

**GENERAL NOTES -**

1. CLASS A CONCRETE SHALL BE USED FOR MANHOLE BASES.
2. PIPE MAY STOP AT INSIDE FACE OF MANHOLE OR MAY BE CONTINUOUS THROUGH MANHOLE. IF PIPE LAID CONTINUOUS, TOP HALF SHALL BE BROKEN AWAY AFTER BASE IS POURED.
3. JOINTS FOR THE BARREL SECTION SHALL BE TONGUE AND GROOVE. ALL JOINTS MUST EITHER BE MADE WITH PREFORMED PLASTIC JOINT SEALING COMPOUND OR BY BUTTERING THE JOINT SPACE WITH MORTAR.

MANHOLES EIGHT OR MORE FEET IN DEPTH ARE TO USE ECCENTRIC CONES WITH THE STRAIGHT SIDE DOWN STREAM.

ALL MANHOLE EXTERIORS SHALL RECEIVE KOPPERS BITUMASTIC NO 500M (16 MILLS MIN.), OR EQUAL WATER-PROOF PROTECTION.

CONNECTION OF THE PIPE TO THE MANHOLE MAY BE MADE USING A RESILIENT CONNECTOR CONFORMING TO ASTM STANDARD C923 SUCH AS KOR-N-SEAL, A-LOK, OR EQUAL.

ANY SERVICE SEWER ENTERING A MANHOLE SHALL BE INSTALLED WITH THE INVERT ELEVATION OF THE SERVICE PIPE MATCHING THE CROWN ELEVATION OF THE EXIT SEWER EXCEPT WHEN AN INTERNAL DROP CONNECTION IS USED. IF THE MANHOLE AT THE END OF A CUL-DE-SAC IS CONSTRUCTED WITH A PRECAST BASE, THE CROWN OF ANY SERVICE STUBS SHALL BE A MINIMUM OF ONE INCH ABOVE THE CROWN OF THE EXIT PIPE.

APPROVED BY: *[Signature]*

RANCHO MURIETA  
COMMUNITY SERVICES DISTRICT

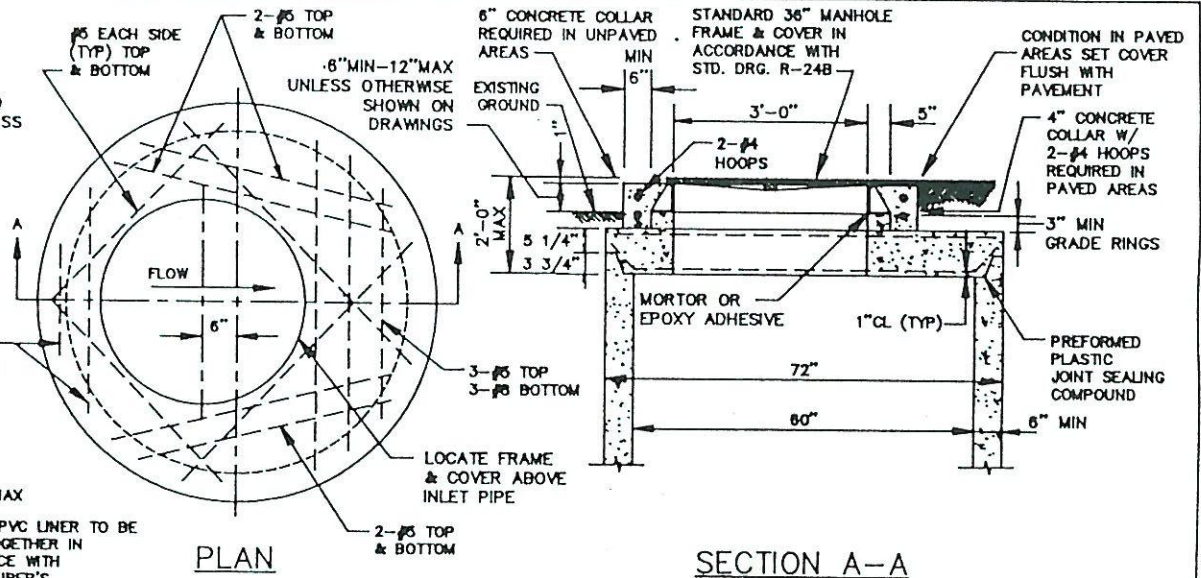
STANDARD 48" & 60"  
SEWER MANHOLES  
(TYPE A)

DATE:  
DRAWN BY:

S-1

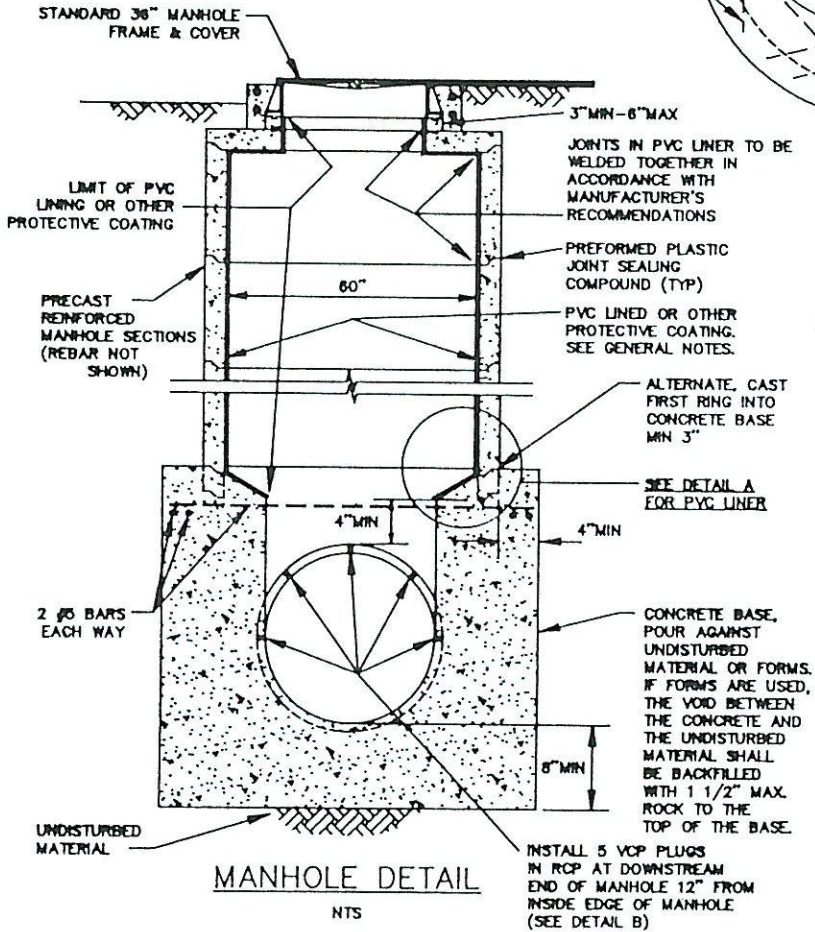
**GENERAL NOTES -**

1. PROTECTIVE COATING SHALL BE (a) QUANTUM AS MANUFACTURED BY POLYMORPHIC POLYMER'S CORP. OF MIAMI SHORES, FL. MINIMUM THICKNESS OF MULTILAYERED MODIFIED UNSATURATED POLYESTER COATING SHALL BE 125 mIL. (b) CONCRESE 1305 AS MANUFACTURED BY ADHESIVE ENGINEERING CO. OF SAN CARLOS CA. MINIMUM THICKNESS OF MULTILAYERED, SPRAY APPLIED AMINE CURED EPOXY SHALL BE 40 mIL. (c) OR EQUAL.
2. BOTH PVC LINING AND PROTECTIVE COATINGS SHALL BE SPARK TESTED FOR INTEGRITY AFTER INSTALLATION.
3. PROTECTIVE COATING SHALL BE APPLIED TO MANHOLE SHELVES, UNDERSIDE OF COVER SLAB, INSIDE OF GRADE RINGS AND ALL OTHER PLACES WHERE PVC IS SHOWN ON DETAIL BELOW.



