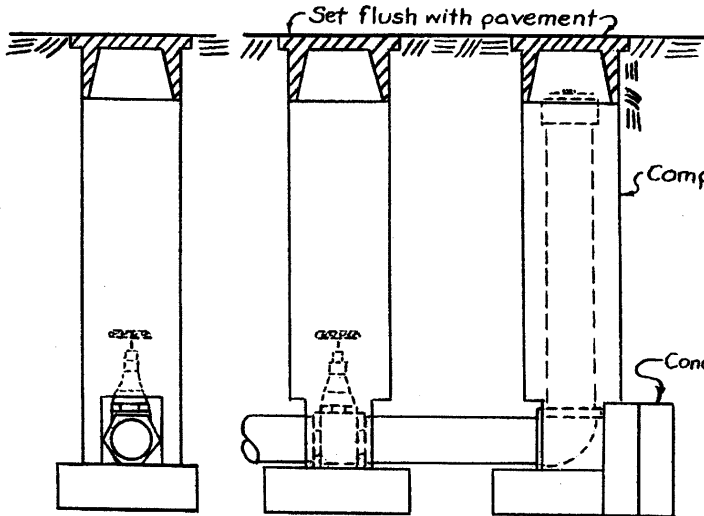
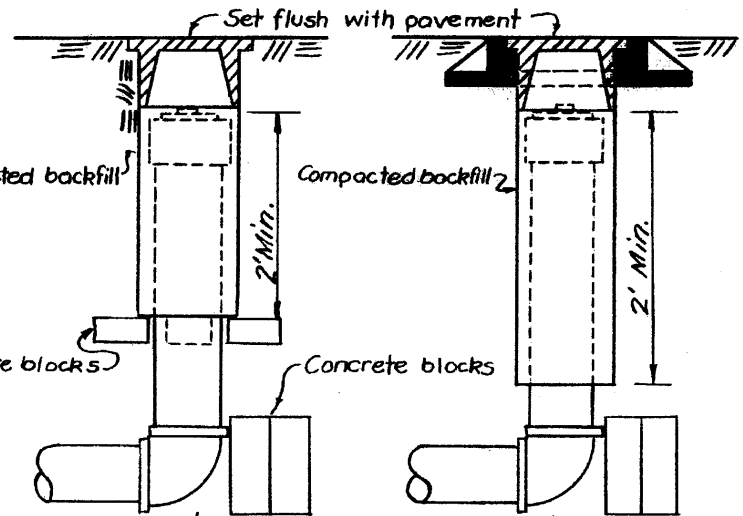


PASADENA WATER DEPT. STANDARD DETAILS FOR GATE & BLOWOFF CANS & COVERS

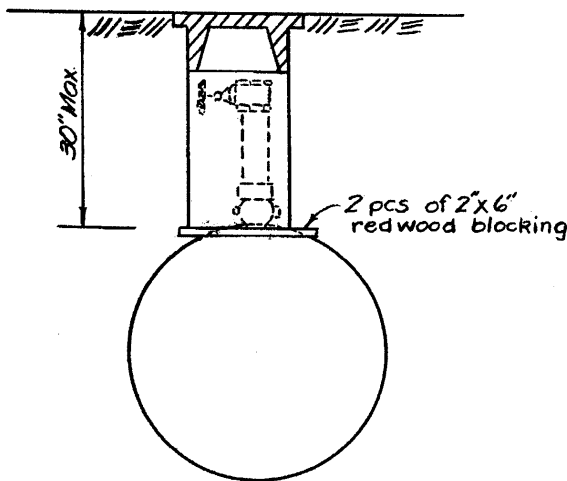
Type Designation		Blowoff Size	Dia. of Can	Gage
W/O Frame	W/ Frame			
Type B	B-F	2"	7"	#15
Type C	C-F	4" & 6"	7" & 9"	#15
Type D	D-F	2"	12"	#12
Type E	E-F	8"	12"	#12



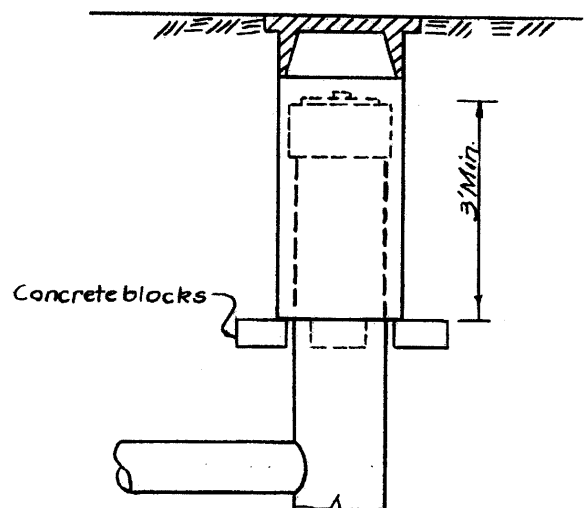
TYPICAL INSTALLATION
OF TYPE "B" CANS



Blowoff W/O Frame Blowoff W/Frame
TYPICAL INSTALLATION
OF TYPE "C" CANS



TYPICAL INSTALLATION
OF TYPE "D" CANS



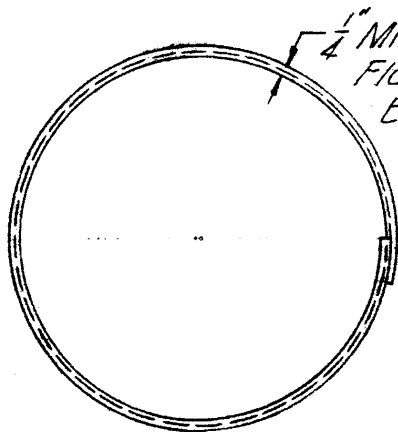
TYPICAL INSTALLATION
OF TYPE "E" CANS

Approved *Alvin S. Jones*
CHIEF ENGINEER & GENERAL MANAGER

G-910

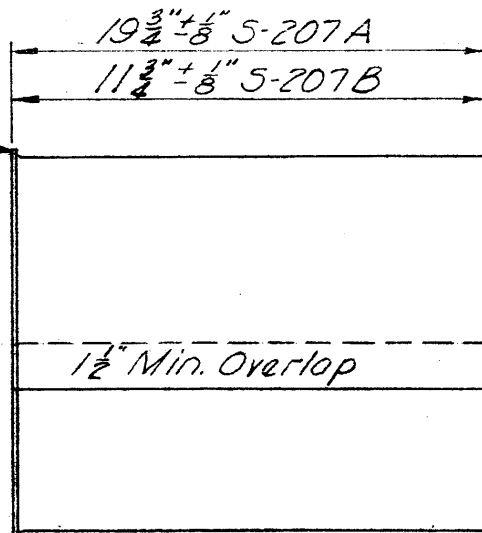
Sheet 2 of 2 sheets

Rolled Diameters
 7" Can = $7" + \frac{1}{8}" - \frac{1}{4}"$
 9" Can = $9" + \frac{1}{8}" - \frac{1}{4}"$
 12" Can = $12" + \frac{1}{8}" - \frac{1}{4}"$

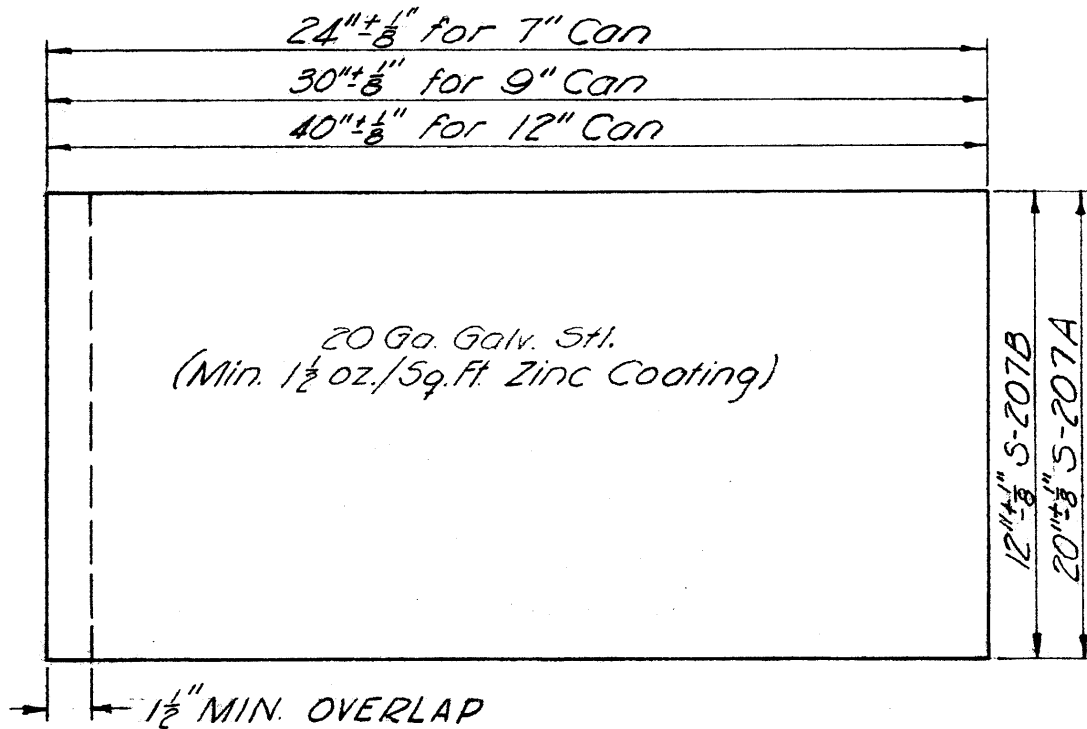


$\frac{1}{4}"$ Minimum Flanged Edge

TOP VIEW



SIDE VIEW

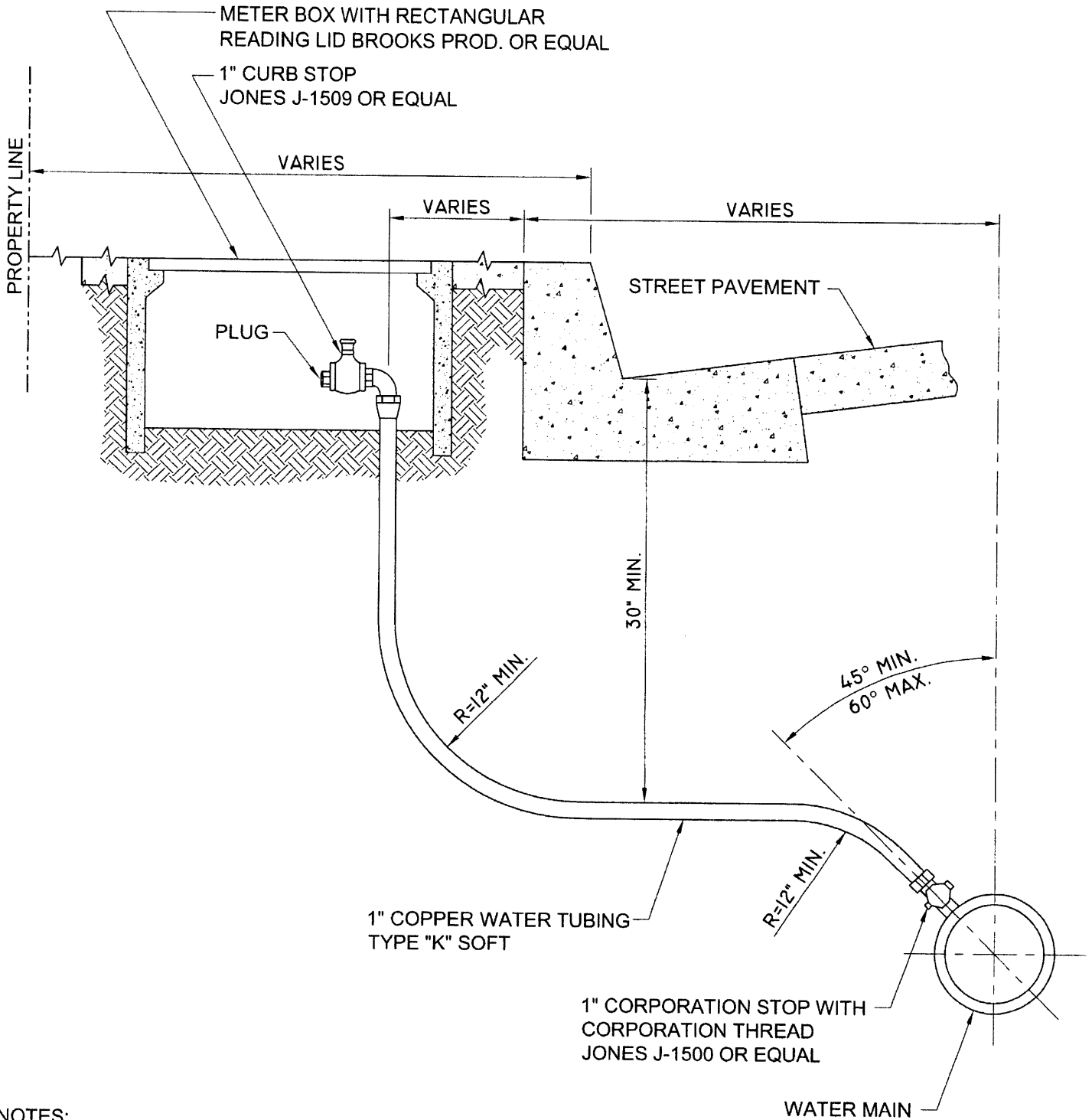


DETAIL OF SHEET STOCK SIZES

PASADENA WATER DEPARTMENT

GATE CAN TOP SECTION
 FOR S-207 GATE CANS

SCALE None	DATE	SHEET NO. 1 OF 1 SHEETS
RECOMMENDED <i>K. J. ...</i>	APPROVED <i>... ..</i> CHIEF ENGINEER	FILE NUMBER G-998



NOTES:

1. ALLOW SLACK FOR MOVEMENT. AIR RELEASE CONNECTION SHALL BE INSTALLED WITHOUT ANY KINKS OR AIR TRAPS. ALL FITTINGS SHALL BE FOR FLARED COPPER TUBING.

