

CITY OF SANTA BARBARA PUBLIC WORKS DEPARTMENT



NOTE: THE HARDSCAPE AND UNDERGROUND UTILITIES SECTIONS OF THE STANDARD DETAILS HAVE BEEN UPDATED AS OF SEPTEMBER 2019

CONSTRUCTION STANDARD DETAILS



TITLE SHEET

STREETS:	REV. DATE: 11/12	DETAIL: G-00.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Pedersen</i> PUBLIC WORKS DIRECTOR	

CITY OF SANTA BARBARA

CONSTRUCTION STANDARD DETAILS

<u>NUMBER</u>	<u>TITLE</u>
G-00.0	TITLE SHEET
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D-00.0 - D-06.0	DRAINAGE
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W-00.0 - W-18.0	WATER
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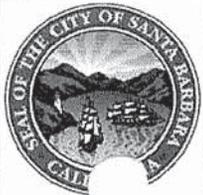


TABLE OF CONTENTS

STREETS:	REV. DATE: 11/12	DETAIL: G-01.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christopher Anderson</i>	
	PUBLIC WORKS DIRECTOR	

OLD DETAIL - NEW DETAIL CONVERSION INDEX

1. HARDSCAPES (STREETS)

<u>OLD</u>	<u>NEW</u>	<u>OLD</u>	<u>NEW</u>
1-000.0.....	H-00.0	1-007.0.....	H-07.0
1-001.0.....	H-01.0	1-007.1.....	H-07.1
1-002.0.....	H-02.0	1-007.2.....	H-07.2
1-002.1.....	H-02.1	1-007.3.....	H-07.3
1-002.2.....	H-02.2	1-008.0.....	H-08.0
N/A.....	H-02.3	N/A.....	H-08.1
1-003.0.....	H-03.0	N/A.....	H-08.2
1-003.1.....	H-03.1	1-009.0.....	H-09.0
1-004.0.....	H-04.0	1-009.1.....	H-09.1
1-005.0.....	H-05.0		
1-006.0.....	H-06.0		
1-006.1.....	H-06.1		

2. DRAINAGE

<u>OLD</u>	<u>NEW</u>	<u>OLD</u>	<u>NEW</u>
2-000.0.....	D-00.0	2-004.1.....	D-03.1
2-001.0.....	D-01.1	2-005.0.....	D-04.0
2-002.0.....	D-01.2	2-005.1.....	D-04.1
2-002.1.....	D-01.0	2-006.0.....	D-05.2
2-003.0.....	D-02.1	N/A.....	D-05.1
2-003.1.....	D-02.0	2-006.1.....	D-05.0
2-004.0.....	D-03.0	2-007.0.....	D-06.0

3. LIGHTING

<u>OLD</u>	<u>NEW</u>	<u>OLD</u>	<u>NEW</u>
3-000.0.....	L-00.0	3-004.0.....	L-04.0
3-001.0.....	L-01.0	3-005.0.....	L-05.0
3-001.1.....	L-01.1	3-006.0.....	L-06.0
3-002.0.....	L-02.0	3-007.0.....	L-07.0
3-002.1.....	L-02.1	3-008.0.....	L-08.0
3-003.0.....	L-03.0	3-009.0.....	L-09.0
N/A.....	L-03.1		

4. TRAFFIC

<u>OLD</u>	<u>NEW</u>	<u>OLD</u>	<u>NEW</u>
4-000.0.....	T-00.0	4-002.0.....	N/A
4-001.0.....	T-01.0	4-003.0.....	T-02.0

5. SANITARY SEWER

<u>OLD</u>	<u>NEW</u>	<u>OLD</u>	<u>NEW</u>
5-000.0.....	S-00.0	5-004.0.....	S-04.0
5-001.0.....	S-01.1	5-004.1.....	S-04.1
5-001.1.....	S-01.0	5-005.0.....	S-05.0
5-002.0.....	S-02.0	5-006.0.....	S-06.1
5-003.0.....	S-03.0	5-006.1.....	S-06.0

6. WATER

<u>OLD</u>	<u>NEW</u>	<u>OLD</u>	<u>NEW</u>
6-000.0.....	W-00.0	6-009.0.....	W-07.0
6-001.0.....	W-01.1	6-010.0.....	W-08.0
6-001.1.....	W-01.0	6-011.0.....	W-09.0
6-002.0.....	W-02.0	6-012.0.....	W-10.0
6-003.0.....	W-03.0	6-013.0.....	W-11.0
6-004.0.....	W-04.0	6-014.0.....	W-12.0
6-005.0.....	W-05.1	6-014.1.....	W-12.1
6-005.1.....	W-05.0	6-015.0.....	W-13.0
6-005.2.....	W-05.2	6-015.1.....	W-13.1
5-005.3.....	W-05.3	N/A.....	W-13.2
6-005.4.....	W-05.4	6-016.0.....	W-14.0
N/A.....	W-05.5	N/A.....	W-15.0
N/A.....	W-05.6	N/A.....	W-16.0
6-006.0.....	W-06.0	N/A.....	W-17.0
6-008.0.....	W-06.1	N/A.....	W-18.0

7. UNDERGROUND UTILITIES

<u>OLD</u>	<u>NEW</u>	<u>OLD</u>	<u>NEW</u>
7-000.0.....	U-00.0	7-002.0.....	U-02.0
7-001.0.....	U-01.1	7-003.0.....	U-03.0
7-001.1.....	U-01.0	7-003.1.....	U-03.1
7-001.2.....	U-01.2	7-003.2.....	U-03.2
	& U-01.3	7-004.0.....	U-04.0

NOTE: THE HARDSCAPE AND UNDERGROUND UTILITIES SECTIONS OF THE STANDARD DETAILS HAVE BEEN UPDATED AS OF SEPTEMBER 2019



OLD DETAIL - NEW DETAIL CONVERSION INDEX

STREETS:

TRANS OPS:

FACILITIES:

WATER RESOURCES:

APPROVED:

CITY ENGINEER

PUBLIC WORKS DIRECTOR

Pat Kelly
Christina Pedersen

HARDSCAPE

<u>NUMBER</u>	<u>TITLE</u>	<u>NUMBER</u>	<u>TITLE</u>
H-01.0	GENERAL CONCRETE - NOTES	H-05.0	CROSS GUTTER
H-02.0	STANDARD & FAUX SANDSTONE CURB AND GUTTER	H-06.0	SIDEWALK - TYPE & SECTIONS
H-02.1	NON-STANDARD CURB AND GUTTER	H-07.0	ACCESS RAMP NOTES
H-02.2	SANDSTONE CURB AND CONCRETE GUTTER	H-07.1	ACCESS RAMP - DUAL DIRECTIONAL DETAILS
H-02.3	STEEL CURB	H-07.2	ACCESS RAMP - ONE-WAY DIRECTIONAL DETAILS
H-03.0	RESIDENTIAL DRIVEWAY	H-07.3	ACCESS RAMP - DIAGONAL RAMP DETAILS
H-03.1	COMMERCIAL DRIVEWAY	H-07.4	ACCESS RAMP - BLENDED TRANSITION DETAILS
H-04.0	ALLEY ENTRANCE	H-08.0	CONCRETE BUS POCKET
		H-08.1	CONCRETE BUS POCKET - REVERSE TAPER



HARDSCAPE TABLE OF CONTENTS

REV. DATE: 09/19 | DETAIL: H-00.0

APPROVED: *Ben Lee*
09/23/19
 CITY ENGINEER
[Signature]
 PUBLIC WORKS DIRECTOR

GENERAL CONCRETE NOTES:

1. Improvements constructed under this Standard shall conform to applicable provisions of the Standard Specifications for Public Works Construction (latest edition of Green Book).
2. Concrete shall be minimum of 520-C-2500 or greater where specified, per Standard Specifications for Public Works Construction (Greenbook).
3. Concrete shall have a light broom finish, except as noted. Broom direction shall be perpendicular to path of travel. All exposed edges shall be tool finished with a 1/2 inch radius.
4. Compact native soil 8 inches deep to 90% relative compaction. Under all concrete improvements except sidewalk, place crushed aggregate base 6 inches compacted to 95% relative compaction before placing concrete. Under sidewalk, place minimum of 4" crushed aggregate base compacted to 95% relative compaction. At City Engineer or designee's discretion, 2" of sand may be allowed under sidewalk in place of crushed aggregate base. Crushed miscellaneous base may be substituted for crushed aggregate base at City Engineer or designee's discretion.
5. Clear drying fugitive dye curing compound shall be applied to all exposed concrete surfaces immediately after finishing.
6. Calcium chloride shall not be added to concrete unless approved by the City Engineer or designee.
7. Sawcut and remove a 24" minimum width or more of existing asphalt concrete pavement adjacent to all new concrete as directed by the City Engineer or designee. After constructing new concrete, replace pavement with asphalt concrete and aggregate base to match existing, but not less than 3 inch asphalt concrete over 8 inch aggregate base. Where concrete section exists, replace to match existing, overlaid with 2 inch minimum asphalt concrete. Tack coat all vertical surfaces with SS-1h emulsion where asphalt is to be placed.
8. All concrete shall be placed within forms except where it is poured directly against existing sawcut concrete.
9. Survey monuments within the limits of work shall be referenced, tied out, and have a corner record filed prior to construction by a licensed land surveyor. Monuments lost or disturbed shall be replaced and have a corner record filed by a licensed land surveyor or civil engineer in accordance with the State of California Professional Land Surveyors' Act, Section 8771.
10. Asphalt concrete shall be laid in courses not exceeding 4 inches in thickness. Asphalt concrete shall be Class C2 Grade PG 64-10 for finish courses, Class D1 Grade PG 64-10 for leveling courses, and Class B Grade PG 64-10 for base courses.
11. State Street brick paver sidewalks from Cabrillo Blvd. to Victoria Street shall be a Pacific Clay Bear Path Red Flashed paver. Contact the City Engineer or designee for details.

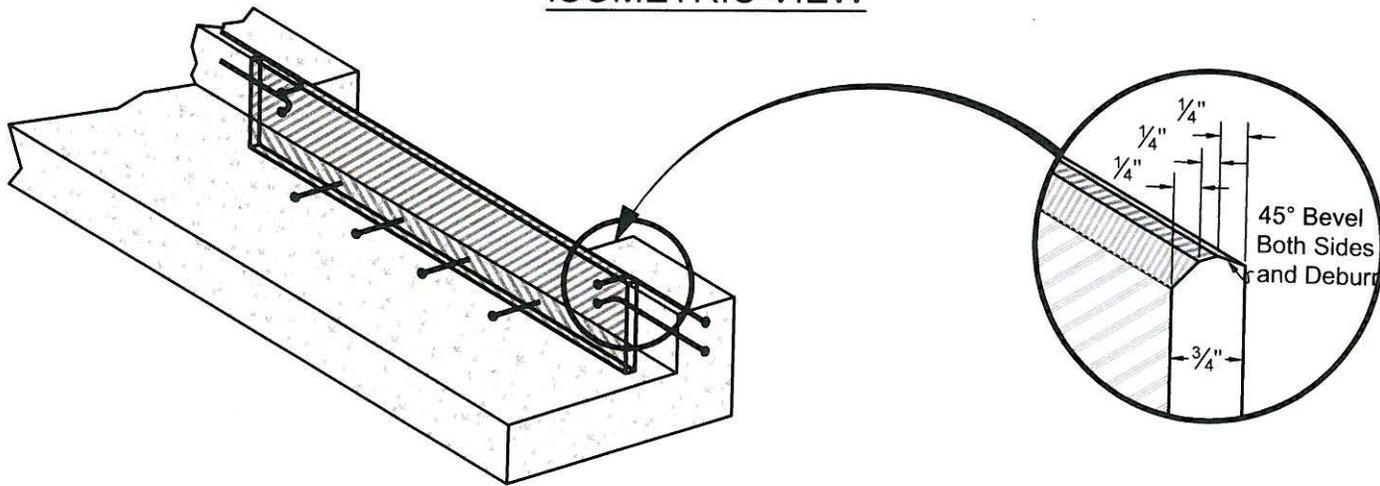


**GENERAL CONCRETE
NOTES**

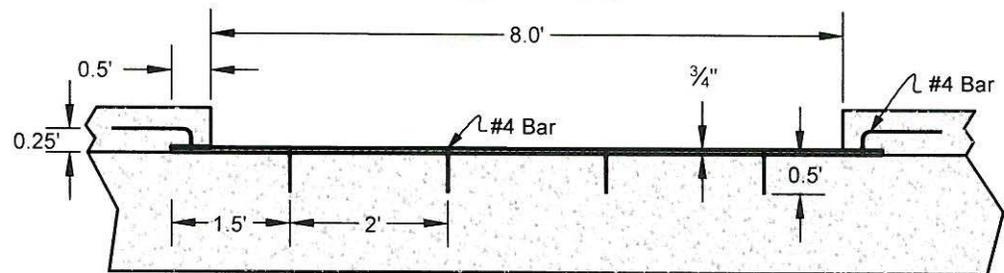
REV. DATE: 09/19 DETAIL: H-01.0

APPROVED: *Brill*
CITY ENGINEER
[Signature]
PUBLIC WORKS DIRECTOR

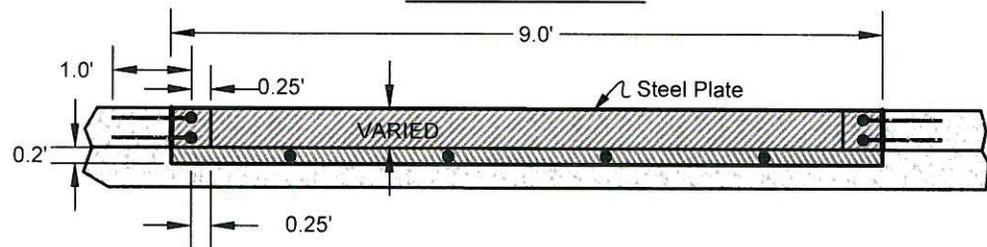
ISOMETRIC VIEW



TOP VIEW



FRONT VIEW



NOTES:

1. Use 9'L x 3/4" thick varied width steel plate. Bevel edge as directed and weld #4 bars to plate using a full penetration weld. Galvanize after fabrication per Greenbook Standard Specifications.
2. Mount plate flush with top of curb and curb face.
3. Steel plate width shall be sufficient to extend 0.2' minimum below the flowline.
4. There shall be a minimum of 1.5" concrete cover over all rebar.
5. Match existing curb face and gutter.

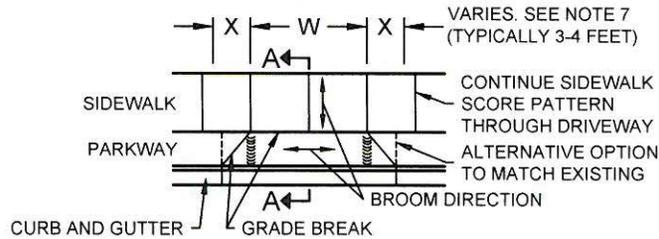


STEEL CURB

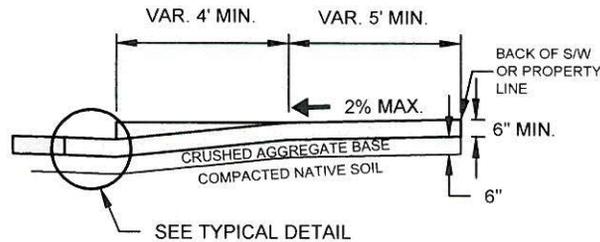
REV. DATE: 09/19 DETAIL: H-02.3

APPROVED:
[Signature]
 CITY ENGINEER
[Signature]
 PUBLIC WORKS DIRECTOR

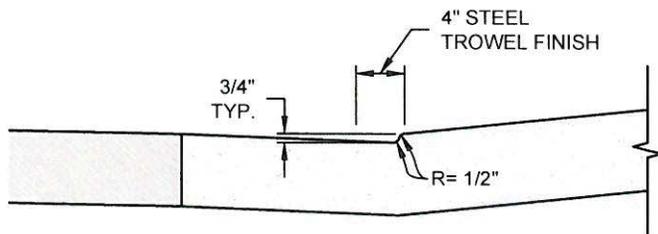
PLAN VIEW



SECTION A-A



TYPICAL DETAIL



NOTES:

1. This driveway is to be used in residential areas, when plans showing such use are approved by the City Engineer, or designee, and for replacement of driveway only.
2. Driveway width (W) shall be 10 feet minimum and 16 feet maximum. Any driveway or combination of driveways which exceed the maximum width must be approved by the City Engineer, or designee.
3. Where multifamily driveway width exceeds 12 feet, provide a 1.5 inch deep contraction joint in center.
4. The driveway slab shall be 6 inches thick. The sidewalk within the driveway width shall be 6 inches thick (see note 5 for exceptions).
5. Driveway with 8 inch slab thickness shall be used when serving three or more residences, or when plans showing such use are approved by the City Engineer or designee.
6. Gutter width shall match adjacent gutter.
7. Flare width (X) shall be 1 foot for each 2 inches of curb height.
8. Where existing gutter has been overlaid, and a new driveway is being installed, the new gutter shall be installed to match existing gutter. Asphalt concrete shall be placed over the new gutter to the grade of the existing pavement.
9. Driveway approach consists of gutter, ramp, flares, and sidewalk portions, placed monolithically.
10. See detail H-06.1 for sidewalk.
11. Where existing gutter exceed 3 feet, and concrete is in good condition, an 18" cut into existing gutter may be made if approved by City inspector.
12. Provide a minimum 5' wide sidewalk across driveway, or as approved by City Engineer, at 2% slope.



RESIDENTIAL DRIVEWAY

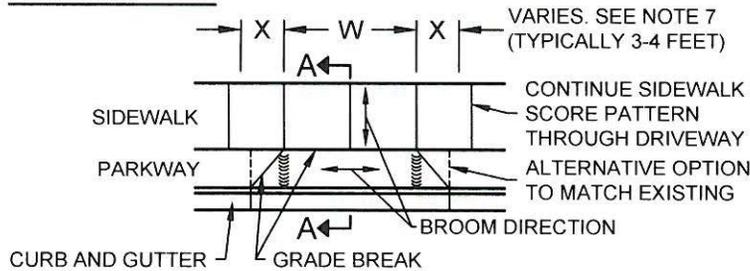
REV. DATE: 09/19 DETAIL: H-03.0

APPROVED:

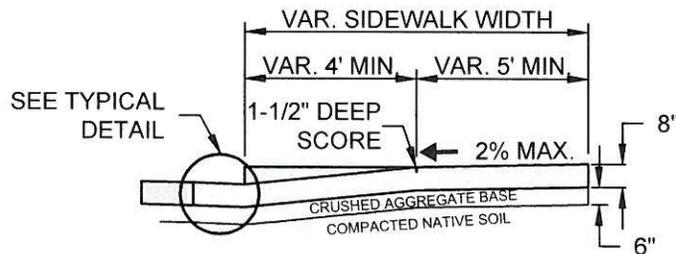
09/23/19 *Bill*
CITY ENGINEER

James F. Bill
PUBLIC WORKS DIRECTOR

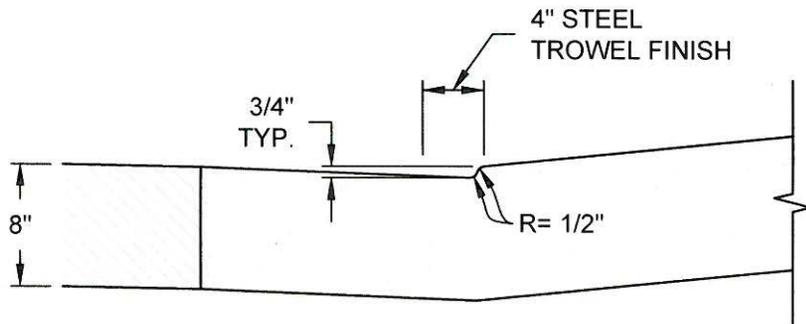
PLAN VIEW



SECTION A-A



TYPICAL DETAIL



NOTES:

1. Driveway width (W) shall be 12 feet minimum and 30 feet maximum.
2. Driveway shall be 8 inches thick. Slab within sidewalk area shall be 8 inches and placed monolithically with driveway.
3. Where driveway width exceeds 16 feet, provide a 2 inch deep contraction joint in center.
4. Gutter width shall match adjacent gutter.
5. Flare width (X) shall be 1 foot for every 2 inches of curb height.
6. Where existing gutter has been overlaid, the new driveway gutter shall be installed to match the existing gutter, and asphalt placed over new gutter to grade of existing pavement.
7. Driveway flares, slabs, sidewalks, and gutters shall be placed monolithically.
8. Provide minimum 5 feet of sidewalk width across driveway, at 2% slope, or as approved by City Engineer or designee.
9. Use 560-C-3250 for all commercial driveways.
10. Driveway should generally rise to sidewalk level as opposed to depressing sidewalk to driveway level.
11. See Detail H-06.1 for sidewalk.
12. Where existing gutter exceeds 3 feet, and concrete is in good condition, an 18" cut into existing gutter may be made if approved by City Inspector.



COMMERCIAL DRIVEWAY

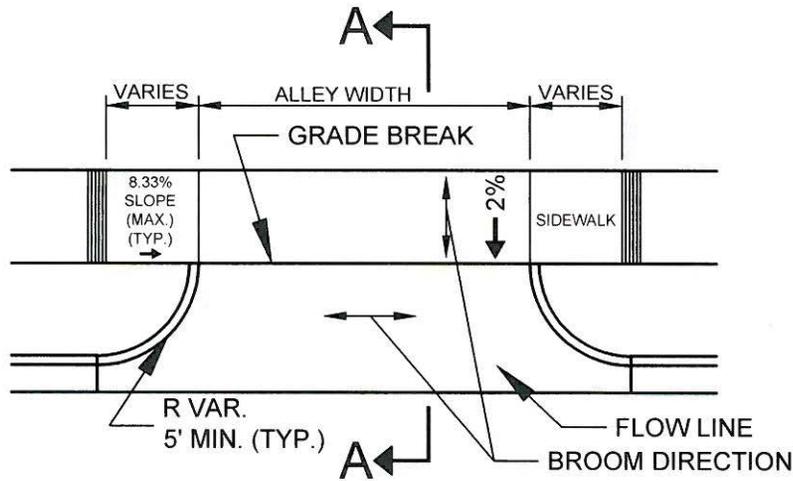
REV. DATE: 09/19 DETAIL: H-03.1

APPROVED:

09/23/19 *Bin De*
CITY ENGINEER

Heber
PUBLIC WORKS DIRECTOR

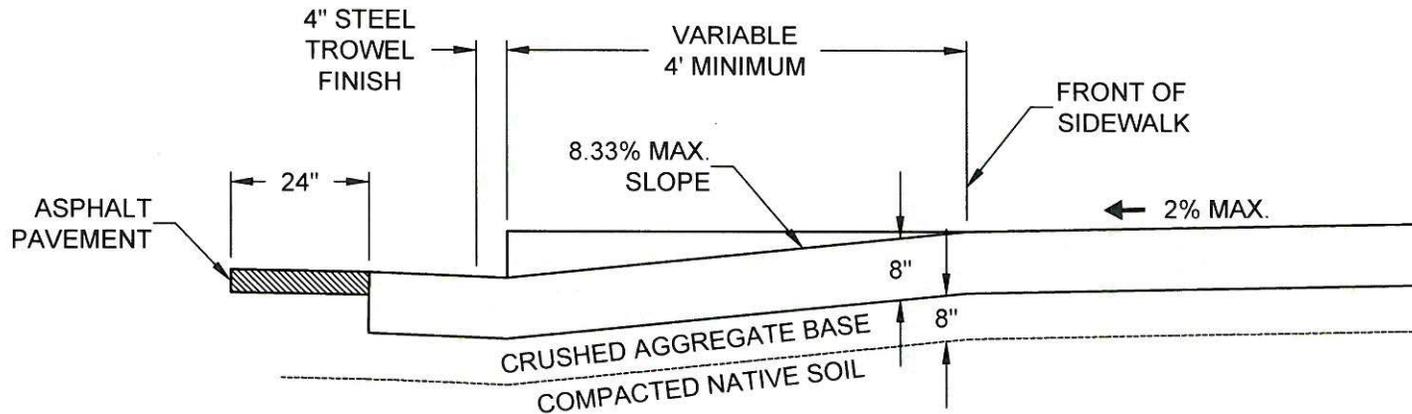
PLAN VIEW



NOTES:

1. Concrete slab shall be in line with the back of sidewalk and shall conform to alley V-section.
2. Curb returns, slab, sidewalk, and gutters shall be placed monolithically.
3. Slab, gutter, and curb returns shall be broom finished and flow lines shall be steel trowel finished.
4. Alley approach slope shall not exceed 8.33%. Depress sidewalk to meet maximum alley approach slope. Sidewalk depression shall not exceed 8.33% maximum slope.
5. Use 560-C-3250 concrete.
6. At discretion of City Engineer or designee, alleys may be reconstructed as Commercial Style Driveways, per Detail H-03.1. Generally the alley entrance is not appropriate for Commercial or Residential Driveways.

SECTION A-A



ALLEY ENTRANCE

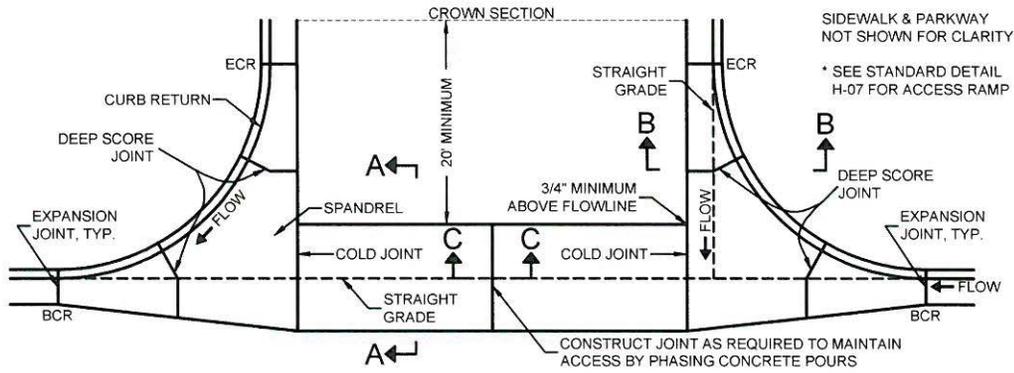
REV. DATE: 09/19 | DETAIL: H-04.0

APPROVED:

Bridget
CITY ENGINEER

Rebecca B...
PUBLIC WORKS DIRECTOR

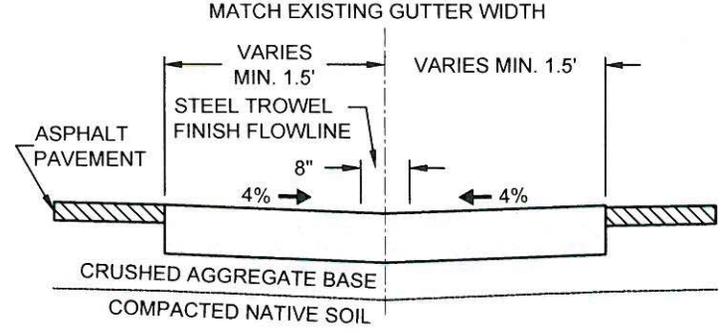
PLAN VIEW



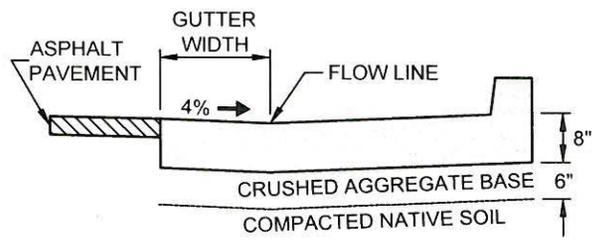
NOTES:

1. Curb return radius shall be as shown on the plans.
2. Gutter and spandrels shall be 8 inches thick.
3. Curb return and spandrel shall be placed monolithically.
4. Concrete shall be 560-C-3250
5. Finish shall be steel float, lightly broomed on gutter and spandrels, brush on curb returns and steel trowel at flow lines.
6. Asphalt concrete taper from crown section to cross gutter shall be a minimum of 20 feet.
7. Deep score joints shall be a minimum of 2 inches deep.

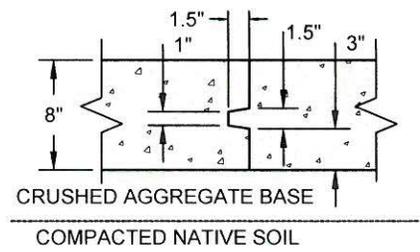
SECTION A-A



SECTION B-B



SECTION C-C

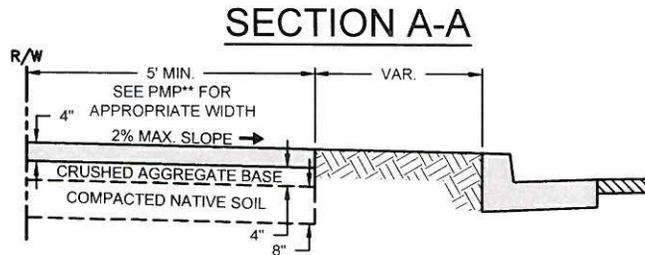
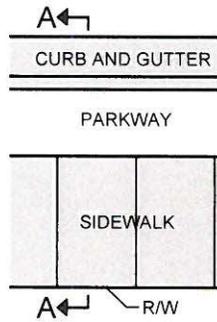


CROSS GUTTER

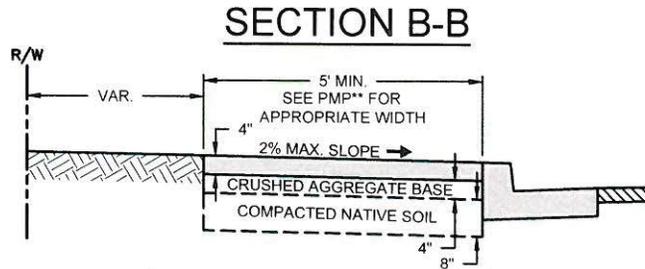
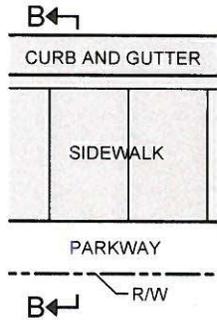
REV. DATE: 09/19 DETAIL: H-05.0

APPROVED:
 09/22/19 *Brinda*
 CITY ENGINEER
Subrata Biju
 PUBLIC WORKS DIRECTOR

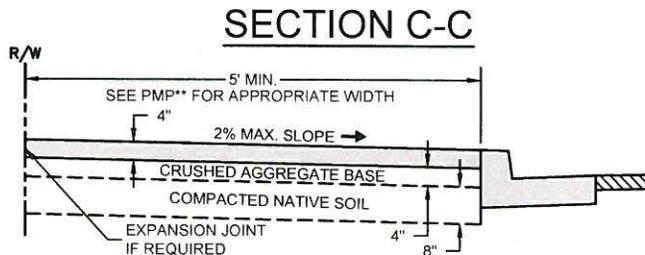
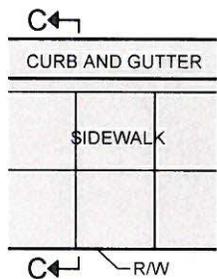
TYPE A - Residential Areas



TYPE B - Special Approval Required



TYPE C - Commercial Areas



NOTES:

1. Type "A" sidewalk shall be used in residential areas.
2. Type "B" sidewalk may be used during reconstruction as an alternate to Type "A" in residential areas, when approved by the City Engineer or designee.
3. Type "C" sidewalk shall be used in commercial areas.
4. Sidewalk width shall be as shown, unless otherwise specified on the plans
5. Provide 1.5 inch deep score joints @ 10 feet (30 feet if trees present), and 0.25 inch scoremarks at 5 foot spacing, and isolation joints at all adjacent structures, or match existing score pattern.
6. Exposed edges, joints and score marks shall be round-finish with an approved tool.
7. All survey monuments shall be identified, protected, and reset by a licensed land surveyor. (See General Note 9 on Standard Detail H-01.0).
8. Where necessary to replace existing sidewalk, cold joint shall be made at existing joint, or min. 1.5 inch sawcut at nearest score mark. Score pattern to match existing pattern unless directed by City Staff.
9. In special districts of the City, sidewalk shall match scoring and color of existing decorative sidewalk. (i.e., State Street, Carrillo Street, Chapala Street).
10. All utility boxes shall be placed at the back of curb.
11. Minimum of 4 feet clear space shall be provided around all tree wells, utility boxes/poles, benches, and other obstructions (5 feet preferred).

*R/W = Right of Way

**PMP = Pedestrian Master Plan, www.santabarbaraca.gov/pmp



SIDEWALK TYPE & SECTIONS

REV. DATE: 09/19 DETAIL: H-06.0

APPROVED:

[Signature]
CITY ENGINEER

[Signature]
PUBLIC WORKS DIRECTOR

NOTES:

GENERAL

1. All access ramps shall be constructed in accordance with Title 24 of the Americans with Disabilities Act (ADA), the California Building Standards Code (CBC), and these Standard Details.
2. Ramp thickness shall be 4 inches in residential areas and 6 inches in commercial areas.
3. Transitions from ramps to sidewalks, gutters, or streets shall be flush and free of abrupt changes. Maximum slopes of adjoining gutters and road surface immediately adjacent to the curb ramp shall not exceed 1:20.
4. The minimum width of a diagonal curb ramp shall be 60 inches, exclusive of flared sides, unless approved by City Engineer, or designee. The minimum width of a directional curb ramp shall be 60 inches, exclusive of flared sides.
5. Thirty working days prior to commencing demolition activities the Contractor shall contact a licensed Land Surveyor to tie out any survey monuments and other recorded survey markers.
6. Existing survey monuments located adjacent to and outside of construction areas shall be adequately protected from any damage that may result from the Contractor's operations.
7. Existing street name stamps located in concrete to be demolished, or carefully removed, preserved, and relocated into the adjacent parkway area, as directed by City Engineer or designee.
8. Existing curb paint shall be repainted to existing condition on all new or retrofit curbs.
9. Use 560-C-3250 concrete for all access ramps.

RAMP STYLE

1. In general, dual directional or blended transition ramps are preferred. In higher volume areas or where physical constraints dictate, diagonal ramps may be used. Consult the City Engineer or designee for preferred ramp style.
2. When constructing one new ramp at an intersection, the selected ramp standard should be most compatible with existing ramps, or per City Engineer, or designee.

DETECTABLE WARNINGS

1. Dome height and size shall be minimum specified by the CBC, dome spacing shall be maximum specified by the CBC.
2. Detectable warning surfaces shall extend 36 inches minimum in the direction of travel and the full width of the curb ramp.
3. For new construction, detectable warnings shall be Tekway Dome-Tiles or an equivalent approved by the City Engineer.
4. For retrofit installations, detectable warnings shall be SafetyStepTD or an equivalent approved by the City Engineer.
5. Color shall be Federal Yellow per the current California Building Code.



ACCESS RAMP NOTES

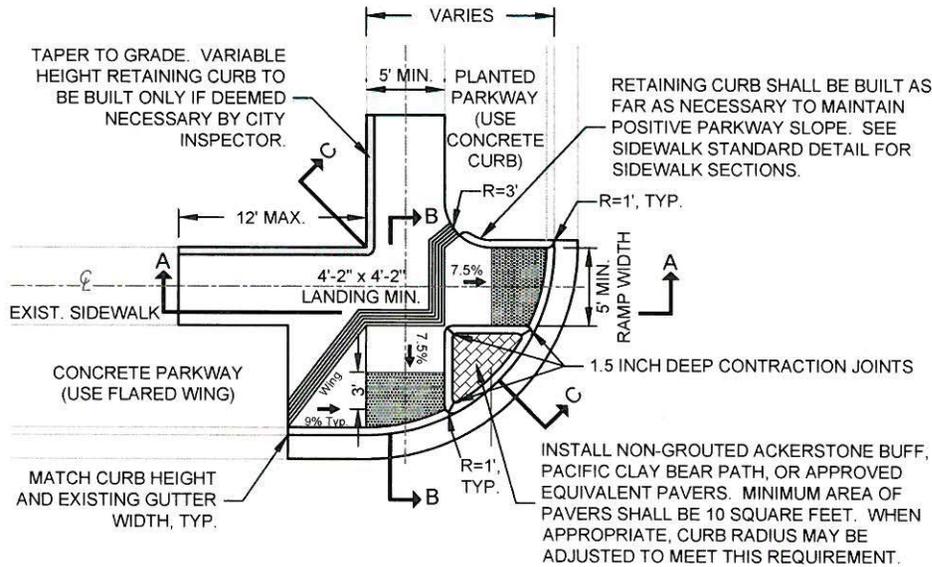
REV. DATE: 09/19 | DETAIL: H-07.0

APPROVED:

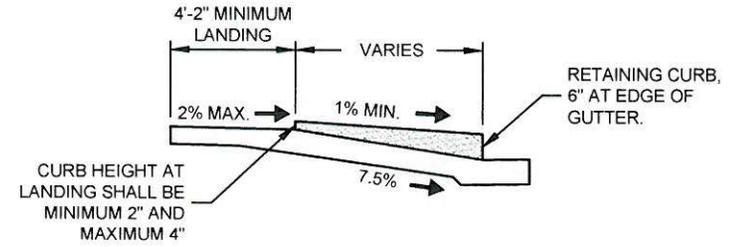
09/23/19 *Brida*
CITY ENGINEER

Shirley B. J.
PUBLIC WORKS DIRECTOR

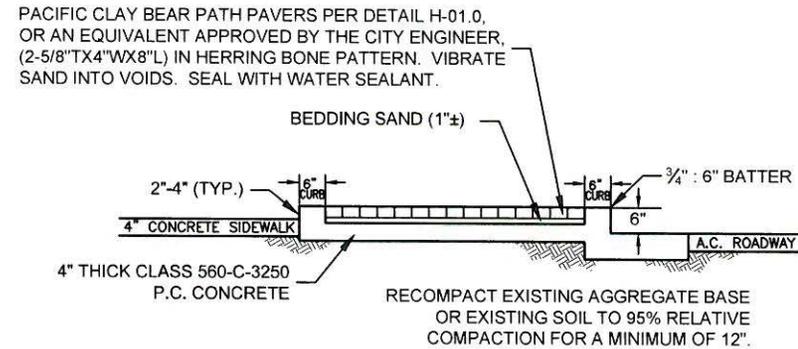
PLAN VIEW



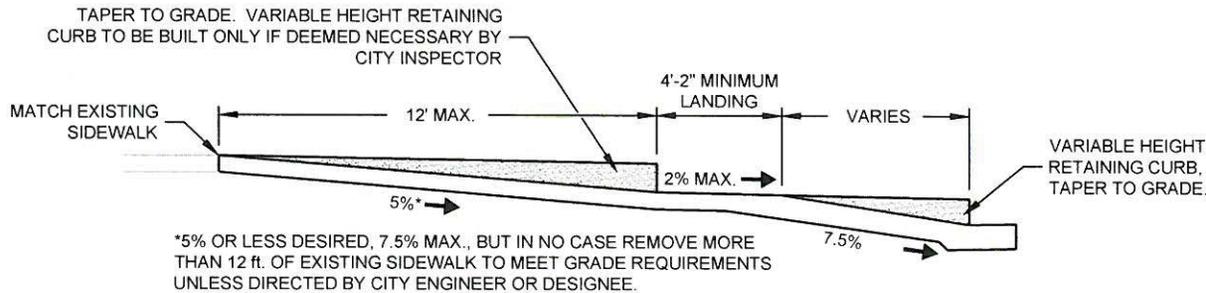
SECTION B-B



SECTION C-C



SECTION A-A



Directional curb ramps shall match the width and alignment of adjoining sidewalk.

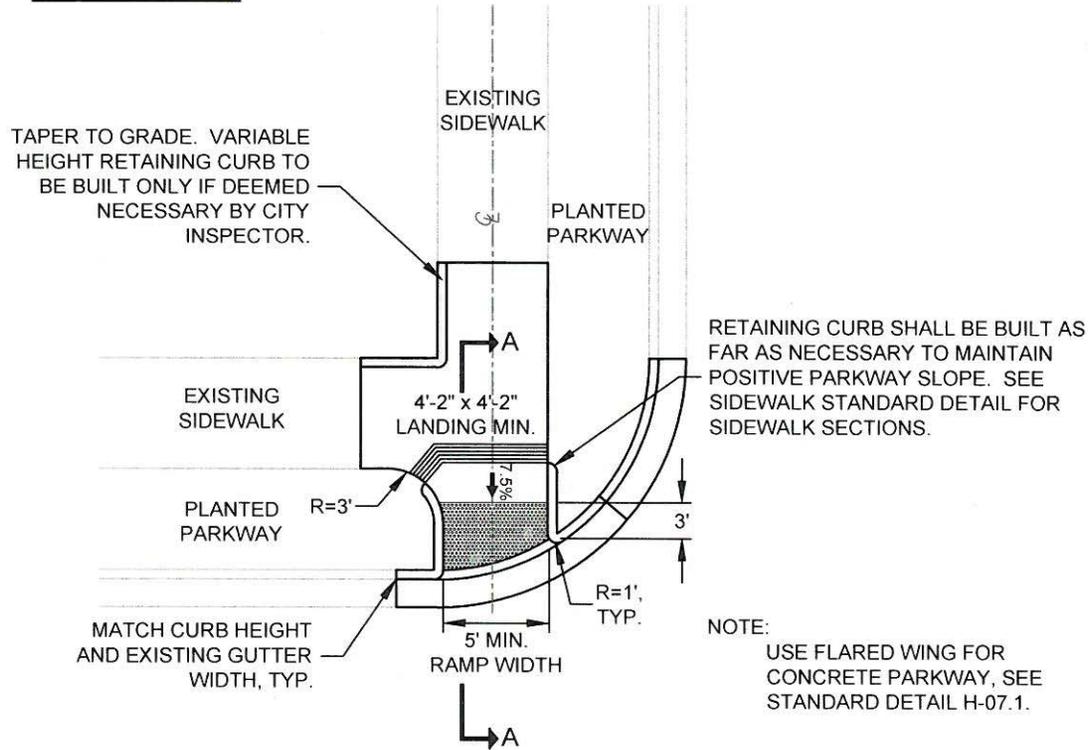


ACCESS RAMP DETAILS DUAL DIRECTIONAL

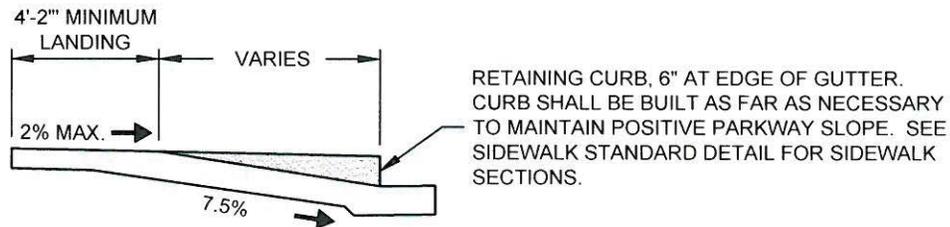
REV. DATE: 09/19 DETAIL: H-07.1

APPROVED:
Brida
 CITY ENGINEER
Robert J. Byr
 PUBLIC WORKS DIRECTOR

PLAN VIEW



SECTION A-A



Directional curb ramps shall match the width and alignment of adjoining sidewalk.