**STANDARD SLAB TOP DETAILS**

NTS

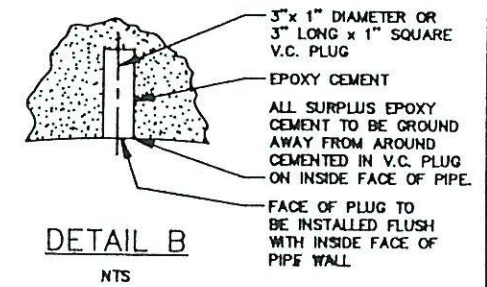


**MANHOLE DETAIL**

NTS

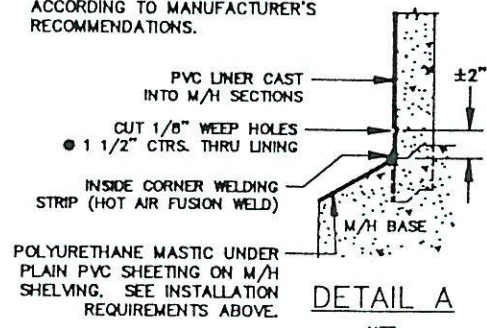
**INSTALLATION REQUIREMENTS FOR PVC SHELF LINER**

1. 30 mIL PVC SHELF LINER SHALL BE PRECUT AND PREPARED ABOVE GROUND PRIOR TO INSTALLATION WITH SAND EMBEDDED NON-SKID SURFACE 1"± IN FROM EDGE, ACCORDING TO PVC SHEETING MANUFACTURER'S RECOMMENDATION.
2. COAT CLEAN AND DRY CONCRETE SURFACE OF M/H SHELVES w/LINABOND PRIMER EP30 AND LINABOND POLYURETHANE MASTIC TO A MIN. THICKNESS OF 125 mIL. ALSO COAT CONTACT SIDE OF THE PRECUT PVC SHEETING WITH LINABOND CLA -1 ACTIVATOR ALL AS MANUFACTURED BY ALLIED COATINGS CO. OF HOLLYWOOD, CA OR EQUAL (SUBMITTAL WILL BE REQUIRED)
3. ALL MATERIALS SHALL BE APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.



**DETAIL B**

NTS



**DETAIL A**

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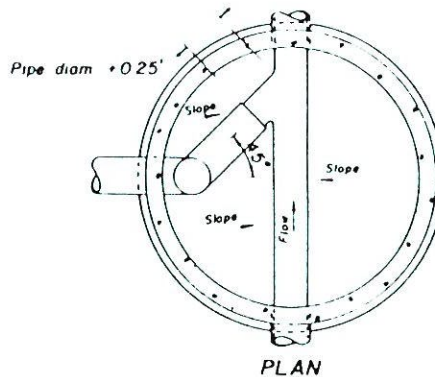
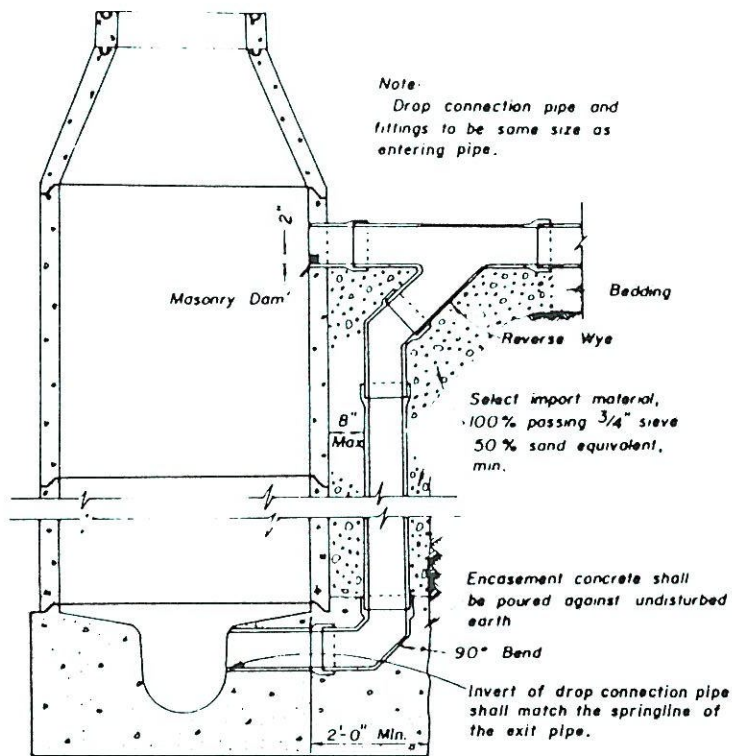
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RANCHO MURIETA  
COMMUNITY SERVICES DISTRICT

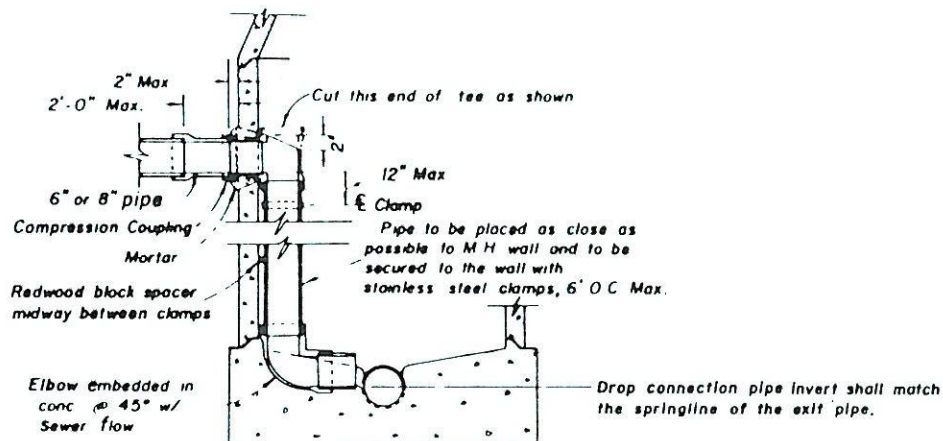
STANDARD  
60" MANHOLE  
(TYPE B)

NO SCALE  
DATE:  
DRAWN BY:

S-2



- Note
- 1 All inside drop piping to be PVC or ABS.
  - 2 Cement all joints
  - 3 Drop connection pipe and fittings to be same size as entering pipe.
  - 4 Clamps to be 1 1/2" x 12 ga stainless steel, anchored to MH wall with 2-1/2" cadmium plated bolts



## OUTSIDE DROP CONNECTION

For 10" or larger drop or where specifically indicated on the drawings.

## INSIDE DROP CONNECTION

RANCHO MURIETA  
COMMUNITY SERVICES DISTRICT

## DROP CONNECTIONS

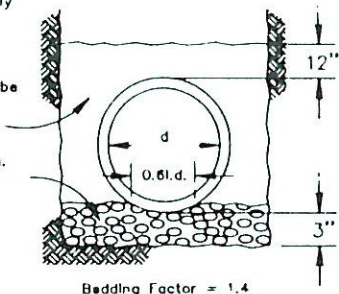
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DATE:  
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S-3

Native material carefully placed; shovel slice under haunches and tamp to 90% relative compaction. Imported bedding material may be used as alternate for initial backfill.

Imported material, min. sand equivalent of 50; 100% passing 1/2" sieve.

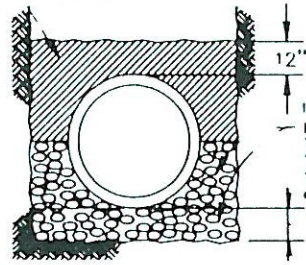


Bedding Factor = 1.4

**TYPE I**

(This type of bedding is to be used only for 10 inch or smaller pipe unless written approval is granted by the

Native material carefully placed; tamp to 90% relative compaction. Imported bedding material may be used as alternate for initial backfill.

