOTES

1. SEE D-11A AND D-11B FOR ADDITIONAL NOTES AND DETAILS.
2. CONCRETE BASE SHALL BE 560-C-3250.
3. ALL PRECAST COMPONENTS SHALL BE REINFORCED WITH 1/4" DIAMETER STEEL, WOUND SPIRALLY ON 4' CENTERS.
4. ALL JOINTS SHALL BE SET IN CLASS C MORTAR.
5. MAINTAIN 1-1/2" CLEAR SPACING BETWEEN REINFORCING AND CONCRETE SURFACE UNLESS OTHERWISE NOTED.
6. EXPOSED EDGES OF CONCRETE SHALL BE ROUNDED WITH A 1/2" RADIUS.
7. MANHOLE COVER TO BE MARKED "STORM DRAIN".
8. MODIFICATIONS TO "Y" DIMENSION IS REQUIRED IF PIPE (D2) EXCEEDS 39".
9. IF CONSTRUCTED ADJACENT TO SIDEWALK, TOP OF MANHOLE AND SLAB TO MATCH SIDEWALK SLOPE AND FINISH.

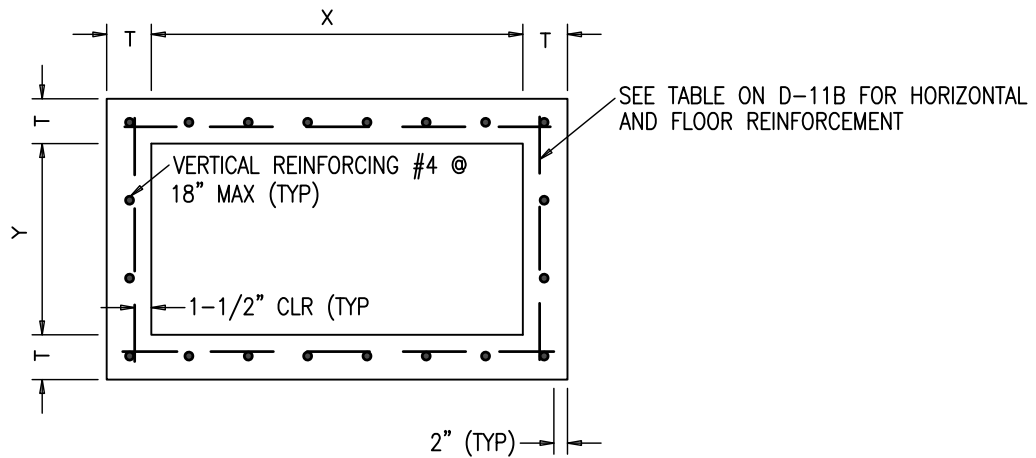
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	STORM DRAIN CLEANOUT - TYPE A		
Edited	T.R.	T. Regello	10/15			
Edited	M.W.	M. Widelksi	10/18			
Edited	RP	S. Engeda	03/22			
						Chairperson R.C.E. 52241 Date
						DRAWING NUMBER D-09



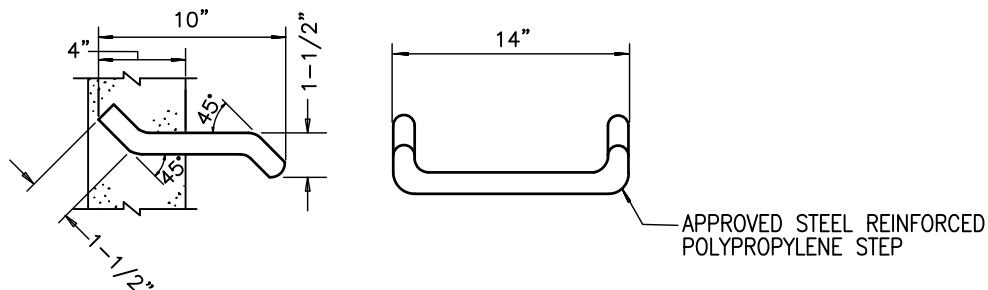
1. SEE D-11A & D-11B FOR ADDITIONAL NOTES AND DETAILS.
2. ALL JOINTS SHALL BE SET IN CLASS C MORTAR.
3. ALL PRECAST COMPONENTS SHALL BE REINFORCED WITH 1/4" DIAMETER STEEL WOUND SPIRALLY ON 4" CENTERS.
4. MAINTAIN 1-1/2" CLEAR SPACING BETWEEN REINFORCING AND CONCRETE SURFACE.
5. CONCRETE BASE SHALL BE 560-C-3250.
6. EXPOSED EDGES OF CONCRETE SHALL BE ROUNDED WITH A 1/2" RADIUS.
7. MANHOLE COVER TO BE MARKED "STORM DRAIN".
8. MODIFICATIONS TO "Y" DIMENSION REQUIRED IF PIPE (D2) EXCEEDS 39".
9. IF CONSTRUCTED ADJACENT TO SIDEWALK, TOP OF MANHOLE TO MATCH SIDEWALK SLOPE.


$$= \begin{array}{c} \boxed{} \\ \bigcirc \end{array} =$$

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	S.S.	T. Regello	03/11	STORM DRAIN CLEANOUT - TYPE B	 03/24/2022
Edited	M.W.	M. Widski	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER
					D-10



TYPICAL BOX SECTION



STEP DETAIL

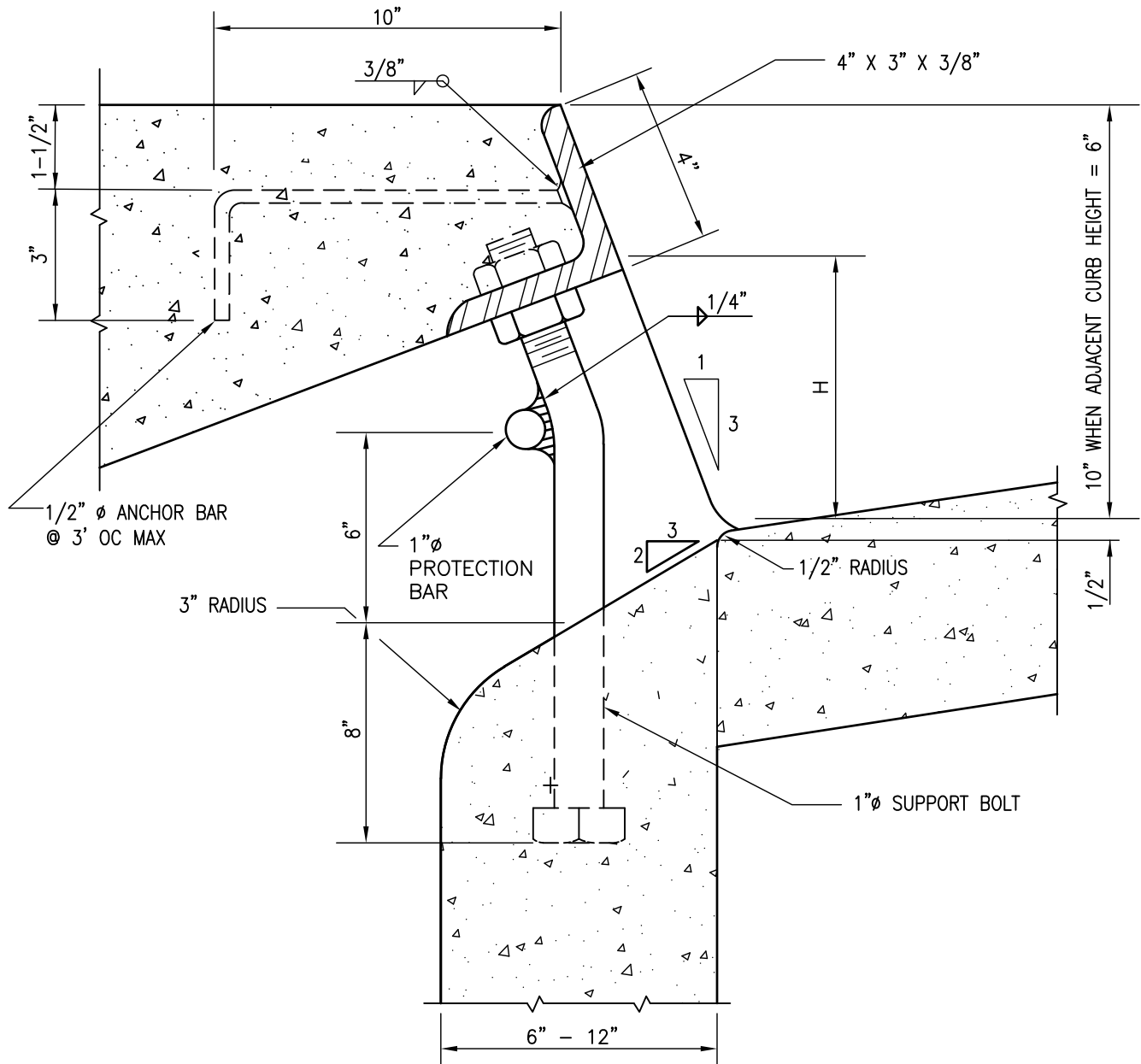
NOTES

1. CONCRETE SHALL BE 560-C-3250 UNLESS OTHERWISE NOTED.
2. REINFORCING STEEL SHALL COMPLY WITH THIS DRAWING (D-11A AND D-11B) UNLESS OTHERWISE SPECIFIED.
3. REINFORCING STEEL SHALL BE INTERMEDIATE GRADE DEFORMED BARS CONFORMING TO LATEST ASTM SPECIFICATIONS.
4. BENDS SHALL BE IN ACCORDANCE WITH LATEST ACI CODE.
5. MINIMUM SPLICE LENGTH FOR REINFORCING SHALL BE 30 DIAMETERS.
6. FLOOR SHALL HAVE A WOOD TROWEL FINISH AND, EXCEPT WHERE USED AS JUNCTION BOXES, SHALL HAVE A MINIMUM SLOPE OF 1:12 TOWARD THE OUTLET.
7. DEPTH V IS MEASURED FROM THE TOP OF THE STRUCTURE TO THE FLOWLINE OF THE BOX.
8. WALL THICKNESS AND REINFORCING STEEL REQUIRED MAY BE DECREASED IN ACCORDANCE WITH TABLE ON D-11B.
9. WALL THICKNESS SHALL BE STEPPED ON THE OUTSIDE OF THE BOX.
10. WHEN THE STRUCTURE DEPTH V EXCEEDS 4', STEPS SHALL BE CAST INTO THE WALL AT 15" INTERVALS FROM 15" ABOVE FLOOR TO WITHIN 12" OF TOP OF STRUCTURE. WHERE POSSIBLE, PLACE STEPS IN WALL WITHOUT PIPE OPENING, OTHERWISE OVER OPENING OF SMALLEST DIAMETER.
11. ALTERNATE STEP MAY BE AN APPROVED STEEL REINFORCED POLYPROPYLENE STEP.
12. UPON APPROVAL OF THE AGENCY, THE USE OF PRECAST STORM STRUCTURES IS ACCEPTABLE AS AN ALTERNATE TO CAST-IN-PLACE. PRECAST UNITS SHALL CONFORM TO ASTM STANDARDS AND BE MANUFACTURED IN A PERMANENT FACILITY DESIGNED FOR THAT PURPOSE.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			
Edited	T.R.	T. Regello	10/15	INLETS AND CLEANOUTS NOTES AND DETAILS	 03/24/2022	
Edited	M.W.	M. Widelski	10/18		Chairperson R.C.E. 52241 Date	
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER	D-11A

BOX SECTION REINFORCEMENT (HORIZONTAL AND FLOOR)			
MAXIMUM SPAN X OR Y	DEPTH V	THICKNESS T	HORIZONTAL AND FLOOR REINFORCEMENT SIZE AND SPACING
3' TO 4'	4'	6"	#4 @ 18"
4'-1" TO 7'			#4 @ 12"
7'-1" TO 8'			#4 @ 8"
3' TO 4'	4'-1" TO 8'	6"	#4 @ 18"
4'-1" TO 5'			#4 @ 12"
5'-1" TO 6'			#4 @ 8"
6'-1" TO 8'			#4 @ 6"
3' TO 4'	8'-1" TO 12'	6"	#4 @ 15"
4'-1" TO 5'		8"	#4 @ 12"
5'-1" TO 6'			#4 @ 8"
6'-1" TO 8'			#4 @ 6"
3' TO 4'	12'-1" TO 16'	8"	#4 @ 12"
4'-1" TO 5'			#4 @ 12"
5'-1" TO 6'			#4 @ 8"
6'-1" TO 7'			#4 @ 6"
7'-1" TO 8'			#5 @ 8"
3' TO 4'	16'-1" TO 20'	8"	#4 @ 12"
4'-1" TO 5'		10"	#4 @ 12"
5'-1" TO 6'			#4 @ 8"
6'-1" TO 7'			#4 @ 6"
7'-1" TO 8'			#5 @ 8"
3' TO 4'	20'-1" TO 24'	8"	#4 @ 12"
4'-1" TO 5'		10"	#4 @ 12"
5'-1" TO 6'			#4 @ 8"
6'-1" TO 7'			#4 @ 6"
7'-1" TO 8'		12"	#5 @ 8"

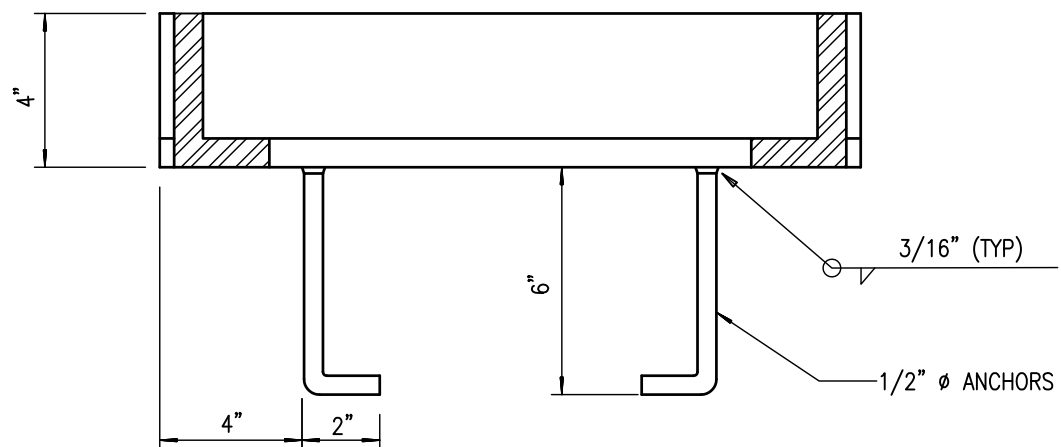
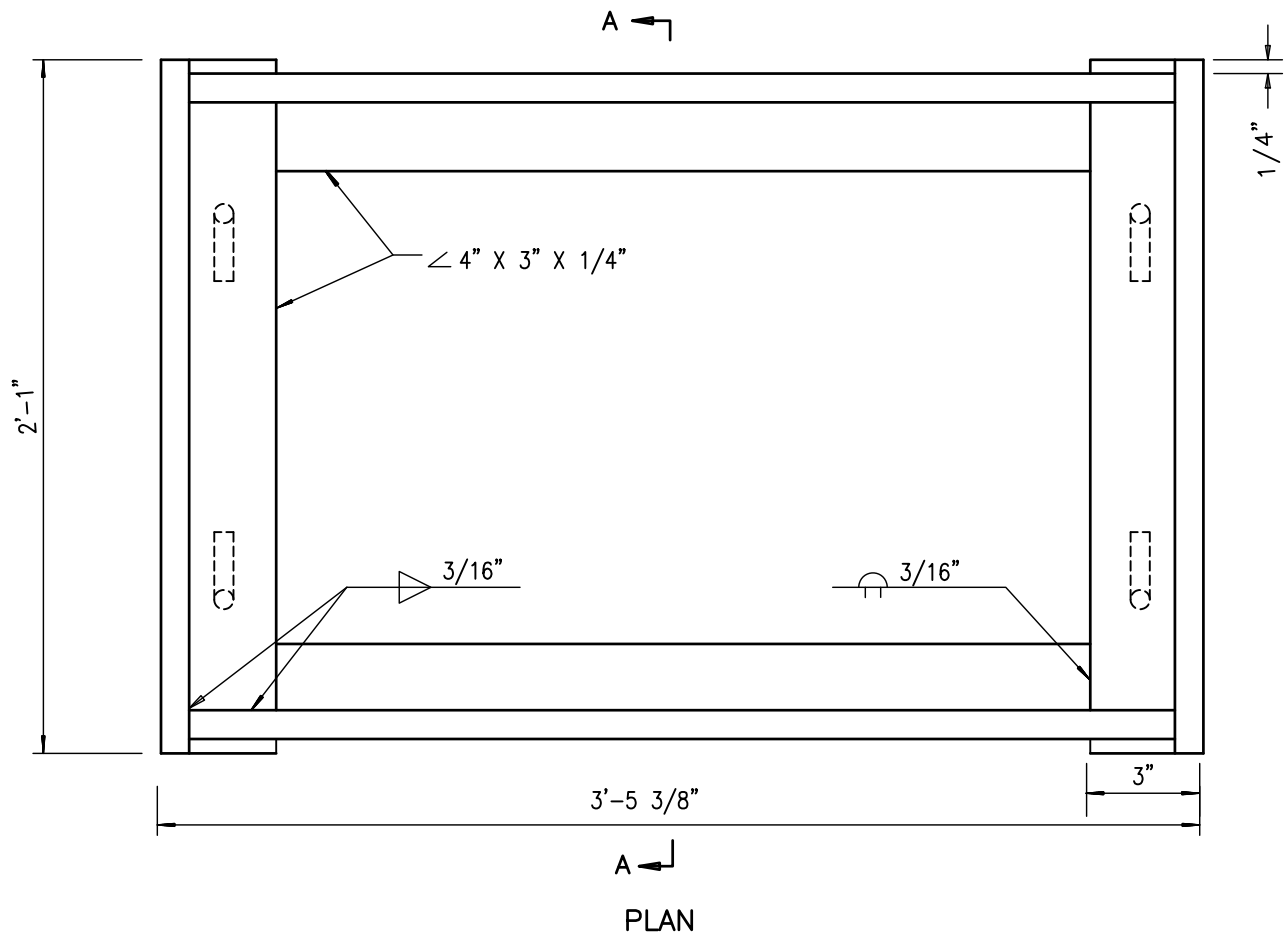
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			
Edited	T.R.	T. Regello	10/15	INLETS AND CLEANOUTS NOTES AND DETAILS	 03/24/2022	
Edited	M.W.	M. Widelski	10/18		Chairperson R.C.E. 52241 Date	
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER	
					D-11B	



NOTES

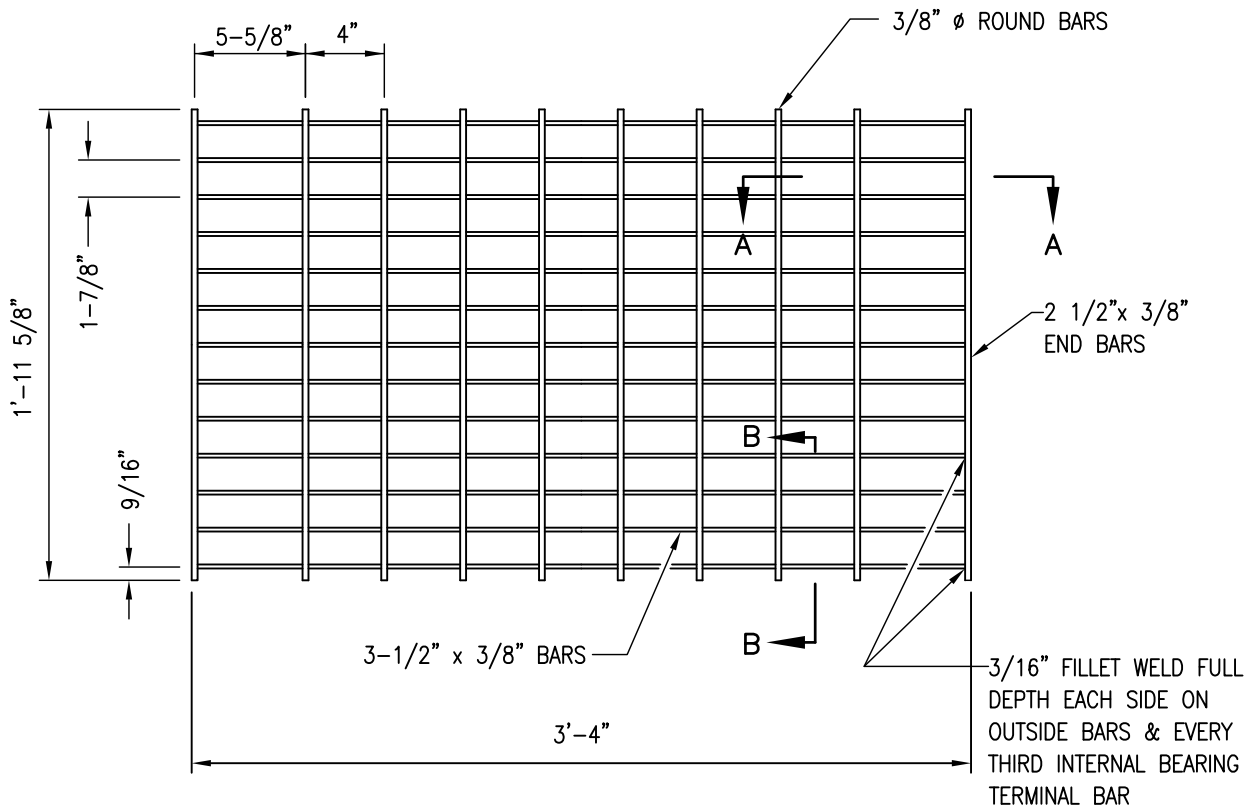
1. FACE ANGLE SHALL BE CAST CONTINUOUSLY INTO STRUCTURE FOR THE ENTIRE LENGTH "L".
2. ALL EXPOSED METAL PARTS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
3. WHEN CURB INLET OPENING HEIGHT (H) EXCEEDS 6", INSTALL 1"Ø STEEL PROTECTION BAR. STEEL PROTECTION BAR SHALL BE EMBEDDED 8" INTO CURB INLET.
4. INSTALL ADDITIONAL BARS AT 3-1/2" CLEAR SPACING ABOVE FIRST STEEL PROTECTION BAR WHEN OPENING EXCEEDS 13".
5. WHEN CURB INLET OPENING LENGTH EXCEEDS 8' INSTALL 1"Ø STEEL SUPPORT BOLTS SPACED AT NOT MORE THAN 5' OC.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	CURB INLET OPENING	 03/24/2022 Chairperson R.C.E. 52241 Date
Edited	M.W.	M. Widelski	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER D-12

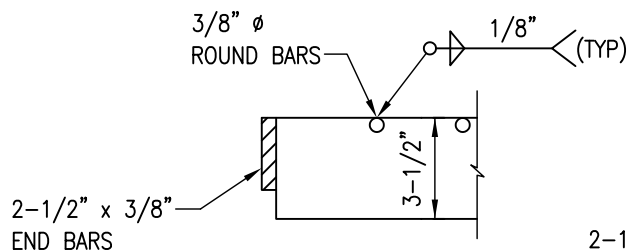


NOTE
HOT-DIP GALVANIZE ALL PARTS AFTER FABRICATION.

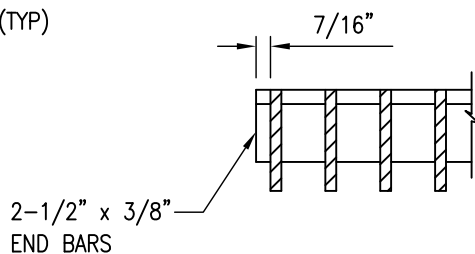
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			
Edited	T.R.	T. Regello	10/15	WELDED STEEL GRATE FRAME	 03/24/2022	
Edited	M.W.	M. Widelski	10/18		Chairperson R.C.E. 52241 Date	
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER	D-13



PLAN



SECTION A-A

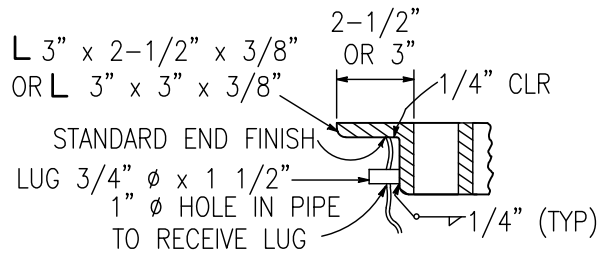
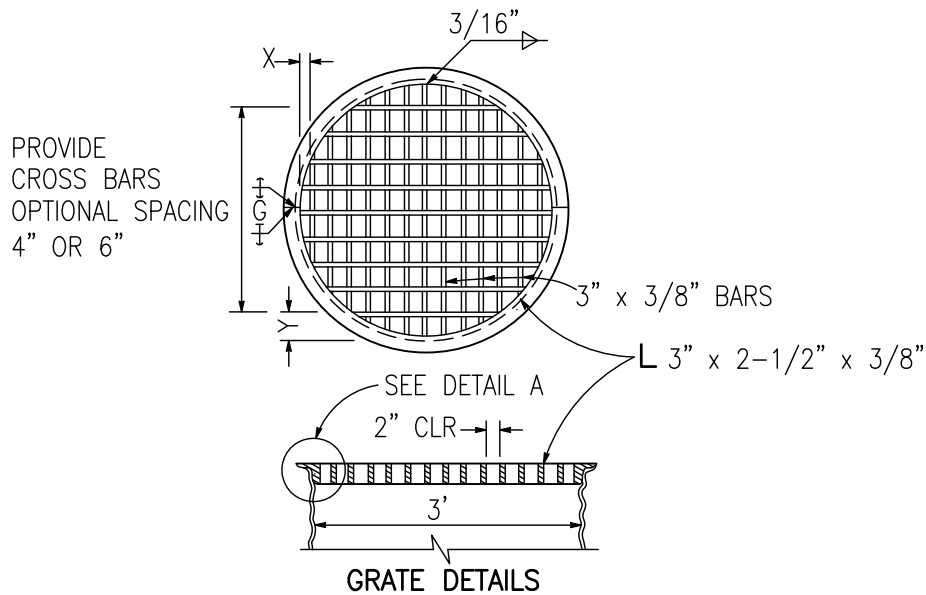


SECTION B-B

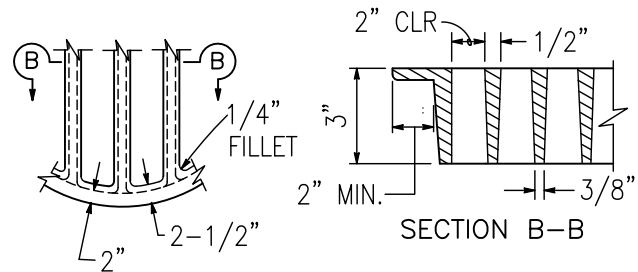
NOTES

1. HOT-DIP GALVANIZE ALL PARTS AFTER FABRICATION.
2. DIMENSIONS ARE TO CENTERLINE OF BARS UNLESS OTHERWISE NOTED.
3. NOT TO BE USED IN PEDESTRIAN AREAS.
4. WEIGHT: 200 POUNDS +/-.

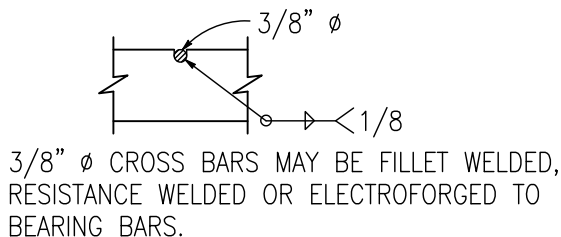
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	DRAINAGE STRUCTURE GRATE		 03/24/2022	
Edited	T.R.	T. Regello	10/15			Chairperson R.C.E. 52241 Date	
Edited	M.W.	M. Widelski	10/18			DRAWING NUMBER D-15	
Reviewed	RP	S. Engeda	03/22				



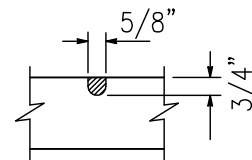
DETAIL A



ALTERNATIVE CAST NODULAR IRON GRATE
OR CAST STEEL GRATE



CROSS BAR DETAIL TYPE
WELDED STEEL GRATE



CROSS BAR DETAIL
ALTERNATIVE CAST NODULAR
IRON GRATE OR CAST STEEL GRATE

GRATE BAR SPACING TABLE

TYPE	NO. OF BARS	CLEAR BAR SPACING	X	Y	
				4" SPACING	6" SPACING
WELDED STEEL	15	2"	9/16"	3-3/4"	5-3/4"
CAST	13	2"	2-1/8"	3-3/4"	5-3/4"

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

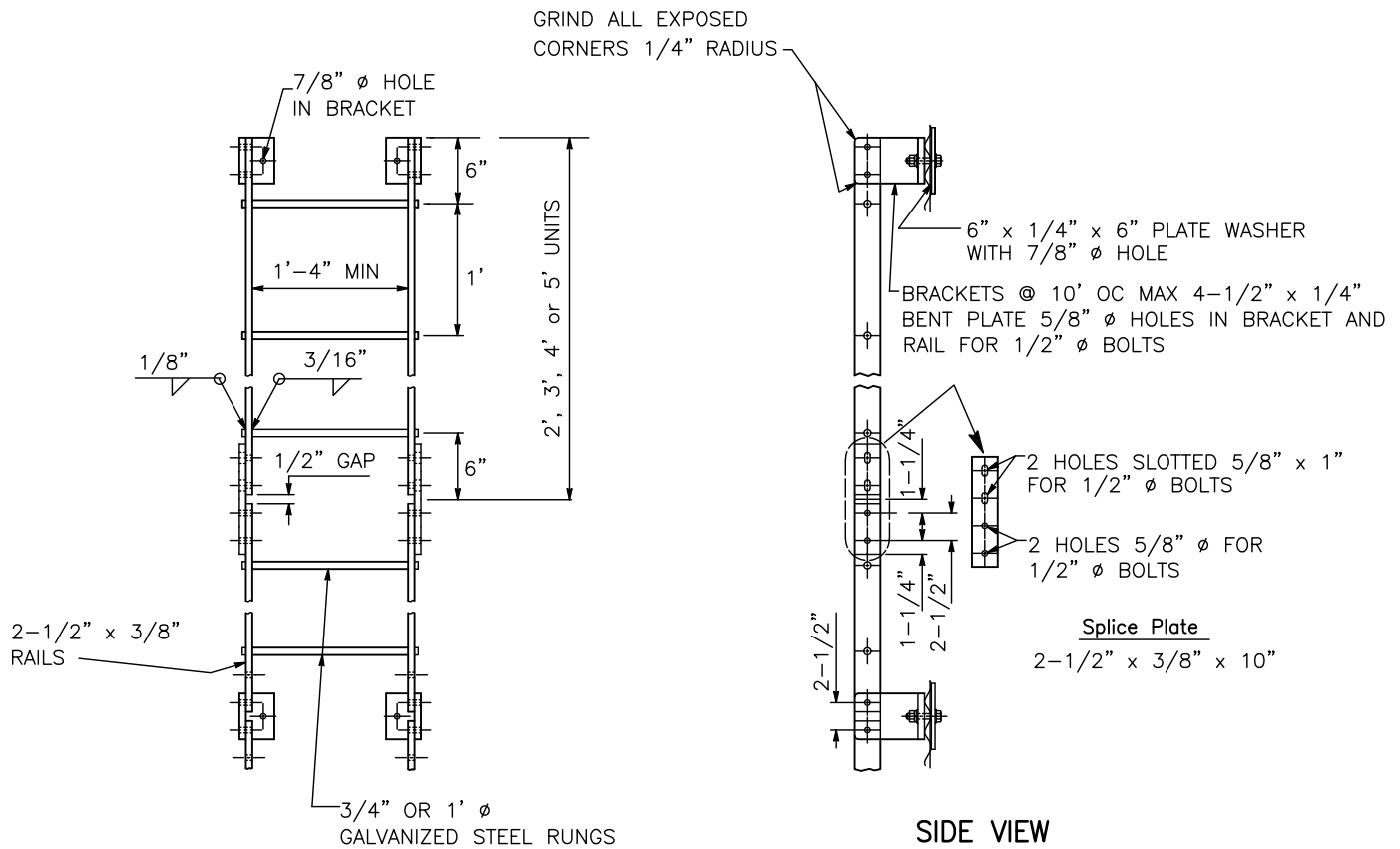
SAN DIEGO REGIONAL STANDARD DRAWING

**CORRUGATED STEEL PIPE INLETS,
DETAILS**

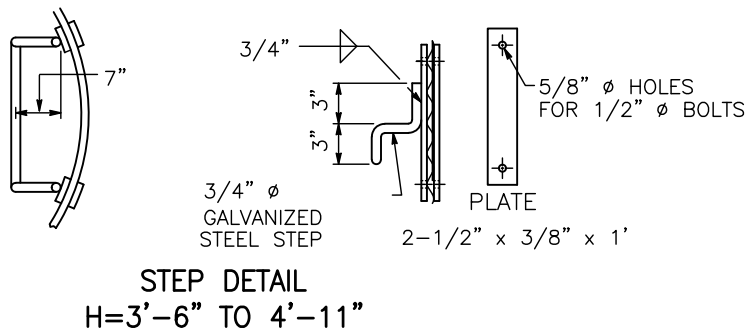
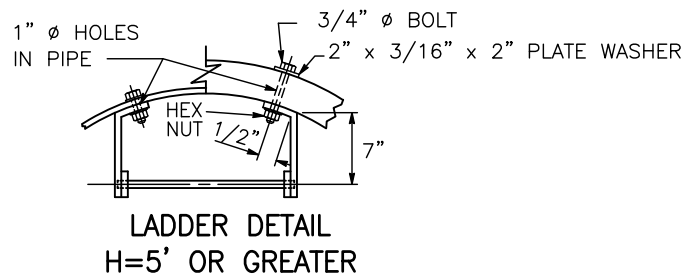
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Susan Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-17A**



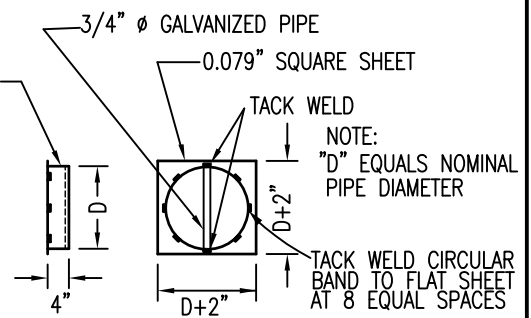
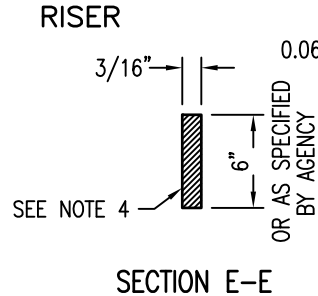
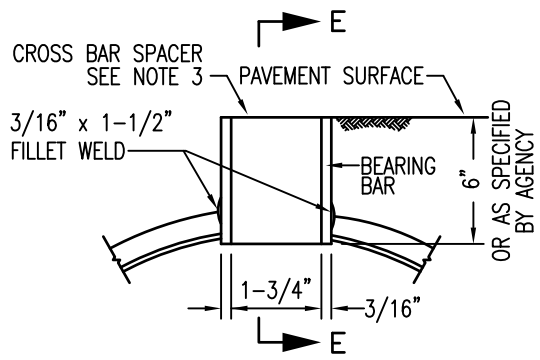
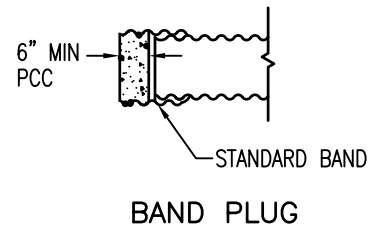
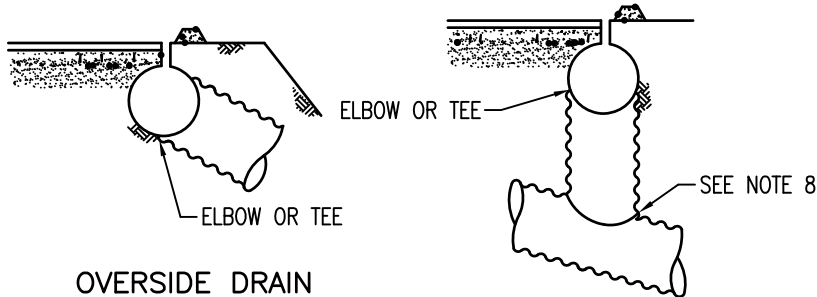
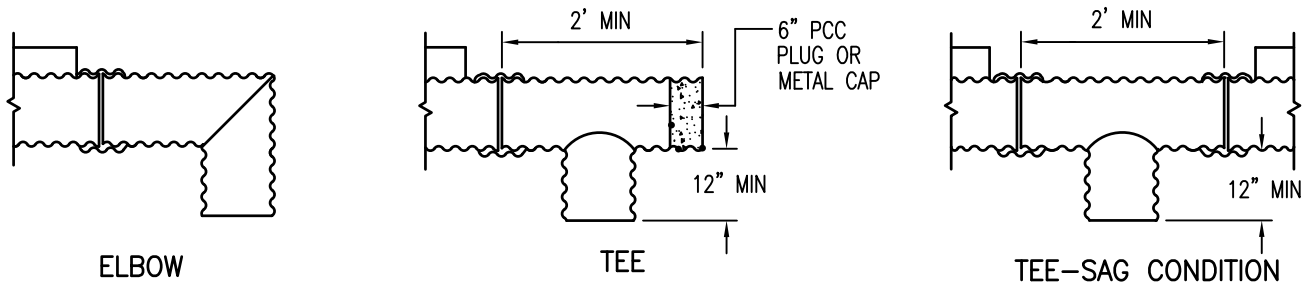
FRONT VIEW



NOTE

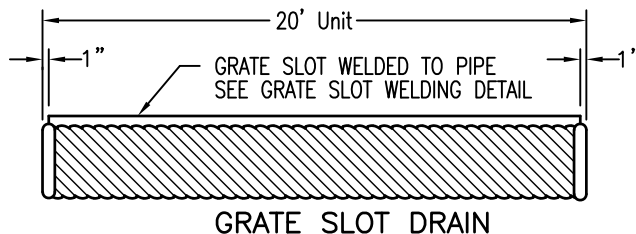
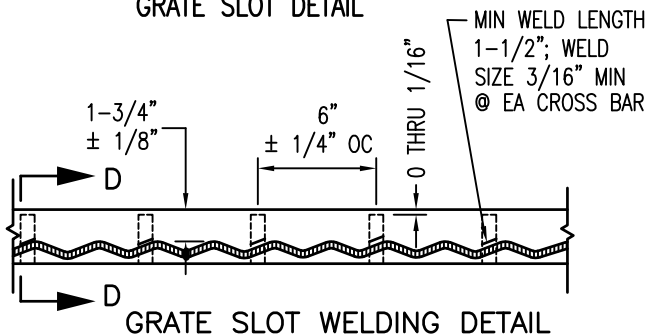
SEE NOTE 3 ON D-16 FOR LADDER REQUIREMENTS.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	CORRUGATED STEEL PIPE INLETS, DETAILS		
Edited	T.R.	T. Regello	10/15			
Edited	M.W.	M. Widelski	10/18			
Reviewed	RP	S. Engeda	03/22			
						<i>Saman Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date
						DRAWING NUMBER D-17B



NOTES

1. DRAIN SEAMS MAY BE CONSTRUCTED BY RIVETING OR RESISTANCE SPOT-WELDING, CONTINUOUS HELICAL LOCK SEAM OR HELICAL WELDING SEAM AT EQUAL CENTERS.
2. EACH DRAIN SECTION SHALL BE ASSEMBLED WITH STANDARD COUPLING BANDS.
3. CROSS BAR SPACER OF GRATE SHALL BE PRESSURE FUSED OR PLUG WELDED TO BEARING BARS IN SUCH A MANNER AS TO DEVELOP THE STRENGTH OF THE CROSS BAR SPACER.
4. CROSS BAR SPACER (SECTION E-E) MAY DIFFER FROM THAT SHOWN PROVIDED SECTION AREA IS EQUAL OR GREATER.
5. GRATE MATERIAL SHALL BE A WELDABLE GRADE OF STEEL COMPLYING TO THE REQUIREMENTS OF ASTM A 36.
6. THE MAXIMUM VARIANCE FROM A STRAIGHT LINE FROM THE EXTREME TOP CORNERS OF THE BEARING BAR SHALL BE 1/2" IN 20'.
7. INSTALLATION LENGTHS SHALL BE 10' OR MULTIPLES THEREOF.
8. EITHER FIELD JOINT SEALED WITH A PLIABLE MIXTURE OF SAND, PORTLAND CEMENT AND EMULSIFIED ASPHALT (MIXTURE OF 1 PART PORTLAND CEMENT, 3 - 5 PARTS SAND AND 1-1/2 PARTS SSI EMULSIFIED ASPHALT), OR CONTINUOUS WELD.



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

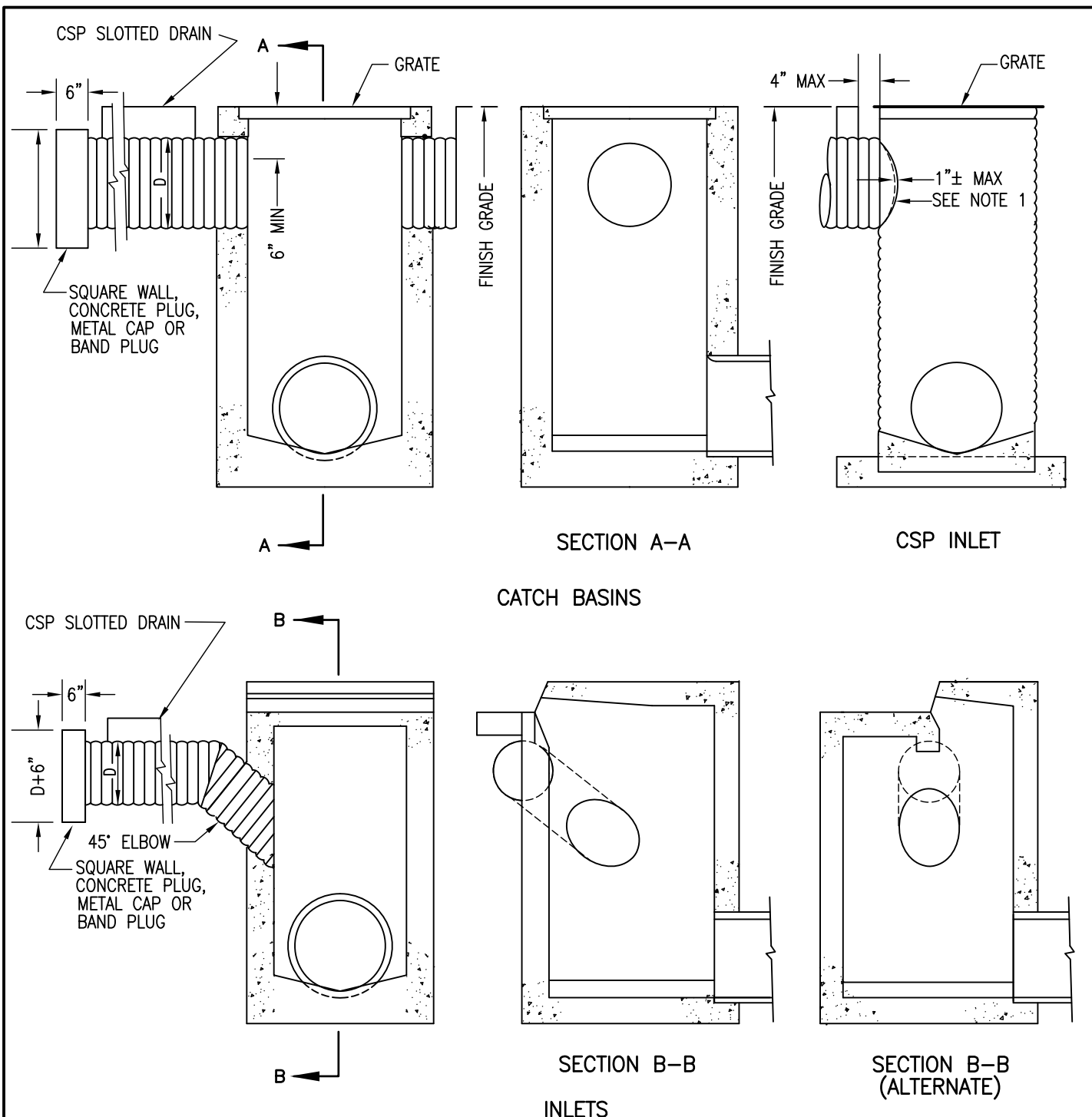
SAN DIEGO REGIONAL STANDARD DRAWING

SLOTTED CORRUGATED STEEL PIPE DRAINS 12" THROUGH 24"

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Susan Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

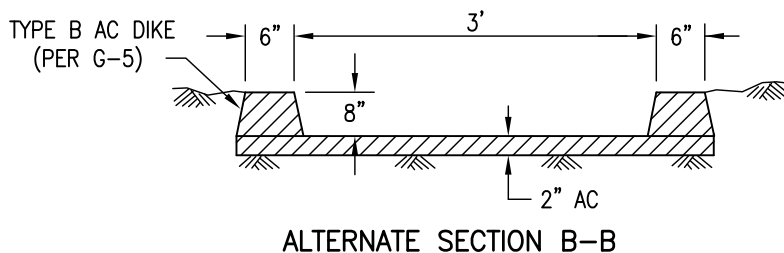
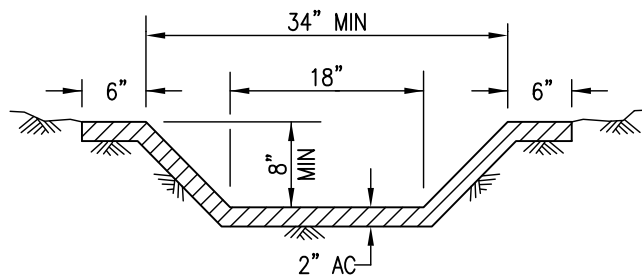
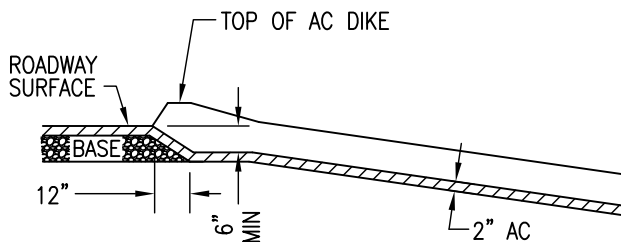
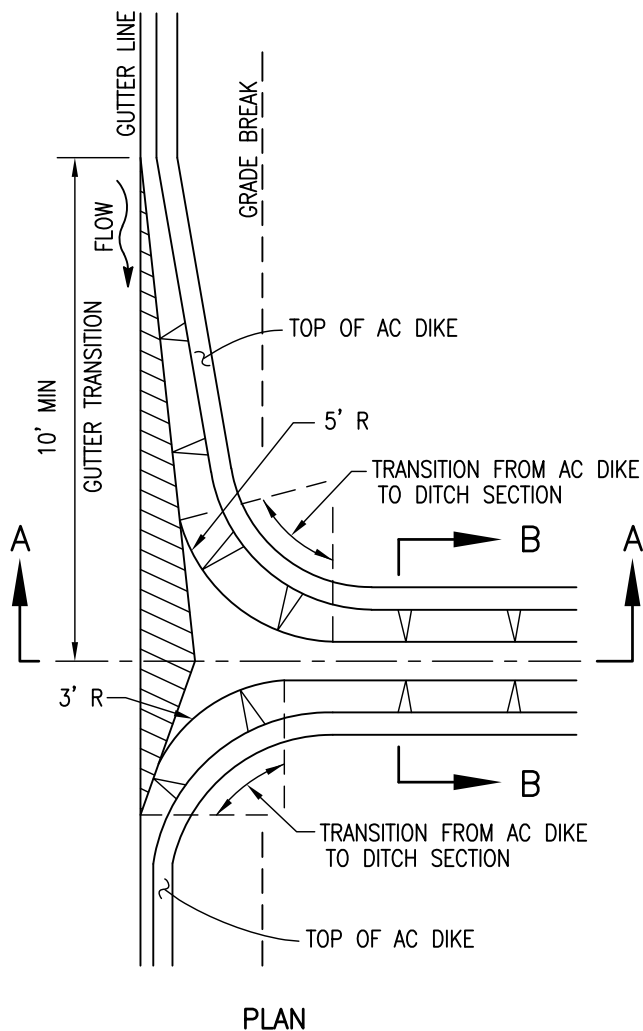
DRAWING
NUMBER **D-18**



NOTES

1. EITHER FIELD JOINT WITH A PLIABLE MIXTURE OF SAND, PORTLAND CEMENT AND EMULSIFIED ASPHALT (MIXTURE OF 1 PART PORTLAND CEMENT, 3-5 PARTS SAND AND 1-1/2 PARTS SSI EMULSIFIED ASPHALT), OR CONTINUOUS WELD.
2. SEE D-18 FOR ADDITIONAL NOTES AND DETAILS.
3. SLOTTED DRAIN INSTALLATIONS SHALL BE ENCASED WITH 6" PCC 520-C-2500 ALL AROUND AND SHALL BE POURED MONOLITHICALLY WITH THE CURB AND GUTTER.

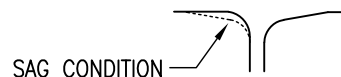
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	SLOTTED DRAIN CONNECTIONS TO STANDARD INLETS		
Edited	T.R.	T. Regello	10/15			
Edited	M.W.	M. Widelski	10/18			
Reviewed	RP	S. Engeda	03/22			
						<i>Samantha Engeda</i> 03/24/2022
						Chairperson R.C.E. 52241 Date
						DRAWING NUMBER D-19



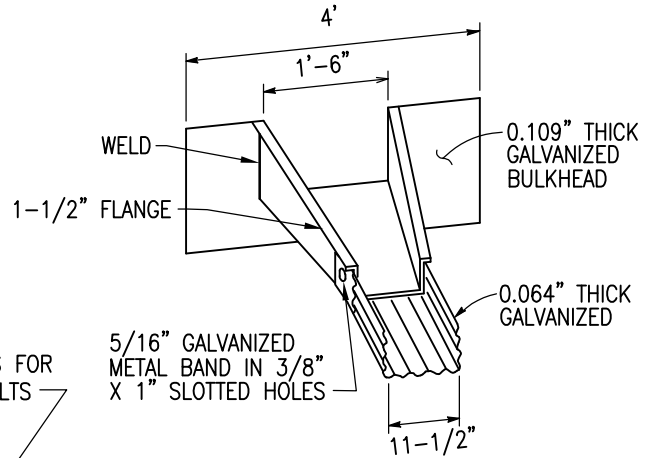
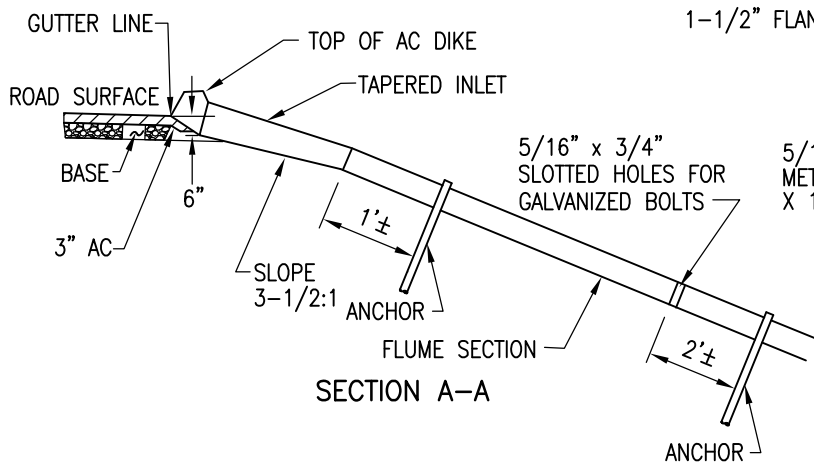
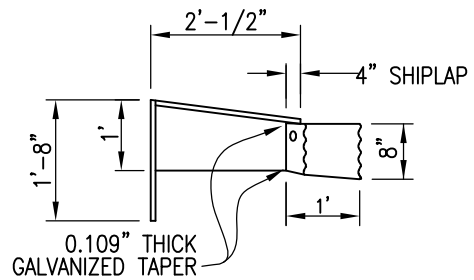
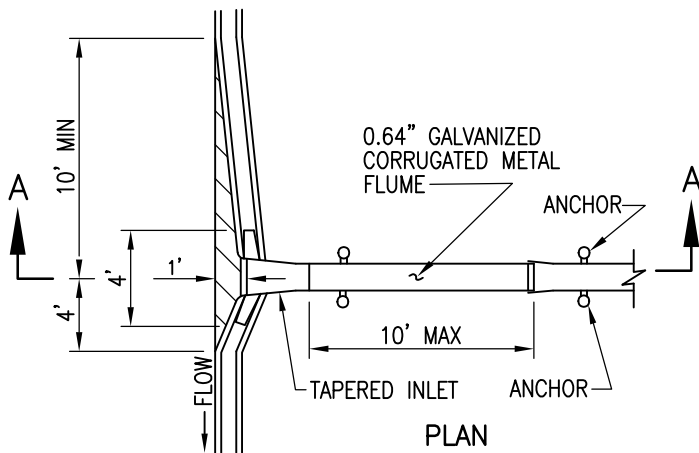
NOTES

1. AC SPILLWAY MAY BE USED WHEN FILL IS 10' OR LESS, AND WHERE FILL SLOPE IS 1-1/2:1 OR FLATTER.
2. USE 10' MIN LENGTH OF GUTTER TRANSITION ON EACH SIDE OF DOWNDRAIN IN SAG CONDITION.
3. CROSS SECTIONAL AREA OF DITCH (SECTION B-B) MAY BE TRAPEZOIDAL OR SEMI-CIRCULAR; SEMI-CIRCULAR SECTIONAL AREA MUST PROVIDE AN EQUAL FLOW CAPACITY AS TRAPEZOIDAL.

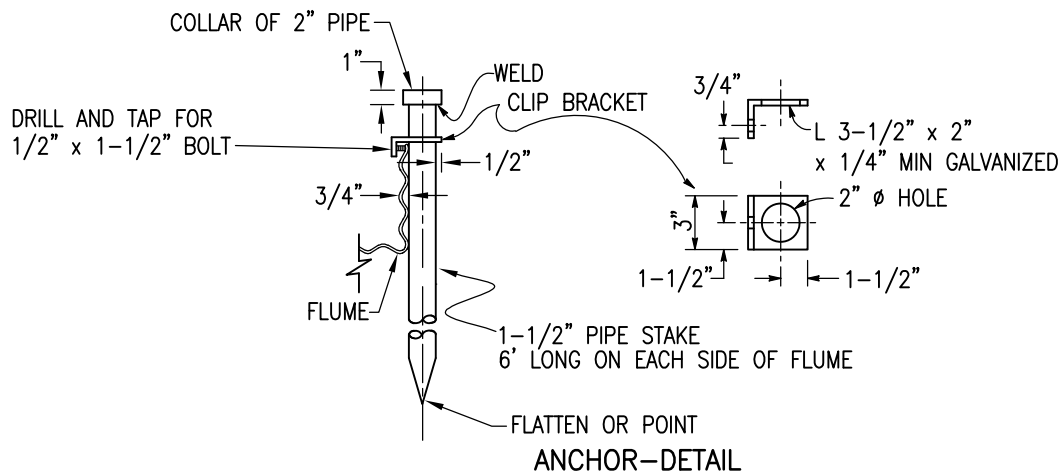
LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	ASPHALT CONCRETE SPILLWAY	 03/24/2022 Chairperson R.C.E. 52241 Date
Edited	M.W.	M. Widelksi	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER D-22



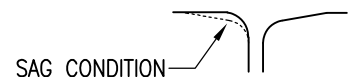
TAPERED INLET



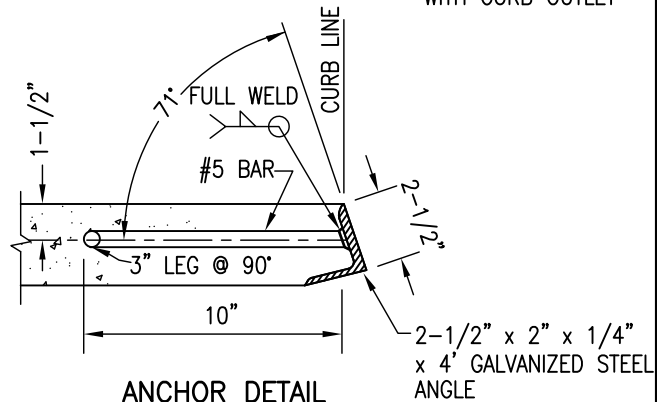
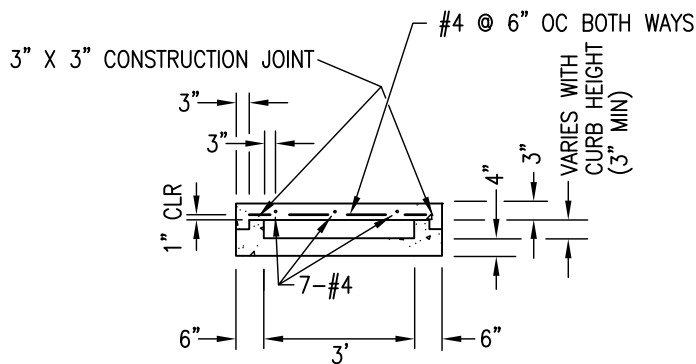
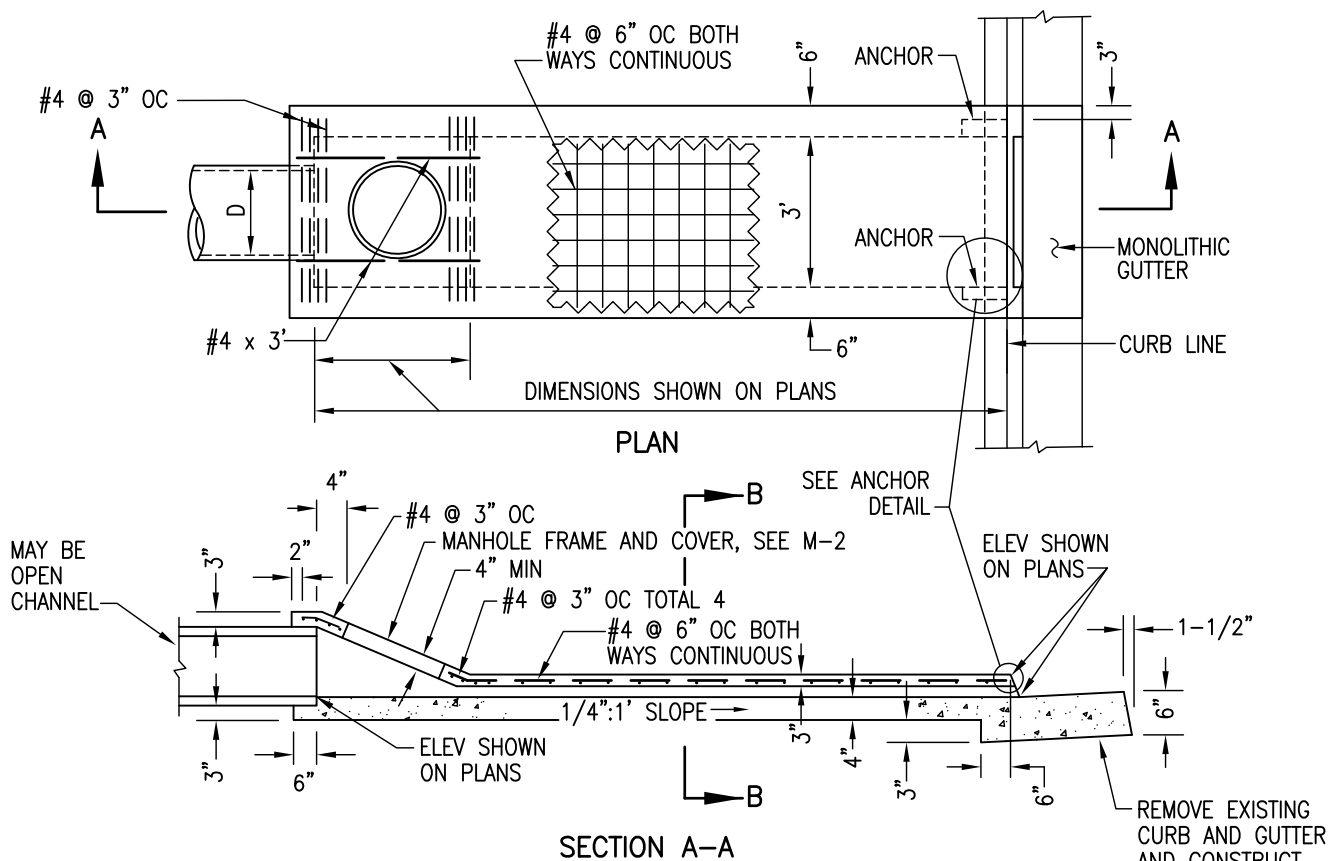
NOTES

1. DOWNDRAIN FLUME MAY BE USED WHERE FILL SLOPE IS 1-1/2:1 OR FLATTER.
2. USE 10' MIN LENGTH OF GUTTER TRANSITION ON EACH SIDE OF DOWNDRAIN IN SAG CONDITION.
3. ALL METAL PARTS TO BE GALVANIZED AFTER FABRICATION.

LEGEND ON PLANS



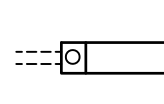
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	TAPERED INLET AND DOWNDRAIN FLUME	 03/24/2022
Edited	M.W.	M. Widelski	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER
					D-23



NOTES

1. CONCRETE SHALL BE 560-C-3250.
2. D = INSIDE DIAMETER OF PIPE OR DEPTH OF CHANNEL.
3. SECTION TO BE SLOPED Laterally WITH TOP CONFORMING TO THE GRADES OF THE EXISTING SIDEWALK AND CURB.
4. MANHOLE FRAME AND COVER MAY BE DELETED WITH OPEN CHANNEL.
5. TROWEL FINISH TOP SURFACE AND REPRODUCE MARKINGS OF EXISTING SIDEWALK AND CURB.
6. TROWEL FINISH FLOOR OF OUTLET.
7. PROVIDE 1/4" TOOLED GROOVE IN TOP SLAB IN LINE WITH BACK OF ADJACENT CURB.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Edited	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

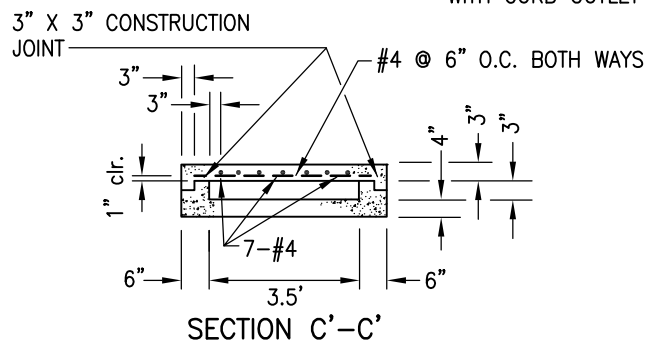
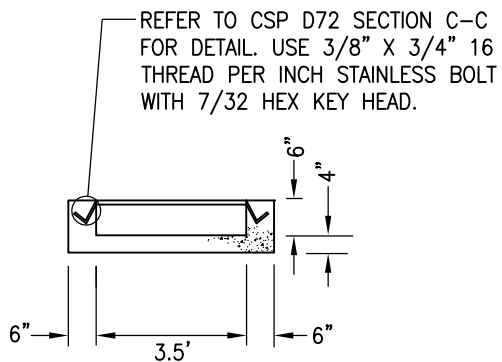
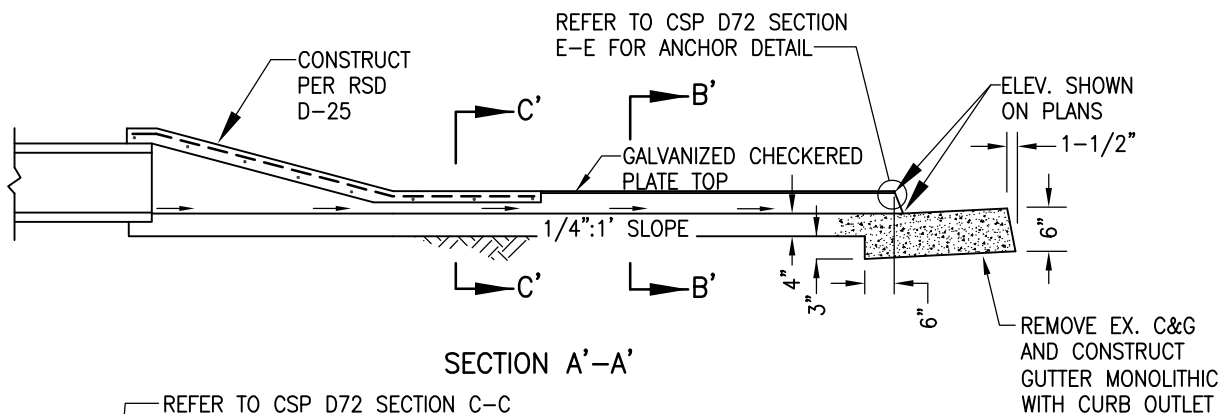
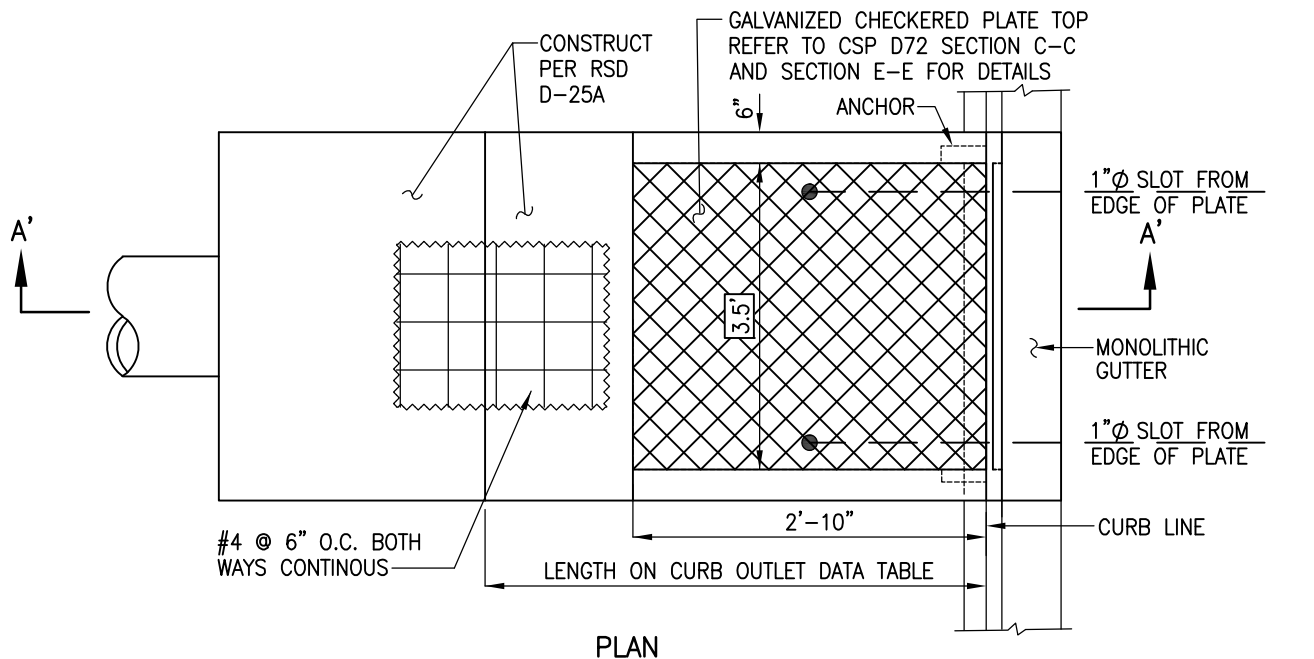
CURB OUTLET - TYPE A

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Samsir Engeda 03/24/2022

Chairperson R.C.E. 52241 Date

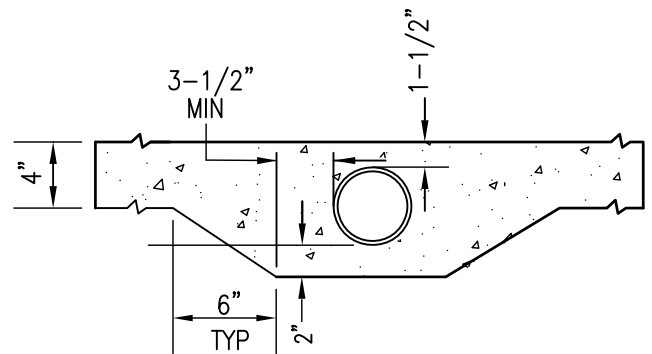
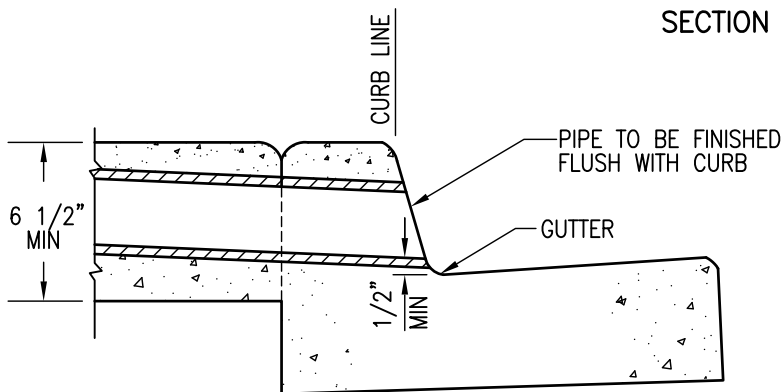
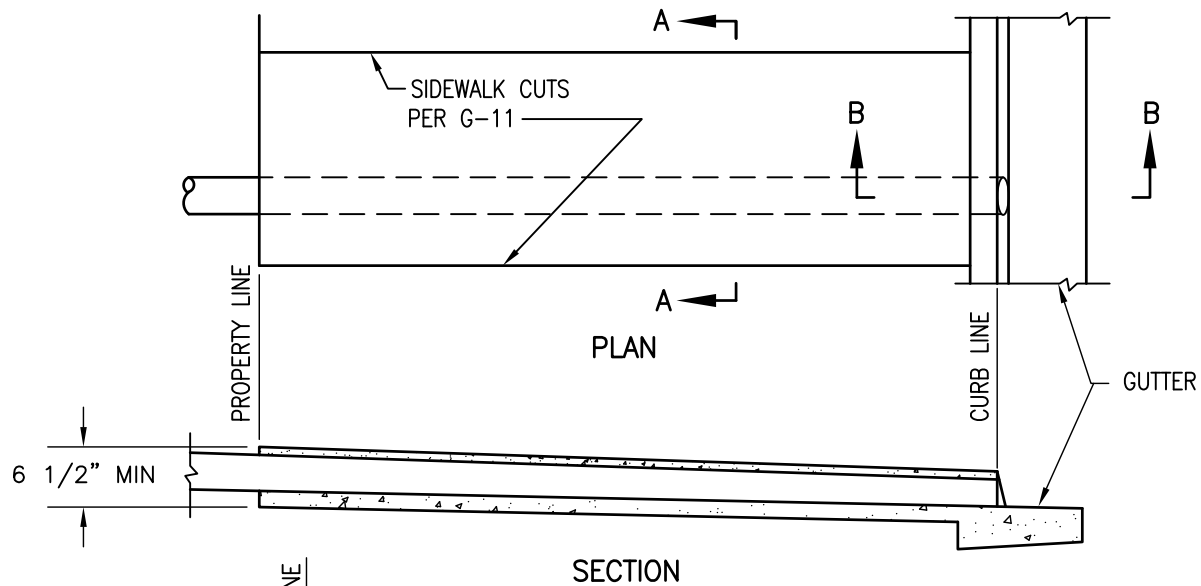
DRAWING NUMBER **D-25A**



NOTES

1. CONCRETE SHALL BE 560-C-3250.
2. SECTION TO BE SLOPED Laterally WITH TOP CONFORMING TO THE GRADES OF THE EXISTING SIDEWALK AND CURB.
3. TROWEL FINISH TOP SURFACE AND REPRODUCE MARKINGS OF EXISTING SIDEWALK AND CURB.
4. TROWEL FINISH FLOOR OF OUTLET.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Widelski	8/18		
Edited	M.W.	M. Widelski	10/18	MODIFIED CURB OUTLET - TYPE B	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER D-25B



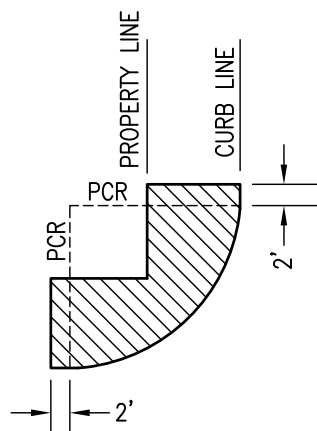
SECTION B-B

SECTION A-A

APPROVED DRAIN PIPE SIZES	
PIPE SIZE	CURB HEIGHT AT CURB FACE
3"	6" TO 8"
4"	8"
6"	10"

NOTES

1. PIPE SHALL BE ONE CONTINUOUS LENGTH FROM PROPERTY LINE TO CURB LINE.
2. MULTIPLE PIPES TO BE SET A MINIMUM DISTANCE OF D/2 APART (3 MAX).
3. CONCRETE SHALL BE 520-C-2500.
4. PIPE SHALL BE CIRCULAR RIGID PLASTIC OR APPROVED EQUAL.
5. CORING OF EXISTING CURB MAY BE USED AS AN ALTERNATIVE.
6. PROVIDE 1/4" TOOLED GROOVE IN TOP SLAB IN LINE WITH BACK OF ADJACENT CURB.



DRAIN SHALL NOT BE CONSTRUCTED
WITHIN THE HATCHED AREA

BLOCK CORNER

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widdelski	10/18
Reviewed	RP	S. Engeda	03/22

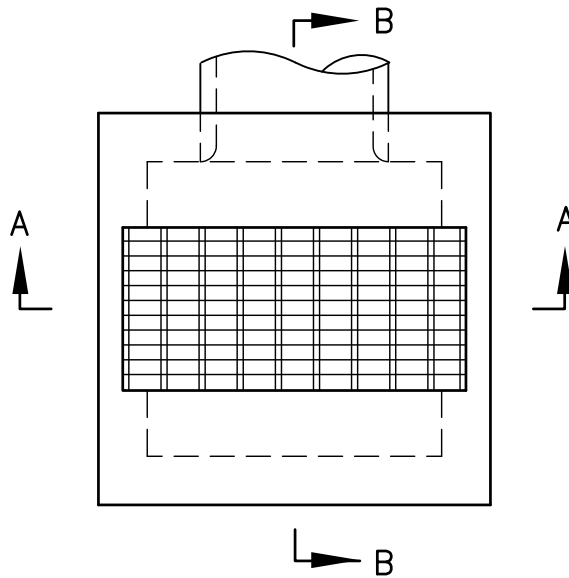
SAN DIEGO REGIONAL STANDARD DRAWING

SIDEWALK UNDERDRAIN PIPE

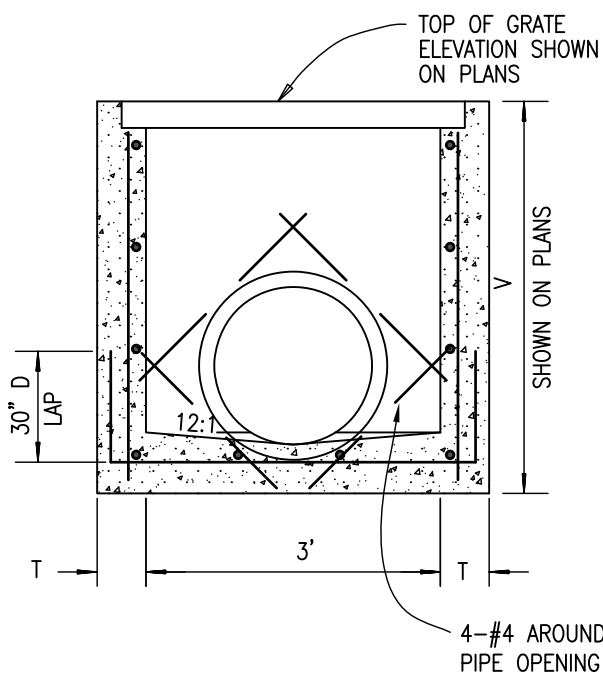
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samson Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

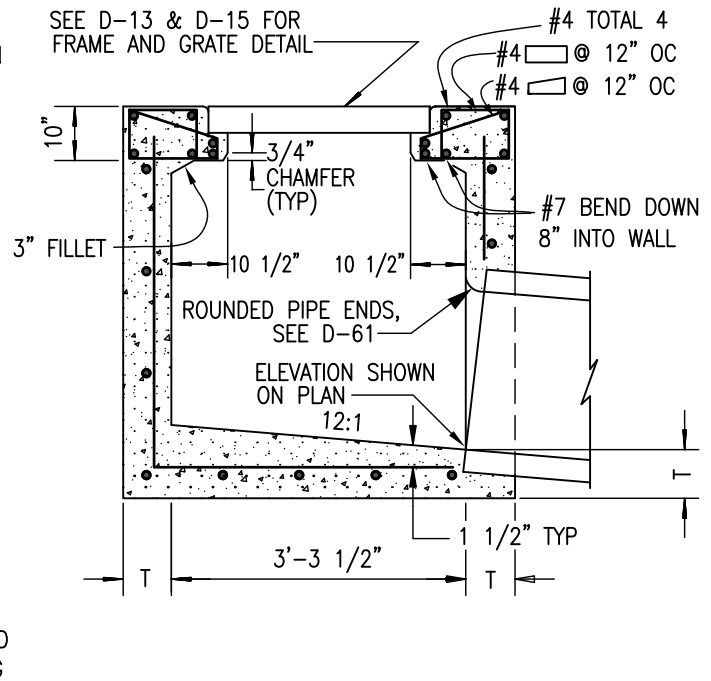
DRAWING
NUMBER **D-27**



PLAN



SECTION A-A

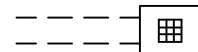


SECTION B-B

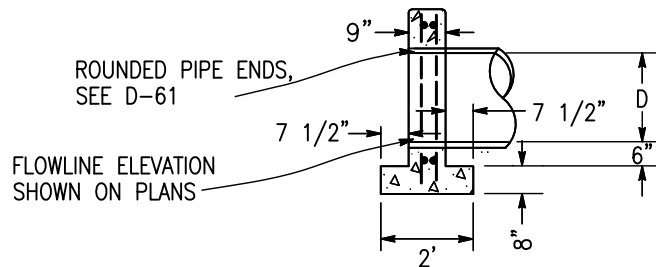
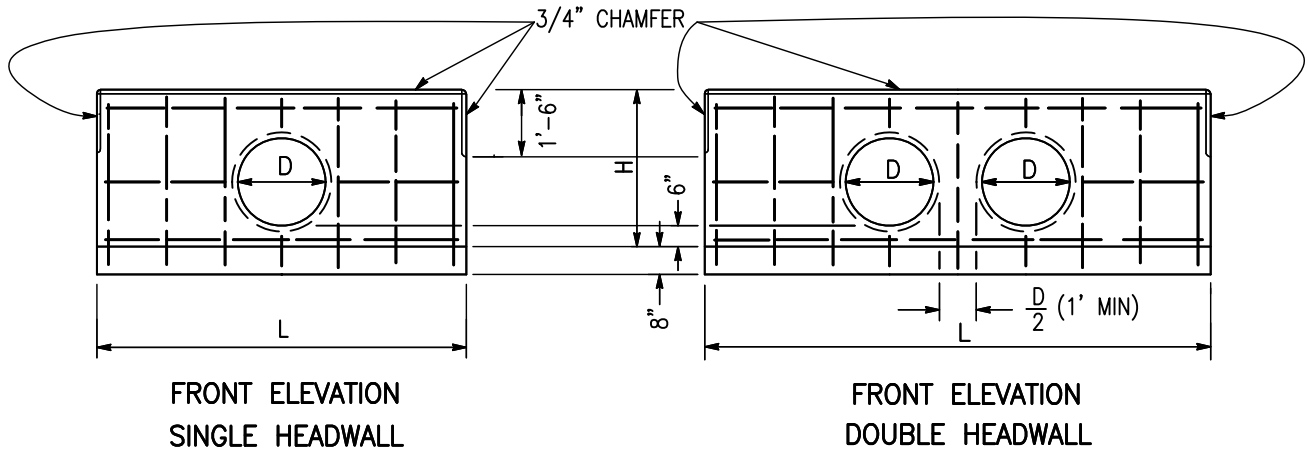
NOTES

1. A TYPE I CATCH BASIN IS SPECIFIED FOR LARGE DIAMETER PIPES OR FOR HEAVY TRAFFIC LOADS (NOTES EXTRA STEEL REINFORCEMENT IN UPPER CORNERS).
2. SEE D-11A & D-11B FOR ADDITIONAL NOTES AND DETAILS.
3. WHEN V EXCEEDS 4', STEPS SHALL BE INSTALLED PER D-11A.

LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Solomon	7/79		
Edited	T.R.	T. Regello	10/15	CATCH BASIN - TYPE I	 03/24/2022
Edited	M.W.	M. Widelski	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER D-29

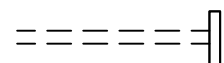


D	H	SINGLE			DOUBLE		
		L	STEEL (POUNDS)	CONCRETE (C.Y.)	L	STEEL (POUNDS)	CONCRETE (C.Y.)
12"	2'-8"	5'	35	0.60	8'	50	0.94
15"	2'-11"	6'	40	0.75	9'-6"	60	1.17
18"	3'-2"	7'	50	0.91	10'-6"	75	1.35
21"	3'-5"	7'-6"	60	1.02	11'-6"	90	1.52
24"	3'-8"	8'-6"	75	1.20	12'-6"	100	1.72
27"	3'-11"	9'-6"	85	1.39	14'	115	2.00
30"	4'-2"	10'	85	1.52	15'	126	2.21
33"	4'-5"	11'	100	1.73	16'	130	2.42
36"	4'-8"	12'	105	1.95	17'	145	2.65
39"	4'-11"	12'-6"	130	2.09	18'	170	2.88
42"	5'-2"	13'-6"	140	2.34	19'	185	3.13
45"	5'-5"	14'-6"	150	2.60	20'	195	3.38
48"	5'-8"	15'	160	2.75	21'	200	3.64
51"	5'-11"	16'	180	3.03	22'-6"	225	4.02
54"	6'-2"	17'	190	3.31	23'-6"	240	4.30

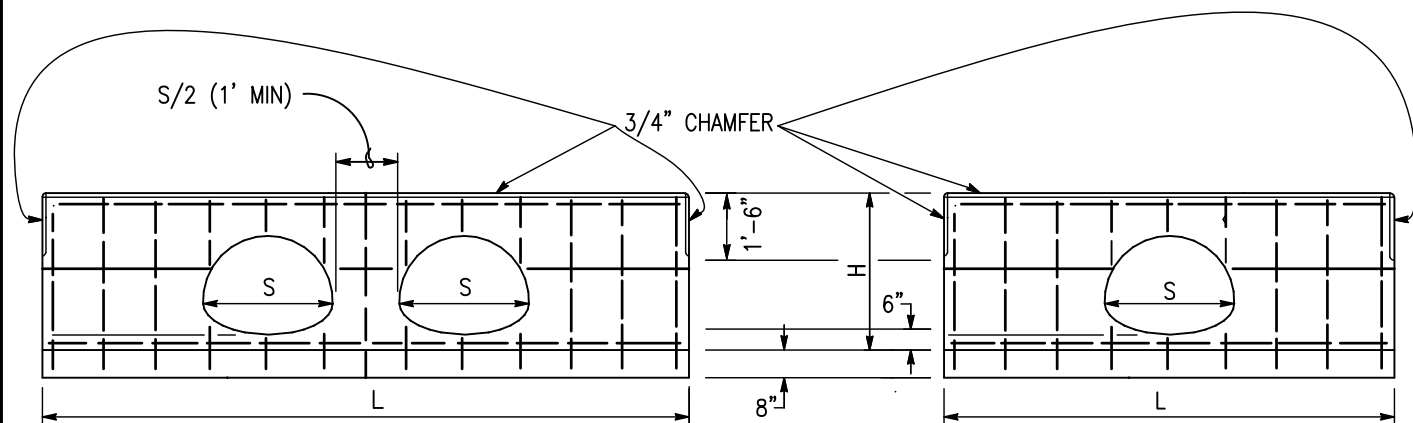
NOTES

1. CONCRETE SHALL BE 560-C-3250.
2. ALL REINFORCING SHALL BE #4 BARS. ALL VERTICAL AND HORIZONTAL TIE BARS @ 18" MAXIMUM SPACING.
3. EXPOSED CORNERS SHALL BE 3/4" CHAMFERED.

LEGEND ON PLANS

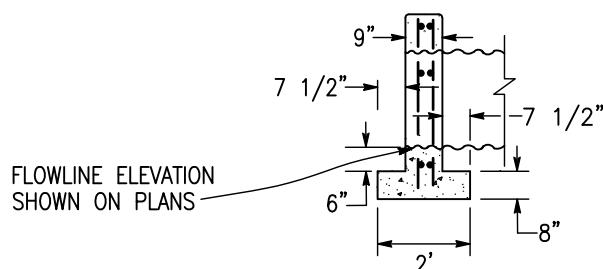


Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75				
Edited	T.R.	T. Regello	10/15	STRAIGHT HEADWALL - TYPE A (CIRCULAR PIPE)		Chairperson R.C.E. 52241 Date	
Edited	M.W.	M. Widelski	10/18				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER	D-30



ELEVATION - DOUBLE HEADWALL

ELEVATION - SINGLE HEADWALL



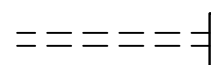
SECTION, SINGLE &
DOUBLE HEADWALLS

C.S.P. ARCH SIZE (INCHES)	SINGLE				DOUBLE		
	H (FT/IN)	L (FT/IN)	STEEL (POUNDS)	CONCRETE (C.Y.)	L (FT/IN)	STEEL (POUNDS)	CONCRETE (C.Y.)
18x11	2'-7"	5'-6"	37	0.64	8'	52	0.91
21x15	2'-11"	6'-6"	45	0.80	10'	60	1.22
24x18	3'-2"	7'-6"	50	0.96	11'-6"	70	1.45
28x20	3'-4"	8'-6"	60	1.12	13'-6"	90	1.76
35x24	3'-8"	10'-6"	85	1.47	15'-6"	120	2.16
42x29	4'-1"	12'-6"	110	1.76	18'	145	2.57
49x33	4'-5"	14'-6"	130	2.26	21'	170	3.13
57x38	4'-10"	17'	155	2.81	24'-6"	210	3.86
64x43	5'-3"	19'	175	3.31	27'	230	4.42
71x47	5'-7"	21'	195	3.81	30'	255	5.09

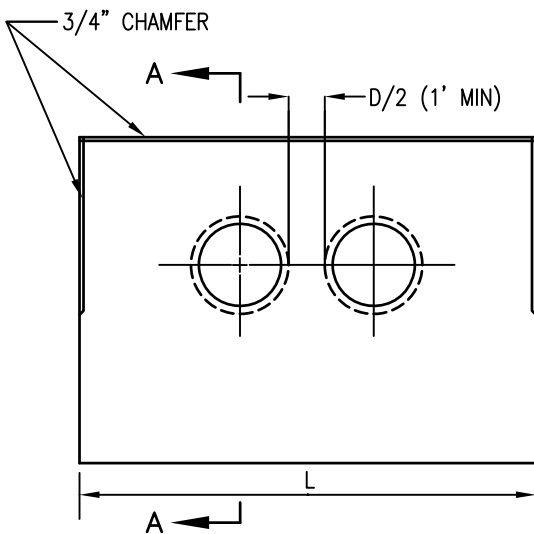
NOTES

1. CONCRETE SHALL BE 560-C-3250.
2. ALL REINFORCING SHALL BE #4 BARS. ALL VERTICAL AND HORIZONTAL TIE BARS @ 18" MAXIMUM SPACING.
3. EXPOSED CORNERS SHALL BE 3/4" CHAMFERED.

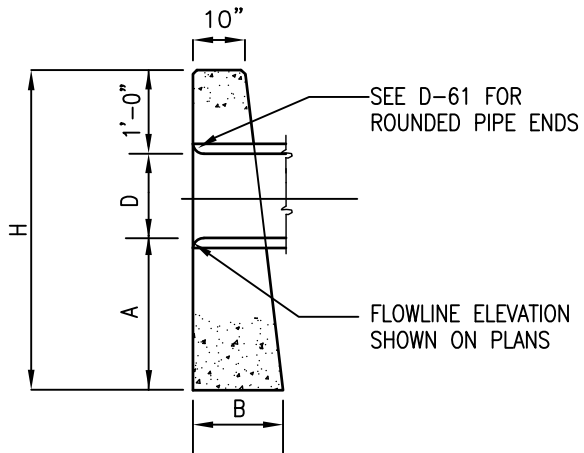
LEGEND ON PLANS



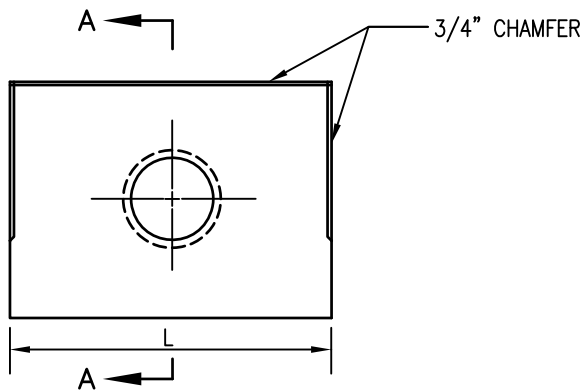
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75				
Edited	T.R.	T. Regello	10/15	STRAIGHT HEADWALL - TYPE A [CORRUGATED STEEL PIPE - ARCH]		 03/24/2022 Chairperson R.C.E. 52241 Date	
Edited	M.W.	M. Widelski	10/18			DRAWING NUMBER D-31	
Reviewed	RP	S. Engeda	03/22				



DOUBLE PIPE
ELEVATION



SECTION A-A



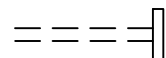
SINGLE PIPE
ELEVATION

D	A	B	H	SINGLE		DOUBLE	
				L	CONCRETE (C.Y.)	L	CONCRETE (C.Y.)
12"	2'	1'	4'	4'	0.45	5'-8"	.62
15"	2'	1'-1"	4'-3"	5'	0.63	7'-1"	.85
18"	2'	1'-2"	4'-6"	6'	0.83	8'-6"	1.12
24"	2'-6"	1'-5"	5'-6"	8'	1.54	11'-4"	2.09
30"	2'-6"	1'-9"	6'	10'	2.41	14'-2"	3.26
36"	3'	2'	7'	12'	3.74	17'	5.05

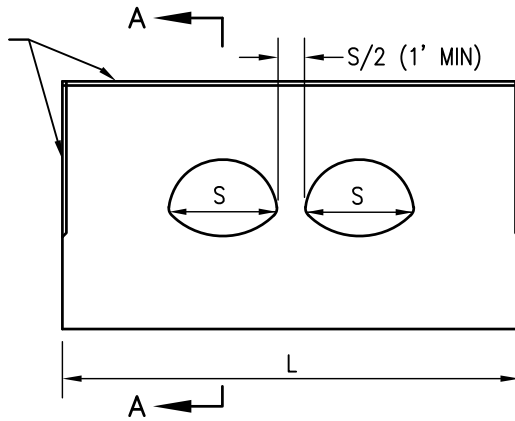
NOTES

1. CONCRETE SHALL BE 560-C-3250.
2. EXPOSED CORNERS SHALL BE 3/4" CHAMFERED.

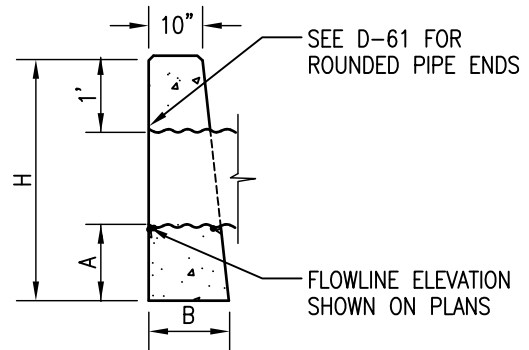
LEGEND ON PLANS



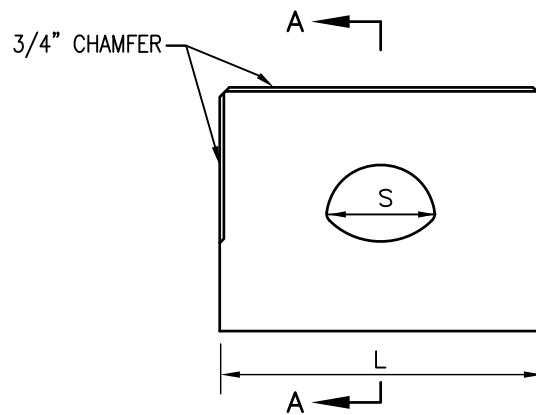
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75				
Edited	T.R.	T. Regello	10/15	STRAIGHT HEADWALL - TYPE B (CIRCULAR PIPE)		 03/24/2022 Chairperson R.C.E. 52241 Date	
Edited	M.W.	T. Regello	10/18				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER D-32	



DOUBLE PIPE
ELEVATION



SECTION A-A



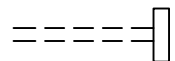
SINGLE PIPE
ELEVATION

CSP ARCH SIZE	A	B	H	SINGLE		DOUBLE	
				L	CONCRETE (C.Y.)	L	CONCRETE (C.Y.)
18" x 11"	2'	1'-2"	3'-11"	6'	0.83	7'-3"	0.97
21" x 15"	2'	1'-4"	4'-3"	7'	1.08	9'-8"	1.46
24" x 18"	2'	1'-6"	4'-6"	8'	1.41	11'-6"	1.98
28" x 20"	2'-6"	1'-8"	5'-2"	9'	1.97	12'-6"	2.66
35" x 24"	2'-6"	2'	5'-6"	10'	2.56	14'-5"	3.60

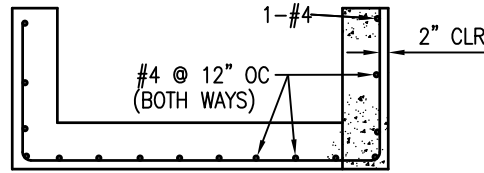
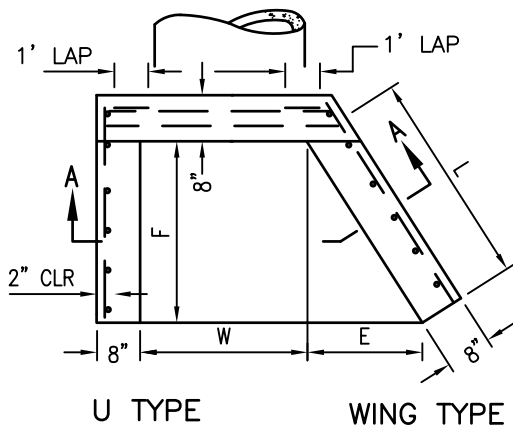
NOTES

1. CONCRETE SHALL BE 560-C-3250.
2. EXPOSED CORNERS SHALL BE 3/4" CHAMFERED.

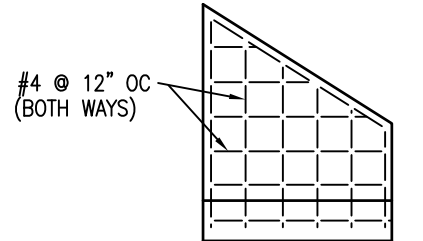
LEGEND ON PLANS



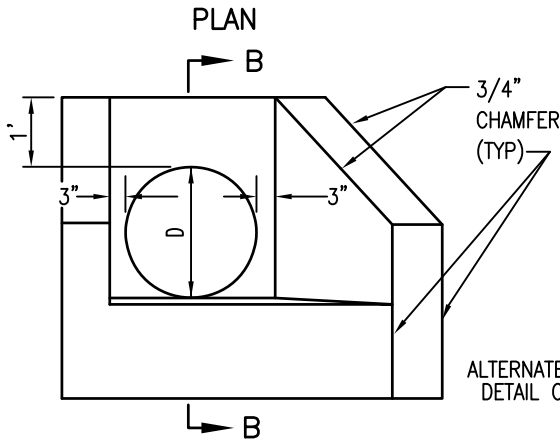
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75				
Edited	T.R.	T. Regello	10/15	STRAIGHT HEADWALL - TYPE B [CORRUGATED STEEL PIPE - ARCH]		 03/24/2022 Chairperson R.C.E. 52241 Date	
Edited	T.R.	M. Widelski	10/18				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER D-33	



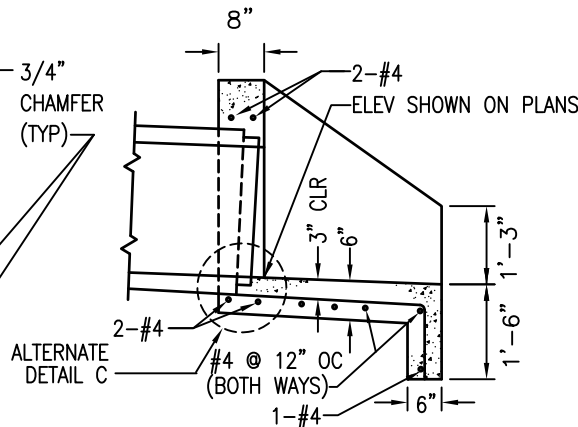
SECTION A-A



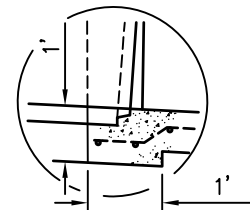
WING WALL REINFORCING



ELEVATION



SECTION B-B



ALT DETAIL C

Ø OF PIPE	DIMENSIONS			SINGLE PIPE				DOUBLE PIPE					
				W	U TYPE		WING TYPE		W	U TYPE		WING TYPE	
	L	E	F		CONC. (CY)	STEEL (LBS)	CONC. (CY)	STEEL (LBS)		CONC. (CY)	STEEL (LBS)	CONC. (CY)	STEEL (LBS)
18"	2'-3 1/8"	1'-3"	1'-10 1/2"	2'	0.55	35	0.63	43	AS SHOWN ON PLANS	0.82	53	0.90	61
24"	3'-1 7/8"	1'-9"	2'-7 1/2"	2'-6"	0.79	47	0.93	60		1.22	73	1.36	86
30"	4'-5/8"	2'-3"	3'-4 1/2"	3'	1.05	71	1.29	85		1.66	109	1.92	123
36"	4'-11 1/2"	2'-9"	4'-1 1/2"	3'-6"	1.33	88	1.69	114		2.19	136	2.55	162

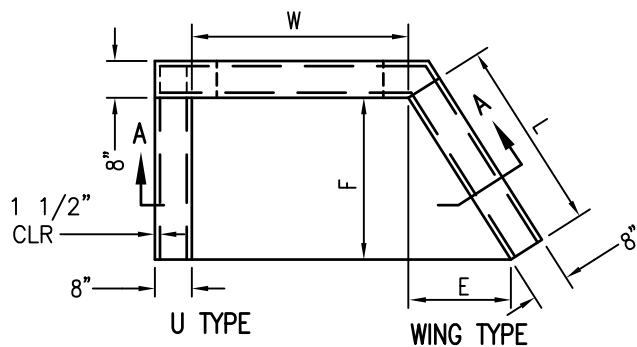
NOTES

1. CONCRETE SHALL BE 560-C-3250.
2. EXPOSED CORNERS SHALL BE 3/4" CHAMFERED.
3. MULTIPLE PIPES SHALL BE SET A DISTANCE OF D/2, WITH A 1' MIN BETWEEN OUTSIDE DIAMETERS OF PIPES.
4. TOP OF HEADWALL SHALL BE PLACED APPROXIMATELY PARALLEL TO PROFILE GRADE WHEN THE GRADE IS 3% OR MORE.
5. SKEWED PIPES: DIMENSION W SHALL BE INCREASED IN WIDTH OR LENGTH DUE TO SKEW OR MULTIPLE PIPES.
6. USE ALTERNATE DETAIL C FOR PIPE WALL THICKNESS GREATER THAN 3".

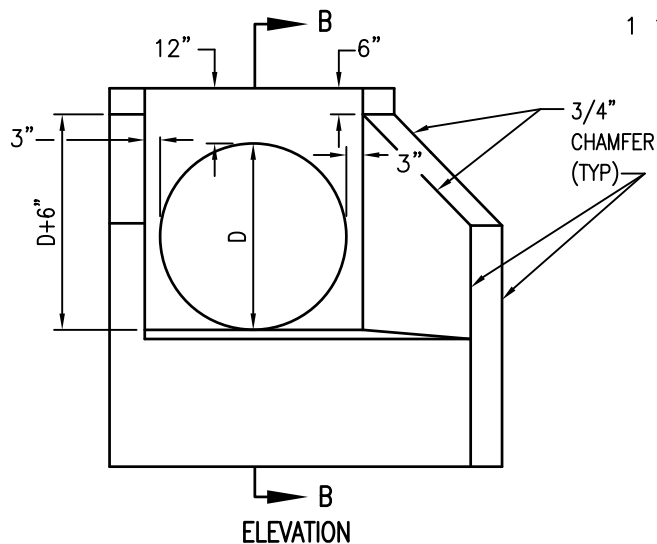
LEGEND ON PLANS



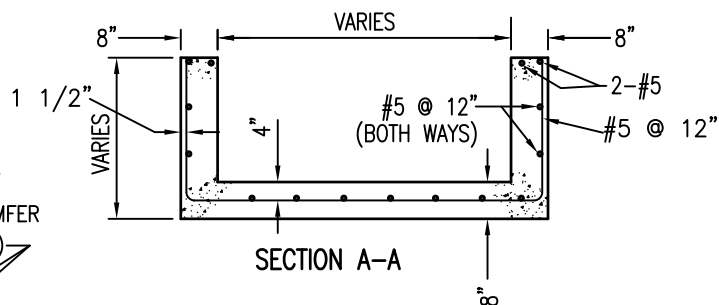
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	WING AND U TYPE HEADWALLS FOR 18" TO 36" PIPES		<i>Samsin Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date	DRAWING NUMBER D-34
Edited	S.S.	T. Regello	03/11				
Edited	T.R.	T. Regello	10/15				
Reviewed	RP	S. Engeda	03/22				



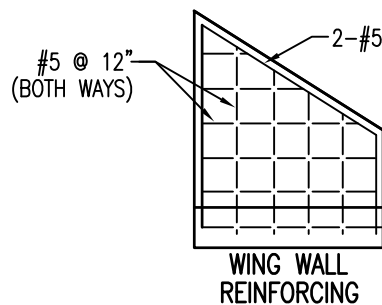
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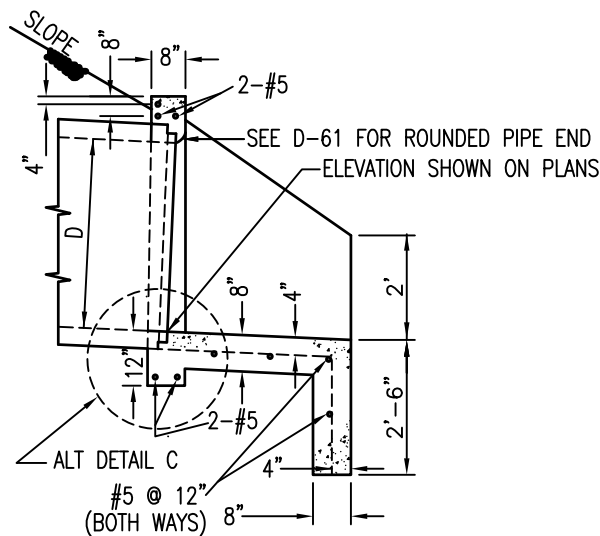
ELEVATION



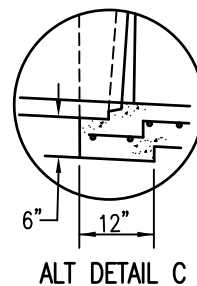
SECTION A-A



WING WALL
REINFORCING

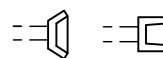


SECTION B-B



ALT DETAIL C

LEGEND ON PLANS



NOTE

SEE D-35B FOR DIMENSION TABLE AND GENERAL NOTES.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	WING AND U TYPE HEADWALLS FOR 42" TO 84" PIPE		 03/24/2022	
Edited	T.R.	T. Regello	10/15			Chairperson R.C.E. 52241 Date	
Edited	M.W.	M. Widelski	10/18			DRAWING NUMBER D-35A	
Reviewed	RP	S. Engeda	03/22				

**TABLE OF DIMENSIONS AND QUANTITIES
FOR HEADWALLS SHOWN ON D-35A**

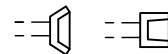
NOTE: DIMENSIONS E AND L APPLY TO WING TYPE ONLY.

Ø OF PIPE	DIMENSIONS			SINGLE PIPE					DOUBLE PIPE				
				W	U TYPE		WING TYPE		W	U TYPE		WING TYPE	
	L	E	F		CONC. (CY)	STEEL (LBS)	CONC. (CY)	STEEL (LBS)		CONC. (CY)	STEEL (LBS)	CONC. (CY)	STEEL (LBS)
42"	3'-7 1/4"	2'	3'	4'	1.57	117	1.90	135	10'	2.69	190	3.16	214
48"	4'-6"	2'-6"	3'-9"	4'-6"	1.97	153	2.48	184	11'-4"	3.43	252	4.06	288
54"	5'-4 7/8"	3'	4'-6"	5'	2.41	190	3.07	246	12'-8"	4.24	319	5.06	368
60"	6'-3 3/4"	3'-6"	5'-3"	5'-6"	2.88	239	3.75	294	14'	5.13	386	6.17	442
66"	7'-2 1/2"	4'	6'	6'	3.38	294	4.52	356	15'-4"	6.08	454	7.20	516
72"	8'-1 3/8"	4'-6"	6'-9"	6'-6"	3.93	368	5.52	417	16'-8"	7.11	522	8.30	588
78"	9'	5'	7'-6"	7'	4.50	444	6.70	503	18'	8.20	595	9.50	693
84"	9'-10 3/4"	5'-6"	8'-3"	7'-6"	5.21	540	8.15	619	19'-4"	9.50	687	10.80	786

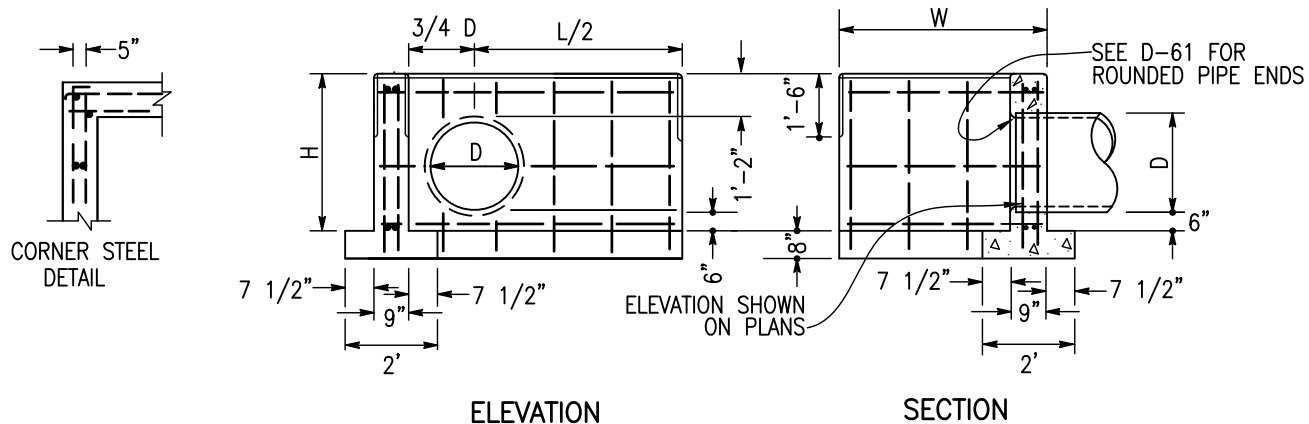
NOTES

1. SKEWED PIPES: DIMENSION W TO BE INCREASED TO TAKE CARE OF INCREASED WIDTH OR LENGTH DUE TO SKEW OF MULTIPLE PIPES.
2. TOP OF HEADWALL SHALL BE PLACED APPROXIMATELY PARALLEL TO PROFILE GRADE WHEN THE GRADE IS 3% OR MORE.
3. CONCRETE SHALL BE 560-C-3250.
4. EXPOSED CORNERS SHALL BE 3/4" CHAMFERED.
5. MULTIPLE PIPES SHALL BE SET A DISTANCE OF D/2, WITH A 1' MINIMUM, BETWEEN OUTSIDE DIAMETERS OF PIPES.
6. USE ALTERNATE DETAIL C FOR PIPE WALL THICKNESS GREATER THAN 3".

LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75				
Edited	T.R.	T. Regello	10/15	WING AND U TYPE HEADWALLS FOR 42" TO 84" PIPE		03/24/2022	
Edited	M.W.	M. Widelski	10/18			Chairperson R.C.E. 52241 Date	
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER D-35B	

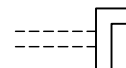


D	H	L/2	W									
			3'-4"		4'-10"		6'-4"		7'-10"		9'-4"	
			STEEL (LBS)	CONCRETE (C.Y.)	STEEL (LBS)	CONCRETE (C.Y.)	STEEL (LBS)	CONCRETE (C.Y.)	STEEL (LBS)	CONCRETE (C.Y.)	STEEL (LBS)	CONCRETE (C.Y.)
12"	2'-8"	2'-6"	50	0.79	60	0.98	—	—	—	—	—	—
15"	2'-11"	3'	55	0.91	65	1.11	—	—	—	—	—	—
18"	3'-2"	3'-6"	65	1.04	75	1.25	—	—	—	—	—	—
21"	3'-5"	3'-9"	75	1.15	90	1.36	—	—	—	—	—	—
24"	3'-8"	4'-3"	85	1.29	100	1.51	110	1.74	—	—	—	—
27"	3'-11"	4'-9"	90	1.44	105	1.67	115	1.91	—	—	—	—
30"	4'-2"	5'	95	1.55	110	1.80	120	2.05	135	2.29	—	—
33"	4'-5"	5'-6"	105	1.71	120	1.97	135	2.23	150	2.48	—	—
36"	4'-8"	6'	110	1.88	125	2.15	140	2.41	155	2.68	170	2.95
39"	4'-11"	6'-3"	—	—	150	2.28	170	2.56	185	2.84	200	3.12
42"	5'-2"	6'-9"	—	—	155	2.42	175	2.76	190	3.05	210	3.34
45"	5'-5"	7'-3"	—	—	—	—	180	2.97	200	3.27	215	3.57
48"	5'-8"	7'-6"	—	—	—	—	190	3.13	216	3.44	230	3.75
51"	5'-11"	8'	—	—	—	—	—	—	220	3.67	235	3.99
54"	6'-2"	8'-6"	—	—	—	—	—	—	235	3.91	250	4.24

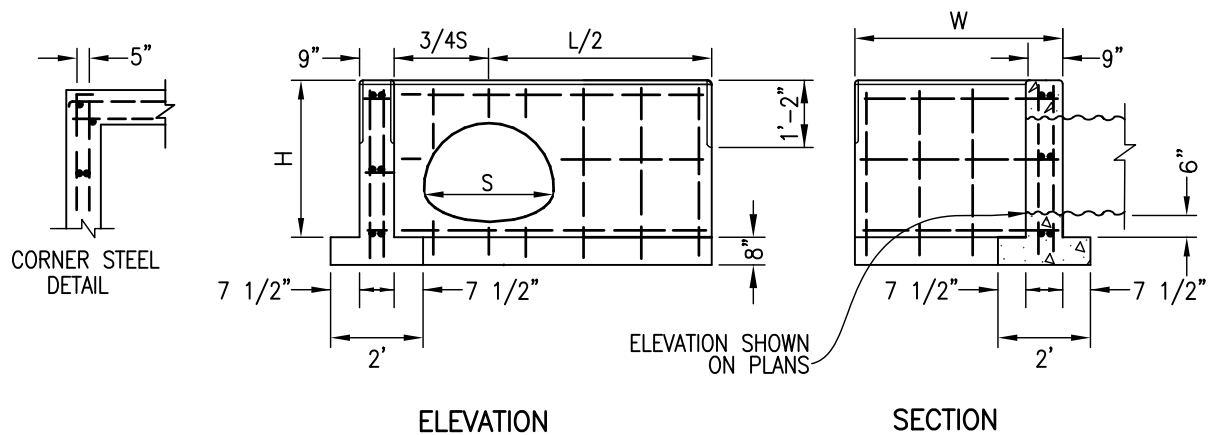
NOTES

1. CONCRETE SHALL BE 560-C-3250.
2. ALL REINFORCING STEEL SHALL BE #4 BARS. ALL VERTICAL AND HORIZONTAL TIE BARS SHALL HAVE 18" MAXIMUM SPACING.
3. WHEN MULTIPLE PIPES ARE USED, THE DISTANCE BETWEEN PIPES SHALL BE D/2 (1' MIN). THE DIMENSION L/2 IS FROM THE CENTER OF THE PIPE TO THE END OF THE HEADWALL AS SHOWN.
4. EXPOSED CORNERS SHALL BE 3/4" CHAMFERED.

LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			
Edited	T.R.	T. Regello	10/15	L TYPE HEADWALLS (CIRCULAR PIPES)	 03/24/2022	
Edited	M.W.	M. Widski	10/18		Chairperson R.C.E. 52241 Date	
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER	D-36

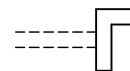


CSP ARCH SIZE	H	L/2	LENGTH OF W									
			3'-4"		4'-10"		6'-4"		7'-10"		9'-4"	
			STEEL (LBS)	CONCRETE (C.Y.)	STEEL (LBS)	CONCRETE (C.Y.)	STEEL (LBS)	CONCRETE (C.Y.)	STEEL (LBS)	CONCRETE (C.Y.)	STEEL (LBS)	CONCRETE (C.Y.)
18"x11"	2'-7"	2'-9"	50	0.84	60	1.03	70	1.21	80	1.39	90	1.57
21"x15"	2'-11"	3'-3"	60	1.00	65	1.18	75	1.38	90	1.58	100	1.77
24"x18"	3'-2"	3'-9"	60	1.07	70	1.32	80	1.53	95	1.74	110	1.94
28"x20"	3'-4"	4'-3"	70	1.26	80	1.47	90	1.68	100	1.90	115	2.11
35"x24"	3'-8"	5'-3"	100	1.51	110	1.74	120	1.97	140	2.20	155	2.42
42"x29"	4'-1"	6'-3"	115	1.82	130	2.06	140	2.31	155	2.55	170	2.83
49"x33"	4'-5"	7'-3"	130	2.12	145	2.37	155	2.64	170	2.90	185	3.15
57"x38"	4'-10"	8'-6"	145	2.52	160	2.79	175	3.07	190	3.35	205	3.61
64"x43"	5'-3"	9'-6"	185	2.89	200	3.11	215	3.48	235	3.77	250	4.06
71"x47"	5'-7"	10'-6"	200	3.25	215	3.56	235	3.86	250	4.17	270	4.48

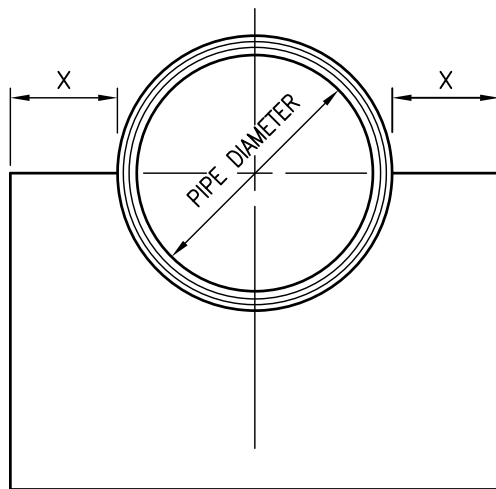
NOTES

1. CONCRETE SHALL BE 560-C-3250.
2. ALL REINFORCING STEEL SHALL BE #4 BARS. ALL VERTICAL AND HORIZONTAL TIE BARS SHALL HAVE 18" MAXIMUM SPACING.
3. WHEN MULTIPLE PIPES ARE USED, THE DISTANCE BETWEEN PIPES SHALL BE S/2 (1' MIN). THE DIMENSION L/2 IS FROM THE CENTER OF THE PIPE TO THE END OF THE HEADWALL AS SHOWN.
4. EXPOSED CORNERS SHALL BE 3/4" CHAMFERED.

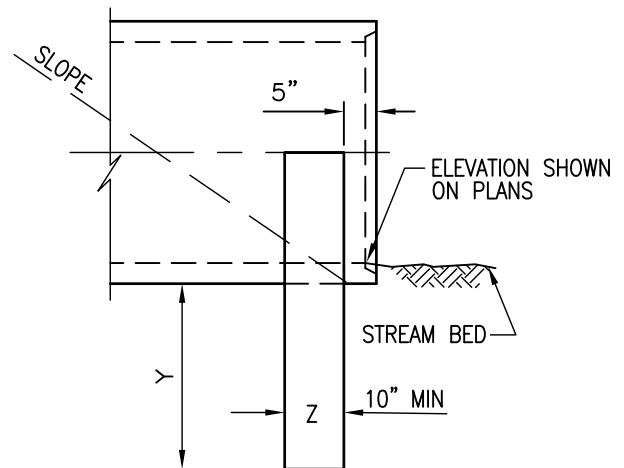
LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	L TYPE HEADWALLS [CORRUGATED STEEL PIPE - ARCH]		 03/24/2022	
Edited	T.R.	T. Regello	10/15			Chairperson R.C.E. 52241 Date	
Edited	M.W.	M. Widelski	10/18			DRAWING NUMBER D-37	
Reviewed	RP	S. Engeda	03/22				



FACE ELEVATION



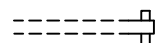
SIDE ELEVATION

PIPE DIAMETER	X	Y	Z
12" TO 24"	1'	2'	10"
21" TO 36"	1'-6"	2'-6"	12"
39" TO 48"	2'	3'	12"
51" TO 60"	2'-6"	3'	14"
63" & LARGER	3'	3'	14"

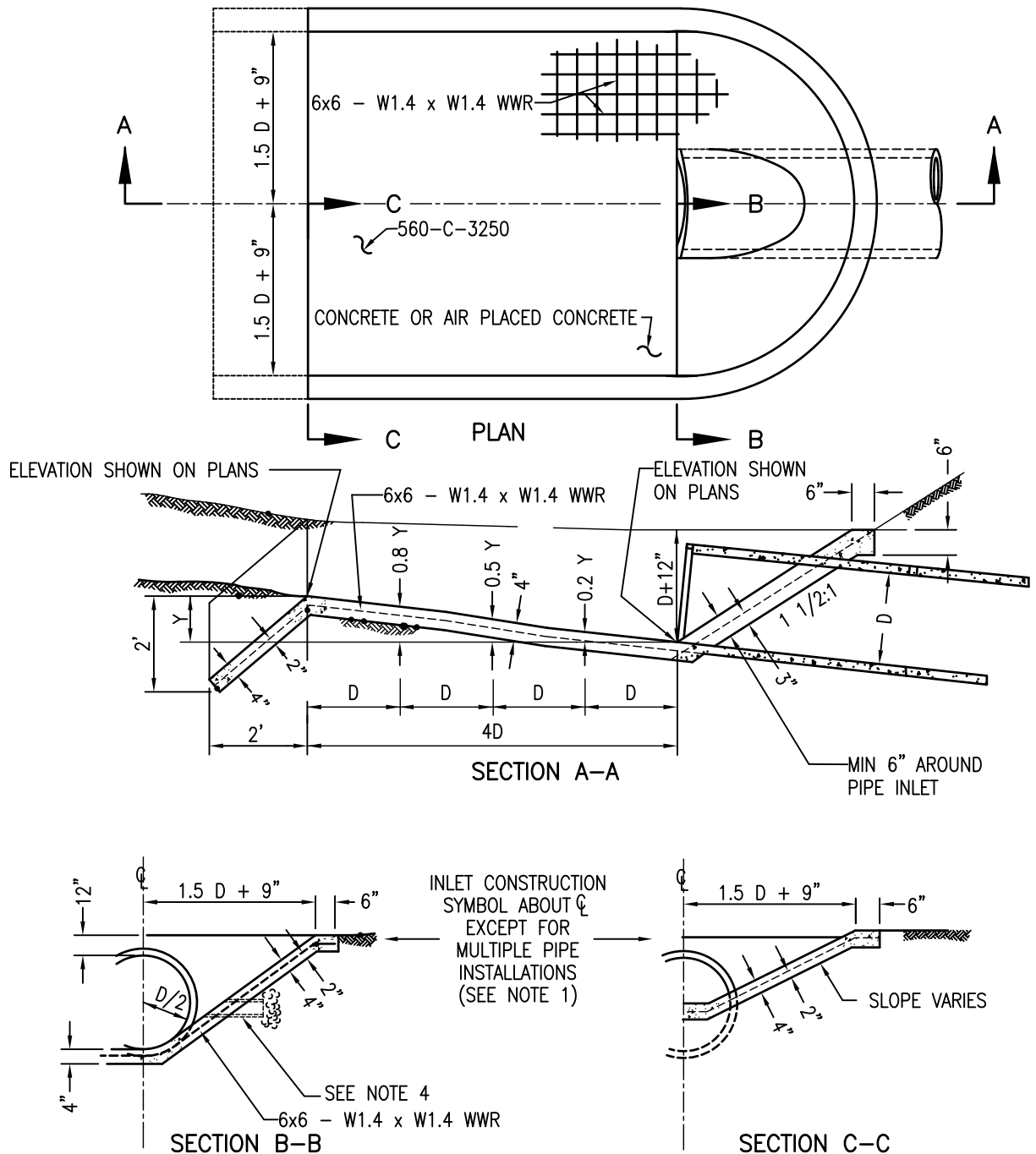
NOTES

1. USE A CURTAIN WALL AT THE END OF A CULVERT INSTEAD OF A HEADWALL WHEN IT IS LIKELY THAT THE CULVERT WILL BE EXTENDED IN THE NEAR FUTURE, OR WHEN A HEADWALL IS NOT NEEDED TO RETAIN THE PIPE BACKFILL.
2. CONCRETE SHALL BE 560-C-3250.
3. KEEP THE PIPE-END CLEAR OF OBSTRUCTIONS TO PERMIT EASY PLACING OF CULVERT EXTENSION.

LEGEND ON PLANS



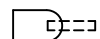
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	CURTAIN WALL	 03/24/2022 Chairperson R.C.E. 52241 Date
Edited	M.W	M. Widelski	10/18		
Reviewed	RP	S. Engeda	03/22		
				DRAWING NUMBER	



NOTES

1. WHEN MORE THAN ONE PIPE IS USED THE PROFILE VIEW SHOWN SHALL HOLD THE DISTANCE ACROSS ALL PIPE OPENINGS. SECTION A-A AND B-B SHALL BE FROM THE OUTERMOST PIPE. THE DISTANCE BETWEEN PIPES SHALL BE $D/2$ FOR ROUND AND $SPAN/3$ FOR ARCH PIPE (1' MINIMUM).
2. CULVERT SHALL BE CUT OFF EVEN WITH APRON SURFACE WHEN REQUIRED BY THE AGENCY.
3. USE INLET APRON ONLY WHERE A FLARED END SECTION CANNOT BE UTILIZED.
4. PLACE WEEP HOLES WHEN REQUIRED BY AGENCY.

LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	INLET APRON FOR CULVERTS UP TO 42" DIAMETER		 03/24/2022 Chairperson R.C.E. 52241 Date
Edited	T.R.	T. Regello	10/15			
Edited	M.W.	M. Widelski	10/18			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER D-39

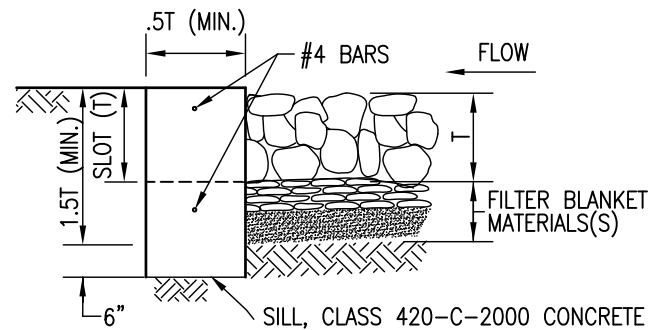
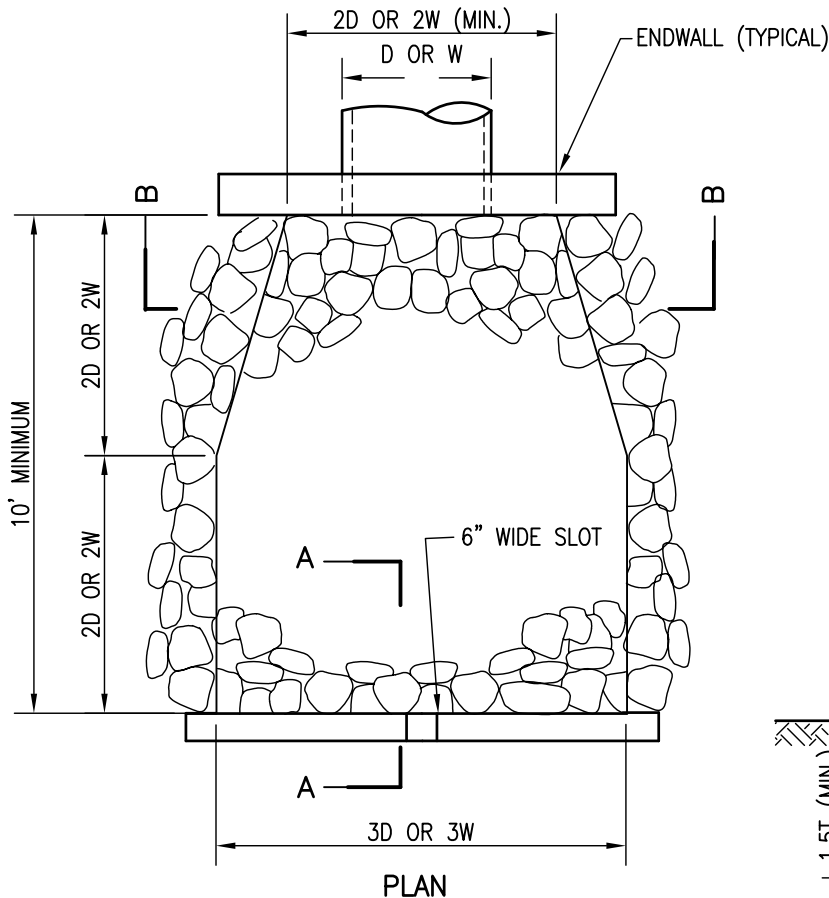
TABLE 7-1 (BELOW) PER JULY 2005
SAN DIEGO COUNTY DRAINAGE DESIGN MANUAL

DESIGN VELOCITY (FT/SEC) *	ROCK CLASS	RIP-RAP THICKNESS "T" (MIN)
6-10	NO. 2 BACKING	1.1 FT
10-12	1/4 TON	2.7 FT
12-14	1/2 TON	3.5 FT
14-16	1 TON	4.4 FT
16-18	2 TON	5.4 FT

* OVER 20 FT/SEC REQUIRES SPECIAL DESIGN

D = PIPE DIAMETER ϕ

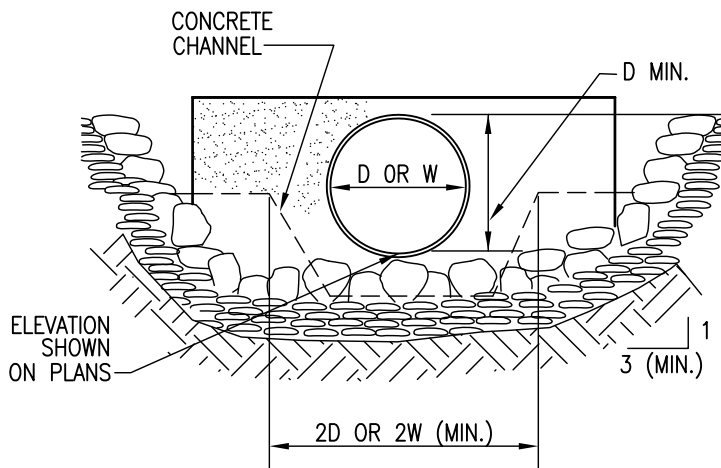
W = BOTTOM WIDTH OF CHANNEL



SECTION A-A

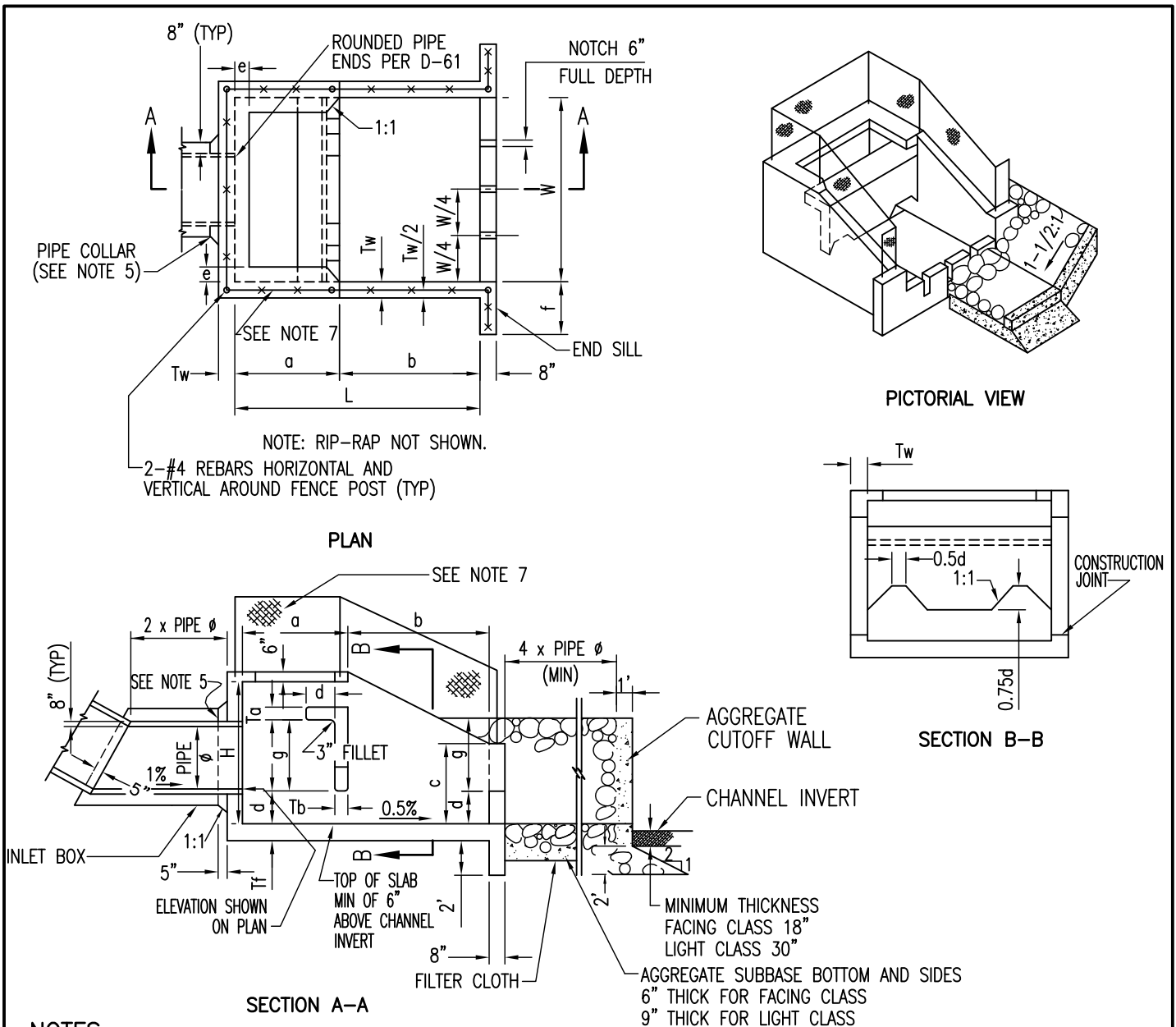
NOTES

- PLANS SHALL SPECIFY:
(A) ROCK CLASS AND RIP-RAP THICKNESS (T). T SHALL BE AT LEAST 1.5 TIMES THE NOMINAL EQUIVALENT DIAMETER OF STONE (d_{50}) OF THE SPECIFIED RIP-RAP.
(B) FILTER BLANKET MATERIAL, NUMBER OF LAYERS AND THICKNESS.
- RIP-RAP SHALL BE EITHER QUARRY STONE OR BROKEN CONCRETE (IF SHOWN ON PLANS). COBBLES ARE NOT ACCEPTABLE.
- RIP-RAP SHALL BE PLACED OVER FILTER BLANKET MATERIAL, WHICH MAY BE EITHER GRANULAR MATERIAL OR NON-WOVEN GEOTEXTILE FILTER FABRIC; MATERIAL AT WEIGHT SPECIFIED IN PLANS OR SPECIFICATIONS.
- SEE TABLE 200-1.7 IN THE SAN DIEGO REGIONAL SUPPLEMENT TO GREENBOOK FOR SELECTION OF FILTER BLANKET.
- RIP-RAP ENERGY DISSIPATORS SHALL BE DESIGNATED AS EITHER TYPE 1 OR TYPE 2. TYPE 1 SHALL BE WITH CONCRETE SILL; TYPE 2 SHALL BE WITHOUT SILL.



SECTION B-B

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	RIP RAP ENERGY DISSIPATER	 Chairperson R.C.E. 52241 Date 03/24/2022
Edited	M.W.	M. Widelski	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER D-40



NOTES

1. DESIGN: EQUIVALENT FLUID PRESSURE (EARTH LOADING) = 60 PCF
MAXIMUM OUTLET VELOCITY = 35 FPS
2. CONCRETE SHALL BE 560-C-3250.
3. REINFORCING SHALL CONFORM TO ASTM DESIGNATION A615 AND MAY BE GRADE 40 OR 60.
REINFORCING SHALL BE PLACED TO HAVE 2" OF CONCRETE COVER UNLESS NOTED OTHERWISE.
SPICES SHALL NOT BE PERMITTED EXCEPT AS INDICATED ON THE PLANS.
4. FOR PIPE GRADES NOT EXCEEDING 20%, INLET BOX MAY BE OMITTED.
5. CONSTRUCT PIPE COLLAR AS SHOWN IF INLET BOX IS OMITTED.
6. UNLESS NOTED OTHERWISE, ALL REINFORCING BAR BENDS SHALL BE FABRICATED WITH STANDARD HOOKS.
7. EMBED FIVE FOOT HIGH CHAIN LINK FENCING POST 18" DEEP INTO WALLS AND ENCASE WITH CLASS B MORTAR.
8. IN SANDY AND SILTY SOIL:
 - A) RIP-RAP AND AGGREGATE BASE CUTOFF WALL REQUIRED AT THE END OF ROCK APRON.
 - B) FILTER CLOTH (POLYFILTER X OR EQUIVALENT) SHALL BE INSTALLED ON NATIVE SOIL BASE,
MINIMUM OF 1 FT OVERLAPS AT JOINTS.
9. RIP-RAP AND SUBBASE CLASSIFICATION SHALL BE SHOWN ON PLANS.

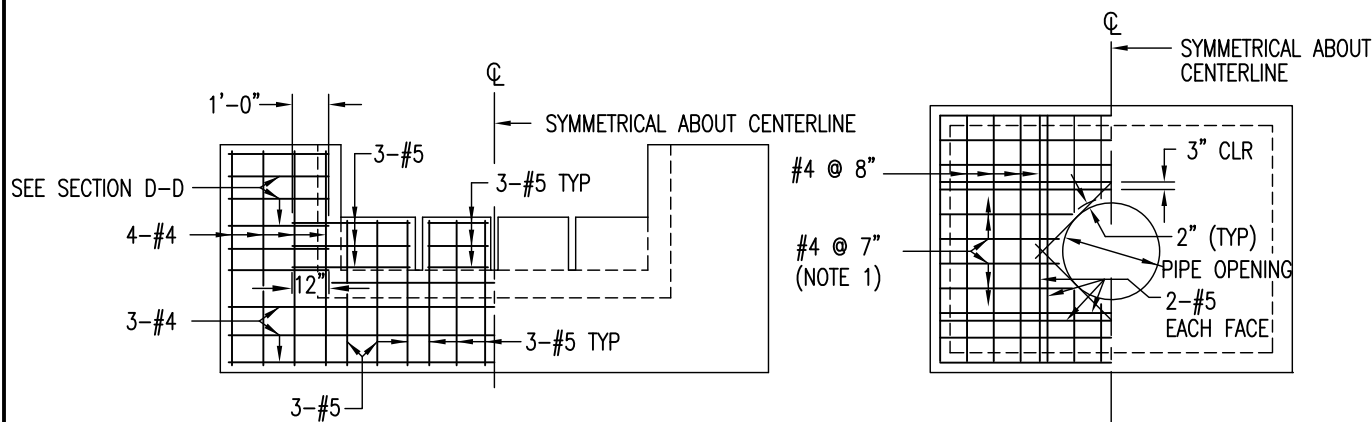
SEE D-41B FOR DIMENSIONS.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	CONCRETE ENERGY DISSIPATER	 03/24/2022 Chairperson R.C.E. 52241 Date
Edited	M.W.	M. Widelski	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER D-41A

CONCRETE ENERGY DISSIPATER DIMENSION TABLE
(SEE D-41A FOR STRUCTURE DETAILS)

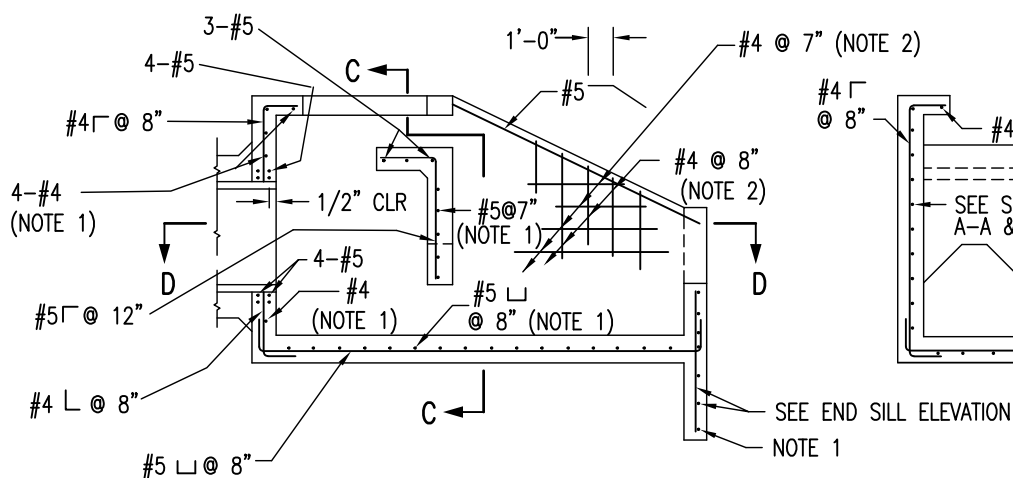
PIPE Ø (IN)	18	24	30	36	42	48	54	60	72
AREA (SF)	1.77	3.14	4.91	7.07	9.62	12.57	15.90	19.63	28.27
MAX Q (CFS)	21	38	59	85	115	151	191	236	339
W	5'-6"	6'-9"	8'	9'-3"	10'-6"	11'-9"	13'	14'-3"	16'-6"
H	4'-3"	5'-3"	6'-3"	7'-3"	8'	9'	9'-9"	10'-9"	12'-3"
L	7'-4"	9'	10'-8"	12'-4"	14'	15'-8"	17'-4"	19'	22'
a	3'-3"	3'-11"	4'-7"	5'-3"	6'	6'-9"	7'-4"	8'	9'-3"
b	4'-1"	5'-1"	6'-1"	7'-1"	8'	8'-11"	10'	11'	12'-9"
c	2'-4"	2'-10"	3'-4"	3'-10"	4'-5"	4'-11"	5'-5"	5'-11"	6'-11"
d	0'-11"	1'-2"	1'-4"	1'-7"	1'-9"	2'	2'-2"	2'-5"	2'-9"
e	0'-6"	0'-6"	0'-8"	0'-8"	0'-10"	0'-10"	1'	1'	1'-3"
f	1'-6"	2'	2'-6"	3'	3'	3'	3'	3'	3'
g	2'-1"	2'-6"	3'	3'-6"	3'-11"	4'-5"	4'-11"	5'-4"	6'-2"
Tf	8"			10"		12"			
Tb	7"			9 1/2"		10 1/2"			
Tw	7"			9 1/2"		10 1/2"			
Ta	7"			8"					

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			<i>Saman Engeda</i> 03/24/2022	
Edited	T.R.	T. Regello	10/15	CONCRETE ENERGY DISSIPATER		Chairperson R.C.E. 52241 Date	
Edited	M.W.	M. Widelski	10/18				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER D-41B	

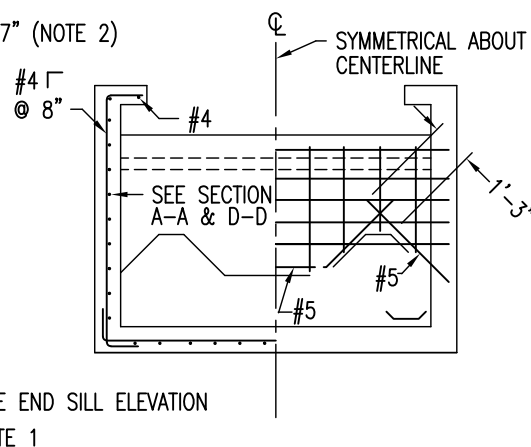


END SILL ELEVATION

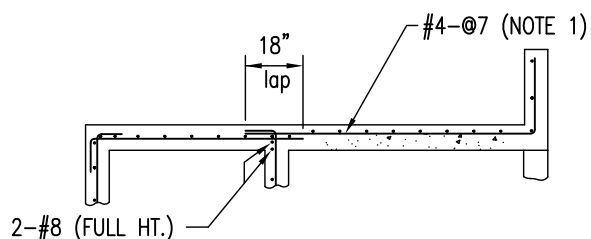
HEADWALL ELEVATION



SECTION A-A



SECTION C-C

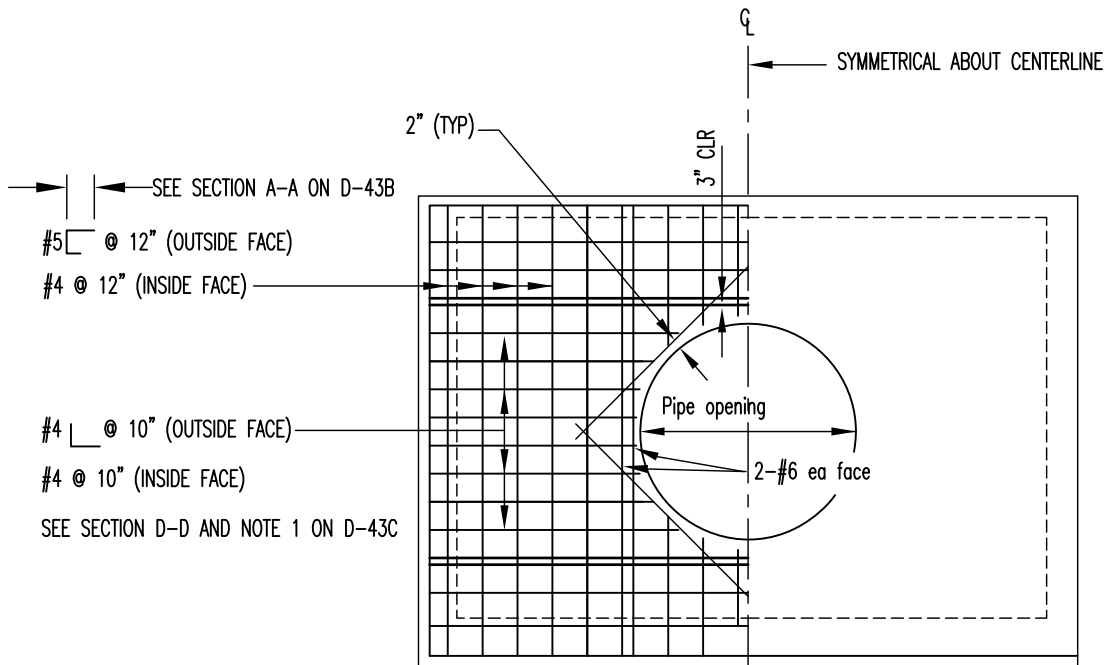


SECTION D-D

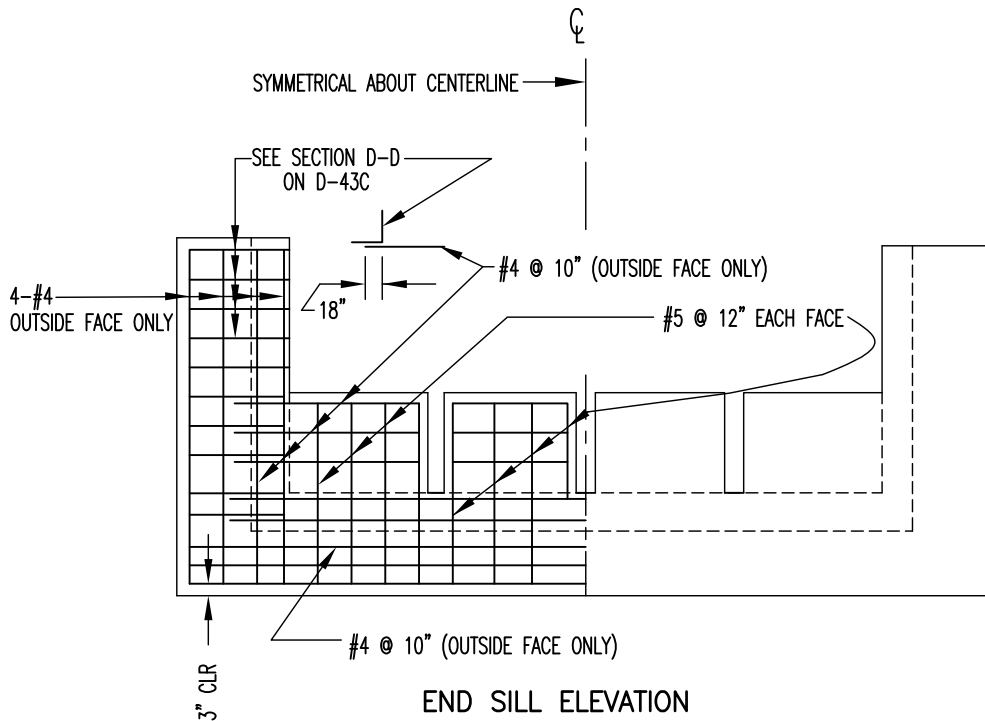
NOTES

1. PLACE REINFORCING, AS NOTED, AT CENTER OF WALL (OR SLAB).
2. MATCH LOCATION OF REINFORCING WITH THAT IN HEADWALL, END SILL AND FOUNDATION SLAB.
3. ALL REINFORCING SHALL BE PLACED WITH 2" CONCRETE COVER, UNLESS NOTED OTHERWISE.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	CONCRETE ENERGY DISSIPATER (REINFORCEMENT) 18" TO 30" DIAMETER PIPE		
Edited	T.R.	T. Regello	10/15			
Edited	M.W.	M. Widelski	10/18			
Reviewed	RP	S. Engeda	03/22			
						 03/24/2022 Chairperson R.C.E. 52241 Date
						DRAWING NUMBER D-42



HEADWALL ELEVATION



END SILL ELEVATION

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

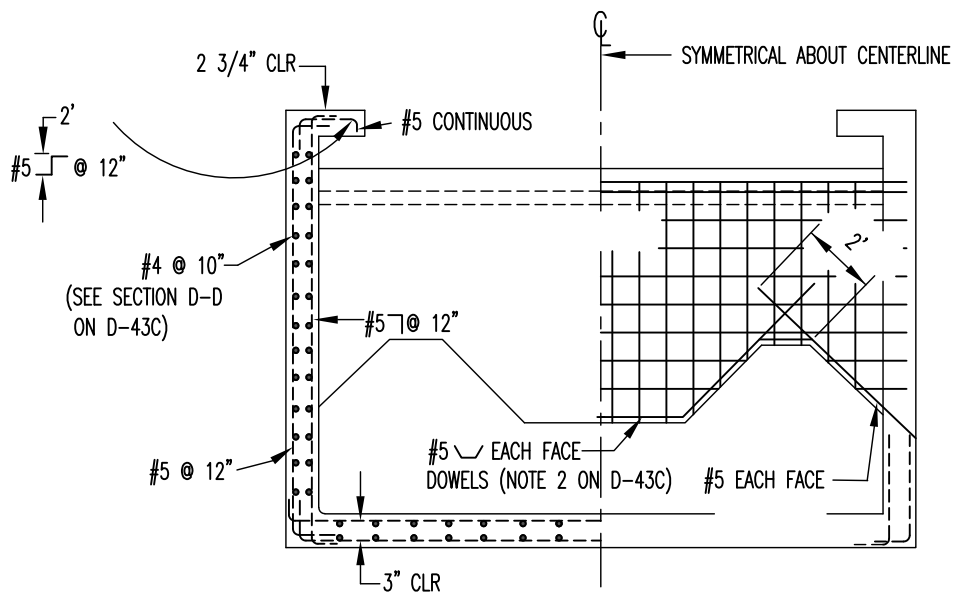
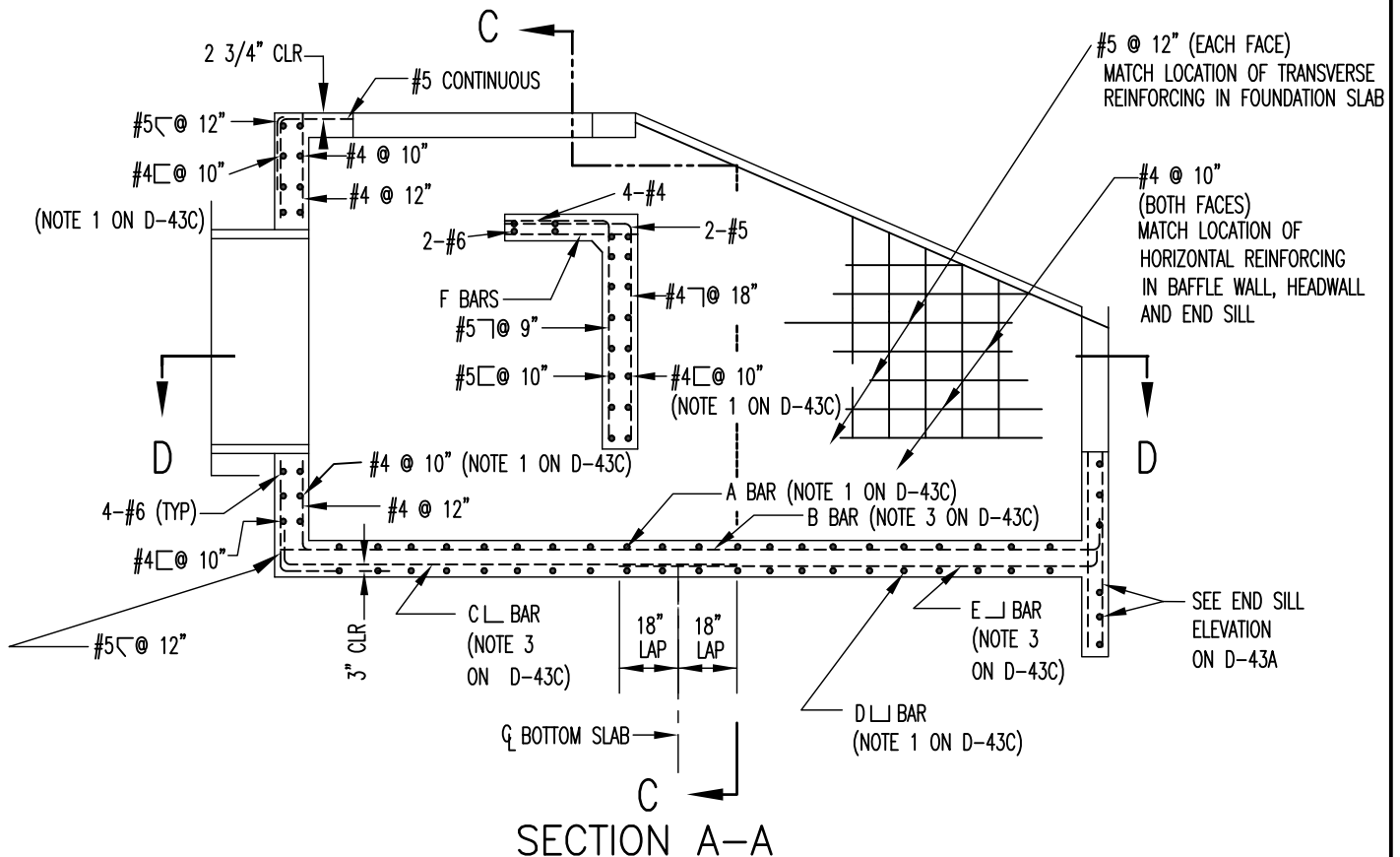
**CONCRETE ENERGY DISSIPATER
(REINFORCEMENT)
36" TO 72" DIAMETER PIPE**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022

Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-43A**



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

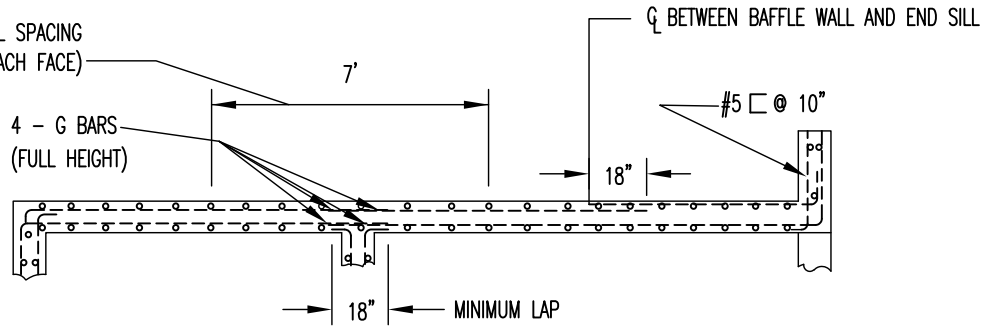
**CONCRETE ENERGY DISSIPATER
(REINFORCEMENT)
36" TO 72" DIAMETER PIPE**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samsir Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-43B**

ADD #4 @ 20" VERTICAL SPACING
TO REINFORCING SHOWN (EACH FACE)



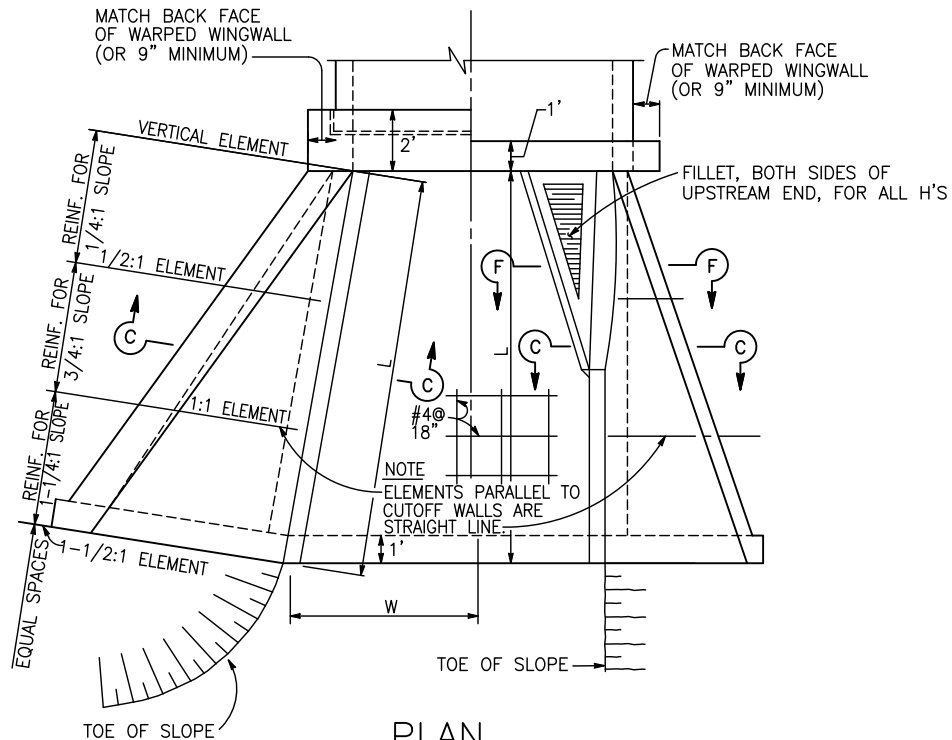
SECTION D-D

PIPE Ø (IN.)	36"	42"	48"	54"	60"	72"
A BAR	# 5 @ 12"		#6 @ 12"		#7 @ 12"	
B BAR	# 5 @ 12"		#6 @ 12"			
C BAR	# 4 @ 12"		#5 @ 12"			
D BAR	# 4 @ 12"		#5 @ 12"		#6 @ 12"	
E BAR	# 4 @ 12"		#5 @ 12"			
F BAR	# 4 @ 9"		#5 @ 9"			#6 @ 9"
G BAR	# 7			# 11		

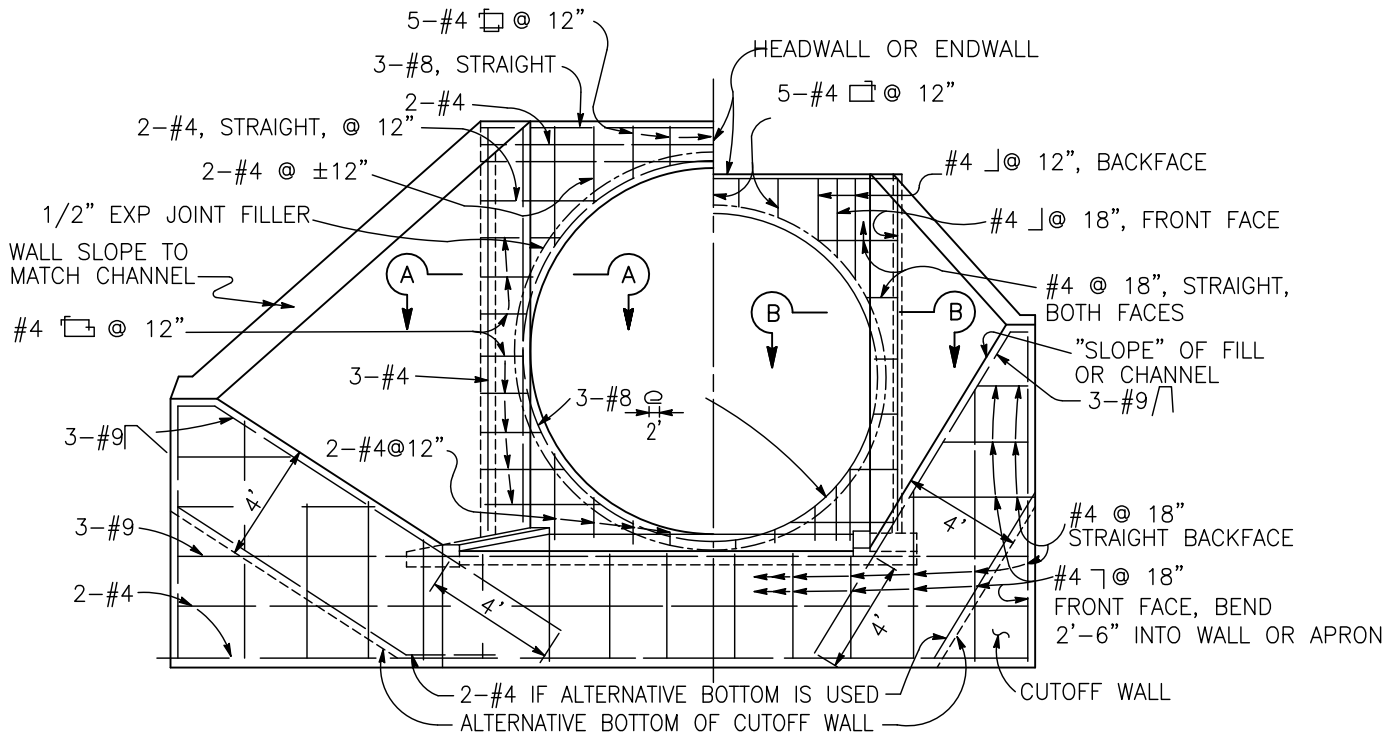
NOTES

1. MATCH LOCATION OF SIDEWALL REINFORCING.
2. DOWELS WITH SAME SIZE AND SPACING AS WALL REINFORCING MAY BE USED IN LIEU OF CONTINUOUS BARS AT CONTRACTOR'S OPTION.
3. MATCH LOCATION OF HEADWALL OR END SILL REINFORCING.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	CONCRETE ENERGY DISSIPATER (REINFORCEMENT) 36" TO 72" DIAMETER PIPE		 03/24/2022 Chairperson R.C.E. 52241 Date	
Edited	T.R.	T. Regello	10/15				
Edited	M.W.	M. Widelski	10/18				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER	D-43C



PLAN



TYPICAL FOR MAXIMUM H > 10'

TYPICAL FOR MAXIMUM H ≤ 10'

END ELEVATION

NOTE

SEE NOTES ON D-44D.