ACCESS RAMP DETAILS

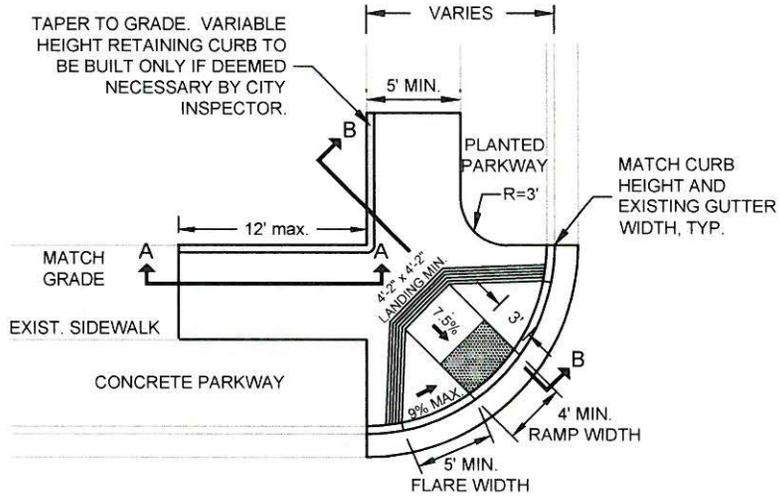
ONE-WAY DIRECTIONAL

REV. DATE: 09/19 | DETAIL: H-07.2

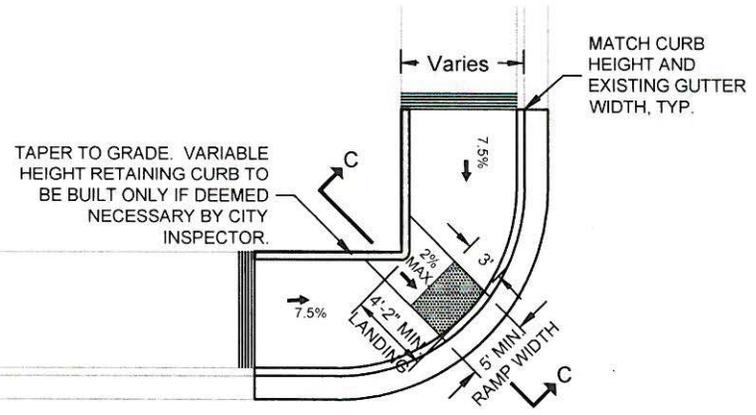
APPROVED: *Bridgette*
 CITY ENGINEER
Robert J. Byrd
 PUBLIC WORKS DIRECTOR

PLAN VIEW - STANDARD DIAGONAL ACCESS RAMP*

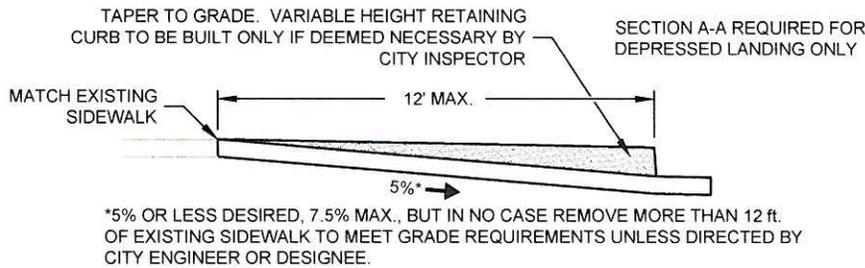
*ONLY TO BE USED WITH APPROVAL BY CITY ENGINEER OR DESIGNEE



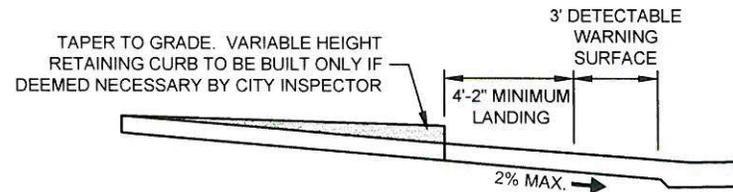
PLAN VIEW - MODIFIED DIAGONAL ACCESS RAMP FOR CURB FACE SIDEWALK



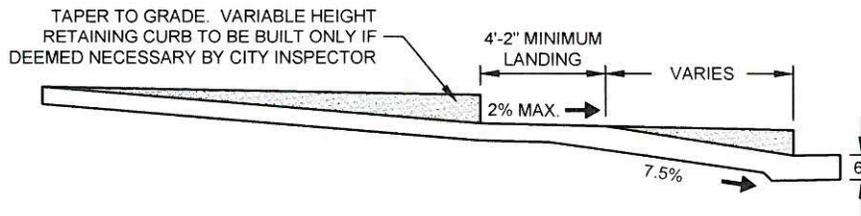
SECTION A-A



SECTION C-C



SECTION B-B



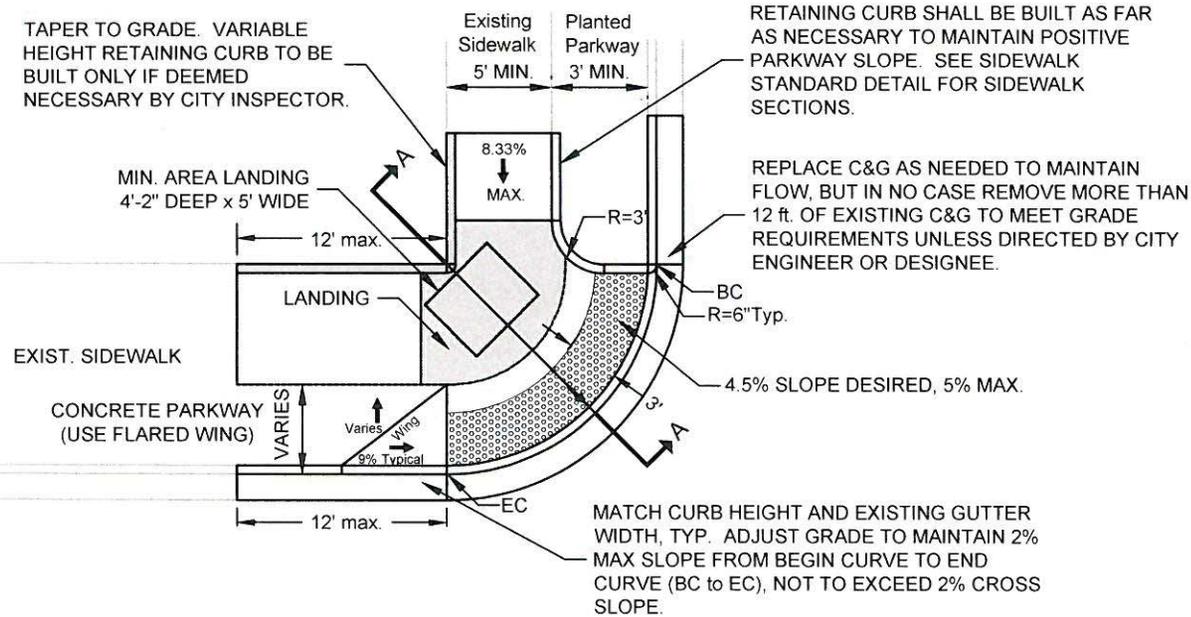
ACCESS RAMP DETAILS DIAGONAL

REV. DATE: 09/19 | DETAIL: H-07.3

APPROVED:

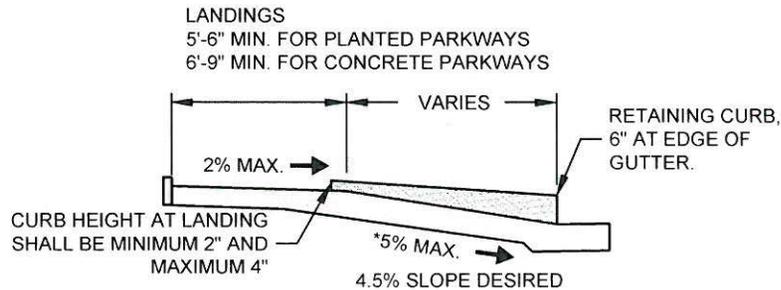
09/23/19 *Bill*
CITY ENGINEER
Lebecast Bjie
PUBLIC WORKS DIRECTOR

PLAN



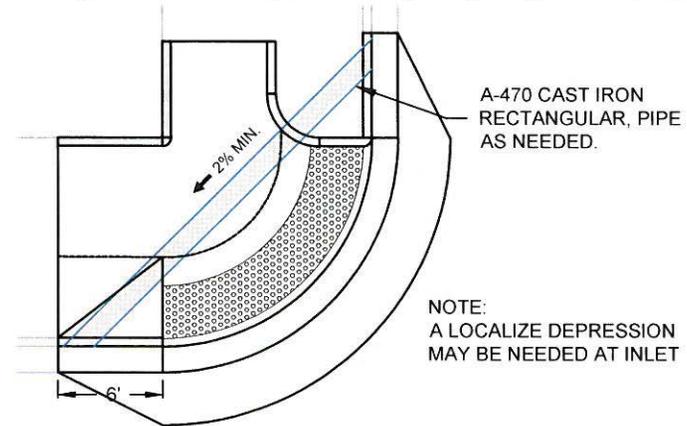
A Blended Transitional Ramp (BTR) must be approved by City Engineer or designee, and be accompanied with a full survey of the impacted area.

SECTION A-A



ALTERNATIVE DRAINAGE

Designs must be approved by City Engineer or designee



ACCESS RAMP DETAILS

BLENDED TRANSITION

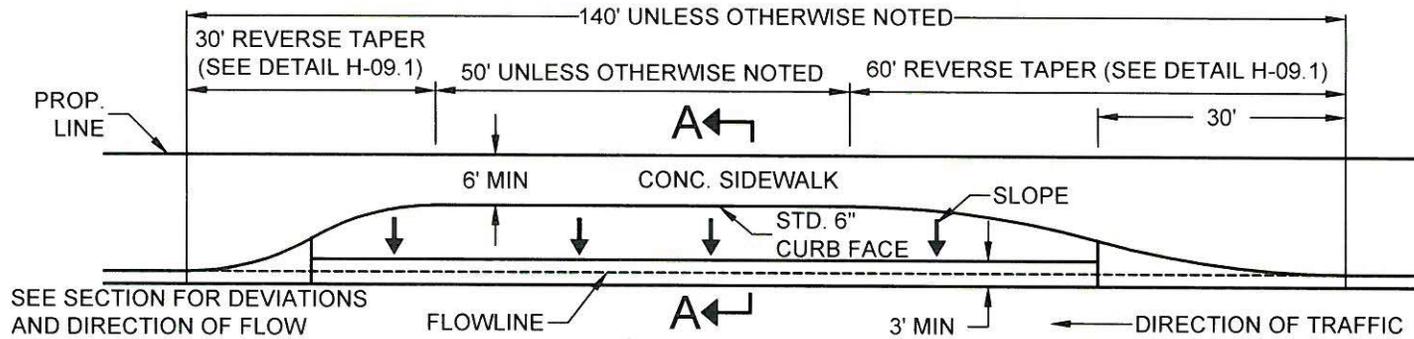
REV. DATE: 09/19 DETAIL: H-07.4

APPROVED:

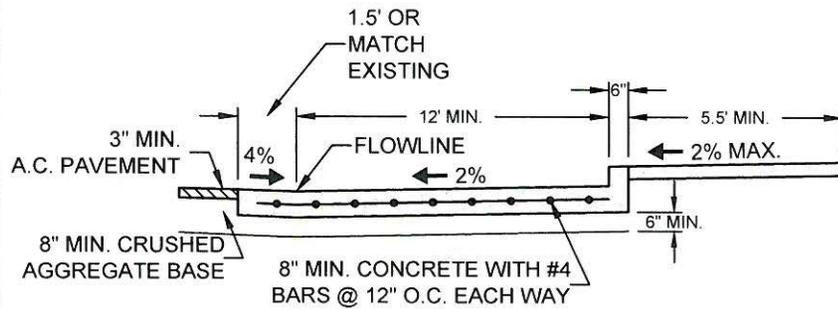
Billie
CITY ENGINEER

Rebecca Bjork
PUBLIC WORKS DIRECTOR

PLAN VIEW



SECTION A-A



NOTES:

1. Concrete shall be Class 560-C-3250 per Standard Specifications for Public Works Construction (Green Book).
2. Bus pocket slab, curb and gutter shall be poured monolithically. Optional 3 foot gutter may be placed first for control of flowline however, dowels will be required for second pour.
3. Bus pocket slab shall be 8 inches thick.
4. Pre-molded 0.25 inch thick steel expansion joints shall be placed at beginning and end of bus pocket. 1.5 inch deep contraction joints shall be placed at 30' intervals.
5. All concrete edges shall have 0.5 inch radius unless otherwise noted.
6. Clear drying fugitive dye curing compound shall be applied to all exposed surfaces immediately after finishing.
7. Height of the curb face to be 6-inch standard unless otherwise noted.
8. Joints and sawcuts in existing curbs shall be at right angles.



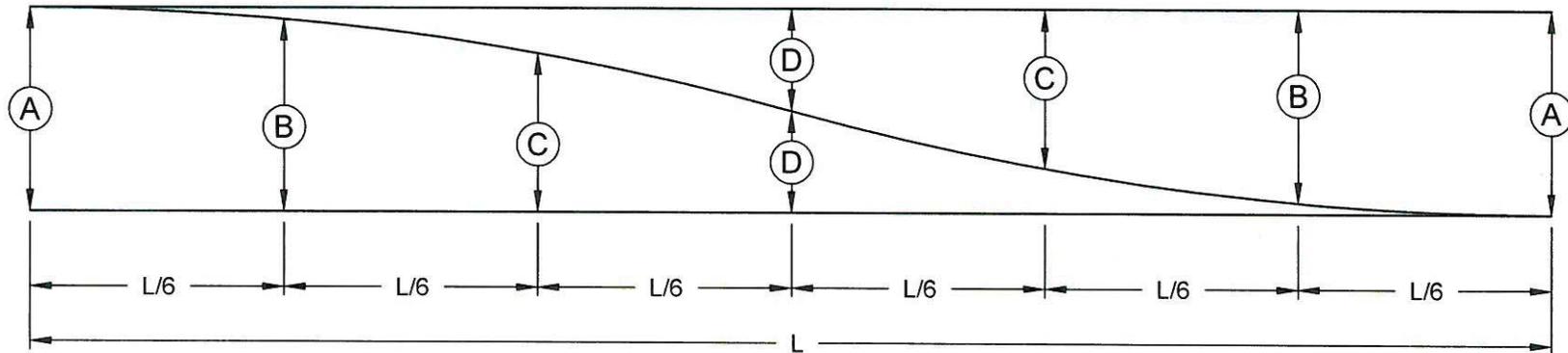
CONCRETE BUS POCKET

REV. DATE: 09/19 | DETAIL: H-08.0

APPROVED:

09/23/19
CITY ENGINEER

PUBLIC WORKS DIRECTOR



L	L/6	(A)	(B)	(C)	(D)	(R)
60.00'	10.00'	8.00'	7.56'	6.24'	4.00'	114.50'
30.00'	5.00'	8.00'	7.58'	6.29'	4.00'	30.13'



CONCRETE BUS POCKET

REVERSE TAPER - GEOMETRICS

REV. DATE: 09/19 | DETAIL: H-08.1

APPROVED:

09/23/19 *Brida*
CITY ENGINEER

Kerrigan Bjorn
PUBLIC WORKS DIRECTOR

DRAINAGE

<u>NUMBER</u>	<u>TITLE</u>
D-01.0	DROP INLET NOTES
D-01.1	DROP INLET - TYPE 1
D-01.2	DROP INLET - TYPE 2
D-02.0	DROP INLET DETAIL NOTES
D-02.1	DROP INLET THROAT AND STEP DETAIL
D-03.0	GUTTER DEPRESSION - TYPE A
D-03.1	GUTTER DEPRESSION - TYPE A1
D-04.0	GUTTER DEPRESSION - TYPE B
D-04.1	GUTTER DEPRESSION - TYPE B1
D-05.0	CURB OUTLET DRAIN - TYPE A
D-05.1	CURB OUTLET DRAIN - TYPE B
D-05.2	CURB OUTLET DRAIN - TYPE C
D-06.0	PIPE HEADWALL



DRAINAGE TABLE OF CONTENTS

STREETS: <i>mw</i>	REV. DATE: 11/12	DETAIL: D-00.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i>	
	PUBLIC WORKS DIRECTOR	

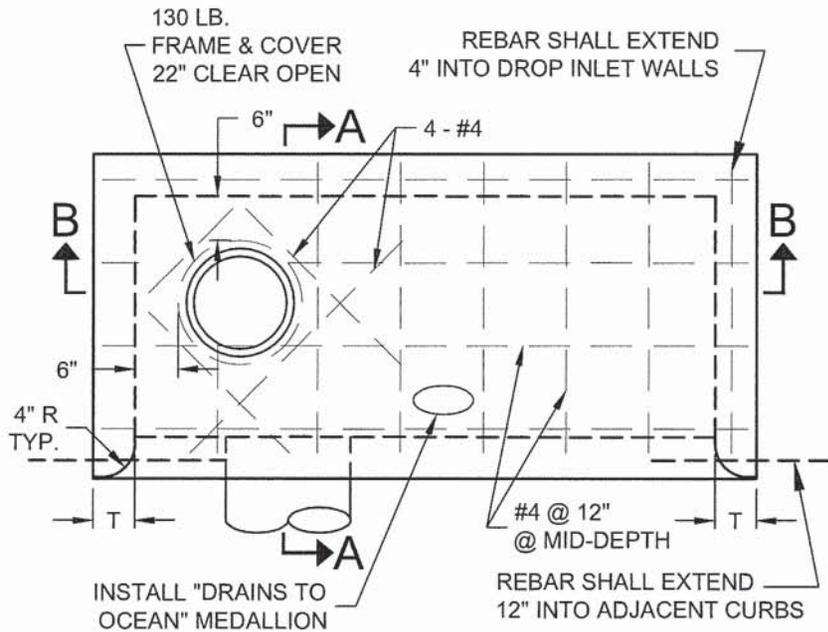
DROP INLET NOTES:

1. All concrete shall be Class 560-C-3250 per Standard Specifications for Public Works Construction. (GREEN BOOK)
2. The curb opening shall be as shown on plan, but not less than 4 feet for Type 1, 10 feet for Type 2.
3. Install step when required, per Standard Detail D-02.0 and D-02.1.
4. Connector pipe shall be placed on the back or side wall as shown in plans, to be clear of future drop inlet filter baskets.
5. Provide 3 inch radius rounded edge at pipe inlet.
6. The width of gutter depression shall be 4 feet unless otherwise shown on plans.
7. Manhole frame and cover shall be Alhambra Foundry A-1530B lettered with the words "City of Santa Barbara Storm Drain" unless otherwise specified in plans.
8. Top slab surface shall be a light broom finish.
9. See Standard Detail D-02 for drop inlet throat and step detail.
10. Gutter depression shall be Type A, Standard Detail D-03.0 unless otherwise specified on plans.
11. Reinforcing steel in the top slab shall be #4 @12 inches on center.
12. Wall thickness (T) and reinforcing requirements shall be per Table A, Standard Details D-01.1 and D-01.2.
13. Clear drying fugitive dye curing compound shall be applied to all exposed surfaces immediately after finishing.
14. Aggregate base shall be placed 6 inches deep and compacted to 95% minimum relative compaction on undisturbed native soil before placing concrete.
15. Manhole shall be set 6 inches from inside wall of inlet.
16. All interior walls, floor, and top shall be sacked and patched upon completion.
17. Extend top slab rebar 4" into walls of drop inlet and 12" into adjacent curbs.
18. Install "Drains to Ocean" medallion on top slab per Standard Details D-01.1 and D-01.2.
19. Where required, an American Storm Water "Surf Gate" catch basin debris screen shall be installed.
20. Reference "Greenbook" Standard Plans for Public Works Construction for details for connector pipe to storm drain pipe connections.

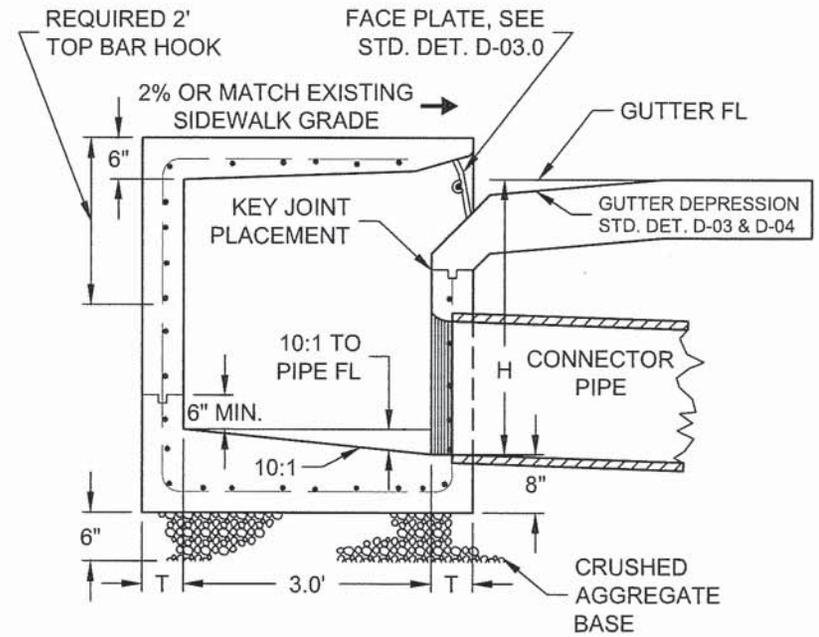


DROP INLET NOTES

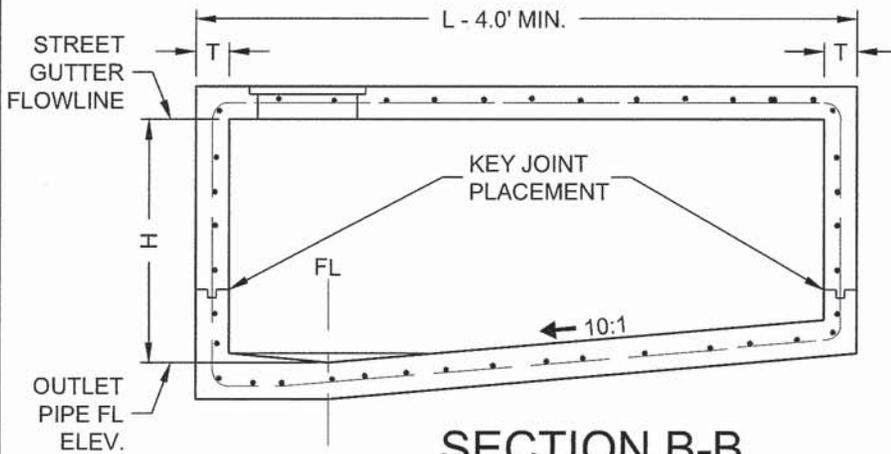
STREETS: <i>no</i>	REV. DATE: 11/12	DETAIL: D-01.0
TRANS OPS:	APPROVED: <i>Pat Gelf</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i> PUBLIC WORKS DIRECTOR	



PLAN



SECTION A-A



SECTION B-B

	CONCRETE		REINFORCING		
	H RANGE	T (TYP.)	BOTTOM	SIDES	TOP
LESS THAN 4'	6"	NONE	NONE	NONE	#4@12"
4' - 8'	8"	NONE	NONE	NONE	#4@12"
*4' - 8'	6"	#4@18"	#4@18"	#4@18"	#4@12"
GREATER THAN 8'	8"	#4@12"	#4@12"	#4@12"	#4@12"

*OPTIONAL

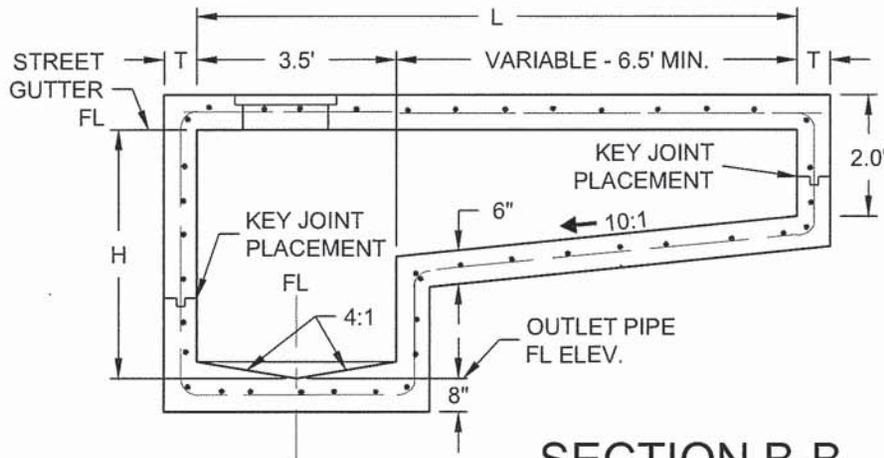
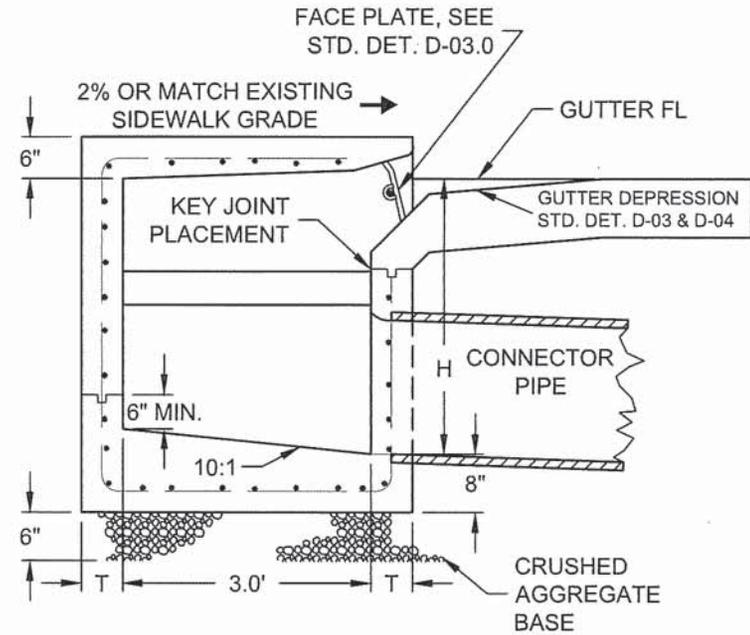
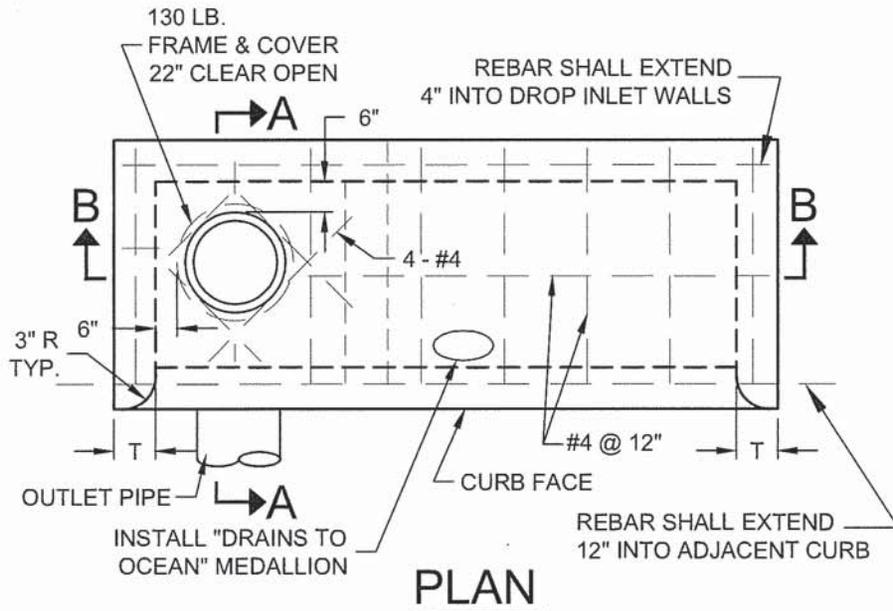
TABLE A



DROP INLET

TYPE 1

STREETS: <i>no</i>	REV. DATE: 11/12	DETAIL: D-01.1
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christopher Anderson</i> PUBLIC WORKS DIRECTOR	



H RANGE	CONCRETE T (TYP.)	REINFORCING		
		BOTTOM	SIDES	TOP
*LESS THAN 5'	8"	NONE	NONE	#4@12"
5' - 8'	8"	NONE	NONE	#4@12"
**5' - 8'	6"	#4@18"	#4@18"	#4@12"
GREATER THAN 8'	8"	#4@12"	#4@12"	#4@12"

*REQUIRES SPECIAL APPROVAL BY ENGINEER OR DESIGNEE
**OPTIONAL

TABLE A



DROP INLET TYPE 2

STREETS: <i>mn</i>	REV. DATE: 11/12	DETAIL: D-01.2
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christopher Anderson</i> PUBLIC WORKS DIRECTOR	

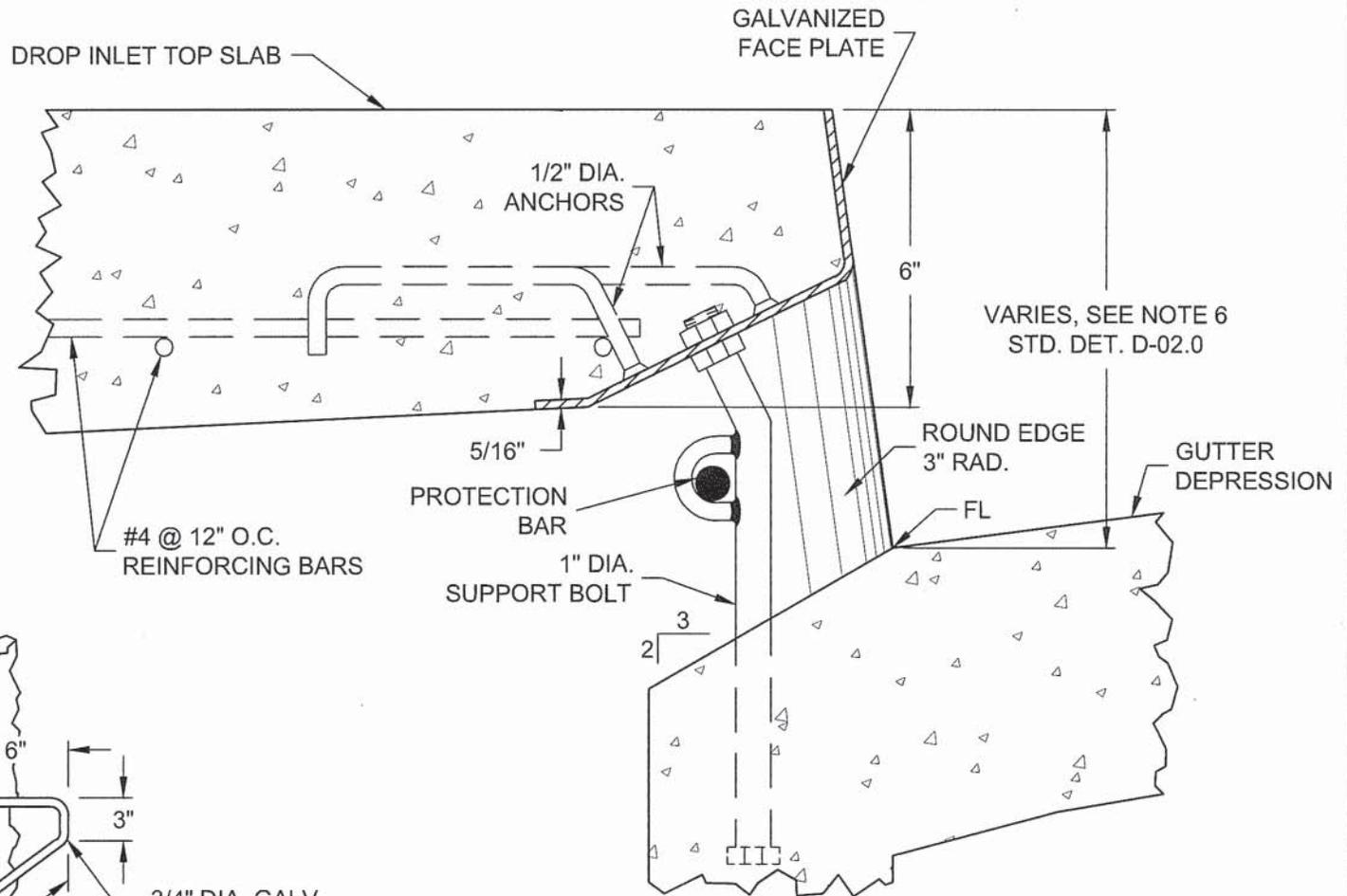
DROP INLET DETAIL NOTES:

1. Face plate shall be Alhambra Foundry A-3912 or approved equal, embedded 3 inches into side walls.
2. Support bolts shall be installed, when curb opening exceeds 7 feet and shall be spaced evenly not more than 7 feet and not less than 5 feet on center.
3. 3/4 inch diameter longitudinal protection bar assembly shall be installed when inlet curb face is more than 9 inches. The protection bar shall be fitted to each support bolt.
4. Steps are not required when H is 3.5 feet or less (see Standard Details D-01.1 and D-01.2). Install one step 16 inches above the floor when H is greater than 3.5 feet but less than 5 feet. Install steps at 12 inch intervals when H exceeds 5 feet. Steps shall be non-slip polypropylene plastic coated reinforcing steel complying with all current ASTM standards. Any exposed metal parts shall be galvanized after fabrication.
5. Inlet opening shall be equal to the existing curb height plus 3 inches.
19. Where required, an American Storm Water "Surf Gate" catch basin debris screen shall be installed.

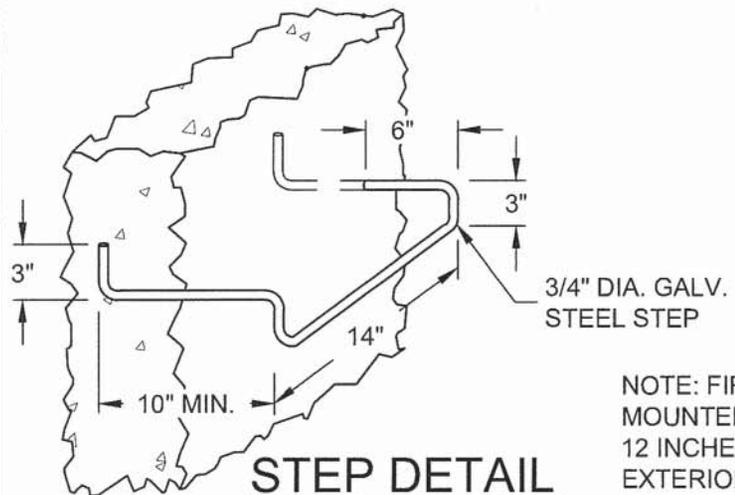


DROP INLET DETAIL NOTES

STREETS:	<i>ma</i>	REV. DATE: 11/12	DETAIL: D-02.0
TRANS OPS:		APPROVED:	<i>Pat Kelly</i>
FACILITIES:		CITY ENGINEER	
WATER RESOURCES:		<i>Christina Andersen</i>	PUBLIC WORKS DIRECTOR



**TYPICAL SECTION OF
DROP INLET THROAT**



STEP DETAIL

NOTE: FIRST RUNG SHALL BE MOUNTED NO GREATER THAN 12 INCHES BELOW THE TOP EXTERIOR OF THE DROP INLET

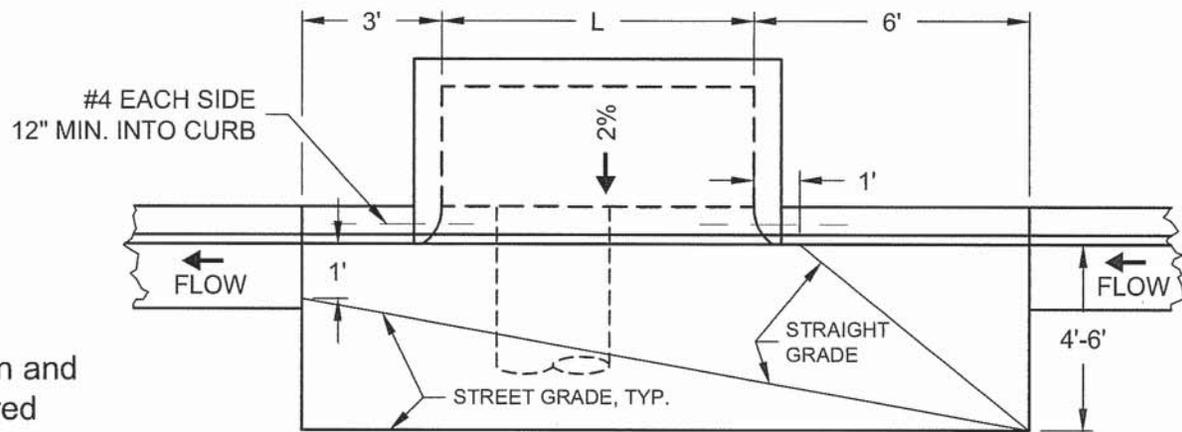


DROP INLET THROAT AND STEP DETAIL

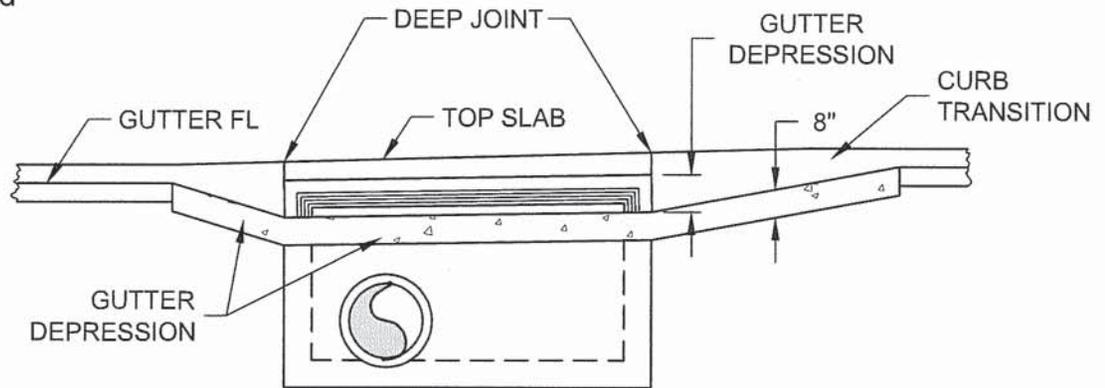
STREETS: <i>[Signature]</i>	REV. DATE: 11/12	DETAIL: D-02.1
TRANS OPS:	APPROVED: <i>[Signature]</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	PUBLIC WORKS DIRECTOR	

NOTES:

1. Gutter depression, curb transition and structure's top slab shall be poured monolithic.
2. Surface finish of gutter depression shall be light broom finish.
3. Concrete strength and curing compound per Standard Detail D-01.0.
4. Gutter depression shall be 3 inches.
5. Deep joint shall be 2 inches deep.



PLAN - INLET ON GRADE



SECTION AT GUTTER FL

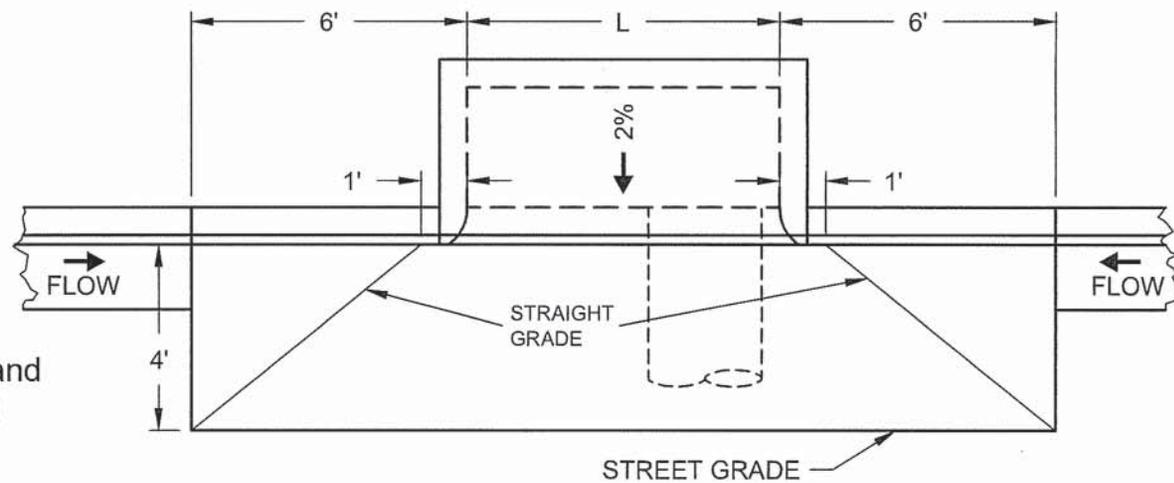


**GUTTER DEPRESSION
TYPE A**

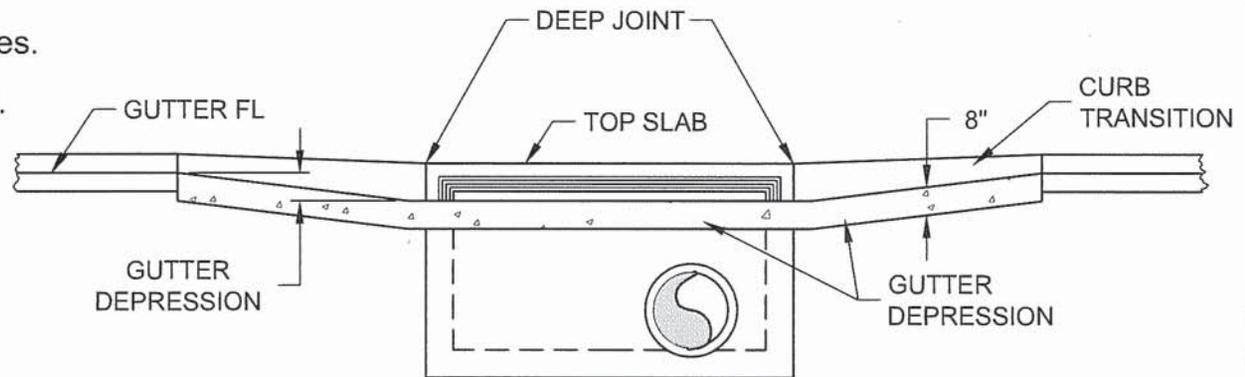
STREETS: <i>40</i>	REV. DATE: 11/12	DETAIL: D-03.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i> PUBLIC WORKS DIRECTOR	

NOTES:

1. Gutter depression, curb transition and structure's top slab shall be poured monolithic.
2. Surface finish of gutter depression shall be light broom finish.
3. Concrete strength and curing compound per Standard Detail D-01.0.
4. Gutter depression shall be 3 inches.
5. Deep joint shall be 2 inches deep.



PLAN - INLET IN SAG



SECTION AT GUTTER FL

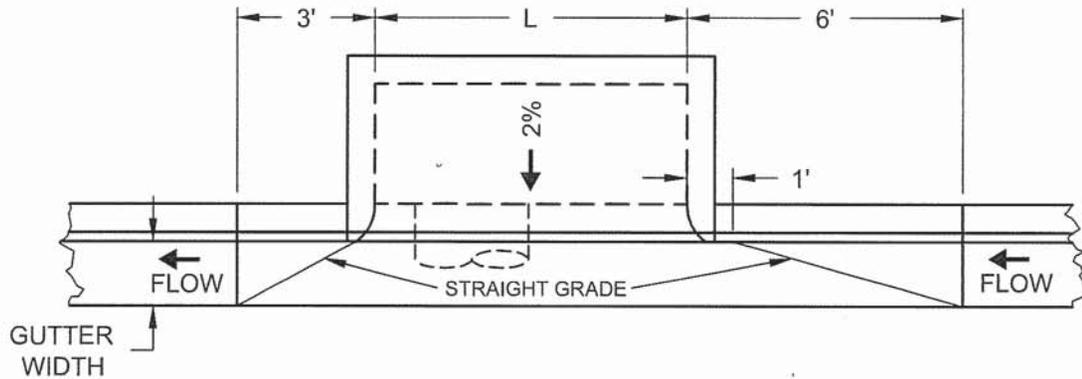


GUTTER DEPRESSION
TYPE A1

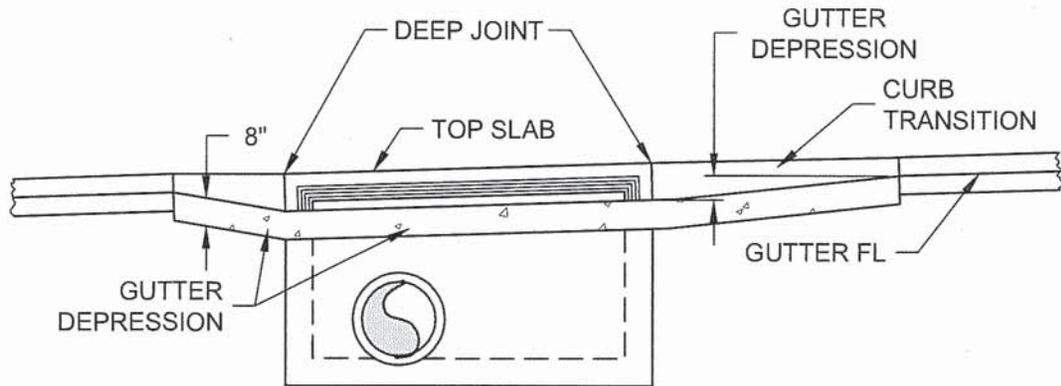
STREETS: <i>MA</i>	REV. DATE: 11/12	DETAIL: D-03.1
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christopher P. Anderson</i> PUBLIC WORKS DIRECTOR	

NOTES:

1. Gutter depression, curb transition and structure's top slab shall be poured monolithic.
2. Surface finish of gutter depression shall be light broom finish.
3. The width of the depressed gutter shall match street gutter width.
4. Concrete strength and curing compound per Standard Detail D-01.0.
5. Gutter depression shall be 3 inches.
6. Deep joint shall be 2 inches deep.



PLAN - INLET ON GRADE



SECTION AT GUTTER FL

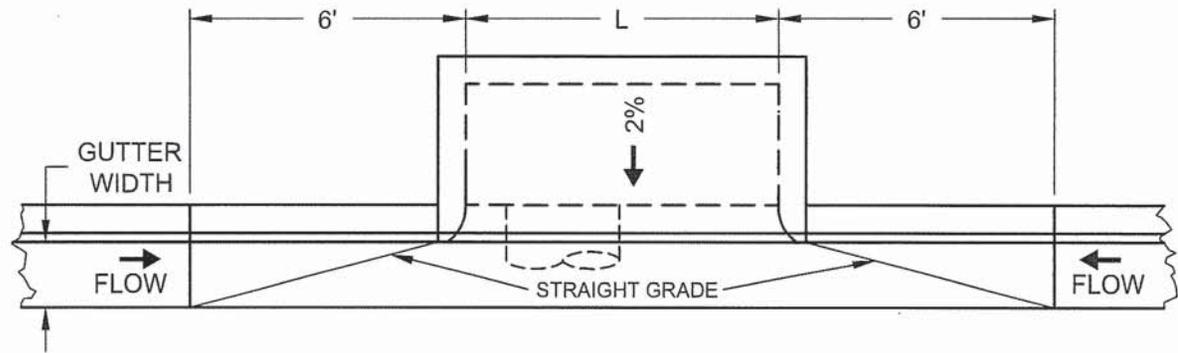


**GUTTER DEPRESSION
TYPE B**

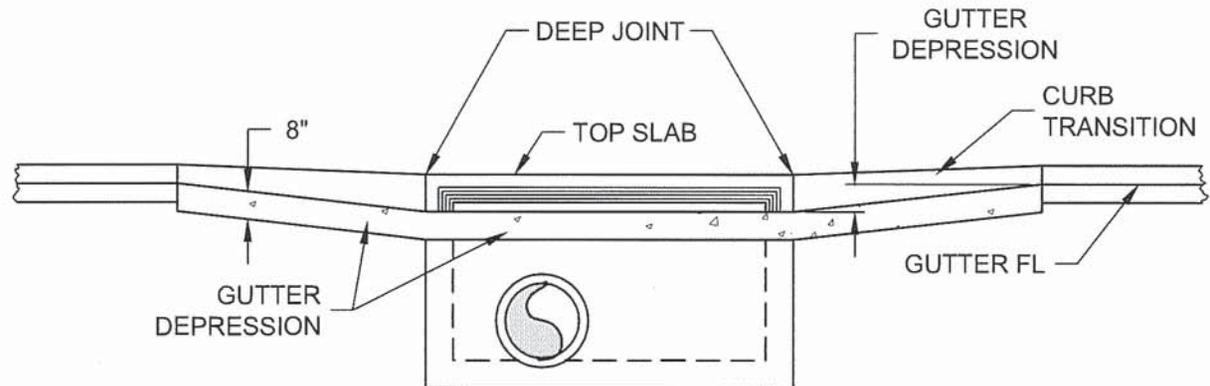
STREETS:	REV. DATE: 11/12	DETAIL: D-04.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i> PUBLIC WORKS DIRECTOR	

NOTES:

1. Gutter depression, curb transition and structure's top slab shall be poured monolithic.
2. Surface finish of gutter depression shall be light broom finish.
3. The width of the depressed gutter shall match street gutter width.
4. Concrete strength and curing compound per Standard Detail D-01.0.
5. Gutter depression shall be 3 inches.
6. Deep joint shall be 2 inches deep.