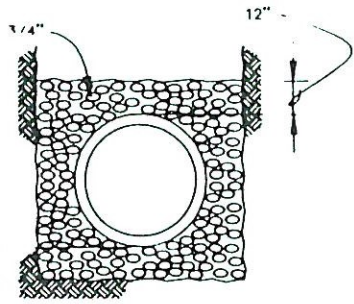


Bedding Factor = 1.9 for Type II;

**TYPE II**

(See Note 6)

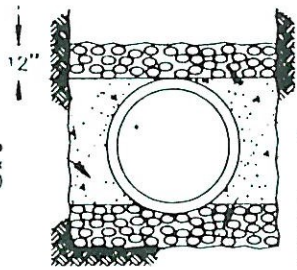
Imported material: ASTM D448 Size #67 100% passing 3/4"



Bedding Factor = 2.2 for 36" or less; for greater than 36" dia. field condition only (see note 3).

**TYPE II ALTERNATE**

Concrete slurry mix (See SS 12-01D)



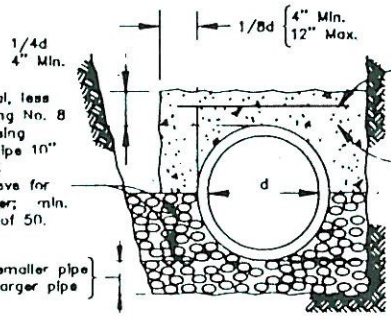
Bedding factor = 2.3

**TYPE III**

(See Note 4)

(Concrete must extend from pipe to the trench walls. Type III not allowed where soils are expansive)

Imported material, less than 10% passing No. 8 sieve; 100% passing 1/2" sieve for pipe 10" or smaller, 100% passing 3/4" sieve for pipe 12" or larger; min. sand equivalent of 50.



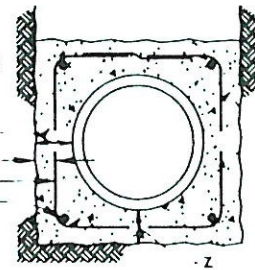
Bedding Factor = 3.4

**TYPE IV**

(See Notes 4 & 5)

Transverse Steel Reinforcing  
Concrete

Z = 4" for Sewer Service  
Z = 6" Min. for all Main Line Sewer  
3" Clear  
#2 Re Bars @ 18"  
#4 Reinforcement Bars



**COMPLETE ENCASEMENT DETAIL**

**GENERAL NOTES:**

- 1) See Sections SS12-01, 04 and 05 for backfill limits.
- 2) Minimum depth of bedding and material under pipe bells shall be 1 1/2 inches.
- 3) For Type II Alternate, bedding and initial backfill shall be crushed stone with a sieve analysis listed as Size #67 in ASTM Designation D448, except that 100 percent shall pass the 3/4 inch sieve. For pipe greater than 36" in diameter Type II Alternate shall be allowed only when field encountered construction conditions have resulted in the allowable trench width for Type II being exceeded and calculations must be submitted for the Engineer's approval to determine the appropriate bedding factor for the situation. Design Method No. 38 as published by the American Concrete Pipe Association shall be the basis for the calculations. Maximum allowable Bedding Factor is 2.2.

- 4) Types III and IV may be used only when construction conditions encountered in the field have resulted in the allowable trench width for Type II and Type II Alternate being exceeded. Written approval of the Engineer is necessary.
- 5) For reinforced concrete, P is the percentage of the area of transverse steel to the area of concrete above the top of the pipe barrel. Use wire mesh or uniformly distributed small diameter rebar.
- 6) For all flexible (non-rigid) pipe, imported material must be used for bedding and initial backfill to 12 inches over pipe bell.
- 7) Increase pipe bedding to 6" below pipe when rock or boulders are encountered.

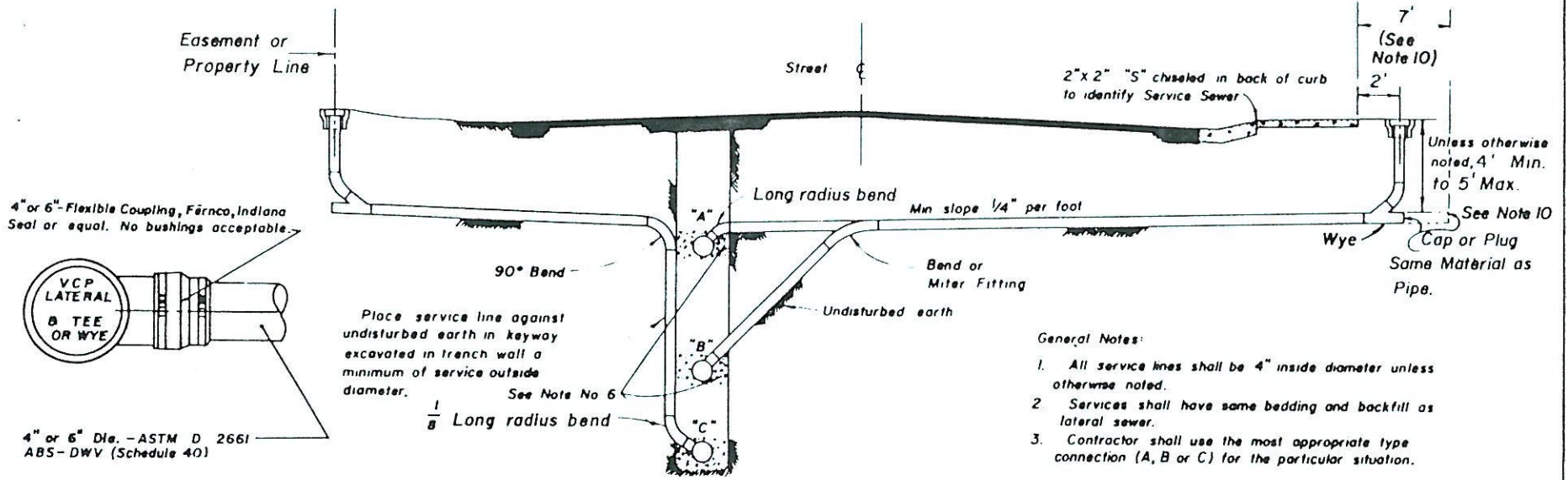
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RANCHO MURIETA  
COMMUNITY SERVICES DISTRICT

SEWER PIPE BEDDING  
&  
INITIAL BACKFILL

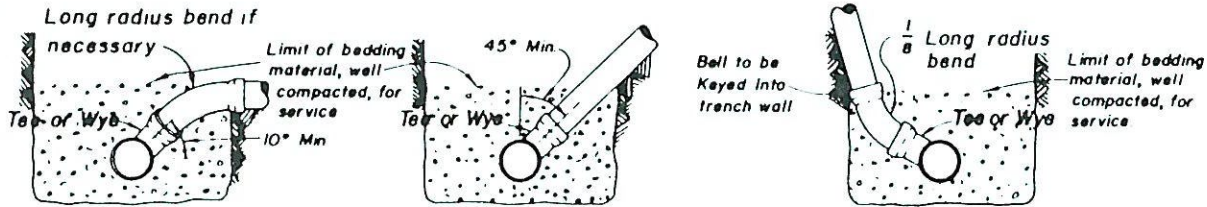
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DATE:  
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S-4



ALTERNATE ABS SERVICE SEWER CONNECTION TO VCP

ELEVATIONS



TYPE A

TYPE B

TYPE C

CONNECTION DETAILS

General Notes:

1. All service lines shall be 4" inside diameter unless otherwise noted.
2. Services shall have same bedding and backfill as lateral sewer.
3. Contractor shall use the most appropriate type connection (A, B or C) for the particular situation.
4. Service sewer shall have minimum 4'-0" cover at property line whenever lateral depth and service sewer slope of 1/4" per foot (minimum permit See Note 10).
5. When the lateral sewer depth is such that minimum cover at property line cannot be met, the minimum slope of 1/4" per foot shall govern the cover.
6. Place concrete 12" wide or well compacted bedding material 18" wide under the tee or wye, the fitting, and unsupported pipe. When bedding material is used, place additional bedding material to top of bend, the full width of the trench.
7. Min specified cover at the property line shall be measured from existing ground surface or edge of adjacent roadway, whichever is lower.
8. A specific elevation at the property line, when shown on the plans or designated by the engineer, shall govern.
9. Miter fittings shall be max 45°

10. Minimum depth of cover to be 5'-0" and maximum 6'-0" where water main is to be installed at back of sidewalk as part of the subdivision improvements. In such cases, service is to be extended to 7' back of sidewalk; cleanout to grade to remain 2' back of sidewalk and optional installation of 4"x4" post not allowable.