IF AT UPSTREAM END, FILLET IS NOT SHOWN

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

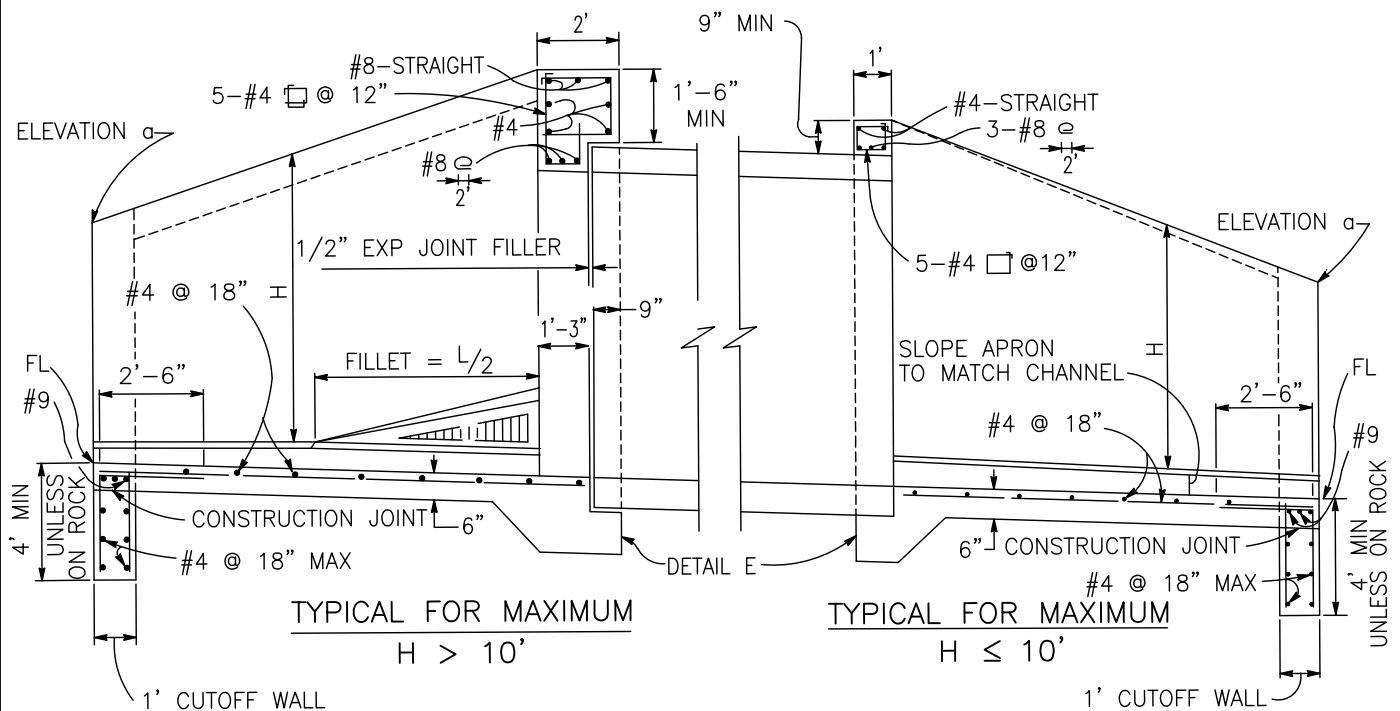
PIPE CULVERT - HEADWALLS,
ENDWALLS & WARPED WINGWALLS

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

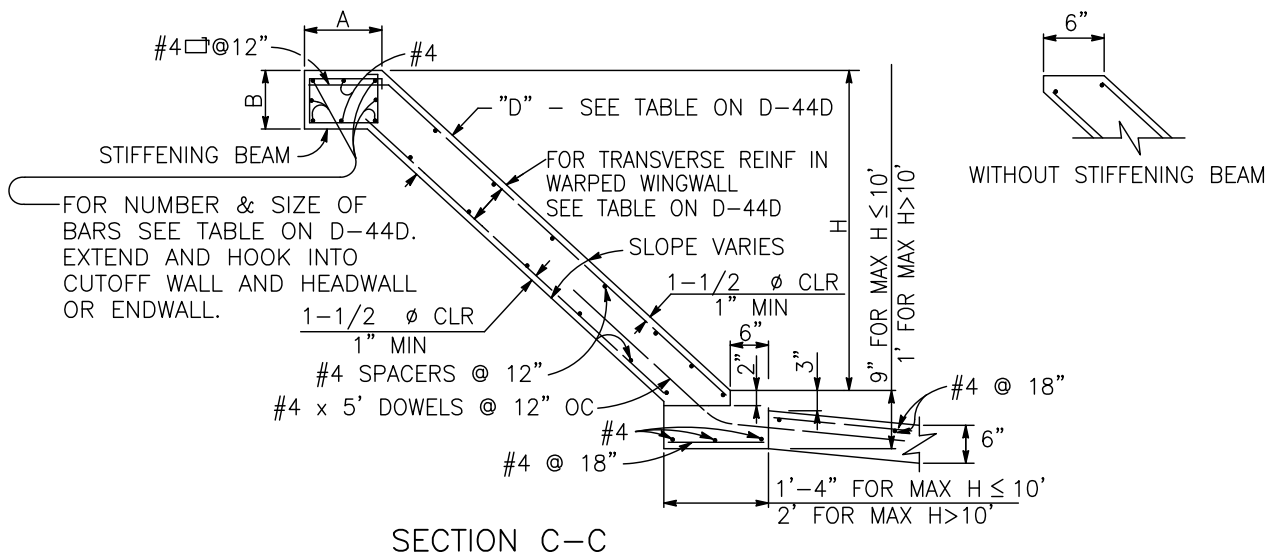
Samsir Engeda 03/24/2022

Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-44A**



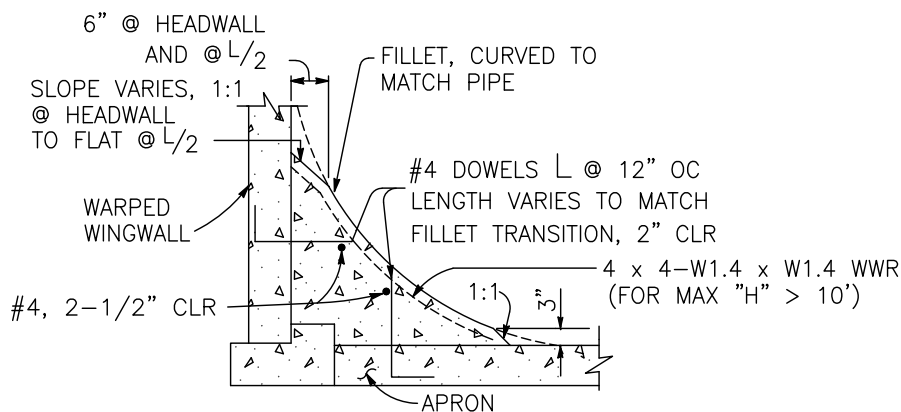
PART LONGITUDINAL SECTION



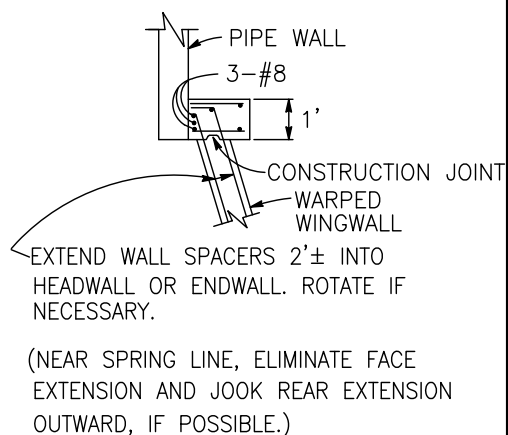
NOTES

1. RCP IS SHOWN. WHEN USING METAL PIPE ELIMINATE THE EXPANSION JOINT AND USE HOOK BOLTS @ 19"± SPACING (SIZE AND LENGTH PROVIDED BY MANUFACTURER).
2. WHERE ABASION IS ANTICIPATED, INCREASE APRON THICKNESS TO 7" MINIMUM TO PROVIDE 2" MINIMUM REINFORCEMENT COVERAGE.

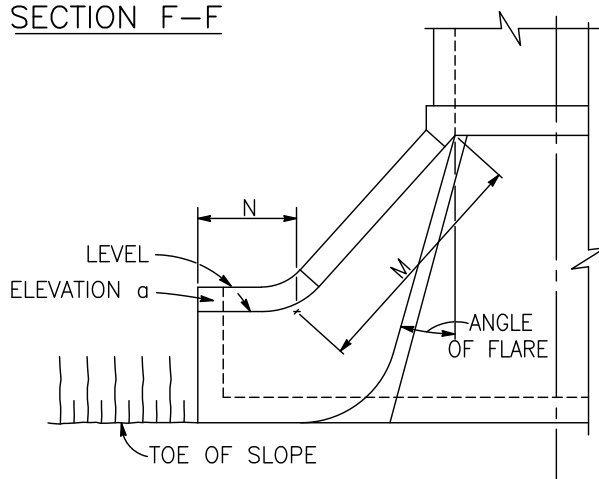
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	PIPE CULVERT - HEADWALLS, ENDWALLS & WARPED WINGWALLS		 03/24/2022 Chairperson R.C.E. 52241 Date	D-44B
Edited	T.R.	T. Regello	10/15				
Edited	M.W.	M. Widelski	10/18				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER	



SECTION F-F

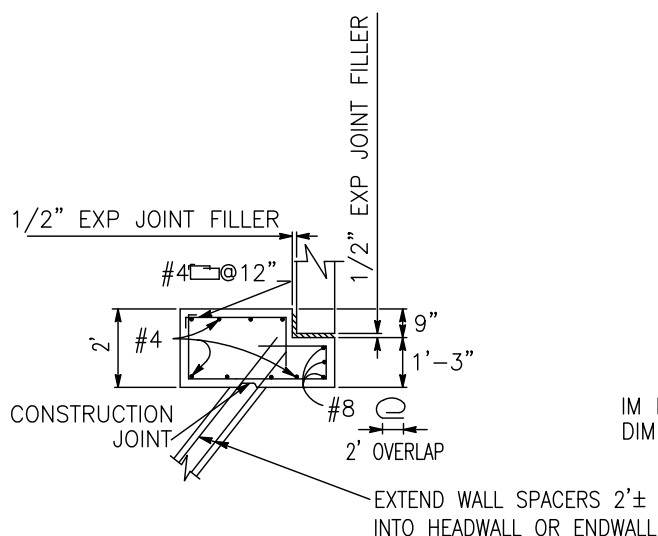


SECTION B-B

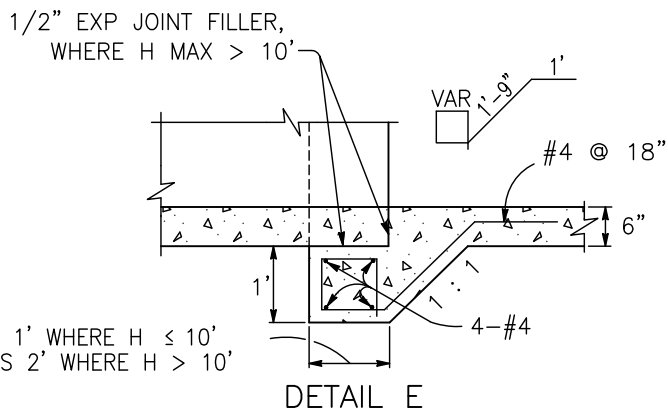


ALTERNATIVE WARPED WINGWALL

USE WHERE ADDITIONAL PROTECTION TO TOE OF EMBANKMENT IS REQUIRED. IF AT UPSTREAM END, FILLET IS NOT SHOWN.



SECTION A-A



DETAIL E

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	PIPE CULVERT - HEADWALLS, ENDWALLS & WARPED WINGWALLS		 03/24/2022 Chairperson R.C.E. 52241 Date
Edited	T.R.	T. Regello	10/15			
Edited	M.W.	M. Widelski	10/18			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER D-44C

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

**PIPE CULVERT - HEADWALLS,
ENDWALLS & WARPED WINGWALLS**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Susan Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

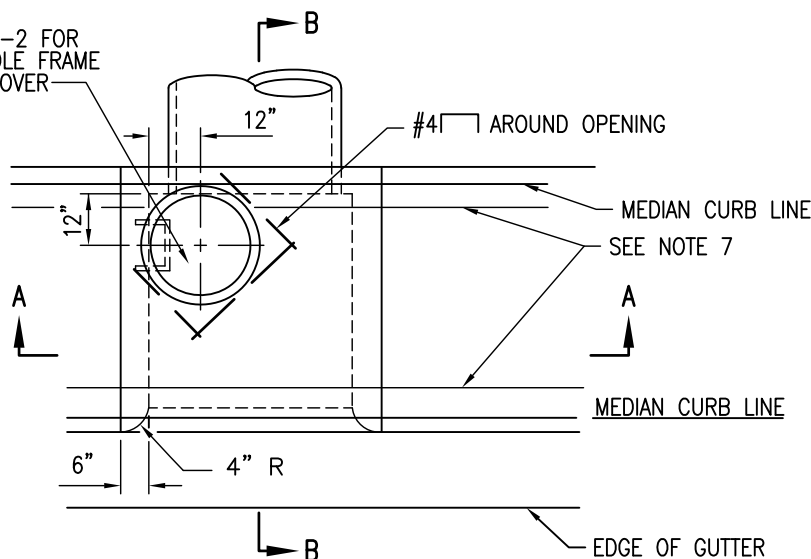
DRAWING
NUMBER **D-44D**

WARPED WINGWALLS (ALL MEASUREMENTS IN FEET AND/OR INCHES UNLESS OTHERWISE NOTED)																							
WALL DIMENSIONS AND REINFORCING										STIFFENING BEAM DIMENSIONS AND REINFORCING													
ELEMENT SLOPE	H	8'OR LESS	10'	12'	14'	16'	18'	20'		L MAX	12'	14'	16'	18'	20'	25'	30'	35'	40' OR MORE				
1/4:1	FRONT FACE REINF	#4@12	#4@7	#5@7	#5@5	#6@6	#7@7	#7@6	6'	NO BEAM. PLACE 2-#6 IN EACH													
	REAR FACE REINF	#4@12	#4@12	#4@12	#4@12	#4@12	#4@12	#4@12		FACE ALONG TOP OF WALL.													
3/4:1	FRONT FACE REINF	#4@12	#4@12	#4@12	#4@12	#4@10	#4@8	#4@6	8'	A= 1'													
	REAR FACE REINF	#4@12	#4@12	#4@12	#4@10	#4@7	#4@6	#5@8		B= 9"													
1-1/4:1	FRONT FACE REINF	#4@12	#4@12	#4@12	#4@12	#4@12	#4@12	#4@12	12'	TOTAL 6-#6									A= 1'-6"				
	REAR FACE REINF	#4@8	#4@8	#4@5	#5@6	#6@7	#6@6	#7@6		TOTAL 6-#7									B= 1'	A= 1'-10"			
D AT CUTOFF WALL	D AT CUTOFF WALL	6"	6"	6"	7-1/2"	8"	9-1/2"	11"	16'	TOTAL 6-#8									B= 1'	A= 2'			
		6"	6"	6"	8"	9-1/2"	11"	1'-1"		TOTAL 8-#9									B= 1'-6"				
D AT CULVERT	D AT CULVERT								18'														

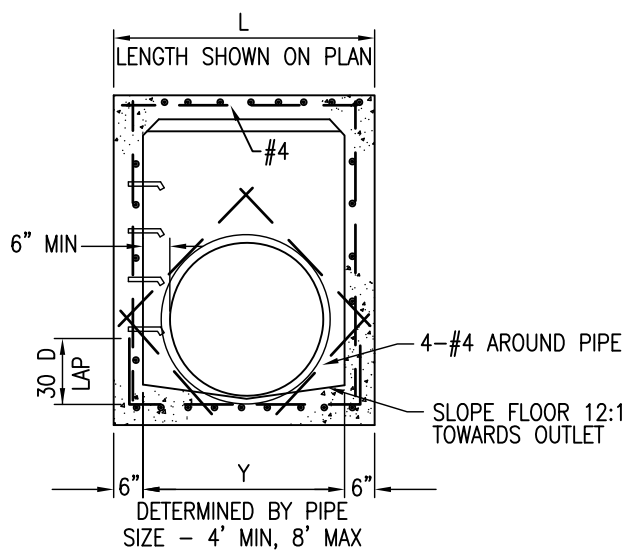
NOTES

1. WALLS DESIGNED FOR 2' SURCHARGE; EARTH DENSITY = 120 # / CF; EQUIVALENT FLUID PRESSURE = 36 #/CF
2. VARY "D" AT WARPED WALL UNIFORMLY FROM THAT AT CUTOFF WALL TO THAT AT CULVERT, FOR MAXIMUM H > 12'.
3. DIMENSIONS "L", "W", "H", "M", "N", "ELEVATION α", "ANGLE OF FLARE", AND END "SLOPE" (AS APPLY) ARE SHOWN ON THE PLANS.
4. ALL EXPOSED CONCRETE EDGES SHALL BE CHAMFERED 3/4".

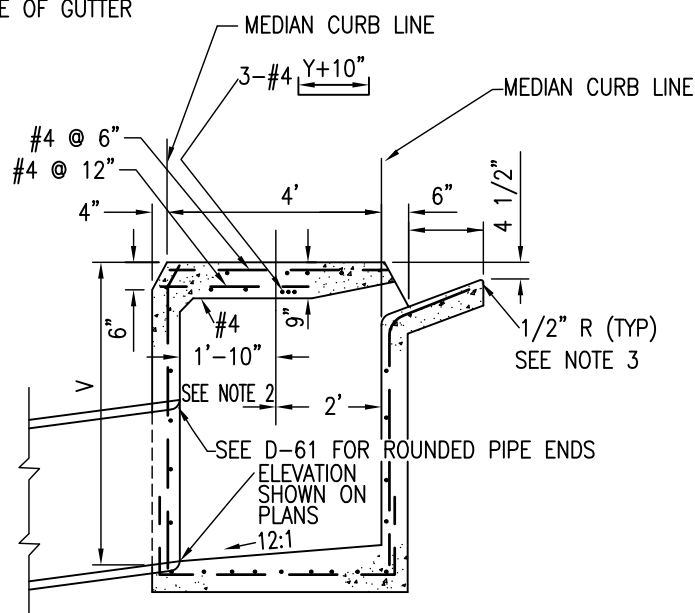
SEE M-2 FOR
MANHOLE FRAME
AND COVER



PLAN



SECTION A-A

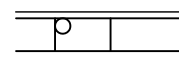


SECTION B-B

NOTES

1. SEE D-11A, D-11B & D-12 FOR ADDITIONAL NOTES AND DETAILS.
2. DIMENSION SHOWN BECOMES 2' WHEN OPENING ON BOTH SIDES. ADJUST MANHOLE AS REQUIRED.
3. EXPOSED EDGES OF CONCRETE SHALL BE ROUNDED WITH A RADIUS OF 1/2".
4. WHEN V EXCEEDS 4' STEPS SHALL BE INSTALLED. SEE D-11A FOR DETAILS.
5. CONCRETE GUTTER TO MATCH SLOPE AND FINISH OF ADJACENT GUTTERS.
6. AN EXPANSION JOINT SHALL BE PLACED AT THE ENDS OF THE INLET WHERE THE MEDIAN CURB IS TO ADJOIN (UNLESS SPECIFIED OTHERWISE).
7. PROVIDE 1/4" TOOLED GROOVE IN TOP SLAB IN LINE WITH BACK OF ADJACENT MEDIAN CURB.
8. MAINTAIN 1 1/2" CLEAR SPACING BETWEEN REINFORCING AND SURFACE UNLESS OTHERWISE NOTED.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		H. Hecht	10/82
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelksi	10/18
Reviewed	RP	C. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

MEDIAN CURB INLET - TYPE J

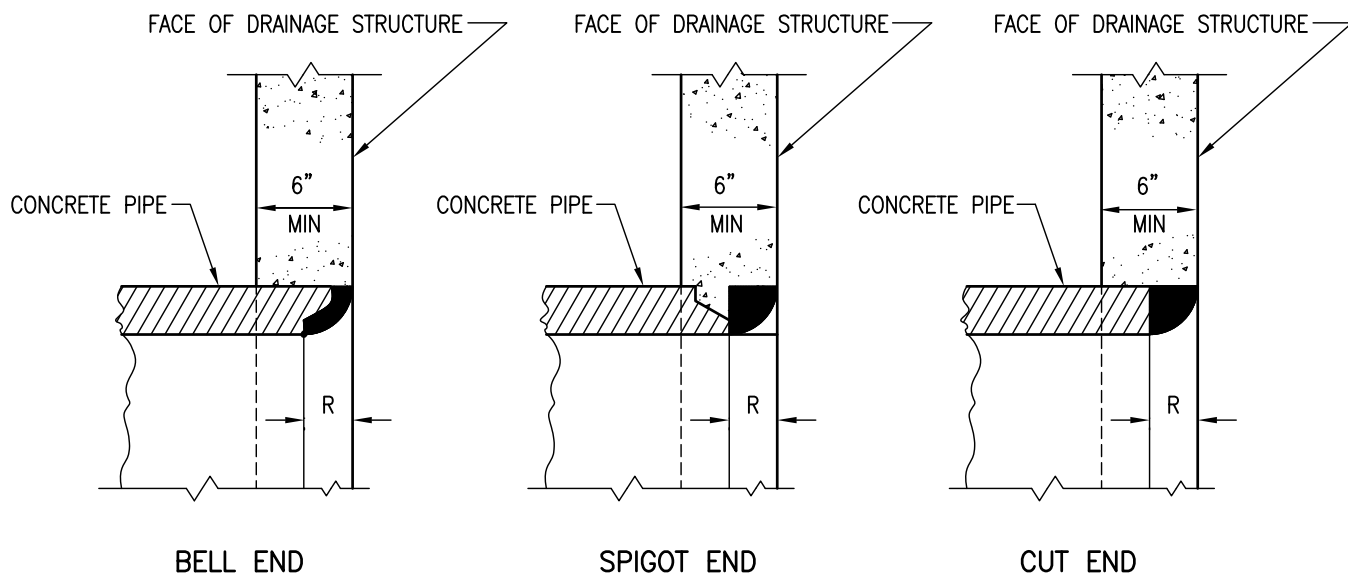
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samson Engeda 03/24/2022

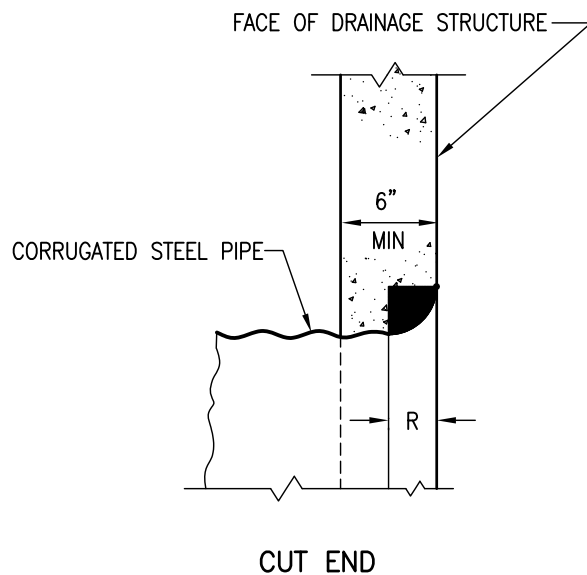
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-45**

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	PIPE BEDDING AND TRENCH BACKFILL FOR STORM DRAINS	 03/24/2022
Edited	M.W.	M. Widdelski	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER D-60



R = THICKNESS OF PIPE

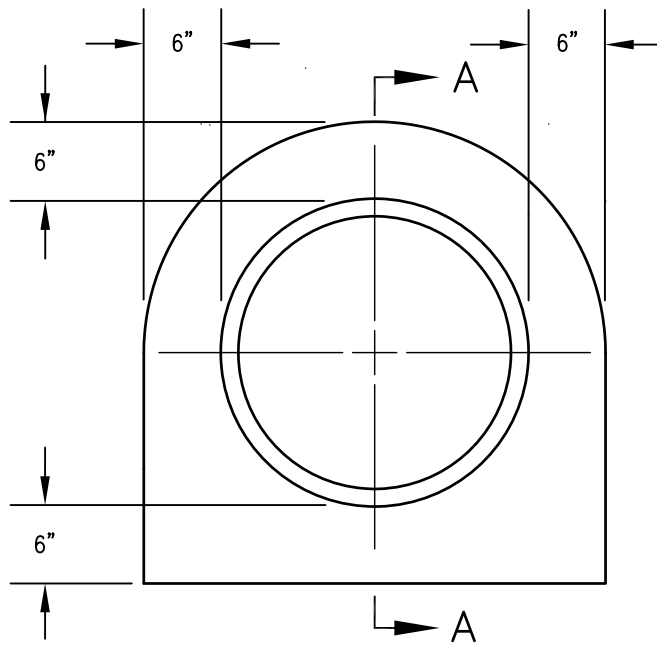


R = $\frac{\text{INSIDE DIAMETER OF PIPE}}{10}$

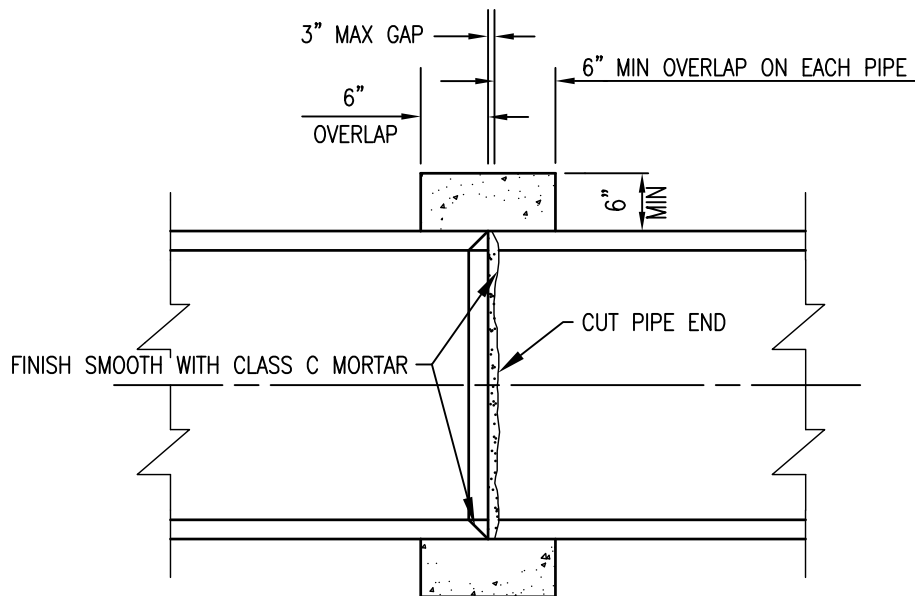
NOTE

THE ROUNDED AREAS MAY BE BUILT UP OF CEMENT MORTAR OR POURED IN PLACE WITH THE DRAINAGE STRUCTURE.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	ROUNDED PIPE ENDS IN DRAINAGE STRUCTURES		 03/24/2022 Chairperson R.C.E. 52241 Date	
Edited	T.R.	T. Regello	10/15				
Edited	M.W.	M. Widelski	10/18				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER D-61	



ELEVATION

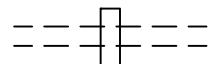


SECTION A-A

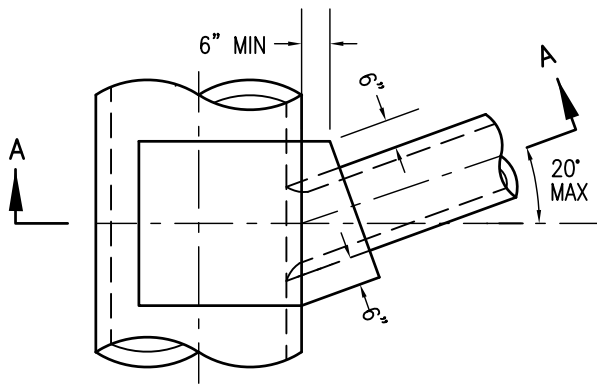
NOTES

1. PIPE COLLAR DOES NOT HAVE TO BE FINISHED IF COVERED.
2. CONCRETE SHALL BE 560-C-3250.
3. AN INTERNAL FORM SHALL BE USED WHERE GAP EXCEEDS 3" BUT IS NOT MORE THAN 6".

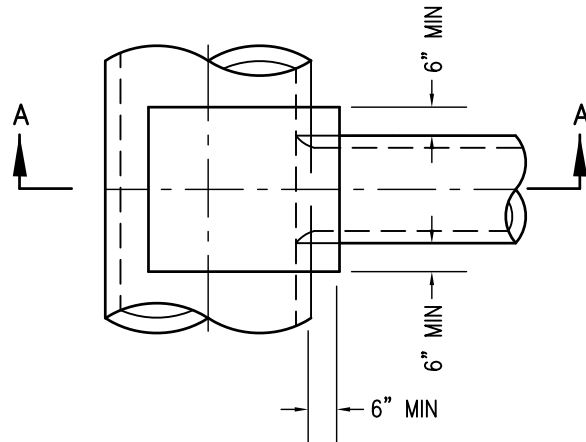
LEGEND ON PLANS



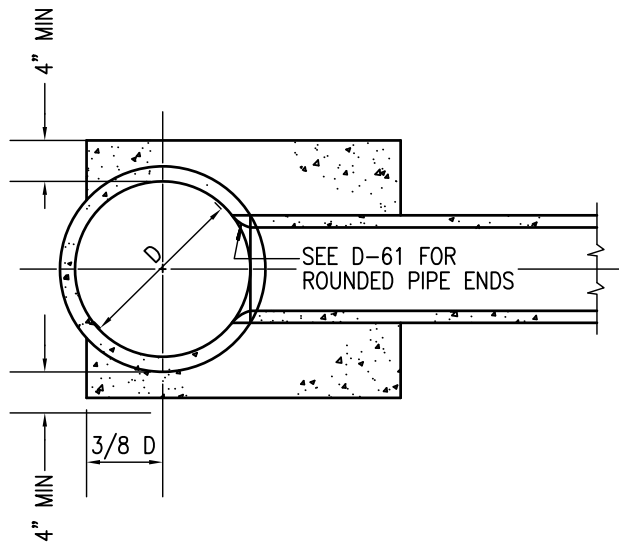
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	PIPE COLLAR	 03/24/2022
Edited	M.W.	M. Widelski	10/18		Chairperson R.C.E. 52241
Reviewed	RP	S. Engeda	03/22		Date
					DRAWING NUMBER



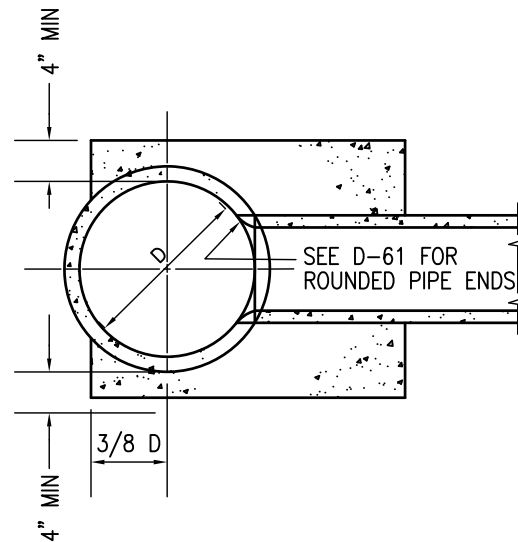
PLAN
SKEWED CONNECTION



PLAN



SECTION A-A

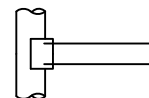


SECTION B-B

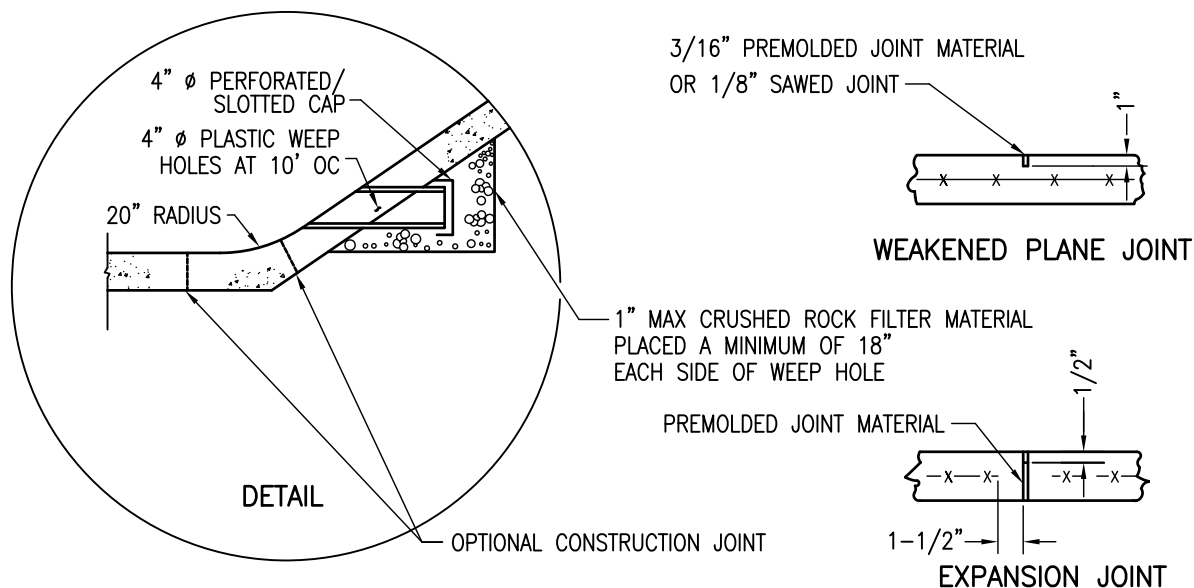
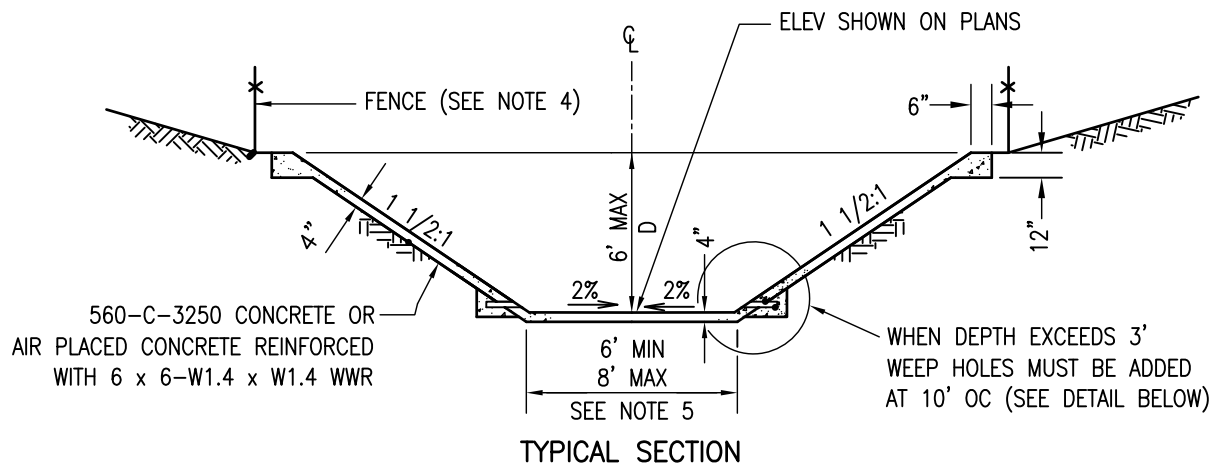
NOTES

1. THE END OF THE CONNECTING PIPE SHALL NOT PROJECT INTO THE WATERWAY OF THE LARGER PIPE.
2. THE LARGER PIPE SHALL NOT BE LESS THAN 24" ID.
3. THE OD OF THE SMALLER PIPE SHALL NOT BE MORE THAN 2/3 THE SIZE OF THE ID OF THE LARGER PIPE.
4. CONCRETE SHALL BE 470-C-2000.

LEGEND ON PLANS



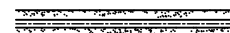
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	CONCRETE LUG	 03/24/2022
Edited	M.W.	M. Widelski	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER
					D-63



NOTES

1. CLAY PIPE MAY BE SUBSTITUTED FOR PLASTIC PIPE AT WEEP HOLES.
2. WEAKENED PLANE JOINTS SHALL BE PLACED EVERY 12' TO 15'. EXPANSION JOINT SHALL BE PLACED AT ALL CHANGES OF SECTION AND AT ENDS OF CURVES.
3. CUTOFF WALLS SHALL BE CONSTRUCTED AT EACH END OF THE CHANNEL ALONG THE FULL WIDTH OF THE SECTION. SEE D-72.
4. CHAINLINK FENCE INSTALLATION SHALL BE AS REQUIRED BY AGENCY.
5. SEE D-71 FOR BOTTOM WIDTHS GREATER THAN 8 FEET.
6. MINIMUM REINFORCEMENT IS SHOWN.
7. ALTERNATE INVERT: 2% CROSS SECTIONAL SLOPE TOWARD ONE SIDE OF CHANNEL.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

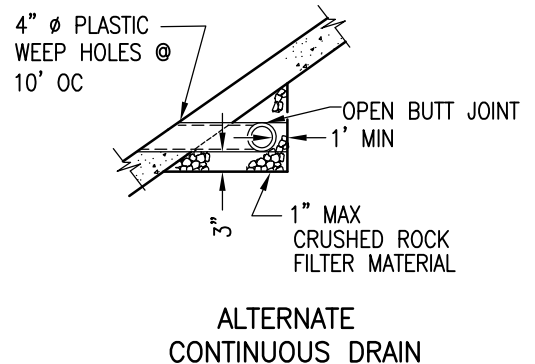
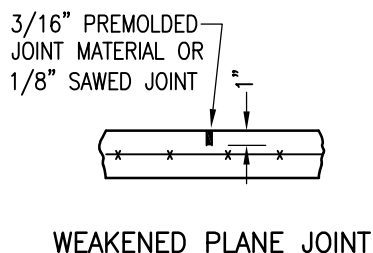
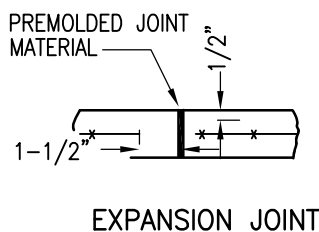
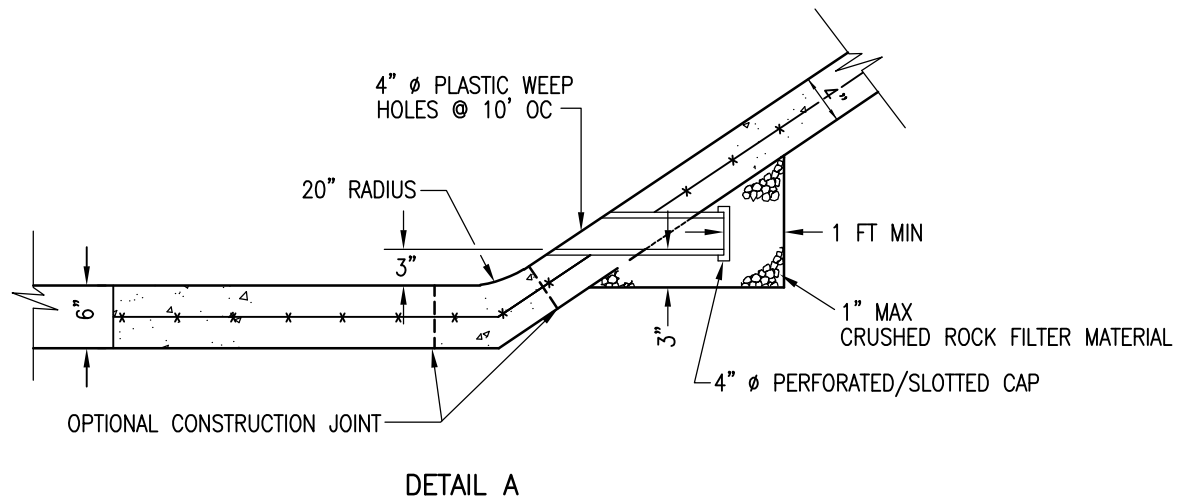
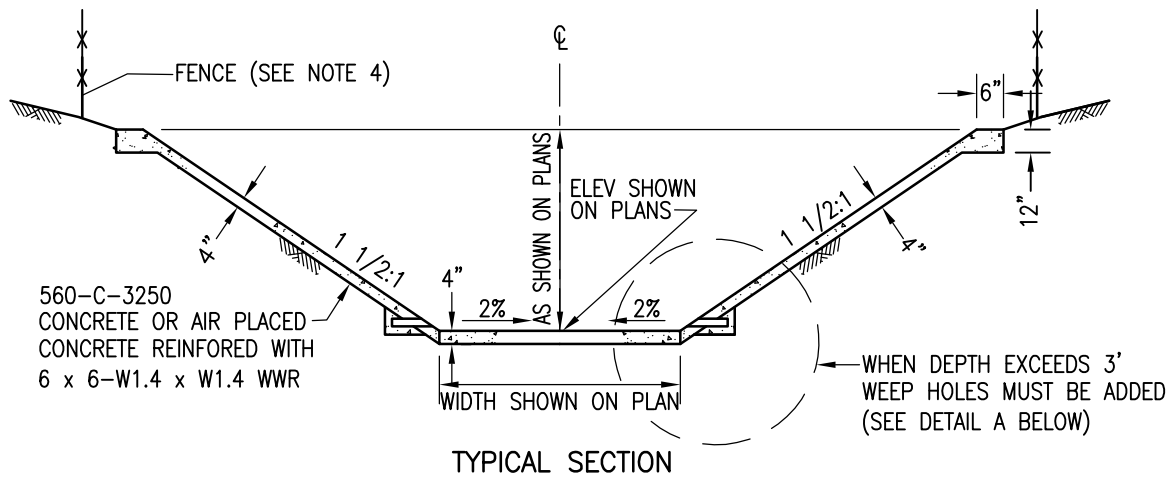
MINOR DRAINAGE CHANNEL

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Susan Engeda 03/24/2022

Chairperson R.C.E. 52241 Date

DRAWING NUMBER **D-70**



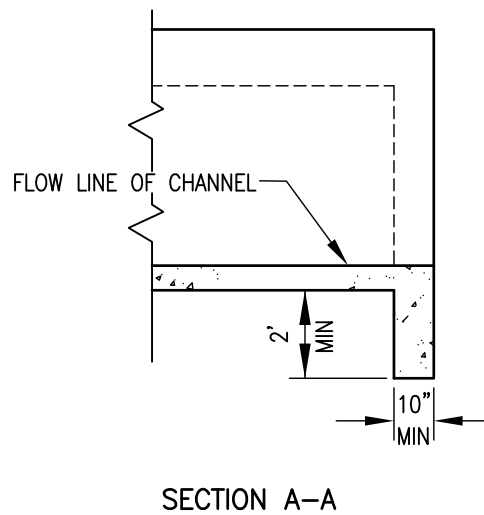
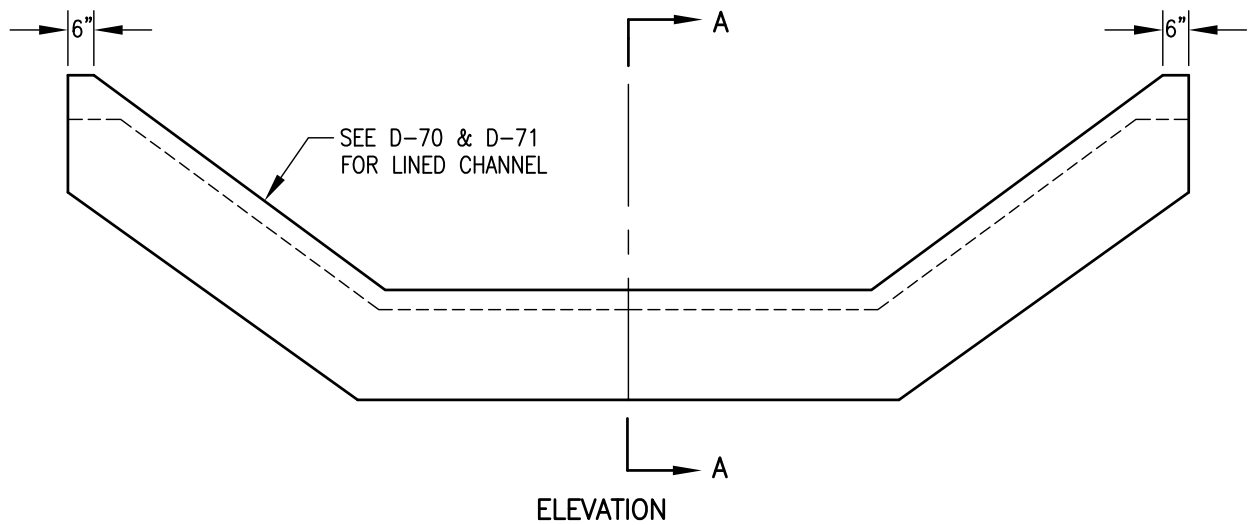
NOTES

1. CLAY PIPE MAY BE SUBSTITUTED FOR PLASTIC PIPE AT WEEP HOLES.
2. WEAKENED PLANE JOINT SHALL BE PLACED EVERY 12' TO 15'. EXPANSION JOINTS SHALL BE PLACED AT ALL CHANGES OF SECTION AND AT ENDS OF CURVES.
3. CUTOFF WALLS SHALL BE CONSTRUCTED AT EACH END OF THE CHANNEL ALONG THE FULL WIDTH OF SECTION. SEE D-72.
4. CHAINLINK FENCE SHALL BE INSTALLED AS REQUIRED BY AGENCY.
5. MINIMUM REINFORCEMENT IS SHOWN.
6. MINIMUM BOTTOM WIDTH SHALL BE 6' TO FACILITATE CLEANING.

LEGEND ON PLANS



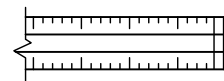
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			
Edited	T.R.	T. Regello	10/15	MAJOR DRAINAGE CHANNEL	 03/24/2022	
Edited	M.W.	M. Widelski	10/18		Chairperson R.C.E. 52241 Date	
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER	D-71



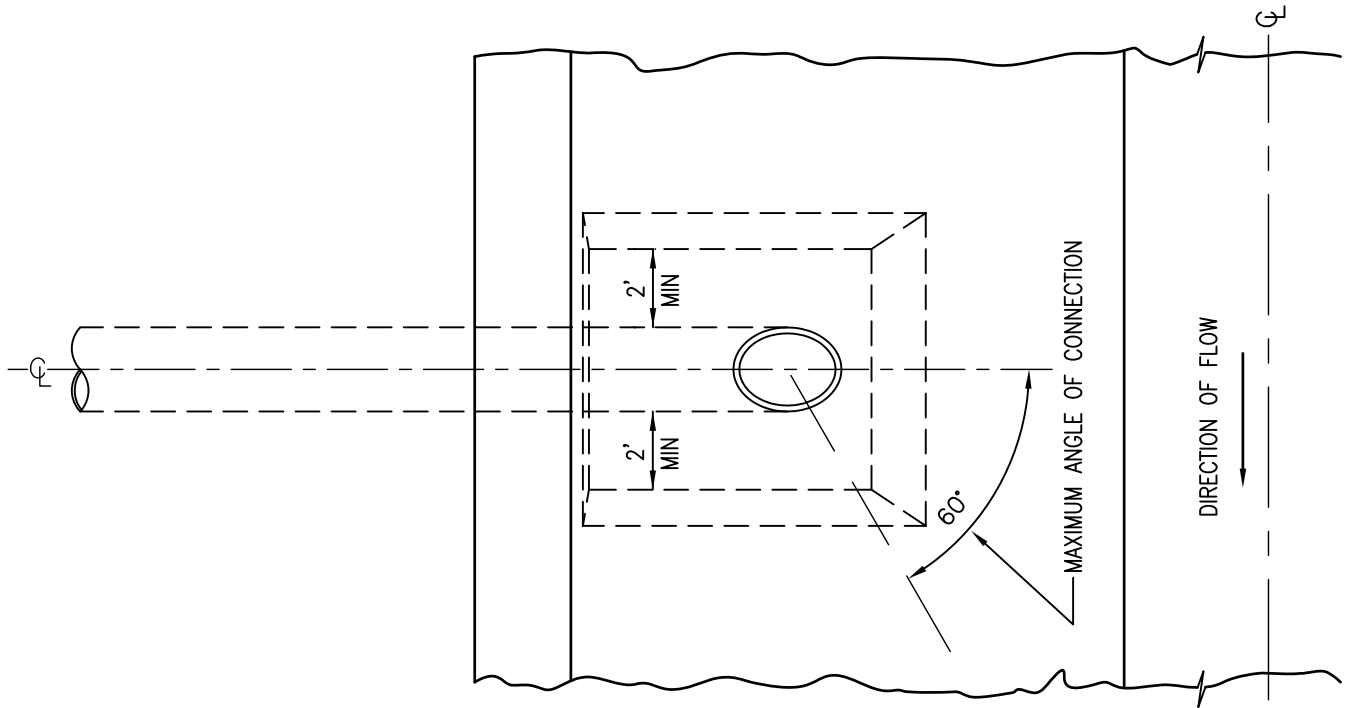
NOTES

1. THICKNESS AND WALL DEPTH SHALL BE AS SHOWN ON PLAN.
2. REINFORCING IN CUTOFF WALL SHALL BE THE SAME AS THAT REQUIRED IN CHANNEL.
3. CONCRETE SHALL BE 560-C-3250.

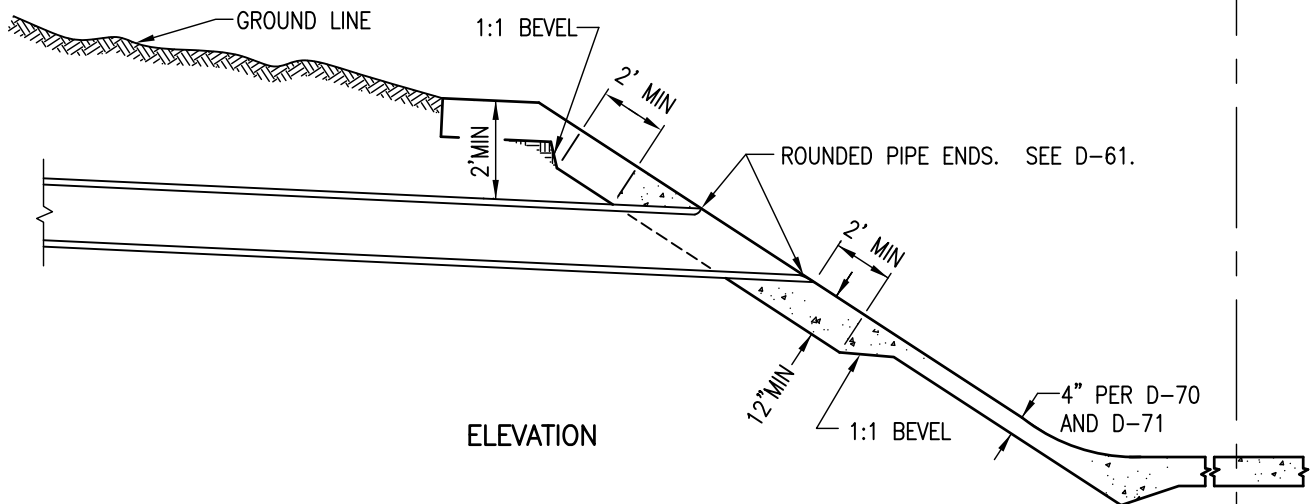
LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	CUTOFF WALL FOR DRAINAGE CHANNEL		 03/24/2022 Chairperson R.C.E. 52241 Date	
Edited	T.R.	T. Regello	10/15				
Edited	M.W.	M. Widelski	10/18				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER D-72	



PLAN

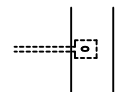


ELEVATION

NOTES:

1. CONCRETE SHALL BE 560-C-3250.
2. PIPE SHALL CONNECT TO CHANNEL AS HIGH AS POSSIBLE AND NOT BE CONSTRUCTED DIRECTLY ABOVE A WEEP HOLE.
3. THE MAXIMUM ANGLE OF CONNECTION IS 60° DOWNSTREAM. IN NO CASE SHALL THE PIPE ANGLE UPSTREAM.
4. INSTALL 6 x 6-W1.4 x W1.4 WWR IN CONCRETE AROUND PIPE.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

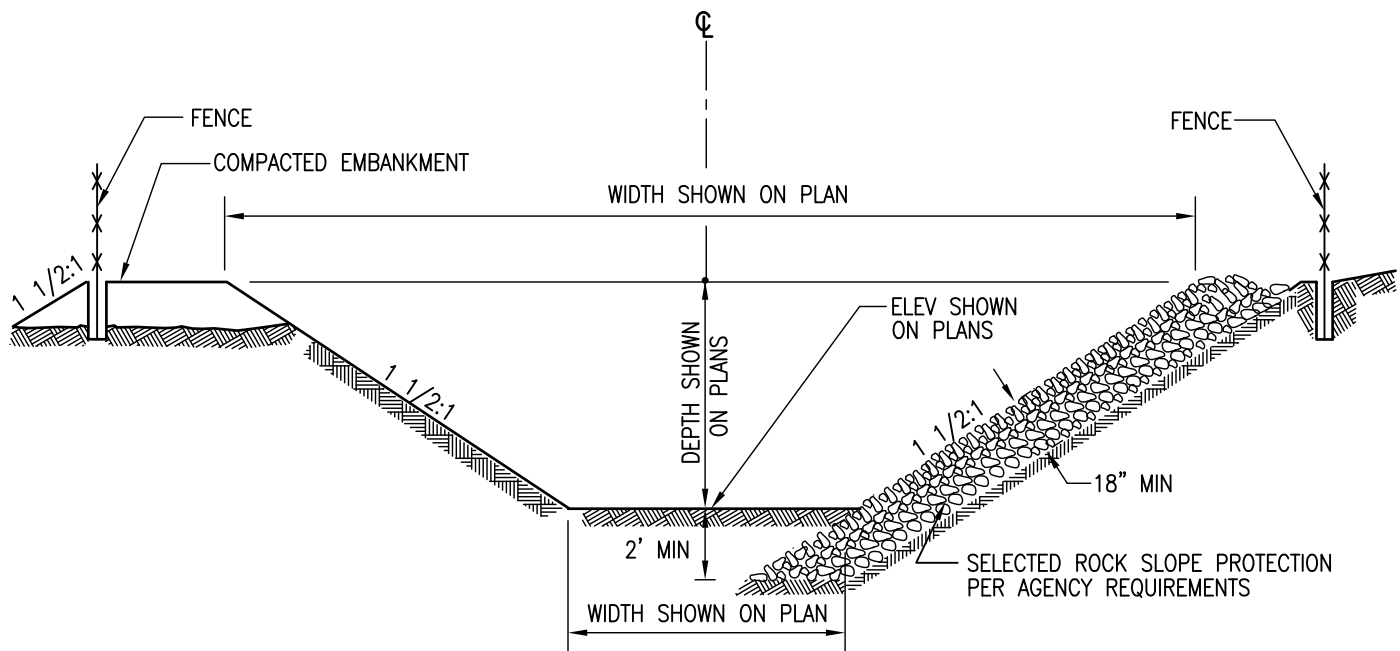
SAN DIEGO REGIONAL STANDARD DRAWING

PIPE TO CHANNEL CONNECTION

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Susan Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-73**



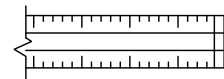
SECTION

NOTE

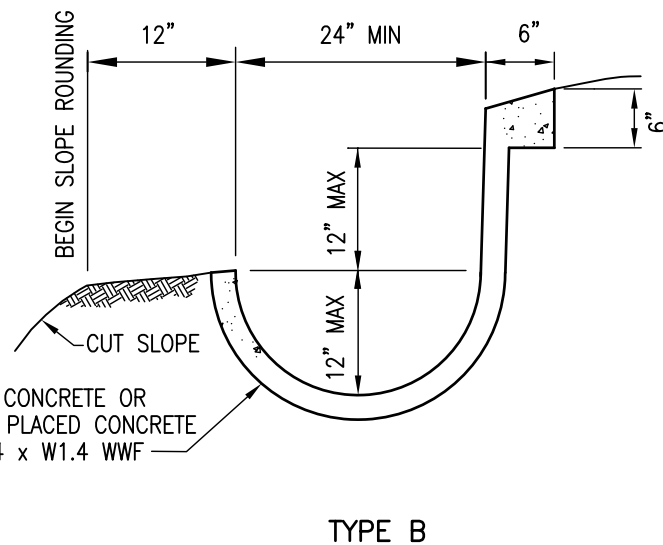
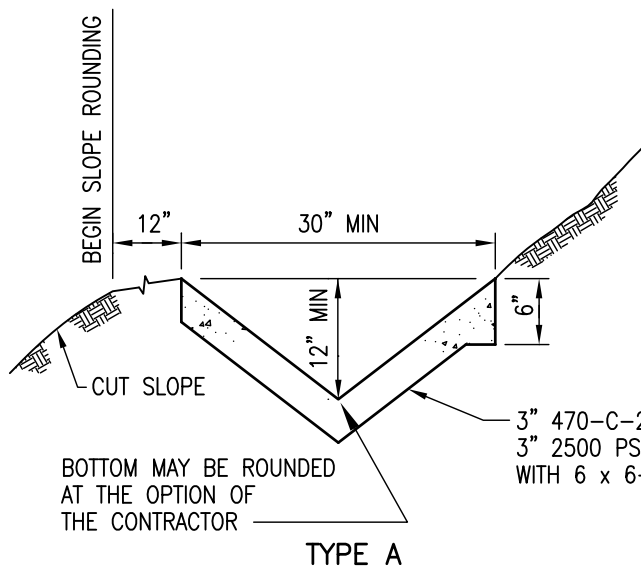
THE FOLLOWING SHALL BE SPECIFIED BY AGENCY AND INCLUDED IN THE PLAN DESIGN:

- A) LOW FLOW CHANNEL LOCATION
- B) FILTER BLANKET THICKNESS, TYPE AND LOCATION
- C) CUTOFF WALL
- D) FENCE

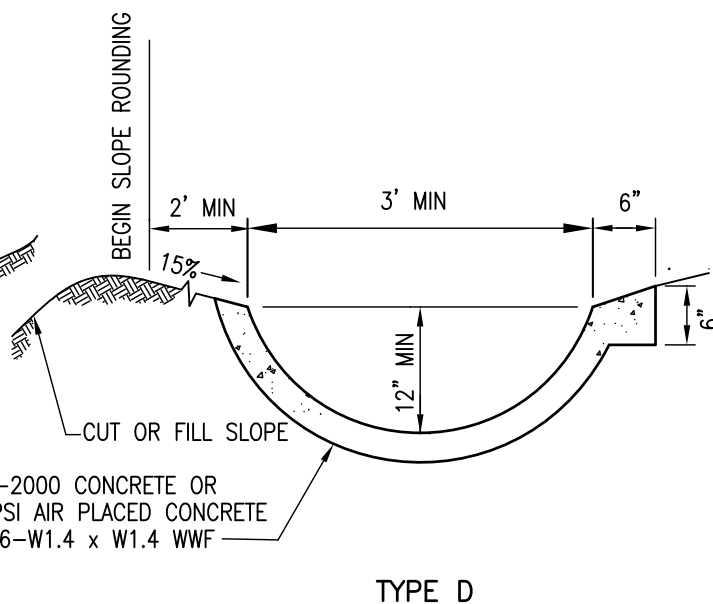
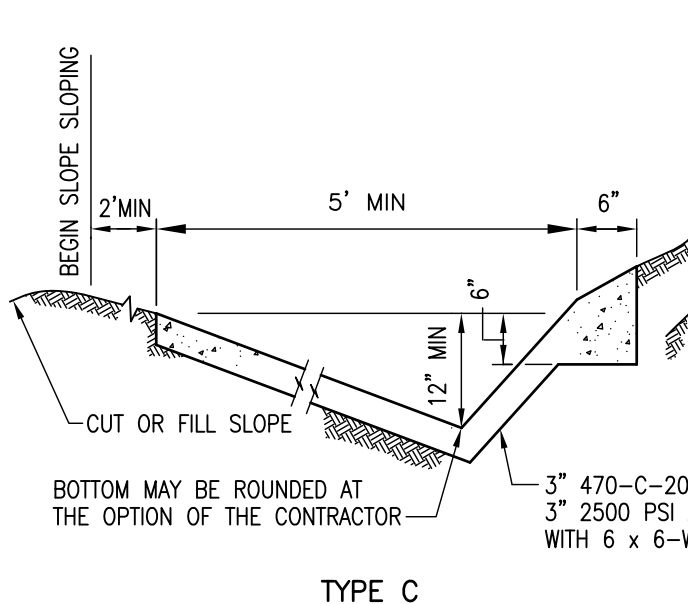
LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	GRADED EARTH CHANNEL	 03/24/2022 Chairperson R.C.E. 52241 Date
Edited	M.W.	M. Widelski	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER D-74



BROW DITCH

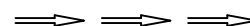


TERRACE DITCH

NOTES

1. LONGITUDINAL SLOPE OF LINED DITCH SHALL BE 2% MINIMUM.
2. USE A 6" THICKENED EDGE ON BOTH SIDES OF THE DRAINAGE DITCH WHEN THE DRAINAGE DITCH IS BUILT DOWN A GRADED SLOPE.

LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	DRAINAGE DITCHES	 03/24/2022 Chairperson R.C.E. 52241 Date
Edited	M.W.	M. Widelksi	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER D-75

Revision	By	Approved	Date
ORIGINAL		A.Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

SINGLE BOX CULVERT DETAILS No.1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022

Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-76A**

SPANS UP TO 5' (all measurements in feet and/or inches)

SPAN	2'						3'						4'						5'					
	1'-6"	2'	2'	2'	2'	2'	2'	2'	2'	2'	2'	2'	2'	2'	2'	2'	2'	2'	2'	2'	2'	2'	2'	2'
HEIGHT	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
STRENGTH CLASSIFICATION																								
MAX FILL OVER TOP																								
Top Slab	T1	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Bottom Slab	T2	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Sidewalls	T3	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Size Bar "		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Spacing		3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2	3 1/2
Length		3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2	3-2
Top Slab-No. of		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Bottom Slab-No. of		2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Spacing		18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Number		12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Concrete: C.Y. per lin. ft.		0.17	0.18	0.23	0.27	0.31	0.36	0.40	0.43	0.47	0.51	0.54	0.58	0.62	0.66	0.70	0.74	0.78	0.82	0.86	0.90	0.94	0.98	1.02
Reinf. lbs per lin. ft.		27	29	34	36	46	44	45	47	48	52	54	56	58	60	62	64	66	68	70	72	74	76	78

NOTE

For boxes of height less than that shown in table, use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities.

SAN DIEGO REGIONAL STANDARD DRAWING

**SINGLE BOX CULVERT
DETAILS No.1**

SPAN		6'																				
HEIGHT		2'		3'		4'		5'				6'				7'						
STRENGTH CLASSIFICATION		A	B	A	B	A	B	C	A	B	C	D	A	B	C	D	E	A	B	C	D	E
MAX FILL OVER TOP		10	18	10	18	10	18	25	9	18	25	36	9	17	25	36	45	9	17	25	36	45
TOP SLAB	T ₁	8 1/4	8 1/4	1/4 8 1/4	1/4 8 1/4	1/4 8 1/4	1/4 8 1/4	1/4 8 1/4	1/4 8 1/4	1/4 8 1/4	1/4 8 1/4	1/4 11	8 1/4	8 1/4	1/4 9 1/4	1/4 11	12	8 1/4	8 1/4	1/4 9 1/4	1/4 11	12
BOTTOM SLAB	T ₂	6 3/4	8	6 3/4	8	6 3/4	8	9 3/4	7 1/4	8 1/4	10	11 1/4	7 1/4	8 1/4	1/4 10 1/2	11 1/4	12 1/4	7 1/4	8 1/4	1/4 10 1/2	11 1/4	12 1/4
SIDEWALLS	T ₃	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6 1/4	7	6	6	6 1/4	7	7 3/4
"d" SIZE BAR # SPACING LENGTH		5	5	5	5	5	5	5	5	5	5	6	5	5	6	7	7	5	5	6	7	7
		4	4	4	4	4	4	4	4	4	4	5	4 1/2	4	4	5	5 1/2	5	4	4	5	5 1/2
		7-3	7-3	7-3	7-3	7-3	7-3	7-2	7-2	7-3	7-3	7-2	7-2	7-3	7-3	7-2	7-3	7-5	7-3	7-3	7-2	7-5
"d" DIST. TOP SLAB-NO. OF BARS		7	4	7	4	7	4	4	7	4	4	4	4	7	4	4	4	4	7	4	4	4
BOTTOM SLAB-NO. OF BARS		18	18	18	18	18	18	17	18	15 1/2	11 1/2	8 1/2	17	10 1/2	7 1/2	6	5	12	7 1/2	7	5	4 1/2
SPACERS	NUMBER	12	12	12	12	14	14	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
CONCRETE: C.Y. PER LIN. FT.		0.40	0.42	0.43	0.46	0.47	0.50	0.58	0.52	0.54	0.60	0.66	0.56	0.58	0.65	0.71	0.78	0.59	0.61	0.70	0.78	0.88
REINFORCING LBS. PER LIN. FT.		64	63	66	65	69	67	74	70	70	80	91	73	78	92	112	127	81	90	99	126	139

FOR BOXES OF HEIGHT LESS THAN THAT SHOWN IN TABLE, USE NEXT GREATER TABLE HEIGHT SLABS, WALL DIMENSIONS AND REINFORCING STEEL. MAKE CHANGES TO BAR LENGTHS AND NUMBER OF SPACERS AND QUANTITIES AS NECESSARY.

Revision	By	Approved	Date
ORIGINAL		A.Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

**SINGLE BOX CULVERT
DETAILS No.1**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

 03/24/2022

Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-76C**

SPAN 7' (ALL MEASUREMENTS IN FEET AND/OR INCHES UNLESS NOTED OTHERWISE)

SPAN		7'											
HEIGHT		3'			4'			5'			6'		
STRENGTH CLASSIFICATION		A	B	C	A	B	C	A	B	C	A	B	C
		16	26	35	16	26	35	16	26	35	16	26	35
MAX FILL OVER TOP		16	26	35	16	26	35	16	26	35	16	26	35
TOP SLAB	T ₁	7 1/4	8 1/4	7 1/4	8 1/4	7 1/4	8 1/4	7 1/4	8 1/4	7 1/4	8 1/4	7 1/4	8 1/4
BOTTOM SLAB	T ₂	7 1/2	8 3/4	7 1/2	8 3/4	7 1/2	8 3/4	7 1/2	8 3/4	7 1/2	8 3/4	7 1/2	8 3/4
SIDEWALLS	T ₃	6	7	8 1/2	6	7	8 1/2	6	7	8 1/2	6	7	8 1/2
SIZE BAR #	"a"	5	5	5	5	5	5	5	5	5	5	5	5
SPACING		9	7	9	9	7	9	9	7	9	9	7	9
LENGTH		6-8	6-9	6-8	6-8	6-9	6-8	6-9	6-10	6-8	6-9	6-10	6-10
SIZE BAR #	"b"	5	5	5	5	5	5	5	5	5	5	5	5
SPACING		9	7	9	9	7	9	9	7	9	9	7	9
DIMENSION "X"		1-3	1-4	1-3	1-4	1-3	1-4	1-3	1-4	1-3	1-4	1-3	1-4
LENGTH		3-1	3-2	3-1	3-2	3-1	3-2	3-1	3-2	3-1	3-2	3-1	3-2
SIZE BAR #	"c"	5	5	5	5	5	5	5	5	5	5	5	5
SPACING		9	7	9	9	7	9	9	7	9	9	7	9
DIMENSION "Y"		1-10	1-11	1-10	1-11	1-10	1-11	1-10	1-11	1-10	1-11	1-10	1-11
LENGTH		5-2	5-4	6-2	6-4	7-2	7-4	7-10	8-2	8-4	8-10	9-2	9-4
SIZE BAR #	"c ₁ "	5	5	5	5	5	5	5	5	5	5	5	5
SPACING		9	7	9	9	7	9	9	7	9	9	7	9
DIMENSION "Y"		1-10	1-11	1-10	1-11	1-10	1-11	1-10	1-11	1-10	1-11	1-10	1-11
LENGTH		3-8	3-10	3-8	3-10	3-8	3-10	3-8	3-10	3-8	3-10	3-8	3-10
TOP SLAB-NO. OF BARS	"d"	7	4	7	4	7	4	7	4	7	4	7	4
BOTTOM SLAB-NO. OF BARS	"e"	4	4	4	4	4	4	4	4	4	4	4	4
BARS SPACING		18	18	18	18	18	18	18	18	18	18	18	18
SPACERS TOTAL NUMBER		24	28	28	28	28	28	28	28	28	28	28	28
CONCRETE: C.Y. PER LIN. FT.		0.47	0.56	0.51	0.60	0.55	0.64	0.78	0.58	0.68	0.84	0.62	0.73
REINFORCING LBS. PER LIN. FT.		107	130	114	138	118	143	168	125	150	176	132	158

NOTE
FOR BOXES OF HEIGHT LESS THAN THAT SHOWN IN TABLE, USE NEXT GREATER TABLE HEIGHT SLABS, WALL DIMENSIONS AND REINFORCING STEEL. MAKE CHANGES TO BAR LENGTHS AND NUMBER OF SPACERS AND QUANTITIES AS NECESSARY.

Revision	By	Approved	Date
ORIGINAL		A. Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

**SINGLE BOX CULVERT
DETAILS No.1**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

 03/24/2022

Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-76D**

SPAN 8' (ALL MEASUREMENTS IN FEET AND/OR INCHES UNLESS NOTED OTHERWISE)

SPAN		8'																	
HEIGHT		3'			4'			5'			6'			7'			8'		
STRENGTH CLASSIFICATION		A	B		A	B		A	B		A	B		A	B		A	B	
MAX FILL OVER TOP		13	21		13	21		13	21		13	21		13	21		13	21	
CONC.	TOP SLAB	T ₁	7 1/4	8 1/2	7 1/4	8 1/2	7 1/4	8 1/2	7 1/4	8 1/2	7 1/4	8 1/2	7 1/4	8 1/2	7 1/4	8 1/2	7 1/4	8 1/2	7 1/4
	BOTTOM SLAB	T ₂	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4
	SIDEWALLS	T ₃	6 1/2	7 1/2	6 1/2	7 1/2	6 1/2	7 1/2	6 1/2	7 1/2	6 1/2	7 1/2	6 1/2	7 1/2	6 1/2	7 1/2	6 1/2	7 1/2	6 1/2
	SIZE BAR #	5	5		5	5		5	5		5	5		5	5		5	5	
REINFORCING STEEL	SPACING	9	7		9	7		9	7		9	7		9	7		9	7	
	LENGTH	7-7	7-8		7-7	7-8		7-7	7-8		7-7	7-8		7-7	7-8		7-7	7-8	
	SIZE BAR #	5	5		5	5		5	5		5	5		5	5		5	5	
	SPACING	9	7		9	7		9	7		9	7		9	7		9	7	
	DIMENSION "X"	1-6	1-7		1-6	1-7		1-6	1-7		1-6	1-7		1-6	1-7		1-6	1-7	
	LENGTH	3-4	3-5		3-4	3-5		3-4	3-5		3-4	3-5		3-4	3-5		3-4	3-5	
	SIZE BAR #	5	5		5	5		5	5		5	5		5	5		5	5	
	SPACING	9	7		9	7		9	7		9	7		9	7		9	7	
	DIMENSION "Y"	2	2-5		2	2-5		2	2-5		2	2-5		2	2-5		2	2-5	
	LENGTH	5-4	5-10		6-4	6-10		7-4	7-10		8-4	8-10		9-4	9-10		10-4	10-11	
	SIZE BAR #	5	5		5	5		5	5		5	5		5	5		5	5	
	SPACING	9	7		9	7		9	7		9	7		9	7		9	7	
	DIMENSION "Y"	2	2-5		2	2-5		2	2-5		2	2-5		2	2-5		2	2-5	
	LENGTH	3-9	4-5		3-9	4-5		3-9	4-5		3-9	4-5		3-9	4-5		3-9	4-5	
	TOP SLAB-NO. OF BARS	7	5		7	5		7	5		7	5		7	5		7	5	
	BOTTOM SLAB-NO. OF BARS	5	5		5	5		5	5		5	5		5	5		5	5	
	"e" BARS	18	18		18	18		18	18		18	18		18	18		18	18	
SPACING		28			32			32			36			40			40		
SPACERS/ TOTAL NUMBER		28			32			32			36			40			40		
CONCRETE: C.Y. PER LIN. FT.		0.52	0.65		0.56	0.70		0.60	0.74		0.65	0.79		0.69	0.83		0.73	0.88	
REINFORCING LBS. PER LIN. FT.		118	146		125	154		129	139		136	167		143	174		147	179	
QUAN.																			

NOTE

FOR BOXES OF HEIGHT LESS THAN THAT SHOWN IN TABLE, USE NEXT GREATER TABLE SLABS, WALL DIMENSIONS AND REINFORCING STEEL. MAKE CHANGES TO BAR LENGTHS AND NUMBER OF SPACERS AND QUANTITIES AS NECESSARY.

Revision	By	Approved	Date
ORIGINAL		A.Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

SINGLE BOX CULVERT DETAILS No.1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-76E**

SPAN 10' (ALL MEASUREMENTS IN FEET AND/OR INCHES UNLESS NOTED OTHERWISE)

SPAN		10'																				
HEIGHT		4'			5'			6'			7'			8'			9'			10'		
STRENGTH CLASSIFICATION		A	B		A	B		A	B		A	B		A	B		A	B		A	B	C
MAX FILL OVER TOP		9	18		9	18		9	18		9	18		8	18		8	18		8	18	28
CONC.	TOP SLAB	T ₁	8	9 1/2	8 1/4	9 3/4	8 1/4	9 3/4	8 1/4	9 3/4	8 1/4	9 3/4	8 1/4	9 3/4	8 1/4	9 3/4	8 1/4	9 3/4	8 1/4	9 3/4	8 1/4	12 1/4
	Bottom Slab	T ₂	8	3/4	10 1/2	9	10 3/4	9	10 3/4	9	10 3/4	9	10 3/4	9	10 3/4	9	10 3/4	9	10 3/4	9	10 3/4	11
	Sidewalls	T ₃	7	1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	7 1/4	9 1/2	11 1/2
REINFORCING STEEL	SIZE BAR #	6	6		6	6		6	6		6	6		6	6		6	6		6	6	7
	SPACING	11	8		11	8		11	8		11	8		11	8		11	8		11	8	9
	LENGTH	9-5	9-8		9-5	9-8		9-5	9-8		9-5	9-8		9-5	9-8		9-6	9-8		9-5	9-8	9-9
	SIZE BAR #	5	6		5	6		5	6		5	6		5	6		5	6		5	6	6
	SPACING	11	8		11	8		11	8		11	8		11	8		11	8		11	8	9
	DIMENSION "X"	2	2		2	2		2	2		2	2		2	2		2	2		2	2	2-6
	LENGTH	3-10	4-2		3-10	4-2		3-10	4-2		3-10	4-2		3-10	4-2		4-8	3-10		4-2	4-8	4-8
	SIZE BAR #	5	6		5	6		5	6		5	6		5	6		5	6		5	6	6
	SPACING	11	8		11	8		11	8		11	8		11	8		11	8		11	8	9
	DIMENSION "Y"	2-8	3-4		2-8	3-4		2-8	3-4		2-8	3-4		2-8	3-4		2-8	3-4		2-8	3-4	3-6
	LENGTH	6-11	7-10		8-1	8-10		9-1	9-10		10-1	10-10		11-1	11-10		12-3	12-1		12-10	13-3	13-10
	"a"	SIZE BAR #	5	6		5	6		5	6		5	6		5	6		5	6		5	6
SPACING		11	8		11	8		11	8		11	8		11	8		11	8		11	8	9
DIMENSION "Y"		2-8	3-4		2-8	3-4		2-8	3-4		2-8	3-4		2-8	3-4		2-8	3-4		2-8	3-4	3-6
LENGTH		4-7	5-8		4-7	5-8		4-7	5-8		4-7	5-8		4-7	5-8		4-7	5-8		4-7	5-8	6-2
TOP SLAB-NO. OF BARS		9	5		9	5		9	5		9	5		9	5		9	5		9	5	5
"b"	BOTTOM SLAB-NO. OF BARS	5	5		5	5		5	5		5	5		5	5		5	5		5	5	5
	"e" BARS	18	18		18	18		18	18		18	18		18	18		18	18		18	18	18
SPACERS		32			34			36			40			40			44			48		
TOTAL NUMBER		0.75			0.82			0.86			0.92			0.97			1.06			1.18		
CONCRETE: C.Y. PER LIN. FT.		143			221			154			160			164			170			178		
REINFORCING LBS. PER LIN. FT.		221			228			235			244			250			265			273		

NOTE
FOR BOXES OF HEIGHT LESS THAN THAT SHOWN IN TABLE, USE NEXT GREATER TABLE HEIGHT SLABS, WALL DIMENSIONS AND REINFORCING STEEL. MAKE CHANGES TO BAR LENGTHS AND NUMBER OF SPACERS AND QUANTITIES AS NECESSARY.

Revision	By	Approved	Date
ORIGINAL		A.Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

SINGLE BOX CULVERT DETAILS No.1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

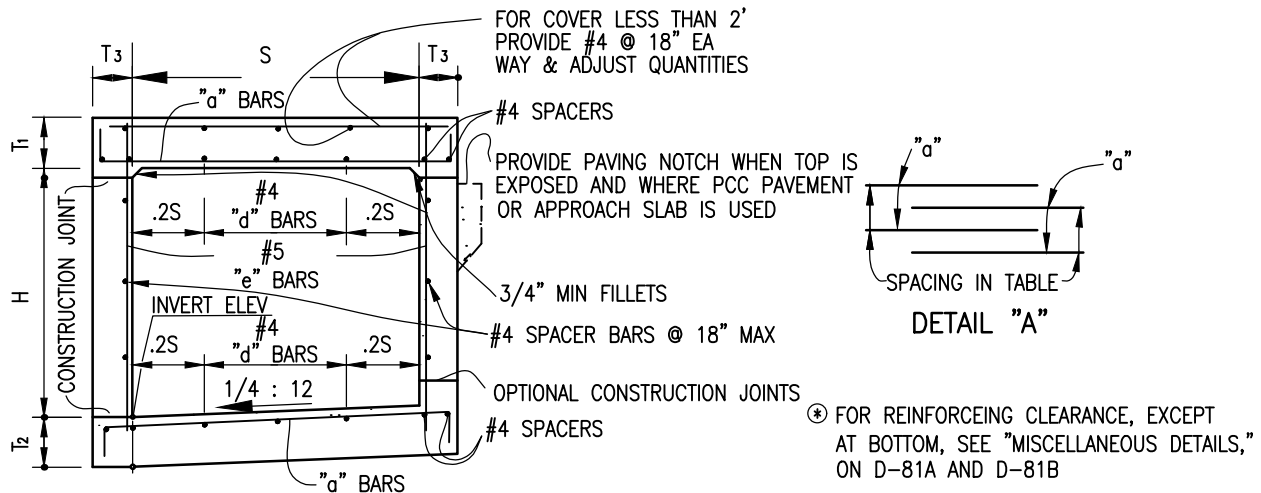
Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-76F**

SPAN 12' (ALL MEASUREMENTS IN FEET AND/OR INCHES UNLESS NOTED OTHERWISE)

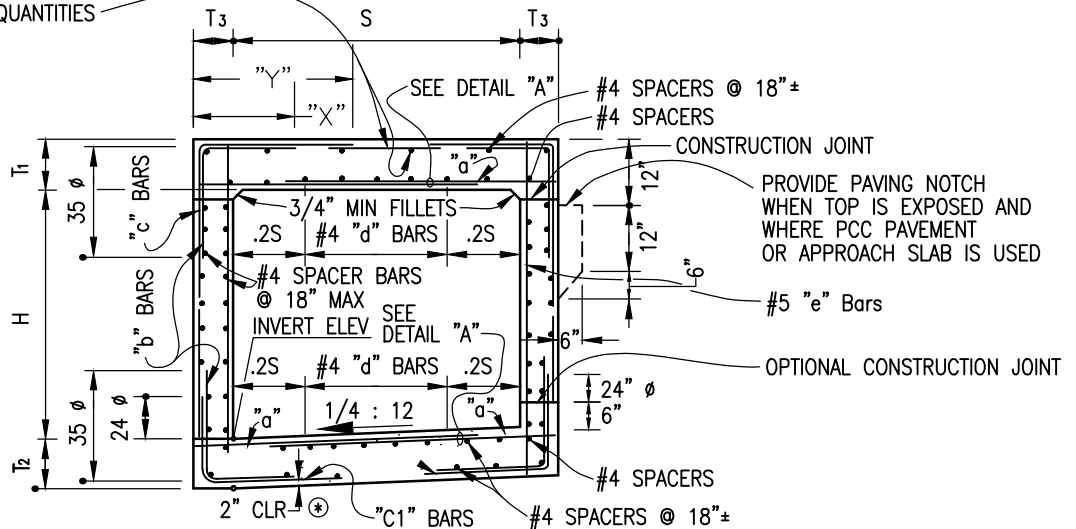
SPAN		12'											
HEIGHT		6'			7'			8'			9'		
STRENGTH CLASSIFICATION		A	B	C	A	B	C	A	B	C	A	B	C
MAX FILL OVER TOP		5	16	24	5	16	24	5	16	24	5	16	24
TOP SLAB		T ₁	8 3/4	11 1/4	8 3/4	11 1/4	8 3/4	11 1/4	8 3/4	11 1/4	8 3/4	11 1/4	8 3/4
BOTTOM SLAB		T ₂	8 3/4	12 1/4	8 3/4	12 1/4	8 3/4	12 1/4	8 3/4	12 1/4	8 3/4	12 1/4	8 3/4
SIDEWALKS		T ₃	7 1/2	10 1/2	7 1/2	10 1/2	7 1/2	10 1/2	7 1/2	10 1/2	7 1/2	10 1/2	7 1/2
SIZE BAR #		6	7	6	7	6	7	6	7	6	7	6	7
SPACING		11	10	11	10	11	10	11	10	11	10	11	10
LENGTH		11-3	11-6	11-3	11-6	11-3	11-6	11-3	11-6	11-3	11-6	11-3	11-6
SIZE BAR #		6	7	6	7	6	7	6	7	6	7	6	7
SPACING		11	10	11	10	11	10	11	10	11	10	11	10
DIMENSION "X"		2-8	3	2-8	3	2-8	3	2-8	3	2-8	3	2-8	3
LENGTH		4-10	5-7	4-10	5-7	4-10	5-7	4-10	5-7	4-10	5-7	4-10	5-7
SIZE BAR #		6	7	6	7	6	7	6	7	6	7	6	7
SPACING		11	10	11	10	11	10	11	10	11	10	11	10
DIMENSION "Y"		3-9	3-9	3-9	3-9	3-9	3-9	3-9	3-9	3-9	3-9	3-9	3-9
LENGTH		10-2	10-4	11-2	11-4	12-2	12-4	13-2	13-4	14-2	14-4	16-2	16-4
SIZE BAR #		6	7	6	7	6	7	6	7	6	7	6	7
SPACING		11	10	11	10	11	10	11	10	11	10	11	10
DIMENSION "Y"		3-9	3-9	3-9	3-9	3-9	3-9	3-9	3-9	3-9	3-9	3-9	3-9
LENGTH		5-11	6-5	5-11	6-5	5-11	6-5	5-11	6-5	5-11	6-5	5-11	6-5
TOP SLAB-NO. OF BARS		10	6	10	6	10	6	10	6	10	6	10	6
BOTTOM SLAB-NO. OF BARS		6	6	6	6	6	6	6	6	6	6	6	6
SPACING		18	18	18	18	18	18	18	18	18	18	18	18
SPACERS		36	44	44	44	44	44	44	44	44	44	44	44
TOTAL NUMBER		0.99	1.38	1.03	1.44	1.08	1.52	1.18	1.58	1.90	1.30	1.65	1.98
CONCRETE: C.Y. PER LIN. FT.		203	293	213	304	218	311	223	317	387	231	326	397
REINFORCING LBS. PER LIN. FT.		203	293	213	304	218	311	223	317	387	231	326	397
QUAN.													

NOTE
FOR BOXES OF HEIGHT LESS THAN THAT SHOWN IN TABLE,, USE NEXT GREATER TABLE HEIGHT SLABS,
WALL DIMENSIONS AND REINFORCING STEEL. MAKE CHANGES TO BAR LENGTHS AND NUMBER OF
SPACERS AND QUANTITIES AS NECESSARY.

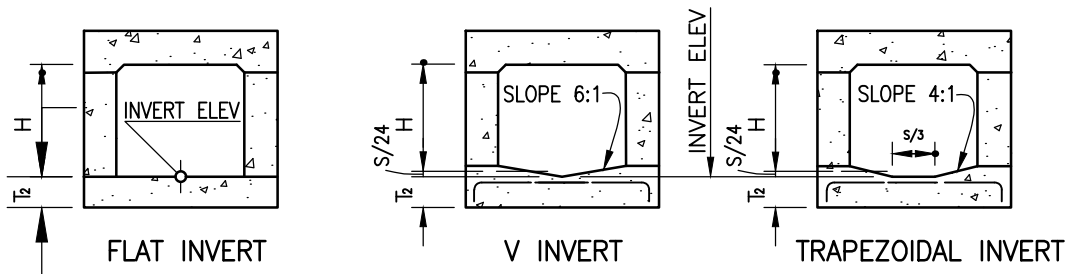


TYPICAL SECTIONS 2' THRU 6' SPANS

FOR COVER LESS THAN 2' PROVIDE
#4 @ 18" EA WAY & ADJUST QUANTITIES



TYPICAL SECTIONS 7' THRU 12' SPANS



ALTERNATIVE INVERTS
(WHEN SPECIFIED ON PLANS)

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	SINGLE BOX CULVERT DETAILS NO.2		
Edited	T.R.	T. Regello	10/15			
Edited	M.W.	M. Widelski	10/18			
Reviewed	RP	S. Engeda	03/22			
						<i>Saman Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date
						DRAWING NUMBER D-76G

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Wideliski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

DOUBLE BOX CULVERT

DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Saman Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

**DRAWING
NUMBER** **D-77A**

SPAN 4' (ALL MEASUREMENTS IN FEET AND/OR INCHES UNLESS NOTED OTHERWISE)

SPAN		4'											
HEIGHT		2'				3'				4'			
STRENGTH CLASSIFICATION		A	B	C		A	B	C	D	A	B	C	D
MAX FILL OVER TOP		11	21	32		11	23	34	46	11	23	34	46
TOP SLAB	T1	6 1/2	6 1/2	7 1/4	6 1/2	6 1/2	6 1/2	7 1/2	8 1/2	6 1/2	6 1/2	7 1/2	8 1/2
BOTTOM SLAB	T2	6	7 1/4	8 1/2	6	6	7 1/2	8 1/2	9 1/2	6	7 1/2	8 1/2	9 1/2
SIDEWALLS	T3	6	6	6	6	6	6	6	6	6	6	6	6
"a" 		5	4	4	4	5	4	4	4	5	4	4	4
SPACING		11	11	9	11	11	10 1/2	8 1/2	7 1/2	11	10 1/2	8 1/2	7 1/2
LENGTH		10-3	10-2	10-2	10-2	10-3	10-2	10-2	10-2	10-3	10-2	10-2	10-2
SIZE BAR #		5	5	5	5	5	5	5	5	5	5	5	5
SPACING		11	11	9	11	11	10 1/2	8 1/2	7 1/2	11	10 1/2	8 1/2	7 1/2
LENGTH "b" 		9-4	9-4	9-6	9-4	9-4	9-4	9-6	9-7	9-4	9-4	9-6	9-7
LENGTH "b1" 		9-4	9-5	9-6	9-4	9-4	9-4	9-6	9-7	9-4	9-4	9-6	9-7
SIZE BAR #		4	5	5	4	4	5	5	5	4	5	5	5
SPACING		11	11	9	11	11	10 1/2	8 1/2	7 1/2	11	10 1/2	8 1/2	7 1/2
LENGTH		4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6	4-6
"d" DIST TOP SLAB-TOT. NO.		10	6	6	10	10	6	6	6	10	6	6	6
BARS BOTTOM SLAB-TOT. NO.		6	6	6	6	6	6	6	6	6	6	6	6
"e" SIZE BAR #		4	4	4	4	4	4	4	4	4	4	4	4
BARS		18	18	18	18	18	18	16	12	18	12	9	10
SPACERS		23				26				29			
CONCRETE: C.Y. PER LIN. FT.		0.47	0.51	0.57		0.53	0.57	0.63	0.69	0.59	0.63	0.69	0.75
REINFORCING LBS. PER LIN. FT.		81	74	84		84	79	91	101	87	85	99	111

NOTE
FOR BOXES OF HEIGHT LESS THAN THAT SHOWN IN TABLE, USE NEXT GREATER TABLE HEIGHT SLABS, WALL DIMENSIONS AND REINFORCING STEEL. MAKE CHANGES TO BAR LENGTHS AND NUMBER OF SPACERS AND QUANTITIES AS NECESSARY. NUMBER OF "d" BARS IN TABLE IS SLAB TOTAL FOR BOTH CELLS.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

**DOUBLE BOX CULVERT
DETAILS No. 1**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Saman Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-77B**

SPAN 5' (ALL MEASUREMENTS IN FEET AND/OR INCHES UNLESS NOTED OTHERWISE)

SPAN		5'											
HEIGHT		2'				3'				4'			
STRENGTH CLASSIFICATION		A	B	C		A	B	C	D	A	B	C	D
MAX FILL OVER TOP		6	36	36		6	24	36	46	6	23	34	46
TOP SDAB	T ₁	6 3/4	7 3/4	9 1/4		6 3/4	7 3/4	9 1/4	10 1/4	6 3/4	7 3/4	9 1/4	10 1/4
BOTTOM SLAB	T ₂	6 1/2	8 3/4	10 1/4		6 1/2	8 3/4	10 1/4	11 1/4	6 1/2	8 3/4	10 1/4	11 1/4
SIDEWALLS	T ₃	6	6	6		6	6	6	6	6	6	6	6
SIZE BAR #	"a"	5	4	4		5	4	4	4	5	4	4	4
SPACING		10	8 1/2	10		10	8 1/2	10	9	10	8 1/2	10 1/2	9
LENGTH		12-3	12-2	12-2		12-3	12-2	12-2	12-2	12-3	12-2	12-2	12-2
SIZE BAR #	"b"	5	5	6		5	5	6	6	5	5	6	6
SPACING		10	8 1/2	10		10	8 1/2	10	9	10	8 1/2	10 1/2	9
LENGTH "b"	"b" or "b1"	11-5	11-6	11-7		11-5	11-6	11-7	11-8	11-5	11-6	11-7	11-8
LENGTH "b1"		11-4	11-6	11-7		11-4	11-6	11-7	11-8	11-4	11-6	11-7	11-8
SIZE BAR #	"c"	4	5	6		4	5	6	6	4	5	6	6
SPACING		10	8 1/2	10		10	8 1/2	10	9	10	8 1/2	10 1/2	9
LENGTH		5-6	5-6	5-6		5-6	5-6	5-6	5-6	5-6	5-6	5-6	5-6
"d" DIST TOP SLAB-TOT. NO.		12	6	6		12	6	6	6	12	6	6	6
BARS BOTTOM SLAB-TOT. NO.		6	6	6		6	6	6	6	6	6	6	6
SIZE BAR #	"e"	4	4	4		4	4	4	5	4	4	5	6
BARS		18	18	18		18	18	16	10 1/2	18	8 1/2	9	9
SPACING			23				26						
SPACERS NUMBER									29			32	
CONCRETE: C.Y. PER LIN. FT.		0.58	0.69	0.80		0.63	0.75	0.86	0.98	0.69	0.80	0.86	0.97
REINFORCING LBS. PER LIN. FT.		99	100	109		103	104	112	133	106	109	116	126
QUAN.													148

NOTE
FOR BOXES OF HEIGHT LESS THAN THAT SHOWN IN TABLE, USE NEXT GREATER TABLE HEIGHT SLABS, WALL DIMENSIONS AND REINFORCING STEEL. MAKE CHANGES TO BAR LENGTHS AND NUMBER OF SPACERS AND QUANTITIES AS NECESSARY. NUMBER OF "d" BARS IN TABLE IS SLAB TOTAL FOR BOTH CELLS.

SAN DIEGO REGIONAL STANDARD DRAWING	
DOUBLE BOX CULVERT DETAILS No. 1	

SPAN		6'												
HEIGHT		3'			4'			5'			6'			
STRENGTH CLASSIFICATION	MAX FILL OVER TOP	A	B	C	A	B	C	A	B	C	A	B	C	D
		4	20	34	4	20	34	4	19	33	4	19	33	43
CONC.	Top Slab	T ₁	7 1/4	8 1/4	10 1/2	7 1/4	8 1/4	10 1/2	7 1/4	8 1/4	10 1/2	7 1/4	8 1/4	10 1/2
	Bottom Slab	T ₂	7 1/4	9 1/2	11 1/2	7 1/4	9 1/2	11 1/2	7 1/4	9 1/2	11 1/2	7 1/4	9 1/2	11 1/2
	Sidewalls	T ₃	6	6	6	6	6	6	6	6	6	6	6	6
			5	4	4	5	4	4	5	4	4	5	4	4
REINFORCING STEEL	SIZE BAR #													
	SPACING	9 1/2	11	8 1/2	9 1/2	11	8 1/2	9 1/2	11	8 1/2	10 1/2	9 1/2	11	8 1/2
	LENGTH	14-3	14-2	14-2	14-3	14-2	14-2	14-3	14-2	14-2	14-2	14-3	14-2	14-8
	SIZE BAR #		5	6	6	5	6	6	5	6	6	5	6	6
	SPACING	9 1/2	11	8 1/2	9 1/2	11	8 1/2	9 1/2	11	8 1/2	10 1/2	9 1/2	11	8 1/2
	LENGTH "b"	13-6	13-6	13-8	13-6	13-6	13-8	13-6	13-6	13-8	13-9	13-6	13-8	14-2
	LENGTH "b ₁ "	13-5	13-7	13-8	13-5	13-7	13-8	13-5	13-6	13-8	13-9	13-6	13-8	14-2
	SIZE BAR #		4	6	6	4	6	6	4	6	6	4	6	6
	SPACING	9 1/2	11	8 1/2	9 1/2	11	8 1/2	9 1/2	11	8 1/2	10 1/2	9 1/2	11	8 1/2
	LENGTH	6-6	6-6	6-6	6-6	6-6	6-6	6-6	6-6	6-6	6-6	6-6	6-6	6-8
QUAN.	TOP SLAB-TOT. NO. BARS	12	6	6	12	6	6	12	6	6	12	6	6	6
	BOTTOM SLAB-TOT. NO. BARS	6	6	6	6	6	6	6	6	6	6	6	6	6
	SIZE BAR #	4	4	4	4	4	4	4	4	4	5	4	5	6
	SPACING	18	18	16	18	14	8 1/2	18	10	9 1/2	18	11	9	6
SPACERS NUMBER		30			33			36			36			
CONCRETE: C.Y. PER LIN. FT.		0.77	0.90	1.08	0.82	0.96	1.13	0.88	1.01	1.19	0.93	1.07	1.25	1.47
REINFORCING LBS. PER LIN. FT.		121	119	147	125	124	155	128	131	164	129	137	177	201

NOTE
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Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W	M. Widelksi	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

DOUBLE BOX CULVERT

DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER

D-77D

SPAN 8' (ALL MEASUREMENTS IN FEET AND/OR INCHES UNLESS NOTED OTHERWISE)

SPAN		8'											
HEIGHT		4'				5'				6'			
		A	B	C		A	B	C		A	B	C	D
STRENGTH CLASSIFICATION		3	14	25		3	14	25		3	14	25	37
MAX FILL OVER TOP													
TOP SLAB		8 1/2	9 1/2	12		8 1/2	9 1/2	12		8 1/2	9 1/2	12 1/4	14 1/4
BOTTOM SLAB		7 1/2	10 1/2	12 3/4		7 1/2	10 1/2	12 3/4		7 1/2	10 3/4	13	15
SIDEWALLS		6	6	6		6	6	6		7	7	7	8 1/2
SIZE BAR #		6	4	4		6	4	4		6	4	4	4
SPACING		12	9 1/2	10 1/2		12	9 1/2	10		11 1/2	9 1/2	10 1/2	8 1/2
LENGTH		18-4	18-2	18-2		18-4	18-2	18-2		18-7	18-5	18-8	18-10
SIZE BAR #		6	6	7		6	6	7		6	6	7	7
SPACING		12	9 1/2	10 1/2		12	9 1/2	10		11 1/2	9 1/2	10 1/2	8 1/2
LENGTH "b" or "b1"		17-7	17-8	17-9		17-7	17-8	17-9		17-10	17-10	17-10	18-3
LENGTH "b1"		17-5	17-8	17-9		17-5	17-8	17-9		17-10	17-10	18	18-7
SIZE BAR #		4	6	7		4	6	7		4	6	7	7
SPACING		12	9 1/2	10 1/2		12	9 1/2	10		11 1/2	9 1/2	10 1/2	8 1/2
LENGTH		8-6	8-6	8-6		8-6	8-6	8-6		8-7	8-7	8-8	8-9
TOP SLAB-TOT. NO.		16	8	8		16	8	8		16	8	8	8
BOTTOM SLAB-TOT. NO.		8	8	8		8	8	8		8	8	8	8
SIZE BAR #		4	4	5		4	4	5		4	5	6	7
SPACING		18	18	10 1/2		18	12	10		14	9 1/2	7 1/2	8 1/2
SPACERS NUMBER		41				44				47			60
CONCRETE: C.Y. PER LIN. FT.		1.08	1.30	1.55		1.14	1.37	1.61		1.19	1.42	1.66	2.14
REINFORCING LBS. PER LIN. FT.		169	175	200		172	181	218		185	199	248	299
QUAN.													

NOTE

FOR BOXES OF HEIGHT LESS THAN THAT SHOWN IN TABLE, USE NEXT GREATER TABLE HEIGHT SLABS, WALL DIMENSIONS AND REINFORCING STEEL. MAKE CHANGES TO BAR LENGTHS AND NUMBER OF SPACERS AND QUANTITIES AS NECESSARY. NUMBER OF "d" BARS IN TABLE IS SLAB TOTAL FOR BOTH CELLS.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelksi	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

DOUBLE BOX CULVERT
DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
<i>Saman Engeda</i>	03/24/2022
Chairperson R.C.E. 52241 Date	
DRAWING NUMBER	D-77E

SPAN 10' (ALL MEASUREMENTS IN FEET AND/OR INCHES UNLESS NOTED OTHERWISE)

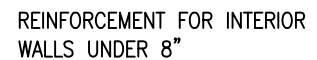
SPAN		10'																								
HEIGHT		5'				6'				7'				8'				10'								
STRENGTH CLASSIFICATION		A	B	C		A	B	C		A	B	C		A	B	C		A	B	C		D				
MAX FILL OVER TOP		2	17	30		2	17	30		2	17	30		2	16	29	36		2	16	29		36			
TOP SLAB		8 3/4	12 3/4	16		8 3/4	12 3/4	16		8 3/4	12 3/4	16		8 3/4	12 3/4	16	17 1/4		8 3/4	12 3/4	16	17 1/2				
BOTTOM SLAB		8 1/4	13 1/2	16 1/2		8 1/4	13 1/2	16 1/2		8 1/4	13 3/4	16 3/4		8 3/4	13 1/2	16 1/2	18 1/4		8 3/4	13 1/2	16 1/2	18 1/2				
SIDEWALLS		6	6	6		6	6	6		6	6 1/2	7		7	7	7 1/2	7 1/2		8	8	9	10				
SIZE BAR #		6	4	4		6	4	4		6	4	4		6	4	4	4		6	4	4	4				
SPACING		11	10	10		11	9 1/2	10		11	9 1/2	10		11	10	10	9		11	10	10	9				
LENGTH		22-4	22-2	22-2		22-4	22-2	22-2		22-4	22-4	22-5		22-7	22-5	22-7	22-10		22-10	22-8	22-11	23-2				
SIZE BAR #		6	7	8		6	7	8		6	7	8		6	7	8	8		6	7	8	8				
SPACING		11	10	10		11	9 1/2	10		11	9 1/2	10		11	10	10	9		11	10	10	9				
LENGTH "b"		21-7	21-10	22		21-7	21-10	22		21-7	21-11	22-3		21-10	22-1	22-4	22-9		22-1	22-4	22-9	23-1				
LENGTH "b1"		21-5	21-10	22		21-5	21-10	22		21-5	21-11	22-3		21-9	22	22-4	22-9		22	22-3	22-8	23-2				
SIZE BAR #		6	7	8		6	7	8		6	7	8		6	7	8	8		6	7	8	8				
SPACING		11	10	10		11	9 1/2	10		11	9 1/2	10		11	10	10	9		11	10	10	9				
LENGTH		10-6	10-6	10-6		10-6	10-6	10-6		10-6	10-7	10-7		10-7	10-7	10-8	10-9		10-8	10-8	10-9	10-10				
"d" DIST		18	10	10		18	10	10		18	10	10		18	10	10	10		18	10	10	10				
BARS BOTTOM SLAB-TOT. NO.		10	10	10		10	10	10		10	10	10		10	10	10	10		10	10	10	10				
SIZE BAR #		4	4	5		4	4	5		4	4	6		4	5	6	7		4	6	6	7				
BARS SPACING		18	10	10		18	6	6 1/2		14	6	8		11	8 1/2	6	6		7 1/2	7	5 1/2	5				
SPACERS NUMBER		48				48					51				54				64				68			
CONCRETE: C.Y. PER LIN. FT.		1.40	2.05	2.46		1.45	2.07	2.48		1.51	2.18	2.64		1.68	2.27	2.74	3.04		1.92	2.51	3.05	3.41				
REINFORCING LBS. PER LIN. FT.		236	254	310		238	274	324		243	280	339		252	278	355	430		279	327	400	476				

SAN DIEGO REGIONAL STANDARD DRAWING
DOUBLE BOX CULVERT DETAILS No. 1

SPAN		12'																																																																				
HEIGHT		6'			7'			8'			9'			10'			12'																																																					
STRENGTH CLASSIFICATION		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	D																																																		
MAX FILL OVER TOP		2	14	26	2	14	26	2	14	26	2	14	26	2	14	26	36	2	14	26	36																																																	
CONC.	T1	10	14	17 1/2	10	14 1/4	17 1/2	10 1/4	14 1/4	17 3/4	10 1/4	14 1/4	17 3/4	20 3/4	10 1/4	14 1/4	17 3/4	20 3/4	10 1/4	14 1/2	18 1/4	21 1/4																																																
	T2	9 1/4	14 3/4	18	9 1/4	15	18 1/4	9 3/4	15	18 1/2	10	15 1/4	18 3/4	21 1/4	10 1/4	15 1/4	18 3/4	21 1/2	10 1/2	15 1/4	19 1/4	22																																																
	T3	6	6	6 1/2	7	7	7	8	8	8 1/2	9	9	9	10	9	9 1/2	11	9	10	11	12	12																																																
REINFORCING STEEL	SIZE BAR #	6	4	4	6	4	4	6	4	4	6	4	4	6	4	4	6	4	4	4	4	4																																																
	"a" 	9	11 1/2	9	9	11 1/2	9	9	11	8 1/2	9	11	8 1/2	9	9	11	8 1/2	9	9	11	8 1/2	9																																																
	SPACING	26-4	26-2	26-4	26-7	26-5	26-5	26-10	26-8	26-10	27-1	26-11	26-11	27-1	27-1	26-11	27-3	27-5	27-1	27-2	27-5	27-8																																																
	LENGTH	6	8	8	6	8	8	6	8	8	8	6	8	8	9	6	8	8	9	6	8	9																																																
	"b" 	9	11 1/2	9	9	11 1/2	9	9	11	8 1/2	9	11	8 1/2	9	9	11	8 1/2	9	9	11	8 1/2	9																																																
	SPACING	25-8	25-10	26-3	25-11	26-1	26-4	26-9	26-4	26-9	26-5	26-8	26-10	27-4	26-5	26-8	27-2	27-6	26-5	26-11	27-5	27-10																																																
REINFORCING STEEL	"b" 	25-6	25-10	26-3	25-9	26-2	26-4	26-1	26-5	26-9	26-4	26-8	26-11	27-4	26-4	26-8	27-2	27-7	26-4	26-11	27-5	27-10																																																
	LENGTH "b1" 	5	8	8	5	8	8	5	8	8	5	8	8	9	5	8	8	9	5	8	8	9																																																
	SIZE BAR #	9	11 1/2	9	9	11 1/2	9	9	11	8 1/2	9	11	8 1/2	9	9	11	8 1/2	9	9	11	8 1/2	9																																																
	SPACING	12-6	12-6	12-7	12-7	12-7	12-7	12-8	12-8	12-9	12-9	12-9	12-9	12-10	12-9	12-9	12-10	12-11	12-9	12-10	12-11	13																																																
	LENGTH	24	10	10	24	10	10	24	10	10	24	10	10	10	24	10	10	10	24	10	10	10																																																
	"b" DIST BARS	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10																																																
REINFORCING STEEL	BOTTOM SLAB-TOT. NO.	4	4	5	4	4	5	4	4	5	4	4	5	7	8	4	7	8	6	7	8	9																																																
	SIZE BAR #	18	8	8	15	6	6 1/2	12	5 1/2	6	9	7 1/2	8 1/2	8	8 1/2	11	8 1/2	9	12	8	7	7																																																
	SPACING	52	259	316	197	277	328	219	293	359	238	074	369	425	248	323	386	449	267	353	430	492																																																
SPACERS NUMBER		1.84			309			317			401			316			330			415			336			363			460			345			374			485			578			582			519			394			351			267			371			427			567			673		
CONCRETE: C.Y. PER LIN. FT.																																																																						
REINFORCING LBS. PER LIN. FT.																																																																						

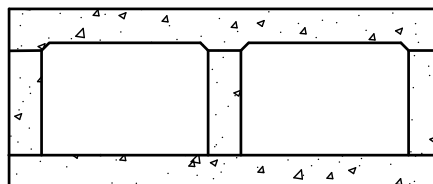
FOR BOXES OF HEIGHT LESS THAN THAT SHOWN IN TABLE. USE NEXT GREATER TABLE HEIGHT SLABS, WALL DIMENSIONS AND REINFORCING STEEL. LENGTHS AND NUMBER OF SPACERS AND QUANTITIES AS NECESSARY. NUMBER OF "d" BARS IN TABLE IS SLAB TOTAL FOR BOTH CELLS. MAKE CHANGES TO BAR

- PROVIDE PAVING NOTCH WHEN TOP IS EXPOSED AND WHERE PCC PAVEMENT OR APPROACH SLAB IS USED



(SHOWING REINFORCEMENT FOR INTERIOR WALLS 8" AND OVER)

⊛ FOR REINFORCEMENT CLEARANCE, EXCEPT AT BOTTOM, SEE "MISCELLANEOUS DETAILS," ON D-81A AND D-81B.



"FLAT INVERT" ALTERNATIVE
(WHEN SPECIFIED)

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	DOUBLE BOX CULVERT DETAILS NO. 2	 03/24/2022
Edited	M.W	T. Regello	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER
					D-77G

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

TRIPLE BOX CULVERT DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022

Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-78A**

SPAN 4' (ALL MEASUREMENTS IN FEET AND/OR INCHES UNLESS NOTED OTHERWISE)

SPAN		4'											
HEIGHT		2'				3'				4'			
STRENGTH CLASSIFICATION		A	B	C		A	B	C		A	B	C	
MAX FILL OVER TOP		10	24	38		10	24	38		10	24	38	
TOP SLAB	T1	6 1/4	6 1/4	7 1/4		6 1/4	6 1/4	7 1/4		6 1/4	6 1/4	7 1/4	
BOTTOM SLAB	T2	6	7	8 1/4		6	7	8 1/4		6	7	8 1/4	
SIDEWALLS	T3	6	6	6		6	6	6		6	6	6	
SIZE BAR #		5	4	5		5	4	5		5	4	5	
"a" SPACING		11	11 1/2	13		11	11 1/2	13		11	11 1/2	13	
LENGTH		14-9	14-8	14-9		14-9	14-8	14-9		14-9	14-8	14-9	
SIZE BAR #		5	5	6		5	5	6		5	5	6	
"b" SPACING		11	11 1/2	13		11	11 1/2	13		11	11 1/2	13	
LENGTH "b"		14-2	14-2	14-3		14-2	14-2	14-3		14-2	14-2	14-3	
LENGTH "b1"		14	14-2	14-3		14	14-2	14-3		14	14-2	14-3	
SIZE BAR #		4	5	6		4	5	6		4	5	6	
"c" SPACING		11	11 1/2	13		11	11 1/2	13		11	11 1/2	13	
LENGTH		9	9	9		9	9	9		9	9	9	
"d" DIST TOP SLAB-TOT. #		15	9	9		15	9	9		15	9	9	
BARS BOTTOM SLAB-TOT. #		9	9	9		9	9	9		9	9	9	
"e" SIZE BAR #		4	4	4		4	4	4		4	4	4	
BARS SPACING		18	18	18		18	18	18		18	18	18	
SPACERS NUMBER		34				38				42			
CONCRETE: C.Y. PER LIN. FT.		0.67	0.71	0.81		0.75	0.79	0.89		0.82	0.86	0.96	
REINFORCING LBS PER LIN. FT.		122	110	133		127	115	138		131	122	147	

NOTE

FOR BOXES OF HEIGHT LESS THAN THAT SHOWN IN TABLE, USE NEXT GREATER TABLE HEIGHT SLABS, WALL DIMENSIONS AND REINFORCING STEEL. MAKE CHANGES TO BAR LENGTHS AND NUMBER OF SPACERS AND QUANTITIES AS NECESSARY. NUMBER OF "d" BARS IN TABLE IS SLAB TOTAL FOR ALL CELLS.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelksi	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

TRIPLE BOX CULVERT DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER

D-78B

SPAN 5' (ALL MEASUREMENTS IN FEET AND/OR INCHES UNLESS OTHERWISE NOTED)

SPAN		5'															
HEIGHT		2'				3'				4'				5'			
STRENGTH CLASSIFICATION		A	B	C	A	B	C	A	B	C	A	B	C	D	C	D	
MAX FILL OVER TOP		8	17	26	8	17	26	8	17	26	8	17	26	35	26	35	
CONC	TOP SLAB	T1	6 3/4	7 1/2	6 3/4	6 3/4	7 1/2	6 3/4	6 3/4	7 1/2	6 3/4	6 3/4	6 3/4	8 1/2	7 1/2	8 1/2	
	BOTTOM SLAB	T2	6 1/4	7 1/4	8 1/2	6 1/4	7 1/4	8 1/2	6 1/4	7 1/4	8 1/2	6 1/4	7 1/4	9 1/2	8 1/2	9 1/2	
	SIDEWALLS	T3	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
REINFORCING STEEL	SIZE BAR #	5	4	5	5	4	5	5	4	5	5	4	5	5	4	5	
	SPACING	10	11 1/2	13	10	11 1/2	13	10	11 1/2	13	10	11 1/2	13	11 1/2	13	11 1/2	
	LENGTH	17-9	17-8	17-9	17-9	17-8	17-9	17-9	17-8	17-9	17-9	17-8	17-9	17-9	17-8	17-9	
	SIZE BAR #	5	5	6	5	5	6	5	5	6	5	5	6	6	5	6	
	SPACING	10	11 1/2	13	10	11 1/2	13	10	11 1/2	13	10	11 1/2	13	11 1/2	13	11 1/2	
	LENGTH "b"	17-3	17-3	17-3	17-3	17-3	17-3	17-3	17-3	17-3	17-3	17-3	17-3	17-3	17-3	17-5	
	LENGTH "b1"	17	17-2	17-4	17	17-2	17-4	17	17-2	17-4	17	17-2	17-4	17-5	17-4	17-5	
	SIZE BAR #	4	5	6	4	5	6	4	5	6	4	5	6	6	4	6	
	SPACING	10	11 1/2	13	10	11 1/2	13	10	11 1/2	13	10	11 1/2	13	11 1/2	13	11 1/2	
	LENGTH	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	
REINFORCING STEEL	"d" DIST BARS	18	9	9	18	9	9	18	9	9	18	9	9	9	9	9	
	BOTTOM SLAB-TOT. #	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	
REINFORCING STEEL	"e" BARS	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
	SPACING	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	
SPACERS NUMBER		34				38				38				42			
QUANT.	CONCRETE: C.Y. PER LIN. FT.	0.82	0.87	0.98	0.90	0.95	1.05	0.97	1.02	1.13	1.23	1.04	1.11	1.20	1.31	1.31	
	REINFORCING LBS. PER LIN. FT.	150	126	153	155	130	157	157	136	161	181	161	143	171	192	192	

NOTE

FOR BOXES OF HEIGHT LESS THAN THAT SHOWN IN TABLE, USE NEXT GREATER TABLE HEIGHT SLABS, WALL DIMENSIONS AND REINFORCING STEEL. MAKE CHANGES TO BAR LENGTHS AND NUMBER OF SPACERS AND QUANTITIES AS NECESSARY. NUMBER OF "d" BARS IN TABLE IS SLAB TOTAL FOR ALL CELLS.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelksi	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

TRIPLE BOX CULVERT DETAILS No. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-78C**

SPAN 6' (ALL MEASUREMENTS IN FEET AND/OR INCHES UNLESS NOTED OTHERWISE)

SPAN		6'											
HEIGHT		3'				4'				5'			
STRENGTH CLASSIFICATION		A	B	C		A	B	C		A	B	C	D
MAX FILL OVER TOP		3	13	23		3	13	23		3	13	23	30
TOP SLAB	T1	7 1/2	7 1/2	8 1/4	7 1/2	7 1/2	7 1/2	8 1/4	9 1/4	7 1/2	7 1/2	8 1/4	9 1/4
BOTTOM SLAB	T2	6	7 3/4	9 1/4	6	7 3/4	9 1/4	6	9 1/4	6	8	9 1/4	10 1/4
SIDEWALLS	T3	6	6	6	6	6	6	6	6	6	6	6	6
SIZE BAR #		6	5	5	6	5	5	5	5	6	5	5	5
SPACING		13	14	11 1/2	13	14	11 1/2	13	14	11 1/2	10	13	14
LENGTH		20-10	20-9	20-9	20-10	20-9	20-9	20-9	20-10	20-9	20-9	20-10	20-9
SIZE BAR #		6	6	6	6	6	6	6	6	6	6	6	6
SPACING		13	14	11 1/2	13	14	11 1/2	13	14	11 1/2	10	13	14
LENGTH "b"		20-3	20-3	20-5	20-3	20-3	20-3	20-5	20-3	20-3	20-3	20-3	20-6
LENGTH "b1"		20	20-2	20-5	20	20-2	20-2	20-5	20	20-2	20-2	20	20-5
SIZE BAR #		4	6	6	4	6	6	6	4	6	6	4	6
SPACING		13	14	11 1/2	13	14	11 1/2	13	14	11 1/2	10	13	14
LENGTH		13	13	13	13	13	13	13	13	13	13	13	13
"d" DIST TOP SLAB-TOT. #		18	9	9	18	9	9	9	18	9	9	18	9
BARS BOTTOM SLAB-TOT. #		9	9	9	9	9	9	9	9	9	9	9	9
SIZE BAR #		4	4	4	4	4	4	4	4	4	4	4	4
BARS		18	18	18	18	18	18	18	18	18	18	18	18
SPACING		40	40	40	40	40	40	40	40	40	40	40	40
SPACERS NUMBER		1.05	1.15	1.29	1.12	1.23	1.37	1.37	1.19	1.32	1.44	1.55	1.64
CONCRETE: C.Y. PER LIN. FT.		181	168	196	183	170	200	200	187	177	209	235	249
REINFORCING LBS. PER LIN. FT.													

NOTE

FOR BOXES OF HEIGHT LESS THAN THAT SHOWN IN TABLE, USE NEXT GREATER TABLE HEIGHT SLABS, WALL DIMENSIONS AND REINFORCING STEEL. MAKE CHANGES TO BAR LENGTHS AND NUMBER OF SPACERS AND QUANTITIES AS NECESSARY. NUMBER OF "d" BARS IN TABLE IS SLAB TOTAL FOR ALL CELLS.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

**TRIPLE BOX CULVERT
DETAILS No. 1**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-78D**

SPAN 8' (ALL MEASUREMENTS IN FEET AND/OR INCHES UNLESS NOTED OTHERWISE)

SPAN		8'																
HEIGHT		4'			5'			6'			7'			8'				
STRENGTH CLASSIFICATION		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	D	
MAX FILL OVER TOP		2	11	20	2	11	20	2	11	20	2	11	20	2	11	20	28	
CONCRETE	TOP SLAB	T1	8 1/4	8 1/4	10 1/4	8 1/4	8 1/4	10 1/4	8 1/4	8 1/4	10 1/4	8 1/4	8 1/4	10 1/4	8 1/4	8 1/4	10 1/4	11 1/2
	BOTTOM SLAB	T2	6 1/2	9	11	6 1/2	9 1/4	11	6 1/2	9 1/4	11	6 3/4	9 1/4	11	6 3/4	9 1/4	11	12 1/4
	SIDEWALLS	T3	6	6	6	6	6	6	6	6	6	6	6	6 1/2	6 1/2	7	7 1/2	8 1/2
REINFORCING STEEL	SIZE BAR #		6	5	5	6	5	5	6	5	5	6	5	5	6	5	5	6
	"a" SPACING		11 1/2	12	12	11 1/2	12	12	11 1/2	12	12	11 1/2	12	12	10 1/2	11 1/2	11 1/2	12
	LENGTH		26-10	26-9	26-9	26-10	26-9	26-9	26-10	26-9	26-9	26-10	26-9	26-11	27-4	27-2	27-1	27-8
	SIZE BAR #		6	6	7	6	6	7	6	6	7	6	6	7	6	6	7	7
	"b" SPACING		11 1/2	12	12	11 1/2	12	12	11 1/2	12	12	11 1/2	12	12	10 1/2	11 1/2	11 1/2	12
	LENGTH "b"		26-5	26-5	26-7	26-5	26-5	26-7	26-5	26-5	26-7	26-5	26-5	26-9	27-3	26-9	27-1	27-7
	"b1" SPACING		26	26-4	26-7	26	26-5	26-7	26	26-5	26-7	26	26-1	26-5	26-9	26-5	27-1	27-7
	LENGTH "b1"		4	6	7	4	6	7	4	6	7	4	6	7	4	6	7	7
	SIZE BAR #		11 1/2	12	12	11 1/2	12	12	11 1/2	12	12	11 1/2	12	12	10 1/2	11 1/2	11 1/2	12
	"c" SPACING		17	17	17	17	17	17	17	17	17	17	17	17	17-1	17-2	17-3	17-5
BARS	LENGTH		24	12	12	24	12	12	24	12	12	24	12	24	12	24	12	12
	"d" DIST TOP SLAB-TOT. #		12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
	BOTTOM SLAB-TOT. #		4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
	SIZE BAR #		18	18	12	18	12	12	18	12	12	11 1/2	12	12	10 1/2	11 1/2	11 1/2	12
QUANTITIES	SPACING		58															
	SPACERS NUMBER					62			62						66			88
	CONCRETE: C.Y. PER LIN. FT.		1.47	1.67	1.99	1.54	1.76	2.06	1.62	1.84	2.14	1.71	1.91	2.26	2.57	2.10	2.46	2.79
REINFORCING LBS. PER LIN. FT.		261	250	301	266	257	310	267	264	320	276	277	336	409	283	295	347	441

NOTE

FOR BOXES OF HEIGHT LESS THAN THAT SHOWN IN TABLE, USE NEXT GREATER TABLE HEIGHT SLABS, WALL DIMENSIONS AND REINFORCING STEEL. MAKE CHANGES TO BAR LENGTHS AND NUMBER OF SPACERS AND QUANTITIES AS NECESSARY. NUMBER OF "d" BARS IN TABLE IS SLAB TOTAL FOR ALL CELLS.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelksi	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

**TRIPLE BOX CULVERT
DETAILS No. 1**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

 03/24/2022

Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-78E**

SPAN 10' (ALL EASUREMENTS IN FEET AND/OR INCHES UNLESS NOTED OTHERWISE)

SPAN	10'																	
	5'			6'			7'			8'			10'					
HEIGHT																		
STRENGTH CLASSIFICATION	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
MAX FILL OVER TOP	2	11	20	2	11	20	2	11	20	2	11	20	2	11	20	2	11	20
TOP SLAB	9	10	12	9	10	12	9	10	12	9	10	12	9	10	12	9	10	12
BOTTOM SLAB	7 1/2	10 3/4	13	7 1/2	10 3/4	13	7 1/2	10 3/4	13	7 3/4	11	13	7 3/4	11	13	8	11	13 1/2
SIDEWALLS	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	8	8 1/2	9
SIZE BAR #	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7
SPACING	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10
LENGTH	32-10	32-10	32-10	32-10	32-10	32-10	32-10	32-10	32-10	33-2	33-2	33-4	33-2	33-2	33-4	33-8	33-8	33-10
SIZE BAR #	6	7	7	6	7	7	6	7	7	6	7	7	6	7	7	6	7	7
SPACING	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10
LENGTH "b"	32-6	32-7	32-10	32-6	32-7	32-10	32-6	32-7	33	32-10	32-11	33-4	32-10	32-11	33-2	33-5	33-11	34-5
LENGTH "b1"	32-2	32-7	32-11	32-2	32-7	32-11	32-2	32-7	33-1	32-6	32-11	33-5	32-6	32-11	33-5	33-11	33-5	34-5
SIZE BAR #	5	7	7	5	7	7	5	7	7	5	7	7	5	7	7	5	7	8
SPACING	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10	10 1/2	13	10
LENGTH	21	21	21	21	21	21	21	21	21-1	21-2	21-2	21-3	21-2	21-2	21-3	21-5	21-4	21-6
"d" DIST TOP SLAB-TOT. #	27	15	15	27	15	15	27	15	15	27	15	15	27	15	15	27	15	15
BARS BOTTOM SLAB-TOT. #	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
SIZE BAR #	4	4	5	4	5	6	4	6	7	4	6	7	4	6	7	5	6	8
BARS	18	13	10	18	13	10	13	13	10	10 1/2	12	10	10 1/2	12	10	11	10 1/2	9
SPACING	68			68												94		102
SPACERS NUMBER																		
CONCRETE: C.Y. PER LIN. FT.	1.98	2.40	2.82	2.06	2.48	2.90	2.13	2.55	3.03	2.34	2.77	3.23	2.34	2.77	3.23	2.68	3.18	3.73
REINFORCING LBS. PER LIN. FT.	358	372	470	359	379	482	367	391	502	377	402	514	377	402	514	421	453	577
QUAN.																		632

NOTE

FOR BOXES OF HEIGHT LESS THAN THAT SHOWN IN TABLE, USE NEXT GREATER TABLE HEIGHT SLABS, WALL DIMENSIONS AND REINFORCING STEEL. MAKE CHANGES TO BAR LENGTHS AND NUMBER OF SPACERS AND QUANTITIES AS NECESSARY. NUMBER OF "d" BARS IN TABLE IS SLAB TOTAL FOR ALL CELLS.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

**TRIPLE BOX CULVERT
DETAILS No. 1**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022

Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-78F**

SPAN 12' (ALL MEASUREMENTS IN FEET AND/OR INCHES UNLESS NOTED OTHERWISE)

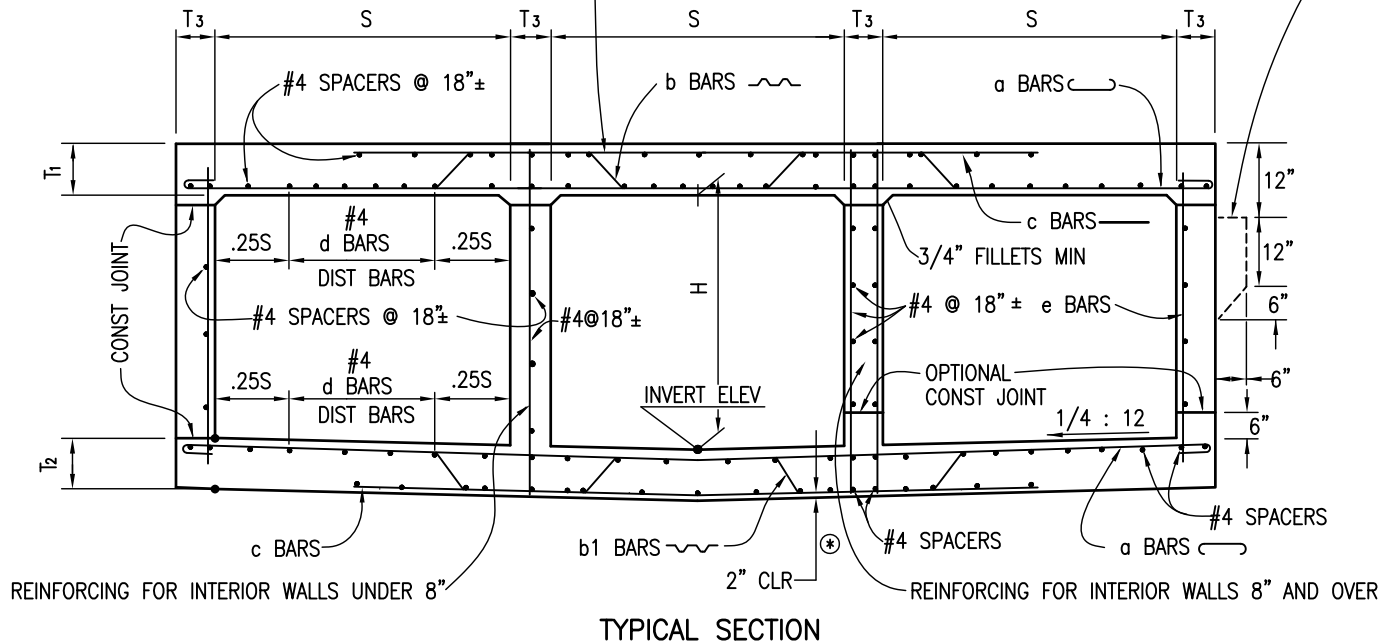
SPAN		12'																		
HEIGHT		6'			7'			8'			9'			10'			12'			
STRENGTH CLASSIFICATION		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	D
MAX FILL OVER TOP		2	10	18	2	10	18	2	10	18	2	11	20	30	2	11	20	30	2	11
TOP SLAB	T1	10 1/4	11 1/2	14	10 1/4	11 1/2	14	10 1/4	11 1/2	14	10 1/4	12	14 3/4	17 3/4	10 1/4	12	14 3/4	17 3/4	10 1/4	12
BOTTOM SLAB	T2	8 1/4	12	14 1/2	8 1/2	12	14 3/4	8 1/2	12	14 3/4	8 3/4	12 1/2	15 1/2	18 1/4	8 3/4	12 1/2	15 1/2	18 1/4	9	12 3/4
SIDEWALLS	T3	6	6	6 1/2	6	6	6 1/2	7	7	7 1/2	8	8	9	10	8	8	9	10 1/2	9	10 1/2
SIZE BAR #		7	6	7	7	6	7	7	6	7	7	6	7	8	7	6	7	8	7	8
SPACING		12	11	11 1/2	12	11	11 1/2	12	11	11 1/2	12	10 1/2	11	11 1/2	12	10 1/2	11	11 1/2	12	10 1/2
LENGTH		39-1	38-10	39-3	39-1	38-10	39-5	39-2	39-7	39-9	39-6	40-1	40-10	39-9	39-6	40-1	41	40-1	39-10	41-6
SIZE BAR #		7	7	8	7	7	8	7	7	8	7	7	8	9	7	7	8	9	7	8
SPACING		12	11	11 1/2	12	11	11 1/2	12	11	11 1/2	12	10 1/2	11	11 1/2	12	10 1/2	11	11 1/2	12	10 1/2
LENGTH "b"		38-7	38-9	39-3	38-7	38-9	39-5	38-11	39-1	39-7	39-3	39-6	40-2	40-10	39-3	39-6	40-2	41	39-10	40-8
LENGTH "b1"		38-3	38-7	39-2	38-3	38-9	39-5	38-7	39-1	39-7	39-3	39-6	40-2	40-10	39-6	40-2	41	39-4	39-10	41-6
SIZE BAR #		6	7	8	6	7	8	6	7	8	6	7	8	9	6	7	8	9	6	7
SPACING		12	11	11 1/2	12	11	11 1/2	12	11	11 1/2	12	10 1/2	11	11 1/2	12	10 1/2	11	11 1/2	12	10 1/2
LENGTH		25	25	25-1	25	25	25-2	25-2	25-2	25-3	25-4	25-4	25-6	25-8	25-4	25-6	25-9	25-6	25-6	25-9
TOP SLAB-TOT. #		36	15	15	36	15	15	36	15	15	36	15	15	15	36	15	15	15	36	15
BOTTOM SLAB-TOT. #		15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
SIZE BAR #		4	4	6	4	4	6	4	4	6	4	6	7	8	5	7	8	8	6	7
SPACING		18	7	11 1/2	12	5 3/4	11 1/2	12	5 1/2	9	10	10 1/2	11	11 1/2	12	10 1/2	11	6 1/2	12	9
SPACERS NUMBER		76	3.18	3.82	2.70	3.26	3.98	2.88	3.45	4.13	3.13	3.79	4.61	5.45	3.23	3.89	4.72	5.65	3.62	4.28
CONCRETE: C.Y. PER LIN. FT.		2.60																		
REINFORCING LBS. PER LIN. FT.		489	505	628	497	516	637	505	527	654	536	582	719	872	548	606	745	939	575	793

NOTE

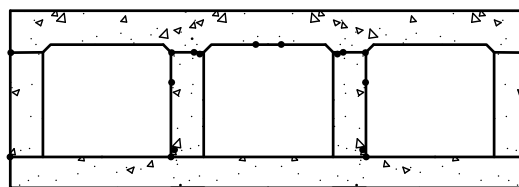
FOR BOXES OF HEIGHT LESS THAN THAT SHOWN IN TABLE, USE NEXT GREATER TABLE HEIGHT SLABS, WALL DIMENSIONS AND REINFORCING STEEL. MAKE CHANGES TO BAR LENGTHS AND NUMBER OF SPACERS AND QUANTITIES AS NECESSARY. NUMBER OF "d" BARS IN TABLE IS SLAB TOTAL FOR ALL CELLS.

FOR COVER LESS THAN 2', EXTEND c BARS FULL LENGTH, TOP SLAB ONLY. PROVIDE ADDITIONAL #4 @ 18"± AND ADJUST QUANTITIES

PROVIDE PAVING NOTCH WHEN TOP IS EXPOSED AND WHERE PCC PAVEMENT OR APPROACH SLAB IS USED



⊗ FOR REINFORCEMENT CLEARANCE, EXCEPT AT BOTTOM, SEE "MISCELLANEOUS DETAILS" ON D-81A AND D-81B.

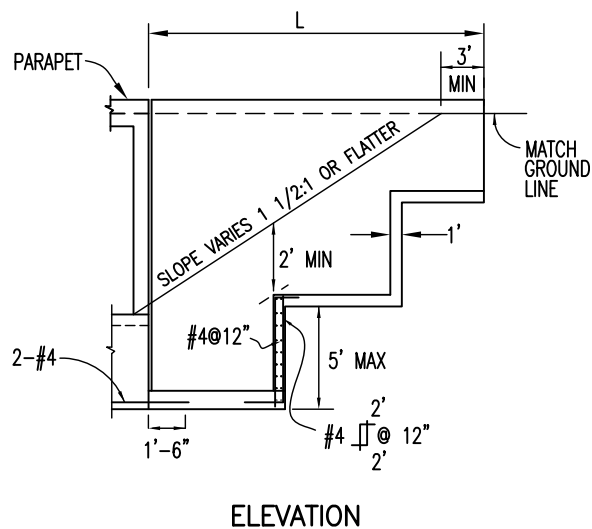
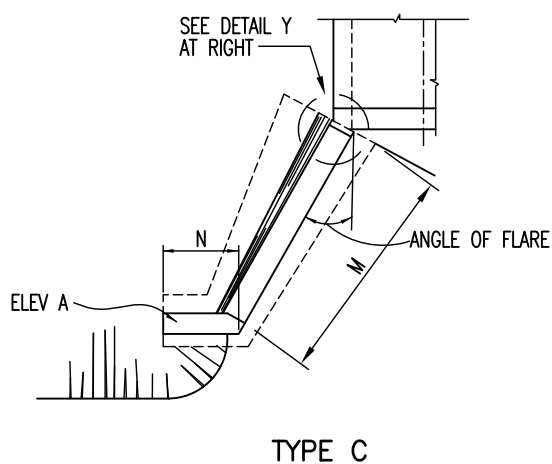
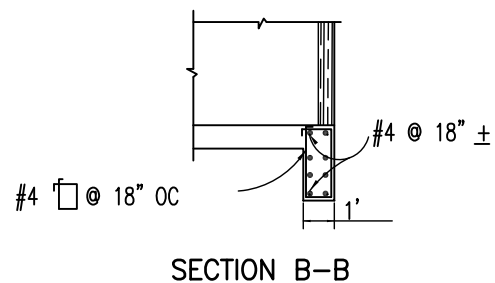
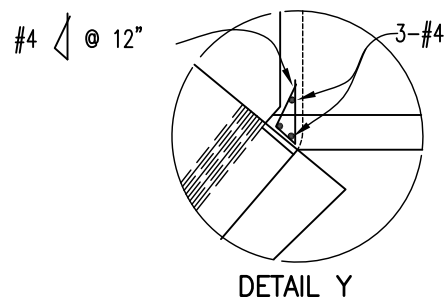
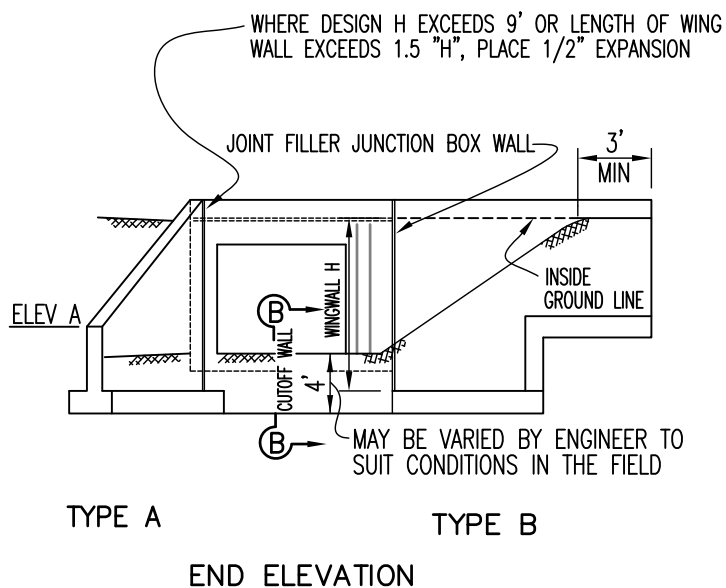
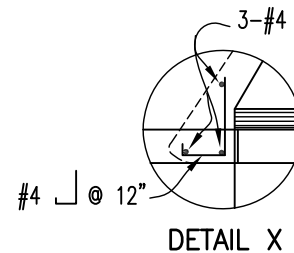
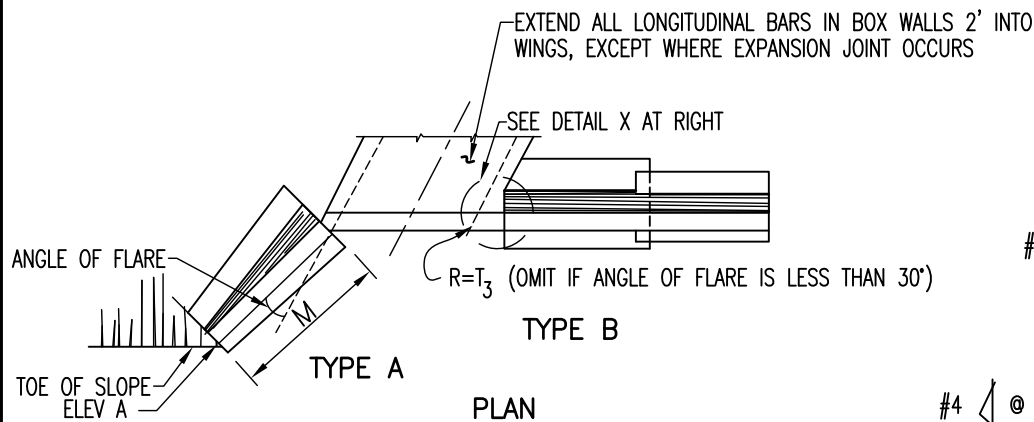


FLAT INVERT ALTERNATIVE
(WHEN SPECIFIED)

NOTES

1. SPACERS SHALL BE #4 @ 18" OC IN TOP SLAB AND SIDEWALL MATS.
2. REMAINING #4 SPACERS SHALL BE QUALLY DISTRIBUTED IN BOTTOM SLAB MATS.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	TRIPLE BOX CULVERT DETAILS NO.2		<i>Samsin Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date	D-78G
Edited	T.R.	T. Regello	10/15				
Edited	M.W.	M. Widelski	10/18				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER	



NOTE

USE TYPE 2 RETAINING WALL WHERE 1 1/2:1 SURCHARGE EXCEEDS 5'.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

BOX CULVERT WINGWALL TYPES A, B & C DETAILS NO. 1

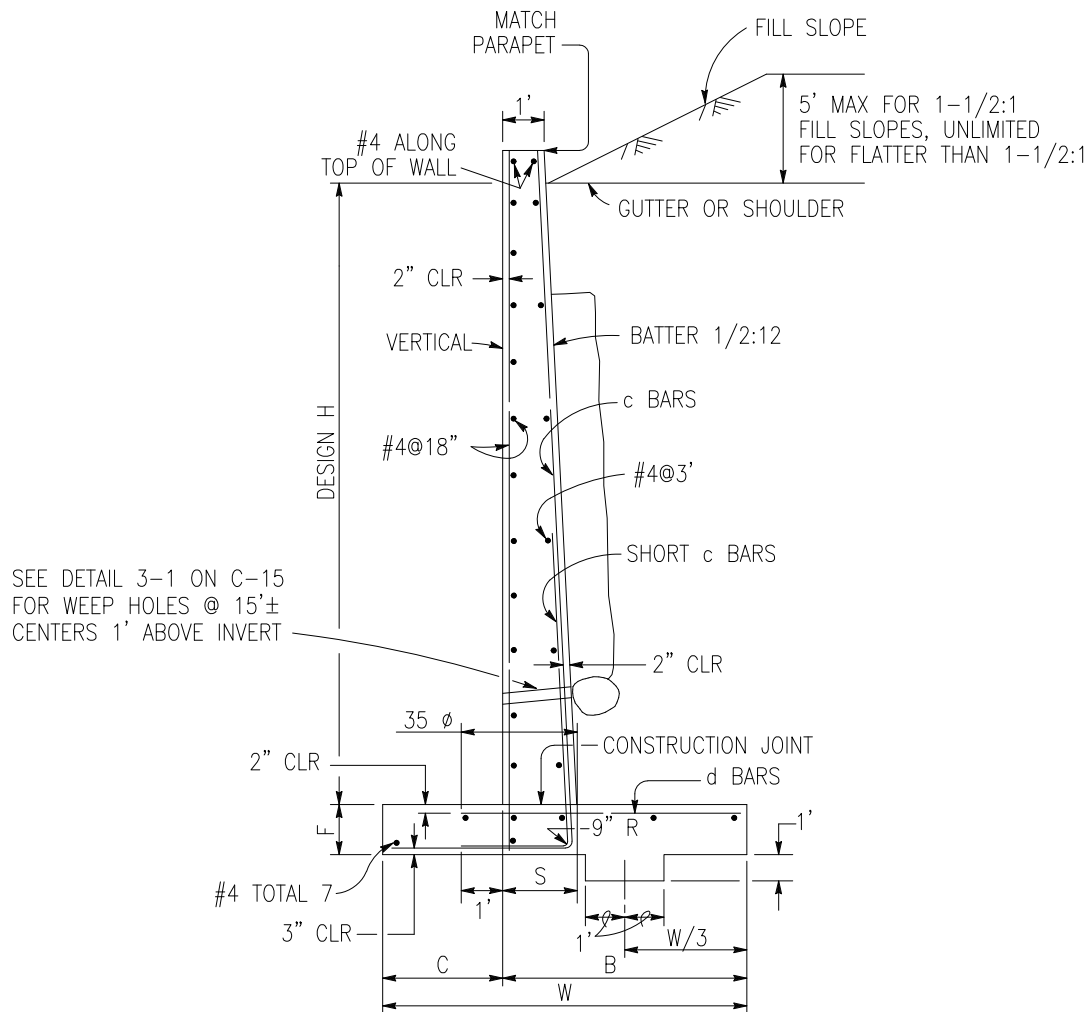
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Susan Engeda 03/24/2022

Chairperson R.C.E. 52241 Date

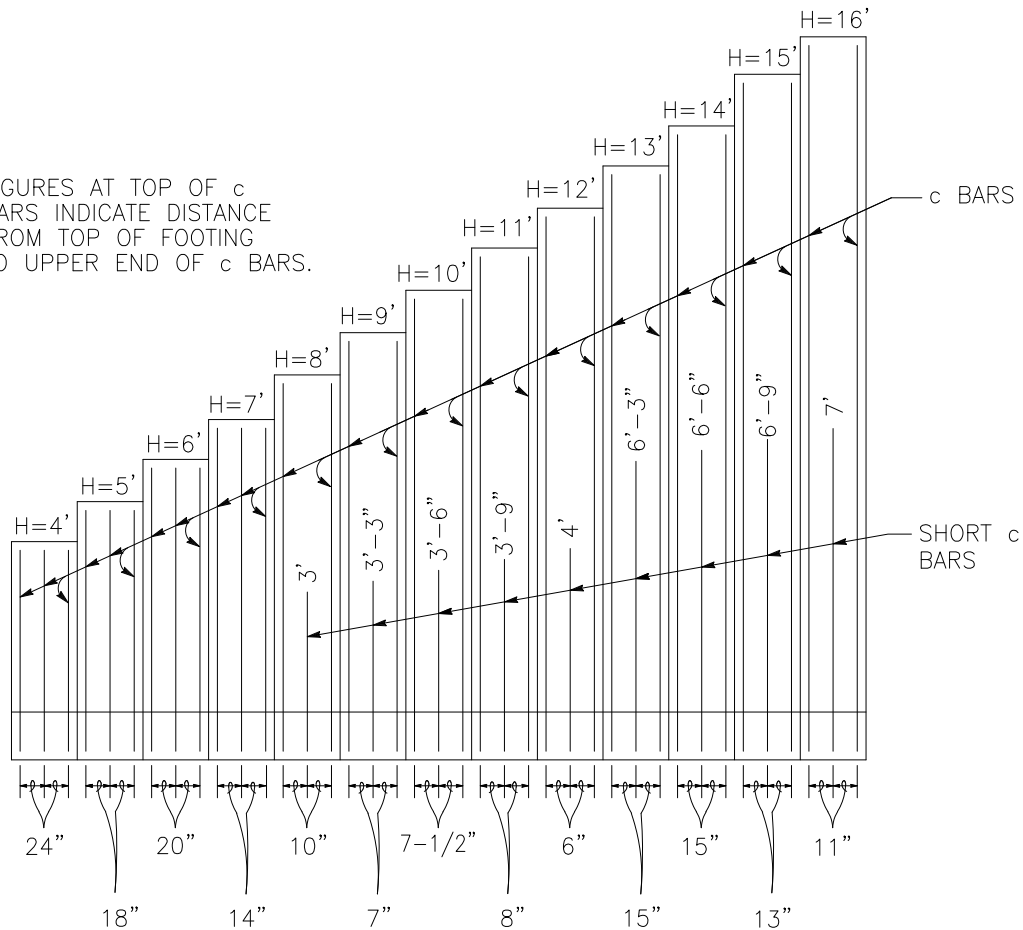
DRAWING
NUMBER **D-79A**

DRAWING
NUMBER **D-79B**



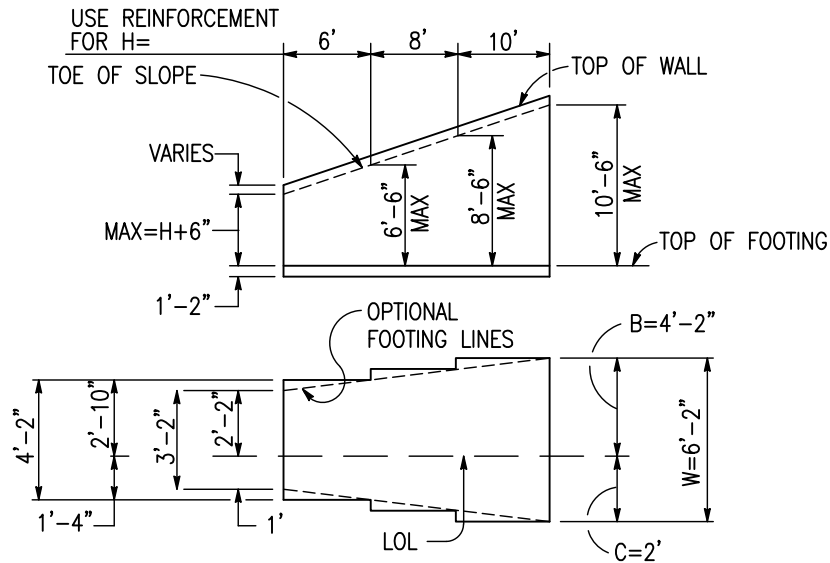
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	BOX CULVERT WINGWALL TYPES A, B & C DETAILS NO. 3	 03/24/2022
Edited	M.W.	M. Widelski	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER D-79C

FIGURES AT TOP OF c
BARS INDICATE DISTANCE
FROM TOP OF FOOTING
TO UPPER END OF c BARS.



TYPICAL LAYOUT EXAMPLE 1

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	BOX CULVERT WINGWALL TYPES A, B & C DETAILS NO. 4		 03/24/2022
Edited	T.R.	T. Regello	10/15			Chairperson R.C.E. 52241 Date
Edited	M.W.	M. Widelski	10/18			DRAWING NUMBER
Reviewed	RP	S. Engeda	03/22			D-79D



TYPICAL LAYOUT EXAMPLE 2

NOTES

1. UNIT STRESSES: $F_s = 20,000$ PSI, $F_c = 1,200$ PSI, $N = 10$. MAXIMUM TOE PRESSURE = $1\frac{1}{2}$ TONS/SQ. FT. ELEVATIONS, LENGTH AND ANGLE OF FLARE OF WINGS MAY BE VARIED BY THE ENGINEER TO SUIT CONDITIONS ENCOUNTERED IN THE FIELD.
2. WALLS DESIGNED FOR 2' LIVE LOAD SURCHARGE, $1\frac{1}{2}$:1 SLOPING NOT TO EXCEED 5' IN ELEVATION PLUS 2' LIVE LOAD SURCHARGE, OR UNLIMITED 2:1 SURCHARGE. DIMENSIONS H, L, M, N, ELEVATION A AND ANGLE OF FLARE (AS APPLY) ARE SHOWN ON THE PLANS.
3. WALL HEIGHT MAY BE EXCEEDED BY 6" BEFORE GOING TO NEXT GREATER H. ELIMINATE CUTOFF WALL IF ADJACENT CHANNEL IS PAVED AND SKEW IS 20° MAXIMUM.

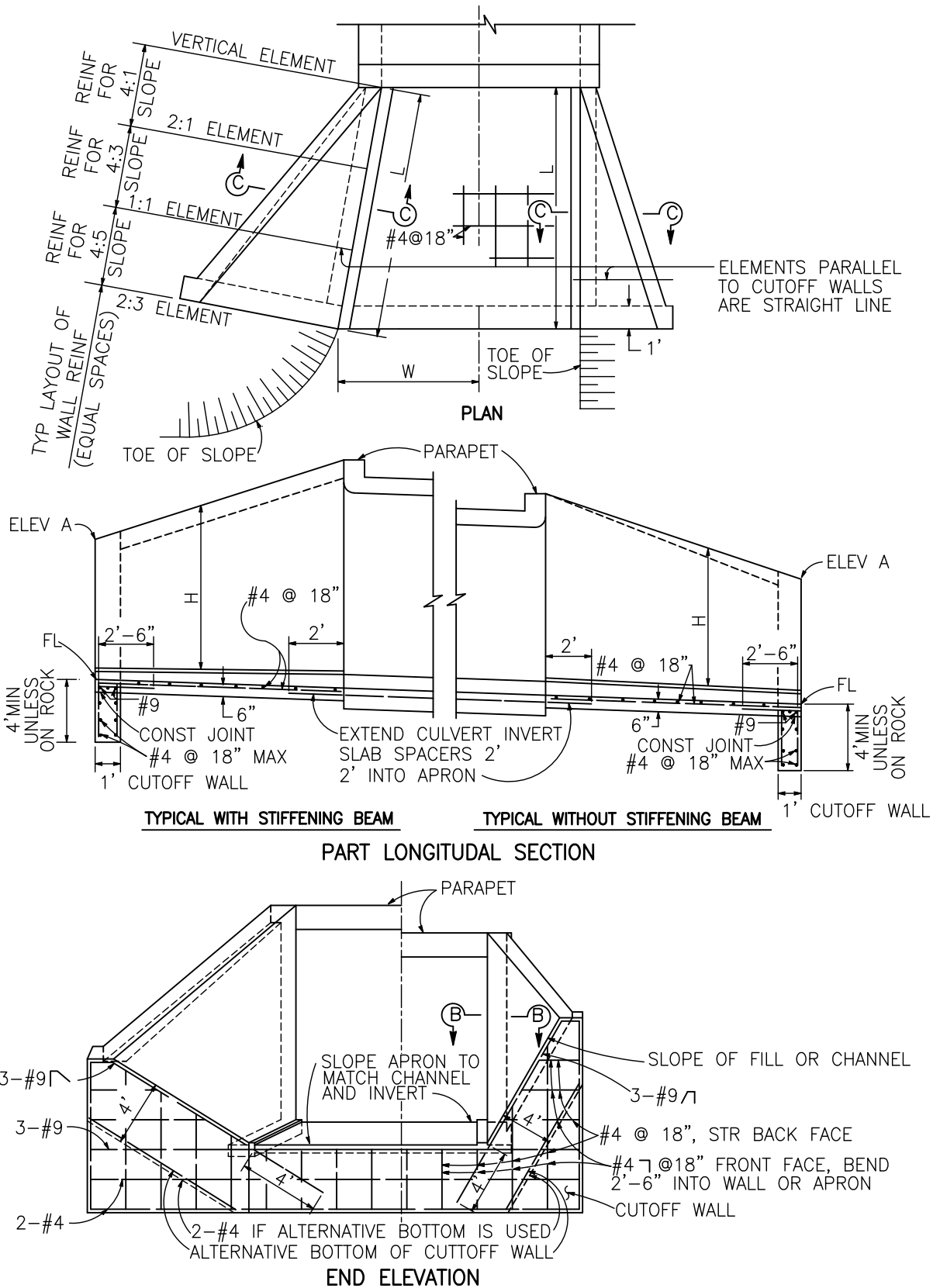
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75				
Edited	T.R.	T. Regello	10/15	BOX CULVERT WINGWALL TYPES A, B & C DETAILS NO. 5		 03/24/2022	
Edited	M.W.	M. Widelski	10/18			Chairperson R.C.E. 52241 Date	
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER	
						D-79E	

H	4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'	15'	16'
W	3'-2"	3'-8"	4'-2"	4'-8"	5'-2"	5'-8"	6'-2"	6'-8"	7'-2"	7'-8"	8'-2"	8'-8"	9'-2"
C	1'	1'-2"	1'-4"	1'-6"	1'-8"	1'-10"	2'	2'-2"	2'-4"	2'-6"	2'-8"	2'-10"	3'
B	2'-2"	2'-6"	2'-10"	3'-2"	3'-6"	3'-10"	4'-2"	4'-6"	4'-10"	5'-2"	5'-6"	5'-10"	6'-2"
F	1'-2"												
BATTER	NONE										1/2 : 12		
S	1'	1'	1'	1'	1'	1'	1'	1'	1'	1'-6 1/2"	1'-7"	1'-7 1/2"	1'-8"
c BARS	#4@24	#4@18	#5@20	#5@14	#5@10	#5@7	#6@7 1/2	#7@8	#7@6	#9@15	#10@15	#10@13	#10@11
d BARS	#4@24	#4@18	#5@20	#5@14	#5@10	#6@14	#7@15	#8@16	#7@12	#8@15	#9@15	#10@13	#9@11
CONC CY/LF	0.32	0.38	0.44	0.49	0.55	0.61	0.67	0.73	0.79	1.02	1.10	1.18	1.26
REINF #/LF	13	16	19	25	30	37	49	62	76	73	90	104	125

NOTE

QUANTITIES DO NOT INCLUDE THAT PORTION ABOVE THE DESIGN H LIMIT.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75				
Edited	T.R.	T. Regello	10/15	BOX CULVERT WINGWALL TYPES A, B & C DETAILS NO. 6		 03/24/2022	
Edited	M.W.	M. Widelski	10/18			Chairperson R.C.E. 52241 Date	
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER D-79F	



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Edited	T.R.	T. Regello	10/15
Edited	M.W.	M. Widelski	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

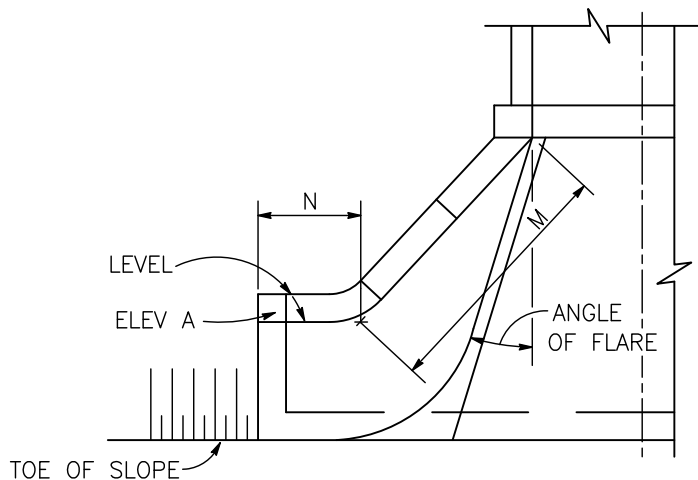
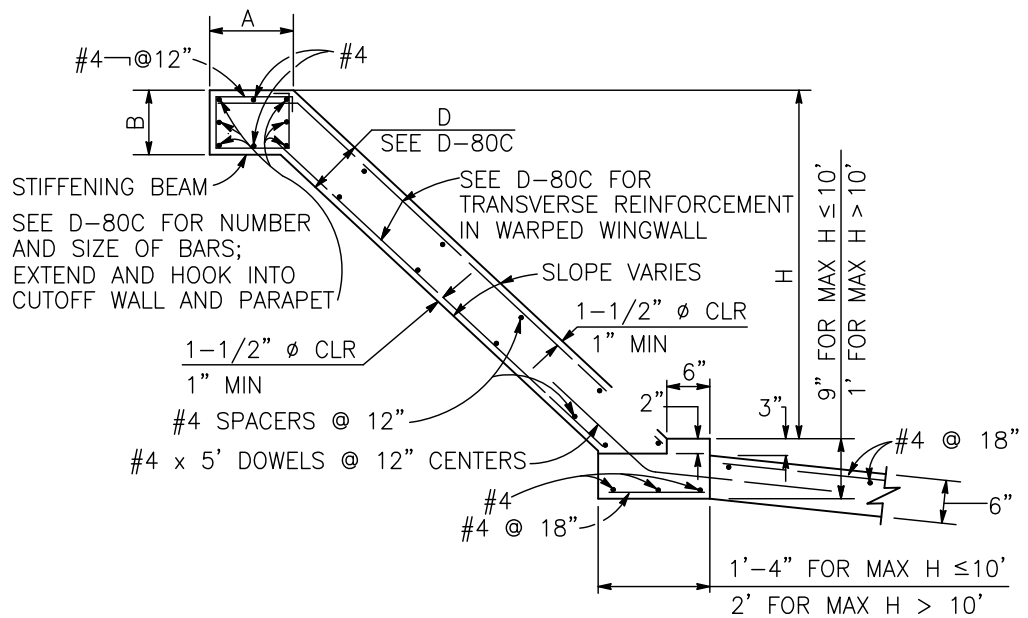
BOX CULVERT WARPED WINGWALL DETAILS NO. 1

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

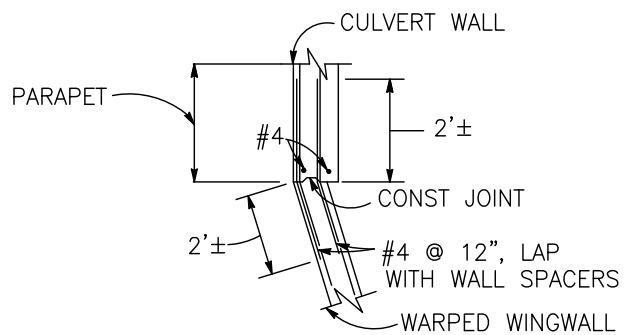
Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **D-80A**

6"
WITHOUT
STIFFENING
BEAM



USE WHERE ADDITIONAL PROTECTION
TO TOE OF EMBANKMENT IS REQUIRED



NOTES

1. WALLS DESIGNED FOR 2' SURCHARGE; EARTH DENSITY = 120 LBS./CU. FT.; EQUIVALENT FLUID PRESSURE = 36 LBS./CU. FT.
2. VARY D OF WARPED WALL INIFORMLY FROM THAT AT CUTOFF WALL TO THAT AT CULVERT, FOR MAXIMUM H > 12'.
3. WHERE ABRASION IS ANTICIPATED INCREASE APRON THICKNESS TO 7" MINIMUM TO PROVIDE 2" MINIMUM REINFORCEMENT COVERAGE.
4. DIMENSIONS L, W, H, M, N, ELEVATION A, ANGLE OF FLARE, AND END SLOPE (AS APPLY) ARE SHOWN ON THE PLANS.
5. CONCRETE SHALL BE 560-C-3250 AND REINFORCING STEEL SHALL BE MINIMUM GRADE 40 (UNLESS SPECIFIED OTHERWISE).

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		A. Kercheval	12/75		
Edited	T.R.	T. Regello	10/15	BOX CULVERT WARPED WINGWALL DETAILS No. 2	 03/24/2022 Chairperson R.C.E. 52241 Date
Edited	M.W.	M. Widelski	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER D-80B

WALL DIMENSIONS AND REINFORCING								
ELEMENT SLOPE	H	8' OR LESS	10'	12'	14'	16'	18'	20'
1/4:1	FRONT FACE REINF	#4@12	#4@ 7	#5@ 7	#5@ 5	#6@ 6	#7@ 7	#7@ 6
	REAR FACE REINF	#4@12	#4@12	#4@12	#4@12	#4@12	#4@12	#4@12
3/4:1	FRONT FACE REINF	#4@12	#4@12	#4@12	#4@12	#4@10	#4@ 8	#4@ 6
	REAR FACE REINF	#4@12	#4@12	#4@12	#4@10	#4@ 7	#4@ 6	#5@ 8
1-1/4:1	FRONT FACE REINF	#4@12	#4@12	#4@12	#4@12	#4@12	#4@12	#4@12
	REAR FACE REINF	#4@ 8	#4@ 8	#4@ 5	#5@ 6	#6@ 7	#6@ 6	#7@ 6
D AT CUTOFF WALL		6"	6"	6"	7-1/2"	8"	9-1/2"	11"
D AT CULVERT		6"	6"	6"	8"	9-1/2"	11"	1'-1"

STIFFENING BEAM DIMENSIONS AND REINFORCING										
H MAX	L	12'	14'	16'	18'	20'	25'	30'	35'	40' OR MORE
6'		NO BEAM. PLACE 2-#6 IN EACH								
8'		FACE ALONG TOP OF								
10'		WALL.								
12'		A=1'								
14'		B=9"								
16'		A=1'-6"								
18'		A=1'-10"								
20'		A=2'								
		B=1'								
		B=1'-6"								
		TOTAL 6-#6								
		TOTAL 6-#7								
		TOTAL 6-#8								
		TOTAL 8-#9								

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		A.Kercheval	12/75	BOX CULVERT WARPED WINGWALL DETAILS No. 3		 03/24/2022 Chairperson R.C.E. 52241 Date	D-80C
Edited	T.R.	T. Regello	10/15				
Edited	M.W.	M. Widelski	10/18				
Reviewed	RP	S. Engeda	03/22				

GENERAL NOTES

QUANTITIES: Quantities are for the sloped invert slab and do not include splices in the longitudinal bars, nor temperature reinforcement for exposed top culvert, nor concrete or reinforcement for parapets or cutoff walls.