PLAN - INLET IN SAG

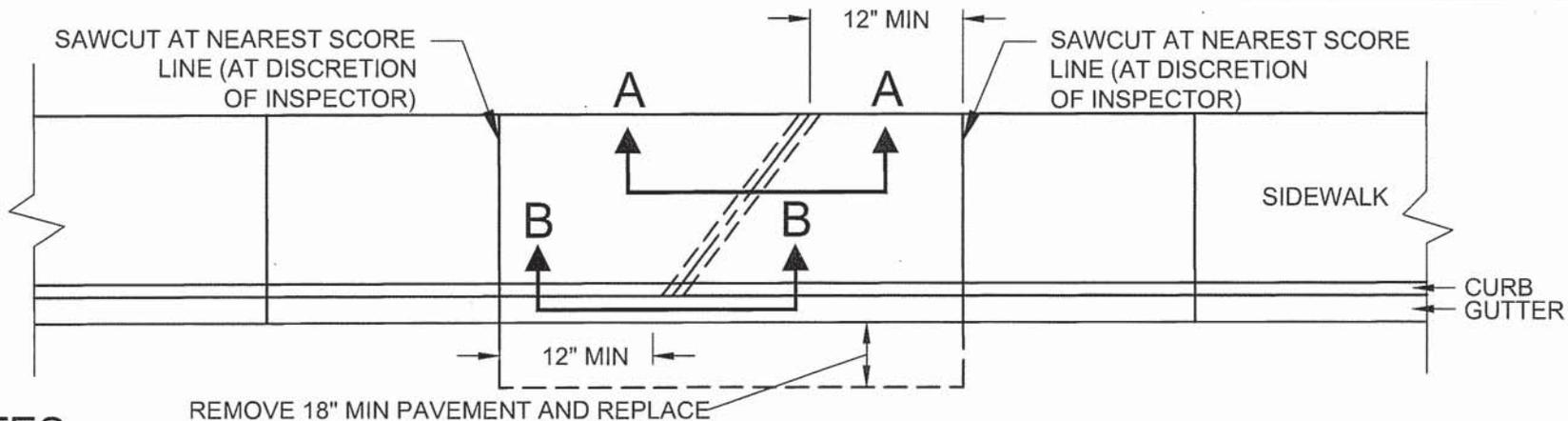


SECTION AT GUTTER FL



GUTTER DEPRESSION
TYPE B1

STREETS: <i>MA</i>	REV. DATE: 11/12	DETAIL: D-04.1
TRANS OPS:	APPROVED: <i>Pat Bell</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christine Anderson</i> PUBLIC WORKS DIRECTOR	

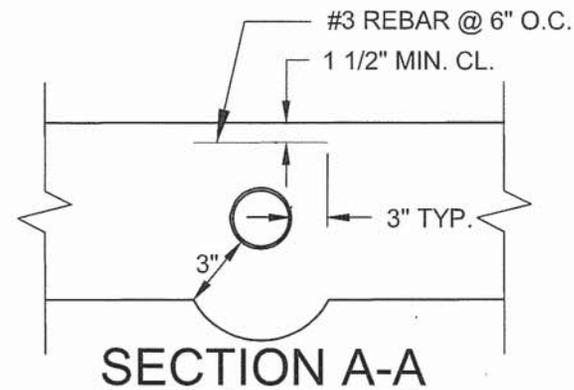


REMOVE 18" MIN PAVEMENT AND REPLACE

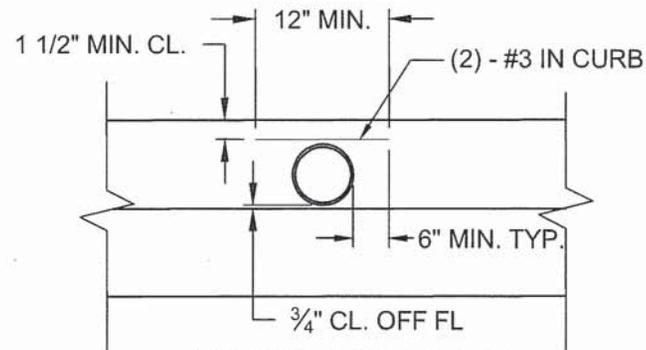
PLAN

NOTES:

1. Drain shall be schedule 40 P.V.C.
2. Replace sidewalk per Standard Details H-06.0 and H-06.1
3. Replace curb and gutter per Standard Detail H-02.
4. A maximum 3 inch diameter pipe shall be used in a 6 inch curb, 4 inch pipe in an 8 inch curb.
5. Pipe(s) shall have a minimum 0.5%, maximum 2% positive slope.
6. The number of pipes at any location shall not exceed four. There shall be a 3 inch minimum clearance between all pipes.
7. In commercial areas, sawcut and remove sidewalk, curb, and gutter per plan above.
8. In residential areas, remove a minimum of one panel length of sidewalk, curb, and gutter. Dowel into gutter.
9. Pipe opening may be core-drilled in existing curb in lieu of curb removal.
10. Property owners are responsible for curb drain maintenance.
11. Curb drain shall be placed a minimum of 5 feet (10 feet preferred) from any driveway, City tree, or intersection curb return.



SECTION A-A

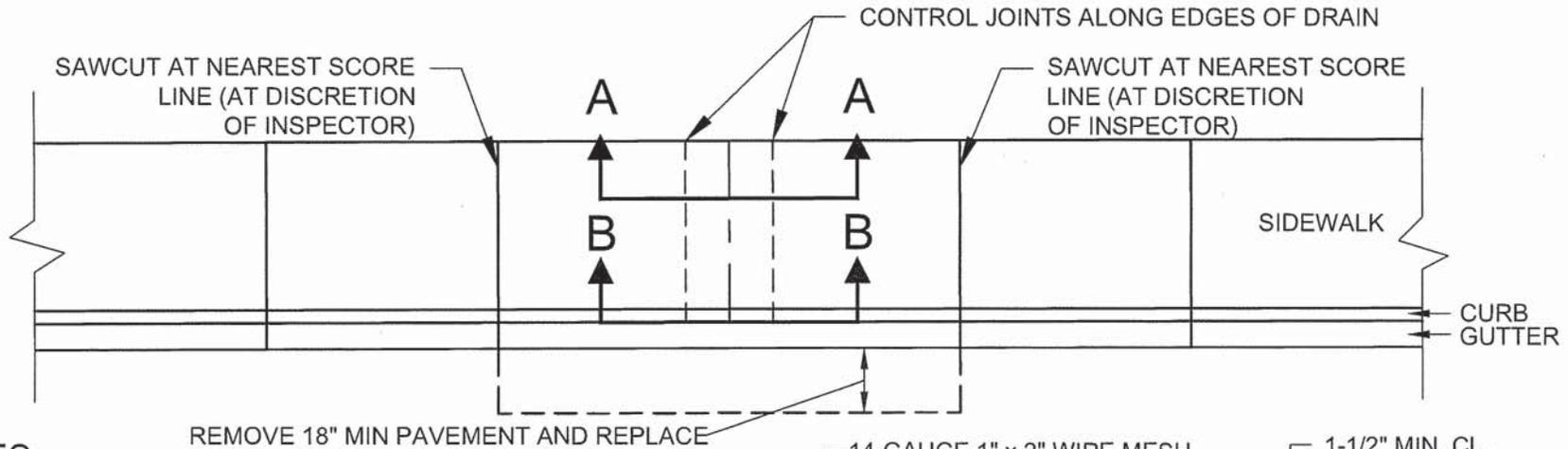


SECTION B-B



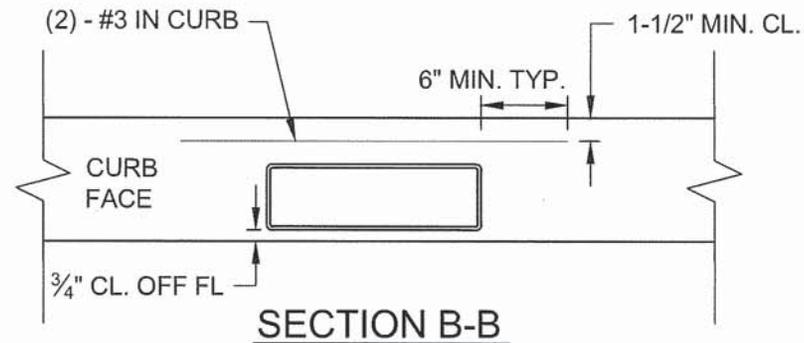
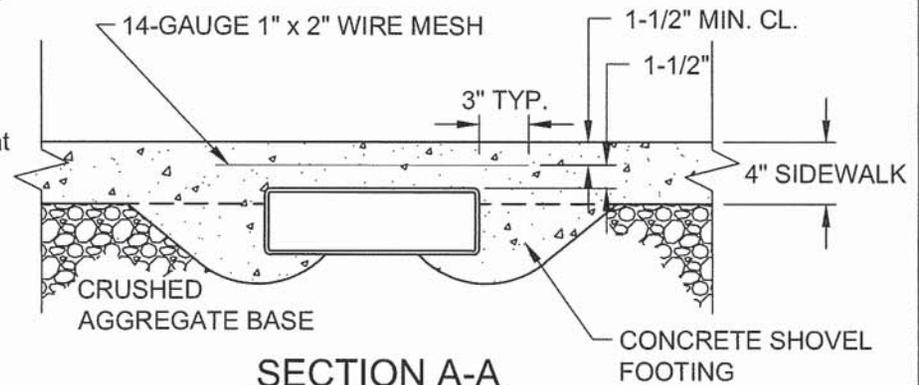
**CURB OUTLET DRAIN
TYPE A**

STREETS:	REV. DATE: 11/12	DETAIL: D-05.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christopher Anderson</i> PUBLIC WORKS DIRECTOR	



NOTES:

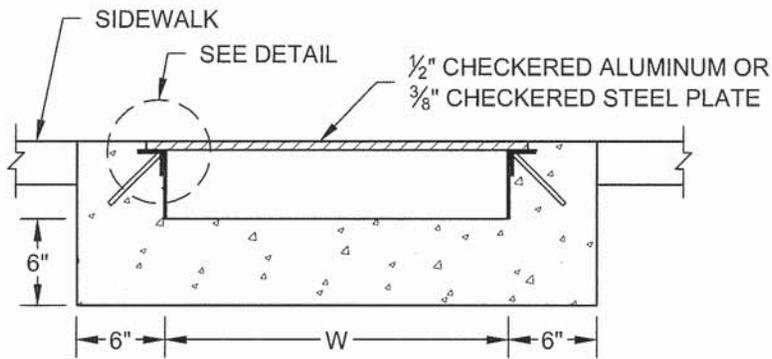
1. Drain shall be Alhambra Foundry A-470 Rectangular Cast Iron Pipe.
2. Where curb height is less than 8 inches, sidewalk may be raised such that the curb height reaches 8 inches at the drain outlet if approved by City inspector.
3. Where curb height is less than 8 inches and sidewalk modification is not possible, a Type A (D-5.0) or Type C (D-05.2) drain shall be used.
4. Replace sidewalk per Standard Details H-06.0 and H-06.1.
5. Replace curb and gutter per Standard Detail H-02.0.
6. Pipe(s) shall have a minimum 0.5%, maximum 2% positive slope.
7. In commercial areas, sawcut and remove sidewalk, curb, and gutter per plan above.
8. In residential areas, remove a minimum of one panel length of sidewalk, curb, and gutter. Dowel into gutter.
9. Property owners are responsible for curb drain maintenance.
10. Curb drain shall be placed a minimum of 5 feet (10 feet preferred) from any driveway, City tree, or intersection curb return.



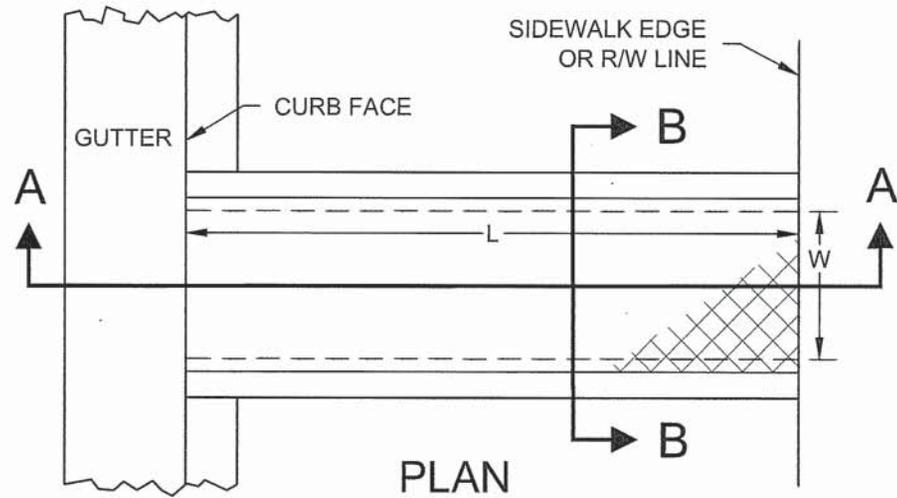
CURB OUTLET DRAIN

TYPE B

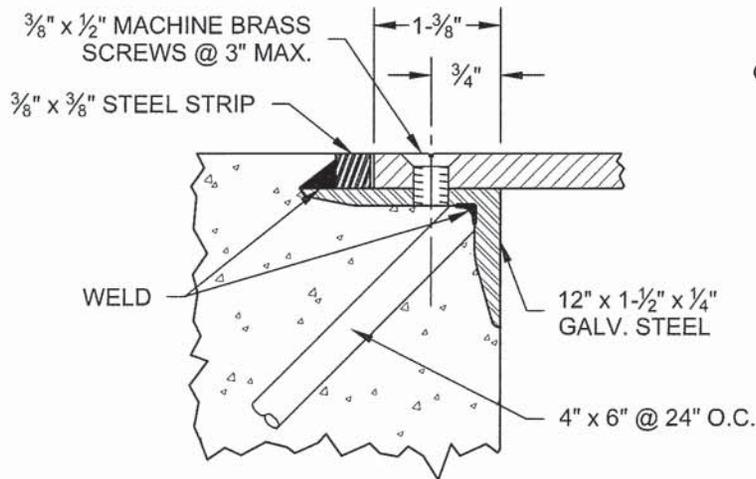
STREETS:	<i>mu</i>	REV. DATE: 11/12	DETAIL: D-05.1
TRANS OPS:		APPROVED:	<i>At Kelly</i>
FACILITIES:		CITY ENGINEER	
WATER RESOURCES:		<i>Christina Pedersen</i>	PUBLIC WORKS DIRECTOR



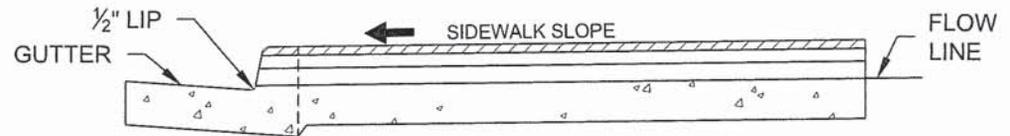
SECTION B-B



PLAN



DETAIL



SECTION A-A

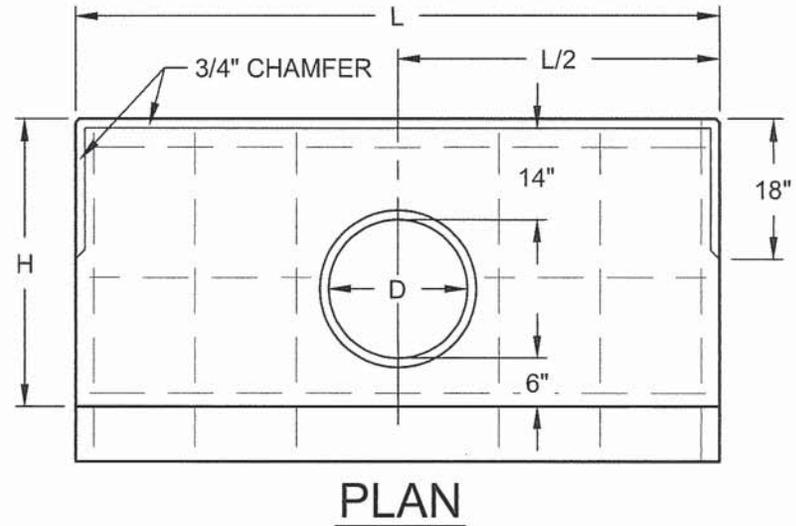
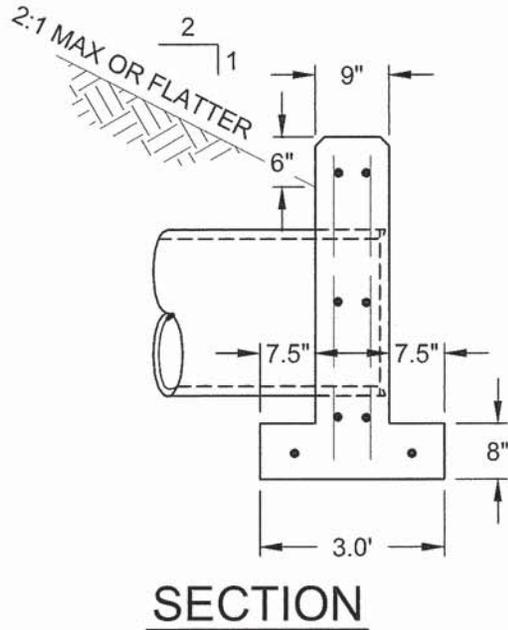
NOTES:

1. L - Length of sidewalk drain as shown on Plans.
2. W - Width of sidewalk drain as shown on Plans, 2' maximum. Widths exceeding 2' shall be approved by City Engineer.
3. Concrete - Class 560-C-3250 per Standard Specifications for Public Works Construction.
4. 3/8" X 3/8" steel strip - tack welded to angle at 12°.
5. All exposed steel to be galvanized after fabrication.
6. For use only when Type A or B curb outlet drain cannot feasibly be installed.
7. Drain shall be a minimum of 10 feet from any driveway or alley entrance.



**CURB OUTLET DRAIN
TYPE C**

STREETS: <i>mu</i>	REV. DATE: 11/12	DETAIL: D-05.2
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i> PUBLIC WORKS DIRECTOR	



D (IN.)	H (FT.)	SINGLE			DOUBLE		
		L (FT.)	STEEL (LBS.)	CONC. (C.Y.)	L (FT.)	STEEL (LBS.)	CONC. (C.Y.)
18	3.17	7.0	50	0.91	10.5	75	1.35
21	3.42	7.5	60	1.02	11.5	90	1.52
24	3.67	8.5	75	1.20	12.5	100	1.72
27	3.92	9.5	85	1.39	14.0	115	2.00
30	4.17	10.0	85	1.52	15.0	126	2.21
33	4.50	11.0	100	1.73	16.0	130	2.42
36	4.67	12.0	105	1.95	17.0	145	2.65
39	4.92	12.5	130	2.09	18.0	170	2.88
42	5.17	13.5	140	2.34	19.0	185	3.13
45	5.42	14.5	150	2.60	20.0	195	3.38
48	5.67	15.0	160	2.75	21.0	200	3.64

NOTES:

1. Concrete - Class 560-C-3250 per Standard Specifications for Public Works Construction (Green Book).
2. Reinforced steel - all horizontal and vertical bars shall be #4 at maximum 18-inch spacing.
3. 3-inch radius around edge at pipe inlet.
4. Double inlet wall - same as single D/2 or 2-foot minimum spacing between pipe inside diameters.



PIPE HEADWALL

STREETS: <i>Mc</i>	REV. DATE: 11/12	DETAIL: D-06.0
TRANS OPS:	APPROVED: <i>Pat Telf</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i> PUBLIC WORKS DIRECTOR	

LIGHTING

<u>NUMBER</u>	<u>TITLE</u>
L-01.0	LIGHT STANDARD - TYPE A AND B NOTES
L-01.1	POLE STANDARD - TYPE A
L-02.0	POLE STANDARD - TYPE B
L-02.1	LUMINAIRE STANDARD - TYPE A-08 AND B-08
L-03.0	POLE STANDARD - TYPE C
L-03.1	LUMINAIRE STANDARD - TYPE C-08
L-04.0	STREET LIGHT PULL BOX
L-05.0	LIGHT STANDARD AND SPACING - NOTES
L-06.0	STATE STREET DECORATIVE LIGHT STANDARD
L-07.0	CHAPALA STREET DECORATIVE LIGHT STANDARD
L-08.0	CARRILLO STREET DECORATIVE LIGHT STANDARD
L-09.0	METER PEDESTAL



LIGHTING TABLE OF CONTENTS

STREETS:	REV. DATE: 11/12	DETAIL: L-00.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES: <i>gld</i>	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i> PUBLIC WORKS DIRECTOR	

NOTES:

1. Improvements constructed under this Standard shall conform to applicable portions of the Standard Specifications for Public Works Construction, latest Edition.
2. Luminaire shall be LED type, G.E. M-250A2 Power/Door luminaire, Cobra Head Roadway Lighting, 120 volt NPF reactor or lag ballast, with luminaire-mounted photoelectric cell. Lens shall be polycarbonate prismatic refractor, "Dome" style, producing I.E.S. medium type III semi-cutoff distribution. Filter shall be fiber gasket type. Equals must be approved by the City Engineer. Where LED bulbs may not be used, HPS bulbs may be substituted with Engineer's approval. A sticker indicating lamp wattage shall be placed on the underside of the arm nearest the pole. For HPS lamps, the sticker shall be yellow with a black number. Wattages shall be 40, 65, 90, or 135 for LED lamps (70, 100, 150, or 250 for high pressure sodium (HPS) lamps). ANY AND ALL OTHER WATTAGES OR BULB TYPES SHALL BE APPROVED BY THE CITY ENGINEER IN WRITING PRIOR TO INSTALLATION.
3. See L-05.0 for pole type and luminaire selection in residential and commercial areas.
4. Light standards shall be manufactured by a centrifugal spinning process using aggregate consisting of black and white pieces, graded from 3/8 inch to a No. 150 sieve, and Type III portland cement conforming to ASTM Designation C150. Reinforcing steel shall consist of deformed steel bars conforming to ASTM Designation 615, and 7-strand uncoated stress-relieved prestressing cable having a minimum ultimate strength of 250,000 PSI. All reinforcing shall be spirally wrapped with cold-drawn wire. The concrete shall develop a minimum compressive strength of 3,500 PSI before removal from the mold. The exterior shall be sandblasted to develop a "marbelite" finish.
5. Underground electrical conduit shall be 1-1/2 inch minimum Schedule 40 P.V.C. electrical conduit, laid with 18 inch minimum cover behind curb within one foot of the curb face, unless shown otherwise on plans. Conduit shall be bundled tightly in the center of the footing. Conduits shall terminate in footings on the same side as the conduit run. A pull box is required within 5 feet of the street light. Conduit shall be "stubbed" not less than 3 inches and not more than 4 inches above the inside surface of street light or pull box.
6. In unmetered lights, install Tron HEB-AB, HEB A-A 30-Amp 600 Volt waterproof in-line fuse and receptacle in each standard base, with a minimum of 12 inches and a maximum of 18 inches in wiring to permit fuse receptacle to be serviced outside the standard. Metered lights and lighting circuits that have circuit breakers installed shall not have in-line fuses installed as well.
7. In addition, all conductor lengths shall be a minimum of 12 inches and a maximum of 18 inches inside hand holes and pull boxes. Contractor shall contact Southern California Edison Company for requirements of service installation, and shall install such service components as Edison requires to energize the system.
8. Power control point shall be the photoelectric cell (PE) located on cobra head pedestal cabinet. Single light has photocell on top of cobra head. Multiple light has photo cell on meter pedestal with a by-pass switch.
9. Foundation concrete shall be Class 560-C-3250, per Standard Specifications for Public Works Construction, latest edition.
10. All exposed steel parts shall be galvanized, stainless, or painted.
11. All power access doors shall be stainless steel and cast aluminum or equivalent. The 1/4 inch screws in the access cover shall be s.s. phillips panhead.
12. All electrical splices shall be per CALTRANS specifications and Standard Plan ES-13.
13. All lights shall be tested in the presence of the Public Works Inspector prior to acceptance.
14. If 3 or more lights are to be installed, a CP3B, Milbank 16" x 17" x 48" (TYPE B) commercial pedestal meter, in Malaga Green color matching the RAL Classic System color RAL6005 shall be installed, with the following: Meter socket with test bypass facility, 100 amps, 120/240 V, #3 wire, 1 main circuit breaker, 14 KAIC, 12 circuit load center with load test switch.



LIGHT STANDARD: TYPES A-08 AND B-08

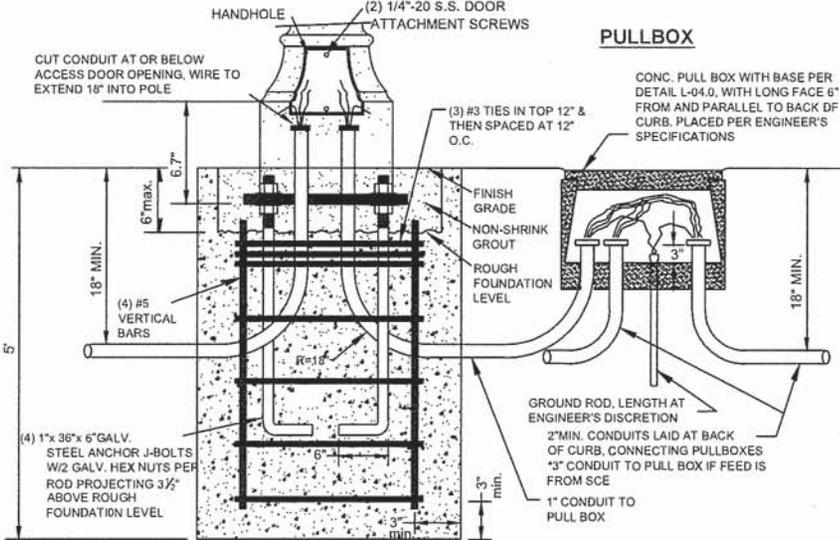
NOTES

STREETS: <i>me</i>	REV. DATE: 11/12	DETAIL: L-01.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES: <i>me</i>	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i> PUBLIC WORKS DIRECTOR	

NOTES:

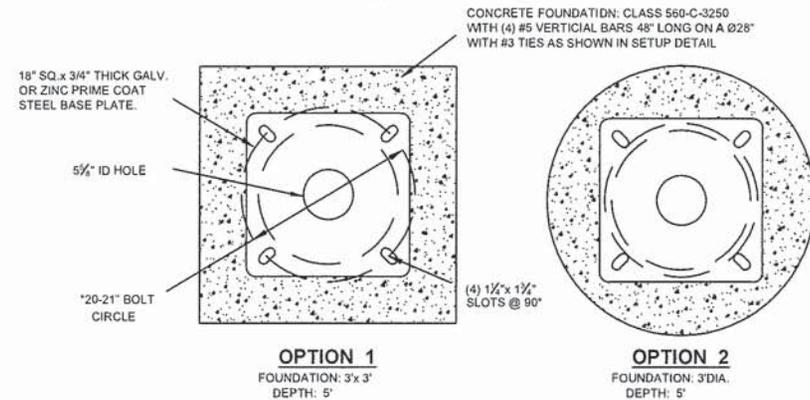
- 1) Install ground rod in pull box.
- 2) Maximum 2 conduits per fixture. 3 conduits require adjacent pull box.
- 3) Dissimilar metals separated dielectrically.
- 4) All bolts, nuts, washers, and hardware shall be galvanized steel.

NOTE - Infield borings in pole may only be in 90° increments in relation to hand hole.



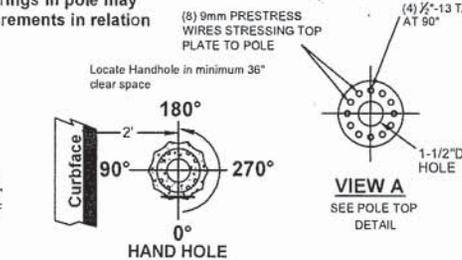
RECOMMENDED MOUNTING SETUP DETAIL

N.T.S.

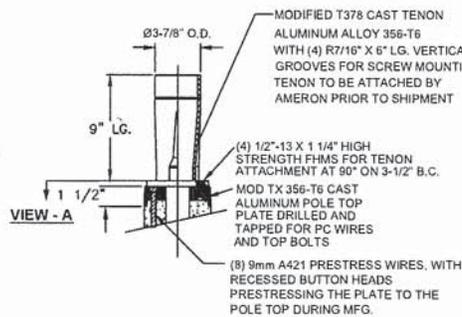


OPTION 1
FOUNDATION: 3'x3'
DEPTH: 5'

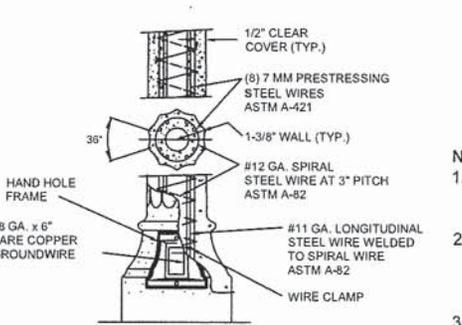
OPTION 2
FOUNDATION: 3'DIA.
DEPTH: 5'



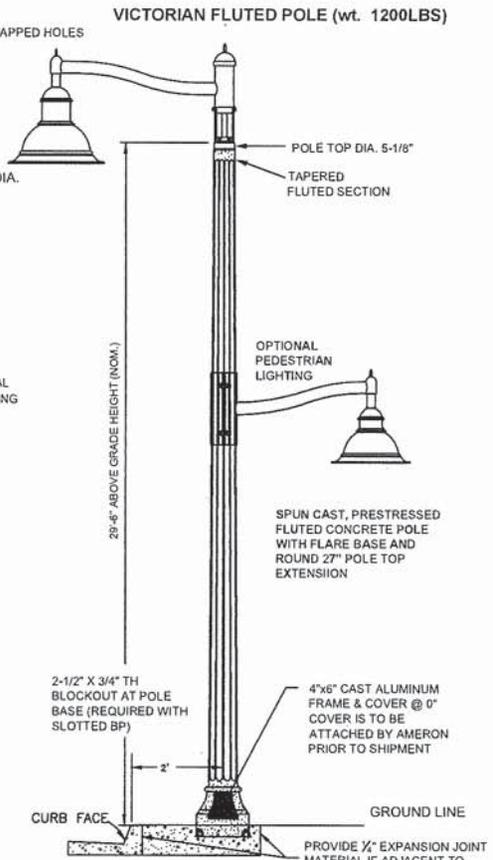
POLE ORIENTATIONS



TOP MOUNT DETAIL



POLE SECTION



NOTES:

1. Contact: Pacific Lighting Sales Inc. 2366 Birtcher Drive, Suite 100 Lake Forest, CA 92630, (949) 597-1633, <http://www.pls-inc.com>
2. Order: Pole VBFX-9.0, Victorian Fluted Pole, Pole Mix (2P3S) Santa Barbara Black & White exposed aggregate finish, with flat water sealer coating - ASTM C-150 TYPE III gray cement.
3. Specify Tamper Proof Door Screws.
4. Baseplate is included
5. (4) 1"x36"x6" galvanized steel bolts & hardware included.
6. Pole Top designed for max 12LMA w/2.1sq.ft. luminaire.



POLE STANDARD

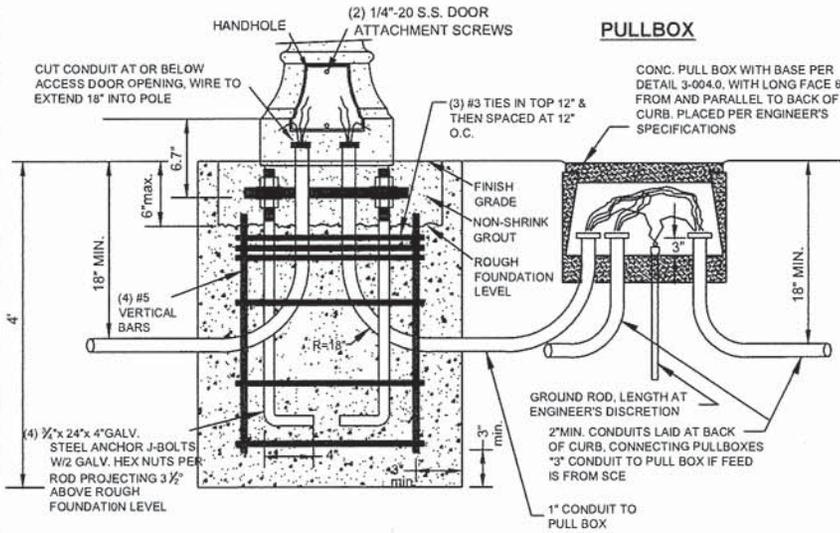
TYPE A-08

STREETS:	REV. DATE: 11/12	DETAIL: L-01.1
TRANS OPS:	APPROVED: <i>Bob Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	PUBLIC WORKS DIRECTOR	

NOTES:

- 1) Install ground rod in pull box.
- 2) Maximum 2 conduits per fixture. 3 conduits require adjacent pull box.
- 3) Dissimilar metals separated dielectrically.
- 4) All bolts, nuts, washers, and hardware shall be galvanized steel.

NOTE - Infield borings in pole may only be in 90° increments in relation to hand hole.

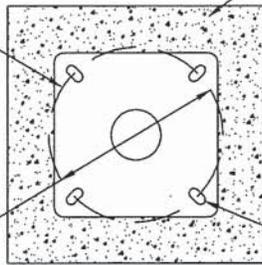


RECOMMENDED MOUNTING SETUP DETAIL

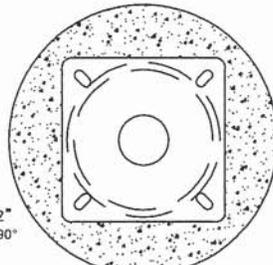
N.T.S.

CONCRETE FOUNDATION: CLASS 560-C-3250 WITH (4) #5 VERTICAL BARS 48\"/>

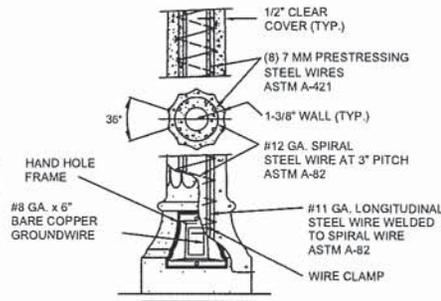
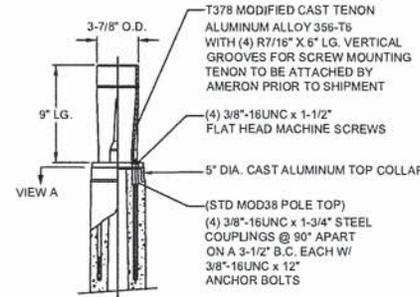
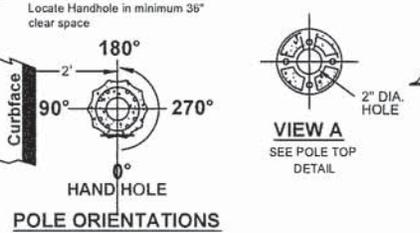
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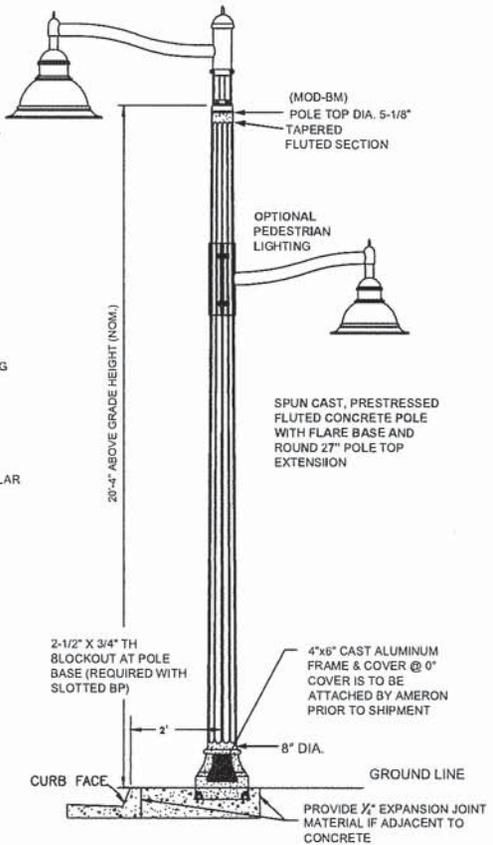
OPTION 1
FOUNDATION: 3'x3'
DEPTH: 4'



OPTION 2
FOUNDATION: 3'DIA.
DEPTH: 4'



VICTORIAN FLUTED POLE (wt. 800LBS)

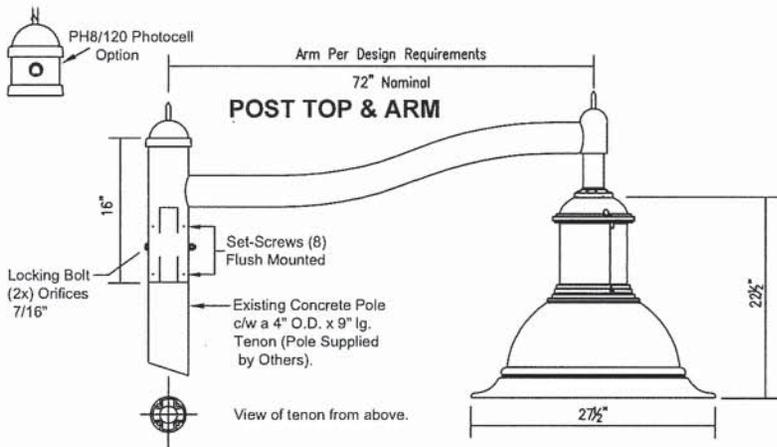


- NOTES:**
1. Contact: Pacific Lighting Sales Inc. 2366 Birtcher Drive, Suite 100 Lake Forest, CA 92630, (949) 597-1633, <http://www.pls-inc.com>
 2. Order: Pole VBF06.2SPL, Victorian Fluted Pole, Pole Mix (2P3S) Santa Barbara Black & White exposed aggregate finish, with flat water sealer coating - ASTM C-150 TYPE III gray cement.
 3. Specify Tamper Proof Door Screws.
 4. Baseplate is included.
 5. (4) 3/4\"/>



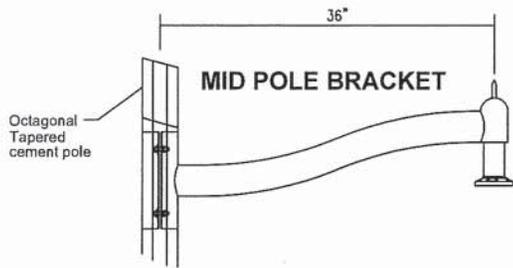
POLE STANDARD
TYPE B-08

STREETS: <i>na</i>	REV. DATE: 11/12	DETAIL: L-02.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES: <i>glo</i>	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Andersen</i> PUBLIC WORKS DIRECTOR	



Luminaire: See L-05.0 for luminaire selection details.

Post Top Arm: Standard - 6'
Optional - 8', 10', 12'



Adapter: Aluminum Clamps, mechanically fastened to pole by stainless steel bolts and nuts. For installation on octagonal tapered cement pole.

Description of Components:

- Lamp:** As specified by Contract requirements. Default shall be LED type.
- Optical System:** (TH3F), I.E.S. type III hyper-extensive (asymmetrical). Horizontal lamp position in a 15 degree angle. **Weather tightness IP66 rating.** This assembly is toolfree removable from the technical ring.
- Ballast:** Matching Ballast included with lamp. Connected to 120 volts. Assembled on a unitized removable tray with quick disconnect plug.
- Access-Mechanism:** A die cast 360 aluminum technical ring with latch and hinge complete with a cast-in reflector. The mechanism shall offer toolfree access to the inside of the luminaire. An embedded memory-retentive gasket shall ensure weatherproofing.
- Central Tubing:** Made of aluminum tubing, 4 1/2" outside diameter, slip fits over a 4" diameter by 9" long pole tenon, mechanically fastened by two levels of 3/8-16 UNC set-screws & a 3/8" Locking Bolt.
- Photo Cell:** Twist lock type photocell, 120 volts, complete with an orientable cover. (Optional)
- Hardware:** All exposed screws will be in stainless steel. All seals and sealing devices are made and/or lined with EPDM and/or silicone.
- Finish:** Lumec custom color **PS311G128 Malaga Green** (SC1TX) or matching RAL Classic System color RAL6005.

NOTES:

1. Contact: Prudential Lighting Products, (805) 598-3973, <http://www.plpnorth.com>
2. Order: Luminaire as specified by contract (default shall be LED type), and request arm length as specified by contract. Mid Pole Bracket, if required by contract, is pole specific and includes arm.
3. Post Top, Arm, Mid Pole Bracket and installation hardware, including 3/8" locking bolt, to be provided by manufacturer.
4. 7/16" hole to be drilled in Post Top by Contractor.
5. 7/16" bore hole thru pole tenon for locking bolt to be drilled by Contractor.
6. Post Top & Arm, and Mid Pole Bracket alignment typically perpendicular to curbface, must be prior approved by Project Engineer.
7. Mid Pole Bracket location height on pole is set approximately at 14'. Contractor will bore electrical access hole in pole.
8. Optical system to be aligned in field per Manufacturers Streetside direction label identified in fixture.
9. A sticker indicating lamp wattage shall be placed on the underside of the arm nearest the pole. For HPS lamps, the sticker shall be yellow with a black number.



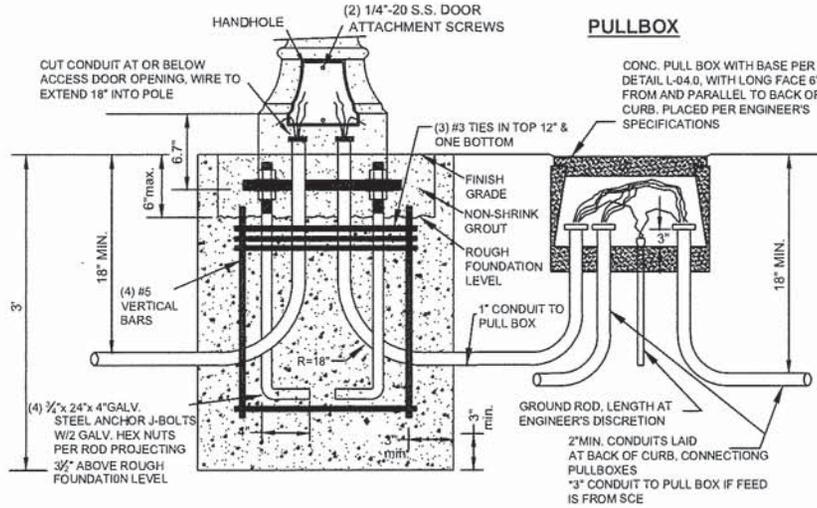
LUMINAIRE STANDARD
TYPE A-08 AND TYPE B-08

STREETS: <i>[Signature]</i>	REV. DATE: 11/12	DETAIL: L-02.1
TRANS OPS:	APPROVED: <i>[Signature]</i>	
FACILITIES: <i>[Signature]</i>	CITY ENGINEER	
WATER RESOURCES:	<i>[Signature]</i> PUBLIC WORKS DIRECTOR	

NOTES:

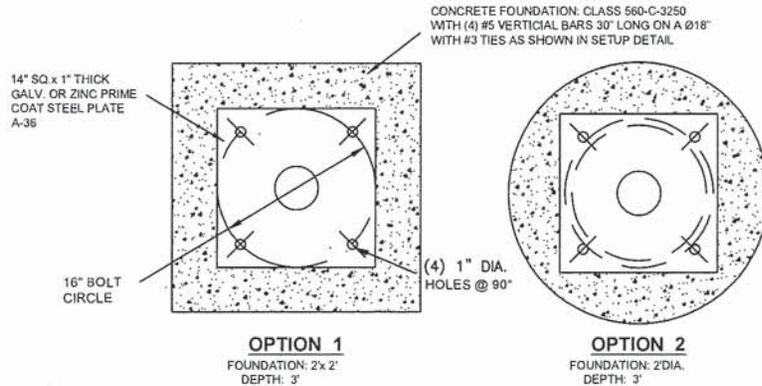
- 1) Install ground rod in pull box.
- 2) Maximum 2 conduits per fixture. 3 conduits require adjacent pull box.
- 3) Dissimilar metals separated dielectrically.
- 4) All bolts, nuts, washers, and hardware shall be galvanized steel.

NOTE - In-field borings in pole may only be in 90° increments in relation to hand hole.



RECOMMENDED MOUNTING SETUP DETAIL

N.T.S.