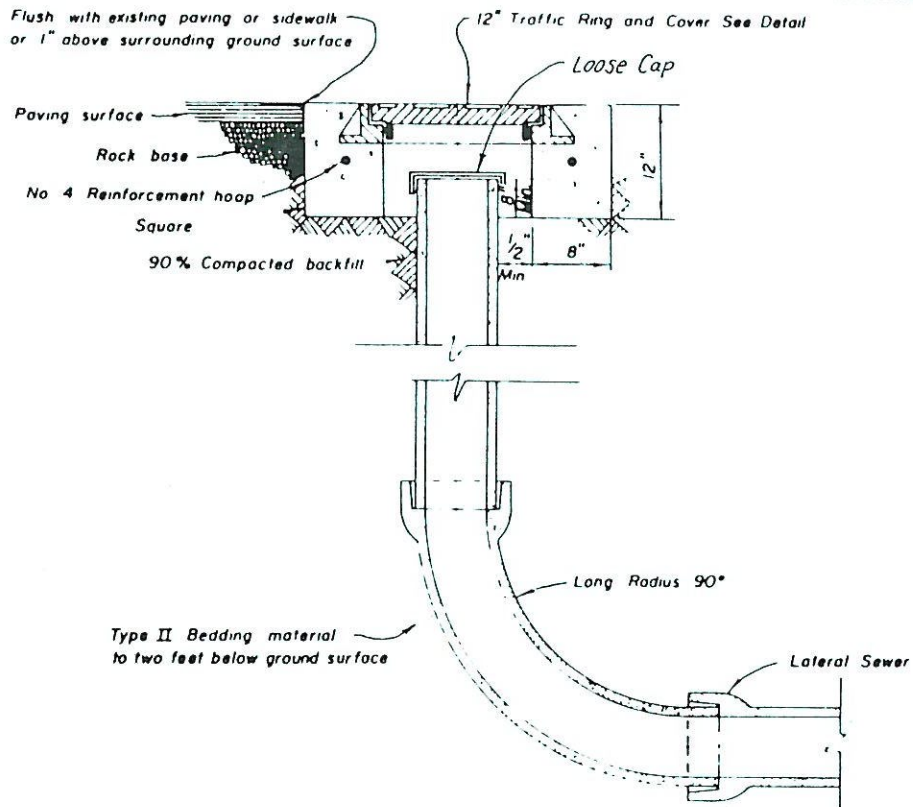
RANCHO MURIETA  
COMMUNITY SERVICES DISTRICT

SERVICE SEWERS

APPROVED BY:

NO SCALE  
DATE:  
DRAWN BY

S-5

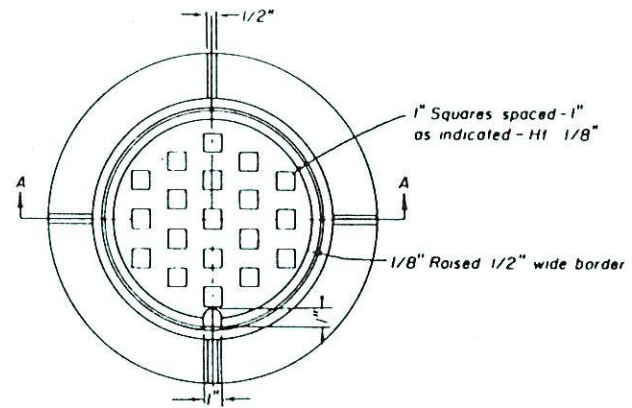


### FLUSHING BRANCH

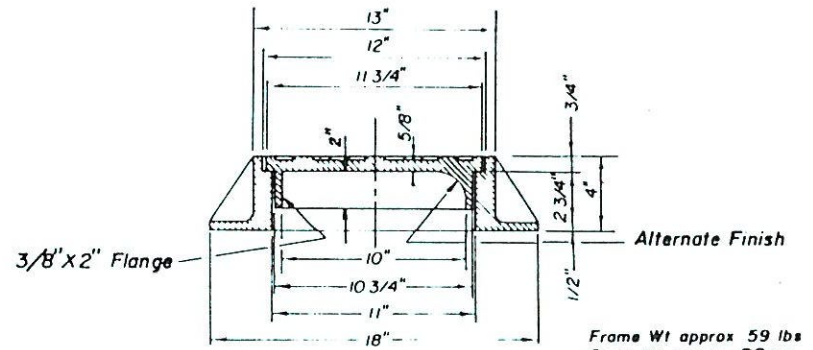
**NOTE**

All pipe and fittings shall be the same size and material as the horizontal pipe to which they connect  
 Joint shall be as specified for the type of pipe used

APPROVED BY:



### TYPICAL 12" TRAFFIC RING & COVER



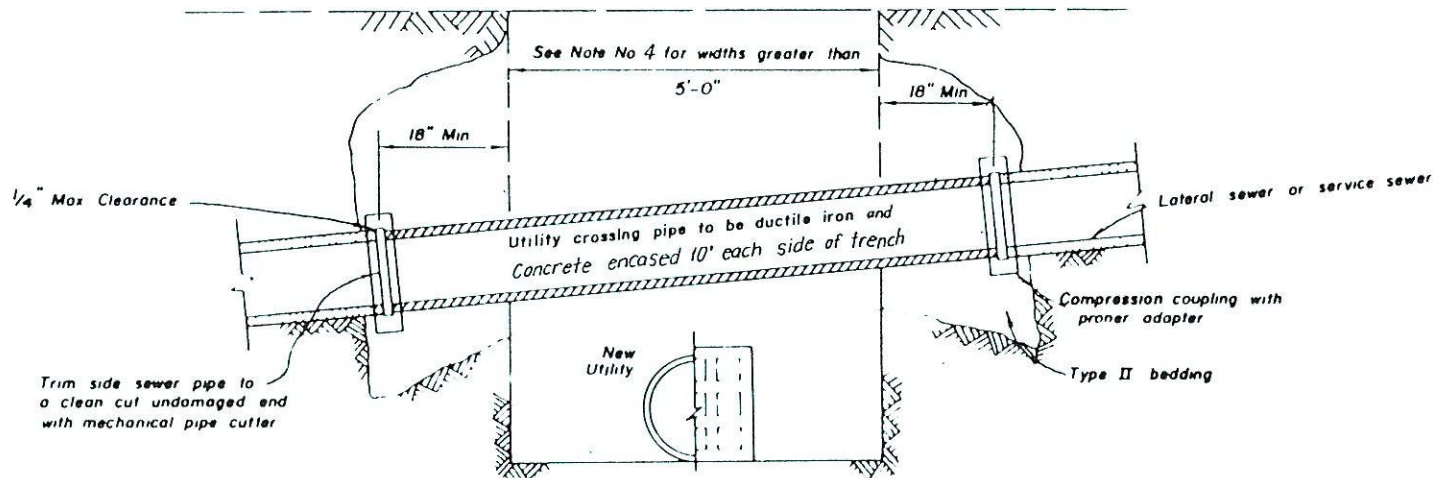
### SECTION A-A

RANCHO MURIETA  
 COMMUNITY SERVICES DISTRICT

### FLUSHING BRANCH

NO SCALE  
 DATE:  
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S-6



**Notes:**

1. Inside diameter of utility crossing pipe to be the same as the pipe to which it connects.
2. This detail shall apply whenever the lateral or service sewer is cut or damaged when construction passes beneath the lateral or service sewer.
3. Alteration of sewer grades will be permitted only after written permission has been received from the Engineer.
4. Whenever the span, whether caused by trench width or crossing angle of the utility crossing pipe exceeds 5'-0", place Type II bedding to 12" above the pipe and 18" each side of its center line.