CITY OF PASADENA-WATER AND POWER

1" AIR RELEASE

REVISION: - UNITS: DUAL

STANDARD PLAN:

G-1084

DRAWN BY:
NELSON RODRIGUEZ
CHECKED BY:
JOSEPH GACHIRI

APPROVED BY:

CIVIL ENGINEER

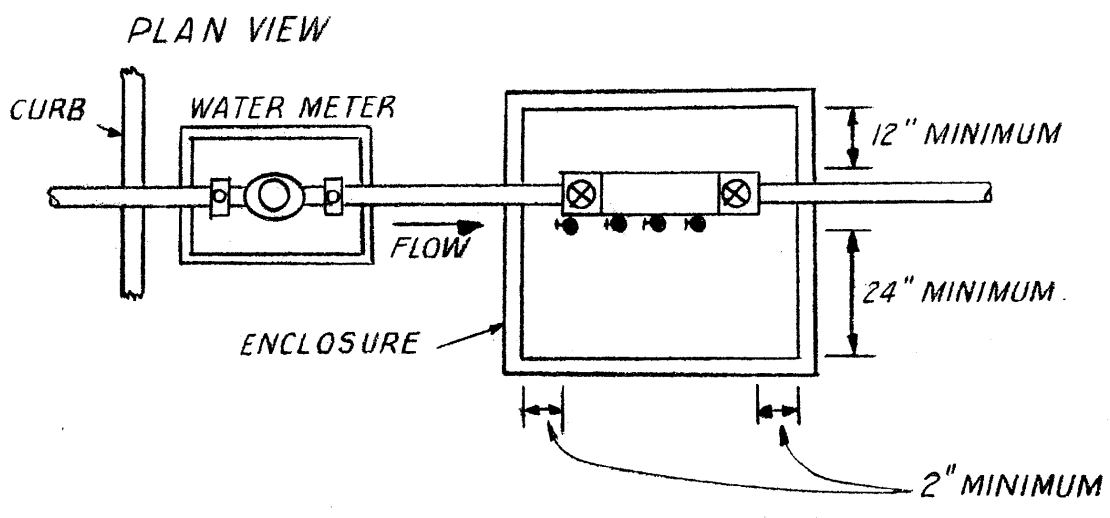
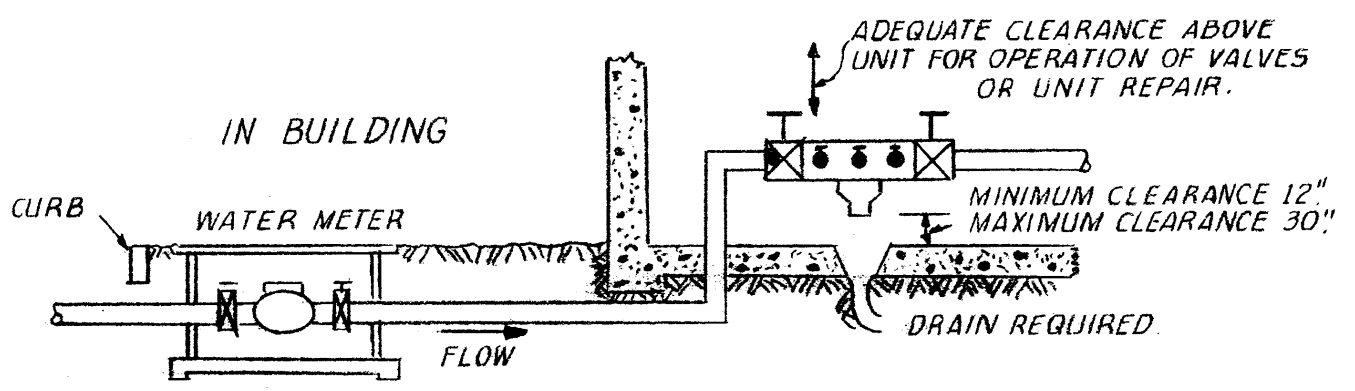
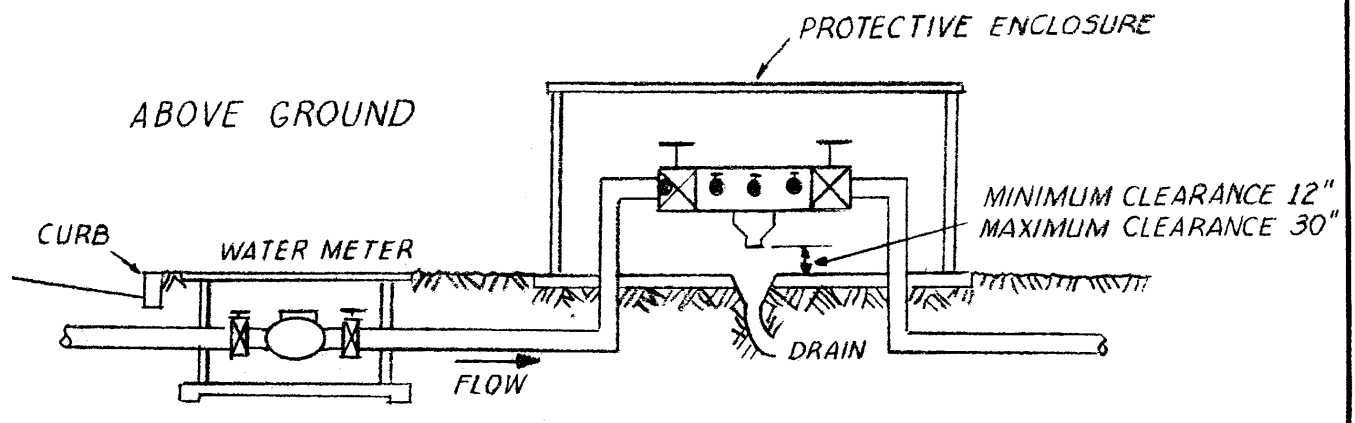
10

RCE NO. XXXXX EXPIRES MONTH XX, 2007

DATE

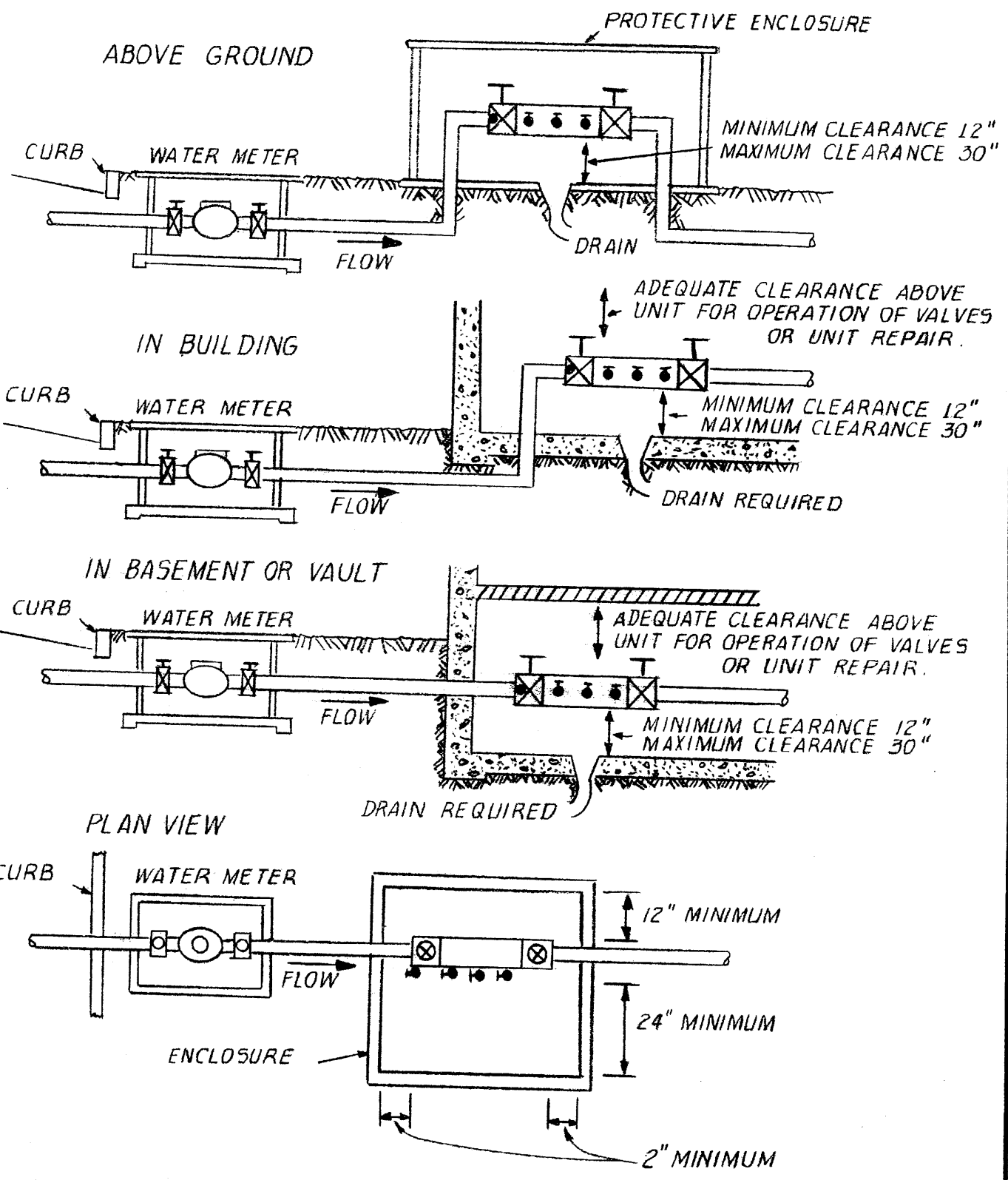
SHEET 1 OF 1

APVD		
REVISION		
BY		
DATE		
3		
4		
REVISION		
BY		
DATE		
2		



DRAWN	AV	4-14-89	WATER & POWER DEPT., CITY OF PASADENA	DRAWING NO.	G-1209
CHECKED	SBN	4-17-89		REDUCED PRESSURE PRINCIPLE ASSEMBLY INSTALLATION REQUIREMENTS	REVISION NO.
APPROVED	<i>Dr. U.</i>	5-2-89			

REVISION	NO.	DATE	BY
3	4		
REVISION	NO.	DATE	BY
2			



AV	4-14-89	WATER & POWER DEPT., CITY OF PASADENA	DRAWING NO.
SBN	4-17-89		G-1210
APPROVED	D.K.U.	5-2-89	REVISION NO.
DOUBLE CHECK VALVE ASSEMBLY INSTALLATION REQUIREMENTS			

Reconnect to old existing irrigation

1 ~ Backflow Assembly dedicated for Irrigation Only

2 ~ NEW-Pressure Regulator

3 ~ NEW- Strainer-100 micron

12" above grade

12" above grade

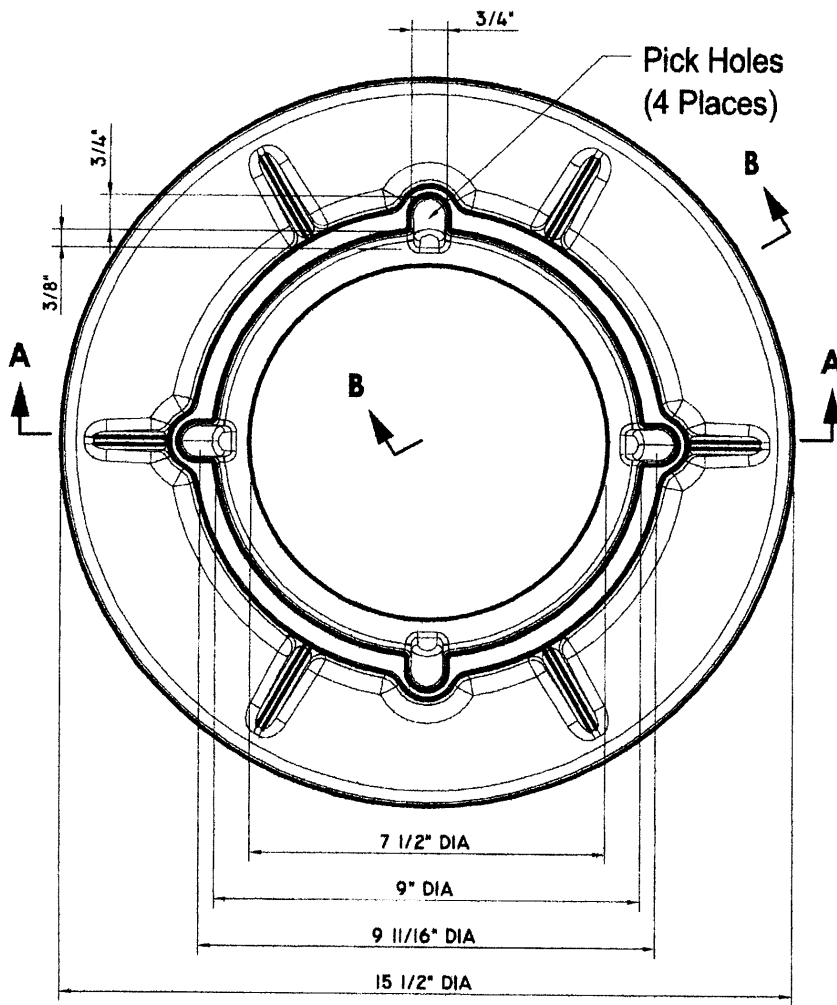
EXISTING BACKFLOW PREVENTION ASSEMBLY- METER PROTECTED

TO EXISTING DOMESTIC USE ONLY

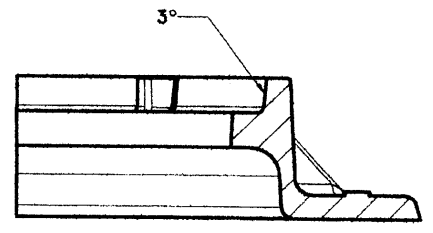
New Tap

METER

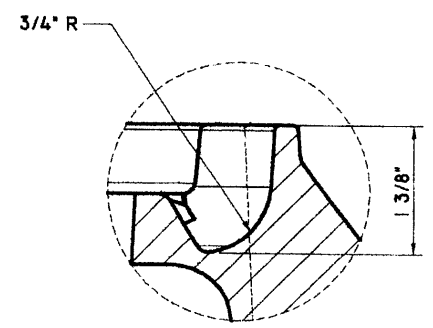
DATE 17 APRIL 03	SCALE as shown	DEPARTMENTS OF WATER & POWER CITY OF PASADENA	SHEET NO. 1 OF 1 SHEETS	FILE NUMBER G~1223
DRAWN BY Jack Barnes	DESIGNED BY Rich Thompson	Irrigation Backflow Schematic	APPROVED <i>Rich Goldberg</i> GENERAL MANAGER	REVISION
CHECKED BY Rich Thompson	SUBMITTED BY Rich Thompson			
FIELD BOOKS	CALC. BOOKS	APPROVED	4367 GEN. MGR. & CHIEF ENGINEER	