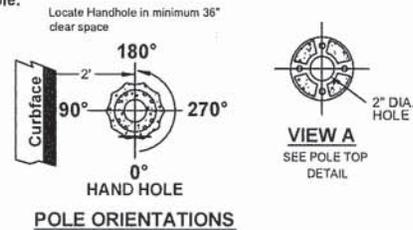


OPTION 1

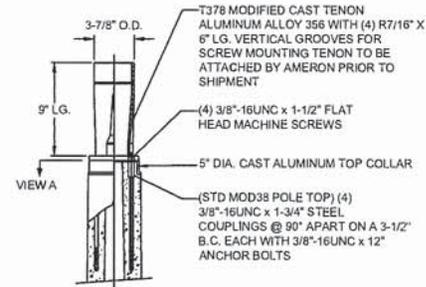
FOUNDATION: 2' x 2'
DEPTH: 3'

OPTION 2

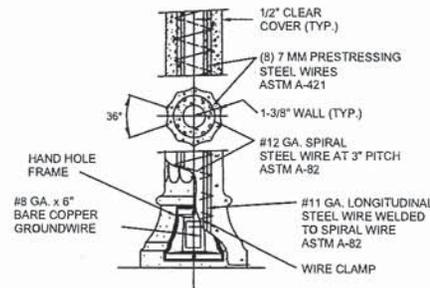
FOUNDATION: 2'DIA.
DEPTH: 3'



POLE ORIENTATIONS

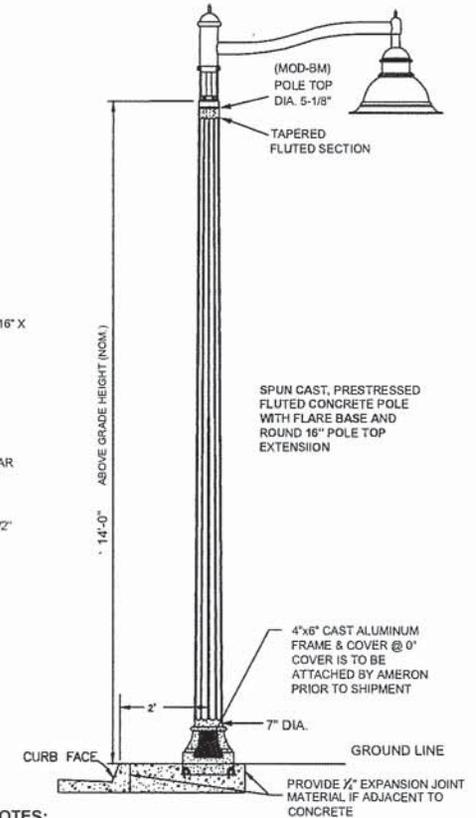


POLE TOP DETAIL



POLE SECTION

VICTORIAN FLUTED POLE (wt. 500LBS)



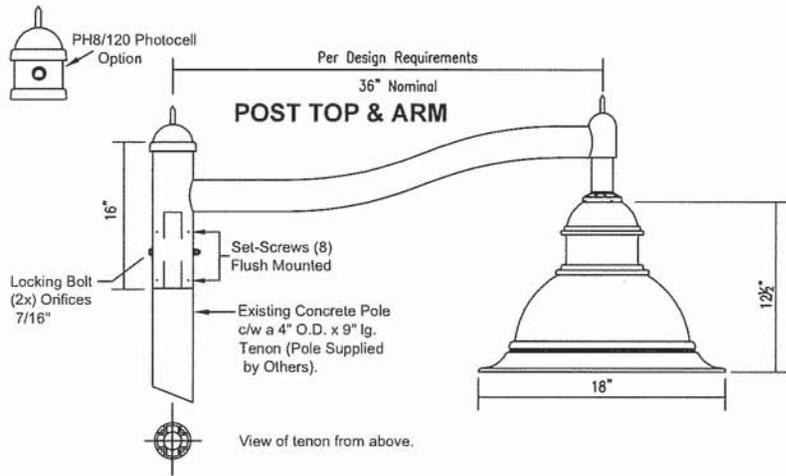
NOTES:

1. Contact: Pacific Lighting Sales Inc. 2366 Birch Drive, Suite 100 Lake Forest, CA 92630, (949) 597-1633, <http://www.pls-inc.com>
2. Order: Pole VBF04.7SPL, Victorian Fluted Pole, Pole Mix (2P3S) Santa Barbara Black & White exposed aggregate finish, with flat water sealer coating - ASTM C-150 TYPE III gray cement.
3. Specify Tamper Proof Door Screws.
4. Baseplate is included.
5. (4) 3/4\"/>
- 6. MOD-BM: Plug down pole length to 14'-3\"/>



POLE STANDARD
TYPE C-08

STREETS:	REV. DATE: 11/12	DETAIL: L-03.0
TRANS OPS:	APPROVED: <i>RH Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i> PUBLIC WORKS DIRECTOR	

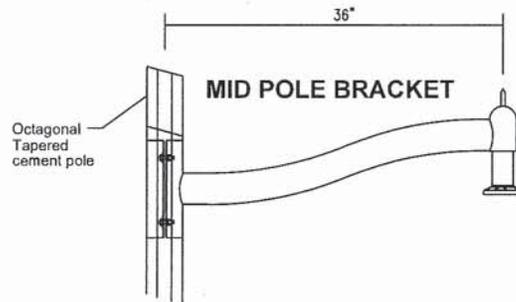


Description of Components:

Lamp: As specified by Contract Requirements. Default shall be LED type.
Optical System: (SG2), I.E.S. type II (asymmetrical). Reflector composed of a chemically brightened multi-faceted anodized aluminum, mounted on a white frame. This assembly allows for a full rotation of the optical system in 90 degree increments.
Ballast: Matching Ballast included with Lamp. Connected to 120 volts. Assembled on a unitized removable tray with quick disconnect plug.
Access-Mechanism: A die cast A380 aluminum technical ring with a cast-in decorative skirt. An integrated hinge and a captive knurled thumb screw offer a tool free access to the inside of the luminaire and to the lamp. An embedded memory-retentive gasket shall ensure weatherproofing.
Central Tubing: Made of aluminum tubing, 4½" outside diameter, slip fits over a 4" diameter by 9" long pole tenon, mechanically fastened by two levels of 3/8-16 UNC sets-screws.
Photo Cell: Twist lock type photocell, 120 volts, complete with an orientable cover. (Optional)
Hardware: All exposed screws will be in stainless steel. All seals and sealing devices are made and/or lined with EPDM and/or silicone.
Finish: Lumec custom color **PS311G128 Malaga Green** (SC1TX) or matching RAL Classic System color RAL6005.

Luminaire: See L05.0 for luminaire selection details.

Post Top Arm: Standard - 3'
 Optional - 4'



Adapter: Aluminum Clamps, mechanically fastened to pole by stainless steel bolts and nuts. For installation on octagonal tapered cement pole.

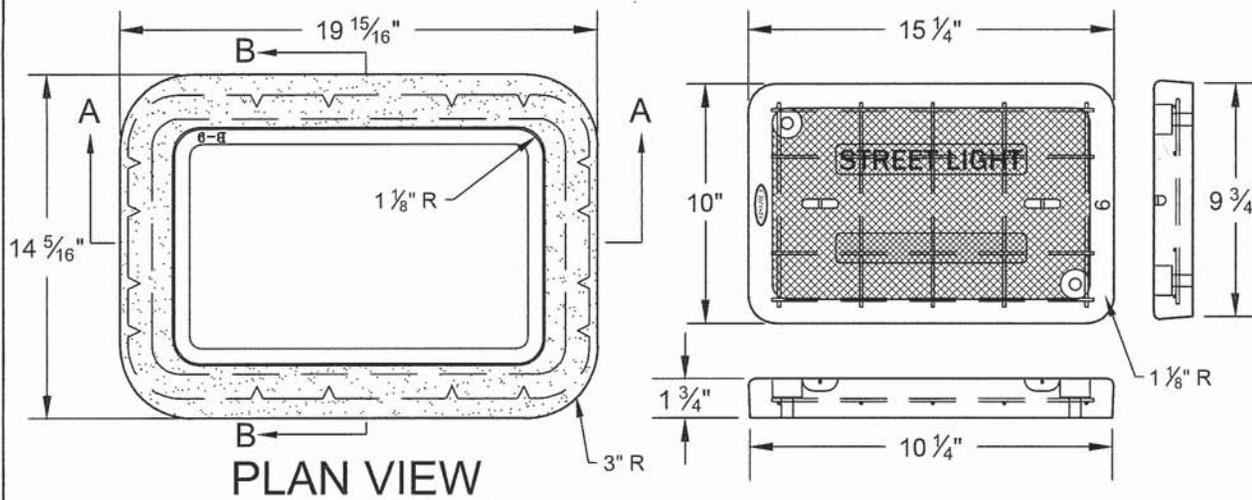
NOTES:

1. Contact: Prudential Lighting Products, (805) 598-3973, <http://www.plpnorth.com>
2. Order: Luminaire as specified by contract (default shall be LED type), and request arm length as specified by contract. Mid Pole Bracket, if required by contract, is pole specific and includes arm.
3. Post Top, Arm, Mid Pole Bracket and installation hardware, including 3/8" locking bolt, to be provided by manufacturer.
4. 7/16" hole to be drilled in Post Top by Contractor.
5. 7/16" bore hole thru pole tenon for locking bolt to be drilled by Contractor.
6. Post Top & Arm, and Mid Pole Bracket alignment typically perpendicular to curbface, must be prior approved by Project Engineer.
7. Mid Pole Bracket location height on pole is set approximately at 14'. Contractor will bore electrical access hole in pole.
8. Optical system to be aligned in field per Manufacturers Streetside direction label identified in fixture.
9. A sticker indicating lamp wattage shall be placed on the underside of the arm nearest the pole. For HPS lamps, the sticker shall be yellow with a black number.



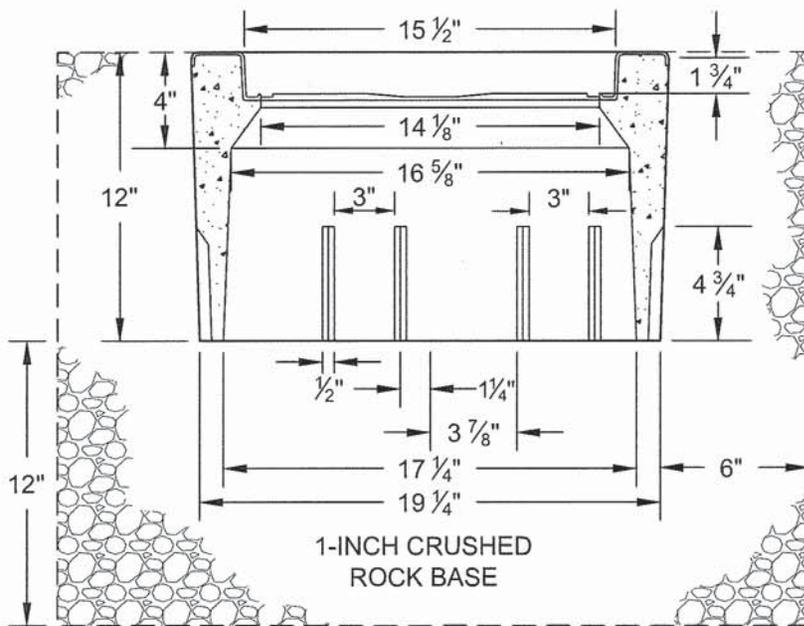
LUMINAIRE STANDARD
TYPE C-08

STREETS: <i>ma</i>	REV. DATE: 11/12	DETAIL: L-03.1
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES: <i>gal</i>	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i> PUBLIC WORKS DIRECTOR	

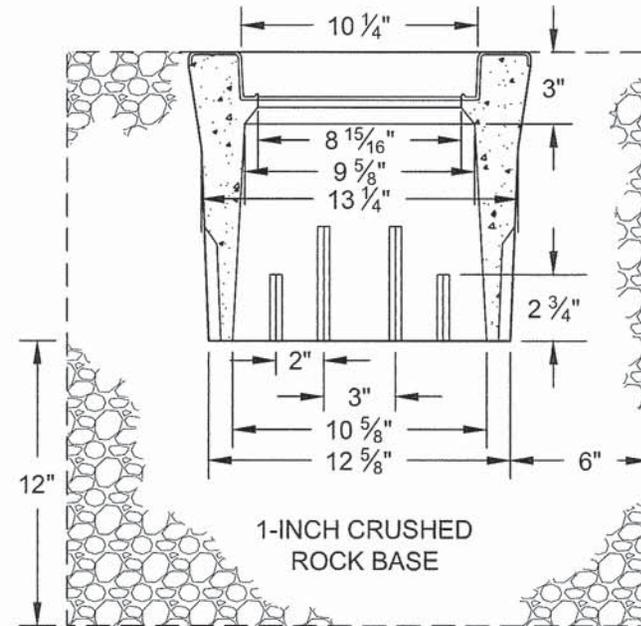


NOTES:

1. Pull box shall be Christy N9 pull box with N9T skid resistant Fibrelite lid with bolt downs unless otherwise specified.
2. Bottom of pull box shall rest firmly on a 12 inch thick bed of 1 inch crushed rock extending 6 inches beyond the outside walls of the box.



SECTION A-A



SECTION B-B



STREET LIGHT PULL BOX

STREETS:	<i>ma</i>	REV. DATE: 11/12	DETAIL: L-04.0
TRANS OPS:		APPROVED:	<i>Pat Kelly</i>
FACILITIES:	<i>gal</i>	CITY ENGINEER	
WATER RESOURCES:		<i>Christina Anderson</i>	PUBLIC WORKS DIRECTOR

NOTES:

1. All ornamental street lighting cable systems shall be underground, rather than overhead.
2. Location of street light standards to be approved by City Building Maintenance (805) 564-5415, prior to installation.
3. Residential light standards shall be spaced on lot lines not more than two hundred-fifty (250) feet apart approximately.
4. Where commercial or industrial lot frontages are involved, light standards shall be spaced one hundred (100) feet apart.
5. All other features of street lighting systems shall meet the requirements of the Public Works Department which shall be established to achieve safety, maximum life, low maintenance cost, adequate illumination and structural soundness.
6. All pull boxes shall be set at the back of the curb. Roadway pull boxes are for replacement purposes only.
7. All pull boxes shall be set in accordance with N.E.C. and CALTRANS Standards.
8. When the distance between street lights is greater than 100 feet, a pull box must be set every 100 feet for pulling wire.
9. Recommended Pole Type and Luminaire for Commercial or Residential Use:

Commercial

Location	Pole Type	Watt - Output	Order Part # : HPS/LED**
Intersection***	A	250	HPS: DMS55-250HPS-TH3F-QTA/120-1A-SC1TX LED: DMS55-135W80LED4K-ES-LE3F-120-(B-LCP-031)-1A-SCZT311G151TX
Mid-Block	A	250	HPS: DMS55-250HPS-TH3F-QTA/120-1A-SC1TX LED: DMS55-135W80LED4K-ES-LE2F-120-(B-LCP-031)-1A-SCZT311G151TX
Sidewalk	C	70	HPS: DOS-70HPS-SG2-120-LMS-1A-SC1TX LED: DOS-40W30LED4K-ES-LE2F-120-(B-LCP-030)-1A-TS-SCZT311G151TX

Residential

Location	Pole Type	Watt - Output	Order Part # : HPS/LED**
Intersection***	B	150*	HPS: DMS55-150HPS-TH3F-QTA/120-1A-SC1TX LED: DMS55-90W80LED4K-ES-LE3F-120-(B-LCP-031)-1A-SCZT311G151TX
Mid-Block	B	70	HPS: DMS55-70HPS-TH3F-GL-QTA/120-1A-SC1TX LED: DMS55-40W49LED4K-LE2F-120-(B-LCP-031)-1A-SCZT311G151TX
Sidewalk	C	70	HPS: DOS-70HPS-SG2-120-LMS-1A-SC1TX LED: DOS-40W30LED4K-ES-LE2F-120-(B-LCP-030)-1A-TS-SCZT311G151TX

*Alternate Output: 100 HPS: DMS55-100HPS-TH3F-QTA/120-1A-SC1TX
LED: DMS55-70W64LED4K-ES-LE3F-120-(B-LCP-031)-1A-SCZT311G151TX

**Listed LED Part#'s are HPS Wattage Output equivalents

***In residential and commercial areas where there are two lights diagonal from each other across an intersection, 65 watt LED (or 100 watt HPS) bulbs may be used.

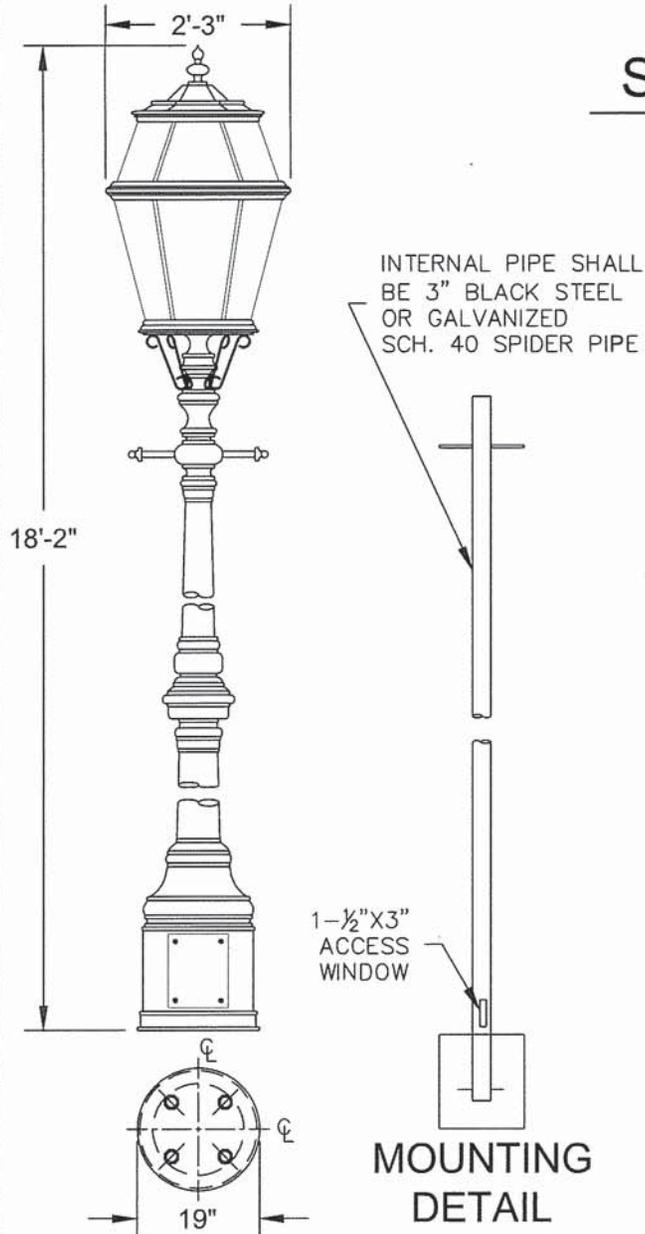


**LIGHT STANDARD AND SPACING
NOTES**

STREETS: <i>mc</i>	REV. DATE: 11/12	DETAIL: L-05.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES: <i>gal</i>	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Andersen</i> PUBLIC WORKS DIRECTOR	

STATE STREET ORNAMENTAL PARTS LIST

FOR PROPRIETY CITY LIGHTING WITH CITY OWNED MOULDS.
CONTACT FACILITIES MAINTENANCE FOR VENDOR IDENTIFICATION.



PART NUMBER	PART NAME	# OF PIECES PER STD.
27-90723	TOP RING	1
23-64831	CENTER RING	1
23-64820	BOTTOM RING	1
23-79760	SHORT STAVE	6
23-70903	LONG STAVE	6
23-90700	TOP COVER	1
23-90720	TOP ORNAMENT	1
P-28-82-01	BASE CASTING	1
P-28-82-02	LOWER RISER TUBE 6"	1
P-28-82-03	CENTER CASTING	1
P-28-82-04	UPPER RISER TUBE	1
P-28-82-05	TOP CASTING	1
P-28-82-06	TOP PLATE LAMP MOUNT	1
P-28-82-07	ORNAMENTAL "S"	6
P-28-82-08	LADDER SUPPORT ARMS	2
N/A	GLASS REFRACTOR W/MOUNT (CITY SUPPLIED)	1
N/A	SMALL LEXAN LENS	6
N/A	LARGE LEXAN LENS	6

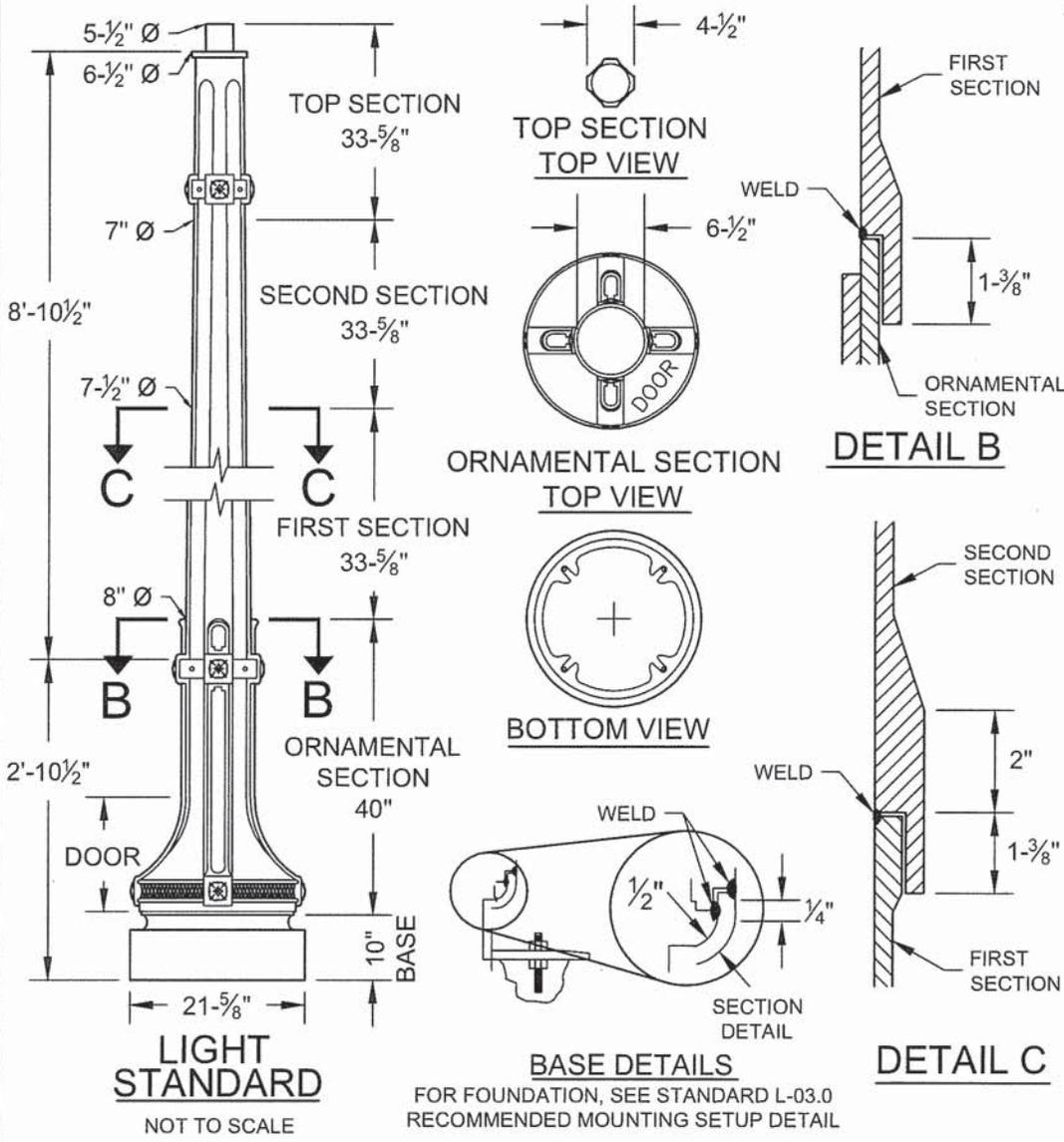
NOTES:

1. FOR FOOTING, SEE CITY STANDARD L-02.0 RECOMMENDED MOUNTING SETUP DETAIL (TYPE B)
2. CONTACT CITY BUILDING MAINTENANCE AT (805) 564-5415 FOR LIGHT STANDARD INFORMATION.
3. "MALAGA GREEN" COLOR SHALL MATCH THAT OF THE RAL CLASSIC SYSTEM COLOR RAL6005.



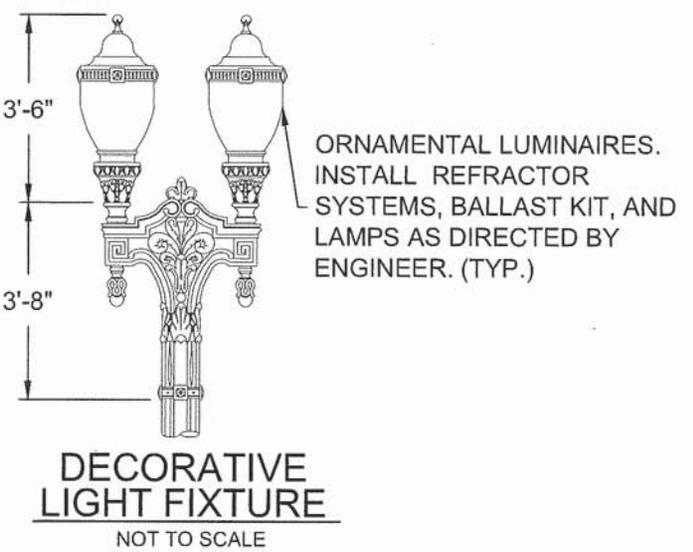
STATE STREET DECORATIVE LIGHT STANDARD

STREETS: <i>MB</i>	REV. DATE: 11/12	DETAIL: L-06.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES: <i>gal</i>	CITY ENGINEER	
WATER RESOURCES:	PUBLIC WORKS DIRECTOR <i>Christopher Quilley</i>	



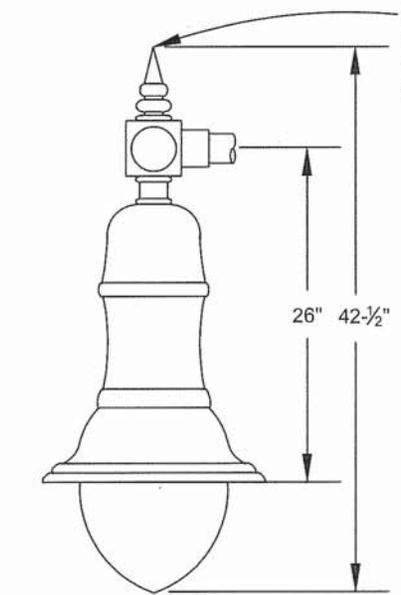
LIGHT STANDARD SPECIFICATIONS

FOOTING: SEE STANDARD DETAIL L-02.0
STYLE: LANSING RESIDENTIAL STANDARD
HEIGHT: 11'-9"
BASE: 21'-5/8"
BOLT CIRCLE: 13" DIAMETER
ANCHOR BOLTS: (4) 3/4" X 24" H.D. GALVANIZED STEEL
MATERIAL: 60-45-10 CAST DUCTILE IRON WITH CASTING CERTIFIED ANALYSIS
ACCESS DOOR: 2-3/8" X 8-3/8" X 11"
TENON: 3-1/4" DIAMETER X 3" HEIGHT, CAST-IN TO BE EXACT IN SHAPE AND DIMENSIONS TO THE ORIGINAL KING 0-61 FRENCH DESIGN STANDARD
FINISH: PAINT "MALAGA GREEN" POWDER COAT MATCHING RAL CLASSIC SYSTEM COLOR RAL6005



CHAPALA STREET DECORATIVE LIGHT STANDARD

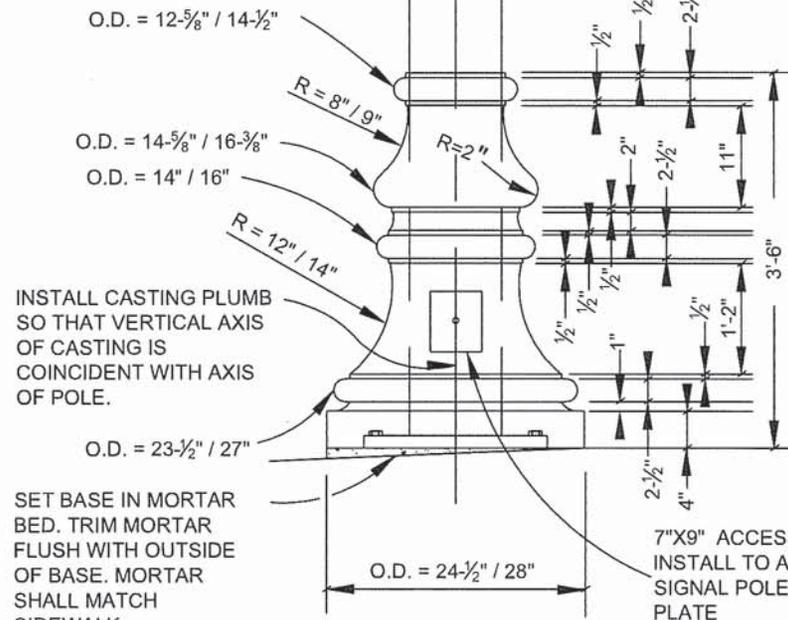
STREETS: <i>na</i>	REV. DATE: 11/12	DETAIL: L-07.0
TRANS OPS:	APPROVED: <i>[Signature]</i>	
FACILITIES: <i>gno</i>	CITY ENGINEER	
WATER RESOURCES:	PUBLIC WORKS DIRECTOR <i>[Signature]</i>	



HANGING LIGHT FIXTURE

NOT TO SCALE

WELSBACK LIGHTING FIXTURE
NO. T7PH39D3/SB. PAINT "MALAGA GREEN" COLOR MATCHING THE RAL CLASSIC SYSTEM COLOR "RAL6005"



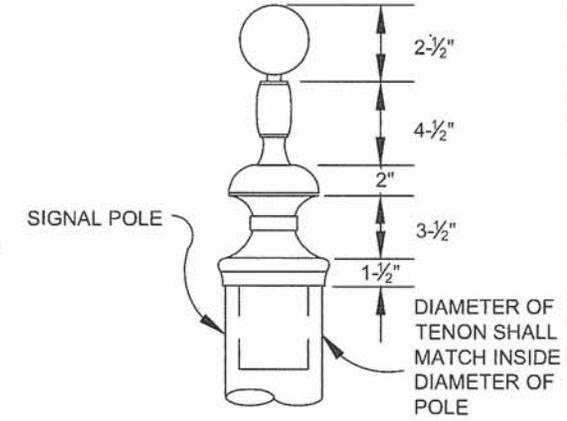
INSTALL CASTING PLUMB SO THAT VERTICAL AXIS OF CASTING IS COINCIDENT WITH AXIS OF POLE.

SET BASE IN MORTAR BED. TRIM MORTAR FLUSH WITH OUTSIDE OF BASE. MORTAR SHALL MATCH SIDEWALK

DIMENSION KEY
TYPE 17A/TYPE 19A

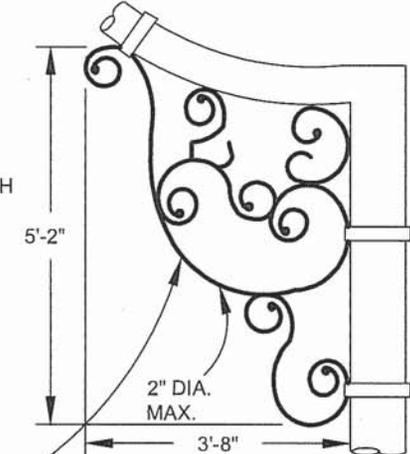
CAST BASE DETAIL

NOT TO SCALE



FINIAL DETAIL

NOT TO SCALE



DECORATIVE BRACKET

NOT TO SCALE

CAST ALUMINUM BRACKET. PAINT "MALAGA GREEN" COLOR MATCHING THE RAL CLASSIC SYSTEM COLOR "RAL6005"

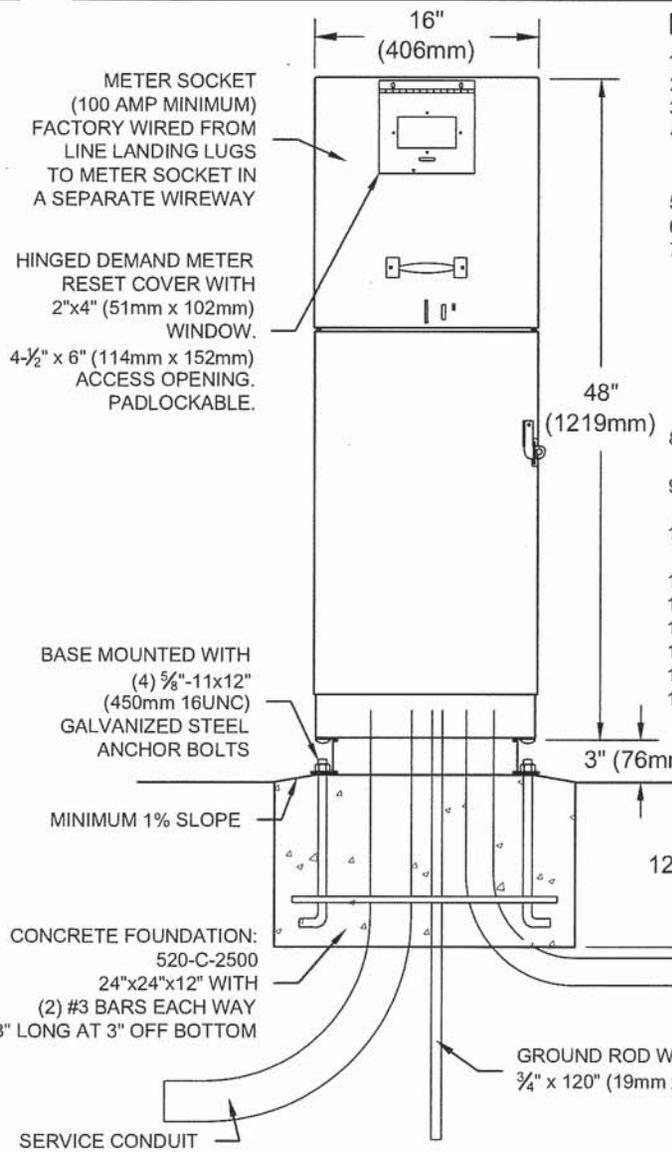
NOTES:

1. Pole is the standard Caltrans type, painted "Malaga Green" color matching the RAL Classic System color "RAL6005"
2. Light standard is 30 feet tall from the sidewalk to the base of the finial.
3. For foundation, see Standard Detail L-01.1 Recommended Mounting Setup Detail.



CARRILLO STREET DECORATIVE LIGHT STANDARD

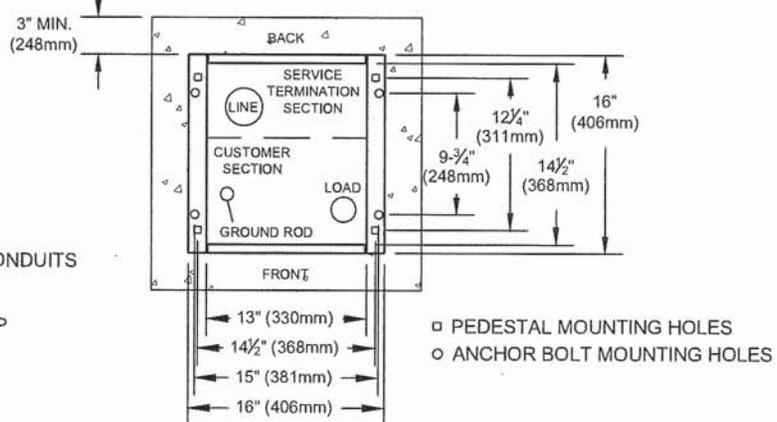
STREETS: <i>ma</i>	REV. DATE: 11/12	DETAIL: L-08.0
TRANS OPS:	APPROVED: <i>RH Kelly</i>	
FACILITIES: <i>gwl</i>	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Pedersen</i> PUBLIC WORKS DIRECTOR	



FRONT VIEW

NOTES:

1. Control cabinet shall be U/L listed "Industrial Control Panel" per UL 508.
2. Construction shall be NEMA 3R.
3. Voltage ratings of service equipment shall conform to the service voltages indicated on the plans.
4. Service equipment enclosure and metering equipment shall meet the requirements of the serving utility. When the serving utility provides both metered and unmetered circuits, a separate bus shall be provided for each circuit. The meter area shall have a sealable, lockable, raintight cover that can be removed without the use of tools.
5. Service equipment shall be factory wired and conform to NEMA standards.
6. The exterior door shall have provisions for padlocking. The padlock hole shall be a minimum diameter of 11mm.
7. All terminals for incoming service conductors shall be compatible with either copper or aluminum conductors sized to suit the conductors shown on the plan. Terminal lugs shall be copper or tin-plated aluminum. Solid neutral terminal strip shall be rated 125A unless otherwise specified and for use with copper or aluminum conductors. The terminal should include but not limited to:
 - A. Incoming terminals (landing lugs)
 - B. Neutral lugs
 - C. Solid neutral terminal strip
 - D. Terminal strips for conductors within the enclosure
8. At least 6 standard single pole circuit breaker spaces (20 mm nominal) shall be provided for branch circuits. Circuit breaker interiors shall be copper. Interiors shall accept plug-in or cable-in/cable-out circuit breakers.
9. Plug-in circuit breakers may be mounted in the vertical or horizontal position. Cable-in/cable-out circuit breakers shall be mounted in the vertical position.
10. Fasteners on the exterior of the enclosure shall be vandal resistant and shall not be removable from the exterior. All nuts, bolts, screws, washers, and hinges shall be stainless steel.
11. Phenolic name plates shall be provided as required.
12. A plastic covered wiring diagram shall be attached to the inside of the front door.
13. Foundation shall be 24"x24"x12" and extend 3" (76mm) beyond edges of enclosure.
14. There shall be at least 36" (914mm) clearance at front and back of meter pedestal as required per N.E.C. 110-16.
15. Front of meter shall not face the street. Directional placement shall be at discretion of inspector.
16. Exterior color of meter pedestal shall be "Malaga Green" matching the RAL Classic System color "RAL6005"



MOUNTING BASE DETAIL (TOP VIEW)



METER PEDESTAL

STREETS:	<i>no</i>	REV. DATE: 11/12	DETAIL: L-09.0
TRANS OPS:		APPROVED:	<i>H. Kelly</i>
FACILITIES:	<i>gal</i>	CITY ENGINEER	
WATER RESOURCES:		<i>Christina C. Cordero</i>	PUBLIC WORKS DIRECTOR

SANITARY SEWER

<u>NUMBER</u>	<u>TITLE</u>
S-01.0	PRECAST CONCRETE MANHOLE - NOTES
S-01.1	PRECAST CONCRETE MANHOLE
S-02.0	DROP SEWER CONNECTION
S-03.0	CLEANOUT
S-04.0	SEWER LATERAL - NOTES
S-04.1	SEWER LATERAL - DETAIL
S-05.0	CHIMNEY
S-06.0	SEWER MANHOLE ADJUSTMENT - NOTES
S-06.1	SEWER MANHOLE ADJUSTMENT



SANITARY SEWER

TABLE OF CONTENTS

STREETS:	REV. DATE: 11/12	DETAIL: S-00.0
TRANS OPS:	APPROVED: <i>W. Kell</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: <i>W. Kell</i>	<i>Christina Andersen</i> PUBLIC WORKS DIRECTOR	

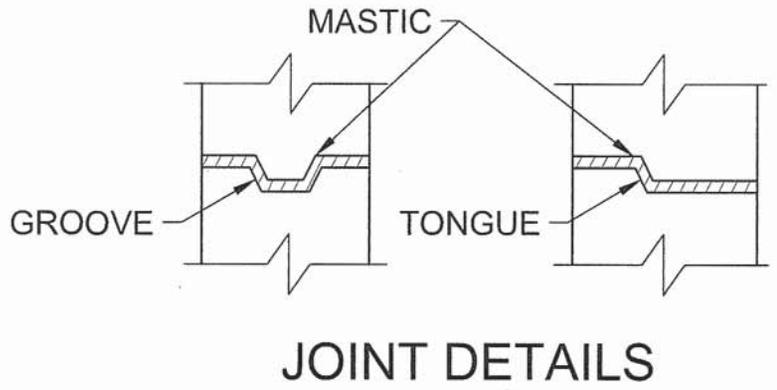
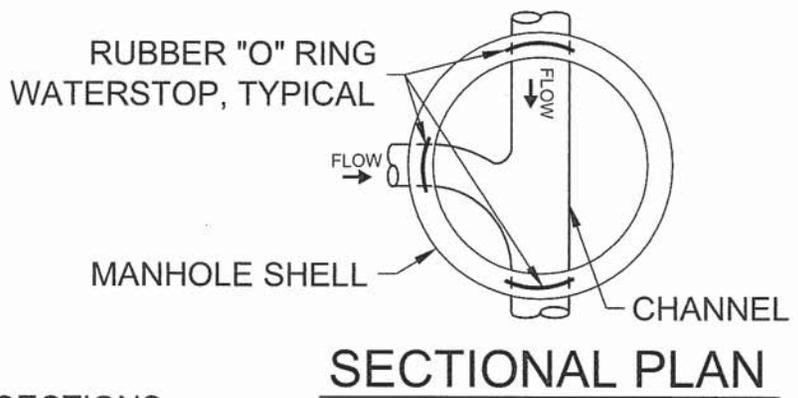
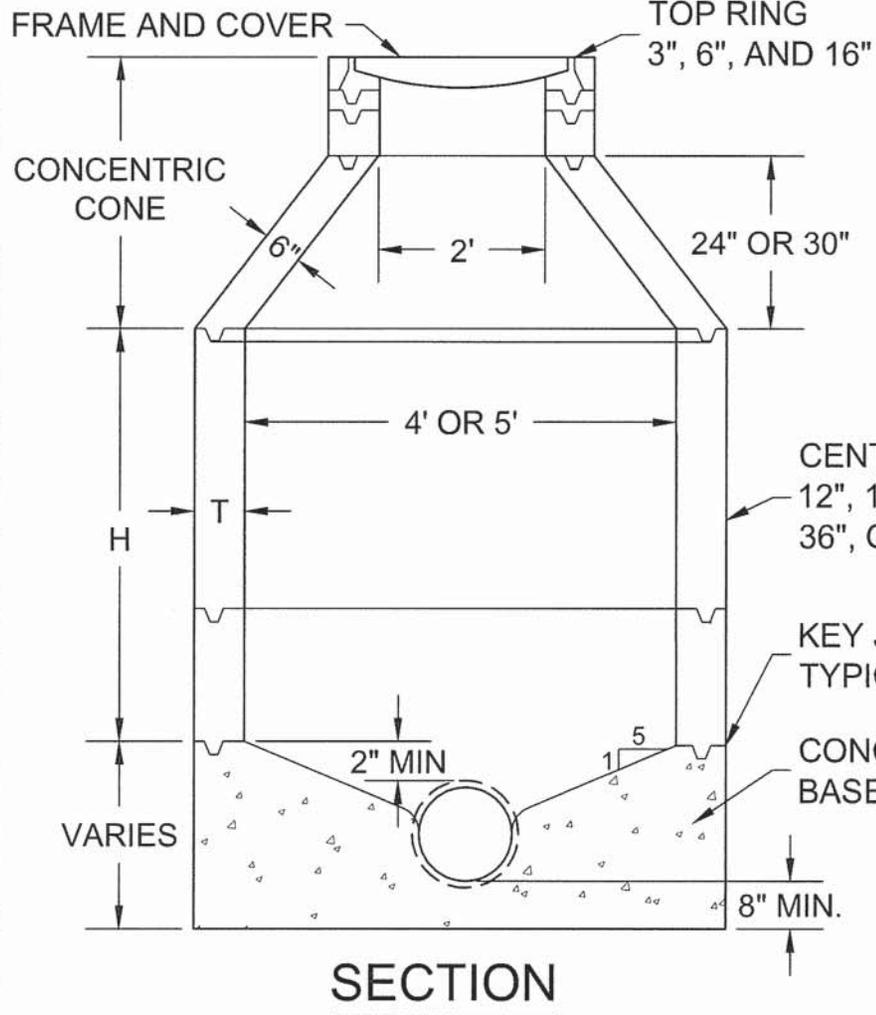
PRECAST CONCRETE MANHOLE NOTES:

1. Pre-cast reinforced concrete manhole shall be in conformance with ASTM Designation C-478, of current issue.
2. Pre-cast sections to be of Class 560-C-3250 concrete per Standard Specifications for Public Works Construction (GREEN BOOK).
3. Cast in place base to be Class 560-C-3250 concrete per Standard Specifications for Public Works Construction, (GREEN BOOK) of a thickness 2-inch minimum above and 8-inch minimum below pipe outside diameter.
4. T-wall thickness shall be a minimum of 1/12 of largest manhole inside diameter.
5. Mortar joints on the inside shall be one part cement and two parts sand, uniform thickness not to exceed 3/8 inch, neatly finished at internal wall surface. Mastic shall be used for joints in shafting buildup, except grade rings, with mortar applied to the outsides of joints.
6. Frame and cover shall be Alhambra Foundry A-1254-X-6, or approved equal by engineer, lettered with the word "CITY OF SANTA BARBARA SEWER". Cover shall have a block radial tread pattern, sealed without bolt holes, and having a non-hinged lifting hook recessed in the cover.
7. Standard manhole size shall be 48-inch I.D. of riser, unless otherwise specified on plans. For sewer pipes larger than 18-inch, sewer manholes shall be 60-inches in diameter at the base, with a 30-inch frame and cover.
8. Concentric cones shall be used on all sewer manholes unless one of the following conditions are present:
 - A. Manholes with an I.D. of 60-inches or greater shall have eccentric cones
 - B. All manholes exceeding 5-feet in depth shall have eccentric cones.
9. Steps are not required unless otherwise specified by the Engineer.
10. Channel bottom may be formed using a continuous length of PVC plastic sewer pipe extended past wall O.D. a minimum of 2 feet. No bends or wyes shall be used. Channel bottom shall not be formed with VCP.