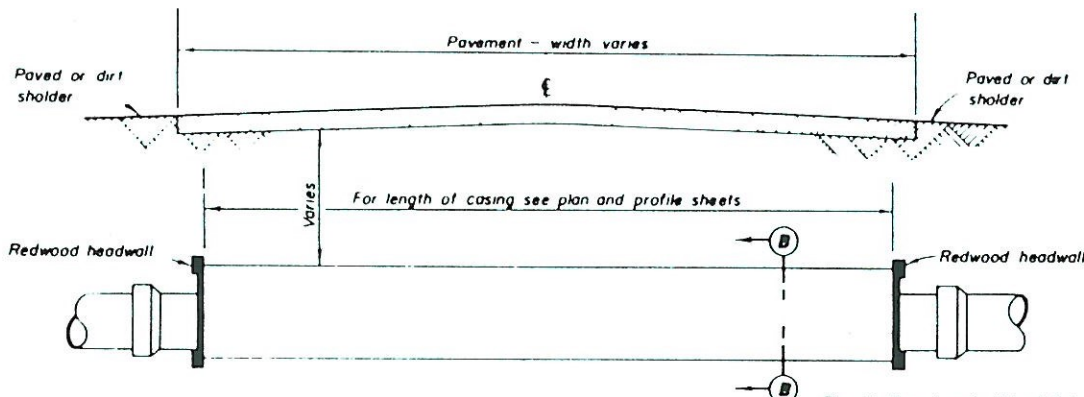
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RANCHO MURIETA  
COMMUNITY SERVICES DISTRICT

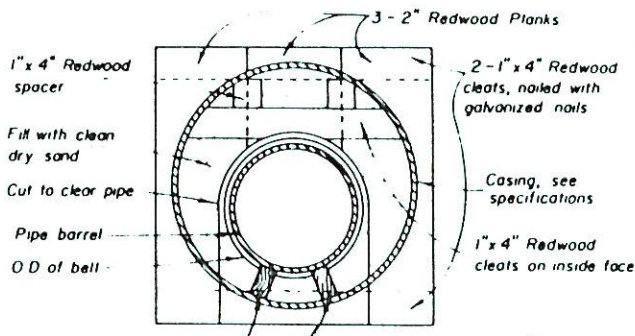
UTILITY CROSSING

NO SCALE  
DATE  
DRAWN BY

S-7



PROFILE



SECTION B-B

Provide 2 redwood skids, 24 to 30 inches in length, near the center of each section of conducted VC sewer pipe. Conducted water pipe shall have two pairs of skids, each 24 to 30 inches in length, centered approximately one-fifth the pipe length from each end. Skids to be of size such that bell clears conductor. Skid height not to be more than 50% more than width. Skids are to be secured to pipe by straps, one at each end. Groove skids for strap clearance.

Note: In lieu of 3-2" redwood planks, headwall may be of redwood plywood of thickness approved by the Engineer.

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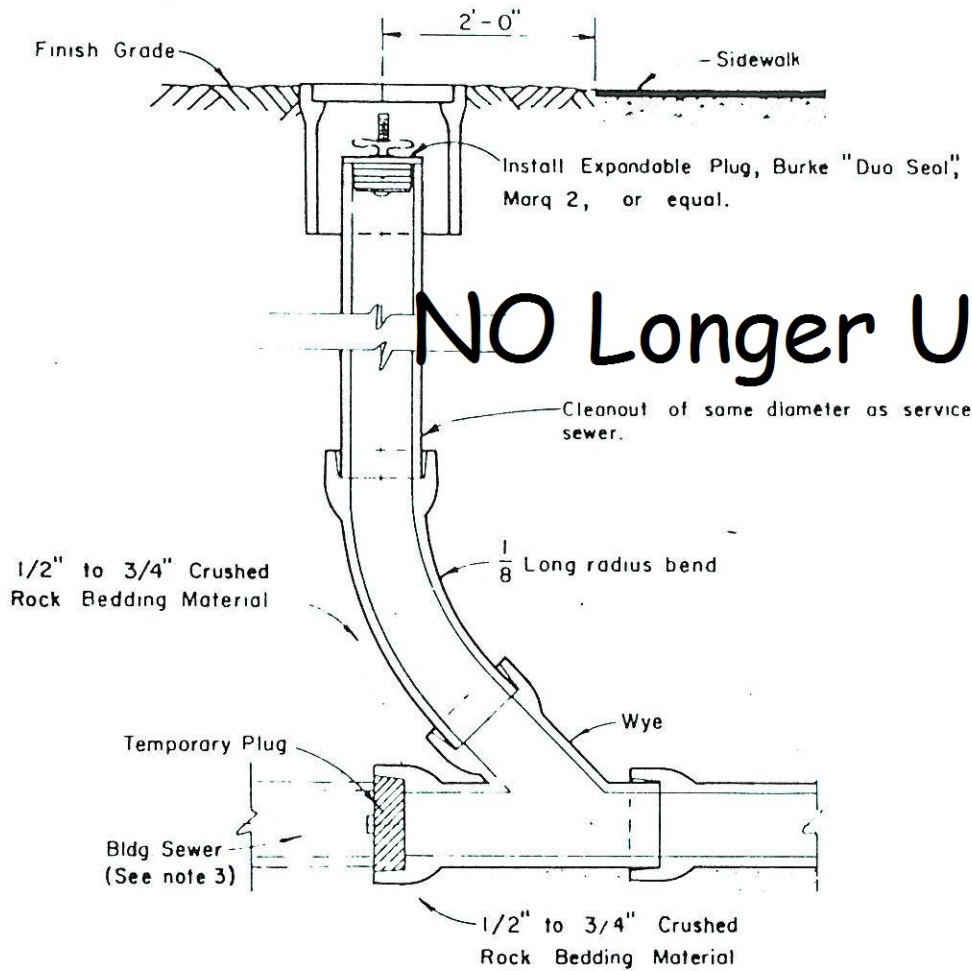
RANCHO MURIETA  
COMMUNITY SERVICES DISTRICT

**CONDUCTOR CASING DETAIL**

NO SCALE  
DATE:  
DRAWN BY

S-8





**NO Longer Used**

1. For 4" services, install round, non-traffic type, concrete or PVC valve box and cover, marked "Sewer". Box inside diameter to be a minimum of 7" and a maximum of 10".
2. For services 6" or larger, install round, concrete, traffic type valve box with cast iron cover to be marked "Sewer".
3. If water main is to be installed at the back of sidewalk, extend service to 7'-0" back of sidewalk; cleanout to grade to remain 2'-0" from back of sidewalk.