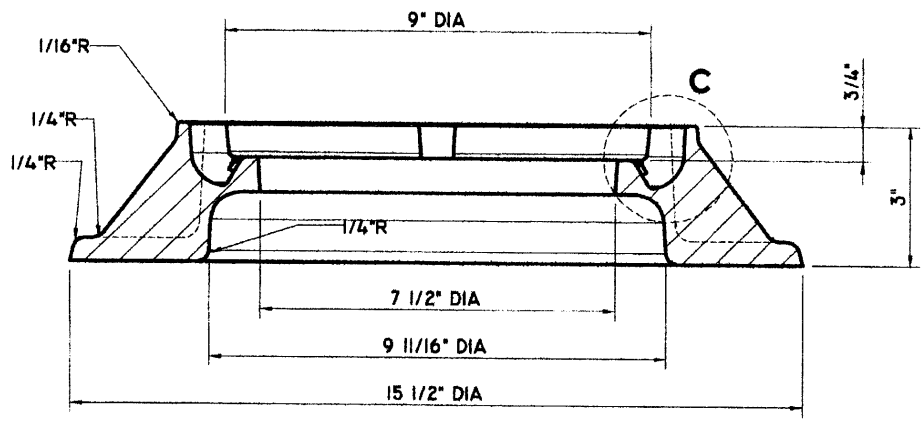
TOP VIEW



SECTION B-B



**DETAIL C
SCALE 1 : 2**



SECTION A-A

Note:
9" Valve Box = 16 7/8" OD

CITY OF PASADENA-WATER AND POWER

7" WATER VALVE BOX

DRAWN BY:
N. RODRIGUEZ
CHECKED BY:
A. SANTA ISABEL

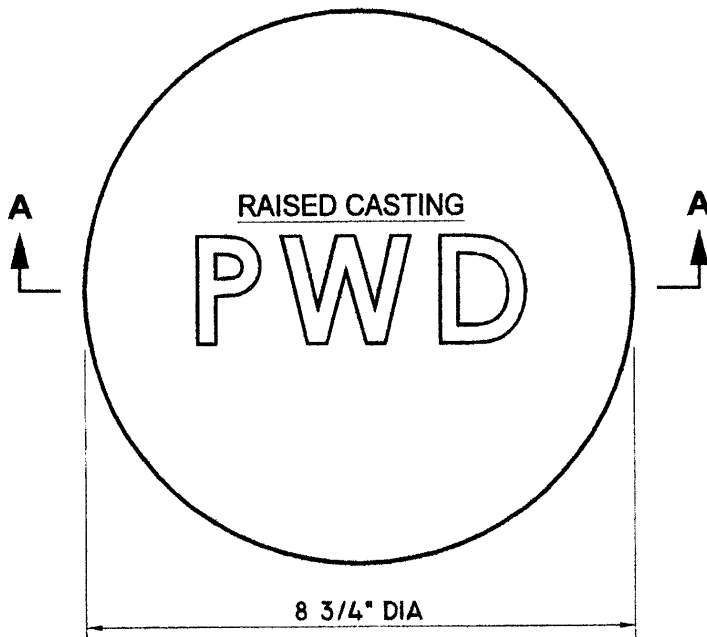
DATE:
DATE:

APPROVED BY:

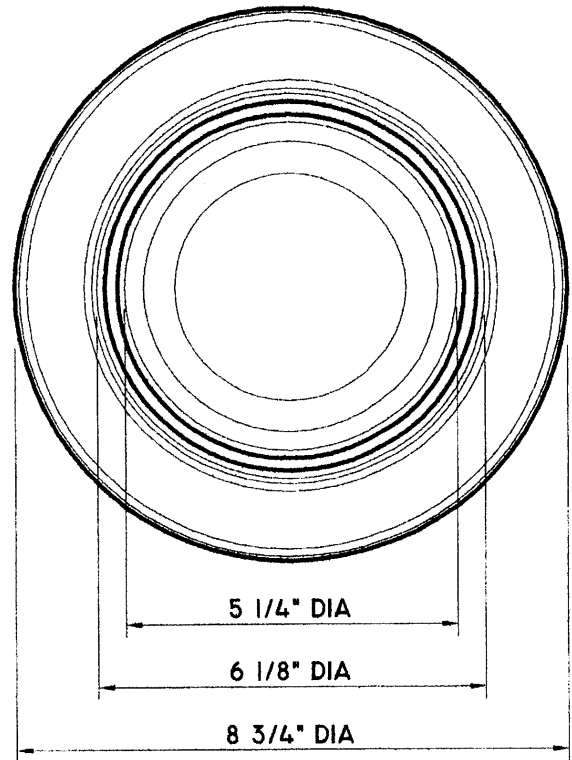
CIVIL ENGINEER RCE NO. XXXXX EXPIRES MONTH XX, 2008

DATE

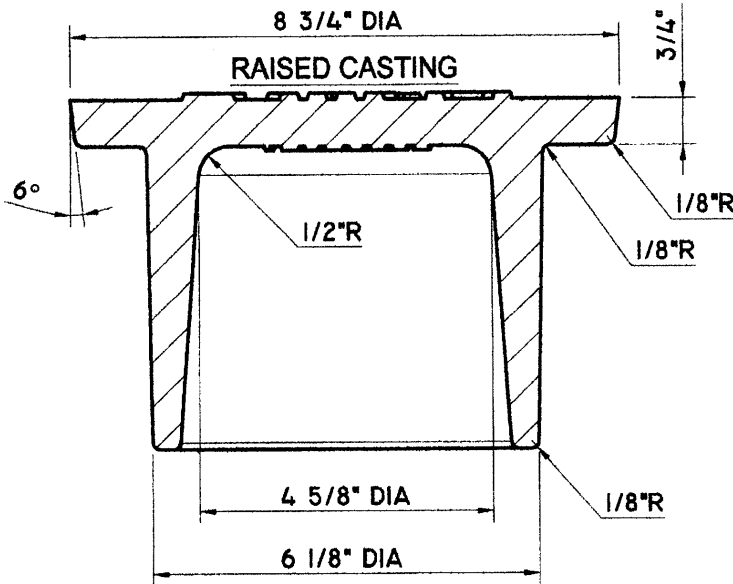
REVISION:	UNITS:
-	DUAL
SCALE:	
STANDARD PLAN:	
G-1225	
SHEET 1 OF 2	



TOP VIEW



BOTTOM VIEW



SECTION A-A

Note:

Markings or wording on all gray iron castings shall conform to AASHTO Designation M306-89. Each casting shall be identified by the foundry showing:

- 1.) Name of Foundry
- 2.) Country of Manufacture
- 3.) ASTM Designation Number
- 4.) Class by a number followed by a letter indicating the minimum tensile strength and size of test bar (i.e. Class 30-B)
- 5.) Heat Number and Date
- 6.) Part Number

CITY OF PASADENA-WATER AND POWER

COVER FOR 7" WATER VALVE BOX

DRAWN BY:
N. RODRIGUEZ

CHECKED BY:
A. SANTA ISABEL

DATE:

DATE:

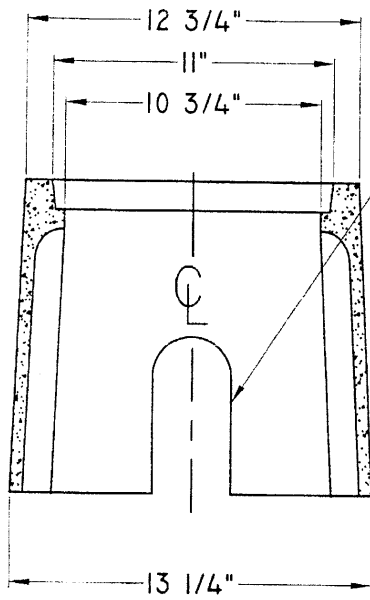
APPROVED BY:

15

CIVIL ENGINEER RCE NO. XXXXX EXPIRES MONTH XX, 2008

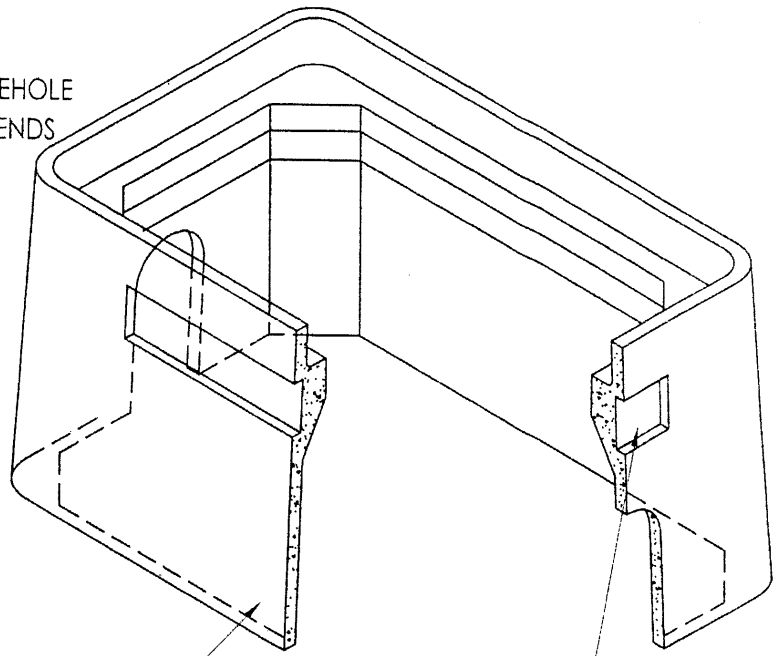
DATE

REVISION:	UNITS:
-	DUAL
SCALE:	
STANDARD PLAN:	
G-1225	
SHEET 2 OF 2	



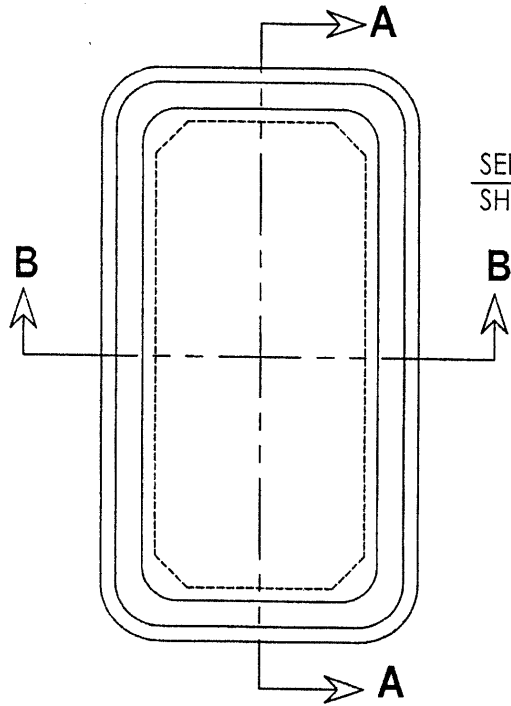
SECTION B-B

3"X6"
MOUSEHOLE
BOTH ENDS



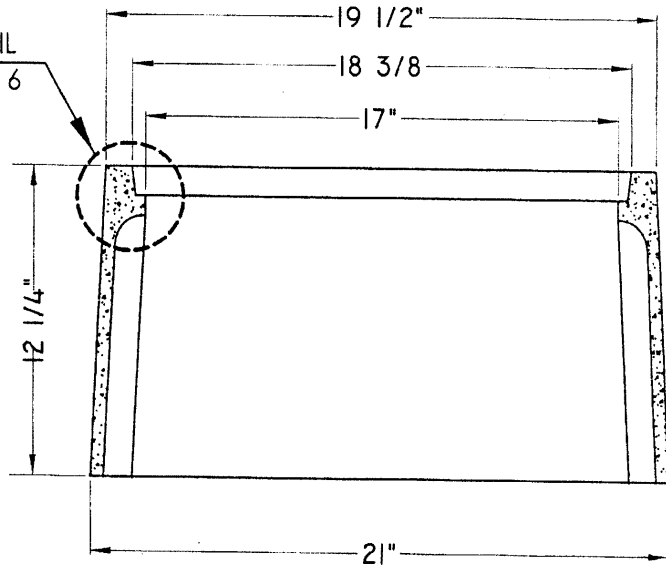
POLYMER CONCRETE
BOX

CONCRETE KEY-IN
ONE EACH WALL (4X)



TOP VIEW

SEE DETAIL
SHT. 2 OF 6



SECTION A-A

CITY OF PASADENA-WATER AND POWER

**WATER METER BOX
12" X 20" X 12"**

REVISION:
1/2009

MAX LOAD: 20K
MATERIAL: POLYMER CONCRETE

SCALE:

DRAWN BY:
N. RODRIGUEZ
CHECKED BY:
A. SANTA ISABEL

DATE:
DATE:

APPROVED BY:
CIVIL ENGINEER

16

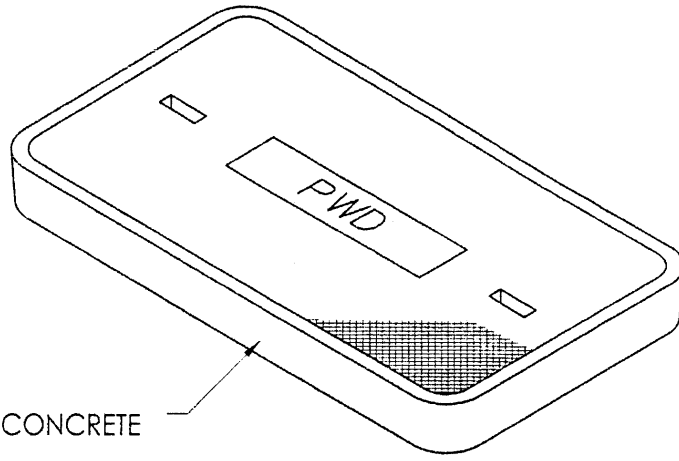
RCE NO. XXXXX EXPIRES MONTH XX, 2008

DATE

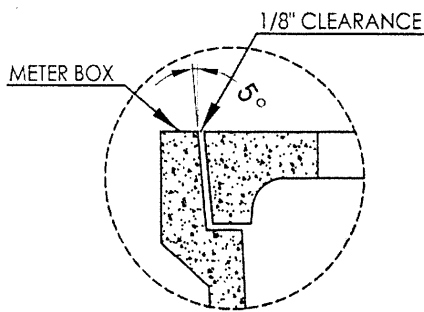
STANDARD PLAN:

G-1226R

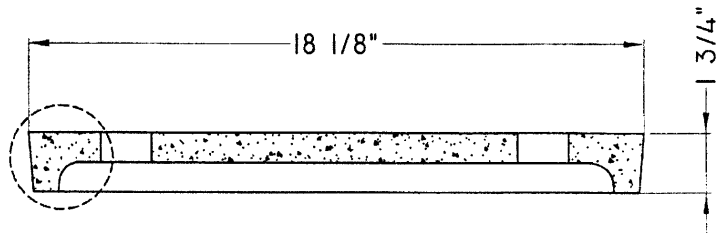
SHEET 1 OF 6



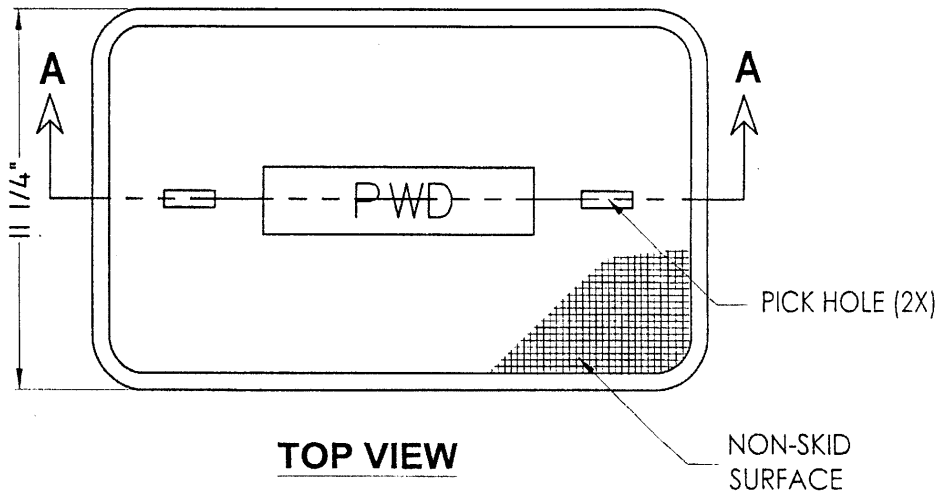
POLYMER CONCRETE COVER



SEATING OF LID TO BOX DETAIL



SECTION A-A



TOP VIEW

CITY OF PASADENA-WATER AND POWER

**COVER FOR WATER METER BOX
12" X 20" X 1 3/4"**

REVISION:
1/2009

MAX. LOAD: PEDESTRIAN MATERIAL: POLYMER CONCRETE

SCALE:

DRAWN BY:
N. RODRIGUEZ

DATE:

APPROVED BY:

STANDARD PLAN:

CHECKED BY:
A. SANTA ISABEL

DATE:

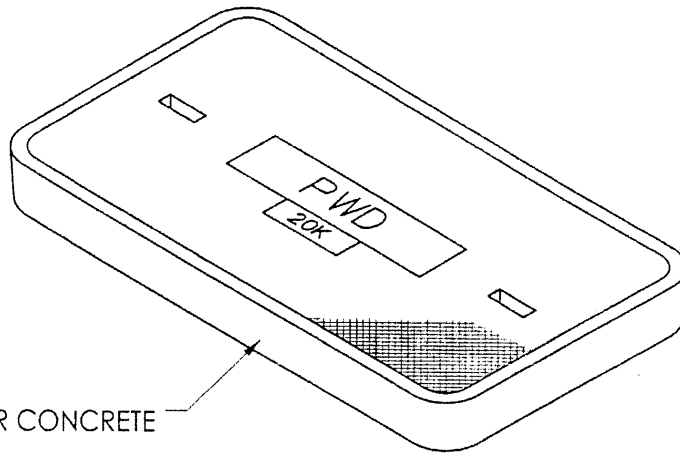
CIVIL ENGINEER

17
RCE NO. XXXXX EXPIRES MONTH XX, 2008

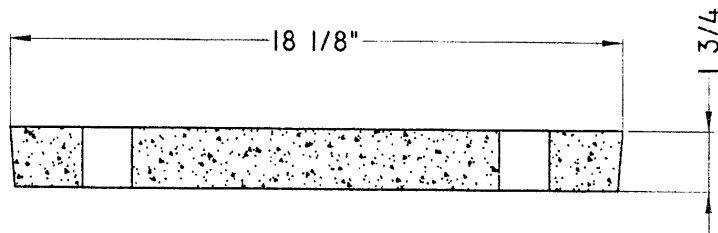
DATE

G-1226R

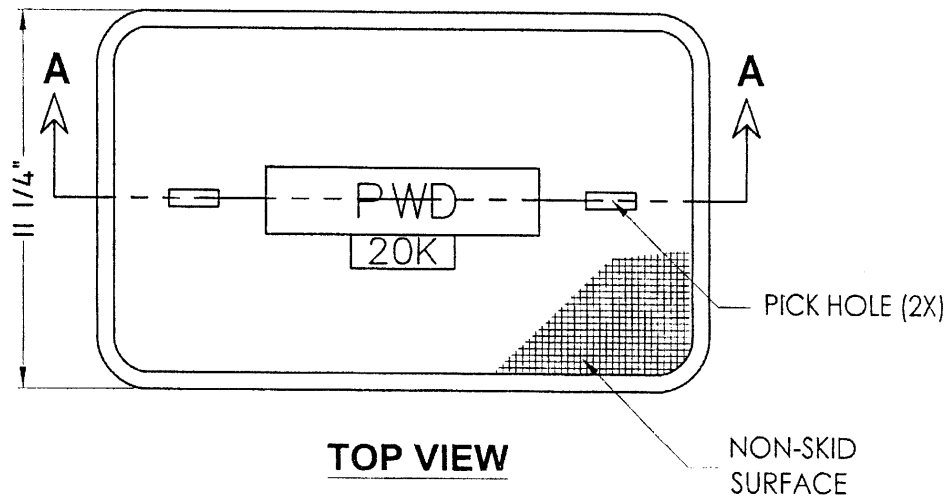
SHEET 2 OF 6



POLYMER CONCRETE COVER



SECTION A-A



TOP VIEW

CITY OF PASADENA-WATER AND POWER

**COVER FOR WATER METER BOX
12" X 20" X 1 3/4"**

REVISION:
1/2009

MAX LOAD:
20K MATERIAL:
POLYMER
CONCRETE

SCALE:

DRAWN BY:
N. RODRIGUEZ

DATE:

APPROVED BY:

STANDARD PLAN:

CHECKED BY:
A. SANTA ISABEL

DATE:

CIVIL ENGINEER

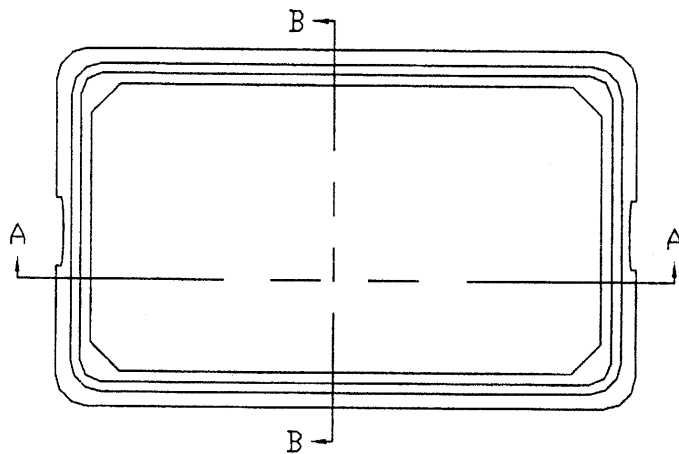
18

RCE NO. XXXXX EXPIRES MONTH XX, 2008

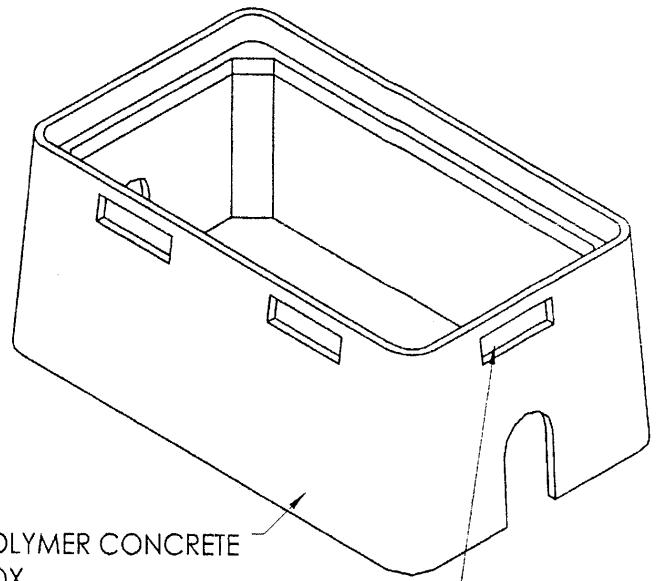
DATE

G-1226R

SHEET 3 OF 6



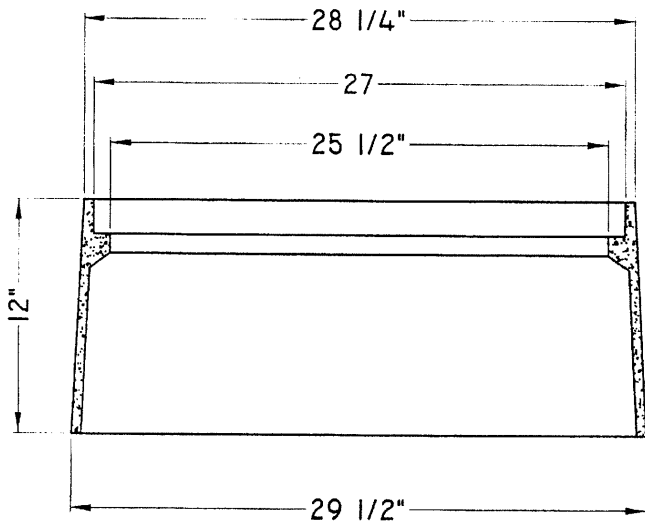
TOP VIEW



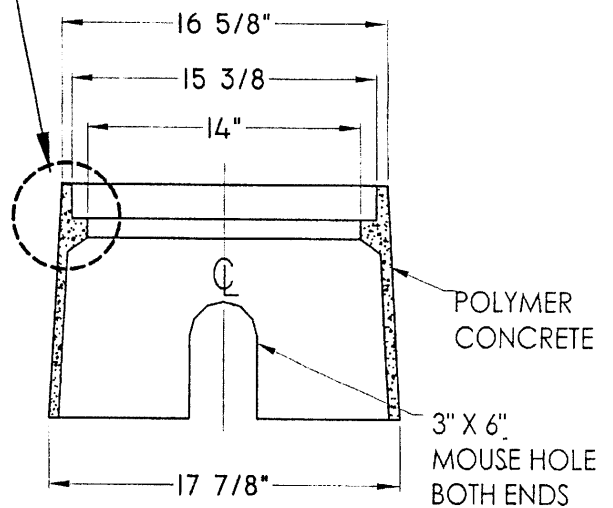
POLYMER CONCRETE BOX

CONCRETE KEY-IN
1 EACH END WALL
2 EACH SIDE WALL
(6X)

SEE DETAIL
SHT. 2 OF 6



SECTION A-A



SECTION B-B

POLYMER CONCRETE
3" X 6" MOUSE HOLE BOTH ENDS

CITY OF PASADENA-WATER AND POWER

**WATER METER BOX
17" X 28" X 12"**

REVISION:
1/2009

MAX LOAD: 20K MATERIAL: POLYMER CONCRETE

SCALE:

DRAWN BY:
N. RODRIGUEZ

DATE:

APPROVED BY:

STANDARD PLAN:

CHECKED BY:
A. SANTA ISABEL

DATE:

CIVIL ENGINEER

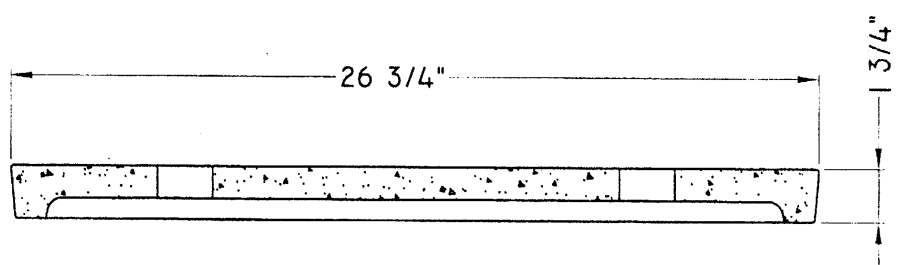
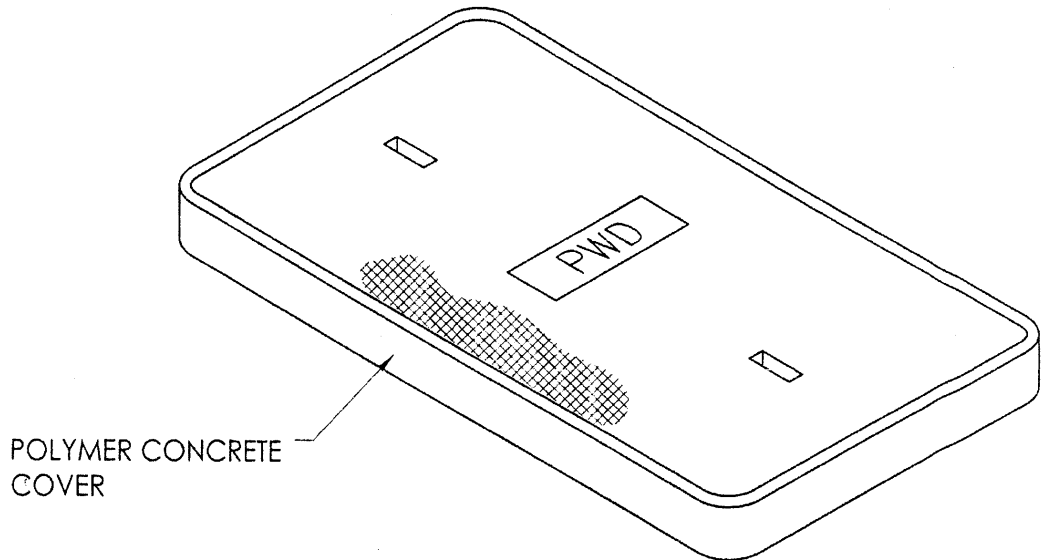
19