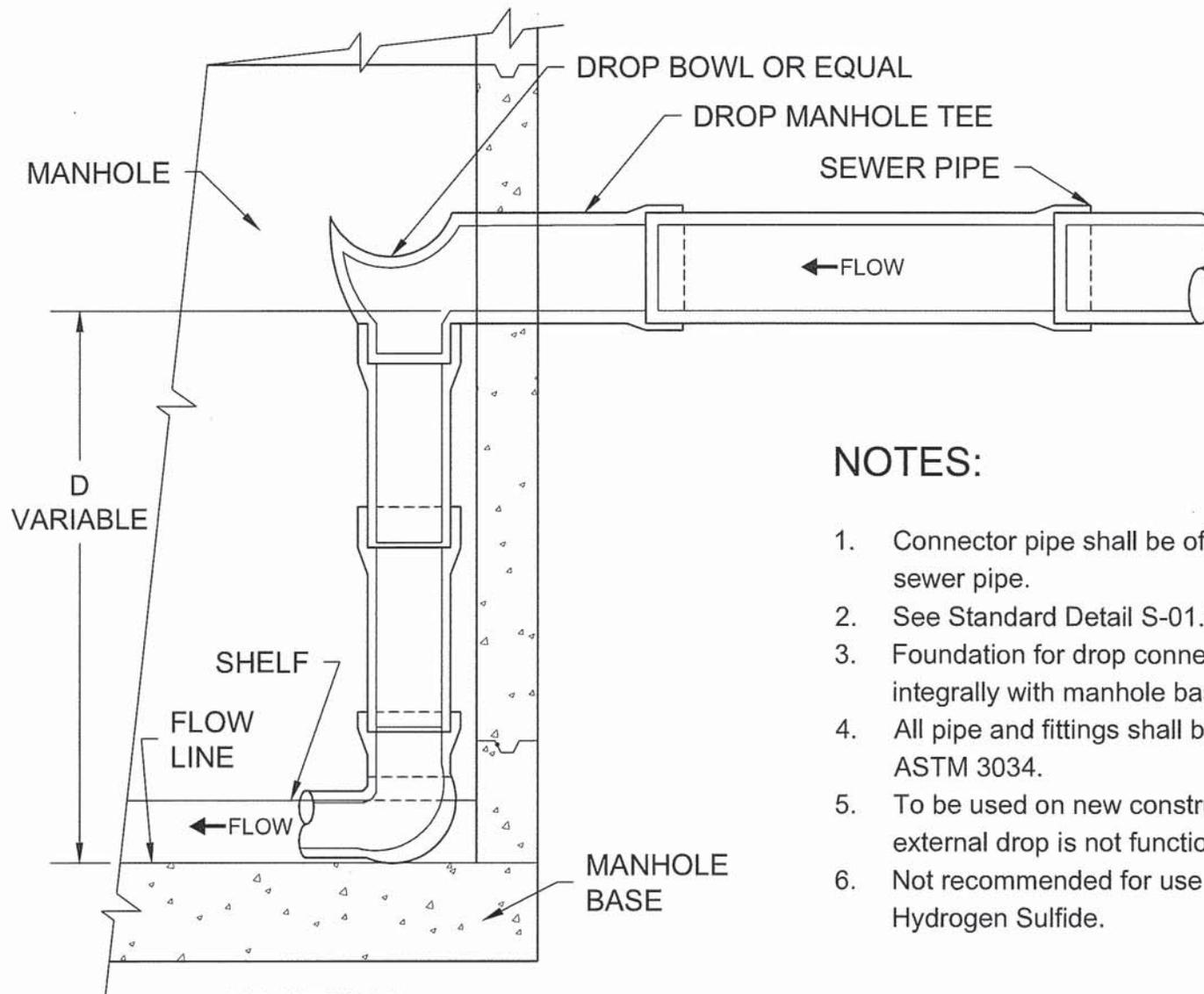
PRECAST CONCRETE MANHOLE NOTES

STREETS:	REV. DATE: 11/12	DETAIL: S-01.0
TRANS OPS:	APPROVED: <i>Pat Kell</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Quilley</i> PUBLIC WORKS DIRECTOR	



PRECAST CONCRETE MANHOLE

STREETS:	REV. DATE: 11/12	DETAIL: S-01.1
TRANS OPS:	APPROVED: <i>[Signature]</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: <i>[Signature]</i>	PUBLIC WORKS DIRECTOR	



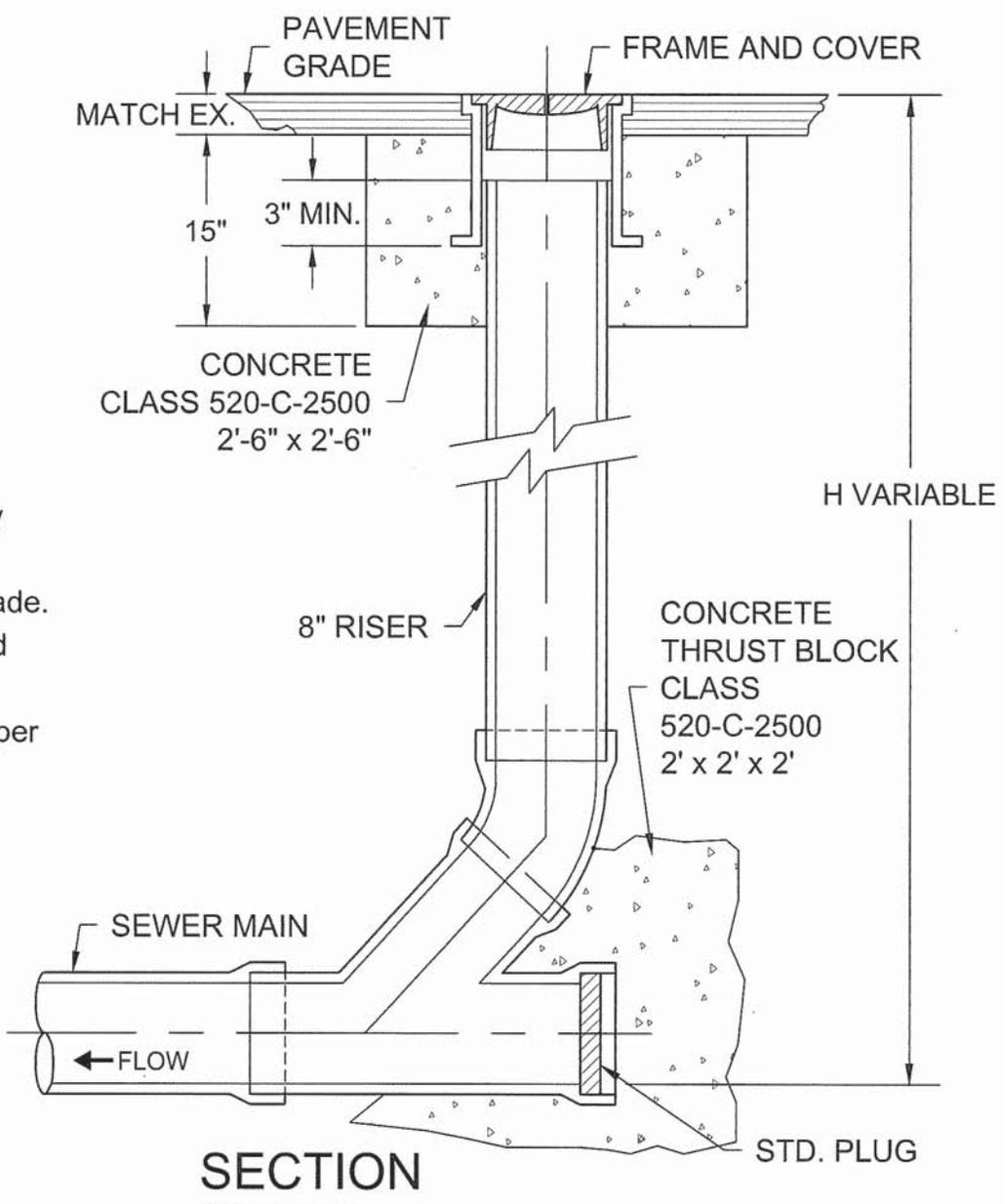
NOTES:

1. Connector pipe shall be of same diameter as sewer pipe.
2. See Standard Detail S-01.0 for manhole notes.
3. Foundation for drop connection is to be poured integrally with manhole base.
4. All pipe and fittings shall be PVC SDR-35 per ASTM 3034.
5. To be used on new construction or when external drop is not functioning properly.
6. Not recommended for use in areas with high Hydrogen Sulfide.



DROP SEWER CONNECTION

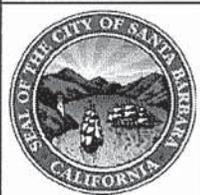
STREETS:	REV. DATE: 11/12	DETAIL: S-02.0
TRANS OPS:	APPROVED: <i>[Signature]</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>[Signature]</i> PUBLIC WORKS DIRECTOR	



NOTES:

1. Frame and cover shall be Alhambra Foundry A-1240 or equal approved by Engineer.
2. Set frame and cover flush with pavement grade.
3. Cleanout larger than 8-inch shall be provided subject to the approval of the Engineer.
4. All pipe and fittings shall be SDR-35 P.V.C. per ASTM 3034.

SECTION



CLEANOUT

STREETS:	REV. DATE: 11/12	DETAIL: S-03.0
TRANS OPS:	APPROVED: <i>Bob Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Quaker</i> PUBLIC WORKS DIRECTOR	

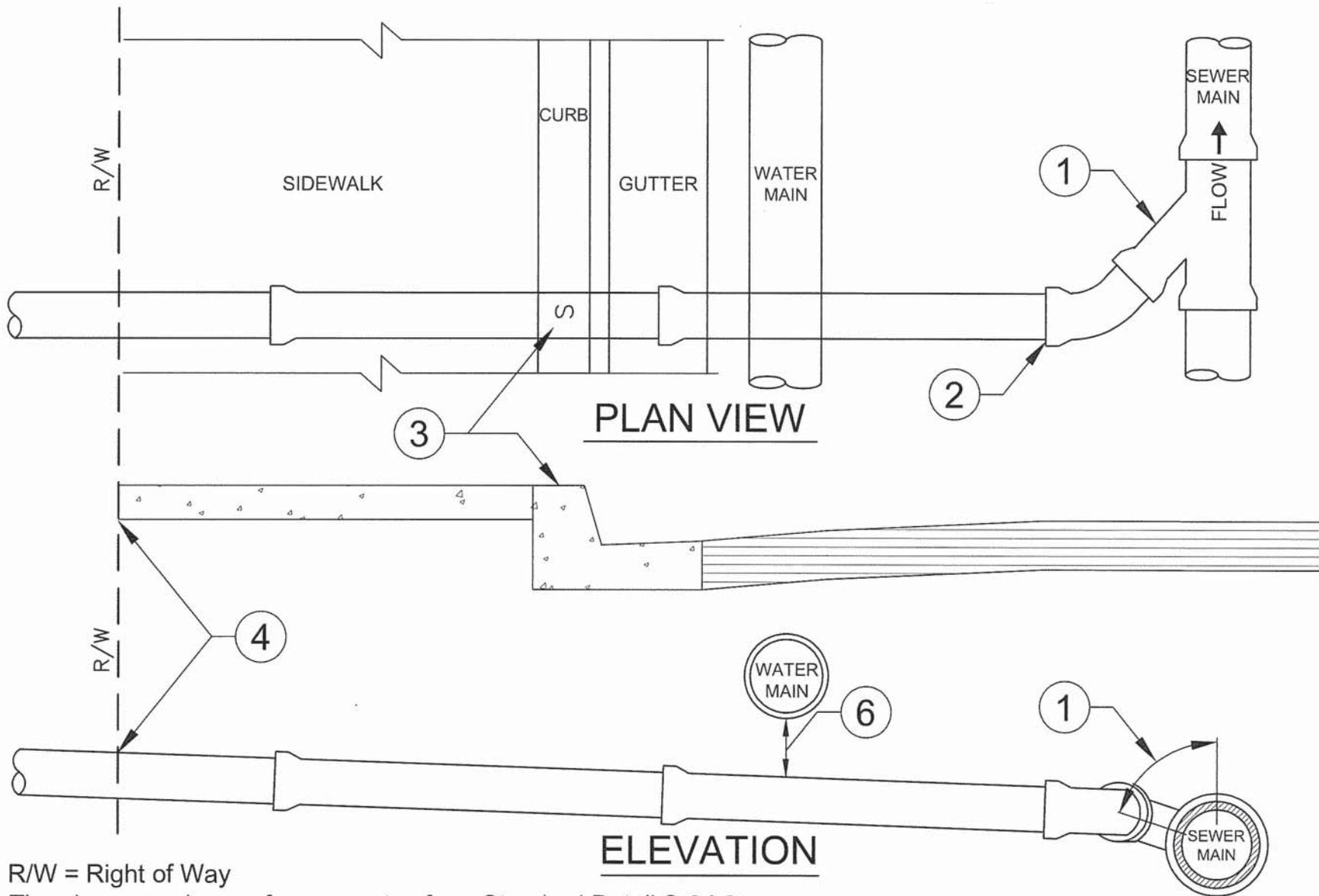
SEWER LATERAL NOTES:

1. Factory-fabricated wyes are required on all standard sewer lateral tap connections. Wyes shall point downstream and enter main at an angle of not less than 5-degrees and no more than 45-degrees off the vertical. Contact Water Resources Wastewater Collection System Supervisor for all sewer lateral tap installations. Allow a minimum of 5 workings days for scheduling.
2. Sewer lateral pipe and fittings shall be Bell and Spigot SDR-35 PVC, HDPE SDR-17 or an approved equal by the City Engineer. Sewer lateral pipe shall have a minimum diameter of 4 inches, and a minimum slope of 2%. Grade shall be uniform from main to property line. Changes in grade of lateral shall be made using long-radius bends.
3. Top of curb shall be marked with an "S" directly over lateral. The "S" shall be stamped in new concrete or chiseled into existing concrete, and shall not be less than 3 inches tall, 2 inches wide and 3/16 inch deep.
4. The depth of the lateral at the property line shall be a minimum of 4 feet, without special approval by the City Engineer.
5. Bedding and backfill for laterals shall meet the same requirements for sewer mains. See trench bedding and backfills Standard Details U-01.0 and U-01.1.
6. For water-sewer separation requirements see Standard Detail U-3.0, U-03.1, U-03.2, and U-04.0..
7. All Caulder Couplings shall be "Strong Backs," a band seal type coupling with an outside stainless steel shear ring.
8. When the depth of the sewer main is 12 feet or more, install a Chimney Sewer Lateral per Standard Detail S-05.0.
9. All sewer lateral improvements in the public right of way and all wye connections regardless of location shall require a permit from the City Public Works Department.
10. Sewer laterals are the responsibility of the property owner all the way to the public sewer main, including the lateral wye connection, even through the public right of way.



SEWER LATERAL NOTES

STREETS:	REV. DATE: 11/12	DETAIL: S-04.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: <i>[Signature]</i>	<i>Christine Anderson</i> PUBLIC WORKS DIRECTOR	

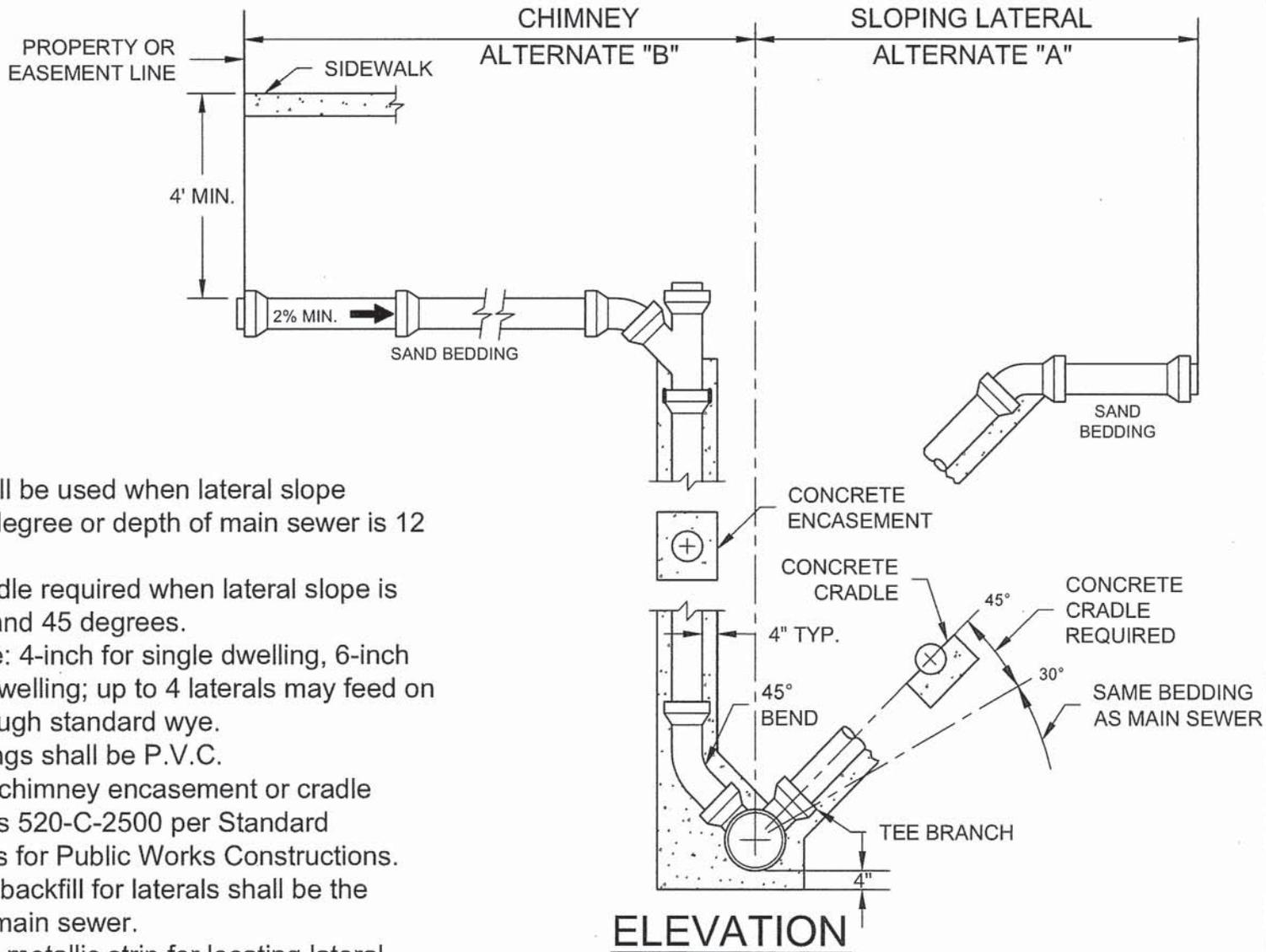


R/W = Right of Way
 The above numbers reference notes from Standard Detail S-04.0



SEWER LATERAL

STREETS:	REV. DATE: 11/12	DETAIL: S-04.1
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: <i>[Signature]</i>	<i>Christopher Anderson</i> PUBLIC WORKS DIRECTOR	



NOTES:

1. Chimney shall be used when lateral slope exceeds 45 degree or depth of main sewer is 12 feet or more.
2. Concrete cradle required when lateral slope is between 30 and 45 degrees.
3. Chimney size: 4-inch for single dwelling, 6-inch for multiple dwelling; up to 4 laterals may feed on chimney through standard wye.
4. Pipe and fittings shall be P.V.C.
5. Concrete for chimney encasement or cradle shall be Class 520-C-2500 per Standard Specifications for Public Works Constructions.
6. Bedding and backfill for laterals shall be the same as for main sewer.
7. Install wire or metallic strip for locating lateral.

ELEVATION



CHIMENY & SLOPING LATERAL

STREETS:	REV. DATE: 11/12	DETAIL: S-05.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	PUBLIC WORKS DIRECTOR	

NOTES:

1. GENERAL

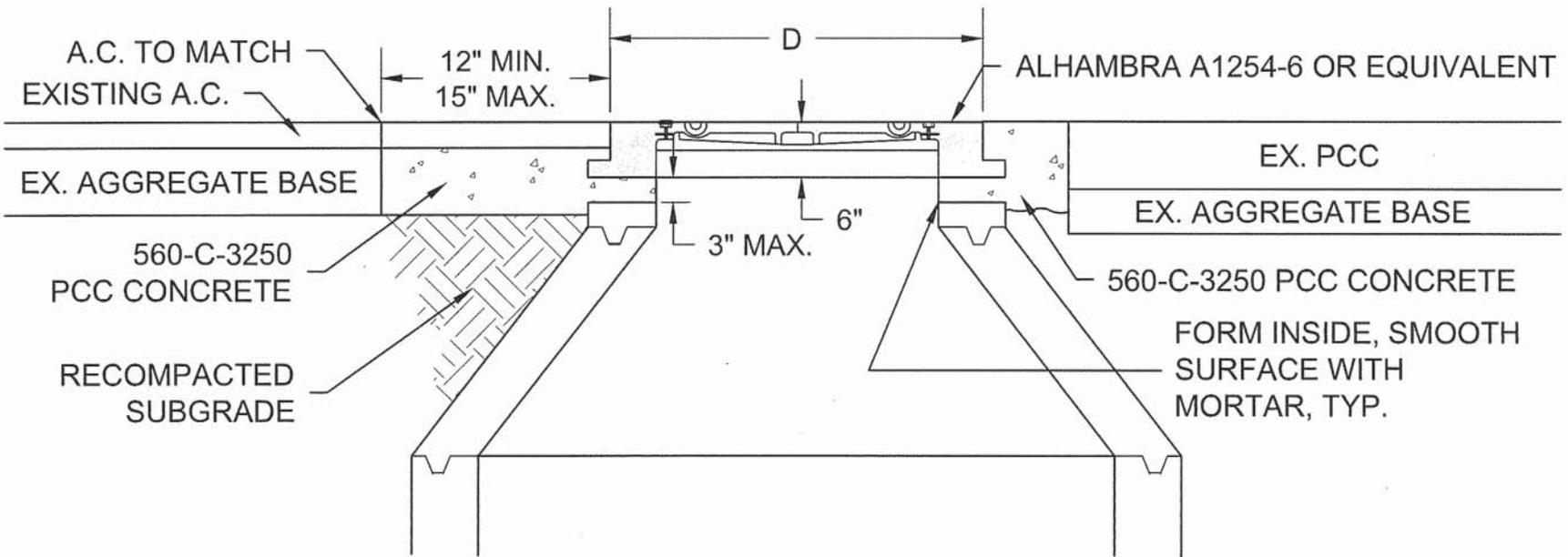
- A. All concrete shall be 560-C-3250, all mortar shall be Class "D" per section 201.5.1 of the Standard Specifications for Public Works Construction (Green Book).
- B. Dimension "D" shall match the diameter of the frame and cover: either 24-inches or 30-inches.
- C. Manhole frame and cover shall be manufactured by Alhambra Foundry Company, LTD: A-1254-6 for 24" covers; A-1252 for 30" covers. If existing manhole frame and cover on manholes to be raised are not as specified, the Contractor shall replace the existing frame and cover with a new frame and cover furnished by the City.
- D. When required by the Engineer, existing rungs shall be removed to a depth of 2-inch beyond the inside face of the manhole. Existing voids left by the removal of these rungs shall be filled with mortar or a patching cement such as "Water Plug", or equal approved by the Engineer.
- E. Whenever precast concrete components are to be placed on any part of an existing brick manhole, these components shall be placed and secured by applying mortar. The depth, width, and thickness of the mortar shall be of sufficient dimensions to properly and adequately join and secure the components.
- F. Prior to any work on existing sewer manholes, the Contractor shall place a temporary false bottom inside of the manhole and shall install debris traps in downstream manholes.
- G. All manholes, brick or concrete, shall meet the dimensional requirements shown on Detail S-06.1, Grade rings shall not exceed a total maximum height of 12-inches.

- 2. RAISING EXISTING PRECAST CONCRETE SEWER MANHOLES: To raise an existing frame and cover on a precast concrete sewer manhole, use a course of brickwork or concrete, grade rings, or a riser shaft unit.
- 3. RAISING EXISTING BRICK SEWER MANHOLES: To raise an existing frame and cover on an existing brick sewer manhole, use the method specified for raising a frame and cover on an existing precast sewer manhole, or install a new manhole as directed by the Engineer.
- 4. LOWERING EXISTING PRECAST CONCRETE SEWER MANHOLES: To lower an existing frame and cover on a precast concrete sewer manhole, remove grade rings and/or riser shaft units. Replace the existing cone with a precast concrete eccentric cone unit if the existing cone is either concentric, deteriorated, or as directed by the Engineer.
- 5. LOWERING EXISTING BRICK SEWER MANHOLES: To lower an existing frame and cover on a brick sewer manhole, reset the frame and cover on existing bricks with mortar, remove a sufficient amount of bricks to install a precast concrete eccentric cone unit, or install a new sewer manhole as directed by the Engineer.



SEWER MANHOLE ADJUSTMENT NOTES

STREETS:	REV. DATE: 11/12	DETAIL: S-06.0
TRANS OPS:	APPROVED: <i>Pat Kell</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i> PUBLIC WORKS DIRECTOR	



CONCENTRIC



SEWER MANHOLE ADJUSTMENT

STREETS:	REV. DATE: 11/12	DETAIL: S-06.1
TRANS OPS:	APPROVED: <i>Dot Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: <i>27</i>	<i>Christopher Anderson</i> PUBLIC WORKS DIRECTOR	

TRAFFIC

<u>NUMBER</u>	<u>TITLE</u>
T-01.0	GENERAL NOTES
T-02.0	CONTROLLER SERVICE INSTALLATION



TRAFFIC TABLE OF CONTENTS

STREETS:	REV. DATE: 11/12	DETAIL: T-00.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christopher Kusler</i> PUBLIC WORKS DIRECTOR	

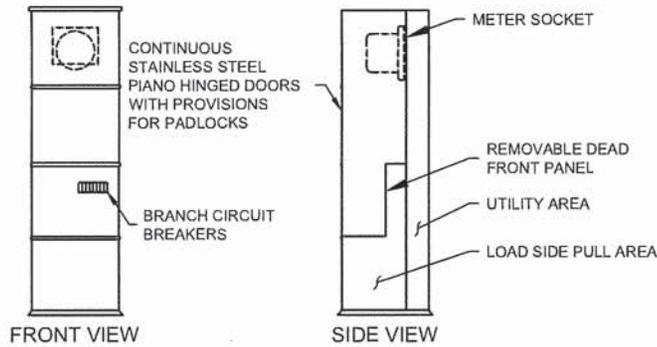
NOTES:

1. All Standard Specifications shall comply with latest Caltrans Specification.
2. All intersection approaches shall have Iteris RZ4 or better video detection cameras and EdgeConnect card, plus 60' stop bar in pavement loop detection. Loop detectors shall be CalTrans Type "E", with a leading Type "D" in each lane. Caltrans Standard Plan ES-5A and ES-5B shall be followed when installing.
3. Each roadway crossing shall have two (2) 3" conduits.
4. Traffic signal heads and indications shall be per latest City of Santa Barbara specification.
5. A battery back up system is required at all new intersections. System shall be Clary SP Series Model PD with 52 amp batteries, and McCain battery back up cabinet.
6. Signal cable shall be used for any new or replacement of traffic signal wiring.
7. Communication shall be Ethernet over single mode fiber optic cable (preferred, where connectivity available), Ethernet over wireless, or 6 twisted pair 600 Ohm 19 gauge as determined by the City Supervising Transportation Engineer. Interconnect conduit required to nearest traffic signal where feasible. Ethernet switch shall be Ruggedcom RS900.
8. Push buttons shall be Polara Navigator accessible buttons, with a green finish.
9. 332 traffic signal cabinets in "Malaga Green" color matching RAL Classic System color "RAL6005" shall be used.
10. Pull boxes shall be Caltrans #6 following Standard Plan ES-8A with grouted bottom.
11. Traffic signal controllers shall be McCain Coldfire 750.
12. GTT infrared based emergency preemption system required for all approaches. Phase selector card shall be capable of both infrared and GPS based inputs.

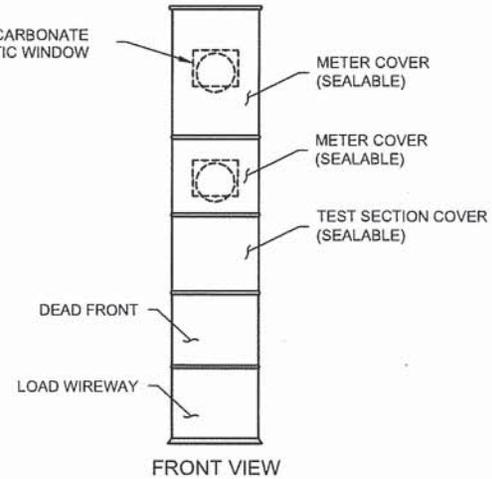


GENERAL NOTES

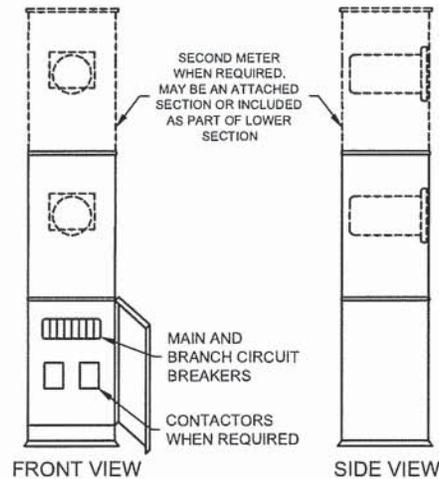
STREETS: <i>ma</i>	REV. DATE: 11/12	DETAIL: T-01.0
TRANS OPS: <i>ab</i>	APPROVED: <i>[Signature]</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>[Signature]</i> PUBLIC WORKS DIRECTOR	



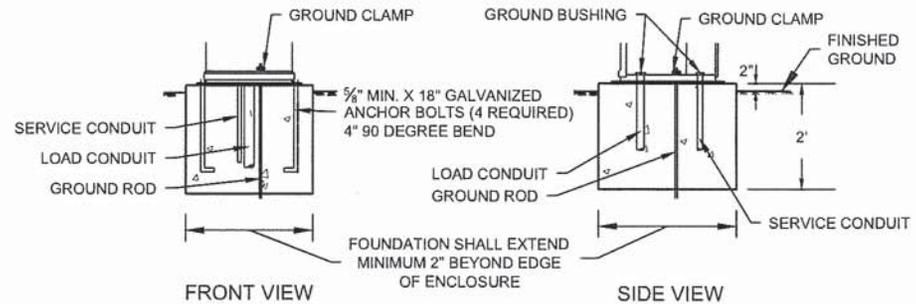
TYPE 111-BF SERVICE EQUIPMENT ENCLOSURE WITH PROVISIONS FOR ONE 100 A METER



TYPE 111-BF SERVICE EQUIPMENT ENCLOSURE WITH PROVISIONS FOR TWO 100 A METERS



TYPE 111-BR SERVICE EQUIPMENT ENCLOSURE



TYPE 111-B SERVICE EQUIPMENT ENCLOSURE FOUNDATION DETAILS



CONTROLLER SERVICE INSTALLATION

STREETS:	REV. DATE: 11/12	DETAIL: T-02.0
TRANS OPS: <i>ab</i>	APPROVED: <i>Bob Kell</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Qualman</i> PUBLIC WORKS DIRECTOR	

WATER

<u>NUMBER</u>	<u>TITLE</u>	<u>NUMBER</u>	<u>TITLE</u>
W-01.0	FIRE HYDRANT INSTALLATION - NOTES	W-11.0	CONCRETE THRUST BLOCK
W-01.1	FIRE HYDRANT INSTALLATION	W-12.0	REDUCED PRESSURE PRINCIPLE ASSEMBLY BACKFLOW PREVENTION ASSEMBLY - TYPE 1 - NOTES
W-02.0	SIDEWALK MODIFICATION AT FIRE HYDRANT	W-12.1	REDUCED PRESSURE PRINCIPLE ASSEMBLY BACKFLOW PREVENTION ASSEMBLY - TYPE 1
W-03.0	FIRE HYDRANT GUARD POST	W-13.0	DOUBLE DETECTOR CHECK ASSEMBLY BACKFLOW PREVENTION ASSEMBLY - TYPE 2 - NOTES
W-04.0	VALVE BOX	W-13.1	DOUBLE DETECTOR CHECK ASSEMBLY BACKFLOW PREVENTION ASSEMBLY - TYPE 2
W-05.0	SERVICE CONNECTION - NOTES	W-13.2	DOUBLE DETECTOR CHECK ASSEMBLY - VERTICAL INSTALLATION
W-05.1	SERVICE CONNECTION	W-14.0	MODIFICATION OF SEWER LATERAL OVER WATER MAIN
W-05.2	2-INCH SERVICE CONNECTION MANIFOLD	W-15.0	RECLAIMED WATER FILL STATION
W-05.3	2-INCH FIRELINE	W-16.0	PRESSURE TYPE VACUUM BREAKER
W-05.4	4-INCH AND LARGER FIRELINE	W-17.0	ATMOSPHERIC TYPE VACUUM BREAKER
W-05.5	APPROVED METHODS FOR CONNECTING PRIVATE FIRELINES	W-18.0	AIR GAP SEPARATION
W-05.6	PRIVATE WATER MAIN		
W-06.0	METER BOX FOR 5/8-INCH AND 1-INCH METERS		
W-06.1	METER BOX FOR 1-1/2-INCH AND 2-INCH METERS		
W-07.0	4-INCH AND LARGER SERVICE CONNECTION		
W-08.0	1-INCH AND 2-INCH AIR/VACUUM VALVE		
W-09.0	2-INCH BLOW OFF WITH 1-INCH SERVICE		
W-10.0	CONCRETE THRUST COLLAR		

GENERAL LEGEND:

C.I.P. = CAST IRON PIPE
 D.I.P. = DUCTILE IRON PIPE
 C.R. = CURB RETURN
 F.L.G. = FLANGE JOINT
 M.J. = MECHANICAL JOINT
 L.R.G. = LOCKING RETAINER GLAND
 P.E. = PLAIN END



WATER

TABLE OF CONTENTS

STREETS:	REV. DATE: 11/12	DETAIL: W-00.0
TRANS OPS:	APPROVED: <i>R. Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christopher Pedersen</i> PUBLIC WORKS DIRECTOR	

FIRE HYDRANT INSTALLATION NOTES:

1. Fire hydrant for residential installation shall be J. Jones No. 3700 with plastic hose cap J-669.
2. Fire hydrant for commercial installation shall be J. Jones No. J-3765 with 6 hole pattern. Use commercial installation at apartments and condominiums, motels, commercial and manufacturing developed or zoned areas.
3. Fire hydrant assembly breakaway spool shall be used to adjust lower fire hydrant stem within required distance from finish grade. Cadmium plated breakaway bolts shall be installed on fire hydrant and extension. Bolts to be installed heads up. Only one gasketed flange shall be allowed below the surface. Bury, control valve, tee and breakaway spool shall be lined with epoxy, Scotchkote 206N or 134.
4. Fire hydrants shall not be epoxy lined. Before installation, Bronze fire hydrant exterior shall be washed thoroughly with XIM cleaner, and painted with one coat of white XIM primer-sealer 400 and two coats of AERO-PLATE #462 gloss bright yellow (safety yellow). Fire hydrants to be purchased with factory paint.
5. Outlets shall be positioned perpendicular to curb line or center line of roadway, facing into the roadway.
6. All buried bolts shall be coated with an approved corrosion control coating and wrapped with a 8 mil. thick polyethylene sheet and taped, as specified in A.W.W.A. C-105/A21.5-99-PRINTED.
7. Concrete thrust blocks shall be constructed in conformance with Standard Detail W-012.0.
8. The installation of fire hydrants in concrete sidewalk area shall be per Standard Detail W-02.0.
9. Fire hydrant valve shall be Pratt Groundhog butterfly valve or approved resilient wedge gate valve (preferred) except the butterfly valve shall not be used where the operating water pressure exceeds 200 psi. The gate valve shall be installed so that the bonnet and operating nut do not encroach into any part of the street structural section.
10. All pipe shall be ductile iron with mechanical joints and Megalug retainer glands or approved equal.
11. Fire hydrant spacing shall be according to Fire Department requirements.
12. All ductile iron pipe, including valves and fittings shall be encased with an 8 mil. thick black polyethylene sheet and taped as specified in A.W.W.A. C-105/A21.5-99-PRINTED.
13. Any deviation from this Standard Detail shall be approved by the Water Resources Division of Public Works Department.
14. Hot tapping saddle installation shall be pre-approved by the Water Resources Division of Public Works Department.



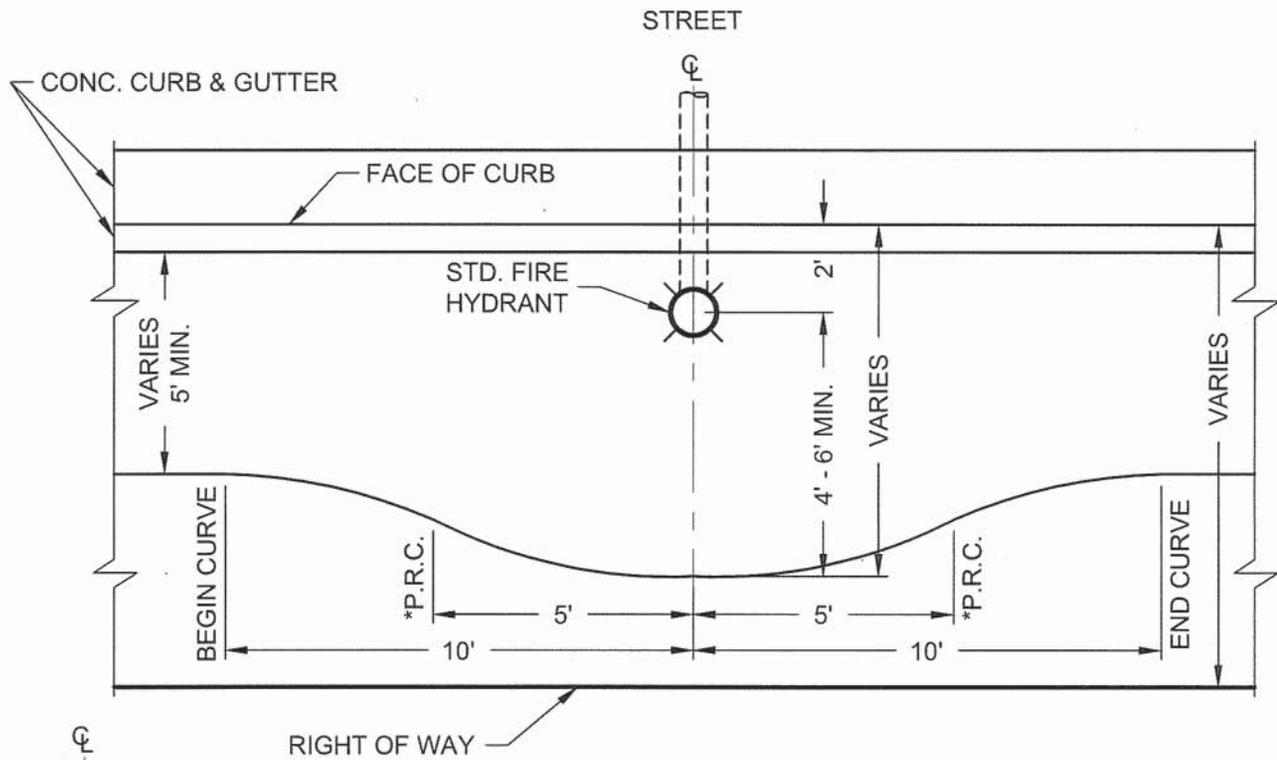
FIRE HYDRANT INSTALLATION NOTES

STREETS:	REV. DATE: 11/12	DETAIL: W-01.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i> PUBLIC WORKS DIRECTOR	

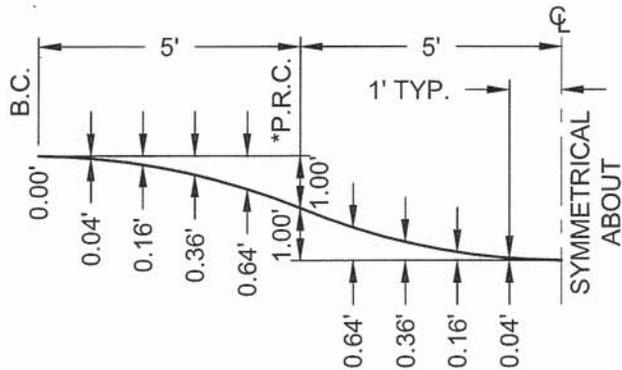
NOTES:

1. Fire hydrant installation shall be in accordance with Std. Details W-01.0 and W-01.1.
2. Concrete sidewalk construction shall conform to Std. Details H-06.0 and H-06.1.
3. Any variance to the sidewalk modification to conform to conditions other than shown requires approval of the Engineer.

*P.R.C. - Point of Reverse Curve



PLAN

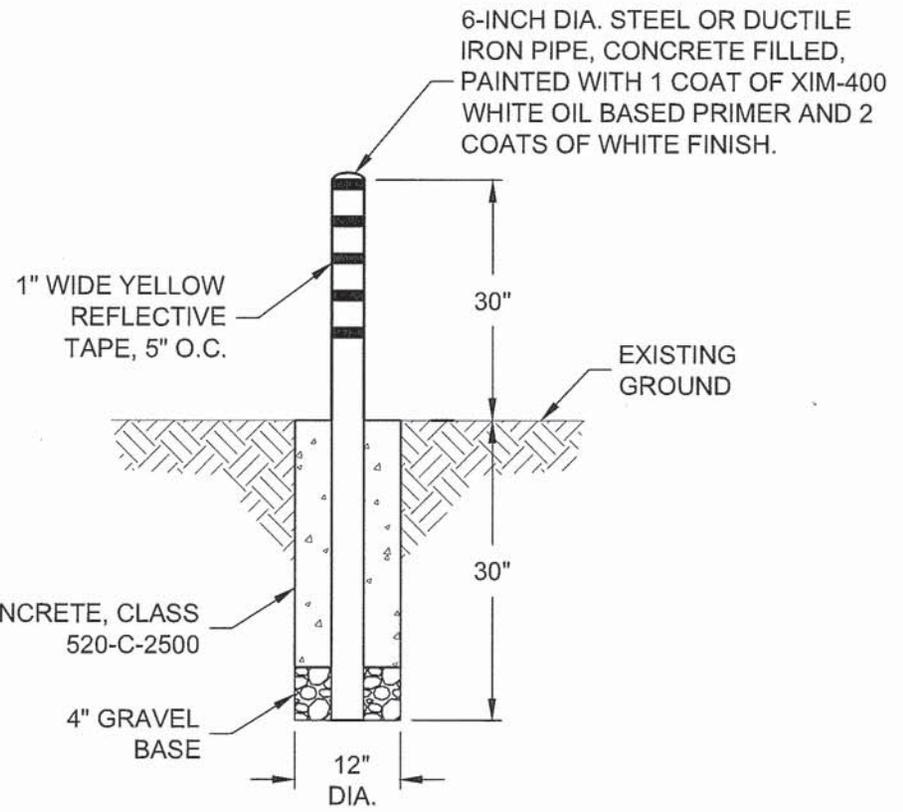
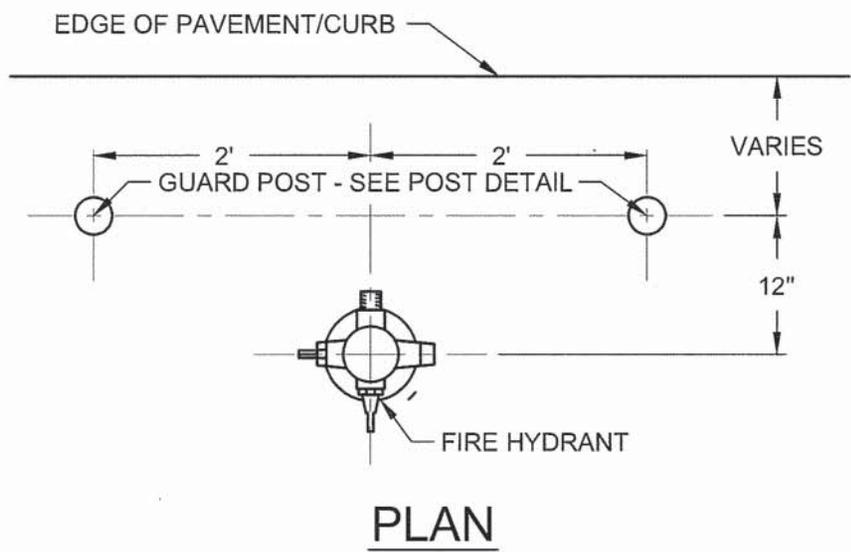


**BACK OF SIDEWALK OFFSET
AT ONE-FOOT INTERVALS**



**SIDEWALK MODIFICATION
AT FIRE HYDRANT**

STREETS:	REV. DATE: 11/12	DETAIL: W-02.0
TRANS OPS:	APPROVED: <i>[Signature]</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>[Signature]</i> PUBLIC WORKS DIRECTOR	



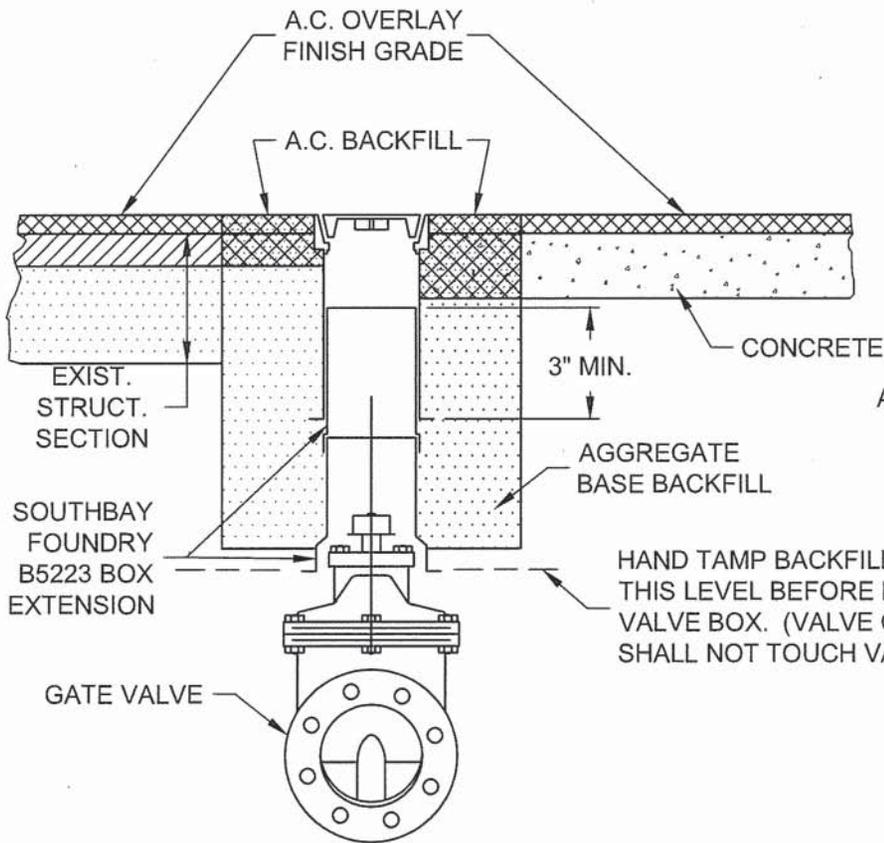
NOTES:

1. Guard posts shall be installed plumb. Concrete for setting guard posts shall be Class 520-C-2500.
2. Concrete shall be placed against firm undisturbed native soil and shall be thoroughly consolidated.
3. Any variance to the guard post layout to conform to conditions other than shown must be approved by the Engineer.