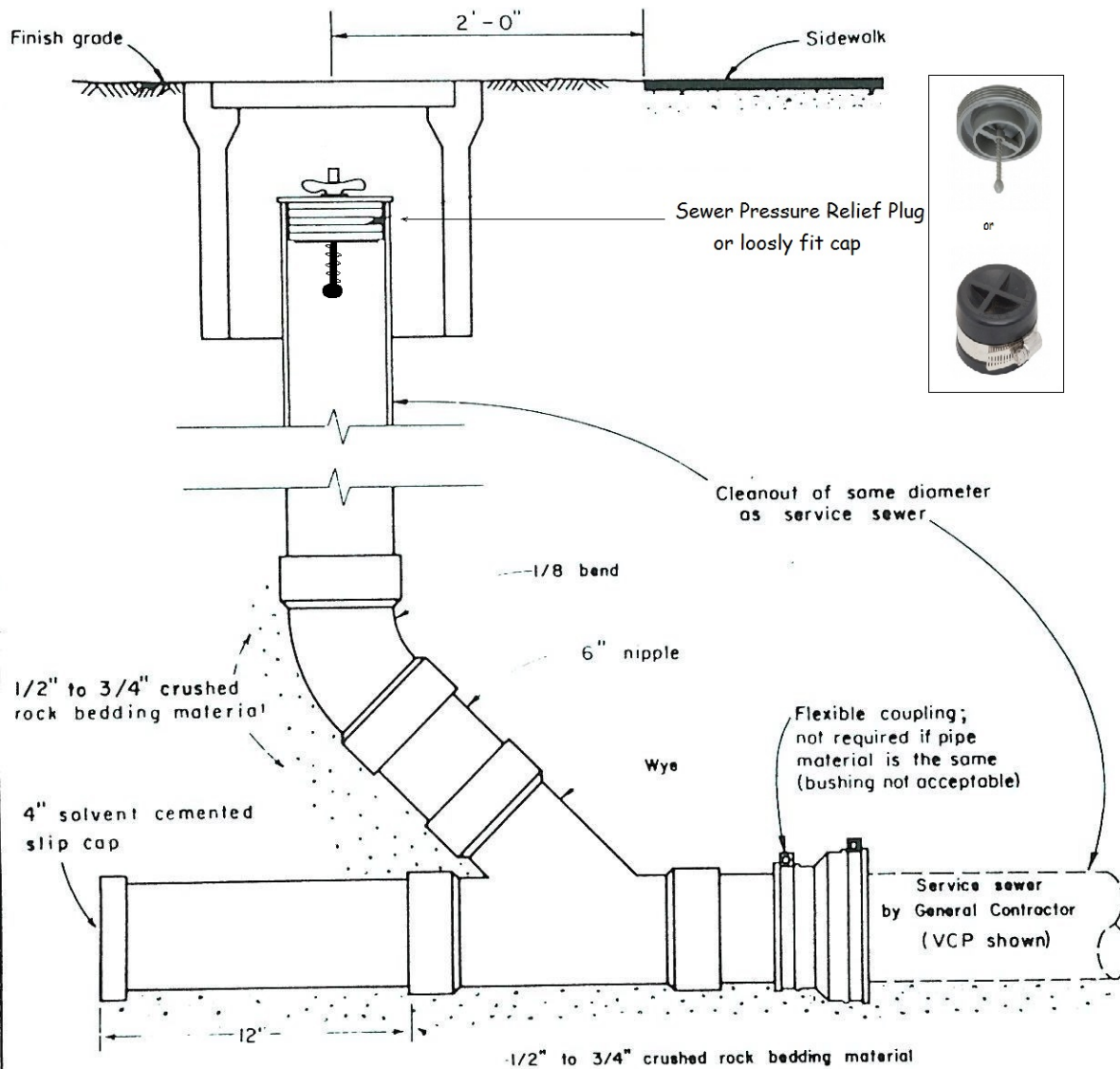
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RANCHO MURIETA  
COMMUNITY SERVICES DISTRICT

VCP  
CLEANOUT TO GRADE

NO SCALE  
DATE  
DRAWN BY

S-9



- 1) Cleanout to grade to be plastic DWV type PVC (ASTM D2665) or ABS (ASTM D2661) with solvent weld joints.
- 2) For 4" services, install round, non-traffic type, concrete or PVC valve box and cover, marked "Sewer". Box inside diameter to be a minimum of 7" and a maximum of 10".
- 3) For services 6" or larger, install round, concrete, traffic type valve box with cast iron cover. Cover to be marked "Sewer".

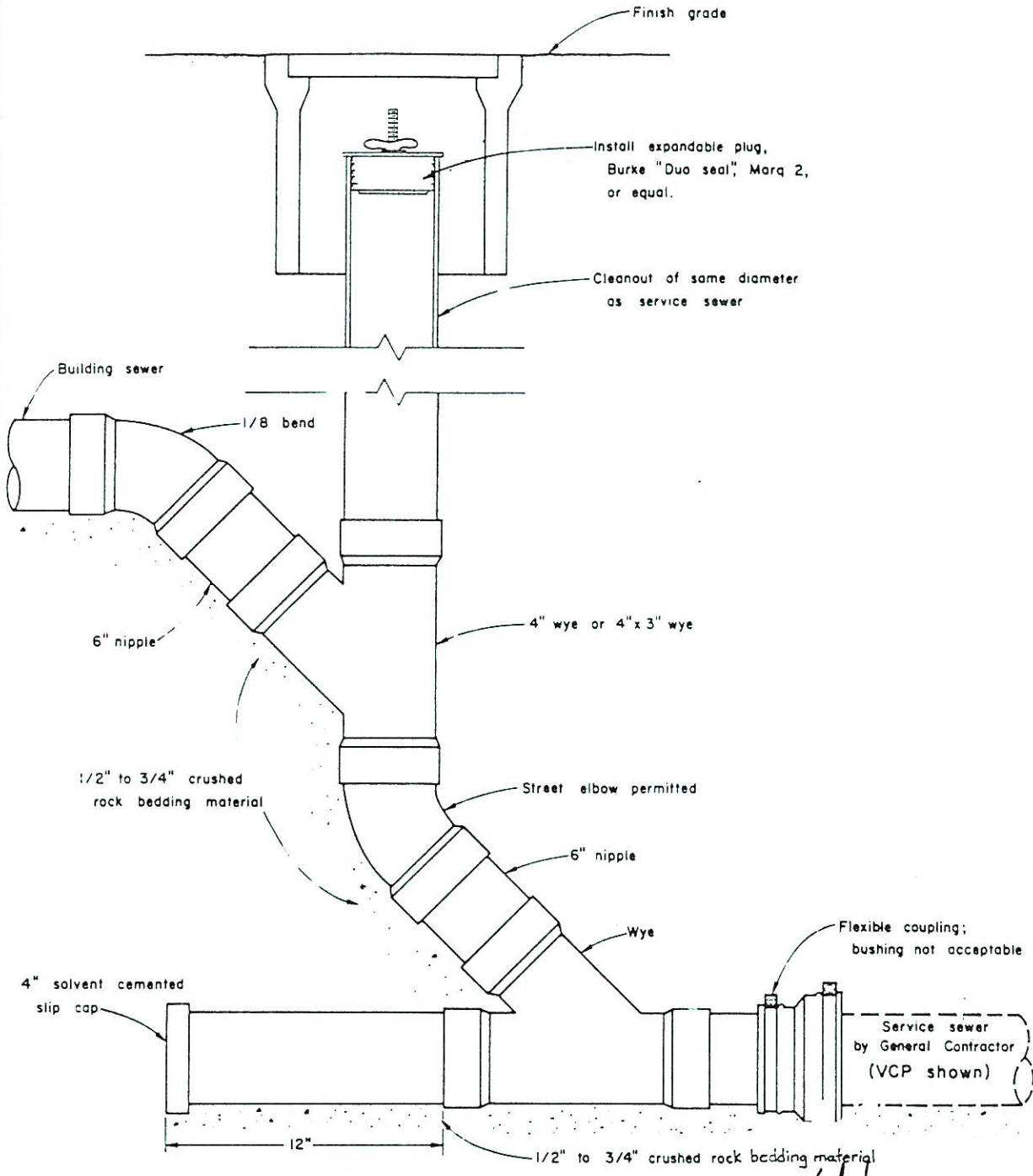
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RANCHO MURIETA  
COMMUNITY SERVICES DISTRICT