RCE NO. XXXXX EXPIRES MONTH XX, 2008

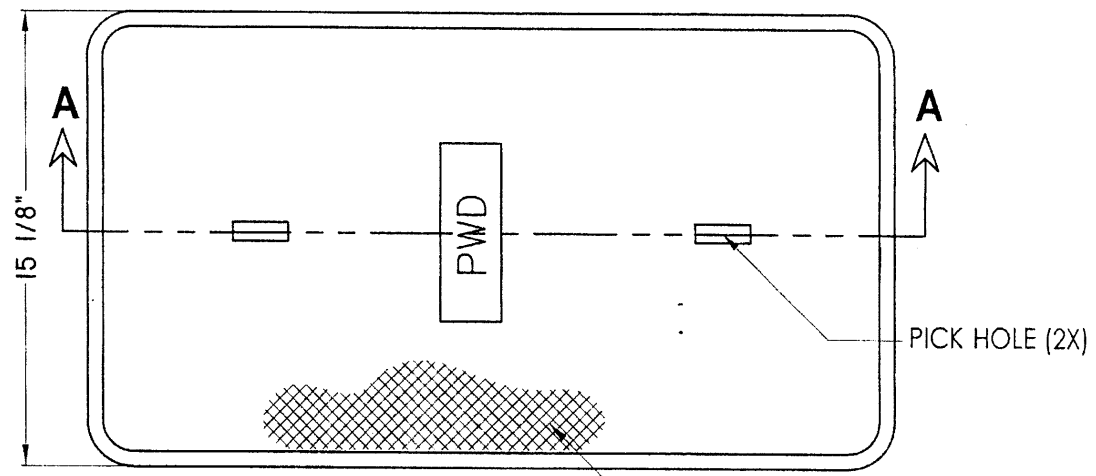
DATE

G-1226R

SHEET 4 OF 6



SECTION A-A



TOP VIEW

CITY OF PASADENA-WATER AND POWER

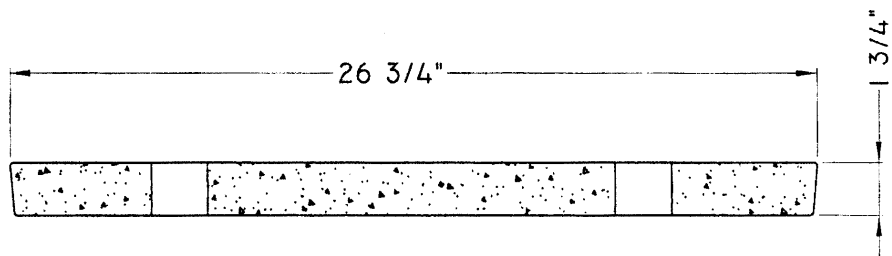
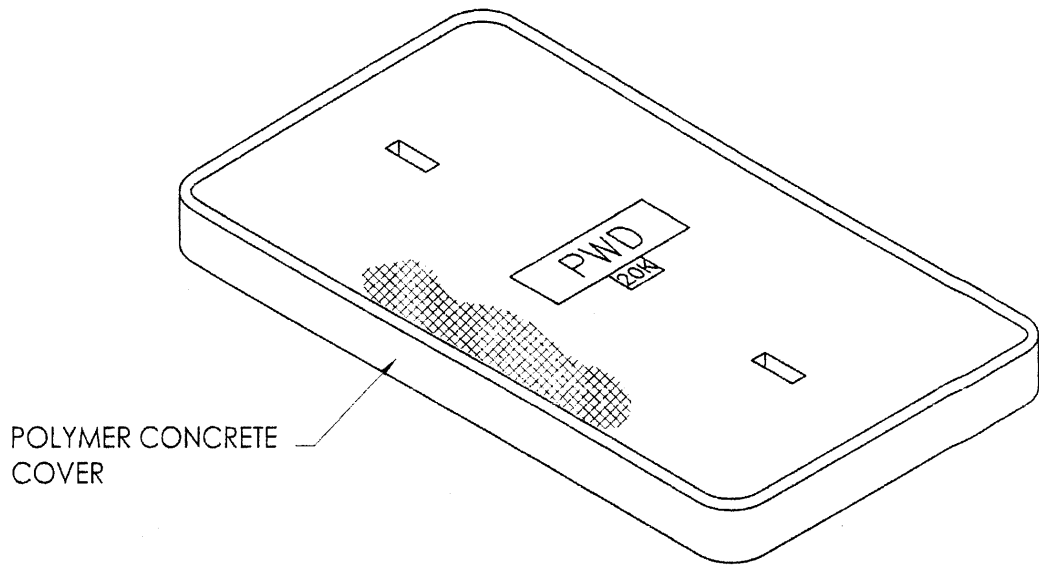
**COVER FOR WATER METER BOX
17" X 28" X 1 3/4"**

REVISION:	
1/2009	
DRAWN BY:	N. RODRIGUEZ
CHECKED BY:	A. SANTA ISABEL

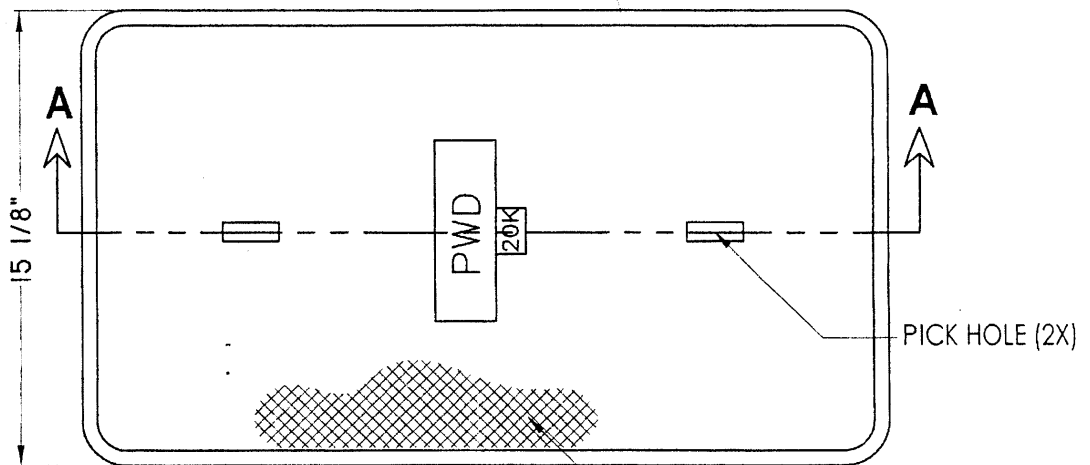
DATE:	
DATE:	

APPROVED BY:		20	
CIVIL ENGINEER	RCE NO. XXXXX EXPIRES MONTH XX, 2008		DATE

MAX LOAD:	MATERIAL:
PEDESTRIAN	POLYMER CONCRETE
SCALE:	
STANDARD PLAN:	
G-1226R	
SHEET 5 OF 6	



SECTION A-A



TOP VIEW

CITY OF PASADENA-WATER AND POWER

**COVER FOR WATER METER BOX
17" X 28" X 1 3/4"**

REVISION:
1/2009

MAX LOAD: 20K MATERIAL: POLYMER CONCRETE

SCALE:

DRAWN BY:
N. RODRIGUEZ

DATE:

APPROVED BY:

STANDARD PLAN:

CHECKED BY:
A. SANTA ISABEL

DATE:

CIVIL ENGINEER

21

RCE NO. XXXXX EXPIRES MONTH XX, 2008

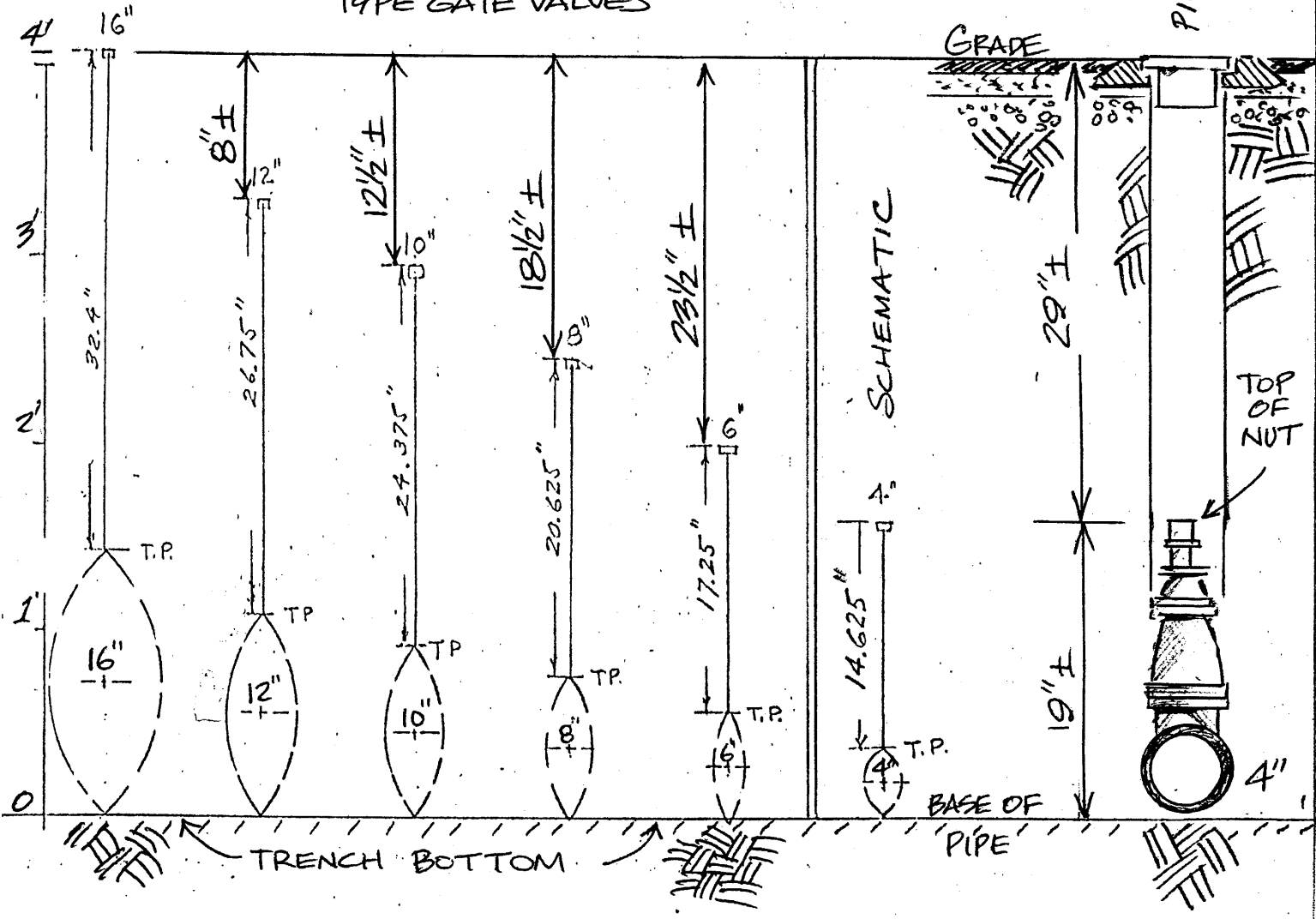
DATE

G-1226R

SHEET 6 OF 6

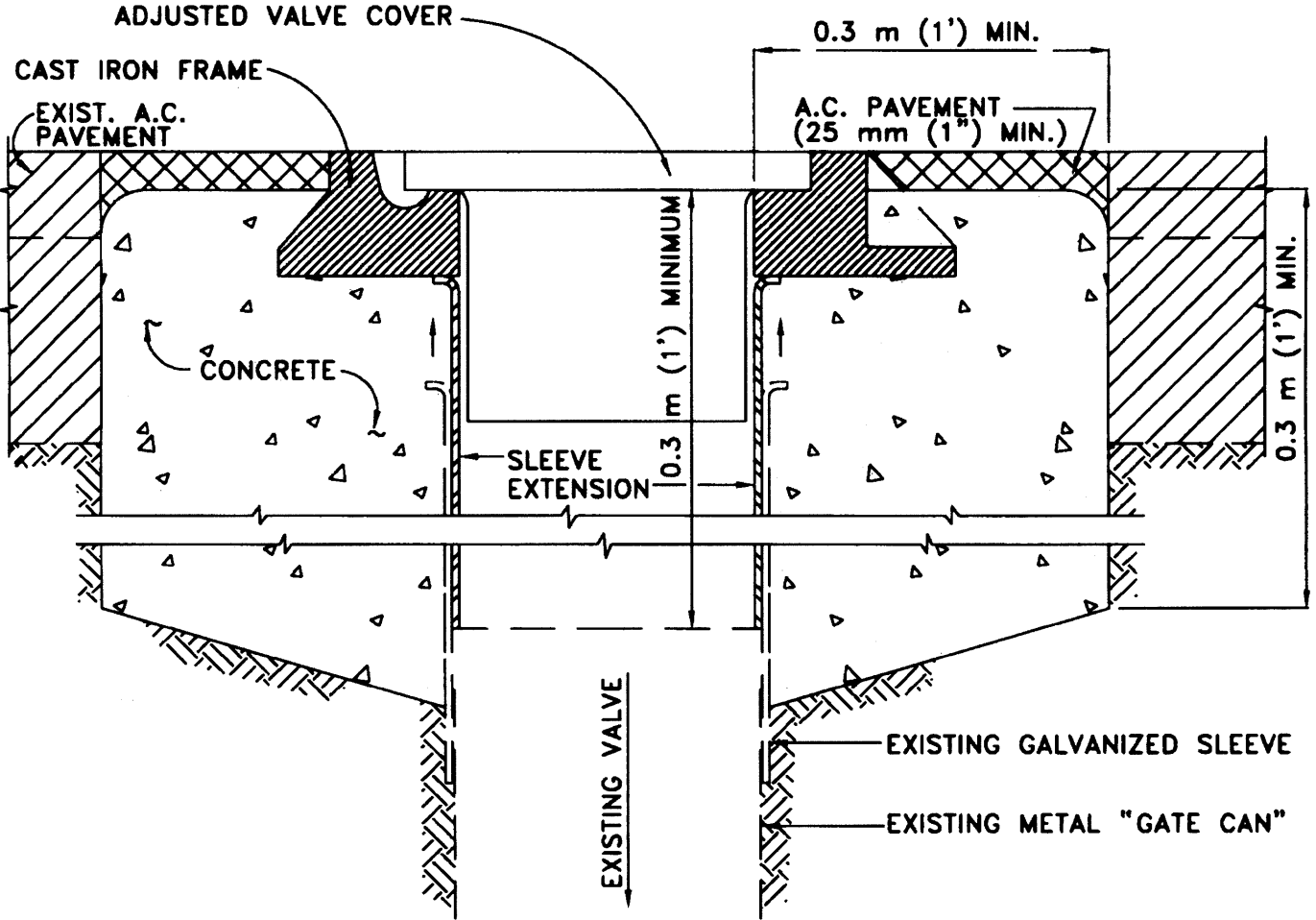
TYPICAL
H.E.G. VALVE STEM TOPS IN 4-FOOT TRENCH

OLDER STYLE LARGE BONNET
 TYPE GATE VALVES



DEPTH GUIDE TO TOP OF NUT
TOP OF MAIN
CIRCA 1950

NEW INSTALLATION OR ADJUSTMENT FOR RESURFACING



NOTES:

1. USE 20 GAUGE GALVANIZED SPLIT AND FLARED METAL SLEEVE EXTENSION.
2. CONCRETE SHALL MEET "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION," LATEST EDITION, REQUIREMENTS FOR PCC CURB AND GUTTER.