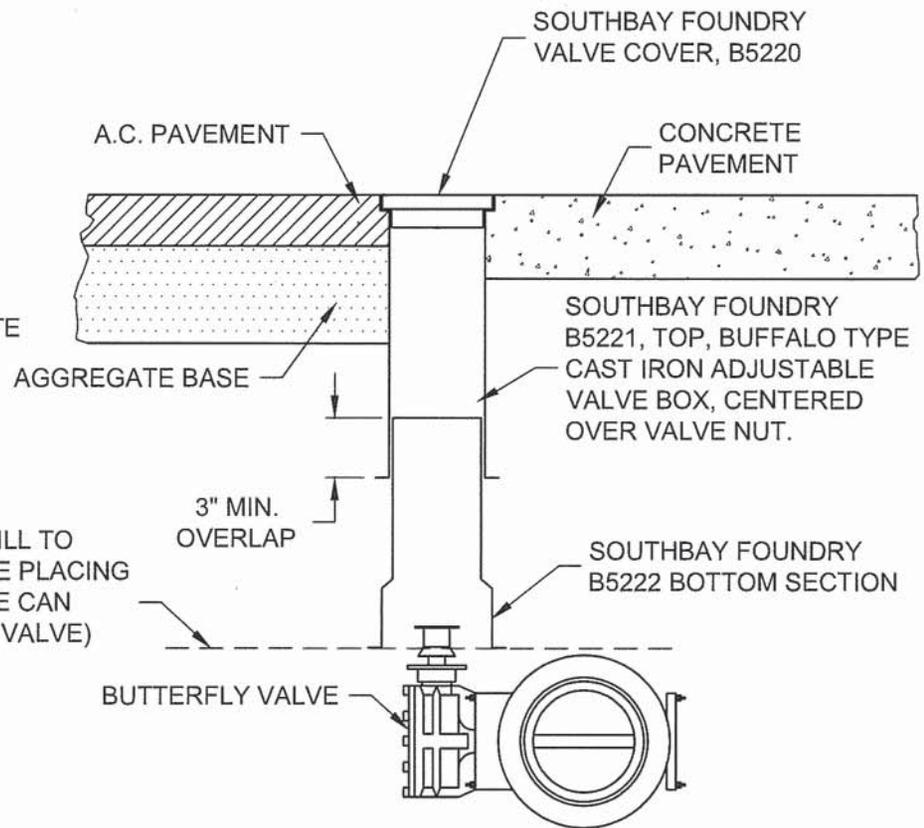


FIRE HYDRANT GUARD POST

STREETS:	REV. DATE: 11/12	DETAIL: W-03.0
TRANS OPS:	APPROVED: <i>[Signature]</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: <i>[Signature]</i>	PUBLIC WORKS DIRECTOR	



ADJUSTMENT TO GRADE



TYPICAL NEW INSTALLATION

NOTES:

1. Nut shaft extension, fitted with self-centering device and adaptor by Pratt, or approved equal, shall be provided when cover over valve nut exceeds 2.5 feet.
2. If existing valve box is not a standard box, a box will be provided by the City and installed by the Contractor.
3. At no time shall the valve box rest directly on the valve body.



VALVE BOX

STREETS:	REV. DATE: 11/12	DETAIL: W-04.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Andersen</i>	
	PUBLIC WORKS DIRECTOR	

SERVICE CONNECTION NOTES:

1. Contractor shall furnish all material, except meter.
2. James Jones Co. designations are used to identify fittings.
3. Install J-969 saddle with gaskets & Corporation Stop (CC) thread when connecting services to all P.V.C. pipe. Use J-979 when connecting services to D.I.P. pipe.
4. Tap all steel pipe through saddle, welded coupling or approved equal.
5. Minimum distance between services shall be one foot. Multiple taps shall be spaced one foot apart at 10 o'clock or 2 o'clock angle.
6. Services shall be installed perpendicular to the main unless approved by the Engineer.
7. Meter boxes shall not be permitted in driveways. All meter box lids shall be skid resistant.
8. Contractor shall leave an appropriate "meter space" for meter installation by the City (see City Standard Detail W-05.1).
9. All new service installations and all services to be replaced shall be of 1-inch or 2-inch Type "K" copper tubing, using the material specified.
10. Private fire service/private water main distinction:
 - A. Private Fire Service: A privately owned and maintained connection from the City distribution system that serves only private fire hydrant(s), fire sprinkler system(s), or other fire protection systems, and does not serve any City water service connections.
 - B. Private Water Main: A privately owned and maintained connection from the City distribution system that serves one or more City water service connections, and which may also serve private fire hydrants, fire sprinkler systems, or other fire protection systems.



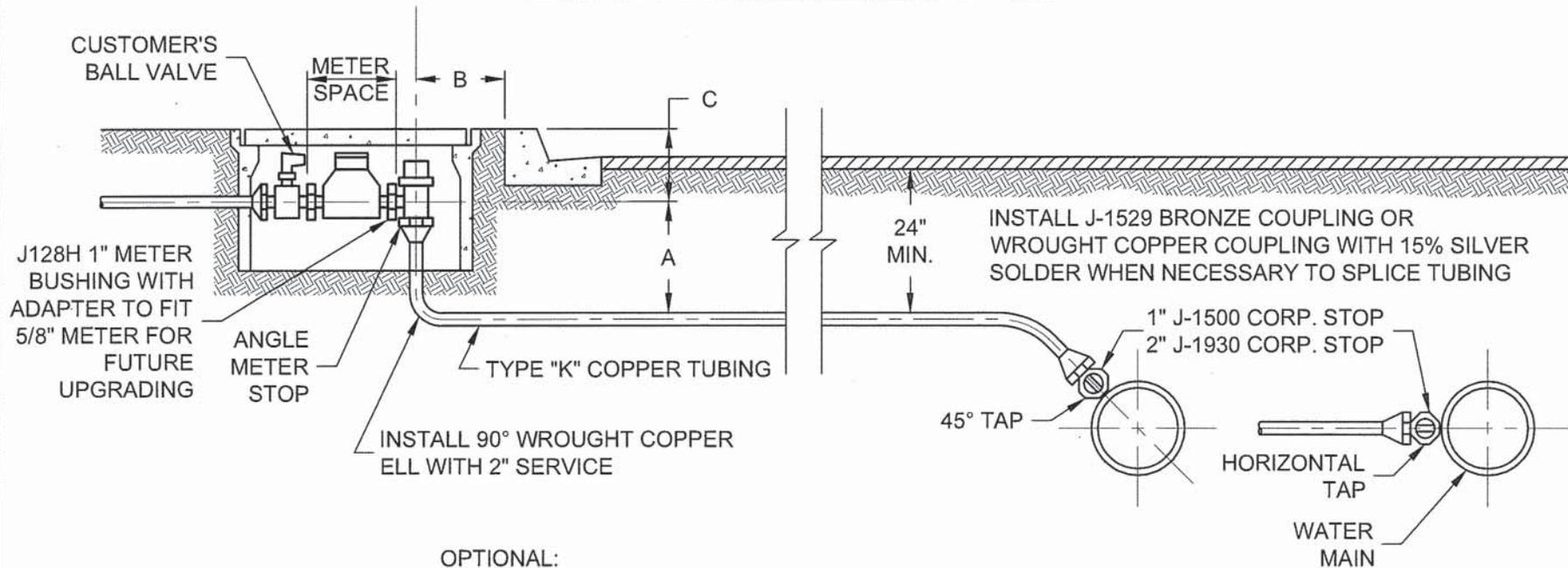
SERVICE CONNECTION NOTES

STREETS:	REV. DATE: 11/12	DETAIL: W-05.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i>	
	PUBLIC WORKS DIRECTOR	

METER SIZE	ANGLE METER STOP	CORP STOP	BALL VALVE	METER SPACE	A	B	C
5/8"	J-1525W	J-1500	J-1903-W	7-3/4"	21"	8"	9"
1"	J-1525W	J-1500	J-1903-W	11-1/4"	21"	8"	9"
* 1-1/2", 2"	J-1973-FW	J-1500	J-1912-W	17-1/4"	18"	12"	12"

* ELONGATED HOLES TO ACCEPT 1-1/2" METER.

MATERIAL & DIMENSIONS

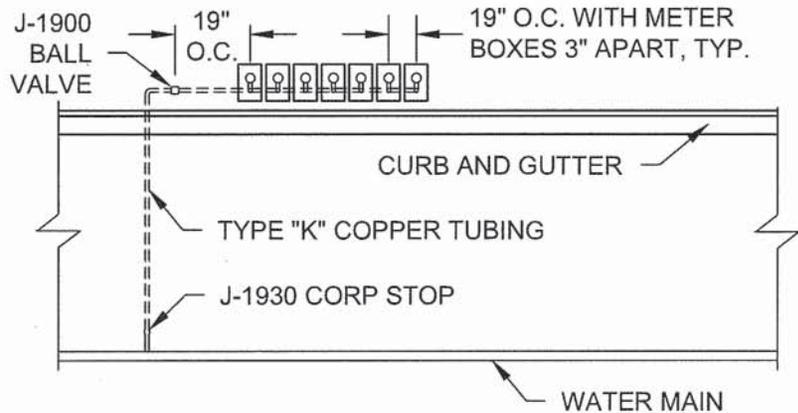


OPTIONAL:
 WHEN TYING OVER 3/4-INCH COPPER SERVICE, USE A MUELLER BRASS REDUCER, H-15480, CORPORATION STOP THREAD BY FLARE COPPER PIPE WITH COPPER RING OR WROUGHT COPPER COUPLING WITH 15% SILVER SOLDER FOR 3/4-INCH AND 1-1/2-INCH.

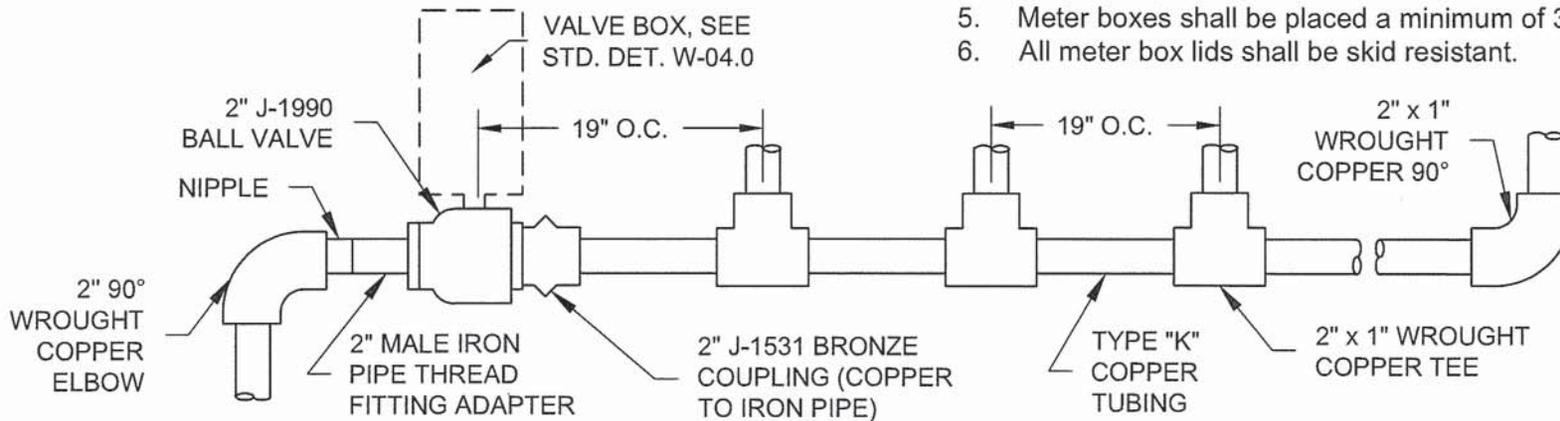


SERVICE CONNECTION

STREETS:	REV. DATE: 11/12	DETAIL: W-05.1
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christopher P. ...</i> PUBLIC WORKS DIRECTOR	



PLAN OF MANIFOLD ASSEMBLY



DETAIL

NOTES:

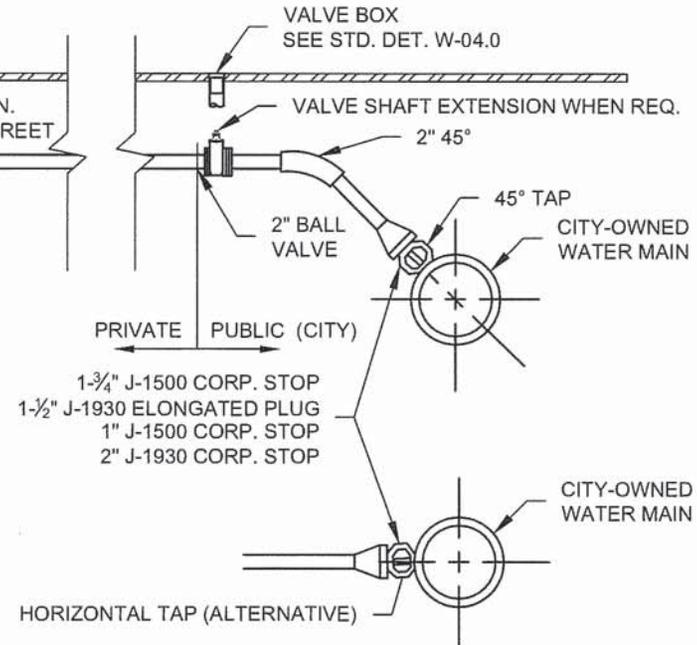
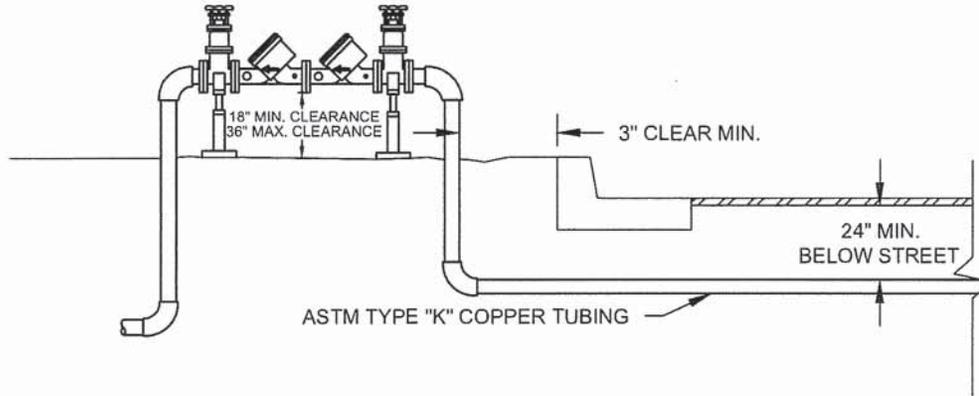
1. Maximum of eight (8) 5/8-inch meters per manifold. Maximum of two (2) 1-inch meters per manifold. All meter boxes per City Standard Details W-06.0 and W-06.1.
2. All piping to be type "K" copper tubing.
3. All brass service connection fittings to be flared type.
4. Contractors shall meet with Water Resources Distribution personnel prior to installation of property service line to confirm that proposed connections will be sequenced in a manner approved by Water Resources Division and in conformance with approved addresses assigned to the property by the City.
5. Meter boxes shall be placed a minimum of 3" apart.
6. All meter box lids shall be skid resistant.



**2-INCH
SERVICE CONNECTION MANIFOLD**

STREETS:	REV. DATE: 11/12	DETAIL: W-05.2
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES: <i>[Signature]</i>	<i>Christopher Qualeson</i> PUBLIC WORKS DIRECTOR	

DOUBLE CHECK DETECTOR ASSEMBLY
(SEE STANDARD DETAIL W-13.0 AND
NOTE 3 THIS PAGE)



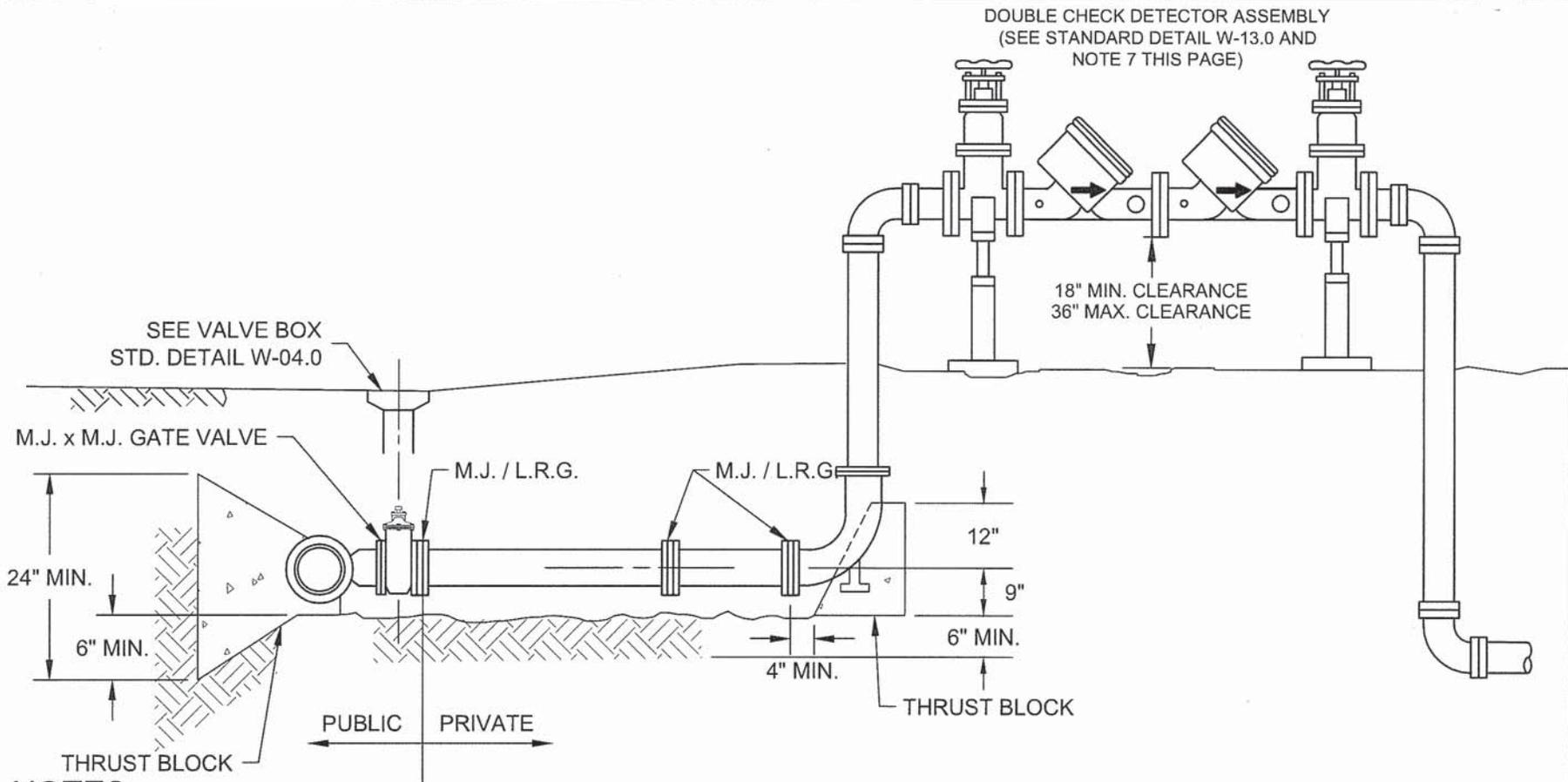
NOTES:

1. NFPA 13 requires a separate fireline. NFPA 13D or 13R do not. See Standard Detail W-05.5 for approved methods for connecting private firelines.
2. Install backflow device as close to property line as possible.
3. Double check detector assembly (with bypass meter and bypass backflow) may be replaced by a reduced pressure principal assembly with meter depending on degree of hazard and approval by the City's Cross-Connection Specialist. See Standard Details W-12 and W-13 as applicable.
4. Line is privately owned from the valve to the building.
5. Inspection and approval by the City's Cross-Connection Specialist is required.
6. Install J-1529 bronze coupling or wrought copper coupling with 15% silver solder when necessary to splice tubing.
7. OPTIONAL: When tying over $\frac{3}{4}$ " copper service, use a Mueller brass reducer, H-15480, corp. stop thread by flare copper pipe with copper ring or wrought copper coupling with 15% silver solder for $\frac{3}{4}$ " and $1\frac{1}{2}$ " services.



2-INCH
FIRELINE

STREETS:	REV. DATE: 11/12	DETAIL: W-05.3
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i> PUBLIC WORKS DIRECTOR	



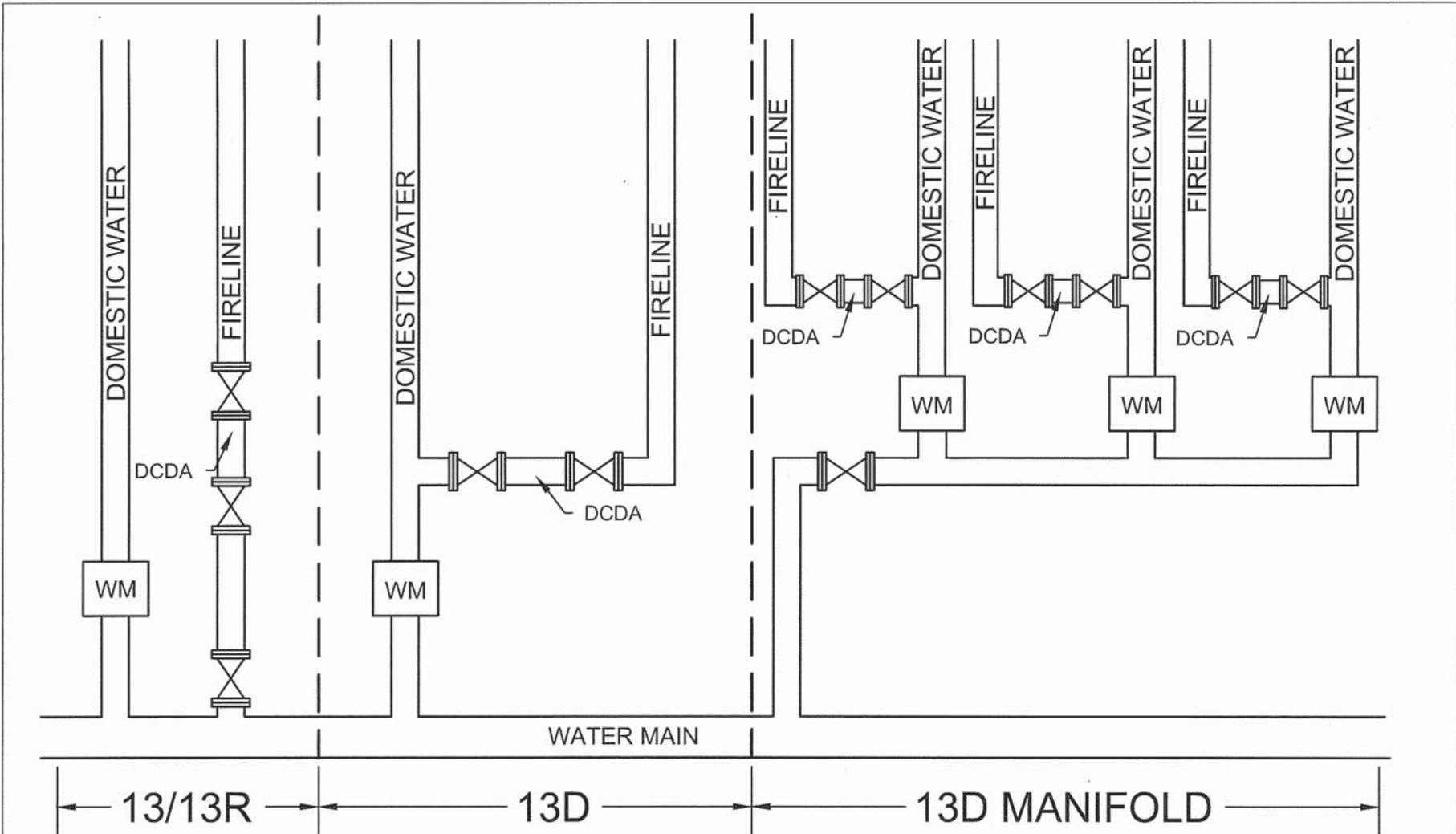
NOTES:

1. All pipe in the street right-of-way shall be D.I.P. with mechanical joints and "MEGALUG" retainer glands or approved equal.
2. All ductile iron pipe, including valves and fittings shall be encased with a 8-mil. thick black polyethylene sheet and taped as specified in A.W.W.A. C-105/A21.5-99-PRINTED.
3. All City fittings shall be epoxy lined.
4. Fireline beyond the valve to the building is the responsibility of the property owner.
5. NFPA 13 requires a separate fireline. NFPA 13D or 13R do not. See Standard Detail W-05.5 for approved methods for connecting private firelines.
6. Install backflow device as close to property line as possible.
7. Double check valve assembly may be replaced by a reduced pressure principle assembly with meter depending on degree of hazard and approval by the City's Cross-Connection Specialist. See Standard Details W-12 and W-13 as applicable.
8. Inspection and approval of the fireline by a City Public Works Inspector is required.



4-INCH AND LARGER FIRELINE

STREETS:	REV. DATE: 11/12	DETAIL: W-05.4
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i>	
	PUBLIC WORKS DIRECTOR	

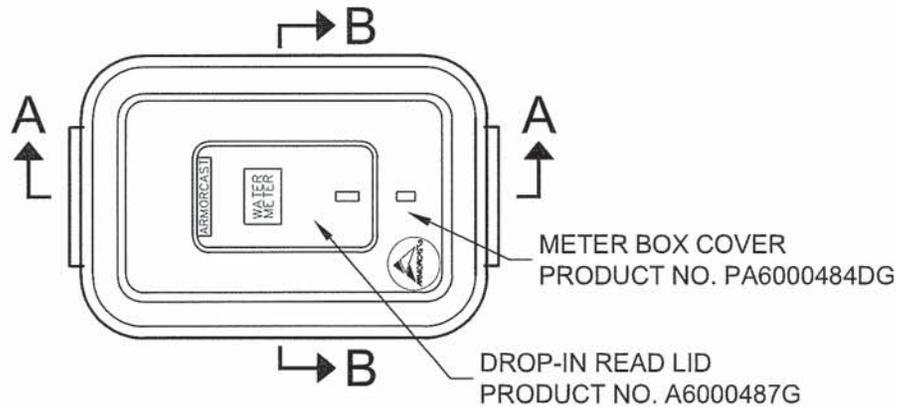


13 = COMMERCIAL
 13D = FIRELINE FOR DOMESTIC DUPLEX - 1/2 FAMILY RESIDENTIAL
 13R = HOTEL/MOTEL/3 OR MORE UNITS IN A SINGLE BUILDING
 DCDA = DOUBLE CHECK DETECTOR ASSEMBLY

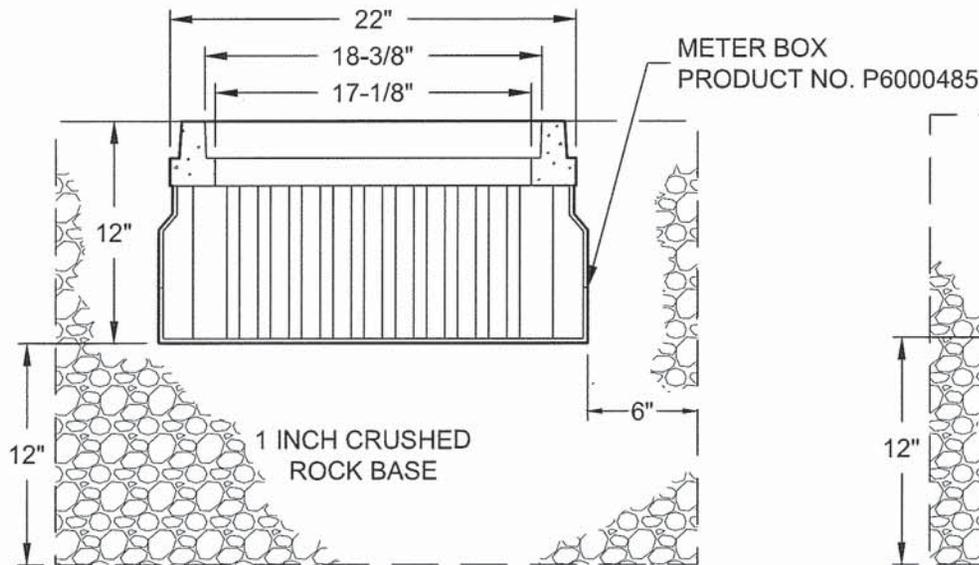


APPROVED METHODS FOR CONNECTING PRIVATE FIRELINES

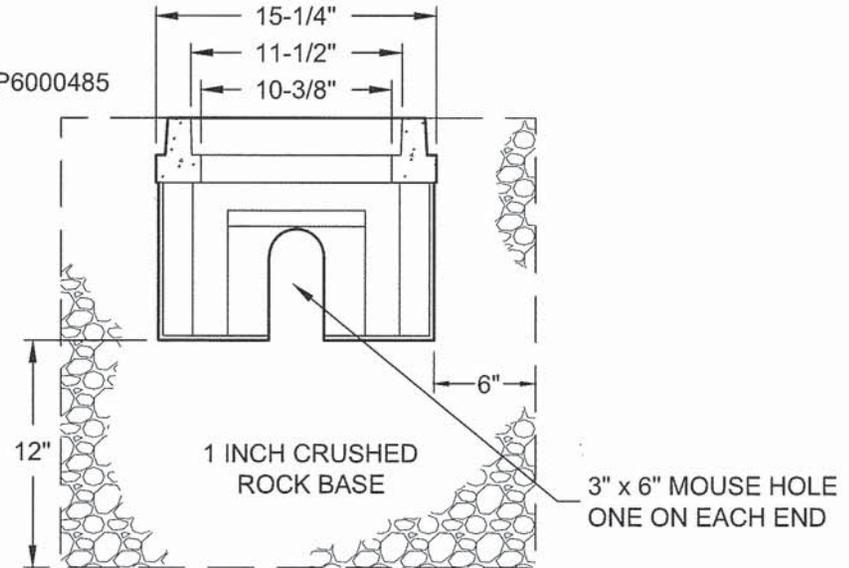
STREETS:	REV. DATE: 11/12	DETAIL: W-05.5
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christopher Anderson</i> PUBLIC WORKS DIRECTOR	



PLAN VIEW



**SIDE VIEW
SECTION A-A**



**END VIEW
SECTION B-B**

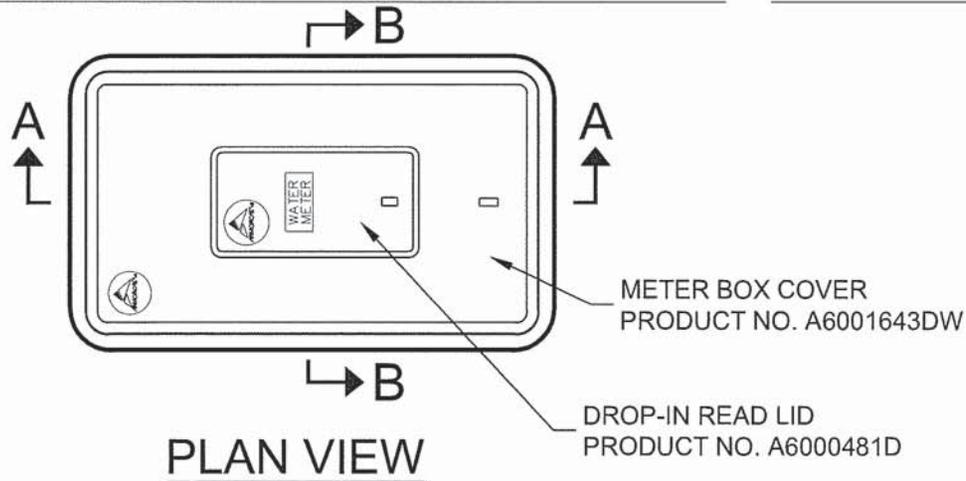
NOTES:

- Meter box shall be non skid Polymer Concrete as Manufactured by:
 Armorcast Products Company,
 13230 Saticoy Street,
 North Hollywood, CA 91605,
 (818) 982-3600
- Bottom of meter box shall rest firmly on a 12 inch thick bed of 1 inch crushed rock extending 6 inches beyond the outside walls of the meter box.



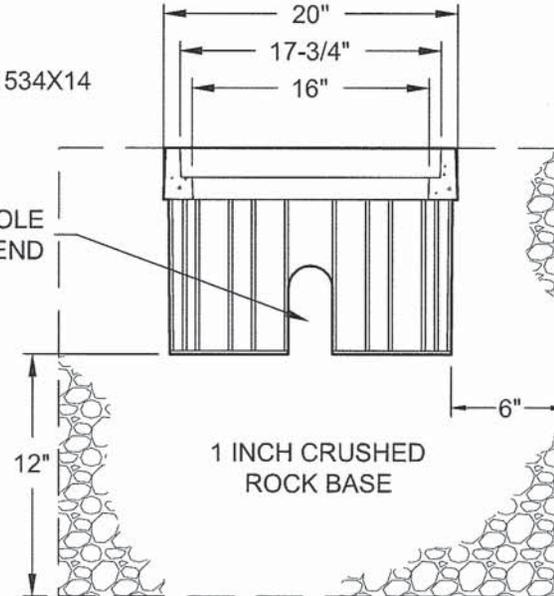
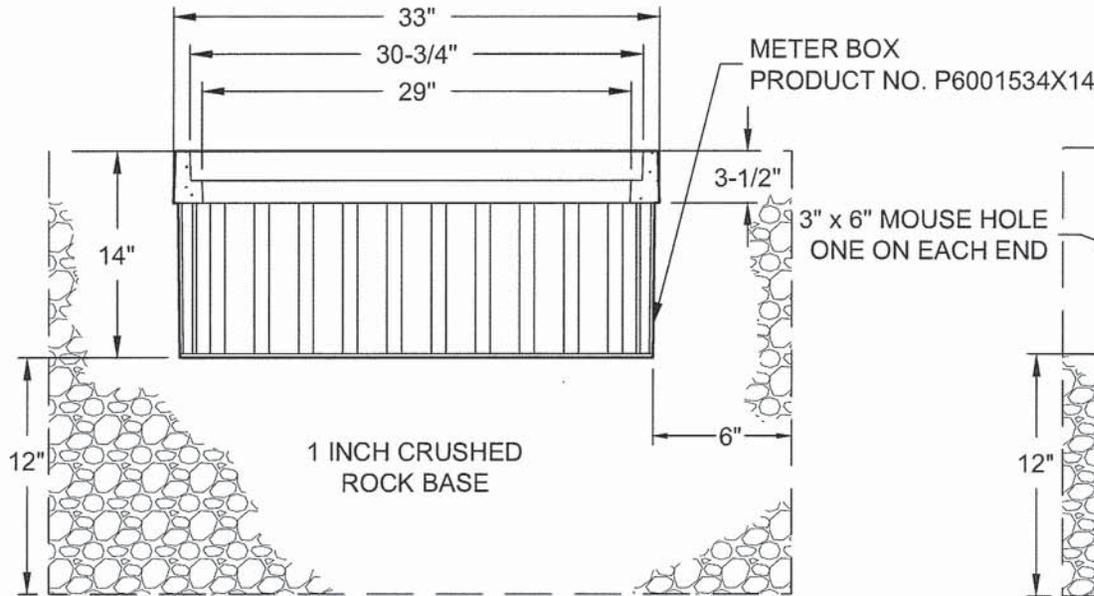
**METER BOX
5/8-INCH AND 1-INCH METERS**

STREETS:	REV. DATE: 11/12	DETAIL: W-06.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i> CITY ENGINEER	
FACILITIES:	APPROVED: <i>Christopher Anderson</i> PUBLIC WORKS DIRECTOR	
WATER RESOURCES:		



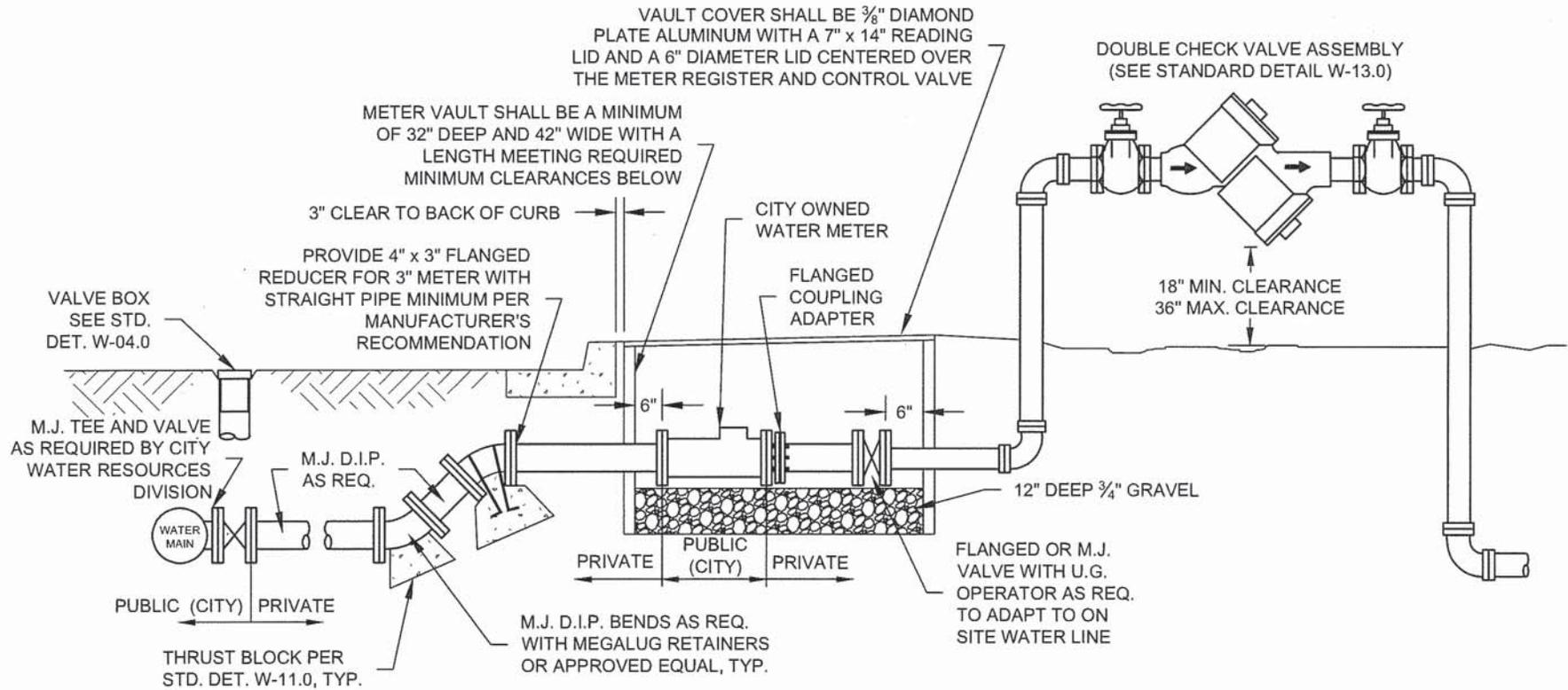
NOTES:

1. Meter box shall be non skid Polymer Concrete as Manufactured by:
 Armorcast Products Company,
 13230 Saticoy Street,
 North Hollywood, CA 91605,
 (818) 982-3600
2. Bottom of meter box shall rest firmly on a 12 inch thick bed of 1 inch crushed rock extending 6 inches beyond the outside walls of the meter box.



METER BOX
1 1/2-INCH AND 2-INCH METERS

STREETS:	REV. DATE: 11/12	DETAIL: W-06.1
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christopher Pedersen</i>	
	PUBLIC WORKS DIRECTOR	



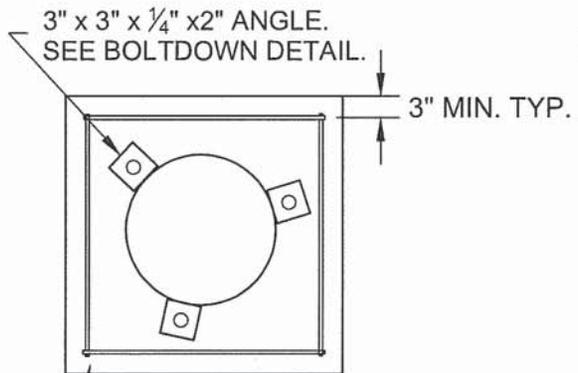
NOTES:

1. Water meter shall be approved by the Water Resources Division of Public Works Department.
2. All piping shall be of the same size as the meter.
3. All pipe in the street right-of-way shall be D.I.P. with mechanical joints and "MEGALUG" retainer glands or approved equal.
4. All ductile iron pipe, including valves and fittings shall be encased with a 8-mil. thick black polyethylene sheet and taped as specified in A.W.W.A. C-105/A21.5-99-PRINTED.
5. All fittings shall be epoxy lined.
6. Service line beyond the valve to the building is the responsibility of the property owner.

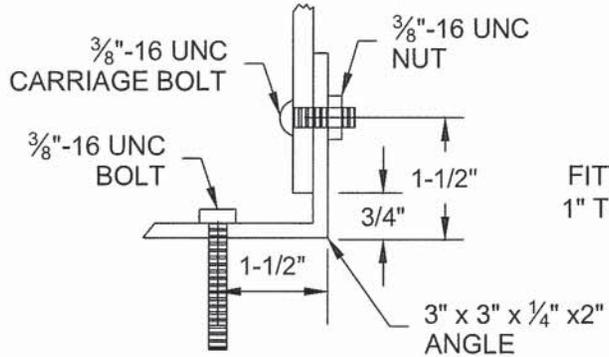


4-INCH AND LARGER SERVICE CONNECTION

STREETS:	REV. DATE: 11/12	DETAIL: W-07.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christopher Pedersen</i> PUBLIC WORKS DIRECTOR	



CLASS 520-C-2500 CONCRETE FOUNDATION PLACED ON NATIVE SOIL COMPACTED TO 90% MIN. RELATIVE DENSITY WITH (2) #3 BARS EACH WAY 18" LONG AT MID DEPTH.
FOR 1": 24"x24"x4"
FOR 2": 36"x36"x4"



BOLTDOWN DETAIL

1/2" Ø HOLE, TYP.

J-1900
SLOPE TO DRAIN

FITTINGS AS REQUIRED.
1" TUBING MAY BE BENT,

ARMORCAST COVER IN MALAGA GREEN OR SANDSTONE AT DISCRETION OF CITY INSPECTOR.
FOR 1": ARMORCAST P6002003 (36" x 12"Ø)
FOR 2": ARMORCAST P6002002 (36" x 20"Ø)

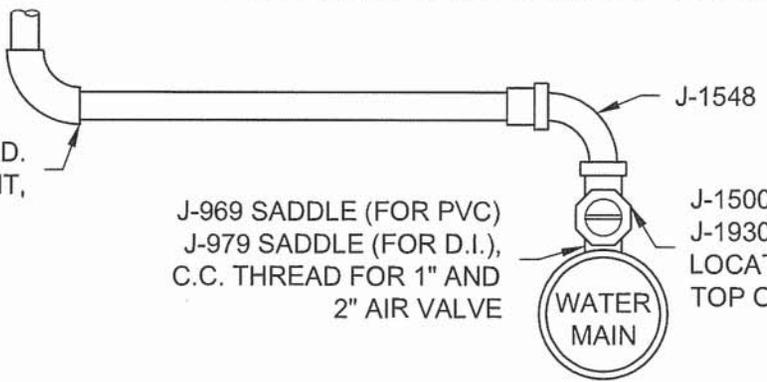
(2) 2" STREET ELLS AND FITTINGS AS REQUIRED TO CLEAR AIR VALVE. INSTALL SCREENED OUTLET.

MULTIPLEX CRISPEN UNIVERSAL AIR VALVE, OR COMBINATION AIR VALVE AND VAC 1" AND 2" THREADED, EPOXY LINED.

BRASS NIPPLE

J-1930-2" OR J-1531-1"

COPPER TUBING, TYPE "K", SAME SIZE AS AIR VALVE. 2' MIN. COVER. PROVIDE PROTECTIVE TAPE.



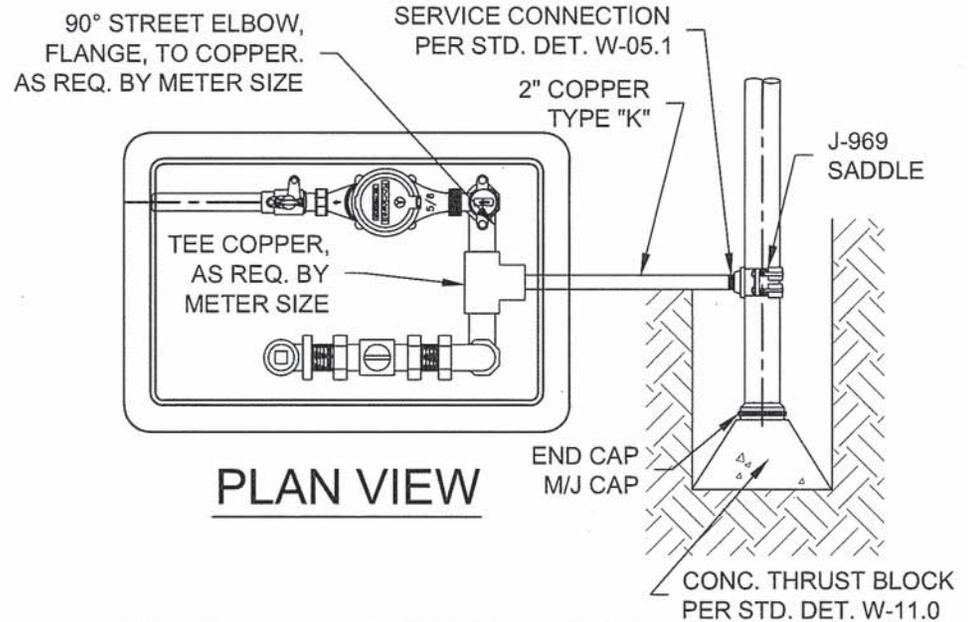
AIR/VACUUM VALVE

1-INCH AND 2-INCH

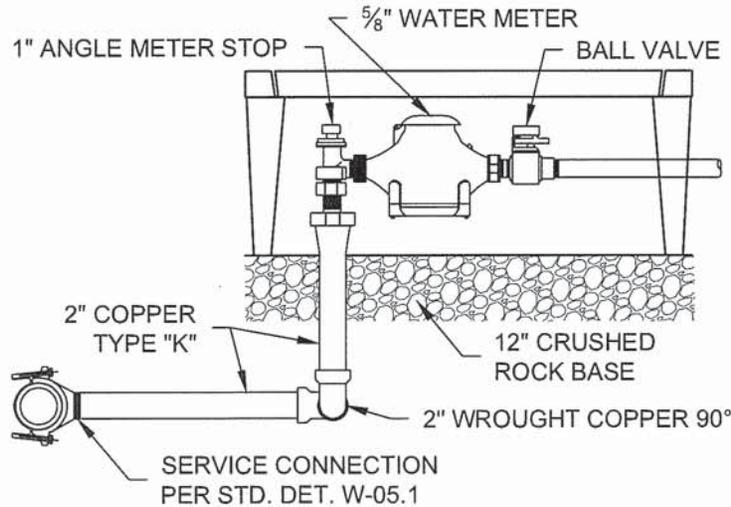
STREETS:	REV. DATE: 11/12	DETAIL: W-08.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Andersen</i> PUBLIC WORKS DIRECTOR	

NOTES:

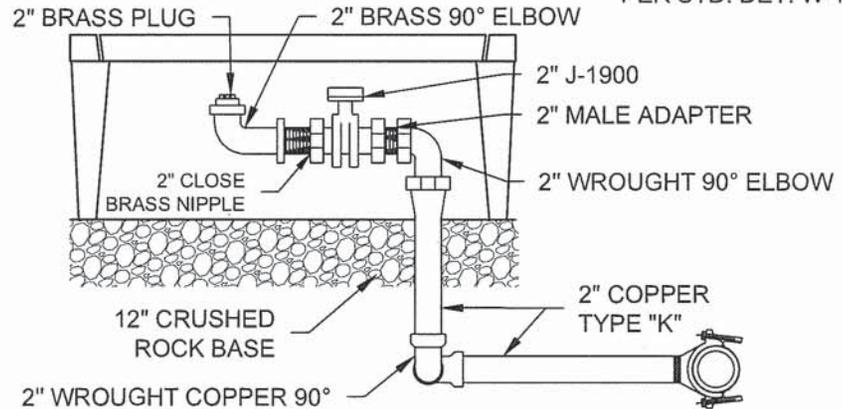
1. Meter box per Standard Detail W-06.1 without bottom. Meter box lid shall be skid resistant.
2. Use silver solder for all sweat joints.