SPECIAL COVERAGE: Box standard plans are not to be used for culverts in a corrosive environment or where there is a severe abrasive flow condition.

DESIGNATION: Show on plans as span x height-strength classification x length (e.g. 4 x 4-A x 60'), followed by alternatives.

ALTERNATIVES: Invert will be sloped unless "Trapezoidal Invert", "Flat Invert" or "V Invert" is included in designation. Ends of culvert will be rounded unless "Square Ends" are designated. Parapets will be as shown unless "____ ft. parapet" is designated in plans. Such designations may be different for inlet and outlet ends.

REINFORCEMENT PLACEMENT: Main Reinforcement is positioned transverse or, for curved culverts, radial. When radial reinforcing spacing is measured along C/L.

CONSTRUCTION NOTES

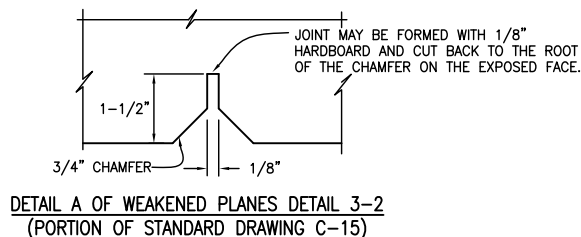
CONCRETE: Bottom slab & walls shall be Class 560-B-3250. Top slab shall be Class 560-C-3250.

EXPANSION JOINTS: Bottom Slab - No expansion joints shall be placed.

Top Slab and Walls - When cover is less than span length, place 1/2" expansion joint filler at 50'± centers outside the paved roadway lanes and place weakened plane joints per Detail A of Weakened Planes Detail 3-2 of C-15 at 30'± centers under paved roadway lanes. When cover depth is greater than span length, place 1/2" expansion joint filler at 30'± centers and additional 1/2" expansion joints at locations of change of foundation character as directed by the Engineer.

CONSTRUCTION LOADS: Not permitted until concrete has reached a strength of 3,000 p.s.i. or age of 28 days, whichever occurs first, and falsework plans have been submitted by the Contractor to the Engineer and approved.

CONSTRUCTION JOINTS: Temporary joints may be permitted if normal (or radial) to C/L of RCB. Otherwise, the Contractor is to submit a proposal for consideration.



DESIGN NOTES

SPECIFICATIONS

DESIGN: AASHTO's publication titled A Policy on Geometric Design of Highways, dated 1984, with revisions as supplemented by State of California Bridge Planning and Design Manual.

Sections designed for culvert in a trench on hard foundation or culvert untrenched on yielding foundation. Special design will be required for culverts on piles or rock foundations.

LOADING

LIVE LOAD: For legal highway loads, use HS20-44 or alternative with 30% impact for all cover depths with no impact on invert.

COVER LESS THAN 2': Wheel load distribution on the top slab is $E=0.175S+3.2'$ longitudinally and concentrated along the span. Wheel load distribution on the invert slab is 7.5' longitudinally and uniformly over the breadth of the culvert.

COVER 2' OR MORE: Wheel loads distributed uniformly over a square, the sides of which are 1.75 times the depth of cover, but not less longitudinally than E on the top slab, or 7.5' on the invert slab when such areas from several wheel concentrations overlap. The total load shall be considered as uniformly distributed over the area defined by the outside limits of the individual areas, but the overall longitudinal dimension shall not exceed the total length of the supporting slab. Neglect live load, on single spans when cover is more than 8' and exceeds span, and on multiple spans when cover exceeds distance between exterior walls.

DEAD LOAD: Earth load of 120 pcf and an equivalent fluid pressure of 36 pcf, reduced to 84 pcf and 25 pcf respectively for clear spans of 20' or less.

UNIT STRESSES: $F_s = 20,000$ psi, $N = 10$
 $F_c = 1,200$ psi

Reinforcement embedment is 1-1/2 dia. clear, min 1" and in 1/4" increments, except as noted.

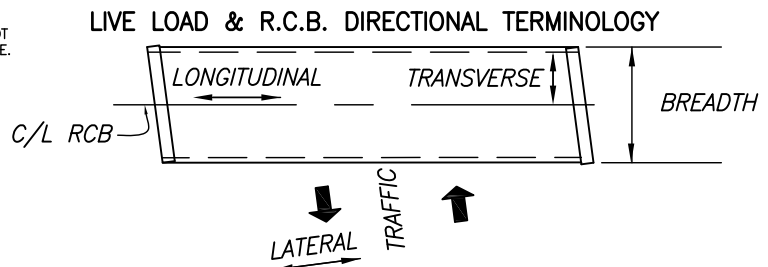
Distribution "d" bars expressed as a percent of main positive reinforcement.

Classification "A" top slab = $\frac{100}{\text{SPAN}}$, max. 50% (unless traffic longitudinal)

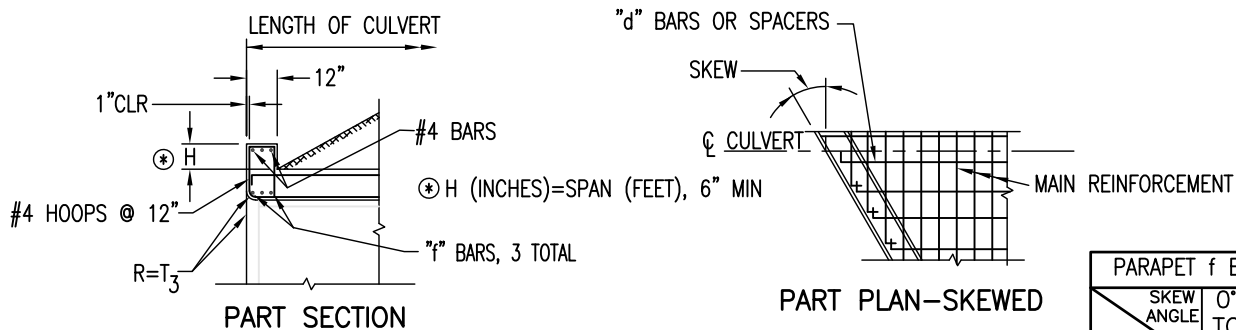
Classification "B" to "E": Top and bottom slabs #4 @ 18" max.

USE OF STANDARD DRAWING

"Strength Classification," as symbolized by the letters ("A", "B", "C" or "D") at the top of the data table is merely a convenient designation for a particular structural section for a culvert of any given opening. It is dictated by the cover or depth of fill over the the top slab.

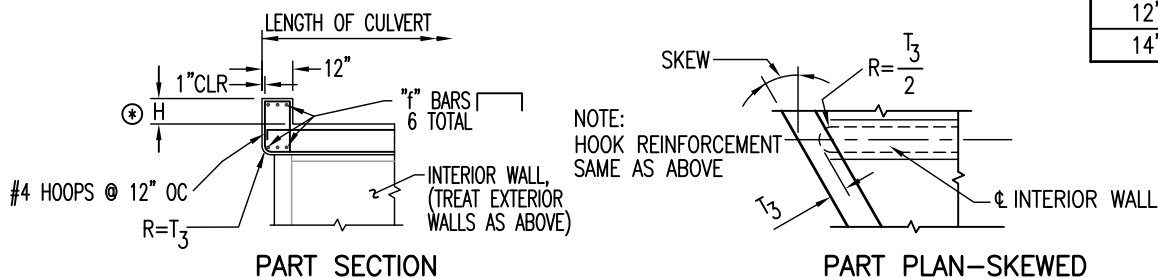


Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	BOX CULVERT MISCELLANEOUS DETAILS No. 1		
Edited	T.R.	T. Regello	10/15			
Edited	M.W.	M. Widelski	10/18			
Reviewed	RP	S. Engeda	03/22			
						 03/24/2022 Chairperson R.C.E. 52241 Date
						DRAWING NUMBER D-81A

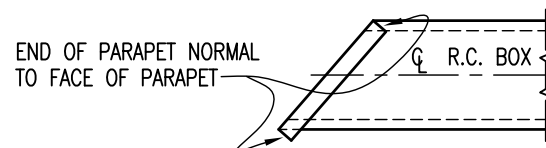


PARAPET DETAILS FOR SINGLE SPAN CULVERTS

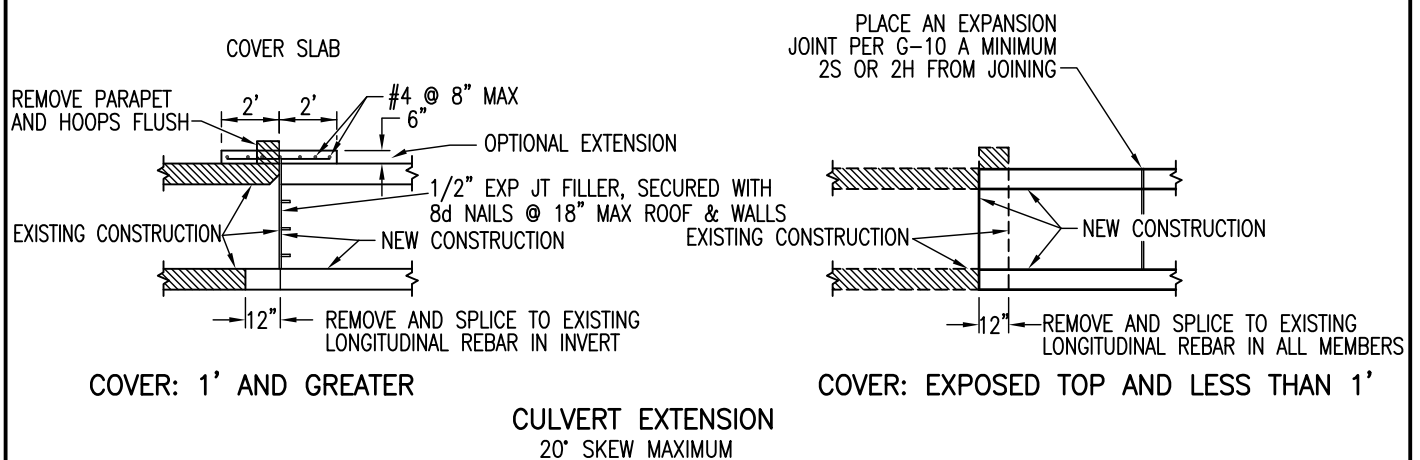
PARAPET f BAR SIZE			
SPAN (S)	SKEW ANGLE	0° TO 15°	16° TO 30°
	31° TO 45°		
4'		#4	#4
6'		#4	#4
8'		#4	#5
10'		#5	#6
12'		#6	#7
14'		#7	#8



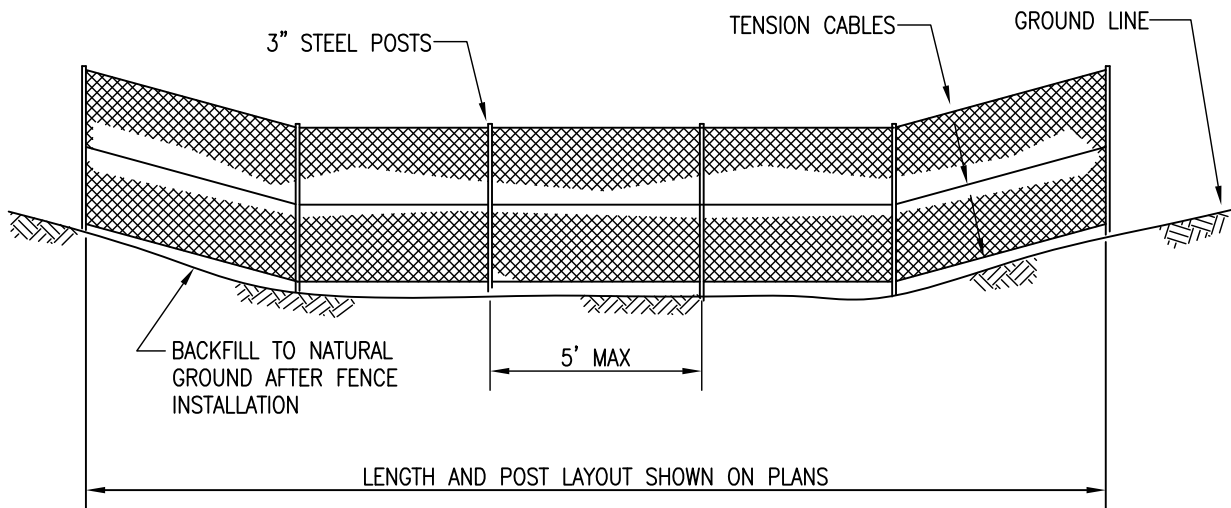
PARAPET DETAILS FOR MULTIPLE SPAN CULVERTS



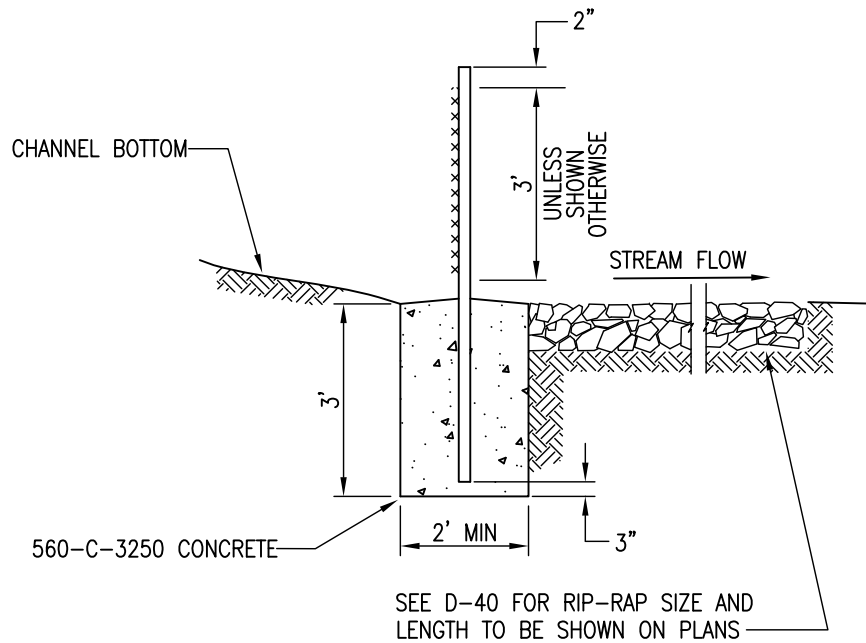
PARAPET DETAIL FOR SKEWED CULVERTS W/O WINGWALLS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	BOX CULVERT MISCELLANEOUS DETAILS NO. 2		 03/24/2022 Chairperson R.C.E. 52241 Date	
Edited	T.R.	T. Regello	10/15				
Edited	M.W.	M. Widelksi	10/18				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER	D-81B



ELEVATION

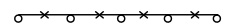


SECTION

NOTES

1. FENCE FABRIC SHALL BE 2" mesh, 9 GAGE GALVANIZED STEEL WIRE, PLACED ON THE UPSTREAM SIDE OF THE POSTS AND TENSION CABLES.
2. TENSION CABLE SHALL BE 5/16" ϕ STEEL @ 18" OC, SECURED AT ENDS WITH CABLE CLAMPS. SECURE FENCE TO CABLE WITH 12 GAGE GALVANIZED STEEL WIRE LOOPED @ 6" OC.
3. POSTS SHALL BE 3" STEEL PIPE, 5.79 LBS./FT. FILL WITH MORTAR AFTER PLACING.
4. FENCE FABRIC SHALL BE SECURED TO POSTS WITH 9 GAGE WIRE CLIPS @ 9" OC.

LEGEND ON PLANS

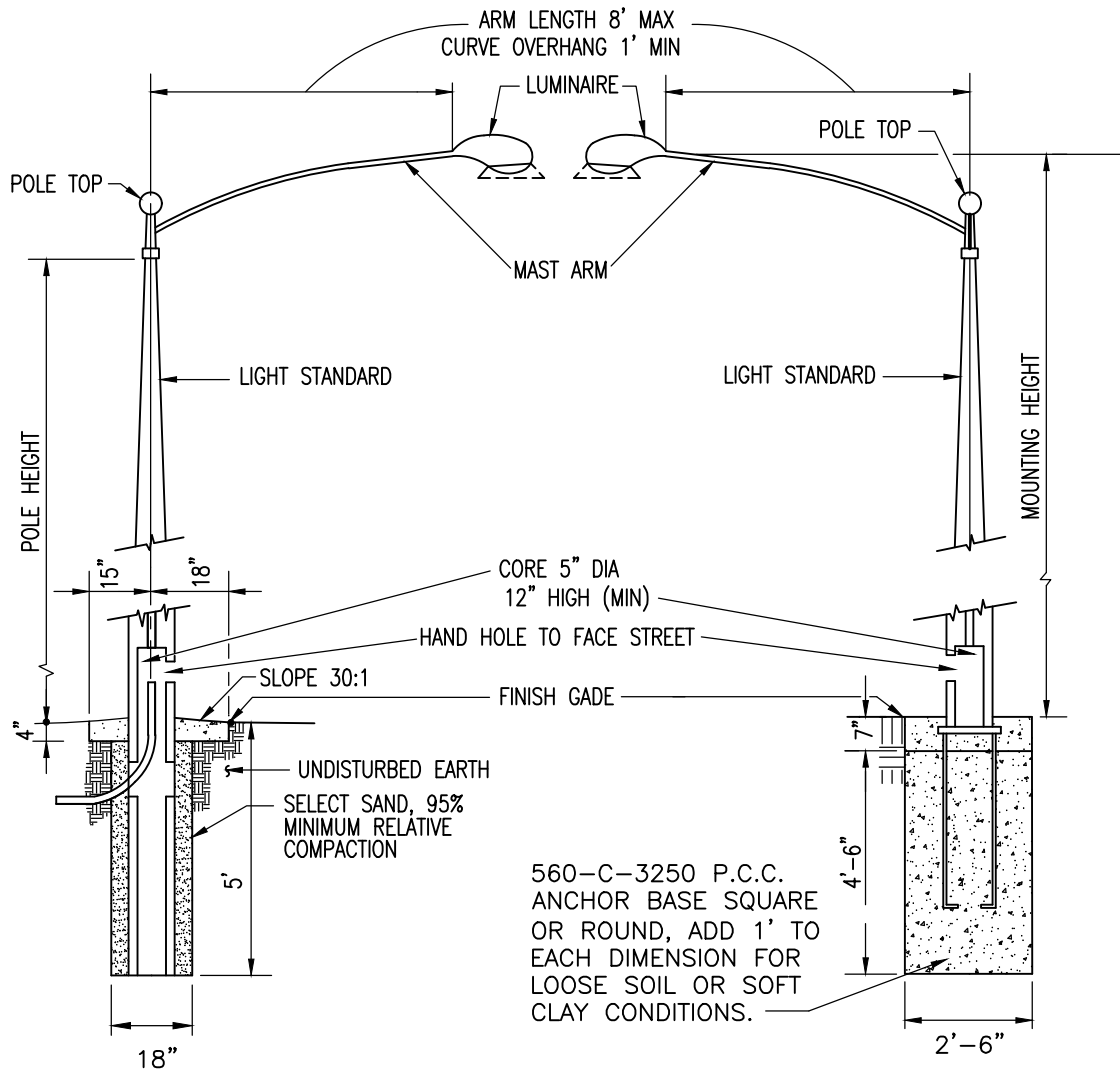


Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		H. Hecht	10/82		
Edited	T.R.	T. Regello	10/15	DEBRIS FENCE	 03/24/2022
Edited	M.W.	M. Widelski	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER D-82

ELECTRICAL SYSTEMS

ELECTRICAL SYSTEMS

E

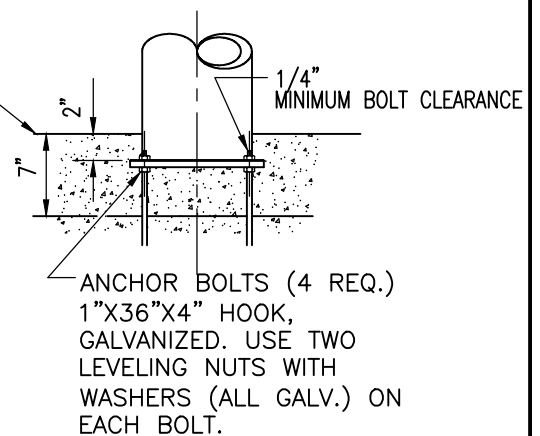


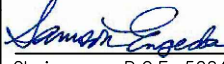
DIRECT BURIAL FOUNDATION

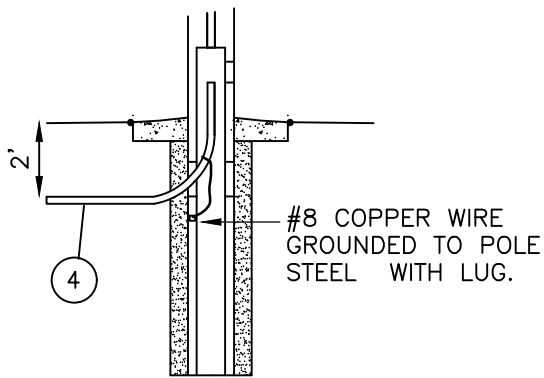
ANCHOR BASE FOUNDATION

POLE HEIGHT	MOUNTING HEIGHT	LAMP SIZE (WATTS)
25' ±2'	27' ±1'	170 M.V. 100 H.P.S. 90 L.P.S.
28' ±2'	30' ±1'	400 M.V. 250 H.P.S. 180 L.P.S.
23' -0"	26' -9"	70 H.P.S.
26' -6"	30' -0"	150 H.P.S.

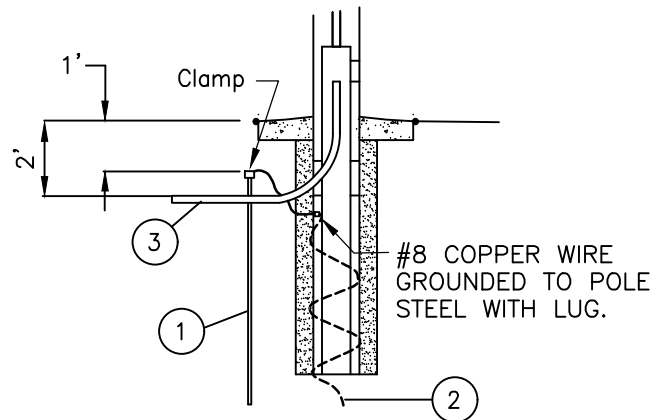
FINISHED GRADE
ANCHOR BOLTS MUST
NOT PROTRUDE



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	STREET LIGHTING STANDARD		 03/24/2022 Chairperson R.C.E. 52241 Date
Delete Metric		D. Gerschoffer	06/12			
Reviewed		D. Gerschoffer	06/18			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER E-01

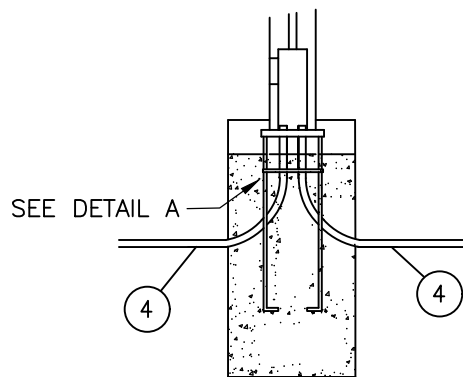


STEEL CONDUIT

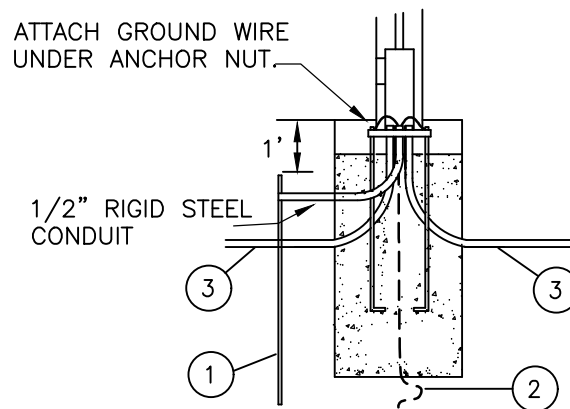


NON-METALLIC CONDUIT

DIRECT BURIAL FOUNDATION



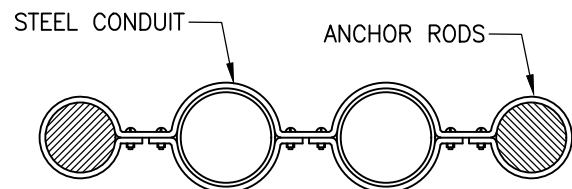
STEEL CONDUIT



NON-METALLIC CONDUIT

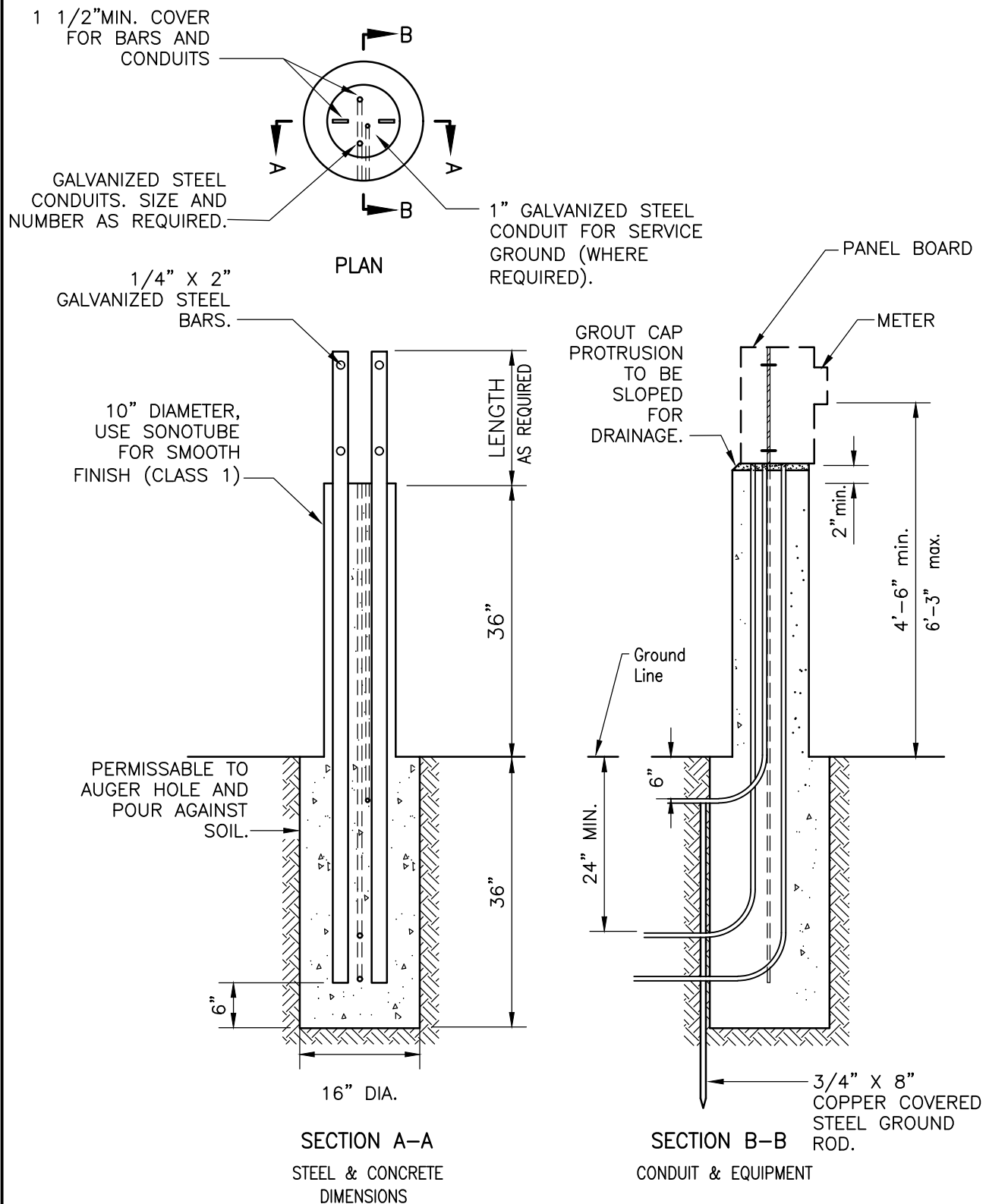
ANCHOR BASE FOUNDATION

- ① 3/4" X 8' COPPER COVERED STEEL GROUND ROD.
- ② ALTERNATE GROUND: 15' NO. 4 STRANDED COPPER WIRE, COILED.
- ③ APPROVED NON-METALLIC CONDUIT.
- ④ STEEL CONDUIT.



DETAIL A

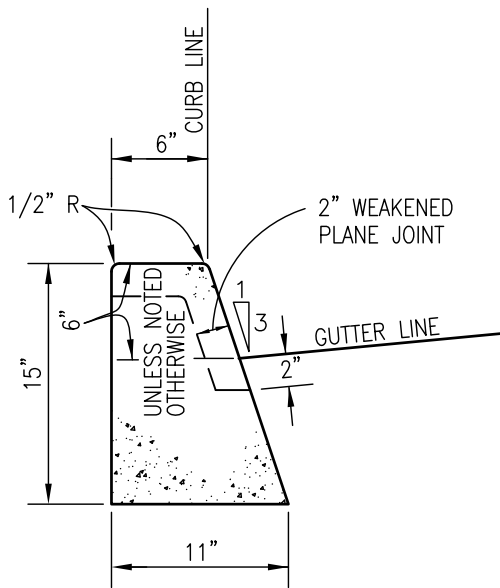
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	GROUNDING OF CONCRETE LIGHTING STANDARDS		 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed		D. Gerschoffer	06/18			
Reviewed	RP	S. Engeda	03/22			
				DRAWING NUMBER E-02		



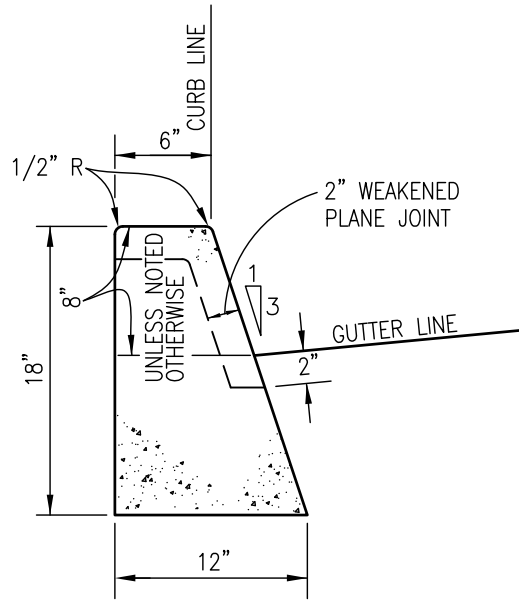
NOTE: CONCRETE SHALL BE CLASS 560-C-3250

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75		PEDESTAL FOR ELECTRICAL EQUIPMENT	 03/24/2022
Reviewed		D. Gerschoffer	06/18	Chairperson R.C.E. 52241		Date
Reviewed	RP	S. Engeda	03/22	DRAWING NUMBER		E-03

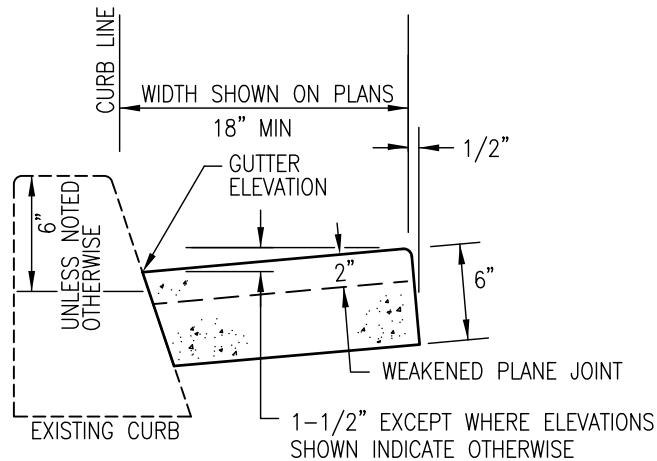
GENERAL SURFACE IMPROVEMENTS



6" CURB
AREA=0.89 Sq. Ft.



8" CURB
AREA=1.12 Sq. Ft.



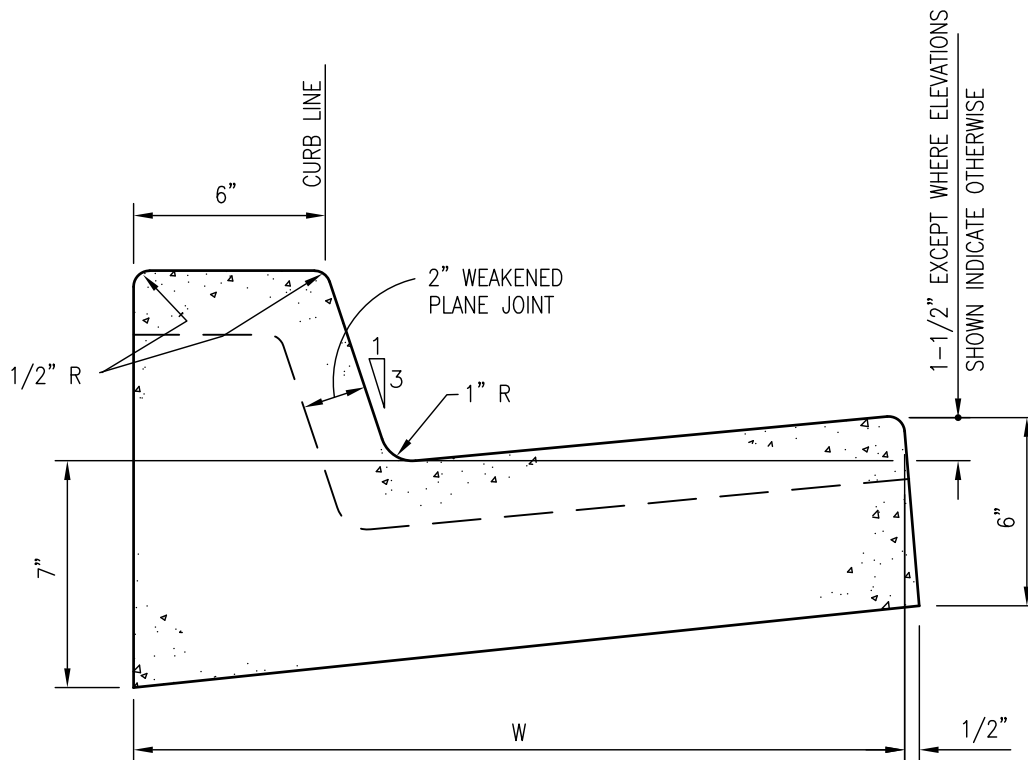
GUTTER

NOTES:

1. CONCRETE SHALL BE 520-C-2500.
2. SEE STANDARD DRAWINGS G-9 AND G-10 FOR JOINT DETAILS.
3. SLOPE TOP OF CURB 2% MAX TOWARD GUTTER.

LEGEND ON PLANS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75		
UPDATED	CV	CV	12/15	CURBS AND GUTTER - SEPARATE	 03/24/2022 Chairperson R.C.E. 52241 Date
UPDATED	KE	T. Stanton	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER G-01



TYPE	W	*AREA
G	24"	1.34 SQ. FT.
H	30"	1.60 SQ. FT.

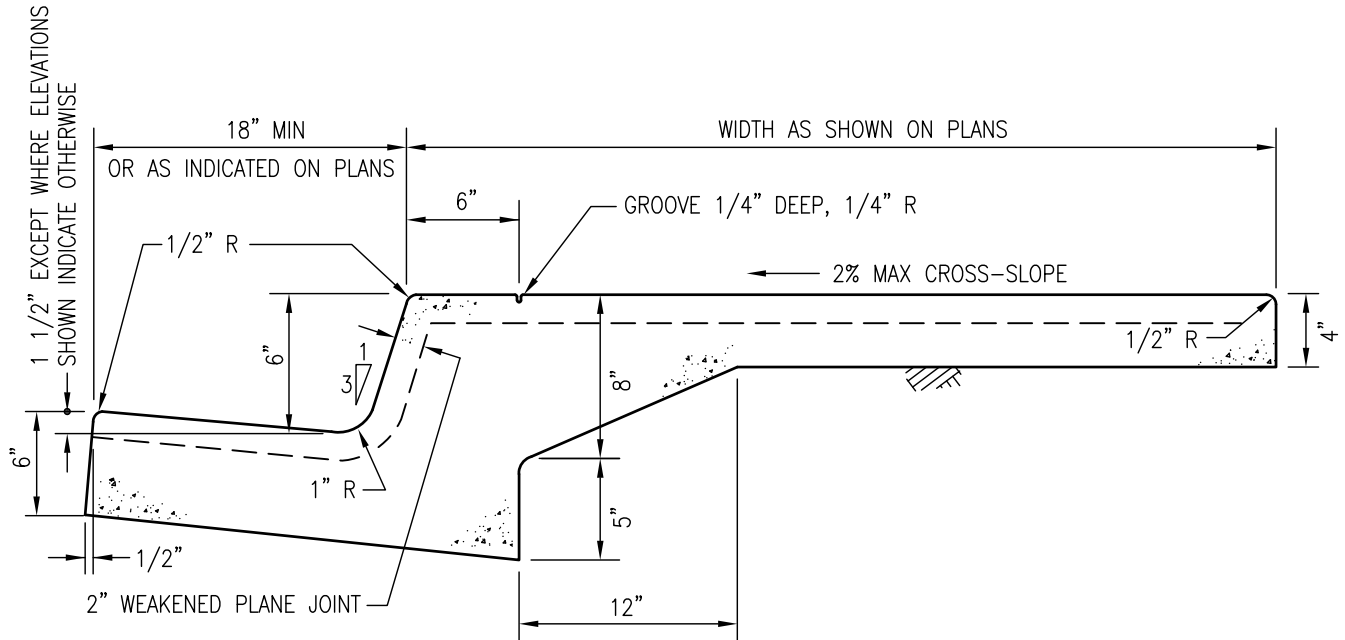
* 6" CURB HEIGHT

NOTES:

1. CONCRETE SHALL BE 520-C-2500.
2. SEE STANDARD DRAWINGS G-9 AND G-10 FOR JOINT DETAILS.
3. SLOPE TOP OF CURB 2% MAX TOWARD GUTTER.

LEGEND ON PLANS

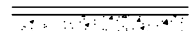
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75		
UPDATED	CV	CV	12/15	CURB AND GUTTER - COMBINED	<i>Samsin Engeda</i> 03/24/2022
Reviewed	KE	T. Stanton	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER G-02



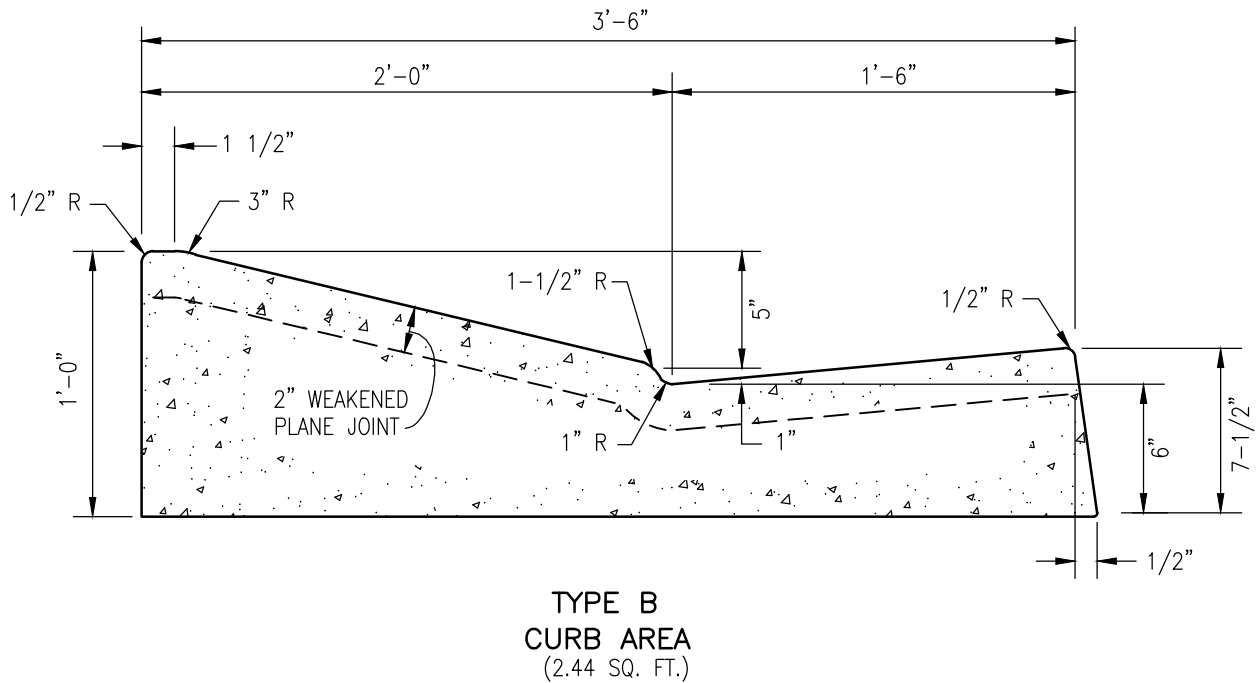
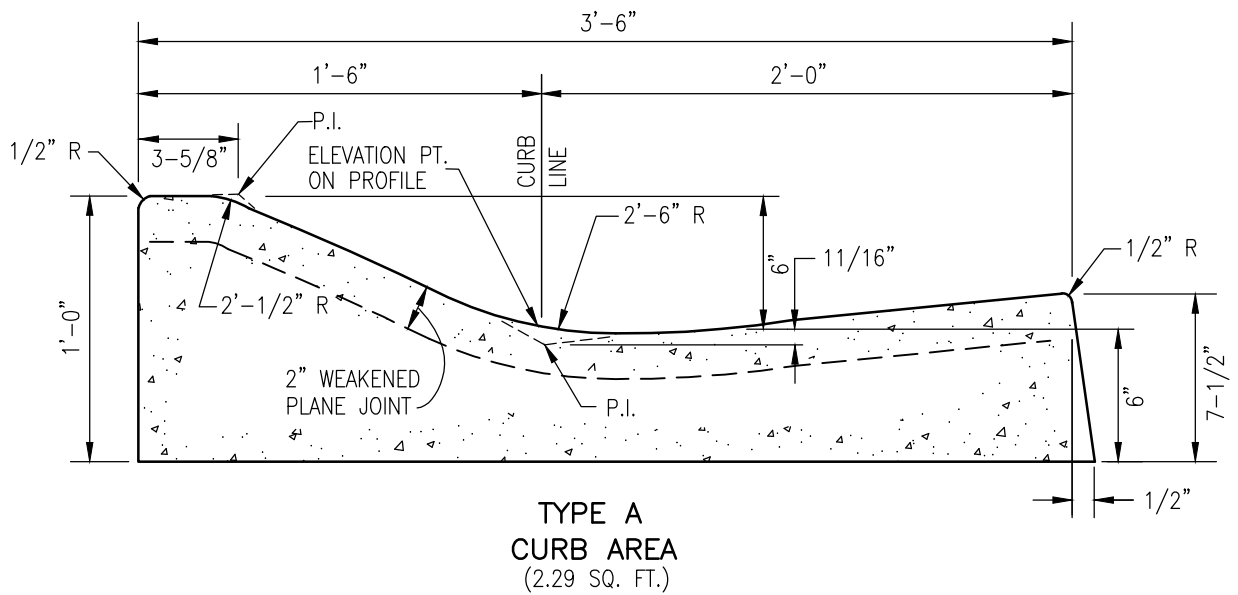
NOTES:

1. CONCRETE SHALL BE 520-C-2500.
2. SEE STANDARD DRAWINGS G-9 AND G-10 FOR JOINT DETAILS.
3. MONOLITHIC CURB, GUTTER AND SIDEWALK IS TO BE USED WITH AGENCY APPROVAL ONLY.

LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75		
UPDATED	CV	CV	12/15	MONOLITHIC CURB, GUTTER AND SIDEWALK	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	KE	S. Stanton	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER G-03

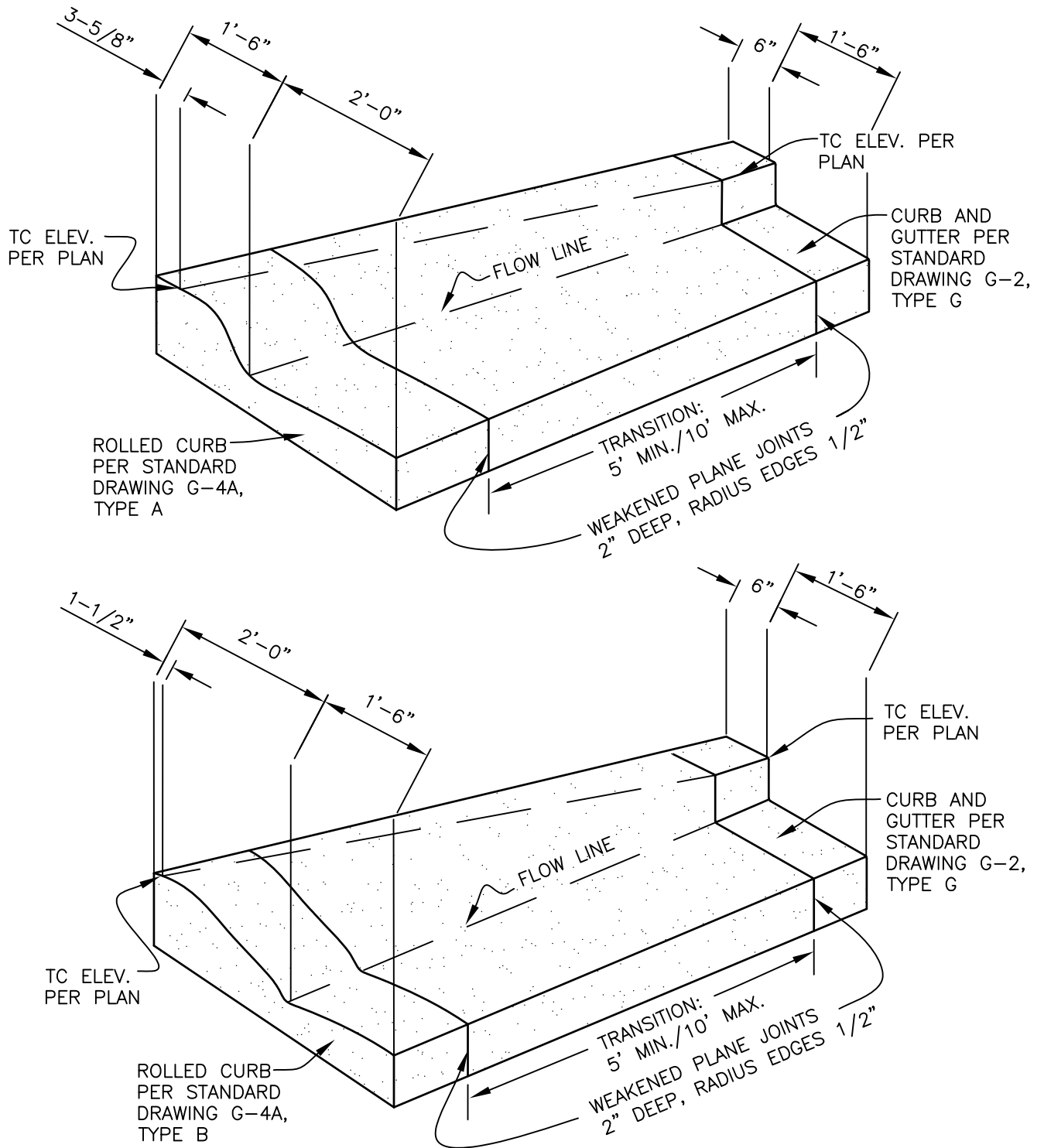


NOTES:

1. TRANSITION TO TYPE G OR H CURB AT ALL CURB RETURNS, EXCEPT WHERE CURB RAMPS ARE PROVIDED, AND AT ALL CUL-DE-SACS WITH DRAINAGE STRUCTURES. SEE STANDARD DRAWING G-4B FOR DETAILS.
2. CONCRETE SHALL BE 520-C-2500.
3. SEE STANDARD DRAWINGS G-9 AND G-10 FOR JOINT DETAILS.

LEGEND ON PLANS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75		
UPDATED	CV	S. Stanton	12/15	CURB AND GUTTER - ROLLED	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	KE	S. Stanton	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER G-4A



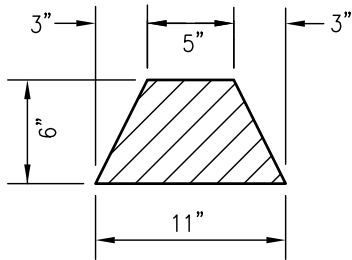
NOTES:

1. REFER TO RSD G-2, TYPE G AND G-4A FOR SPECIFIC DIMENSIONS RELATED TO EACH TYPE OF CURB.
2. TRANSITIONS SHOULD OCCUR ALONG THE BACK OF CURB, HOLDING EDGE OF PAVEMENT PARALLEL AND CONCENTRIC WITH STREET CENTERLINE. ALTERNATE ALIGNMENTS MAY BE REQUIRED AND ARE AT AGENCY'S DISCRETION.

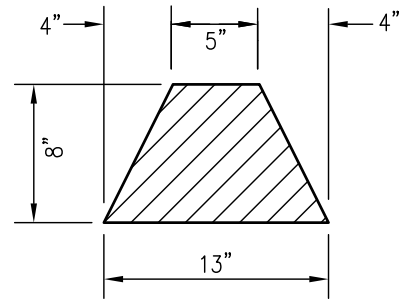
LEGEND ON PLANS



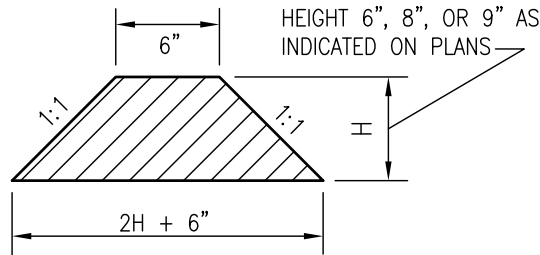
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
NEW	DM	MR/CV	11/11	CURB AND GUTTER TO ROLLED CURB TRANSITION		 03/24/2022 Chairperson R.C.E. 52241 Date
UPDATED	CV	CV	12/15			
Reviewed	KE	S. Stanton	10/18			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER G-04B



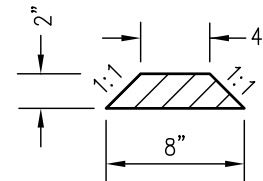
TYPE A



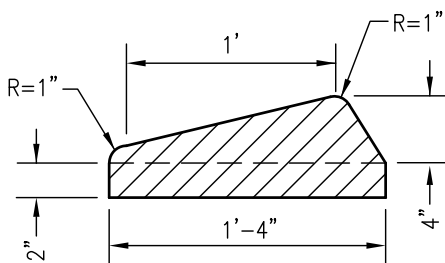
TYPE B



TYPE C

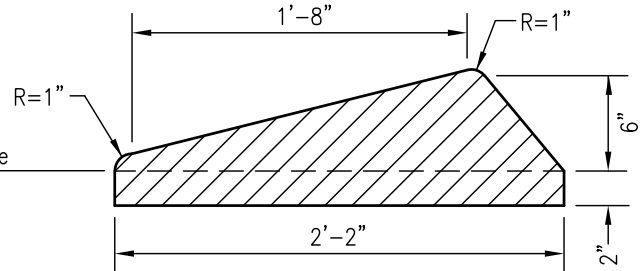


TYPE D

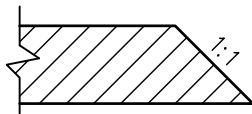


TYPE E
(MOUNTABLE DIKE)

Level Line



TYPE F
(MOUNTABLE DIKE)



SLOPE END OF DIKE 1:1
WHEN NOT JOINING
OTHER IMPROVEMENTS

ALL TYPES - SIDE VIEW

NOTES:

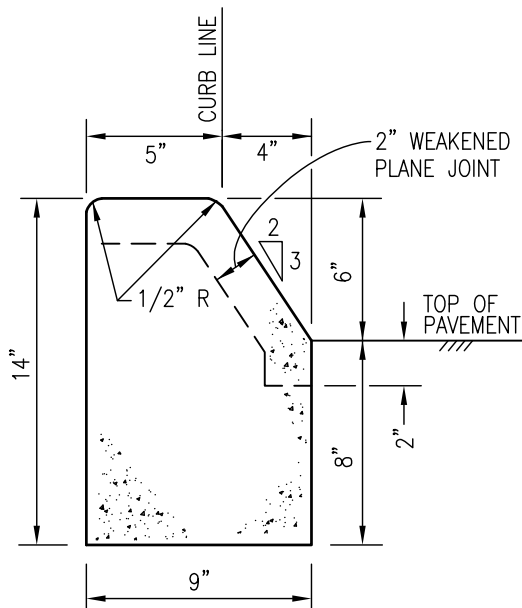
1. DIKES SHALL BE PLACED ON A 2" SECTION OF A.C. SURFACING, EXTENDING THROUGHOUT THE WIDTH OF THE DIKE.
2. PG-70-10 GRADE ASPHALT TO BE USED FOR ALL DIKES.
3. SHAPE AND COMPACT DIKES WITH AN EXTRUSION MACHINE OR OTHER EQUIPMENT CAPABLE OF SHAPING AND COMPACTING THE MATERIAL TO THE REQUIRED CROSS-SECTION.

APPROX. DIKE QUANTITIES

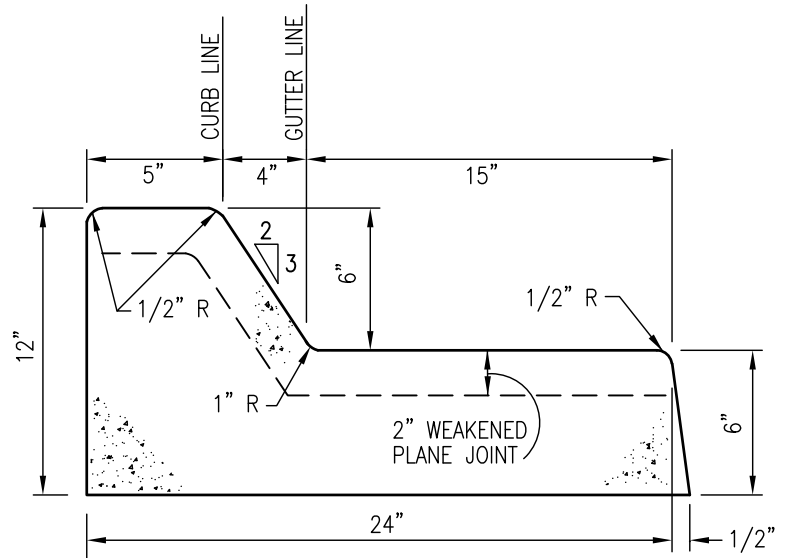
TYPE	REQD PER LIN. FT.
A	0.0250 TON
B	0.0375 TON
C-6"	0.0375 TON
C-8"	0.0583 TON
C-9"	0.0702 TON
D	0.0062 TON
E	0.0407 TON
F	0.0623 TON

LEGEND ON PLANS

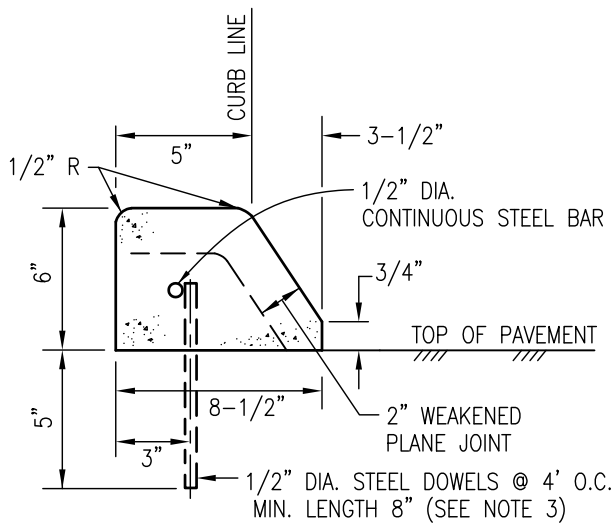
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		KERCHEVAL	12/75	DIKES - ASPHALT CONCRETE		 03/24/2022	Chairperson R.C.E. 52241 Date
REVIEWED	CV	CV	12/15				
Reviewed	KE	S. Stanton	10/18				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER	G-05



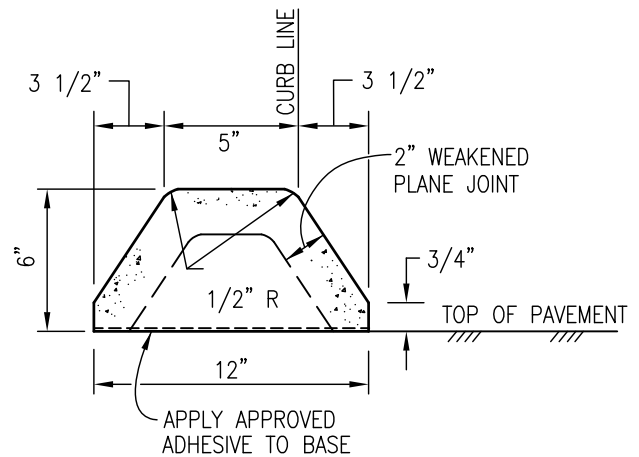
B-1
AREA=0.79 SQ. FT.



B-2
AREA=1.29 SQ. FT.



B-3
AREA=0.29 SQ. FT.



B-4
AREA=0.35 SQ. FT.

NOTES:

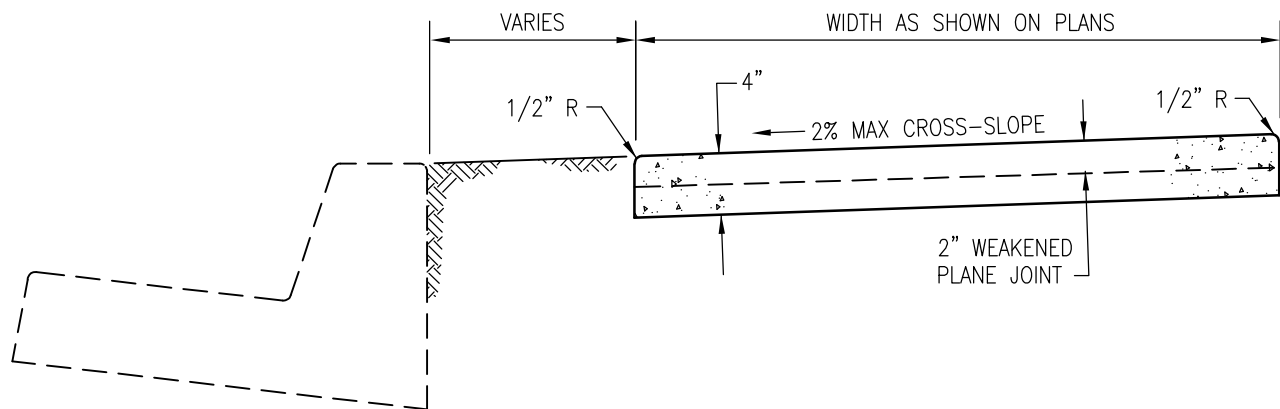
1. CONCRETE SHALL BE 520-C-2500.
2. SEE STANDARD DRAWINGS G-9 AND G-10 FOR JOINT DETAILS.
3. EXTRUDED TYPE B-3 CURB SHALL BE ANCHORED TO EXISTING PAVEMENT BY PLACING STEEL DOWELS AND REINFORCING STEEL AS SHOWN OR BY USING AN APPROVED ADHESIVE.
4. SLOPE TOP OF CURB 2% MAX TOWARD GUTTER/PAVEMENT.

LEGEND ON PLANS

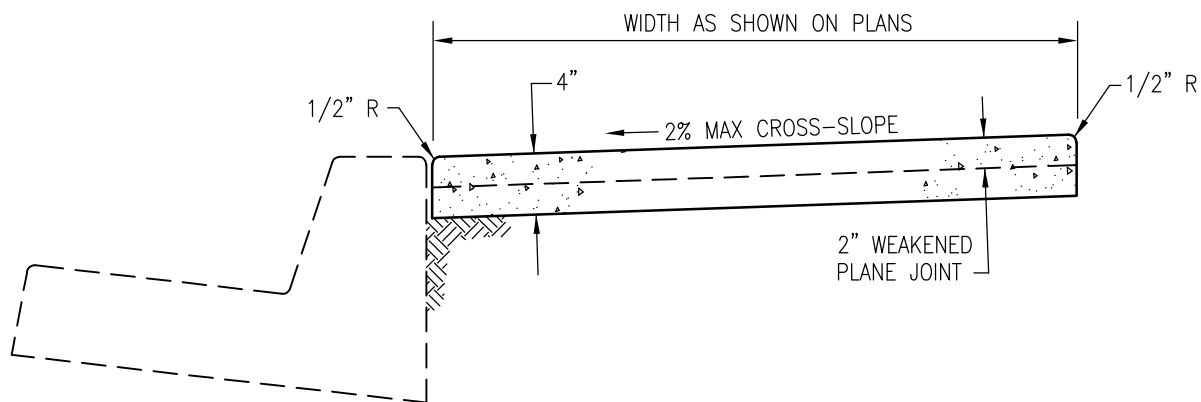
(FOR TYPE B-2)

(FOR ALL OTHER TYPES)

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75		
REVIEWED	CV	CV	12/15	CURBS AND GUTTER - MEDIANS	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	KE	S. Stanton	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER G-06



NON-CONTIGUOUS

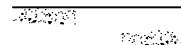


CONTIGUOUS

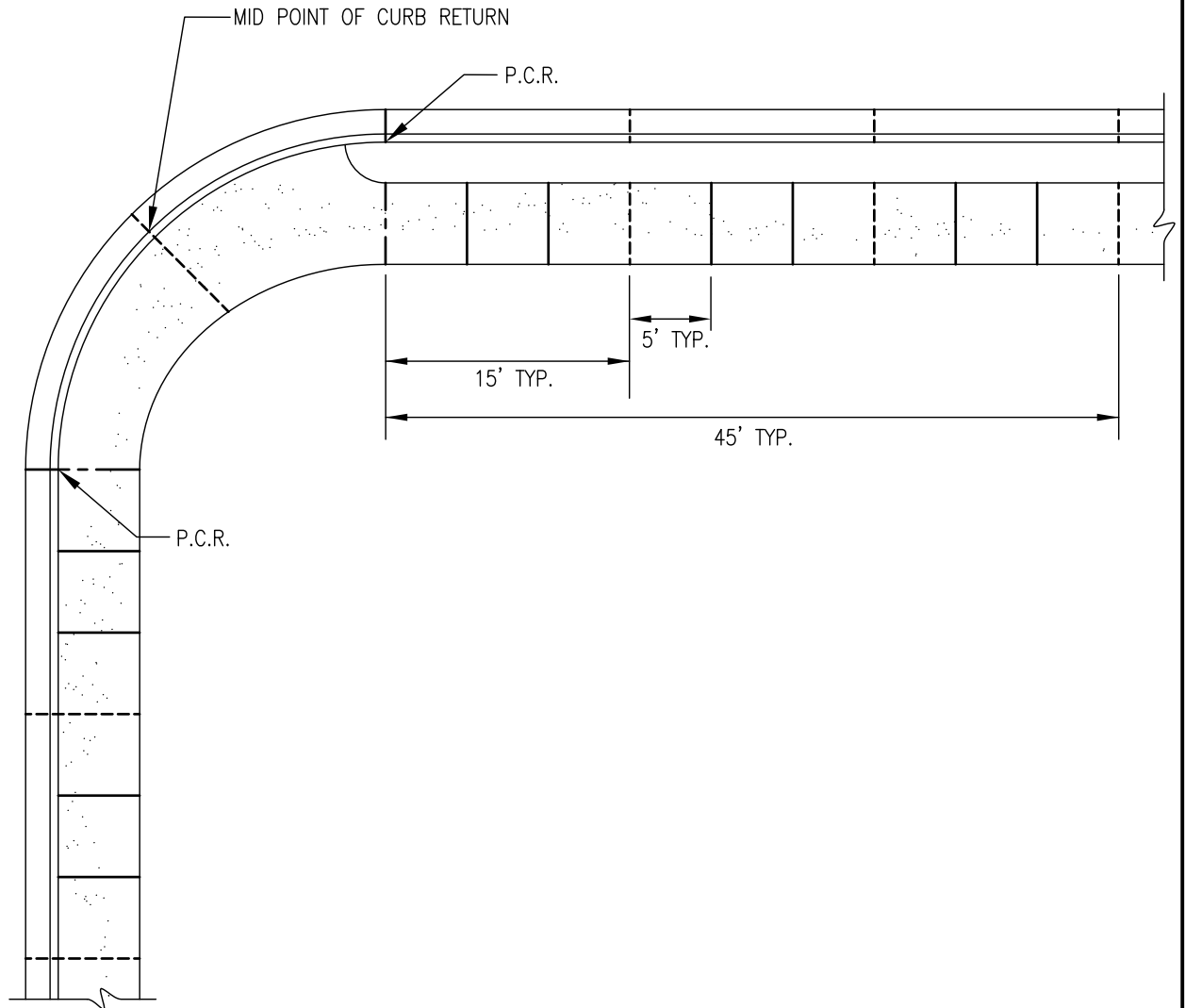
NOTES:

1. CONCRETE SHALL BE 520-C-2500.
2. SEE STANDARD DRAWINGS G-9 AND G-10 FOR JOINT DETAILS.

LEGEND ON PLANS



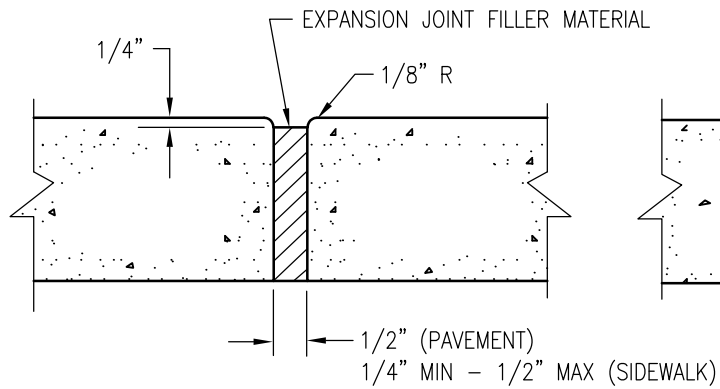
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75		
REVIEWED	CV	CV	12/15	SIDEWALK - TYPICAL SECTIONS	<i>Samantha Engeda</i> 03/24/2022
Reviewed	KE	S. Stanton	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER G-07



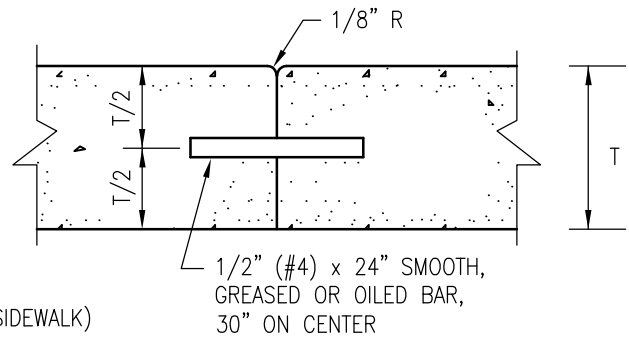
NOTES:

1. EXPANSION JOINTS --- AT CURB RETURNS, ADJACENT TO STRUCTURES AND AT 45' INTERVALS. (SEE STANDARD DRAWING G-10).
2. WEAKENED PLANE JOINTS ----- AT MID POINT OF CURB RETURN, WHEN REQUIRED, AND AT 15' INTERVALS FROM P.C.R. (SEE STANDARD DRAWING G-10).
3. 1/4" GROOVES ——— WITH 1/4" RADIUS EDGES AT 5' INTERVALS.

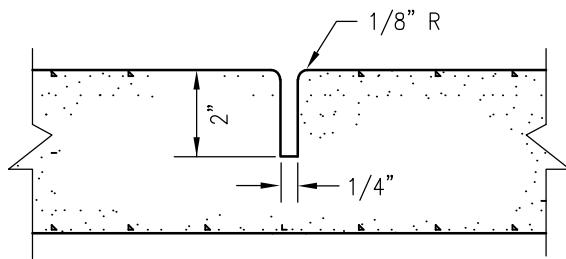
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		KERCHEVAL	12/75	SIDEWALK JOINT LOCATIONS	
REFORMATTED		T. STANTON	04/06		
REVIEWED	CV	CV	12/15		
REVIEWED	RP	S. Engeda	03/22		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
				 03/24/2022	
				Chairperson R.C.E. 52241 Date	
				DRAWING NUMBER G-09	



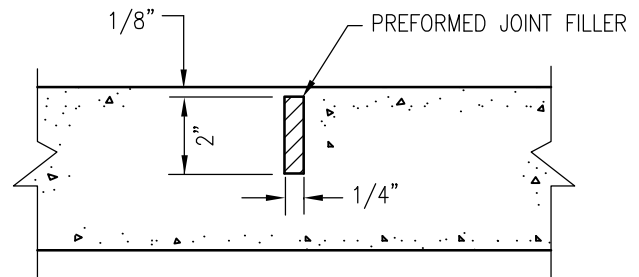
EXPANSION JOINT



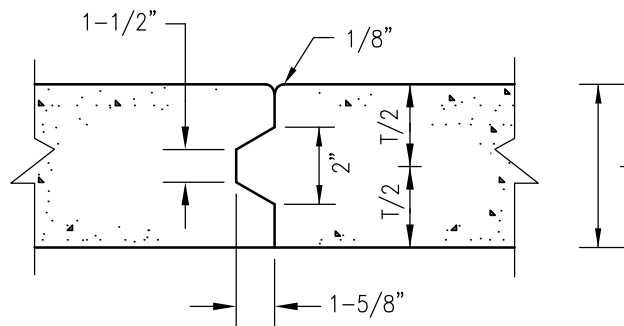
CONTACT JOINT



WEAKENED PLANE JOINT
CURB AND SIDEWALK

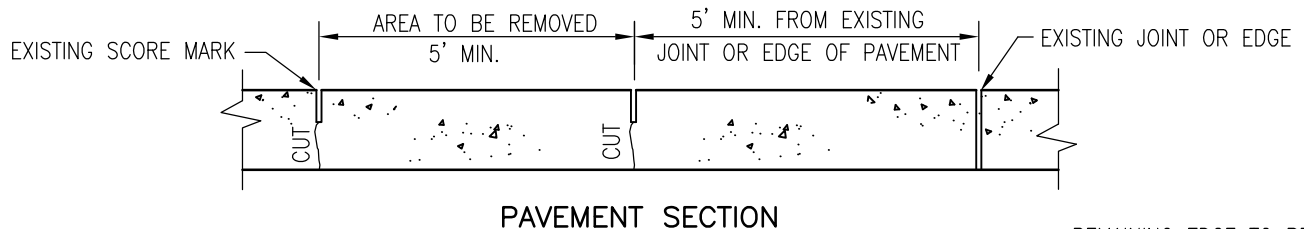
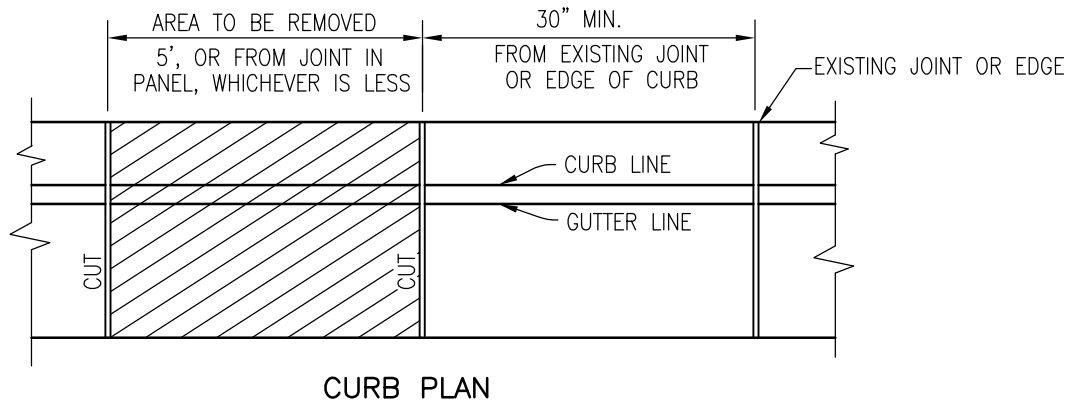
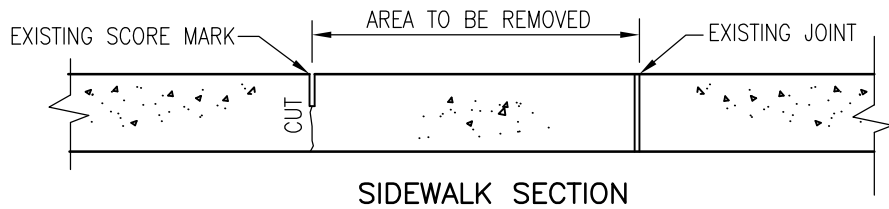
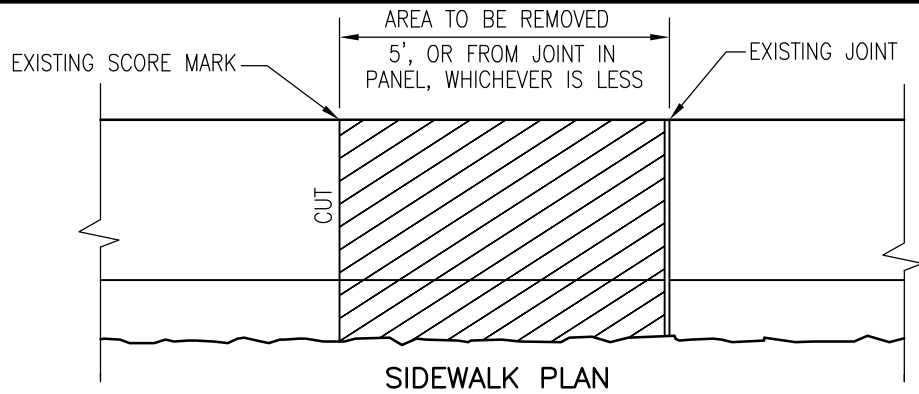


WEAKENED PLANE JOINT
GUTTER AND CONCRETE PAVEMENT



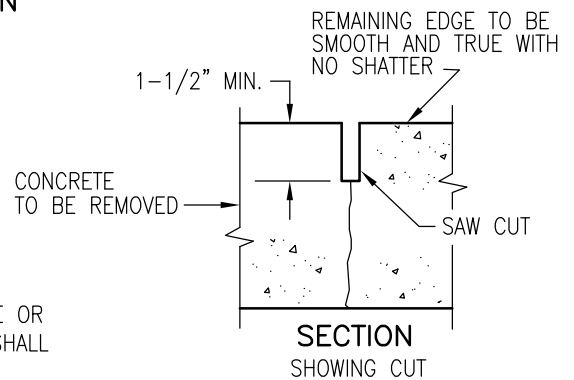
KEYED JOINT

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		PARKINSON	02/95	CONCRETE JOINT DETAILS		
UPDATED	CV	MR/CV	11/11			
REVIEWED	CV	CV	12/15			
Reviewed	RP	S. Engeda	03/22			
						 03/24/2022 Chairperson R.C.E. 52241 Date
						DRAWING NUMBER G-10

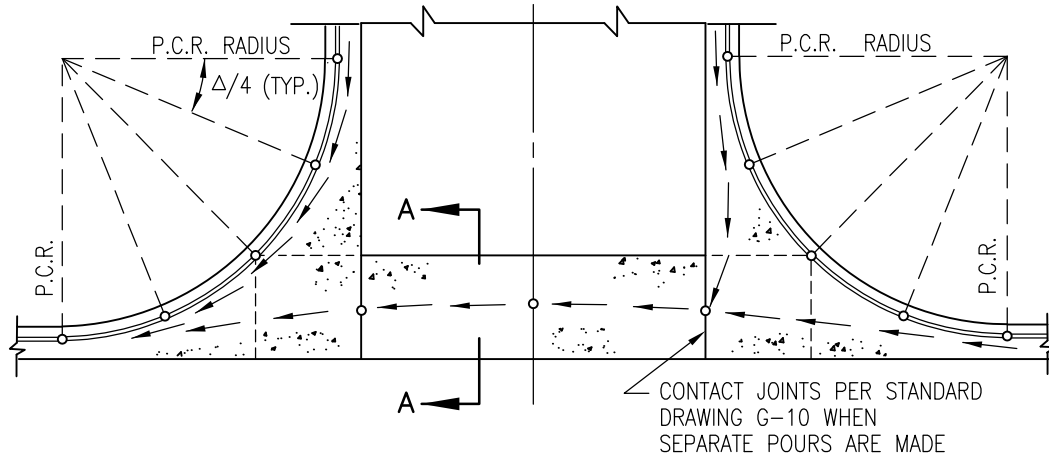


NOTE:

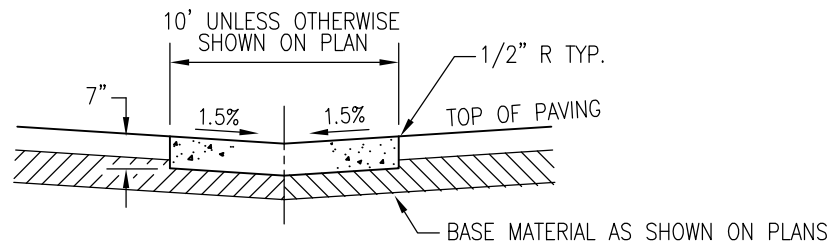
1. SIDEWALK CROSS SLOPE SHALL BE 2% MAX.
2. WHEN DISTANCE FROM "AREA TO BE REMOVED" TO EXISTING JOINT, EDGE OR SCORE MARK IS LESS THAN MINIMUM SHOWN, "AREA TO BE REMOVED" SHALL BE EXTENDED TO JOINT, EDGE OR SCORE MARK.



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75	CONCRETE CURB, GUTTER, SIDEWALK AND PAVEMENT REMOVAL AND REPLACEMENT		 03/24/2022 Chairperson R.C.E. 52241 Date
UPDATED	CV	MR/CV	11/11			
REVIEWED	CV	CV	12/15			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER G-11



PLAN

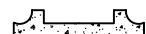


SECTION A-A

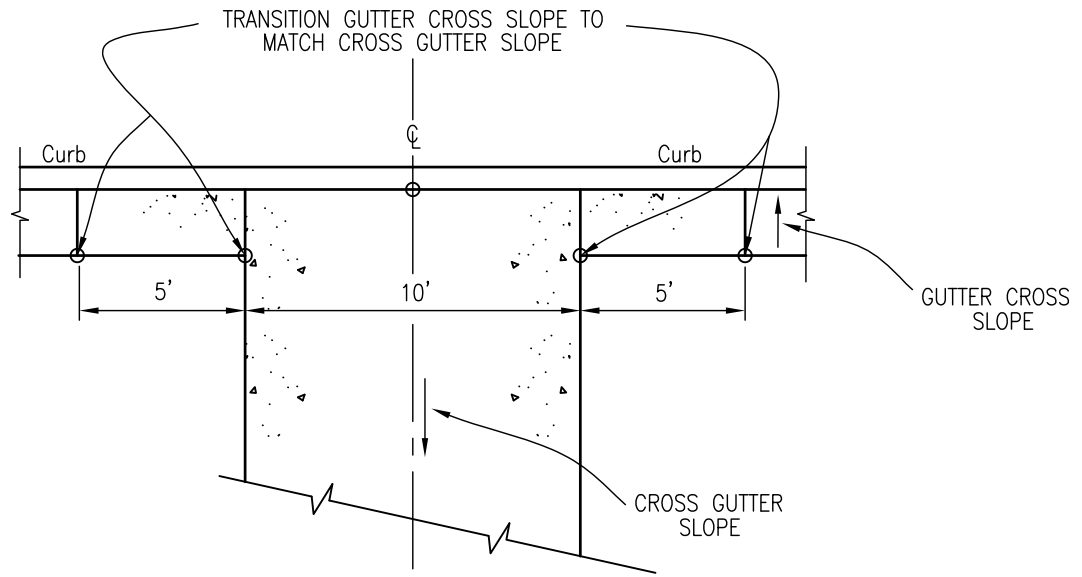
NOTES:

1. CONCRETE SHALL BE 560-C-3250.
2. ----- = WEAKENED PLANE JOINTS.
3. ← ← = TYPICAL FLOWLINES.
4. ○ = ELEVATIONS TO BE SHOWN ON PLANS.
5. RETURN SEGMENTS TO BE 7" THICK.
6. CURB BETWEEN P.C.R.S SHALL BE CONSIDERED AS PART OF THE CROSS GUTTER.
7. IN ALL CASES SUBGRADE SHALL BE COMPACTED TO 95% MIN. RELATIVE COMPACTION TO DEPTH OF 12".

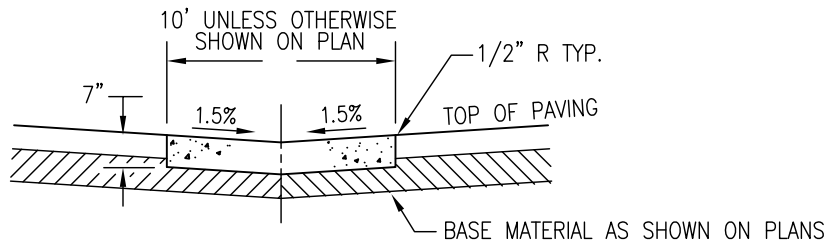
LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75		
UPDATED	CV	MR/CV	11/11	CROSS GUTTER	 03/24/2022 Chairperson R.C.E. 52241 Date
REVIEWED	CV	CV	12/15		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER G-12



PLAN

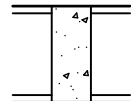


SECTION

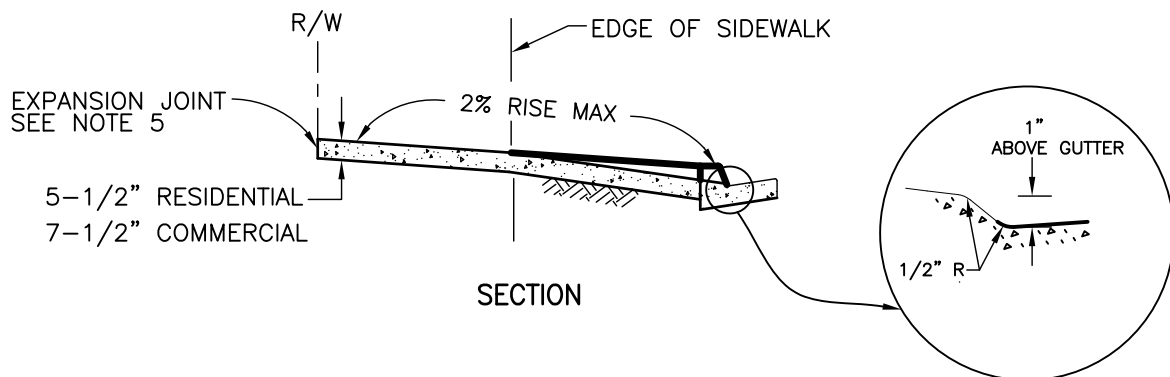
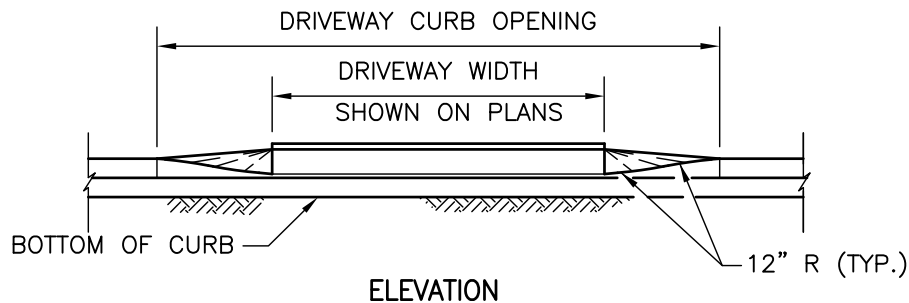
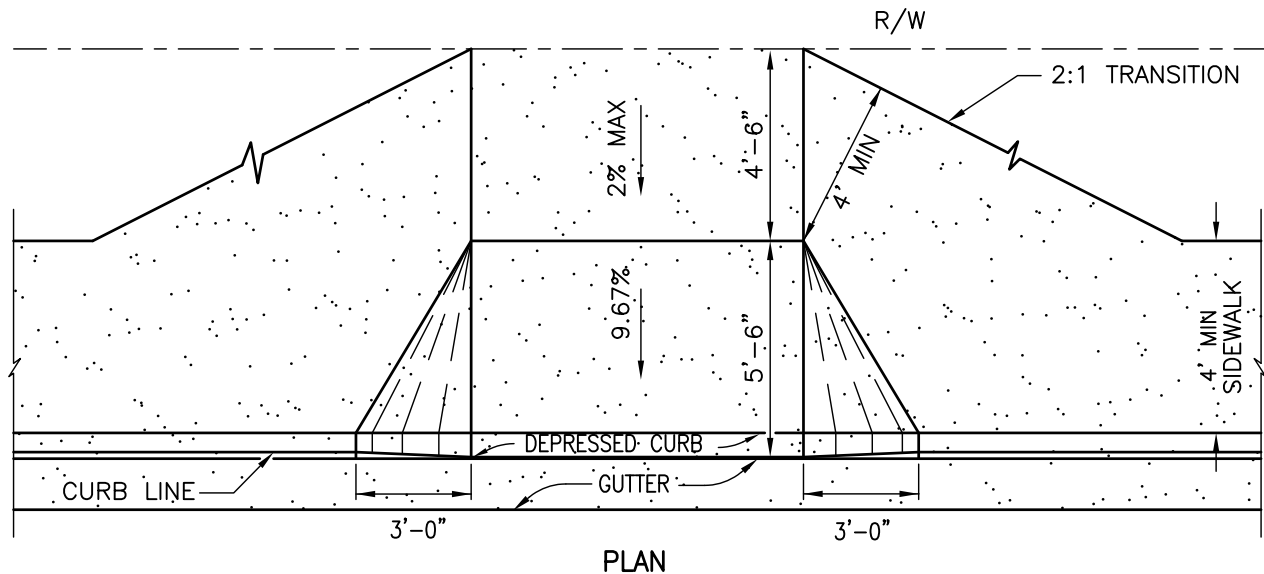
NOTES:

1. CROSS GUTTER TO BE CONSTRUCTED WHERE THE DRAINAGE IS CARRIED ACROSS THE STREET.
2. MINIMUM ALLOWABLE CROSS GUTTER SLOPE IS 0.5%.
3. CONCRETE SHALL BE 560-C-3250.
4. IN ALL CASES SUBGRADE SHALL BE COMPACTED TO 95% MINIMUM RELATIVE COMPACTION TO DEPTH OF 12".
5. ○ = ELEVATIONS SHOWN ON PLANS.

LEGEND ON PLANS



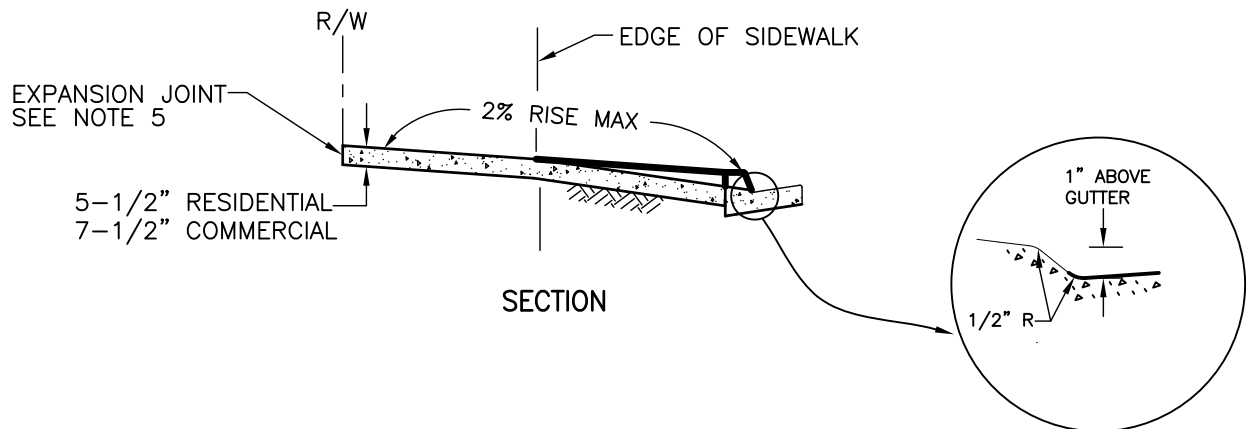
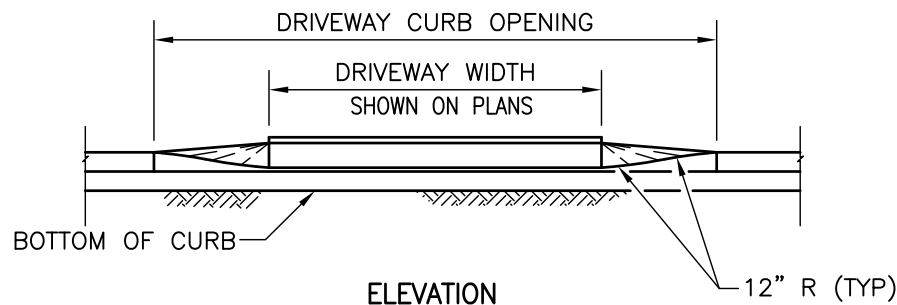
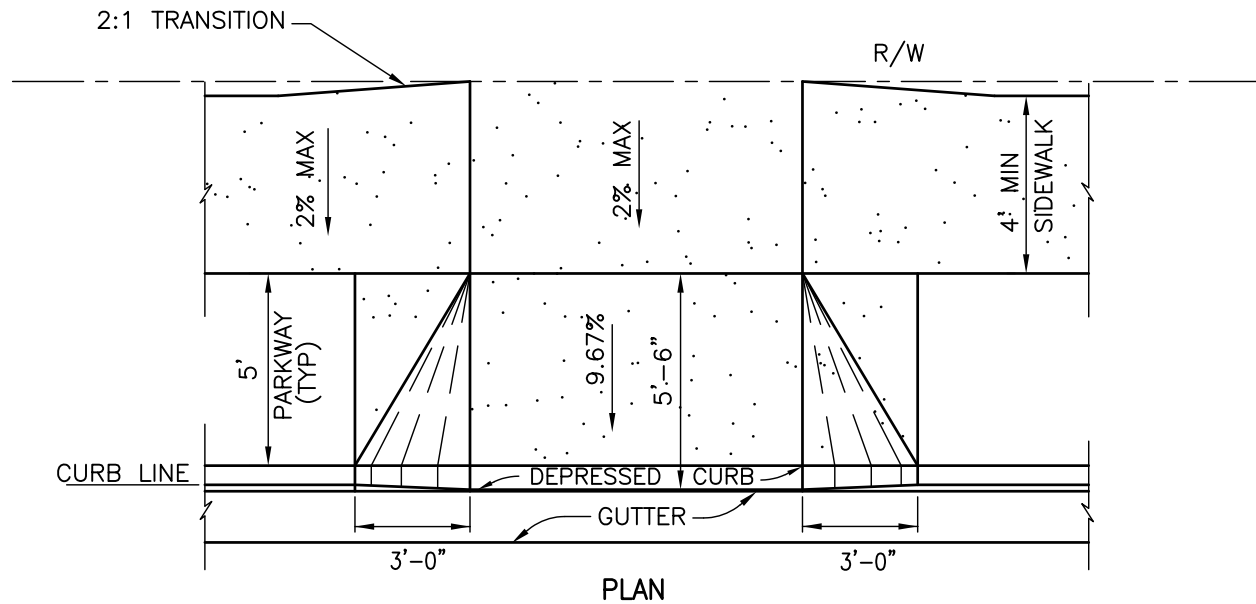
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75	MID-BLOCK CROSS GUTTER		
UPDATED	CV	MR/CV	11/11			
UPDATED	CV	CV	12/15			
Reviewed	RP	S. Engeda	03/22			
						Chairperson R.C.E. 52241 Date
						DRAWING NUMBER G-13



NOTES:

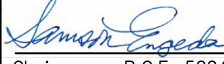
1. NO CONCRETE SHALL BE PLACED UNTIL FORMS AND SUBGRADE ARE INSPECTED BY THE AGENCY.
2. FOR RESIDENTIAL USE, CONCRETE SHALL BE 520-C-2500; FOR COMMERCIAL USE, CONCRETE SHALL BE 560-C-3250.
3. SEE STANDARD DRAWINGS G-15 AND G-16 FOR WIDTH AND LOCATION REQUIREMENTS.
4. DRIVEWAY RAMP TO EXTEND 10' FROM CURB FACE OR TO PROPERTY LINE WHICHEVER IS LESS.
5. PLACE EXPANSION JOINT AT RIGHT-OF-WAY OR 10' WHICHEVER IS LESS.
6. SEE STANDARD DRAWINGS G-2 AND G-10 FOR CURB AND JOINT DETAILS.
7. DIMENSIONS SHOWN REFLECT A 6" CURB HEIGHT.

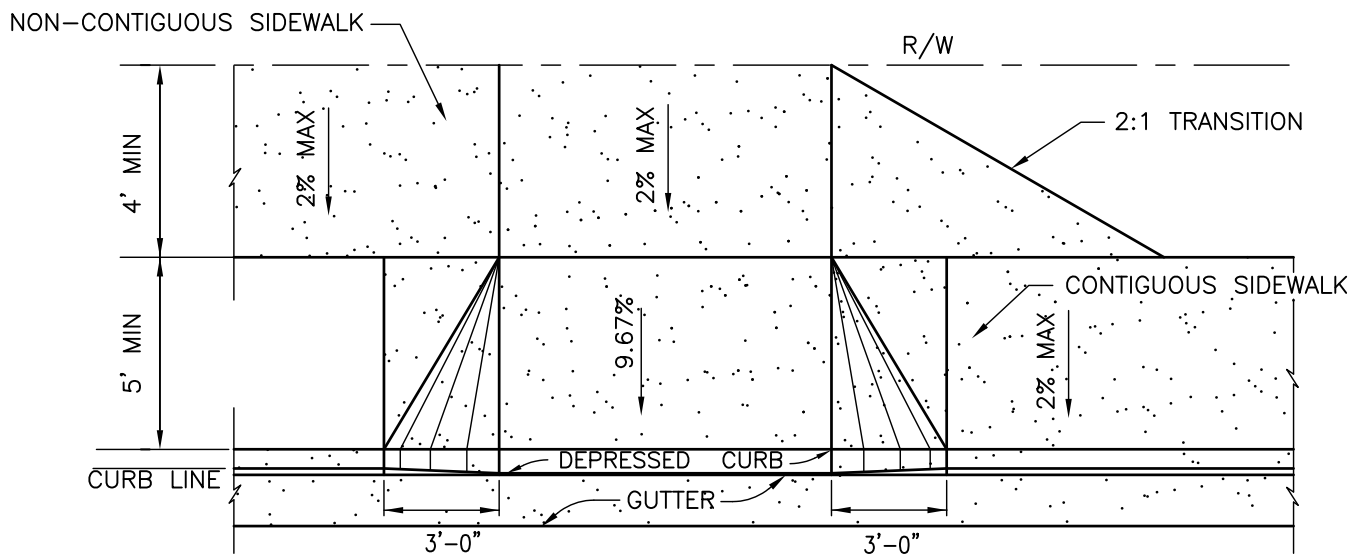
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		R. MUNOZ	4/97		
UPDATED	MR	MR/CV	02/12	CONCRETE DRIVEWAY - TYPE A (CONTIGUOUS SIDEWALK)	 03/24/2022 Chairperson R.C.E. 52241 Date
UPDATED	CV	CV	12/15		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER G-14A



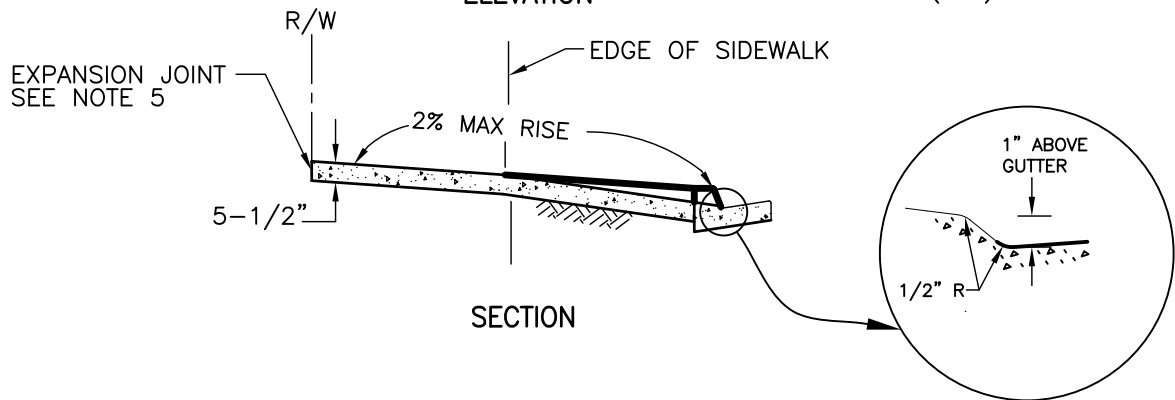
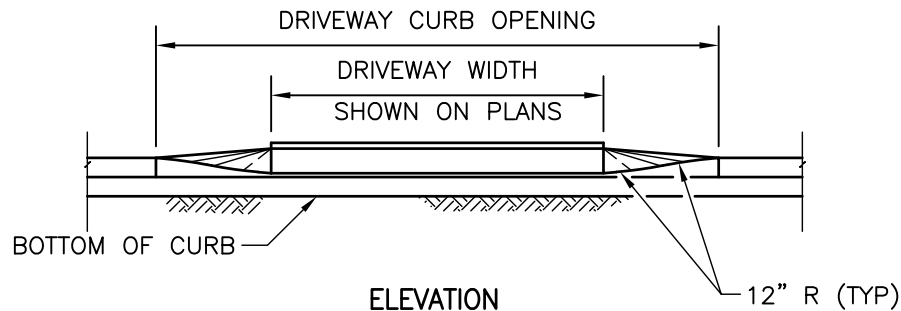
NOTES:

1. NO CONCRETE SHALL BE PLACED UNTIL FORMS AND SUBGRADE ARE INSPECTED BY THE AGENCY.
2. FOR RESIDENTIAL USE, CONCRETE SHALL BE 520-C-2500; FOR COMMERCIAL USE, CONCRETE SHALL BE 560-C-3250.
3. SEE STANDARD DRAWINGS G-15 AND G-16 FOR WIDTH AND LOCATION REQUIREMENTS.
4. DRIVEWAY RAMP TO EXTEND TO 10' FROM CURB FACE OR TO PROPERTY LINE WHICHEVER IS LESS.
5. PLACE EXPANSION JOINT AT RIGHT-OF-WAY OR 10', WHICHEVER IS LESS.
6. SEE STANDARD DRAWINGS G-2 AND G-10 FOR CURB AND JOINT DETAILS.
7. DIMENSIONS SHOWN REFLECT A 6" CURB HEIGHT.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		R. MUNOZ	4/97		
UPDATED	MR	MR/CV	02/12	CONCRETE DRIVEWAY (NON-CONTIGUOUS SIDEWALK)	 03/24/2022 Chairperson R.C.E. 52241 Date
UPDATED	CV	CV	12/15		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER G-14B

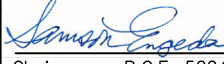


PLAN



NOTES:

1. NO CONCRETE SHALL BE PLACED UNTIL FORMS AND SUBGRADE ARE INSPECTED BY THE AGENCY.
2. CONCRETE SHALL BE 520-C-2500.
3. SEE STANDARD DRAWINGS G-15 AND G-16 FOR WIDTH AND LOCATION REQUIREMENTS.
4. DRIVEWAY RAMP TO EXTEND 10' FROM FACE OF CURB OR TO PROPERTY LINE WHICHEVER IS LESS.
5. PLACE EXPANSION JOINT AT RIGHT-OF-WAY OR 10', WHICHEVER IS LESS.
6. SEE STANDARD DRAWINGS G-2 AND G-10 FOR CURB AND JOINT DETAILS.
7. DIMENSIONS SHOWN REFLECT A 6" CURB HEIGHT.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		R. MUNOZ	4/97	RESIDENTIAL CONCRETE DRIVEWAY (PARKWAY LESS THAN 10' IN DEPTH)		
UPDATED	MR	MR/CV	02/12			
UPDATED	CV	CV	12/15			
Reviewed	RP	S. Engeda	03/22			
						 03/24/2022 Chairperson R.C.E. 52241 Date
						DRAWING NUMBER G-14C

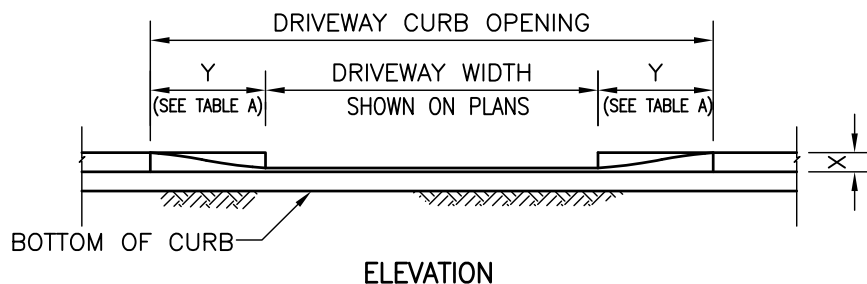
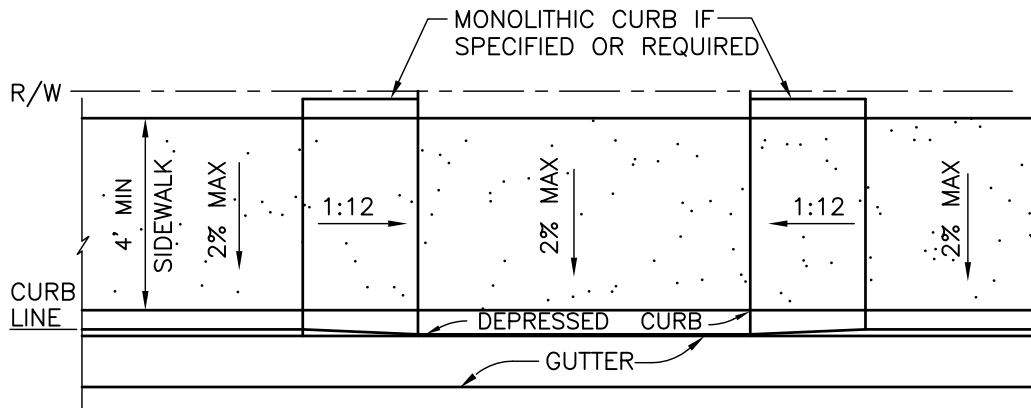
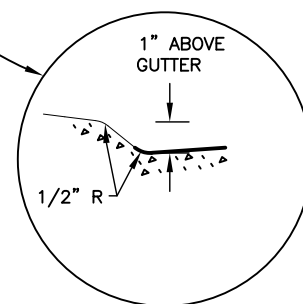
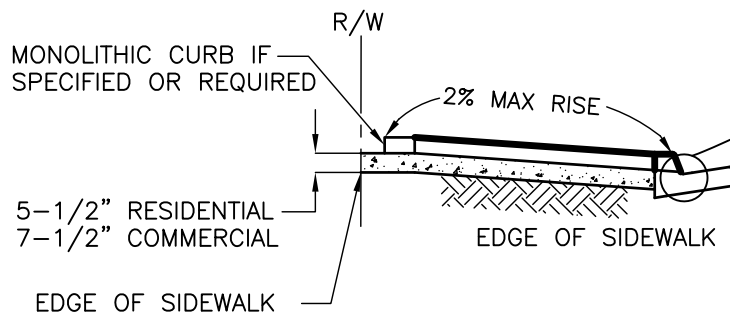


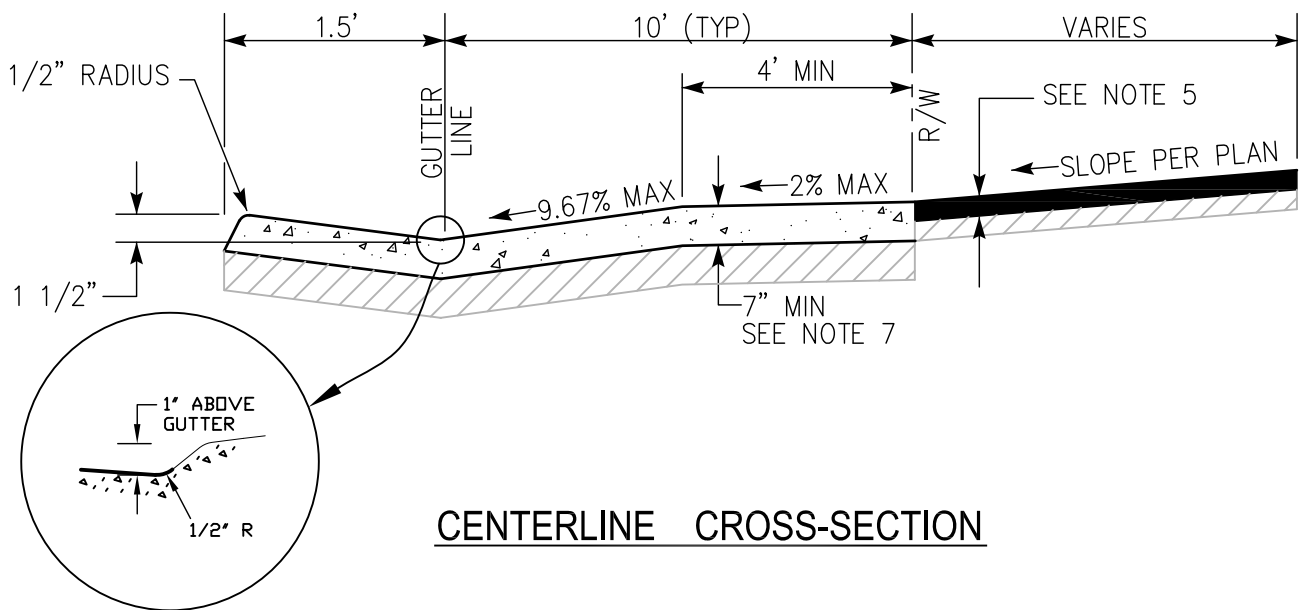
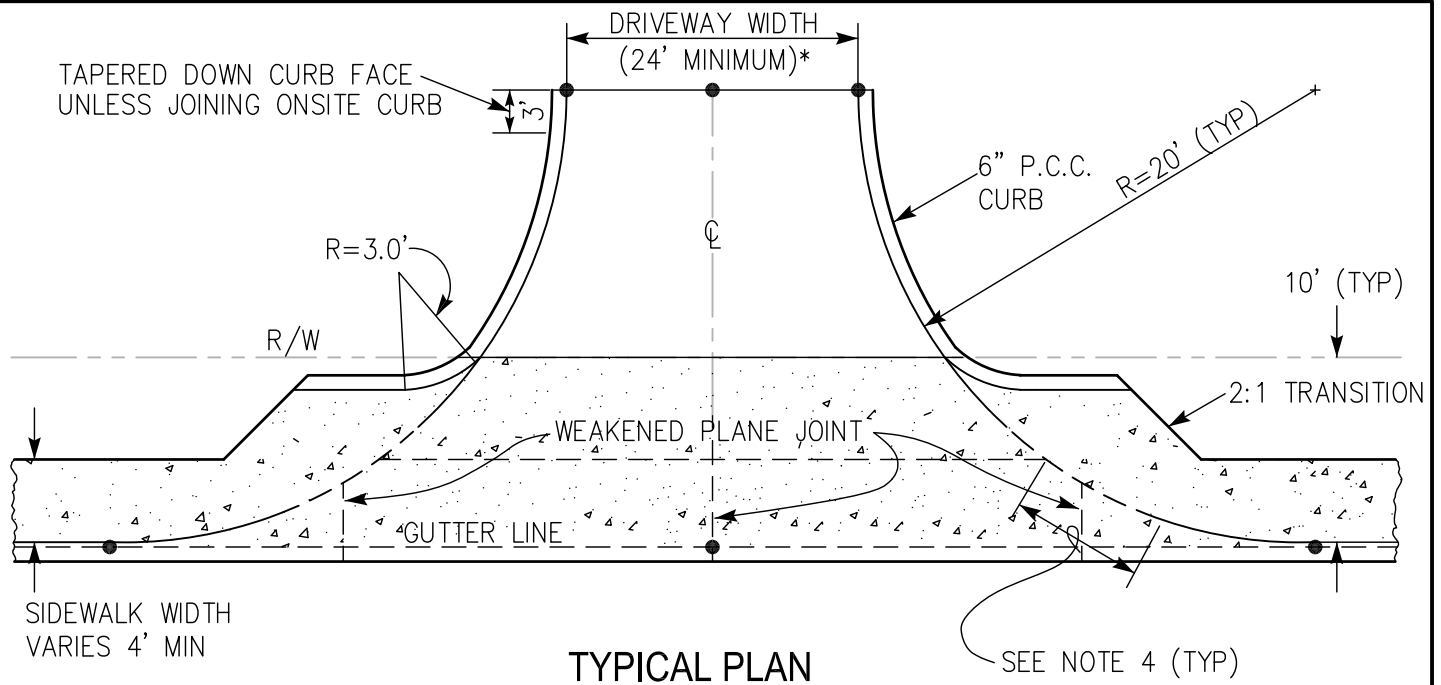
TABLE A	
X	Y
CURB HEIGHT	RAMP LENGTH
1"	0'-0"
2"	1'-0"
3"	2'-0"
4"	3'-0"
5"	4'-0"
6"	5'-0"
7"	6'-0"
8"	7'-0"



NOTES:

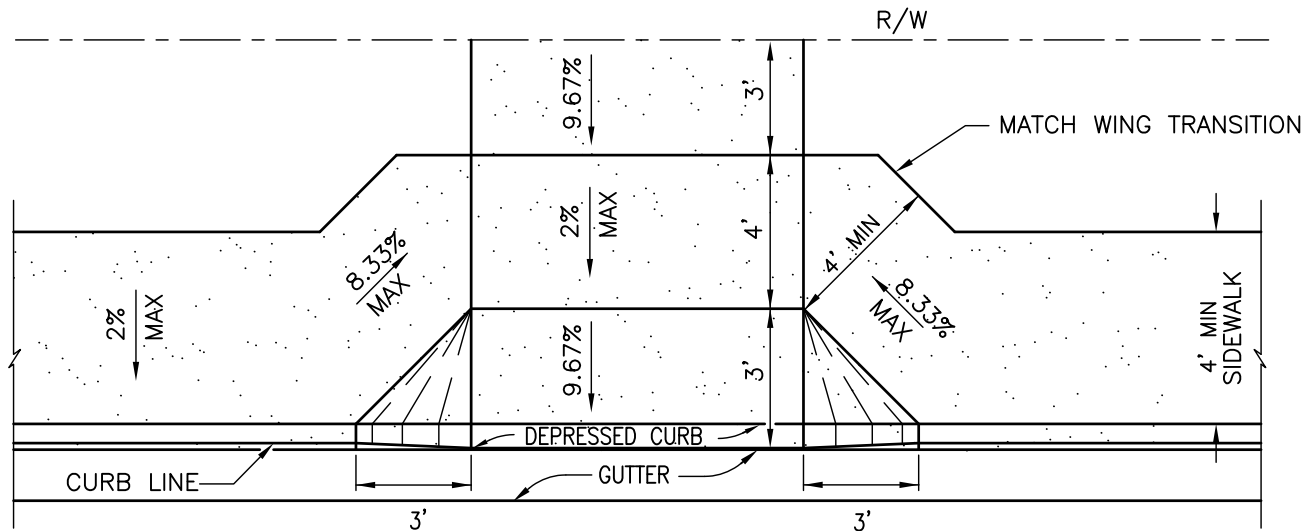
1. NO CONCRETE SHALL BE PLACED UNTIL FORMS AND SUBGRADE ARE INSPECTED BY THE AGENCY.
2. FOR RESIDENTIAL USE, CONCRETE SHALL BE 520-C-2500; FOR COMMERCIAL USE, CONCRETE SHALL BE 560-C-3250.
3. SEE STANDARD DRAWINGS G-15 AND G-16 FOR WIDTH AND LOCATION REQUIREMENTS.
4. SEE STANDARD DRAWINGS G-2 AND G-10 FOR CURB AND JOINT DETAILS.
5. PLACE EXPANSION JOINT AT RIGHT-OF-WAY.
6. DIMENSIONS SHOWN REFLECT A 6" CURB HEIGHT.
7. RAMP LENGTH CALCULATIONS ARE BASED ON X-1" TO ACCOUNT FOR THE 1" DRIVEWAY LIP.
8. IF USING FOR ALLEY CROSSING, INSTALL TRUNCATED DOMES PER G-30 AT BOTTOM OF RAMPS.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
Reviewed		T. STANTON	04/06	CONCRETE DRIVEWAY (FOR CONFINED RIGHT-OF-WAY)		<i>Samson Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date	DRAWING NUMBER G-14D
Updated	MR	MR/CV	02/12				
Updated	CV	CV	12/15				
Updated	RP	S. Engeda	03/22				

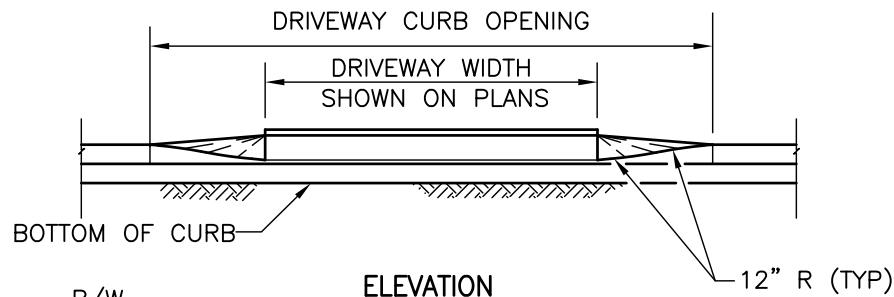


- * OR AS REQUIRED BY THE AGENCY.
- = ELEVATION SHOWN ON PLANS (TOP OF CURB, AND GUTTER ELEVATION)
- ALL CONCRETE SHALL BE 560-C-3250
- TRANSITION FROM FULL HEIGHT CURB TO NO CURB. 6FT TRANSITION FOR 5FT WIDE SIDEWALK AND 8FT TRANSITION FOR 6FT WIDE SIDEWALK.
- PAVEMENT STRUCTURAL SECTION SHALL BE SHOWN ON PLANS.
- SEE G-2 AND G-10 FOR CURB AND JOINT DETAILS.
- BASE MATERIAL AS SHOWN ON PLANS.

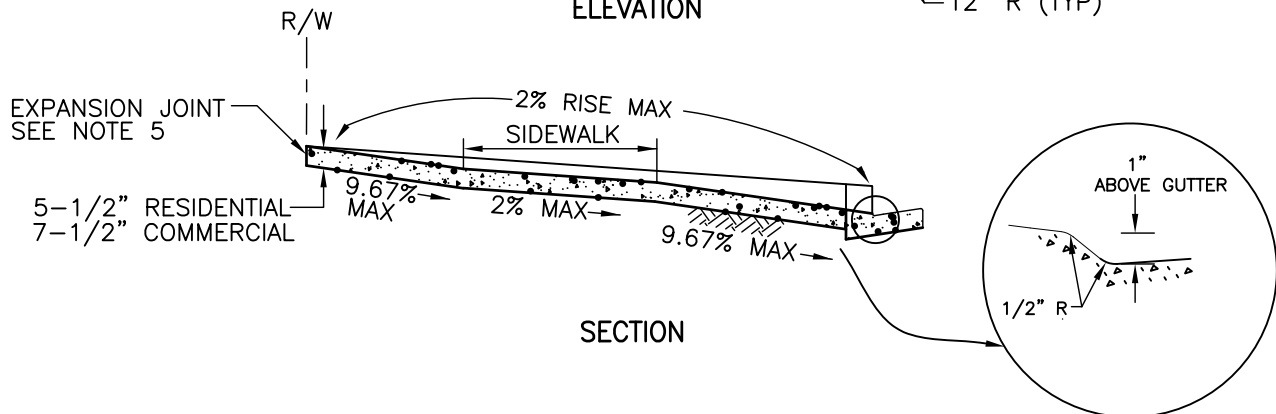
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
NEW	MR	MR/CV	09/11	CONCRETE DRIVEWAY (ALLEY TYPE)		<i>Samantha Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date	DRAWING NUMBER G-14E
UPDATED	CV	CV	12/15				
Reviewed	RP	S. Engeda	03/22				



PLAN



ELEVATION

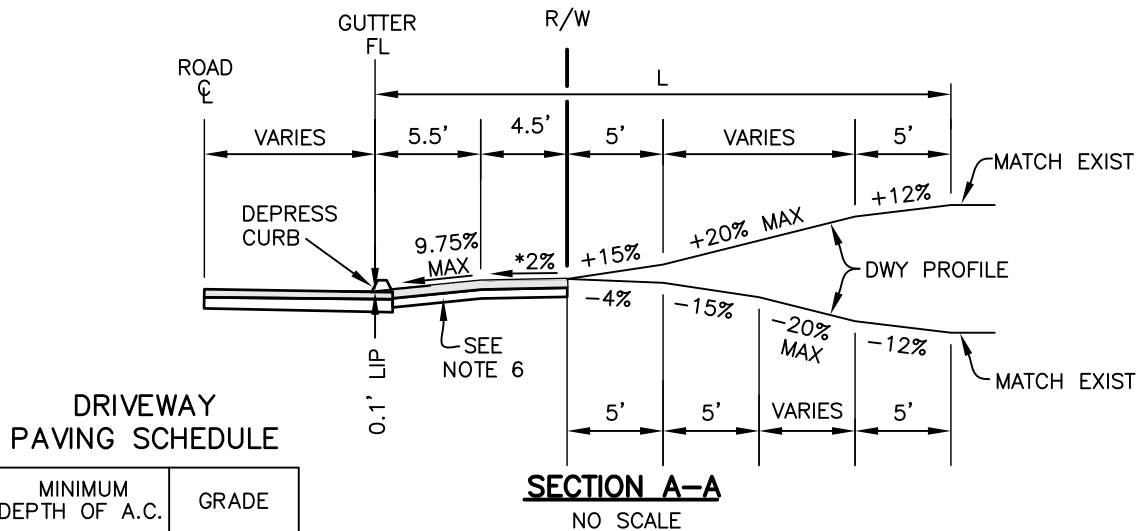
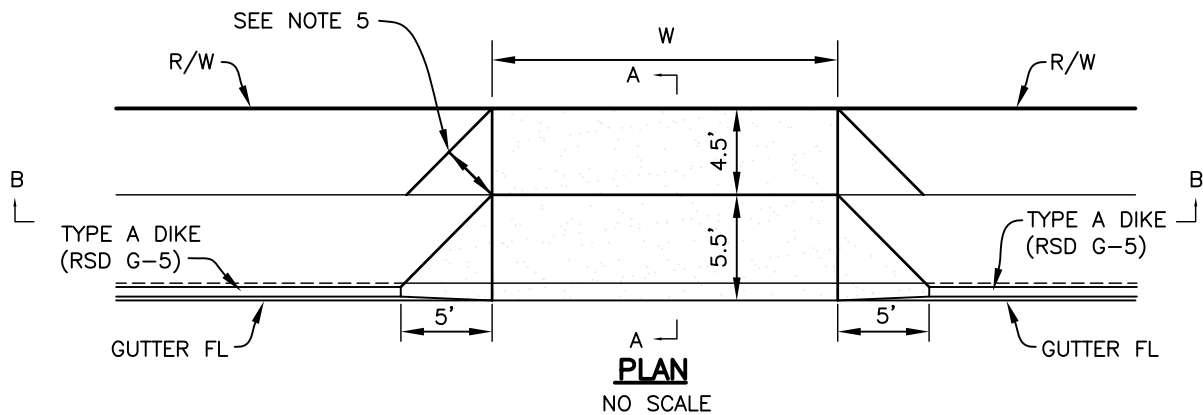


SECTION

NOTES:

1. NO CONCRETE SHALL BE PLACED UNTIL FORMS AND SUBGRADE ARE INSPECTED BY AGENCY.
2. FOR RESIDENTIAL USE, CONCRETE SHALL BE 520-C-2500; FOR COMMERCIAL USE, CONCRETE SHALL BE 560-C-3250.
3. SEE STANDARD DRAWINGS G-15 AND G-16 FOR WIDTH AND LOCATION REQUIREMENTS.
4. DRIVEWAY RAMP TO EXTEND TO 10' FROM CURB FACE OR TO RIGHT-OF-WAY, WHICHEVER IS LESS.
5. PLACE EXPANSION JOINT AT RIGHT-OF-WAY OR 10', WHICHEVER IS LESS.
6. SEE STANDARD DRAWINGS G-2 AND G-10 FOR CURB AND JOINT DETAILS.
7. DIMENSIONS SHOWN REFLECT A 6" CURB HEIGHT.

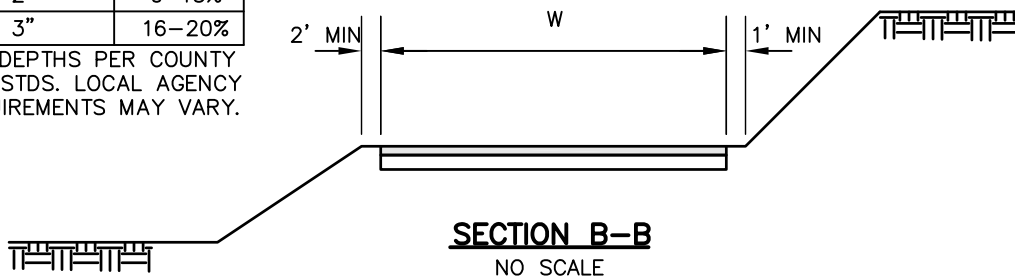
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
NEW	MR	MR/CV	02/12			
UPDATED	CV	CV	12/15	CONCRETE DRIVEWAY - TYPE B (CONTIGUOUS SIDEWALK)	 03/24/2022	
Reviewed	RP	S. Engeda	03/22		Chairperson R.C.E. 52241 Date	
					DRAWING	G-14F
					NUMBER	



DRIVEWAY PAVING SCHEDULE

MINIMUM DEPTH OF A.C.	GRADE
2"	0-15%
3"	16-20%

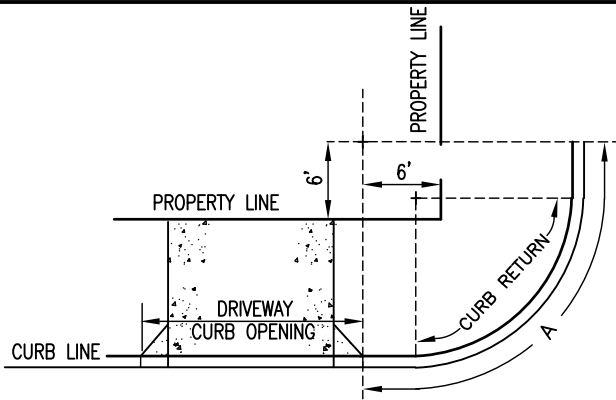
MIN DEPTHS PER COUNTY
FIRE STDS. LOCAL AGENCY
REQUIREMENTS MAY VARY.



NOTES:

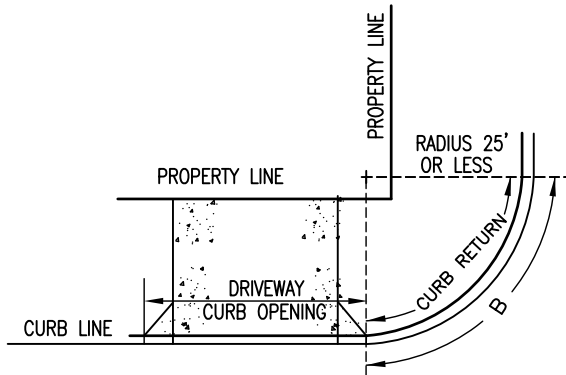
1. DRIVEWAY PROFILE, WIDTH (W) AND LENGTH (L) SHALL BE SHOWN ON PLANS.
2. DRIVEWAYS WITH GRADES GREATER THAN 15% SHALL BE SURFACED WITH ASPHALT CONCRETE (AC) OR PORTLAND CEMENT CONCRETE (PCC).
3. MAXIMUM GRADE BREAK 14% (5' MINIMUM VERTICAL CURVE PREFERRED).
4. SEE SAN DIEGO AREA REGIONAL STANDARD DRAWINGS G-15 & G-16 FOR DRIVEWAY LOCATION & WIDTH REQUIREMENTS AND G-14 SERIES FOR PCC DRIVEWAYS.
5. 4' MINIMUM ADA ACCESS WHEN WALKWAYS ARE PROVIDED.
6. 4" MINIMUM AC OVER 6" MINIMUM BASE, UNLESS OTHERWISE INDICATED ON PLANS.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
NEW	MR	MR/CV	09/11		ASPHALT CONCRETE DRIVEWAY	 03/24/2022
UPDATED	CV	CV	12/15	Chairperson R.C.E. 52241 Date		
Reviewed	RP	S. Engeda	03/22			
					DRAWING NUMBER	G-14G



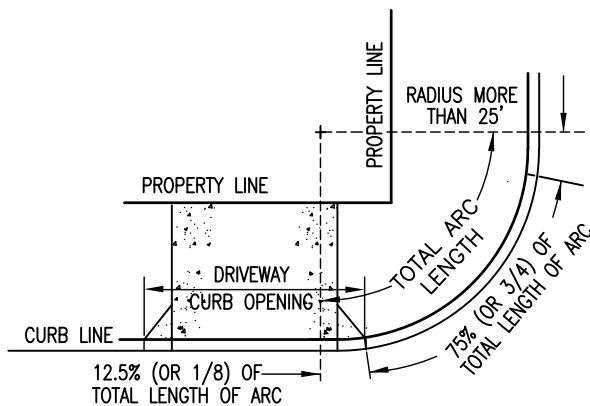
REQUIREMENT 1

NO PORTION OF ANY CURB OPENING SHALL BE PERMITTED WITHIN 6' OF THE INTERSECTION OF THE PROLONGED PROPERTY LINES AND THE CURB SHOWN BY ARC A.



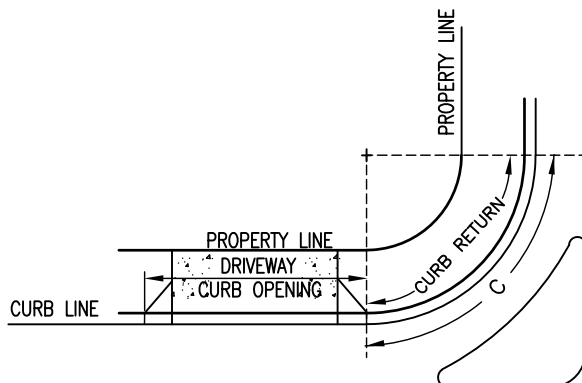
REQUIREMENT 2

NO PORTION OF ANY CURB OPENING SHALL BE PERMITTED IN THE CURB RETURN WHERE THE RADIUS OF CURB IS 25' OR LESS, AS SHOWN BY ARC B.



REQUIREMENT 3

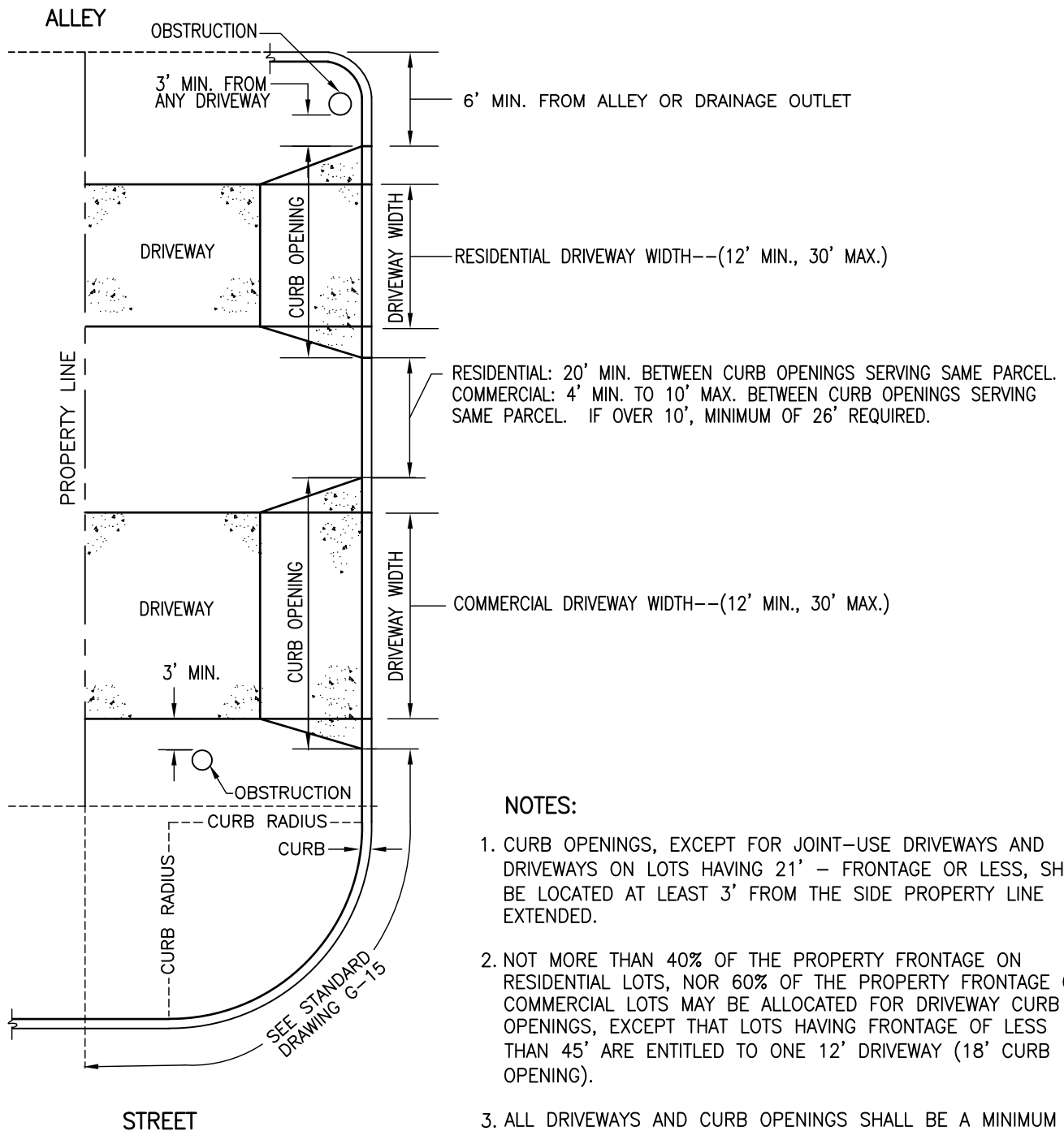
ON ALL CURB RETURNS WHERE THE RADIUS IS MORE THAN 25', CURB OPENINGS MAY ENCROACH UPON EACH END OF THE RETURN A DISTANCE EQUAL TO 12.5% (OR 1/8) OF THE TOTAL LENGTH OF THE ARC ON THE CURB RETURN, THUS LEAVING AT LEAST 75% (OR 3/4) OF THE LENGTH OF ARC ON THE RETURN FACE FREE FROM DRIVEWAY ENCROACHMENT, PROVIDED REQUIREMENT 1 IS MET.



REQUIREMENT 4

NO PORTION OF ANY CURB OPENING SHALL BE PERMITTED IN THE CURB RETURN WHERE A SEPARATE TURNING MOVEMENT IS PROVIDED, AS SHOWN BY ARC C.

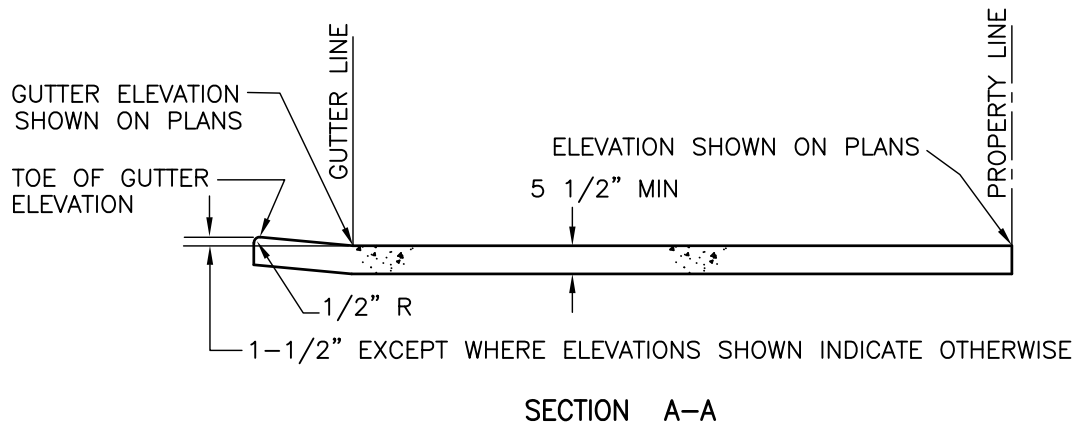
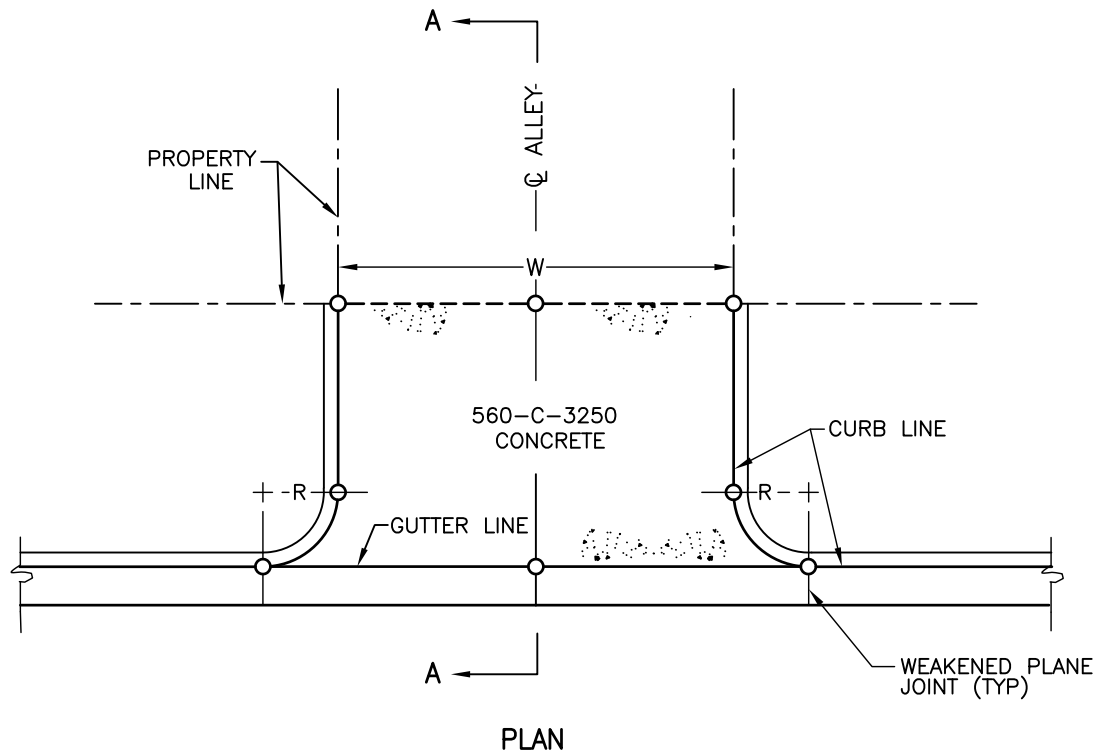
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75	DRIVEWAY LOCATION - ADJACENT TO CURB RETURNS AND STREET LINES		
UPDATED	CV	CV	12/15			
Reviewed	MW	M. Widelski	10/18			
Reviewed	RP	S. Engeda	03/22			
						 03/24/2022 Chairperson R.C.E. 52241 Date
						DRAWING NUMBER G-15



NOTES:

1. CURB OPENINGS, EXCEPT FOR JOINT-USE DRIVEWAYS AND DRIVEWAYS ON LOTS HAVING 21' - FRONTAGE OR LESS, SHALL BE LOCATED AT LEAST 3' FROM THE SIDE PROPERTY LINE EXTENDED.
2. NOT MORE THAN 40% OF THE PROPERTY FRONTAGE ON RESIDENTIAL LOTS, NOR 60% OF THE PROPERTY FRONTAGE ON COMMERCIAL LOTS MAY BE ALLOCATED FOR DRIVEWAY CURB OPENINGS, EXCEPT THAT LOTS HAVING FRONTAGE OF LESS THAN 45' ARE ENTITLED TO ONE 12' DRIVEWAY (18' CURB OPENING).
3. ALL DRIVEWAYS AND CURB OPENINGS SHALL BE A MINIMUM OF 3' FROM ANY OBSTRUCTION, I.E. POLES, HYDRANTS, ETC.
4. NO PORTION OF ANY DRIVEWAY SHALL BE ALLOWED ACROSS A LINE EXTENDING NORMAL TO THE DRIVEWAY FROM THE FRONT CORNER OF THE PROPERTY, EXCEPT THAT JOINT-USE DRIVEWAYS MAY BE PERMITTED IN SPECIAL INSTANCES WHERE WRITTEN APPROVAL OF BOTH PROPERTY OWNERS IS FILED WITH THE AGENCY.

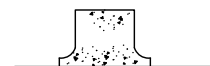
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75	DRIVEWAY LOCATION AND WIDTH REQUIREMENTS		
UPDATED	MR	MR/CV	03/12			<i>Samson Engeda</i> 03/24/2022
UPDATED	CV	CV	12/15			Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER
						G-16



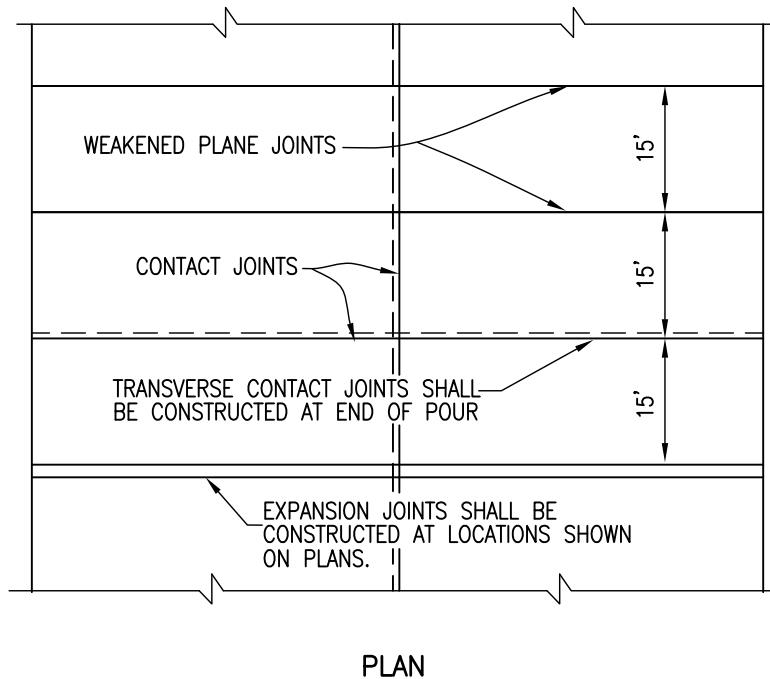
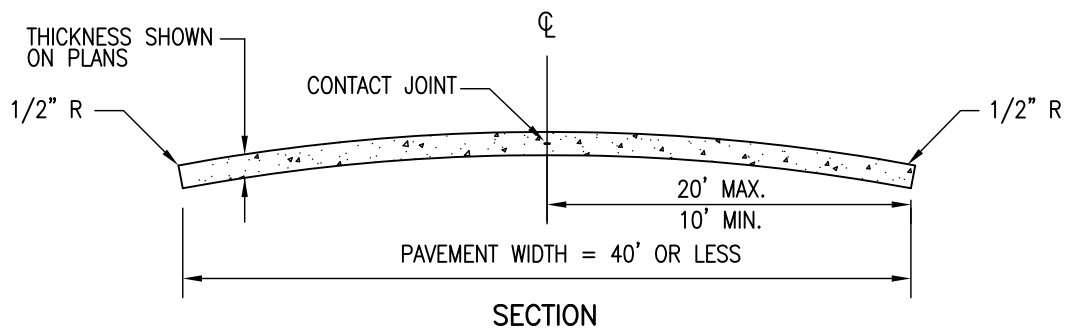
NOTES:

1. SIDEWALK RAMPS SHALL BE INSTALLED AS REQUIRED BY AGENCY.
2. W = WIDTH SHOWN ON PLANS.
3. R = RADIUS SHOWN ON PLANS (3' MINIMUM).
4. ○ = ELEVATION SHOWN ON PLANS (TOP OF CURB AND GUTTER ELEV.).
5. --- = 1/2" EXPANSION JOINTS.

LEGEND ON PLANS



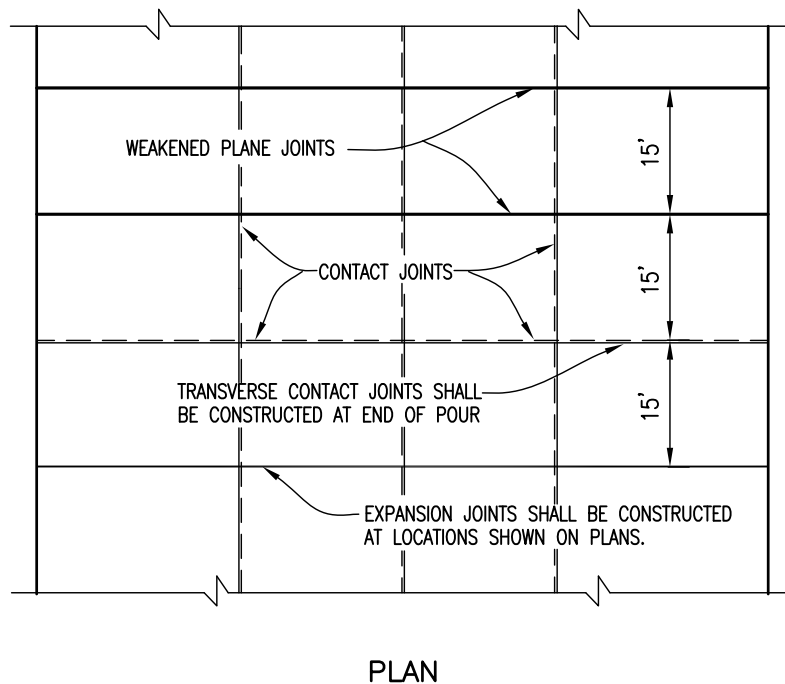
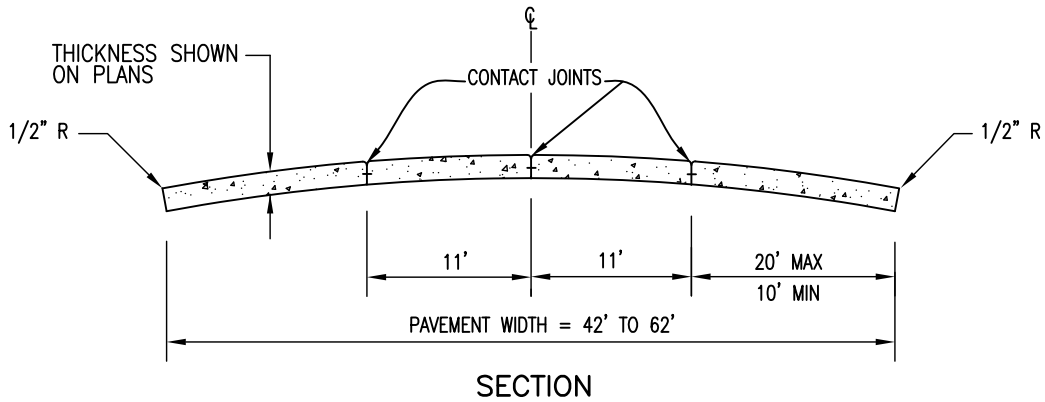
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75		
UPDATED	MR	MR/CV	03/12	ALLEY APRON	<i>Samantha Engeda</i> 03/24/2022
UPDATED	CV	CV	12/15		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER G-17



NOTES:

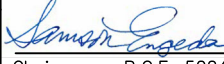
1. CONCRETE SHALL BE 560-C-3250.
2. SEE STANDARD DRAWING G-10 FOR JOINT DETAILS.
3. ADJUST 15' INTERVAL BETWEEN TRANSVERSE JOINTS TO MATCH ADJACENT EXISTING IMPROVEMENTS.

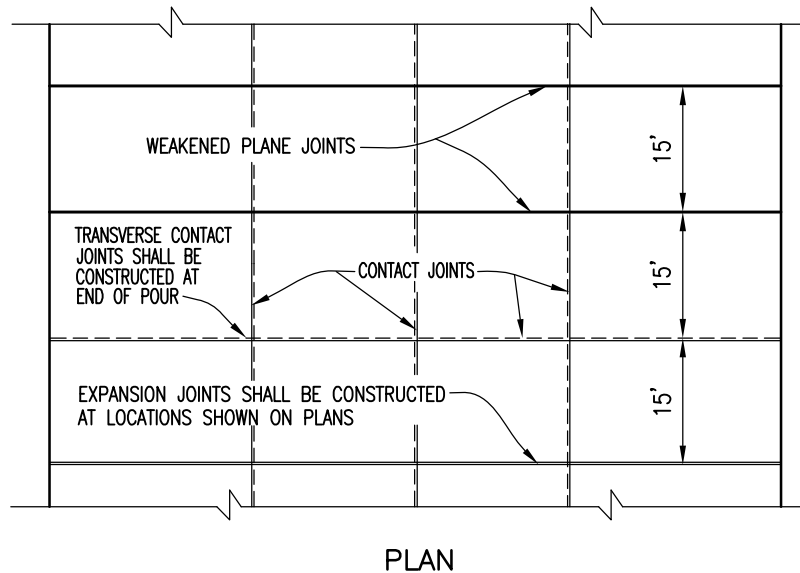
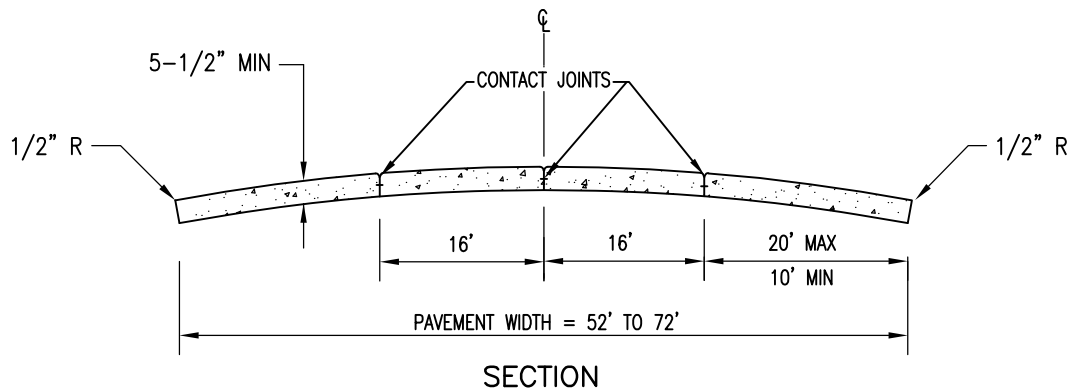
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		KERCHEVAL	12/75		CONCRETE PAVEMENT WIDTH 40' OR LESS	03/24/2022
UPDATED	MR	MR/CV	03/12	Chairperson R.C.E. 52241		Date
UPDATED	CV	CV	12/15	DRAWING		G-18
Reviewed	RP	S. Engeda	03/22	NUMBER		



NOTES:

1. CONCRETE SHALL BE 560-C-3250.
2. SEE STANDARD DRAWING G-10 FOR JOINT DETAILS.
3. ADJUST 15' INTERVAL BETWEEN TRANSVERSE JOINTS TO MATCH ADJACENT EXISTING IMPROVEMENTS.

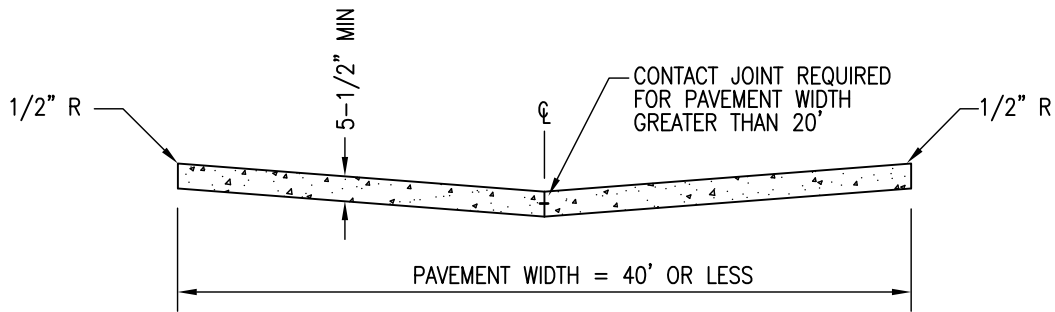
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		KERCHEVAL	12/75	CONCRETE PAVEMENT WIDTH 42' TO 62'		 03/24/2022 Chairperson R.C.E. 52241 Date	DRAWING NUMBER G-19
UPDATED	MR	MR/CV	03/12				
UPDATED	CV	CV	12/15				
Reviewed	RP	S. Engeda	03/22				



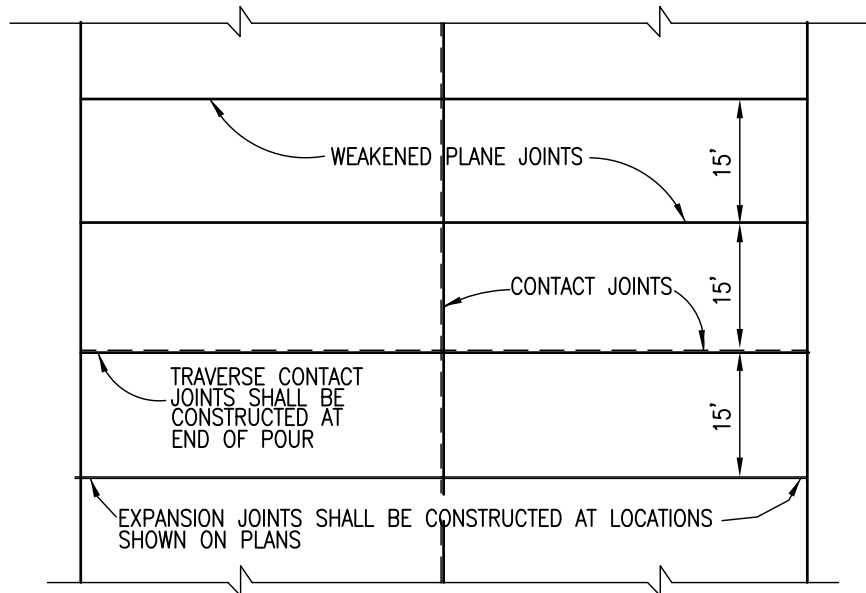
NOTES:

1. CONCRETE SHALL BE 560-C-3250.
2. SEE STANDARD DRAWING G-10 FOR JOINT DETAILS.
3. ADJUST 15' INTERVAL BETWEEN TRANSVERSE JOINTS TO MATCH ADJACENT EXISTING IMPROVEMENTS.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75	CONCRETE PAVEMENT, ALLEY SECTION WIDTH 52' TO 72'		
UPDATED	MR	MR/CV	03/12			<i>Samson Engeda</i> 03/24/2022
UPDATED	CV	CV	12/15			Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER G-20



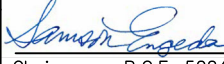
SECTION

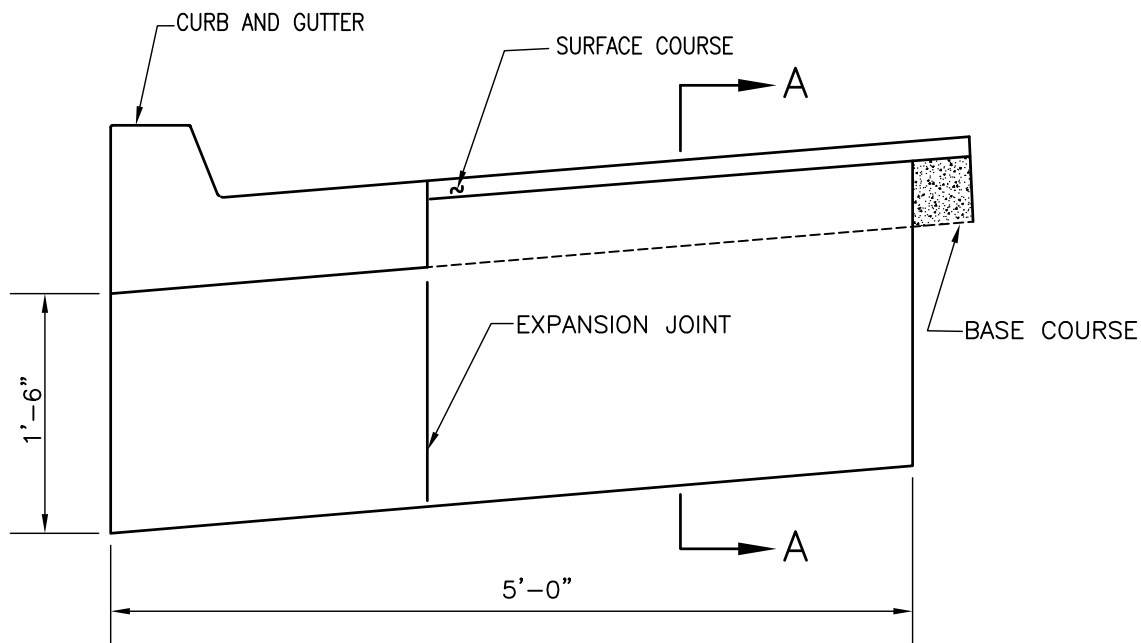


PLAN

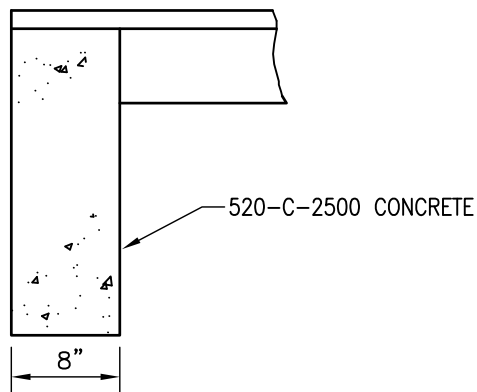
NOTES:

1. CONCRETE SHALL BE 560-C-3250.
2. SEE STANDARD DRAWING G-10 FOR JOINT DETAILS.
3. ADJUST 15' INTERVAL BETWEEN TRANSVERSE JOINTS TO MATCH ADJACENT EXISTING IMPROVEMENTS.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		KERCHEVAL	12/75	CONCRETE PAVEMENT ALLEY SECTION, WIDTH 40' OR LESS		 03/24/2022	Chairperson R.C.E. 52241 Date
UPDATED	MR	MR/CV	03/12				
UPDATED	CV	CV	12/15				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER	G-21



ELEVATION

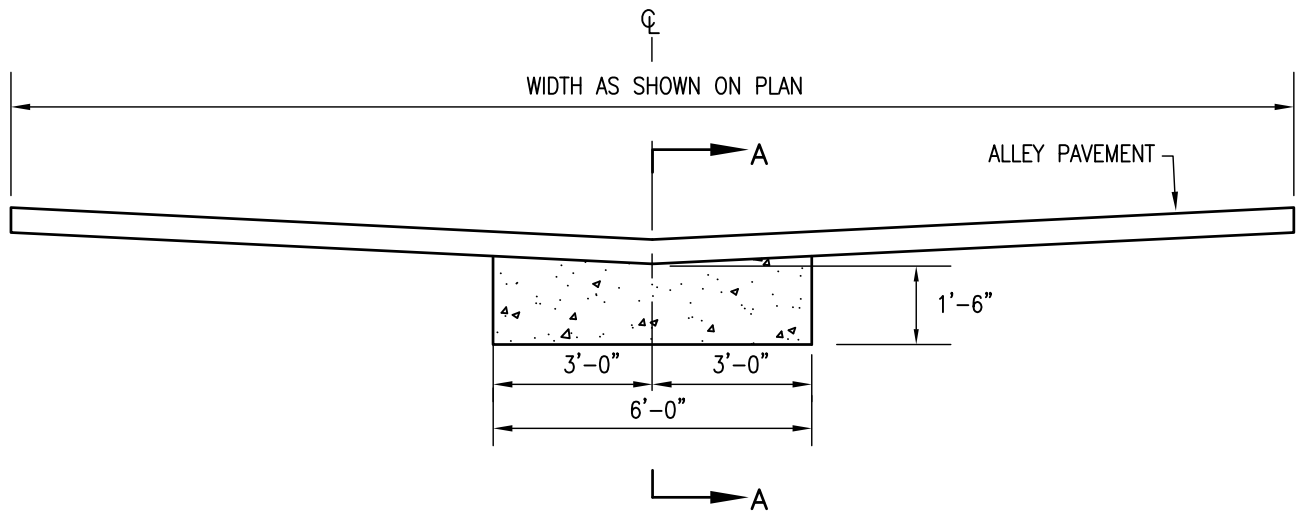


SECTION A-A

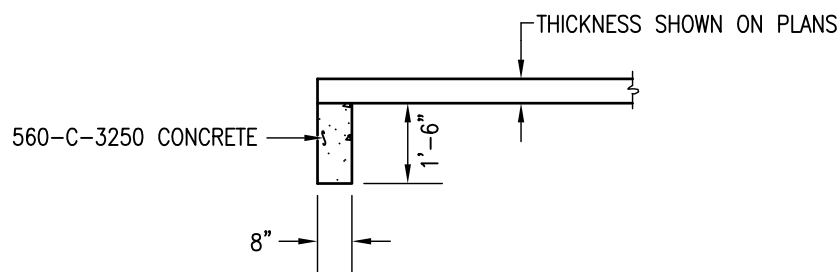
LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75		
UPDATED	MR	MR/CV	03/12	CUTOFF WALL AT END OF PAVEMENT	 03/24/2022 Chairperson R.C.E. 52241 Date
UPDATED	CV	CV	12/15		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER G-22



ELEVATION

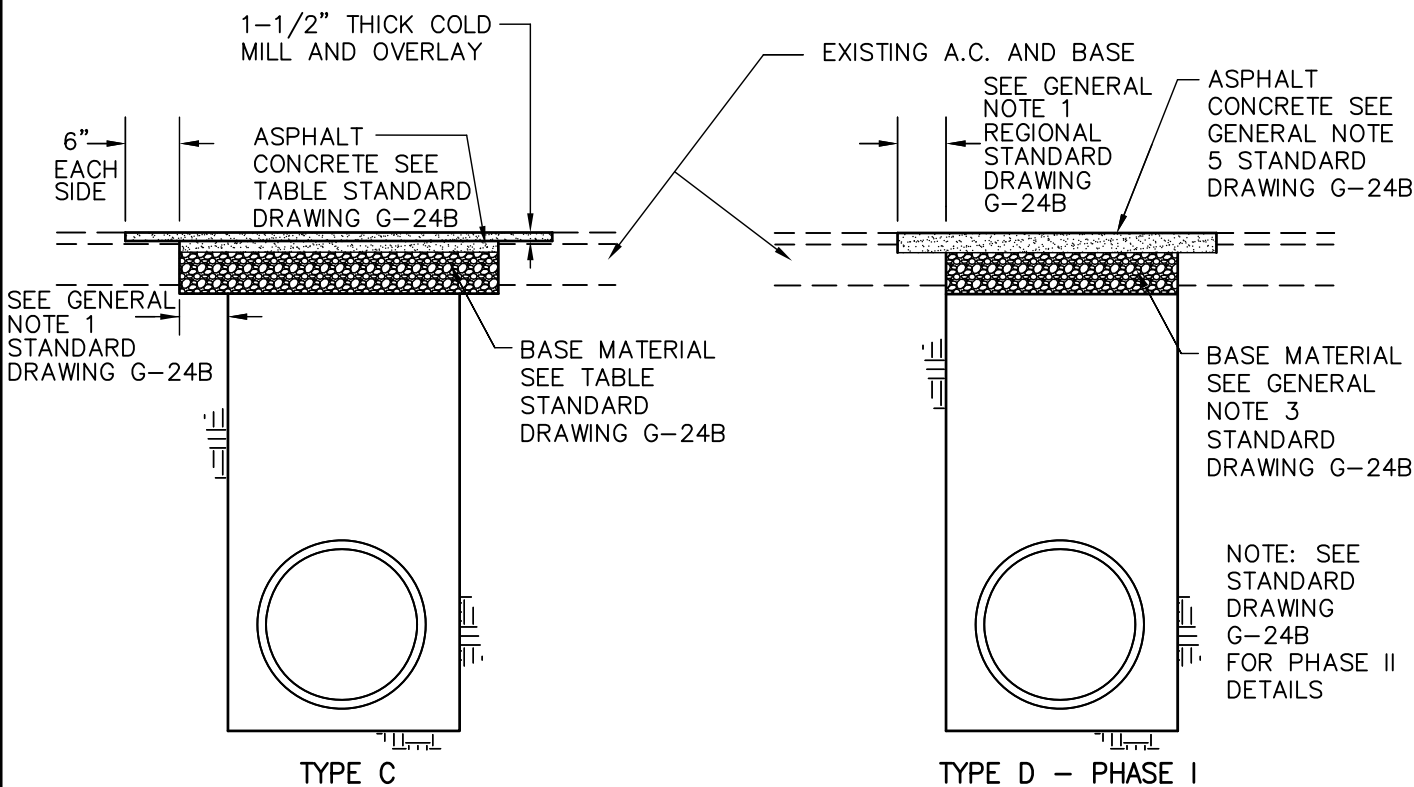
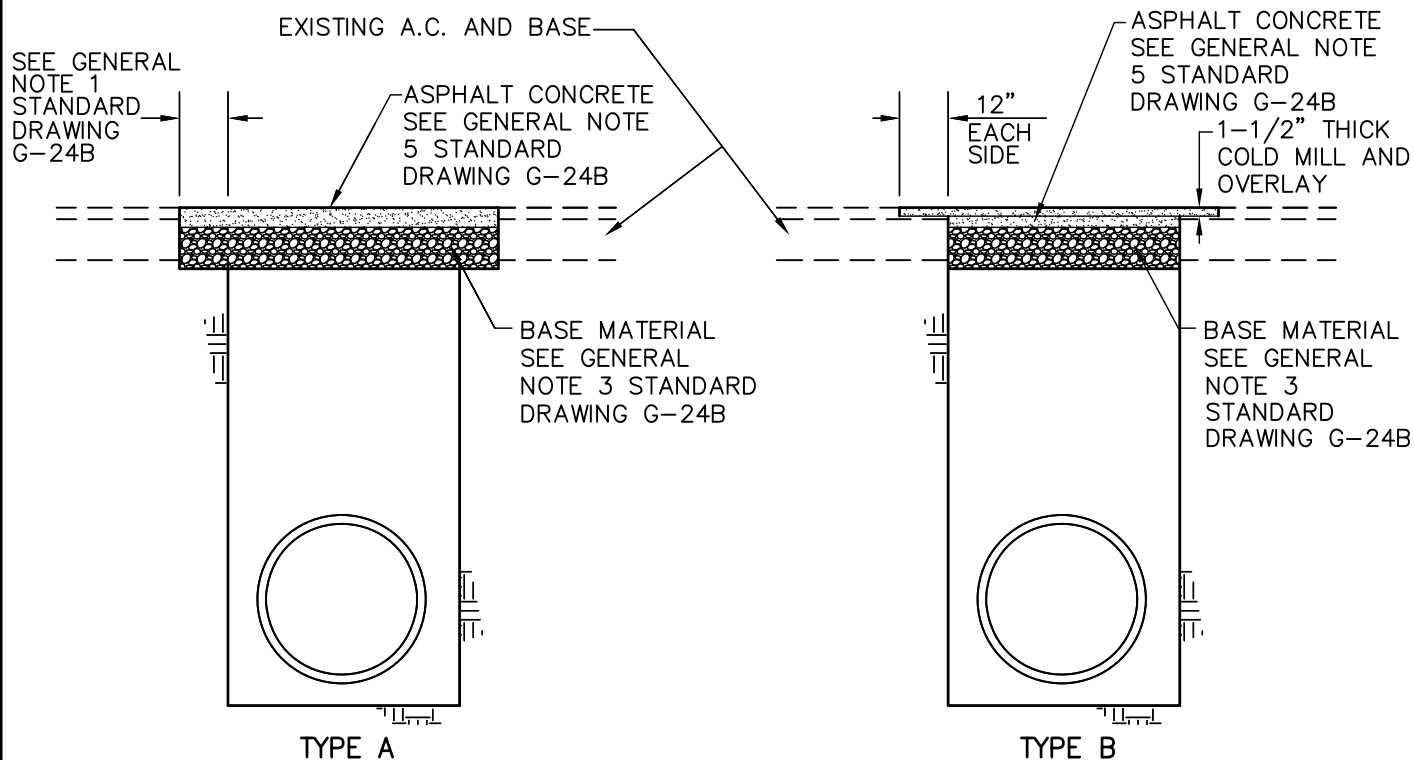


SECTION A-A

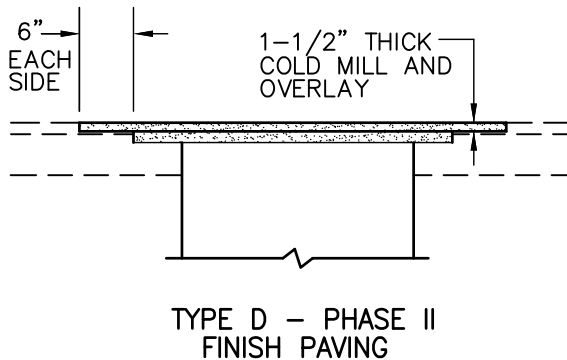
LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		KERCHEVAL	12/75	CUTOFF WALL AT END OF ALLEY PAVEMENT		
UPDATED	MR	MR/CV	03/12			<i>Samson Engeda</i> 03/24/2022
UPDATED	CV	CV	12/15			Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER G-23



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		PARKINSON	02/95	TRENCH RESURFACING ASPHALT CONCRETE STREETS		 03/24/2022 Chairperson R.C.E. 52241 Date	DRAWING NUMBER G-24A
UPDATED	MR	MR/CV	03/12				
REVIEWED	CV	CV	12/15				
Reviewed	RP	S. Engeda	03/22				



TYPE C TRENCH		
	ASPHALT	ASPHALT PLUS BASE
MIX DESIGN	3/4" TYPE III CLASS B3	3/4" TYPE III CLASS B3 PLUS CLASS II BASE
ALLEYS	8.0"	ASPHALT THICKNESS TO EQUAL EXISTING PLUS 1", MIN 4" TO MAX 9" COMBINED ASPHALT PLUS BASE 18" MIN.
LOCAL - 4 LANE COLLECTOR	10.0"	
MAJOR OR GREATER	12.0"	

GENERAL NOTES:

- TRENCH EDGES TO BE SAWCUT A MINIMUM OF 6" WIDER THAN TRENCH FOR 3' WIDE OR LESS, AND 12" WIDER FOR TRENCHES OVER 3' WIDE ON EACH SIDE OF TRENCH, EXCEPT TYPE B.
- EXISTING A.C. SHALL BE SAWCUT AND REMOVED IN SUCH A MANNER SO AS NOT TO TEAR, BULGE, OR DISPLACE ADJACENT PAVEMENT. EDGES SHALL BE CLEAN AND VERTICAL. ALL CUTS SHALL BE PARALLEL OR PERPENDICULAR TO STREET CENTERLINE, WHEN PRACTICAL.
- BASE MATERIAL SHALL MATCH THE THICKNESS OF EXISTING BASE OR AS SHOWN ON PLAN. A.C. MAY BE SUBSTITUTED FOR BASE MATERIAL WITH PRIOR AGENCY APPROVAL. TYPE C - SEE TABLE.
- A TACK COAT OF ASPHALTIC EMULSION OR PAVING ASPHALT SHALL BE APPLIED TO EXISTING A.C. OR P.C.C. CONTACT SURFACES PRIOR TO RESURFACING.
- ASPHALT CONCRETE RESURFACING:
 - MINIMUM TOTAL THICKNESS SHALL BE ONE INCH GREATER THAN EXISTING A.C. OR AS SHOWN ON PLAN.
 - A.C. SHALL BE HOT PLANT MIX.
 - TYPE C - SEE TABLE.
- ALL A.C. RESURFACING SHALL BE SEAL COATED WITH AN EMULSIFIED ASPHALT AND COVERED WITH SAND. CHIP SEALING SHALL BE APPLIED AS REQUIRED BY AGENCY.
- PAVEMENT FABRIC SHALL BE INSTALLED WHEN REQUIRED BY AGENCY.