CITY OF PASADENA - PUBLIC WORKS & TRANSPORTATION DEPARTMENT

DRAWN BY:
DAVID PHAN

CHECKED BY:
JAMES LLOYD

SUBMITTED BY:
JAMES VALENTINE

**CONCRETE BASE FOR
VALVE COVER**

APPROVED BY:
David A. R...

CITY ENGINEER RCE NO. 38689 EXPIRES MARCH 31, 2006

5/20/2001
DATE

REVISION: 2	UNIT: DUAL
STANDARD PLAN: S-207	
SHEET 1 OF 1	
<small>2007-1-REVISED 3/17/08</small>	

WATER & POWER DEPARTMENT
WATER DIVISION
PASADENA, CALIFORNIA

SPECIFICATION NO. 299
REVISED: 8-15-67
REVISED: 09-2001 PW&TD
DUAL CONVERSION

SUPPORTING WATER PIPES ENCOUNTERED DURING EXCAVATION
OPERATIONS

CONTRACTORS ENCOUNTERING PASADENA WATER DIVISION PIPES IN THE CITY OR COUNTY TERRITORY SHALL BE GOVERNED BY THE FOLLOWING INSTRUCTIONS.

I. **GENERAL**

ALL WATER PIPES ENCOUNTERED DURING CONSTRUCTION SHALL BE SUPPORTED EITHER BY REDWOOD BEAMS AND POSTS OR BY BACKFILL WHICH MUST BE PLACED AND COMPACTED IN SUCH A MANNER THAT THE WATER PIPES WILL BE ADEQUATELY SUPPORTED BEFORE BEING SUBJECTED TO SUPERIMPOSED LOADS DURING BACKFILL AND COMPACTION OPERATIONS. NO SPECIAL PIPE SUPPORTS WILL BE REQUIRED IF THE UNSUPPORTED LENGTH OF PIPE IS 1.1 m (3'-9") OR LESS EXCEPT WHERE PIPE JOINTS OR FITTINGS FALL WITHIN THE TRENCH EXCAVATION.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO TEMPORARILY SUPPORT DURING CONSTRUCTION BY USE OF BEAMS, CABLES, OR WIRES ALL CAST IRON WATER PIPE 50 mm (2") OR LARGER AND ALL STEEL WATER PIPE 100 mm (4") AND LARGER UNTIL SUCH TIME AS THE SUPPORT, AS PROVIDED HEREINAFTER, HAS BEEN ACCOMPLISHED.

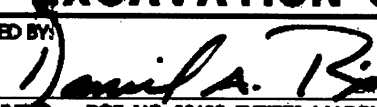
II. **REDWOOD SUPPORTS**

THE PIPE SUPPORTS SHALL BE MADE OF SELECT GRADE OF REDWOOD FOR COMMERCIAL BEAMS AND POSTS.

CAST IRON WATER PIPES 50 mm (2") IN DIAMETER OR LESS SHALL BE SUPPORTED FOR THE FULL WIDTH OF THE TRENCH BY 50 mm x 100 mm (2" x 4") REDWOOD BEAMS SUPPORTED BY A MINIMUM OF THREE 50 mm x 100 mm (2" x 4") REDWOOD POSTS.

WATER PIPES OVER 50 mm (2") IN DIAMETER SHALL BE SUPPORTED FOR THE FULL WIDTH OF THE TRENCH ON BEAMS NOT LESS THAN 150 mm (6") DEEP AND HAVING A WIDTH OF 1/3 THE NOMINAL DIAMETER OF THE PIPE TO BE SUPPORTED BUT NOT LESS THAN 100 mm (4"). THE WATER PIPE BEAMS SHALL BE SUPPORTED ON THREE 100 mm x 100 mm (4" x 4") REDWOOD POSTS. THE TWO OUTSIDE POSTS ARE TO BEAR ON THE BOTTOM OF THE TRENCH AND SHALL BE WEDGED IN PLACE TO TAKE A SLIGHT STRAIN AND SHALL BE SECURED IN PLACE. THE CENTER POST SHALL BEAR DIRECTLY ON TOP OF THE STORM DRAIN PIPE.

CITY OF PASADENA - PUBLIC WORKS & TRANSPORTATION DEPARTMENT

DRAWN BY: DAVID PHAN	SUPPORTING WATER PIPES ENCOUNTERED DURING EXCAVATION OPERATIONS	REVISION: 2	UNITS: DUAL
CHECKED BY: DAVID PHAN		STANDARD PLAN: S-299	
SUBMITTED BY W&P		APPROVED BY:  CITY ENGINEER RCE NO. 38689 EXPIRES MARCH 31, 2006	7/24/01 DATE

III. SUPPORT OF PIPES PARALLELING TRENCH

WHERE TRENCH EXCAVATIONS REMOVE VERTICAL OR LATERAL SUPPORT OF WATER PIPES PARALLELING THE TRENCH EXCAVATIONS OR WHERE SAID SUPPORT IS ENDANGERED, THE WATER PIPE SHALL BE SUPPORTED BY REDWOOD BEAMS SIZED IN ACCORDANCE WITH SECTION II ABOVE. POSTS SHALL BEAR DIAGONALLY AGAINST STORM DRAIN OR OTHER PIPE AND SHALL BE WEDGED AND SECURED IN PLACE TO PROVIDE SOLID SUPPORT, OR VERTICAL POSTS WITH HORIZONTAL CROSS TRENCH BRACING SHALL BE USED TO PROVIDE NECESSARY SUPPORT. THE BEAMS ON WHICH THE PIPE RESTS SHALL SUPPORT AT LEAST TWO-THIRDS OF THE LENGTH OF THE PIPE. POSTS SUPPORTING BEAMS SHALL BE INSTALLED 1.2 m (4') ON CENTERS (MAXIMUM). ALLOWABLE OVERHANG BETWEEN POSTS AND END OF BEAMS SHALL BE 0.45 m (1'-6"). PIPE JOINTS SHALL BE LEFT CLEAR FOR AT LEAST A DISTANCE OF 0.45 m (1'-6") ON EACH SIDE OF THE JOINT TO ALLOW FOR JOINT REPAIRS. ALL PIPE SUPPORTS SHALL BE SUBJECT TO APPROVAL OF THE GENERAL MANAGER OF THE WATER AND POWER DEPARTMENT OR HIS AUTHORIZED ASSISTANTS. IN THE EVENT SETTLEMENT OCCURS, THE CITY WILL RECAULK JOINTS AS NECESSARY TO RELIEVE STRAINS IMPOSED ON THE PIPELINE AND SAID COSTS WILL BE CHARGED TO THE CONTRACTOR.

IV. BACKFILL SUPPORT FOR WATER PIPES

IN LIEU OF REDWOOD PIPE SUPPORTS THE CONTRACTOR MAY BACKFILL THE TRENCH SO THAT THE TOP HALF OF THE PIPE IS EXPOSED. HE SHALL THEN CONSOLIDATE THE FILL AND SHALL CONSTRUCT A COMPACTED FILL UNDER AND AROUND THE PIPE TO THE SPRING LINE BEFORE COMPLETING THE TRENCH BACKFILL.

AT NO TIME SHALL THE CONTRACTOR DUMP BACKFILL MATERIALS DIRECTLY ON UNSUPPORTED PIPES OR CAUSE THEM TO CARRY SUPERIMPOSED LOADS BEFORE THEY ARE ADEQUATELY SUPPORTED.

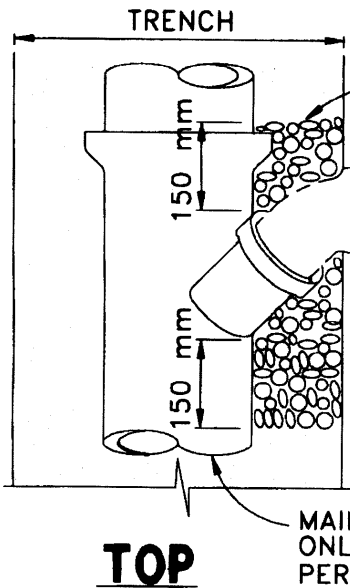
THE CITY OF PASADENA WATER AND POWER DEPARTMENT ASSUMES NO RESPONSIBILITY FOR DAMAGE TO ITS PIPE SYSTEM BY THE ACTS OF THE CONTRACTOR WHILE FOLLOWING THE ABOVE INSTRUCTIONS FOR SUPPORTING WATER PIPE.

 SHAN KWAN, BUSINESS UNIT DIRECTOR,
 WATER AND POWER DEPARTMENT

CITY OF PASADENA – PUBLIC WORKS & TRANSPORTATION DEPARTMENT

DRAWN BY: DAVID PHAN	SUPPORTING WATER PIPES ENCOUNTERED DURING EXCAVATION OPERATIONS	REVISION: 2	UNITS: DUAL
CHECKED BY: DAVID PHAN		STANDARD PLAN: S-299 SHEET 2 OF	
SUBMITTED BY W&P	APPROVED BY: 25 CITY ENGINEER RCE NO. 38689 EXPIRES MARCH 31, 2005		DATE

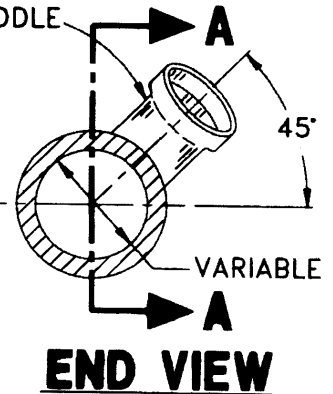
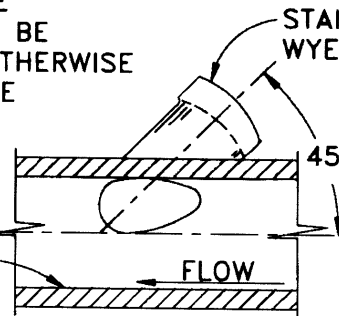
WYE SADDLE INSTALLATION



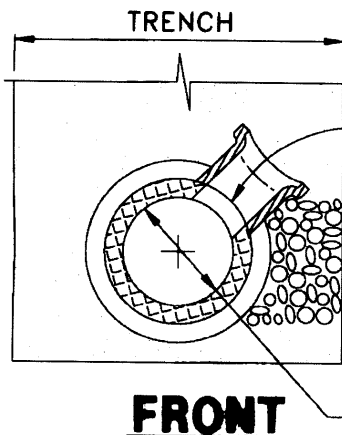
13mm CRUSHED AGGREGATE BASE MATERIAL SHALL BE USED UNLESS OTHERWISE DIRECTED BY THE ENGINEER

MAIN SEWER PIPE INVERT

SECTION A-A



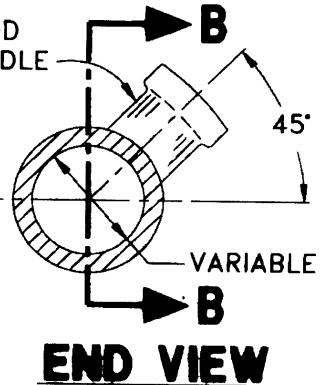
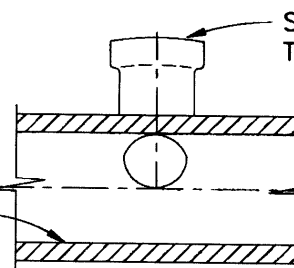
TEE OR WYE SADDLE JOINTS AND SUPPORT



APPROVED EPOXY RESIN

MAIN SEWER PIPE INVERT

SECTION B-B



NOTES:

1. A WYE OR TEE SADDLE SHALL BE INSTALLED BY CUTTING A NEAT HOLE CONFORMING TO THE INSIDE DIAMETER OF THE SADDLE. THE HOLE SHALL BE MADE WITH EQUIPMENT SPECIALLY DESIGNED TO CUT A SMOOTH HOLE.
2. THE SADDLE SHALL BE CEMENTED INTO PLACE USING A CEMENTING AGENT APPROVED BY THE PUBLIC WORKS AND TRANSPORTATION DEPARTMENT. THE SADDLE SHALL BE HELD SECURELY IN PLACE WHILE THE CEMENTING AGENT SETS. THE INSIDE OF THE JOINT BETWEEN PIPE AND SADDLE SHALL BE FILLED WITH CEMENTING MATERIAL AND NEATLY ROUNDED.
3. THE CORING OF THE HOLE AND THE PLACING OF THE STUB SHALL BE DONE IN THE PRESENCE OF THE ENGINEER.
4. NO CONNECTION SHALL BE MADE TO THE STUB UNTIL THE ENGINEER HAS APPROVED THE STUB.