PLAN VIEW



BACK SIDE VIEW



FRONT SIDE VIEW

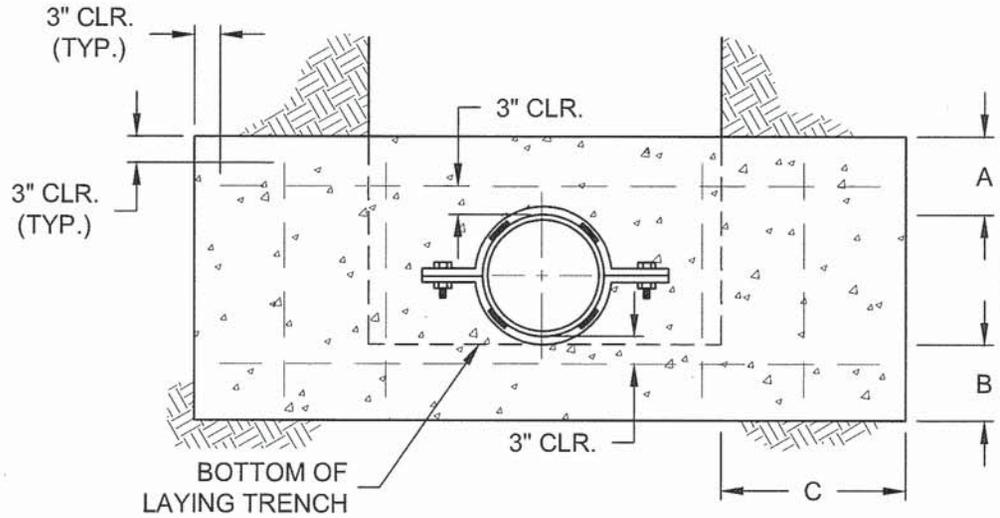


**2-INCH BLOW OFF
WITH 1-INCH SERVICE**

STREETS:	REV. DATE: 11/12	DETAIL: W-09.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i> PUBLIC WORKS DIRECTOR	

MAIN SIZE	PRESSURE (PSI)	A	B	C
8" OR LESS	0-300	6"	6"	12"
10"	0-150	6"	6"	12"
10"	150-300	6"	8"	15"
12"	0-150	6"	6"	12"
12"	150-300	6"	10"	18"

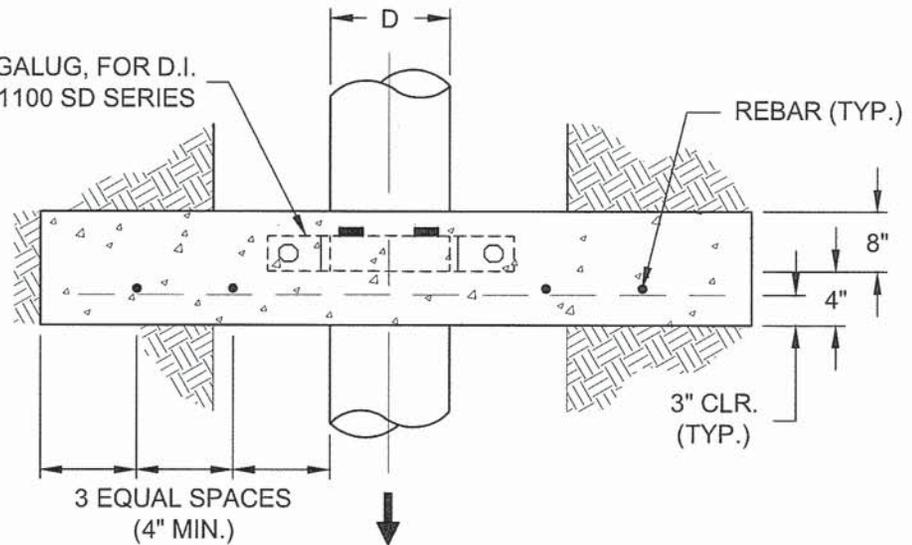
* NOTE: THRUST COLLAR NOT TO BE INSTALLED ON P.V.C.



NOTES:

1. Concrete thrust collar shall be placed solidly against firm undisturbed native soil with a soil bearing pressure not less than 1500 psf.
2. Concrete mix shall be CLASS 520-C-2500.
3. All reinforcing bars shall be No. 4.
4. Thrust collars in non-native soil shall be approved by the City Engineer before installation.

SPLIT MEGALUG, FOR D.I. AND C.I. - 1100 SD SERIES



CONCRETE THRUST COLLAR

STREETS:	REV. DATE: 11/12	DETAIL: W-10.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i> PUBLIC WORKS DIRECTOR	

CONCRETE THRUST BLOCK NOTES:

- Concrete mix shall be Class 520-C-2500.
- Concrete placed against the pipe fitting shall not extend beyond the joints.
- Concrete thrust blocks shall be installed to the dimensions and configurations as shown. Thrust Block Requirements table is designed for a test water pressure of 150psi and a soil bearing pressure of 2000 psf with a safety factor of 1.5. Thrust blocks for all other values for water pressure and soil bearing must use multiplier tables accordingly, see example below.
- Concrete thrust blocks shall be placed solidly against firm undisturbed native soil. Soil bearing pressure of undisturbed native soil must be considered in design, see multiplier table below.
- For configurations with multiple thrust blocks, required bearing area square footage values represent the cumulative total of all thrust block bearing areas.
- The ratio of thrust block height (H) to length (L) shall be at minimum 1:2 and at maximum 1:1 (square), with preference toward 1:1.
- All thrust blocks shall extend a minimum of 24" outward from the pipe. Exceptions for small sized thrust blocks may be made at Engineer's discretion.
- In locations where the water table is higher than the thrust block, special design is required.

THRUST BLOCK REQUIREMENTS (at 150psi water pressure and 2000psf soil bearing capacity):

Pipe inner diameter (in.)	Horizontal Bends (required S.F. bearing area)					Vertical bends (required C.Y.)		
	Tees, crosses, & plugs	90°	45°	22.5°	11.25°	45°	22.5°	11.25°
4	2.0	2.9	1.6	0.8	0.4	0.8	0.4	0.2
6	4.2	5.9	3.2	1.6	0.8	1.7	0.9	0.4
8	7.2	10.2	5.5	2.8	1.4	2.9	1.5	0.8
10	10.9	15.4	8.3	4.2	2.1	4.4	2.2	1.1
12	15.4	21.8	11.8	6.0	3.0	6.2	3.2	1.6
14	20.7	29.3	15.8	8.1	4.1	8.4	4.3	2.1
16	26.8	37.8	20.5	10.4	5.2	10.8	5.5	2.8

SOIL MULTIPLIERS:

Actual Soil Bearing (psf)	Multiplier
1000	2.00
1500	1.33
2000	1.00
2500	0.80
3000	0.67
3500	0.57

WATER MULTIPLIERS:

Actual Test Water Pressure (psi)	Multiplier
100	0.67
150	1.00
200	1.33
250	1.67
300	2.00
350	2.33

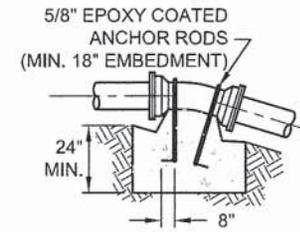
EXAMPLE:

10" pipe, 90° bend, 250psi test water pressure, 1500psf soil bearing capacity:

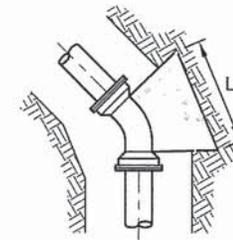
From Thrust Block Requirements table, 10" pipe on a 90° bend requires 15.4 S.F. bearing area.

Adjust values using multiplier tables:

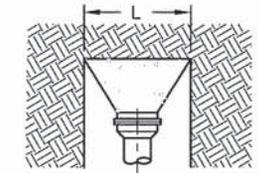
$$\begin{aligned} \text{Required S.F.} &= (\text{Table value})(\text{Multiplier, 1500psf soil})(\text{Multiplier, 250psi water}) \\ &= (15.4 \text{ S.F.})(1.33)(1.67) \\ &= \boxed{34.2 \text{ S.F. required thrust block bearing area}} \end{aligned}$$



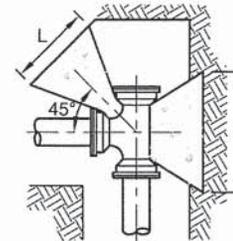
VERTICAL BEND



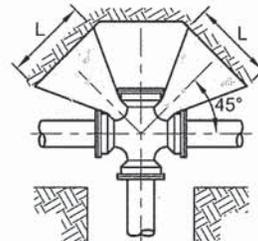
HORIZONTAL BEND



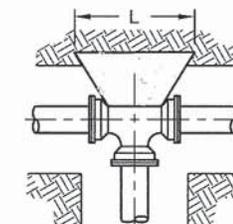
END CAP



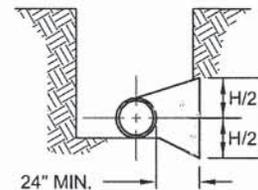
TEE (ONE END PLUGGED)



CROSS (ONE END PLUGGED)



TEE



TYPICAL SECTION



CONCRETE THRUST BLOCK

STREETS:	REV. DATE: 11/12	DETAIL: W-11.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i>	
	PUBLIC WORKS DIRECTOR	

NOTES:

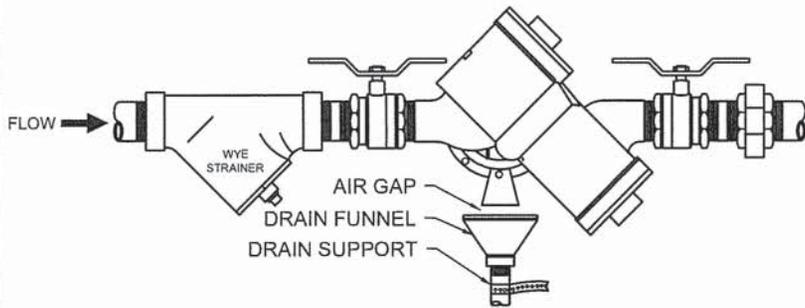
Proper installation of the assembly is essential to the protection of the water supply. The following are important characteristics of a proper installation.

1. The assembly shall be installed in a horizontal position with a minimum clearance of 18 inches and maximum of 36 inches between the relief valve discharge port and floor or grade, and a minimum of 18 inches of horizontal clearance around the unit for access and ease of testing and maintenance of the relief valve.
2. A Reduced Pressure Assembly shall not be installed in a pit. Flooding of the pit can result in cross connection contamination.
3. Placement of the assembly should be planned where water discharged from the relief port will not be objectionable.
4. The assembly must be purchased and installed with resilient seat valves as approved by the University of California Foundation for Cross-Connection Control and Hydraulic Research (USC).
CAUTION: Open and close resilient seated shut-offs slowly to prevent water hammer damage to the system and assembly.
5. Since the reduced pressure assembly is designed to be serviced while in line, the unit need not be removed from the line during servicing. Union connections between the shut-off valves are recommended for ease of removal for damaged units 2 inch and smaller.
6. Ensure the supply water pressure does not exceed the manufacturer's maximum water pressure rating of the assembly to avoid damage to the system or the assembly caused by system pressure. In addition, protection must be provided against thermal water expansion, extreme backpressure and/or water hammer.
7. Most field problems occur because dirt or debris present in the system at the time of installation becomes trapped in the first check seating area, resulting in continuous discharge from the relief valve in a static or backflow condition. THE SYSTEM SHOULD BE FLUSHED BEFORE THE ASSEMBLY IS INSTALLED. If debris is in the water system continues to cause fouling, a strainer can be installed upstream of the assembly.
8. Backflow assembly shall be lead free.

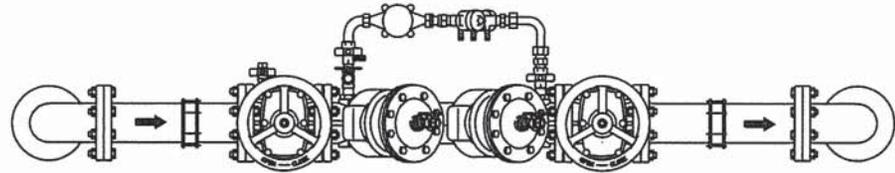


REDUCED PRESSURE PRINCIPLE ASSEMBLY
BACKFLOW PREVENTION ASSEMBLY (TYPE 1) NOTES

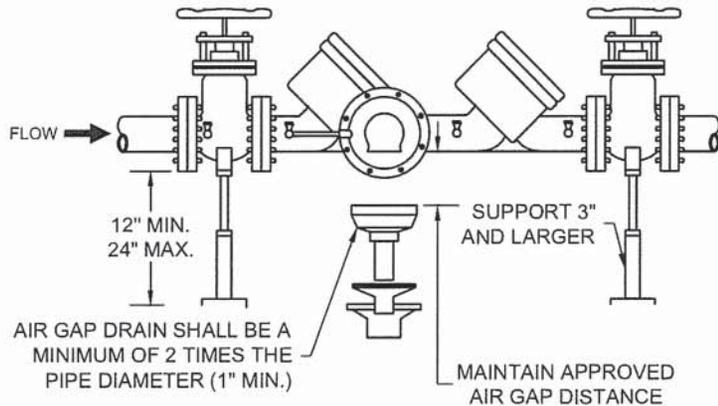
STREETS:	REV. DATE: 11/12	DETAIL: W-12.0
TRANS OPS:	APPROVED: <i>St. Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christian Anderson</i>	
	PUBLIC WORKS DIRECTOR	



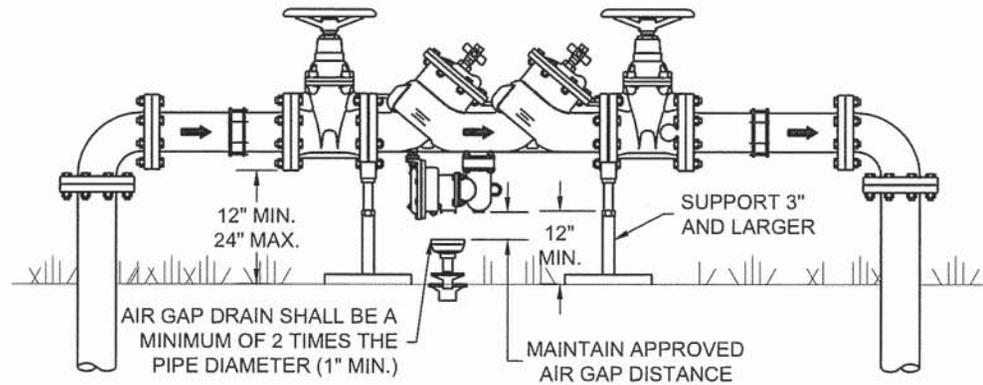
INDOOR INSTALLATION
TOP VIEW



INDOOR/OUTDOOR INSTALLATION WITH DETECTOR
TOP VIEW



OUTDOOR INSTALLATION
TOP VIEW



INDOOR/OUTDOOR INSTALLATION WITH DETECTOR
SIDE VIEW



REDUCED PRESSURE PRINCIPLE ASSEMBLY
BACKFLOW PREVENTION ASSEMBLY (TYPE 1)

STREETS:	REV. DATE: 11/12	DETAIL: W-12.1
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christopher P. Anderson</i> PUBLIC WORKS DIRECTOR	

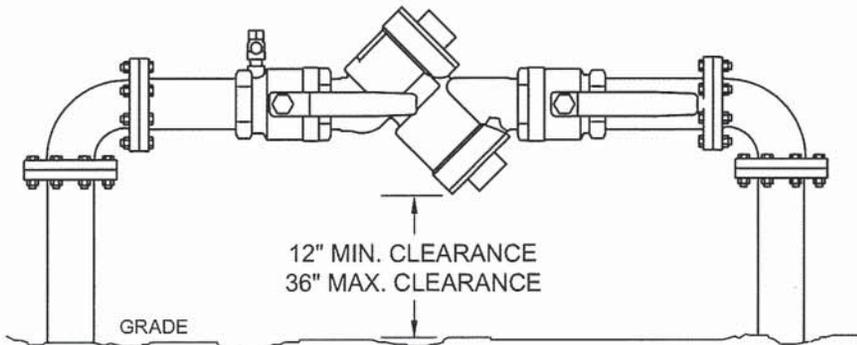
NOTES:

1. The Double Check Valve Assembly must be installed where it is accessible for periodic testing and maintenance.
2. PRIOR TO INSTALLING IN LINE, FLUSH SUPPLY LINE OF ALL FOREIGN MATERIAL. Failure to flush the lines completely may cause the checks to become fouled and require disassembly and cleaning.
3. The device shall only be installed per manufacturer's specifications.
4. When threading the device in line, place wrench only on ball valve hex ends. Keep pipe dope off interior surfaces of valve. On 2-1/2-inch and larger devices, DO NOT LIFT THE DEVICE WITH GATE VALVE HANDWHEELS OR STEMS. ALSO DO NOT SUPPORT DEVICE FROM ONLY ONE END.
5. After installation, fill device and bleed air from unit. Test to ensure proper operation. If either check fails to hold 1.0 PSI, it is most likely due to fouling. The cap must be removed and the seat and/or seat disc cleaned.
6. The device must be protected from freezing. Thermal water expansion and/or water hammer downstream of the backflow preventer can cause excessive pressure increases. Excessive pressure situations should be eliminated to avoid possible damage to the system and device.
7. All potable dedicated fire lines will be required to have double check detector check.
8. Any backflow prevention assembly installed overhead (5' or more) must have a permanent platform built for accessibility.
9. Refer to Uniform Plumbing Code (UPC) chapter 6, sections 603.00 thru 603.4.20 for more information.



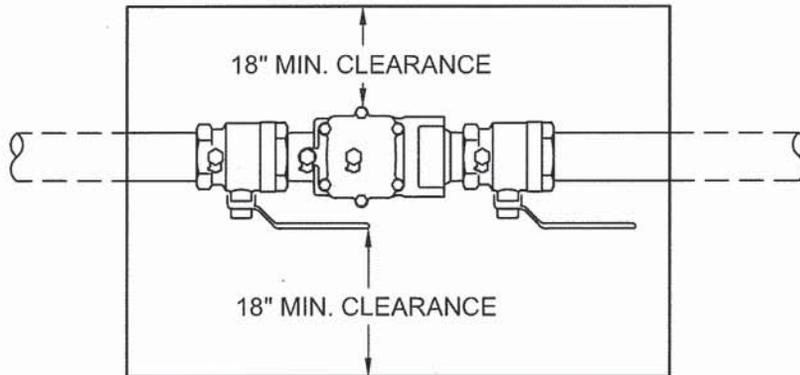
DOUBLE DETECTOR CHECK ASSEMBLY BACKFLOW PREVENTION ASSEMBLY (TYPE 2) NOTES

STREETS:	REV. DATE: 11/12	DETAIL: W-13.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Swalesen</i>	
	PUBLIC WORKS DIRECTOR	

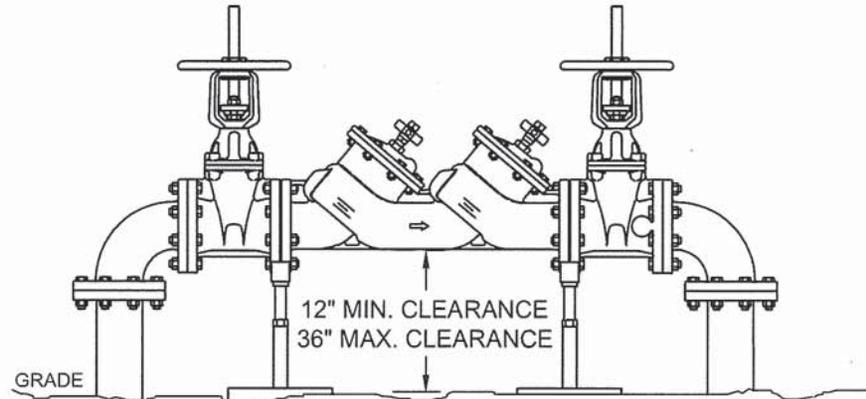


OUTSIDE INSTALLATION
(SIDE VIEW)
(SIZES 3/4" THROUGH 2")

DOUBLE CHECK VALVE ASSEMBLY

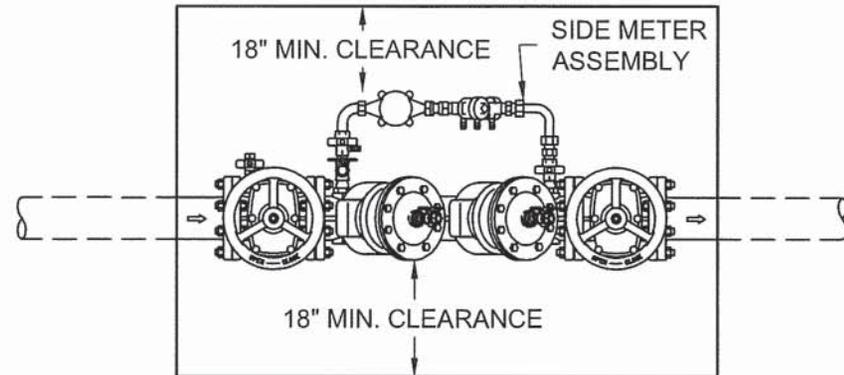


PIT INSTALLATION
(TOP VIEW)
(SIZES 3/4" THROUGH 2")



OUTSIDE INSTALLATION
(SIDE VIEW)
(SIZES 2-1/2" AND LARGER)

DOUBLE CHECK DETECTOR CHECK ASSEMBLY

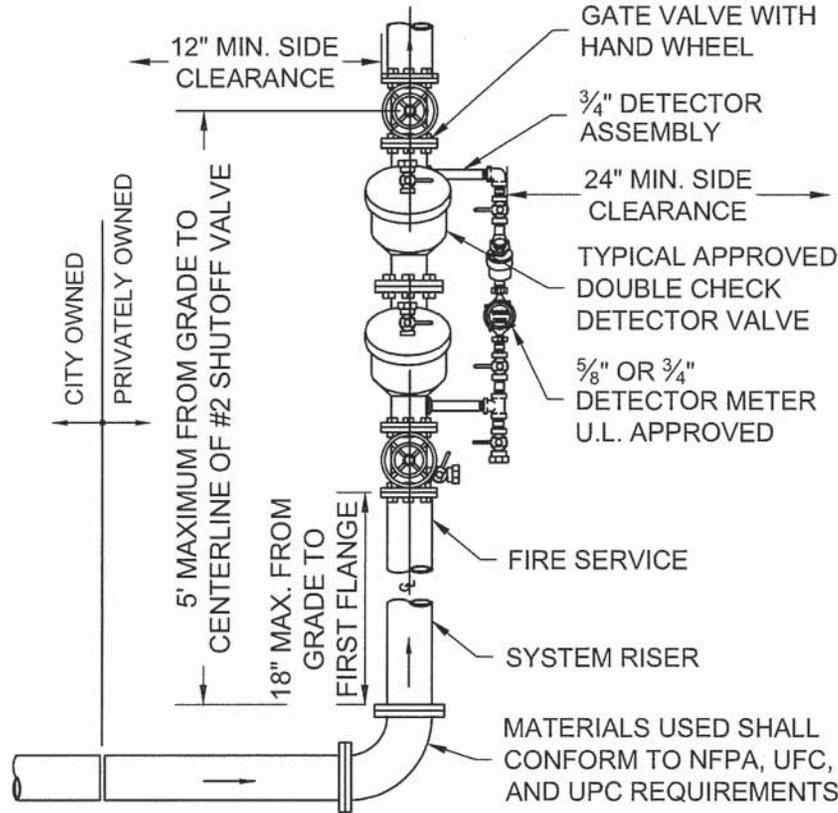


PIT INSTALLATION
(TOP VIEW)
(SIZES 2-1/2" AND LARGER)

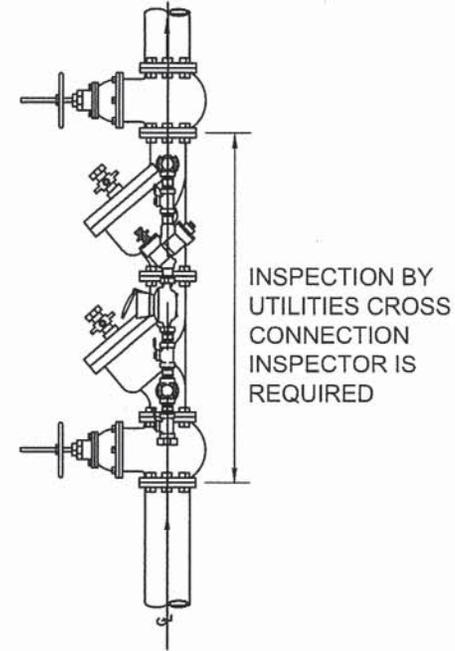


**DOUBLE DETECTOR CHECK ASSEMBLY
BACKFLOW PREVENTION ASSEMBLY (TYPE 2)**

STREETS:	REV. DATE: 11/12	DETAIL: W-13.1
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christopher P. ...</i> PUBLIC WORKS DIRECTOR	



ELEVATION



SIDE VIEW

NOTES:

1. Assembly and installation shall conform to Standard Detail W-13.0.
2. Double check detector required on all potable dedicated firelines.
3. Side clearance shall be 12" minimum from back of backflow device to any wall or other obstruction.
4. Clearance from detector side of backflow assembly shall be a minimum of 24" from all obstructions.
5. Assembly must be installed as a unit.
6. Distance from grade to centerline of the #2 shut off valve shall be a maximum of 5 feet.
7. Minimum of 18" from grade to first flange of #1 shut off valve.
8. Assembly must be an approved assembly from USC list or equivalent.

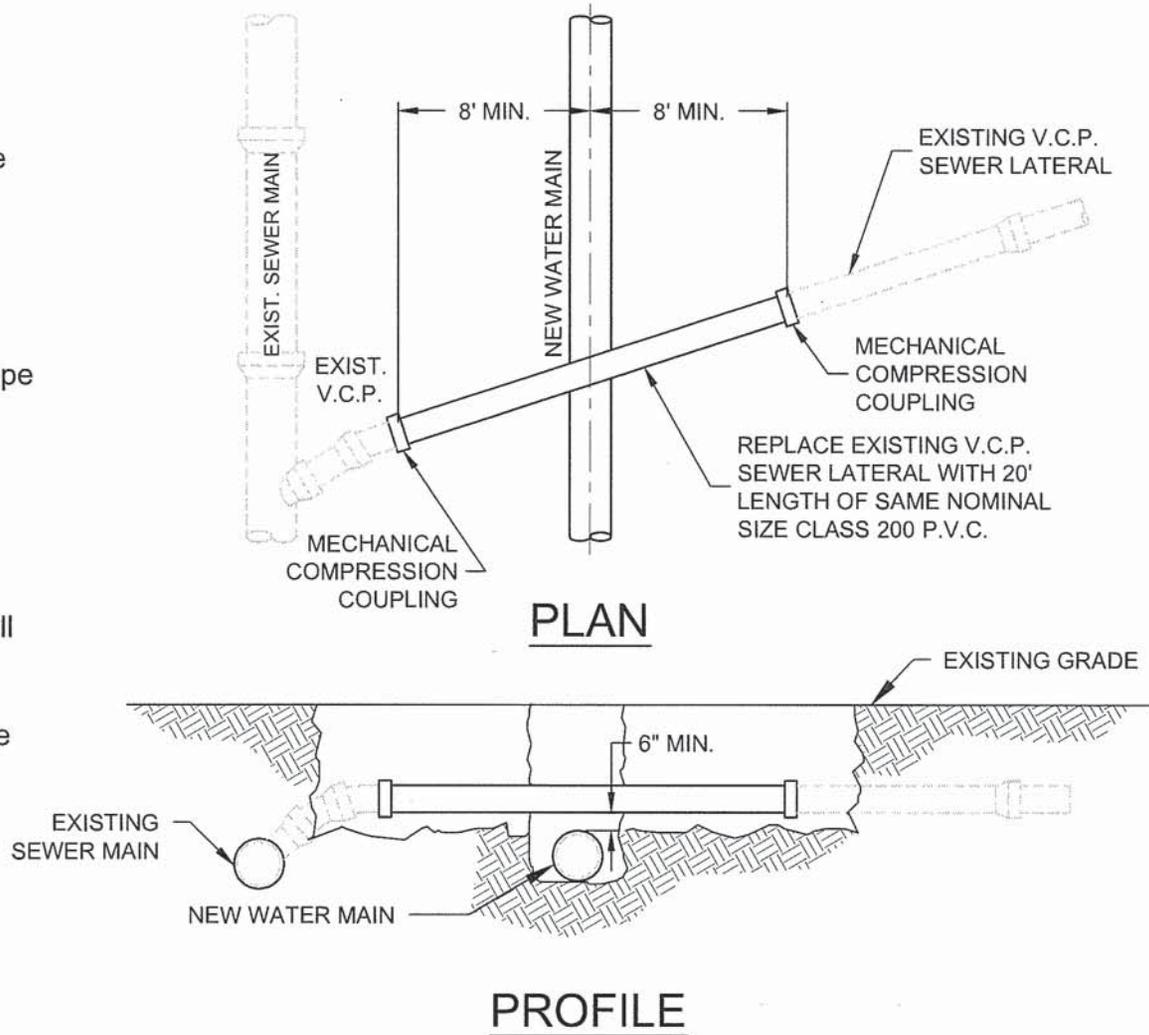


**DOUBLE DETECTOR CHECK ASSEMBLY
VERTICAL INSTALLATION**

STREETS:	REV. DATE: 11/12	DETAIL: W-13.2
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i>	
	PUBLIC WORKS DIRECTOR	

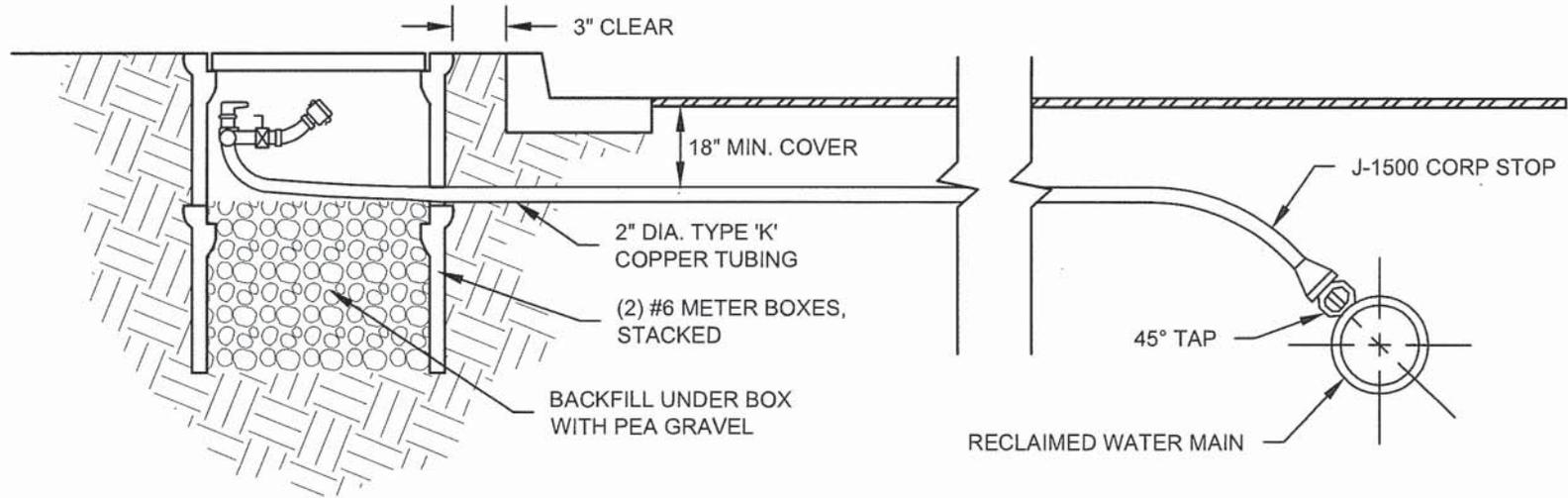
NOTES:

1. Any variation from that shown must be approved by the City Public Works Inspector.
2. Sewer laterals shall maintain original slope.
3. PVC pipe shall be Class 200 P.V.C. pipe per AWWA C900.
4. Backfill shall be Class I as defined in Standard Detail 7-001.0 and shall be placed in accordance with ASTM D 2321.
5. Mechanical compression coupling shall be a band seal type repair with an outside stainless steel shear ring, "strong back" or approved equal by the Engineer.

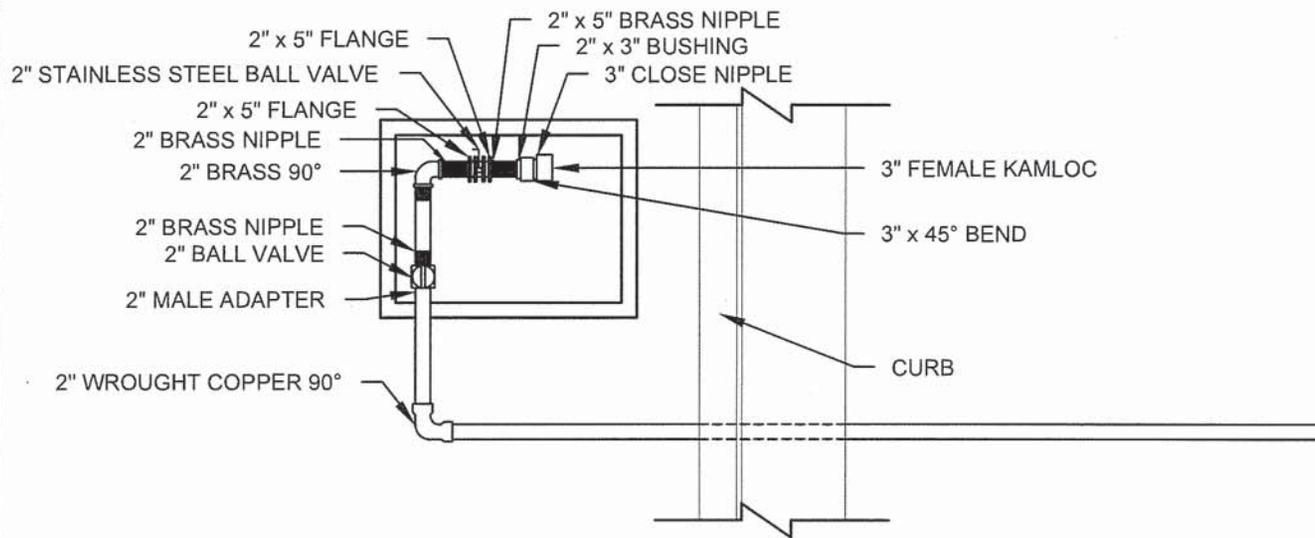


**MODIFICATION OF SEWER LATERAL
OVER WATER MAIN**

STREETS:	REV. DATE: 11/12	DETAIL: W-14.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Rodriguez</i> PUBLIC WORKS DIRECTOR	



SECTION

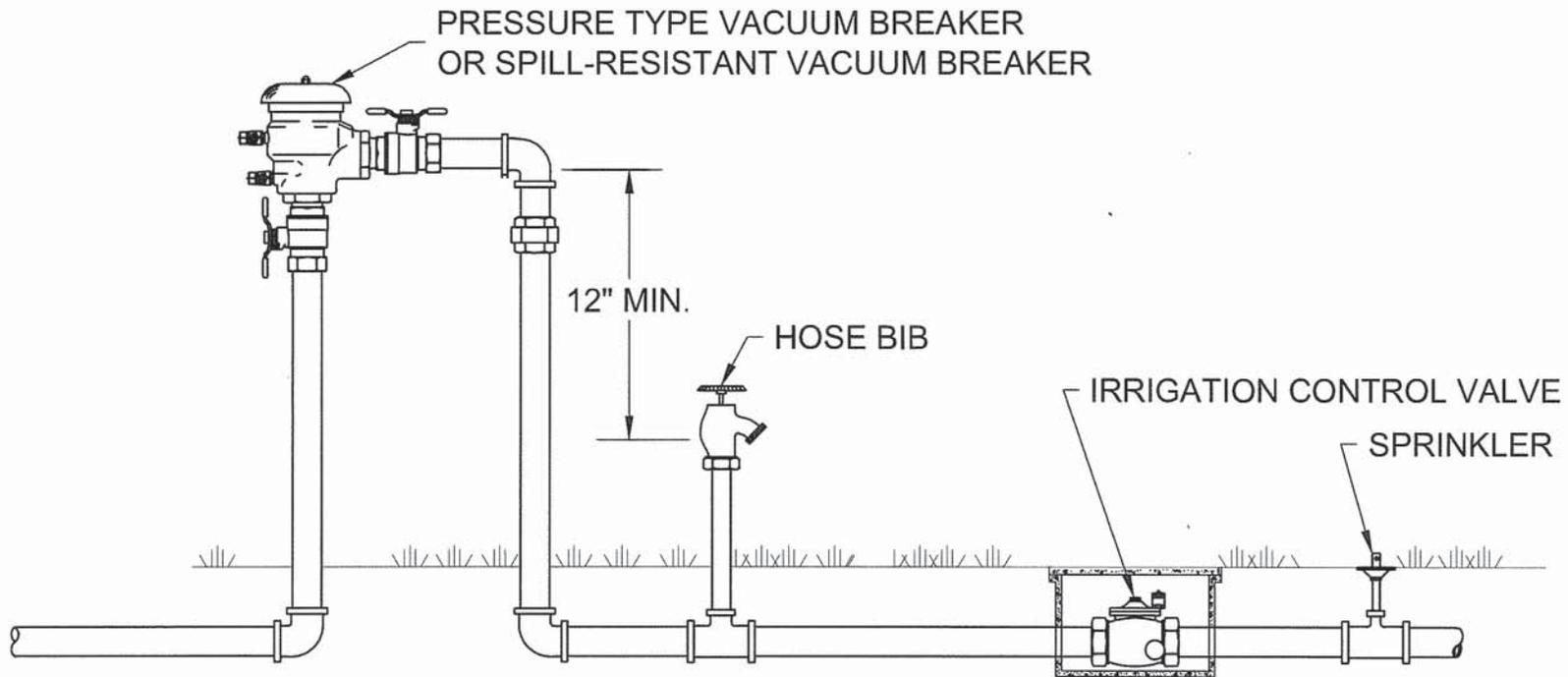


PLAN



RECLAIMED WATER FILL STATION

STREETS:	REV. DATE: 11/12	DETAIL: W-15.0
TRANS OPS:	APPROVED: <i>W. Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christopher Anderson</i>	
	PUBLIC WORKS DIRECTOR	



PLAN VIEW

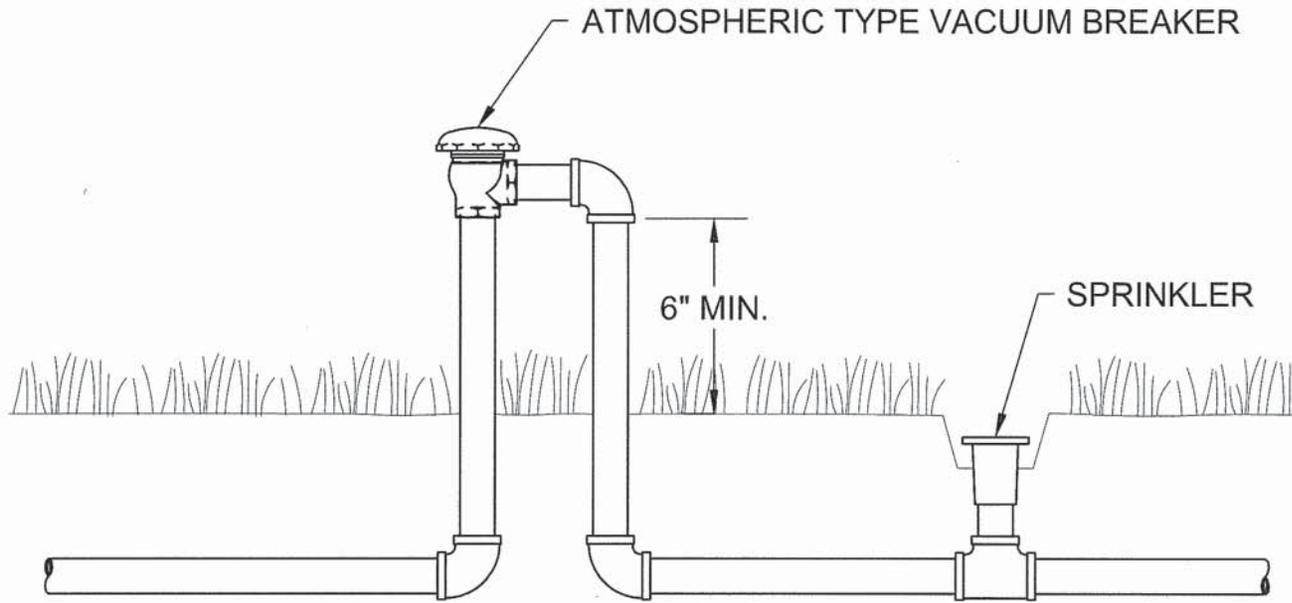
NOTES:

1. Downstream side of pressure type vacuum breaker may be maintained under pressure by a valve, but any backpressure by pump or other means is strictly prohibited.
2. PVB's (Pressure Vacuum Breakers) and SVB's (Spill-Resistant Vacuum Breakers) are designed to protect against back siphonage only; not backpressure.
3. PVB's and SVB's shall be installed where occasional water discharge caused by pressure fluctuations is acceptable.
4. PVB's and SVB's shall be installed a minimum of 12 inches above the highest downstream piping and/or outlets.
5. PVB's and SVB's shall always be installed above the 100 year flood level unless otherwise approved by Engineer or designee.
6. Provide minimum clearances for testing and repair.



PRESSURE TYPE VACUUM BREAKER

STREETS:	REV. DATE: 11/12	DETAIL: W-16.0
TRANS OPS:	APPROVED: <i>Pat Kell</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i> PUBLIC WORKS DIRECTOR	



PLAN VIEW

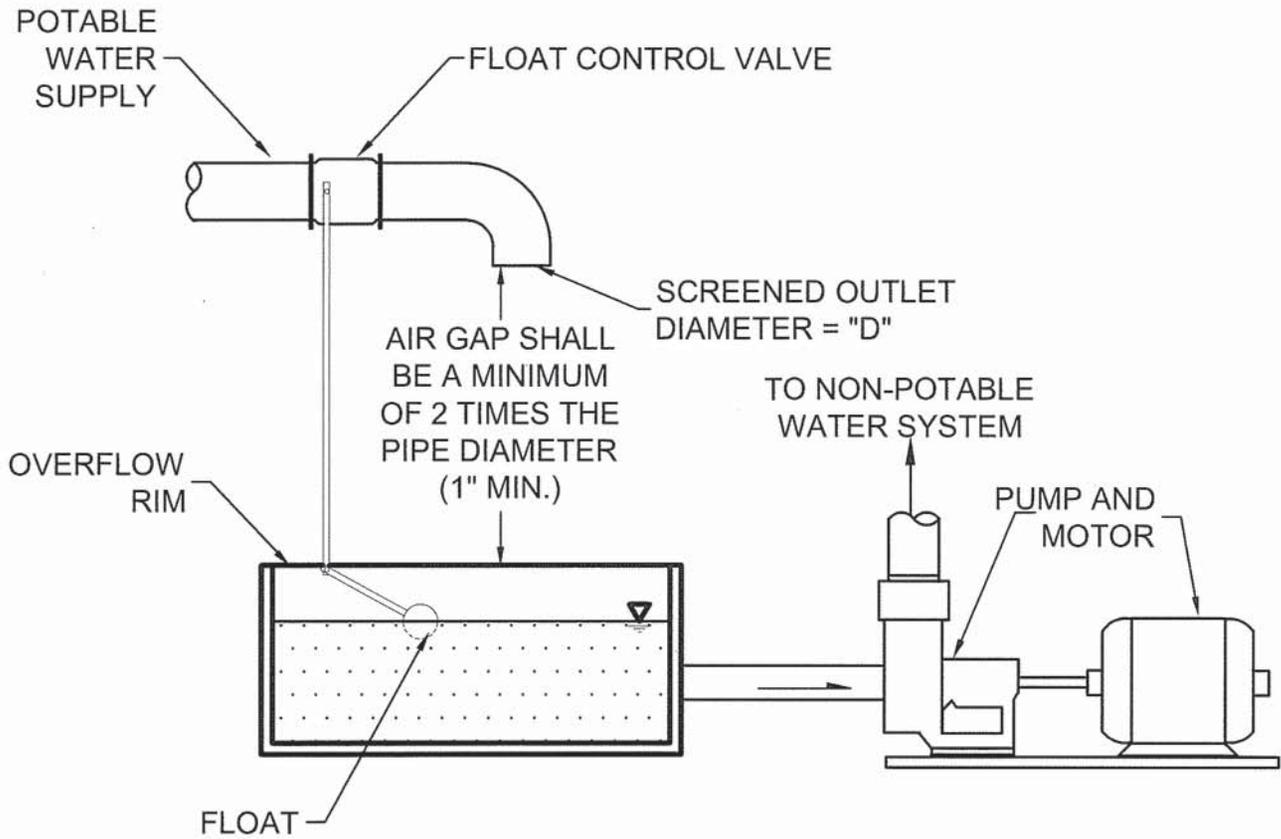
NOTES:

1. Downstream side of atmospheric type vacuum breaker (AVB) shall not contain any means of shut off.
2. AVB's shall not be subject to any backpressure.
3. AVB's are for intermittent use only and shall not be pressurized for more than 12 hours in any 24 hour period.
4. AVB's shall not be installed where occasional dusty or corrosive conditions occur.
5. AVB's shall be installed a minimum of 6 inches above the highest downstream piping and/or outlets.
6. AVB's shall always be installed above the 100 year flood level unless otherwise approved by Engineer or designee.