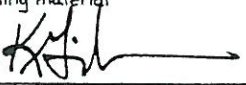
ABS OR PVC  
CLEANOUT TO GRADE

NO SCALE  
DATE:  
DRAWN BY

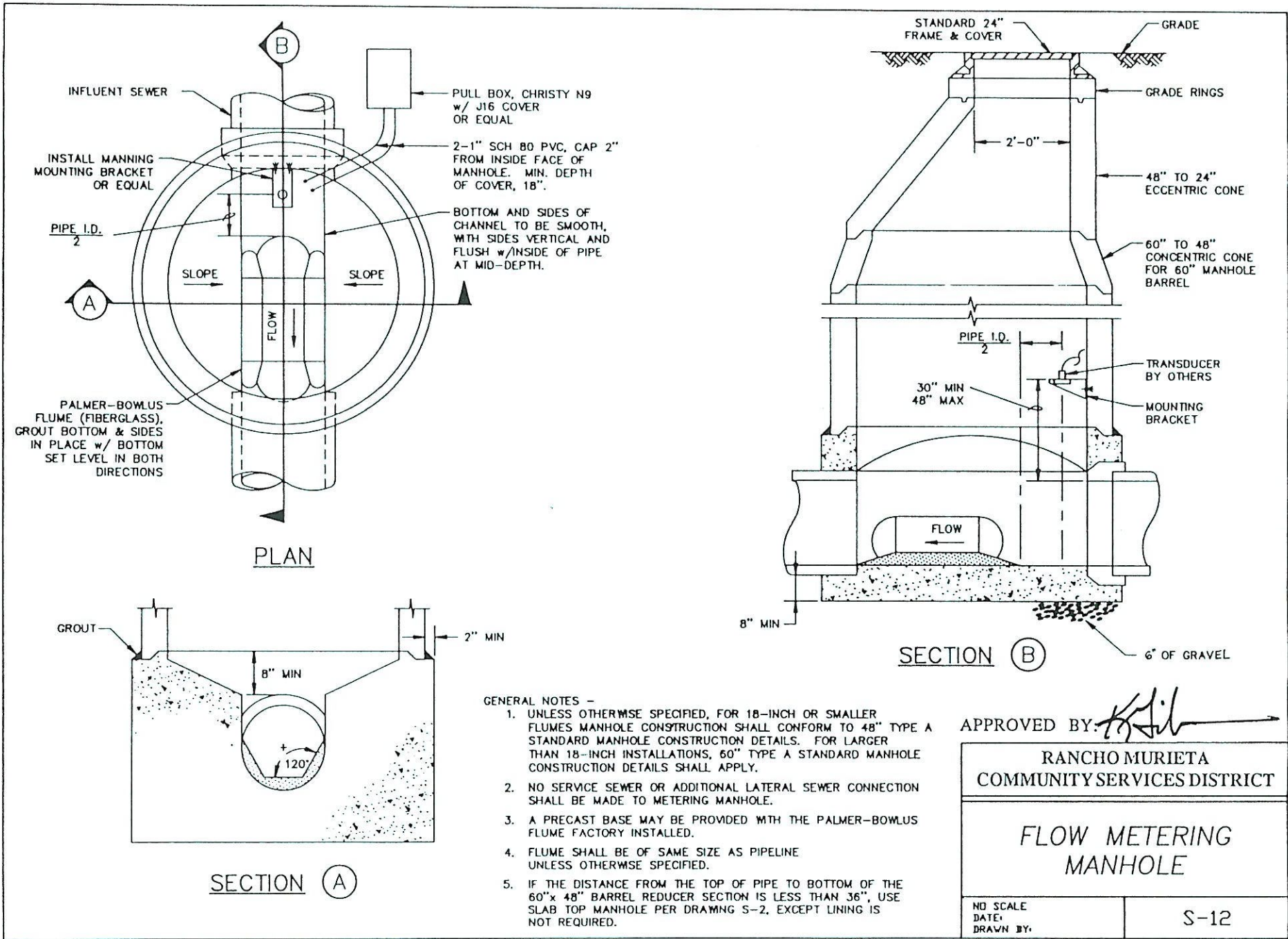
S-10



- 1) Plastic cleanout to grade to be DWV type PVC (ASTM D2665) or ABS (ASTM D2661) with solvent cement joints.
- 2) For 4" services, install round, non-traffic type, concrete or PVC valve box and cover, marked "Sewer". Box inside diameter to be a minimum of 7" and a maximum of 10".
- 3) For services 6" or larger, install round, concrete, traffic type valve box with cast iron cover. Cover to be marked "Sewer".

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<b>RANCHO MURIETA COMMUNITY SERVICES DISTRICT</b>	
<b>ABS or PVC CLEANOUT TO GRADE (BUILDING SEWER CONNECTED TO RISER)</b>	
NO SCALE DATE DRAWN BY	<b>S-II</b>



- GENERAL NOTES -
1. UNLESS OTHERWISE SPECIFIED, FOR 18-INCH OR SMALLER FLUMES MANHOLE CONSTRUCTION SHALL CONFORM TO 48" TYPE A STANDARD MANHOLE CONSTRUCTION DETAILS. FOR LARGER THAN 18-INCH INSTALLATIONS, 60" TYPE A STANDARD MANHOLE CONSTRUCTION DETAILS SHALL APPLY.
  2. NO SERVICE SEWER OR ADDITIONAL LATERAL SEWER CONNECTION SHALL BE MADE TO METERING MANHOLE.
  3. A PRECAST BASE MAY BE PROVIDED WITH THE PALMER-BOWLUS FLUME FACTORY INSTALLED.
  4. FLUME SHALL BE OF SAME SIZE AS PIPELINE UNLESS OTHERWISE SPECIFIED.
  5. IF THE DISTANCE FROM THE TOP OF PIPE TO BOTTOM OF THE 60"x 48" BARREL REDUCER SECTION IS LESS THAN 36", USE SLAB TOP MANHOLE PER DRAWING S-2, EXCEPT LINING IS NOT REQUIRED.

APPROVED BY: *[Signature]*

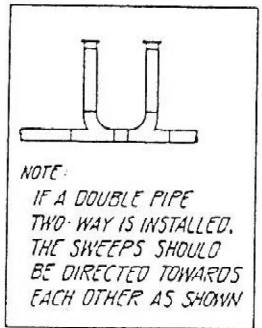
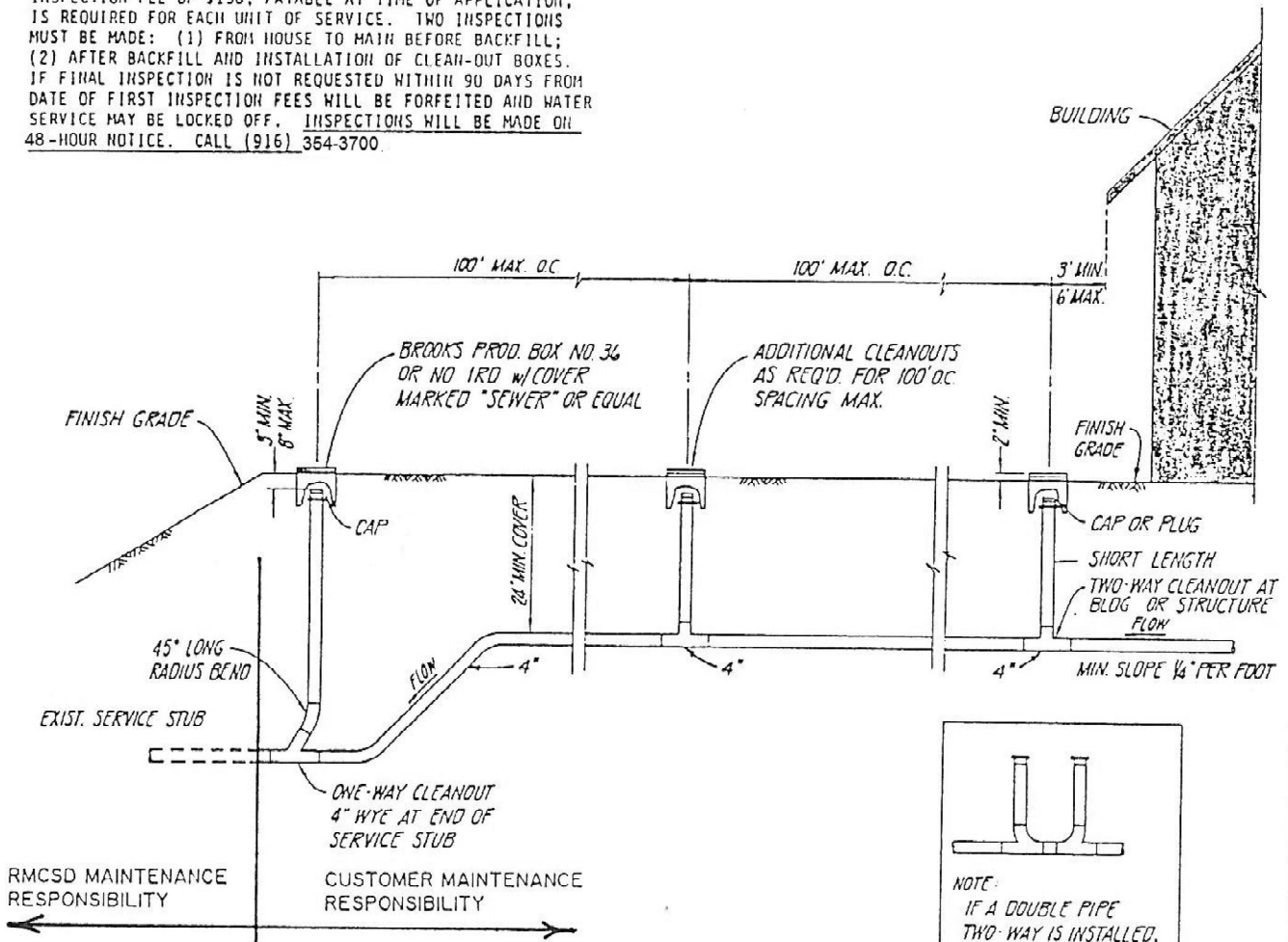
RANCHO MURIETA  
COMMUNITY SERVICES DISTRICT