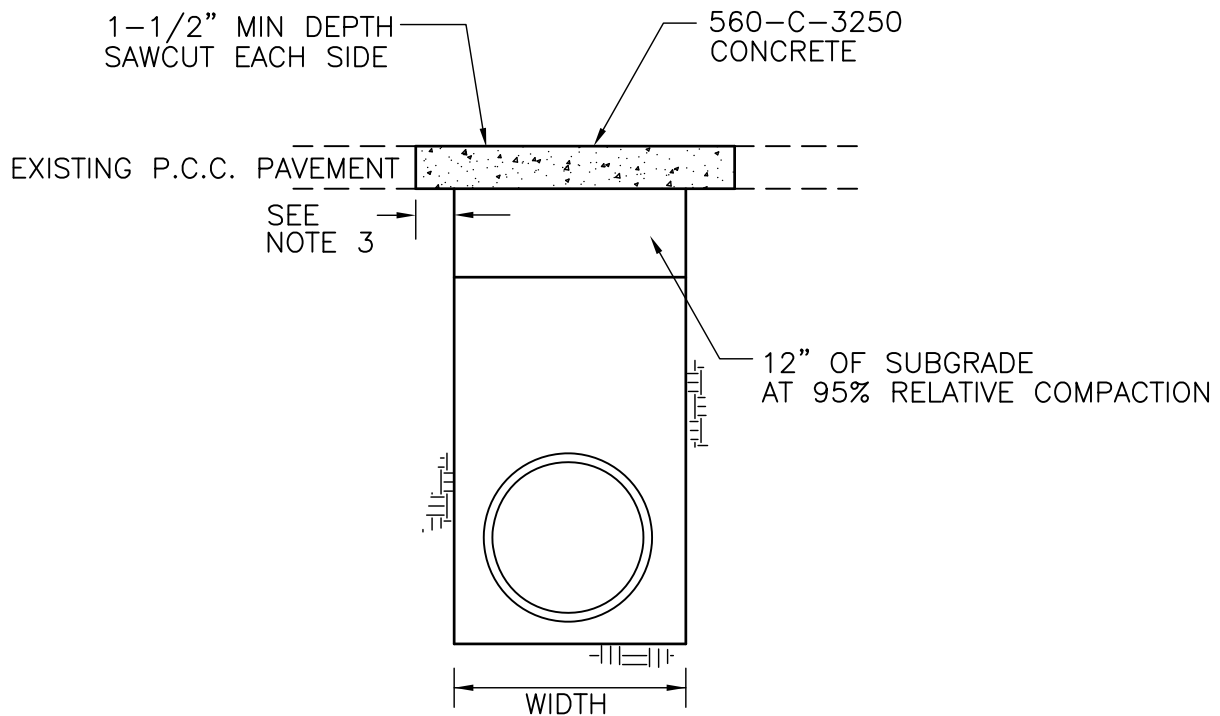
TYPE B & C NOTES:

- ASPHALT TRENCH CAPS IN STREETS NOT RECEIVING A FULL WIDTH OVERLAY PRIOR TO ACCEPTANCE SHALL BE BASE-PAVED TO MATCH EXISTING ADJACENT PAVEMENT SURFACE. NO LESS THAN 30 DAYS AFTER INITIAL ASPHALT PLACEMENT, TRENCH CAP SHALL BE MILLED AS SHOWN AND RESURFACED WITH 1/2" TYPE III CLASS C2 ASPHALT.
- UPON APPROVAL OF ALL PIPELINE TESTING AND TIE-INS FROM THE AGENCY, THE CONTRACTOR SHALL COLD MILL THE TRENCH REPAIR TO A DEPTH OF 1-1/2", ONE FOOT WIDER THAN THE TRENCH WIDTH ON BOTH SIDES. WHEN EDGE OF COLD MILL LINE IS WITHIN 18" OF ANY STRUCTURE, EDGE OF PAVEMENT, ADJACENT TRENCH, OR OTHER PAVING JOIN LINE, THE COLD MILL SHALL BE EXTENDED TO THE EXISTING STRUCTURE, JOIN LINE, OR EDGE OF PAVEMENT.
- ANY STREET TRENCH 7 FEET IN WIDTH OR GREATER AND LONGER THAN 100 FEET IN OVERALL LENGTH SHALL BE RECONSTRUCTED AS DIRECTED BY AGENCY.

TYPE D NOTES:

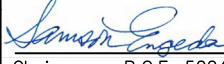
- ALL AREAS OF EXISTING AC LESS THAN 48" WIDE REMAINING AFTER TRENCHING SHALL BE COLD MILLED AND PAVED PER TYPE D - PHASE II FINISH PAVING DETAIL.
- PHASE II PAVING SHALL BE COMPLETED NOT EARLIER THAN 14 CALENDAR DAYS AND NOT LATER THAN 75 CALENDAR DAYS AFTER PHASE I PAVING.

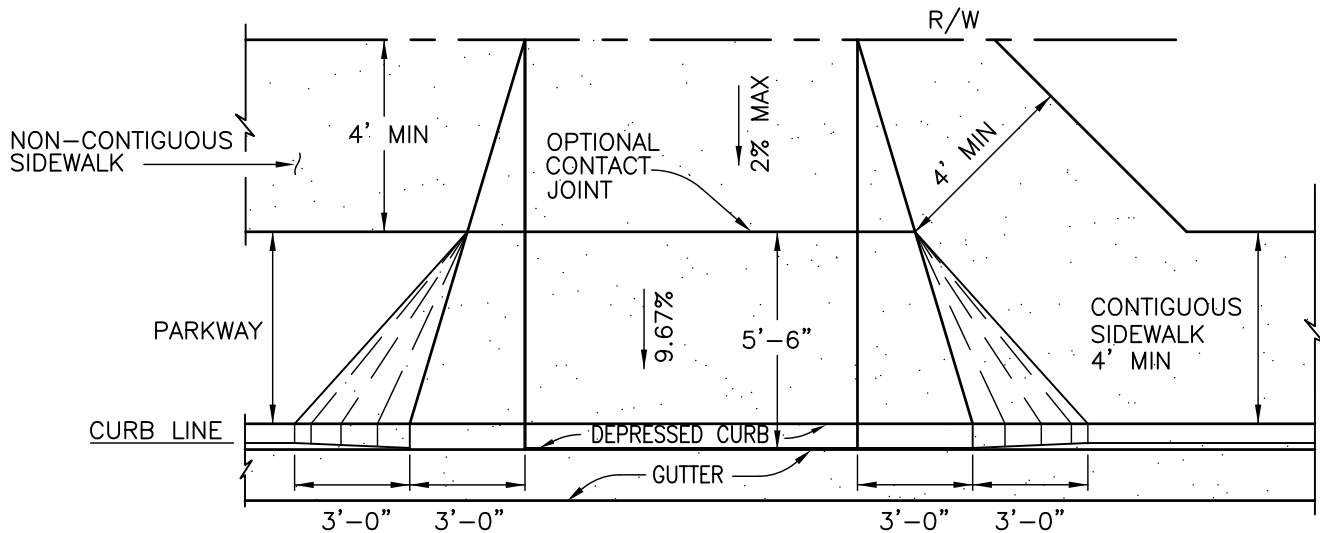
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL	MR	MR/CV	03/12	TRENCH RESURFACING NOTES AND DETAILS		
REVIEWED	CV	CV	12/15			
Reviewed	RP	S. Engeda	03/22			
						 03/24/2022 Chairperson R.C.E. 52241 Date
						DRAWING NUMBER G-24B



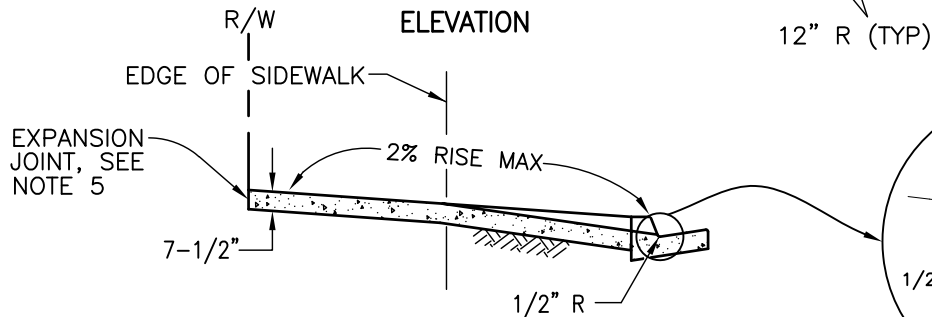
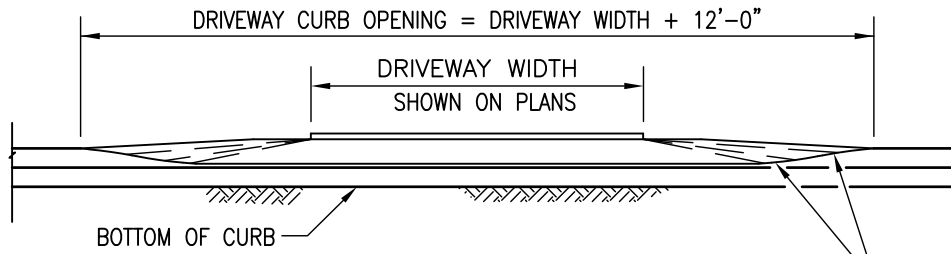
NOTES:

1. EXISTING CONCRETE PAVEMENT SHALL BE SAWCUT AND REMOVED. PRIOR TO PLACING CONCRETE, PAVEMENT EDGES SHALL BE TRIMMED TO NEAT HORIZONTAL AND VERTICAL LINES.
2. UNLESS OTHERWISE SPECIFIED, CONCRETE TRENCH COVER SHALL BE A MINIMUM OF 5-1/2" FOR ALLEYS, 7" FOR LOCAL THROUGH FOUR LANE COLLECTOR STREETS, AND 9" THICK FOR ALL MAJOR OR GREATER STREET CLASSIFICATIONS.
3. TRENCH EDGES TO BE CUT A MINIMUM OF 6" WIDER THAN TRENCH FOR 3' WIDE OR LESS AND 12" WIDER FOR TRENCHES OVER 3' WIDE, ON EACH SIDE OF TRENCH.
4. ANY STREET TRENCH 7' IN WIDTH OR GREATER AND LONGER THAN 100' IN LENGTH SHALL BE CONSTRUCTED WITH THE PAVEMENT SECTION PER PLAN OR LOCAL AGENCY REQUIREMENT. STREET TRENCH SECTIONS 7' IN WIDTH OR GREATER BUT LESS THAN 100' IN OVERALL LENGTH SHALL BE SURFACED TO A THICKNESS OF 1" GREATER THAN REQUIRED BY NOTE 2 OR AS INDICATED ON PLAN.
5. IN FOUR-LANE MAJOR OR GREATER STREETS, AN APPROVED SET ACCELERATING ADMIXTURE SUCH AS CALCIUM CHLORIDE SHALL BE USED IN CONCRETE.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		PARKINSON	02/95		
UPDATED	MR	MR/CV	03/12	TRENCH RESURFACING PCC SURFACED STREETS	 03/24/2022 Chairperson R.C.E. 52241 Date
REVIEWED	CV	CV	12/15		DRAWING NUMBER G-25
Reviewd	RP	S. Engeda	03/22		



PLAN

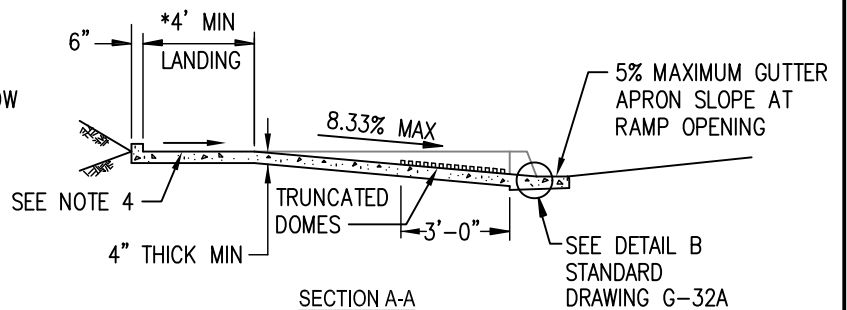
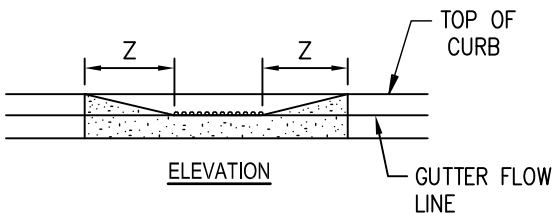
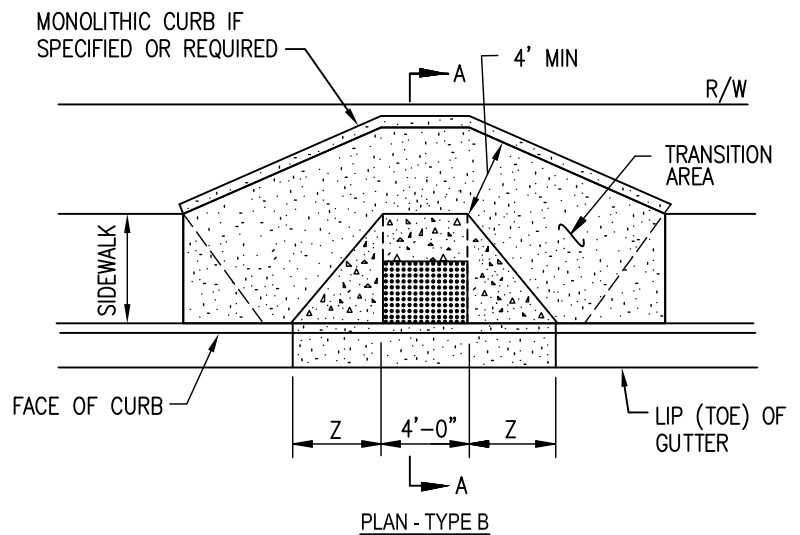
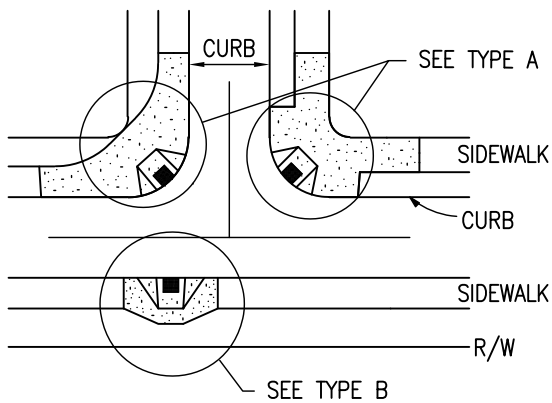
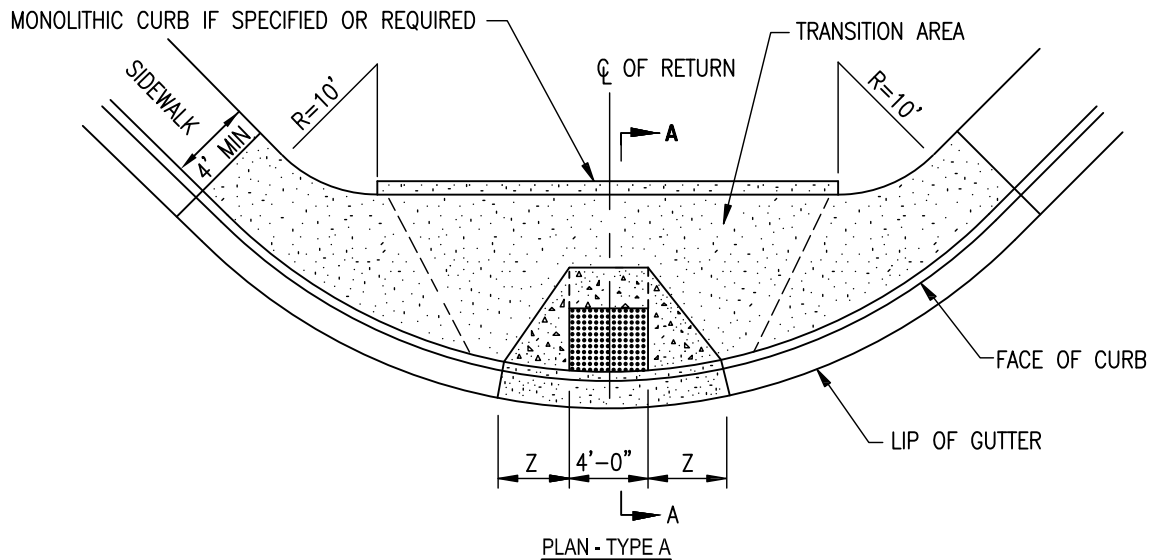


SECTION

NOTES:

1. NO CONCRETE SHALL BE PLACED UNTIL FORMS AND SUBGRADE ARE APPROVED BY THE AGENCY.
2. CONCRETE SHALL BE 560-C-3250.
3. SEE STANDARD DRAWINGS G-15 AND G-16 FOR WIDTH AND LOCATION REQUIREMENTS.
4. DRIVEWAY RAMP TO EXTEND TO 10' FROM CURB FACE OR TO PROPERTY LINE WHICHEVER IS LESS. (FOR COMMERCIAL DRIVEWAYS ONLY)
5. PLACE EXPANSION JOINT AT R/W OR 10', WHICHEVER IS LESS.
6. SEE STANDARD DRAWINGS G-2 AND G-10 FOR CURB AND JOINT DETAILS.
7. DIMENSIONS REFLECT A 6' CURB HEIGHT.

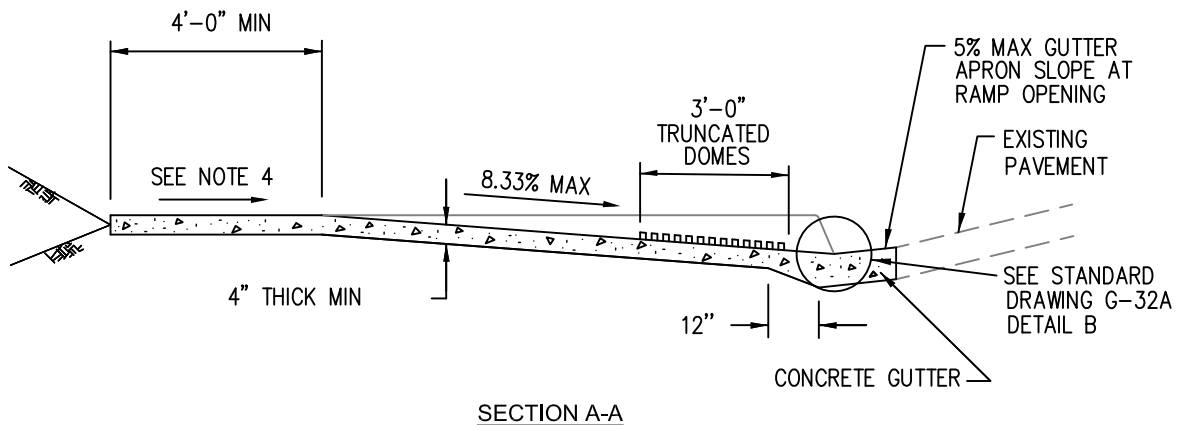
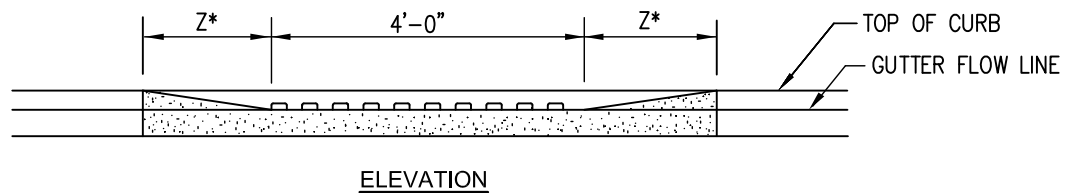
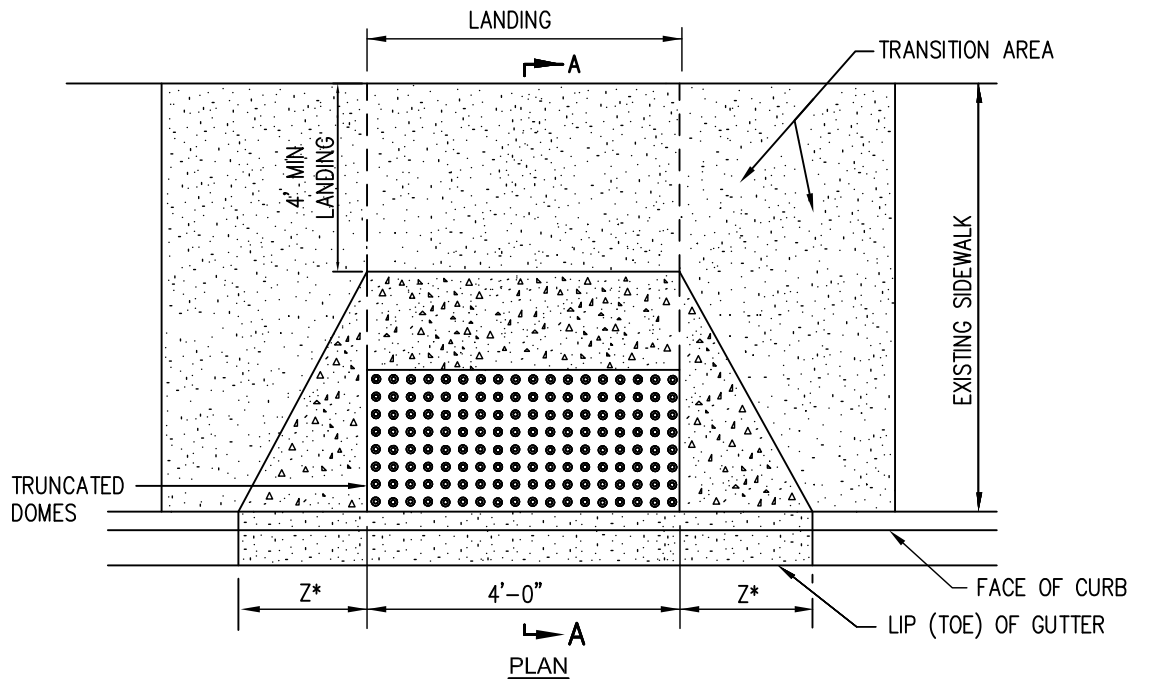
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		H. HECHT	10/82	CONCRETE DRIVEWAY COMMERCIAL ALTERNATE		 03/24/2022 Chairperson R.C.E. 52241 Date
UPDATED	MR	MR/CV	03/12			
UPDATED	CV	CV	12/15			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER G-26



NOTES:

1. SEE STANDARD DRAWING G-32A FOR GENERAL NOTES.
2. FOR TRUNCATED DOMES DETAILS, SEE STANDARD DRAWING G-30.
3. Z SIDE SLOPES SHALL BE 1:10 OR 15' MAX.
4. LANDING CROSS SLOPE SHALL BE 2.0% MAX IN BOTH DIRECTIONS.
5. *LANDING MAY BE REDUCED TO 3' MIN IF INFEASIBLE BUT Z SIDE SLOPES SHALL BE 1:12 MAX OR 15' MAX.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		BAHMANIAN	04/86	CURB RAMP - TYPES A AND B (NEW CONSTRUCTION)		<i>Samsin Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date	DRAWING NUMBER G-27
UPDATE		K.EQUIPADO	12/22				



NOTES:

1. SEE STANDARD DRAWING G-32A FOR GENERAL NOTES.
2. TYPE A-1 IS A DESIGNATION FOR RAMP AT CURB RETURN.
3. TYPE B-1 IS A DESIGNATION FOR RAMP AT STRAIGHT CURB (SHOWN ABOVE).
4. LANDING CROSS SLOPE SHALL BE 2.0% MAX IN BOTH DIRECTIONS.
5. FOR TRUNCATED DOMES DETAIL, SEE STANDARD DRAWING G-30.
6. Z SIDE SLOPE SHALL BE 10:1 OR 15' MAX

Revision	By	Approved	Date
ORIGINAL		BAHMANIAN	02/95
UPDATED		K.EQUIPADO	02/22

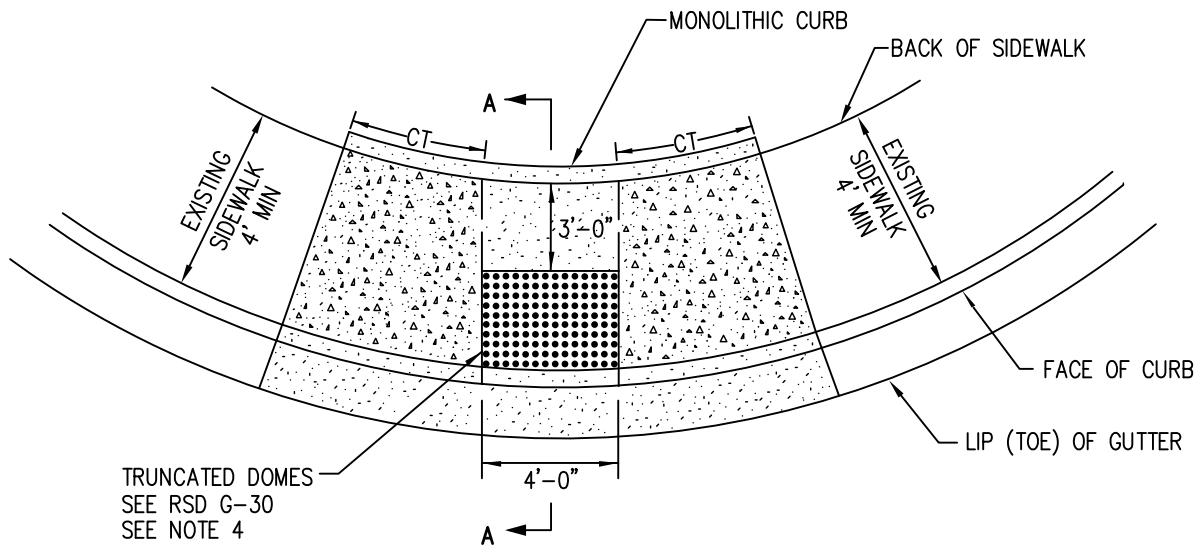
SAN DIEGO REGIONAL STANDARD DRAWING

**CURB RAMP - TYPES A-1 AND B-1
(FOR EXISTING SIDEWALK)**

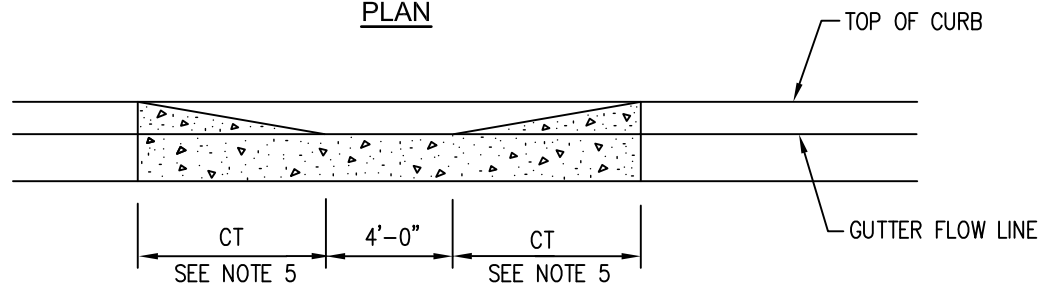
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samson Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

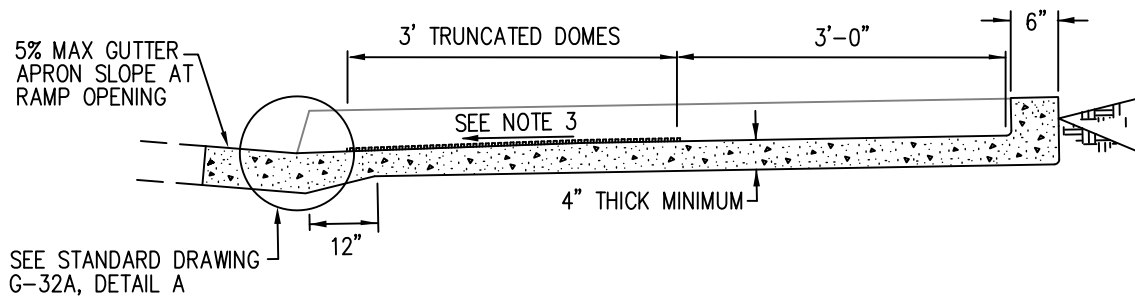
DRAWING
NUMBER **G-28**



PLAN



ELEVATION

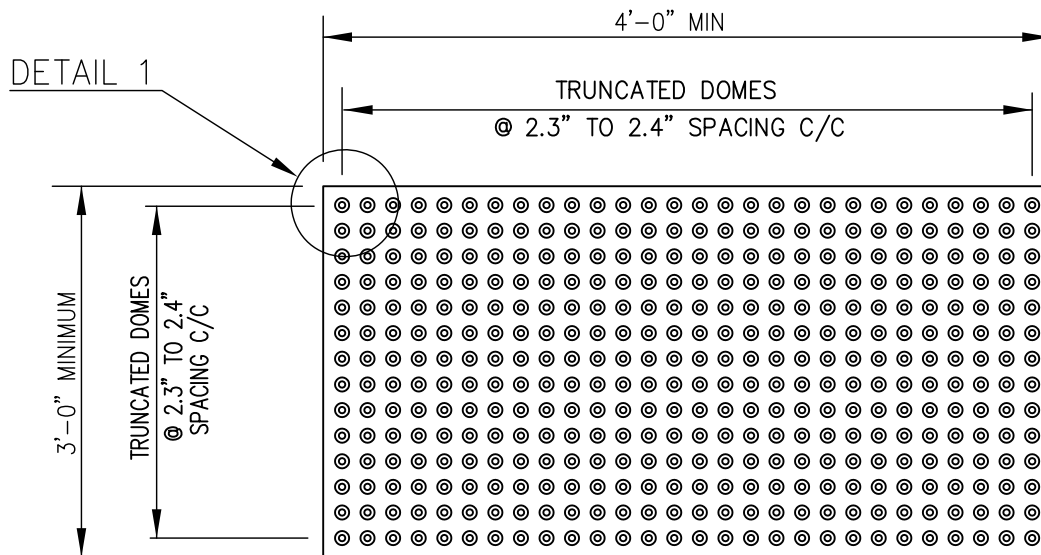


SECTION A-A

NOTES:

1. TYPE C ARE ONLY TO BE USED TO MITIGATE EXISTING CONDITIONS WHERE INADEQUATE RIGHT OF WAY EXISTS. TYPE C RAMP IS NOT TO BE USED IN NEW CONSTRUCTION, UNLESS APPROVED BY AGENCY.
2. SEE STANDARD DRAWING G-32A FOR GENERAL NOTES.
3. LANDING CROSS SLOPE SHALL BE 2.0% MAX IN BOTH DIRECTIONS.
4. IF INFEASIBLE TO ACHIEVE 6' WIDE RAMP, TRUNCATED DOMES MAY BE REDUCED TO 2'X4'.
5. CT (CURB TRANSITION) SHALL BE 8.33% MAX OR 15' MAX.

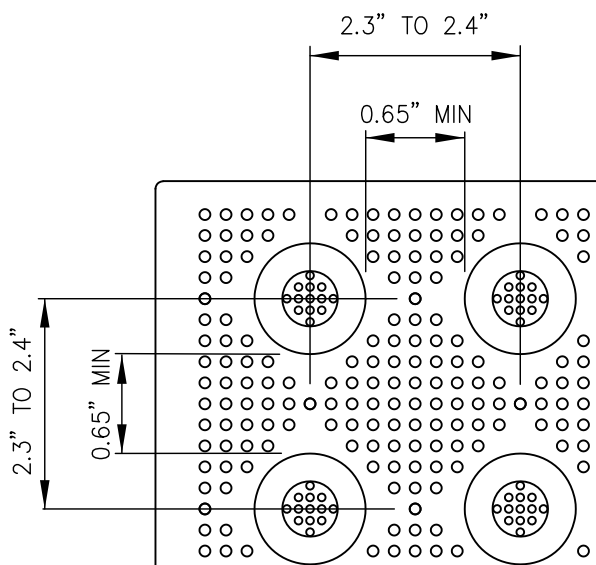
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		R. MUNOZ	05/97				
UPDATED		K.EQUIPADO	03/22	CURB RAMP - TYPE C (FOR EXISTING SIDEWALK)		 03/24/2022 Chairperson R.C.E. 52241 Date	
						DRAWING NUMBER G-29	



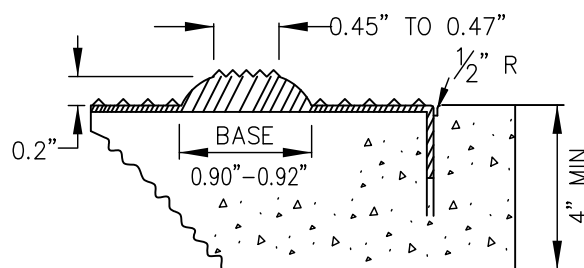
PLAN — TILE
NOT TO SCALE

NOTES

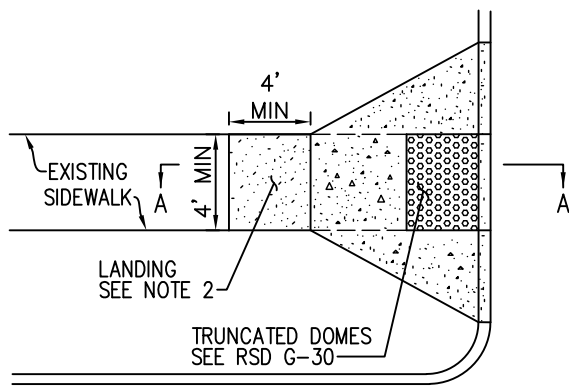
1. DETECTABLE WARNING SURFACE COLOR SHALL BE YELLOW AND APPROXIMATE 33538 OF SAE AMSSTD-595A OR AS SPECIFIED BY THE AGENCY. COLOR SHALL BE HOMOGENEOUS THROUGHOUT THE TILE.



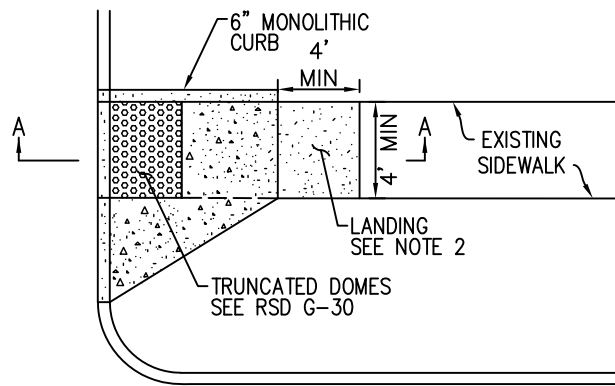
DETAIL 1
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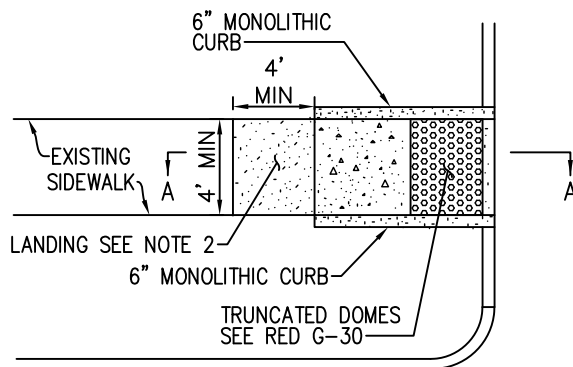
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		PARKINSON	02/95		
Updated		K.EQUIPADO	03/22	TRUNCATED DOMES	<i>Samson Engeda</i> 03/24/2022
					Chairperson R.C.E. 52241 Date
					DRAWING NUMBER G-30



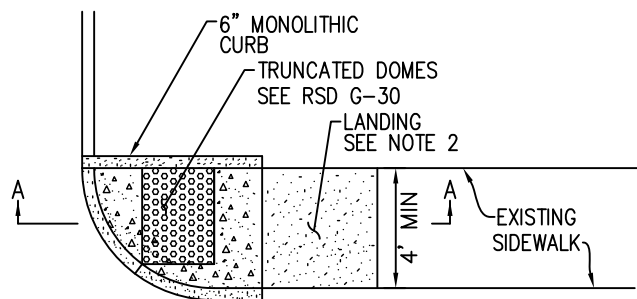
D-1



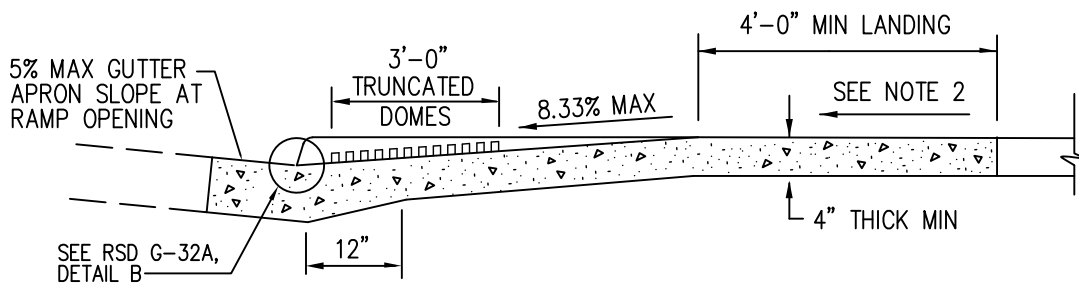
D-2



D-3



D-4

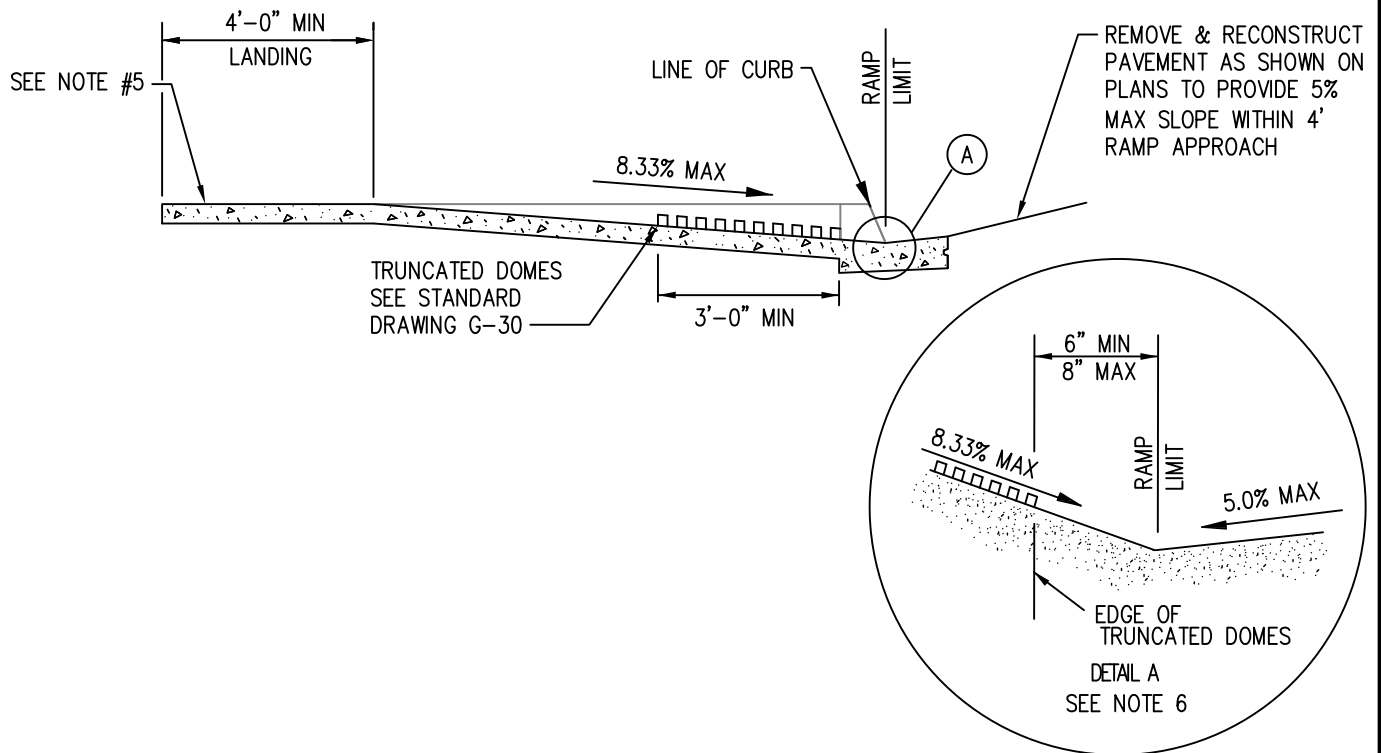


SECTION A-A

NOTES

1. SEE STANDARD DRAWING G-32A FOR GENERAL NOTES.
2. IF THE ONLY CONNECTING SIDEWALK RUNS PARALLEL TO THE RAMP RUN, LANDING MAX SLOPE IS 5%.
IF THERE'S A CONNECTING PERPENDICULAR SIDEWALK, LANDING MAX SLOPE IS 2% ALL AROUND.
3. FLARES MUST HAVE 10% MAX SLOPE OR 15' MAX LENGTH.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		PARKINSON	02/95				
UPDATE		K.EQUIPADO	12/22	CURB RAMP - TYPE D		 03/24/2022 Chairperson R.C.E. 52241 Date	
						DRAWING NUMBER G-31	



ADA COMPLIANCE NOTES

1. THE REGIONAL STANDARD DRAWING 2022 COMPLIES TO THE CALIFORNIA BUILDING CODE 2022 CHAPTER 11B ACCESSIBILITY TO PUBLIC BUILDINGS, PUBLIC ACCOMMODATIONS, COMMERCIAL BUILDINGS AND PUBLIC HOUSING.
2. AN AGENCY CAN FILE A PETITION OR APPEAL THROUGH DGS IF THEY PLAN TO DEVIATE FROM THE CBC.
TO FILE A PETITION: [HTTPS://WWW.DOCUMENTS.DGS.CA.GOV/DGS/FMC/GS/BSC30.PDF](https://www.documents.dgs.ca.gov/DGS/FMC/GS/BSC30.PDF)
TO FILE AN APPEAL: [HTTPS://WWW.DOCUMENTS.DGS.CA.GOV/DGS/FMC/GS/BSC33.PDF](https://www.documents.dgs.ca.gov/DGS/FMC/GS/BSC33.PDF)

NOTES

1. THE REMOVAL OF EXISTING CONCRETE CURB, GUTTER, SIDEWALK, AND PAVEMENT FOR PEDESTRIAN RAMP INSTALLATION SHALL COMPLY WITH STANDARD DRAWING G-11. FOR CONSTRUCTION OF CURB RAMPS ON EXISTING SIDEWALKS, REMOVAL OF ADDITIONAL SIDEWALK MAY BE REQUIRED TO COMPLY WITH ADA REQUIREMENTS TO MEET EXISTING GRADE.
2. CONCRETE SHALL BE CLASS 520-C-2500.
3. AREAS SHOWN THUS: SHALL HAVE A MEDIUM TO HEAVY BROOM TEXTURE FINISH, PERPENDICULAR TO THE AXIS OF THE RAMP. AREAS SHOWN THUS: ARE THE MINIMUM REQUIRED FOR A COMPLETE RAMP INSTALLATION.
4. IF OBSTRUCTIONS SUCH AS INLETS, UTILITY POLES, FIRE HYDRANTS, ETC., ARE ENCOUNTERED, THE RAMP LOCATIONS MAY BE ADJUSTED UPON THE APPROVAL OF THE AGENCY.
5. LANDING CROSS SLOPE SHALL BE 2.0% MAX IN BOTH DIRECTIONS.
6. EDGE OF TRUNCATED DOME PANEL SHALL BE LOCATED 6" MINIMUM AND 8" MAXIMUM FROM THE GUTTER FLOWLINE.

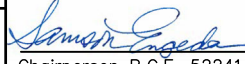
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		PARKINSON	02/95	GENERAL NOTES FOR CURB RAMPS	
UPDATE		K.EQUIPADO	03/22		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
				 03/24/2022 Chairperson R.C.E. 52241 Date	
				DRAWING NUMBER G-32A	

TABLE A			
	Y	Z	CT
CURB HEIGHT	RAMP LENGTH (12:1)	SIDE SLOPE (10:1)	CURB TRANS.
1"	1'-0"	1'-6"	0'-0"
2"	2'-0"	1'-8"	0'-0"
3"	3'-0"	2'-6"	0'-0"
4"	4'-0"	3'-4"	0'-0"
5"	5'-0"	4'-2"	0'-0"
6"	6'-0"	5'-0"	0'-0"
7"	7'-0"	5'-10"	0'-0"
8"	8'-0"	6'-8"	2'-0"

TYPE A AND B CURB RAMPS

TABLE B			
X	Y	Z	Z1
CURB HEIGHT	RAMP LENGTH (12:1)	SIDE SLOPE (10:1)	SIDE SLOPE (12:1)
1"	1'-0"	1'-6"	1'-0"
2"	2'-0"	1'-8"	2'-0"
3"	3'-0"	2'-6"	3'-0"
4"	4'-0"	3'-4"	4'-0"
5"	5'-0"	4'-2"	5'-0"
6"	6'-0"	5'-0"	6'-0"
7"	7'-0"	5'-10"	7'-0"
8"	8'-0"	6'-8"	8'-0"

TYPE A-1 AND B-1 CURB RAMPS

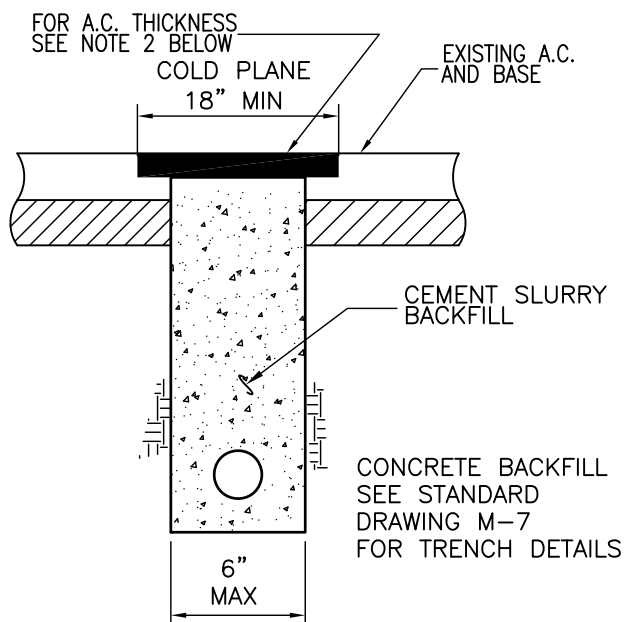
TABLE C	
X	CT
CURB HEIGHT	CURB TRANS. (12:1)
4"	4'-0"
5"	5'-0"
6"	6'-0"
7"	7'-0"
8"	8'-0"
9"	9'-0"
10"	10'-0"
11"	11'-0"
12"	12'-0"
13"	13'-0"

TYPE C CURB RAMP

NOTE

1. DIMENSIONS X, Y, Z, Z1, AND CT MAY BE DETERMINED BY USING THE TABLES ON THIS SHEET WITH PRIOR AGENCY APPROVAL. WITHOUT AGENCY APPROVAL, DIMENSIONS SHOULD NOT EXCEED THE MAXIMUM SLOPE OR RATIO PROVIDED.
2. Z* REFERS TO Z OR Z1 IN TABLE B. Z SIDE SLOPE SHALL BE 10:1, EXCEPT PER NOTE 3.
3. FOR TYPE A-1 AND B-1 CURB RAMPS, WHERE A 4' LANDING CANNOT BE CONSTRUCTED DUE TO INADEQUATE RIGHT OF WAY, A 3' MINIMUM LANDING IS ACCEPTABLE WITH PRIOR AGENCY APPROVAL AND PROVIDED THE SIDE SLOPES ARE REVISED TO 12:1 PER SIDE SLOPE Z1 IN TABLE B.

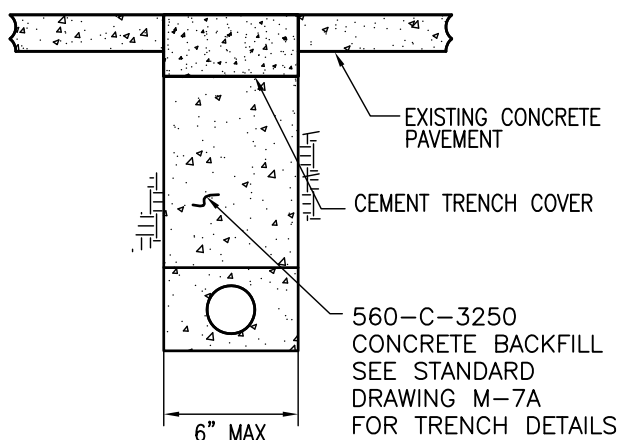
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL	MR	MR/CV	03/12		
DELETED	KE	K.EQUIPADO	03/22	NOTES FOR CURB RAMPS	Chairperson R.C.E. 52241 Date 03/24/2022
					DRAWING NUMBER
					G-32B



TYPE B

NOTES

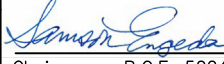
1. A TACK COAT SHALL BE APPLIED TO THE CEMENT SLURRY BACKFILL AND EXISTING ASPHALT PAVEMENT PRIOR TO PLACING THE NEW ASPHALT SURFACE.
2. ASPHALTIC CONCRETE RESURFACING:
 - A. ALLOW CEMENT SLURRY BACKFILL SEVEN DAYS MINIMUM TO CURE BEFORE COLD PLANING.
 - B. THICKNESS OF ASPHALTIC CONCRETE SHALL BE A MINIMUM OF 2" OR AS SPECIFIED BY THE AGENCY'S ENGINEER.
 - C. A.C. SHALL BE HOT MIX.
3. A.C. SHALL BE SEALED OR CHIP SEALED WHEN REQUIRED BY THE AGENCY'S ENGINEER.

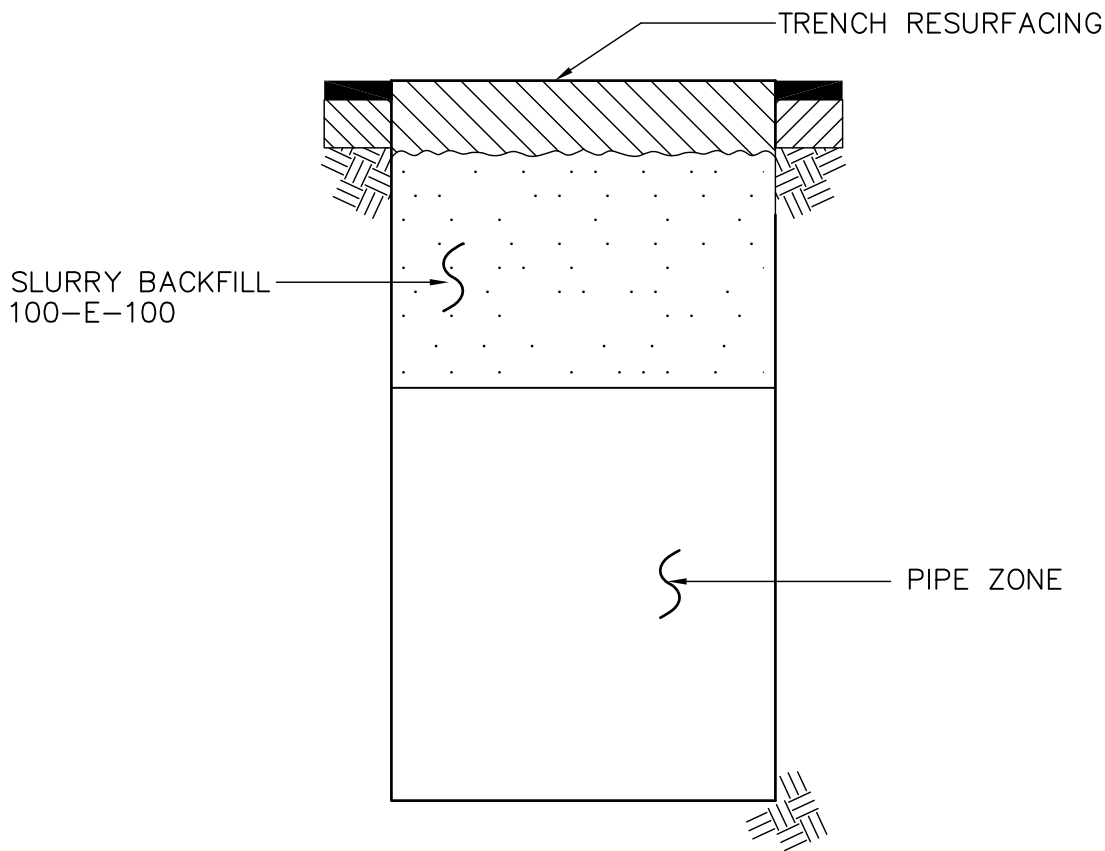


TYPE C

NOTES

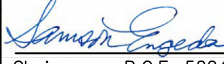
1. CONCRETE SHALL BE SCREEDED OFF TO MATCH EXISTING PAVEMENT GRADE AND FLOATED TO ASSURE PROPER EDGE MATCH.
2. CONCRETE TRENCH COVER SHALL BE A MINIMUM OF 5-1/2" THICK IN ALLEY OR LOCAL RESIDENTIAL STREETS AND 7" THICK IN OTHER STREETS.
3. EXISTING CONCRETE PAVEMENT WILL REQUIRE SAWCUTTING WHEN USING ROCKWHEEL FOR EXCAVATION.
4. IN MAJOR OR PRIME ARTERIAL STREETS, AN APPROVED SET ACCELERATING ADMIXTURE, SUCH AS CALCIUM CHLORIDE, MAY BE USED ONLY WITH PRIOR APPROVAL OF THE AGENCY'S ENGINEER.

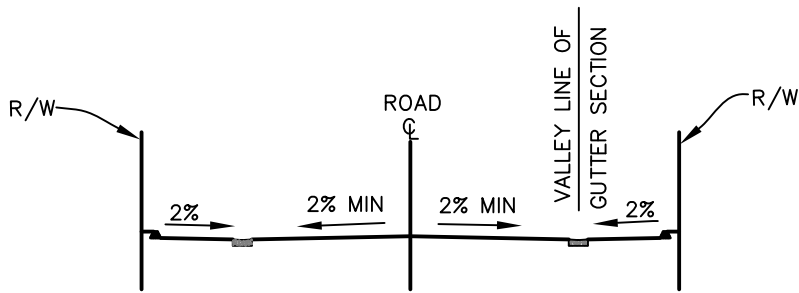
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL	HH	T. STANTON	11/02	NARROW TRENCHES TRENCHING & BACKFILLING		 03/24/2022 Chairperson R.C.E. 52241 Date
REVIEWED	CV	CV	12/15			
Reviewed	KE	T. Stanton	12/18			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER G-33



NOTES

1. TRENCH RESURFACING SHALL BE DONE ACCORDING TO AGENCY'S REQUIREMENTS.
2. THE SAND USED FOR THE SLURRY BACKFILL SHALL MEET THE REQUIREMENTS (SUBSECTION 400-3.2) LISTED IN THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION. SLURRY SHALL CURE FOR SEVEN DAYS PRIOR TO TRENCH RESURFACING.
3. SLURRY BACKFILL SHALL NOT BE USED WHERE IT WILL IMPEDE SUBSURFACE DRAINAGE.

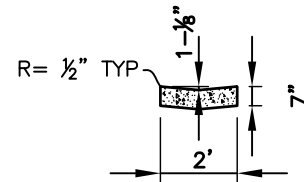
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		PARKINSON	09/88	SLURRY BACKFILL	
UPDATED	CV	CV	12/15		
Reviewed	KE	T. Stanton	11/18		
Reviewed	RP	S. Engeda	03/22		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  03/24/2022 Chairperson R.C.E. 52241 Date	
				DRAWING NUMBER G-36	



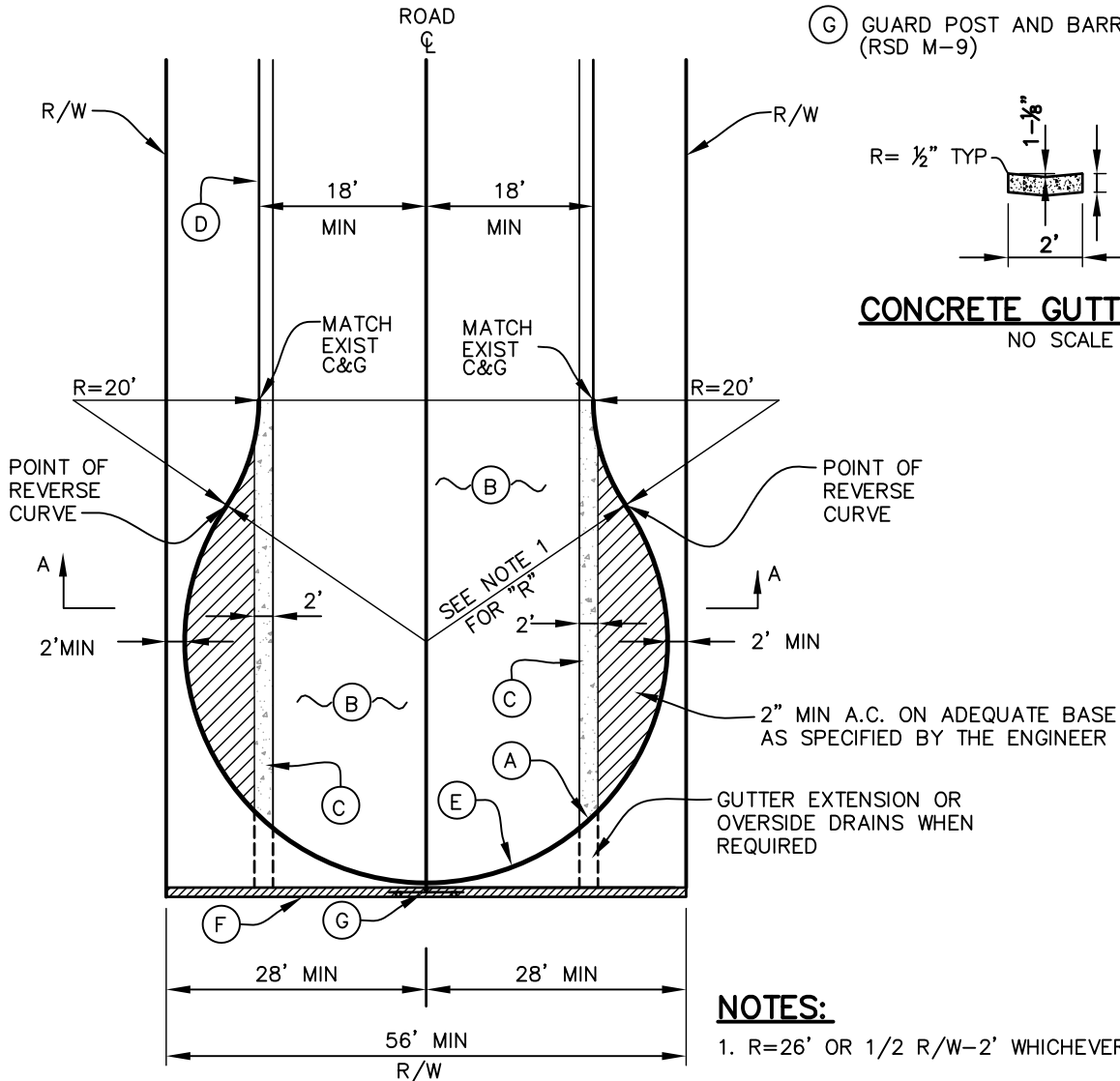
SECTION A-A
NO SCALE

LEGEND

- (A) PROVIDE DIKE OPENING FOR DRAINAGE WHEN REQUIRED.
- (B) PERMANENT STREET SURFACING.
- (C) CONCRETE GUTTER (SEE DETAIL).
- (D) TYPE G C&G (RSD G-2).
- (E) TYPE B DIKE (RSD G-5).
- (F) END OF TEMPORARY IMPROVEMENTS.
- (G) GUARD POST AND BARRICADE (RSD M-9)



CONCRETE GUTTER DETAIL
NO SCALE

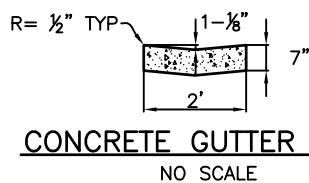
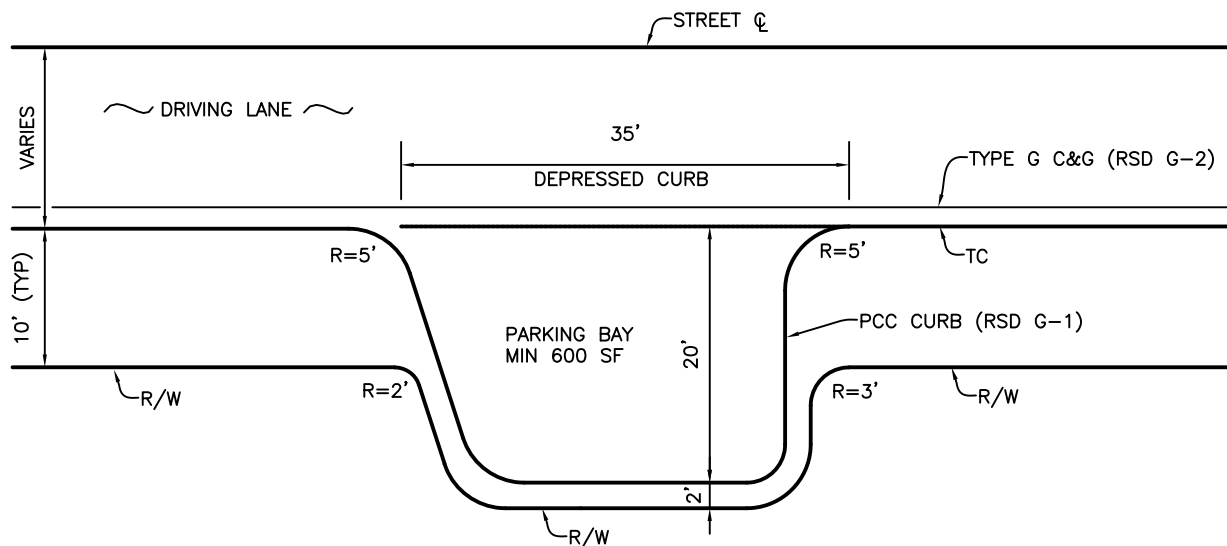


TEMPORARY TURNAROUND
NO SCALE

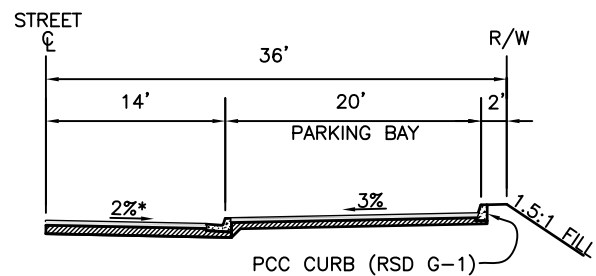
NOTES:

1. R=26' OR 1/2 R/W-2' WHICHEVER IS GREATER.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
NEW	MR	MR/CV	09/11	TEMPORARY TURNAROUND AT DEAD END STREET		<i>Samson Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date	DRAWING NUMBER G-37
REVIEWED	CV	CV	12/15				
Reviewed	KE	T. Stanton	12/18				
Reviewed	RP	S. Engeda	03/22				



PLAN
NO SCALE



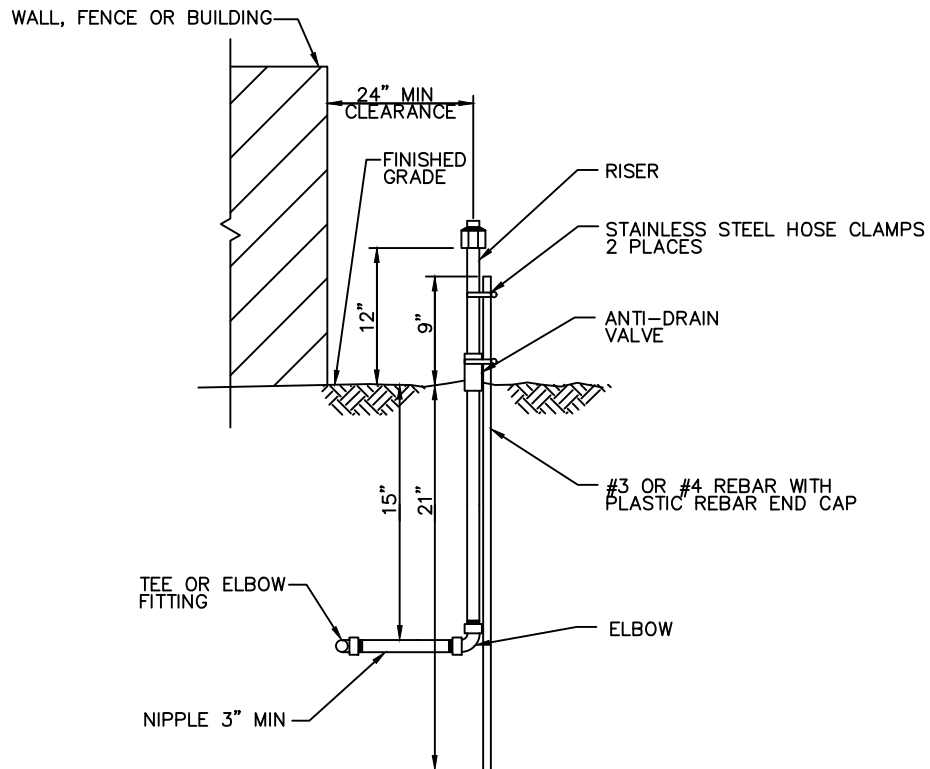
* MAX 3% CROSSFALL/SUPERELEVATION

NOTES:

1. CURB AND GUTTER (C&G) SHALL CONFORM TO SAN DIEGO AREA REGIONAL STANDARD DRAWINGS (RSD)
2. CONCRETE GUTTER SHALL BE POURED NON-CONTIGUOUS TO PROVIDE EXPANSION JOINTS.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
NEW	AT	MR/CV	09/11		
REVIEWED	CV	CV	12/15	PARKING BAY	 03/24/2022
Reviewed	KE	T. Stanton	12/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER
					G-38

SPRINKLER IRRIGATION SYSTEMS



NOTES:

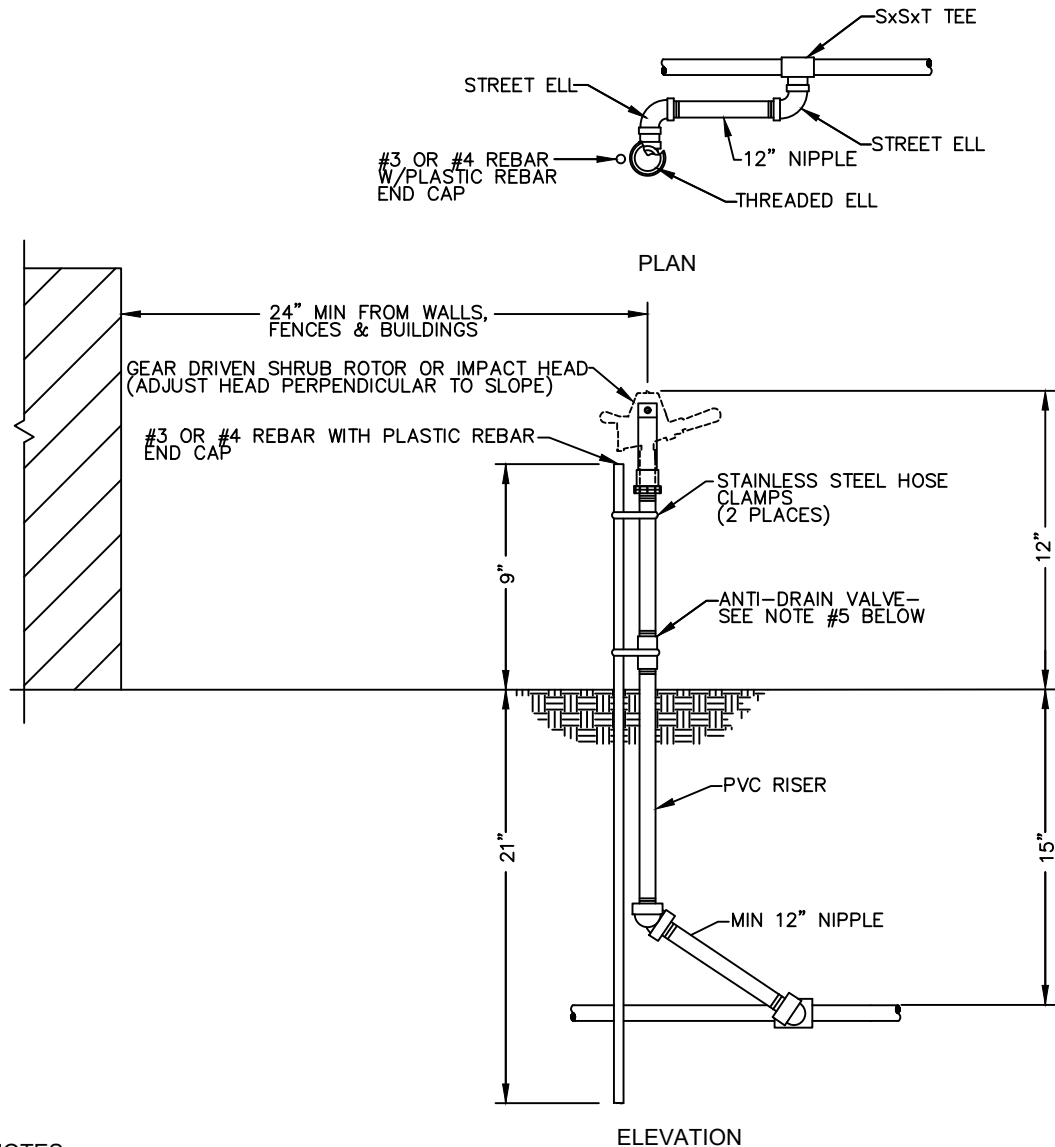
1. FITTINGS SHALL BE PVC SCH 40.
2. NIPPLES AND RISERS SHALL BE PVC SCH 80.
3. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.
4. CLOSE NIPPLES SHALL NOT BE USED.
5. NO FIXED RISERS IN RIGHT-OF-WAY OR WITHIN 10' OF VEHICULAR OR PEDESTRIAN TRAFFIC.
6. ANTI-DRAIN VALVES SHALL BE INSTALLED UNDER ALL HEADS.

LEGEND ON PLANS

SHOW A NUMBER TO INDICATE TYPE HEAD



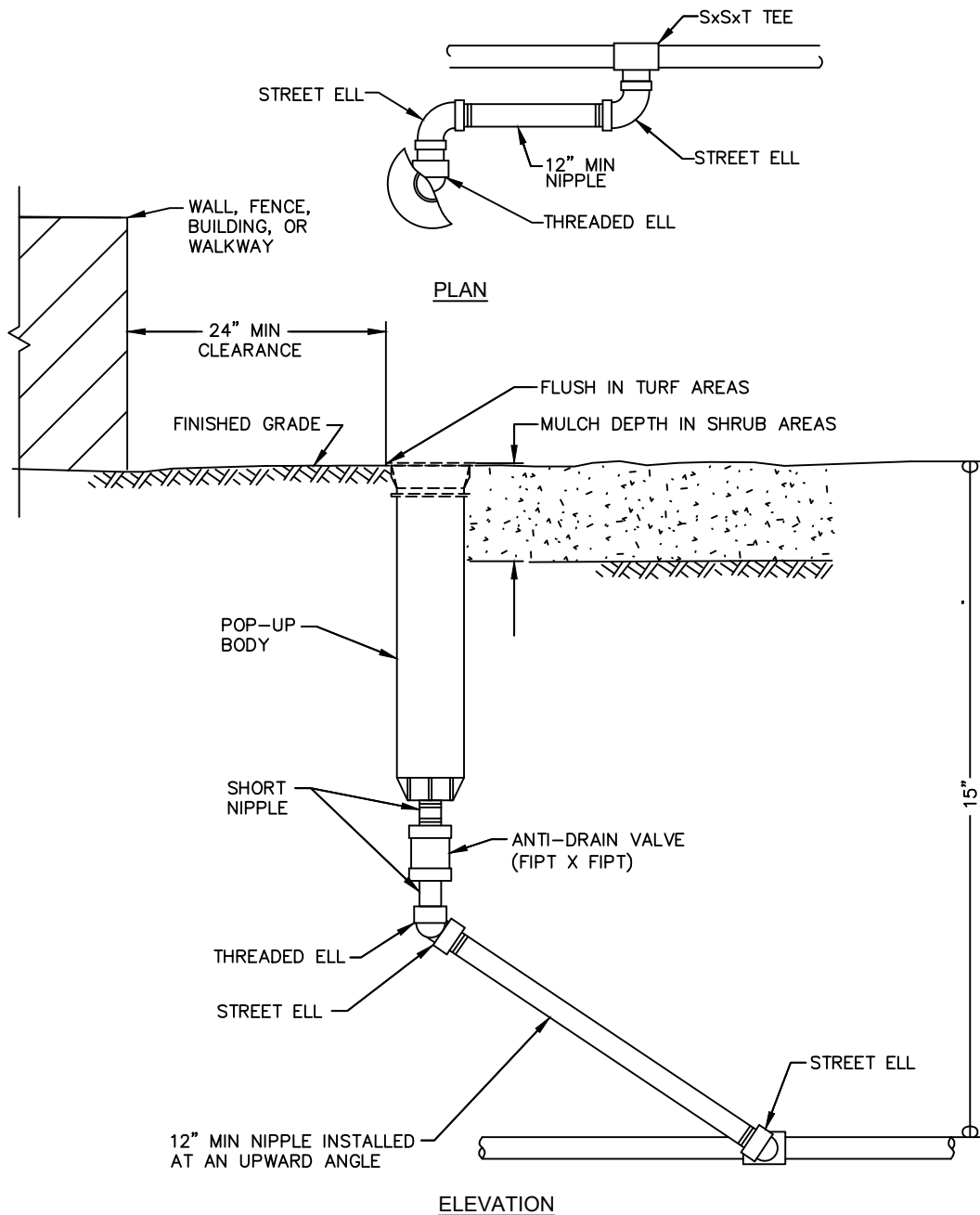
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Reviewed	EW	T. Stanton	10/18	SHRUB SPRAY HEAD ON FIXED RISER	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER I-01



NOTES:

1. FITTINGS SHALL BE PVC SCH 40.
2. NIPPLES AND RISERS SHALL BE PVC SCH 80.
3. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.
4. CLOSE NIPPLES SHALL NOT BE USED.
5. ANTI-DRAIN VALVES SHALL BE INSTALLED UNDER OR IN ALL HEADS.
6. NO FIXED RISERS ALLOWED IN RIGHT-OF-WAY OR WITHIN 10' OF VEHICULAR OR PEDESTRIAN TRAFFIC.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Parkinson	05/92	ROTOR OR IMPACT HEAD ON FIXED RISER		
Reviewed	EW	T. Stanton	10/18			
Reviewed	RP	S. Engeda	03/22			
						Chairperson R.C.E. 52241 Date
						DRAWING NUMBER I-02



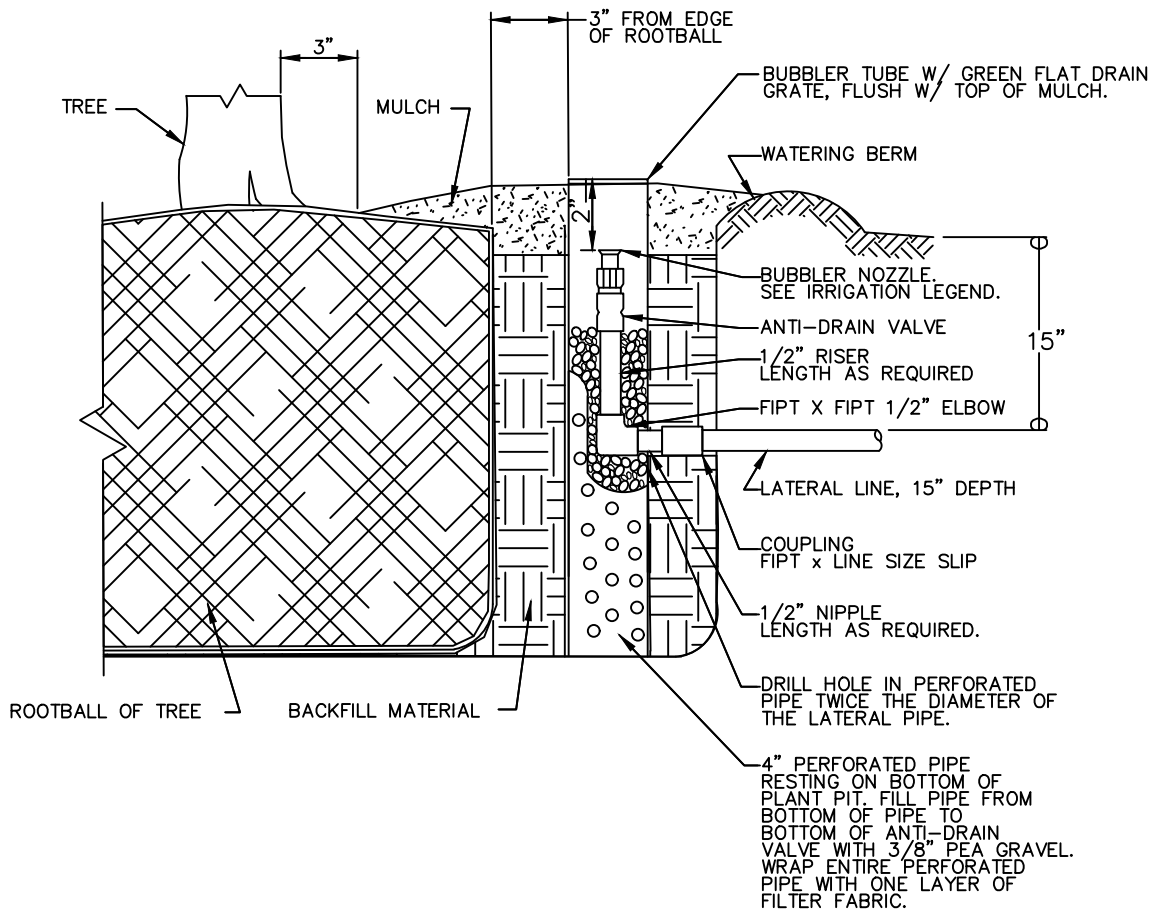
NOTES:

1. FITTINGS SHALL BE PVC SCH 40.
2. NIPPLES AND RISERS SHALL BE PVC SCH 80.
3. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.
4. CLOSE NIPPLES SHALL NOT BE USED.
5. ANTI-DRAIN VALVES SHALL BE INSTALLED UNDER OR IN ALL HEADS.
6. LATERAL DEPTH SHALL BE 18" WHEN 12" POP-UP BODIES ARE USED.

LEGEND ON PLANS

SHOW A NUMBER TO INDICATE TYPE HEAD

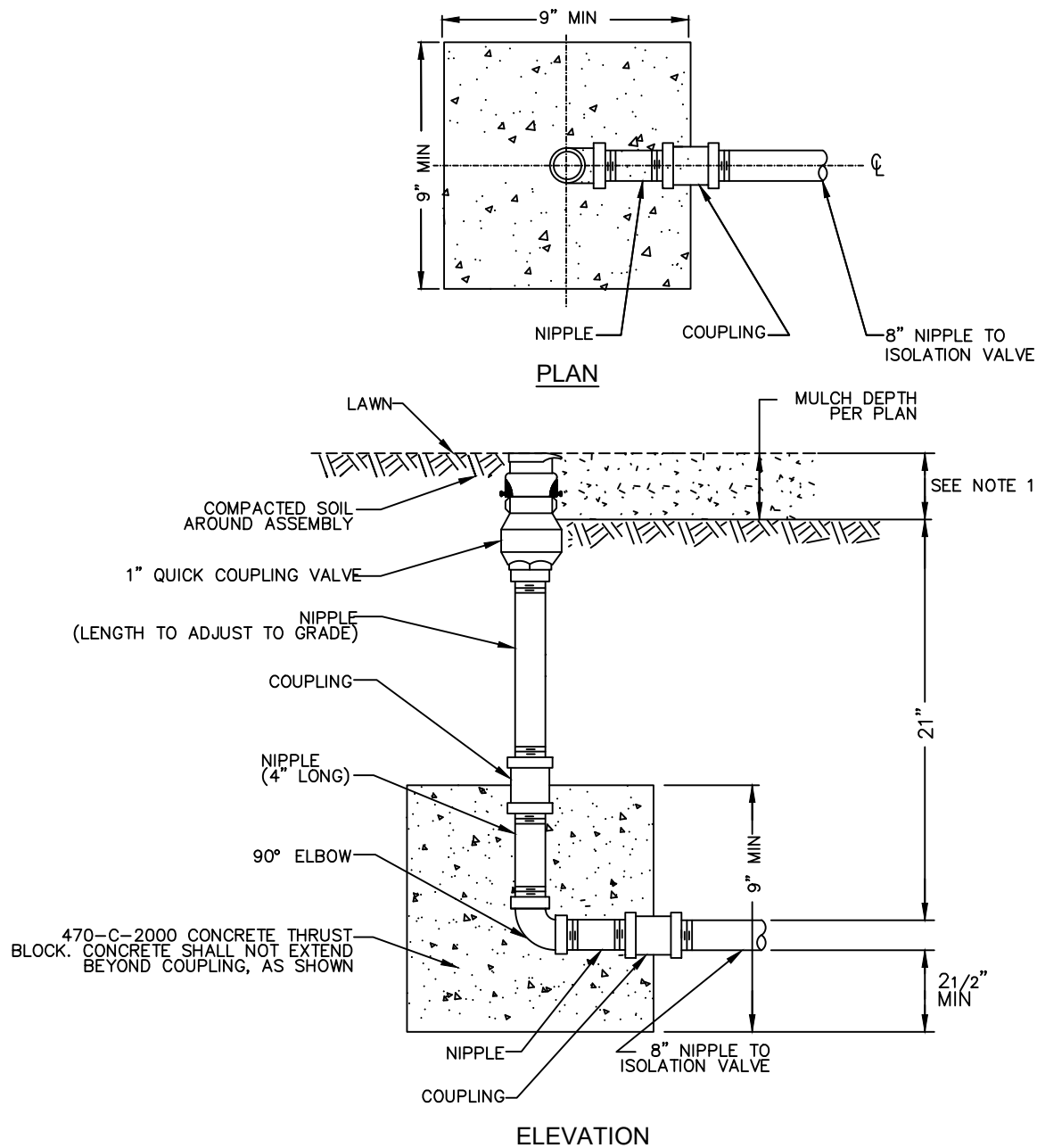
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Reviewed	EW	T. Stanton	10/18	ROTOR, SPRAY, OR BUBBLER POP-UP HEAD	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER I-03



NOTES:

1. FOR BUBBLER LOCATION, REFER TO TREE PLANTING AND STAKING DRAWING.
2. EACH TREE SHALL HAVE A 2" POP-UP HEAD WITH BUBBLER NOZZLE PER 1-3 AND A FIXED BUBBLER NOZZLE IN A PERFORATED PIPE.
3. NIPPLES AND RISERS SHALL BE PVC SCH 80.
4. FITTINGS SHALL BE PVC SCH 40.
5. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.
6. CLOSE NIPPLES SHALL NOT BE USED.
7. ANTI-DRAIN VALVES SHALL BE INSTALLED UNDER ALL HEADS.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		M. CARO	02/05		
Reviewed	EW	T. Stanton	10/18	DEEP ROOT TREE BUBBLER	 03/24/2022 Chairperson R.C.E. 52241 Date DRAWING NUMBER I-04
Reviewed	RP	S. Engeda	03/22		



NOTES:

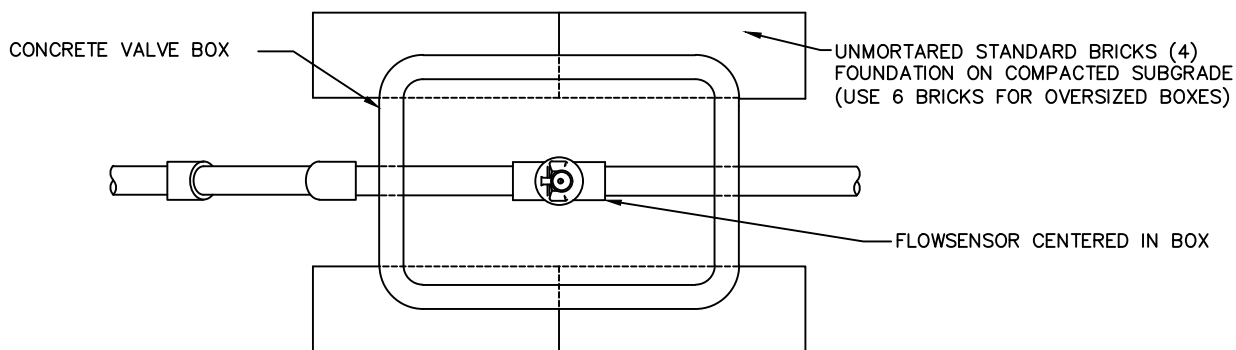
1. QUICK COUPLING VALVES SHALL BE SET FLUSH IN LAWN AND PER MULCH DEPTH ABOVE FINISH GRADE IN SHRUB / GROUNDCOVER AREAS.
2. CLOSE NIPPLES SHALL NOT BE USED.
3. NIPPLES, COUPLINGS, AND ELBOWS SIZE SHALL BE 1" RED BRASS.
4. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.
5. UPON PROJECT ACCEPTANCE, THE CONTRACTOR SHALL PROVIDE TWO SETS OF APPROPRIATE QUICK COUPLER VALVE KEY WITH 1" BRASS BALL VALVE AND SWIVEL ADAPTER INCLUDED IN THE ASSEMBLY.
6. INSTALL VALVE BOX PER AGENCY STANDARDS.

LEGEND ON PLANS

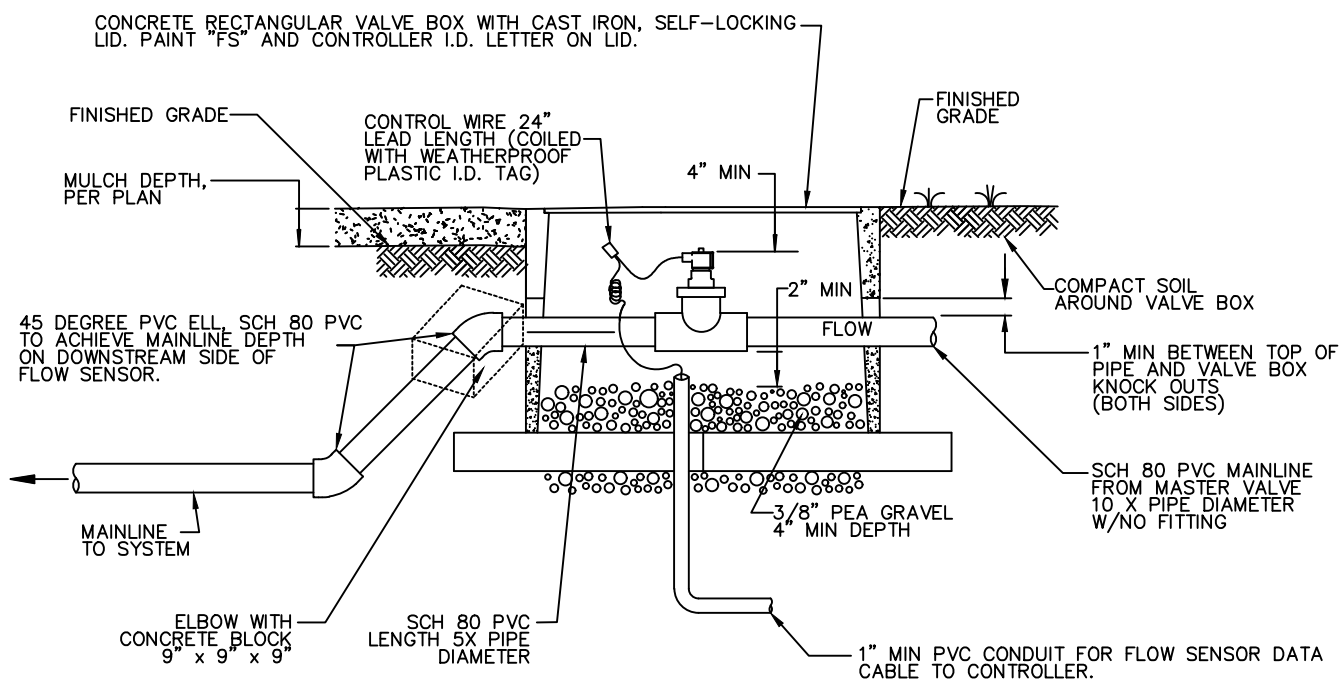
QCV



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	QUICK COUPLING VALVE		<i>Samantha Engeda</i> 03/24/2022
Reviewed	KA	N. Batta	10/15			Chairperson R.C.E. 52241 Date
Reviewed	EW	T. Stanton	10/18			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER I-05



PLAN



ELEVATION

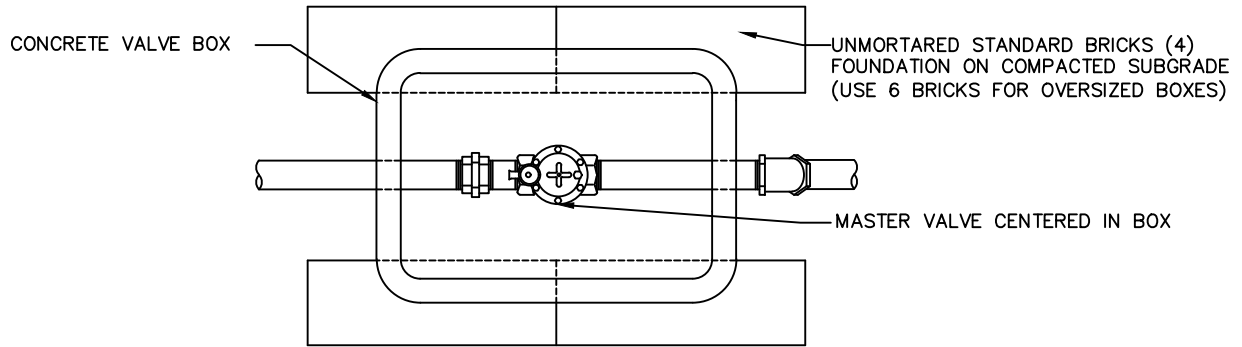
NOTES:

1. SPLICES SHALL BE SOLDERED WITH A PROPERLY SET MECHANICAL SPLICE CONNECTOR, ENTIRELY ENCLOSED IN SELF-CURING RESIN AND SHALL BE COMPLETELY WATER-PROOF.
2. SEAL CONDUIT OPENINGS WITH ELECTRICAL SEALANT.
3. KNOCK OUTS SHALL NOT BE ENLARGED.
4. INSTALL ONLY ONE FLOW SENSOR PER BOX.
5. VALVE BOXES SHALL BE SET PERPENDICULAR TO HARDSCAPE PER MULCH DEPTH IN SHRUB / GROUND COVER AREAS. IF NECESSARY TO BE SET IN TURF, VALVE BOXES SHALL BE SET FLUSH WITH FINISHED GRADE.

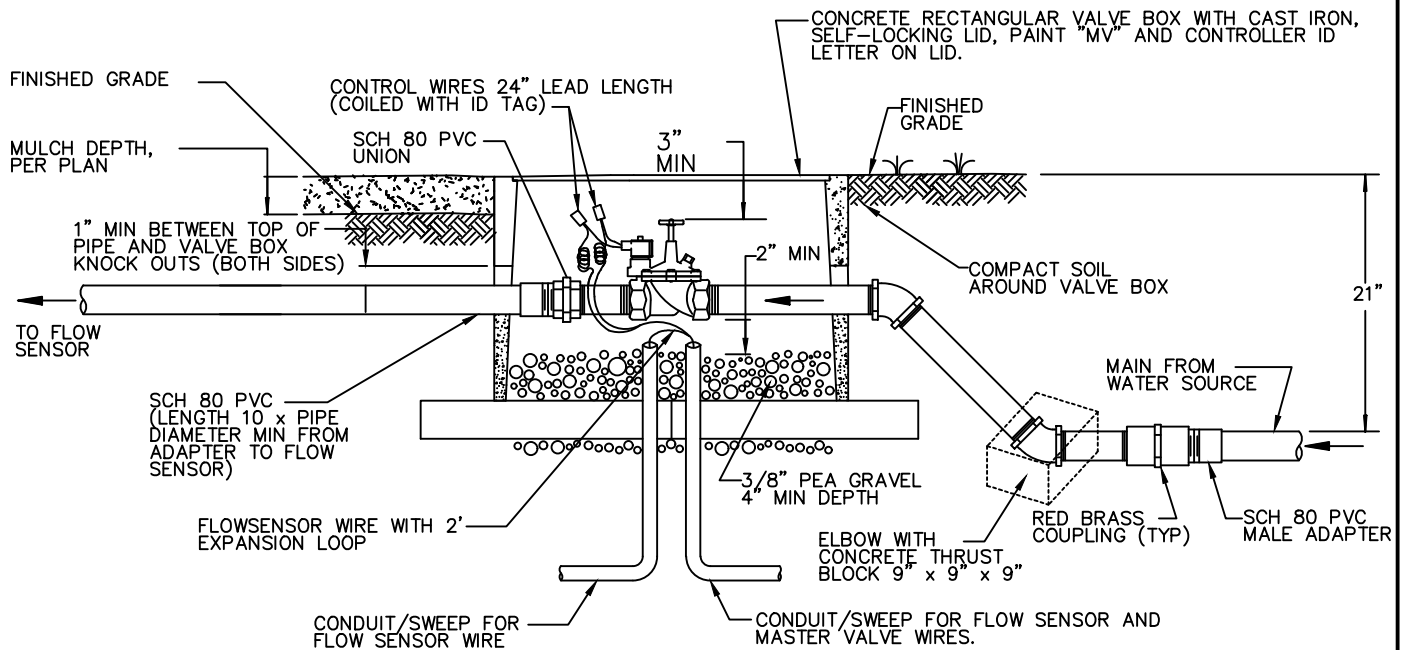
LEGEND ON PLANS

(F) FS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL	KA	N. Batta	11/11	FLOW SENSOR		
Reviewed	KA	N. Batta	10/15			
Reviewed	EW	T. Stanton	10/18			
Reviewed	RP	S. Engeda	03/22			
						Chairperson R.C.E. 52241 Date
						DRAWING NUMBER I-09



PLAN



ELEVATION

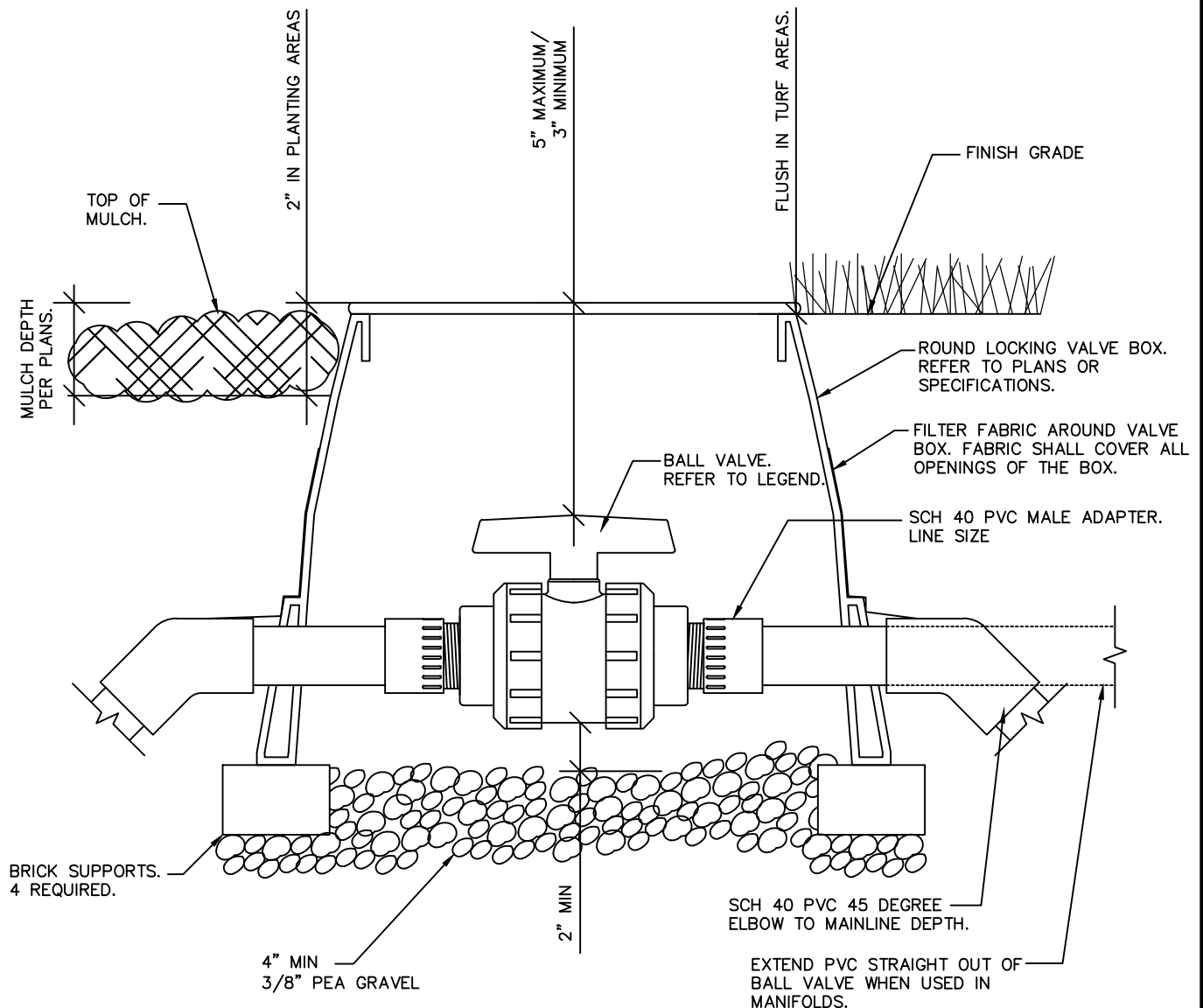
NOTES:

1. SPlicing SHALL BE MADE IN VALVE BOXES AND PULL BOXES ONLY. SEE STANDARD DRAWING SDI-115 FOR SPLICE / SOLDERING NOTES.
2. SPlices SHALL BE SOLDERED WITH A PROPERLY SET MECHANICAL SPLICE CONNECTOR, ENTIRELY ENCLOSED IN SELF-CURING RESIN AND SHALL BE COMPLETELY WATER-PROOF.
3. SEAL CONDUIT OPENINGS WITH ELECTRICAL CONDUIT SEALANT AS APPROVED BY THE AGENCY.
4. PVC CONDUIT SHALL BE 1" MINIMUM.
5. VALVE / CONTROLLER IDENTIFICATION SHALL BE LABELED OUTSIDE ON THE VALVE BOX LID AND TAGGED INSIDE THE BOX ON THE VALVE.
6. KNOCK OUTS SHALL NOT BE ENLARGED.
7. INSTALL ONLY ONE VALVE PER BOX.
8. VALVE BOXES SHALL BE SET PERPENDICULAR TO HARDSCAPE, ABOVE FINISHED GRADE IN SHRUB / GROUND COVER AREAS, PER MULCH DEPTH. IF NECESSARY TO BE SET IN TURF, VALVE BOXES SHALL BE SET FLUSH WITH FINISHED GRADE.
9. CLOSE NIPPLES SHALL NOT BE USED.
10. NIPPLES, ELBOWS, AND FITTINGS SHALL BE THREADED RED BRASS, FROM COUPLING THROUGH THE MASTER VALVE. PIPE AND FITTINGS DOWNSTREAM SHALL BE SCH 80 PVC.
11. TEFLON TAPE SHALL BE USED ON THREADED CONNECTOR.

LEGEND ON PLANS

▼ MV

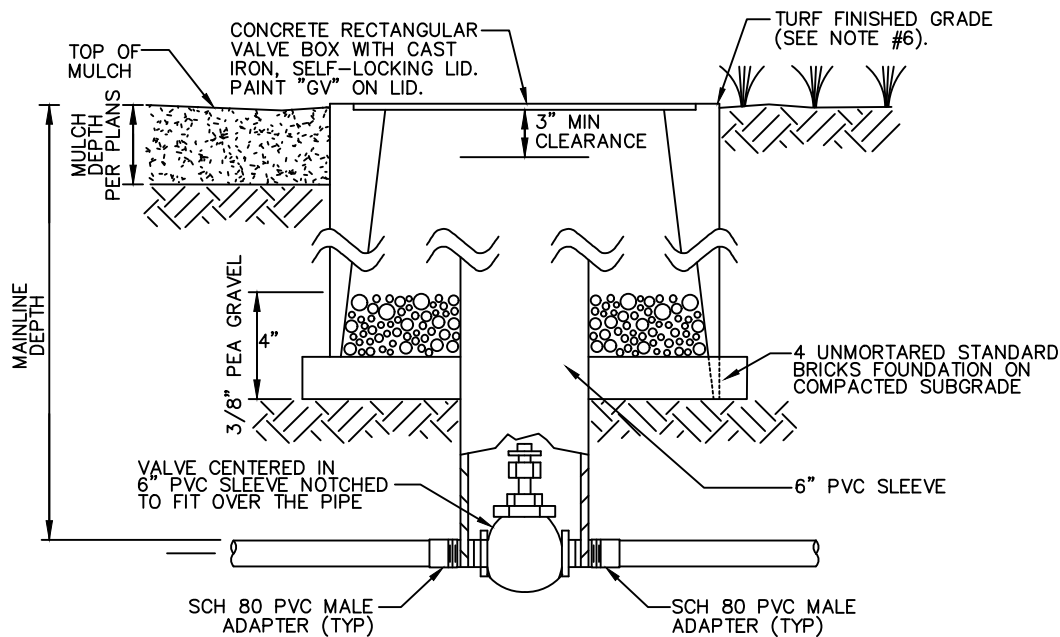
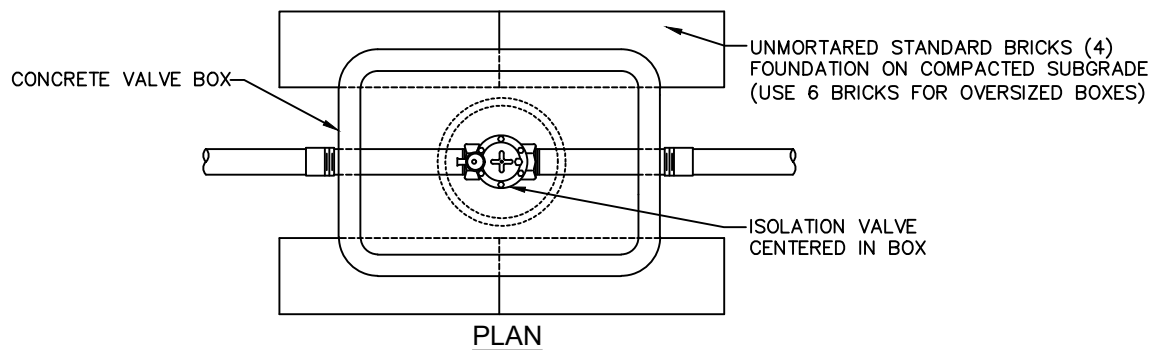
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	IRRIGATION MASTER VALVE		
Reviewed	KA	N. Batta	10/15			<i>Samson Engeda</i> 03/24/2022
Reviewed	EW	T. Stanton	10/18			Chairperson R.C.E. 52241 Date
Reviewed	RP	S., Engeda	03/22			DRAWING NUMBER I-10



NOTES:

1. TEFLON TAPE, 3/4" WIDE, SHALL BE USED ON ALL THREADED CONNECTIONS
2. CLOSE NIPPLES SHALL NOT BE USED.
3. ALL PVC PIPE USED IN MANIFOLD ASSEMBLIES SHALL BE OF THE SAME CLASS AS SPECIFIED FOR THE MAINLINE.
4. ALL PLASTIC VALVE BOXES SHALL BE HEAT BRANDED WITH THE APPROPRIATE IDENTIFICATION. REFER TO PLANS AND SPECIFICATIONS.
5. DO NOT CUT ADDITIONAL HOLES IN VALVES BOXES.
6. ADD SINGLE UNIONS ON EACH SIDE OF VALVE WHEN TRUE UNION BALL VALVES ARE NOT USED.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	ISOLATION BALL VALVE 2" AND SMALLER		
Reviewed	KA	N. Batta	10/15			
Reviewed	EW	T. Stanton	10/18			
Reviewed	RP	S. Engeda	03/22			
						Chairperson R.C.E. 52241 Date
						DRAWING NUMBER I-11



NOTES:

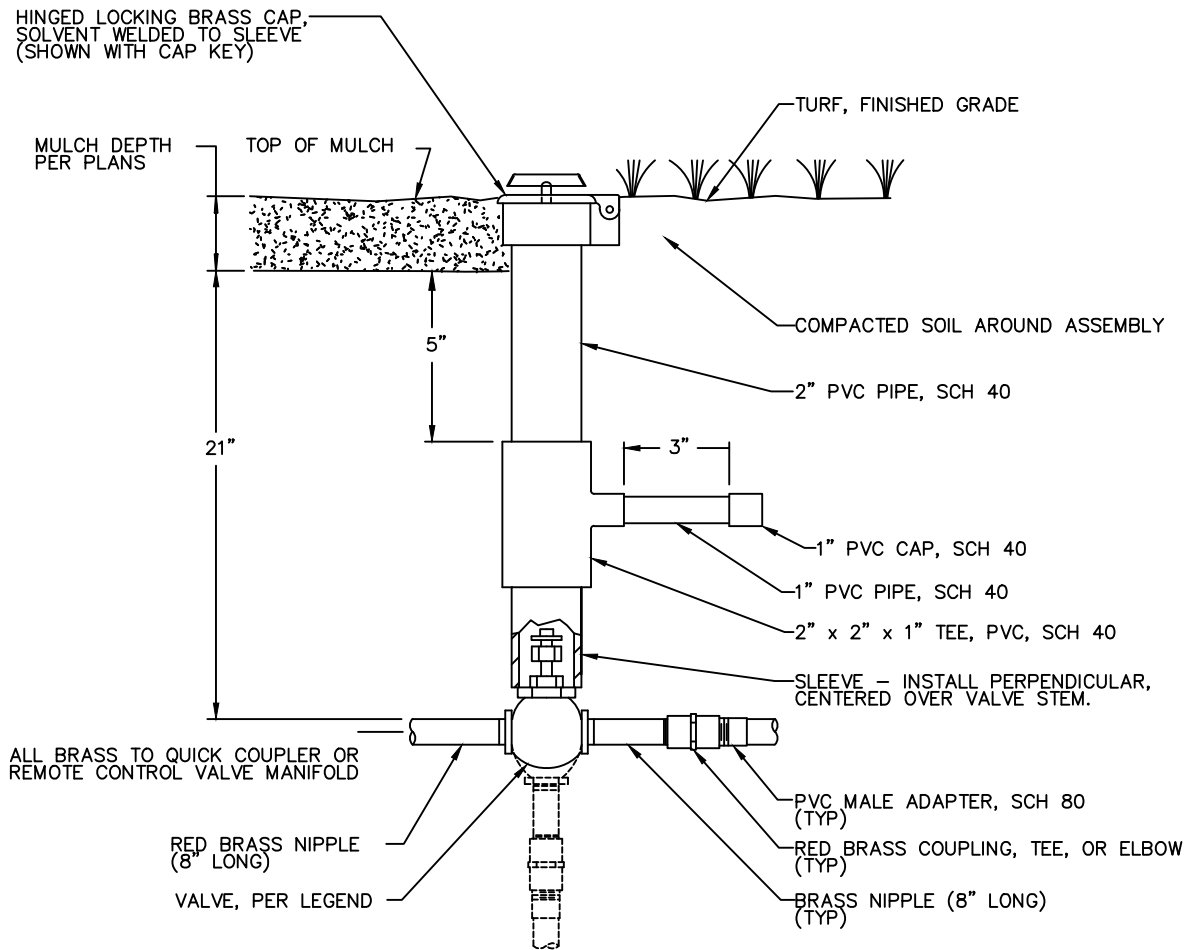
1. GLOBE VALVES SHALL BE FURNISHED WITH A STANDARD BRONZE CROSS HANDLE, CENTERED IN PIPE SLEEVE.
2. VALVE SHALL BE INSTALLED WITHIN 12" OF HARDSCAPE.
3. GLOBE VALVES SHALL BE FURNISHED WITH A REMOVABLE BONNET AND PACKING GLAND NUT.
4. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.
5. VALVE BOX SHALL BE MOUNTED FLUSH WITH FINISH GRADE IN TURF AREAS AND PER MULCH DEPTH IN SHRUB AREAS.
6. LOCATE OUTSIDE OF TURF WHEN POSSIBLE.
7. GATE VALVE SHALL BE USED ONLY ON LOOPED MAINLINE.
8. VALVE BOX SHALL BE SET PERPENDICULAR TO HARDSCAPE.
9. PROVIDE TWO VALVE KEYS TO OPERATE VALVE AT DEPTH.

LEGEND ON PLANS



GATE VALVE GLOBE VALVE

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL	KA	N. Batta	11/11	ISOLATION GLOBE/GATE VALVE 2 1/2" AND LARGER		 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	KA	N. Batta	10/15			
Reviewed	EW	T. Stanton	10/18			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER I-12



NOTES:

1. GLOBE VALVES SHALL BE FURNISHED WITH A STANDARD BRONZE CROSS HANDLE, CENTERED IN PIPE SLEEVE.
2. VALVES SHALL BE INSTALLED WITHIN 12" OF HARDSCAPE.
3. GLOBE VALVES SHALL BE FURNISHED WITH A REMOVABLE BONNET AND PACKING GLAND NUT.
4. CLOSE NIPPLES SHALL NOT BE USED.
5. LOCKING CAP SHALL BE MOUNTED FLUSH WITH FINISHED GRADE IN TURF AREAS AND ABOVE FINISHED GRADE IN SHRUB AREAS, PER DEPTH OF MULCH.
6. PROVIDE APPROPRIATE LOCKING CAP KEY AND VALVE KEY TO OPERATE VALVE AT DEPTH.
7. LOCATE OUTSIDE OF TURF WHEN POSSIBLE.
8. TEFLON TAPE SHALL BE USED ON ALL THREADED CONNECTIONS.
9. WHEN INSTALLED AS MAINLINE ISOLATION VALVE, NIPPLES AND FITTINGS MAY BE SCH 80 PVC.
10. INSTALL VALE BOX PER AGENCY STANDARDS.

LEGEND



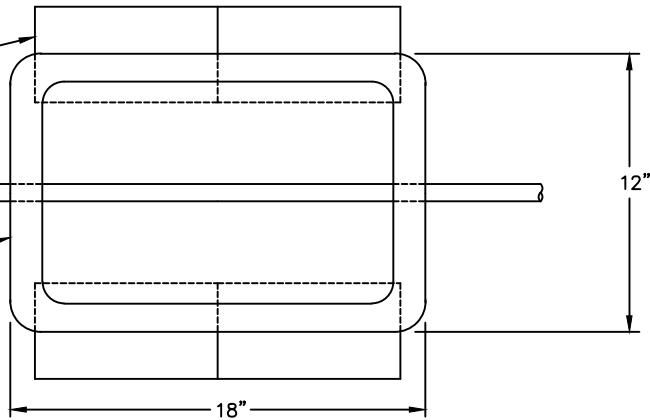
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Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	ISOLATION BALL VALVE 2" AND SMALLER		
Reviewed	KA	N. Batta	10/15			<i>Samson Engeda</i> 03/24/2022
Reviewed	EW	T. Stanton	10/18			Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER I-13

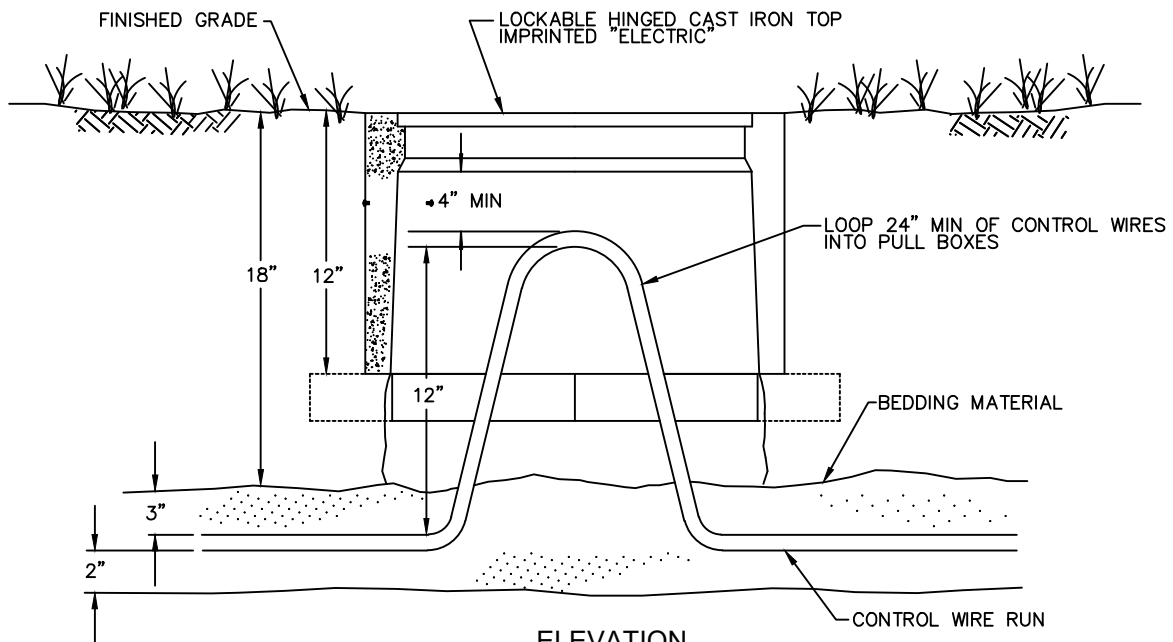
UNMORTARED STANDARD BRICKS (4)
FOUNDATION ON COMPACTED SUBGRADE
(USE 6 BRICKS FOR OVERSIZED BOXES)

CONDUIT WIRE RUN

CONCRETE PULL BOX



PLAN VIEW

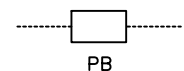


ELEVATION

NOTES:

1. INSTALL PULL BOXES AS SHOWN ON PLANS AND AT EACH END OF CONDUITS. SWEEPS RUNNING UNDER VEHICULAR PAVEMENT.
2. PULL BOX COVER SHALL BE PERMANENTLY MARKED "ELECTRIC".
3. CONDUCTORS FOR EACH CONTROLLER CLOCK SHALL BE HARNESSSED SEPARATELY AND AT SUFFICIENT INTERVALS TO MAINTAIN A DEFINITE BUNDLE.
4. SPLICES SHALL ONLY BE MADE IN PULL BOXES, WITH A PROPERLY SET MECHANICAL SPLICE CONNECTOR, SOLDERED WITH METALLIC ALLOY, ENTIRELY ENCLOSED IN SELF-CURING RESIN AND SHALL BE COMPLETELY WATER-PROOF.
5. SPARE WIRE ENDS SHALL BE INSULATED IN THE SAME MANNER AS WIRE SPLICES.
6. MINIMUM SIZE PULL BOX SHALL BE AS SHOWN ABOVE. LARGER BOXES MAY BE NECESSARY TO MEET 4" CLEARANCE REQUIRED.
7. NO SPLICES SHALL BE PERMITTED ON WIRE RUNS OF LESS THAN 300'.
8. THE LETTER "E" SHALL BE STAMPED OR CHISELED ON THE IMPROVEMENT (CURB-SIDEWALK) DIRECTLY ABOVE THE CONTROL WIRE.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Reviewed	KA	N. Batta	10/15
Reviewed	EW	T. Stanton	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

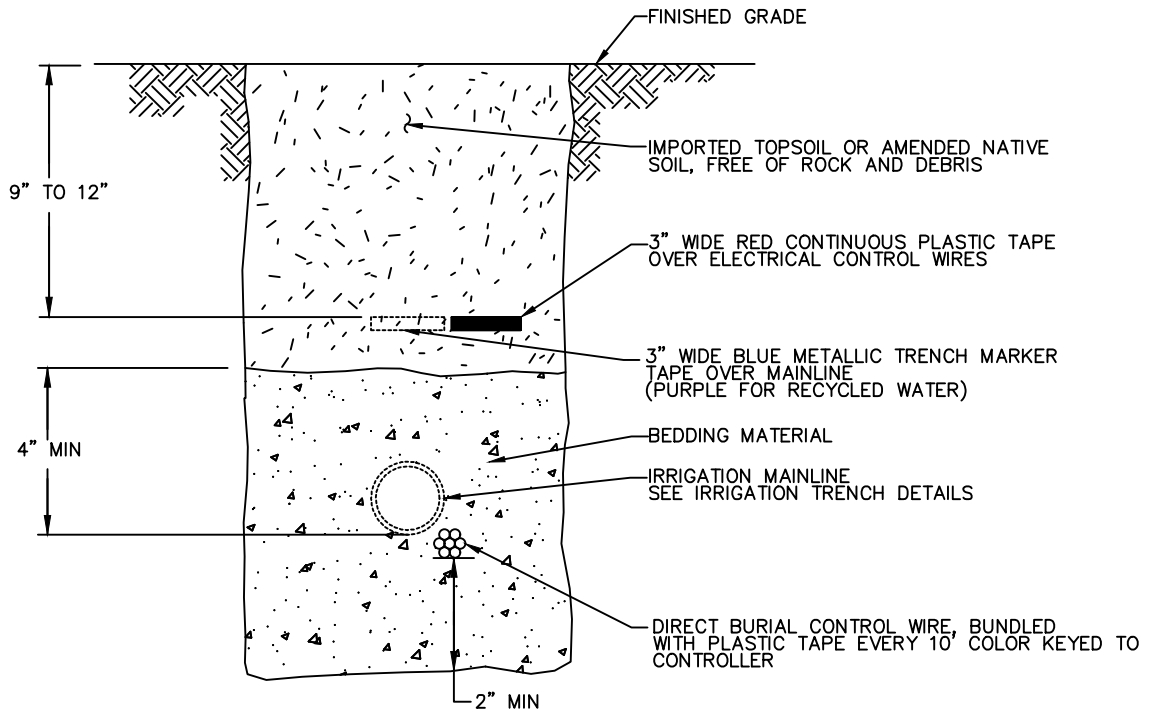
**ELECTRICAL PULL BOX
FOR DIRECT BURIAL CONTROL WIRES
AND SPLICING NOTES**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER

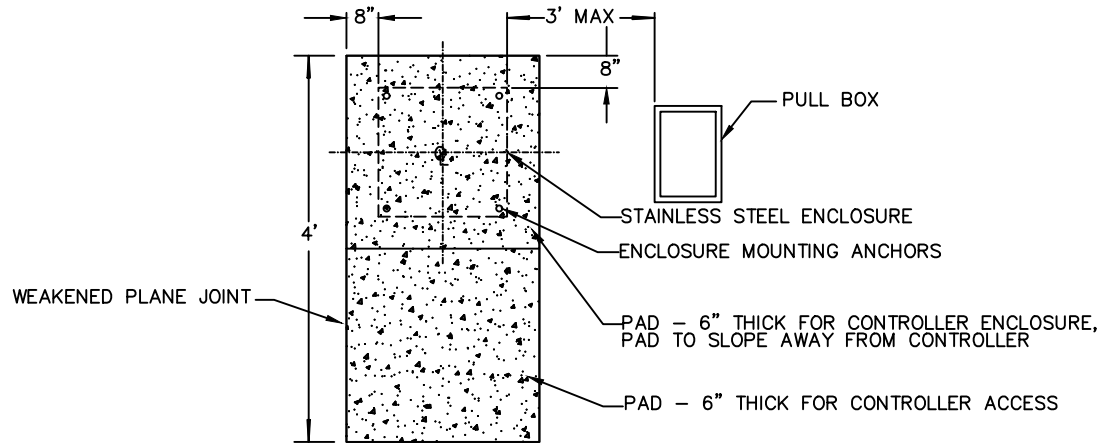
I-15



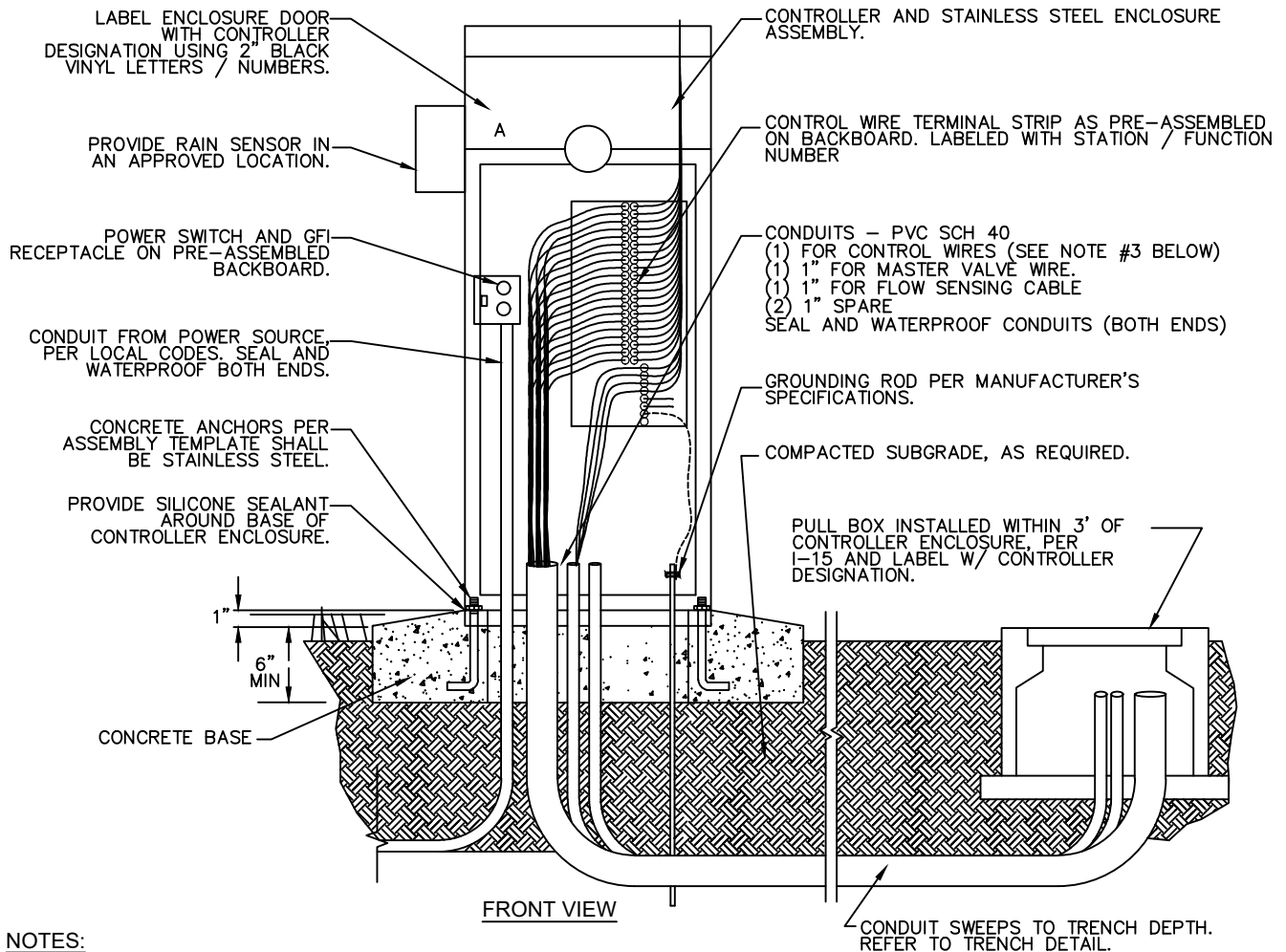
NOTES:

1. BEDDING MATERIAL SHALL BE SE 50 PLASTER OR MORTAR SAND.
2. WIRES WHICH RUN UNDER PAVED AREAS SHALL BE INSTALLED IN PVC CONDUIT TWICE THE DIAMETER OF THE WIRE BUNDLE (2" MINIMUM SIZE), EXTENDING 12" MINIMUM BEYOND EDGE OF PAVEMENT.
3. THE LETTER E SHALL BE STAMPED OR CHISELED ON THE IMPROVEMENT(CURB-SIDEWALK) DIRECTLY ABOVE THE CONTROL WIRE / CABLE.
4. WHEN CONTROL WIRING CANNOT BE INSTALLED IN A PIPE TRENCH, IT SHALL BE INSTALLED A MINIMUM 18" BELOW FINISH GRADE BUNDLED WITH PLASTIC TAPE.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	CONTROL WIRE INSTALLATION		
Reviewed	KA	N. Batta	10/15			<i>Samson Engeda</i> 03/24/2022
Reviewed	EW	T. Stanton	10/18			Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER I-16



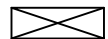
PLAN VIEW (FOR CONCRETE PAD)



NOTES:

1. ALL CONTROLLER ASSEMBLIES AND OPTIONS SHALL BE COMPLETELY PRE-ASSEMBLED IN A STAINLESS STEEL ENCLOSURE.
2. CONTROL WIRE CONDUIT SHALL BE TWICE THE DIAMETER OF THE WIRE BUNDLE, 2" MINIMUM.
3. PROVIDE SEPARATE CIRCUIT BREAKER FOR CONTROLLER(S) AT ELECTRICAL CONTROL PANEL AND LABEL.
4. SEAL CONDUIT OPENINGS WITH ELECTRICAL SEALANT, AS APPROVED BY THE AGENCY.

LEGEND ON PLANS



Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Reviewed	KA	N. Batta	10/15
Reviewed	EW	T. Stanton	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

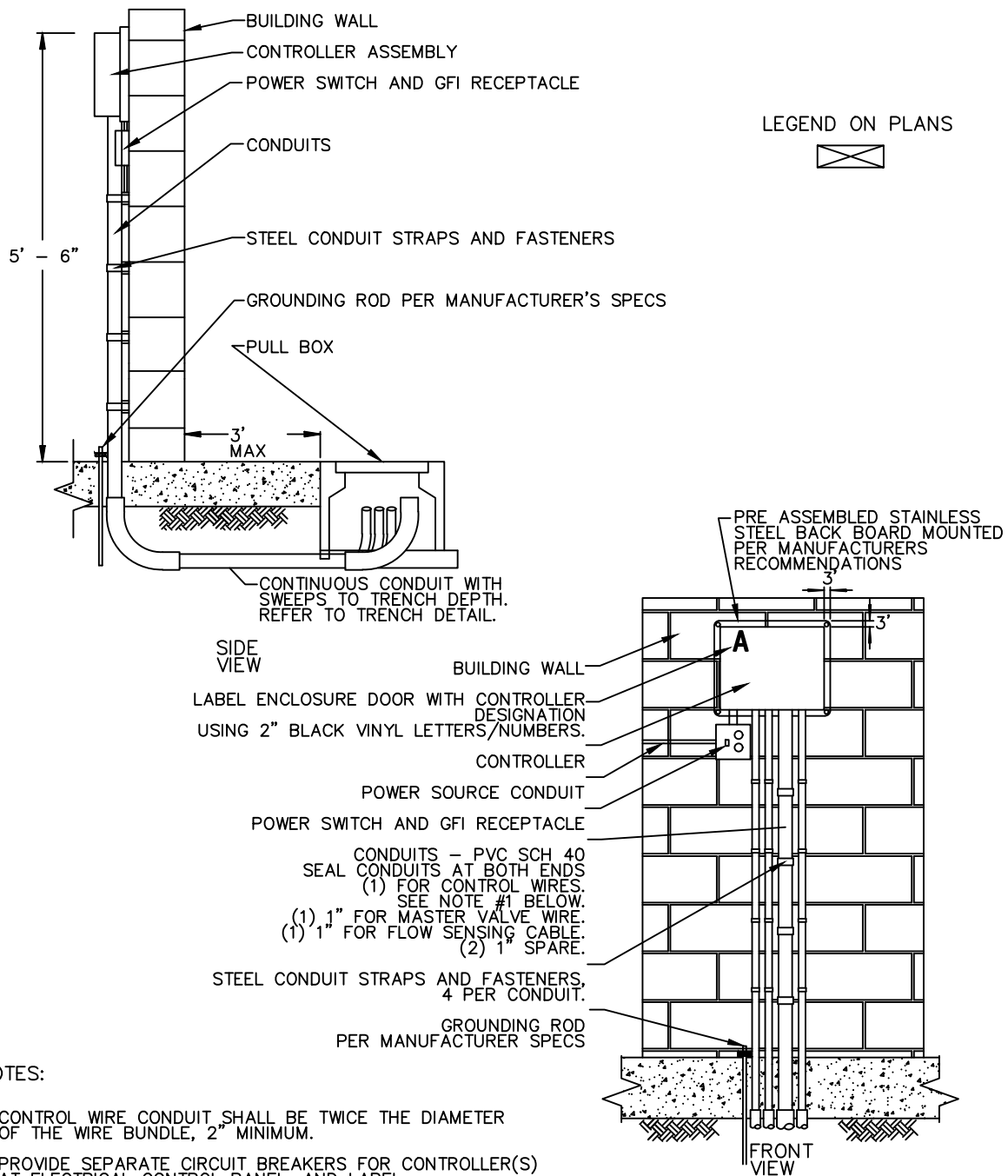
AUTOMATIC IRRIGATION CONTROLLER PEDESTAL MOUNTED

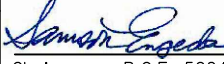
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

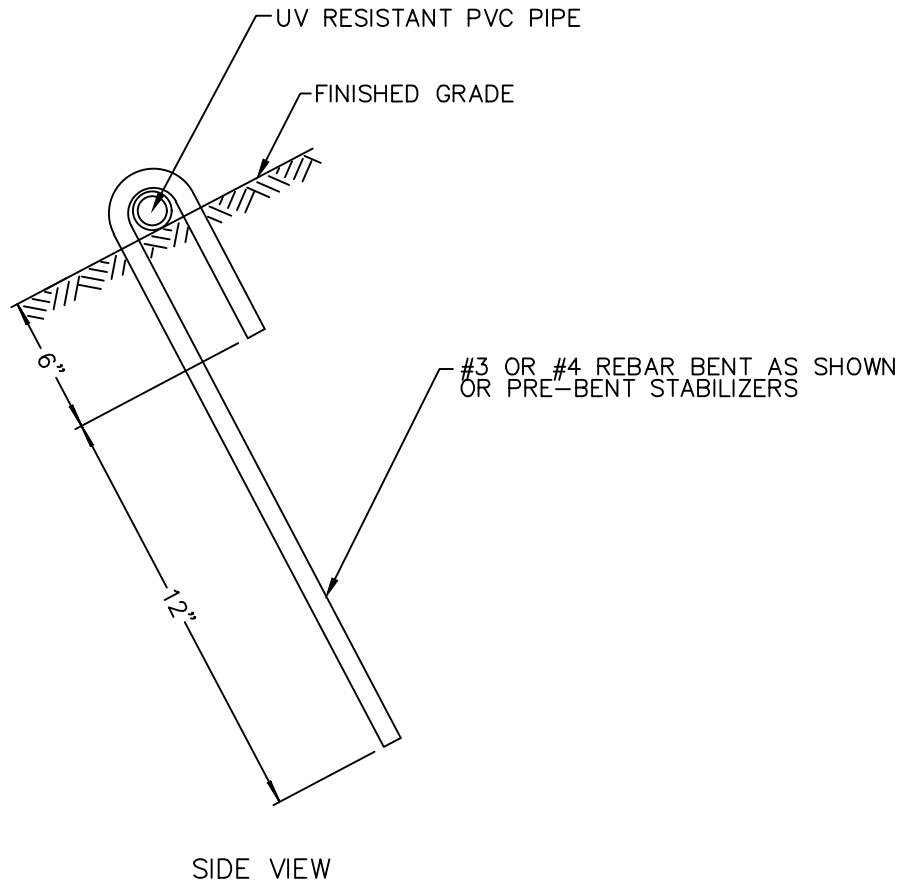
Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER

I-17



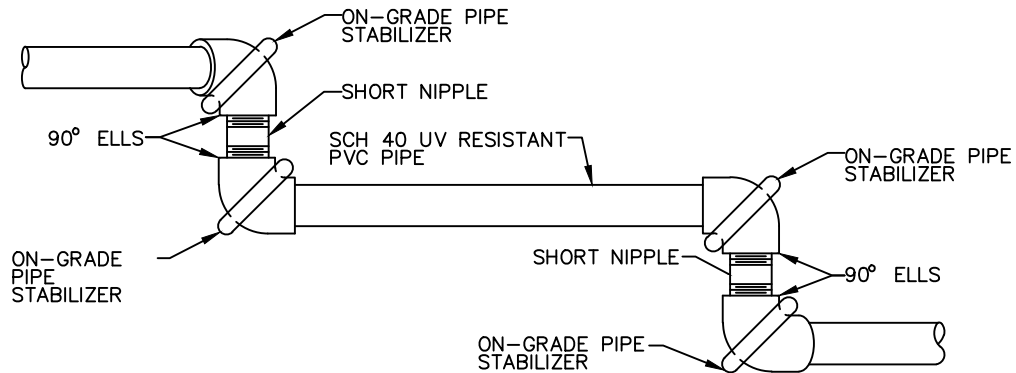
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Reviewed	KA	N. Batta	10/15	AUTOMATIC IRRIGATION CONTROLLER INDOOR WALL MOUNTED	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	EW	T. Stanton	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER I-18



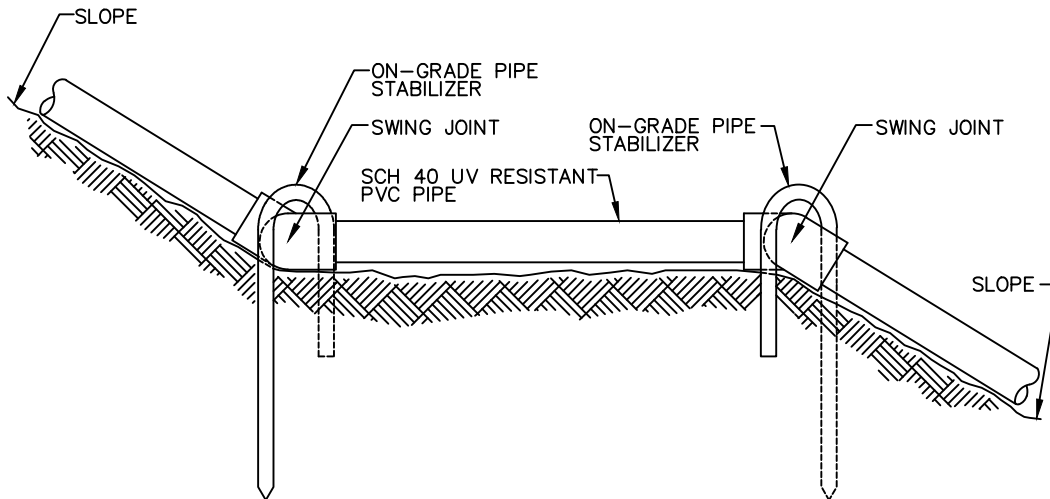
NOTE:

STABILIZERS SHALL BE PLACED NO GREATER THAN 10' APART,
AT EACH RISER AND AT ALL FITTINGS.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			
Reviewed	KA	N. Batta	10/15	ON-GRADE PIPE STABILIZATION TEMPORARY INSTALLATION	<i>Samson Engeda</i> 03/24/2022	
Reviewed	EW	T. Stanton	10/18		Chairperson R.C.E. 52241 Date	
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER I-20	



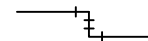
PLAN



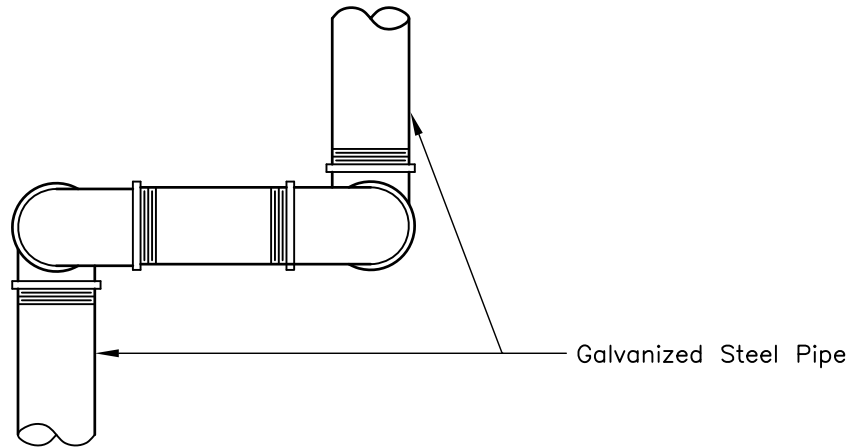
ELEVATION

NOTE:
SWING JOINTS SHALL BE USED AT EACH CHANGE OF GRADE.

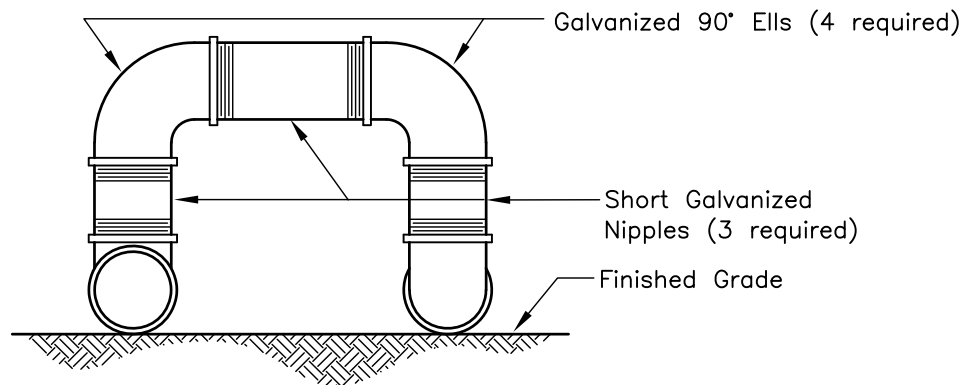
LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	SWING JOINT AND PIPE INSTALLATION ON SLOPES ABOVE GROUND		 03/24/2022 Chairperson R.C.E. 52241 Date	
Reviewed	KA	N. Batta	10/15				
Reviewed	EW	T. Stanton	10/18				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER I-23	



PLAN

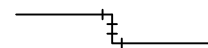


ELEVATION

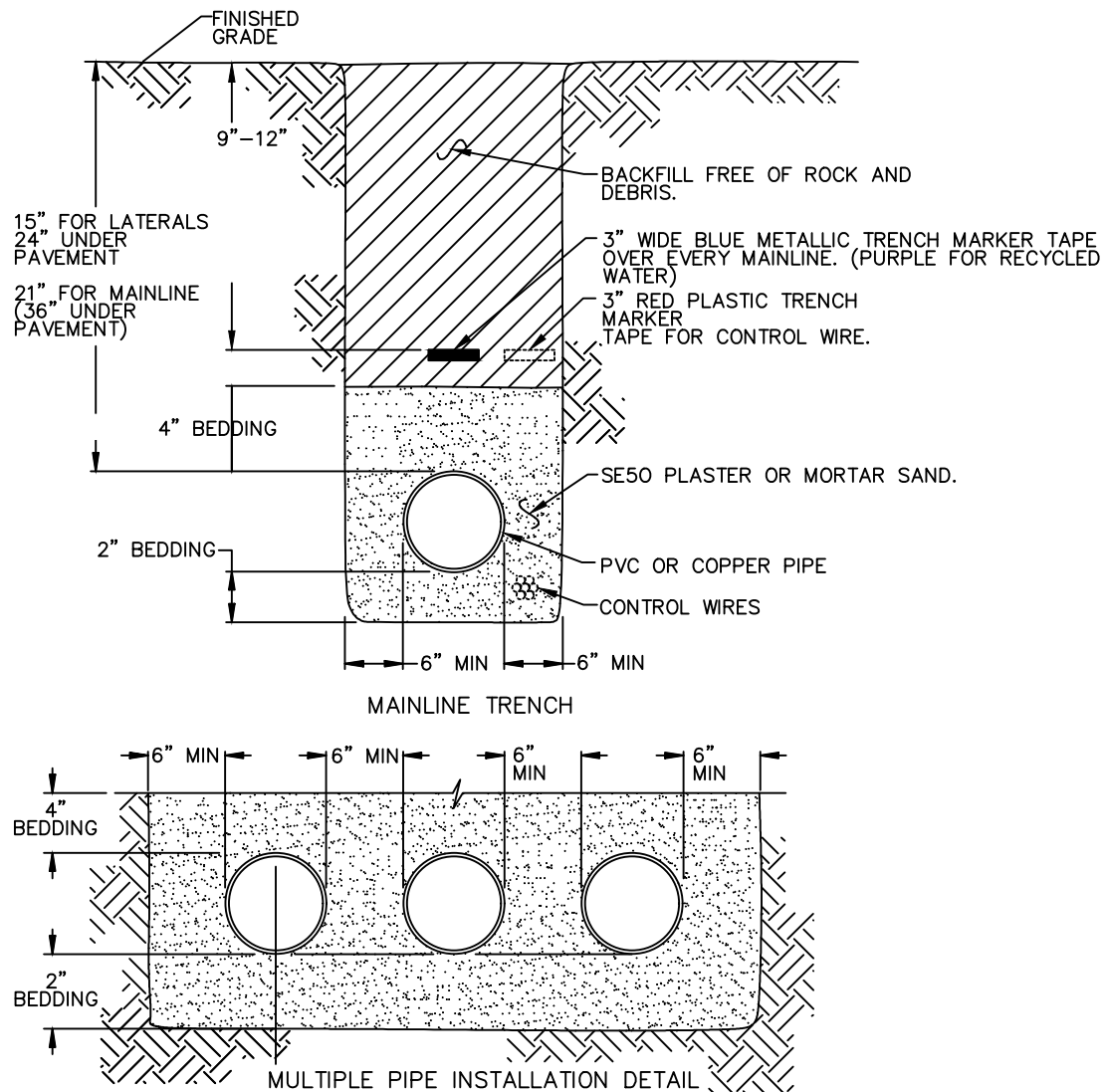
NOTES

1. Double swing joint shall be used where changes of grade and alignment occur simultaneously.
2. Double swing joint shall be used for expansion joint on long runs of galvanized pipe. (91.44m (300') maximum runs)

LEGEND ON PLANS



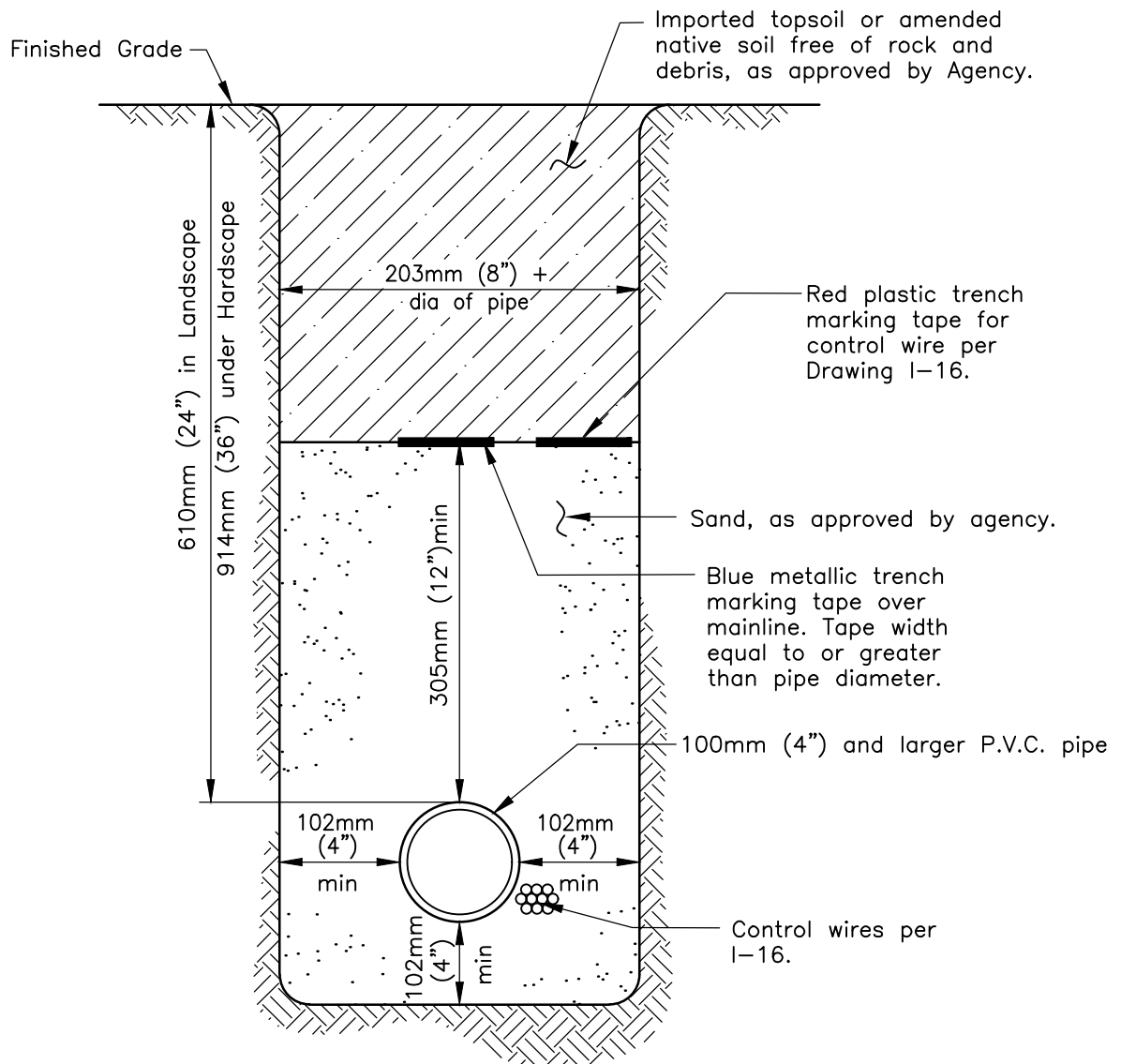
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	DOUBLE SWING JOINT ABOVE GROUND PIPE INSTALLATIONS		 03/24/2022 Chairperson R.C.E. 52241 Date	DRAWING NUMBER I-24
Reviewed	KA	N. Batta	10/15				
Reviewed	EW	T. Stanton	10/18				
Reviewed	RP	S. Engeda	03/22				



NOTES:

1. BACKFILL MATERIAL SHALL BE COMPACTED TO A RELATIVE COMPACTION OF 90% MINIMUM.
2. PIPE SHALL LAY FREE IN THE TRENCH WITH NO INDUCED STRAIN AND WITH SUFFICIENT ALLOWANCE FOR EXPANSION AND CONTRACTION.
3. PVC PIPE UNDER PAVEMENT SHALL BE INSTALLED IN A SCH 40 PVC SLEEVE TWICE THE DIAMETER OF THE PIPE (2" MINIMUM SIZE) AND EXTEND 12" MINIMUM BEYOND THE EDGE OF PAVEMENT.
4. THE LETTER "W" SHALL BE STAMPED OR CHISELED ON THE IMPROVEMENT (CURB/ SIDEWALK) DIRECTLY ABOVE THE PRESSURE PIPELINE SLEEVE.
5. NO PVC PRESSURE PIPELINE SHALL BE INSTALLED WITHIN 3' OF ANY UTILITY, UNLESS OTHERWISE SPECIFIED.