CITY OF PASADENA - PUBLIC WORKS & TRANSPORTATION DEPARTMENT

DRAWN BY:
DAVID PHAN

CHECKED BY:
JAMES LLOYD

SUBMITTED BY:
JAMES VALENTINE

APPROVED BY:

William D. Sato
CITY ENGINEER
RCE NO. 13716 EXPIRES MARCH 31, 1997

SADDLE FOR HOUSE LATERALS

REVISION: 1
UNITS: METRIC

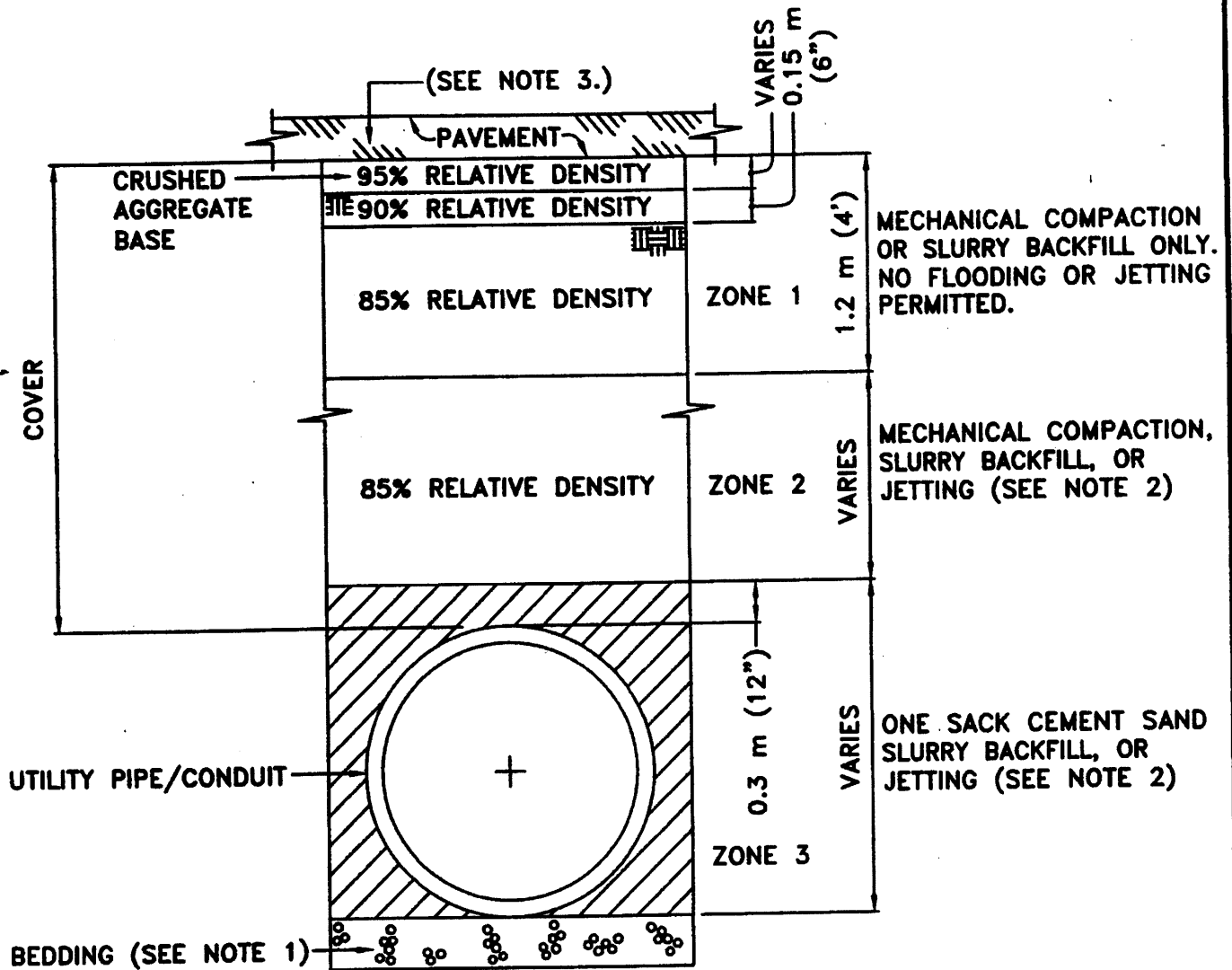
STANDARD PLAN:

S-301

SHEET 1 OF 1

4/25/96
DATE

S301-1-0.DWG 04\24\96



NOTES:

1. PIPE BEDDING SHALL BE PER LOS ANGELES COUNTY DEPARTMENT OF PUBLIC WORKS STANDARD PLAN 3080-1.
2. IN ZONE 2 AND 3, CONSOLIDATION BY FLOODING OR JETTING WILL BE PERMITTED ONLY WHEN, IN THE OPINION OF THE ENGINEER, THE BACKFILL MATERIAL IS SELF DRAINING WHEN COMPACTED AND THE FOUNDATION MATERIALS WILL NOT SOFTEN OR BE DAMAGED BY THE APPLIED WATER.
3. STREET RESTORATION SHALL BE PER CITY OF PASADENA STANDARD PLAN S-416 OR S-417.

CITY OF PASADENA - DEPARTMENT OF PUBLIC WORKS

DRAWN BY:
MAGGE MOJICA

CHECKED BY:
CATHY CHANG

SUBMITTED BY:
ROBERT GARDNER

TRENCH COMPACTION REQUIREMENTS

APPROVED BY:
David A. R...

CITY ENGINEER

ICE NO. 38499 EXPIRES MARCH 31, 2005

1/21/2004
DATE

REVISION: 4

UNITS: DUAL

STANDARD PLAN:

S-407

SHEET 1 OF 2

2007-1-REVISED 1/15/04

STANDARD TRENCH COMPACTION REQUIREMENTS

ALL TRENCHES WITHIN STREETS AND RIGHTS OF WAY IN THE CITY OF PASADENA SHALL BE COMPACTED AS HEREIN DESCRIBED.

UNSUITABLE BACKFILL OR BEDDING MATERIAL SHALL INCLUDE, BUT NOT BE LIMITED TO, VEGETABLE OR ANIMAL MATTER, METAL, AND ROCKS OR LUMPS OF MATERIAL EXCEEDING 150 mm (6") IN GREATEST DIMENSION. UNSUITABLE MATERIAL SHALL BE DISPOSED OF AWAY FROM THE WORK SITE.


IF THE DISPOSAL OF UNSUITABLE MATERIAL NECESSITATES THE IMPORTATION OF MATERIAL FROM A SOURCE OUTSIDE THE SITE, THE IMPORTED MATERIAL MUST BE APPROVED BY THE ENGINEER PRIOR TO USE AS BACKFILL.

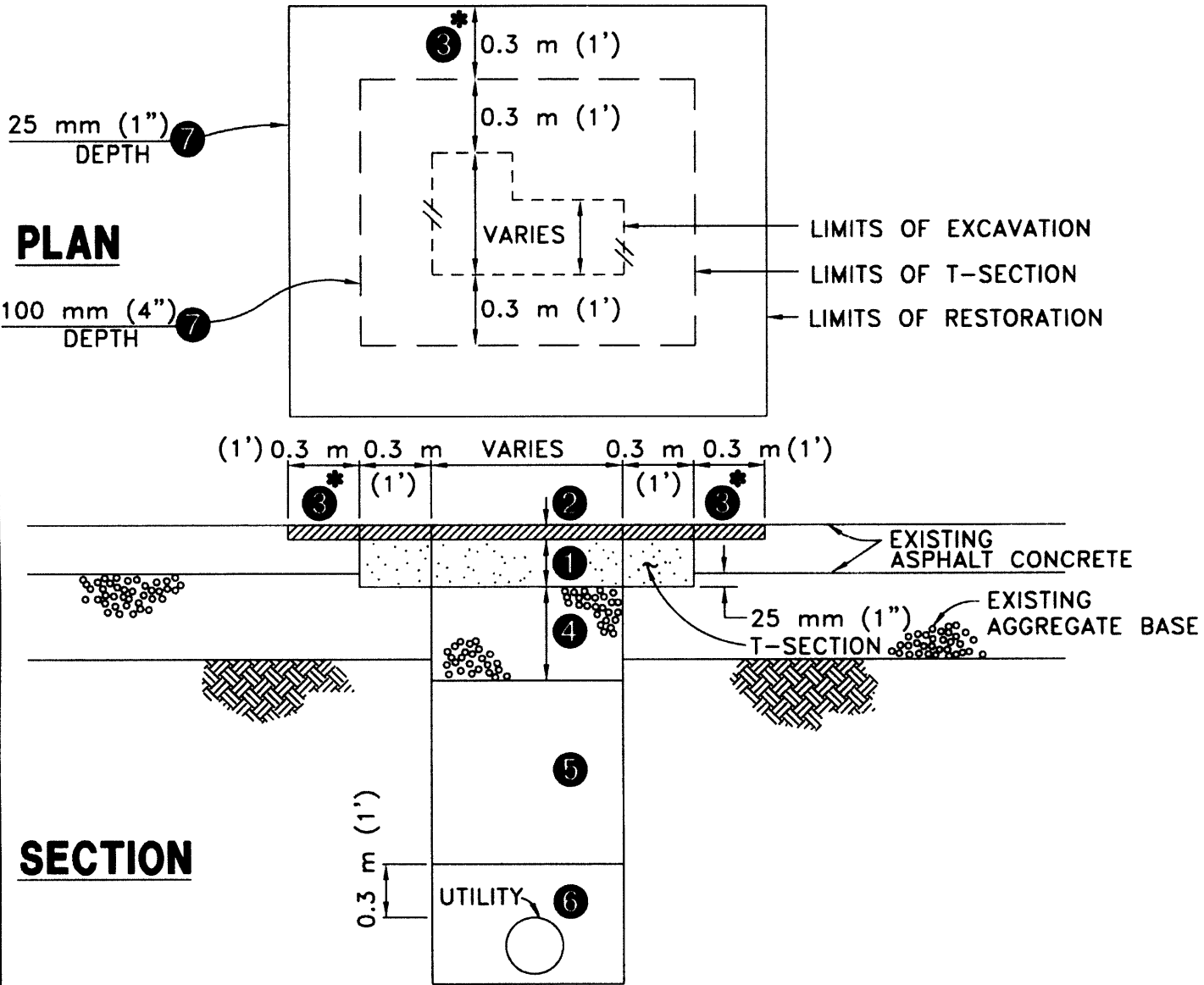
CONDUIT BEDDING MATERIAL SHALL CONSIST OF A WELL-GRADED, FINE GRANULAR MATERIAL.

ROCKS OR LUMPS OF MATERIAL EXCEEDING 50 mm (2") IN GREATEST DIMENSION SHALL NOT BE PLACED IN THE TOP 0.45 m (18") OF SUBGRADE. ROCKS OR LUMPS OF MATERIAL EXCEEDING 100 mm (4") IN GREATEST DIMENSION SHALL NOT BE PLACED INTO THE BACKFILL WITHIN 0.3 m (1') OF ANY CONDUIT OR STRUCTURE.

ROCKS OR LUMPS OF MATERIAL WITHIN THE ABOVE LIMITATION, WHEN INCORPORATED INTO THE BACKFILL, SHALL BE WELL DISTRIBUTED THROUGHOUT THE BACKFILL, TOGETHER WITH SUFFICIENT FINE MATERIAL TO FILL THE VOIDS AND PRODUCE A BACKFILL COMPACTED TO A RELATIVE DENSITY OF NOT LESS THAN EIGHTY-FIVE (85) PERCENT, AND NO "NESTING" OF THE ROCKS OR LUMPS OF MATERIAL WILL BE PERMITTED.

CITY OF PASADENA - DEPARTMENT OF PUBLIC WORKS

DRAWN BY: MAGGIE MOJICA	TRENCH COMPACTION REQUIREMENTS	REVISION: 4	UNITS: DUAL
CHECKED BY: CATHY CHANG	APPROVED BY: 	STANDARD PLAN: S-407	
SUBMITTED BY: ROBERT GARDNER	CITY ENGINEER Daniel A. 28 RCE NO. 36609 EXPIRES MARCH 31, 2005	SHEET 2 OF 2 <small>247-C-REV. 1/16/04</small>	
		1/21/2004 DATE	



- ① CONSTRUCT NEW ASPHALT CONCRETE BASE COURSE, B-AR-4000 25 mm (1") THICKER THAN THE EXISTING SECTION.
- ② CONSTRUCT NEW ASPHALT CONCRETE WEARING COURSE:

TYPE OF STREETS	DEPTH	ASPHALT CONCRETE
LOCAL RESIDENTIAL STREETS	25 mm (1")	D2-AR-4000
STREET WITH ASPHALT RUBBER AGGREGATE MEMBRANE (A.R.A.M.)	25 mm (1")	D2-AR-4000
COLLECTOR/MAJOR STREETS	40 mm (1 1/2")	C2-AR-4000

① & ② THE TOTAL THICKNESS OF ① + ② SHALL BE 100 mm (4") MINIMUM FOR LOCAL OR COLLECTOR STREETS AND 150 mm (6") MINIMUM FOR MAJOR STREETS.

*MORATORIUM STREETS ONLY

CITY OF PASADENA - PUBLIC WORKS & TRANSPORTATION DEPARTMENT

DRAWN BY: DAVID PHAN	<h1 style="margin: 0;">RESTORATION OF ASPHALT STREET EXCAVATIONS</h1>	REVISION: 3	UNITS: DUAL
DESIGNED BY: GIL WEISS		STANDARD PLAN: <h1 style="margin: 0;">S-416</h1>	
CHECKED BY: JAMES LLOYD		<div style="text-align: right;"> 6/5/2001 DATE </div>	
SUBMITTED BY: JAMES VALENTINE		SHEET 1 OF 2 <small>3416-1-REV3.DWG 3/9/01</small>	
APPROVED BY: CITY ENGINEER RCE NO. 38689 EXPIRES MARCH 31, 2005			

③ A. FOR EMERGENCY EXCAVATIONS ON MORATORIUM STREETS (STREETS REPAVED WITHIN THE LAST 5 YEARS): THE LIMITS OF THE RESTORATION SHALL BE A RECTANGULAR AREA EXTENDING A MINIMUM OF 0.3 m (1') BEYOND THE OUTER EDGE OF THE WIDEST PORTION OF THE T-SECTION. THE LIMITS SHALL BE SAWCUT AFTER BACKFILL OF TRENCH IS COMPLETED. THE EXISTING A.C. SHALL BE REMOVED TO A DEPTH EQUAL TO THE THICKNESS OF THE WEARING COURSE. REMOVAL BY COLD MILLING OR PNEUMATIC HAMMER IS ACCEPTABLE. IF THE REMOVALS ARE LESS THAN 1.5 m (5') APART OR LESS THAN 0.6 m (2') FROM A CONCRETE CURB, GUTTER OR CROSS GUTTER, THE RESTORATION SHALL BE CONTINUOUS BETWEEN EXCAVATIONS AND/OR THE EDGE OF CONCRETE.

NOTE: POT HOLES OR EXCAVATIONS THAT ARE 0.6 m (2')x 0.9 m (3') OR LESS IN AREA ARE NOT SUBJECT SURFACE TO THE T-SECTION AND THIS REQUIREMENT.

B. FOR OTHER EXCAVATIONS ON MORATORIUM STREETS, EXACT LIMITS OF COLD MILLING AND RE-PAVING SHALL BE DETERMINED BY THE ENGINEER.

④ CONSTRUCT NEW CRUSHED AGGREGATE BASE TO MATCH EXISTING THICKNESS OR 100 mm (4") THICKNESS, WHICHEVER IS GREATER. COMPACT TO 95% OF RELATIVE DENSITY. NO AGGREGATE BASE REQUIRED IF CEMENT SLURRY IS USED.