ATMOSPHERIC TYPE VACUUM BREAKER

STREETS:	REV. DATE: 11/12	DETAIL: W-17.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i>	
	PUBLIC WORKS DIRECTOR	



AIR GAP SEPARATION

STREETS:	REV. DATE: 11/12	DETAIL: W-18.0
TRANS OPS:	APPROVED: <i>Pat Kelly</i>	
FACILITIES:	CITY ENGINEER	
WATER RESOURCES:	<i>Christina Anderson</i>	
	PUBLIC WORKS DIRECTOR	

UNDERGROUND UTILITIES

<u>NUMBER</u>	<u>TITLE</u>
U-01.0	EXCAVATION WORK IN PUBLIC RIGHT-OF-WAY GENERAL NOTES FOR STREET RESTORATION (1 OF 4)
U-01.1	EXCAVATION WORK IN PUBLIC RIGHT-OF-WAY GENERAL NOTES FOR STREET RESTORATION (2 OF 4)
U-01.2	EXCAVATION WORK IN PUBLIC RIGHT-OF-WAY GENERAL NOTES FOR STREET RESTORATION (3 OF 4)
U-01.3	EXCAVATION WORK IN PUBLIC RIGHT-OF-WAY GENERAL NOTES FOR STREET RESTORATION (4 OF 4)
U-02.0	TRENCH BEDDING AND BACKFILL - NOTES
U-02.1	TRENCH BEDDING AND BACKFILL - TYPICAL SECTION
U-03.0	TRENCH PAVING REQUIREMENTS (1 OF 3)
U-03.1	TRENCH PAVING REQUIREMENTS (2 OF 3)
U-03.2	TRENCH PAVING REQUIREMENTS (3 OF 3)
U-04.0	PIPE REINFORCEMENT
U-05.0	WATER-SEWER SEPARATION REQUIREMENTS - NOTES
U-05.1	WATER-SEWER SEPARATION REQUIREMENTS - SEWER MAIN CONSTRUCTION
U-05.2	WATER-SEWER SEPARATION REQUIREMENTS - WATER MAIN CONSTRUCTION
U-06.0	UTILITY SEPARATION FROM CITY WATER, SEWER, RECLAIMED PIPELINES, AND STORM DRAINS



UNDERGROUND UTILITIES TABLE OF CONTENTS

REV. DATE: 09/19 | DETAIL: U-00.0

APPROVED:

09/23/19
CITY ENGINEER

PUBLIC WORKS DIRECTOR

EXCAVATION WORK IN PUBLIC RIGHT-OF-WAY GENERAL NOTES FOR STREET RESTORATION

1. No planned work shall be executed in any part of the public right-of-way for the installation, repair, or removal of any facility, or for any other purpose, without first obtaining a written permit in accordance with the City of Santa Barbara Street permit ordinances (Municipal Code Chapter 22.60 Street and Sidewalks).
2. All work shall be done in accordance with the latest edition of the "Standard Specifications for Public Works Construction" (Greenbook), City of Santa Barbara Standard Details, Special Provisions, utility franchise agreement (if applicable), and the City of Santa Barbara Municipal Code Chapter 22.60.
3. The City has the authority to approve or reject the placement and alignment of utility lines in the public right-of-way to avoid other utilities or otherwise manage the public right of way, the scope of street restoration, and the location of above grade infrastructure.
4. The contractor shall take necessary precautions to prevent avoidable damage to improvements in public right-of-way. If the contractor damages the public right-of-way outside the planned limits of construction, the City will mark the required limits of removal and replacement.
5. Diagonal trenching on Asphalt Concrete is discouraged and not permitted on any Portland Cement Concrete. The Public Works Inspector may allow exceptions in asphalt concrete based on the specific circumstances observed in the field but will require more extensive/larger asphalt restoration to square the area in the direction of travel (i.e. drive lane overlay).
6. The contractor shall perform work in cooperation with other utilities, including but not limited to consideration of joint trenching.
7. In open cut and/or pit and bore construction, all existing underground utilities, including service laterals within two (2) feet of the excavation work, shall be marked, potholed, and exposed to determine type, alignment, offset distance, and depth.
8. The contractor shall protect in place all utilities that are impacted and shall submit for review and approval to the Public Works inspector the method of protecting the utilities. Hand digging is required when crossing existing utilities.
9. Boring is the preferred method when excavation will pass through a cross gutter, driveway approach, alley approach, or bus lanes and bus pads. If boring is not possible, the Public Works Inspector will determine how the area is to be restored.
10. Where possible, underground crossing of streets will be installed by boring. Some utilities due to their standards will have alternate methods of installation.
11. Except in an emergency, Sewer Lateral Inspection Program (SLIP), or in the case of new service connections to a newly constructed or substantially remodeled building, there shall be no excavation in streets overlaid or reconstructed by the City within the preceding four (4) years. Where excavation is necessary or approved to occur in a newly paved street, the restoration after the trench paving shall be as detailed in note 13.
12. Except in an emergency, Sewer Lateral Inspection Program (SLIP), or in the case of new service connections to a newly constructed or substantially remodeled building, there shall be no excavation in streets slurry sealed by the City within the preceding two (2) years. Where excavation is necessary or approved to occur in a newly slurry sealed street, the restoration after the trench paving shall include slurry sealing twenty feet beyond the limits of all trenching or construction damage, as detailed in Note 13. Please note: this may not be the only condition upon which the City may require slurry seal to properly restore the street.



EXCAVATION WORK IN PUBLIC RIGHT-OF-WAY GENERAL NOTES FOR STREET RESTORATION 1 of 4

REV. DATE: 09/19 | DETAIL: U-01.0

APPROVED:

Bin Da
CITY ENGINEER

Kenneth Bjit
PUBLIC WORKS DIRECTOR

13. Public right-of-way restoration:

Asphalt Streets and Alleys				
	Trench Perpendicular to the path of travel	Trench Parallel to the path of travel*	Pothole or Other Individual Cut	Multiple Cuts
Arterial/Collector Street	T-cut trench 12" either side of cut and overlay with asphalt per U-03.0 to U-03.2.	Cold plane 10' centered on trench/drive lane and 10' before and after trench.** Overlay with matching asphalt.***	T-cut 12" on all sides of pothole and overlay with asphalt, per U-03.0 to U-03.2.	Per the direction of the Public works inspector. E.g. excessive bore pits may result in cold plane 10' requirement or slurry seal
Local Street/Alley	T-cut trench 12" either side of cut and overlay with asphalt per U-03.0 to U-03.2.	Cold plane 5' centered on trench and 5' before and after trench.** Overlay with matching asphalt.***	T-cut 12" on all sides of pothole and overlay with asphalt, per U-03.0 to U-03.2	Per the direction of the public works inspector.
Newly Paved Street or Alley (within 4 years of last overlay)****	Cold plane 10' centered on trench 10' before and after trench.** Overlay with matching asphalt.***	Cold plane the full lane width for all impacted lanes with end transitions.** Overlay with matching asphalt.***	Cold plane the full lane width for all impacted lanes with end transitions.** Overlay with matching asphalt.***	Per the direction of the public works inspector. E.g. excessive bore pits may result in cold plane 10' requirement
New Slurry Sealed Street or Alley (within 2 years of last slurry seal)	Crack and slurry seal a minimum of 20 feet beyond the limits of all trenching or construction damage.	Crack and slurry seal the full lane width for all impacted lanes or as required for restriping lines and markings.	Crack and slurry seal the full lane width for all impacted lanes or as required for restriping lines and markings.	Crack and slurry seal the full lane width for all impacted lanes or as required for restriping lines and markings.

*Per U-03.0 to U-03.2 all trenches must be T-cut 12" either side of the trench, to include Parking Lane.

**Total distance of the transitions will be determined by the public works inspector.

*** Overlay asphalt thickness shall be a minimum of three times the nominal aggregate size.

****Excavations required for the Sewer Lateral Inspection Program (SLIP) are exempt from the newly paved/slurry sealed street requirements but shall comply with trench and pothole requirements for respective street type.

Please note that this table is part of the City of Santa Barbara, Public Works Construction Standard Details. The City may require additional public right-of-way restoration as part of a condition of approval associated with a discretionary land use approval.



EXCAVATION WORK IN PUBLIC RIGHT-OF-WAY
GENERAL NOTES FOR STREET RESTORATION 2 of 4

REV. DATE: 09/19 | DETAIL: U-01.1

APPROVED: *Bill De...*
CITY ENGINEER
Keenan J. Bill
PUBLIC WORKS DIRECTOR

14. Concrete streets and alleys: Remove and replace concrete slab to the nearest score lines outside the excavation area. See also Trench Paving Requirements Details U-03.0. In the case of Public Works Permits (not contracts), the permittee may appeal to the City Engineer if the existing concrete street is in poor condition due to previous trenching or other failures and request repair per Detail U-03.0 Concrete Trench Paving. This appeal will not be supported for arterial/collector streets or State Street.
15. When asphalt streets and alleys are cut within three feet of a curb, gutter, or pavement cold joint, the contractor shall remove the full thickness of the remaining pavement sliver or grind and overlay this area. When cuts are in concrete pavement, cuts and removals must be made to the nearest score lines or as directed by the Public Works Inspector.
16. When asphalt streets are cut within striped bicycle lanes, the entire bicycle lane width shall be restored without any joints in the lane.
17. The contractor shall be responsible for replacement of any damaged traffic signal loops, traffic striping, and street markings at no expense to the City.
18. Survey monuments, surveyor nails and tags, benchmarks, and the like that are damaged, removed, or disturbed shall be replaced at the same location with a similar marker by a licensed land surveyor under contract to the permittee and at no expense to the City. Copies of the reset documents (called "Corner Record") will be presented to the Public Works Inspector as part of the final inspection and must be filed with the County of Santa Barbara Surveyor.

COLD PLANE & OVERLAY LIMITS

Within 30 calendar days after backfilling, Asphalt Concrete shall be Cold Planed and Overlaid/Resurfaced as follows:

19. Existing Asphalt Concrete shall be ground down 2 inches, or one half the existing pavement thickness whichever is less, to the limits specified: Detail U-01.1
20. Where possible, Cold Plane & Overlay shall be from U-01.3 EXAMPLES OF COLD PLANE & OVERLAY LIMITS.
21. Cold Plane & Overlay limits shall extend at least 2 feet beyond the trench "T-Cut" limits. Minimum dimensions shall be 5 feet x 5 feet.
22. "T-Cut" and corresponding Overlay (as applicable) is required for all excavations with a surface area of 2 square feet or greater.
23. Impacted BIKE LANES - Cold Plane and Overlay limits shall fully encompass any bike lane impacted by the trench, and shall have a length that extends at least 2 feet beyond the asphalt removal limits in the direction of bike traffic.



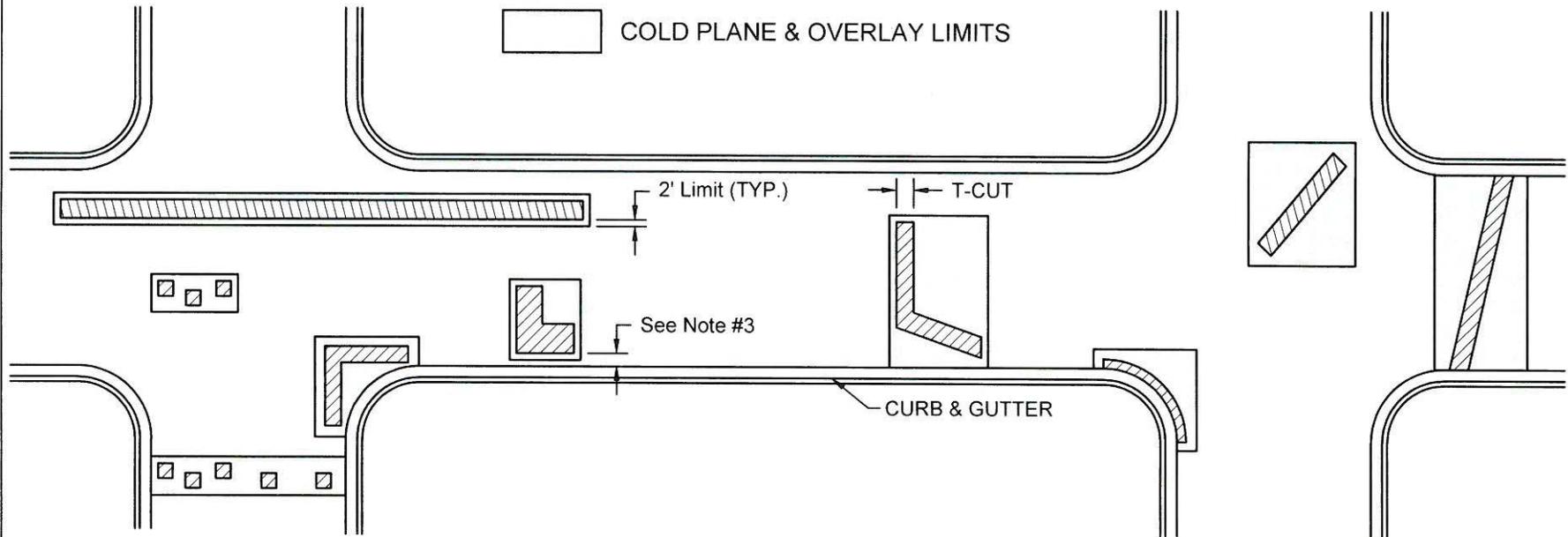
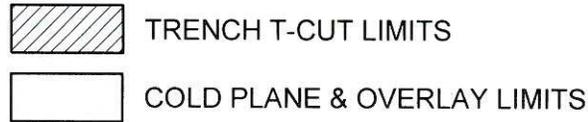
EXCAVATION WORK IN PUBLIC RIGHT-OF-WAY
 GENERAL NOTES FOR STREET RESTORATION 3 of 4

REV. DATE: 09/19 | DETAIL: U-01.2

APPROVED: *Bi Dan*
 CITY ENGINEER
Rebecca Bjell
 PUBLIC WORKS DIRECTOR

EXAMPLES OF COLD PLANE & OVERLAY LIMITS

LEGEND



NOTES:

1. Width and angle of the trench "T" can vary due to site conditions; exact width shall be determined by the Engineer or City inspector.
2. Cold Plane & Overlay limits shall be square to the curb face and roadway and extend a minimum of 2 feet beyond the "T-Cut" limits.
3. Reference Detail U-01.2, Line 15 when cutting within 3' of a curb, gutter, or pavement cold joint.
4. No joints will be located within the wheel path of vehicular traffic.



EXCAVATION WORK IN PUBLIC RIGHT-OF-WAY

GENERAL NOTES FOR STREET RESTORATION 4 of 4

REV. DATE: 09/19 DETAIL: U-01.3

APPROVED: *B. Olan*
 09/23/19
 CITY ENGINEER
Rebecca J. Boyd
 PUBLIC WORKS DIRECTOR

TRENCH BEDDING AND BACKFILL NOTES:

1. Improvements constructed under this Standard Detail shall conform to applicable provisions of the Standard Specifications for Public Works Construction, current edition.
2. Trench width shall be as shown, unless otherwise specified on plans.
3. Pipe zone bedding material shall be sand with a sand equivalent greater than 50.
4. Trench zone shall have a maximum of 8-inch lifts and meet the requirements of one of the following:
 - a. Crushed Aggregate Base;
 - b. Crushed Miscellaneous Base;
5. The Engineer shall approve all backfill material prior to backfilling trench. Contractor must submit sand equivalent tests, per ASTM D2419, for all backfill and bedding, both native and imported, and identify the source of the material.
6. Bedding and backfill shall be compacted mechanically. Compaction by flooding, ponding, or jetting shall not be permitted.
7. Compaction Test, per ASTM D1557, current revision, will be required by the Engineer at various depths in the trench, at intervals not to exceed 250 feet. All tests shall be paid for by the Contractor, and performed by a laboratory approved by the City, unless otherwise specified. Franchise utilities may propose other backfill compaction test and documentation procedures for Engineer approval. This may include utilities own testing facility.
8. A continuous length of 3-inch wide detectable tape, Terratape or approved equal, shall be placed in a direct line over all pipe, as shown. Tape color shall be blue for water, green for sewer, red for electrical, and purple for recycled water.
9. The roadway structural section shall be of the same material and thickness as existing, but shall meet minimum pavement depth requirements of Standard Detail U-03.0.
10. New concrete shall be doweled into existing concrete streets according to the following:
 - New #4 reinf. bar @ 32" on center (O.C.) along longitudinal joints
 - New #4 reinf. bar @ 12" O.C. along transverse joints
 - First dowel shall be placed 6" from edge of new concrete panel
 - Dowels shall be placed at $\frac{1}{2}$ of the concrete pavement depth and centered between two connecting panels
 - When doweling into existing concrete street along longitudinal joints, drill $\frac{5}{8}$ " diameter by 9" long hole in existing cement concrete. Use pre-coated epoxy dowels, follow manufacturer's specifications for hole size and installation.
 - When doweling into existing concrete street along transverse joints, drill $\frac{5}{8}$ " diameter by 6" long hole in existing cement concrete. Use pre-coated epoxy dowels, follow manufacturer's specifications for hole size and installation.
 - All reinforcing bar installed shall be green epoxy coated.
 - Use chemical adhesive to bond reinforcing bar to existing concrete pavement.
11. Asphalt concrete shall be laid in courses not exceeding 4 inches in thickness. Asphalt concrete shall be Class C2 Grade PG 64-10 for finish courses and Class B Grade PG 64-10 for base course.



TRENCH BEDDING AND BACKFILL NOTES

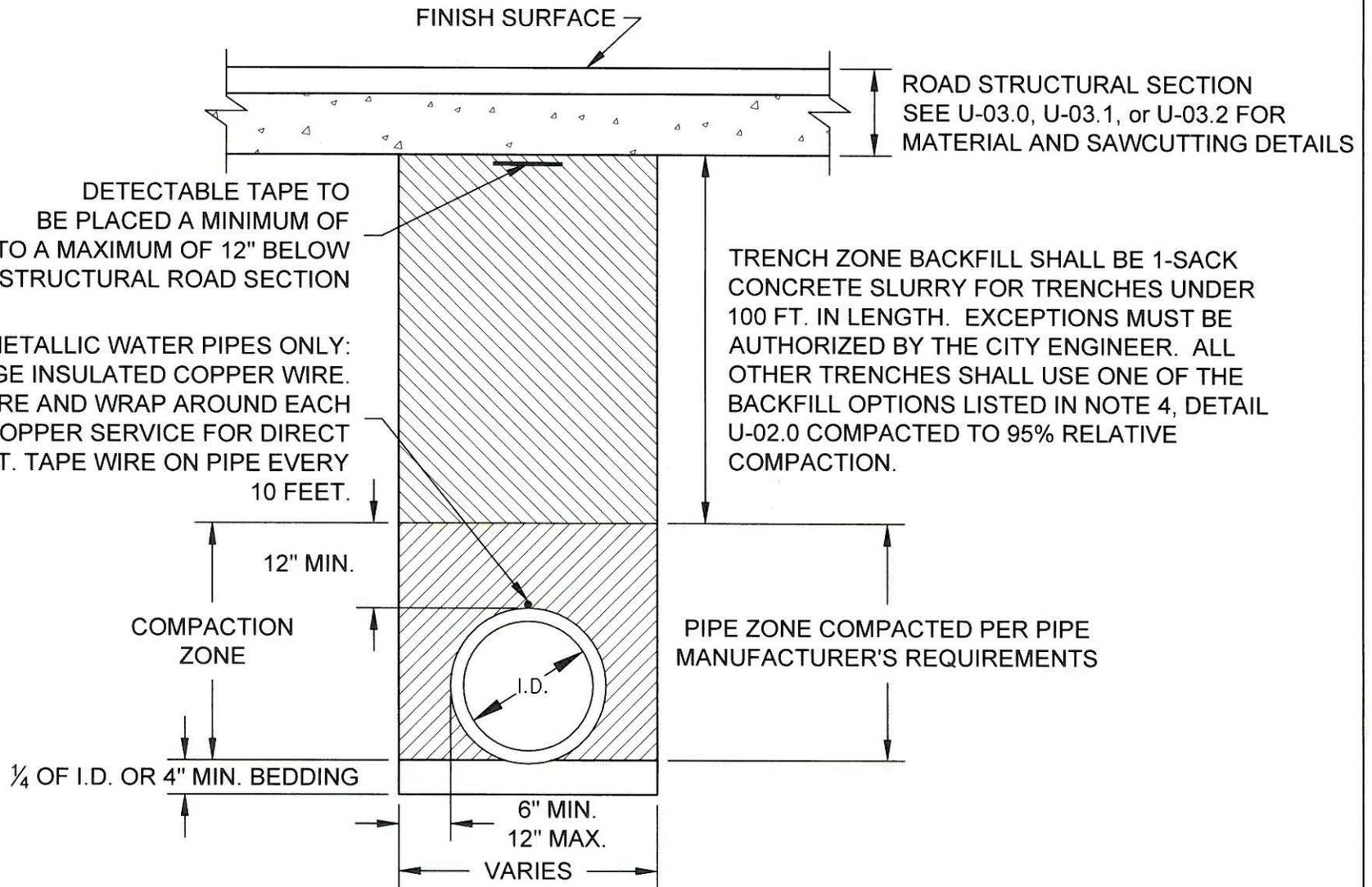
REV. DATE: 09/19 | DETAIL: U-02.0

APPROVED:

07/23/19
CITY ENGINEER

PUBLIC WORKS DIRECTOR

TYPICAL SECTION



TRENCH BEDDING AND BACKFILL TYPICAL SECTION

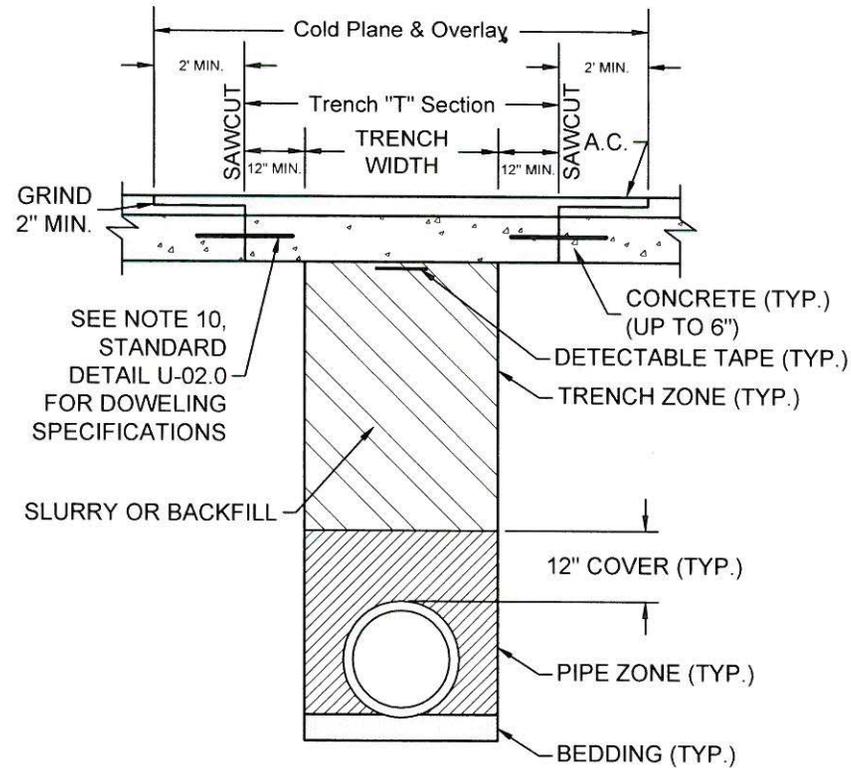
REV. DATE: 09/19 | DETAIL: U-02.1

APPROVED:

B. J. [Signature]
CITY ENGINEER

[Signature]
PUBLIC WORKS DIRECTOR

A.C. OVER CONCRETE



NOTES:

1. Full tack coat on all vertical and horizontal surfaces.
2. Width of the trench "T" varies due to site conditions; exact width shall be determined by the engineer or City inspector.



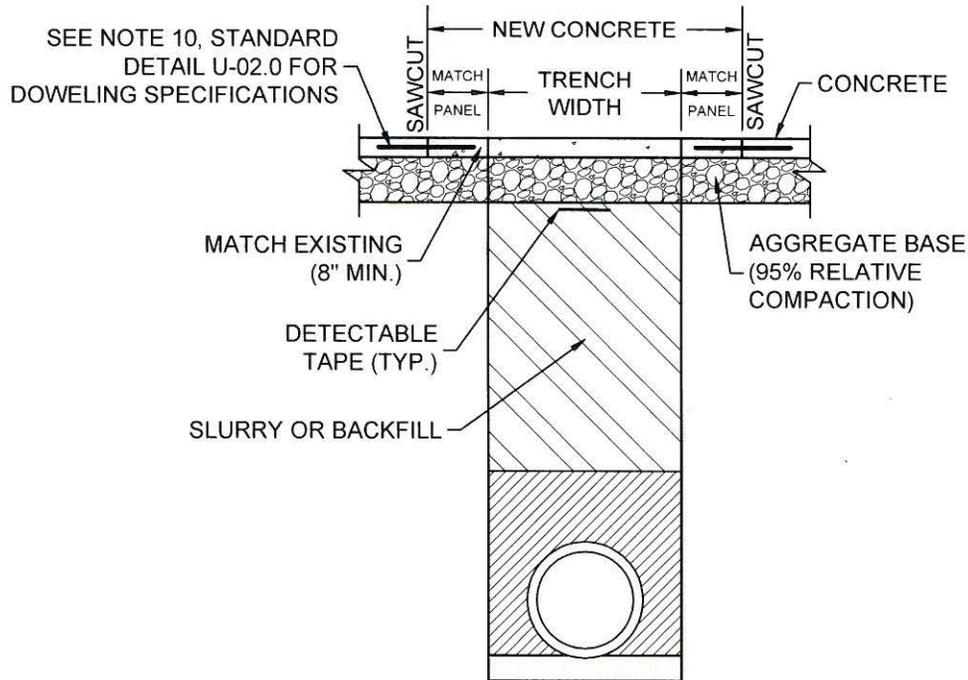
TRENCH PAVING REQUIREMENTS
1 OF 3

REV. DATE: 09/19 | DETAIL: U-03.0

APPROVED:
Cristina B. D'Amico
 CITY ENGINEER
Terence B. J.
 PUBLIC WORKS DIRECTOR

CONCRETE OVER AGGREGATE BASE

TO INCLUDE: CURB & GUTTER, SIDEWALK, DRIVEWAY,
RAMP, CROSSGUTTER, SPANDRAL.



ADDITIONAL NOTES:

- RESTORATION OF ALL CONCRETE IMPROVEMENTS, TO INCLUDE SEWER TAPS, WILL BE TO NEAREST SCORE LINE, PANEL, OR JOINT WITHIN 3 FEET OF TRENCH WIDTH OR EXCAVATED AREA DEPENDENT ON CONDITION OF EXISTING CONCRETE.
- REMOVED CONCRETE OR PANELS WILL BE REPLACED TO A MINIMAL SIZE OF 6' X 12' EACH, OR AS DETERMINED BY THE ENGINEER OR CITY INSPECTOR.
- NO DIAGONAL TRENCHING PERMITTED ON CONCRETE.
- NO NEW ADDITIONAL JOINTS CONSTRUCTED WITHIN 3' OF EXISTING JOINTS.

NOTES:

1. Width of the trench "T" varies due to site conditions; exact width shall be determined by the engineer or City inspector.
2. See Additional Notes specific to Concrete Over Aggregate Base.



TRENCH PAVING REQUIREMENTS

2 OF 3

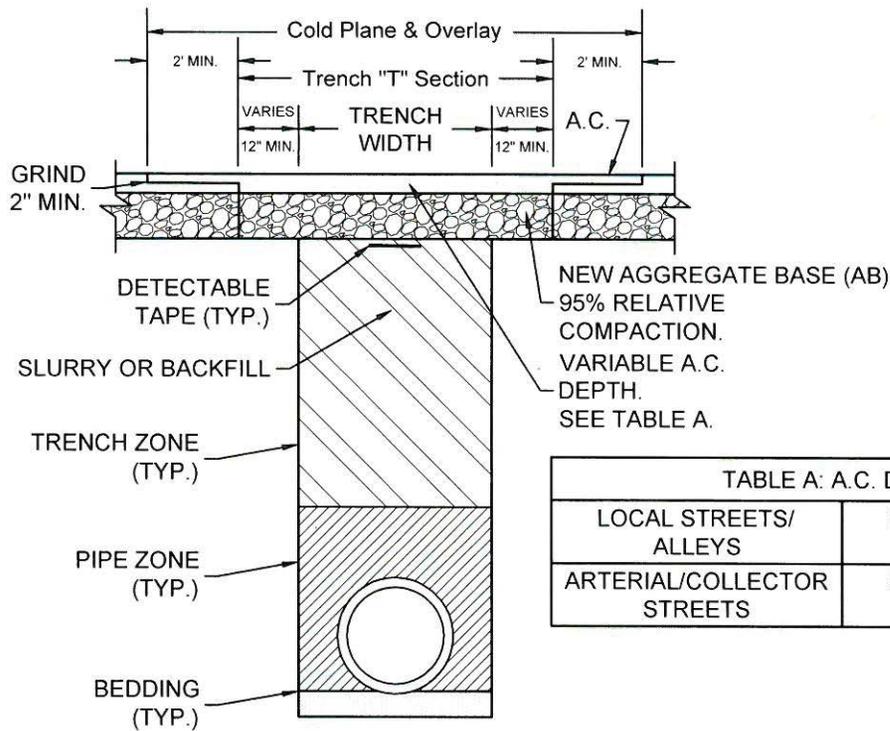
REV. DATE: 09/19 | DETAIL: U-03.1

APPROVED:

09/02/19 *Brida*
CITY ENGINEER

Shirley
PUBLIC WORKS DIRECTOR

**A.C. OVER AGGREGATE BASE
OPTION 1**



**A.C. OVER AGGREGATE BASE
OPTION 2 (LARGE REPAIR)**

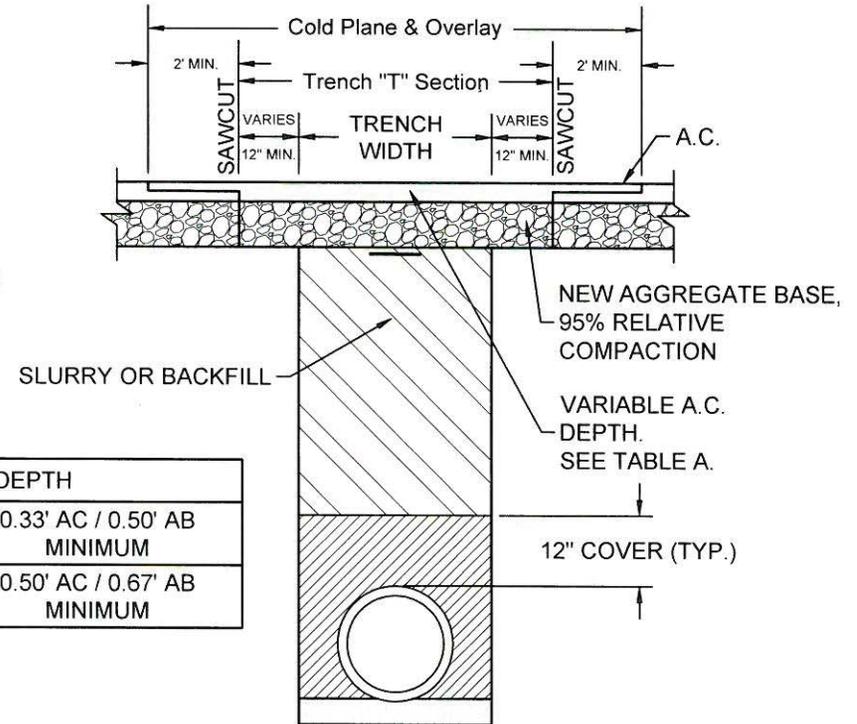


TABLE A: A.C. DEPTH	
LOCAL STREETS/ ALLEYS	0.33' AC / 0.50' AB MINIMUM
ARTERIAL/COLLECTOR STREETS	0.50' AC / 0.67' AB MINIMUM

NOTES:

1. Full tack coat on all vertical and horizontal surfaces. Use SS1-h Emulsion.
2. Option 1 and Option 2 are both acceptable for existing conditions of A.C. over aggregate base (A.B.)
3. Width of trench "T" varies due to site conditions; exact width shall be determined by the engineer or City inspector.
4. To determine functional classification, see CA Road System Maps located at http://dot.ca.gov/hq/tsip/hseb/crs_maps/



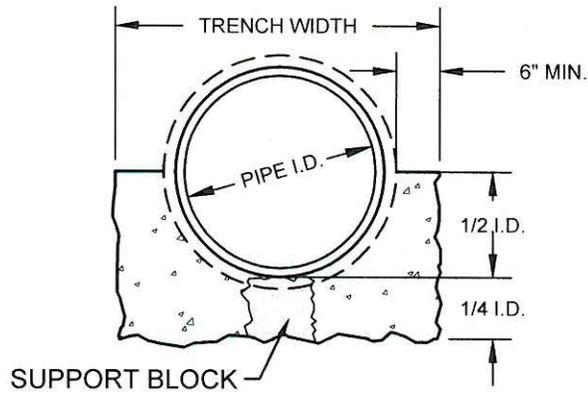
**TRENCH PAVING REQUIREMENTS
3 OF 3**

REV. DATE: 09/19 | DETAIL: U-03.2

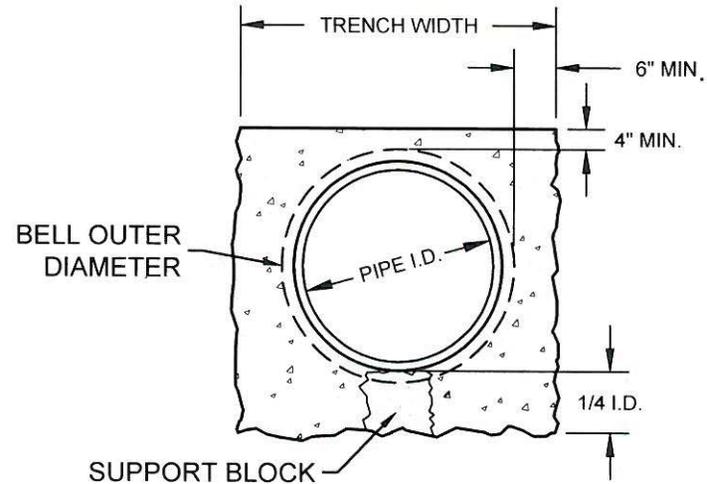
APPROVED:
09/23/19 *Brida*
CITY ENGINEER

PUBLIC WORKS DIRECTOR

CONCRETE CRADLE



CONCRETE ENCASEMENT



NOTES:

1. Concrete shall be Class 450-C-2000 per Standard Specifications for Public Works Construction unless otherwise specified.
2. Support blocks may be of concrete block or brick.
3. Cradle and encasement to be placed on native undisturbed soil, or as directed by the City Engineer or his/her designee.



PIPE REINFORCEMENT

REV. DATE: 09/19 | DETAIL: U-04.0

APPROVED:

09/23/19 *Bridan*
CITY ENGINEER

Kenneth J. Bjell
PUBLIC WORKS DIRECTOR

NOTES:

1. The California Regulations Related to Drinking Water sets forth the minimum separation requirements for water mains and sewer lines. The most current adopted standards contained in Title 17 & 22 of the California Code of Regulations, shall apply.
 - a. Parallel Construction: The horizontal distance between pressure water mains and sewer lines shall be at least 10 feet.
 - b. Perpendicular Construction (Crossing): Pressure water mains shall be at least 12-inches above sanitary sewer lines where these lines must cross.
 - c. Separation distances specified above shall be measured from the nearest edges of the facilities.
 - d. Water mains and sewer lines shall be installed in different trenches with appropriate separation.
2. These Standards are applicable under normal conditions for sewage collection lines and water distribution mains. More stringent requirements may be specified by the engineer if conditions such as high groundwater exist.
3. When local conditions, such as available space, limited slope, existing structures, etc., create a situation where there is no alternative but to install water mains or sewer lines at a distance less than that required by these Standards, Details U-05.1 and U-05.2 shall be followed.
4. Sewer lines shall not be installed within 25 feet horizontally of a low head (5 psi or less pressure) water main.
5. New water mains and sewers shall be pressure tested where the conduits are located ten feet apart or less.
6. In the installation of water mains or sewer lines, measures should be taken to prevent or minimize disturbances of the existing line. Disturbance of the supporting base of this line could eventually result in failure of this existing pipeline.
7. Special consideration shall be given to the selection of pipe materials if corrosive conditions are likely to exist. These conditions may be due to soil type and/or the nature of the fluid conveyed in the pipe, such as a septic sewage which produces corrosive hydrogen sulfide.
8. Sewer Force Mains:
 - a. Sewer force mains shall not be installed within ten feet (horizontally) of a water main.
 - b. When a sewer force main must cross a water line, the crossing should be as close as practical to the perpendicular. The sewer force main should be at least one foot below the water line.
 - c. When a new sewer force main crosses under a existing water main, all portions of sewer force main within ten feet (horizontally) of the water main shall be enclosed in a continuous sleeve.
 - d. When a new water main crosses over a existing sewer force main, the water main shall be constructed of pipe materials with a minimum rated working pressure of 200 psi or equivalent pressure rating.



WATER-SEWER SEPARATION REQUIREMENTS

NOTES

REV. DATE: 09/19 | DETAIL: U-05.0

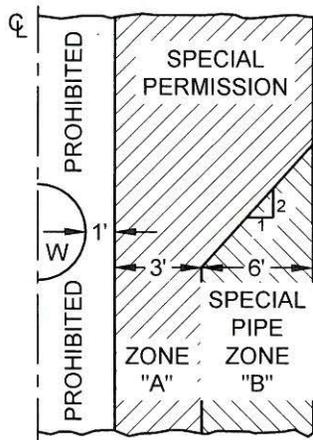
APPROVED:

09/23/19 *Bill Dean*
CITY ENGINEER

Robert J. Jil
PUBLIC WORKS DIRECTOR

SEWER MAIN CONSTRUCTION

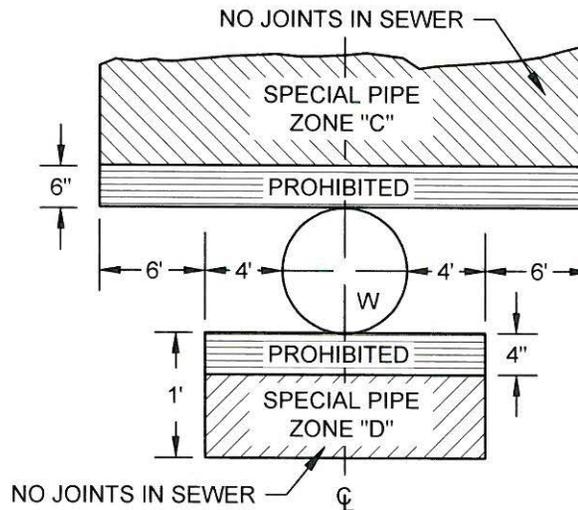
PARALLEL CONSTRUCTION



PARALLEL CONSTRUCTION

If a sanitary sewer is to be located within 10 feet of a water main or service lateral within any of the indicated zones, sewer construction will be required as shown.

PERPENDICULAR CONSTRUCTION (CROSSINGS)



PERPENDICULAR CONSTRUCTION

If sanitary sewer or house sewer lateral crosses a water main or service lateral within any of the indicated zones, sewer construction will be required as shown.

ZONE SPECIAL CONSTRUCTION REQUIRED FOR SEWER

- A** Sewer lines parallel to water mains shall not be permitted in Zone A without approval from the City of Santa Barbara's Public Works Director or delegate.
- B** A sewer line placed parallel to a water line in Zone B shall be constructed of:
1. PVC sewer pipe with rubber ring joints (per ASTM D3034) or equivalent.
- C/D** A sewer line crossing a water main Zone C or D shall be constructed of:
1. A continuous 20 foot section of Class 200 (DR 14 per AWWA C900) PVC pipe or equivalent, centered over the pipe being crossed.
 2. PVC or HDPE sewer pipe within a continuous sleeve.

NOTE: Construction per this detail must first be approved by the State Water Resources Control Board.



WATER-SEWER SEPARATION REQUIREMENTS

SEWER MAIN CONSTRUCTION

REV. DATE: 09/19 | DETAIL: U-05.1

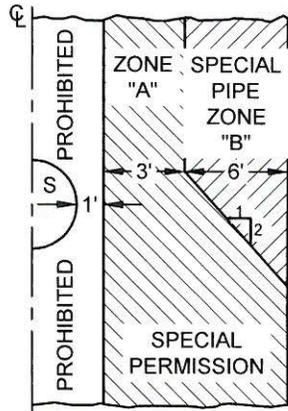
APPROVED:

09/23/19 *Bill Dean*
CITY ENGINEER

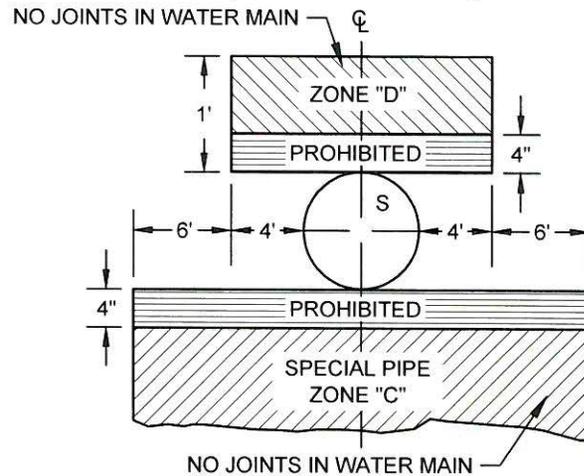
Leona Bjel
PUBLIC WORKS DIRECTOR

WATER MAIN CONSTRUCTION

PARALLEL CONSTRUCTION



PERPENDICULAR CONSTRUCTION (CROSSINGS)



ZONE SPECIAL CONSTRUCTION REQUIRED FOR WATER

A No water main parallel to sewers shall be constructed in Zone A without approval from the City of Santa Barbara's Public Works Director or delegate.

B/C/D If the sewer paralleling the water main does not meet the Zone B, C, or D requirements, the water main shall be constructed of one of the following:

1. Ductile iron pipe with hot dip bituminous coating
2. Class 200 pressure rated PVC water pipe (DR 14 per AWWA C900) or equivalent.
3. Class 200 HDPE

NOTES:

1. Construction per this detail must first be approved by the State Water Resources Control Board.
2. This detail applies to private sewer laterals that cross above a pressure water main but not to those private sewer laterals that cross below a pressure main.



WATER-SEWER SEPARATION REQUIREMENTS

WATER MAIN CONSTRUCTION

REV. DATE: 09/19 | DETAIL: U-05.2

APPROVED:

09/23/19 [Signature]
CITY ENGINEER

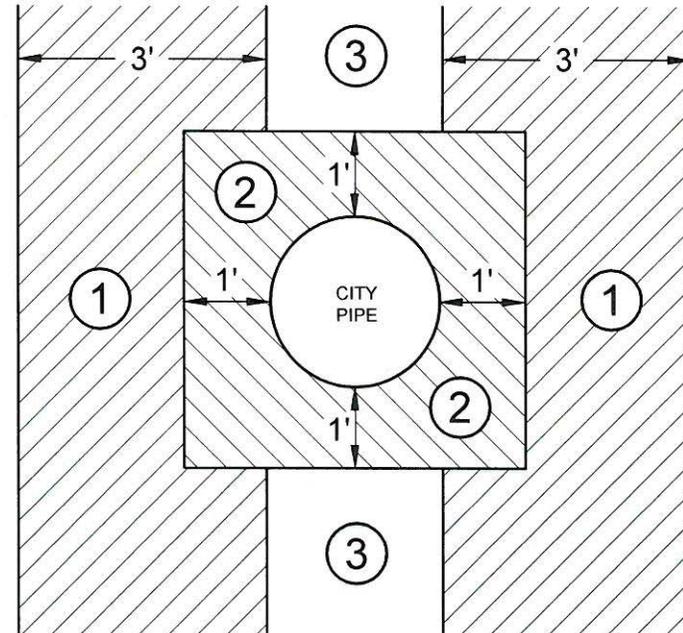
[Signature]
PUBLIC WORKS DIRECTOR

SEPARATION ZONES

ZONES:

1. Utilities shall be installed with a minimum distance of 3' from city piping unless approved by the City of Santa Barbara's Public Works Director or delegate.
2. No utility crossings shall be installed within 1' of city piping. No exceptions shall be approved.
3. Except for crossing, no utilities shall be installed above or below city piping. No exceptions shall be approved.

NOTE: It is the obligation of the contractor to protect at all times the integrity of city piping and trenches, at any proximity.



UTILITY SEPARATION FROM CITY WATER, SEWER, RECLAIMED PIPELINES, AND STORM DRAIN

REV. DATE: 09/19 | DETAIL: U-06.0

APPROVED:

Bridger
CITY ENGINEER

Robert Bjil
PUBLIC WORKS DIRECTOR