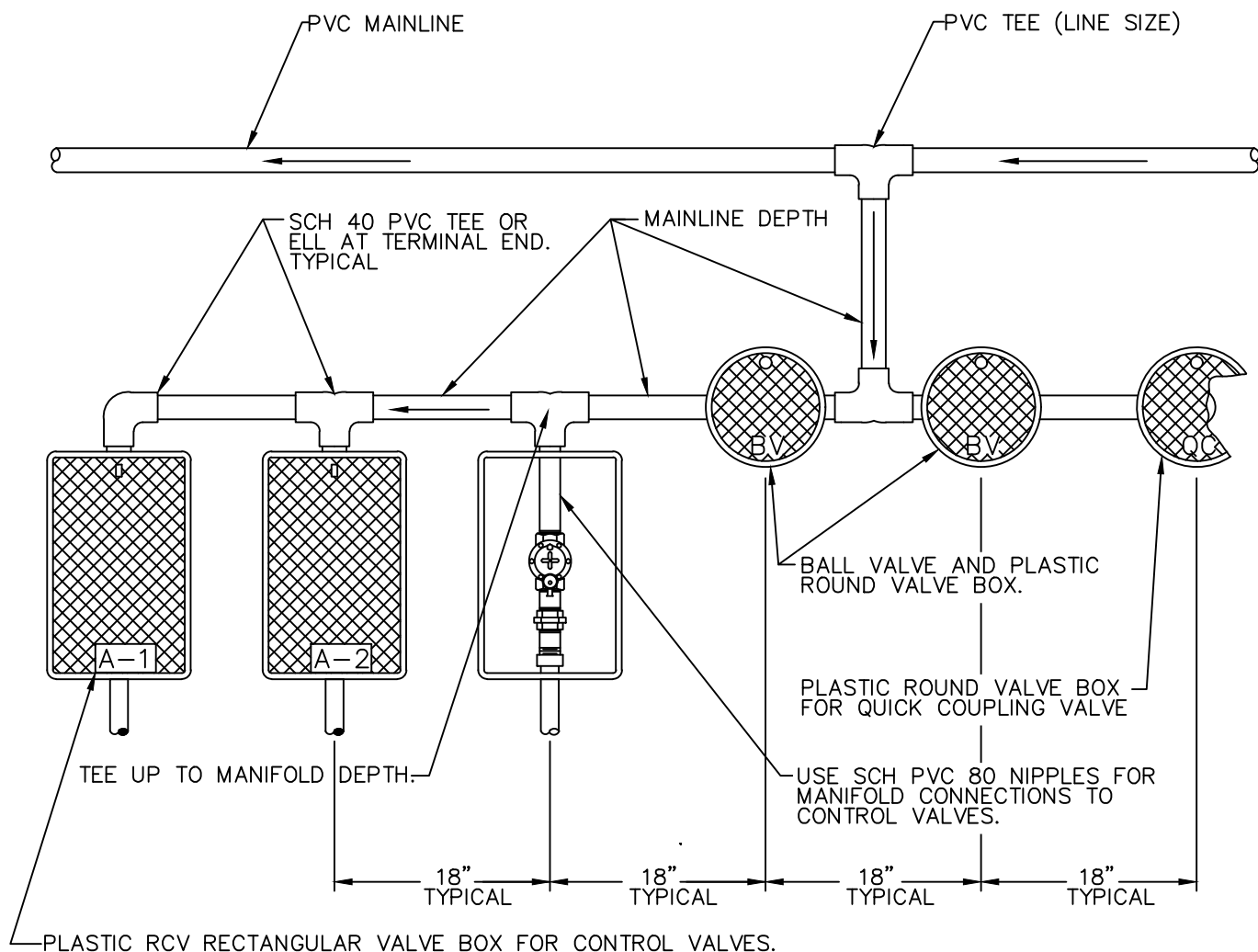
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	IRRIGATION TRENCH PVC OR COPPER PIPE		
Reviewed	KA	N. Batta	10/15			<i>Samson Engeda</i> 03/24/2022
Reviewed	EW	T. Stanton	10/18			Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER I-25



NOTES

1. Backfill material shall be compacted to a relative compaction of 90% or more.
2. All pipeline fittings shall be epoxy coated ductile iron. All fittings shall have thrust blocks per W-17 or joint restraints.
3. The letter 'W', for pressure pipeline and 'E', for control wires shall be stamped or chiseled on the improvement (curb-sidewalk) directly above the pressure pipeline and wires respectively.
4. No P.V.C. pressure pipeline shall be installed within 914mm (3') of any utility, unless otherwise specified.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	IRRIGATION TRENCH DETAIL 100mm (4") AND LARGER P.V.C. MAINLINE		
Reviewed	EW	T. Stanton	10/18			
Reviewed	RP	S. Engeda	03/22			
						<i>Saman Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date
						DRAWING NUMBER I-26



NOTES:

1. PVC PIPE USED IN MANIFOLD ASSEMBLIES SHALL BE THE SAME CLASS AS SPECIFIED FOR THE MAINLINE.
2. VALVE BOXES SHALL BE HEAT BRANDED WITH CONTROLLER AND VALVE IDENTIFICATION.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Reviewed	KA	N. Batta	10/15
Reviewed	EW	T. Stanton	10/18
Reviewed	RP	S. Engeda	03/22

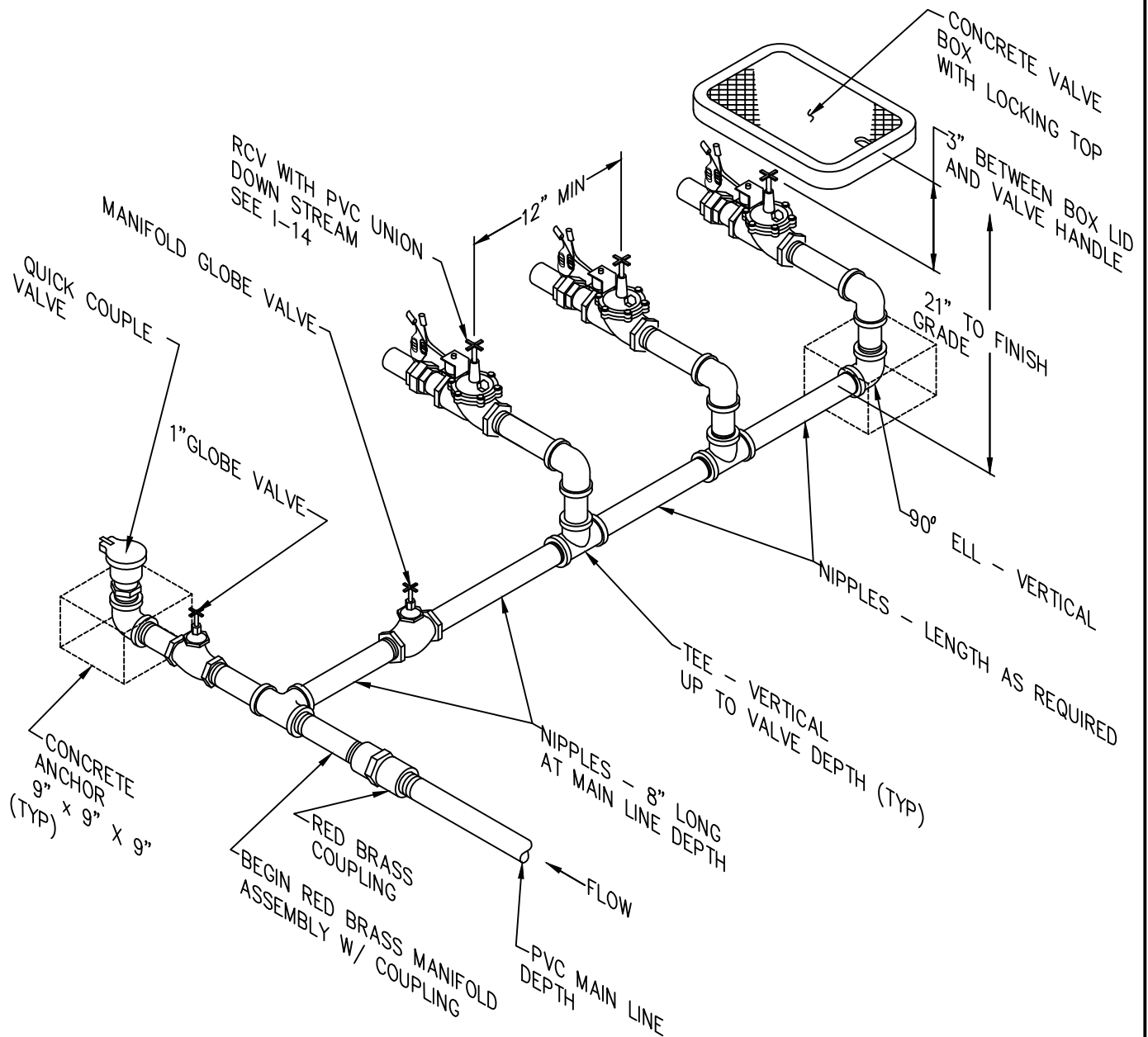
SAN DIEGO REGIONAL STANDARD DRAWING

**REMOTE CONTROL VALVE MANIFOLD
ASSEMBLY WITH PVC PIPE
(TEMPORARY SYSTEMS)**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

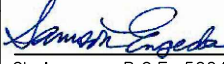
Saman Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

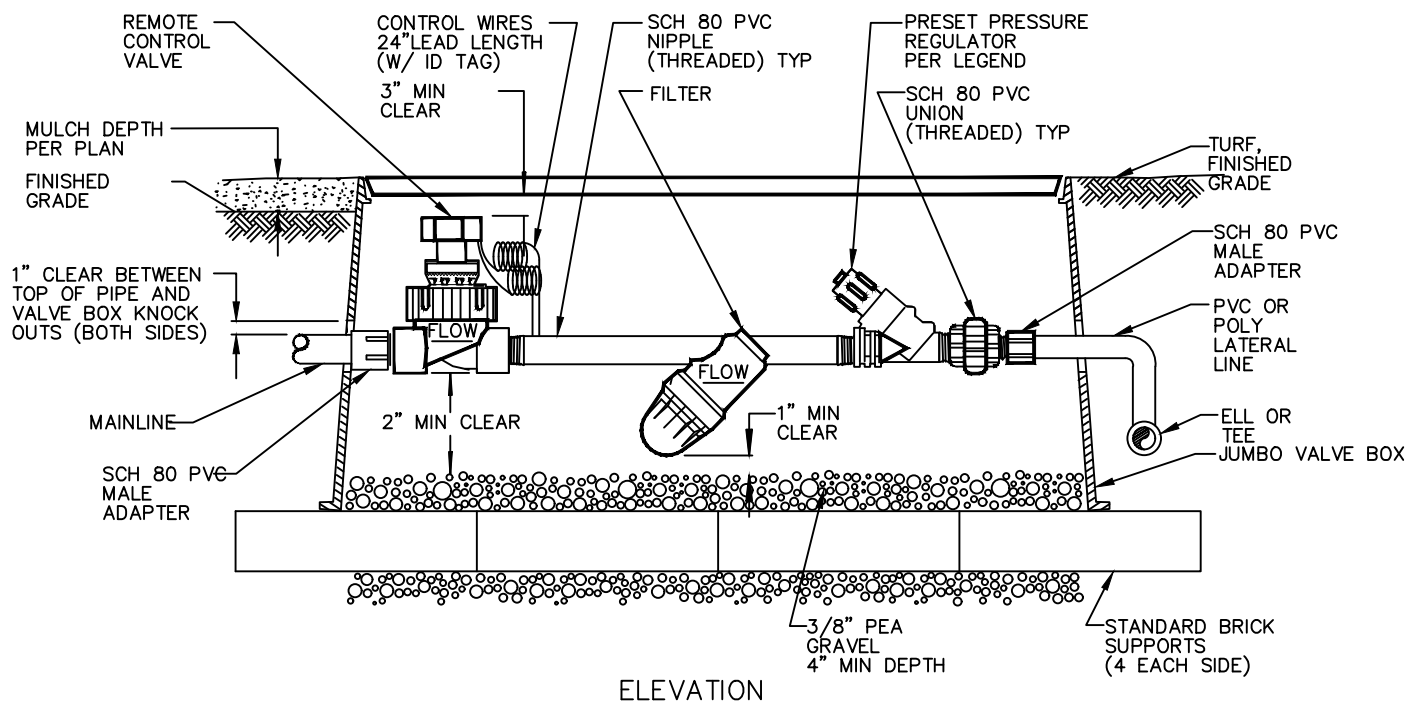
DRAWING
NUMBER **I-32**



NOTES:

1. ALL PIPES, NIPPLES, AND FITTINGS AFTER MALE ADAPTER SHALL BE RED BRASS.
2. VALVE AND CONTROLLER IDENTIFICATION SHALL BE LABELED OUTSIDE ON THE VALVE BOX LID AND TAGGED INSIDE THE BOX ON THE VALVE.
3. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Reviewed	KA	N. Batta	10/15	REMOTE CONTROL VALVE MANIFOLD ASSEMBLY WITH BRASS PIPE	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	EW	T. Stanton	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER I-33

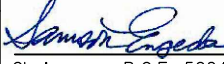


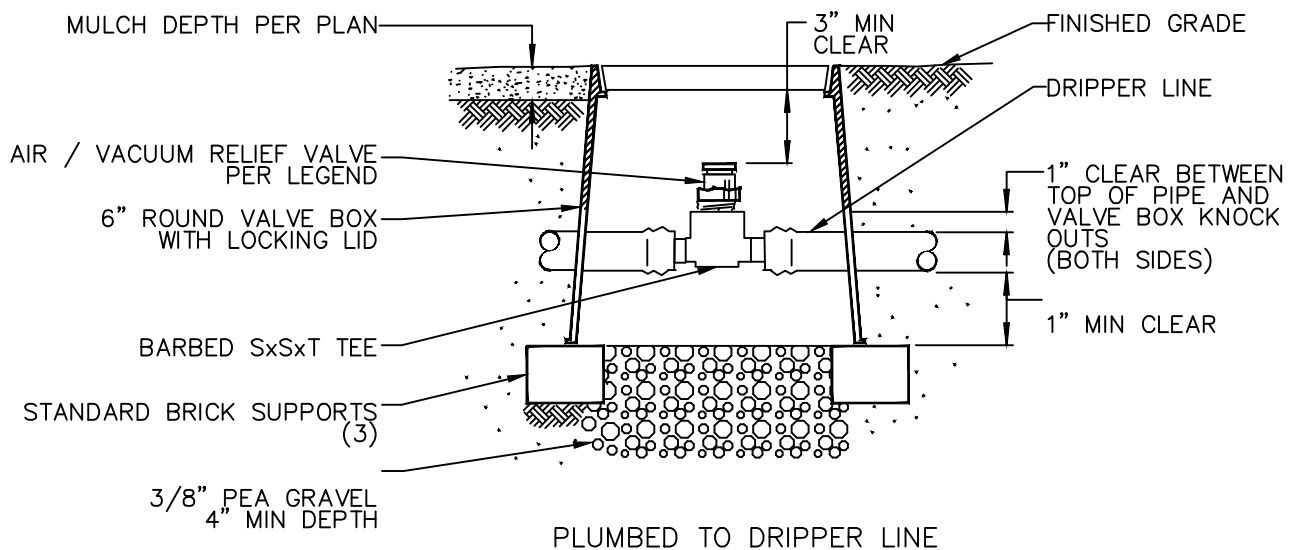
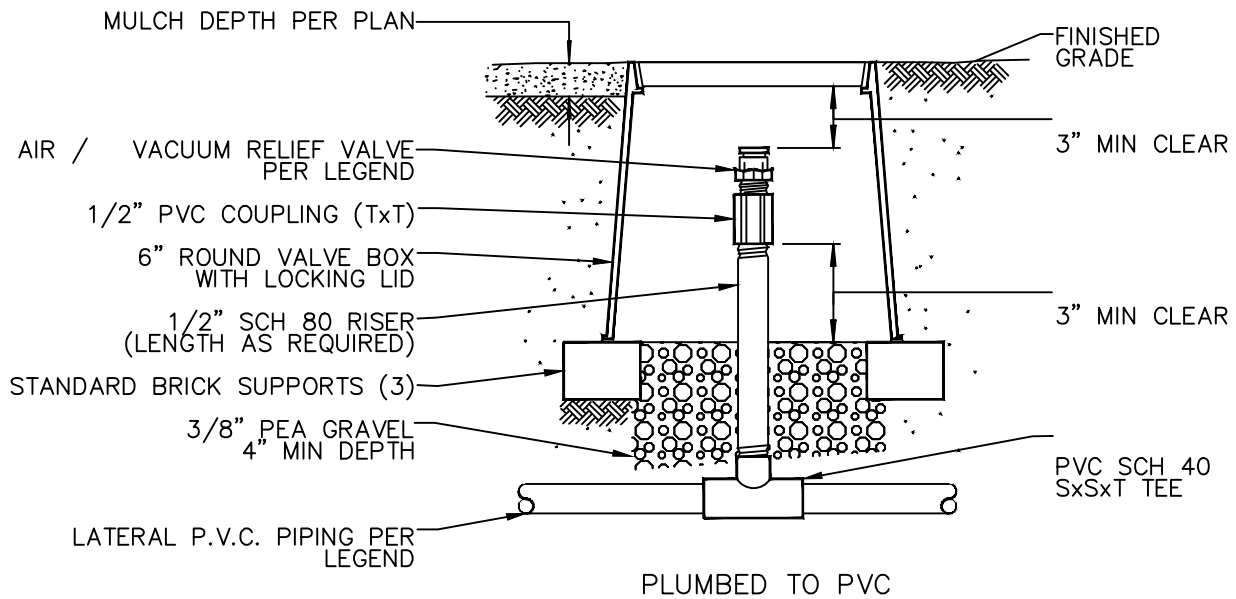
NOTES:

1. WIRE SPLICING SHALL BE MADE IN VALVE BOXES AND PULL BOXES ONLY. SEE I-15 FOR SPLICE / SOLDERING NOTES.
2. SPARE WIRES TERMINATING IN VALVE BOXES SHALL HAVE THEIR ENDS INSULATED, THE SAME AS FOR A SPLICE.
3. WHEN TWO OR MORE VALVES ARE INSTALLED IN THE SAME LOCATION, SEE REMOTE CONTROL VALVE MANIFOLD ASSEMBLY.
4. VALVE / CONTROLLER IDENTIFICATION SHALL BE PERMANENTLY LABELED EXTERNALLY ON THE VALVE BOX AND INTERNALLY, WITH A PERMANENT IDENTIFICATION TAG ATTACHED TO THE VALVE.
5. KNOCK OUTS SHALL NOT BE ENLARGED UNLESS APPROVED BY THE AGENCY.
6. INSTALL ONLY ONE VALVE ASSEMBLY PER BOX.
7. VALVE BOXES SHALL BE SET PERPENDICULAR TO HARDSCAPE, A MAXIMUM 12 INCHES FROM EDGE OF HARDSCAPE, 2\"/>
8. CLOSE NIPPLES SHALL NOT BE USED.
9. FILTER SHALL BE INSTALLED TO ALLOW FOR MAINTENANCE ACCESS.
10. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.

LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		M. Caro	12/75	REMOTE CONTROL VALVE DRIP IRRIGATION		 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	KA	N. Batta	10/15			
Reviewed	EW	T. Stanton	10/18			
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER I-35



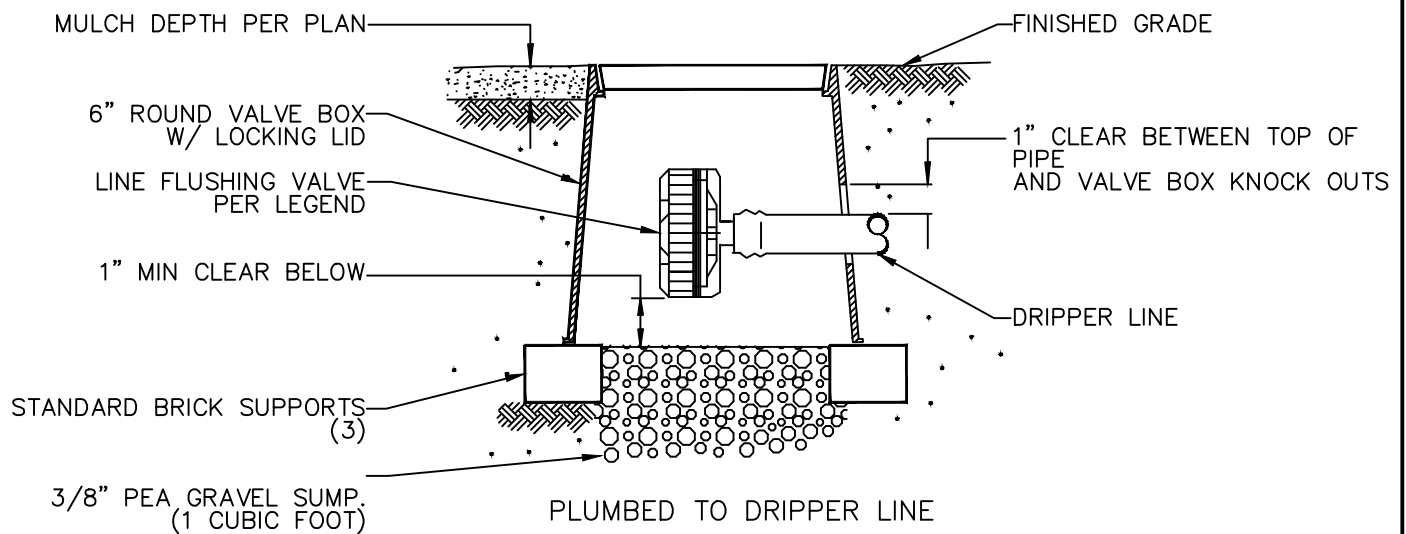
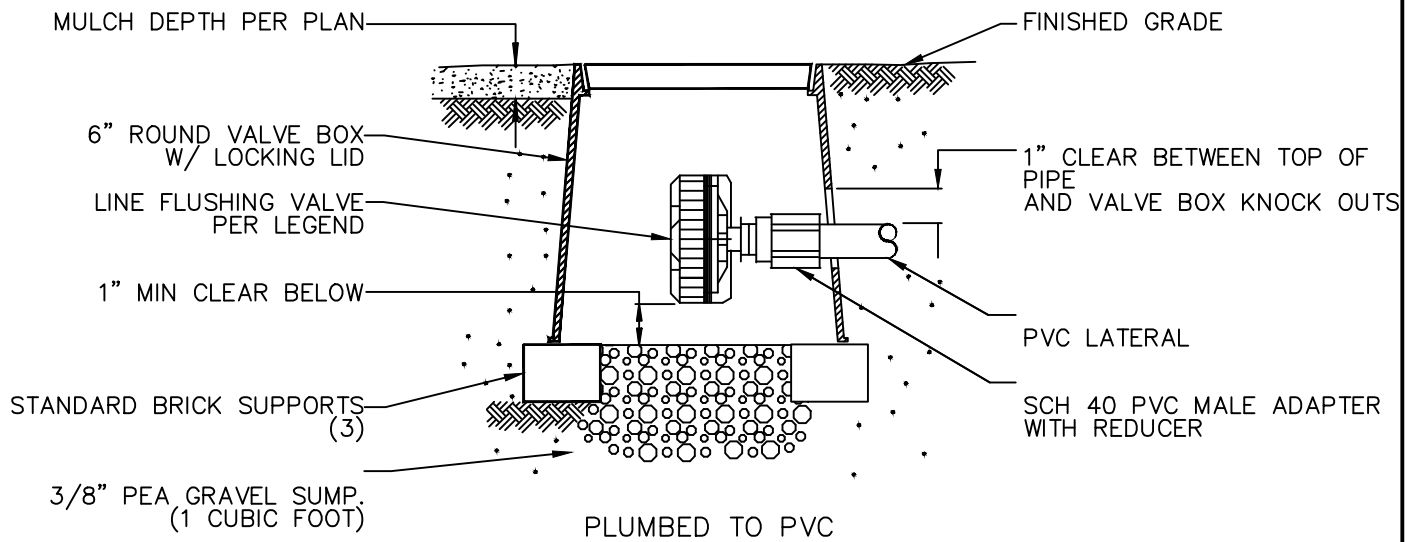
NOTES:

1. INSTALL AIR / VACUUM RELIEF VALVE AT HIGH POINT(S) IN VALVE CIRCUIT.
2. HEAT-BRAND VALVE BOX LID "AR".
3. VALVE SHALL BE CENTERED IN BOX.
4. TEFLON TAPE SHALL BE USED ON THREADED CONNECTIONS.

LEGEND ON PLANS

(A)

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		M. Caro	1/06	AIR / VACUUM RELIEF VALVE		<i>Samson Engeda</i> 03/24/2022
Reviewed	KA	N. Batta	10/15			Chairperson R.C.E. 52241 Date
Reviewed	EW	T.Stanton	10/18			
Reviewed	RP	T.Stanton	10/18			
						DRAWING NUMBER I-36



NOTES:

1. INSTALL FLUSH VALVE(S) AT THE LOWEST POINTS IN THE VALVE CIRCUIT
2. HEAT BRAND VALVE BOX LIDS "FV".
3. VALVE SHALL BE CENTERED IN BOX.

LEGEND ON PLANS

(FV)

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL	RH	A. Oskoui	12/75	DRIP IRRIGATION FLUSH VALVE (AUTOMATIC)		<i>Saman Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	KA	N. Batta	10/15			
Reviewed	EW	T. Stanton	10/18			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER I-37

LANDSCAPING

2" DIA. LODGEPOLE
STAKE. MIN 10'
LENGTH.

PLAN

RUBBER TREE TIES
LOOPED IN A 'FIGURE 8'
AROUND TRUNK AND
STAKE.

EACH TREE TIE SHALL BE
NAILED TO STAKE USING
GALVANIZED NAILS.

DO NOT REMOVE SIDE GROWTH
ALONG TRUNK. PRUNE ONLY AS
DIRECTED BY THE AGENCY.

2-2" DIA 10' MIN LENGTH LODGEPOLE
STAKES AND 4 TIES. TOP TREE TIES SHALL
BE 3" BELOW TOP OF STAKE. TIES SHALL
PROVIDE FLEXIBILITY OF TRUNK BUT NOT
ALLOW RUBBING OF TRUNK OR BRANCHES
AGAINST STAKE.

6" FROM
LOWEST OR
NEAREST
BRANCH.

CHAMFER AS
NEEDED TO
ELIMINATE SOIL
SLOUGHING.
1:1 MAX
SLOPE.

TOP OF ROOT BALL 1" ABOVE
FINISHED GRADE.

2"-3" MULCH, 3" CLEAR FROM TRUNK.

4" HIGH BERM FIRMLY COMPACTED

4" PERFORATED PVC BREATHER
TUBE W/ BLACK FLAT GRATE CAP
FASTENED STAINLESS STEEL SCREW
(2) WRAPPED IN FILTER FABRIC &
EXTENDING TO THE BOTTOM OF
PLANTING PIT.

SCARIFY BOTTOM AND
EDGES OF PLANT PIT.

UNDISTURBED NATIVE SOIL

PLANT
TABLETS
BURIED, MAX
3" DEEP

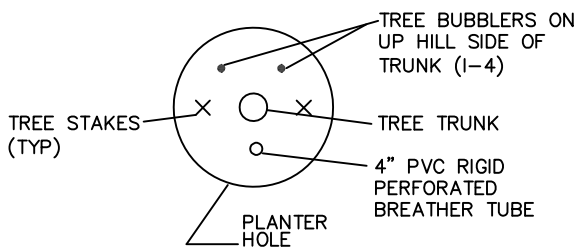
DEPTH
OF
ROOT
BALL
24" MIN

2 x BALL WIDTH

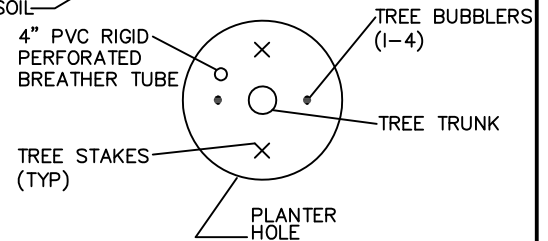
PLANT
TABLETS PER
SPECS., MAX
3" DEEP.

DEPTH
OF
ROOTBALL
24" MIN

2 x BALL WIDTH
MINIMUM



A - SLOPES



B - LEVEL GROUND

NOTES

1. DOUBLE STAKE 15 GAL. AND LARGER TREES. SINGLE STAKE TREES SMALLER THAN 15 GAL.
2. FOR SINGLE STAKED TREES, PLACE STAKE ON WINDWARD SIDE OF TREE.
3. LOCATE STAKES OUTSIDE OF ROOTBALL.
4. PROVIDE MINIMUM DISTANCE FROM OTHER OBJECTS AS FOLLOWS:
20' TRAFFIC SIGNALS, 12' STREET LIGHTS, 10' FIRE HYDRANTS, SEWER LINES AND SDG&E FOR
PAD MOUNTED EQUIPMENT, AND 5' UNDERGROUND SDG&E ELECTRIC AND GAS LINES.

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Reviewed	EW	T. Stanton	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

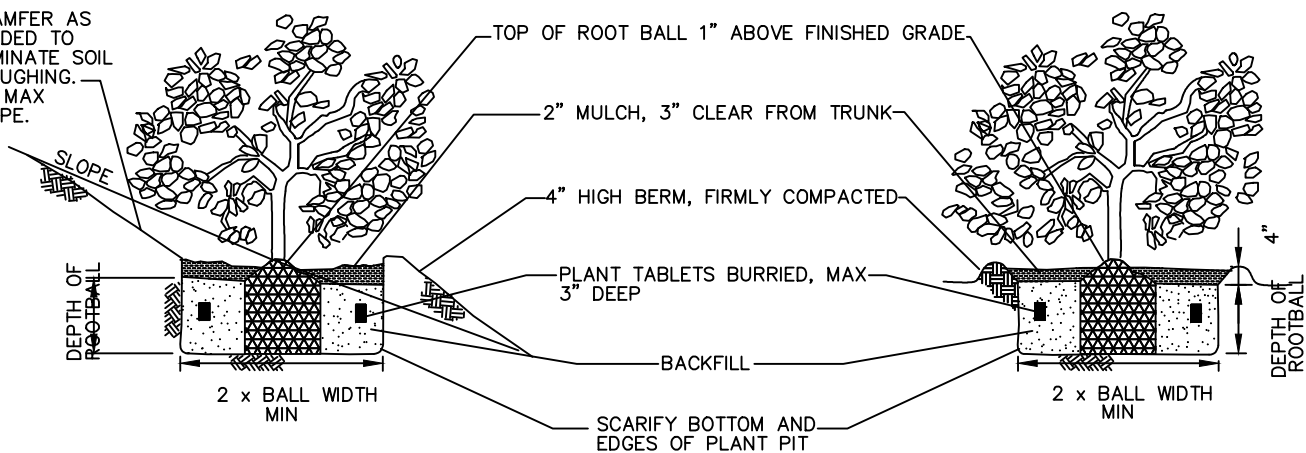
TREE PLANTING AND STAKING

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samsin Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

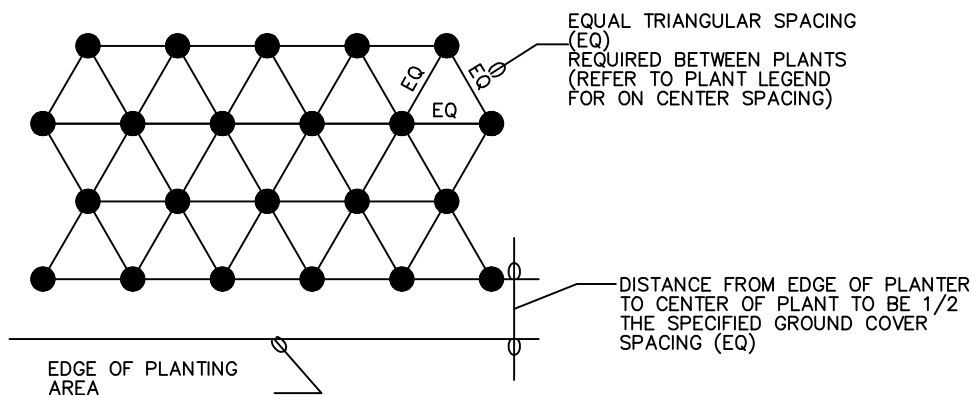
DRAWING
NUMBER **L-01**

CHAMFER AS
NEEDED TO
ELIMINATE SOIL
SLOUGHING.
1:1 MAX
SLOPE.



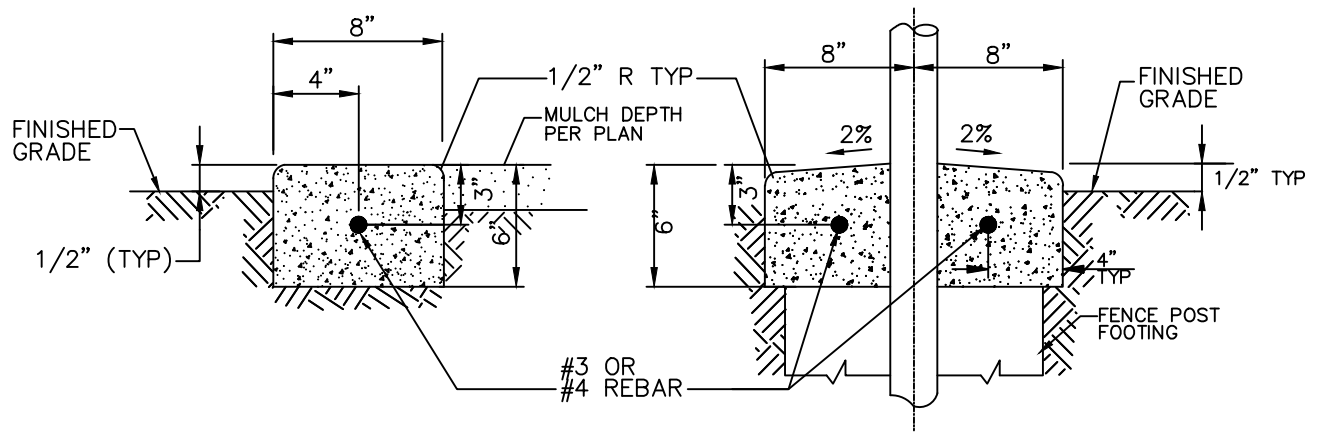
SHRUB PLANTING – SLOPES

SHRUB PLANTING – LEVEL GROUND



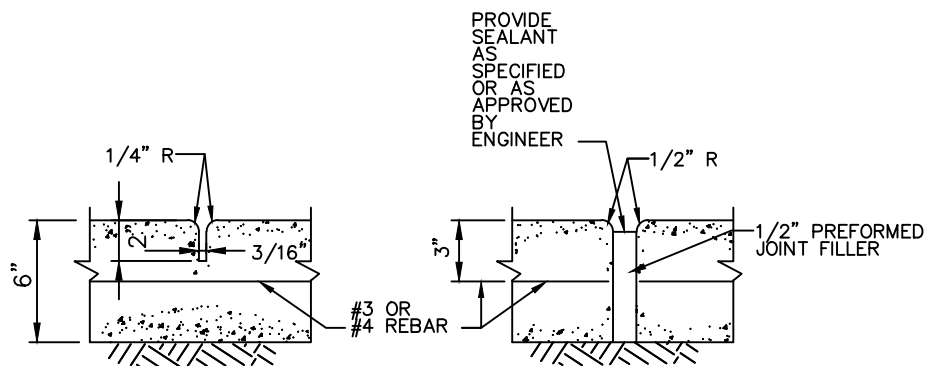
GROUND COVER SPACING

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	SHRUB PLANTING/GROUND COVER SPACING		
Reviewed	EW	T. Stanton	10/18			
Reviewed	RP	S. Engeda	03/22			
						 03/24/2022 Chairperson R.C.E. 52241 Date
						DRAWING NUMBER L-02



TYPE A
ALL AREAS
EXCEPT
UNDER
FENCES

TYPE B
UNDER FENCES



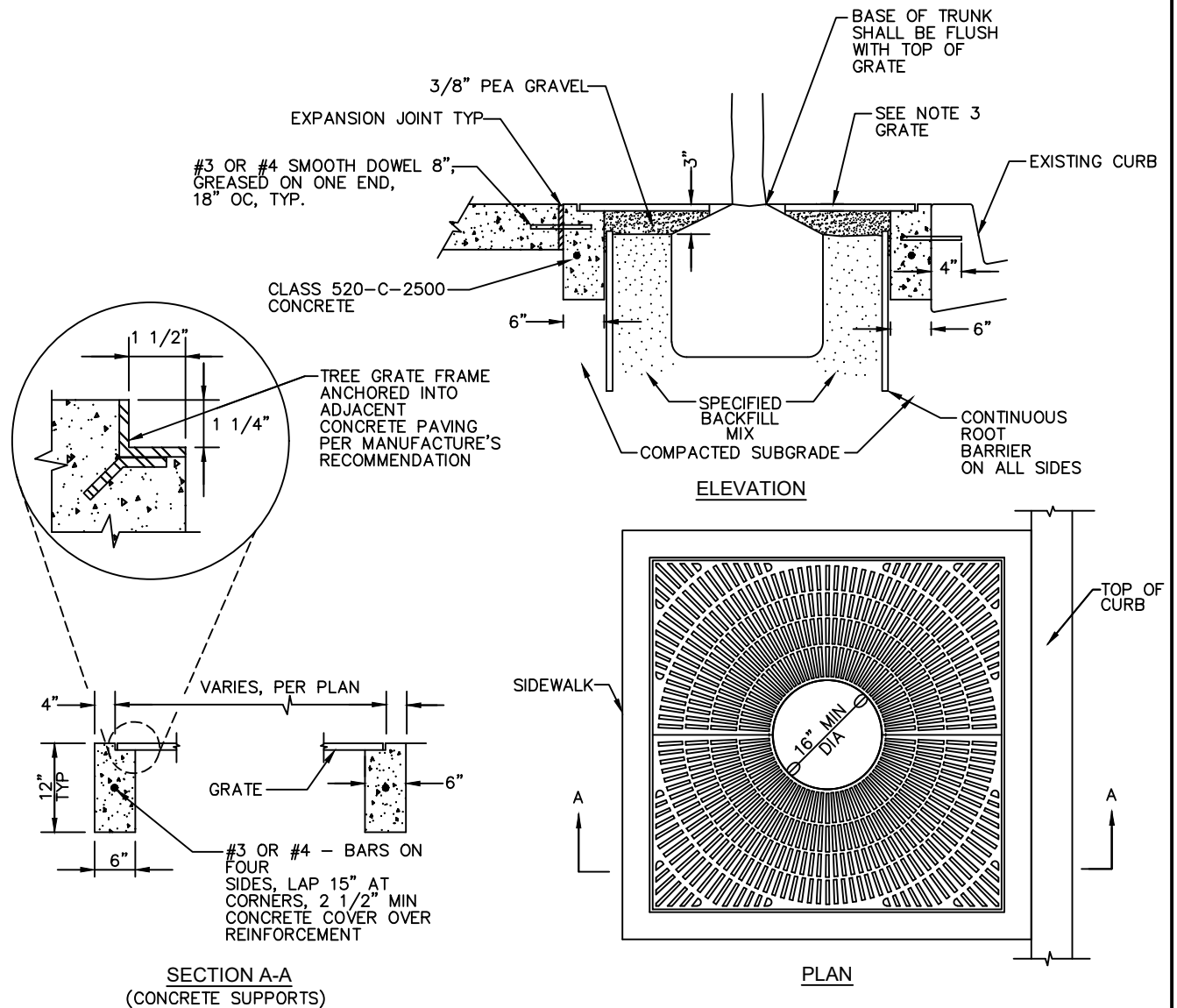
WEAKENED PLANE JOINT
MAX 20' OC

EXPANSION JOINT
MAX 120' OC

NOTES

1. REBAR SHALL BE CONTINUOUS WITH 12" OVERLAP WHERE SPICED.
2. CONCRETE SHALL BE CLASS 520-C-2500 AND SAME COLOR AS ADJACENT CONCRETE AND HAVE A SMOOTH TROWEL FINISH.
3. INSTALL WEAKENED PLANE JOINTS AT EACH FENCE POST.
4. INSTALL EXPANSION JOINTS WHERE THE MOWING STRIP ABUTS CONCRETE IMPROVEMENT AND AT LOCATION APPROVED BY THE AGENCY.

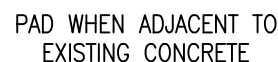
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Reviewed	EW	T. Stanton	10/18	CONCRETE MOWING STRIP	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER L-03



NOTES:

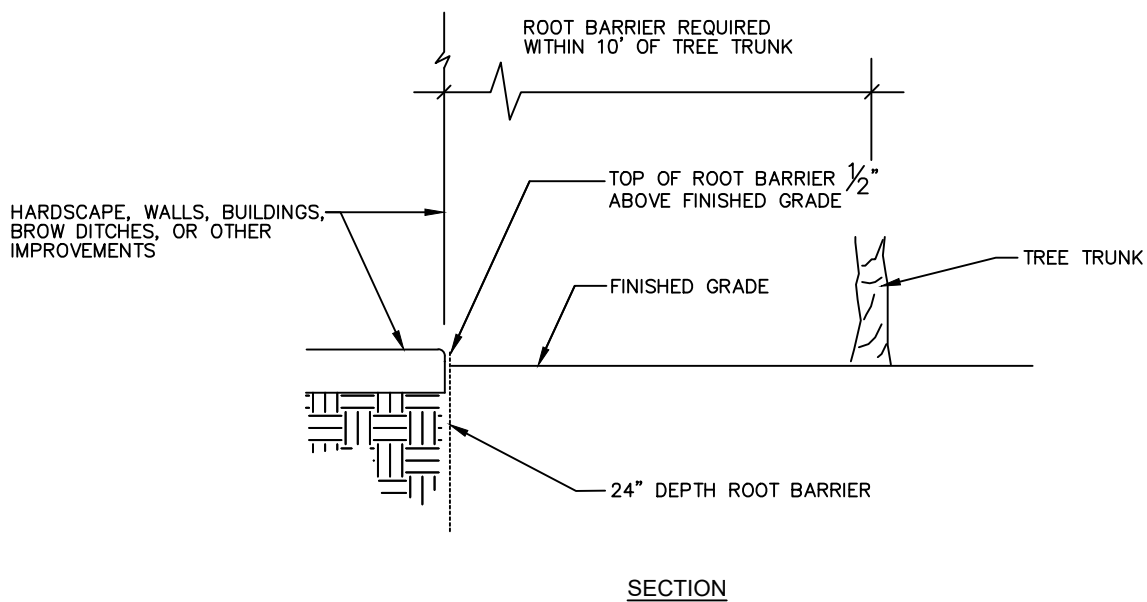
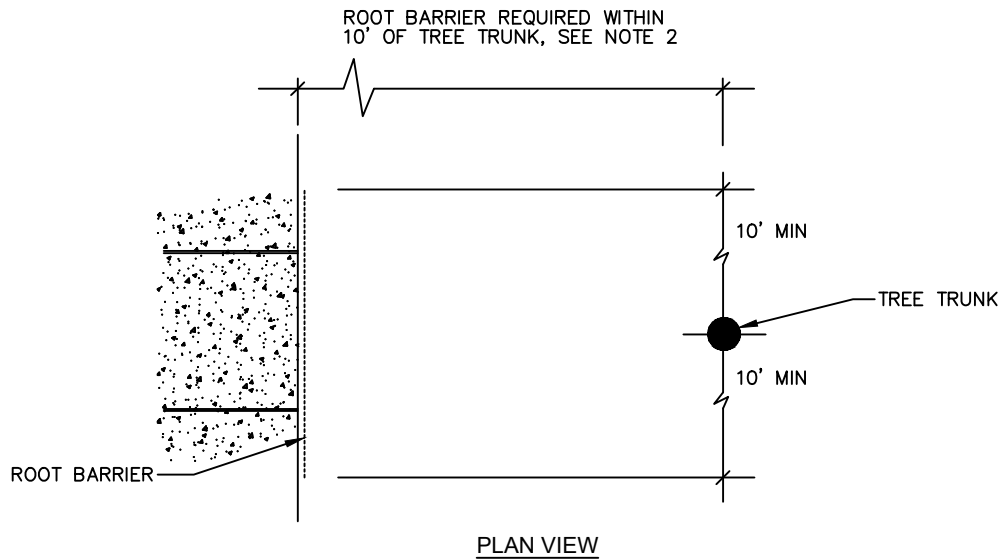
1. CONCRETE TO BE REMOVED FOR EACH TREE PLANTING SHALL BE SAW CUT FULL DEPTH.
2. BOLTS, NUTS AND WASHERS SHALL BE GRADE 316 STAINLESS STEEL. GRATE FRAME SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION. ALL GRATES SHALL BE REMOVABLE & FASTENERS SHALL BE ACCESSIBLE TO MAINTENANCE .
3. GRATES SHALL BE MINIMUM 40 SQUARE FEET IN SIZE, AND 2 SEPARATE PIECES, UNLESS OTHERWISE SPECIFIED ON THE PLANS. SLOT OPENINGS IN GRATE DESIGN SHALL HAVE 3/8" MAXIMUM WIDTH. GRATE DESIGNS AND INSTALLATION SHALL BE IN ACCORDANCE WITH CURRENT ADA STANDARDS AND THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE, WITH A MINIMUM UNIFORM LIVE LOAD OF 250 POUNDS PER SQUARE FOOT IN SIDEWALKS.
4. IMMEDIATE NOTIFICATION SHALL BE GIVEN TO THE ENGINEER OF ANY BELOW GRADE IMPROVEMENTS ENCOUNTERED.
5. SET GRATE IN FRAME PRIOR TO PLACEMENT OF PAVEMENT. ANY WARPED OR NON-FLUSH FITTING GRATES SHALL BE REPLACED.
6. TREE SHALL BE CENTERED IN GRATE OPENING. GRATES SHALL HAVE A PERMANENT SLIP RESISTANT FINISH.
7. ADJACENT SIDEWALK SHALL HAVE A MINIMUM CLEARANCE WIDTH OF 4' FROM THE EDGE OF GRATE.
8. GRATE SHALL BE UNIFORM WITH ADJACENT GRADE.
9. PROVIDE MINIMUM DISTANCE FROM OTHER OBJECTS AS FOLLOWS: 12' STREET LIGHTS, 10' FIRE HYDRANTS, 10' SEWER LINES, AND 20' TRAFFIC SIGNALS.
- 10.SUBMIT GRATE DESIGN FOR APPROVAL.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Parkinson	05/92			
Reviewed	EW	T. Stanton	10/18	TREE GRATE		 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER L-04



1. USE MONOLITHIC PLACEMENT FOR NEW CONSTRUCTION.
2. POLE PADS SHALL DRAIN AT 1.5% MINIMUM IN SAME DIRECTION AS SIDEWALK.
3. CONCRETE PAD SHALL BE THE SAME AS SPECIFIED FOR SIDEWALK.
4. LOCATE LIGHT POLES OUTSIDE OF TURF AREAS AND AWAY FROM TREES AS APPROVED BY THE ENGINEER UNLESS SPECIFIED OTHERWISE
5. PULL BOX WITH BOLT-DOWN LID MINIMUM 6" FROM ALL EDGES (POLYMER EDGED BOX WITH BRICK FOUNDATION)
6. IRRIGATION HEAD SHALL BE 6 INCHES FROM ADJACENT CURBS, WALKS, PAVING AND SIMILAR IMPROVEMENTS.

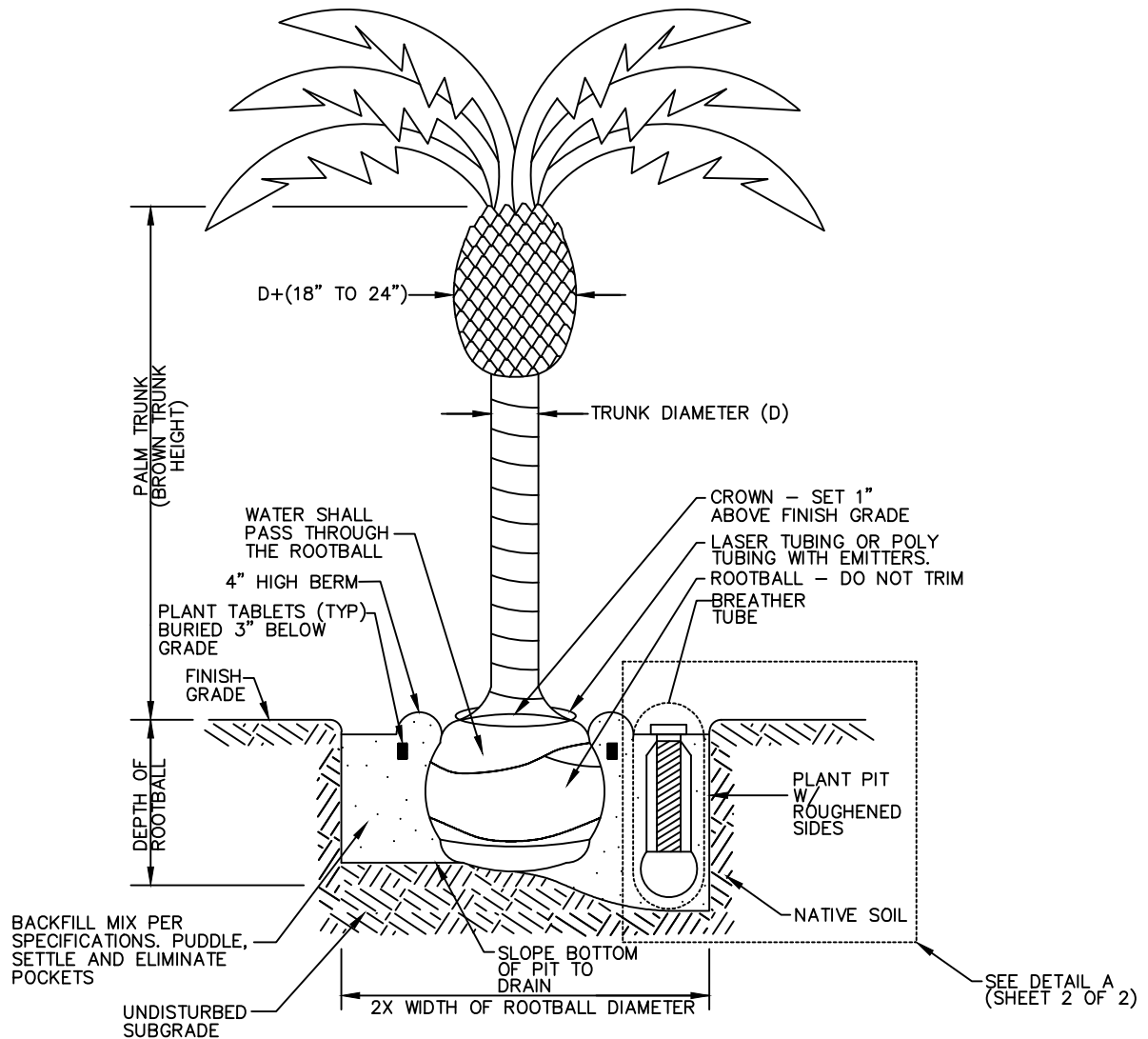
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Parkinson	09/88		 03/24/2022 Chairperson R.C.E. 52241 Date
Revised	EW	T. Stanton	10/18		
Reviewed	RP	S. Engeda	03/22		
LIGHT POLE PAD IN TURF AREAS				DRAWING NUMBER	L-05



NOTES:

1. ROOT BARRIER SHALL BE INSTALLED ADJACENT TO THE IMPROVEMENT AND NOT AROUND THE ROOTBALL.
2. ROOT BARRIER REQUIRED WHEN TREE TRUNK IS WITHIN 10' OF HARDSCAPE, WALLS, BUILDINGS, BROW DITCHES, OR OTHER IMPROVEMENTS.
3. FOR ROOT BARRIER INSTALLATION WITH THE TREE GRATES SEE L-4.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		M. Caro	02/06		
Reviewed	HM	T. Stanton	10/15	ROOT CONTROL BARRIER	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	EW	T. Stanton	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER L-06

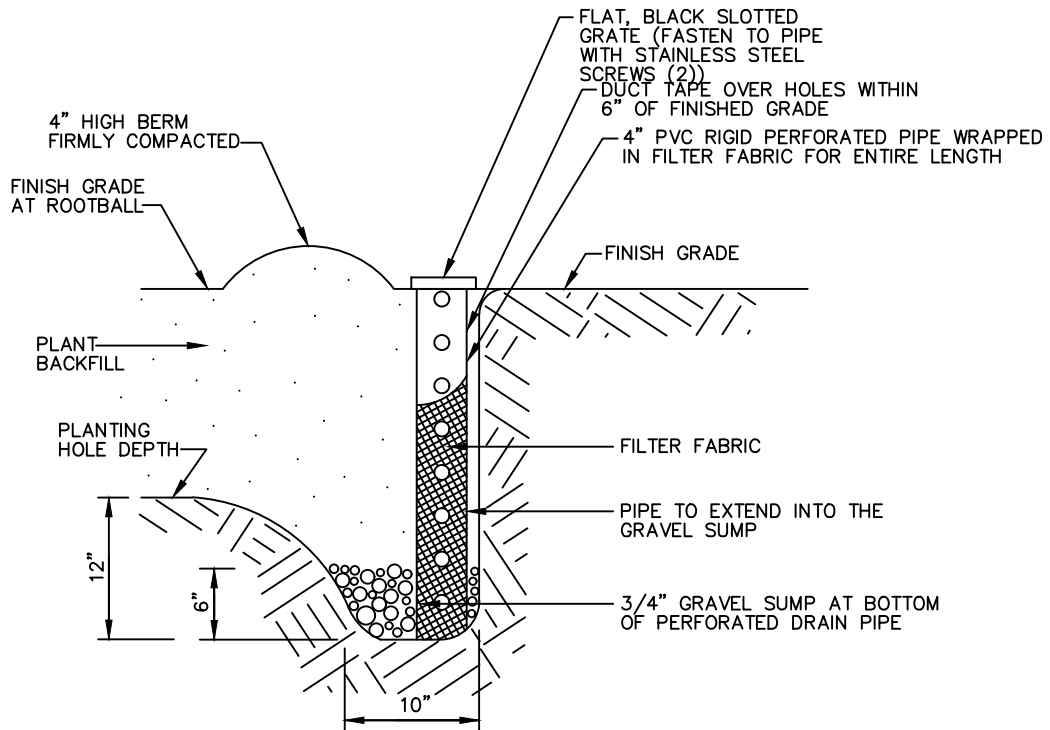


NOTES:

1. TIE PALM FRONDS TOGETHER WITH BIODEGRADABLE SISAL TWINE. TWINE SHALL BE REMOVED AFTER 90 DAYS OF TRANSPLANTING UNLESS OTHERWISE DIRECTED BY THE AGENCY.
2. PALM TRUNKS SHALL BE SKINNED, TRIMMED, AND VERTICAL.
3. STEM DIAMETER REQUIREMENT APPLIES ONLY TO PHOENIX SPECIES.

SHEET 1 OF 2

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL	KA	N. Batta	06/11		
Reviewed	EW	T. Stanton	10/18	PALM TREE PLANTING	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER L-07



DETAIL - A
BREATHING TUBE

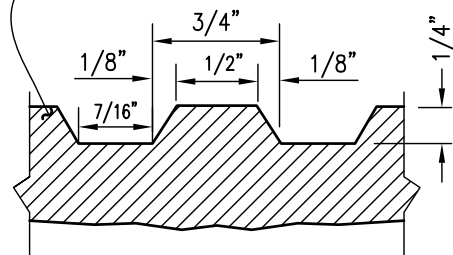
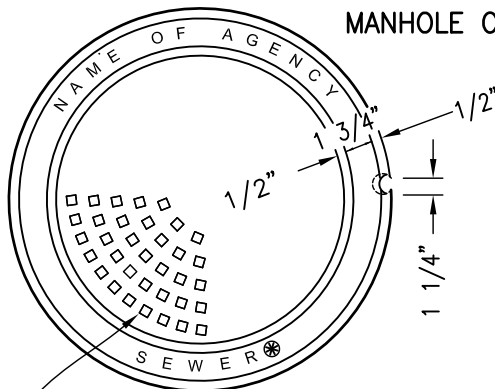
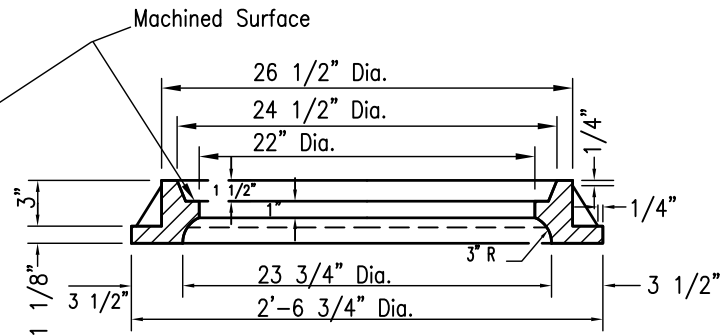
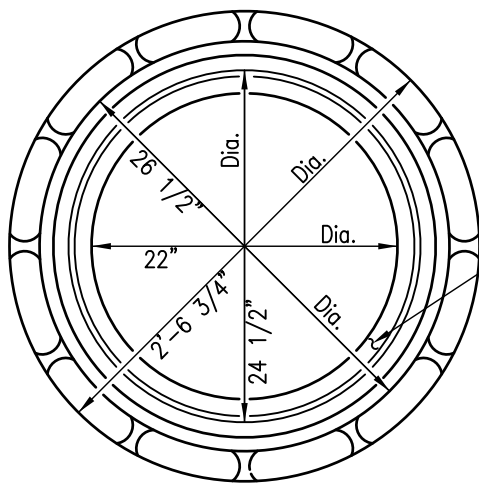
SHEET 2 OF 2

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL	KA	N. Batta	06/11		
Reviewed	EW	T. Stanton	10/18	PALM TREE PLANTING	<i>Samson Engeda</i> 03/24/2022
Reviewed	RP	S. Engeda	03/22		Chairperson R.C.E. 52241 Date
					DRAWING NUMBER
					L-07

MISCELLANEOUS

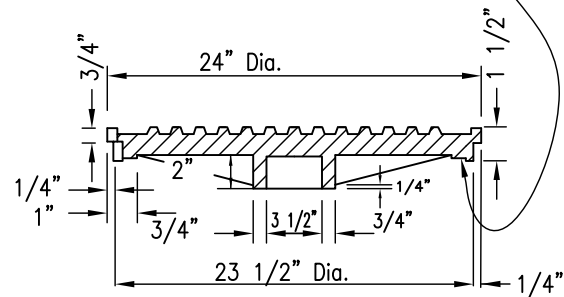
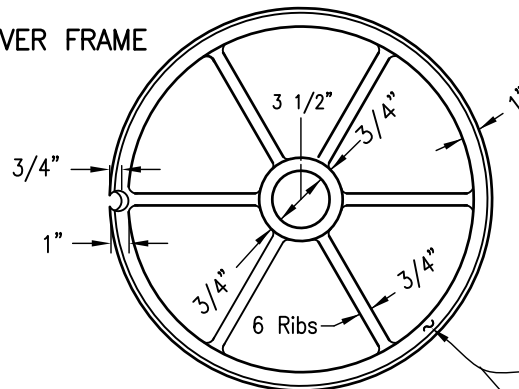
MISCELLANEOUS

M



DETAIL

MANHOLE COVER FRAME



Machined Surface

NOTES

1. Frame and cover shall be cast iron. Cast iron shall conform to ASTM 48, Class 35B.
2. Weights: Frame 166 lbs – 193 lbs.
Cover 147 lbs – 171 lbs.
3. Machine all matching surfaces and seats of frame and cover to prevent rocking.
4. Imported frames and covers shall have the country of origin marked in compliance with federal regulations.

MANHOLE COVER



FOR	MARK
Sewer Projects	Sewer
Storm Drain Projects	Storm Drain
Water Projects	Water

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Reviewed		T. Stanton	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

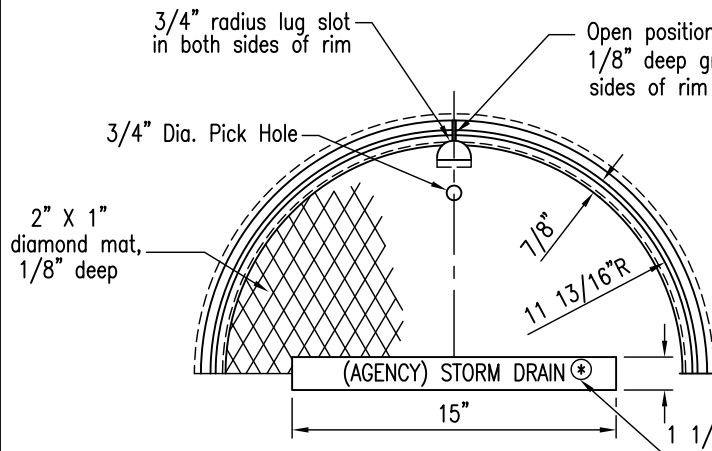
24" MANHOLE FRAME AND COVER HEAVY DUTY

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

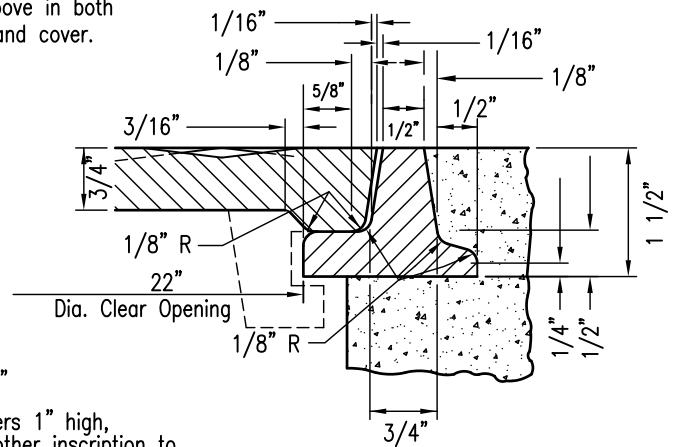
Susan Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER

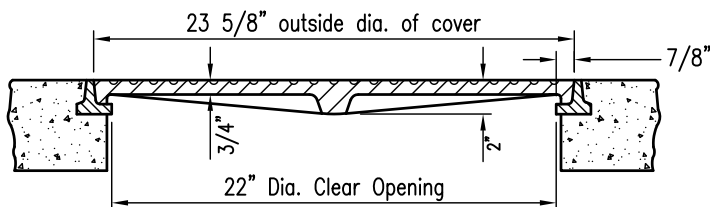
M-01



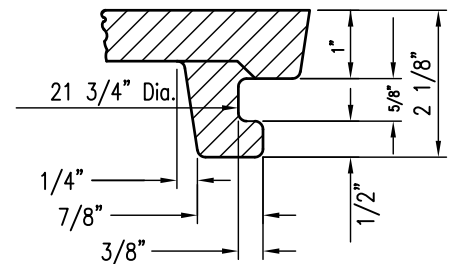
TOP OF FRAME & COVER



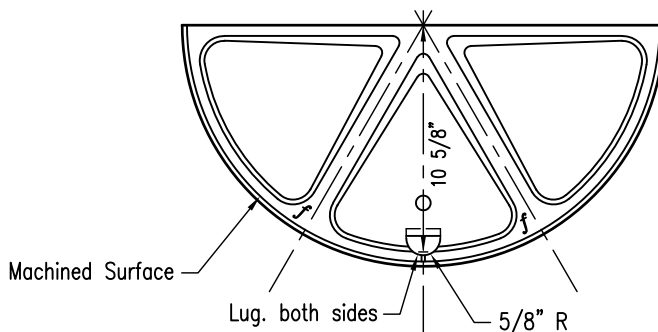
SECTION THROUGH RIM



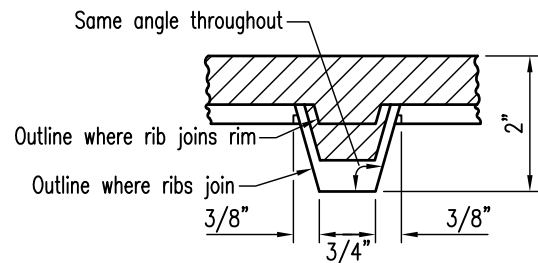
SECTION THROUGH FRAME & COVER



SECTION THROUGH LUG



BOTTOM OF COVER



SECTION THROUGH RIB AT MID RADIUS

NOTES

1. Frame and cover shall be cast iron. Cast iron shall conform to ASTM 48, Class 30.
2. Frame and cover for use in non-traffic area only.
3. Weights: Frame 29 lbs - 33 lbs.
Cover 95 lbs. - 110 lbs.
4. Imported frames and covers shall have the country of origin marked in compliance with federal regulations.

FOR	MARK
Sewer Projects	Sewer
Storm Drain Projects	Storm Drain
Water Projects	Water

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Reviewed		D. Gerschoffer	10/18
Reviewed	RP	S. Engeda	03/22

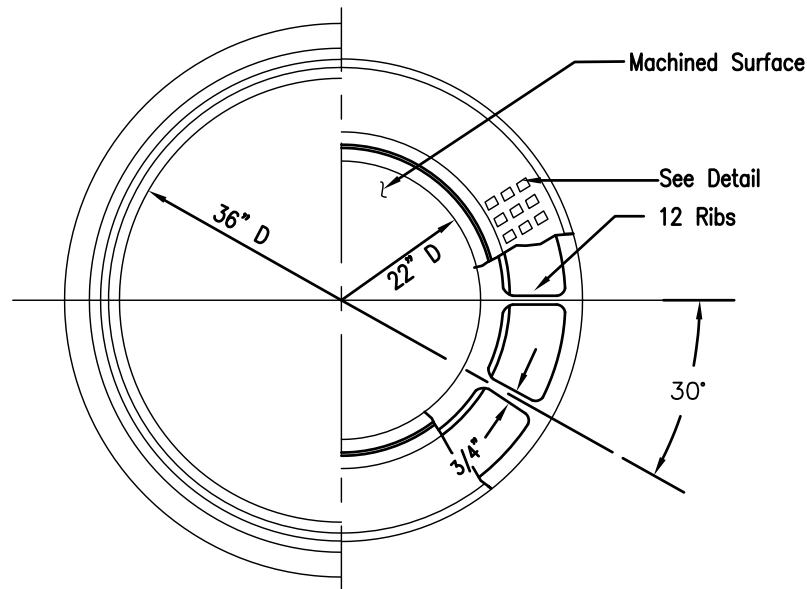
SAN DIEGO REGIONAL STANDARD DRAWING

24" MANHOLE FRAME AND COVER LIGHT DUTY

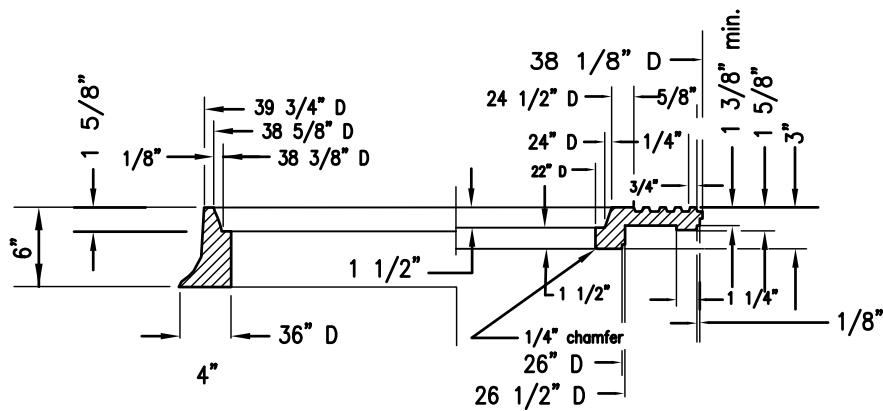
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **M-02**



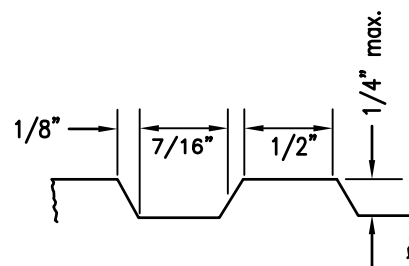
HALF PLAN FRAME & COVER



HALF SECTION FRAME & COVER

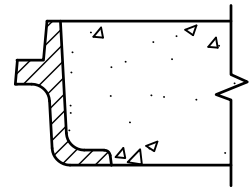
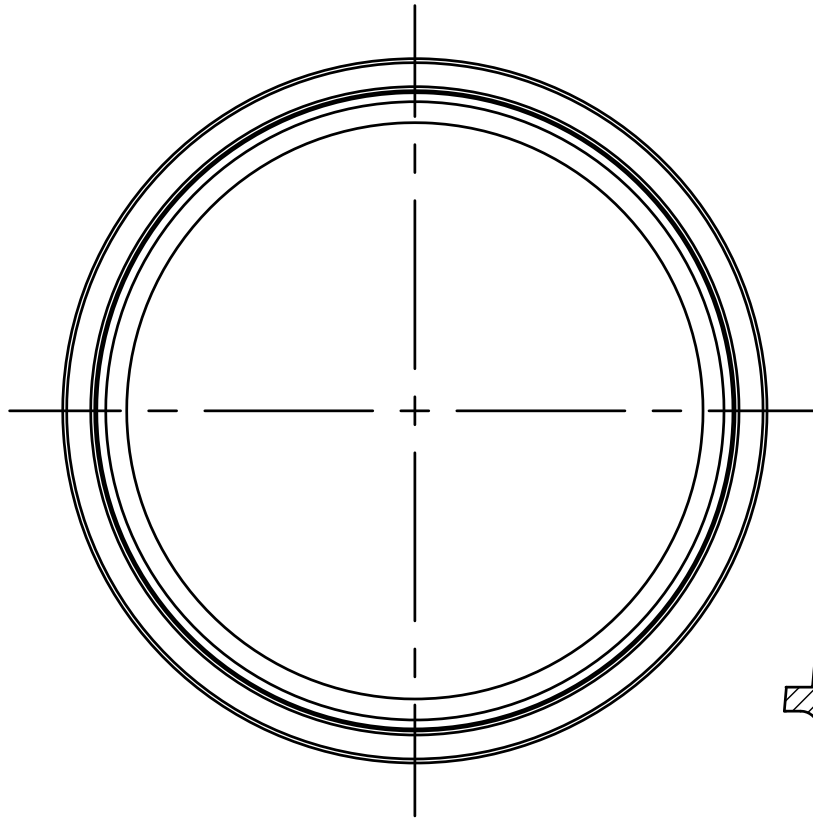
NOTES

1. Frame and cover shall be cast iron. Cast iron shall conform to ASTM 48, Class 35B.
2. Weights: Frame 314 lbs - 363 lbs.
Outer Cover 285 lbs - 330 lbs.
Inner Cover 147 lbs - 171 lbs.
3. Machine all matching surfaces and seats of frame and cover to prevent rocking.
4. Imported frames and covers shall have the country of origin marked in compliance with federal regulations.

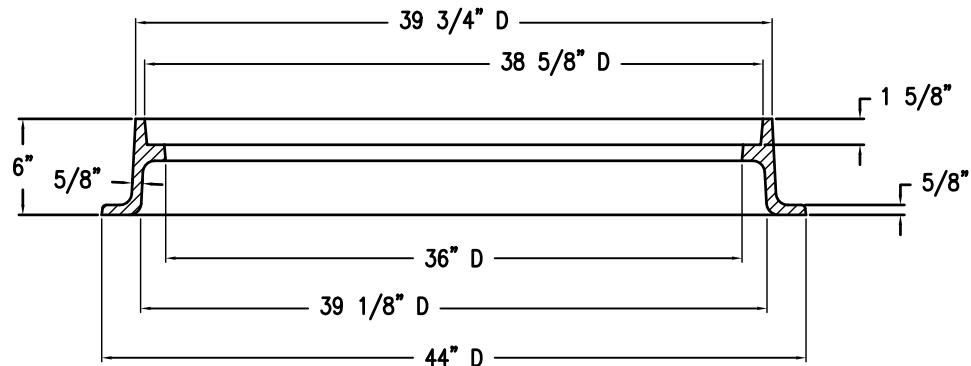


DETAIL

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
Updated	DG	T. Stanton	12/15	36" MANHOLE FRAME AND TWO CONCENTRIC COVERS HEAVY DUTY		 03/24/2022 Chairperson R.C.E. 52241 Date	DRAWING NUMBER M-03A
Reviewed	DG	T. Stanton	10/18				
Reviewed	RP	S. Engeda	03/22				



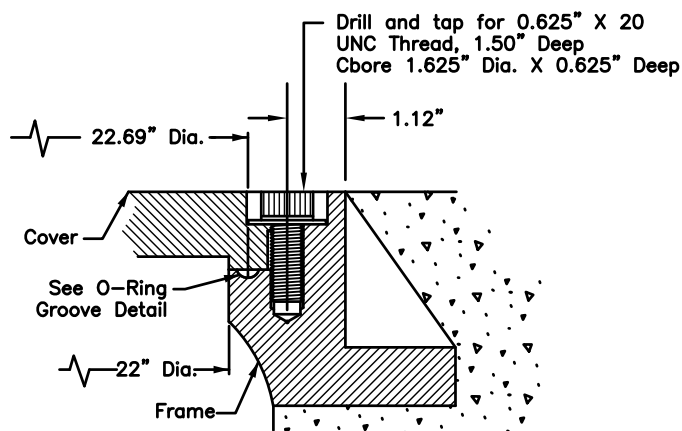
DETAIL OF AC PAVING



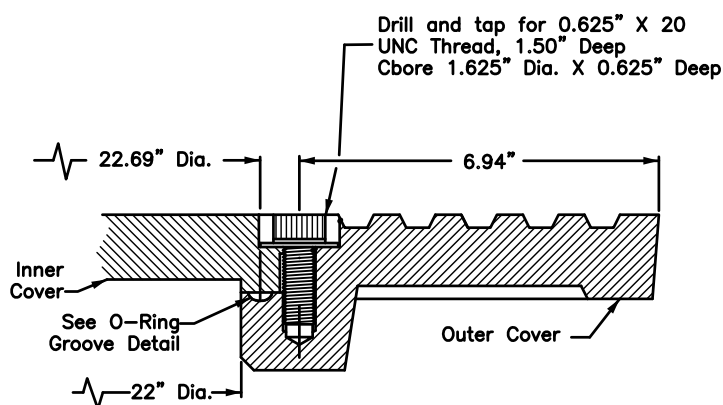
NOTES

1. FRAME SHALL BE CAST IRON. CAST IRON SHALL CONFORM TO ASTM 48, CLASS 35B.
2. WEIGHT: FRAME 212 LBS.
3. USE COVER SHOWN ON M-03A.
4. MACHINE ALL MATCHING SURFACES AND SEATS OF FRAME AND COVER TO PREVENT ROCKING.
5. IMPORTED FRAMES AND COVERS SHALL HAVE THE COUNTRY OF ORIGIN MARKED IN COMPLIANCE WITH FEDERAL REGULATIONS.
6. COVER CANNOT BE BOLTED TO THIS FRAME.

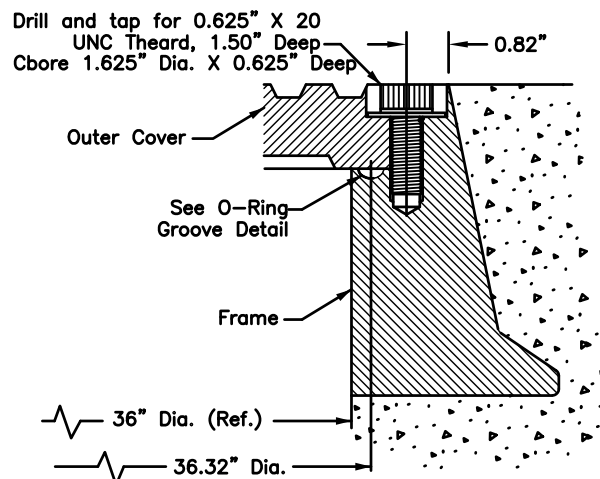
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
Updated	DG	T. Stanton	12/15		
Reviewed	DG	T. Stanton	10/18	36" MANHOLE FRAME LIGHTWEIGHT - HEAVY DUTY	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER M-03B



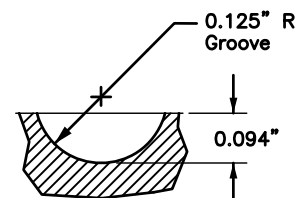
M-01 Detail:
COVER TO FRAME



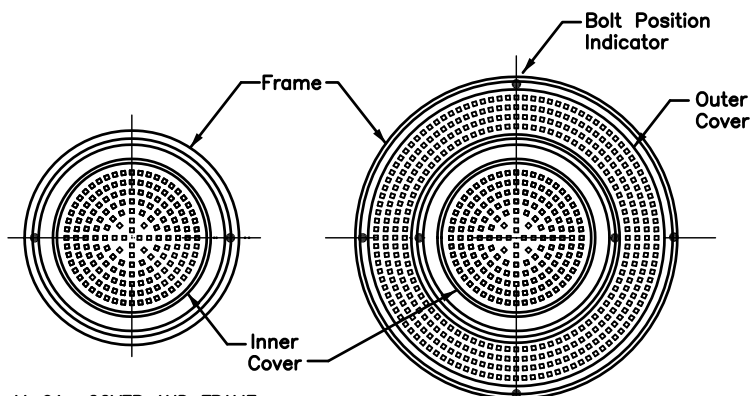
M-03A Detail:
INNER COVER TO OUTER COVER



M-03A Detail:
OUTER COVER TO FRAME



NEOPRENE O-RING
GROOVE DETAIL



M-01 COVER AND FRAME
BOLT PLACEMENT
(See Note 3)

M-03A CONCENTRIC COVERS AND FRAME
BOLT PLACEMENT
(See Note 3)

NOTES:

1. 0.625" X 20 UNC THREAD, 316 STAINLESS STEEL SOCKET HEAD CAP SCREW AND 1.50" O.D. X 0.687" I.D. X 0.078" THICK 316 STAINLESS STEEL WASHER.
2. 0.25" NEOPRENE O-RING GASKET SHALL BE GLUED INTO MACHINED GROOVE. GLUE SHALL MEET THE REQUIREMENTS OF MIL-M-81288 (AMEND. 1)
3. BOLTDOWN PATTERNS:
 - M-01 DETAIL (24" COVER & FRAME): INSTALL TWO (2) BOLTS AT 180 DEGREES.
 - M-03A DETAIL (CONCENTRIC COVERS): BETWEEN INNER AND OUTER COVERS INSTALL TWO (2) BOLTS AT 180 DEGREES.

Revision	By	Approved	Date
ORIGINAL		Parkinson	2/95
Updated		D. Gerschoffer	12/15
Reviewed		D. Gerschoffer	10/18
Reviewed	RP	S. ENGEDA	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

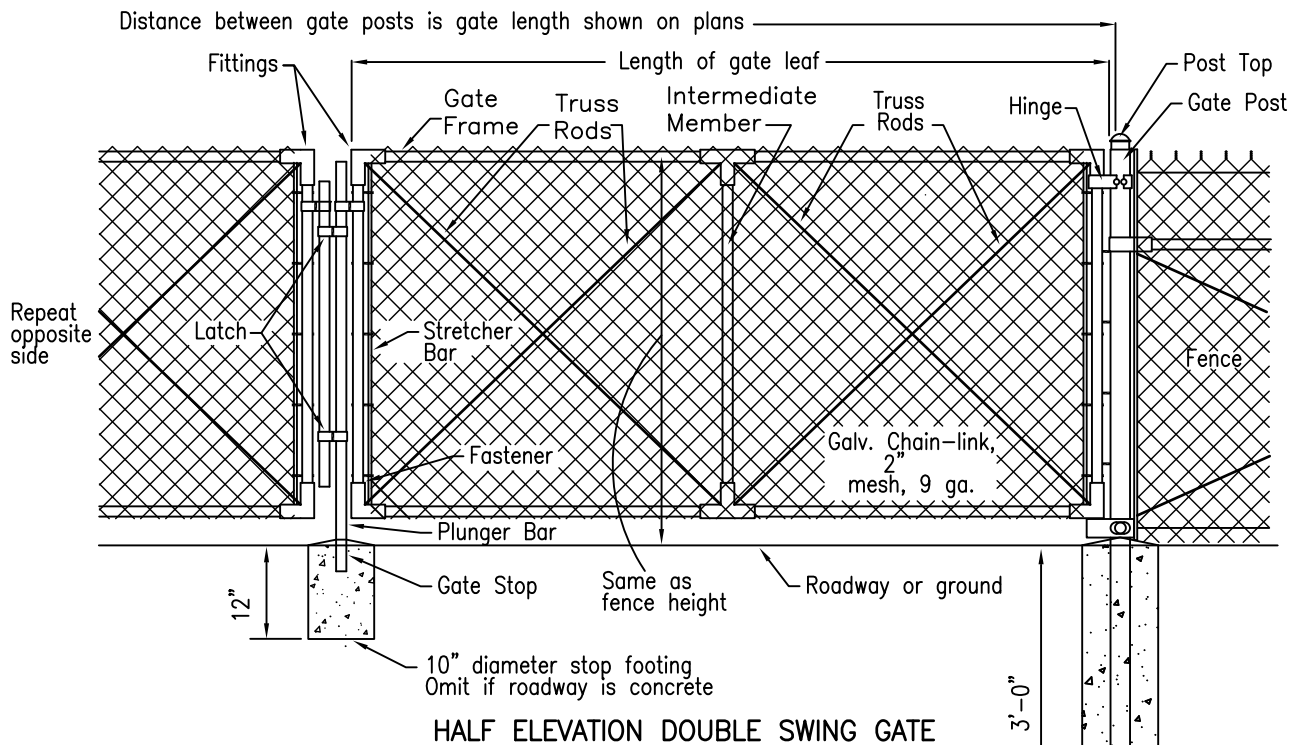
MANHOLE COVER - LOCKING DEVICE

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Chairperson 03/24/2022
Chairperson R.C.E. 19246 Date

DRAWING
NUMBER

M-04

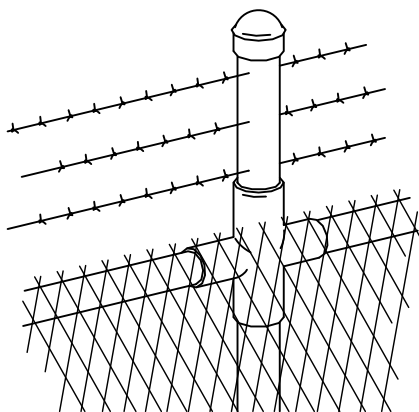


NOTES

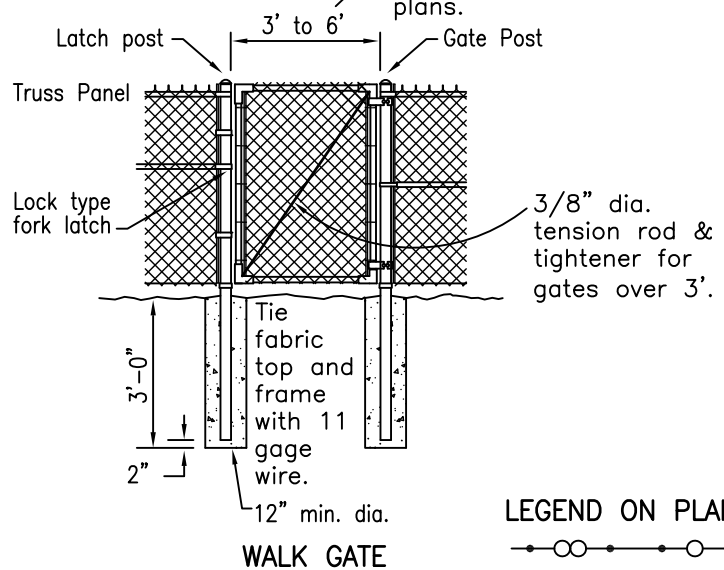
1. All footings shall be 520-C-2500 concrete.
2. The following items shall be furnished and installed only when shown on the plans and/or called for in the special provisions: a. Barbed wire b. Extension post
3. Chain link fence shall conform to Section 206-6 of the Standard Specification for Public Works Construction unless specifically noted on this drawing.

Diameter of footing = 4 times outside diameter of post.

Clear opening shown on plans.



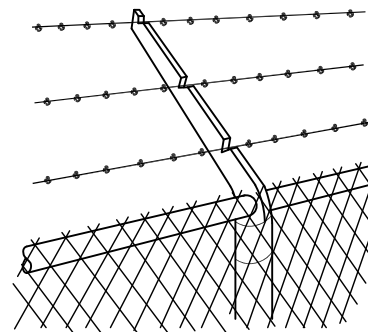
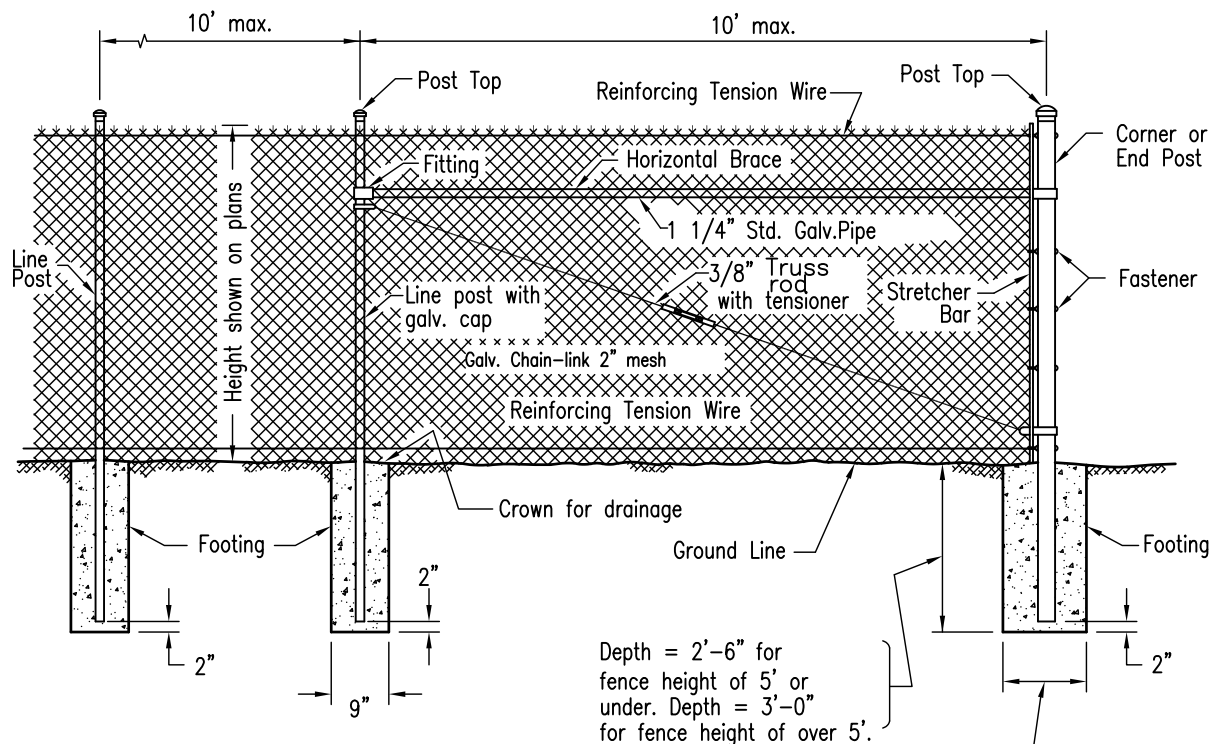
EXTENSION POST AND BARBED WIRE



LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		A. Kercheval	12/75			
Reviewed		D. Gerschoffer	10/18			
Reviewed	RP	S. Engeda	03/22			
				CHAIN LINK GATE		Chairperson R.C.E. 52241 Date
						DRAWING NUMBER M-05



EXTENSION ARM AND BARBED WIRE

NOTES

- All footings shall be 520-C-2500 concrete.
- The following items shall be furnished and installed only when shown on the plans and/or called for in the special provisions.
 - Barbed Wire
 - Extension Arm
 - Top Horizontal Rail
- Chain link fence shall conform to Section 206-6 of the Standard Specifications for Public Works Construction unless specifically noted on this drawing.
- See Standard Drawing M-20 for additional details.

LEGEND ON PLANS

—○××××○

Revision	By	Approved	Date
ORIGINAL		A. Kercheval	12/75
Reviewed		D. Gerschoffer	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

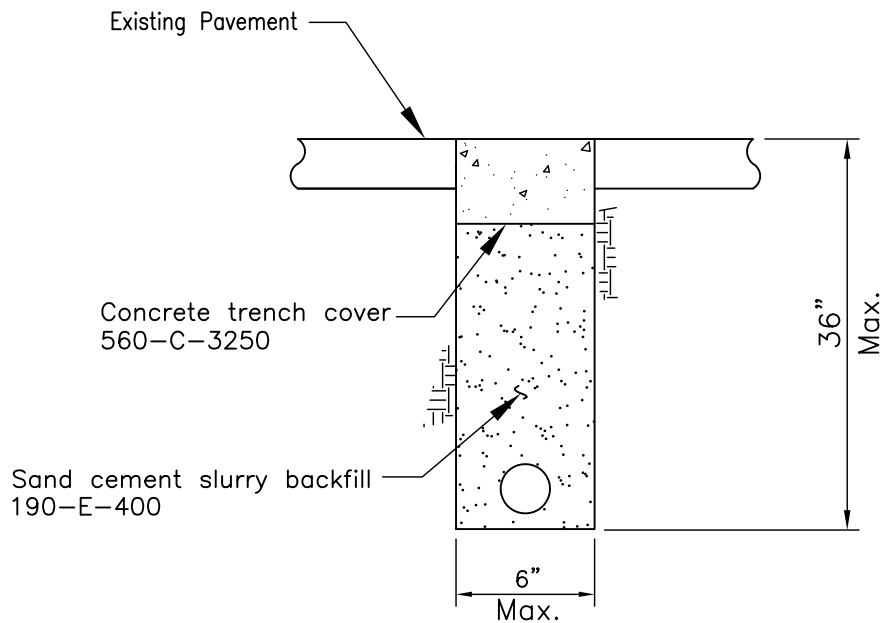
CHAIN LINK FENCE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Susan Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER

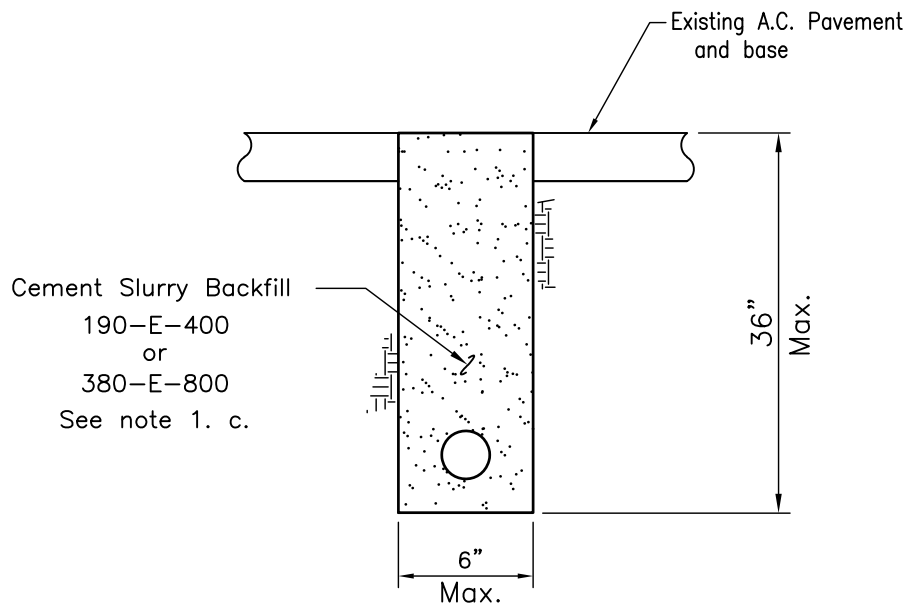
M-06



NOTES

1. Concrete encasement or sand cement slurry backfill shall have a minimum slump of 4".
2. Sand cement slurry backfill shall be thoroughly consolidated to encase conduits. Tampers or vibrators shall be used.
3. Concrete shall be screeded off to match pavement grade and floated to assure proper edge match.
4. Existing pavement will not require saw cutting when using rockwheel for excavation except when the existing pavement is concrete and trench finish is concrete.
5. All cuts shall be parallel or perpendicular to street centerline, when practical.
6. Allow concrete backfill or concrete trench cover 7 calendar days minimum, but no longer than 30 calendar days to cure and dry before applying any road surface finishes.
7. In major or prime arterial streets, an approved set accelerating admixture, such as calcium chloride, may be used only with prior approval of the Agency's Engineer otherwise the contractor shall protect the trench with the approval of the agency's Engineer.
8. See drawing G-33 for narrow trench resurfacing.
9. See table on drawing M-15 for standard minimum conduit depths.

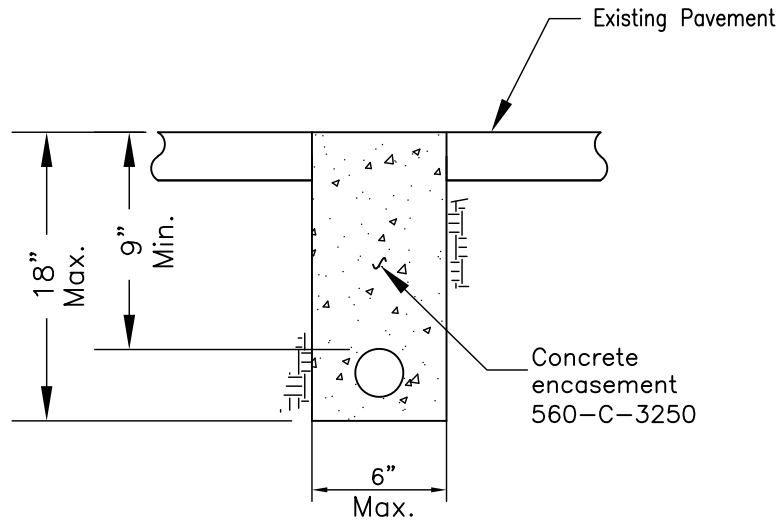
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
Reviewed	DG	T. Stanton	10/18		NARROW TRENCHES TRENCHING & BACKFILLING
Reviewed	RP	S. Engeda	03/22	DRAWING NUMBER M-07	



NOTES

1. Cement Slurry Backfill:
 - a. Cement slurry backfill shall have a maximum slump of 4".
 - b. Cement slurry backfill shall be thoroughly consolidated to encase conduits. Tampers or vibrators shall be used.
 - c. Cement slurry backfill shall be as follows:
 - Alleys and local residential streets Class 190-E-400
 - All other streets Class 380-E-800
2. Existing A.C. pavement will not require sawcutting when using rockwheel for excavation.
3. All cuts shall be parallel or perpendicular to street centerline, when practical.
4. See drawing G-33 for narrow trench resurfacing.
5. See table on drawing M-15 for standard minimum conduit depths.

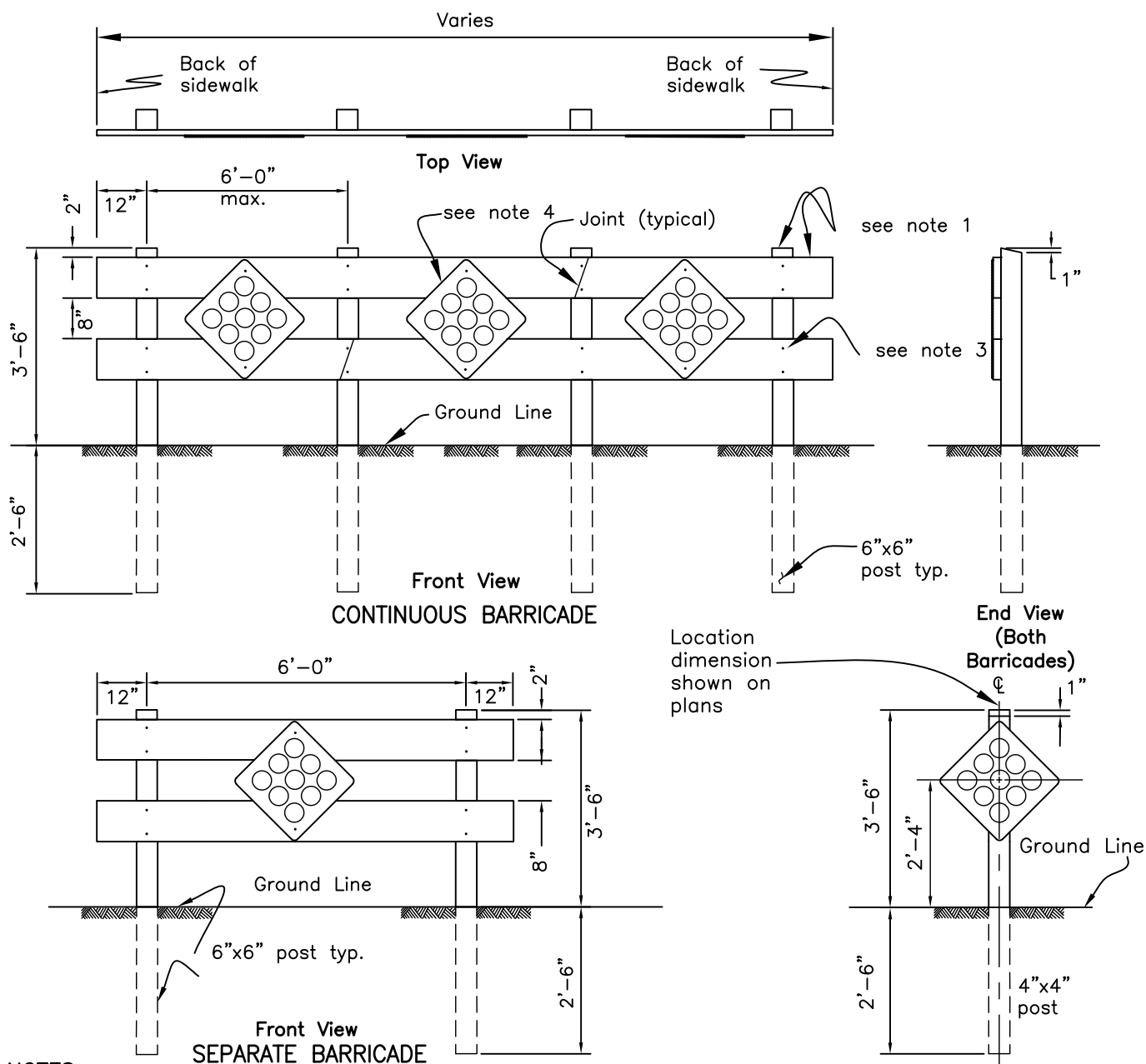
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
Reviewed	DG	T. Stanton	10/18		
Reviewed	RP	S. ENGEDA	03/22	NARROW TRENCHES TRENCHING & BACKFILLING	<i>Somarin Engeda</i> 03/24/2022
					Chairperson R.C.E. 52241 Date
					DRAWING NUMBER
					M-07A



NOTES

1. Concrete encasement or backfill shall have a minimum slump of 4".
2. Concrete encasement and/or sand cement slurry backfill shall be thoroughly consolidated to encase conduits. Tampers or vibrators shall be used.
3. Concrete shall be screeded off to match pavement grade and floated to assure proper edge match.
4. Existing pavement will not require saw cutting when using rockwheel for excavation except when the existing pavement is concrete and trench finish is concrete.
5. All cuts shall be parallel or perpendicular to street centerline, when practical.
6. Allow concrete backfill or concrete trench cover 7 calendar days minimum, but no longer than 30 calendar days to cure and dry before applying any road surface finishes.
7. In major or prime arterial streets, an approved set accelerating admixture, such as calcium chloride, may be used only with prior approval of the Agency's Engineer otherwise the contractor shall protect the trench with the approval of the Agency's Engineer.
8. This type of trench shall be permitted for supply cables of 750 volts or less. See California Public Utility Commission General Order No. 128, Rule 33.4 D.(1)(b) and where the conduit can not be placed at the proper recommended depth.
9. See drawing G-33 for narrow trench resurfacing.
10. This detail shall be used only when there is underground conflicts. See table on drawing M-15 for standard minimum conduit depths.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
Reviewed	DG	T. Stanton	10/18	NARROW TRENCHES TRENCHING & BACKFILLING SHALLOW CONDUIT DEPTH		 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER M-08

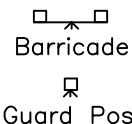


NOTES

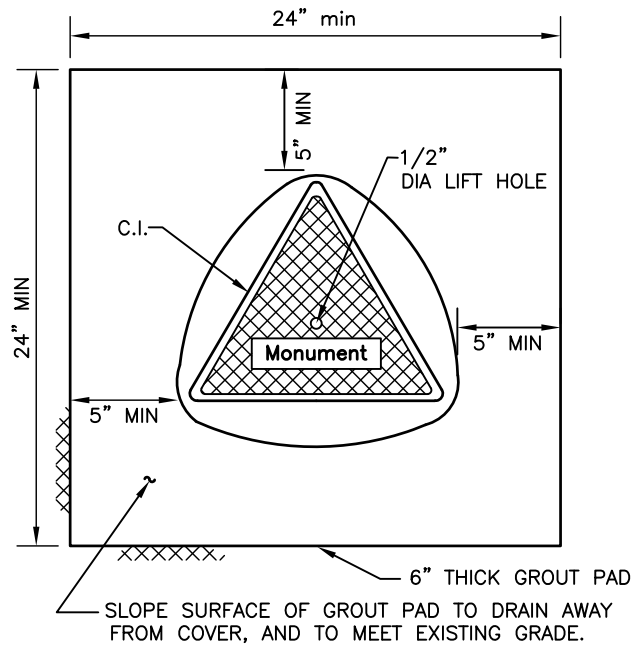
- Posts to be structural grade redwood or pressure treated (with wood preservative) Douglas Fir, surfaced four sides; cross pieces to be 2"x8" select grade Douglas Fir, surfaced four sides.
- All exposed portions of barricades shall be painted with two coats of white exterior enamel over prime coat.
- Connections shall be made with 3/8" x 6" galvanized lag screws with one (1) washer each.
- Object Marker fasteners to be 3/8" x 1 1/2" galvanized lag screws.
- Object Markers (reflector signs) per most current edition of the CA MUTCD shall be used:
 - Type 1 Object Markers (yellow): OM1-1, OM1-2, or OM1-3.
 - Type 4 Object Markers (red): OM4-1, OM4-2, or OM4-3.
 - Red object markers shall be used on dead end streets. In all others cases, yellow object markers shall be used.
 - Reflector material shall be plastic or other approved reflectorized material.
 - Sign material shall be aluminum alloy 60661-T6 or 5052-H38, aluminum thickness 0.063".
- 6' long hot section metal post per Caltrans Std. Plan A74-A optional for guard post

Front View GUARD POST

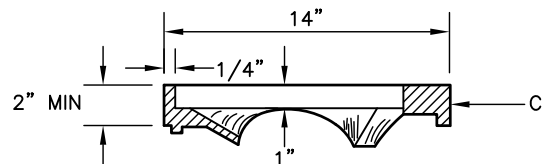
LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
Updated	TC	T. Stanton	10/18		
Reviewed	RP	S. Engeda	03/22	GUARD POST AND BARRICADE	<i>Samantha Engeda</i> 03/24/2022
					Chairperson R.C.E. 52241 Date
					DRAWING NUMBER
					M-09



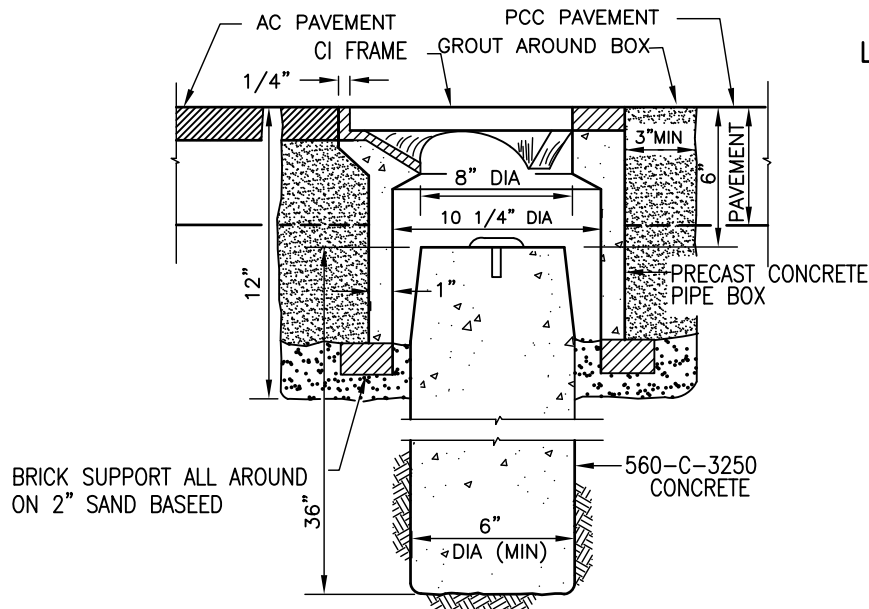
PLAN-IN UNPAVED AREA



RISER RING

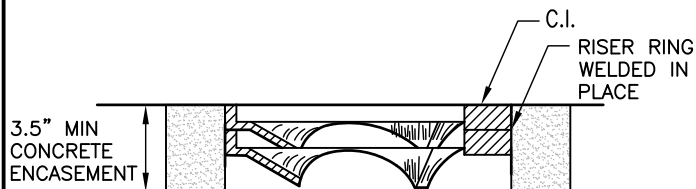
ALTERATION LOCATION OF MONUMENT. TIE DISTANCES SHOWN ON FINAL SUB-DIVISION MAP IF ALTERNATE LOCATION IS USED
SEE ADDITIONAL STREET SURVEY MONUMENT NOTES ON M-10B

LOCATION OF STREET SURVEY MONUMENT

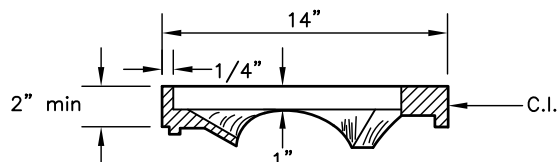


TYPICAL MONUMENT SECTION IN PAVED AREA

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	STREET SURVEY MONUMENT		 03/24/2022 Chairperson R.C.E. 52241 Date
Revised		D.Gerschoffer	09/15			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER M-10A

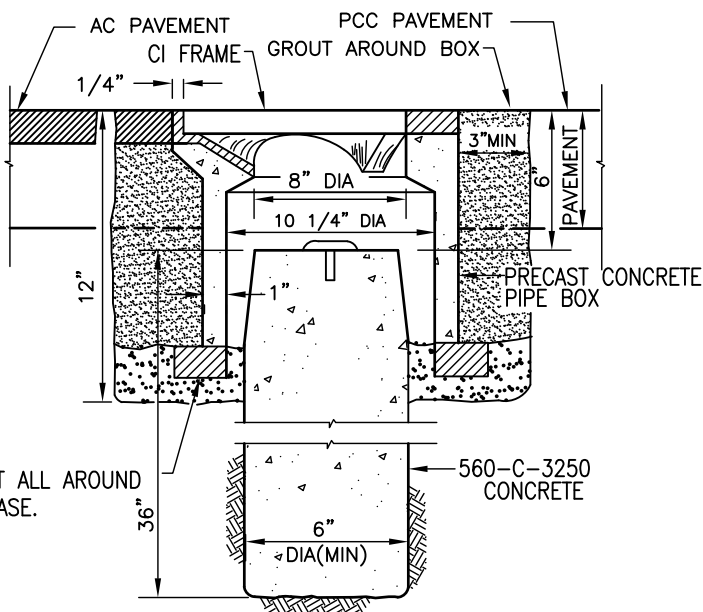


RISER RING WELDED TO EXISTING RING

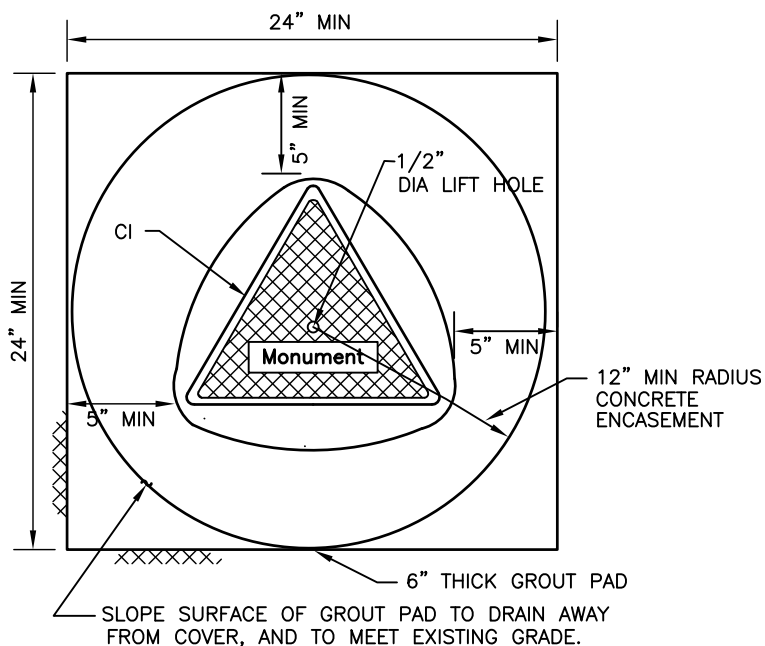


RISER RING

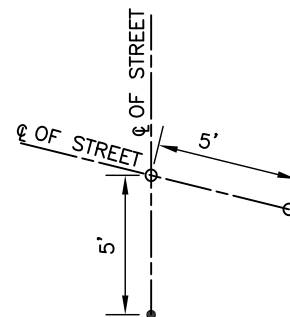
BRICK SUPPORT ALL AROUND
ON 2" SAND BASE.



TYPICAL MONUMENT
SECTION IN PAVED AREA



PLAN-IN UNPAVED AREA



ALTERATION LOCATION OF MONUMENT.
TIE DISTANCES SHOWN ON FINAL SUB-
DIVISION MAP IF ALTERNATE LOCATION
IS USED.
SEE ADDITIONAL STREET SURVEY
MONUMENT NOTES ON M-10B

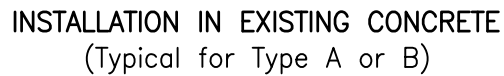
LOCATION OF STREET
SURVEY MONUMENT

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
New		T. Stanton	10/15	STREET SURVEY MONUMENT OVERLAY ADJUSTMENT		 03/24/2022 Chairperson R.C.E. 52241 Date	M-10B
Revised		D. Gerschoffer	10/18				
Reviewed	RP	S. Engeda	03/22				

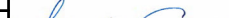
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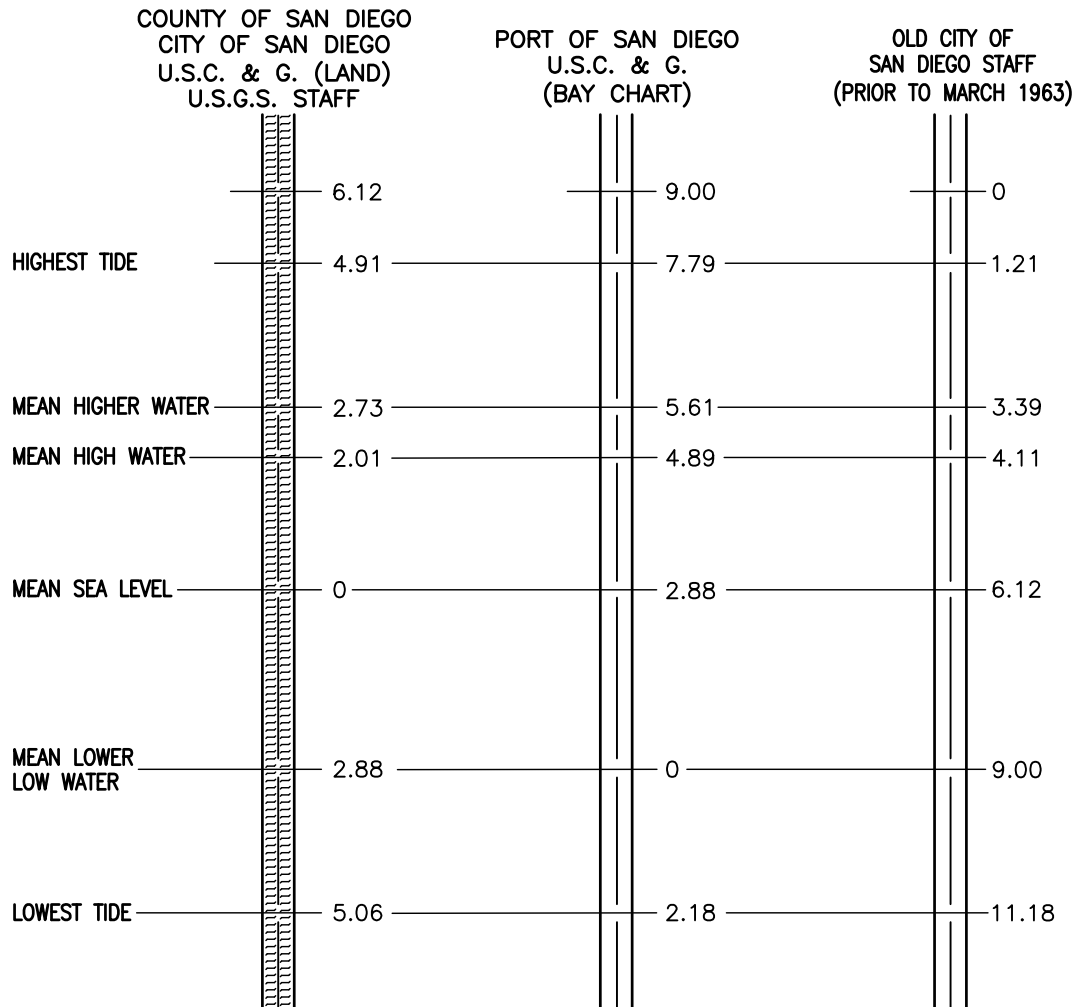
1. COVER AND FRAME TO BE CAST INTEGRALLY WITH PIPE BOX.
2. MONUMENT BASE MAY BE CAST IN PLACE OR PRECAST.
3. FORM AND TAPER EXPOSED UPPER 6" OF CAST-IN-PLACE BASE TO A TOP DIAMETER OF 5". (PRECAST BASE SHALL BE SAND BACKFILLED)
4. MONUMENT MARKER SHALL BE A DOMED BRASS, 3" IN DIAMETER.
5. MONUMENT LOCATION:
 - A) SET ON ALL CENTERLINE INTERSECTIONS UNLESS ACTUAL LOCATION IS MODIFIED BY THE AGENCY AND SHOWN IN MODIFIED LOCATION ON MAP. WHEN CENTERLINE INTERSECTIO IS IMPRACTICAL, OFFSET 5' ON CENTERLINE OF MAJOR STREET, (SEE DETAIL AT RIGHT). IF NEITHER CETERLINE CAN BE OCCUPIED, TWO MONUMENTS WILL BE SET IN LINE AROUND THE FRONT ON THE PERIMETER OF A 10' DIAMETER CIRCLE, WHOSE CENTER IS THE POINT.
 - B) SET ON CENTERLINE AT INTERVALS NOT EXCEEDING 1000' ON STRAIGHT RUNS.
 - C) SET ON CENTERLINE AT POINTS OF CURVATURE.
 - D) SET ON CENTER AT CENTER POINTS OF CUL-DE-SACS.
 - E) SET ON CENTERLINE WHEN CENTER POINT OF CUL-DE-SAC IS OFFSET FROM CENTERLINE.
 - F) THESE STANDARDS MAY BE MODIFIED AT THE DISCRETION OF THE THE AGENCY IN CASES WHERE STRICT COMPLIANCE THEREWITH RESULTS IN MORE MONUMENTS THAN IT CONSIDERS NECESSARY. THE FOLLOWING TECHNIQUE FOR REDUCING THE NUMBER OF MONUMENTS WILL BE ROUTINE.
 - G) SUBSTITUTION OF ONE MONUMENT ON THE "POINT OF INTERSECTION" FOR MONUMENTS AT THE "BEGINNING OF CURVE" AND THE "ENDING OF CURVE" WHEN THE "POINT OF INTERSECTION" FALLS WITHIN THE PAVEMENT AREA.
 - H) DELETION OF ANY MONUMENT OTHERWISE REQUIRED BY THESE STANDARDS WHEN ITS POSITION CAN BE DETERMINED BY TURNING ONE ANGLE FROM A POINT ON A STRAIGHT LINE BETWEEN TWO OTHER MONUMENTS, PROVIDING SUCH POINT IS NOT MORE THAN 300' FROM THE POINT ON WHICH THE DELETED MONUMENT WOULD HAVE BEEN PLACED.
 - I) FOR RAISING STREET SURVEY MONUMENT TO FINISH GRADE, RISER RING IS TO BE WELDED TO EXISTING RING AND BROUGHT TO SURFACE. ALL WELDING MUST BE DONE TO THE EXTERIOR OF THE RISER RING. NO INTERIOR WELDS ARE TO BE DONE. ENCASE RISER RING IN FAST SETTING CONCRETE WITH A MINIMUM OF 3.5" THICKNESS. CONCRETE MUST OBTAIN 1600 PSI BEFORE TRAFFIC USE, AND HAVE A MINIMUM STRENGTH OF 3250 PSI.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Note I Rev		D. Gerschoffer	10/18	STREET SURVEY MONUMENT NOTES	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		
				DRAWING NUMBER	M-10C



1. Material— Brass A.S.T.M. B-16. All machine tolerances $\pm 1/64$ " machine finish.
2. May be installed in fresh concrete at time of installation of concrete structure.
3. Location—in most stable, permanent location in vicinity, such as in base for street light standard or traffic signal (behind sidewalk), in curb (not near joint, on curve or near trees), on top of drainage headwall, in foundation for building

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING BENCH MARK - BRASS PLUG	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		 03/24/2022
Revised		D. Gerschoffer	09/15		
Reviewed		D. Gerschoffer	10/18		
Reviewed	RP	S. Engeda	03/22		
					Chairperson R.C.E. 52241 Date DRAWING NUMBER M-11



LEGEND

U.S.C. & G. = United States Coast and Geodetic Survey.
 U.S.G.S. = United States Geological Survey.
 MEAN HIGH WATER = Mean of all high water in San Diego Bay.
 MEAN HIGHER WATER = Mean of all higher water in San Diego Bay.
 Bay charts and topography up to the mean high tide based on zero at the mean lower low water.

SOURCE

Data based on U.S.C. & G. "Sea level Datum of 1929".

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Revised		D. Gerschoffer	09/15	DATUMS	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed		D. Gerschoffer	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER M-12

FOUND MONUMENTS

Found monuments must denote the character of the monument, how it is identified and the record, or no record as applicable.

SET MONUMENTS – Criteria for Locating and Character

On subdivision boundaries, permanent monuments are required; and must be shown on the map at intervals as specified by the local agency. The location of such points that are unacceptable or will be destroyed by construction may be established by ties to permanent reference monuments shown on the final map.

A permanent monument shall be no less substantial than the following:

- a. An iron pipe of minimum two inch diameter not less than 2' in length placed upright in the ground so that the top of said pipe is flush with the surface. Said pipe shall be filled with a metal or cement plug at least three inches in depth and centered with a metal tack and disc; or
- b. A metal plug with tack and disc set flush with the surface in portland cement concrete sidewalk, curb or pavement; or other monument satisfactory to the City Engineer or County Surveyor. The metal plug shall be anchored 1" deep in sidewalk.

Lot corners and points of curves along street and alley right of way lines where portland cement concrete sidewalks, curbs or pavement exist, or will be constructed as part of the subdivision requirements, shall be identified with tack and disc set flush with the surface along an extension of the lot line at an approved offset, to be measured radially or at right angles to the right of way line in said sidewalk, curb pavement. In case the sideline of the lot is not radial or at right angles to the right of way line a disc shall be set along an extension of the sideline at an offset to be measured radially or at right angles to the right of way line. Where no such concrete work exists, and none will be required to be constructed, all lot corners, angle points and points of curve shall be marked with a monument no less substantial than a one-half inch steel rod or pipe, 18" long, set flush with the surface.

LEGEND

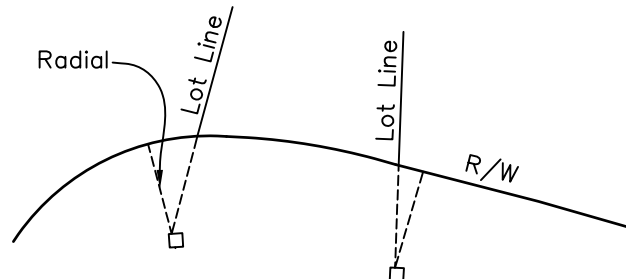
-  Fd 2" Iron Pipe Marked RCE XXXX or per Map XXX unless otherwise noted
-  Fd Street Survey Monument Stamped RCE XXXX or LS XXXX
-  Set 2" x 24" Iron Pipe Marked RCE XXXX or LS XXXX
-  Set Lead and Disc Stamped RCE XXXX or LS XXXX
-  Set 1/2" x 18" Iron Pipe Marked RCE XXXX or LS XXXX
-  Set Street Survey Monument Stamped RCE XXXX or LS XXXX per Standard Drawing M-10

The addition of other symbols is permissible where such will result in a clearer map.

The following notes should be used in the legend where applicable.

Unless otherwise shown on this map:

1. All lot corners except as described below will be monumented by a 1/2" by 18" iron pin stamped (RCE or LS number).
2. Lot corners along the sideline of dedicated street right of way will be monumented by a disc stamped (RCE or LS number), set along an extension of the lot line at an offset of ___ in the (curb, sidewalk). The offset shall be measured radially, or at right angles, to the right of way line. (See example below.)
3. All points of curve of the sidelines of dedicated streets will be monumented by a disc stamped (RCE or LS number), set at an offset of ___ in the (curb, sidewalk). The offset shall be measured radially.



EXAMPLE OF OFFSET DISCS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Revised		D. Gerschoffer	09/15	SURVEY MONUMENTS	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed		D. Gerschoffer	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER M-13

1 Gram = 15.4324 grains
 1 Gram = 0.0353 oz.
 1 Kg. = 2.2046 lb.
 1 Kg. = 0.0011 ton
 1 Ton (met) = 1.1023 ton

WEIGHT

1 Grain = 0.0648 g.
 1 Ounce = 28.3495 g.
 1 Pound = 0.4536 kg.
 1 Ton = 907.1848 kg.
 1 Ton = 0.9072 ton (met)

1 Sq. cm. = 0.1550 sq. in.
 1 Sq. m. = 10.7639 sq. ft.
 1 Sq. m. = 1.1960 sq. yd.
 1 Hectare = 2.4710 acres
 1 Sq. km. = 0.3861 sq. mile
 1 Sq. km. = 247.10 acres

AREA

1 Sq. in. = 6.4516 sq. cm.
 1 Sq. ft. = 0.0929 sq. m.
 1 Sq. yd. = 0.8361 sq. m.
 1 Acre = 0.4047 hectare
 1 Sq. mile = 2.5900 sq. km.
 1 Acre = 0.0040 sq. km.

1 Cu. cm. = 0.0610 cu. in.
 1 Cu. m. = 35.3134 cu. ft.
 1 Cu. m. = 1.3079 cu. yd.

VOLUME

1 Cu. in. = 16.3872 cu. cm.
 1 Cu. ft. = 0.0283 cu. m.
 1 Cu. yd. = 0.7646 cu. m.

1 Liter = 61.0250 cu. in.
 1 Liter = 0.0353 cu. ft.
 1 Liter = 0.2642 gal. (U.S)
 1 Liter = 0.0284 Bu.

CAPACITY

1 Cu. in. = 0.0164 liter
 1 Cu. ft. = 28.3162 liters
 1 Gal. = 3.7853 liters
 1 Bu. = 35.2383 liters

1 MM. = 0.0394 in.
 1 CM. = 0.3937 in.
 1 Meter = 3.2808 ft.
 1 Meter = 1.0936 yd.
 1 Km. = 0.6214 mile

LENGTH

1 In. = 25.4000 mm.
 1 In. = 2.5400 cm.
 1 Ft. = 0.3048 m.
 1 Yd. = 0.9144 m.
 1 Mile = 1.6093 km.

MULTIPLE
 1000000
 1000
 100
 10

PREFIX
 mega
 kilo
 hecto
 deka

METRIC PREFIX

MULTIPLE
 1/10
 1/100
 1/1000
 1/1000000

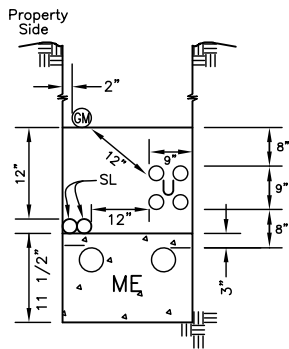
PREFIX
 deci
 centi
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TEMPERATURE

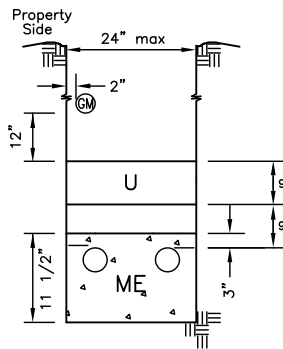
Degrees Fahrenheit = $9/5$ (Degrees Celsius) + 32

Degrees Centigrade = $5/9$ (Degrees Fahrenheit - 32)

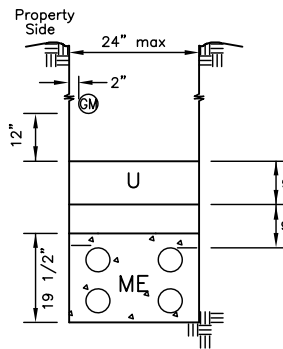
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	METRIC EQUIVALENTS		 03/24/2022	Chairperson R.C.E. 52241 Date
Revised		D. Gerschoffer	09/15				
Reviewed		D. Gerschoffer	10/18				
Reviewed	RP	S. Engeda	10/18				
						DRAWING NUMBER	M-14



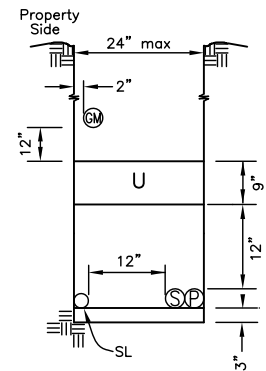
TYPE A



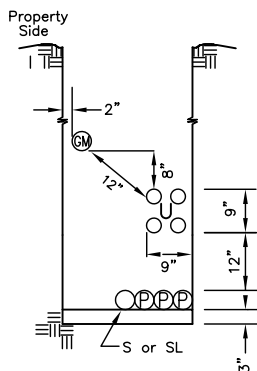
TYPE B



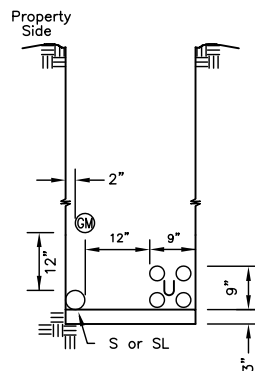
TYPE C



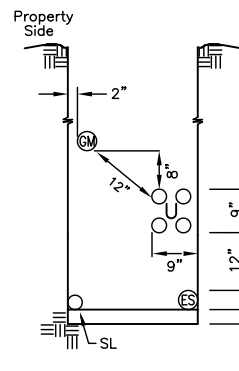
TYPE D



TYPE E



TYPE F



TYPE G

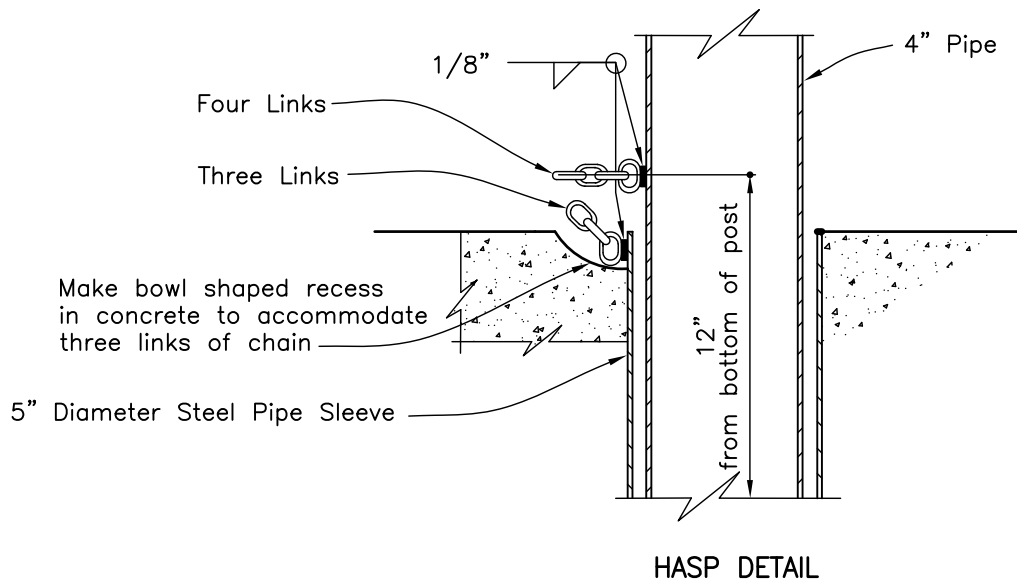
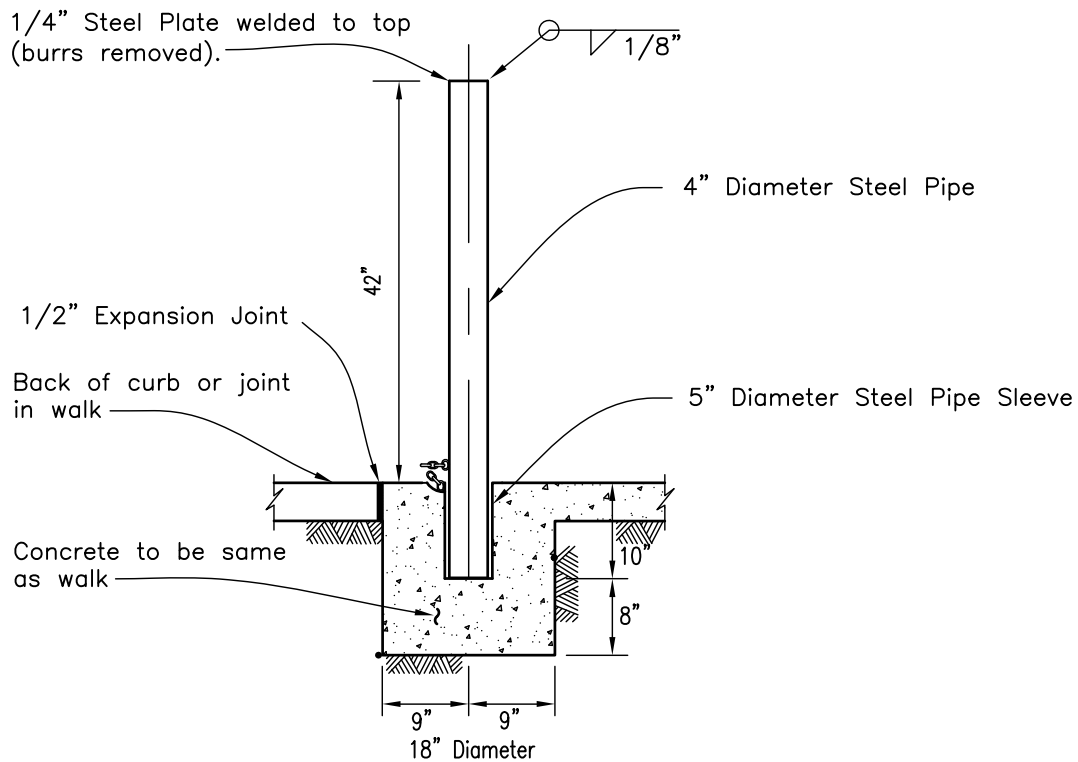
SERVICE TRENCH
ON
PUBLIC PROPERTY

	Legend	Minimum Cover
GM	Gas Main	30"
GS	Gas Service	30"
P	Primary Electric	42"
S	Secondary Electric	30"
ES	Electric Service	30"
ME	Multiple Electric (P, S or ES in Spacers) Concrete Encased	24"
SL	Street Light (not series)	30"
U	CATV	24"
	TELCO	24"

NOTES

1. All dimensions are typical unless otherwise noted.
2. Generally utilities are to be installed under the applicable specifications for the particular utility and the specifications of the owner Agency.
3. The location of utilities as shown by the Standard Drawing shall in no way violate existing codes or regulations applicable to individual utilities.
4. Installation of sewer and/or water utilities are not permitted in the joint trenches shown above.
5. Minimum depth of gas pipe may, subject to gas company inspectors approval, be reduced to 24" where necessary to clear structure crossings.
6. Depth and width of trench varies.
7. CATV main or trunk line conduit required along all streets, except cul-de-sac streets less than 1,000' in length which may be served by feeder lines only.
8. CATV 1-1/2" feeder conduit shall run across streets with each power service line and capped at edge of sidewalk.
9. All CATV terminals and conduits shall be terminated at generally accepted locations and marked. A map shall be filed with the appropriate agency showing the locations of the CATV system.
10. In no case shall CATV conduits be placed within 12" of gas lines, also conduits are not to be placed directly over gas lines.
11. Catv conduit may be placed with the TELCO conduit provided the TELCO minimum depth is held.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Revised		D. Gerschoffer	09/15	JOINT TRENCH LOCATIONS	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed		D. Gerschoffer	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER M-15



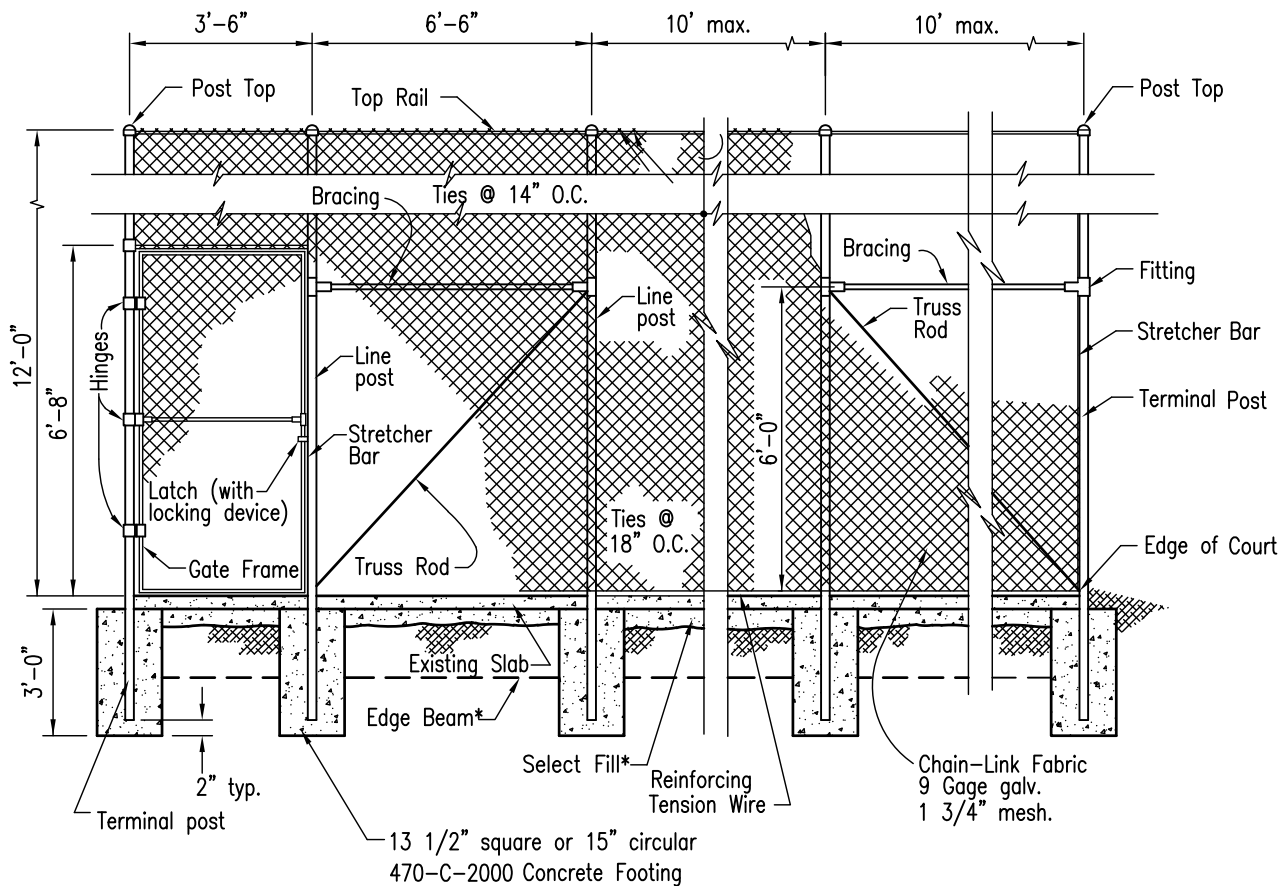
NOTES

- Chain to be 1/4" proof coil chain galvanized steel.
Weld four links to post and three links to pipe sleeve.
- All metal to be hot-dip galvanized after fabrication.

LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	DEMOUNTABLE POST		<i>Samson Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date	M-16
Revised		D. Gerschoffer	09/15				
Reviewed		D. Gerschoffer	10/18				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER	



* For Edge Beam, Slab, and Select Fill details, see plans.

ELEVATION

DESCRIPTION	MIN. SIZE IN INCHES	MIN. WEIGHT PER LIN FT IN LBS.
Line Post	2.375 O.D.	3.65
Terminal Post	2.875 O.D.	5.79
Top Rail	1.660 O.D.	2.27
Bracing	1.660 O.D.	2.27
Gate Frame	1.660 O.D.	2.27

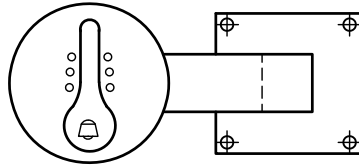
NOTE:

Chain link fabric shall be erected on the interior side of the courts.

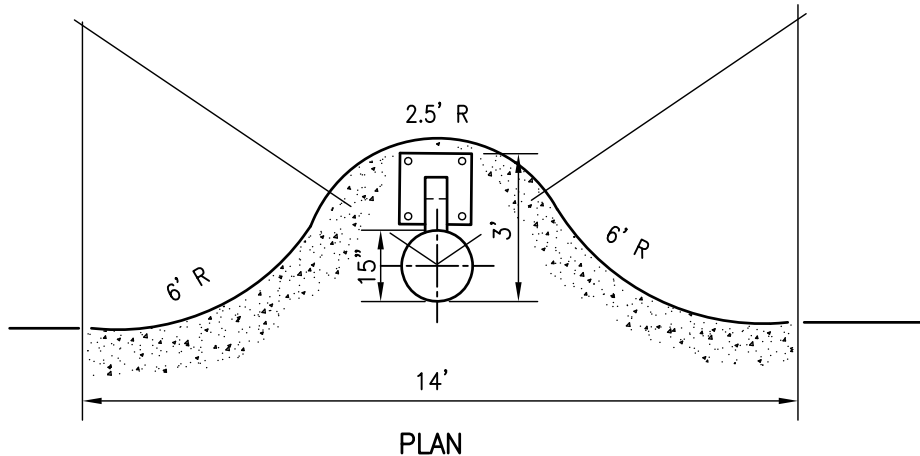
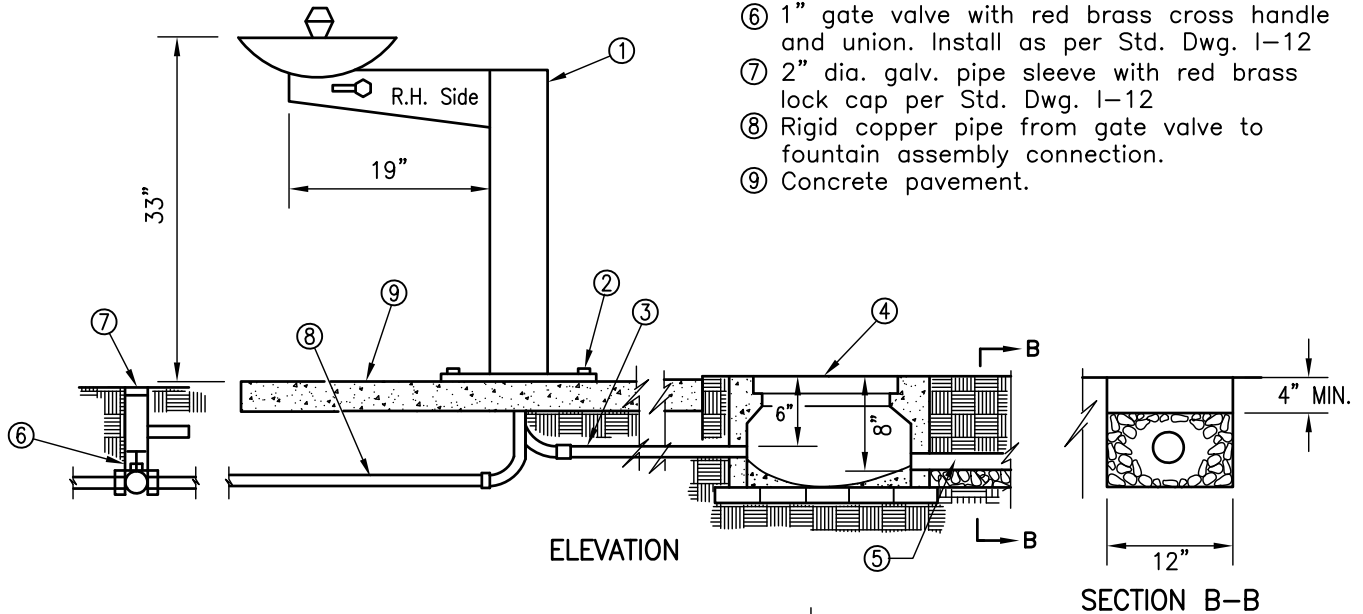
CAUTION:

This Standard Drawing is not to be used if any wind screen is to be applied to the fence.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	TENNIS COURT FENCE CHAIN LINK		 03/24/2022 Chairperson R.C.E. 52241 Date
Revised		D. Gerschoffer	09/15			
Reviewed		D. Gerschoffer	10/18			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER M-17



- ① Drinking Fountain – Haws model 3376 or approved equal.
- ② 3/8" dia. Expansion anchors with flat (recessed heads) screws 4 places.
- ③ 1 1/4" P.V.C. pipe with sweep 90° ell connection to fountain drain.
- ④ 9 1/2" x 16" concrete yard box with hinged locking top (Brooks No. 3HL or equal) set on red brick foundation.
- ⑤ 4" x 40' perforated plastic underdrain pipe, encased in 3/4" crushed rock.
- ⑥ 1" gate valve with red brass cross handle and union. Install as per Std. Dwg. I-12
- ⑦ 2" dia. galv. pipe sleeve with red brass lock cap per Std. Dwg. I-12
- ⑧ Rigid copper pipe from gate valve to fountain assembly connection.
- ⑨ Concrete pavement.



NOTES

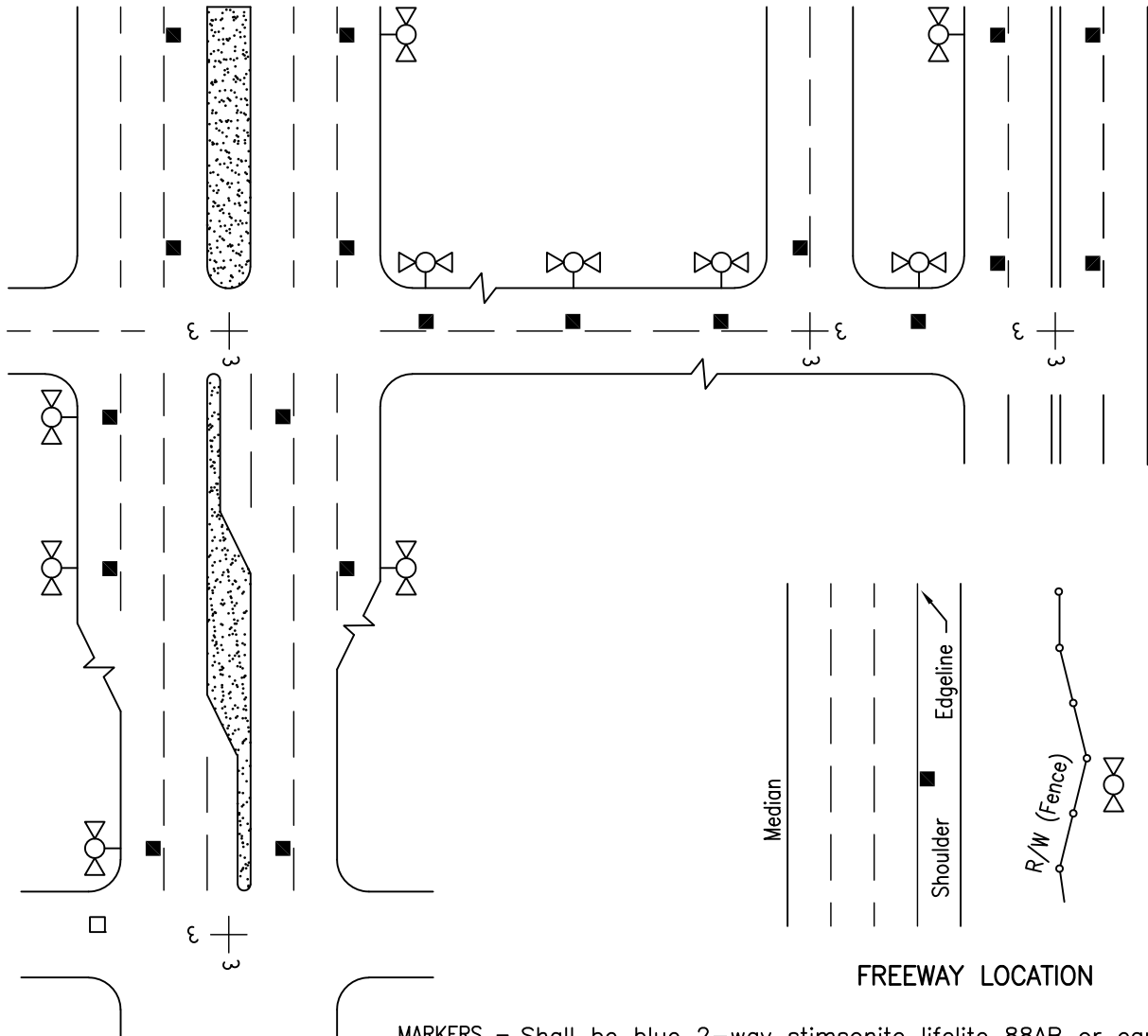
1. Install fountain so that right hand side faces prevailing wind.
2. Hand form a concrete bowl at bottom of yard box to facilitate sand clean out.
3. Perforated drain pipe and trench are to drain away from fountain at 1% min. slope. Keep drain in lawn areas.
4. Item no. 6 is a 1" gate valve. Use red brass bushing reducers to adapt to feed pipe.

LEGEND ON PLANS



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE		
ORIGINAL		Kercheval	12/75		DRINKING FOUNTAIN		03/24/2022
Revised		D. Gerschoffer	09/15	Chairperson		R.C.E. 52241	Date
Reviewed		D. Gerschoffer	10/18	DRAWING		M-18	
Reviewed	RP	S. Engeda	03/22	NUMBER			

STREET LOCATIONS

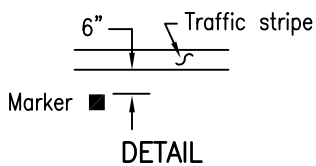


FREEWAY LOCATION

MARKERS - Shall be blue 2-way stimsonite lifelite 88AB or equal.

ADHESIVE - An ample amount of two (A&B) epoxy or equal.

SURFACES - Clean and dry prior to installation per manufacturer's recommendations. Install markers with reflective surfaces facing oncoming vehicles and offset 2" from lane lines toward fire hydrant.



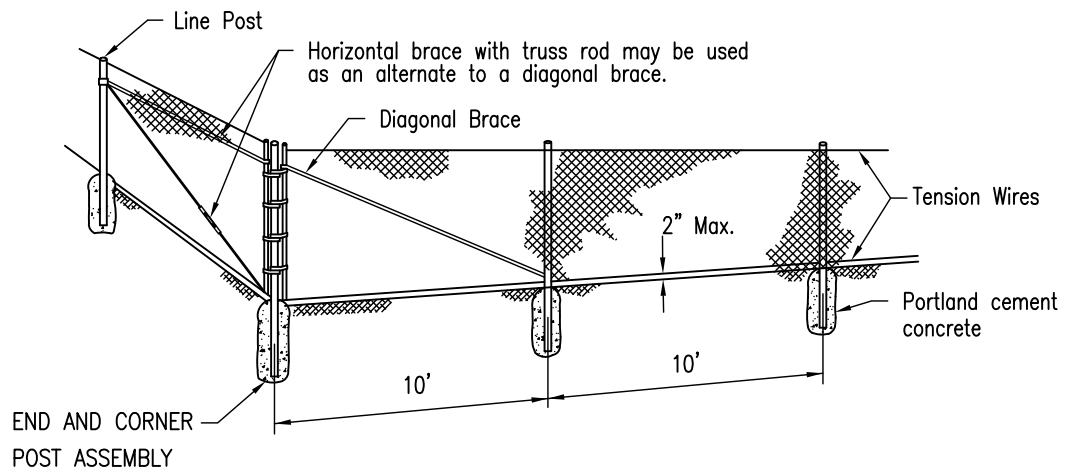
NOTES

1. Fire Department will provide location(s) for all markers in PRD's, Commercial Lots and other areas outside of Public Right of Way.
2. Markers must be installed at the new and relocated hydrants and within all resurfacing projects.
3. For streets without lane lines or streets with raised pavement markers and no painted lane lines, install markers 6" from centerline or existing markers.

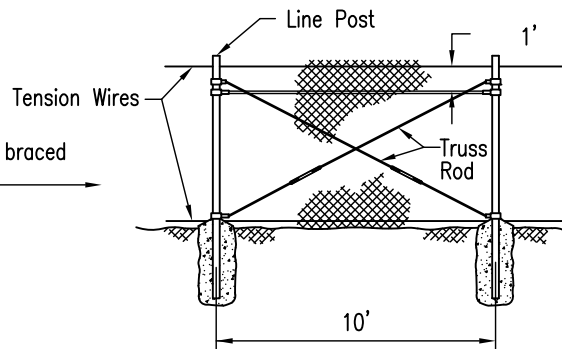
LEGEND ON PLANS

Marker ■
Fire Hydrant

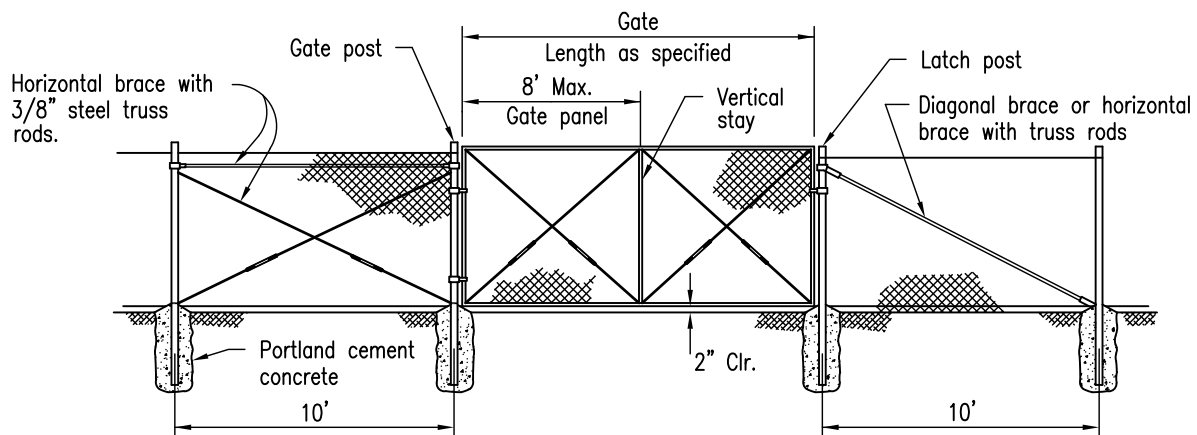
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	FIRE HYDRANT MARKERS		
Revised		D. Gerschoffer	09/15			
Reviewed		D. Gerschoffer	10/18			
Reviewed	RP	S. Engeda	03/22			
						Chairperson R.C.E. 52241 Date
						DRAWING NUMBER M-19



Line posts at 1000' max. intervals braced and trussed in both directions.



LINE POST BRACING



GATE ASSEMBLY

Revision	By	Approved	Date
ORIGINAL		Kercheval	12/75
Revised		D. Gerschoffer	09/15
Reviewed		D. Gerschoffer	10/18
Reviewed	RP	S. Engeda	03/22

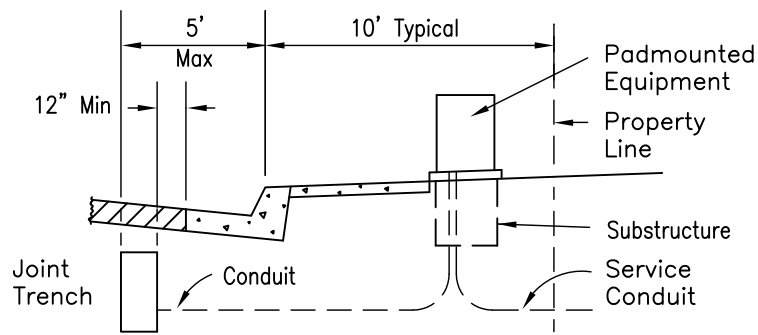
SAN DIEGO REGIONAL STANDARD DRAWING

CHAIN LINK FENCE DETAILS

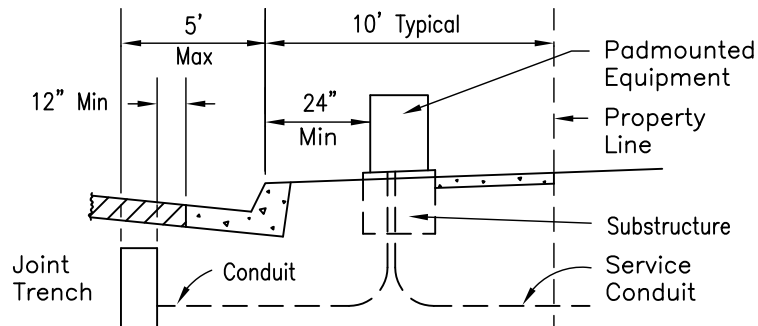
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

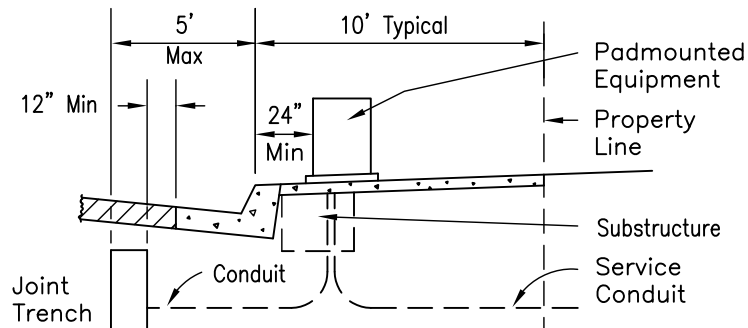
DRAWING
NUMBER **M-20**



SIDEWALK NEXT TO CURB



SIDEWALK NEXT TO PROPERTY LINE

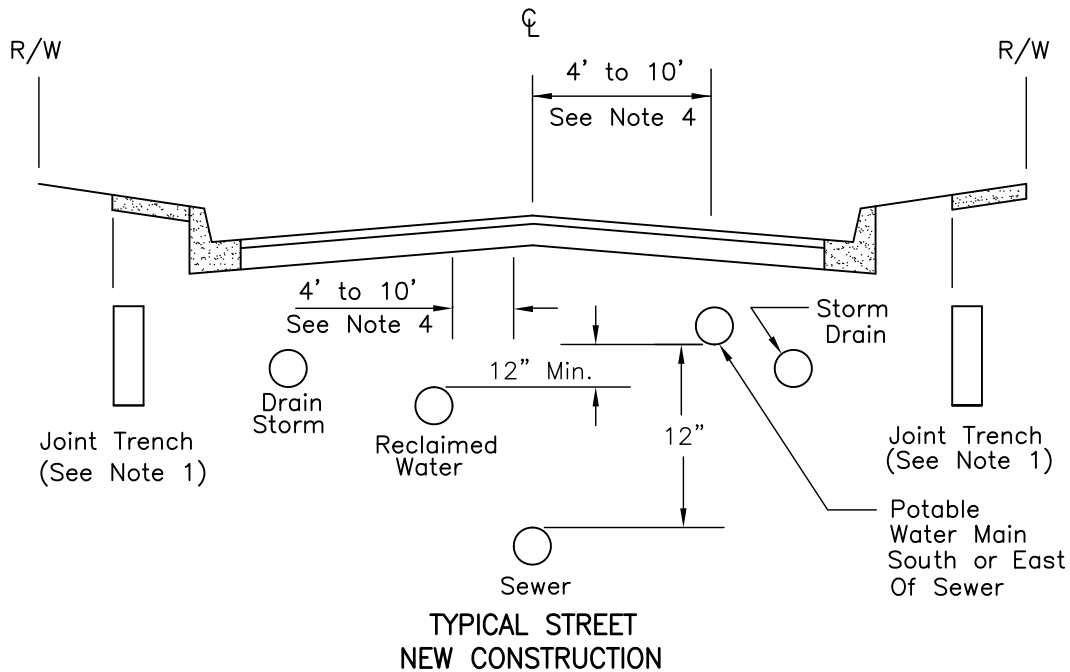
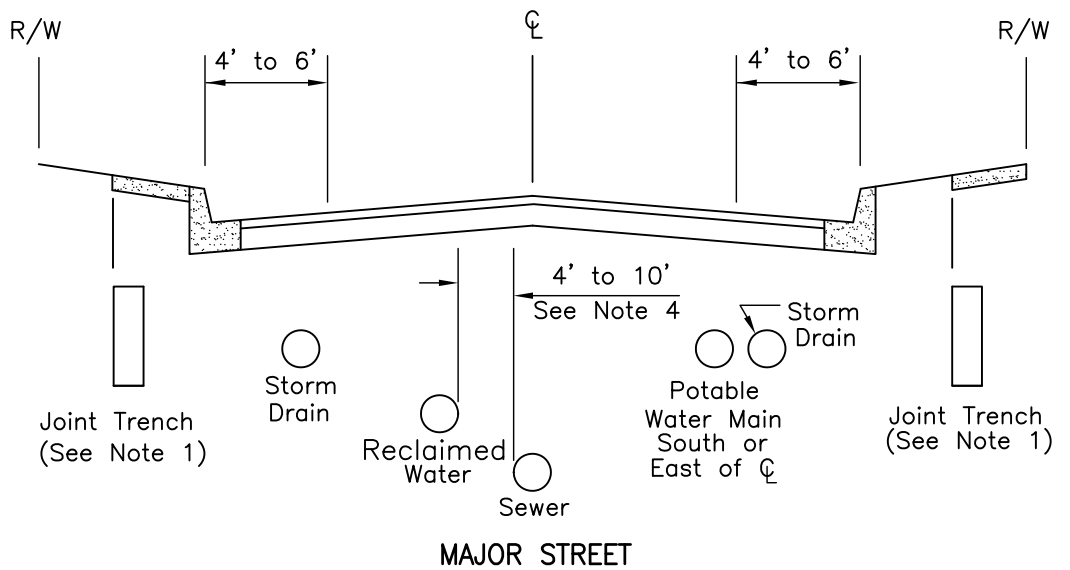


SIDEWALK NEXT TO CURB AND PROPERTY LINE

NOTES

1. Sidewalk shall have a minimum of 4' clear area (path, not including curb) passing pedestals, pullboxes and other structures.
2. See Standard Drawing M-15 for joint trench.

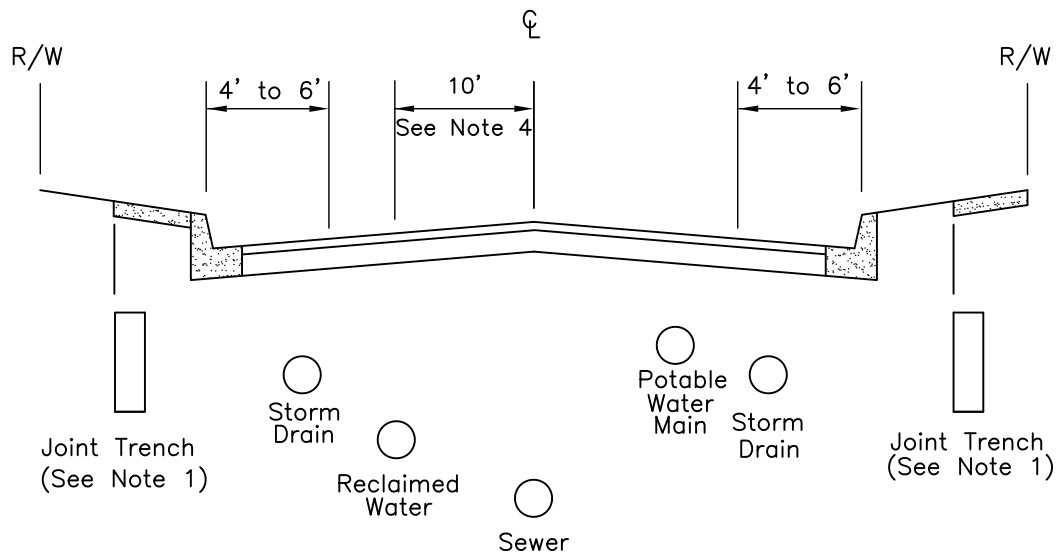
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	UNDERGROUND TYPICAL LOCATION CONVERSION/REPLACEMENT/ UPGRADE		<i>Samsir Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date	DRAWING NUMBER M-21
Revised		D. Gerschoffer	09/15				
Reviewed		D. Gerschoffer	10/18				
Reviewed	RP	S. Engeda	03/22				



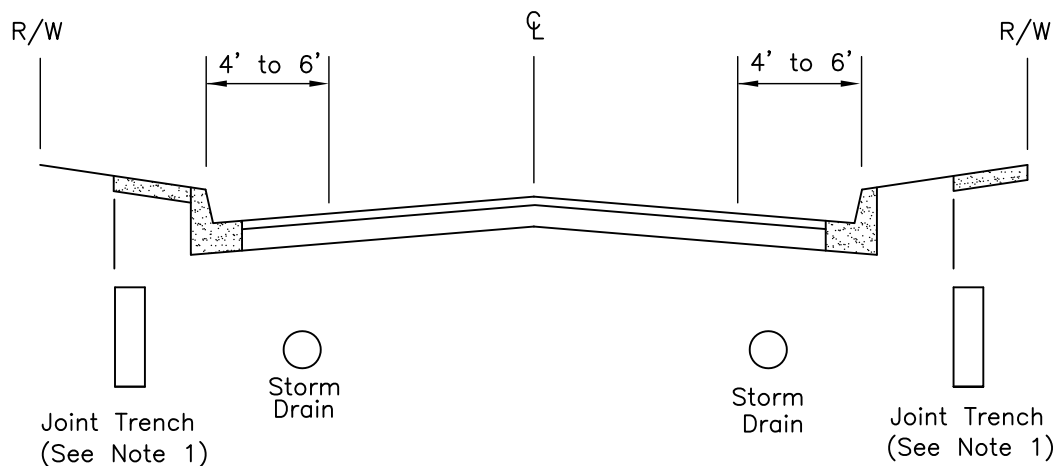
NOTES

1. At catch basin locations, joint trench shall be 4' minimum from back of curb to inside wall of trench. See Standard Drawing M-15 for configuration of utilities in joint trench.
2. Sewer and reclaimed water mains shall be designed to cross under potable water mains. The vertical separation between potable water and reclaimed water shall be a minimum of 12".
3. Sewer and reclaimed water laterals shall cross under potable water main, with a minimum vertical separation of 12".
4. Sewer and reclaimed water mains shall maintain a 10' minimum horizontal separation, O.D. to O.D., with any potable water or sewer/reclaimed main. This separation may be reduced utilizing special construction, with special approval from the Agency and the County Health Dept. For sewer or reclaimed water mains less than 24" in diameter, only Agency approval is required.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Revised		D. Gerschoffer	09/15	UTILITY LOCATIONS LOCAL AND MAJOR STREETS	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed		D. Gerschoffer	10/18		DRAWING NUMBER M-22
Reviewed	RP	S. Engeda	03/22		



PRIME ARTERIAL

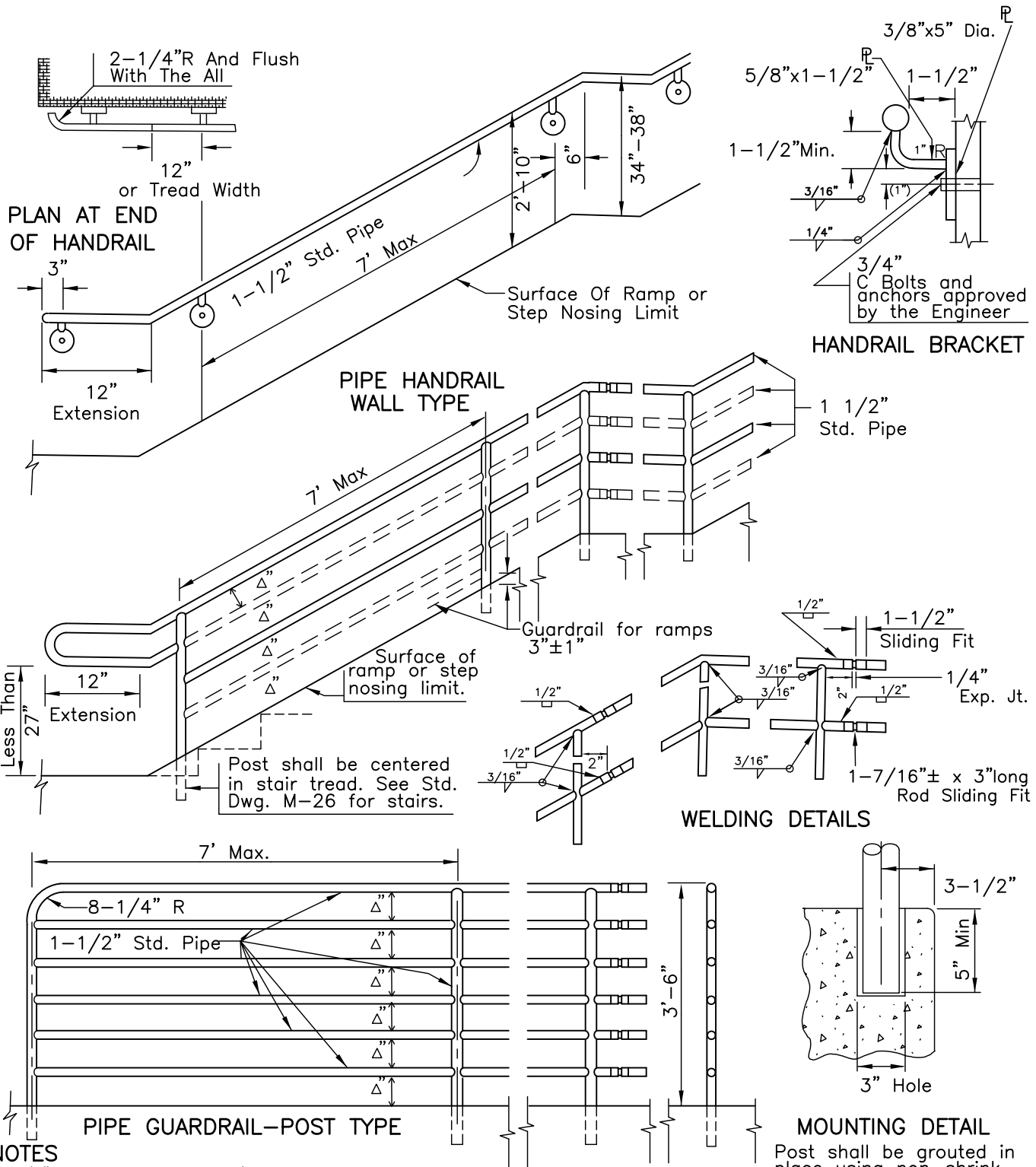


EXPRESSWAY

NOTES

1. At catch basin locations, joint trench shall be 4' minimum from back of curb to inside wall of trench. See Standard Drawing M-15 for configuration of utilities in joint trench.
2. Sewer and reclaimed water mains shall be designed to cross under potable water mains. The vertical separation between potable water and reclaimed water shall be a minimum of 12".
3. Sewer and reclaimed water laterals shall cross under potable water main, with a minimum vertical separation of 12".
4. Sewer and reclaimed water mains shall maintain a 10' minimum horizontal separation, O.D to O.D., with any potable water or sewer/reclaimed main. This separation may be reduced utilizing special construction, with special approval from the Agency and the County Health Dept. For sewer or reclaimed water mains less than 24" in diameter, only Agency approval is required.