⑤ TRENCH BACKFILL SHALL BE EITHER: A. NATIVE MATERIAL OR IMPORTED SOIL (IF NATIVE IS UNSUITABLE)
B. CRUSHED AGGREGATE BASE
C. ONE SACK CEMENT SAND SLURRY

TRENCH COMPACTION REQUIREMENTS SHALL CONFORM WITH CITY STANDARD PLAN S-407. COMPACTION TESTS (USING CITY APPROVED METHOD) ARE REQUIRED UNLESS SLURRY IS USED.

⑥ PIPE BEDDING AND PIPE ZONE BACKFILL PER UTILITY OWNER'S AND/OR CITY'S SPECIFICATIONS AND CITY STANDARD PLAN S-407:

- A. REMOVE SOFT, SPONGY, UNSUITABLE MATERIAL PER THE ENGINEER.
- B. BACKFILL WITH GRANULAR MATERIAL.
- C. COMPACTION METHOD TO BE APPROVED BY THE ENGINEER.
- D. COMPACTION TESTS ARE REQUIRED (UNLESS SLURRY IS USED).

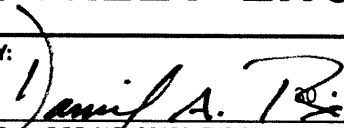
⑦ SAWCUTTING WILL BE REQUIRED AROUND THE PERIMETER OF THE FINAL EDGE OF ALL EXCAVATIONS TO PROVIDE CLEAN, STRAIGHT, VERTICAL SIDES.

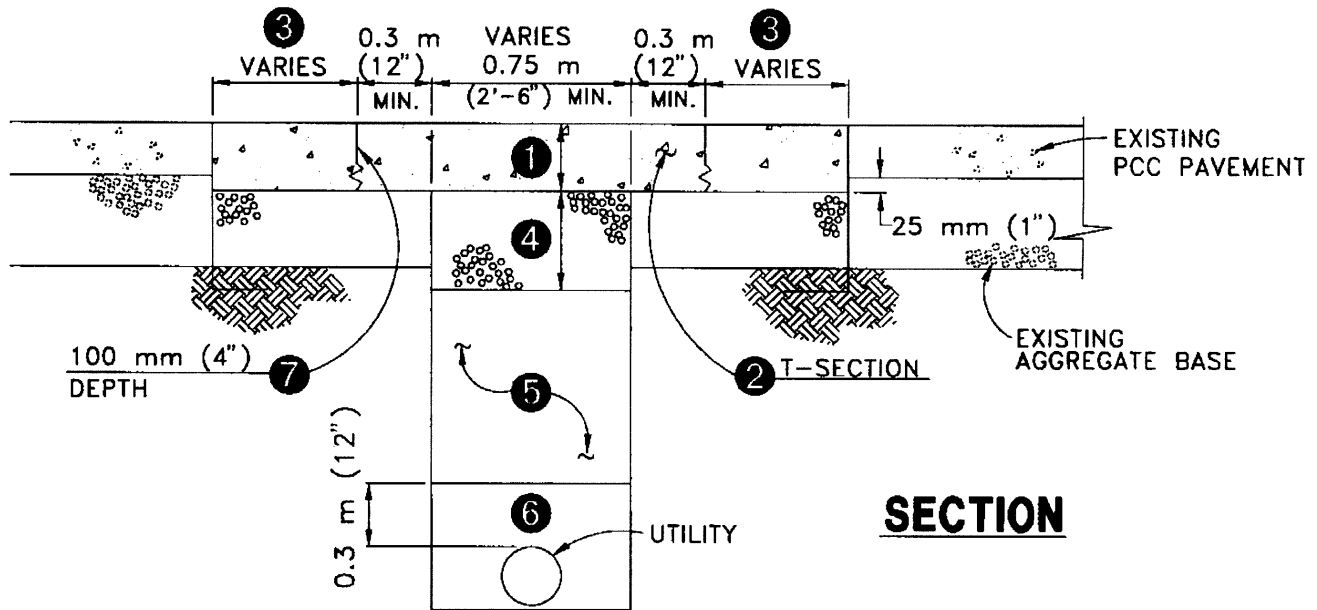
⑧ T-SECTIONS ARE 0.3 m (1') WIDE AS MEASURED FROM THE FINAL EDGE OF TRENCH (AFTER SLUFFING.)

⑨ ALL TRAFFIC STRIPING AND/OR MARKINGS REMOVED BY RESTORATION WORK SHALL BE REPLACED.

⑩ ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (GREEN BOOK), LATEST EDITION, INCLUDING SUPPLEMENTS, AND THE CITY OF PASADENA "SUPPLEMENTS AND MODIFICATIONS" TO THE ABOVE (BLUE BOOK).

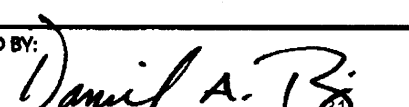
CITY OF PASADENA - PUBLIC WORKS & TRANSPORTATION DEPARTMENT

DRAWN BY: DAVID PHAN	<h1>RESTORATION OF ASPHALT STREET EXCAVATIONS</h1>	REVISION: 3	UNITS: DUAL
DESIGNED BY: GIL WEISS		STANDARD PLAN: <h1>S-416</h1>	
CHECKED BY: JAMES LLOYD		SHEET 2 OF 2	
SUBMITTED BY: JAMES VALENTINE		DATE 5/30/2001	
APPROVED BY:  CITY ENGINEER		RCE NO. 38689 EXPIRES MARCH 31, 2005	



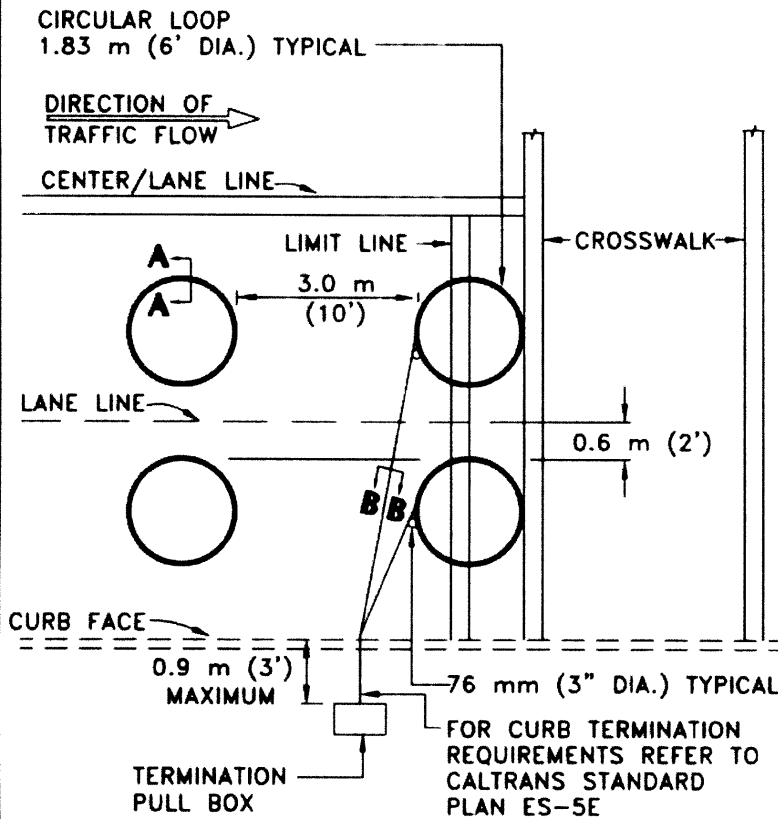
- ① CONSTRUCT NEW PCC PAVEMENT 25 mm (1") THICKER THAN THE EXISTING CONCRETE, 150 mm (6") MIN.
- ② THE EXACT LIMITS FOR REMOVAL SHALL BE DETERMINED BY THE ENGINEER SUCH THAT JOIN LINES ARE NOT WITHIN 0.75 m (2'-6") OF EXISTING PAVEMENT JOINTS OR SIGNIFICANT CRACKS. IF THE EXCAVATIONS ARE LESS THAN 1.5 m (5') APART OR LESS THAN 0.75 m (2'-6") FROM A CONCRETE CURB, GUTTER OR EXPANSION JOINT, THE RESTORATION SHALL BE CONTINUOUS BETWEEN EXCAVATIONS AND/OR THE EDGE OF CONCRETE.
- ③ FOR PCC STREETS OR INTERSECTIONS RECONSTRUCTED WITHIN THE LAST 10 YEARS: THE LIMITS OF THE RESTORATION SHALL BE A RECTANGULAR AREA EXTENDING TO THE NEAREST CONSTRUCTION JOINT. THE STRUCTURAL SECTION OUTSIDE THE UTILITY TRENCH AREA SHALL BE EQUAL TO ① + ④.
- ④ CONSTRUCT NEW CRUSHED AGGREGATE BASE TO MATCH EXISTING THICKNESS OR 100 mm (4") THICKNESS, WHICHEVER IS GREATER. COMPACT TO 95% OF RELATIVE DENSITY. NO AGGREGATE BASE REQUIRED IF CEMENT SLURRY IS USED.
- ⑤ TRENCH BACKFILL SHALL BE EITHER:
 - A. NATIVE MATERIAL OR IMPORTED SOIL (IF NATIVE IS UNSUITABLE)
 - B. CRUSHED AGGREGATE BASE
 - C. ONE SACK CEMENT SAND SLURRY
 TRENCH COMPACTION REQUIREMENTS SHALL CONFORM WITH CITY STANDARD PLAN S-407. COMPACTION TESTS (USING CITY APPROVED METHOD) ARE REQUIRED UNLESS SLURRY OR CRUSHED AGGREGATE BASE IS USED.
- ⑥ PIPE BEDDING AND PIPE ZONE BACKFILL PER UTILITY OWNER'S AND/OR CITY'S SPECIFICATIONS AND CITY STANDARD PLAN S-407:
 - A. REMOVE SOFT, SPONGY, UNSUITABLE MATERIAL PER THE ENGINEER OR INSPECTOR.
 - B. BACKFILL WITH GRANULAR MATERIAL.
 - C. COMPACTION METHOD TO BE APPROVED BY THE ENGINEER OR INSPECTOR.
 - D. COMPACTION TESTS ARE REQUIRED (UNLESS SLURRY IS USED).
- ⑦ SAWCUTTING WILL BE REQUIRED AROUND THE PERIMETER OF THE FINAL EDGE OF ALL EXCAVATIONS TO PROVIDE CLEAN, VERTICAL SIDES.
- ⑧ ALL TRAFFIC STRIPING AND/OR MARKINGS REMOVED BY RESTORATION WORK SHALL BE REPLACED.
- ⑨ ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (GREEN BOOK), LATEST EDITION, INCLUDING SUPPLEMENTS, AND THE CITY OF PASADENA "SUPPLEMENTS AND MODIFICATIONS" TO THE ABOVE (BLUE BOOK).

CITY OF PASADENA - PUBLIC WORKS & TRANSPORTATION DEPARTMENT

DRAWN BY: DAVID PHAN	<h2 style="margin: 0;">RESTORATION OF CONCRETE STREET EXCAVATIONS</h2>	REVISION: 3	UNITS: DUAL
DESIGNED BY: GIL WEISS		STANDARD PLAN: S-417	
CHECKED BY: JAMES LLOYD		SHEET 1 OF 1	
SUBMITTED BY: JAMES VALENTINE		DATE 3/6/2001	
APPROVED BY:  CITY ENGINEER		RCE NO. 38689 EXPIRES MARCH 31, 2001	

NOTES:

1. FRONT LOOP TO BE TANGENT WITH THE BACK OF CROSSWALK, UNLESS OTHERWISE SPECIFIED.
2. LOOP DETECTORS SHOWN ON THE PLANS TO BE SYSTEM DETECTORS (SD), OR BICYCLE DETECTORS (BD), SHALL BE INSTALLED WITH FOUR (4) WINDS OF WIRE. ALL OTHER LOOP DETECTORS SHALL BE INSTALLED WITH THREE (3) WINDS OF WIRE.
3. LOOP AND LEAD-IN TO PULL BOX TO BE FORMED FROM A CONTINUOUS, UNSPLICED CONDUCTOR. SAW SLOT IN PAVEMENT, USING DIAMOND SAW, FROM LOOPS TO GUTTER NEAR PULL BOX.
4. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
5. HOME RUN SHALL NOT ENCROACH INTO CROSSWALK AREA.



* HOT MELT SEALANT SHALL CONFORM TO CALTRANS SPECIFICATIONS 8040-01F-06 UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.

FILL SLOT WITH HOT MELT SEALANT * LEVEL WITH TOP. DO NOT OVERFILL

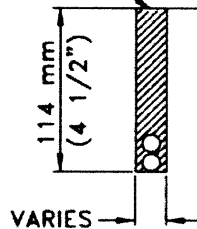
LOOP DETECTOR WIRE, SEE SPECIAL PROVISIONS

9.5 mm (3/8") MINIMUM
12.7 mm (1/2") MAXIMUM

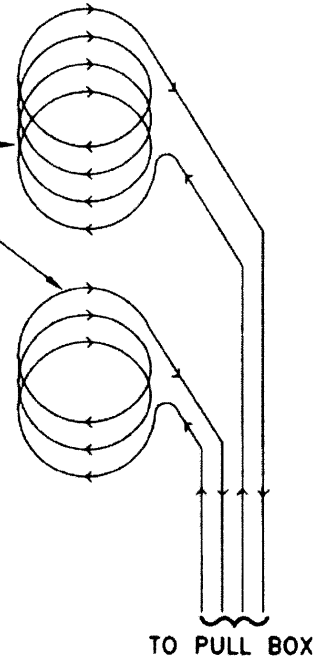
SECTION: A-A

SYSTEM DETECTORS OR BICYCLE DETECTORS

ALL OTHER LOOP DETECTORS



SECTION: B-B



TO PULL BOX

WINDING DETAILS

CITY OF PASADENA - DEPARTMENT OF PUBLIC WORKS

DRAWN BY:
DAVID PHAN

CHECKED BY:
NORMAN B.

SUBMITTED BY:
JIM VALENTINE

CIRCULAR INDUCTIVE LOOP INSTALLATION

APPROVED BY:
David A. Rio
CITY ENGINEER RCE NO. 38689 EXPIRES MARCH 31, 2006

3/17/2004
DATE

REVISION: 3 UNITS: DUAL

STANDARD PLAN:

S-976

SHEET 1 OF 1
S976-1-REV 3/3/04