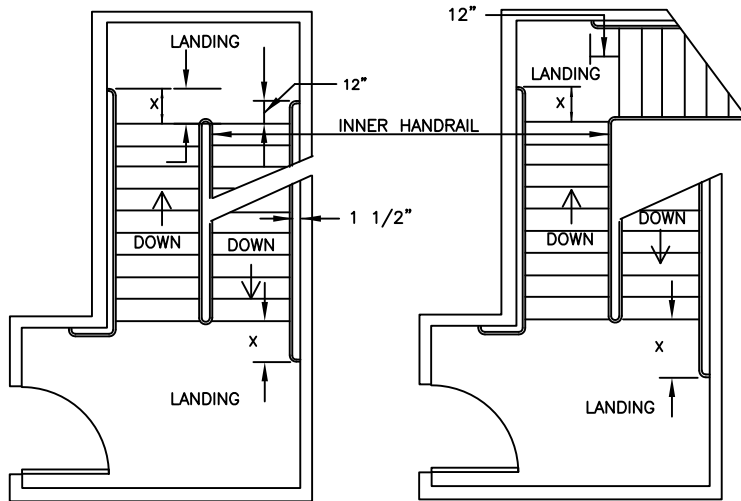
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75	UTILITY LOCATIONS PRIME ARTERIALS AND EXPRESSWAYS		<i>Samantha Engeda</i> 03/24/2022	Chairperson R.C.E. 52241 Date
Revised		D. Gerschoffer	09/15				
Reviewed		D. Gerschoffer	10/18				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER	M-23



NOTES

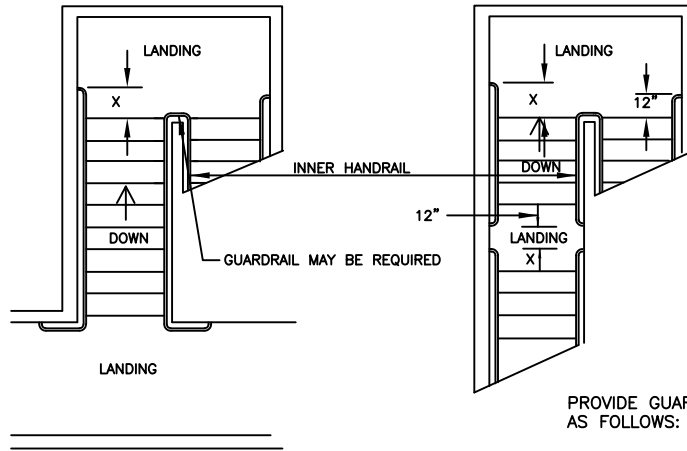
- 1/4" Expansion joints @ 16'± centers.
- Weld and grind smooth all connections.
- All railing to be hot dip galvanized after fabrication.
- Pipe shall seamless steel ASTM A53 Grade B.
- Maximum $\Delta = 4"$. Guardrails and handrails for stairs and ramps more than 30" above have intermediate rails equally spaced such that a sphere 4" in diameter cannot pass through.
- Handrail extension for stairs, at all bottom risers, shall be 12" plus one tread width.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	PEDESTRIAN PROTECTIVE RAILING DETAILS NO. 1		 Chairperson R.C.E. 52241 Date 03/24/2022
Revised		D. Gerschoffer	09/15			
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER M-24



X IS THE MINIMUM HANDRAIL EXTENSION OF 12 INCHES PLUS THE WIDTH OF ONE TREAD AT EACH BOTTOM RISER.

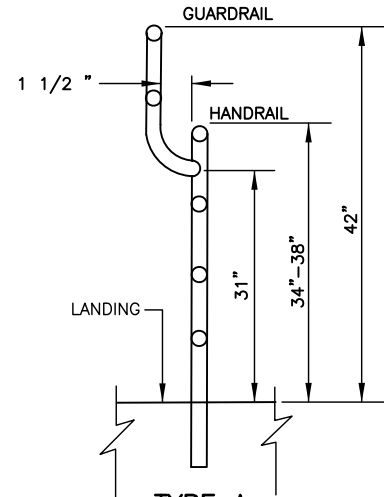
NOTE: INNER HANDRAIL AT LANDINGS OF STAIRS THAT DOUBLE BACK OR IMMEDIATELY TURN SHALL BE CONTINUOUS, AND SHALL NOT EXTEND ONTO LANDING OR PATH OF TRAVEL.



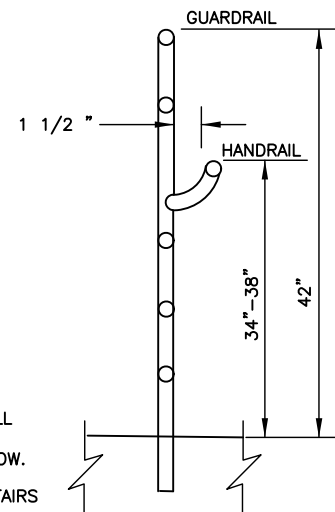
STAIR HANDRAILS

PROVIDE GUARDRAIL EXTENSIONS AS FOLLOWS:

1. TYPE A ON OPEN SIDE OF ALL LANDINGS MORE THAN 30" ABOVE GRADE OR FLOOR BELOW.
2. TYPE B ON OPEN SIDE OF STAIRS (INCLUDING LANDINGS) WHEN SPECIFIED.



TYPE A
GUARDRAIL EXTENSION



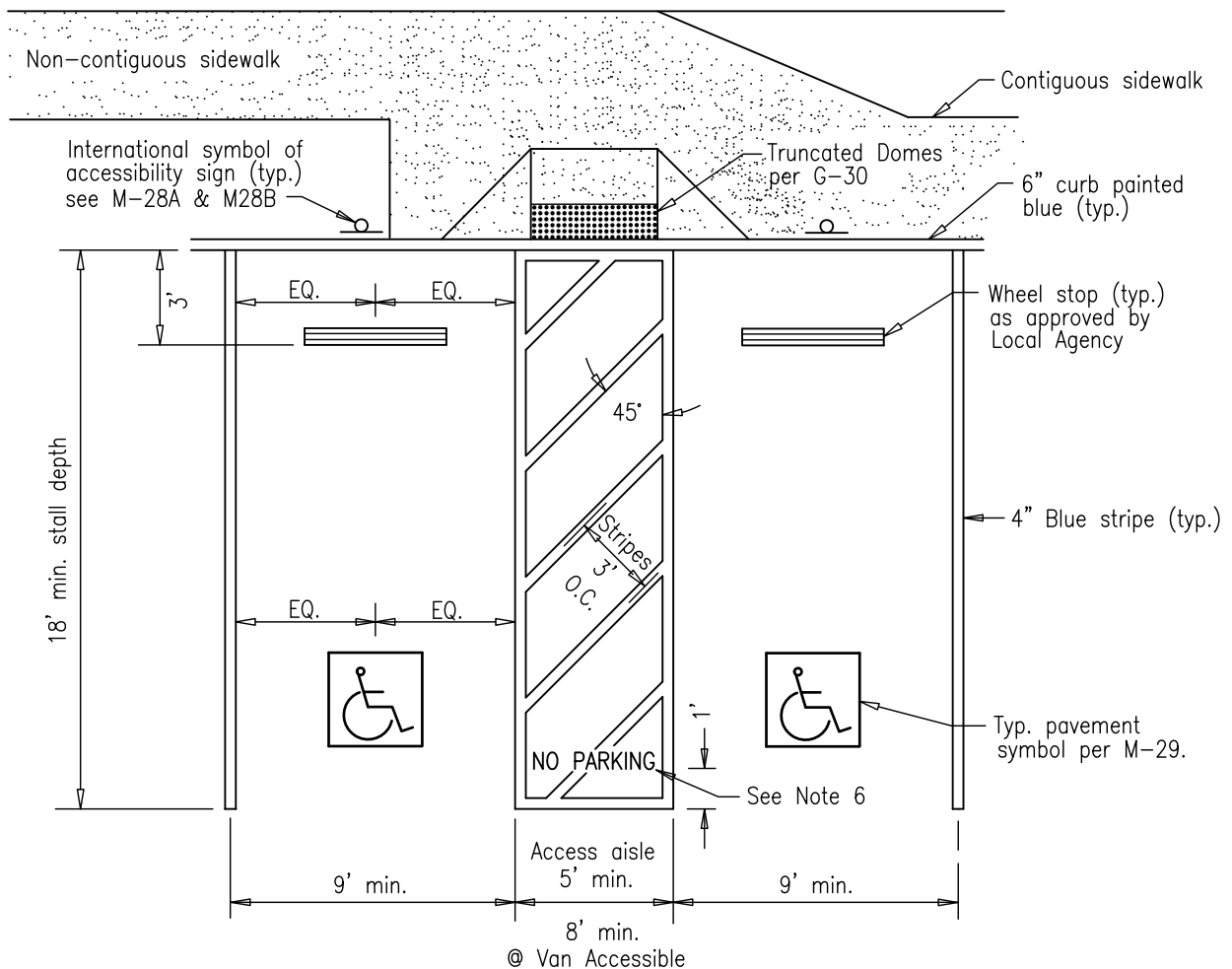
TYPE B
GUARDRAIL EXTENSION

NOTES

1. Post type guardrails, and handrails for stairs or landings 30" or less above grade or floor below shall have only one intermediate rail centered between the step nosing limit (or if specified the top of curb) and top of railing.
2. Post type guardrails, and handrails for stairs or landings more than 30" above grade or floor below shall have intermediate rails equally spaced such that a sphere 4" in diameter cannot pass through.
3. Where handrail extensions interfere with transverse walkways the horizontal portions shall not encroach but be turned away from stairs and parallel to walkway.
4. The top of guardrails for stairways, exclusive of their landings, may have a height as specified for handrails.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Revised		D. Gerschoffer	09/15	PEDESTRIAN PROTECTIVE RAILING DETAILS NO. 2	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed		D. Gerschoffer	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER M-25

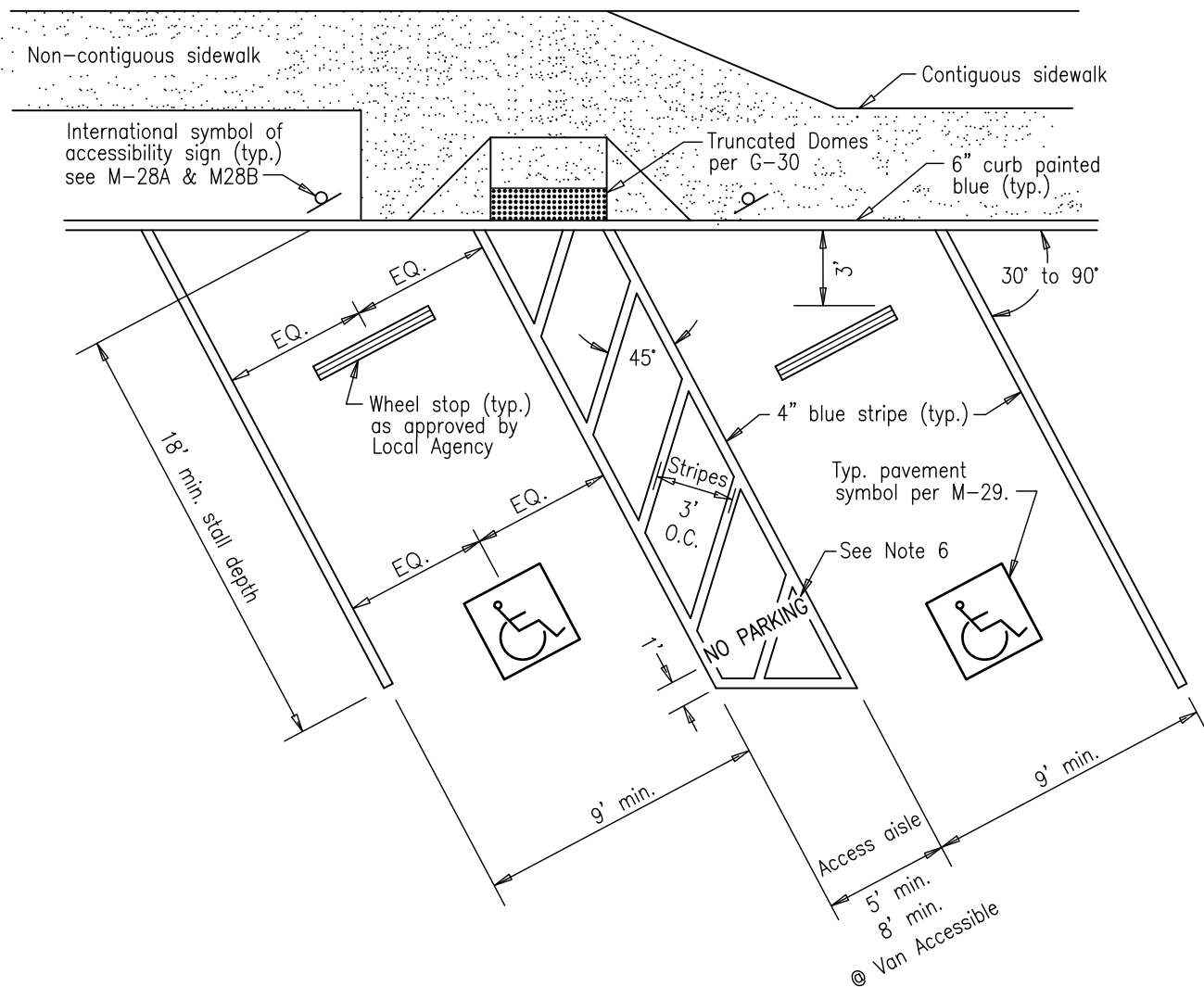
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		 03/24/2022 Chairperson R.C.E. 52241 Date DRAWING NUMBER M-26
Revised		D. Gerschoffer	09/15		
Reviewed		D. Gerschoffer	10/18		
Reviewed	RP	S. Engeda	03/22		



NOTES:

1. Provide for adequate drainage.
2. For appropriate ramp alternate to conform to topographical conditions, see standard drawings G-27 through G-32B.
3. Blue color should match color No. 15090 in the Federal Standard 595a as specified in Section 522(b)2.
4. If only one accessible parking stall is going to be provided, the access aisle shall be 8' (van accessible) and located on the passenger side.
5. Sidewalk cross slope shall not exceed 2.0%.
6. "NO PARKING" 12" high stencil marking, reflective white over blue stripes.

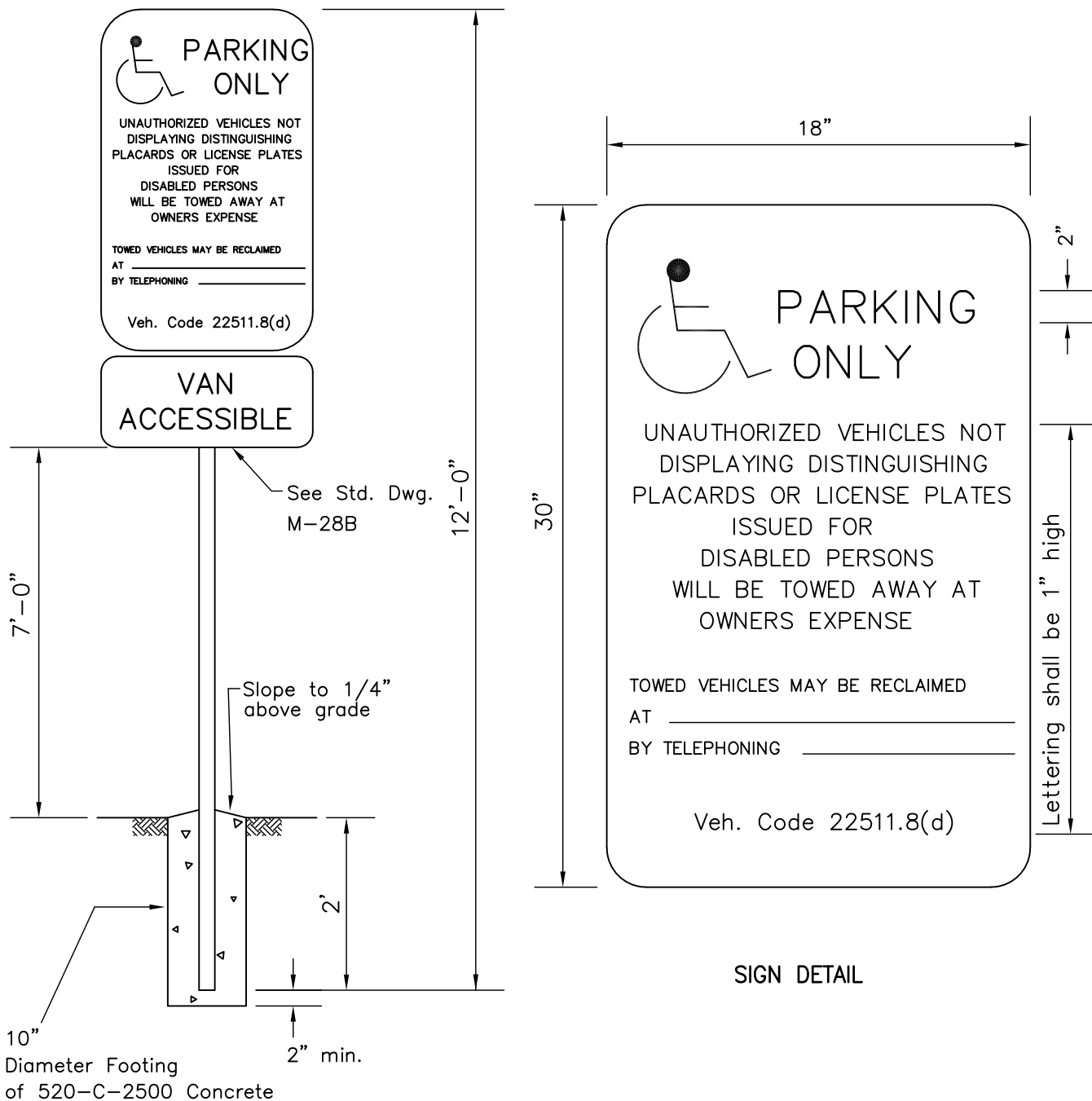
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	DISABLED PARKING STALL(S)		 03/24/2022 Chairperson R.C.E. 52241 Date
Revised		D. Gerschoffer	09/15			
Reviewed		K. Equipado	10/18			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER M-27A



NOTES:

1. Provide for adequate drainage.
2. For appropriate ramp alternate to conform to topographical conditions, see standard drawings G-27 through G-32B.
3. Blue color should match color No. 15090 in the Federal Standard 595a as specified in Section 522(b)2.
4. If only one accessible parking stall is going to be provided, the access aisle shall be 8' (van accessible) and located on the passenger side.
5. Sidewalk cross slope shall not exceed 2.0%.
6. "NO PARKING" 12" high stencil marking, reflective white over blue stripes.

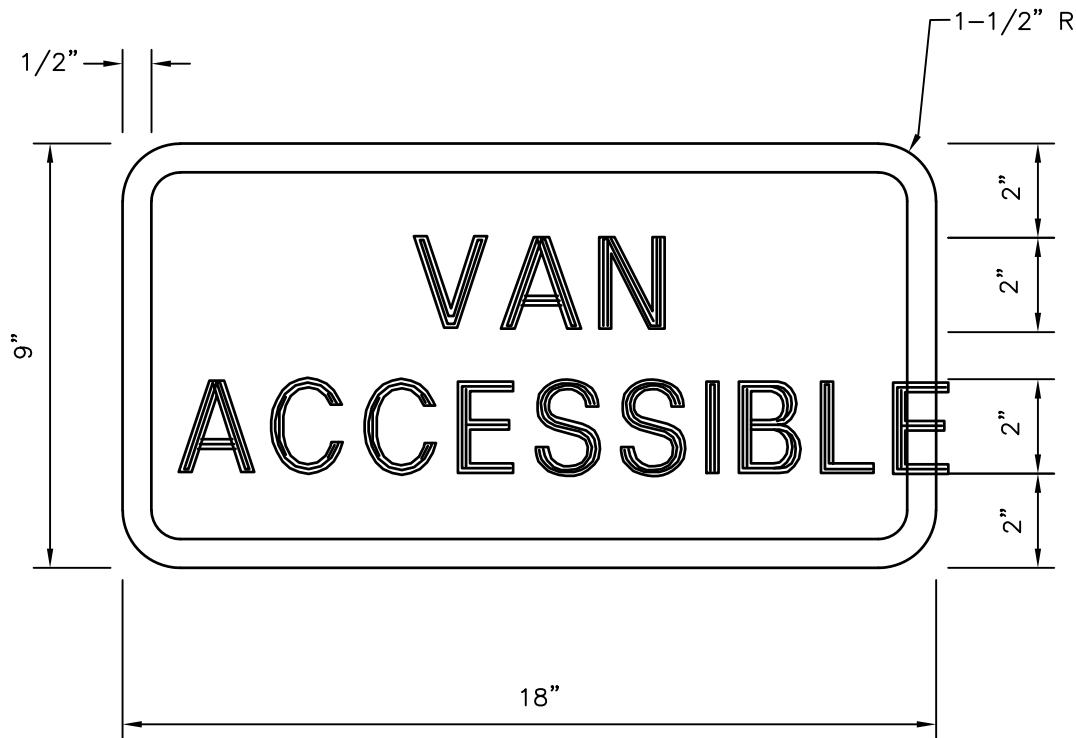
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Revised		D. Gerschoffer	09/15	DIAGONAL DISABLED PARKING STALL(S)	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed		K. Equipado	10/18		DRAWING NUMBER M-27B
Reviewed	RP	S. Engeda	03/22		



NOTES:

1. Sign shall be constructed of a minimum 0.062" thick aluminum.
2. Lettering, symbol and border shall be reflectorized white, on a blue background.
3. Lettering shall be 1" and 2" high.
4. Where space is designed for van accessibility, a sign "VAN ACCESSIBLE" shall be installed.
5. Minimum van accessible vertical clearance is 8'-2".

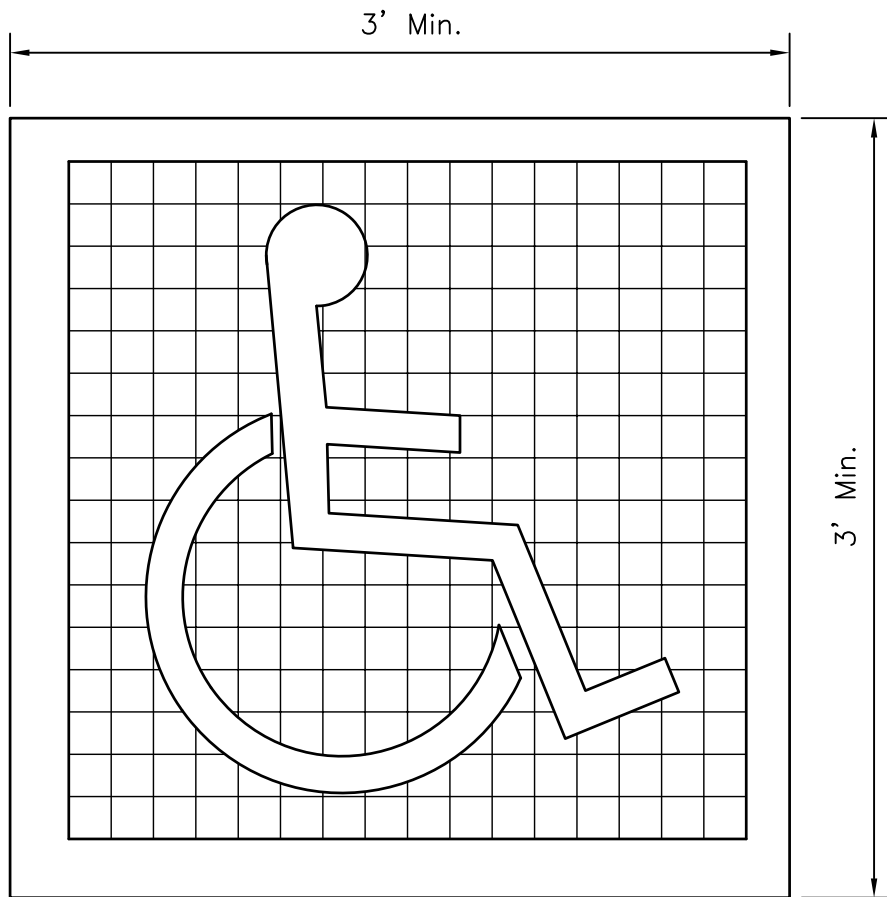
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Revised		D. Gerschoffer	09/15	DISABLED PARKING SIGN	<i>Samsen Engeda</i> 03/24/2022
Reviewed		K. Equipado	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER M-28A



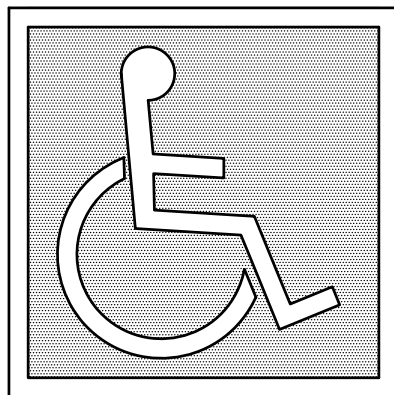
NOTES

1. Sign shall be constructed of aluminum, 0.062" minimum thickness.
2. Colors: Background—Reflectorized Blue
 Border and letters— Reflectorized White
 Blue color shall match color No. 15090 in the
 Federal Standard 595a as specified in Section 522(b)2.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		G.Parkinson	05/92		
Revised		D. Gerschoffer	09/15	VAN ACCESSIBLE SIGN FOR DISABLE PARKING SPACE	<i>Samson Engeda</i> 03/24/2022
Reviewed		K. Equipado	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER M-28B



(a) SYMBOL PROPORTIONS



(b) DISPLAY CONDITIONS

INTERNATIONAL SYMBOL
OF ACCESSIBILITY

NOTES

1. Pavement symbol shall be painted white on a blue background.
2. Blue color shall match color No. 15090 in the Federal Standard 595a as specified in Section 522(b)2.

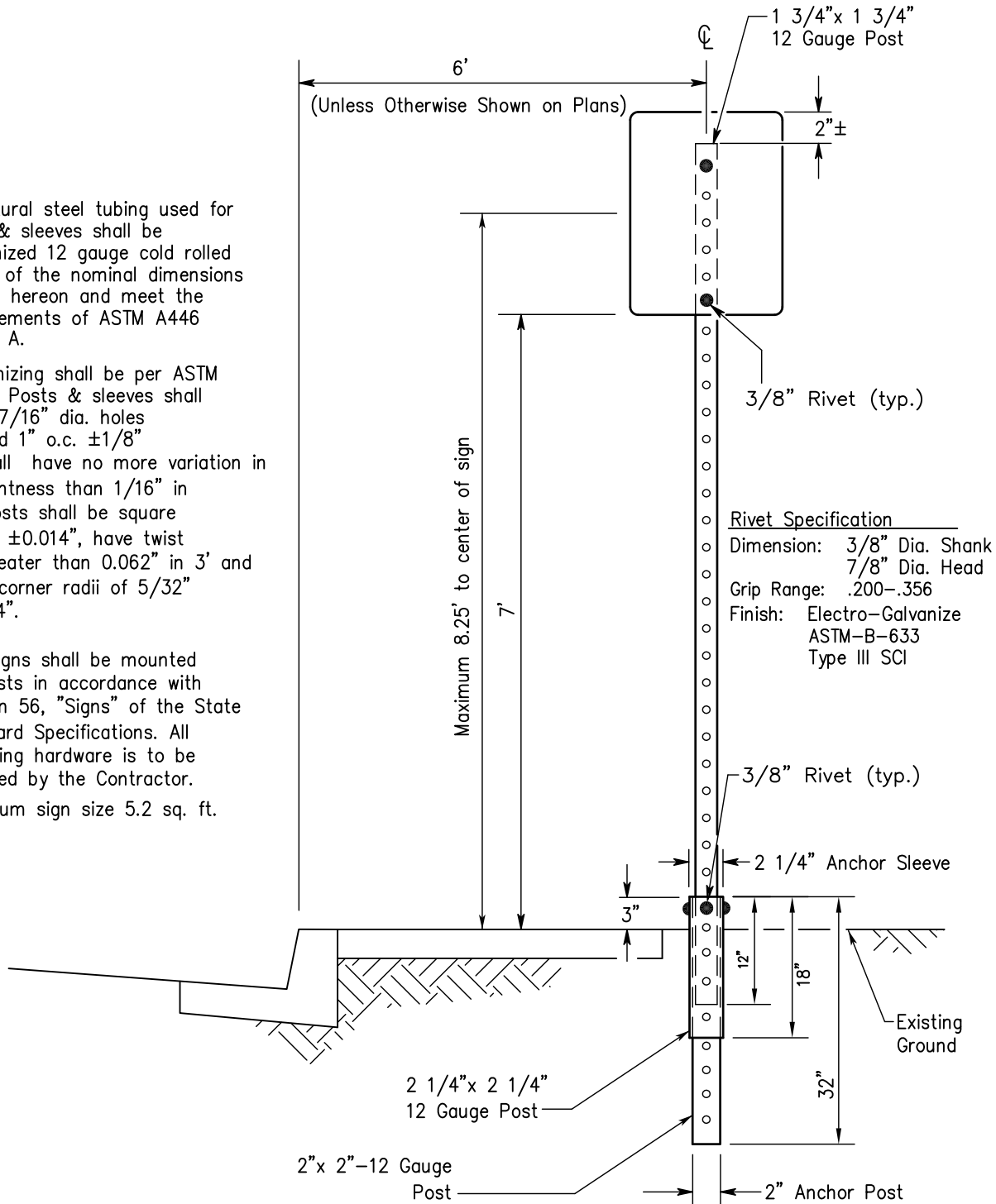
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		G. Parkinson	02/95		
Revised		D. Gerschoffer	09/15	PAVEMENT SYMBOL- DISABLED PARKING	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed		K. Equipado	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER M-29

FOR GUARDRAIL STANDARDS USE:
Caltrans "Standard Plans for
Construction of Local
Streets and Roads"

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		G. Parkinson	05/92		GUARD RAIL REFERENCE NOTE
Revised		D. Gerschoffer	09/15		
Reviewed		K. Equipado	10/18		
Reviewed	RP	S. Engeda	03/22		

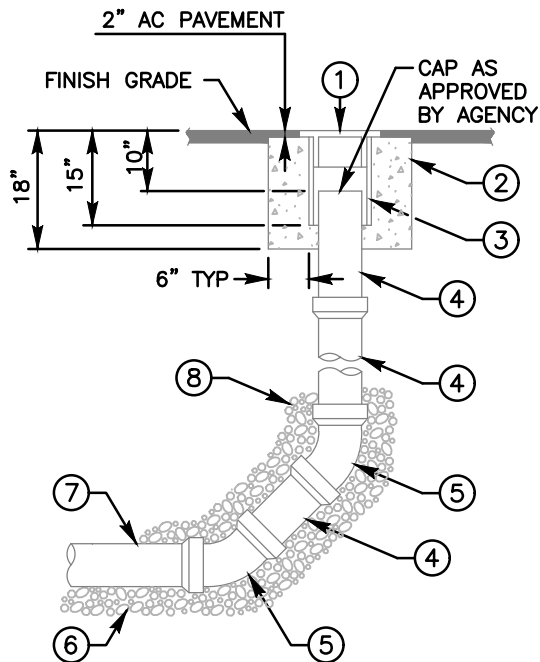
NOTES

1. Structural steel tubing used for post & sleeves shall be galvanized 12 gauge cold rolled steel, of the nominal dimensions shown hereon and meet the requirements of ASTM A446 Grade A.
2. Galvanizing shall be per ASTM A525. Posts & sleeves shall have 7/16" dia. holes spaced 1" o.c. $\pm 1/8$ " & shall have no more variation in straightness than 1/16" in 3'. Posts shall be square within ± 0.014 ", have twist no greater than 0.062" in 3' and have corner radii of 5/32" $\pm 1/64$ ".
3. The signs shall be mounted on posts in accordance with Section 56, "Signs" of the State Standard Specifications. All fastening hardware is to be provided by the Contractor.
4. Maximum sign size 5.2 sq. ft.

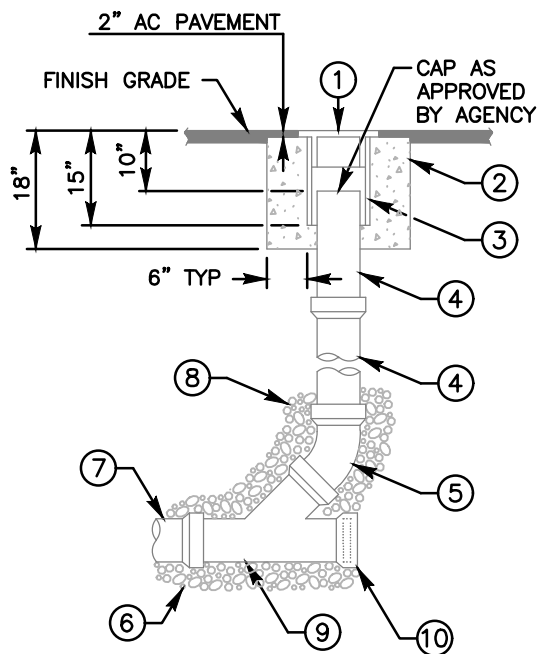


Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		G. Parkinson	02/95		
Revised		D. Gerschoffer	09/15	BREAK-AWAY SIGN POST	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed		K. Equipado	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER M-45

SEWERAGE SYSTEMS



TYPE A
MAINS FOR 6" AND 8"



TYPE B
SEWER LATERAL
CLEANOUT

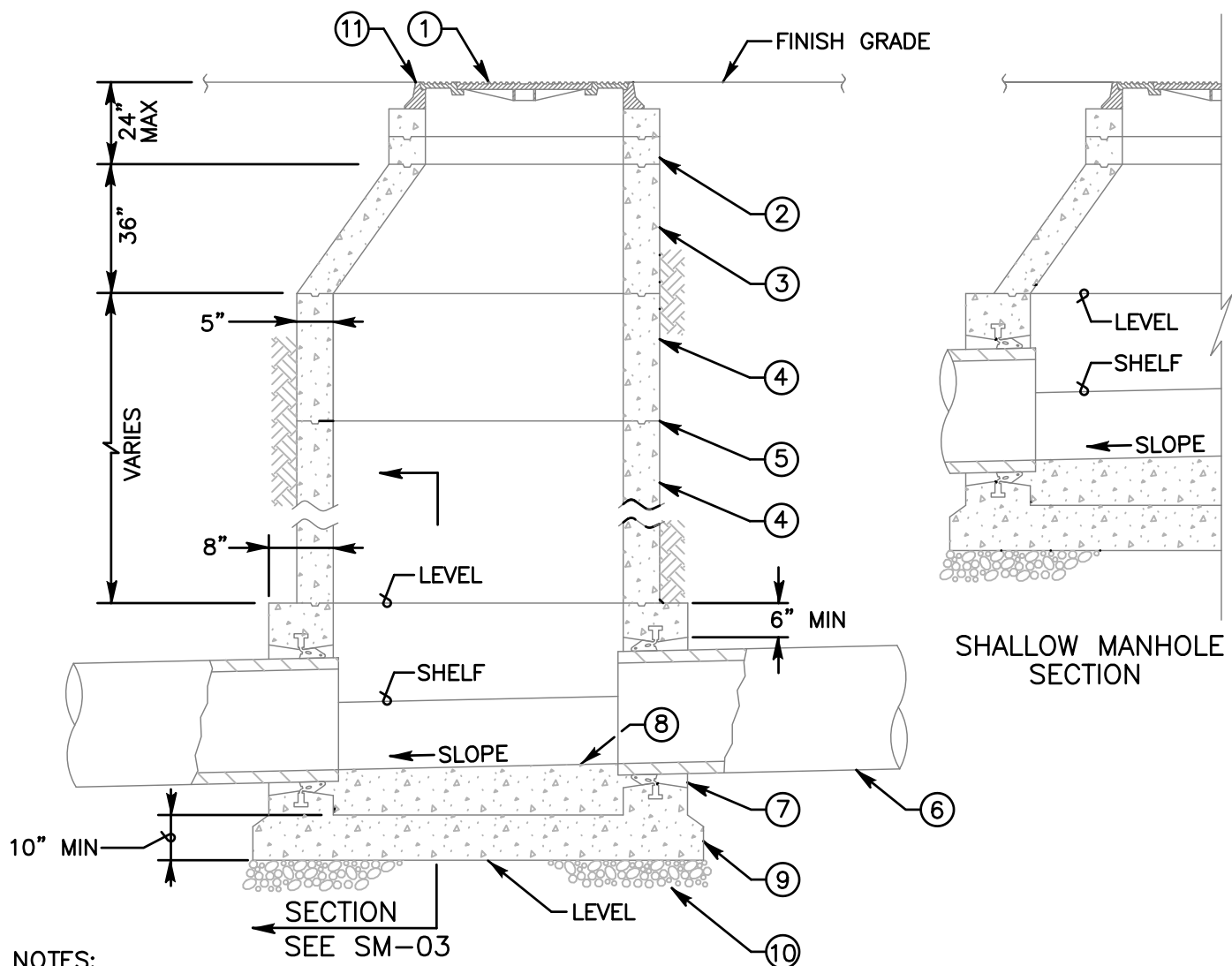
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) CLEANOUTS TO BE INSTALLED AT THE END OF MAINS WHERE INDICATED ON THE PLANS
- 3) CLEANOUT PIPE TO BE SAME SIZE AND MATERIAL AS SEWER MAIN UP TO 8"
- 4) BACKFILL TO TOP OF 45° BEND WITH 3/4" CRUSHED ROCK
- 5) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

— — — — —
LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	12" CI CLEANOUT BOX COVER MARKED 'SEWER' AND AGENCY NAME AS REQUIRED	⑤	45° ELBOW
②	CONCRETE RING	⑥	3/4" CRUSHED ROCK PIPE BEDDING
③	12" PVC, C-900 x 15" LONG (CLEANOUT BOX)	⑦	SEWER MAIN
④	SIZE x REQUIRED LENGTH PVC PIPE	⑧	3/4" CRUSHED ROCK SEE NOTE 4
		⑨	STANDARD WYE BRANCH
		⑩	INSTALL PLUG AND CONCRETE LUG

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Reviewed	BK	B. KNOLL	04/15		
Reviewed	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
				SEWER CLEANOUT	 03/24/2022
					DRAWING NUMBER SC-01



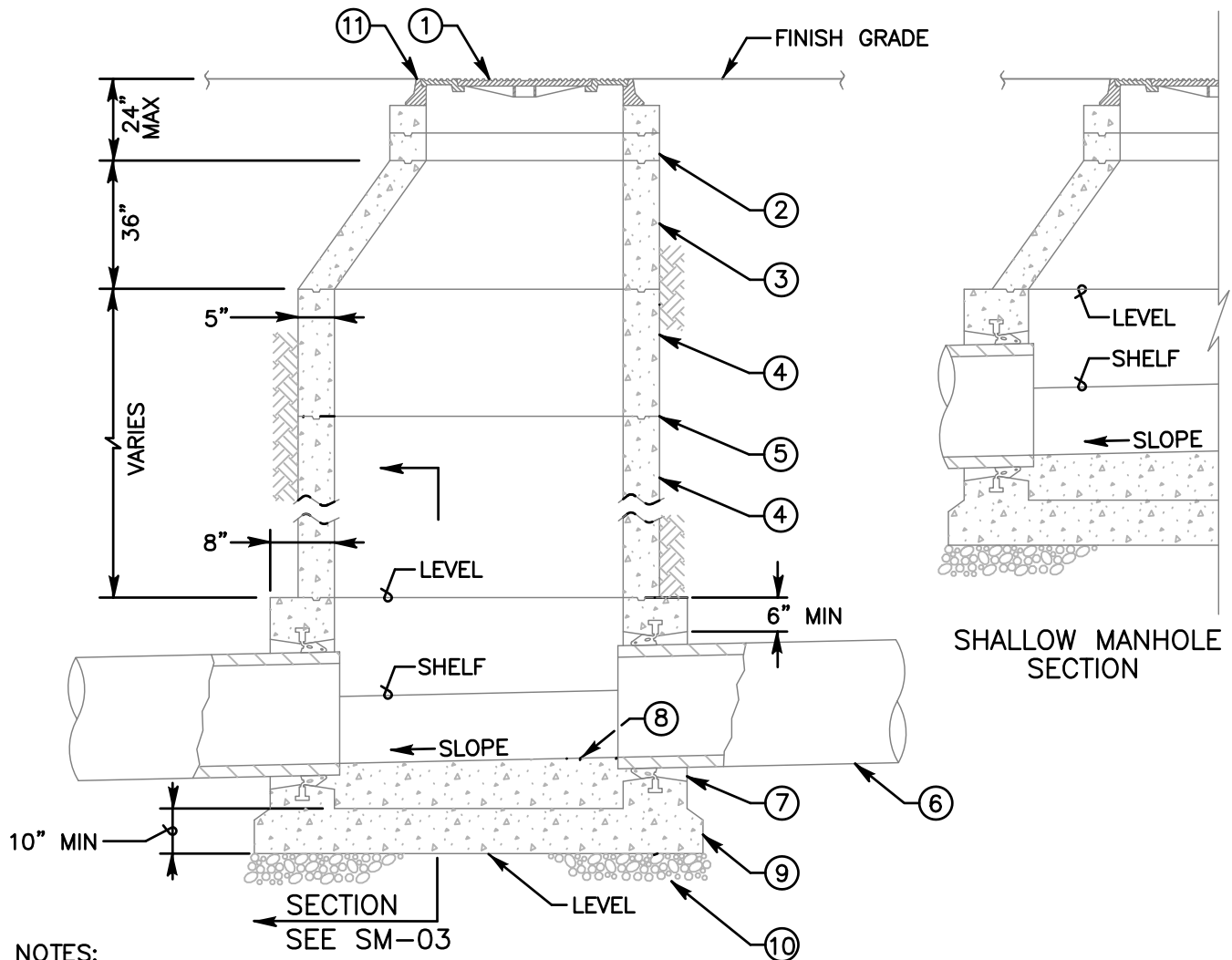
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) VERTICAL WALL OF CONE TO BE ON THE UPSTREAM SIDE OF MANHOLE SEE SM-05 FOR ACCESS LOCATIONS
- 3) FOR MANHOLE BASES SEE SM-03
- 4) MANHOLES FOR MAINS 18" AND LARGER SHALL BE COATED AND LINED PER SM-07
- 5) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

48"
—○—
LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	36" MANHOLE FRAME AND TWO CONCENTRIC COVERS SEE S.D.R.S.D. M-3	⑦	MANHOLE PIPE CONNECTOR SEE SM-04
②	36" DIA GRADE RING(S) 6" TO 18" HIGH	⑧	FIELD INSTALLED INVERT SEE SM-04
③	ECCENTRIC CONE SEE NOTE 2	⑨	CONCRETE BASE, PRECAST OR CAST IN PLACE
④	48" DIA RING(S) VARIABLE HEIGHT	⑩	6" OF 3/4" CRUSHED ROCK
⑤	WATER TIGHT JOINTS SEE SM-05	⑪	MANHOLE DETAIL SEE SM-05
⑥	SEWER MAIN		

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Reviewed	BK	B. KNOLL	04/15	48" DIAMETER PRECAST MANHOLE INSTALLATION	 Chairperson R.C.E. 52241 Date 03/24/2022
Reviewed	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER SM-01



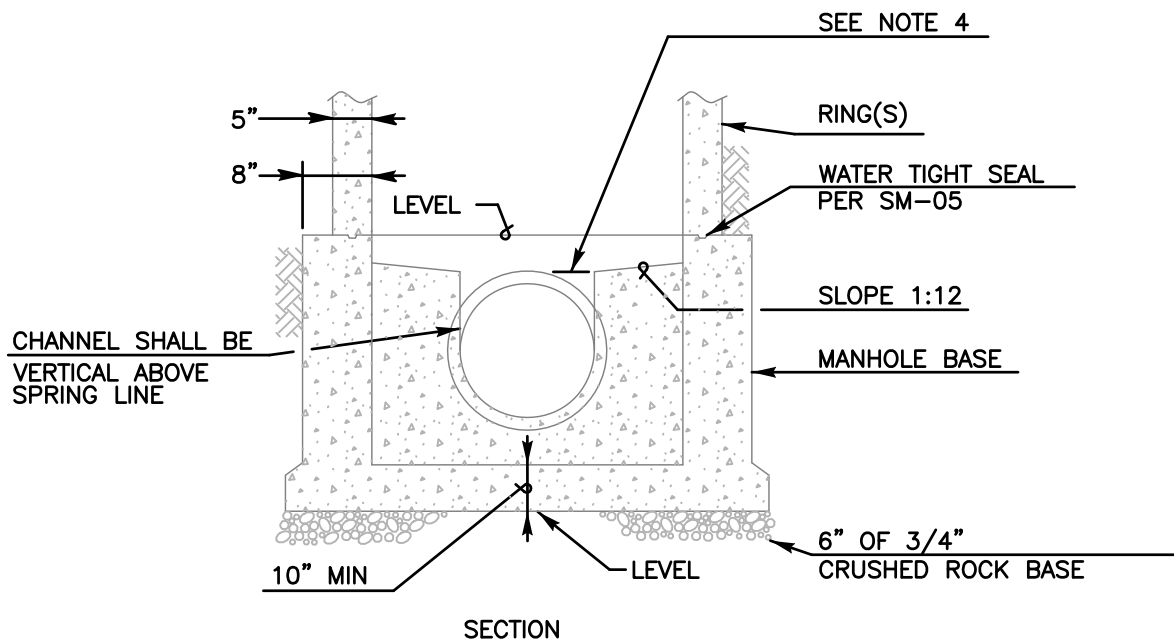
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) VERTICAL WALL OF CONE TO BE ON THE UPSTREAM SIDE OF MANHOLE SEE SM-05 FOR ACCESS LOCATIONS
- 3) FOR MANHOLE BASES SEE SM-03
- 4) MANHOLES FOR MAINS 18" AND LARGER SHALL BE COATED AND LINED PER SM-07
- 5) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

60"
LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	36" MANHOLE FRAME AND TWO CONCENTRIC COVERS SEE S.D.R.S.D. M-3	⑦	MANHOLE PIPE CONNECTOR SEE SM-04
②	36" DIA GRADE RING(S) 6" TO 18" HIGH	⑧	FIELD INSTALLED INVERT SEE SM-04
③	ECCENTRIC CONE SEE NOTE 2	⑨	CONCRETE BASE, PRECAST OR CAST IN PLACE
④	60" DIA RING(S) VARIABLE HEIGHT	⑩	6" OF 3/4" CRUSHED ROCK
⑤	WATER TIGHT JOINTS SEE SM-05	⑪	MANHOLE DETAIL SEE SM-05
⑥	SEWER MAIN		

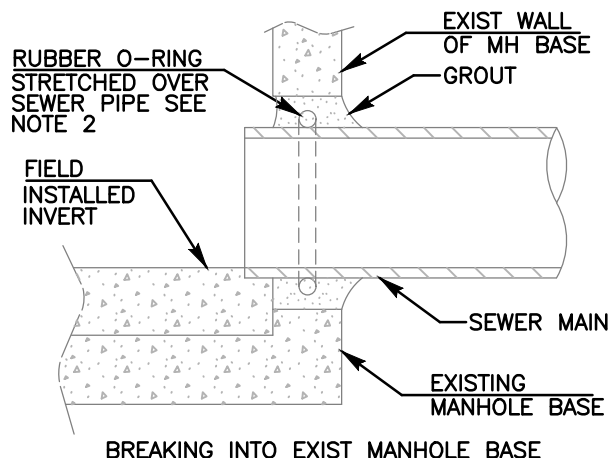
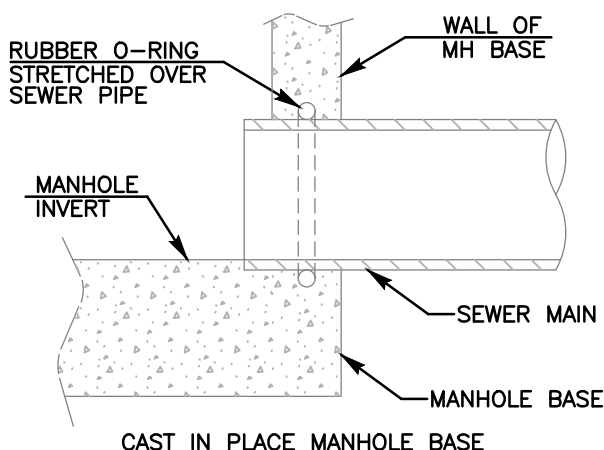
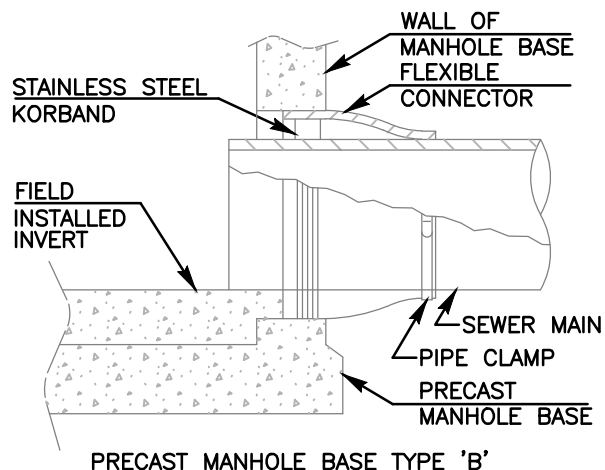
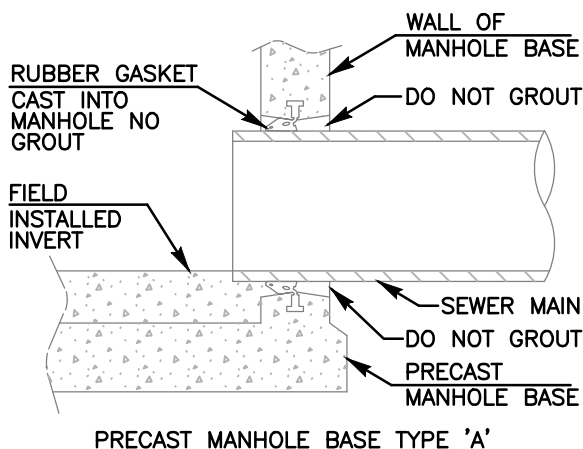
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 60" DIAMETER PRECAST MANHOLE INSTALLATION	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE <i>Samson Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date DRAWING NUMBER SM-02
ORIGINAL		Kercheval	12/75		
Reviewed	BK	B. KNOLL	04/15		
Reviewed	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		



NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) FOR MANHOLE INSTALLATIONS SEE SM-01 AND SM-02
- 3) MANHOLE BASES FOR MAINS 18" AND LARGER SHALL BE COATED PER SM-07
- 4) LOWEST POINT ON SHELF SHALL BE EVEN WITH TOP OF PIPE
- 5) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

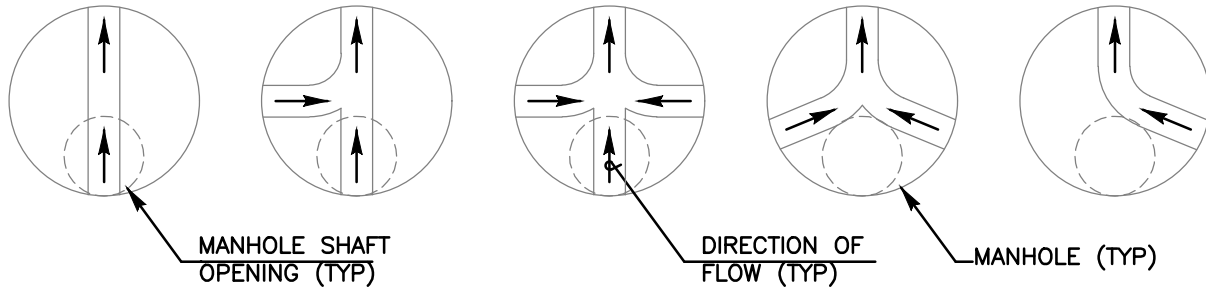
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Reviewed	BK	B. KNOLL	04/15	SEWER MANHOLE BASE	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER SM-03



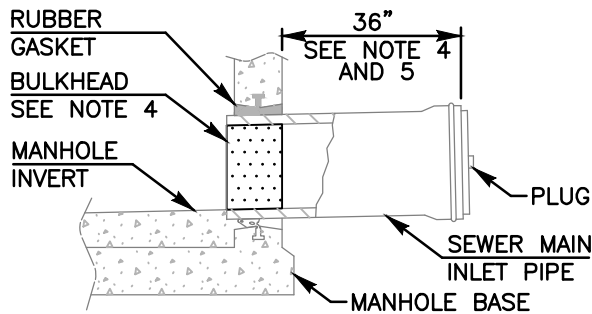
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) A RUBBER O-RING OR A FLEXIBLE CONNECTOR (AS SHOWN IN PRECAST MANHOLE BASE TYPE 'B') CAN BE USED WHEN BREAKING INTO EXISTING MANHOLE
- 3) FOR MANHOLES REQUIRING COATING AND LINING SEE SM-07
- 4) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

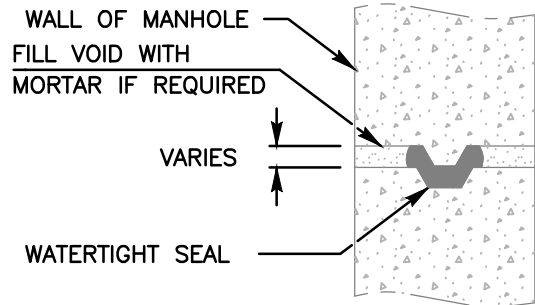
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	MANHOLE PIPE CONNECTORS		
Reviewed	BK	B. KNOLL	04/15			<i>Saman Engeda</i> 03/24/2022
Reviewed	BK	B. KNOLL	10/18			Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER SM-04



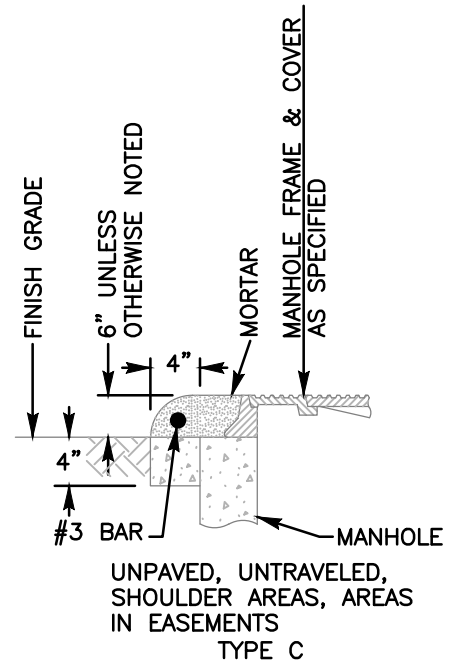
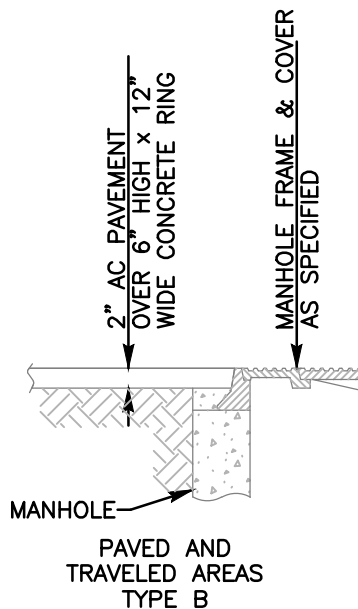
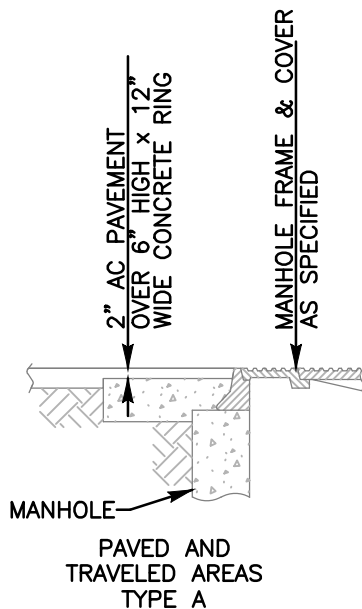
MANHOLE ACCESS LOCATION PLAN VIEW



MANHOLE STUB OUT FOR FUTURE CONNECTION



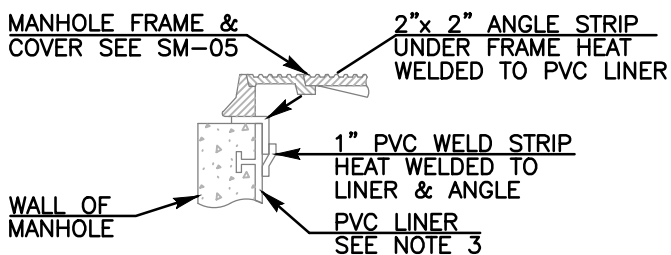
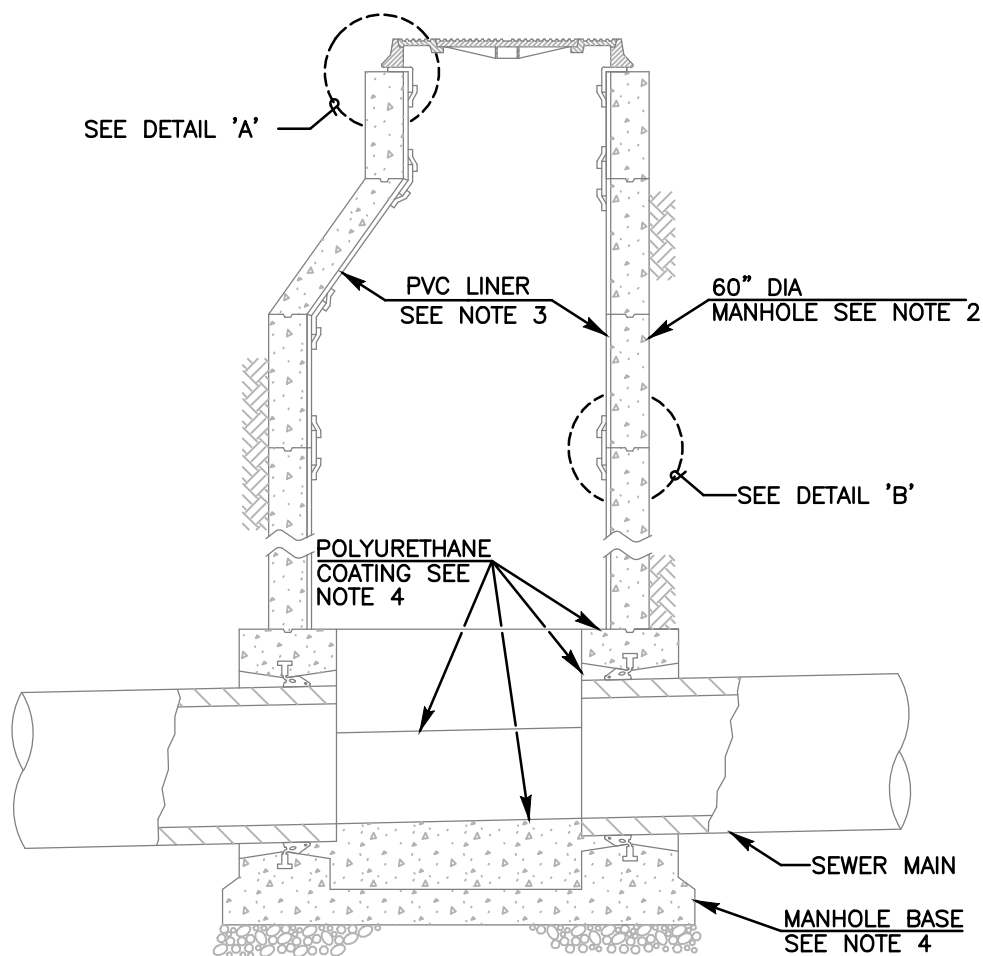
WATERTIGHT MANHOLE JOINT



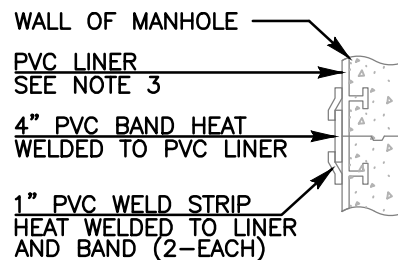
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) VERTICAL WALL OF CONE TO BE ON THE UP STREAM SIDE OF MANHOLE
- 3) FOR MANHOLES REQUIRING COATING AND LINING SEE SM-07
- 4) STUBS SHALL BE BULKHEADED AT THE MANHOLE END
- 5) SEWER MAIN TO BE LAID WITH BELLS UP-GRADE
- 6) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Reviewed	BK	B. KNOLL	04/15	MANHOLE MISCELLANEOUS DETAILS	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER SM-05



DETAIL "A" MANHOLE
FRAME & COVER

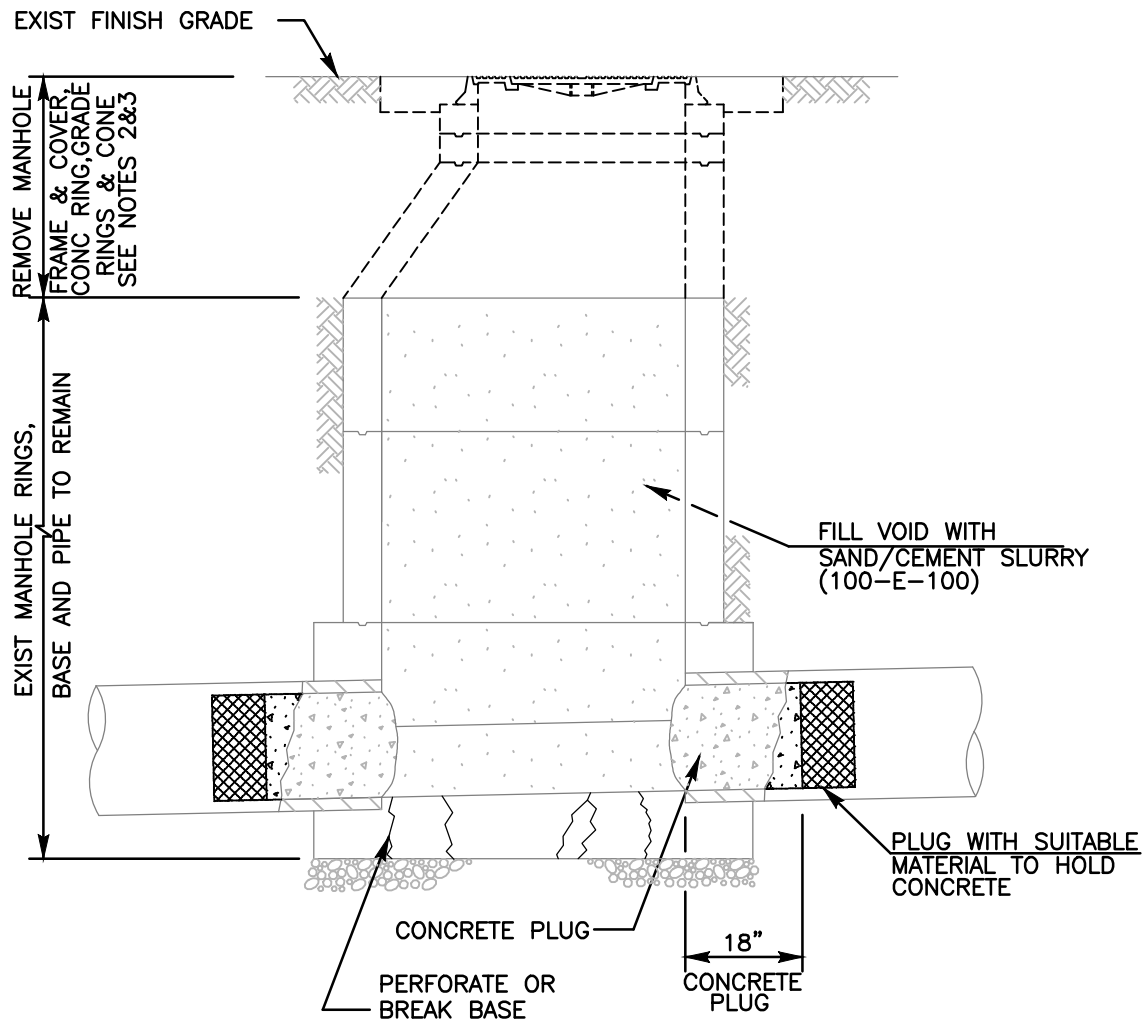


DETAIL "B" MANHOLE
JOINT SECTIONS

NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) MANHOLES FOR SEWER MAINS 18" AND LARGER SHALL BE COATED AND LINED
- 3) MANHOLE SHAFT AND CONE SECTIONS, AND GRADE RINGS SHALL HAVE A PVC LINER PLACED WITH T-SHAPED SUPPORTS INTEGRALLY CAST INTO THE CONCRETE (OR AGENCY APPROVED EQUAL TO PVC LINER)
- 4) ELASTOMERIC POLYURETHANE COATING SHALL BE APPLIED TO THE INTERIOR OF MANHOLE BASES
- 5) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Note 3	BK	B. KNOLL	04/15	MANHOLE COATING AND LINING SYSTEM	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER SM-07

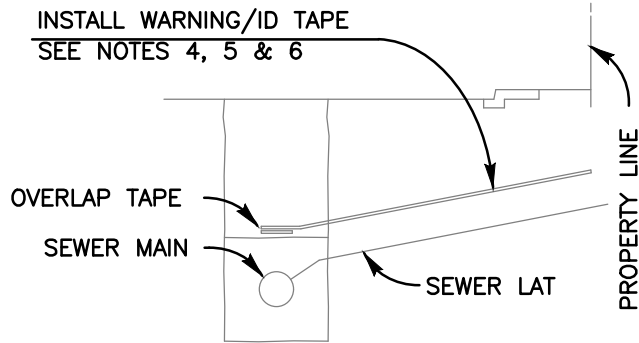


NOTES:

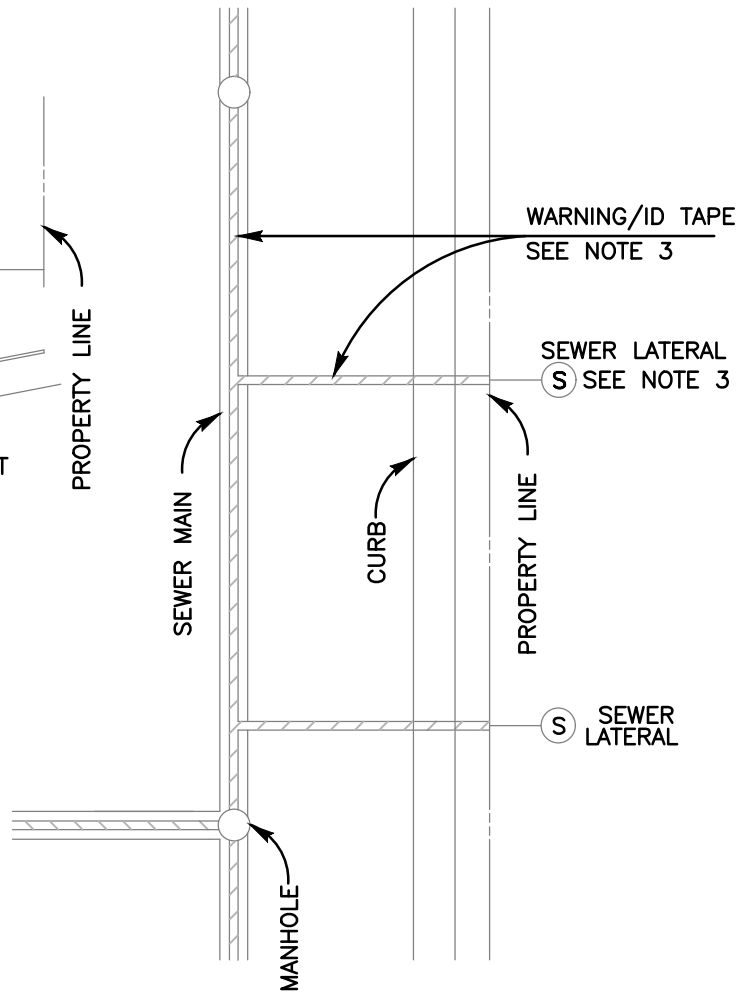
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) ALL SALVAGED MATERIAL BECOMES PROPERTY OF AGENCY OF JURISDICTION
- 3) BACKFILL PER AGENCY'S REQUIREMENT
- 4) FOR CUTTING & PLUGGING ABANDONED SEWER MAINS SEE WP-03

LEGEND ON PLANS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	EXISTING MANHOLE ABANDONMENT		 03/24/2022 Chairperson R.C.E. 52241 Date
Add Call-out	BK	B. KNOLL	04/15			
Reviewed	BK	B. KNOLL	10/18			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER SM-08



SECTION AT SEWER LATERALS

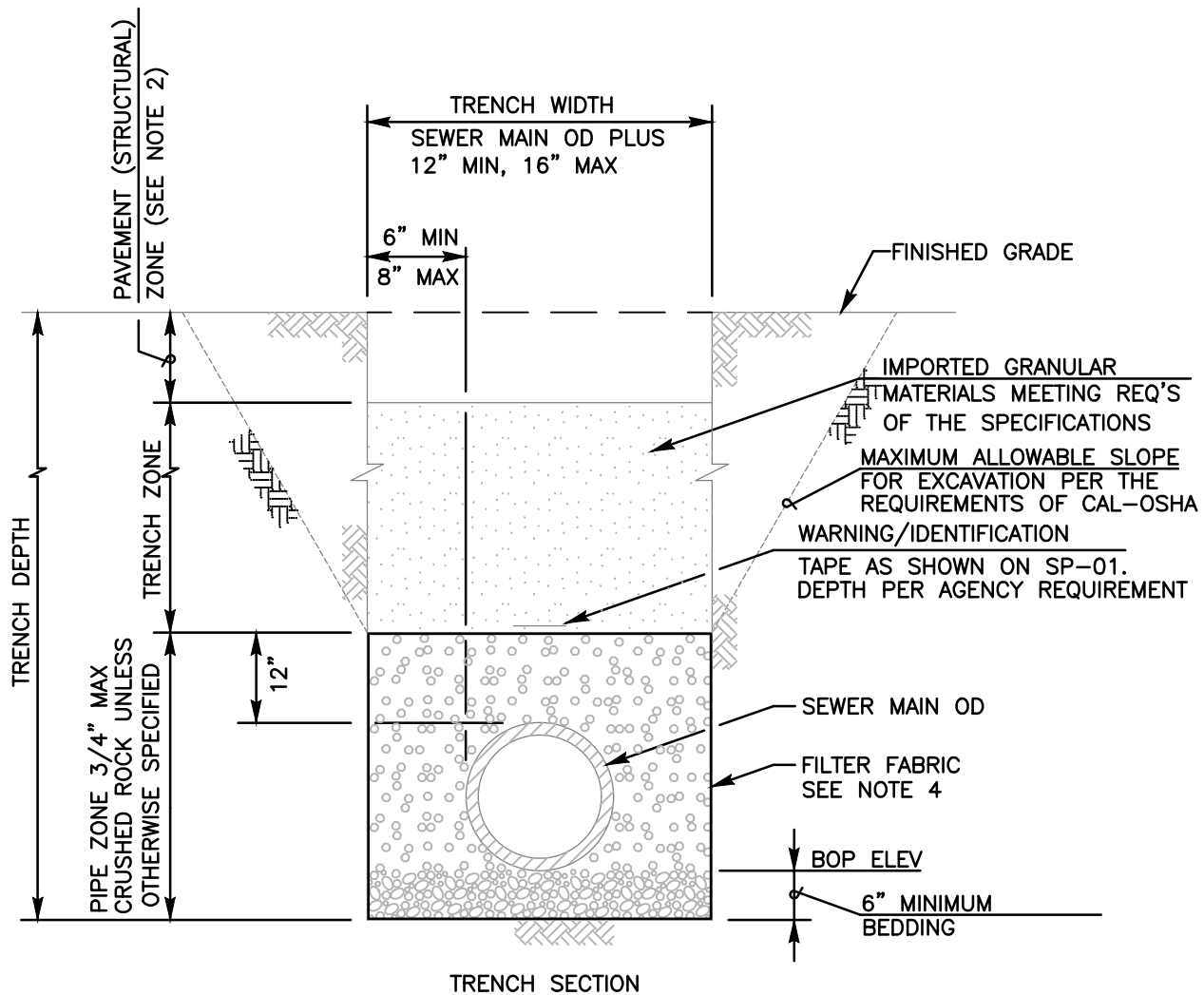


PLAN

NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) WARNING/IDENTIFICATION TAPE SHALL BE INSTALLED AS SPECIFIED BY AGENCY
- 3) STAMP OR CHISEL A 2" HIGH 'S' IN CURB FACE TO IDENTIFY SEWER LATERAL LOCATION
- 4) FOR SEWER LATERALS EXTEND TAPE TO PROPERTY LINE
- 5) DEPTH OF WARNING/IDENTIFICATION TAPE AS SPECIFIED BY AGENCY
- 6) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

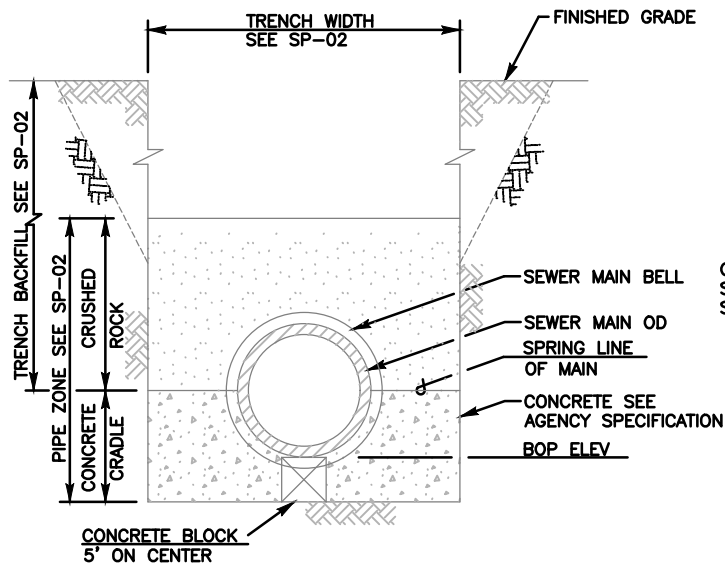
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Reviewed	BK	B. KNOLL	04/15	WARNING/IDENTIFICATION TAPE INSTALLATION	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER SP-01



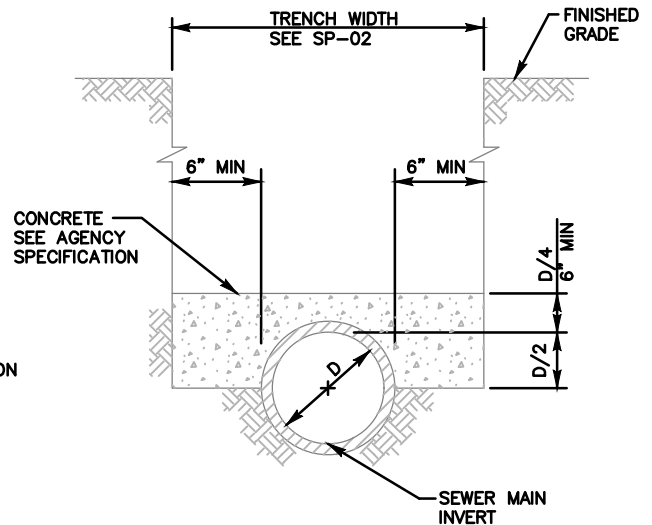
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS FOR TRENCHING, BACKFILLING AND COMPACTING WHERE APPLICABLE
- 2) PAVING OR PAVEMENT REPAIR TO BE DONE IN ACCORDANCE WITH AGENCY OF JURISDICTION
- 3) EXCAVATE BELL HOLES AT EACH JOINT TO PERMIT PROPER ASSEMBLY AND INSPECTION OF THE ENTIRE JOINT
- 4) FILTER FABRIC AS REQUIRED BY AGENCY OF JURISDICTION (WITH A MINIMUM 12" OVERLAP).

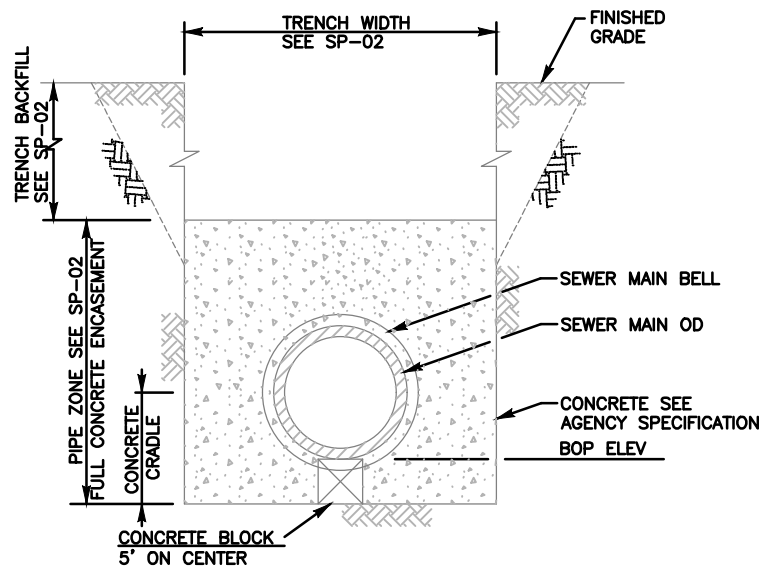
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Reviewed	BK	B. KNOLL	04/15	PIPE BEDDING AND TRENCH BACKFILL FOR SEWER FACILITIES	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER SP-02



TRENCH SECTION
CONCRETE PIPE CRADLE



TRENCH SECTION
CONCRETE PROTECTION



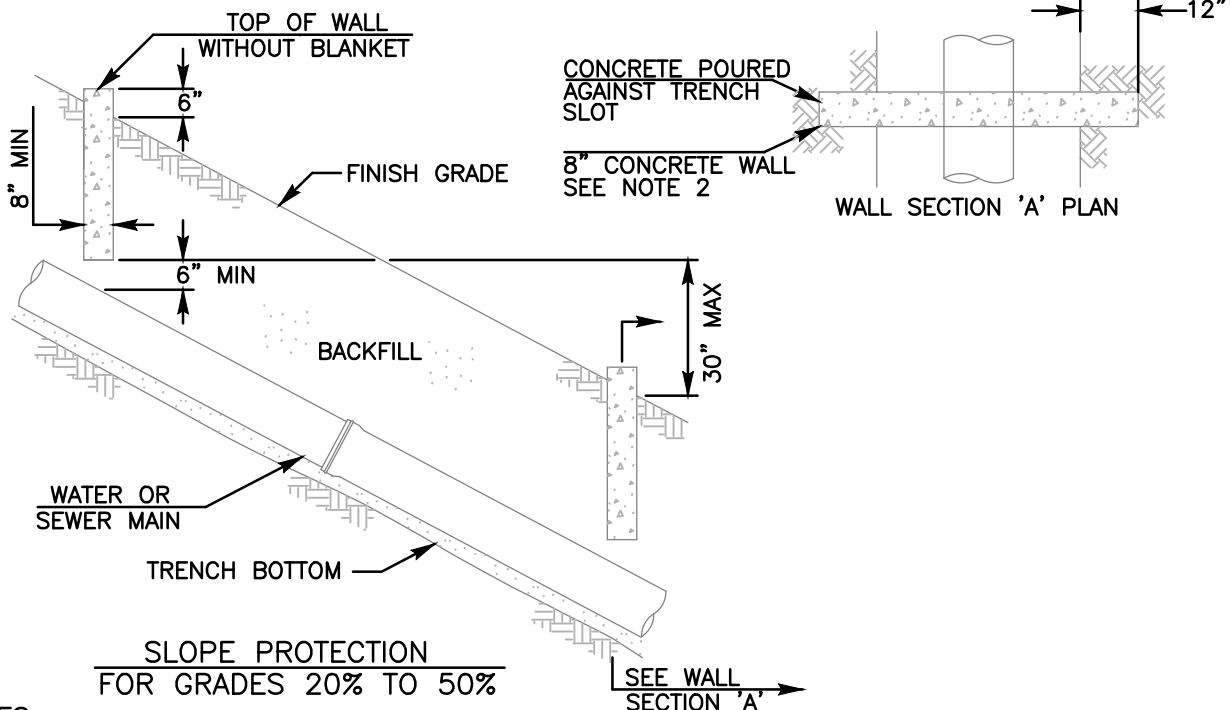
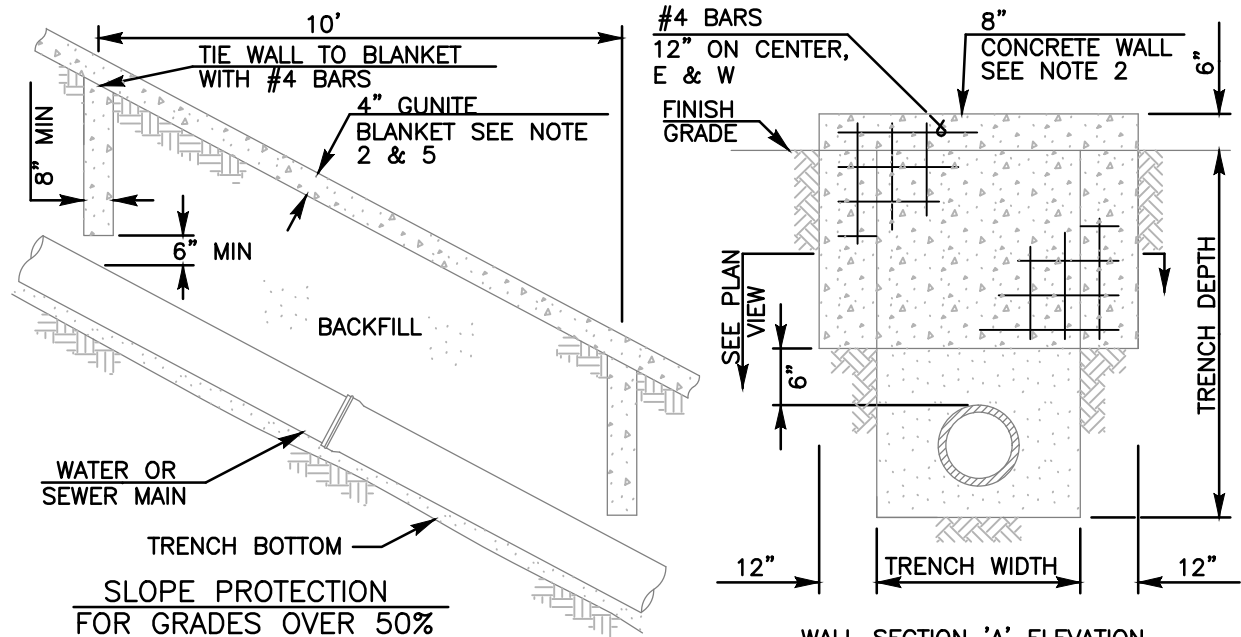
TRENCH SECTION
CONCRETE PIPE ENCASEMENT

NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS FOR TRENCHING, BACKFILLING AND COMPACTING WHERE APPLICABLE
- 2) CONCRETE CRADLE SHALL BE USED WHEN THE TRENCH WIDTH AT THE UPPER LIMIT OF THE PIPE ZONE EXCEEDS THE MAX WIDTH SPECIFIED ON SP-02 AND OR DIRECTED BY AGENCY'S ENGINEER
- 3) FOR PIPE BEDDING AND TRENCH BACKFILL SEE SP-02

LEGEND ON PLANS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	CONCRETE PROTECTION FOR SEWER PIPE		<i>Samuel Engeda</i> 03/24/2022
Reviewed	BK	B. KNOLL	04/15			Chairperson R.C.E. 52241 Date
Reviewed	BK	B. KNOLL	10/18			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER SP-03

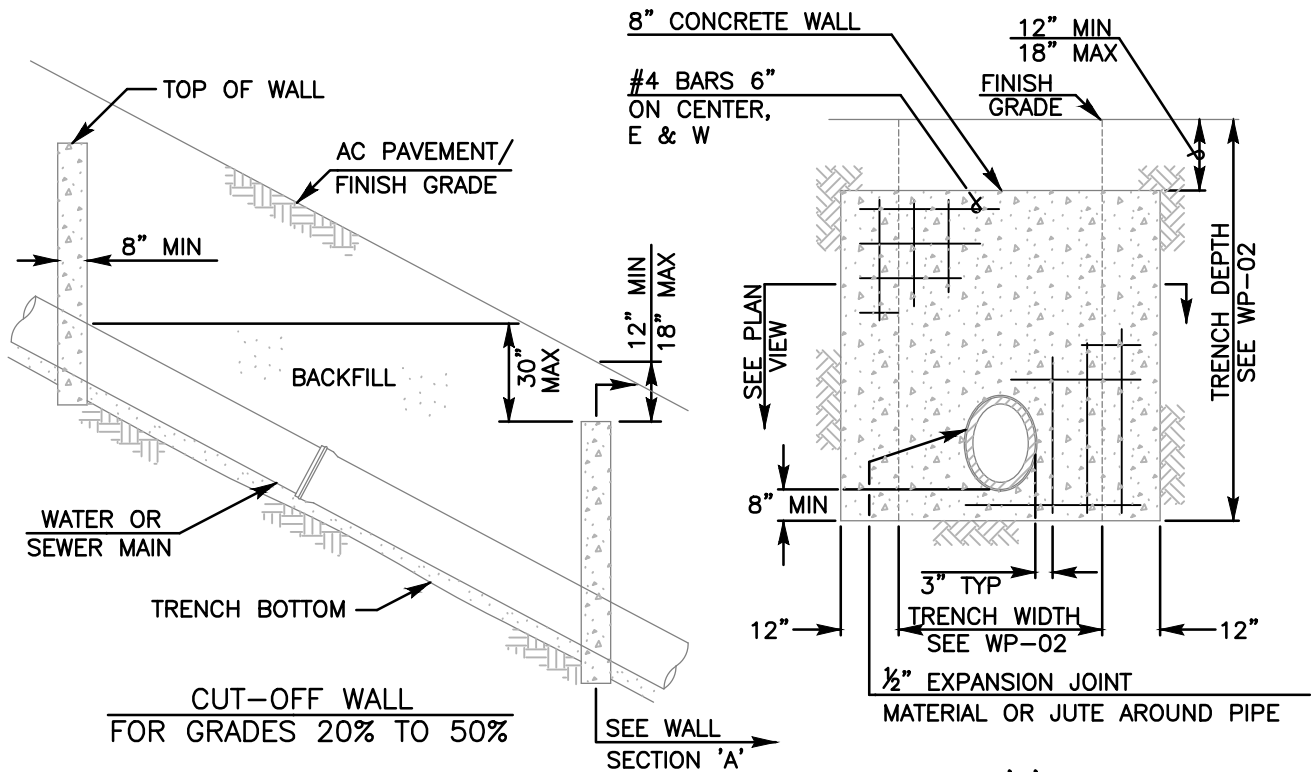


NOTES:

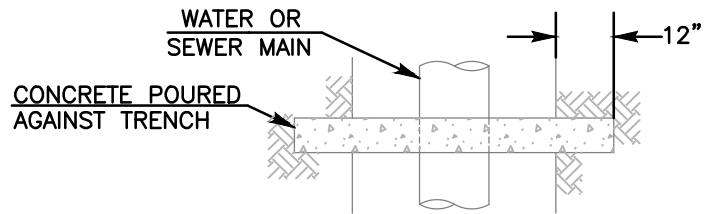
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) THE DETAILS SHOWN REPRESENT THE MINIMUM REQUIRED. THE ENGINEER OF WORK IS REQUIRED TO PROVIDE A SUBMITTAL TO THE AGENCY OF JURISDICTION FOR REVIEW AND APPROVAL BY THE AGENCY'S ENGINEER PRIOR TO INSTALLATION
- 3) WALLS SHALL BE REINFORCED CONCRETE OR 8" x 8" x 16" CONCRETE BLOCK, REINFORCED AND ALL CORES FILLED WITH GROUT SEE SPECIFICATIONS
- 4) FOR GRADES OVER 50%, SLOPE PROTECTION SHALL ALSO INCLUDE AC PAVING, CONCRETE SLAB OR GUNITÉ BLANKET PLACED OVER THE PIPELINE ALIGNMENT
- 5) 4" GUNITÉ BLANKET WITH 6" SQUARE x 10 GAGE WIRE FABRIC AT THE ENGINEERS DISCRETION

LEGEND ON PLANS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		J. Tomasulo	03/05		
Reviewed	BK	B. KNOLL	04/15	SLOPE PROTECTION INSTALLATIONS	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER SP-05



WALL SECTION 'A' ELEVATION



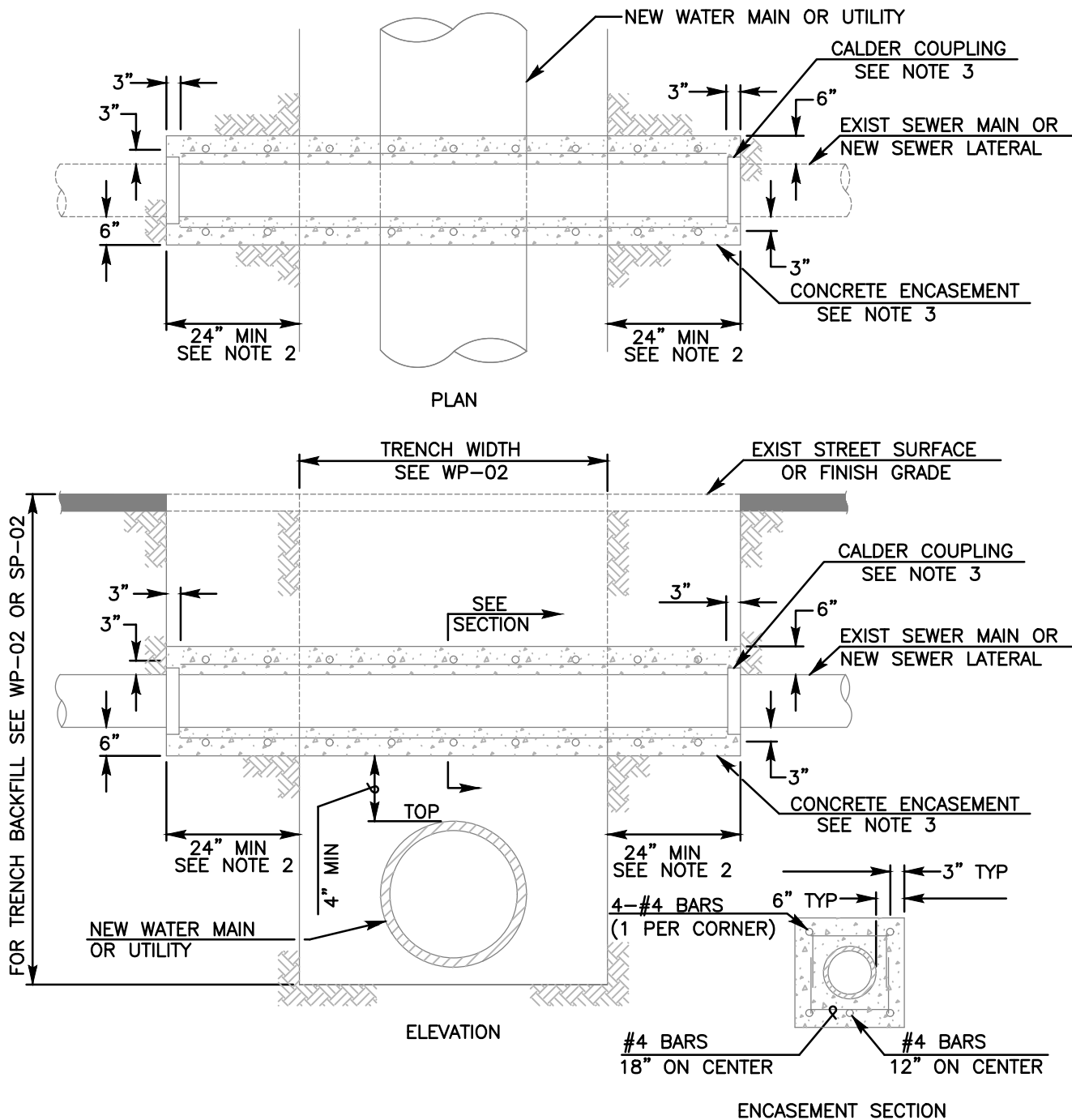
WALL SECTION 'A' PLAN

NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) FOR USE AS TRENCH BACKFILL STABILIZATION IN TRAVELED AREAS
- 3) THE DETAILS SHOWN REPRESENT THE MINIMUM REQUIRED. THE ENGINEER OF WORK IS REQUIRED TO PROVIDE A SUBMITTAL TO THE AGENCY OF JURISDICTION FOR REVIEW AND APPROVAL BY THE AGENCY'S ENGINEER PRIOR TO INSTALLATION
- 4) WALLS SHALL BE REINFORCED CONCRETE OR 8" x 8" x 16" CONCRETE BLOCK, REINFORCED AND ALL CORES FILLED WITH GROUT SEE SPECIFICATIONS (HOR. 2-#4@32", VERT. 1-#4@8")
- 5) FOR GRADES OVER 50% SEE WP-05/SP-05

LEGEND ON PLANS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		J. Tomasulo	03/05		CUT-OFF WALL INSTALLATION IN TRAVELED AREAS	 03/24/2022
Note 4	BK	B. KNOLL	04/15	Chairperson R.C.E. 52241		Date
Reviewed	BK	B. KNOLL	10/18	DRAWING NUMBER		SP-07
Reviewed	RP	S. Engeda	03/22			

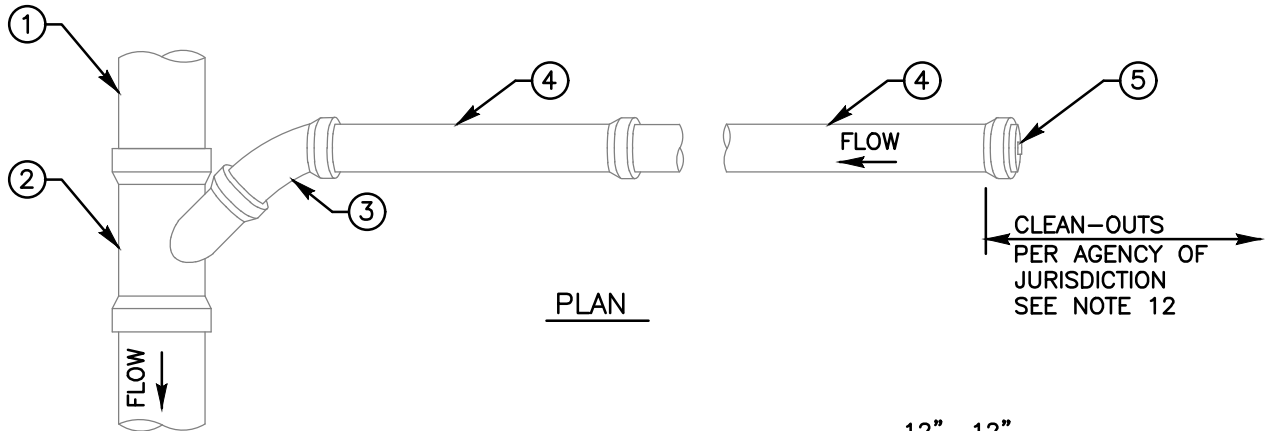


NOTES:

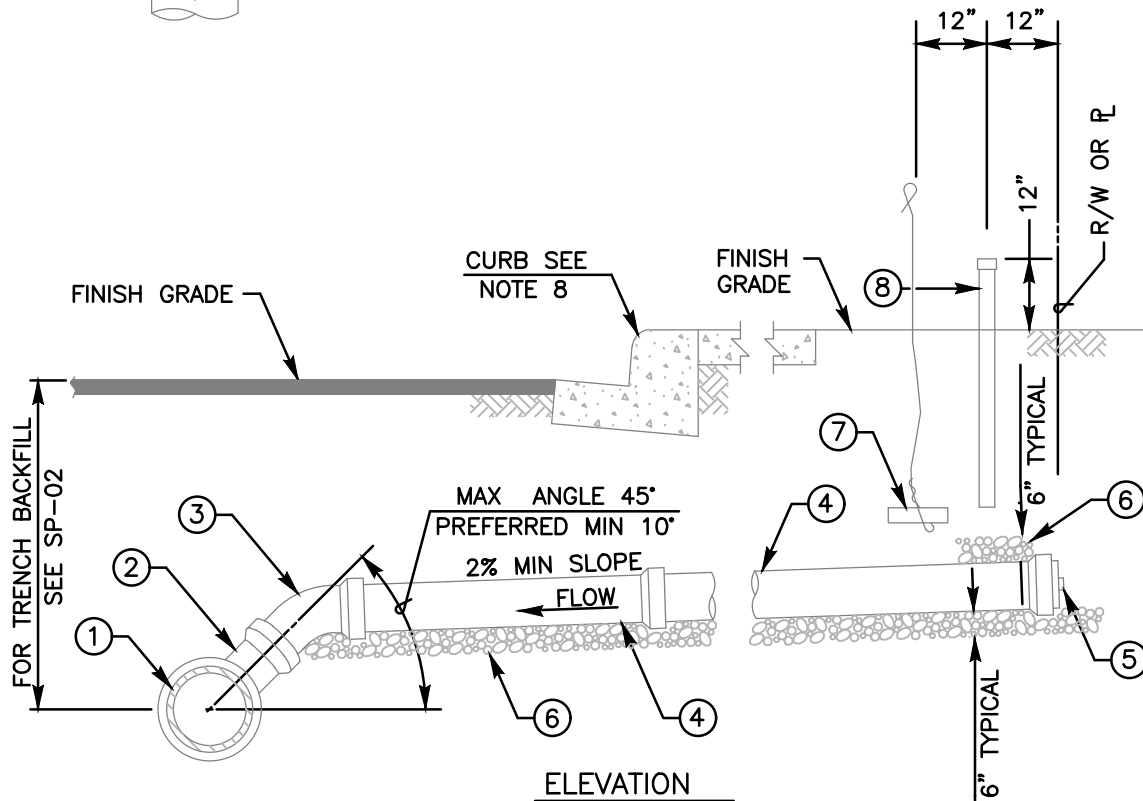
- 1) REFER TO AGENCY SPECIFICATIONS FOR PROTECTION OF EXISTING FACILITIES
- 2) ENCASEMENT SHALL EXTEND TO FIRST JOINT BEYOND BOTH SIDES OF TRENCH (24" MIN, 48" MAX OF SUITABLE NATIVE SUPPORT BEYOND EDGE OF TRENCH).
- 3) CONCRETE ENCASEMENT REQUIRED FOR SEWER MAINS ONLY. CALDER COUPLINGS REQUIRED FOR SEWER LATERALS ONLY. SEWER LATERALS TO BE REPLACED WITH SCH. 80 PVC WITH NO INTERMEDIATE JOINTS.
- 4) FOR PIPE BEDDING AND TRENCH BACKFILL SEE WP-02 OR SP-02.

LEGEND ON PLANS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		J. Tomasulo	03/05	PIPE SUPPORT FOR UNDERCUT SEWER MAINS OR SEWER LATERALS		<i>Samson Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date	SP-09
Reviewed	BK	B. KNOLL	04/15				
Reviewed	BK	B. KNOLL	10/18				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER	



PLAN



ELEVATION

(INDICATE SIZE)

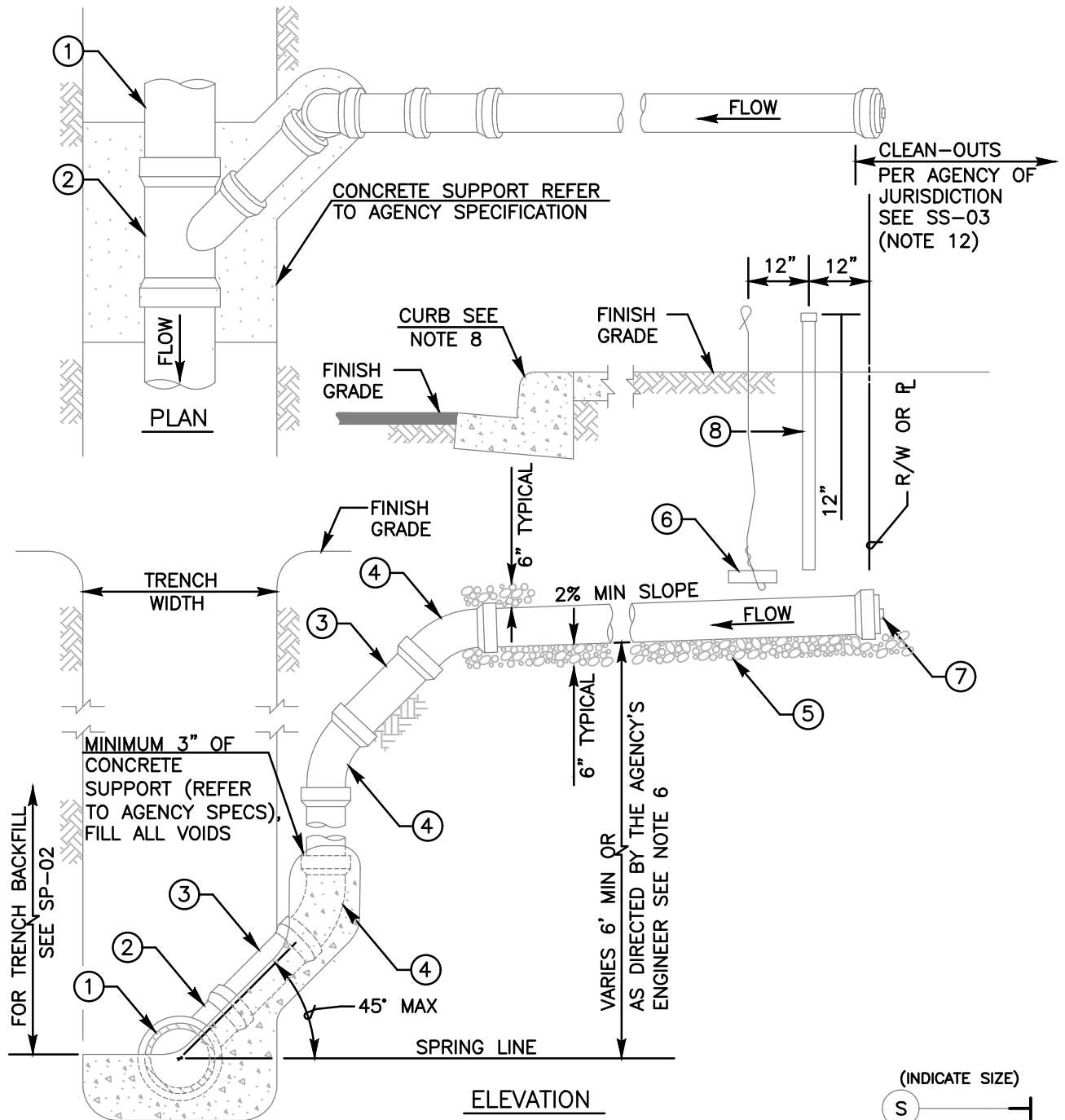


LEGEND ON PLANS

FOR SEWER LATERAL NOTES SEE DETAIL SS-03

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	SEWER MAIN	⑤	PLUG OR CAP
②	45° WYE	⑥	3/4" MAXIMUM CRUSHED ROCK
③	45° ELBOW	⑦	#9 WIRE ATTACHED TO A BRICK
④	PIPE LATERAL SEE NOTE 3 & 5	⑧	4" PVC PIPE WITH GLUED CAP

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75				
Reviewed	BK	B. KNOLL	04/15	4" AND 6" SEWER LATERAL INSTALLATION		<i>Samson Engeda</i> 03/24/2022	
Reviewed	BK	B. KNOLL	10/18			Chairperson R.C.E. 52241 Date	
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER SS-01	

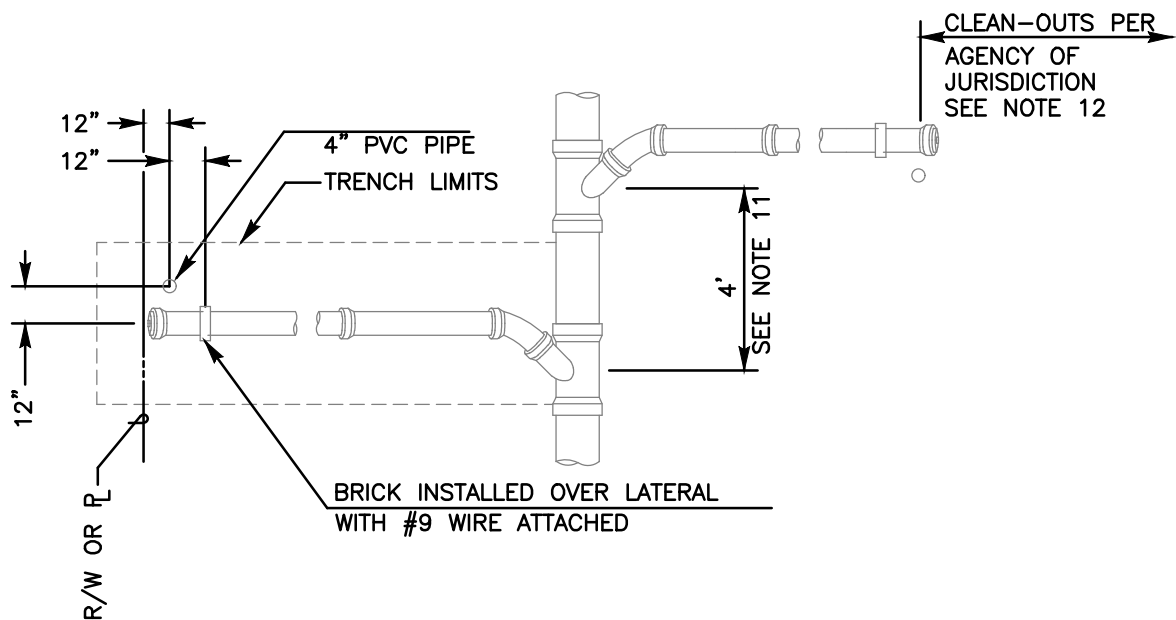


FOR SEWER LATERAL NOTES SEE DETAIL SS-03

(INDICATE SIZE)
S ————
LEGEND ON PLANS

ITEM NO		SIZE AND DESCRIPTION		ITEM NO		SIZE AND DESCRIPTION	
①		SEWER MAIN		⑤		3/4" MAXIMUM CRUSHED ROCK	
②		45° WYE		⑥		#9 WIRE ATTACHED TO A BRICK	
③		PIPE		⑦		PLUG OR CAP	
④		45° ELBOW		⑧		4" PVC PIPE WITH GLUED CAP	

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75			 03/24/2022	
Delete Metric	MR	B. KNOLL	03/11	4" AND 6" DEEP-CUT SEWER LATERAL INSTALLATION		Chairperson R.C.E. 52241 Date	
Reviewed	BK	B. KNOLL	10/18				
Reviewed	RP	S. Engeda	03/22				
						DRAWING NUMBER SS-02	



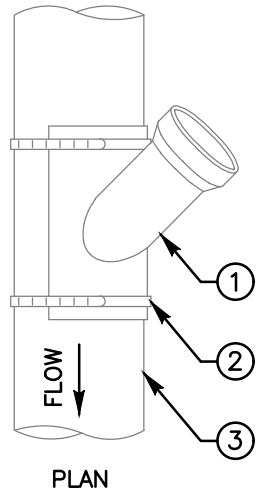
SEWER LATERAL DETAIL
SEE NOTE 10 BELOW

NOTES:

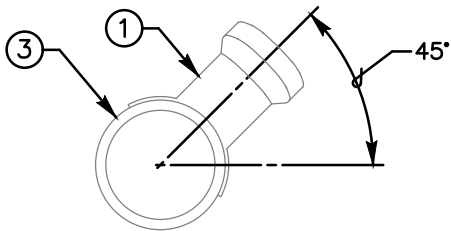
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) IN NO CASE SHALL LATERAL CONNECT DIRECTLY ON TOP OF SEWER MAIN
- 3) LATERAL SHALL BE INSTALLED TO PROPERTY LINE UNLESS SPECIFIED ON PLANS
- 4) MINIMUM 4' COVER ABOVE LATERAL AT PROPERTY LINE
- 5) LATERAL TO HAVE A MINIMUM SLOPE OF 2%
- 6) VERTICAL PIPE SHALL BE BRACED WHILE BACKFILLING TRENCH
- 7) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON SP-01
- 8) STAMP OR CHISEL A 2" HIGH "S" IN CURB FACE OVER LATERAL TO IDENTIFY SEWER LATERAL LOCATION
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST
- 10) FOR SEWER LATERAL INSTALLATIONS SEE SS-01 AND SS-02
- 11) FOR SEWERS SPECIFIED AS PVC PIPE, A MINIMUM 3' SECTION OF PIPE IS REQUIRED BETWEEN FITTINGS
- 12) SEWER CLEAN-OUT SEE SC-01 TYPE B AS REQUIRED BY AGENCY OF JURISDICTION

(INDICATE SIZE)
S ————
LEGEND ON PLANS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11	SEWER LATERAL NOTES AND DETAIL	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER SS-03

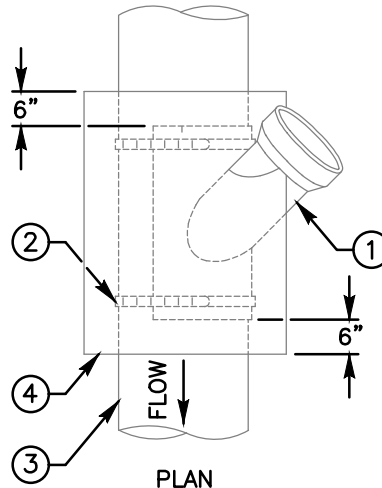


PLAN

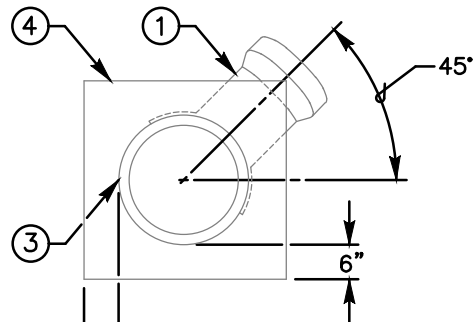


ELEVATION

CUT IN WYE CONNECTION
TYPE A



PLAN



ELEVATION

CUT IN WYE CONNECTION
TYPE B

NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) CONNECTIONS TO EXISTING SEWER MAINS TO BE MADE BY AGENCY PERSONNEL IN ACCORDANCE WITH SPECIFICATIONS UNLESS OTHERWISE NOTED ON PLANS
- 3) IN NO CASE SHALL CONNECTION BE MADE DIRECTLY ON TOP OF SEWER MAIN
- 4) NO MORE THAN ONE CUT IN WYE WILL BE ALLOWED FOR EACH LENGTH OF EXISTING VCP SEWER MAIN
- 5) FOR SEWER LATERAL INSTALLATION SEE SS-01 AND SS-02
- 6) FOR TRENCH BACKFILL SEE SP-02
- 7) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

(INDICATE SIZE)
S ————
LEGEND ON PLANS

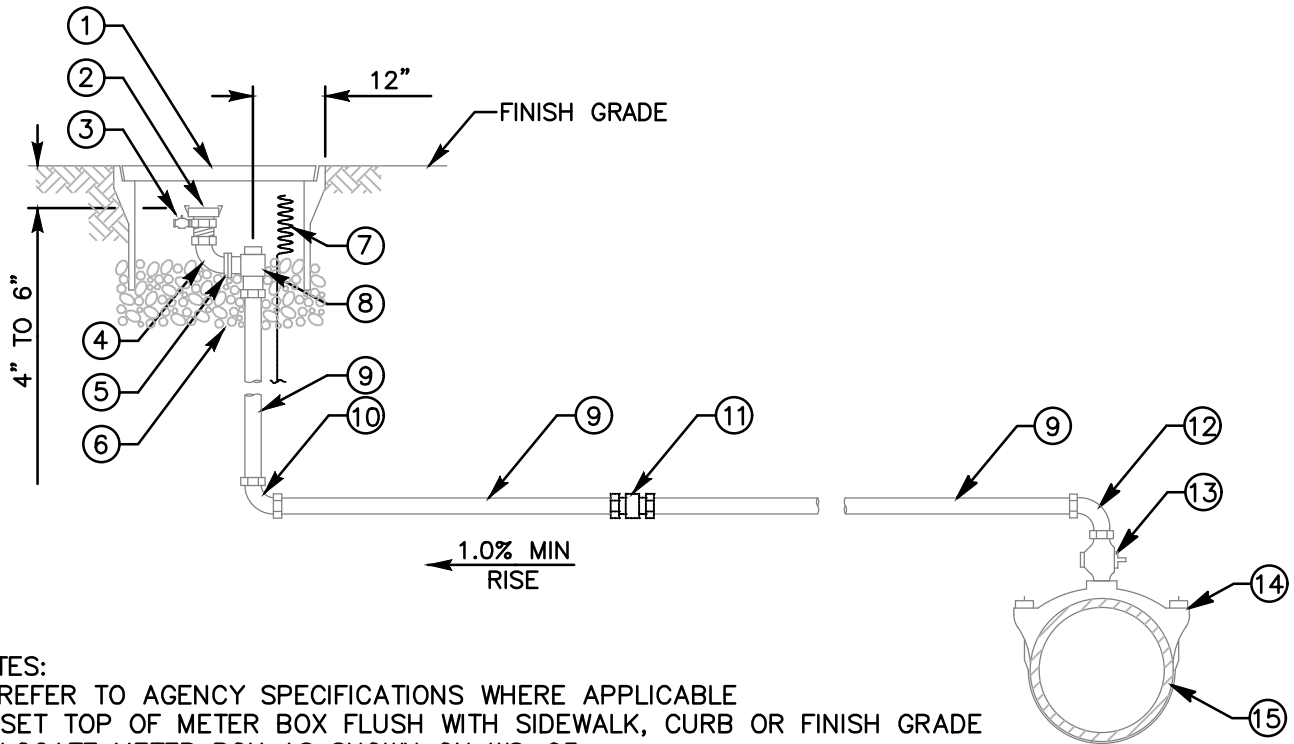
ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	45° SADDLE WYE WITH GASKET	③	EXISTING SEWER MAIN
②	STAINLESS STEEL HOSE CLAMPS (2-EACH)	④	CONCRETE ENCASEMENT

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75				
Reviewed	BK	B. KNOLL	04/15	4" AND 6" SEWER CUT-IN WYE CONNECTIONS		<i>Saman Engeda</i> 03/24/2022	
Reviewed	BK	B. KNOLL	10/18			Chairperson R.C.E. 52241 Date	
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER SS-04	

WATER SYSTEMS



W



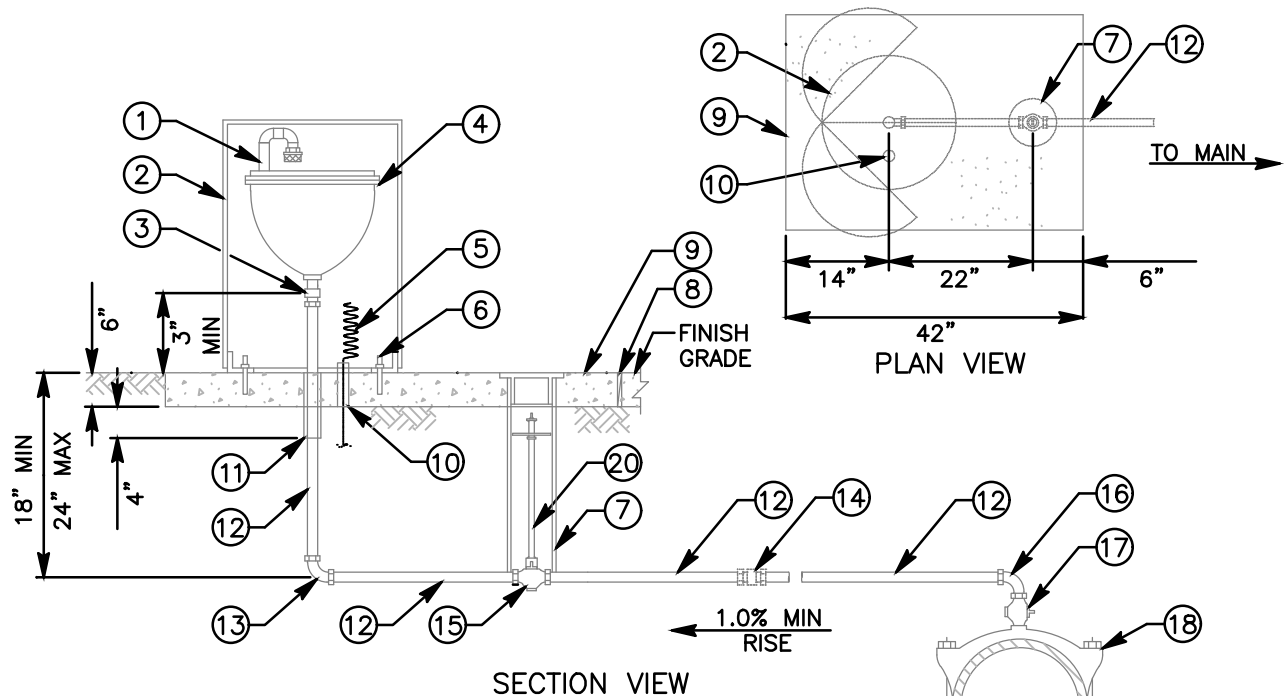
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) SET TOP OF METER BOX FLUSH WITH SIDEWALK, CURB OR FINISH GRADE
- 3) LOCATE METER BOX AS SHOWN ON WS-03
- 4) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 5) MANUAL AIR VALVE INSTALLATION AT END OF MAIN TO BE SADDLED 24" FROM END CAP
- 6) MANUAL AIR VALVE ASSEMBLIES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 7) ON STEEL MAINS USE WELD ON COUPLINGS, ON DUCTILE IRON MAINS USE DUCTILE IRON SERVICE SADDLES (INSULATING BUSHINGS ARE REQUIRED)
- 8) CAM & GROOVE ADAPTER SHALL BE DRILLED AND TAPPED AS REQUIRED FOR THE PRESSURE RELEASE PET COCK
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

2" |
LEGEND ON PLANS

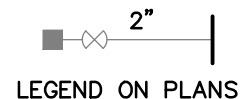
ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	POLYMER METER BOX WITH LID 17" x 30", SEE NOTE 3	⑧	2" BRONZE COMP x FLG ANGLE METER STOP WITH LOCK WING
②	2" CAM & GROOVE ADAPTER x MIPT WITH LOCKING DUST CAP, SEE NOTE 8	⑨	2" x REQUIRED LENGTH COPPER PIPE TYPE "K" RIGID OR SOFT
③	1/4" PRESSURE PET COCK	⑩	2" 90° BRONZE COMPRESSION ELL
④	2" 90° BRONZE MIPT x FIPT ELL	⑪	2" BRONZE COMPRESSION COUPLING COPPER TO COPPER (IF REQUIRED)
⑤	2" OVAL METER FLANGE FLG x FIPT, WITH GASKET	⑫	2" 90° BRONZE FIPT x COMP ELL
⑥	3/8" ROCK 4" TO 6" DEEP	⑬	2" BRONZE MIPT x MIPT CORPORATION STOP
⑦	TRACER WIRE (AS REQUIRED), SEE WP-01	⑭	SIZE x 2" SERVICE SADDLE
		⑮	WATER MAIN

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 2" MANUAL AIR VALVE	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11		<i>Samsan Engeda</i> 03/24/2022
Updated	BK	B. KNOLL	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER WA-01



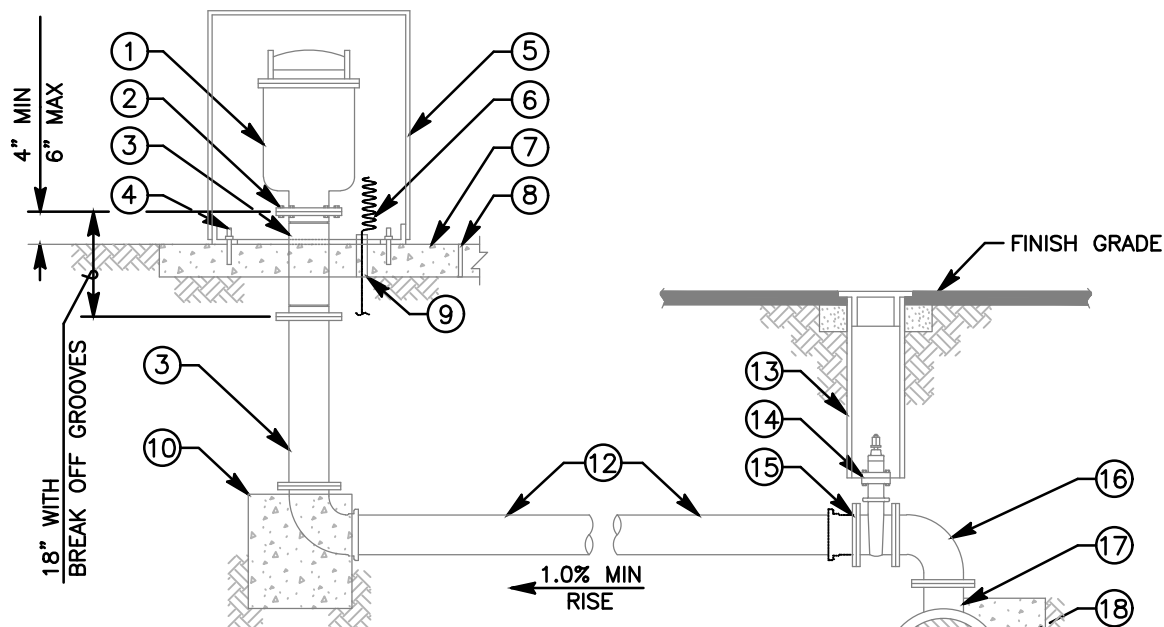
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) NO DIPS OR LOW SPOTS WILL BE ALLOWED IN PIPING INSTALLATION
- 3) LOCATE ENCLOSURE AS SHOWN ON WA-06
- 4) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 5) AIR & VACUUM VALVES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 6) ON STEEL MAINS USE WELD ON COUPLINGS, ON DUCTILE IRON MAINS USE DUCTILE IRON SERVICE SADDLES (INSULATING BUSHINGS ARE REQUIRED)
- 7) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



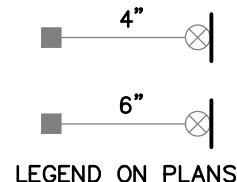
ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	2" PVC SCH 80 CLOSE NIPPLE & 2-SCH 80 STREET ELLS & INSECT SCREEN	⑪	2" x 1/2" BLACK FOAM SLEEVE
②	VALVE ENCLOSURE	⑫	2" x REQUIRED LENGTH COPPER PIPE TYPE "K" RIGID OR SOFT
③	2" MIPT x COMPRESSION ADAPTER	⑬	2" 90° BRONZE COMPRESSION ELL
④	2" AUTOMATIC COMBINATION AIR RELEASE & AIR/VACUUM VALVE	⑭	2" BRONZE COMPRESSION COUPLING COPPER TO COPPER (IF REQUIRED)
⑤	TRACER WIRE (AS REQUIRED), SEE WP-01	⑮	2" COMP BALL VALVE W/ TEE HEAD
⑥	1/2" x 3" STAINLESS STEEL DROP-IN ANCHORS (3 EA @ 120° APART)	⑯	2" 90° BRONZE FIPT x COMP ELL
⑦	4" SDR 35 SEWER PIPE GATE WELL WITH CAP	⑰	2" BRONZE MIPT x MIPT CORPORATION STOP
⑧	COLD JOINT STRIP	⑱	SIZE x 2" SERVICE SADDLE
⑨	3'-6" x 2'-6" x 6" THICK CONCRETE SLAB	⑲	WATER MAIN
⑩	1" PVC CONDUIT FOR TRACER WIRE INSTALLED 2" ABOVE SLAB	⑳	VALVE STEM EXTENSION, SEE WV-05

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 2" AUTOMATIC COMBINATION AIR RELEASE & AIR/VACUUM VALVE INSTALLATIONS	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE <i>Samson Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11		
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
				DRAWING NUMBER	WA-02



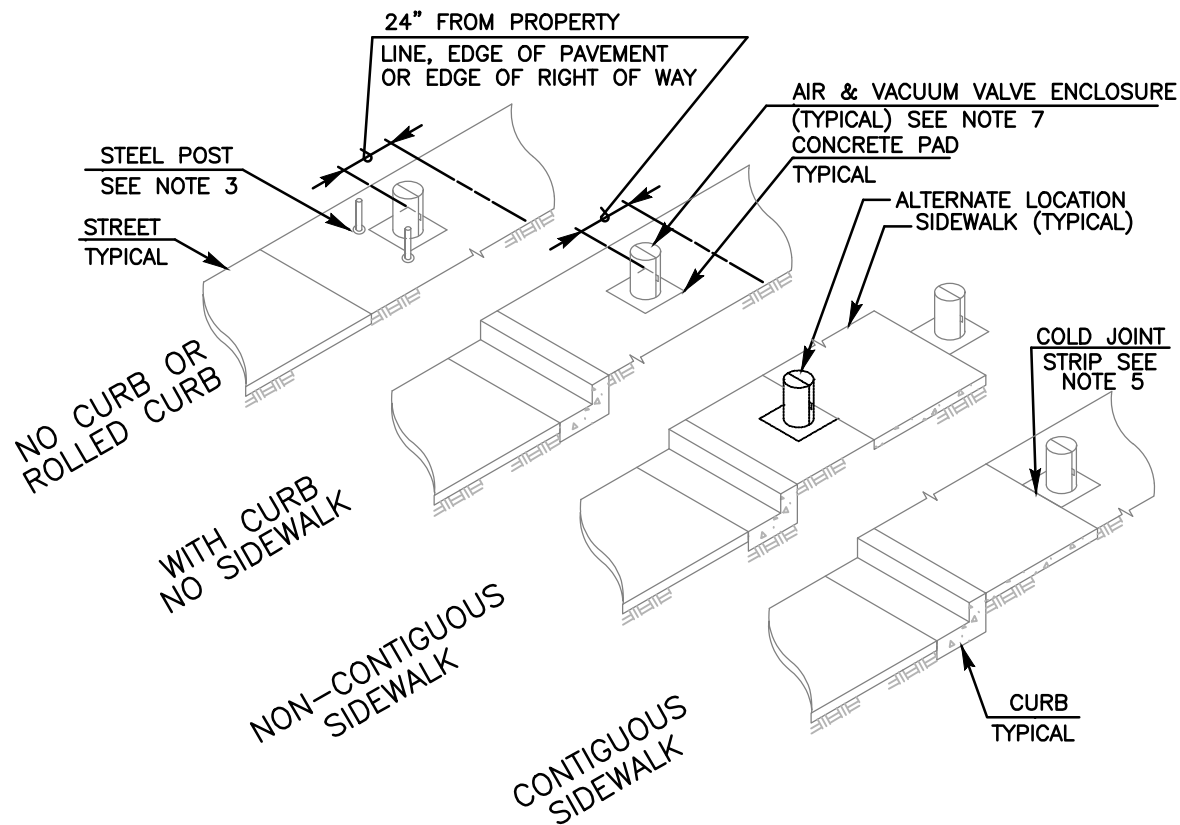
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) NO DIPS OR LOW SPOTS WILL BE ALLOWED IN PIPING INSTALLATION
- 3) LOCATE ENCLOSURE AS SHOWN ON WA-06
- 4) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 5) BREAK-AWAY BOLTS SHALL BE 5/8" x 3" WITH 3/8" HOLE DRILLED IN THE SHAFT OF THE BOLT. INSTALL WITH NUTS ON TOP OF THE FLANGE. BOLT SHAFT SHALL BE FILLED WITH SILICONE SEALANT
- 6) AIR & VACUUM VALVES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 7) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	4" OR 6" AUTOMATIC COMBINATION AIR RELEASE & AIR/VACUUM VALVE ASSEMBLY	⑩	CONCRETE THRUST/ANCHOR BLOCK SEE WT-01
②	BREAK-AWAY BOLTS, SEE NOTE 5	⑪	4" OR 6" FLG x MJ/PO 90° BEND
③	4" OR 6" FLANGED 8-BOLT DUCTILE IRON PIPE x REQ'D LENGTH (MAX OF 2 SPOOLS)	⑫	4" OR 6" C-900 PVC PIPE
④	5/8" x 3" STAINLESS STEEL DROP-IN ANCHORS (3 EA @ 120° APART)	⑬	GATE WELL WITH CAP SEE WV-01 OR WV-02
⑤	VALVE ENCLOSURE	⑭	4" OR 6" FLG x MJ/PO/FLG RWGV
⑥	TRACER WIRE (AS REQUIRED), SEE WP-01	⑮	4" OR 6" FLG x MJ/PO ADAPTER (IF REQUIRED)
⑦	42" x 42" x 6" THICK CONCRETE SLAB	⑯	4" OR 6" FLANGE 90° BEND
⑧	COLD JOINT STRIP	⑰	SIZE x 4" OR 6" MJ/PO/FLG x FLG TEE
⑨	1" PVC CONDUIT FOR TRACER WIRE INSTALLED 2" ABOVE SLAB	⑱	WATER MAIN

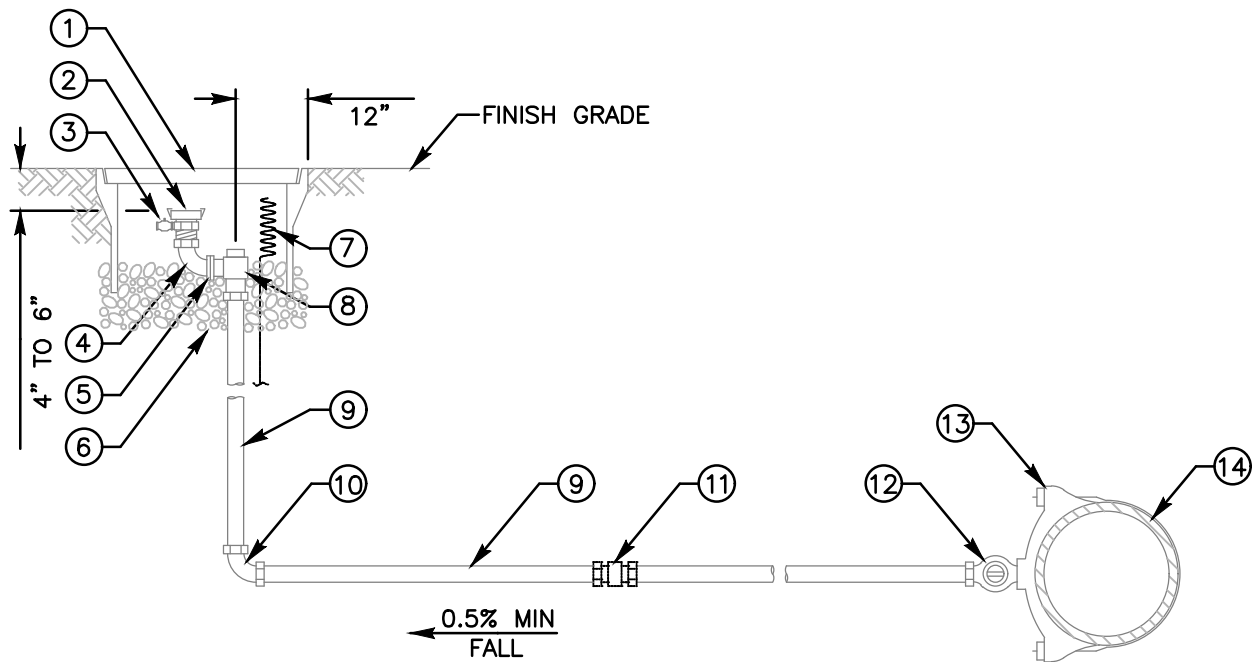
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11	4" & 6" AUTOMATIC COMBINATION AIR RELEASE & AIR/VACUUM VALVE INSTALLATIONS	 03/24/2022 Chairperson R.C.E. 52241 Date
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WA-04



NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) REFER TO WA-02 AND WA-04
- 3) PROTECTION POSTS SHALL BE INSTALLED AS CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER PER WM-04
- 4) AN EASEMENT MAY BE NEEDED DEPENDING ON LOCATION OF ENCLOSURE
- 5) IF THE CONCRETE SLAB IS TO BE INSTALLED ADJACENT TO A CONCRETE CURB OR SIDEWALK A COLD JOINT STRIP SHALL BE INSTALLED
- 6) AIR & VACUUM VALVES & APPURTENANCES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN THE AGENCY'S SPECIFICATIONS
- 7) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		Kercheval	12/75	AIR & VACUUM VALVE ENCLOSURE LOCATIONS	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
Delete Metric	MR	B. KNOLL	03/11		 03/24/2022 Chairperson R.C.E. 52241 Date
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WA-06



NOTES:

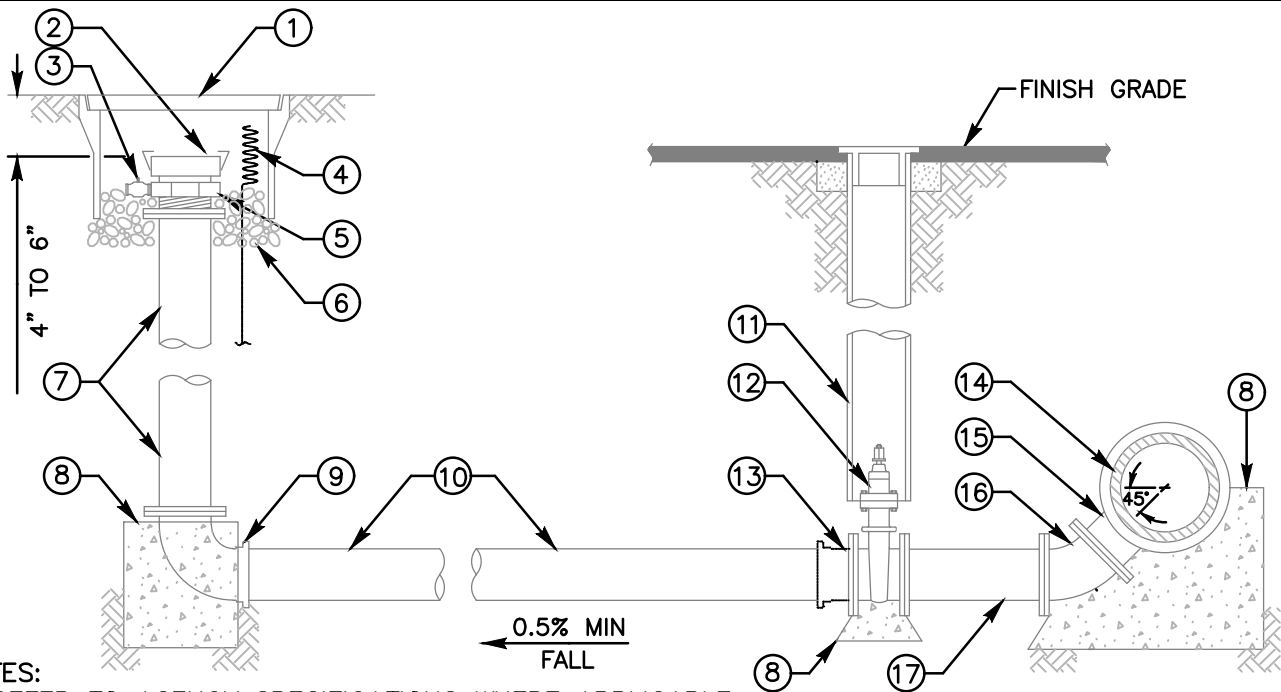
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) SET TOP OF METER BOX FLUSH WITH SIDEWALK, CURB OR FINISH GRADE
- 3) LOCATE METER BOX AS SHOWN ON WS-03
- 4) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 5) FOR BLOW-OFF INSTALLATION AT END OF MAIN SEE WB-04
- 6) BLOW-OFF ASSEMBLIES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 7) ON STEEL MAINS USE WELD ON COUPLINGS, ON DUCTILE IRON MAINS USE DUCTILE IRON SERVICE SADDLES (INSULATING BUSHINGS ARE REQUIRED)
- 8) CAM & GROOVE ADAPTER SHALL BE DRILLED AND TAPPED AS REQUIRED FOR THE PRESSURE PET COCK
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

2"
LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	POLYMER METER BOX WITH LID 17" x 30", SEE NOTE 3	⑧	2" BRONZE COMP x FLG ANGLE METER STOP WITH LOCK WING
②	2" CAM & GROOVE ADAPTER x MIPT WITH LOCKING DUST CAP, SEE NOTE 8	⑨	2" x REQUIRED LENGTH COPPER PIPE TYPE "K" RIGID OR SOFT
③	1/4" PRESSURE PET COCK	⑩	2" 90° BRONZE COMPRESSION ELL
④	2" 90° BRONZE MIPT x FIPT ELL	⑪	2" BRONZE COMPRESSION COUPLING COPPER TO COPPER (IF REQUIRED)
⑤	2" OVAL METER FLANGE FLG x FIPT, WITH GASKET	⑫	2" BRONZE MIPT x COMP CORPORATION STOP
⑥	3/8" ROCK 4" TO 6" DEEP	⑬	SIZE x 2" SERVICE SADDLE
⑦	TRACER WIRE (AS REQUIRED), SEE WP-01	⑭	WATER MAIN

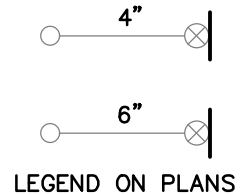
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
ORIGINAL		Kercheval	12/75		2" BLOW-OFF INSTALLATION	 03/24/2022 Chairperson R.C.E. 52241 Date
Delete Metric	MR	B. KNOLL	03/11			
Updated	BK	B. KNOLL	10/18			
Reviewed	RP	S. Engeda	03/22			

DRAWING NUMBER	WB-01
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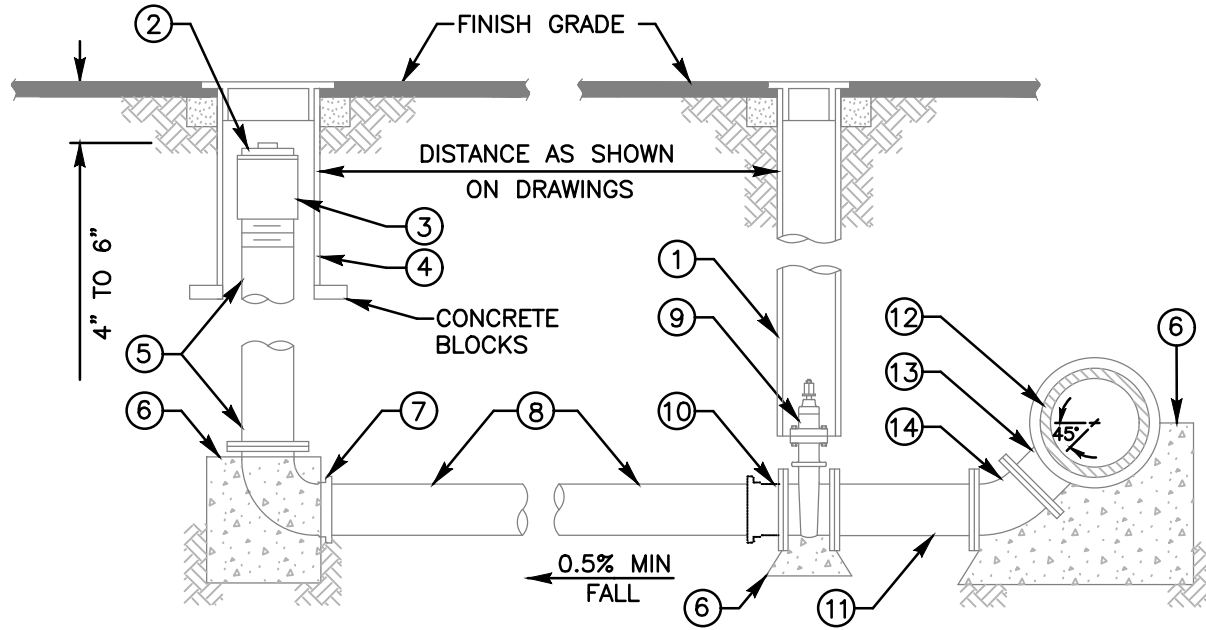
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) SET TOP OF METER BOX FLUSH WITH SIDEWALK, CURB OR FINISH GRADE
- 3) LOCATE METER BOX AS SHOWN ON WS-03
- 4) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 5) FOR BLOW-OFF INSTALLATION AT END OF MAIN SEE WB-04
- 6) BLOW-OFF ASSEMBLIES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 7) 45° BEND SHALL BE USED FOR MAINS UP TO 30". 90° BEND SHALL BE USED FOR MAINS IN EXCESS OF 30" AS DIRECTED BY THE ENGINEER
- 8) CAM & GROOVE ADAPTER SHALL BE DRILLED AND TAPPED AS REQUIRED FOR THE PRESSURE PET COCK
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	POLYMER METER BOX WITH LID 17" x 30", SEE NOTE 3	⑨	4" OR 6" FLG x MJ/PO 90° BEND
②	4" OR 6" CAM & GROOVE ADAPTER x MIPT WITH LOCKING DUST CAP, SEE NOTE 8	⑩	4" OR 6" C-900 PVC PIPE
③	1/4" PRESSURE PET COCK	⑪	GATE WELL WITH CAP SEE WV-01 OR WV-02
④	TRACER WIRE (AS REQUIRED), SEE WP-01	⑫	4" OR 6" FLG x MJ/PO/FLG RWGV
⑤	4" OR 6" FLANGED COMPANION x FIPT	⑬	4" OR 6" FLG x MJ/PO ADAPTER (IF REQUIRED)
⑥	3/8" ROCK 4" TO 6" DEEP	⑭	WATER MAIN
⑦	4" OR 6" FLG DI PIPE x REQUIRED LENGTH (MAXIMUM OF 2 SPOOLS)	⑮	SIZE x 4" OR 6" MJ/PO/FLG x FLG TEE
⑧	CONCRETE THRUST BLOCK SEE WT-01	⑯	4" OR 6" FLANGED 45° BEND
		⑰	4" OR 6" x 24" FLG DI SPOOL

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11	4" & 6" BLOW-OFF INSTALLATION TYPE A	 Chairperson R.C.E. 52241 Date 03/24/2022
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WB-02



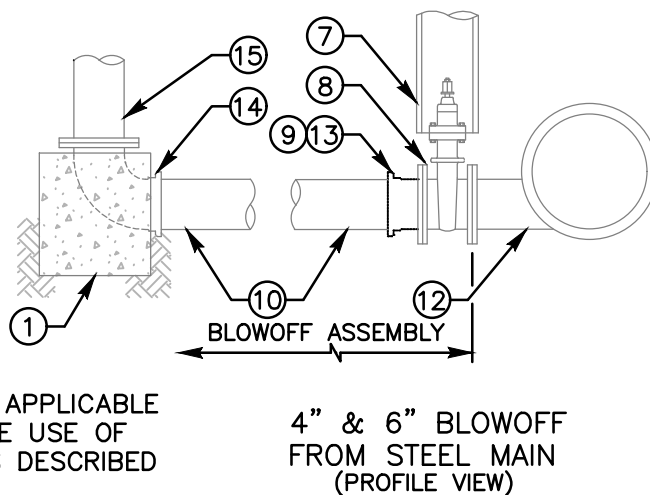
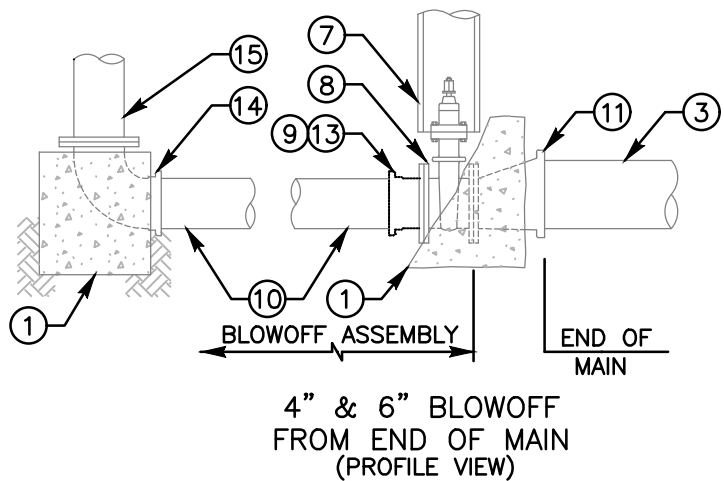
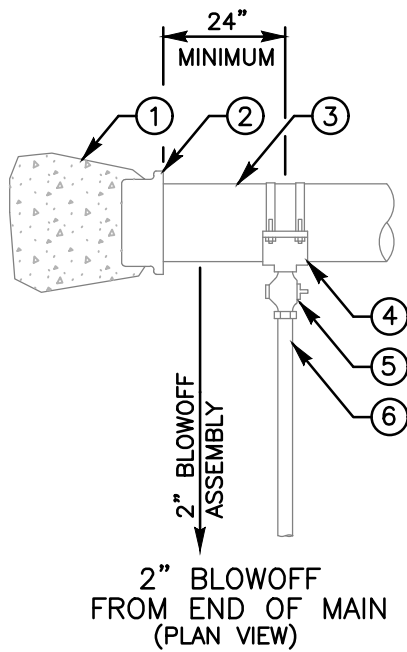
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) FOR BLOW-OFF INSTALLATION AT END OF MAIN SEE WB-04
- 3) BLOW-OFF ASSEMBLIES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 4) ON STEEL MAINS USE WELD ON COUPLINGS, ON DUCTILE IRON MAINS USE DUCTILE IRON SERVICE SADDLES (INSULATING BUSHINGS ARE REQUIRED)
- 5) 45° BEND SHALL BE USED FOR MAINS UP TO 30". 90° BEND SHALL BE USED FOR MAINS IN EXCESS OF 30" AS DIRECTED BY THE ENGINEER
- 6) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	GATE WELL WITH CAP SEE WV-01 OR WV-02	⑧	4" OR 6" C-900 PVC PIPE
②	GALVANIZED IRON PLUG	⑨	4" OR 6" FLG x MJ/PO/FLG RWGV
③	GALVANIZED IRON COUPLING, THREADED	⑩	4" OR 6" FLG x MJ/PO ADAPTER (IF REQUIRED)
④	10" STEEL GATE WELL WITH CAP	⑪	4" OR 6" x 24" FLG DI SPOOL
⑤	4" OR 6" FLG DI PIPE x REQUIRED LENGTH (MAXIMUM OF 2 SPOOLS)	⑫	WATER MAIN
⑥	CONCRETE THRUST BLOCK SEE WT-01	⑬	SIZE x 4" OR 6" MJ/PO/FLG x FLG TEE
⑦	4" OR 6" FLG x MJ/PO 90° BEND	⑭	4" OR 6" FLANGED 45° BEND, SEE NOTE 5

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 4" & 6" BLOW-OFF ASSEMBLIES IN STREET TYPE B	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE <i>Samson Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date DRAWING NUMBER WB-03
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11		
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		

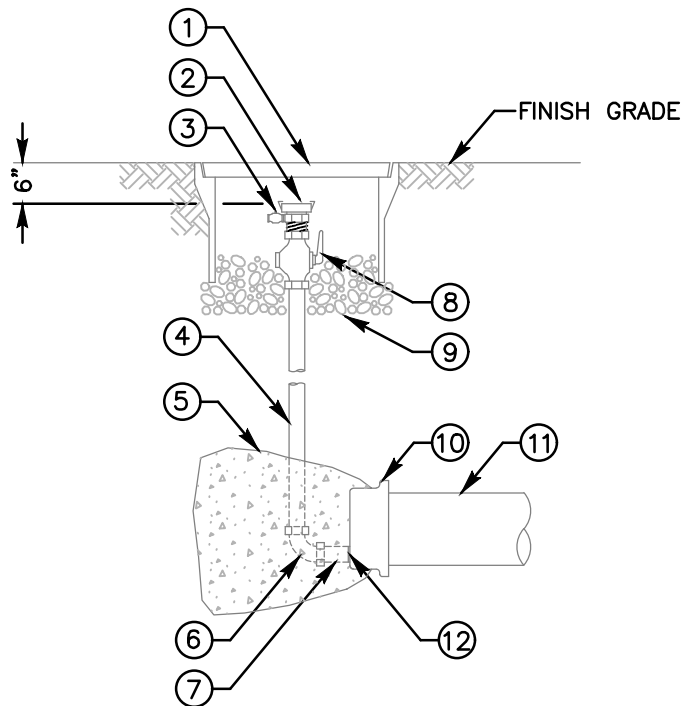


NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) BLOW-OFF ASSEMBLIES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 3) FOR 2" BLOW-OFFS ON STEEL MAINS USE WELD ON COUPLINGS, ON DUCTILE IRON MAINS USE DUCTILE IRON SERVICE SADDLES (INSULATING BUSHINGS ARE REQUIRED)
- 4) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	CONCRETE THRUST BLOCKS SEE WT-01	⑧	FLG x MJ/PO/FLG RWGV
②	DI END CAP	⑨	FLG x MJ/PO ADAPTER (IF REQUIRED)
③	WATER MAIN	⑩	C-900 PVC PIPE
④	SIZE x 2" SERVICE SADDLE	⑪	FLG x MJ/PO ECCENTRIC DI REDUCER
⑤	2" BRONZE MIPT x COMP CORPORATION STOP	⑫	MAIN SIZE x BLOWOFF SIZE FLANGE MANUFACTURED STEEL TANGENTIAL OUTLET
⑥	2" x REQ'D LENGTH COPPER PIPE TYPE "K" RIGID OR SOFT	⑬	FLG x MJ/PO BEND (IF REQUIRED)
⑦	GATE WELL WITH CAP SEE WV-01 & WV-02	⑭	FLG x MJ/PO 90° BEND
		⑮	FLG DI PIPE x REQUIRED LENGTH (MAXIMUM OF 2 SPOOLS)

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11	BLOW-OFF INSTALLATION FROM END OF MAINS AND FROM STEEL MAINS	 03/24/2022 Chairperson R.C.E. 52241 Date
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WB-04



NOTES:

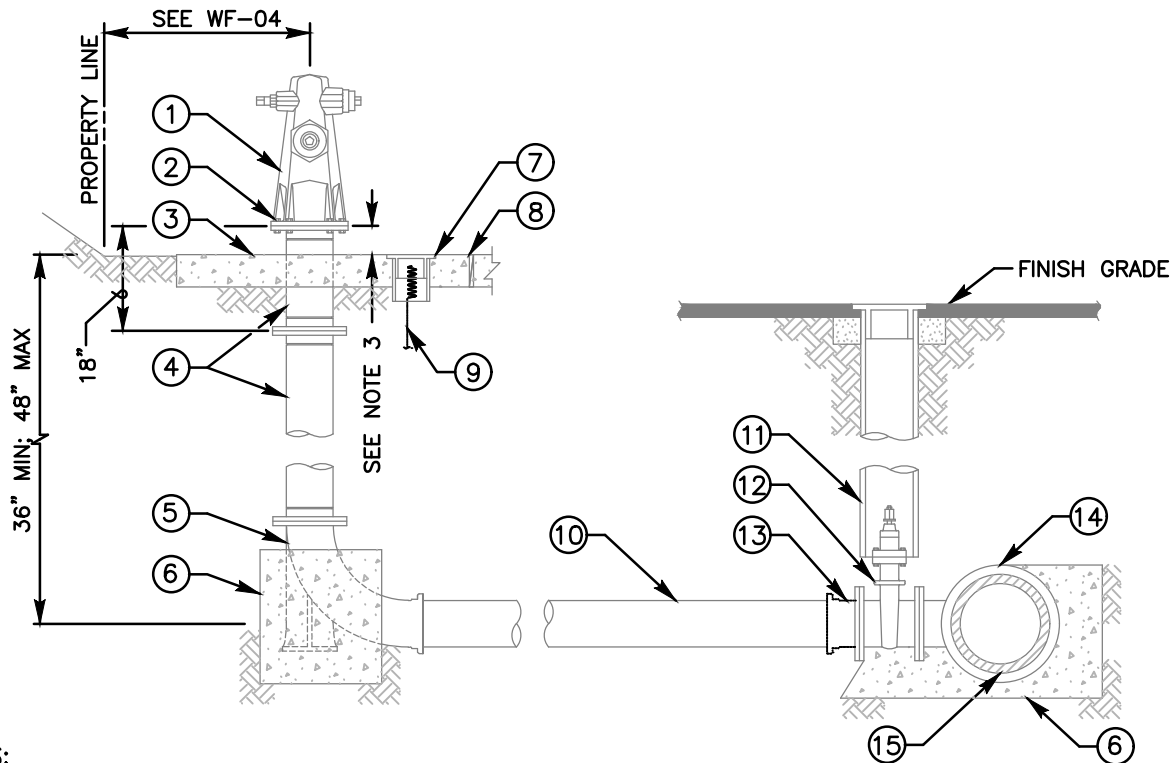
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) SET TOP OF METER BOX 2" ABOVE FINISH GRADE
- 3) BLOW-OFF ASSEMBLIES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 4) THE CONSTRUCTION OF A TEMPORARY BLOW-OFF FOR THE USE OF TESTING AND FLUSHING OF NEW MAINS ONLY
- 5) CAM & GROOVE ADAPTER SHALL BE DRILLED AND TAPPED AS REQUIRED FOR THE PRESSURE PET COCK
- 6) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

TEMP 2"

 LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	POLYMER METER BOX WITH LID 17" x 30"	⑥	2" 90° BRONZE IRON PIPE THREAD BY COMPRESSION ELL
②	2" CAM & GROOVE ADAPTER x MIPT WITH LOCKING DUST CAP, SEE NOTE 5	⑦	2" CLOSE NIPPLE IPT
③	1/4" PRESSURE PET COCK	⑧	2" COMPRESSION x FIPT BALL VALVE WITH HANDLE
④	2" x REQUIRED LENGTH COPPER PIPE TYPE "K" RIGID OR SOFT	⑨	3/8" ROCK 6" DEEP
⑤	CONCRETE THRUST BLOCK SEE WT-01	⑩	DI END CAP WITH 2.5" FIPT OUTLET
		⑪	WATER MAIN
		⑫	NYLON DIELECTRIC BUSHING (2.5" x 2")

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11	TEMPORARY 2" BLOW-OFF INSTALLATION	 Chairperson R.C.E. 52241 Date 03/24/2022
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WB-05



NOTES:

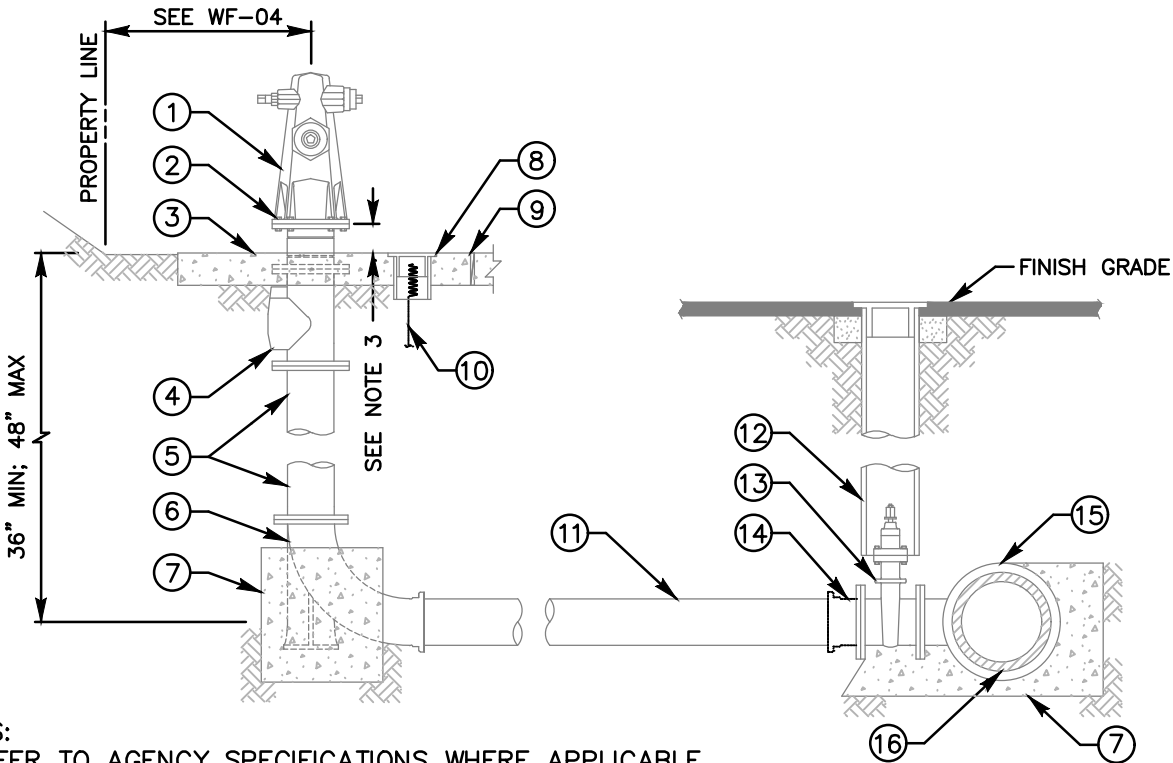
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) THE NUMBER OF OUTLETS SHALL BE AS SHOWN ON PLANS
- 3) FIRE HYDRANT FLANGE SHALL BE 6" $\pm$ 1" ABOVE TOP OF CURB OR SPLASH PAD SEE PLANS FOR ELEVATION
- 4) LOCATE FIRE HYDRANT AS SHOWN ON WF-04
- 5) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 6) FIRE HYDRANT FLANGE BOLTS SHALL BE BREAK AWAY BOLTS INSTALLED WITH NUTS ON TOP OF THE FLANGE. BOLT SHAFT SHALL BE FILLED WITH SILICONE SEALANT
- 7) CONNECTIONS TO STEEL MAINS WILL BE MADE IN ACCORDANCE WITH AGENCY'S SPECIFICATIONS
- 8) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	6" FIRE HYDRANT SEE NOTE 2	⑧	COLD JOINT STRIP
②	BREAK-AWAY BOLTS, SEE NOTE 6	⑨	TRACER WIRE (AS REQUIRED) PER WP-01
③	4' x 4' x 6" THICK CONCRETE SPLASH PAD	⑩	6" C-900 PVC PIPE
④	6" FLANGE DI HYDRANT EXTENSION SPOOL(S) WITH BREAK OFF GROOVES (MAXIMUM OF 2 SPOOLS)	⑪	GATE WELL WITH CAP SEE WV-01 OR WV-02
⑤	6" x 16" LONG RADIUS FLG x MJ/PO BURY ELL	⑫	6" FLG x MJ/PO/FLG RWGV
⑥	CONCRETE THRUST BLOCK SEE WT-01	⑬	6" FLG x MJ/PO ADAPTER (IF REQUIRED)
⑦	TRACER WIRE ACCESS PORT, 4" x 8" LONG SDR 35 SEWER PIPE W/ CAP (AS-REQUIRED)	⑭	SIZE x 6" MJ/PO/FLG x FLG TEE
		⑮	WATER MAIN

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	6" FIRE HYDRANT INSTALLATION	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75			
Delete Metric	MR	B. KNOLL	03/11			<i>Samson Engeda</i> 03/24/2022
Updated	BK	B. KNOLL	10/18			Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER WF-01



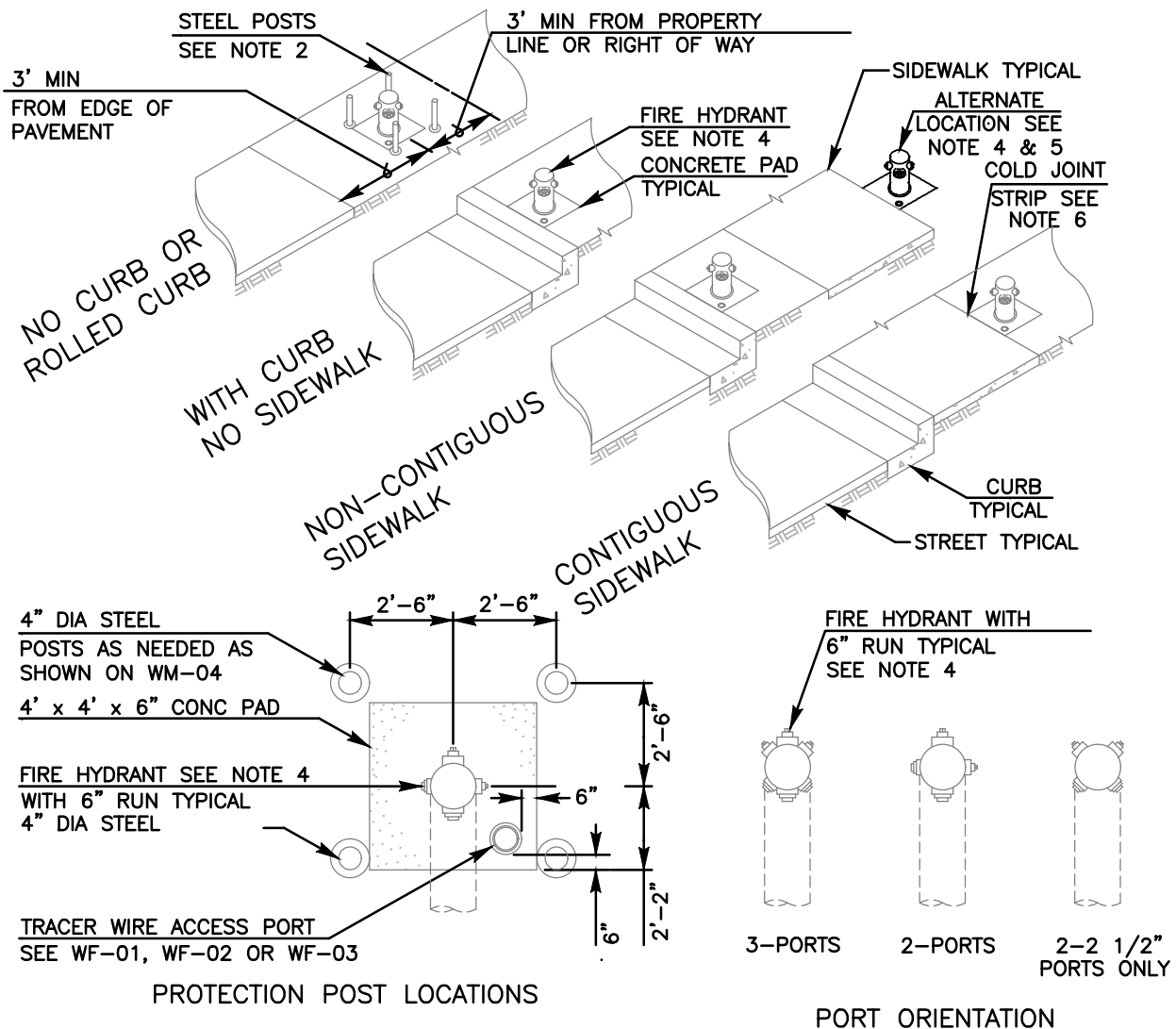
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) THE NUMBER OF OUTLETS SHALL BE AS SHOWN ON PLANS
- 3) TOP FLANGE OF BREAK-OFF CHECK VALVE SHALL BE SET WITHIN THE CONCRETE PAD. BREAK OFF GROOVE, MINIMUM OF ONE, SHALL BE PLACED ABOVE THE PAD
- 4) LOCATE FIRE HYDRANT AS SHOWN ON WF-04
- 5) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 6) FIRE HYDRANT FLANGE BOLTS SHALL BE A307 ZINC-PLATED BOLTS INSTALLED WITH NUTS ON TOP OF THE FLANGE. BREAK AWAY BOLTS SHALL NOT BE USED
- 7) CONNECTIONS TO STEEL MAINS WILL BE MADE IN ACCORDANCE WITH AGENCY'S SPECIFICATIONS
- 8) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	6" FIRE HYDRANT SEE NOTE 2	⑨	COLD JOINT STRIP
②	BOLTS, SEE NOTE 6	⑩	TRACER WIRE (AS REQUIRED) PER WP-01
③	4' x 4' x 8" THICK CONCRETE SPLASH PAD	⑪	6" C-900 PVC PIPE
④	6" BREAK-OFF CHECK VALVE	⑫	GATE WELL WITH CAP SEE WV-01 OR WV-02
⑤	6" FLANGE DI SPOOL(S) (MAXIMUM OF 2 SPOOLS) NO GROOVES	⑬	6" FLG x MJ/PO/FLG RWGV
⑥	6" x 16" LONG RADIUS FLG x MJ/PO BURY ELL	⑭	6" FLG x MJ/PO ADAPTER (IF REQUIRED)
⑦	CONCRETE THRUST BLOCK SEE WT-01	⑮	SIZE x 6" MJ/PO/FLG x FLG TEE
⑧	TRACER WIRE ACCESS PORT, 4" x 8" LONG SDR 35 SEWER PIPE W/ CAP (AS-REQUIRED)	⑯	WATER MAIN

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11	6" FIRE HYDRANT INSTALLATION WITH BREAK-OFF CHECK VALVE	 03/24/2022 Chairperson R.C.E. 52241 Date
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WF-02

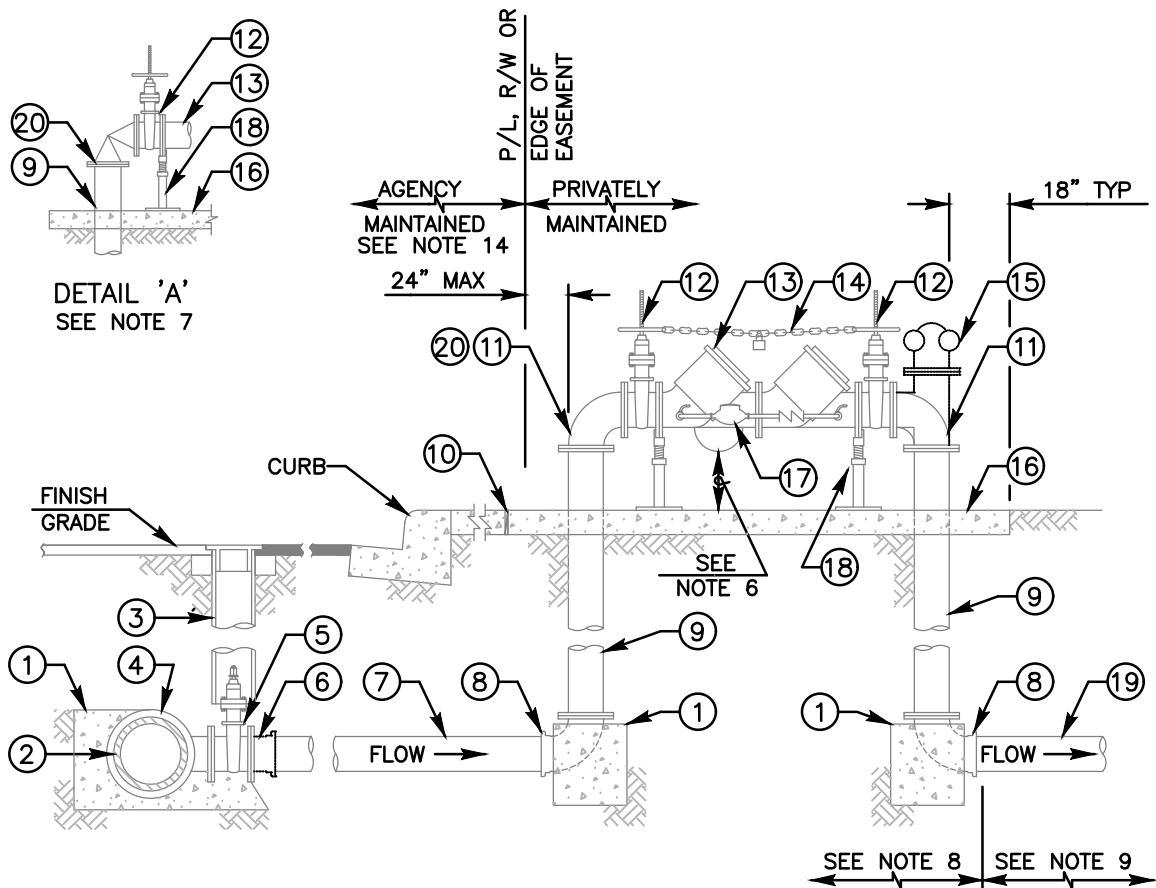


NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) PROTECTION POSTS SHALL BE INSTALLED AS CALLED FOR ON THE PLANS OR AS DIRECTED BY THE ENGINEER PER WM-04
- 3) LOCATE FIRE HYDRANT AS SHOWN ABOVE OR AS DIRECTED BY THE ENGINEER
- 4) FIRE HYDRANTS SHALL BE INSTALLED WITH THE LARGEST PORT PERPENDICULAR TO THE STREET
- 5) AN EASEMENT MAY BE NEEDED DEPENDING ON LOCATION OF FIRE HYDRANT
- 6) IF THE CONCRETE SLAB IS TO BE INSTALLED ADJACENT TO A CONCRETE CURB OR SIDEWALK A COLD JOINT STRIP SHALL BE INSTALLED
- 7) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11	FIRE HYDRANT LOCATIONS AND PORT ORIENTATION	 03/24/2022 Chairperson R.C.E. 52241 Date
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WF-04



FOR NOTES REGARDING THE INSTALLATION OF
FIRE SERVICES SEE WF-05 SHEET 2 OF 2

RPFS 
LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	CONCRETE THRUST BLOCK SEE WT-01	⑬	RPDA UNLESS OTHERWISE SPECIFIED BY AGENCY OF JURISDICTION SEE NOTE 4
②	WATER MAIN	⑭	CHAIN WITH KNOX LOCK SEE NOTE 4
③	GATE WELL WITH CAP SEE WV-01 OR WV-02	⑮	FLANGED TEE WITH "FDC" SEE NOTE 4
④	SIZE x SIZE MJ/PO/FLG x FLG TEE	⑯	CONCRETE SLAB AS REQUIRED BY AGENCY OF JURISDICTION. MINIMUM 4" THICK x 36" WIDE x AS REQUIRED
⑤	FLG x MJ/PO/FLG RWGV	⑰	3/4" BYPASS, METER & RP DEVICE
⑥	FLG x MJ/PO ADAPTER (IF REQUIRED)	⑱	ADJUSTABLE VALVE SUPPORT
⑦	C-900 PVC PIPE	⑲	PVC OR DI PIPE SEE NOTE 9
⑧	MJ/PO x FLG 90° BEND	⑳	FLANGED ANGLE PRESSURE REDUCING VALVE SEE NOTE 7
⑨	FLANGED DUCTILE IRON PIPE		
⑩	COLD JOINT STRIP		
⑪	FLANGED 90° BEND, SEE NOTE 7		
⑫	FLANGED OS&Y RWGV WITH HAND WHEEL		

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11	4" AND LARGER FIRE SERVICE INSTALLATION	 03/24/2022 Chairperson R.C.E. 52241 Date
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WF-05 (1 OF 2)

NOTES:

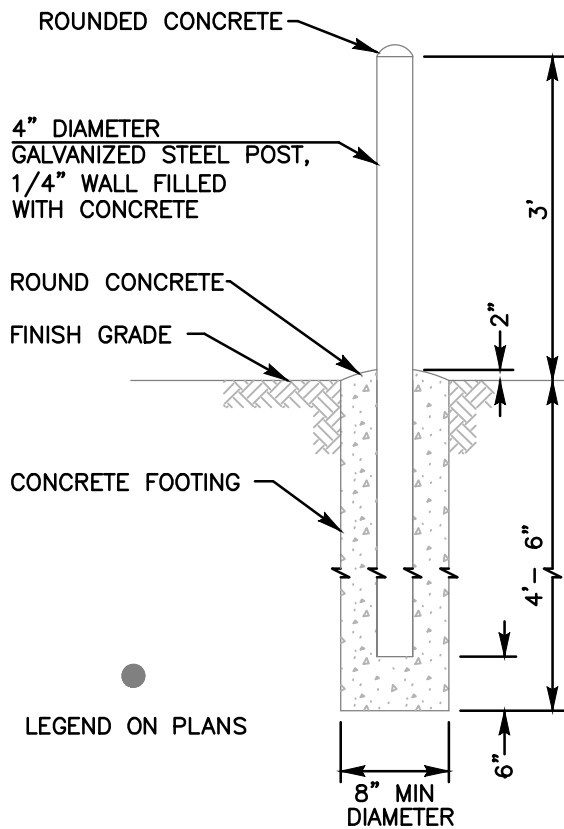
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 3) LOCATION OF FIRE SERVICES SHALL BE AS DIRECTED BY THE FIRE DEPARTMENT OF JURISDICTION. FIRE SERVICES SHOULD BE LOCATED IN SUCH A MANNER THAT WILL ALLOW THE DEVICE TO BE READILY ACCESSIBLE FOR INSPECTION, REPAIR, AND USAGE
- 4) TAMPER SWITCH, AUTOMATIC RESET, CHAIN WITH KNOX LOCK, AND FIRE DEPARTMENT CONNECTION ("FDC") SHALL BE AS REQUIRED BY THE FIRE DEPARTMENT OF JURISDICTION
- 5) BALL VALVE TEST COCKS SHALL BE PROVIDED AND LOCATED PER THE MANUFACTURES RECOMMENDATIONS AND THE REQUIREMENTS OF THE WATER AGENCY STANDARDS
- 6) INSTALL FIRE SERVICES SO THAT THE DISTANCE BETWEEN THE BOTTOM OF THE RELIEF DIAPHRAM AND THE CONCRETE SLAB OR FINISH GRADE IS 12" MINIMUM AND 24" MAXIMUM
- 7) INSTALL AN ANGLE PRESSURE REDUCING VALVE IN LIEU OF THE FIRST 90° BEND WHEN SYSTEM STATIC PRESSURE EXCEEDS 150 PSI OR WHEN RECOMMENDED BY THE BACKFLOW MANUFACTURER
- 8) INSTALL PIPE AND RELATED APPURTENANCES IN THIS AREA PER THE REQUIREMENTS OF THE WATER AGENCY STANDARDS
- 9) INSTALL PIPE AND RELATED APPURTENANCES IN THIS AREA AS REQUIRED BY THE FIRE DEPARTMENT OF JURISDICTION
- 10) ABOVE GROUND APPURTENANCES SHALL BE PAINTED AND IDENTIFIED AS CALLED FOR BY THE FIRE DEPARTMENT OF JURISDICTION
- 11) TESTING SHALL BE CONDUCTED AS CALLED FOR IN AGENCY'S SPECIFICATIONS PRIOR TO ACCEPTANCE BY THE DISTRICT
- 12) CONNECTIONS TO STEEL MAINS SHALL BE IN ACCORDANCE WITH AGENCY'S SPECIFICATIONS
- 13) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST
- 14) AGENCY RESPOSIBILITY ENDS AT EDGE OF PROPERTY LINE, RIGHT OF WAY, OR EASEMENT.

FOR DETAILS REGARDING THE INSTALLATION OF
FIRE SERVICES SEE WF-05 SHEET 1 OF 2

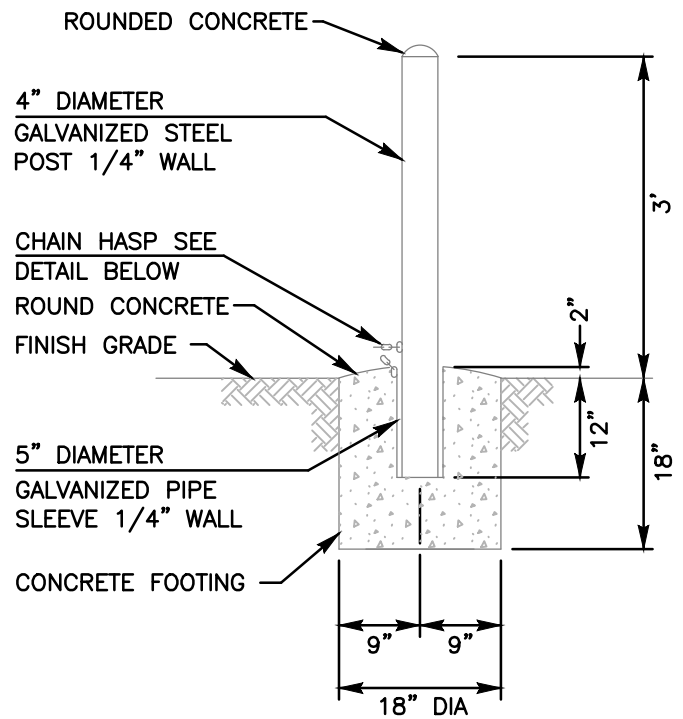


LEGEND ON PLANS

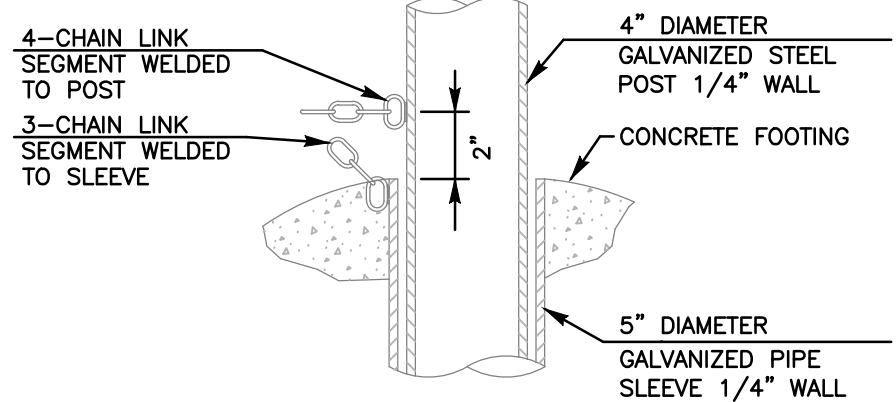
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11	4" AND LARGER FIRE SERVICE INSTALLATION NOTES	<i>Saman Engeda</i> 03/24/2022
Updated	BK	B. KNOLL	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER WF-05 (2 OF 2)



PROTECTION POST TYPE "A"



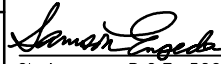
DEMOUNTABLE PROTECTION POST TYPE "B"

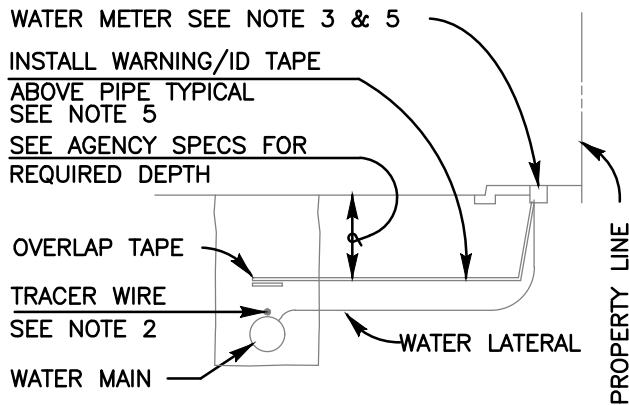


CHAIN HASP DETAIL

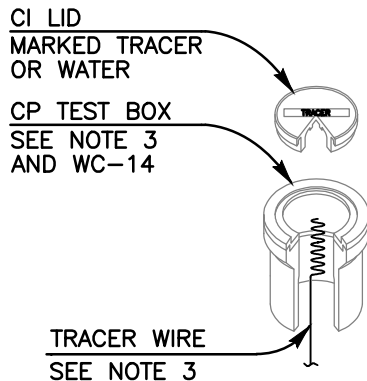
NOTES:

- 1) TYPE "A" AND TYPE "B" PROTECTION POSTS SHALL BE INSTALLED WHERE INDICATED ON THE APPROVED PLANS OR AS DIRECTED BY THE ENGINEER. SDG&E REQUIREMENTS DICTATE IN AREAS OF SDG&E EQUIPMENT
- 2) CHAIN TO BE 1/4" PROOF COIL CHAIN GALVANIZED STEEL. WELD 4-LINK SEGMENT TO POST AND 3-LINK SEGMENT TO SLEEVE
- 3) TYPE "A" AND TYPE "B" PROTECTION POSTS SHALL BE COATED USING SAFETY YELLOW IN ACCORDANCE WITH AGENCY'S STANDARDS

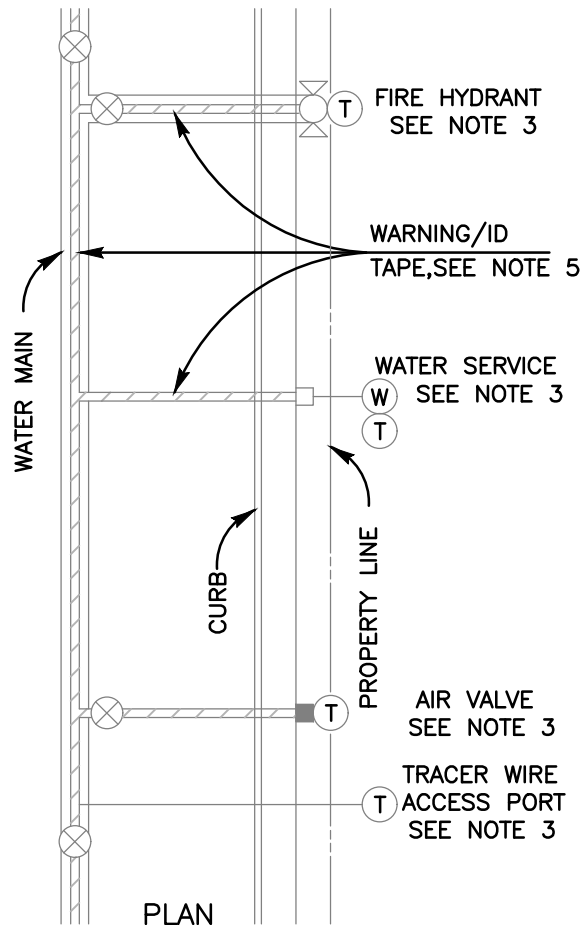
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11	PROTECTION POST INSTALLATION	 03/24/2022 Chairperson R.C.E. 52241 Date
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WM-04



SECTION AT WATER LATERALS



TRACER WIRE ACCESS PORT (CP BOX)
DETAIL

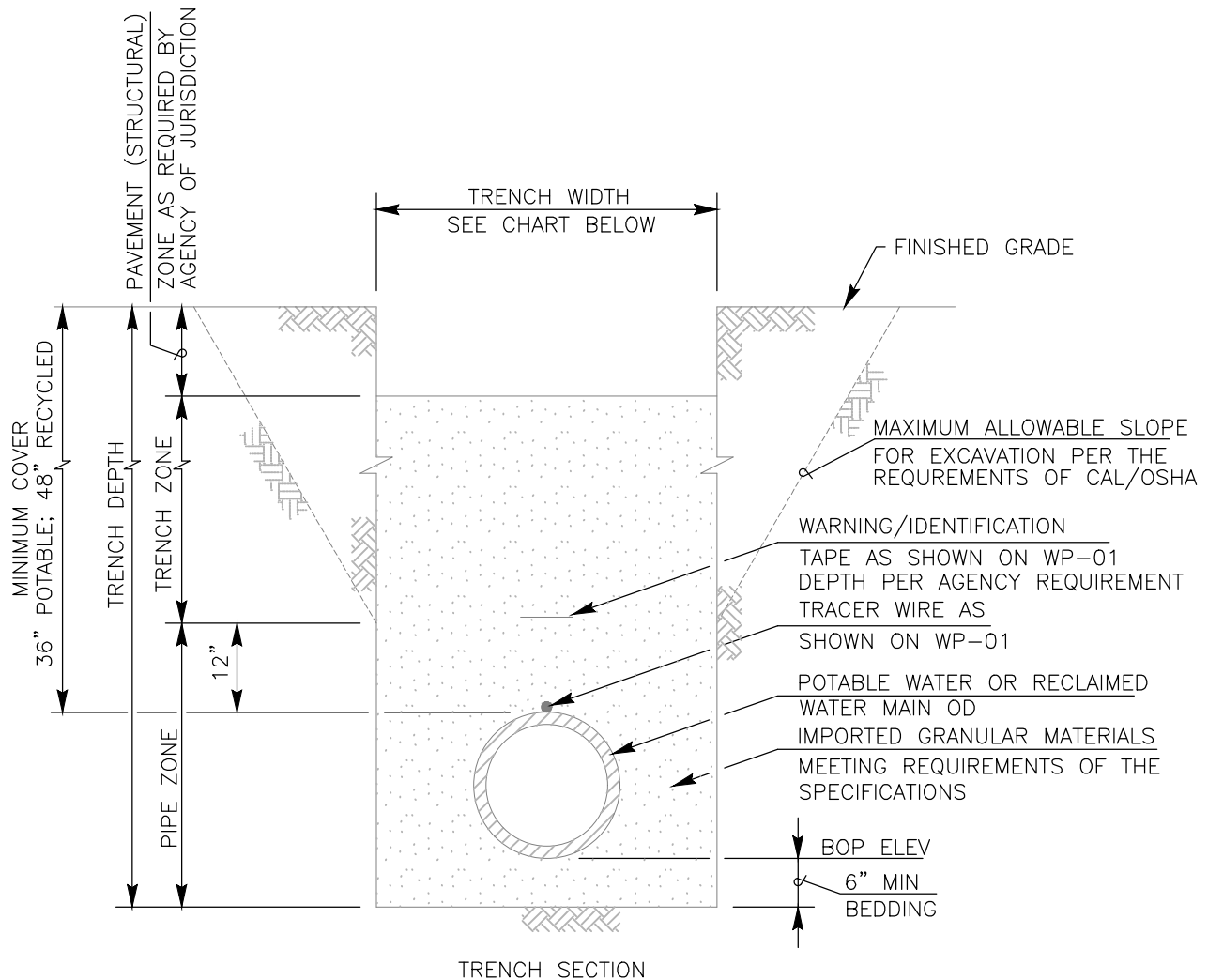


NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) WHERE SPECIFIED, TRACER WIRE AND OR WARNING ID TAPE, TO RUN CONTINUOUSLY ALONG THE ENTIRE LENGTH OF WATER MAINS. WIRE SHALL BE SECURED TO THE PIPE AND MAINTAINED ON PIPE CENTERLINE DURING TRENCH BACKFILL
- 3) TRACER WIRE ACCESS PORTS SHALL BE INSTALLED WITHIN THE CONCRETE SPLASH PAD OF ALL FIRE HYDRANTS IN ACCORDANCE WITH THE STANDARD DRAWINGS. TRACER WIRE MAY TERMINATE WITHIN METER BOX, BLOWOFF BOX OR AIR VALVE PER AGENCY'S SPECIFICATIONS. TRACER WIRE MAY TERMINATE IN A CP TEST BOX ONLY IF NO OTHER APPURTENANCE EXISTS WITHIN THE REQUIRED 1,000' INTERVAL. ALL BURIED WIRES THAT REQUIRE TRENCHING TO A TEST BOX LOCATION SHALL BE INSTALLED, WITHOUT SPLICE, IN A CONDUIT IN THE TRENCH AT A MINIMUM DEPTH OF 24"
- 4) WIRE SPLICE CONNECTORS SHALL BE SILICONE FILLED TYPE
- 5) WARNING/IDENTIFICATION TAPE SHALL BE INSTALLED ABOVE THE PIPE AS SPECIFIED AND RUN CONTINUOUSLY ALONG THE ENTIRE LENGTH OF THE PIPE AND ALL RELATED APPURTENANCES
- 6) FOR PIPE BEDDING AND TRENCH BACKFILL SEE WP-02
- 7) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

 ——— |
 LEGEND ON PLANS
 (TRACER WIRE)

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11	WARNING/IDENTIFICATION TAPE AND TRACER WIRE INSTALLATIONS	 03/24/2022 Chairperson R.C.E. 52241 Date
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WP-01



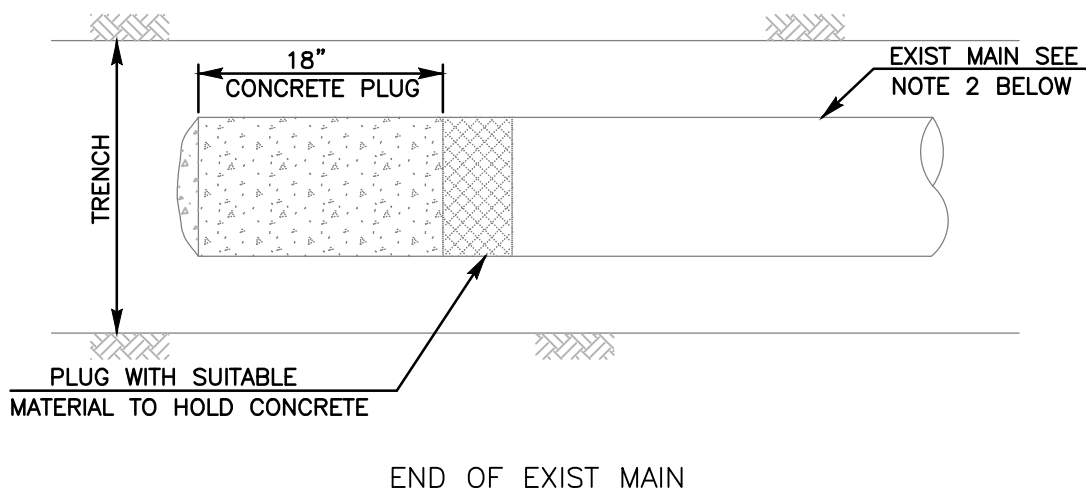
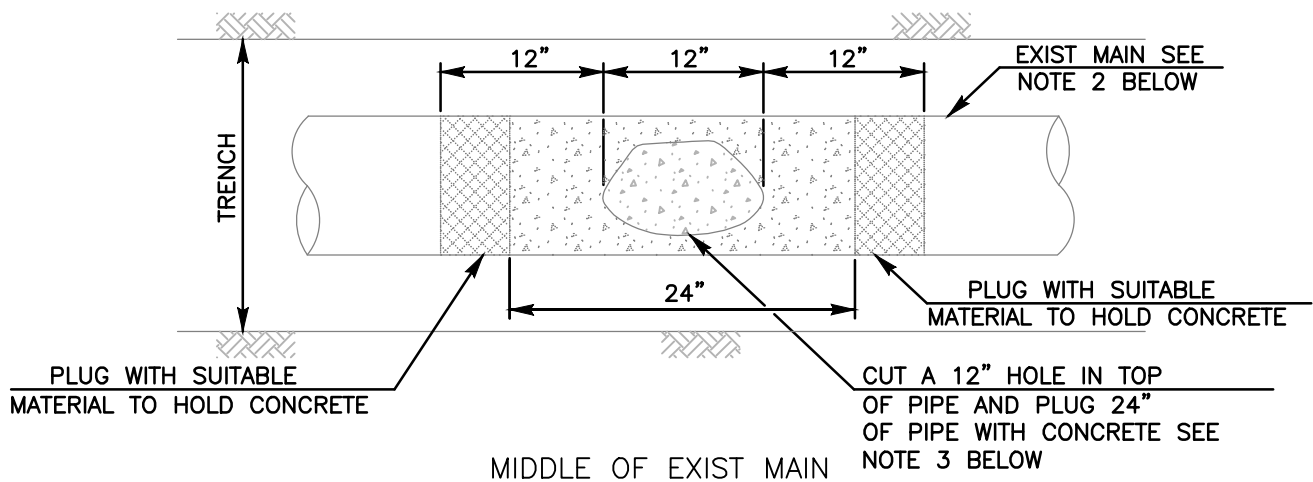
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) PAVING OR PAVEMENT REPAIR TO BE DONE IN ACCORDANCE TO CITY OR COUNTY STANDARDS
- 3) EXCAVATE BELL HOLES AT EACH PIPE JOINT TO PERMIT PROPER ASSEMBLY AND INSPECTION OF THE ENTIRE JOINT
- 4) ALL PIPELINE TRENCHES SHALL BE EXCAVATED SO THAT THE DISTANCE BETWEEN TRENCH WALLS AT THE TOP OF PIPE SHALL BE AS SHOWN BELOW:

TRENCH WIDTH

NOMINAL PIPE INSIDE DIAMETER	MINIMUM DISTANCE	MAXIMUM DISTANCE
4" & SMALLER	18"	28"
6" & 8"	24"	32"
10" & 12"	28"	36"
16" THRU 36"	OD PLUS 24"	OD PLUS 36"

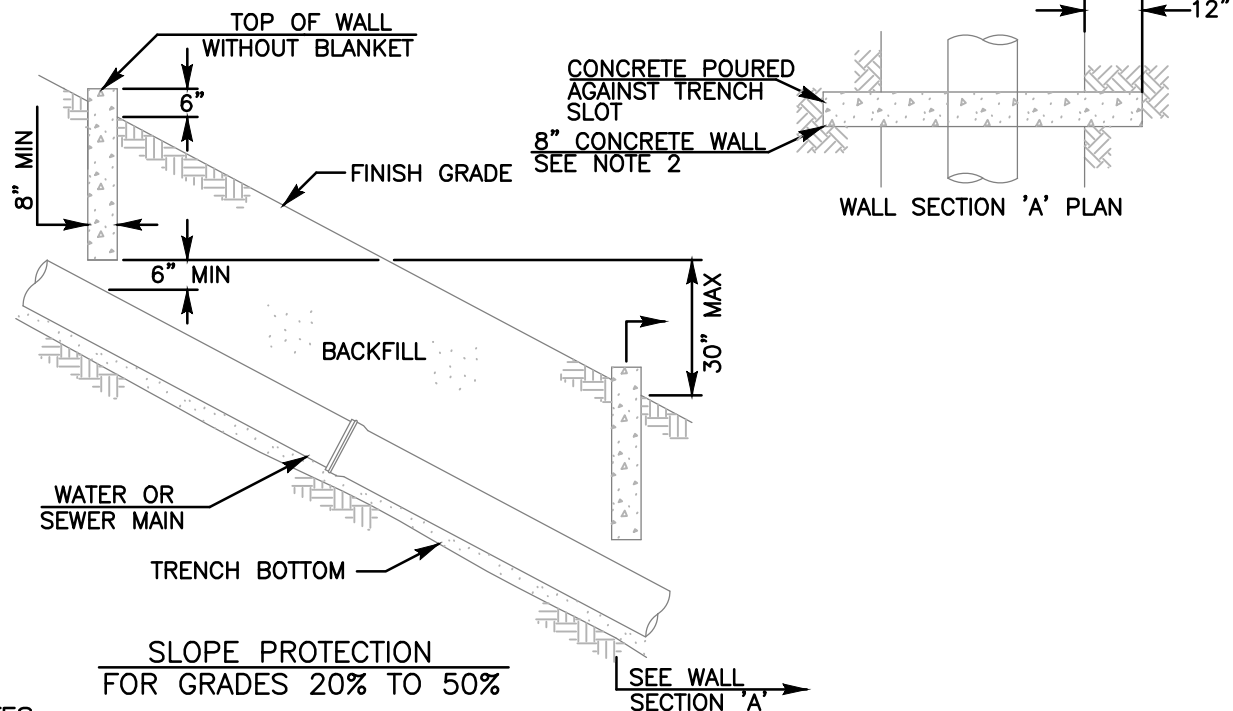
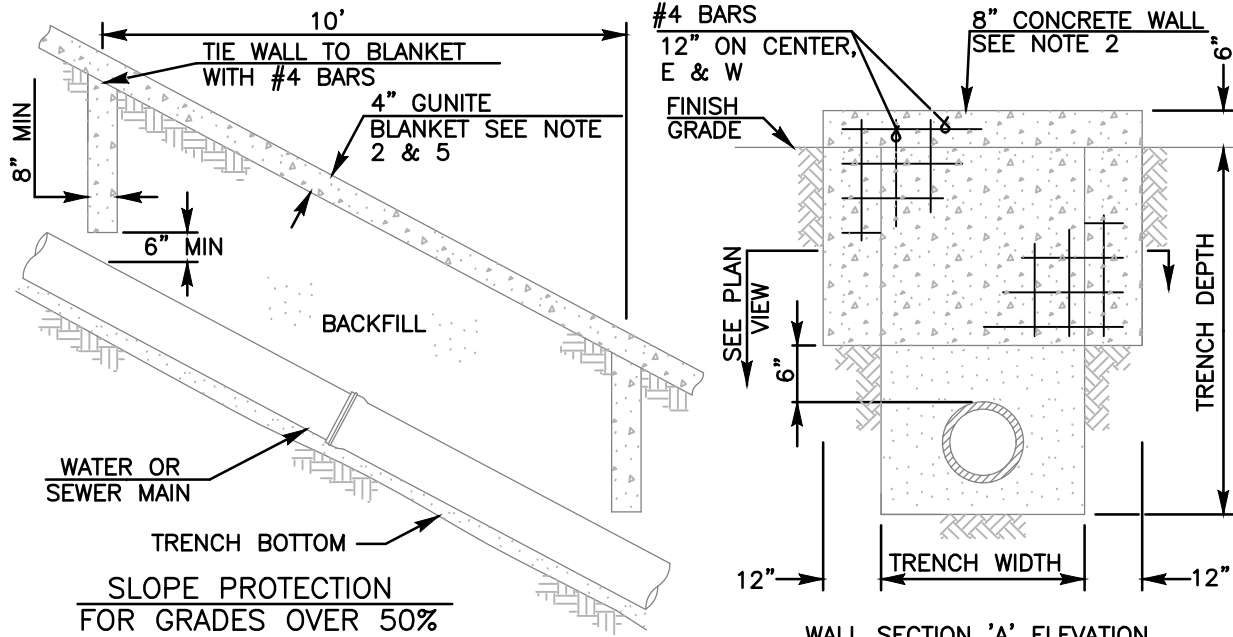
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11	PIPE BEDDING AND TRENCH BACKFILL FOR POTABLE AND RECYCLED WATER MAINS	 03/24/2022 Chairperson R.C.E. 52241 Date
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WP-02



NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) WATER AND RECYCLED WATER MAINS AND SEWER LATERALS 4" DIAMETER AND SMALLER SHALL HAVE A SHORT SECTION OF PIPE REMOVED AND PIPE ENDS ENCASED IN CONCRETE
- 3) EXISTING MAIN TO BE PLUGGED WITH CONCRETE OR PRESSURE GROUTED AT INTERVALS OF ABOUT 200' OR AS DIRECTED BY THE ENGINEER
- 4) EXISTING MAINS 16" AND LARGER REQUIRE THE ENTIRE LENGTH OF THE PIPE TO BE FILLED BY PRESSURE GROUTING OR BY BLOWN SAND
- 5) EXISTING VALVES SHALL BE TURNED TO THE CLOSED POSITION. REMOVE GATE WELL AND REPLACE WITH COMPACTED BACKFILL
- 6) FOR ABANDONMENT OF MANHOLES SEE SM-08
- 7) PRIOR AGENCY APPROVAL REQUIRED FOR CUTTING AND PLUGGING

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11	CUTTING AND PLUGGING ABANDONED WATER, RECYCLED WATER AND SEWER MAINS	 03/24/2022 Chairperson R.C.E. 52241 Date
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WP-03

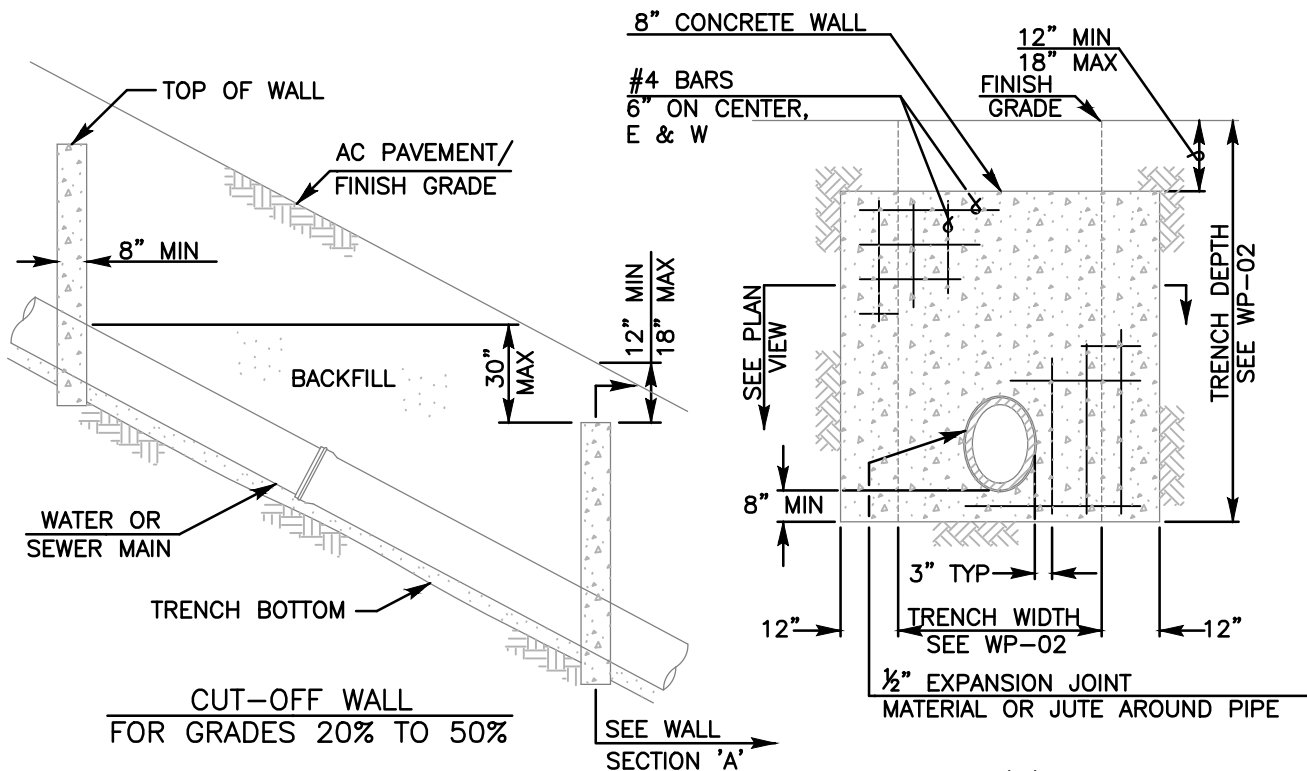


NOTES:

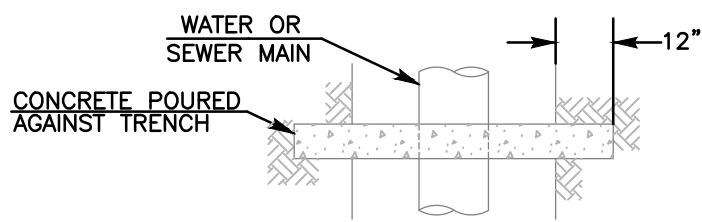
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) THE DETAILS SHOWN REPRESENT THE MINIMUM REQUIRED. THE ENGINEER OF WORK IS REQUIRED TO PROVIDE A SUBMITTAL TO THE AGENCY OF JURISDICTION FOR REVIEW AND APPROVAL BY THE AGENCY'S ENGINEER PRIOR TO INSTALLATION
- 3) WALLS SHALL BE REINFORCED CONCRETE OR 8" x 8" x 16" CONCRETE BLOCK, REINFORCED AND ALL CORES FILLED WITH GROUT SEE SPECIFICATIONS
- 4) FOR GRADES OVER 50%, SLOPE PROTECTION SHALL ALSO INCLUDE AC PAVING, CONCRETE SLAB OR GUNITE BLANKET PLACED OVER THE PIPELINE ALIGNMENT
- 5) 4" GUNITE BLANKET WITH 6" SQUARE x 10 GAGE WIRE FABRIC AT THE ENGINEERS DISCRETION

LEGEND ON PLANS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		J. Tomasulo	10/04	SLOPE PROTECTION INSTALLATIONS	
Delete Metric	MR	B. KNOLL	03/11		
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
				 03/24/2022 Chairperson R.C.E. 52241 Date	
				DRAWING NUMBER WP-05	



WALL SECTION 'A' ELEVATION



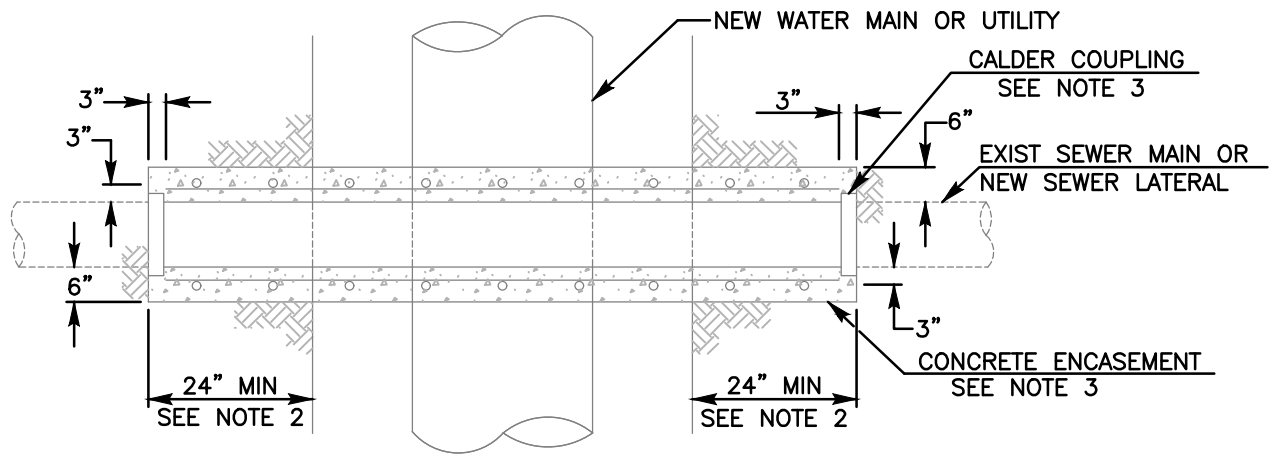
WALL SECTION 'A' PLAN

NOTES:

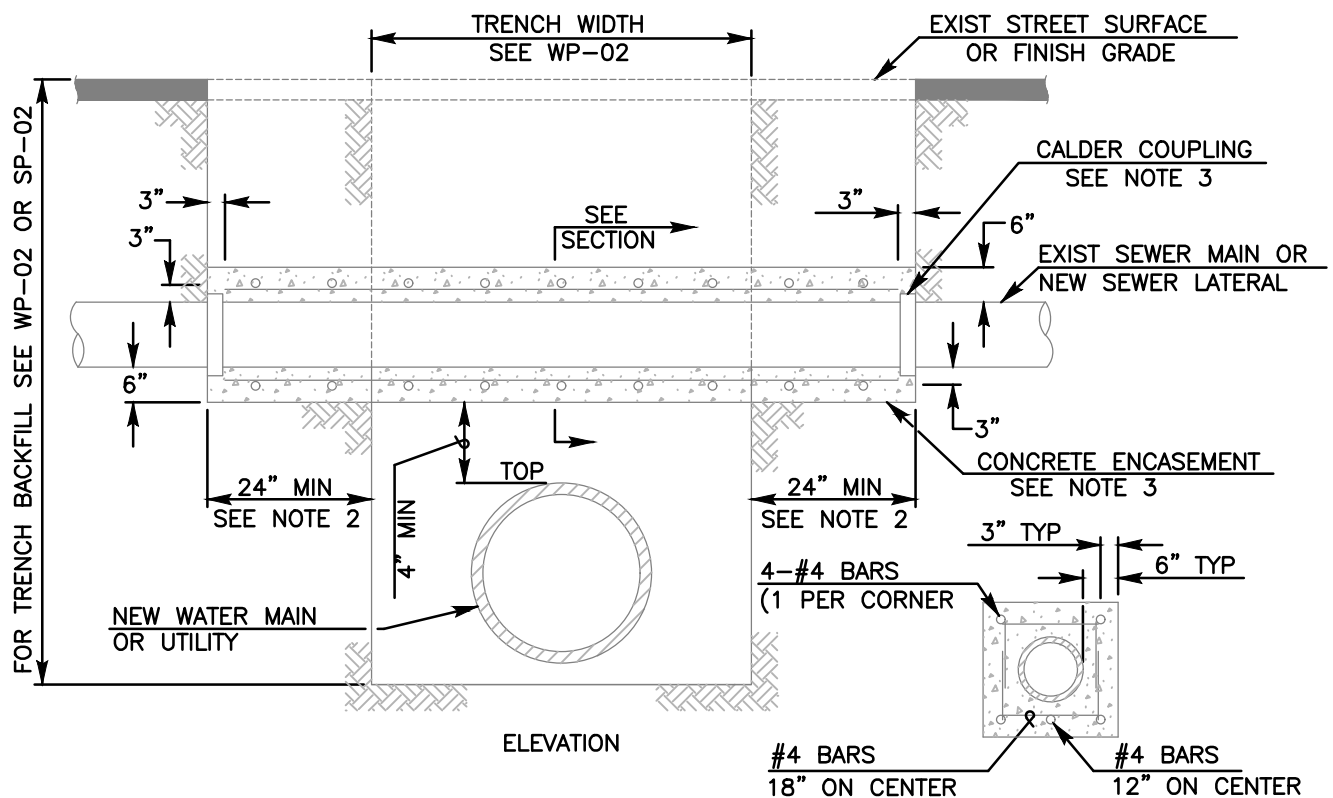
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) FOR USE AS TRENCH BACKFILL STABILIZATION IN TRAVELED AREAS
- 3) THE DETAILS SHOWN REPRESENT THE MINIMUM REQUIRED. THE ENGINEER OF WORK IS REQUIRED TO PROVIDE A SUBMITTAL TO THE AGENCY OF JURISDICTION FOR REVIEW AND APPROVAL BY THE AGENCY'S ENGINEER PRIOR TO INSTALLATION
- 4) WALLS SHALL BE REINFORCED CONCRETE OR 8" x 8" x 16" CONCRETE BLOCK, REINFORCED AND ALL CORES FILLED WITH GROUT SEE SPECIFICATIONS
- 5) FOR GRADES OVER 50% SEE WP-05/SP-05

LEGEND ON PLANS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11	CUT-OFF WALL INSTALLATION IN TRAVELED AREAS	 03/24/2022 Chairperson R.C.E. 52241 Date
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WP-07



PLAN



ELEVATION

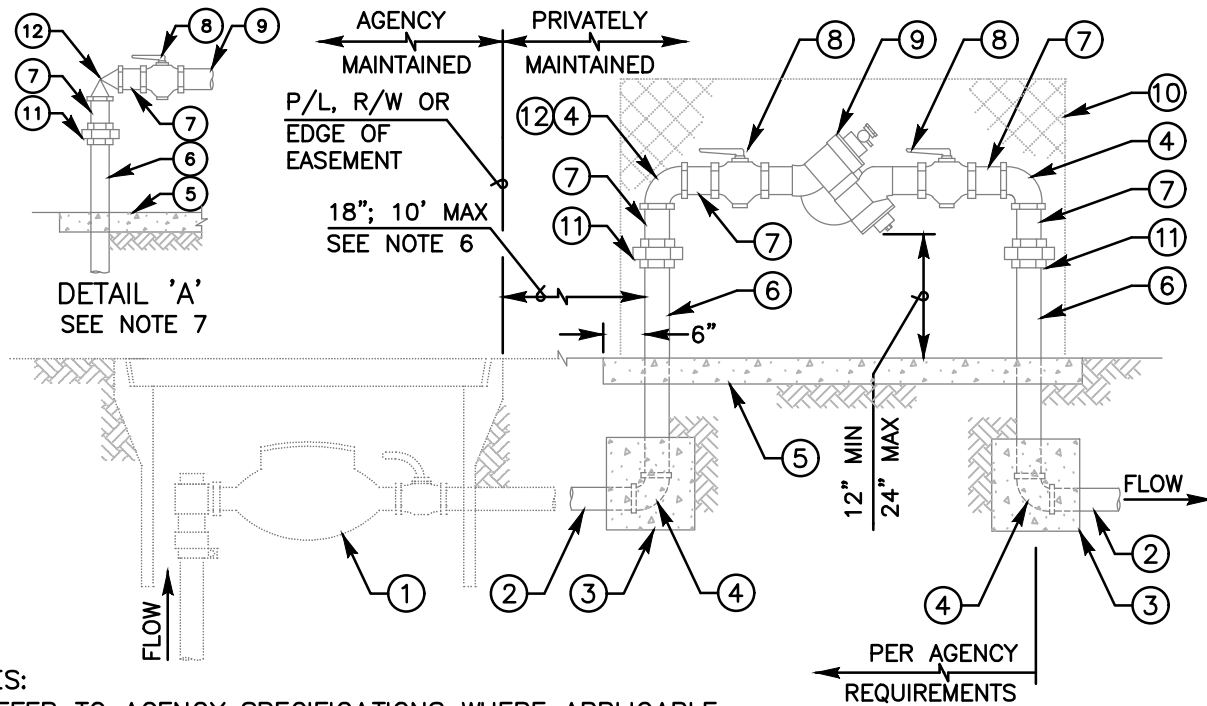
ENCASEMENT SECTION

NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS FOR PROTECTION OF EXISTING FACILITIES
- 2) ENCASEMENT SHALL EXTEND TO FIRST JOINT BEYOND BOTH SIDES OF TRENCH (24" MIN, 48" MAX OF SUITABLE NATIVE SUPPORT BEYOND EDGE OF TRENCH).
- 3) CONCRETE ENCASEMENT REQUIRED FOR SEWER MAINS ONLY. CALDER COUPLINGS REQUIRED FOR SEWER LATERALS ONLY. SEWER LATERALS TO BE REPLACED WITH SCH. 80 PVC WITH NO INTERMEDIATE JOINTS.
- 4) FOR PIPE BEDDING AND TRENCH BACKFILL SEE WP-02 OR SP-02.

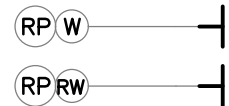
LEGEND ON PLANS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11	PIPE SUPPORT FOR UNDERCUT SEWER MAINS OR SEWER LATERALS	 03/24/2022 Chairperson R.C.E. 52241 Date
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WP-09



NOTES:

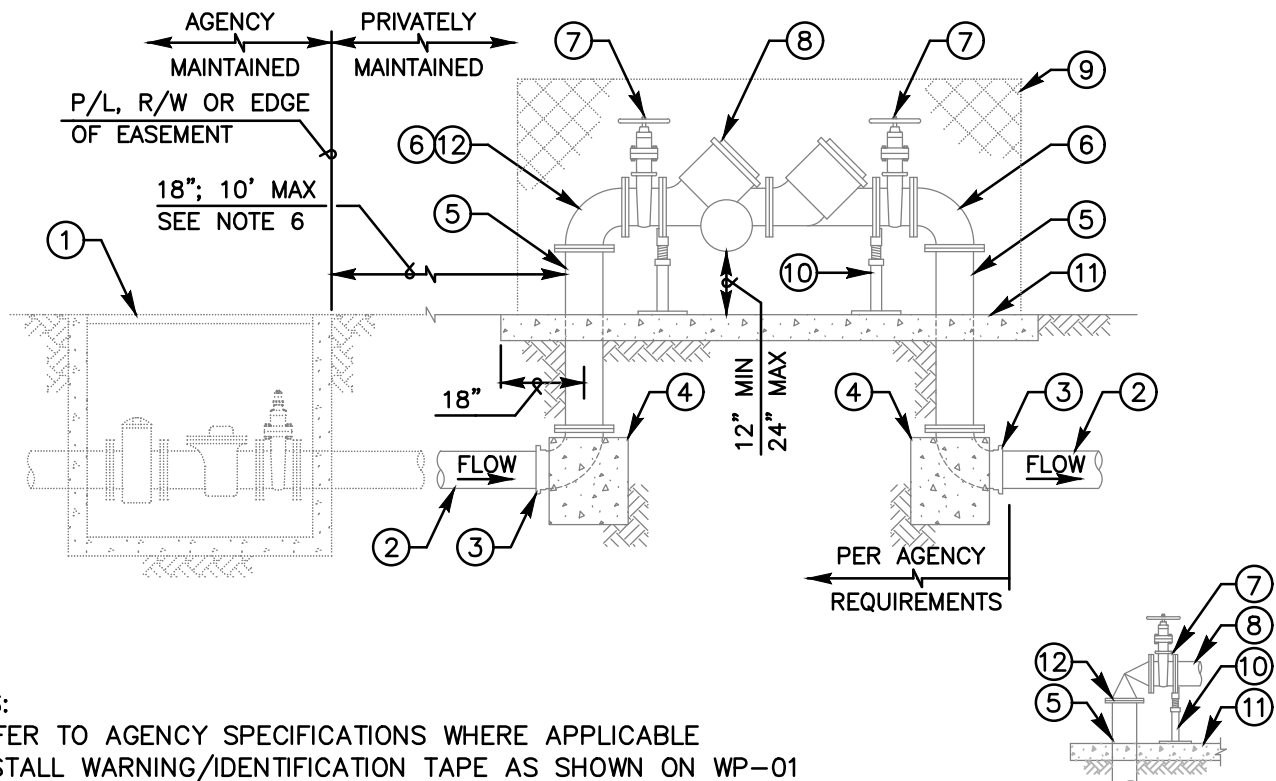
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 3) LOCATE BACKFLOW PREVENTION DEVICE (BPD) IN SUCH A MANNER THAT WILL ALLOW THE DEVICE TO BE READILY ACCESSIBLE FOR INSPECTION AND REPAIR
- 4) STRAINERS SHALL NOT BE INSTALLED PRIOR TO THE FIRST SHUT-OFF VALVE
- 5) ALL ABOVE GROUND PIPING, UNIONS, ELBOWS, & NIPPLES SHALL BE SOLDERED OR THREADED BRASS
- 6) INSTALL A CASING ENCASED IN CONCRETE WHEN THE DISTANCE BETWEEN THE METER BOX AND THE RISER TO THE BPD EXCEEDS 18"
- 7) INSTALL AN ANGLE PRESSURE REDUCING VALVE IN LIEU OF THE FIRST 90° ELL WHEN SYSTEM PRESSURE EXCEEDS 150 PSI PER AGENCY SPECIFICATIONS
- 8) TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH AGENCY SPECIFICATIONS PRIOR TO ACCEPTANCE
- 9) BPD & APPURTENANCES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY SPECIFICATIONS
- 10) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST
- 11) BACKFLOW AND WATER METER SHALL BE OF EQUAL SIZE



LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	METER BOX & METER ASSEMBLY SEE WS-01 & WS-02	⑥	BRASS OR COPPER PIPE SEE NOTE 5
②	SCH 80 PVC, BRASS OR COPPER PIPE	⑦	3" LONG NIPPLE SEE NOTE 5
③	CONCRETE THRUST BLOCK SEE WT-01	⑧	BALL VALVE "SHUT-OFF"
④	90° ELL SEE NOTES 5 & 7	⑨	REDUCED PRESSURE BACKFLOW DEVICE
⑤	CONCRETE SLAB, MINIMUM 4" THICK x 18" WIDE	⑩	ENCLOSURE (OPTIONAL)
		⑪	UNION SEE NOTE 5
		⑫	ANGLE PRV SEE NOTES 5 & 7

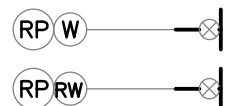
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 3/4" THRU 2" REDUCED PRESSURE BACKFLOW PREVENTION DEVICE	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE <i>Samsin Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date DRAWING NUMBER WR-01
ORIGINAL		Kercheval	12/75		
Add Note 11	BK	B. KNOLL	04/15		
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		



NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 3) LOCATE BACKFLOW PREVENTION DEVICE (BPD) IN SUCH A MANNER THAT WILL ALLOW THE DEVICE TO BE READILY ACCESSIBLE FOR INSPECTION AND REPAIR
- 4) STRAINERS SHALL NOT BE INSTALLED PRIOR TO THE FIRST SHUT-OFF VALVE
- 5) INSTALL A CASING ENCASED IN CONCRETE WHEN THE DISTANCE BETWEEN THE METER BOX AND THE RISER TO THE BPD EXCEEDS 18"
- 6) INSTALL AN ANGLE PRESSURE REDUCING VALVE IN LIEU OF THE FIRST 90° ELL WHEN SYSTEM PRESSURE EXCEEDS 150 PSI PER AGENCY SPECIFICATIONS
- 7) TESTING SHALL BE CONDUCTED IN ACCORDANCE WITH AGENCY SPECIFICATIONS PRIOR TO ACCEPTANCE
- 8) BPD & APPURTENANCES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY SPECIFICATIONS
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

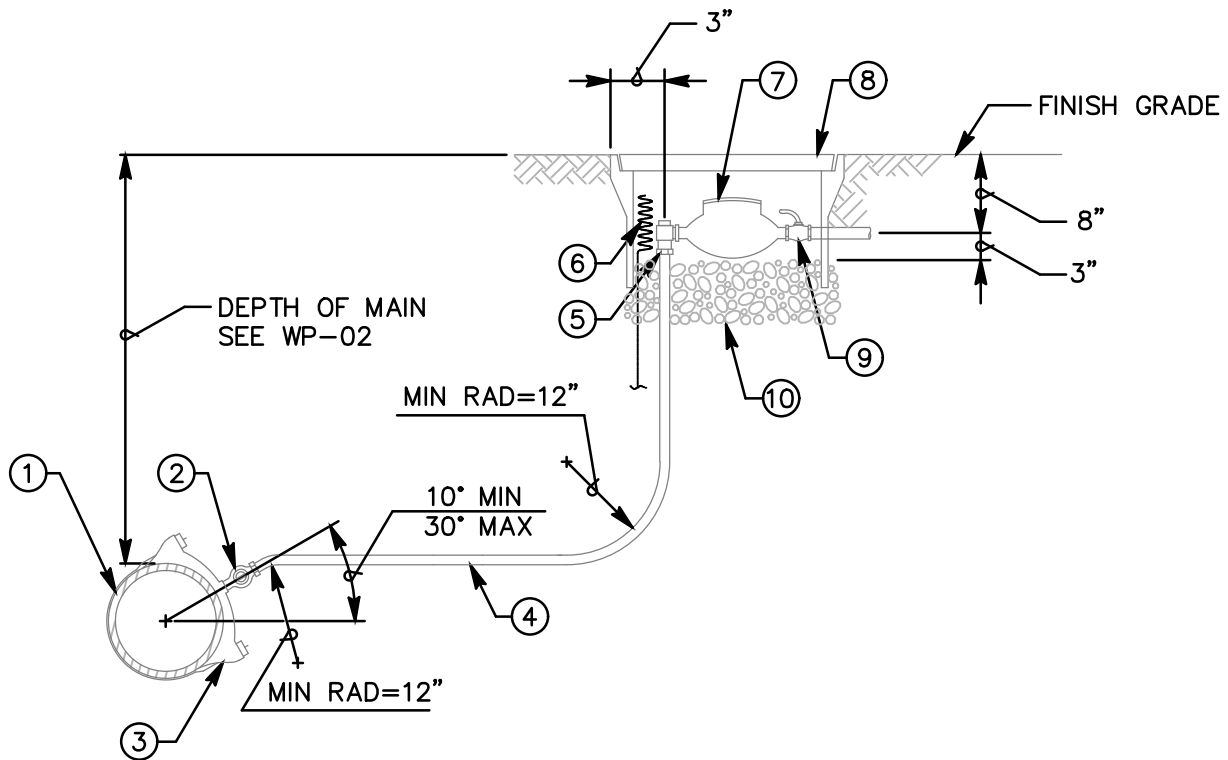
DETAIL 'A'
SEE NOTE 7



LEGEND ON PLANS

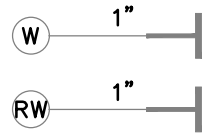
ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	METER VAULT & METER ASSEMBLY SEE WS-04	⑦	FLANGED RESILIENT WEDGE GATE VALVE
②	PVC OR DUCTILE IRON PIPE	⑧	REDUCED PRESSURE BACKFLOW DEVICE
③	FLG x FLG OR MJ/PO x FLG 90° BEND	⑨	ENCLOSURE (OPTIONAL)
④	CONCRETE THRUST BLOCK SEE WT-01	⑩	ADJUSTABLE VALVE SUPPORT
⑤	FLANGED DUCTILE IRON PIPE	⑪	CONCRETE SLAB, MINIMUM 4" THICK x 36" WIDE
⑥	FLANGED 90° BEND, SEE NOTE 6	⑫	FLANGED ANGLE PRESSURE REDUCING VALVE SEE NOTE 6

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING 3" AND LARGER REDUCED PRESSURE BACKFLOW PREVENTION DEVICE	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11		
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					 Chairperson R.C.E. 52241 Date 03/24/2022
					DRAWING NUMBER WR-02



NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) INSTALL CORPORATION STOP WITH KEY IN THE SIDE POSITION
- 3) SET TOP OF METER BOX FLUSH WITH SIDEWALK, CURB, OR FINISH GRADE
- 4) LOCATE METER BOX AS SHOWN ON WS-03
- 5) INSTALL WARNING/IDENTIFICATION TAPE AS SHOWN ON WP-01
- 6) WATER LATERALS INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY SPECIFICATIONS
- 7) SILVER SOLDER JOINTS SHALL NOT BE USED
- 8) ON STEEL MAINS USE WELD ON COUPLINGS, ON DUCTILE IRON MAINS USE DUCTILE IRON SERVICE SADDLES (INSULATING BUSHINGS ARE REQUIRED)
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



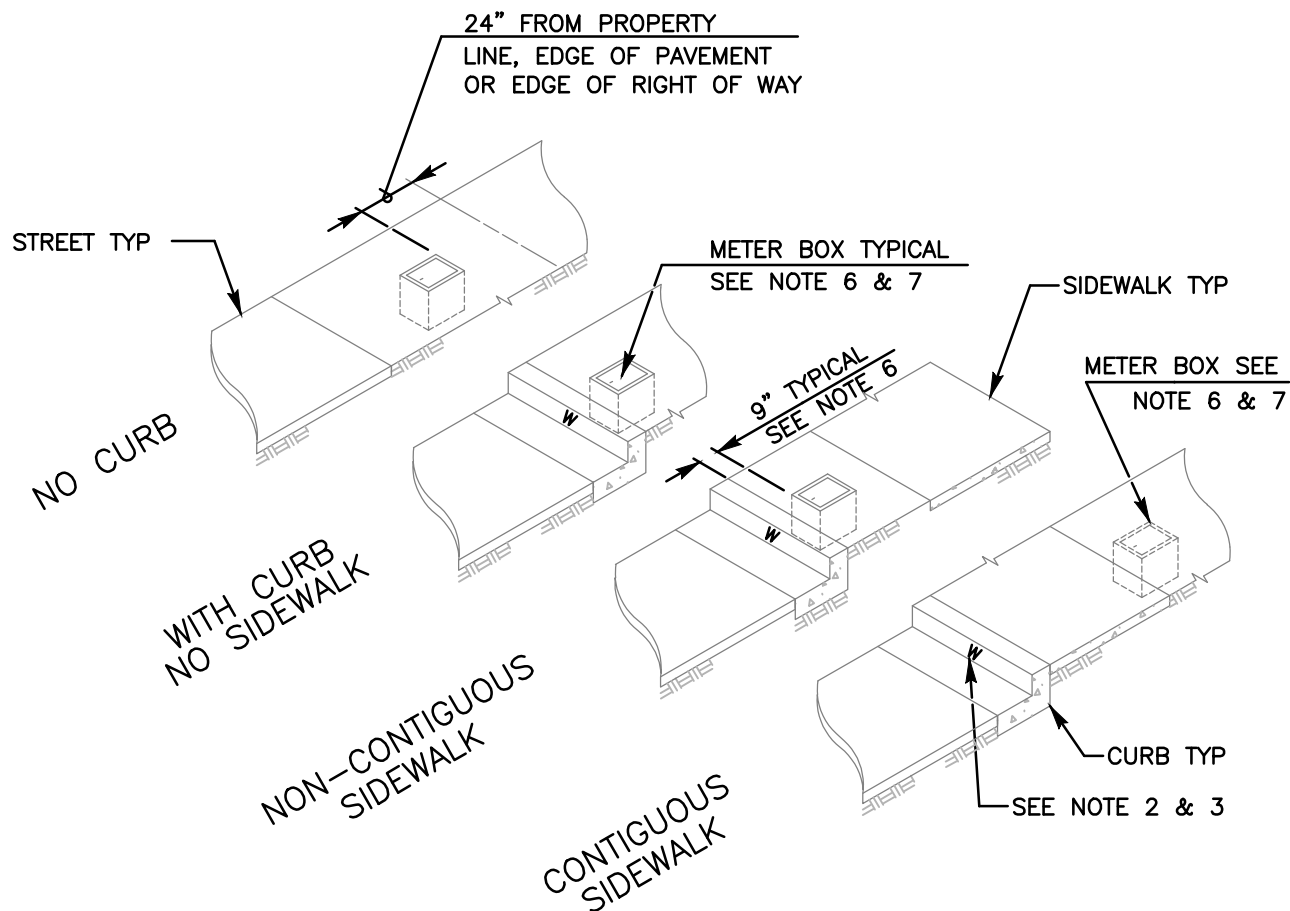
LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	WATER MAIN	⑦	WATER METER FURNISHED & INSTALLED BY THE WATER AGENCY OF JURISDICTION
②	1" BRONZE CORPORATION STOP	⑧	METER BOX WITH LID, 10" x 20"
③	SIZE x 1" SERVICE SADDLE	⑨	CUSTOMER SHUT-OFF VALVE (LOCKABLE) FURNISHED AND INSTALLED BY THE WATER AGENCY OF JURISDICTION
④	1" x REQUIRED LENGTH COPPER PIPE TYPE "K" SOFT	⑩	3/8" ROCK, 4" TO 6" DEEP
⑤	1" BRONZE ANGLE METER STOP WITH LOCKWING		
⑥	TRACER WIRE (AS REQUIRED), SEE WP-01		

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11	1" WATER SERVICE INSTALLATION	 03/24/2022 Chairperson R.C.E. 52241 Date
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WS-01

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	SIZE x 2" SERVICE SADDLE	⑦	3/8" ROCK, 4" TO 6" DEEP
②	WATER MAIN	⑧	2" BRONZE ANGLE METER STOP WITH LOCKWING
③	2" BRONZE CORPORATION STOP	⑨	TRACER WIRE (AS REQUIRED), SEE WP-01
④	2" x REQUIRED LENGTH COPPER PIPE TYPE "K" SOFT/RIGID OR UNLESS OTHERWISE SPECIFIED BY AGENCY OF JURISDICTION	⑩	WATER METER FURNISHED AND INSTALLED BY THE WATER AGENCY OF JURISDICTION
⑤	2" BRONZE COMPRESSION COUPLING COPPER TO COPPER (IF REQUIRED)	⑪	METER BOX WITH LID, 17"x 30"
⑥	2" BRONZE COMPRESSION ELL	⑫	CUSTOMER SHUT-OFF VALVE (LOCKABLE)

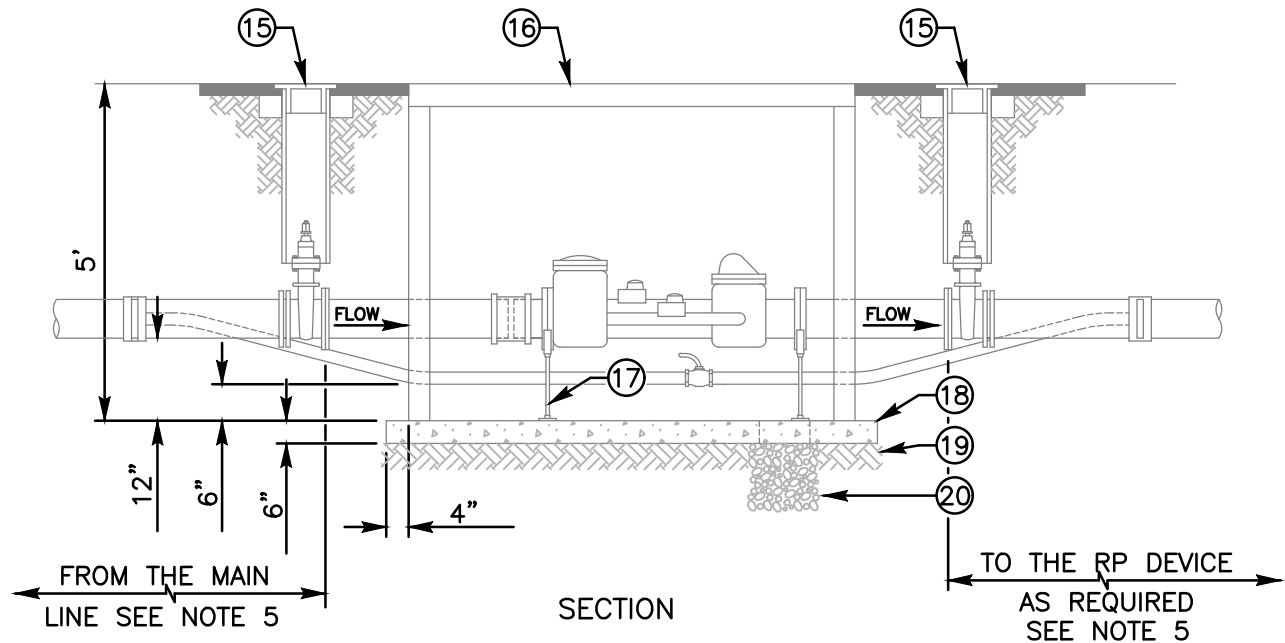
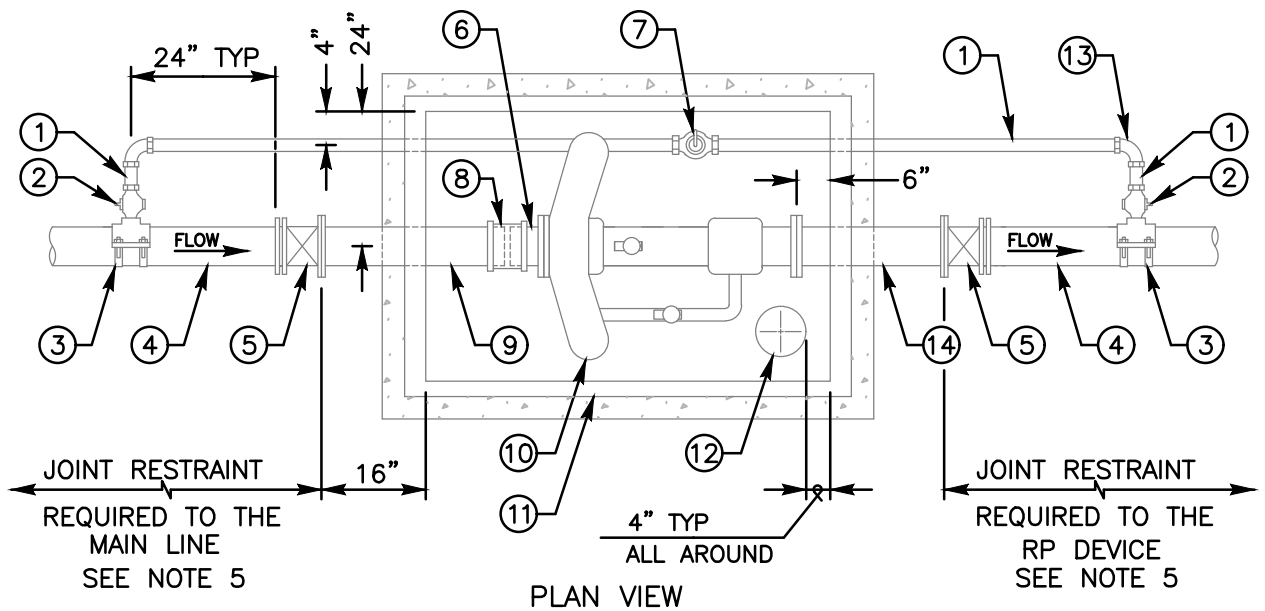
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  03/24/2022 Chairperson R.C.E. 52241 Date
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11	2" WATER SERVICE INSTALLATION	DRAWING NUMBER WS-02
Updated	BK	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		



NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) STAMP OR CHISEL A 2" HIGH 'W' IN CURB FACE TO IDENTIFY POTABLE WATER SERVICE LOCATION
- 3) STAMP OR CHISEL A 2" HIGH 'RW' IN CURB FACE TO IDENTIFY RECYCLED WATER SERVICE LOCATION
- 4) METER BOXES ARE NOT TO BE INSTALLED IN DRIVEWAYS, SIDEWALKS OR WITHIN PAVED ROADWAYS
- 5) MULTIPLE METER BOXES SHALL BE INSTALLED WITH A MINIMUM OF 9" BETWEEN BOXES
- 6) METER BOX SHALL BE INSTALLED 9" FROM THE BACK OF BERM, CURB, OR SIDEWALK (TYP)
- 7) AN EASEMENT MAY BE NEEDED DEPENDING ON LOCATION OF METER BOX
- 8) METER BOXES INSTALLED FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Delete Metric	MR	B. KNOLL	03/11	METER BOX LOCATIONS FOR WATER AND RECYCLED WATER APPURTENANCES	<i>Samson Engeda</i> 03/24/2022
Updated	BK	B. KNOLL	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER WS-03



(INDICATE SIZE)



LEGEND ON PLANS

FOR MATERIAL DESCRIPTIONS AND NOTES SEE WS-04 (2 OF 2)

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		J. Tomasulo	10/04	4" OR 6" FIRELINE/MASTER METER INSTALLATION		<i>Saman Engeda</i> 03/24/2022
Delete Metric	MR	B. KNOLL	03/11			Chairperson R.C.E. 52241 Date
Updated	BK	B. KNOLL	10/18			
Reviewed	RP	S. Engeda	03/22			
				DRAWING NUMBER WS-04 (1 OF 2)		

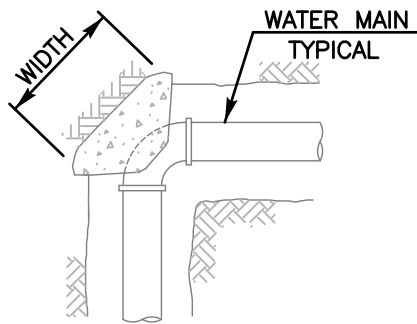
FOR DRAWING OF THE METER INSTALLATION SEE WS-04 (SHEET 1 OF 2)

NOTES:

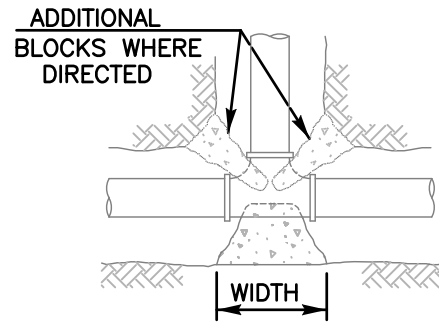
- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) TO BE USED WHERE BOTH DOMESTIC SERVICE AND FIRE PROTECTION ARE INSTALLED ON THE SAME PRIVATE SYSTEM
- 3) LOCATION OF METER SHALL BE APPROVED BY THE DISTRICT ENGINEER PRIOR TO INSTALLATION IN ACCORDANCE WITH STANDARD DWG WS-06
- 4) 8" OR 10" METERS TO BE DESIGNED BY AN ENGINEER AND SUBMITTED FOR AGENCY'S APPROVAL AS NEEDED ON A CASE-BY-CASE BASIS
- 5) JOINT RESTRAINT SHALL BE IN ACCORDANCE WITH AGENCY SPECIFICATIONS
- 6) METERS SHALL BE FURNISHED AND INSTALLED BY THE AGENCY OF JURISDICTION
- 7) 4" METER REQUIRES A 48" x 60" VAULT 6" METER REQUIRES A 48" x 72" VAULT
- 8) IN AREAS WHERE GROUND WATER IS PRESENT THE AGENCY'S ENGINEER MAY REQUIRE A SEALED SUMP TO BE CONSTRUCTED
- 9) CONNECTIONS TO STEEL WATER MAINS SHALL BE IN ACCORDANCE WITH AGENCY SPECIFICATIONS
- 10) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	2" x REQUIRED LENGTH TYPE "K" COPPER PIPE	⑪	FRP VAULT WITH HINGED ACCESS DOOR, SEE NOTE 7
②	2" BRONZE CORPORATION STOP	⑫	12" DIAMETER x 6" LONG PVC PIPE
③	LINE SIZE x 2" SERVICE SADDLE	⑬	2" 90° COMPRESSION ELL (TYPICAL)
④	4" OR 6" PVC PIPE	⑭	LINE SIZE x 24" LONG FLANGED DUCTILE-IRON SPOOL
⑤	4" OR 6" FLG x MJ RWGV MECHANICALLY RESTRAINED, SEE NOTE 5	⑮	8" GATE WELL. SEE WV-01 & WV-02
⑥	LINE SIZE x 6" LONG FLG x PE DUCTILE-IRON SPOOL	⑯	HINGED VAULT ACCESS DOOR
⑦	2" COMPRESSION, LOCKABLE BALL VALVE	⑰	ADJUSTABLE PIPE SUPPORT (TYPICAL)
⑧	4" OR 6" FLEXIBLE COUPLING	⑱	6" CLASS "B" CONCRETE FLOOR WITH #3 BARS @ 12" C.C.
⑨	LINE SIZE x 30" LONG FLG x PE DUCTILE-IRON SPOOL	⑲	6" DG BASE COMPACTED TO 90%
⑩	4" OR 6" FIRELINE METER SEE NOTE 6	⑳	12" DIAMETER x 12" DEEP, ¾" GRAVEL SUMP, SEE NOTE 8

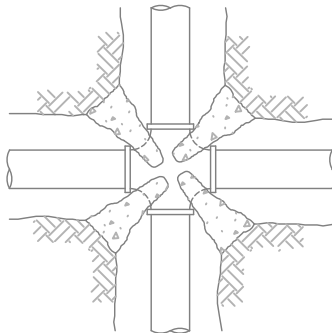
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		J. Tomasulo	10/04		
Delete Metric	MR	B. KNOLL	03/11	4" OR 6" FIRELINE/MASTER METER INSTALLATION	<i>Somson Engeda</i> 03/24/2022
Updated	BK	B. KNOLL	10/18		Chairperson R.C.E. 52241 Date
Reviewed	RP	S. Engeda	03/22		DRAWING NUMBER WS-04 (2 OF 2)



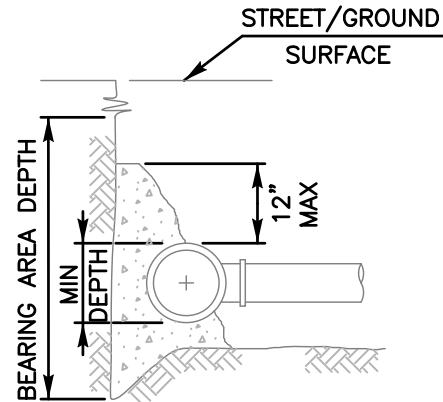
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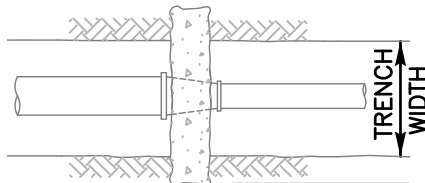
TEE PLAN



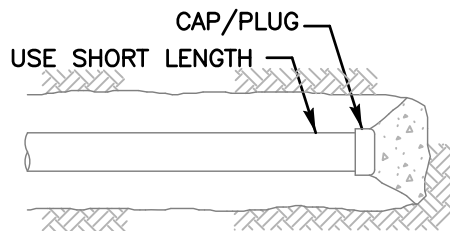
CROSS



TEE ELEVATION

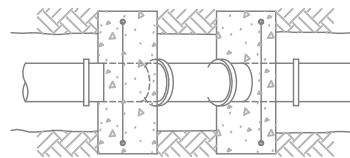


18" MINIMUM
INTO NATIVE MATERIAL
REDUCER

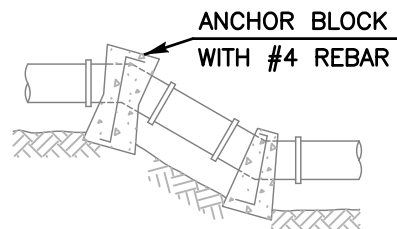


END CAP

SEE NOTE
2 BELOW



VERT BENDS PLAN



VERT BENDS ELEVATION

NOTES:

- 1) FOR ADDITIONAL THRUST BLOCKS, ANCHOR BLOCKS AND NOTES SEE WT-01 (2 OF 3) & (3 OF 3)
- 2) THE ANCHOR BLOCKS ON VERTICAL BENDS REQUIRE AGENCY APPROVAL

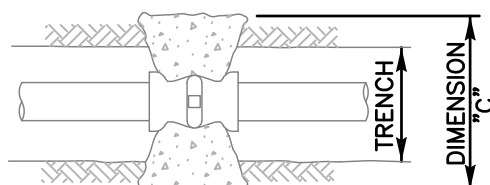
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75	CONCRETE THRUST AND ANCHOR BLOCK INSTALLATIONS		 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	MR	B. KNOLL	10/15			
Reviewed	MR	B. KNOLL	10/18			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER WT-01 (1 OF 3)

VALVE SUPPORT BLOCK

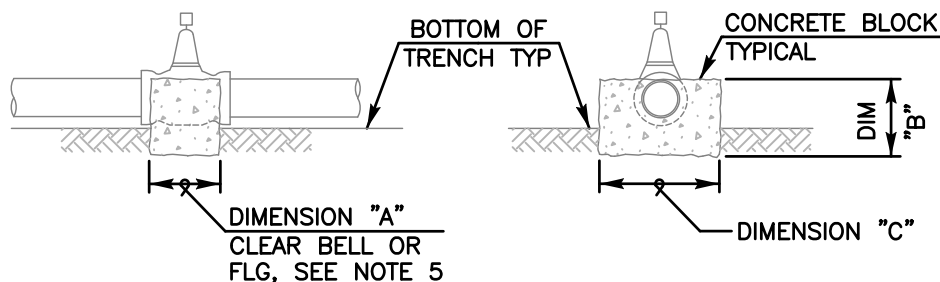
VALVE SIZE	DIMENSION "A"	DIMENSION "B"
4"	12"	12"
6"	12"	12"
8"	13"	14"
10"	14"	16"
12"	15"	18"
DIMENSION "C" = TRENCH WIDTH PLUS TWO TIMES THE PIPE DIAMETER		

THRUST AND ANCHOR BLOCKS

MINIMUM BEARING AREA IN SQUARE FOOT SEE NOTE 2				
MAIN SIZE	TEES	90° BEND	45° BEND	22½° BEND
4"	4	5	3	1.5
6"	8	10	5	2.5
8"	12	16	9	4.5
10"	17	24	13	6.5
12"	24	33	19	9.5



VALVE SUPPORT
PLAN

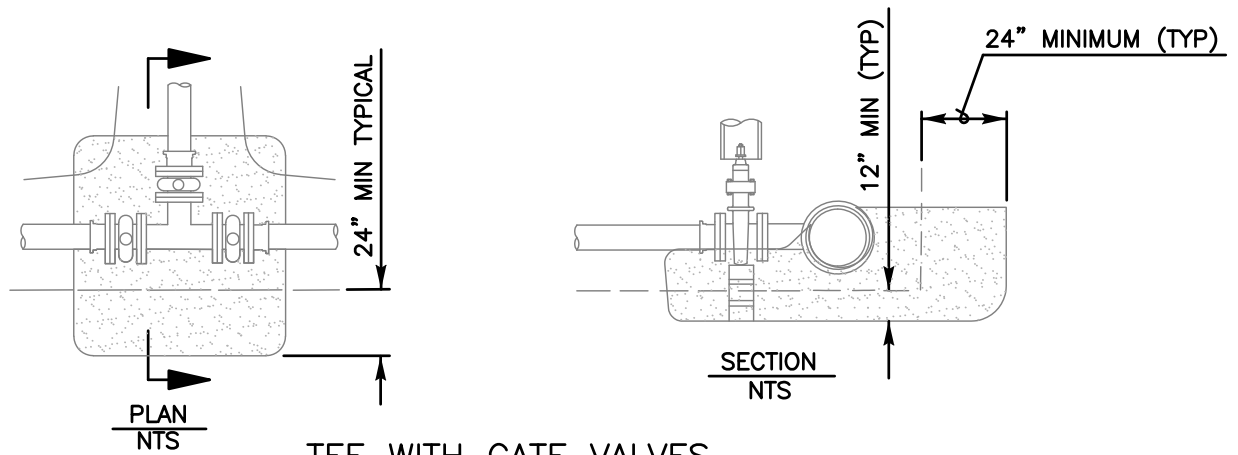


VALVE SUPPORT
ELEVATION

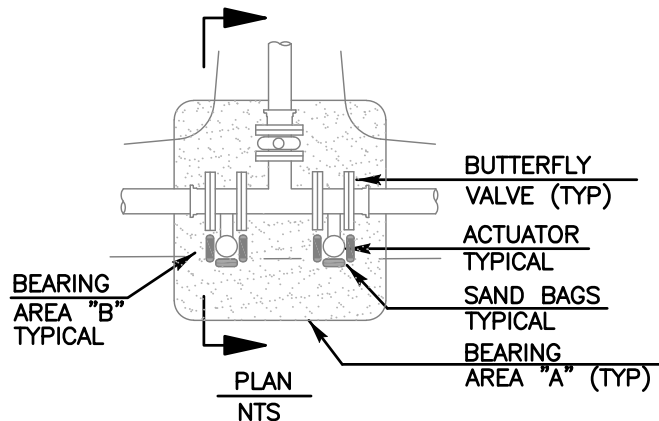
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) BEARING AREA BASED ON SOIL BEARING VALUE OF 1500 PSF AND 225 PSI LINE PRESSURE AND A MINIMUM OF 36" COVER
FOR BEARING= 1000 PSF, 1.5 x AREA SHOWN
FOR BEARING= 500 PSF, 3.0 x AREA SHOWN
- 3) DESIGN ENGINEER SHALL DETERMINE SIZES, REFER TO AGENCY SPECIFICATIONS FOR THRUST AND ANCHOR BLOCK SIZING
- 4) THRUST BLOCKS SHALL BE CENTERED ON THE FITTING SO THAT THE BEARING AREA IS EXACTLY OPPOSITE THE RESULTANT DIRECTION OF THRUST
- 5) CONCRETE SHALL BE PLACED SO THAT FITTINGS AND VALVES WILL BE ACCESSIBLE FOR REPAIR OR REPLACEMENT
- 6) ALL THRUST AND ANCHOR BLOCKS SHALL BE POURED AGAINST WETTED UNDISTURBED SOIL
- 7) FOR MINIMUM CONCRETE CURING TIME REFER TO AGENCY SPECIFICATIONS
- 8) FOR ADDITIONAL THRUST BLOCKS SEE WT-01 (1 OF 3) & (3 OF 3)

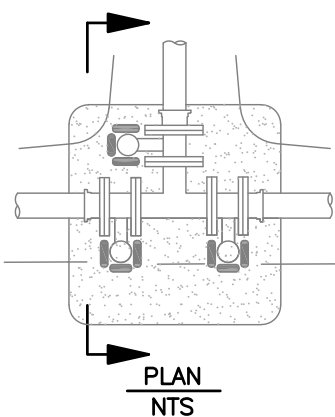
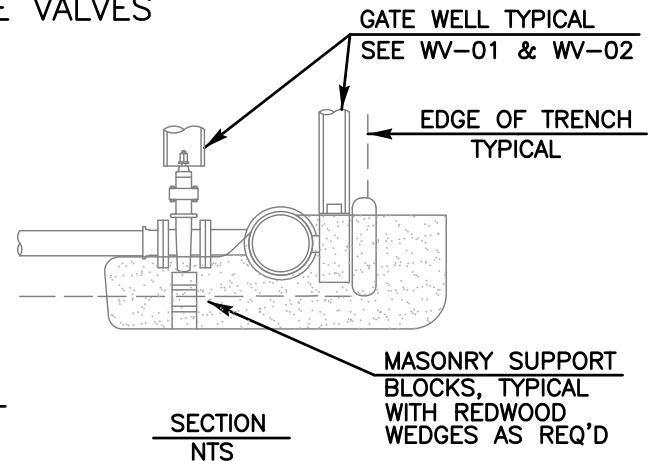
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Reviewed	MR	B. KNOLL	10/15	CONCRETE THRUST AND ANCHOR BLOCK INSTALLATIONS	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	MR	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WT-01 (2 OF 3)



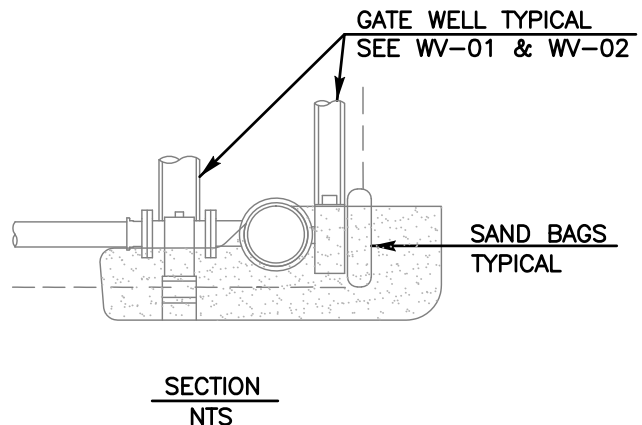
TEE WITH GATE VALVES



TEE WITH BUTTERFLY VALVES ON MAIN



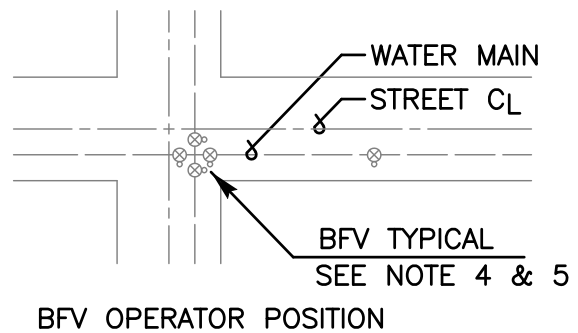
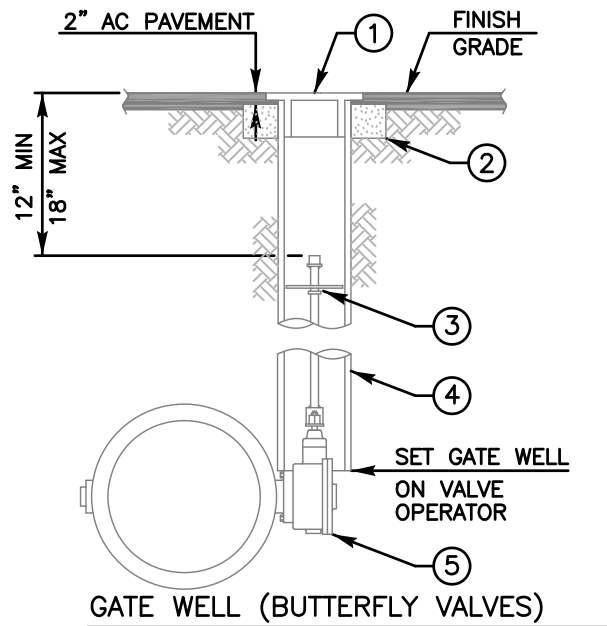
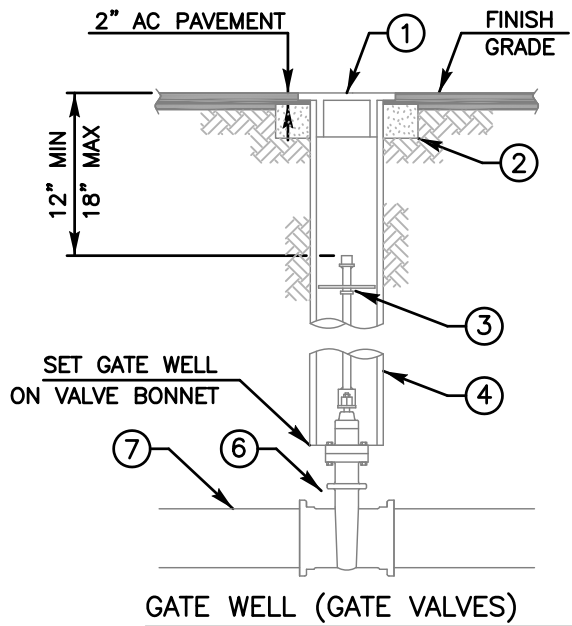
TEE WITH BUTTERFLY VALVES



NOTES:

- 1) BEARING AREA "B" MUST BE EQUAL TO OR GREATER THAN THE AREA REQUIRED FOR A 90° ELBOW INSTALLATION
- 2) INSTALL SAND BAGS AROUND BUTTERFLY VALVE ACTUATOR TO ISOLATE IT FROM CONCRETE
- 3) BFV'S INSTALLED AT CROSSES OR TEES REQUIRE A FLANGED DUCTILE IRON SPOOL TO BE INSTALLED BETWEEN THE FITTING AND VALVE IN ACCORDANCE WITH THE AGENCY SPECIFICATIONS

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		Kercheval	12/75	CONCRETE THRUST AND ANCHOR BLOCK INSTALLATIONS	
Reviewed	MR	B. KNOLL	10/15		
Reviewed	MR	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE <i>Somasa Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date DRAWING NUMBER WT-01 (3 OF 3)	



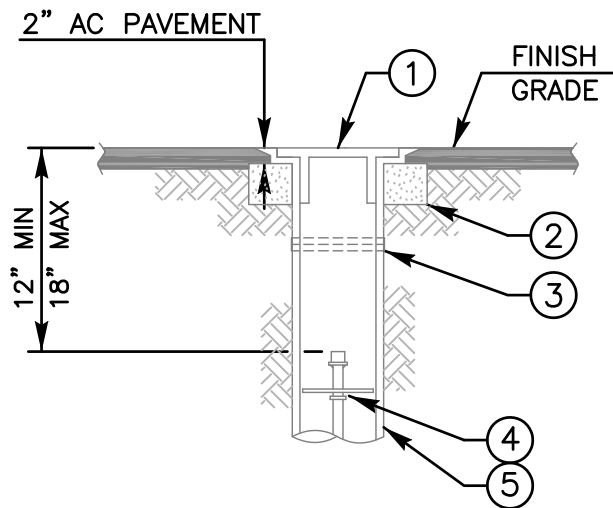
NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) VALVES DEEPER THAN 5' REQUIRE A VALVE STEM EXTENSION
- 3) EXTENSION STEMS SHALL NOT BE ATTACHED/BOLTED TO OPERATING NUT
- 4) GATE WELL AND CAP SHALL BE SET SO THAT NO MORE THAN TWO 1" ADJUSTMENT RINGS ARE USED
- 5) BFV OPERATORS TO BE LOCATED TO THE CURBLINE SIDE OF WATER MAIN
- 6) BFV'S INSTALLED AT CROSSES OR TEES REQUIRE A FLANGED DUCTILE IRON SPOOL TO BE INSTALLED BETWEEN THE FITTING AND VALVE IN ACCORDANCE WITH THE AGENCY'S SPECIFICATIONS
- 7) GATE WELLS AND CAPS SHALL BE IDENTIFIED AS DESCRIBED ON WV-03
- 8) FOR INLINE VALVE ANCHOR BLOCK INSTALLATION SEE WT-02
- 9) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

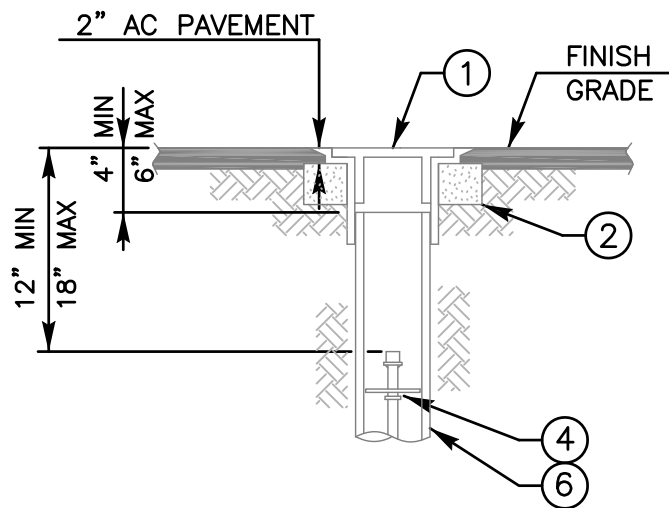
LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	GATE WELL WITH CAP SEE NOTE 7	④	8" PVC CL 200, C-900 PIPE x REQUIRED LENGTH GATE WELL SEE NOTE 7
②	6" HIGH x 6" WIDE COMPACTED ASPHALT-CONCRETE RING	⑤	BUTTERFLY VALVE
③	VALVE STEM EXTENSION SEE NOTES 2 & 3	⑥	RESILIENT WEDGE GATE VALVE
		⑦	WATER MAIN

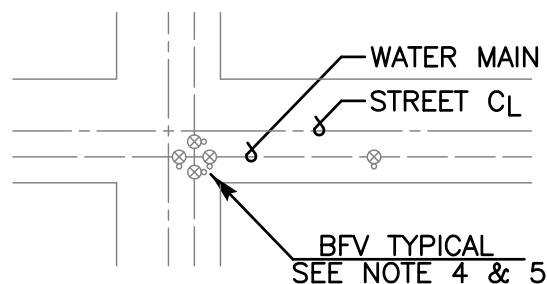
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING GATE WELL CAP INSTALLATION, FOR VALVES 4" AND LARGER	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Reviewed	MR	B. KNOLL	10/15		
Reviewed	MR	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					<i>Somson Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date
					DRAWING NUMBER WV-01



8" GATE WELL TYPE A



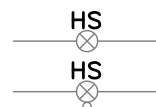
6" GATE WELL TYPE B



BFV OPERATOR POSITION

NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) VALVES DEEPER THAN 5' REQUIRE A VALVE STEM EXTENSION
- 3) EXTENSION STEMS SHALL NOT BE ATTACHED/BOLTED TO OPERATING NUT
- 4) GATE WELL AND CAP SHALL BE SET SO THAT NO MORE THAN TWO 1" ADJUSTMENT RINGS ARE USED
- 5) BFV OPERATORS TO BE LOCATED TO THE CURBLINE SIDE OF WATER MAIN
- 6) BFV'S INSTALLED AT CROSSES OR TEES REQUIRE A FLANGED DUCTILE IRON SPOOL TO BE INSTALLED BETWEEN THE FITTING AND VALVE IN ACCORDANCE WITH THE AGENCY'S SPECIFICATIONS
- 7) GATE WELLS AND CAPS SHALL BE IDENTIFIED AS DESCRIBED ON WV-03
- 8) FOR INLINE VALVE ANCHOR BLOCK INSTALLATION SEE WT-02
- 9) GATE WELL TYPE AS APPROVED BY AGENCY
- 10) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST



LEGEND ON PLANS

ITEM NO	SIZE AND DESCRIPTION	ITEM NO	SIZE AND DESCRIPTION
①	GATE WELL WITH CAP SEE NOTE 7	④	VALVE STEM EXTENSION SEE NOTES 2 & 3
②	6" HIGH x 6" WIDE COMPACTED ASPHALT-CONCRETE RING	⑤	8" PVC CL 200, C-900 PIPE x REQUIRED LENGTH GATE WELL SEE NOTE 7
③	CAULDER COUPLING	⑥	6" PVC CL 200, C-900 PIPE x REQUIRED LENGTH GATE WELL SEE NOTE 7

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Reviewed	MR	B. KNOLL	10/15	GATE WELL CAP & CAN INSTALLATION, FOR VALVES 4" AND LARGER	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	MR	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER WV-02



RECYCLED
WATER



POTABLE
WATER

GATE WELL LIDS

SEE NOTE 2 BELOW

COLOR	GATE WELL LIDS USED FOR:
RED	NORMALLY CLOSED SYSTEM VALVES (NCV)
PURPLE	RECYCLED WATER VALVES: LINE VALVES & AIR VALVES
YELLOW	POTABLE WATER VALVES: LINE VALVES, FIRE SERVICES, & AIR VALVES
WHITE	FIRE HYDRANTS

GATE WELL LID COLORS

SEE NOTE 5 BELOW

COLOR	GATE WELL AND LIDS USED FOR:
RED	NORMALLY CLOSED SYSTEM VALVES (NCV)
WHITE	RESILIENT WEDGE GATE VALVES
GREEN	BUTTERFLY VALVES

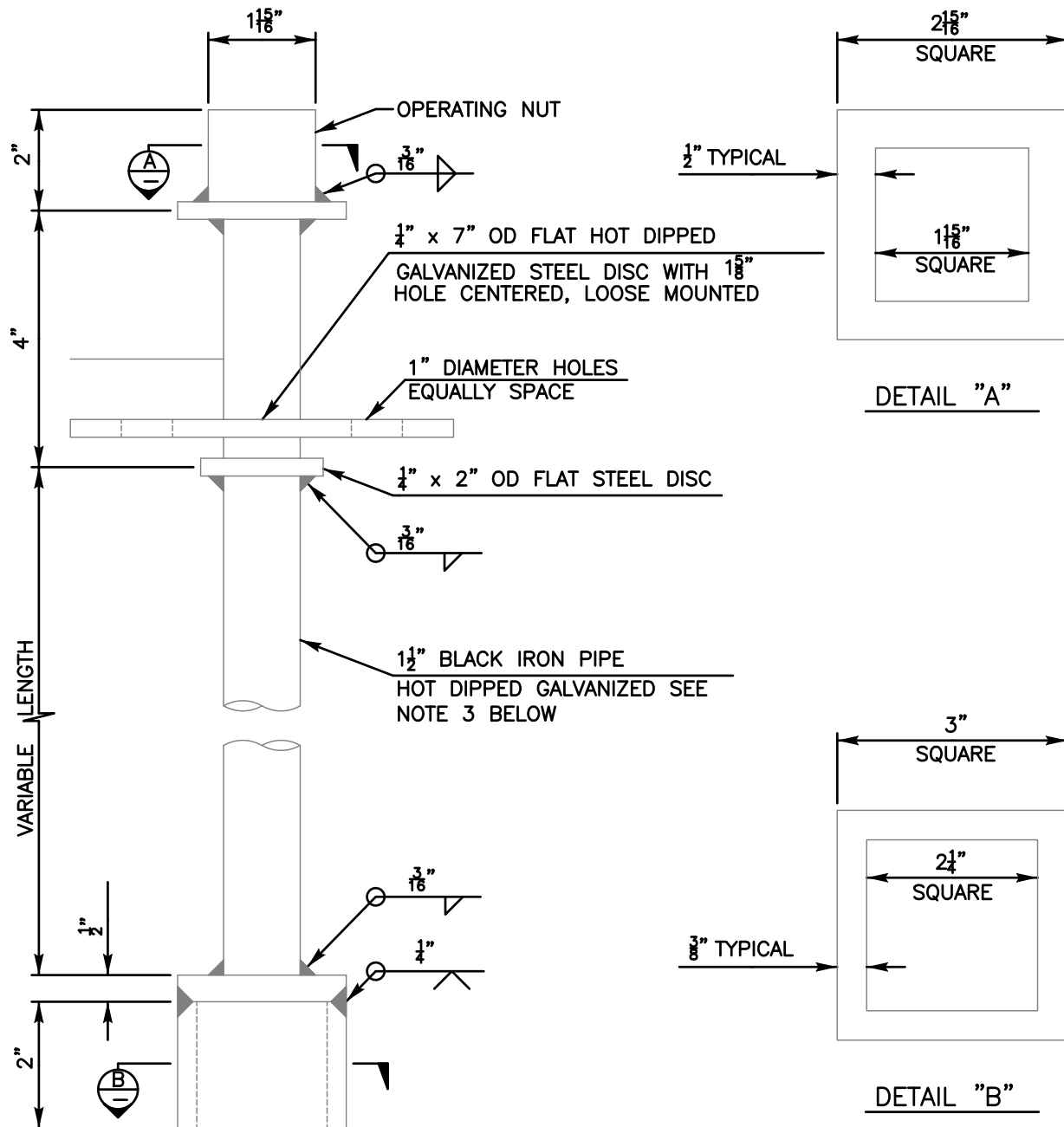
PAINTED IDENTIFICATION MARKING

SEE NOTE 4 BELOW

NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) GATE WELL LIDS SHALL BE CAST WITH THE "AGENCY NAME" AND THE WORD "WATER" FOR USE WITH POTABLE WATER SYSTEMS AND "RECYCLED" FOR USE WITH RECYCLED WATER SYSTEMS. LIDS SHALL INCLUDE A 1" LIFTING SLOT
- 3) PVC GATE WELLS SHALL BE MANUFACTURED IN WHITE OR BLUE FOR USE WITH POTABLE WATER, AND PURPLE FOR USE WITH RECYCLED WATER
- 4) THE INSIDE PORTIONS OF THE GATE WELL LID AND PVC GATE WELL SHALL BE IDENTIFIED WITH A PAINTED IDENTIFICATION MARKING.
- 5) THE TOP EXTERIOR PORTION OF GATE WELL LIDS SHALL BE PAINTED WITH COLORS TO IDENTIFY THE USE OF THE VALVE INSTALLED, AS SHOWN ABOVE
- 6) INSTALLATION FOR THE USE OF RECYCLED WATER SHALL BE IDENTIFIED AS DESCRIBED IN AGENCY'S SPECIFICATIONS AND AS NOTED ABOVE
- 7) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

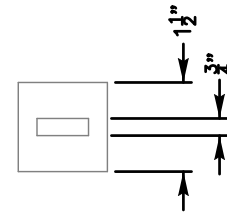
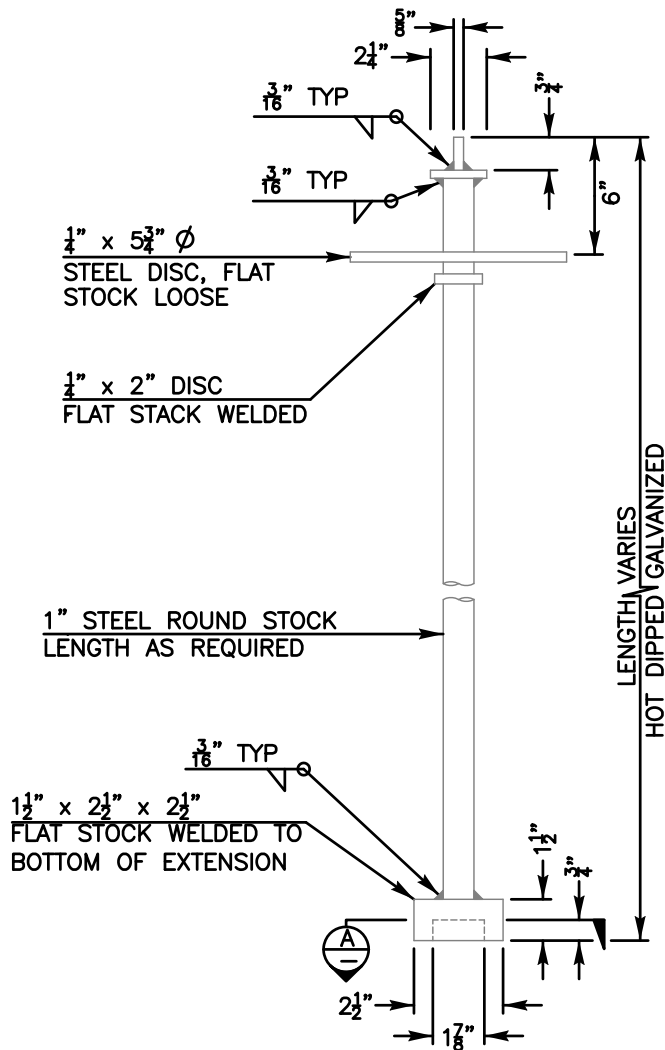
Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		Kercheval	12/75		
Reviewed	MR	B. KNOLL	10/15	GATE WELL IDENTIFICATION	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	MR	B. KNOLL	10/18		
Reviewed	RP	W. Engeda	03/22		
				DRAWING NUMBER	WV-03



NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE AND STANDARD DRAWINGS WV-01 AND WV-02
- 2) STEEL EXTENSION STEMS SHALL BE USED ONLY WHERE THE MAXIMUM LENGTHS OF THE EXTENSION EXCEEDS 8' AND AT THE REQUEST OF THE AGENCY'S ENGINEER
- 3) EXTENSION STEMS SHALL BE ROUND OR SQUARE STEEL TUBING OF SOLID DESIGN (NO PINNED COUPLINGS PERMITTED)
- 4) VALVES DEEPER THAN 5' REQUIRE A VALVE STEM EXTENSION
- 5) EXTENSION STEMS SHALL NOT BE ATTACHED/BOLTED TO OPERATING NUT OF THE VALVE
- 6) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
ORIGINAL		G. Parkinson	5/92	STEEL VALVE STEM EXTENSION FOR VALVES 4" AND LARGER		
Reviewed	MR	B. KNOLL	10/15			
Reviewed	MR	B. KNOLL	10/18			
Reviewed	RP	S. Engeda	03/22			
						<i>Samir Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date
						DRAWING NUMBER WV-04



DETAIL "A"

NOTES:

- 1) REFER TO AGENCY SPECIFICATIONS WHERE APPLICABLE
- 2) EXTENSION STEMS SHALL BE ROUND STEEL TUBING OF SOLID DESIGN (NO PINNED COUPLINGS PERMITTED)
- 3) VALVES DEEPER THAN 5' AND 2" AIR VALVES REQUIRE A VALVE STEM EXTENSION OR AS REQUIRED BY THE AGENCY OF JURISDICTION
- 4) EXTENSION STEMS SHALL NOT BE ATTACHED/BOLTED TO OPERATING NUT OF THE VALVE
- 5) MATERIALS SHALL BE SELECTED FROM THE AGENCY'S APPROVED MATERIALS LIST

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	
ORIGINAL		G. Parkinson	5/92	STEEL VALVE STEM EXTENSION FOR VALVES 2" AND SMALLER	
Reviewed	MR	B. KNOLL	10/15		
Reviewed	MR	B. KNOLL	10/18		
Reviewed	RP	S. Engeda	03/22		
				RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  03/24/2022 Chairperson R.C.E. 52241 Date DRAWING NUMBER WV-05	

APPENDIX "A"

TRAFFIC CONTROL PLANS

TRAFFIC CONTROL PLANS

APPENDIX "A"

TRAFFIC CONTROL PLANS

GENERAL INFORMATION

SAN DIEGO REGIONAL STANDARDS TRAFFIC CONTROL PLANS ARE COMPILED BY UTILIZING PREVIOUSLY DEVELOPED AND STATE APPROVED TRAFFIC CONTROL PLANS CREATED BY BOTH THE 2010 CALIFORNIA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (CA MUTCD) AND THE 2010 CALIFORNIA JOINT UTILITIES TRAFFIC CONTROL MANUAL (CJUTCM). THEIR CONSISTENT COMMITMENT TO SAFE AND EFFECTIVE TEMPORARY TRAFFIC CONTROL ARE REFLECTED IN THE TRAFFIC CONTROL PLANS CONTAINED IN THIS SECTION.

PART 6 OF THE CA MUTCD MANUAL "TEMPORARY TRAFFIC CONTROL" IS PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION. THE CJUTCM IS PREPARED BY A PANEL REPRESENTING CALIFORNIA UTILITIES, WHO'S WORK ROUTINELY IMPACTS THE PUBLIC RIGHT OF WAY. BOTH MANUALS HAVE BEEN APPROVED BY THE CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS). THESE MANUALS IN COMBINATION ARE ISSUED TO PROVIDE THE BASIC STANDARD FOR THE UNIFORM TYPES OF WARNING DEVICES, LIGHTS, AND OTHER DEVICES PLACED UPON ANY PUBLIC ROADWAY OR STREET. ANY PERSON ENGAGED IN PERFORMING WORK THAT INTERFERES WITH OR ENDANGERS THE MOVEMENT OF TRAFFIC UPON A STREET OR HIGHWAY MUST DO SO SAFELY IN ACCORDANCE WITH SECTIONS 21367 AND 21400 OF THE CALIFORNIA VEHICLE CODE.

THE TYPICAL APPLICATION DRAWING FOUND IN THIS CHAPTER CAN BE USED BY ANY INDIVIDUAL, UTILITY OR CONTRACTOR WHO NEEDS TO PROVIDE TEMPORARY TRAFFIC CONTROL TO COMPLETE THEIR WORK. THE INTENT OF THIS CHAPTER IS TO BE A RESOURCE FOR MUNICIPALITIES AND JURISDICTIONS TO REFER OTHERS AS WELL AS THEIR OWN CREWS WHO NEED TO ERECT TEMPORARY TRAFFIC CONTROL.

BEFORE WORK BEGINS, TRAFFIC CONTROL PLANS ADDRESSING VEHICLE, BIKE, AND PEDESTRIAN TRAFFIC THROUGH A CONSTRUCTION ZONE MAY NEED TO BE APPROVED BY THE PUBLIC AGENCY OR AUTHORITY HAVING JURISDICTION OVER THE ROADWAY. NOTHING CONTAINED IN THIS CHAPTER SHALL PREVENT LOCAL JURISDICTIONS FROM MODIFYING, CHANGING, OR ADOPTING NEW SPECIFICATIONS THEY DEEM NECESSARY. THE TEXT AND TYPICAL DRAWINGS IN THIS CHAPTER ARE NOT A LEGAL STANDARD. CRITERIA FOR POSITION, LOCATION, AND USE OF TRAFFIC CONTROL DEVICES ARE FURNISHED SOLELY FOR THE PURPOSE OF GUIDANCE AND INFORMATION TO ASSIST IN THE PREPARATION OF TEMPORARY TRAFFIC CONTROL PLANS.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR OR ORGANIZATION PERFORMING WORK ON, OR ADJACENT TO, A ROADWAY TO INSTALL AND MAINTAIN THE PROPER TRAFFIC CONTROL DEVICES WHICH ARE NECESSARY TO PROVIDE SAFETY FOR BOTH THE TRAVELING PUBLIC AND THE WORKERS.

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
TEXT		BUSS	2/11		
Reviewed	DG	D. Gerschoffer	9/15	TRAFFIC CONTROL PLANS	 03/24/2022 Chairperson R.C.E. 52241 Date
Reviewed	TC	T. Cotter	10/18		
Reviewed	RP	S. Engeda	03/22		
					DRAWING NUMBER TCP-01

TRAFFIC CONTROL PLANS

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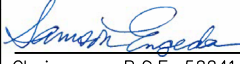
TCP-01	GENERAL INFORMATION
TCP-02A	TABLE OF CONTENTS
TCP-02B	TABLE OF CONTENTS (CONTINUED)
TCP-03	TYPICAL CONSTRUCTION SIGNS
TCP-04	DEVICE SPACING TABLES
TCP-05A	TRAFFIC CONTROL PLAN COVER SHEET
TCP-05B	TRAFFIC CONTROL PLAN COVER SHEET (CONTINUED)
TCP-05C	AGENCY ENGINEER'S COMMENTS/GENERAL NOTES SHEET
TCP-06	SIDE OF THE ROAD - ROAD W/O CENTERLINE
TCP-07A	SIDE OF THE ROAD - TWO LANE W/CENTERLINE
TCP-07B	MULTI-LANE EDGE OF GUTTER CLOSURE
TCP-07C	SIDE OF ROAD - SHOULDER CLOSED
TCP-08	CENTER OF ROAD - TWO LANE W/O CENTERLINE
TCP-09	SIDE OF ROAD - TWO LANE W/FLAGGERS - 1 LANE CLOSED
TCP-10A	SIDE OF ROAD - MULTILANE W/CENTERLINE - 1 LANE CLOSED
TCP-10B	SIDE OF ROAD - MULTILANE W/CENTERTURN - 1 LANE CLOSED
TCP-10C	SIDE OF ROAD - MULTILANE W/MEDIAN - 1 LANE CLOSED
TCP-11	CENTER OF ROAD - MULTILANE W/CENTERLINE - RIGHT 2 LANES CLOSED
TCP-12A	SIDE OF ROAD - MULTILANE W/CENTERLINE - LEFT LANE CLOSED
TCP-12B	SIDE OF ROAD - MULTILANE W/MEDIAN - LEFT LANE CLOSED
TCP-13A	CENTER OF ROAD - MULTILANE W/CENTERLINE - LEFT LANES CLOSED
TCP-13B	CENTER OF ROAD - MULTILANE W/CENTERTURN - CENTER AND LEFT LANES CLOSED
TCP-14	SIDE OF ROAD - MULTILANE LANE SHIFT TO CENTERTURN LANE
TCP-15	CENTER OF ROAD - MULTILANE W/CENTERTURN CLOSURE
TCP-16A	SIDE OF ROAD - SINGLE LEFT LANE CLOSURE - ONE WAY STREET
TCP-16B	CENTER OF ROAD - DOUBLE LEFT LANE CLOSURE - ONE WAY STREET
TCP-16C	SIDE OF ROAD - SINGLE RIGHT LANE CLOSURE - ONE WAY STREET
TCP-16D	CENTER OF ROAD - DOUBLE RIGHT LANE CLOSURE - ONE WAY STREET
TCP-17	CENTER OF ROAD - MULTILANE W/CENTERTURN - 2 RIGHT LANES CLOSED
TCP-18	CENTER OF ROAD - MULTILANE CLOSURE OF CENTERTURN, RIGHT AND LEFT LANES CLOSED
TCP-19	CENTER OF ROAD - MULTILANE CLOSURE OF CENTERTURN & 1 LEFT LANE
TCP-20	SIDE OF ROAD - MULTILANE W/MEDIAN LEFT 2 LANES CLOSED
TCP-21	SIDE OF ROAD - MULTILANE W/MEDIAN RIGHT 2 LANES CLOSED
TCP-22	CENTER OF ROAD - MULTILANE-MIDDLE LANE CLOSED
TCP-23	SIDE OF ROAD - MULTILANE BEYOND INTERSECTION RIGHT 1 LANE CLOSED
TCP-24	SIDE OF ROAD - MULTILANE BEYOND INTERSECTION LEFT LANE CLOSED
TCP-25	INTERSECTION - MULTILANE INTERSECTION RIGHT 1 LANE CLOSED
TCP-26	INTERSECTION - MULTILANE INTERSECTION LEFT LANE CLOSED
TCP-27A	INTERSECTION - MULTILANE MIDDLE INTERSECTION
TCP-27B	INTERSECTION - MULTILANE MIDDLE INTERSECTION W/MEDIANS & TURNS
TCP-28	SIDE OF ROAD - BEYOND INTERSECTION PARKING AREA CLOSED
TCP-29	SIDE OF ROAD - BEYOND INTERSECTION TRAFFIC SHIFT TO PARKING AREA
TCP-30	INTERSECTION - MULTILANE INTERSECTION RIGHT LANE/SHOULDER CLOSED
TCP-31	INTERSECTION - MULTILANE INTERSECTION RIGHT/CENTER LANE CLOSED

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  03/24/22 Chairperson R.C.E. 19246 DRAWING NUMBER TCP-02A	SAN DIEGO REGIONAL STANDARD DRAWING TRAFFIC CONTROL PLANS	Revision	By	Approved	Date
		TEXT	BUSS		2/11
		REVISED	DG	T.Stanton	9/15
		REVISED	TC	T.Cotter	10/18
		Reviewed	RP	S. Engeda	03/22

TRAFFIC CONTROL PLANS

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TCP-32	CENTER OF ROAD - MULTILANE LEFT LANE CLOSED
TCP-33	SIDE OF ROAD - MULTILANE RIGHT LANE CLOSED
TCP-34	CENTER OF ROAD - MULTILANE LEFT TURN LANE AND LEFT LANE CLOSED
TCP-35	SIDE OF ROAD - MULTILANE LEFT TURN LANE AND RIGHT LANE CLOSED
TCP-36	SIDE OF ROAD - MULTILANE RIGHT TURN & LANE CLOSED
TCP-37	CENTER OF ROAD - MULTILANE LEFT LANE CLOSED
TCP-38	SIDE OF ROAD - MULTILANE 1 RIGHT TURN & RIGHT LANE CLOSED
TCP-39	CENTER OF ROAD - MULTILANE REDUCED RIGHT TURN LANES
TCP-40	INTERSECTION - MULTILANE INTERSECTION LANE REDUCTIONS
TCP-41	CENTER OF ROAD - MULTILANE CLOSED LEFT TURN LANES
TCP-43	CENTER OF ROAD - MULTILANE RIGHT/CENTER LANES CLOSED ONE WAY
TCP-44	CENTER OF ROAD - MULTILANE LEFT AND CENTER LANES CLOSED
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TCP-47	INTERSECTION - MULTI-LANE/LEFT LANE CLOSURES
TCP-48A	SIDE OF ROAD - HALF STREET CLOSED (1 OF 2)
TCP-48B	SIDE OF ROAD - HALF STREET CLOSED (2 OF 2)
TCP-49	STREET CLOSURE (2-WAY) - VARIOUS LANE CLOSURES
TCP-50	STREET CLOSURE (1-WAY) - VARIOUS LANE CLOSURES
TCP-51	SIDEWALK - SIDEWALK CLOSED
TCP-52	SIDEWALK - SIDEWALK CLOSED 1/2 BLOCK W/MID BLOCK CROSSING
TCP-53	SIDEWALK - SIDEWALK CLOSED & SHIFT TO PARKING AREA
TCP-54	BIKE LANE CLOSURE
TCP-55	BIKE & TRAVEL LANE CLOSURE

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING	RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
TEXT	BUSS		2/11		
REVISED	DG	T.Stanton	9/15	TRAFFIC CONTROL PLANS	 03/24/2022 Chairperson R.C.E. 52241 Date
REVISED	TC	T.Cotter	10/18		
Reviewed	RP	S. Engeda	03/22		
				DRAWING NUMBER	TCP-02B



R1-1

R3-1R
R3-2L

R3-5R

R3-7R
R3-7L

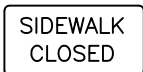
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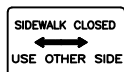
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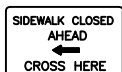
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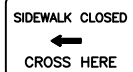
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R9-10



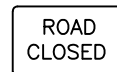
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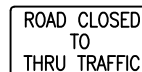
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R10-11



R11-2



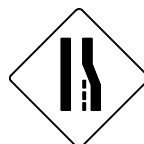
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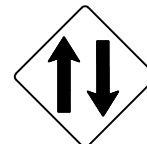
R26

W1-3R
W1-3LW1-4R
W1-4L

W3-4

W4-2R
W4-2L

W5-1



W6-3



W8-6



W12-1



W20-1



W20-2



W20-3



W20-4

W20-5R
W20-5L

W21-5



C24 (CA)



W20-5(BIKE)



C12

C20R
C20L

SC3



C27



C30



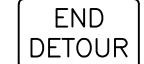
C30A



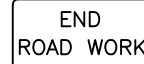
C30(BIKE)



M4-8



M4-8A

M4-10R
M4-10L

G20-2



C9A

R1-1
(FLAGGER PADDLES)

W20-8



W11-1



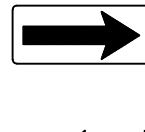
W16-1P



R4-11



W8-11



W1-6(R&L)

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE
03/24/2022
Chairperson R.C.E. 52241 DateDRAWING
NUMBER

TCP-03

SAN DIEGO REGIONAL STANDARD DRAWING

TYPICAL CONSTRUCTION SIGNS

Revision	By	Approved	Date
TEXT	BUSS		2/11
REVISED	DG	T.Stanton	9/15
REVISED	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

TABLE 1

**RECOMMENDED SIGN SPACING FOR ADVANCE WARNING SIGN SERIES AND
MINIMUM TAPER LENGTH**

A APPROACH SPEED (S) (MPH)	B MINIMUM DISTANCE (FEET) BETWEEN SIGNS AND FROM LAST SIGN TO TAPER	C MINIMUM TAPER LENGTHS (L) (FEET) FOR 12-FOOT LANE		
		L	1/2L	1/3L
25	100	125	63	42
30	250	180	90	60
35	250	245	123	82
40	350	320	160	107
45	500	540	270	180
50	500	600	300	200
55+	1000	660	330	220

L FOR MERGE TAPER
1/2L FOR SHIFT TAPER
1/3L FOR SHOULDER TAPER

TABLE 2

RECOMMENDED TAPER LENGTH AND MAXIMUM CHANNELIZER/CONE SPACING

A APPROACH SPEED (S) (MPH)	B BUFFER LENGTH (FEET)	C MAX CONE SPACING		
		TAPER	TANGENT	CONFLICT(*)
25	155	25	50	12
30	200	30	60	15
35	250	35	70	17
40	305	40	80	20
45	360	45	90	22
50	425	50	100	25
55+	495	55	100	27

NOTES:

Taper Formula

$L = S \times W$ FOR SPEEDS GREATER
THAN 40 MPH

$L = \frac{W \times S^2}{60}$ FOR SPEEDS OF
40 MPH OR LESS

WHERE:

L = MINIMUM LENGTH OF TAPER (FEET)
S = APPROACH SPEED (MPH) =
POSTED SPEED LIMIT OR
OFF-PEAK 85TH % SPEED
PRIOR TO WORK STARTING
OR ANTICIPATED OPERATING
SPEED

(*) FACING OPPOSING TRAFFIC, ADJACENT TO WORK AREA
OR CONFLICTING WITH EXISTING STRIPING

W = WIDTH OF OFFSET (FEET)

Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
Revised	BUSS		2/11				
Reviewed	DG	T.Stanton	9/15	DEVICE SPACING TABLES SIGN SPACING TABLE TAPER LENGTH AND CONE SPACING TABLE		 03/24/2022	
Reviewed	TC	T.Cotter	10/18			Chairperson R.C.E. 52241 Date	
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER TCP-04	

TRAFFIC CONTROL PLAN/PERMIT & PERMIT EXTENSION

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
	03/24/2022
Chairperson R.C.E. 52241 Date	
DRAWING NUMBER	TCP-05

SAN DIEGO REGIONAL STANDARD DRAWING	
COVER SHEET	
TRAFFIC CONTROL PLAN	

Revision	By	Approved	Date
Revised	Buss		2/11
Reviewed	DG	T.Stanton	4/15
Reviewed	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

Public Utility or Company: _____		Project Contact: _____	
Address: _____		City: _____ State: _____ Zip Code: _____	
24 Hour Local Phone: _____ Cellular: _____ Pager: _____ Fax: _____			
Contractor/ Subcontractor: _____		Project Contact: _____	
Address: _____		City: _____ State: _____ Zip Code: _____	
24 Hour Local Phone: _____ Cellular: _____ Pager: _____ Fax: _____			

JOB LOCATION		BEGIN CROSS STREET		END CROSS STREET		PERMIT NO.	
WORK HOURS		SPEED LIMIT		WORK TO BE DONE			
FROM	AM TO P.M.	continuous	AM P.M.				
START DATE	END DATE	1st WORK DATE EXTENSION FROM	TO NEW END DATE	2nd WORK DATE EXTENSION FROM	TO NEW END DATE		

REQUIREMENTS: 1. The contractor is responsible for promptly restoring the road back to satisfactory condition which includes, but is not limited to, paving, striping, markings, signing, and loop detection. 2. The Agency reserves the right to observe these traffic control plans in operation and to make changes as field conditions warrant. 3. Trenches shall be back-filled or steel-plated during non-work hours. Steel plates shall have an asphaltic ramp on all edges, or recessed and flush w/road surface securely supported so they won't rock and a sign posted near the plates identifying the contractors name and 24 hour emergency telephone number.		3. (cont.) All dirt, dust, and debris shall be removed from the street at the end of each day and at the end of the job with All USA markouts. The street shall be kept in a driveable condition at all times. 4. Any work that creates an undue safety risk or that creates severe congestion may be shut down by the agency. 5. A copy of all traffic requirements and traffic control plans issued by the Agency must be kept on the job site. 6. Approval of this plan does not constitute an official Permit. Contact the Agency for information on obtaining a permit.		7. All travel lanes will typically be a minimum of 12 feet wide, 14 feet if adjacent to closed bike lanes, unless otherwise specifically approved by the Agency. 8. Flashing arrow boards as required by the Agency. 9. Warning (W) series signs used in work zones shall be Black on an Orange background. 10. Cones and pylons shall have white reflectorized sleeves when placed along the centerline or along the outside shoulder. 11. If parking is allowed in the advance warning area, advance warning signs shall be mounted on high level devices. 12. All conflicting signs shall be covered		13. The contractor shall post tow-away/no parking signs at least twenty-four (24) hours in advance, with the day of week, date and work hours noted, and shall bag parking meters (where applicable). *		THIS TRAFFIC CONTROL PLAN IS NOT VALID UNLESS AN APPLICABLE AGENCY PERMIT OR APPROVAL IS ATTACHED/AFFIXED.	
The applicant is responsible for complete representation of the actual road conditions shown on this plan including, but not limited to, existing striping and marking, signing, sidewalks, and bike lanes. APPLICANTS: Name (print) _____ Address _____ Phone Number _____ Signature _____ Agent of: ☐ Owner ☐ Contractor ☐ Sign/Barricade co. ☐ Other _____		(CITY STAMP HERE)		PERMIT APPROVED By: _____ DATE: _____					

SUBJECT TO LOCAL AGENCY REQUIREMENTS

SEE ATTACHED SHEET(S) OR REFERENCED STANDARD DRAWING(S) THAT MAY BE APPLICABLE

TRAFFIC CONTROL PLAN/PERMIT & PERMIT EXTENSION

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
	03/24/2022
Chairperson R.C.E. 52241 Date	
DRAWING NUMBER	TCP-05A

SAN DIEGO REGIONAL STANDARD DRAWING	
COVER SHEET	
TRAFFIC CONTROL PLAN	

Revision	By	Approved	Date
Revised	Buss		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

Public Utility or Company: _____ Address: _____ State: _____ Zip Code: _____ City: _____ 24 Hour Local Phone: _____ Cellular: _____ Pager: _____ Fax: _____				Project Contact: _____ Address: _____ State: _____ Zip Code: _____ City: _____ 24 Hour Local Phone: _____ Cellular: _____ Pager: _____ Fax: _____				PERMIT NO. _____ THOMAS BROS. PAGE _____ COORD.: _____ TO NEW END DATE _____	
JOB LOCATION		BEGIN CROSS STREET		END CROSS STREET		PERMIT NO.			
WORK HOURS		SPEED LIMIT		WORK TO BE DONE					
FROM A.M. P.M. TO A.M. P.M.									
START DATE		END DATE		1st WORK DATE EXTENSION FROM		2nd WORK DATE EXTENSION FROM			
				TO NEW END DATE		TO NEW END DATE			
PERMIT WORK EXTENSIONS MUST BE OBTAINED BEFORE THE END OF PERMIT DATE									
REQUIREMENTS: 1. The contractor is responsible for promptly restoring the road back to satisfactory condition which includes, but is not limited to, paving, striping, markings, signing, and loop detection. 2. The Agency reserves the right to observe these traffic control plans in operation and to make changes as field conditions warrant. 3. Trenches shall be back-filled or steel-plated during non-work hours. Steel plates shall have an asphaltic ramp on all edges, or recessed and flush w/road surface securely supported so they won't rock and a sign posted near the plates identifying the contractors name and 24 hour emergency telephone number. 3. (cont.) All dirt, dust, and debris shall be removed from the street at the end of each day and at the end of the job with All USA markouts. The street shall be kept in a driveable condition at all times. 4. Any work that creates an undue safety risk or that creates severe congestion may be shut down by the agency. 5. A copy of all traffic requirements and traffic control plans issued by the Agency must be kept on the job site. 6. Approval of this plan does not constitute an official Permit. Contact the Agency for information on obtaining a permit. 7. All travel lanes will typically be a minimum of 12 feet wide, 14 feet if adjacent to closed bike lanes, unless otherwise specifically approved by the Agency. 8. Flashing arrow boards as required by the Agency. 9. Warning (W) series signs used in work zones shall be Black on an Orange background. 10. Cones and pylons shall have white reflectorized sleeves when placed along the centerline or along the outside shoulder. 11. If parking is allowed in the advance warning area, advance warning signs shall be mounted on high level devices. 12. All conflicting signs shall be covered 13. The contractor shall post tow-away/no parking signs at least forty eight (48) hours in advance, with the day of week, date and work hours noted, and shall bag parking meters (where applicable). * THIS TRAFFIC CONTROL PLAN IS NOT VALID UNLESS AN APPLICABLE AGENCY PERMIT OR APPROVAL IS ATTACHED/AFFIXED.									
The applicant is responsible for complete representation of the actual road conditions shown on this plan including, but not limited to, existing striping and marking, signing, sidewalks, and bike lanes. APPLICANTS: Name (print) _____ Address _____ Phone Number _____ Signature _____ Agent of: ☐ Owner ☐ Contractor ☐ Sign/Barricade co. ☐ Other _____ (CITY STAMP HERE) PERMIT APPROVED By: _____ DATE: _____									

SUBJECT TO LOCAL AGENCY REQUIREMENTS

SEE ATTACHED SHEET(S) OR REFERENCED STANDARD DRAWING(S) THAT MAY BE APPLICABLE

TRAFFIC CONTROL PLAN/PERMIT & PERMIT EXTENSION

Public Utility or Company: _____ Address: _____ City: _____	Project Contact: _____ State: _____ Zip Code: _____	24 Hour Local Phone: _____ Cellular: _____ Pager: _____ Fax: _____
Contractor/ Subcontractor: _____ Address: _____ City: _____	Project Contact: _____ State: _____ Zip Code: _____	24 Hour Local Phone: _____ Cellular: _____ Pager: _____ Fax: _____

JOB LOCATION		BEGIN CROSS STREET		END CROSS STREET		PERMIT NO.
WORK HOURS		continuous		SPEED LIMIT		THOMAS BROS. PAGE: COORD.:
FROM	A.M. P.M.	TO	A.M. P.M.			
START DATE	END DATE		1st WORK DATE EXTENSION FROM	TO NEW END DATE	2nd WORK DATE EXTENSION FROM	TO NEW END DATE

PERMIT WORK EXTENSIONS MUST BE OBTAINED BEFORE THE END OF PERMIT DATE

REQUIREMENTS (continued):	TRAFFIC CONTROL

14. Place W20-1 and G20-2 signs on all side streets with the construction zone and per TCP-4 as field conditions permit.
15. Flaggers shall be illuminated
16. The Contractor shall be responsible for identifying the locations of schools that will be affected in the area of the impending work. Due to peak volumes of pedestrian and vehicular traffic associated with
17. The Contractor shall notify all affected emergency services at least one (1) week in advance.
18. For signalized intersections, the Contractor shall coordinate
19. THIS TRAFFIC CONTROL PLAN IS NOT VALID UNLESS AN APPLICABLE AGENCY PERMIT OR APPROVAL IS ATTACHED/AFFIXED.

at night per the most current	The applicant is responsible
-------------------------------	------------------------------

CA MUTCD.	
16. All traffic control devices shall conform with the most current CA MUTCD requirements regarding minimum retro-reflectivity, minimum size,	required to delay are start of construction operations until after school is in session and complete construction operations before school is out of session.
19. Existing signs that conflict	the actual road conditions shown on this plan including, but not limited to, existing striping and marking, signing, sidewalks, and bike lanes.

minimum mounting heights, and usage. Larger device sizes may be specified by the Agency.

with temporary traffic control may be bagged, covered, and removed by the Contractor per the Agency. Signs that are removed shall be handled with

APPLICANTS:
Name (print) _____
Address _____
Phone Number _____

17. Traffic control signs shall not be modified in the field with duct tape, electrical tape, or any other non-approved removed shall be handled with care so that they may be later re-installed or returned to the Agency in good condition as directed by the Agency.

Signature _____

Agent of:

☐ Owner

☐ Contractor

(CITY STAMP HERE)

method.

SUBJECT TO LOCAL AGENCY REQUIREMENTS

☐ Contractor
☐ Sign/Barricade co.
☐ Other

By: _____

DATE: _____

PERMIT APPROVED

SEE ATTACHED SHEET(S) OR REFERENCED STANDARD DRAWING(S) THAT MAY BE APPLICABLE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  03/24/2022 Chairperson R.C.E. 52241 Date DRAWING NUMBER TCP-05B	SAN DIEGO REGIONAL STANDARD DRAWING		Revision	By	Approved	Date
	COVER SHEET TRAFFIC CONTROL PLAN		Revised	Buss		2/11
			Revised	DG	T.Stanton	9/15
			Revised	TC	T.Cotter	10/18
			Reviewed	RP	S. Engeda	03/22

SUBMITTED BY:

NAME _____

COMPANY _____

ADDRESS _____

PHONE _____

(AGENCY USE)

AGENCY ENGINEER'S COMMENTS

POSTED SPEED LIMIT	APPROACH SPEED	TAPER LENGTH	SPACING OF CONES	SIGN SPACING

GENERAL NOTES

For hours of darkness, change comes to vertical barricades with steady burn lights. This plan MAY NOT apply to signalized or multi-way stop intersections. Consult the local jurisdiction when preparing Traffic Control Plans near these intersections. this plan MAY NOT apply when the work areas affect bike lanes, sidewalks pedestrian access and curved or narrow roadways. Consult the approving agency when preparing the Traffic Control Plans or these areas.

Nothing contained on this drawing shall prevent local jurisdictions from modifying changing or adopting new specifications deemed necessary. Criteria for position, location and use of Traffic Control Devices is solely for the purpose of guidance to assist in the set up of the Traffic Control Plans.

TCP is required for all Traffic Control Plans.

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

 03/24/2022
Chairperson R.C.E. 52241 Date

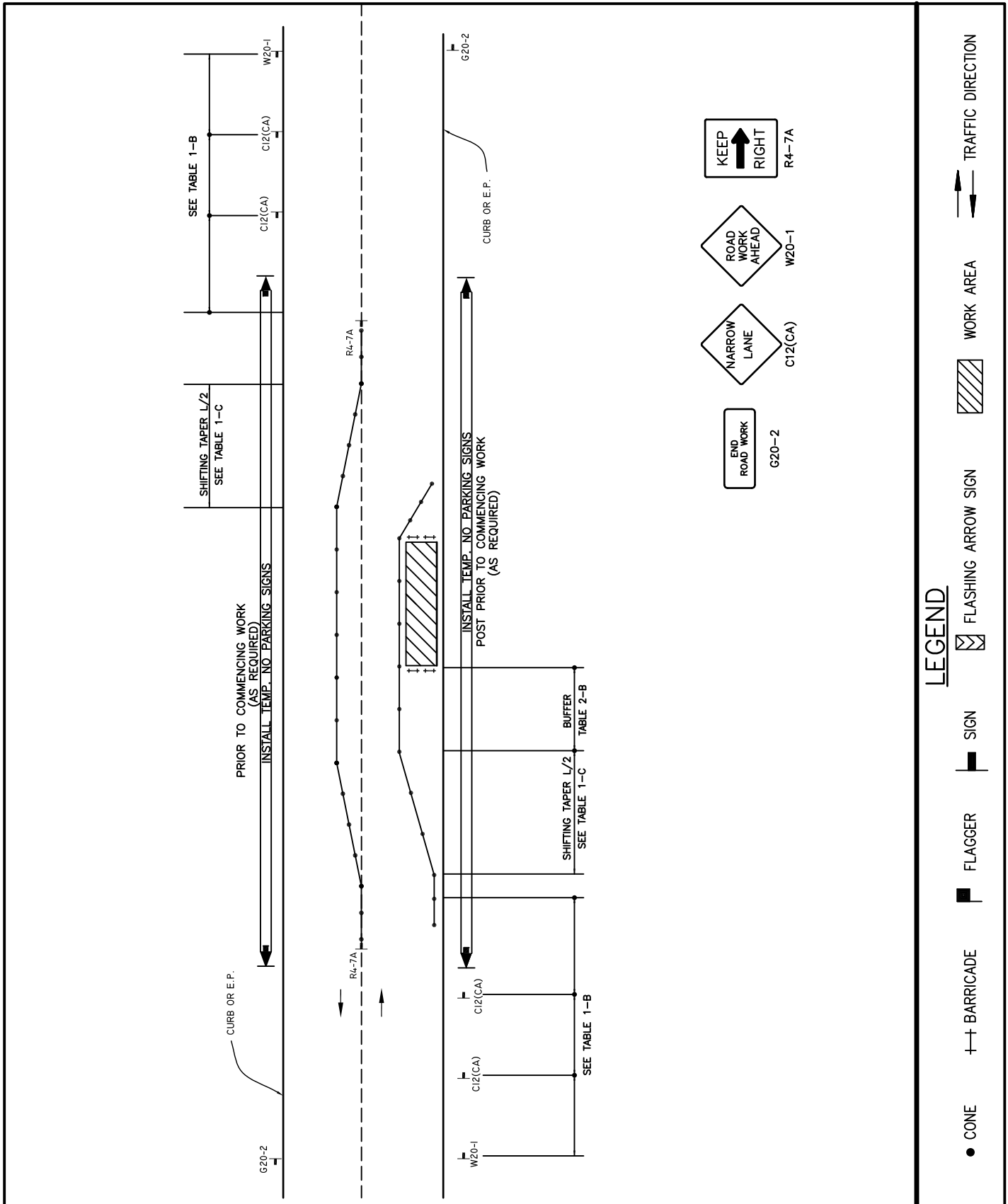
DRAWING
NUMBER

TCP-05C

SAN DIEGO REGIONAL STANDARD DRAWING

**AGENCY ENGINEER'S COMMENTS
GENERAL NOTES COVER SHEET**

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T. Cotter	10/18
Reviewed	RP	S. Engeda	03/22



LEGEND

- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Samsir Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

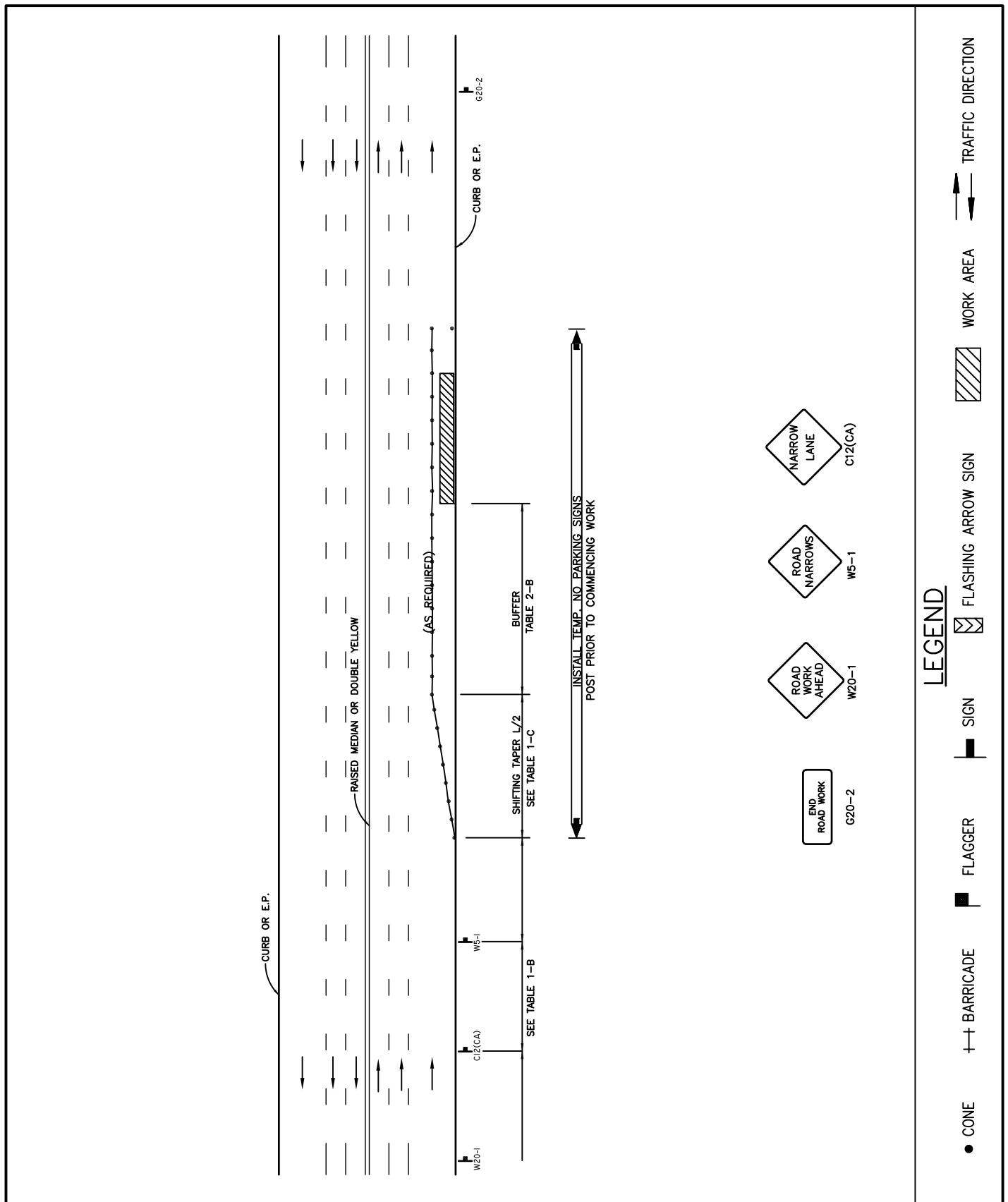
DRAWING
NUMBER

TCP-07A

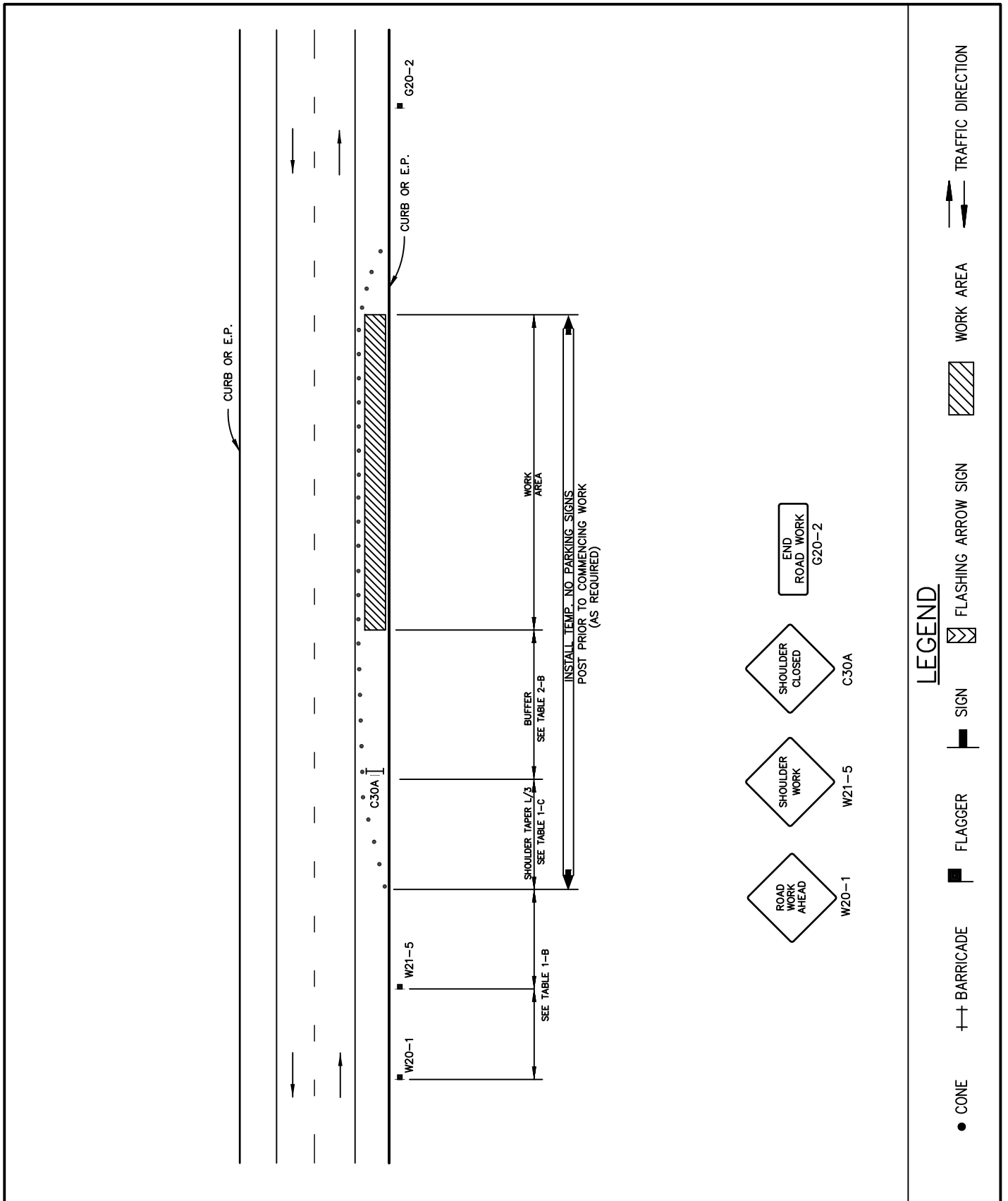
SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA TWO LANE TRAFFIC CONTROL WITH CENTERLINE

Revision	By	Approved	Date
Revised	Buss		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Stanton	10/18
Reviewed	RP	S. Engeda	03/22



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
Revised	BUSS		2/11	SIDE OF WORK AREA MULTI-EDGE OF GUTTER CLOSURE		
Revised	TC	T.Cotter	10/18			
Reviewed	RP	S. Engeda	03/22			
				DRAWING NUMBER TCP-07B		Chairperson R.C.E. 52241 Date 03/24/2022



LEGEND

- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

SAN DIEGO REGIONAL STANDARD DRAWING

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

Somesh Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER

TCP-07C

SIDE OF ROAD WORK AREA SHOULDER CLOSURE

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

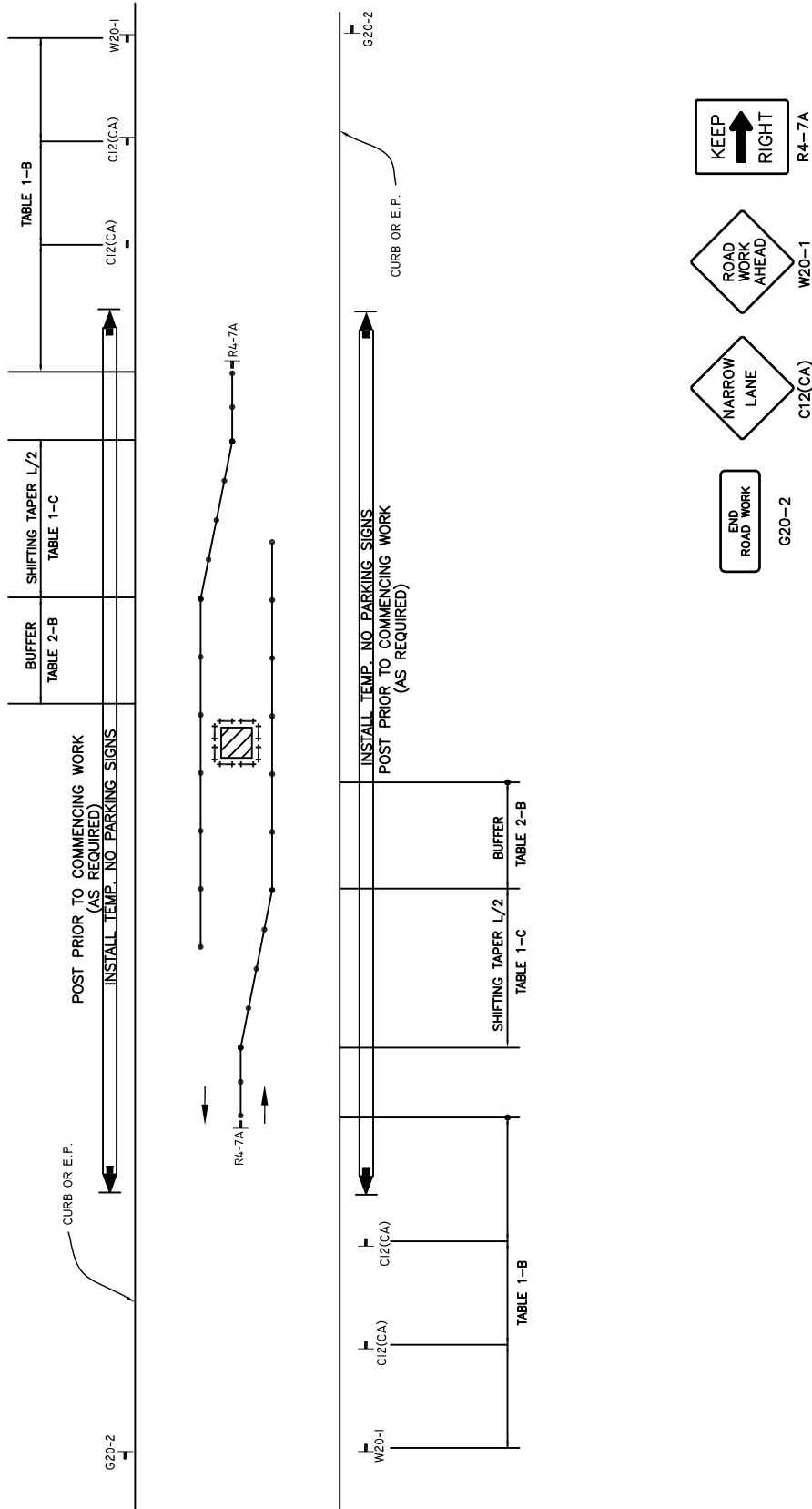
CENTER OF ROAD WORK AREA TWO LANE TRAFFIC CONTROL W/O CENTERLINE

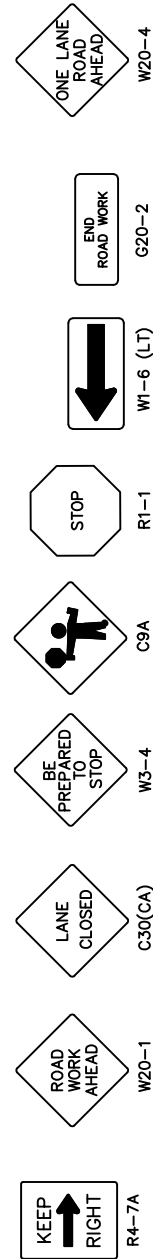
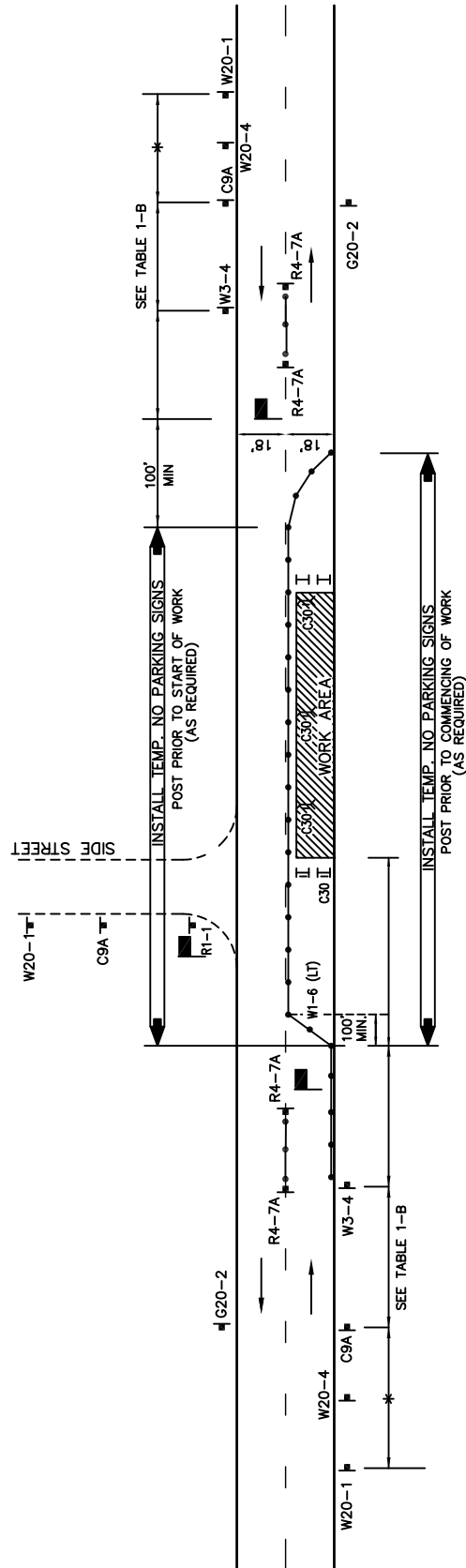
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samsir Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER

TCP-08





LEGEND

- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Somson Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

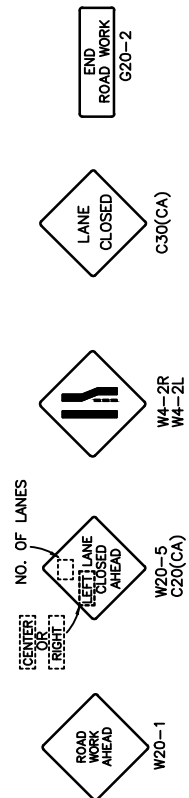
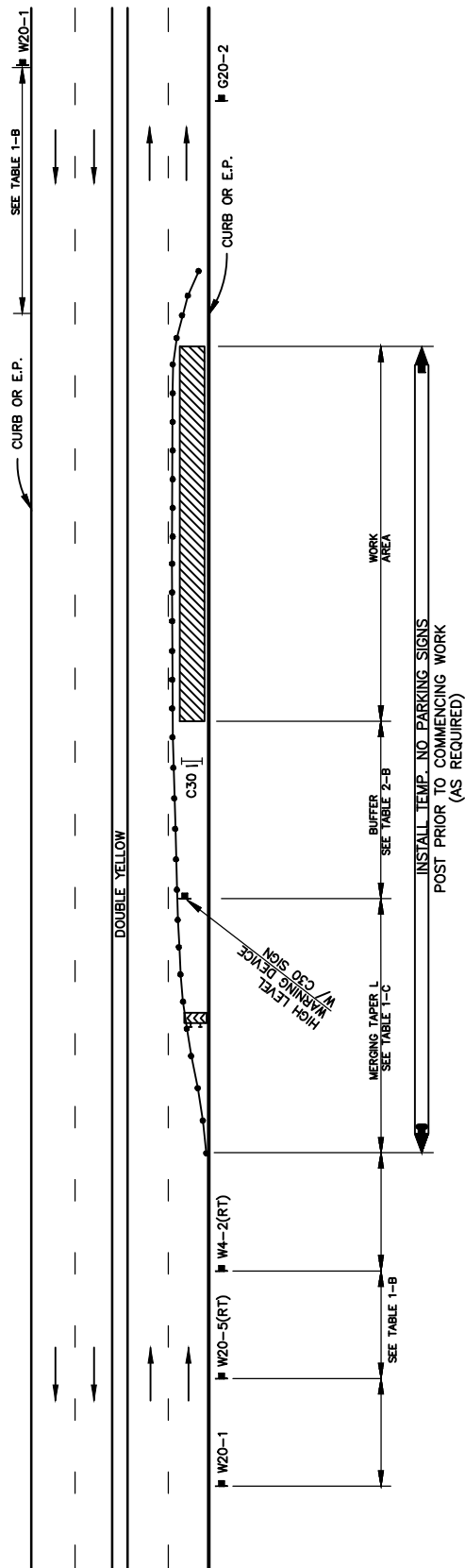
DRAWING
NUMBER

TCP-09

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA TWO LANE TRAFFIC CONTROL WITH FLAGGERS

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S.Engeda	03/22



LEGEND



Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA

MULTILANE TRAFFIC CONTROL WITH CENTERLINE
RIGHT LANE TRAFFIC CLOSURE - ONE LANE

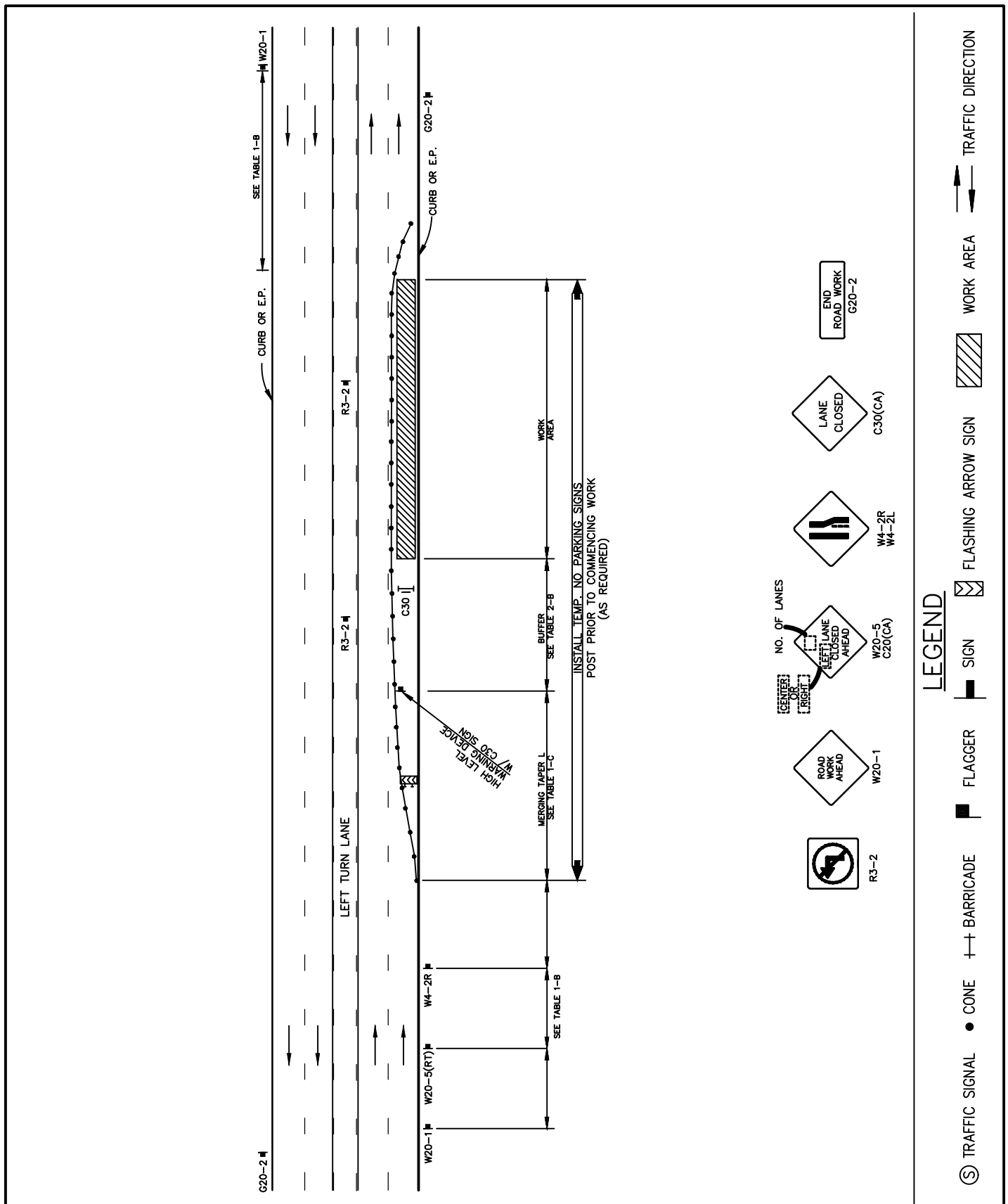
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022

Chairperson R.C.E. 52241 Date

DRAWING
NUMBER

TCP-10A



LEGEND

- ⑤ TRAFFIC SIGNAL
- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

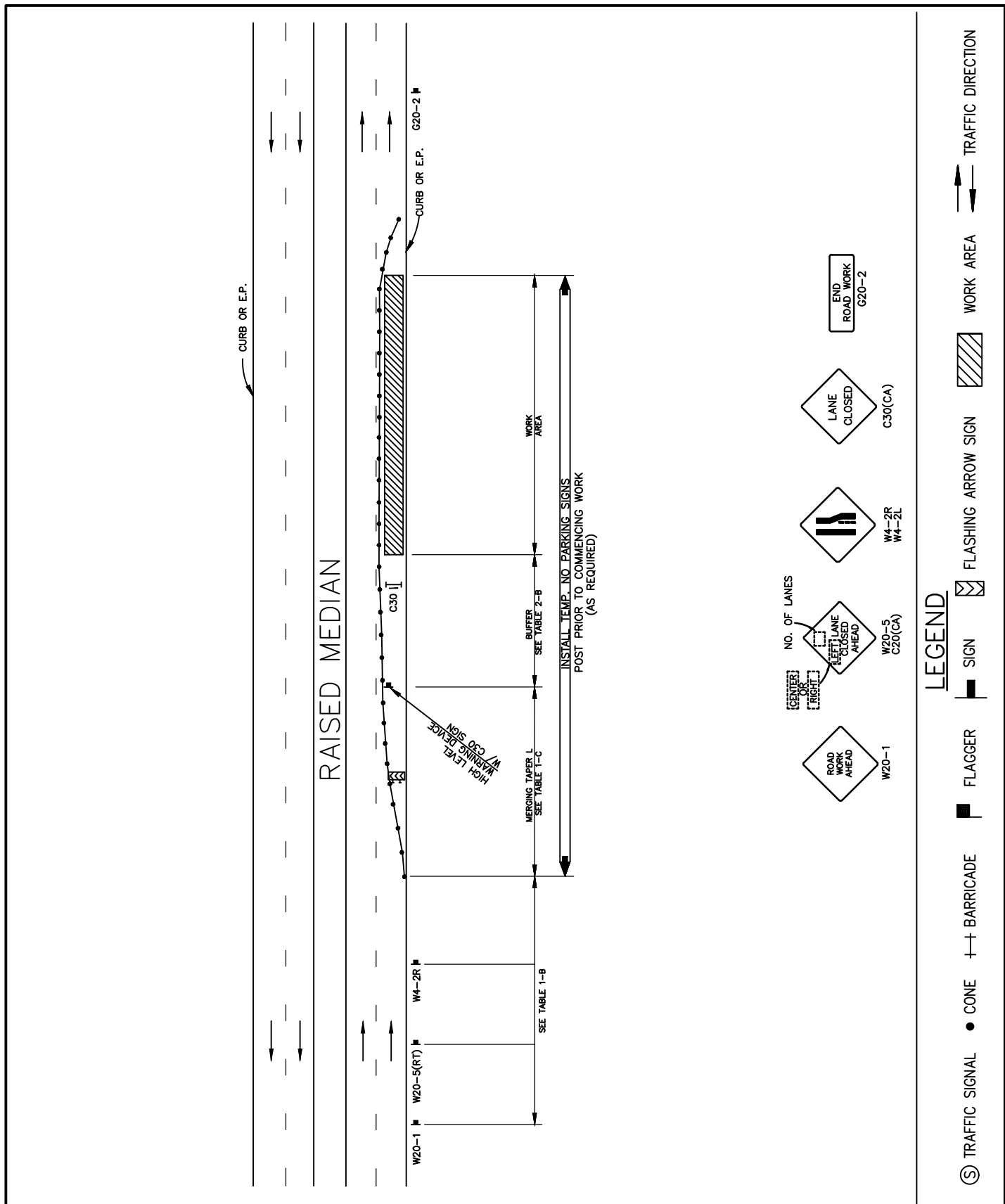
SAN DIEGO REGIONAL STANDARD DRAWING

Samson Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

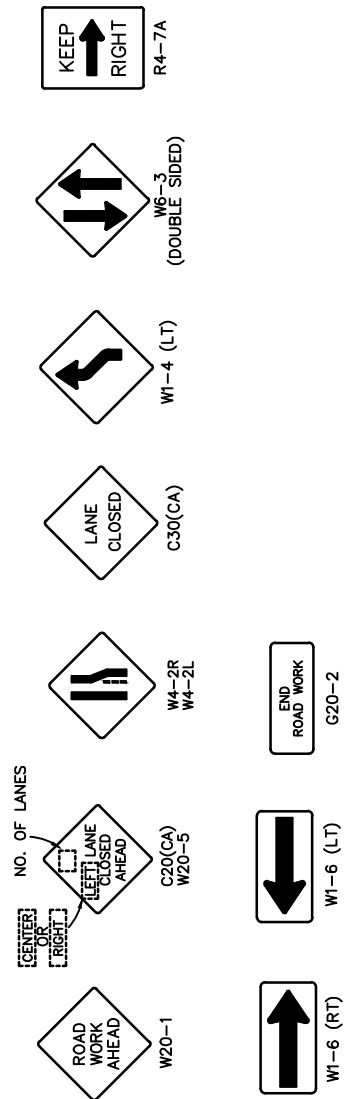
DRAWING
NUMBER **TCP-10B**

SIDE OF ROAD WORK AREA **MULTILANE TRAFFIC CONTROL WITH TWO WAY LEFT TURN** **RIGHT TRAFFIC LANE CLOSURE - ONE LANE CLOSED**

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
Revised	BUSS			SIDE OF ROAD WORK AREA MULTILANE TRAFFIC CONTROL WITH RAISED MEDIAN RIGHT TRAFFIC LANE CLOSURE - ONE LANE CLOSED		 03/24/2022 Chairperson R.C.E. 52241 Date	DRAWING NUMBER TCP-10C
Revised	DG	T.Stanton	9/15				
Revised	TC	T.Cotter	10/18				
Reviewed	RP	S. Engeda	03/22				



LEGEND

⑤ TRAFFIC SIGNAL ● CONE + + BARRICADE

FLAGGER

SIGN

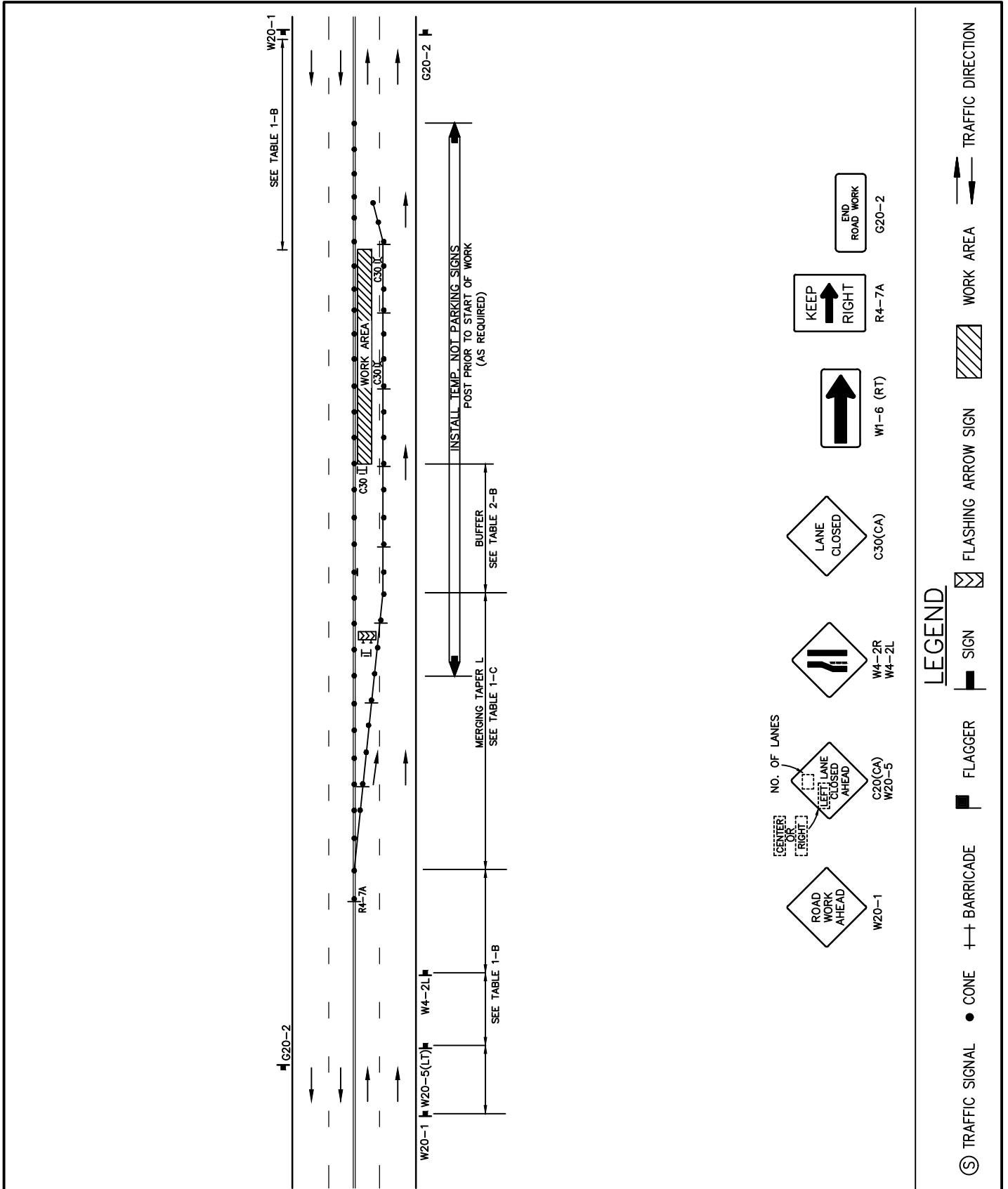
FLASHING ARROW SIGN

WORK AREA

TRAFFIC DIRECTION

CENTER OF ROAD WORK AREA
MULTILANE TRAFFIC CONTROL WITH CENTERLINE
RIGHT TRAFFIC LANE CLOSURE - TWO LANES CLOSED

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22



LEGEND

- ⑤ TRAFFIC SIGNAL
- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

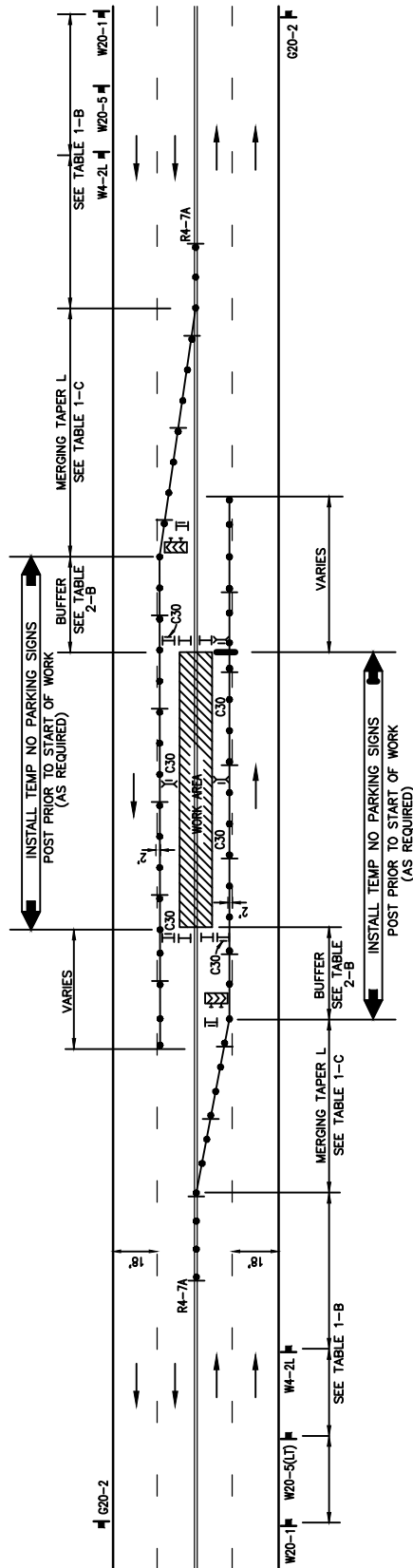
SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA MULTILANE TRAFFIC CONTROL WITH CENTERLINE LEFT TRAFFIC LANE CLOSURE-ONE LANE CLOSED

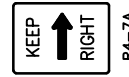
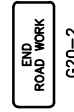
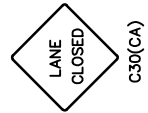
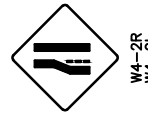
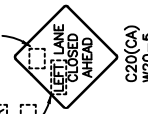
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **TCP-12A**



NO. OF LANES
CENTER
OR
RIGHT



LEGEND

- ⑤ TRAFFIC SIGNAL
- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

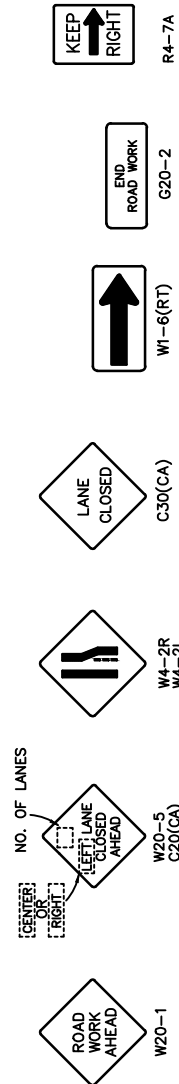
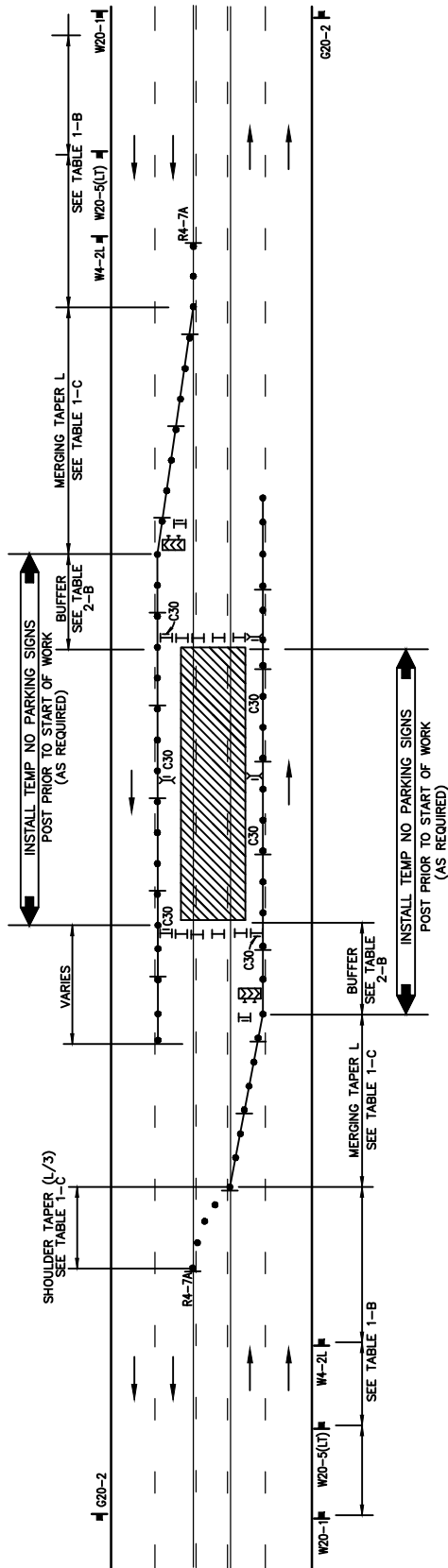
CENTER OF ROAD WORK AREA MULTILANE TRAFFIC CONTROL WITH CENTERLINE LEFT TRAFFIC LANE CLOSURE - ONE LANE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Samsir Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER

TCP-13A



LEGEND

(C) TRAFFIC SIGNAL • CONE ++ BARRICADE FLAGGER SIGN FLASHING ARROW SIGN WORK AREA TRAFFIC DIRECTION

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Samir Engeda 03/24/2022
 Chairperson R.C.E. 52241 Date

DRAWING NUMBER
TCP-13B

SAN DIEGO REGIONAL STANDARD DRAWING

CENTER OF ROAD WORK AREA **MULTILANE TRAFFIC CONTROL WITH CENTER TURN LANE** **LEFT TRAFFIC LANE CLOSURE - THREE LANES**

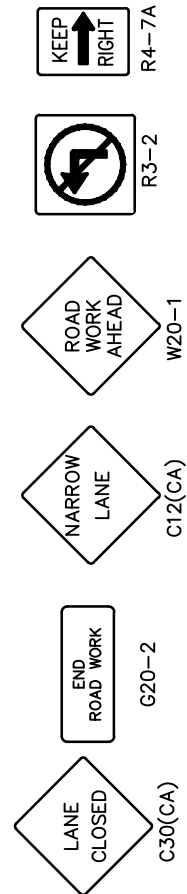
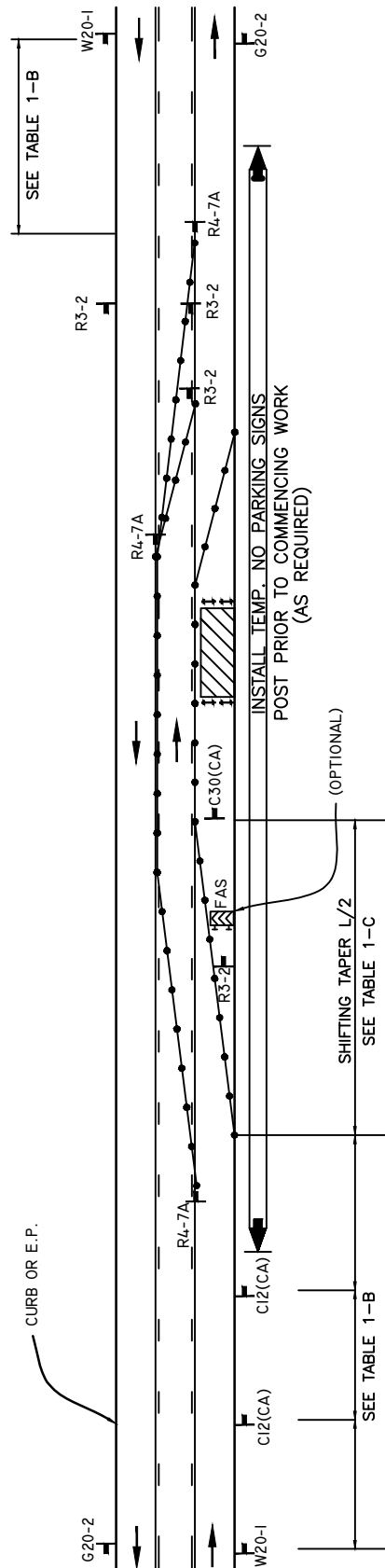
Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA

MULTILANE TRAFFIC CONTROL WITH TWO WAY TURN
RIGHT LANE TRAFFIC CLOSURE - ONE LANE



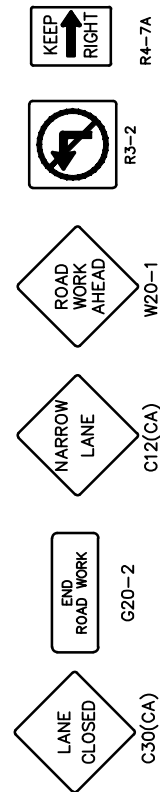
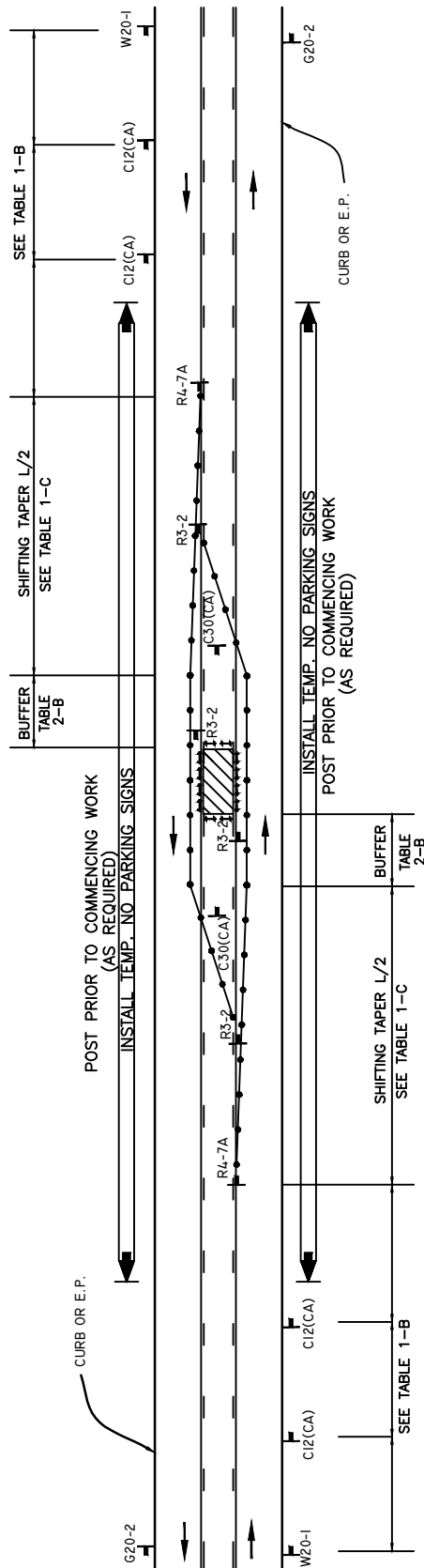
LEGEND

- TRAFFIC SIGNAL
- CONES
- BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Samuel Engle 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING NUMBER **TCP-14**



LEGEND

- ⑤ TRAFFIC SIGNAL • CONE ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samson Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **TCP-15**

SAN DIEGO REGIONAL STANDARD DRAWING

CENTER OF ROAD WORK AREA

MULTILANE TRAFFIC CONTROL WITH TWO WAY LEFT TURN
CENTER TURN LANE CLOSURE - ONE LANE

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

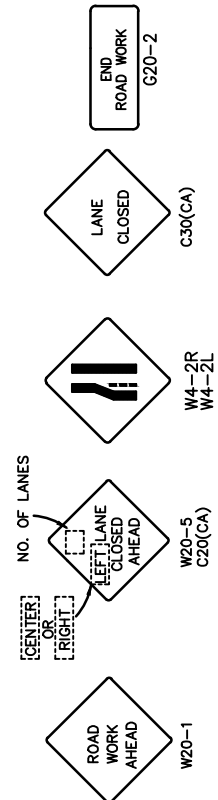
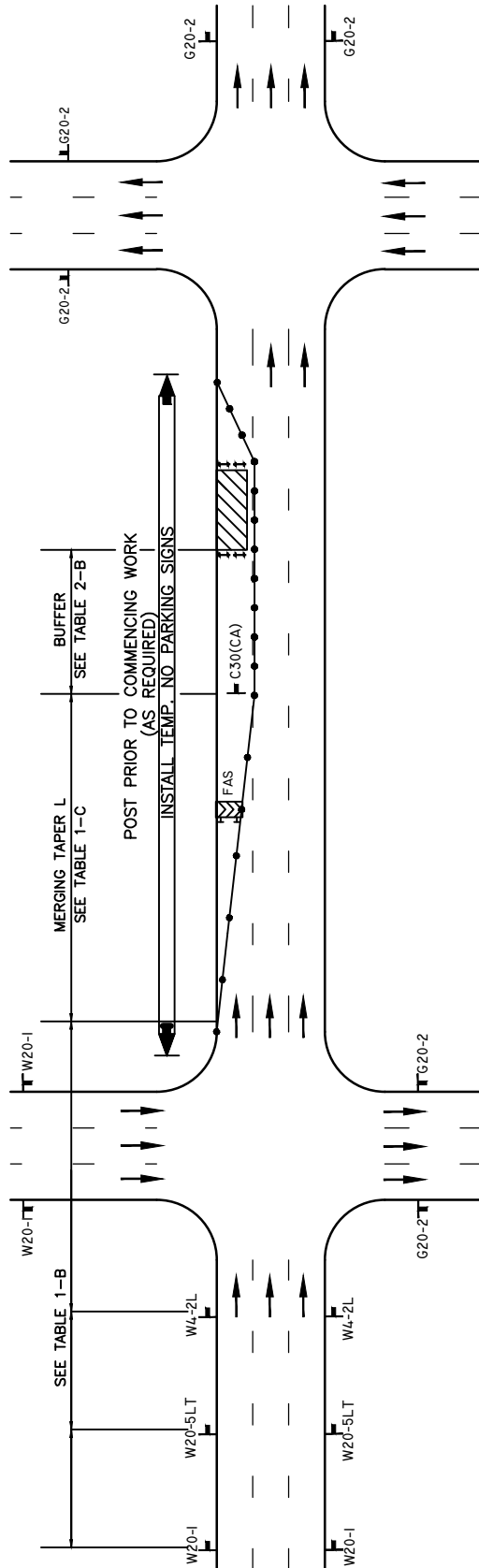
SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA **SINGLE LEFT LANE CLOSURE FOR ONE WAY STREET**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

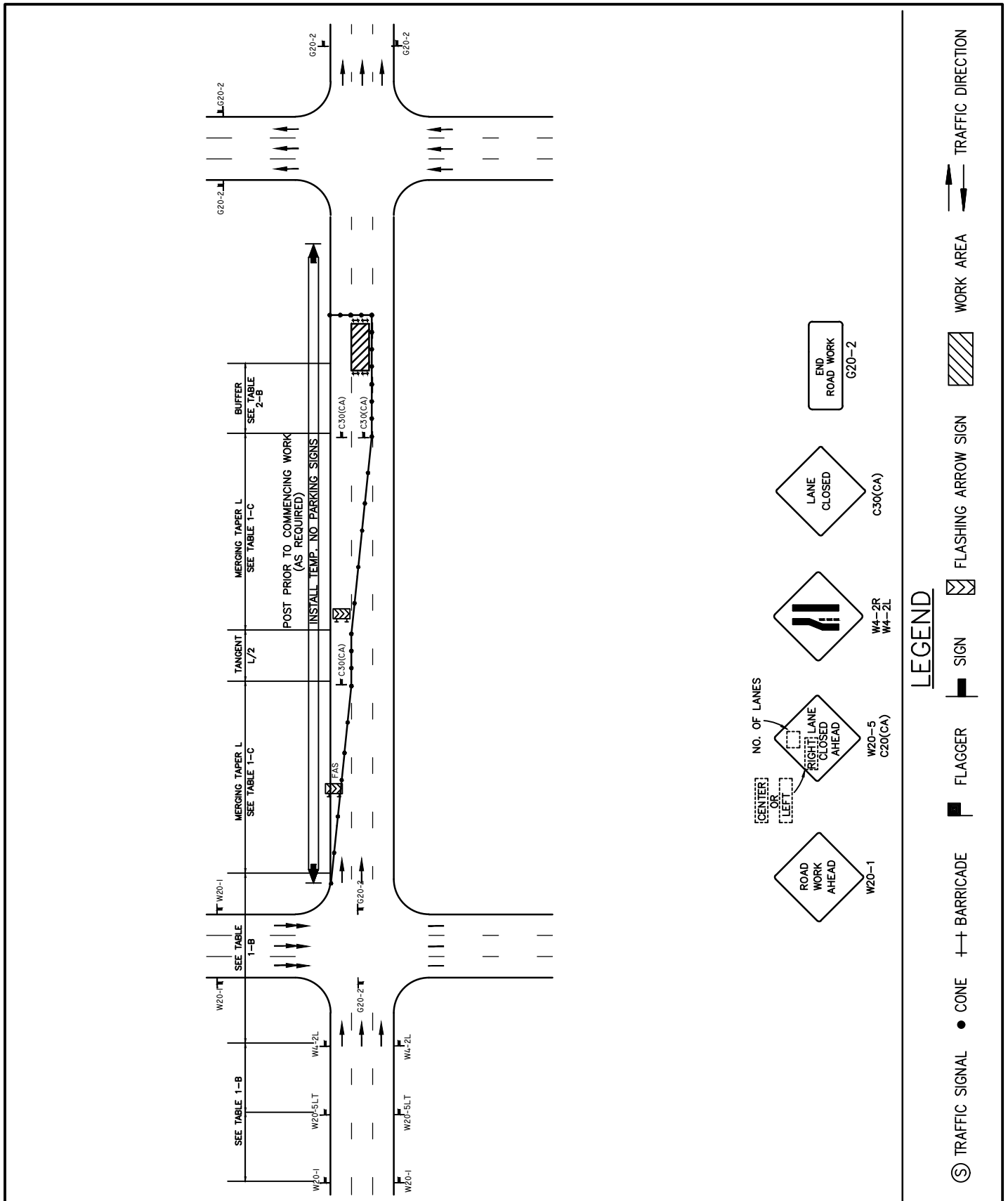
Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **TCP-16A**



LEGEND

- ⑤ TRAFFIC SIGNAL
- CONE
- ++ BARRICADE
- FLAGGER
- FLASHING ARROW SIGN
- SIGN
- WORK AREA
- TRAFFIC DIRECTION



LEGEND

- ⑤ TRAFFIC SIGNAL
- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

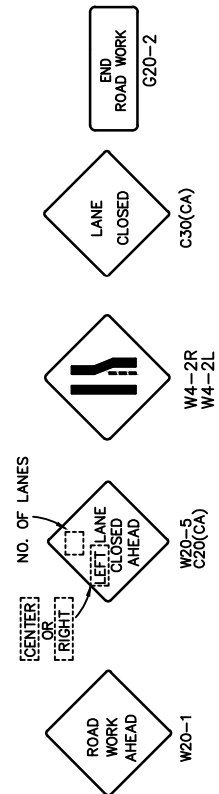
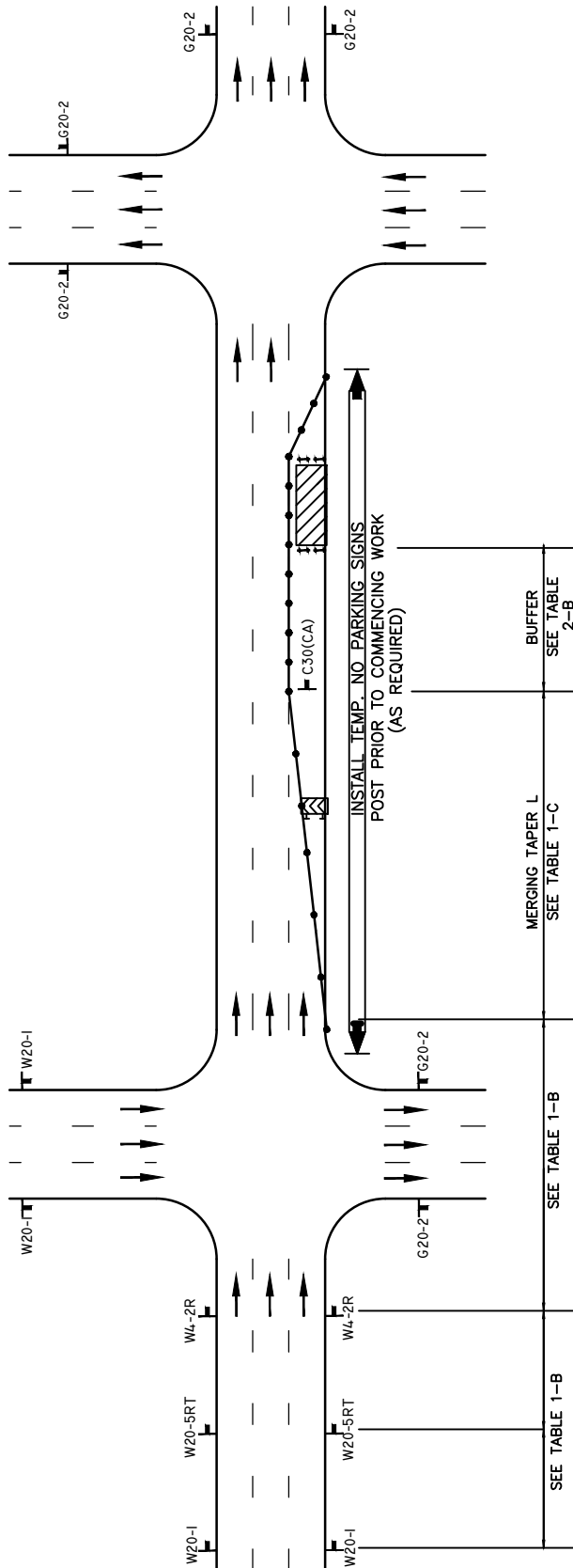
SAN DIEGO REGIONAL STANDARD DRAWING

Samir Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

CENTER OF ROAD WORK AREA DOUBLE LEFT LANE CLOSURE-ONE WAY STREET

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

DRAWING
NUMBER **TCP-16B**



LEGEND

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

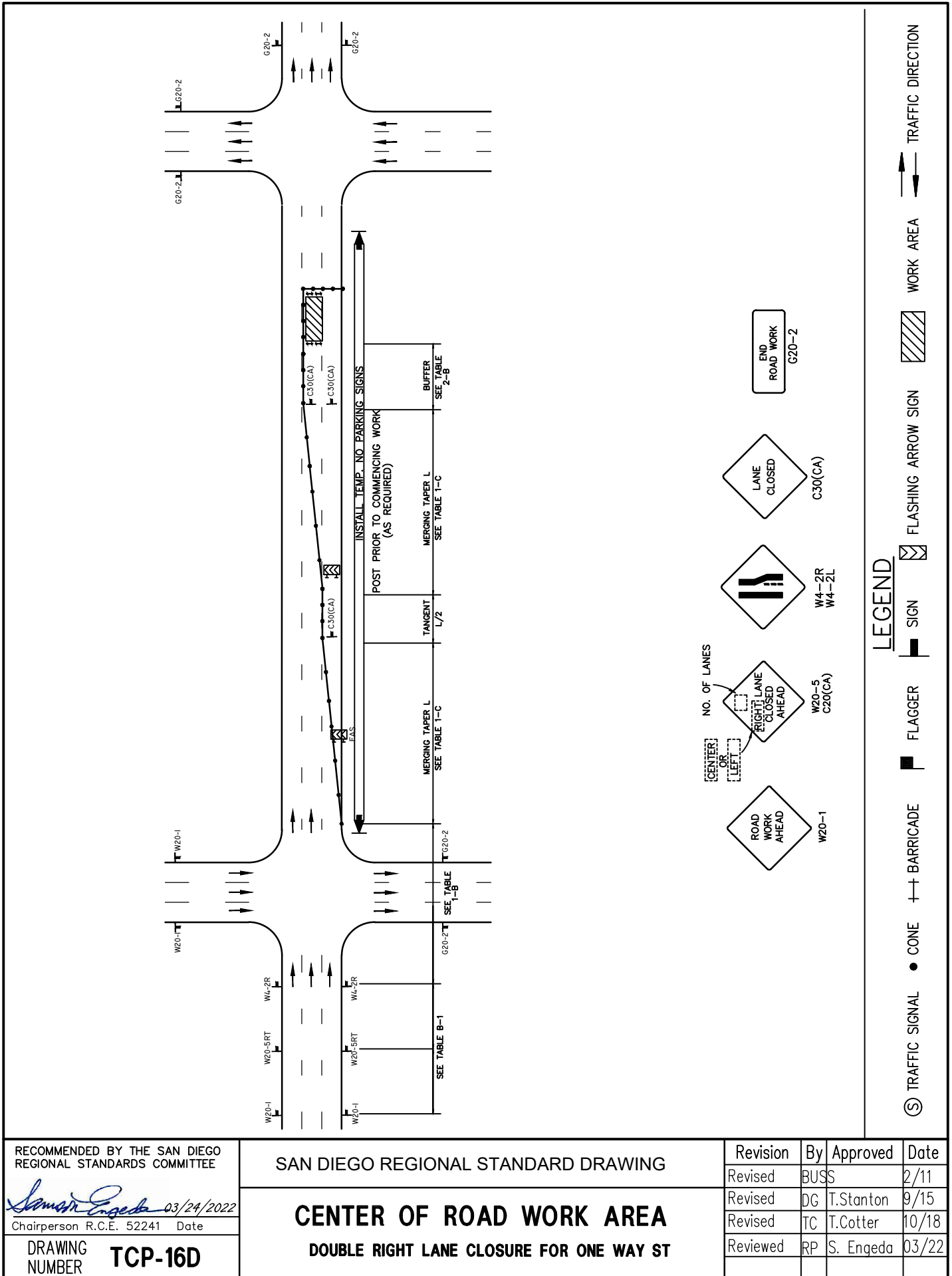
SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA SINGLE RIGHT LANE CLOSURE FOR ONE WAY ST

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Saman Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING NUMBER **TCP-16C**



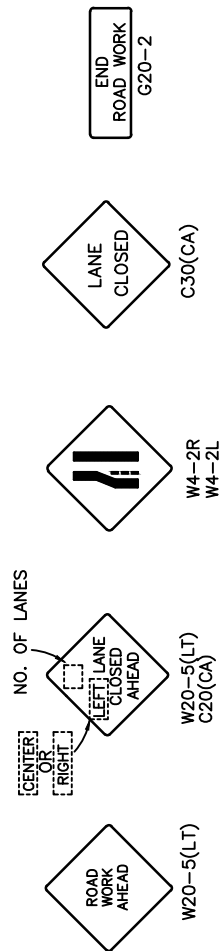
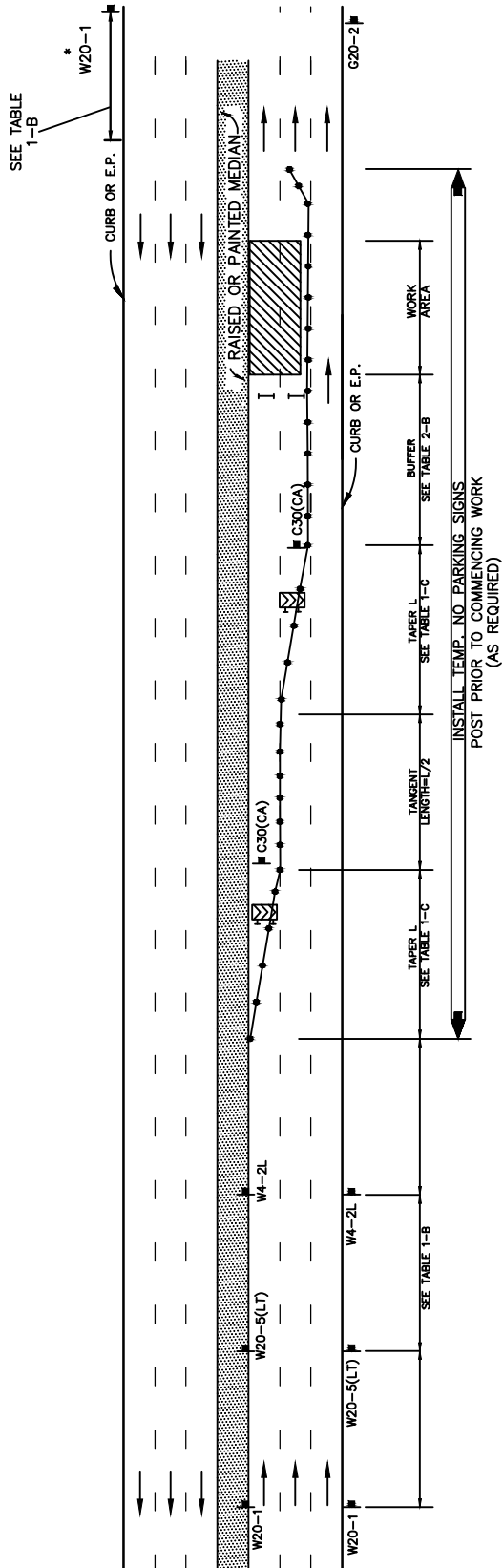
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samsir Engheda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **TCP-16D**

SAN DIEGO REGIONAL STANDARD DRAWING

CENTER OF ROAD WORK AREA **DOUBLE RIGHT LANE CLOSURE FOR ONE WAY ST**



LEGEND

- ⑤ TRAFFIC SIGNAL • CONE +-- BARRICADE FLAGGER SIGN FLASHING ARROW SIGN WORK AREA TRAFFIC DIRECTION

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

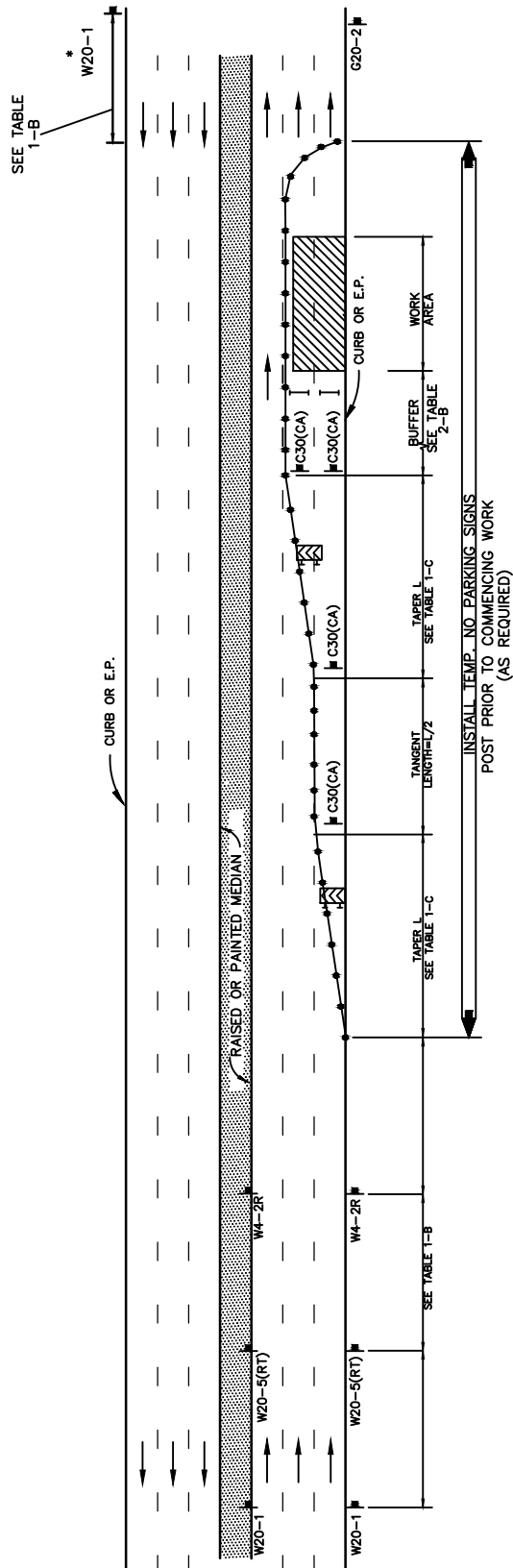
Samson Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING NUMBER TCP-20

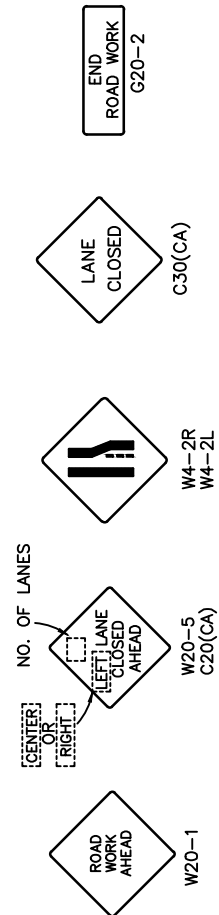
SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA MULTILANE ROADWAY WITH RAISED MEDIAN DOUBLE LEFT LANE CLOSURE

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Stanton	10/18
Reviewed	RP	S. Engeda	03/22



* OPTIONAL IF RAISED MEDIAN



LEGEND

- TRAFFIC SIGNAL
- CONE
- BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

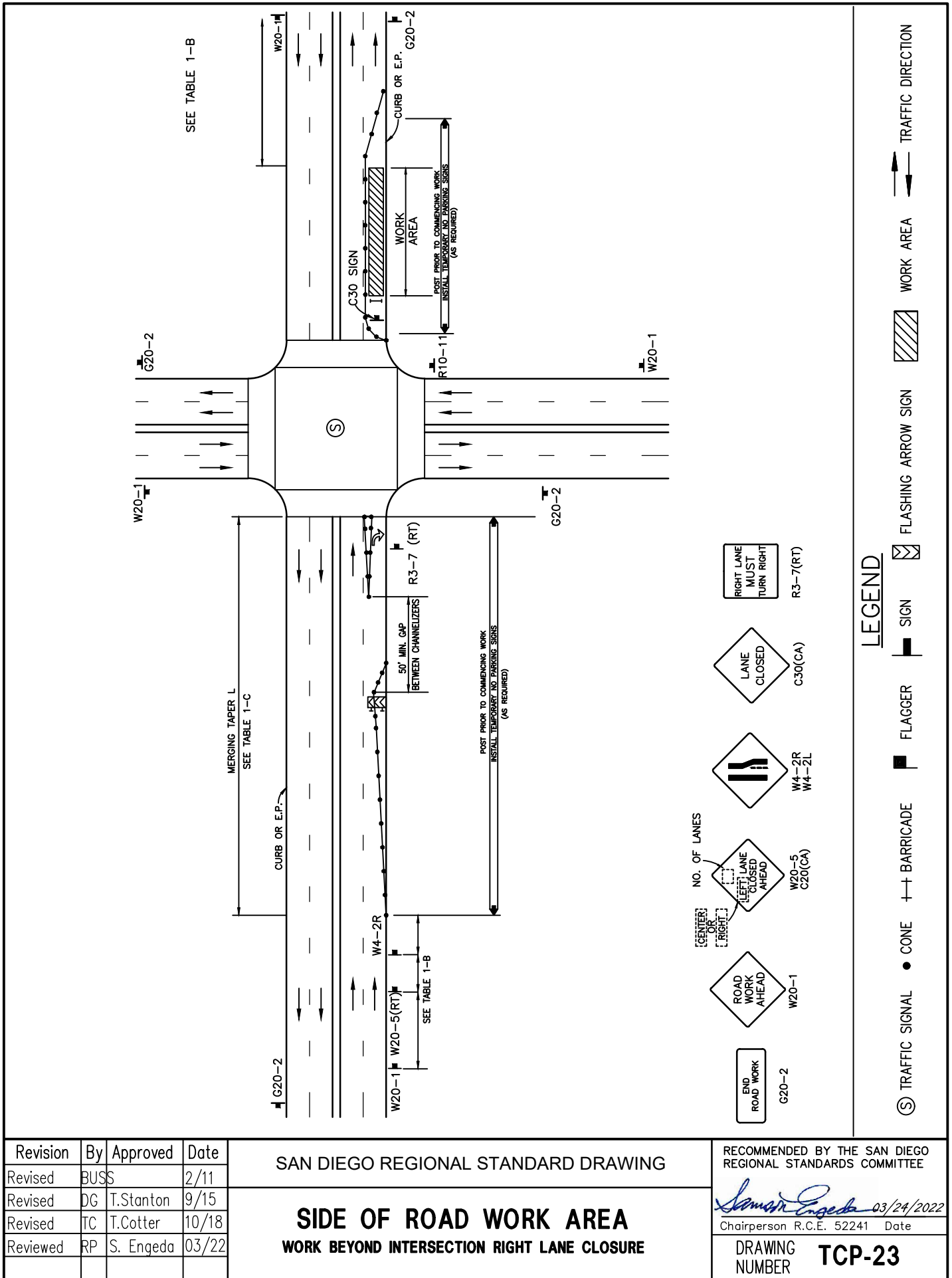
SAN DIEGO REGIONAL STANDARD DRAWING

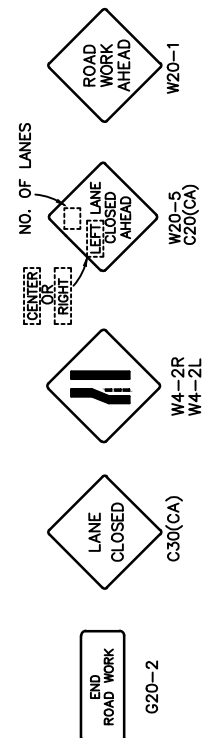
SIDE OF ROAD WORK AREA MULTILANE ROADWAY WITH RAISED MEDIAN DOUBLE RIGHT LANE CLOSURE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

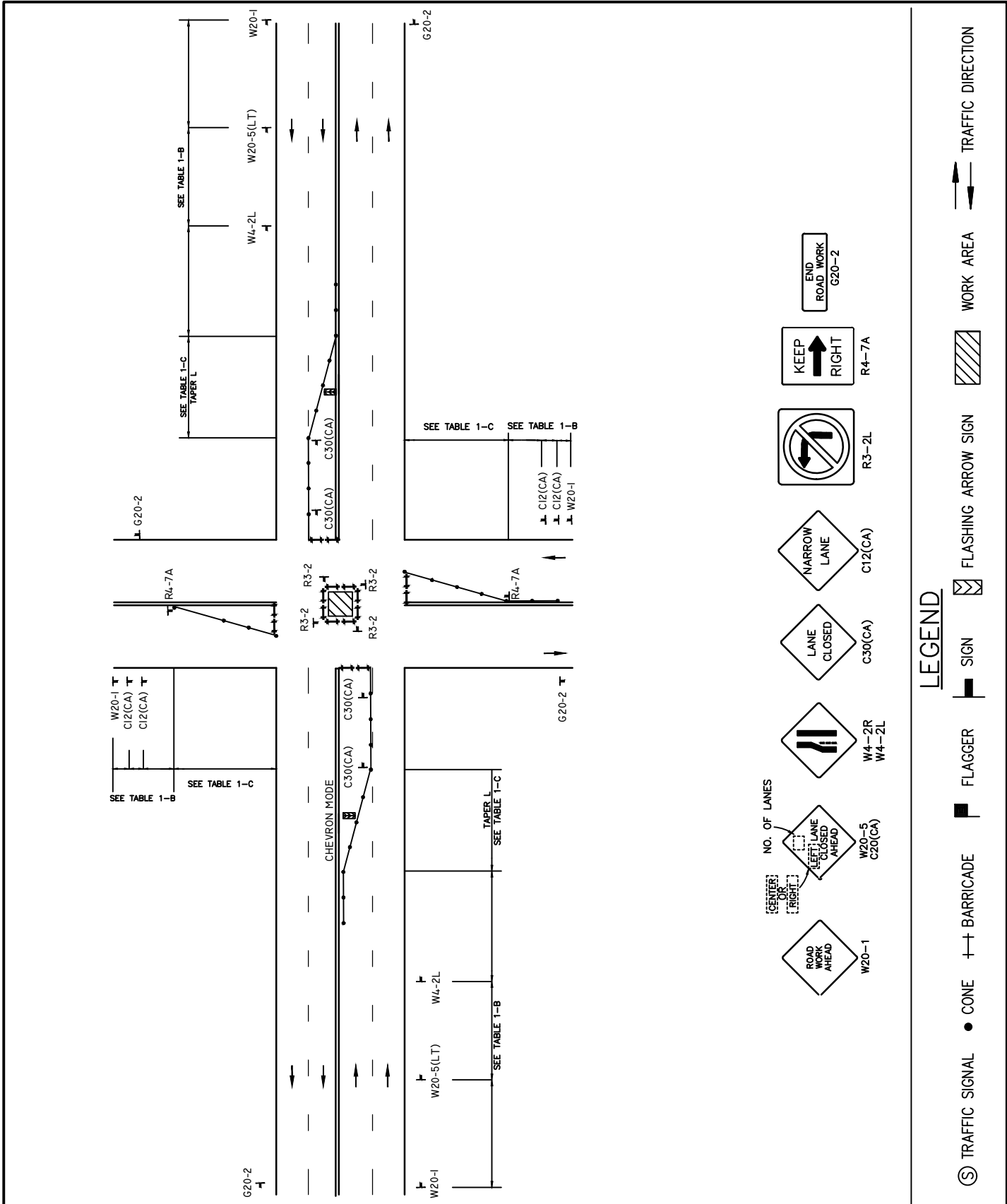
Sandra Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **TCP-21**

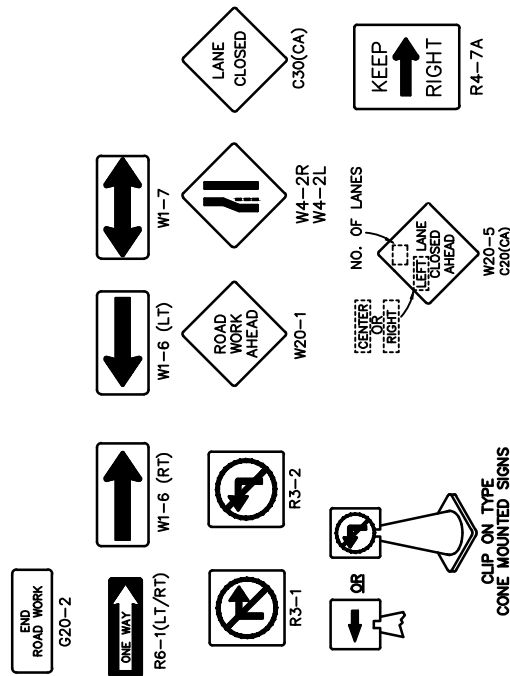
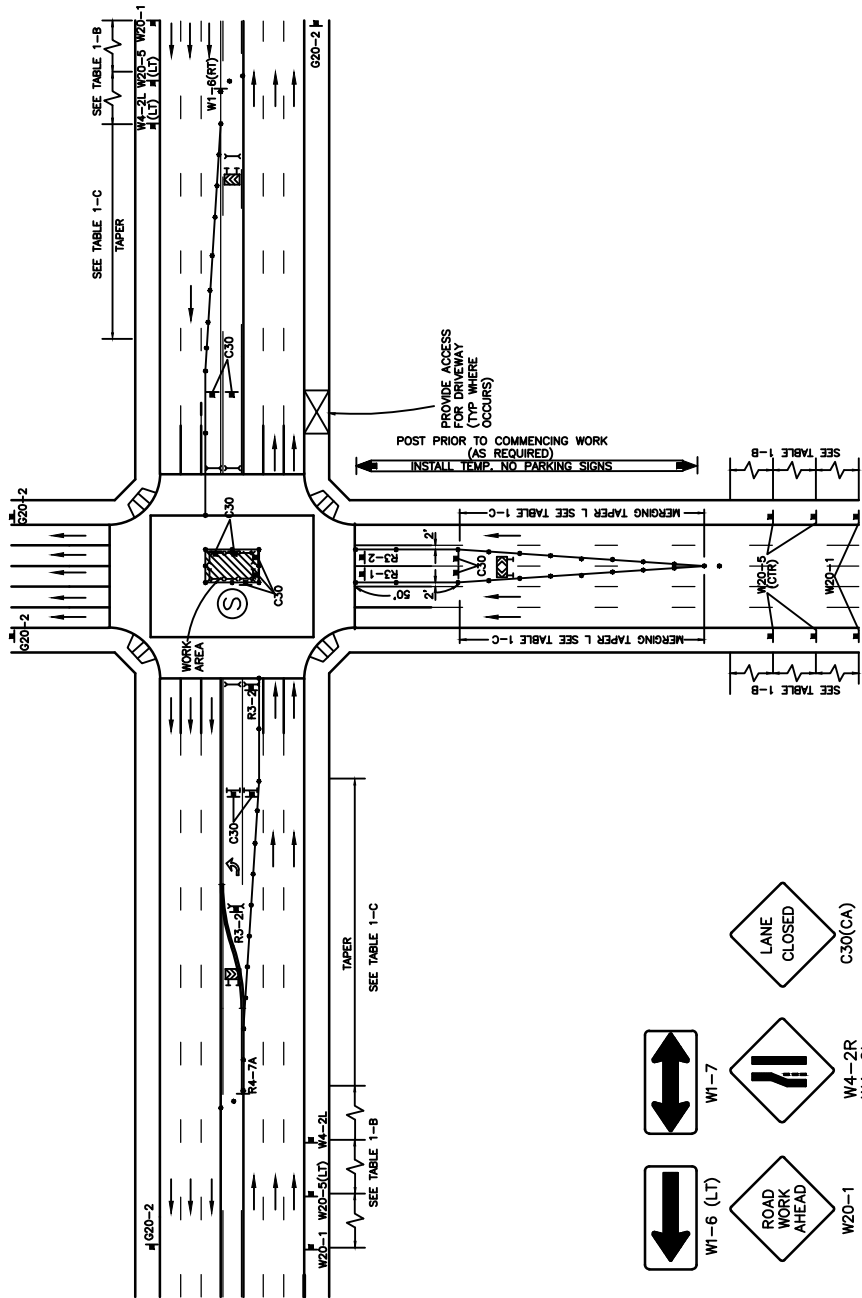




Revision	By	Approved	Date
Revised	Buss		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
Revised	BUSS		2/11				
Revised	DG	T.Stanton	9/15	INTERSECTION OF ROAD WORK AREA		<i>Samantha Engeda</i> 03/24/2022	
Revised	TC	T.Cotter	10/18			Chairperson R.C.E. 52241 Date	
Reviewed	RP	S. Engeda	03/22			DRAWING NUMBER TCP-27A	
				INTERSECTION TRAFFIC CONTROL			



LEGEND

- ⑤ TRAFFIC SIGNAL
- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samson Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

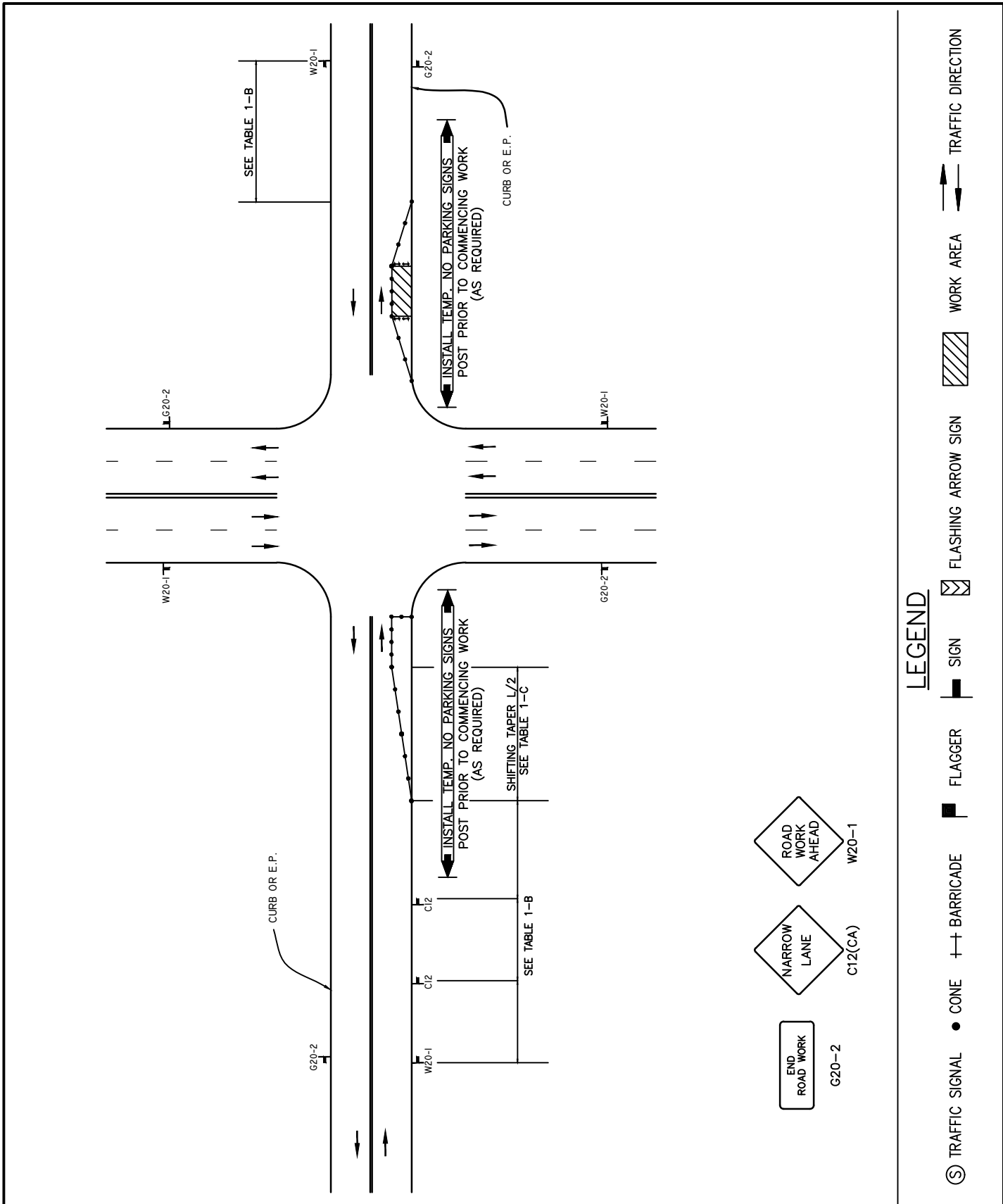
DRAWING
NUMBER **TCP-27B**

SAN DIEGO REGIONAL STANDARD DRAWING

INTERSECTION OF ROAD WORK AREA

MULTILANE MIDDLE INTERSECTION W/MEDIANS & TURNS

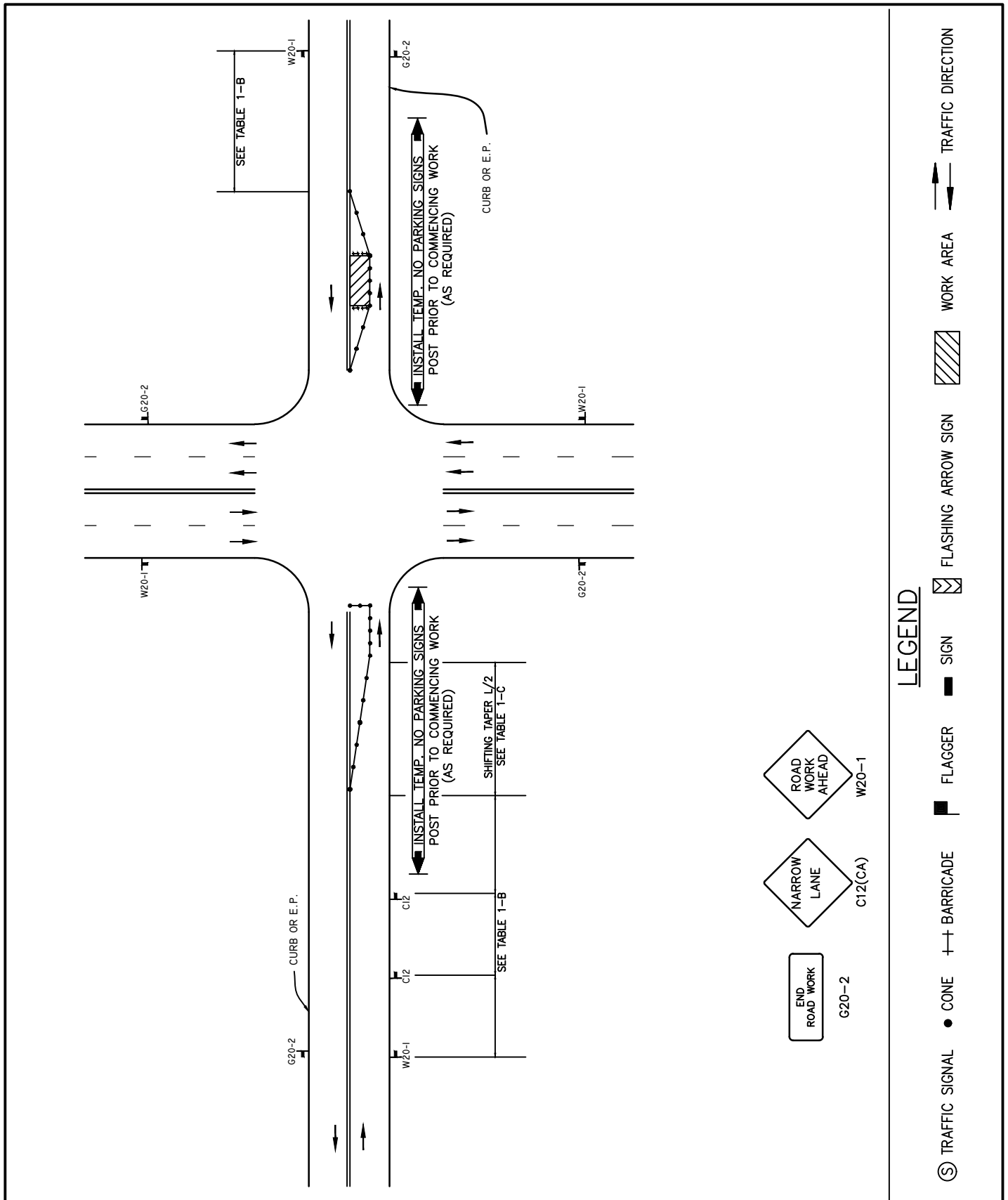
Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22



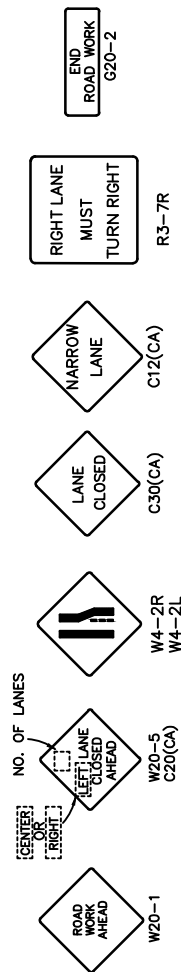
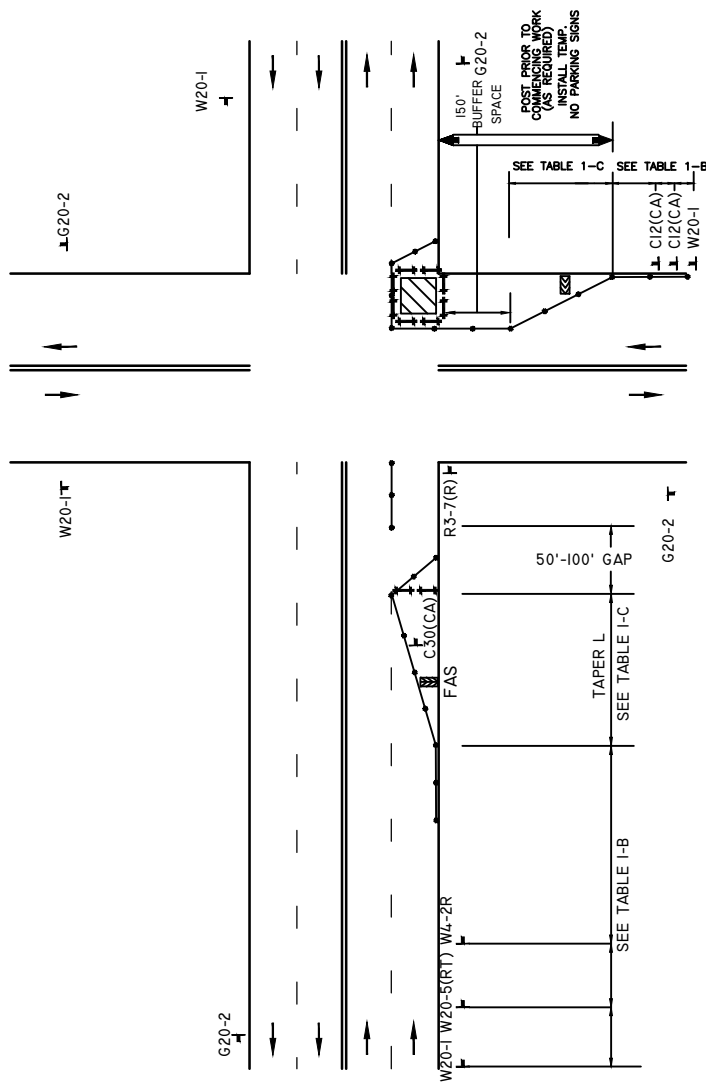
Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING	
SIDE OF ROAD WORK AREA	
WORK BEYOND INTERSECTION TRAFFIC CONTROL	
PARKING AREA CLOSED	

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	
Chairperson R.C.E. 52241 Date 03/24/2022	
DRAWING NUMBER	TCP-28



RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE <i>Samson Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date DRAWING NUMBER TCP-29	SAN DIEGO REGIONAL STANDARD DRAWING			
	SIDE OF ROAD WORK AREA			
	WORK BEYOND INTERSECTION PARKING AREA			
	Revision	By	Approved	Date
	Revised	BUSS		2/11
	Revised	DG	T.Stanton	9/15
	Revised	TC	T.Cotter	10/18
	Reviewed	RP	S. Engeda	03/22



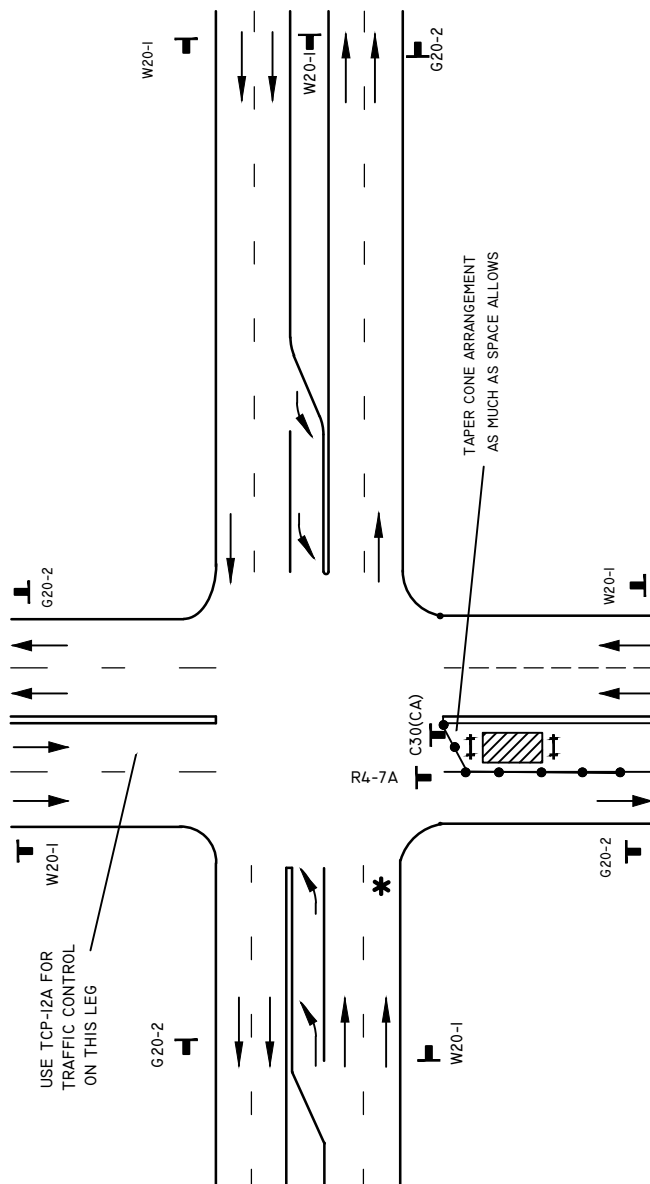
LEGEND

(S) TRAFFIC SIGNAL ● CONE +-+ BARRICADE ■ FLAGGER □ FLASHING ARROW SIGN ▨ WORK AREA → ← TRAFFIC DIRECTION

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING INTERSECTION OF ROAD WORK AREA INTERSECTION TRAFFIC CONTROL RIGHT LANE & SHOULDER CLOSED

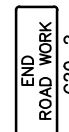
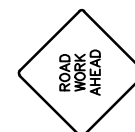
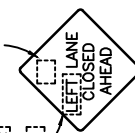
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
Susan Engeda 03/24/2022
 Chairperson R.C.E. 52241 Date
 DRAWING NUMBER **TCP-30**



* RIGHT TURN MOVES MAY BE RESTRICTED

NO. OF LANES

CENTER
OR
RIGHT



LEGEND

- ⑤ TRAFFIC SIGNAL
- CONE
- ++ BARRICADE
- FLAGGER
- ▨ FLASHING ARROW SIGN
- ▨ WORK AREA
- ↔ TRAFFIC DIRECTION

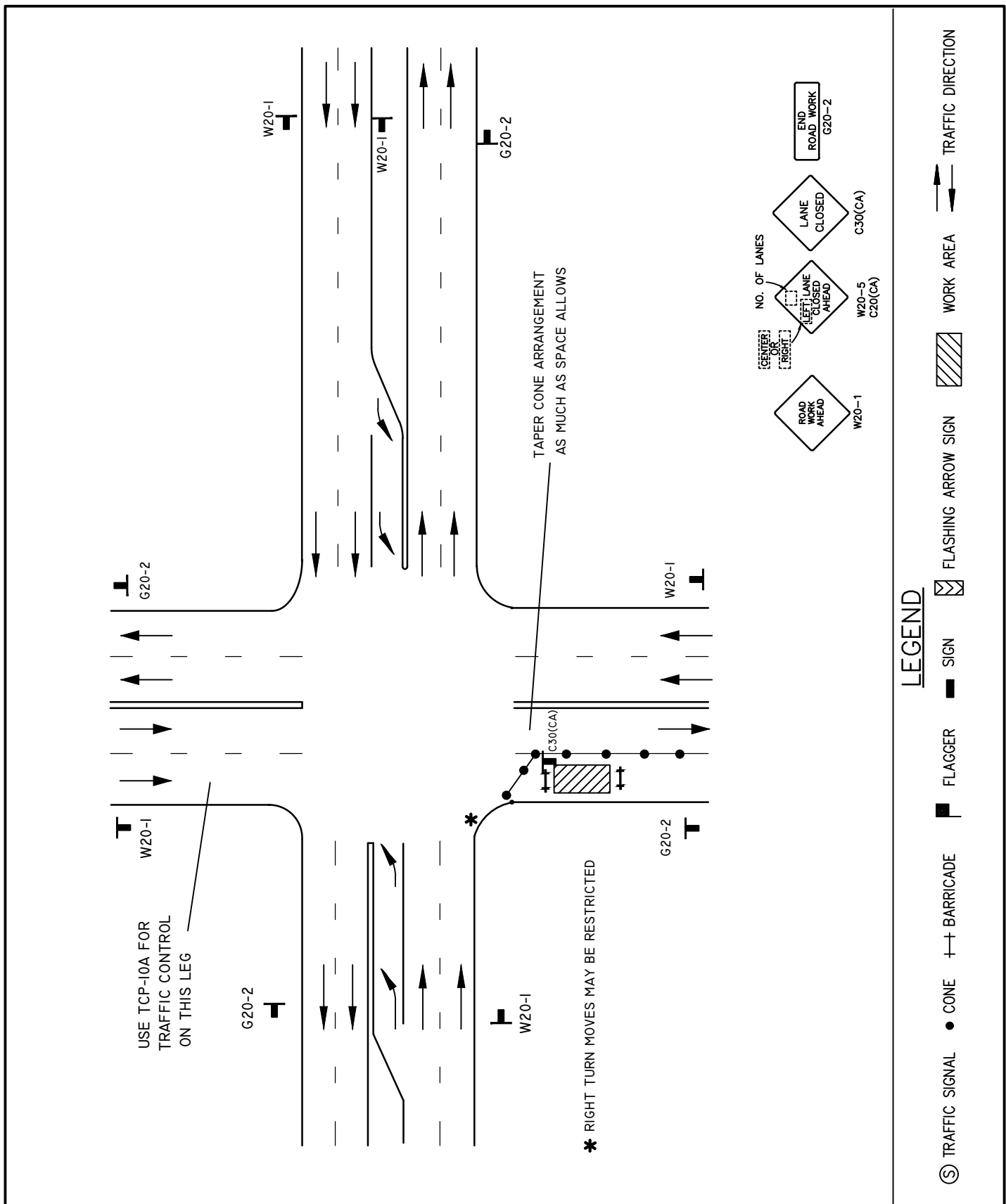
Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

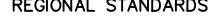
SAN DIEGO REGIONAL STANDARD DRAWING **CENTER OF ROAD WORK AREA** LEFT TURN INTERSECTION TRAFFIC CONTROL LEFT LANE CLOSED

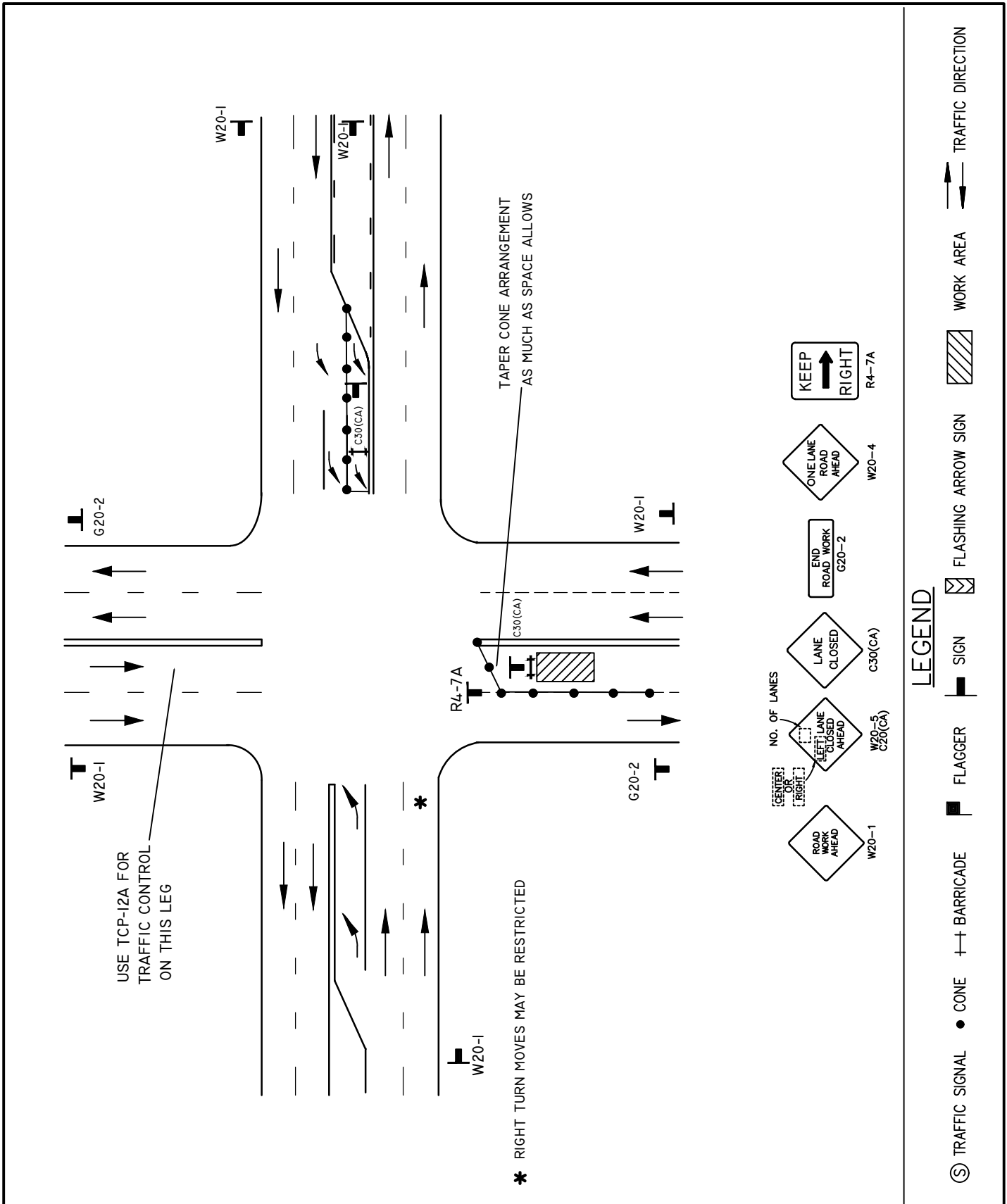
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING NUMBER **TCP-32**



RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE	SAN DIEGO REGIONAL STANDARD DRAWING	Revision	By	Approved	Date
 03/24/2022		Revised	BUSS		2/11
Chairperson R.C.E. 52241 Date	SIDE OF ROAD WORK AREA MULTILANE INTERSECTION TRAFFIC CONTROL RIGHT LANE CLOSED	Revised	DG	T.Stanton	9/15
DRAWING NUMBER TCP-33		Revised	TC	T.Cotter	10/18
		Reviewed	RP	S. Engeda	03/22



Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

CENTER OF ROAD WORK AREA

LEFT TURN INTERSECTION TRAFFIC CONTROL

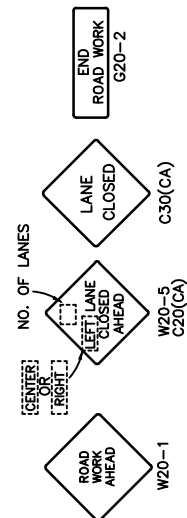
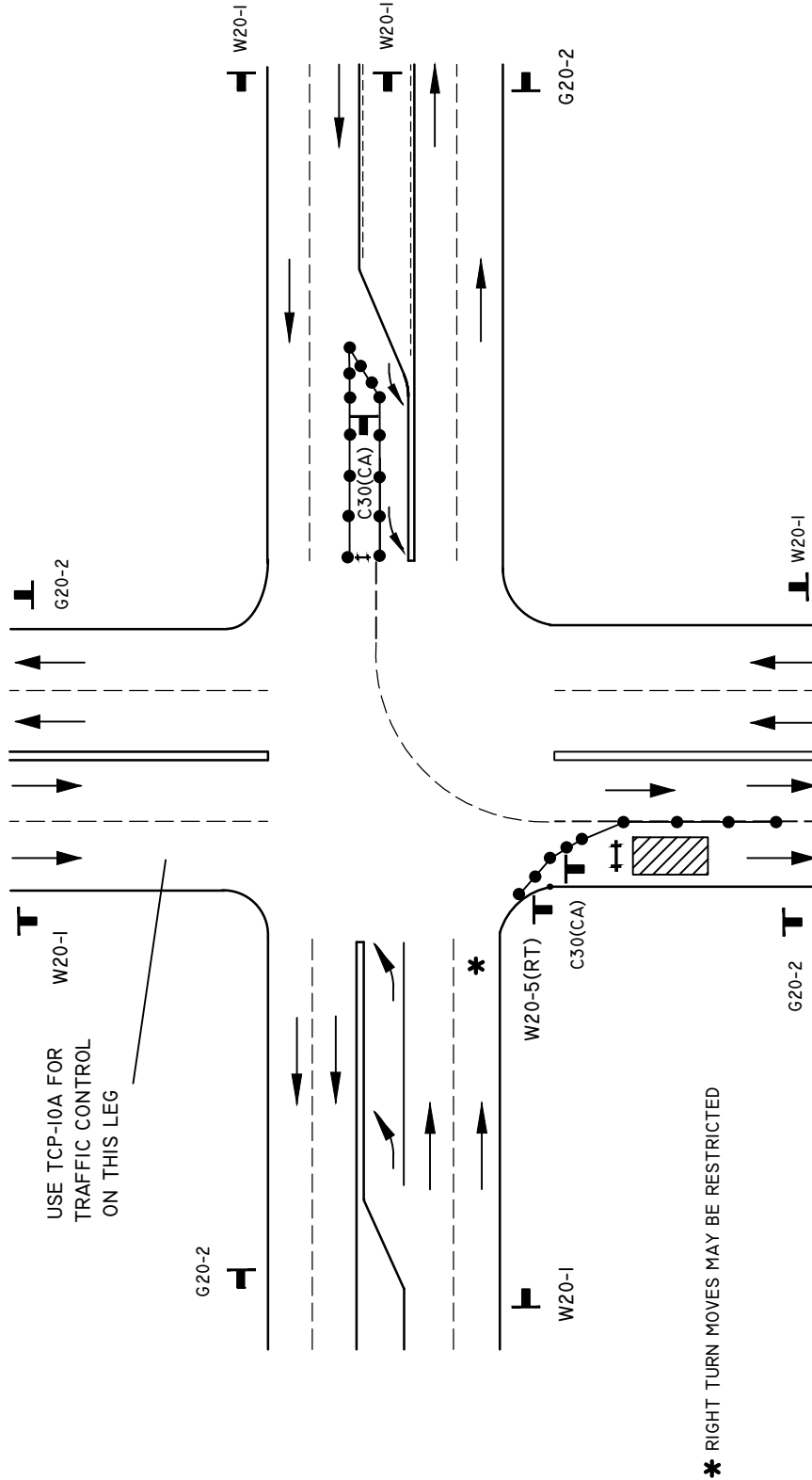
LEFT TURN LANE AND LEFT LANE CLOSED

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022

Chairperson R.C.E. 52241 Date

DRAWING NUMBER **TCP-34**



LEGEND

- ⑤ TRAFFIC SIGNAL
- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

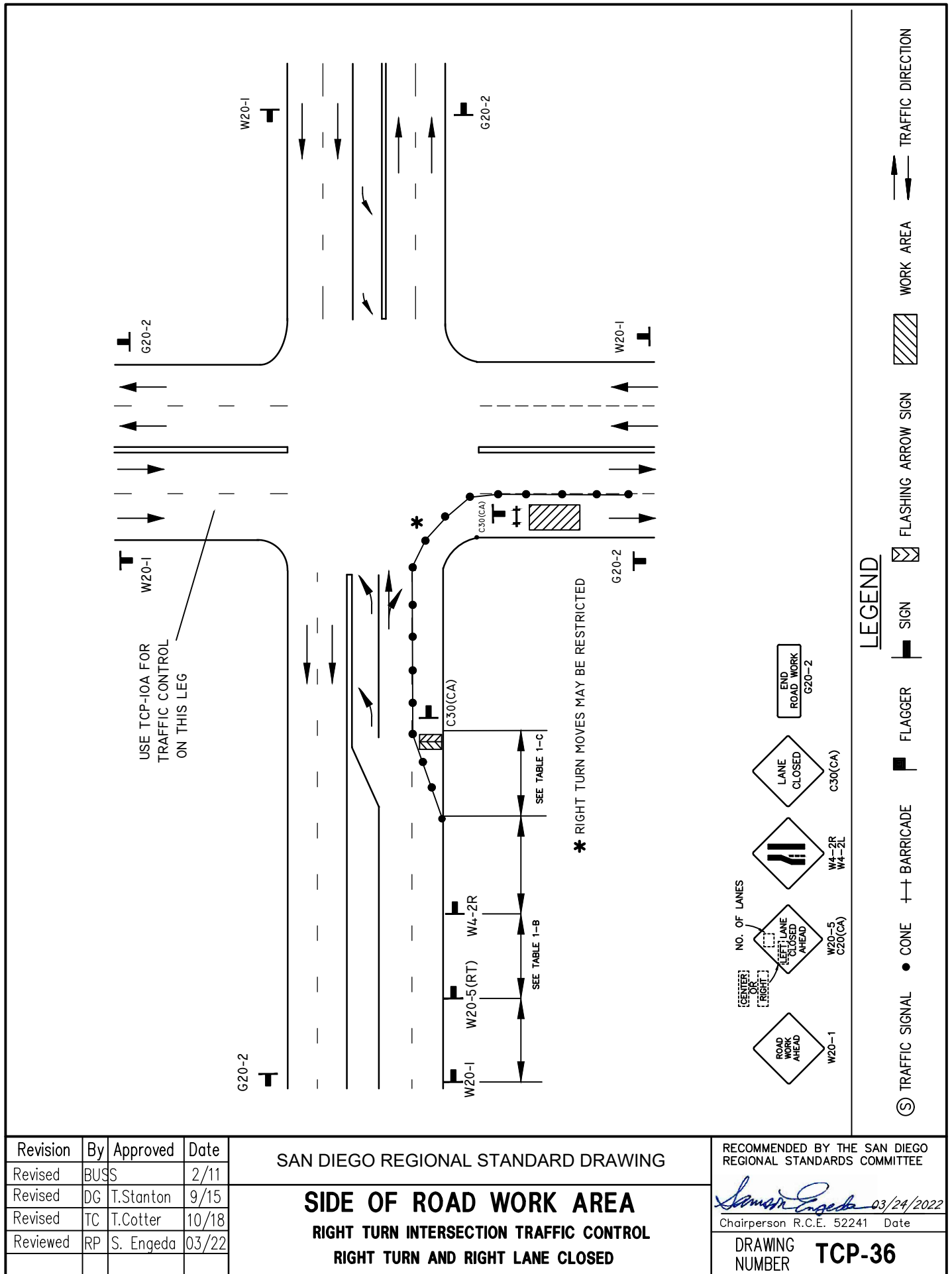
Samson Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

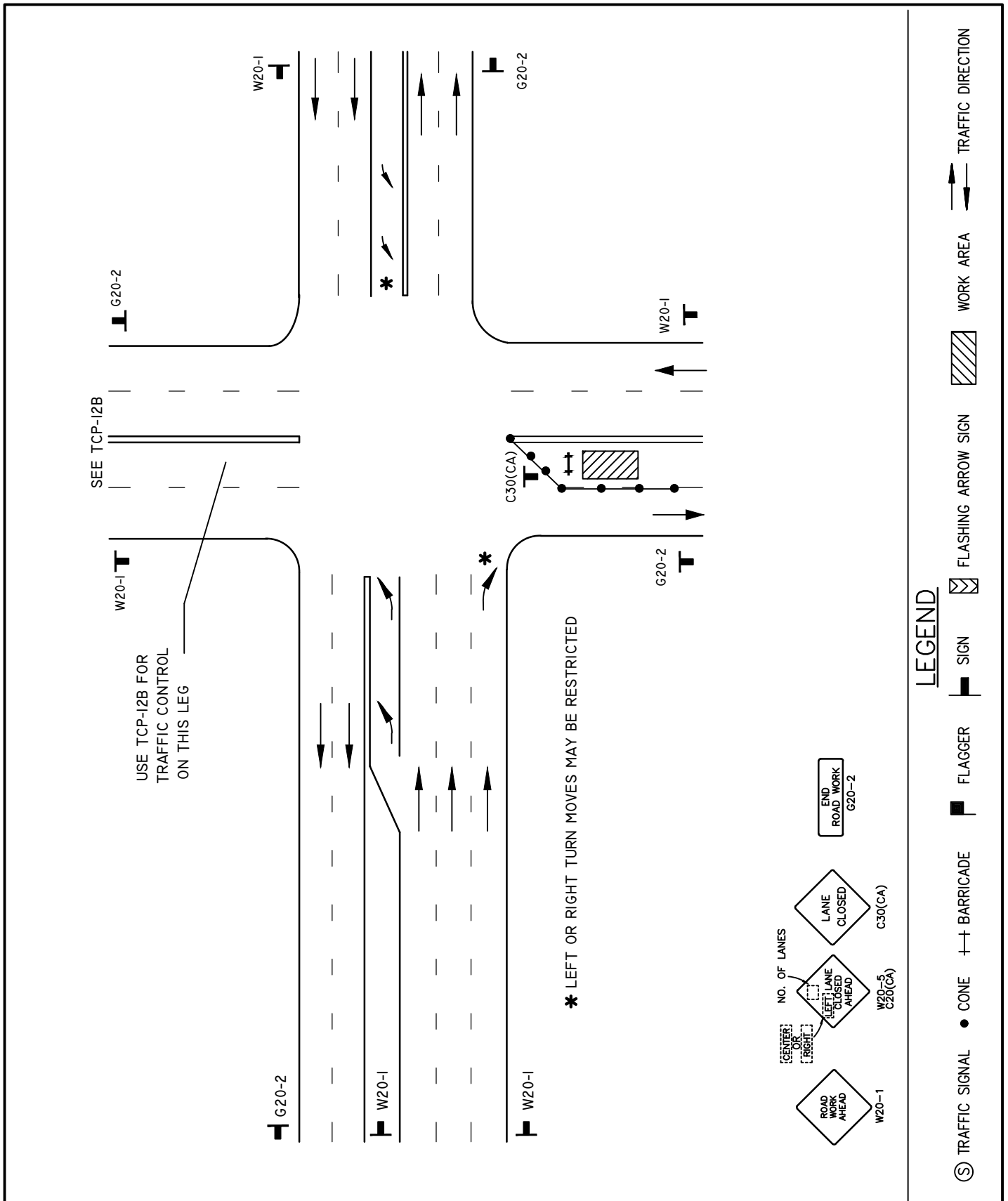
DRAWING NUMBER **TCP-35**

SAN DIEGO REGIONAL STANDARD DRAWING

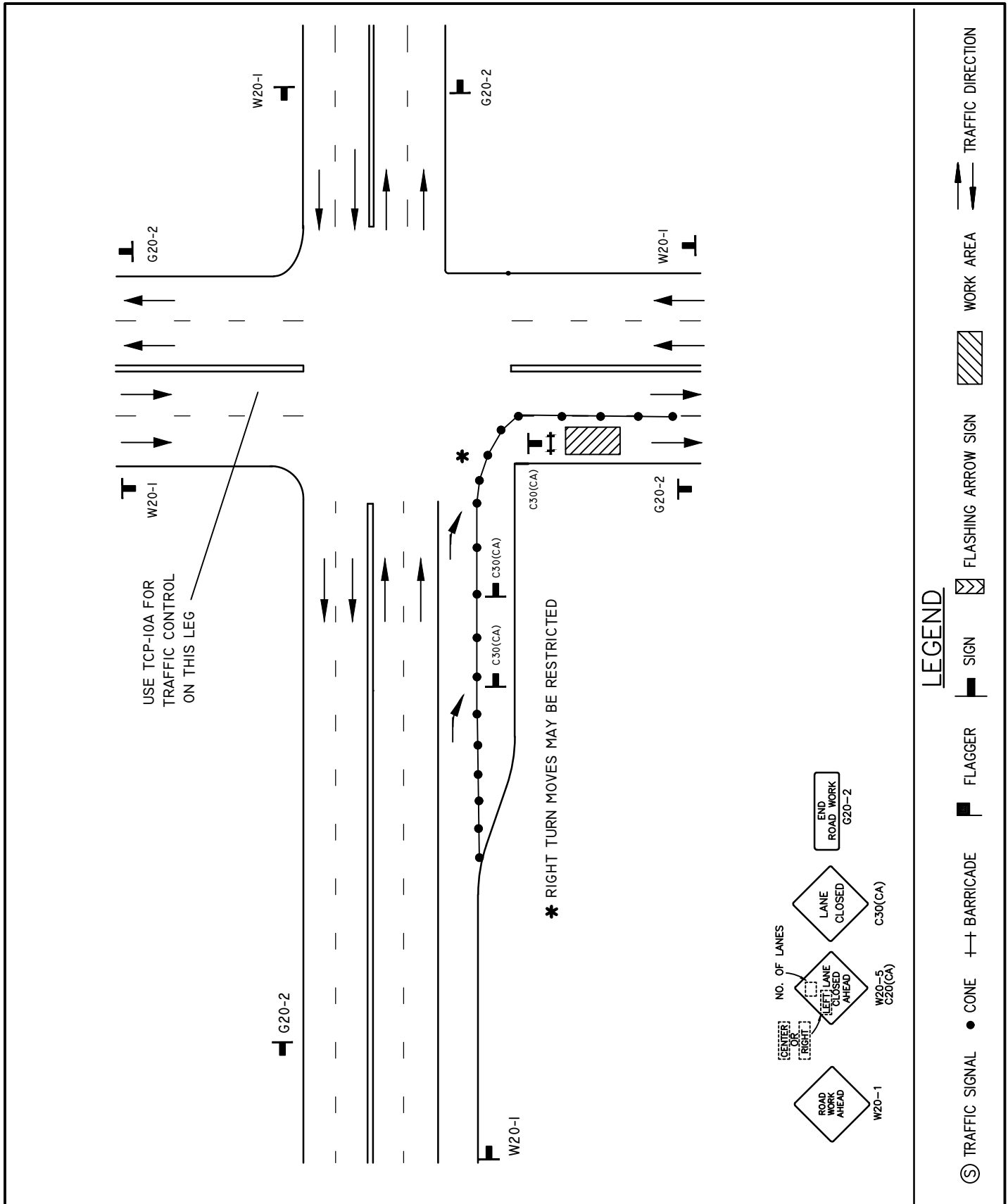
SIDE OF ROAD WORK AREA **INTERSECTION TRAFFIC CONTROL** **LEFT TURN LANE AND RIGHT LANE CLOSED**

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

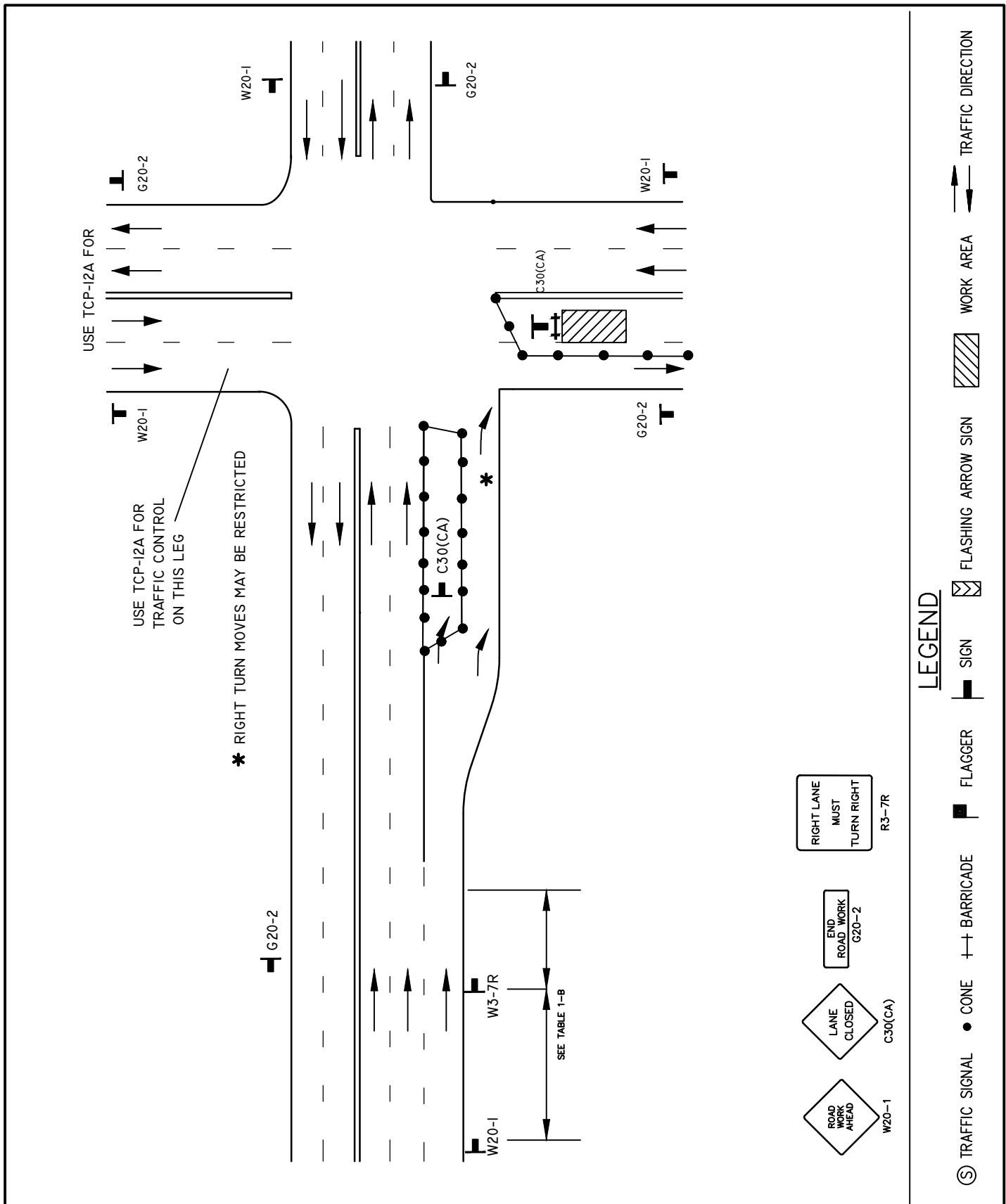




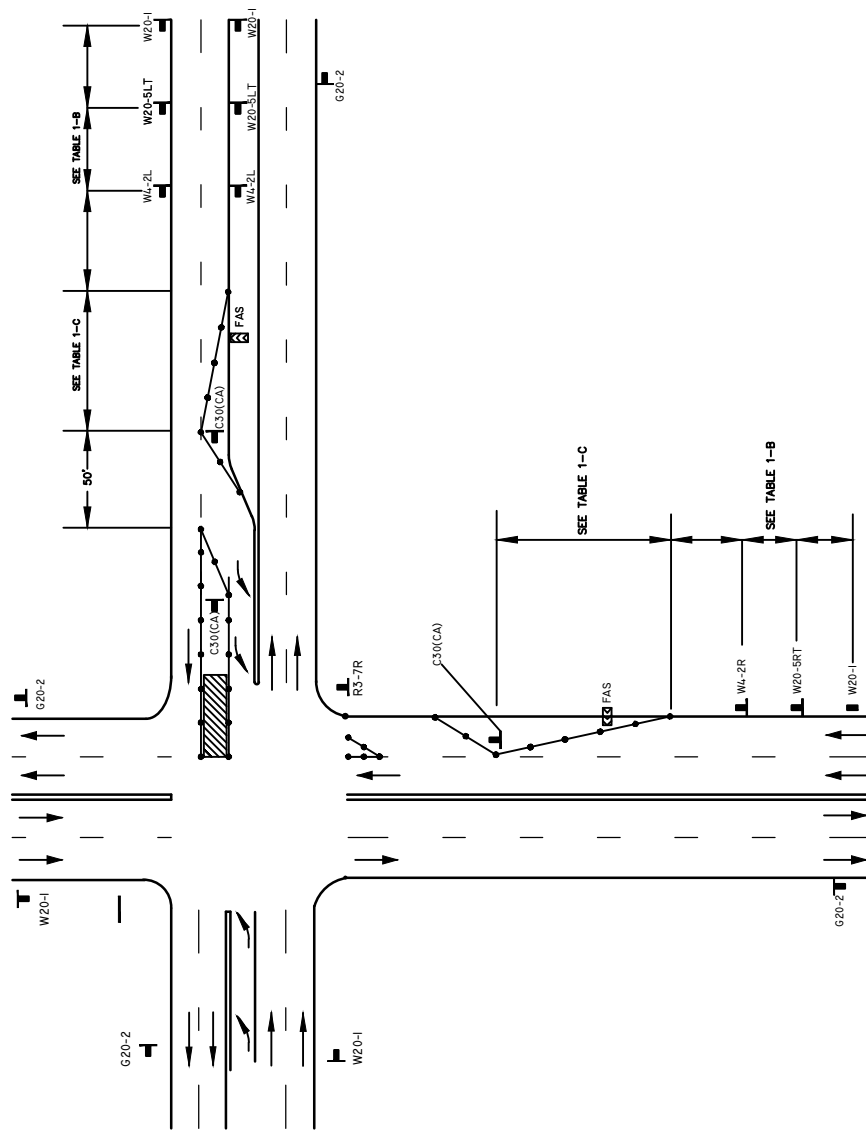
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  03/24/2022 Chairperson R.C.E. 52241 Date DRAWING NUMBER TCP-37	SAN DIEGO REGIONAL STANDARD DRAWING CENTER OF ROAD WORK AREA MULTILANE INTERSECTION TRAFFIC CONTROL LEFT LANE CLOSED	Revision	By	Approved	Date
		Revised	BUSS		2/11
		Revised	DG	T.Stanton	9/15
		Revised	TC	T.Cotter	10/18
		Reviewed	RP	S. Engeda	03/22



Revision	By	Approved	Date	SAN DIEGO REGIONAL STANDARD DRAWING		RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE
Revised	BUSS		2/11	SIDE OF ROAD WORK AREA RIGHT TURN INTERSECTION TRAFFIC CONTROL RIGHT TURN LANE AND RIGHT LANE CLOSED		<i>Samson Engeda</i> 03/24/2022 Chairperson R.C.E. 52241 Date
Revised	DG	T.Stanton	9/15			
Revised	TC	T.Cotter	10/18			
Reviewed	RP	S. Engeda	03/22			
						DRAWING NUMBER TCP-38



RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  03/24/2022 Chairperson R.C.E. 52241 Date DRAWING NUMBER TCP-39	SAN DIEGO REGIONAL STANDARD DRAWING	Revision	By	Approved	Date	
	CENTER OF ROAD WORK AREA RIGHT TURN INTERSECTION TRAFFIC CONTROL	Revised	BUSS			2/11
		Revised	DG		T.Stanton	9/15
		Revised	TC		T.Cotter	10/18



- W20-1
- W20-5
C20(CA)
- W4-2R
W4-2L
- C30(CA)
- G20-2
- R3-7R

LEGEND

- TRAFFIC SIGNAL
- CONE
- BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

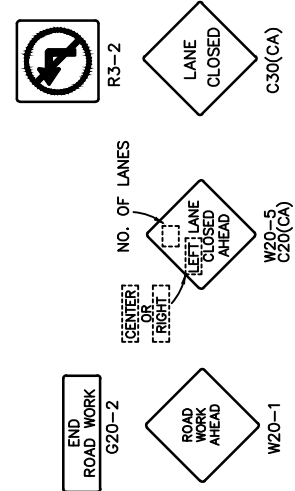
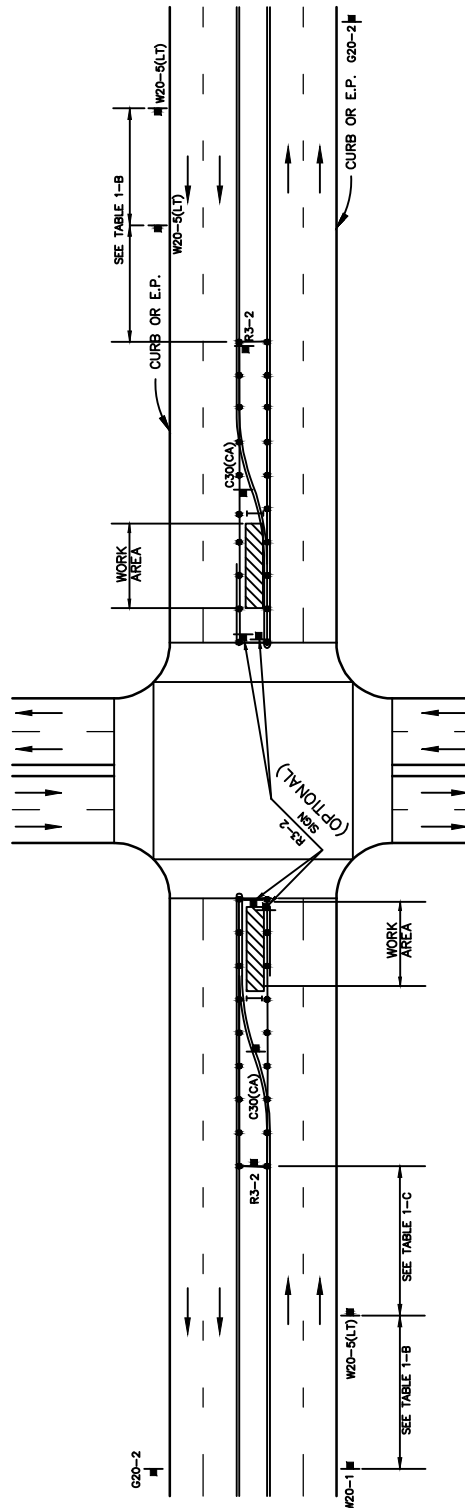
INTERSECTION OF ROAD WORK AREA

MULTI-LANE INTERSECTION LANE REDUCTIONS

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING NUMBER **TCP-40**



LEGEND

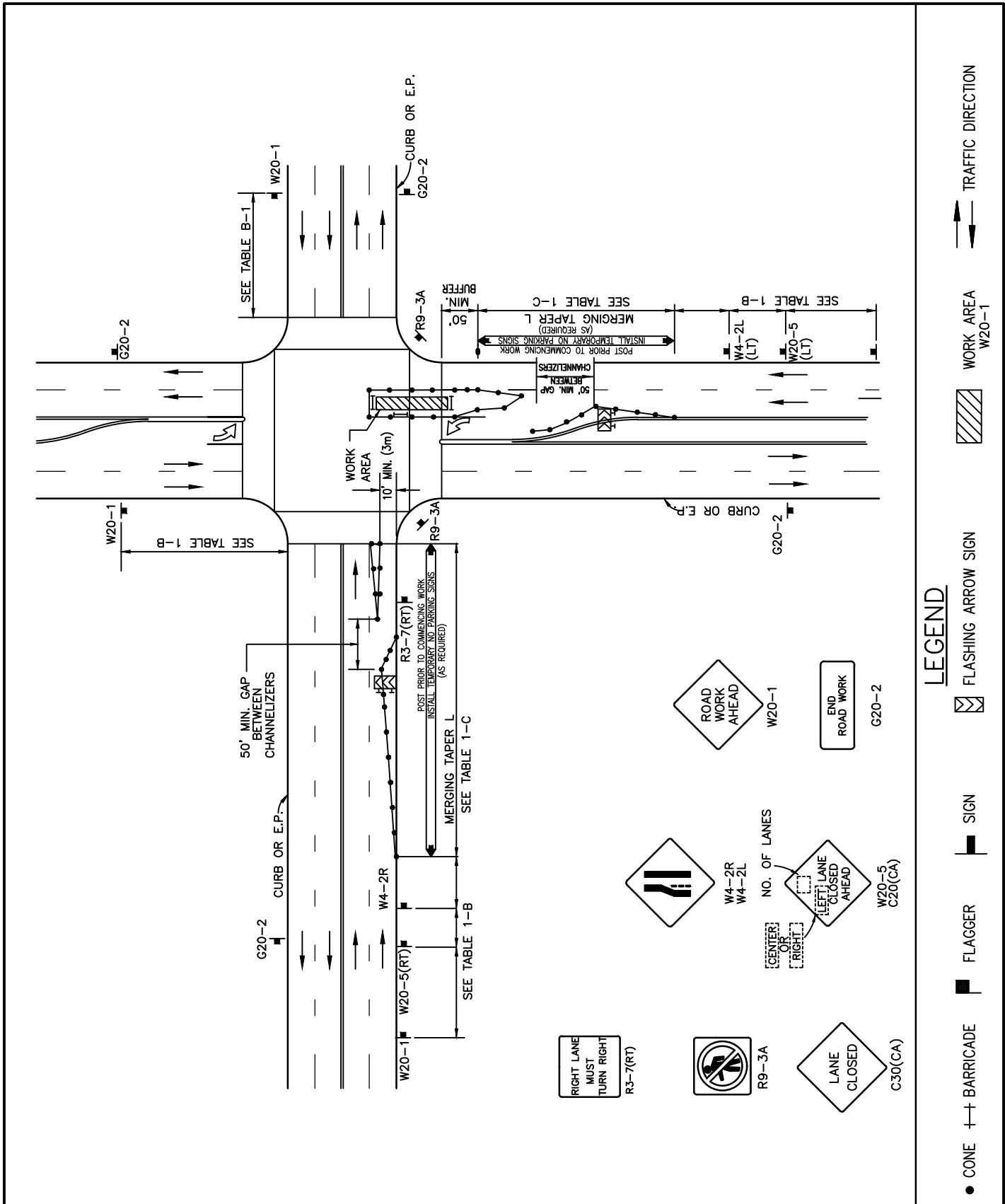
RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **TCP-41**

SAN DIEGO REGIONAL STANDARD DRAWING **CENTER OF ROAD WORK AREA** WORK BEYOND INTERSECTION LEFT TURN LANE CLOSURE

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22



Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

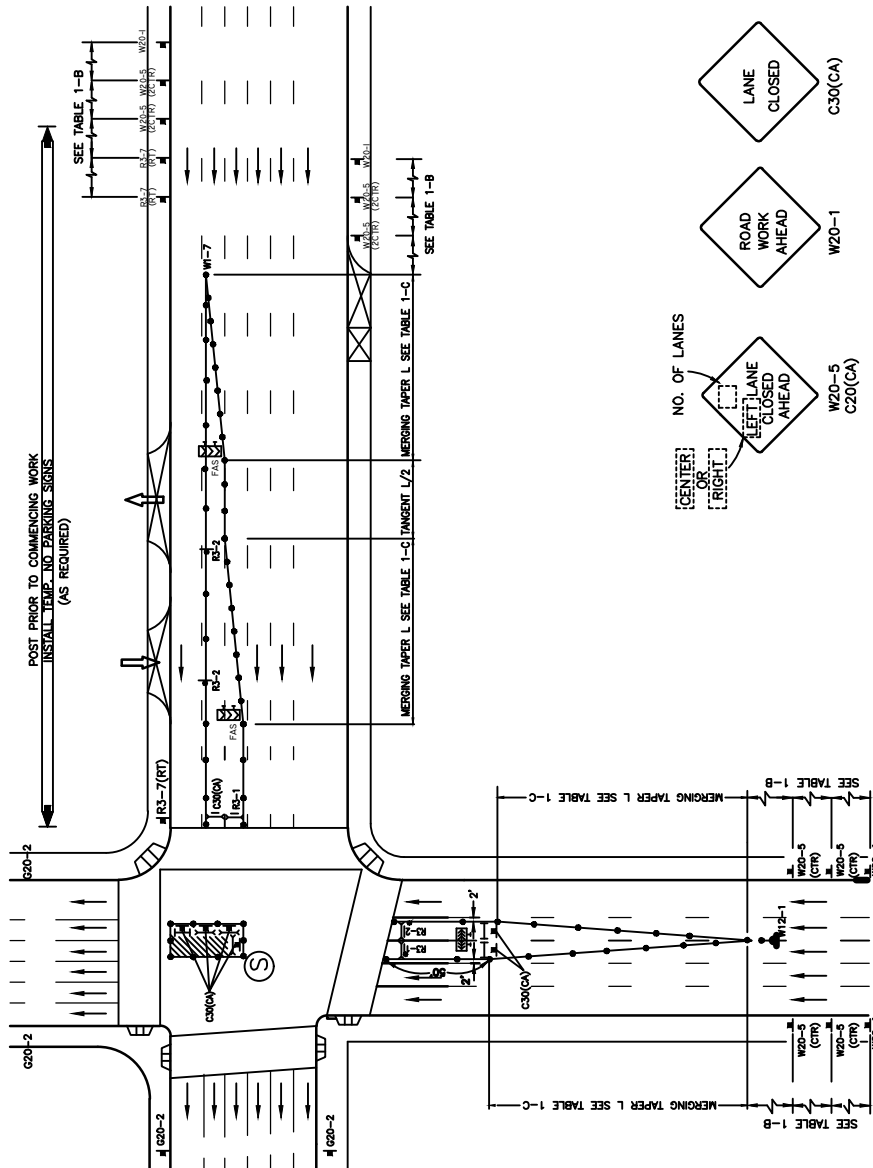
SAN DIEGO REGIONAL STANDARD DRAWING

CENTER OF ROAD WORK AREA
WORK WITHIN INTERSECTION
RIGHT LANE /LEFT LANE CLOSURE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Susan Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING NUMBER **TCP-42**



NO. OF LANES
[CENTER] OR [RIGHT]

RIGHT LANE
MUST
TURN RIGHT
R3-7(RT)

R3-2

R3-1

LANE
CLOSED
C30(CA)

ROAD
WORK
AHEAD
W20-1

W20-5
C20(CA)

W12-1

END
ROAD
WORK
G20-2

W1-7

ONE WAY
R6-1(LT/RT)

LEGEND

- ⑤ TRAFFIC SIGNAL
- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

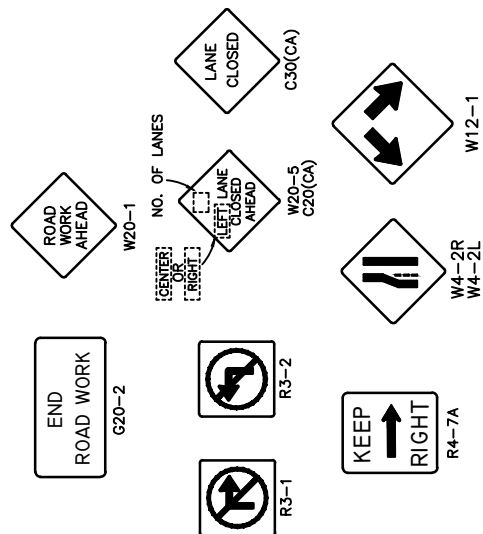
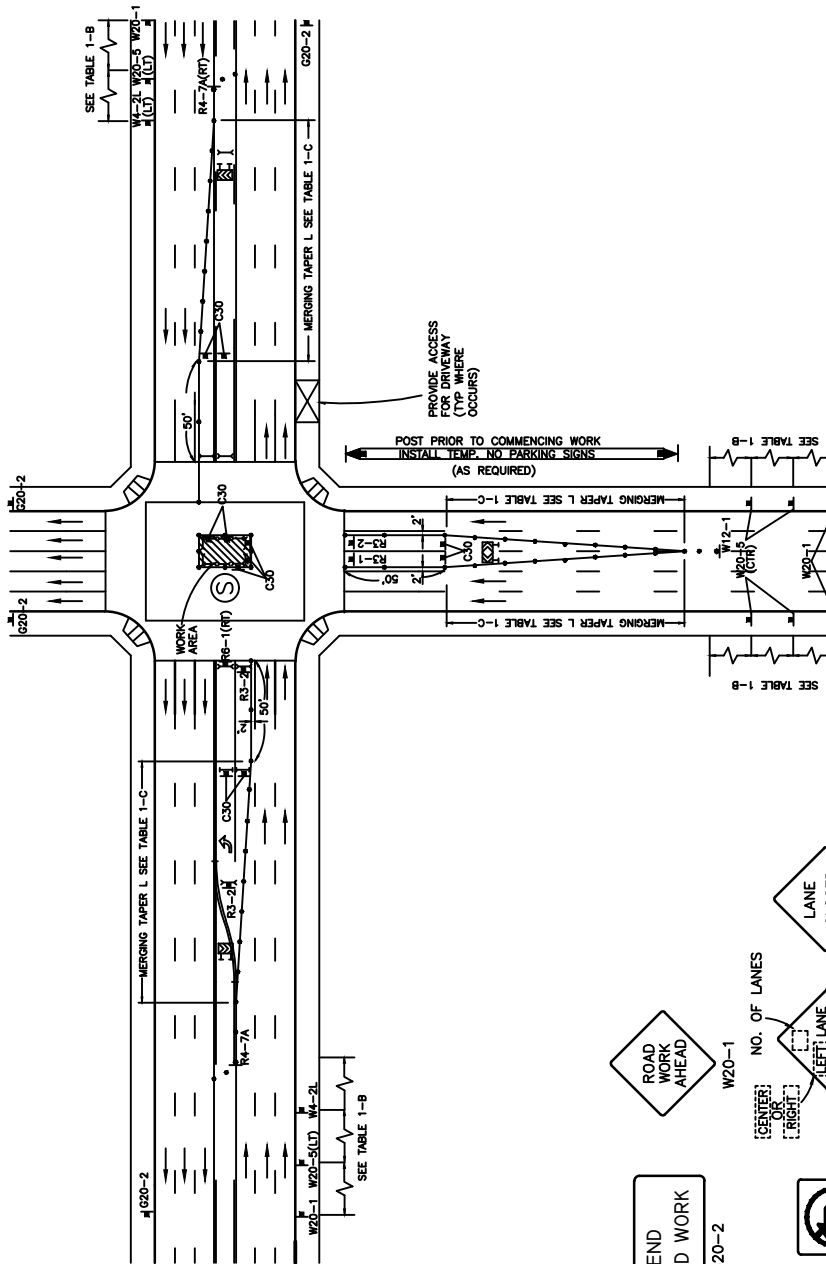
DRAWING
NUMBER **TCP-43**

SAN DIEGO REGIONAL STANDARD DRAWING

CENTER OF ROAD WORK AREA

RIGHT LANE/CENTER LANE CLOSURE ONE WAY

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22



Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

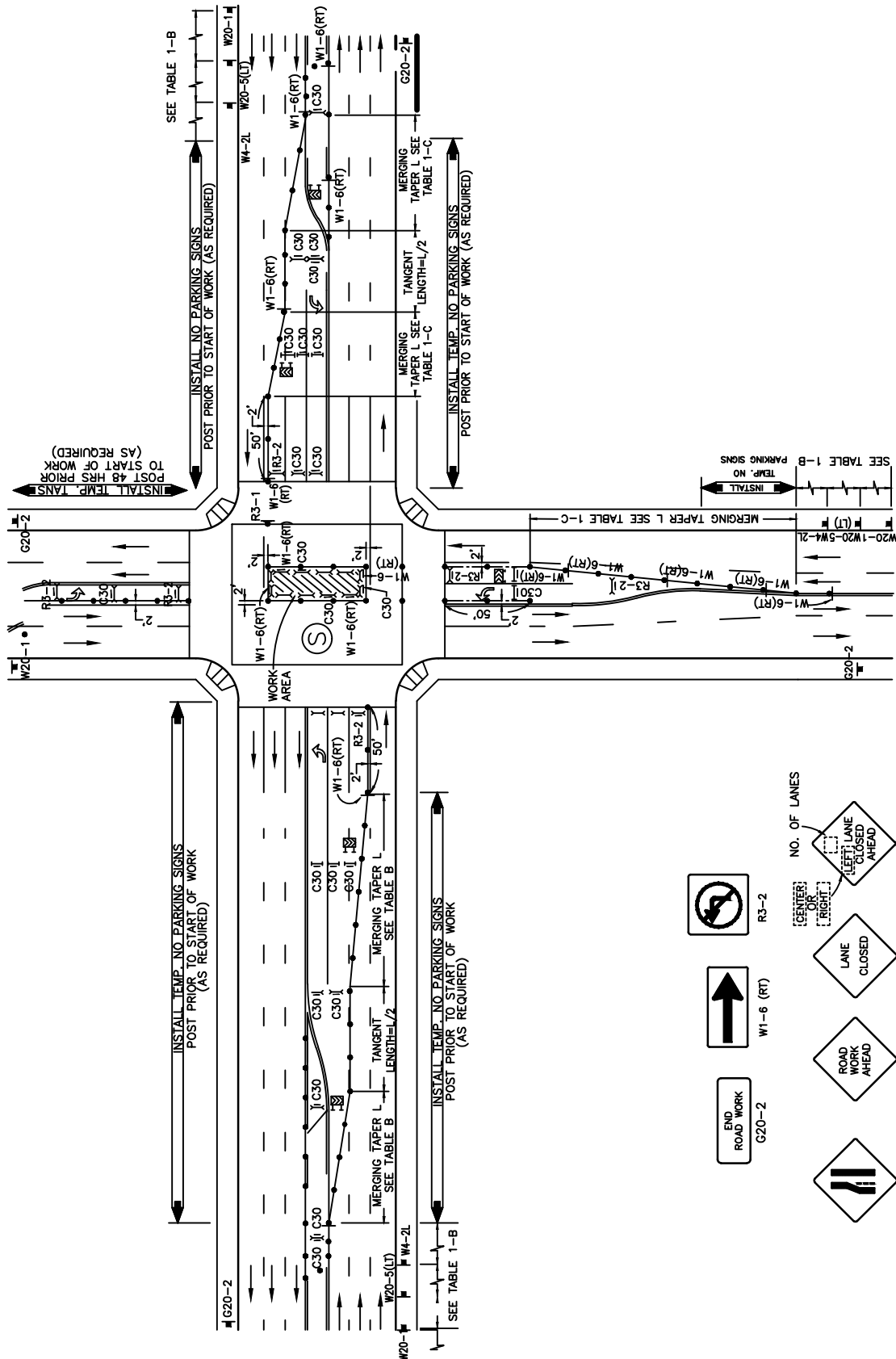
CENTER OF ROAD WORK AREA

LEFT AND CENTER LANE CLOSURES

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

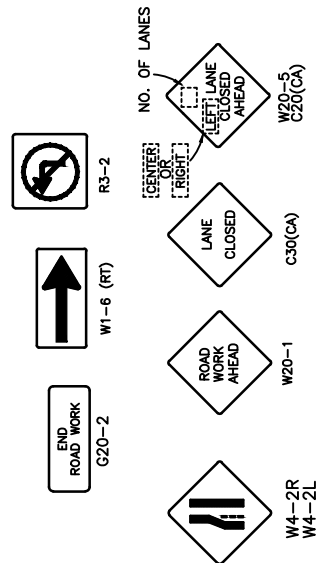
Samsen Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING NUMBER **TCP-44**



LEGEND

- (S) TRAFFIC SIGNAL
- CONE
- BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION



Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

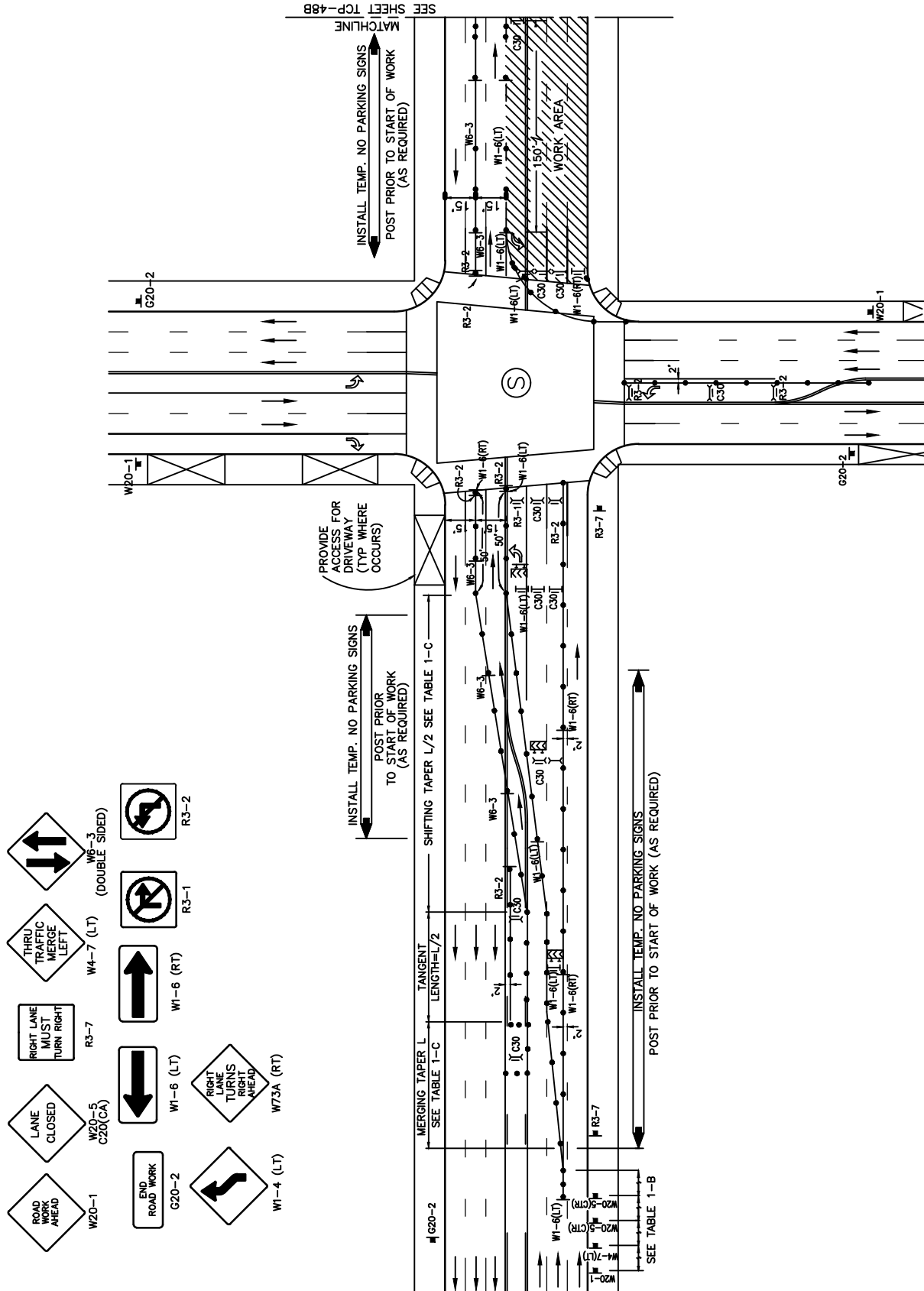
SAN DIEGO REGIONAL STANDARD DRAWING

CENTER OF ROAD WORK AREA RIGHT & LEFT LANES CLOSED

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Saman Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **TCP-46**

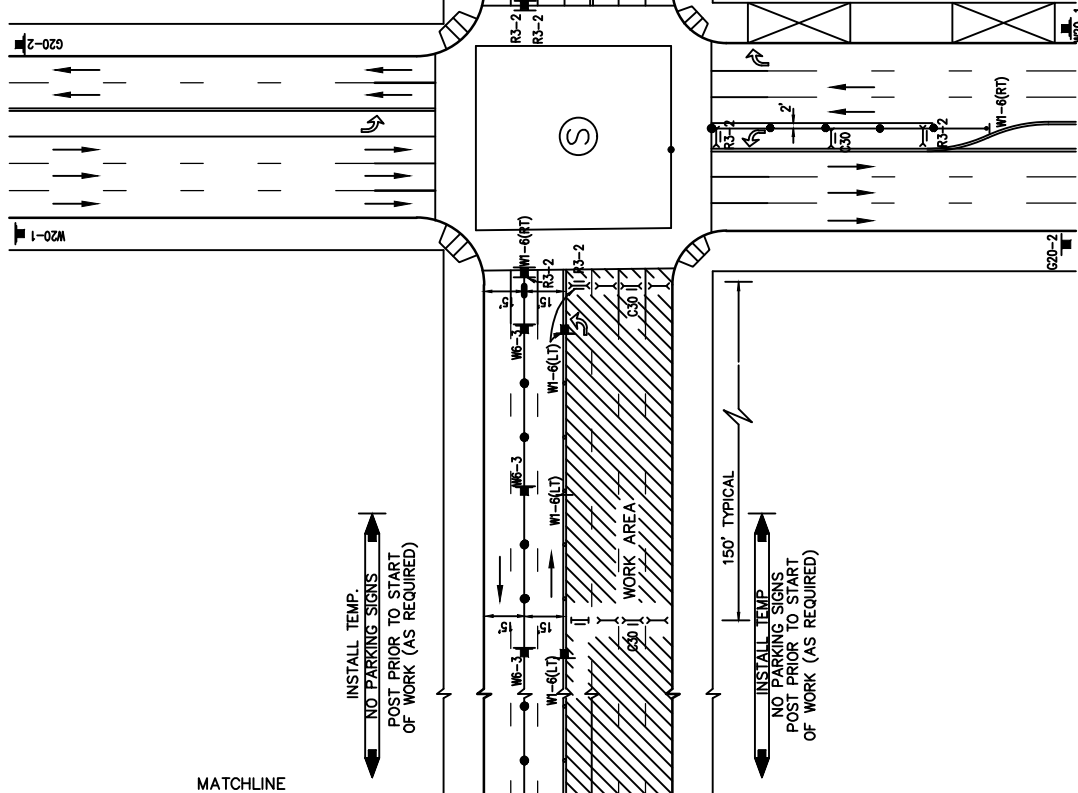
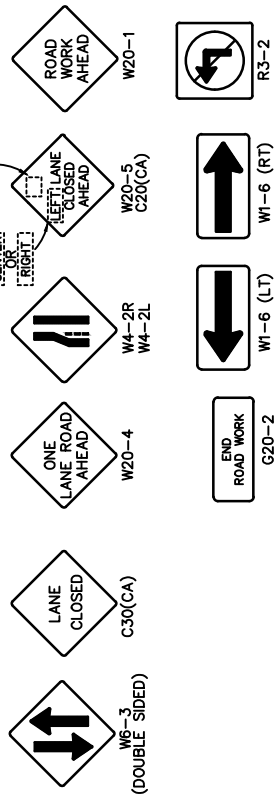


- ⑤ TRAFFIC SIGNAL ● CONE + BARRICADE FLAGGER SIGN FLASHING ARROW SIGN WORK AREA TRAFFIC DIRECTION

SAN DIEGO REGIONAL STANDARD DRAWING

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

DRAWING NUMBER **TCP-48A**



LEGEND



RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

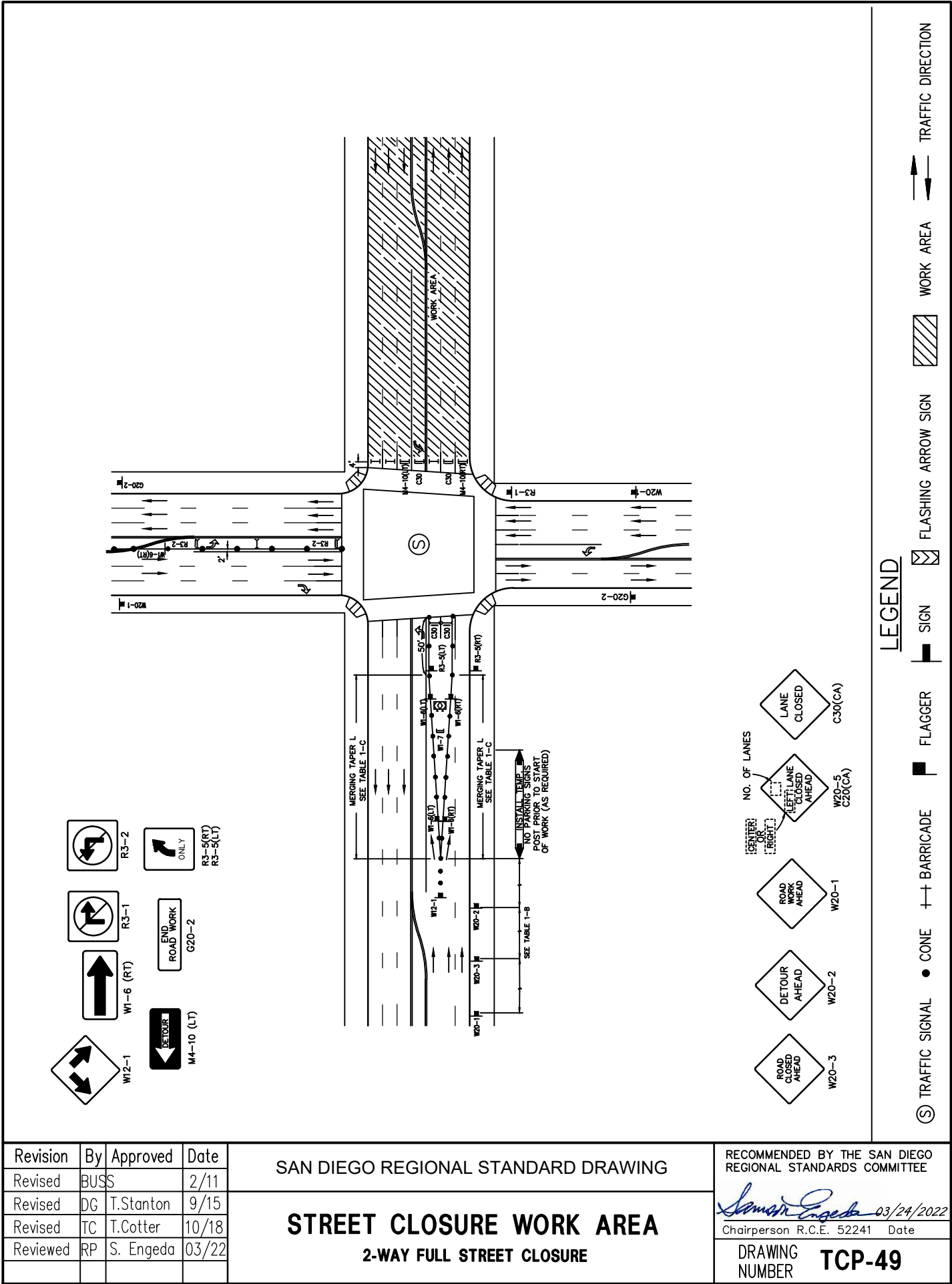
DRAWING
NUMBER

TCP-48B

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA **HALF STREET CLOSURE (2 OF 2)**

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22



Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

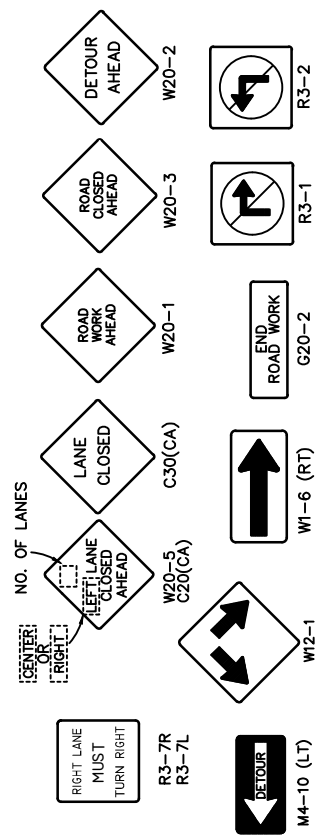
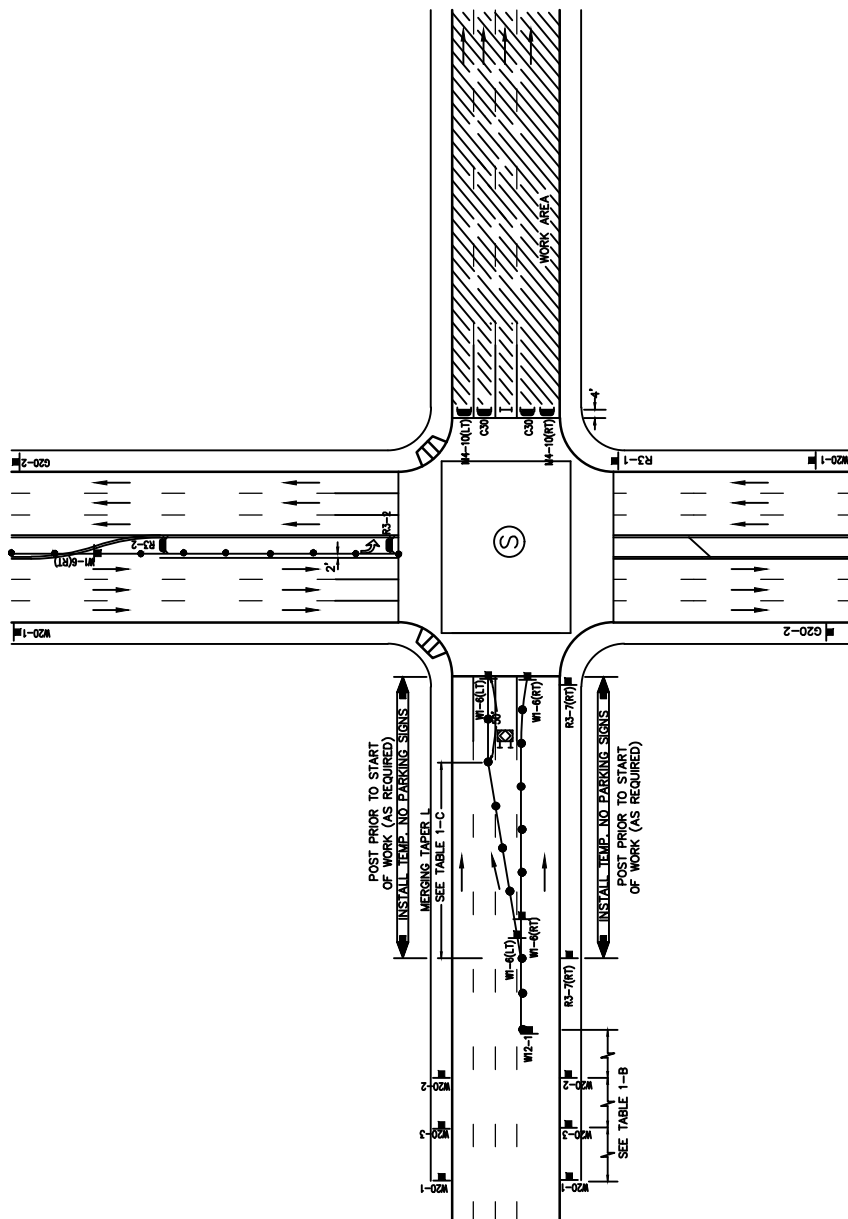
SAN DIEGO REGIONAL STANDARD DRAWING

STREET CLOSURE WORK AREA
2-WAY FULL STREET CLOSURE

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING NUMBER TCP-49



LEGEND

- ⑤ TRAFFIC SIGNAL
- CONE
- ⊥ BARRICADE
- ⬇ FLASHING ARROW SIGN
- ⬆ SIGN
- ▨ WORK AREA
- ↔ TRAFFIC DIRECTION

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

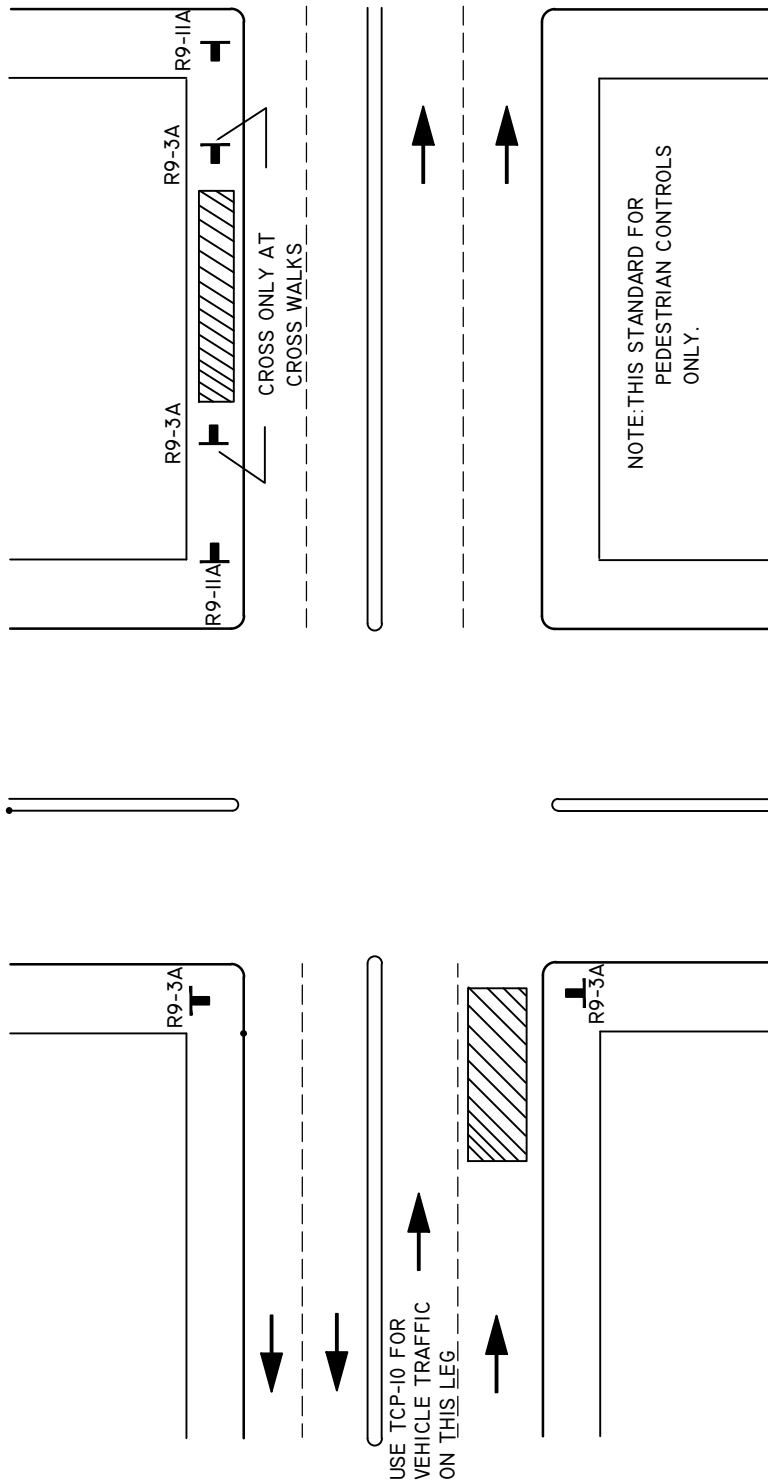
Samson Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING NUMBER **TCP-50**

SAN DIEGO REGIONAL STANDARD DRAWING

STREET CLOSURE ROAD WORK AREA ONE WAY - FULL STREET CLOSURE

Revision	By	Approved	Date
Revised	BUS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22



LEGEND

- TRAFFIC SIGNAL
- CONE
- BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

SAN DIEGO REGIONAL STANDARD DRAWING

SIDEWALK WORK AREA **TYPICAL PEDESTRIAN CONTROL SIGNS** **SIDEWALK CLOSED**

RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING NUMBER **TCP-51**

Revision	By	Approved	Date
Revised	BUSS		2/11
Revised	DG	T.Stanton	9/15
Revised	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

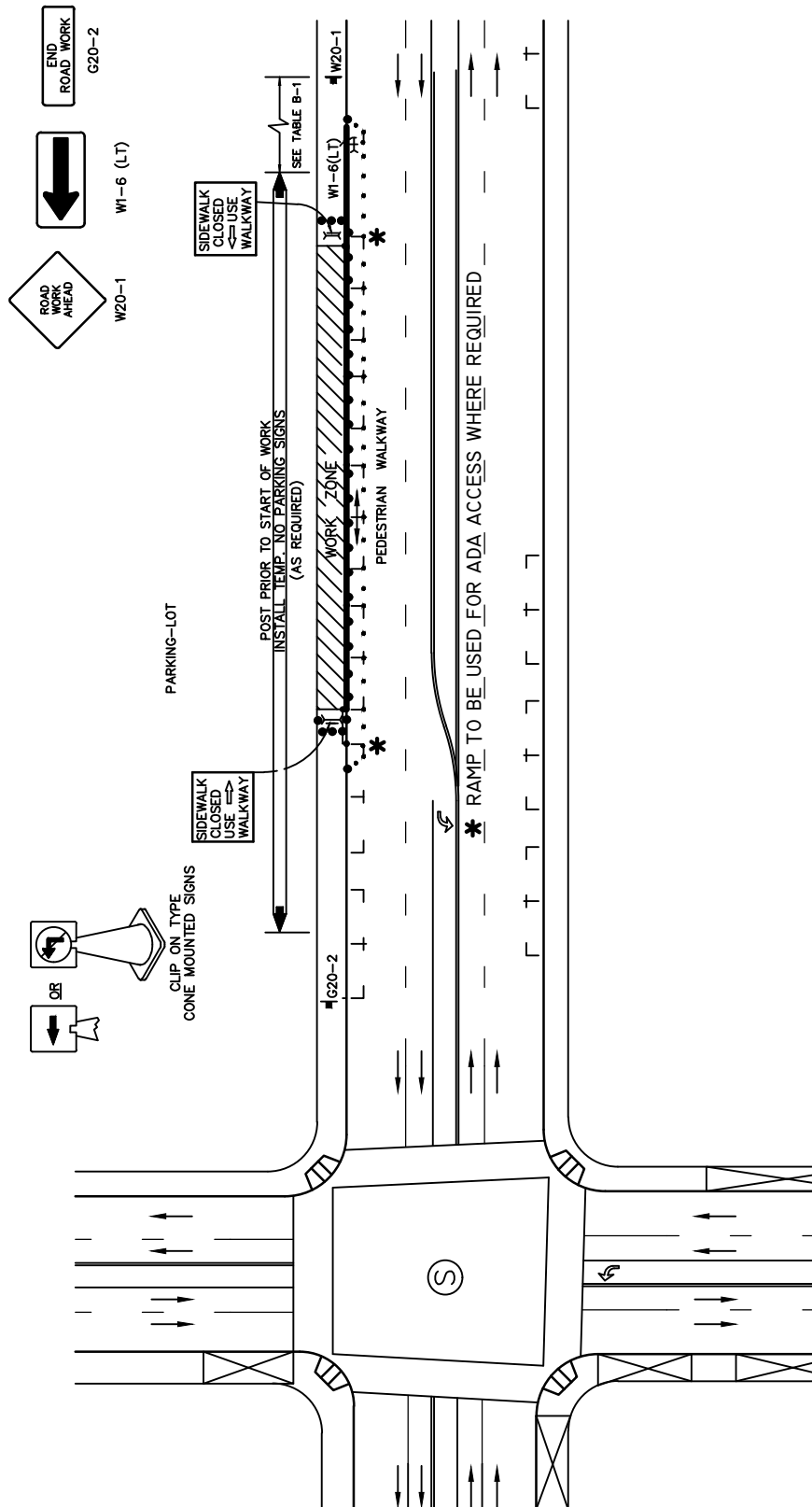
SAN DIEGO REGIONAL STANDARD DRAWING

SIDEWALK WORK AREA **TYPICAL PEDESTRIAN CONTROL SIGNS** **SIDEWALK CLOSED & SHIFT TO PARKING AREA**

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

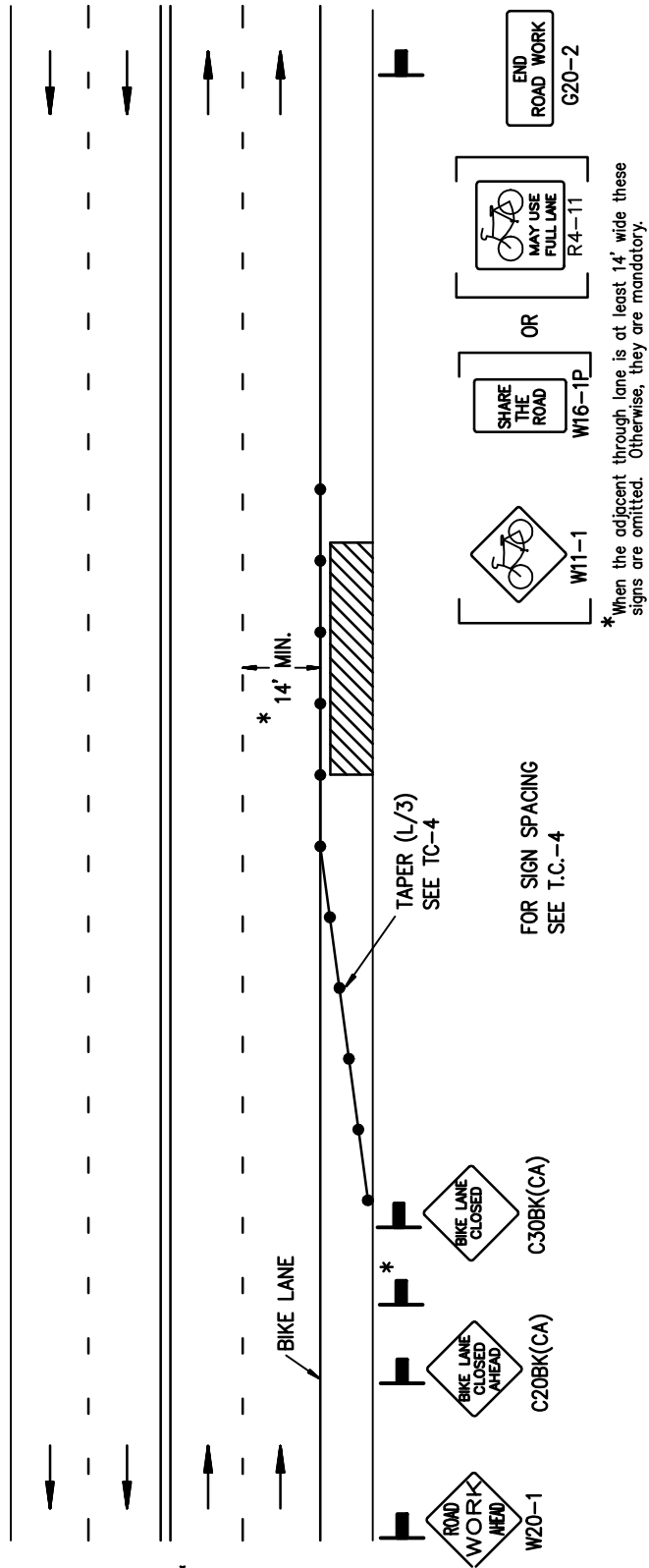
Somerset Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **TCP-53**



LEGEND

- ⑤ TRAFFIC SIGNAL • CONE + BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION



LEGEND

- CONE
- ++ BARRICADE
- FLAGGER
- SIGN
- FLASHING ARROW SIGN
- WORK AREA
- TRAFFIC DIRECTION

RECOMMENDED BY THE SAN DIEGO
REGIONAL STANDARDS COMMITTEE

Samantha Engeda 03/24/2022
Chairperson R.C.E. 52241 Date

DRAWING
NUMBER **TCP-54**

SAN DIEGO REGIONAL STANDARD DRAWING

SIDE OF ROAD WORK AREA

BIKE LANE CLOSURE

Revision	By	Approved	Date
ORIGINAL		T.Stanton	4/06
REVISED	DG	T.Stanton	9/15
REVISED	TC	T.Cotter	10/18
Reviewed	RP	S. Engeda	03/22

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