FLOW METERING  
MANHOLE

NO SCALE DATE: DRAWN BY:	S-12
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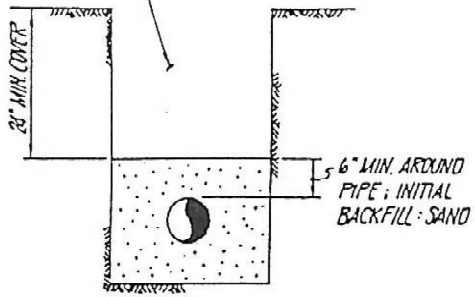
**SEWER SYSTEM AND INSPECTION REQUIREMENTS**

INSPECTION FEE OF \$150, PAYABLE AT TIME OF APPLICATION, IS REQUIRED FOR EACH UNIT OF SERVICE. TWO INSPECTIONS MUST BE MADE: (1) FROM HOUSE TO MAIN BEFORE BACKFILL; (2) AFTER BACKFILL AND INSTALLATION OF CLEAN-OUT BOXES. IF FINAL INSPECTION IS NOT REQUESTED WITHIN 90 DAYS FROM DATE OF FIRST INSPECTION FEES WILL BE FORFEITED AND WATER SERVICE MAY BE LOCKED OFF. INSPECTIONS WILL BE MADE ON 48-HOUR NOTICE. CALL (916) 364-3700.



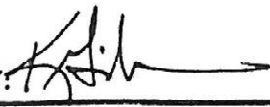
- NOTE:
1. CAST IRON LIDS ON CLEANOUT WILL BE USED IN TRAFFIC AREAS.
  2. ALL PIPE AND CLEAN-OUTS WILL BE 4".
  3. Customer is responsible for their sewer line up to and including connection to District sewer stub.

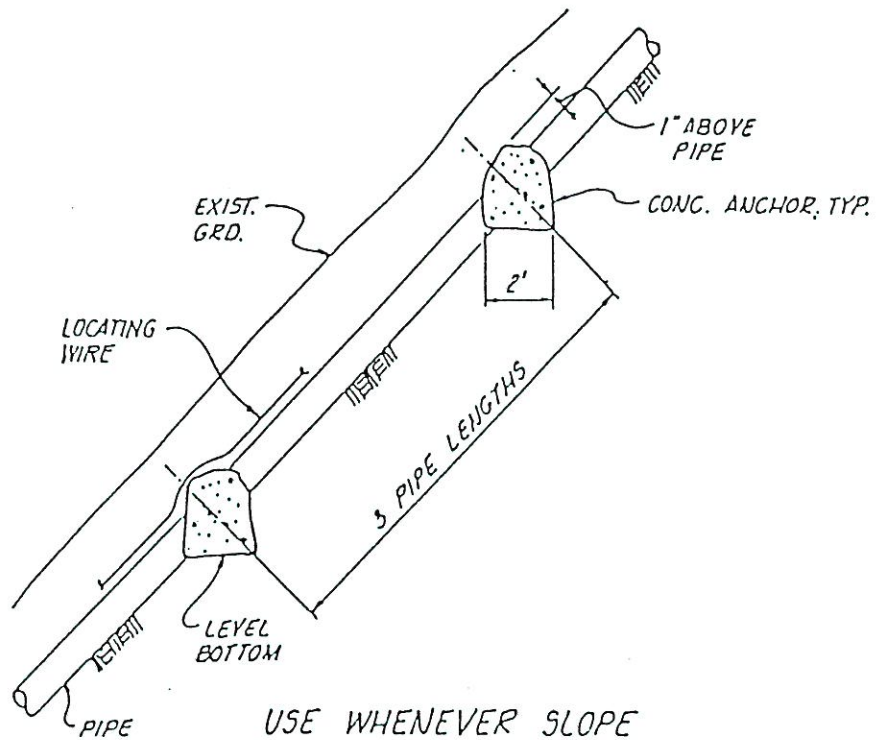
BACKFILL WITH JOBSITE EXCAVATED LOOSE MATERIAL MAX. OF 1" IN SIZE AND FREE OF ORGANIC MATERIAL, 90% COMPACTION



**TRENCH DETAIL**  
NO SCALE

<b>RANCHO MURIETA COMMUNITY SERVICES DISTRICT</b>	
SEWER SERVICE DETAIL ONE-WAY & TWO-WAY CLEANOUT FULL SEWERAGE	
Scale NONE Date Drawn By	S-13

APPROVED BY: 



USE WHENEVER SLOPE  
EXCEEDS 0.35 ft/ft.

WATER STOPS & PIPE ANCHORS  
N.T.S.

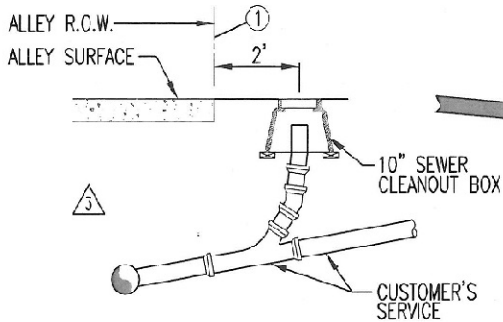
RANCHO MURIETA  
COMMUNITY SERVICES DISTRICT

WATER STOPS &  
PIPE ANCHORS

APPROVED BY:

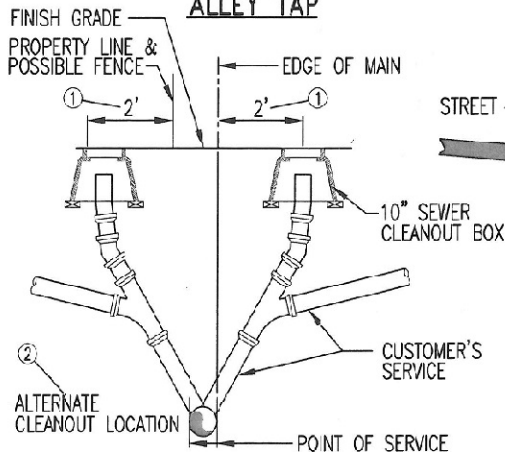
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Date  
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S-14



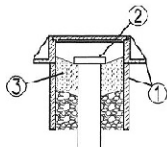
①— IF BUILDING IS ON R.O.W. LINE, CONSTRUCT CLEANOUT WITHIN 2' OF FACE OF BUILDING. ⚠

**ALLEY TAP**



- ①— WHEN APPLICABLE, ADJUST CLEANOUT LOCATION TO AVOID CONFLICT WATER MAIN. ⚠
- ②— USE ALTERNATE CLEANOUT LOCATION WHEN MAIN IS LOCATED OUTSIDE PROPERTY LINE. ⚠

**EASEMENT TAP**

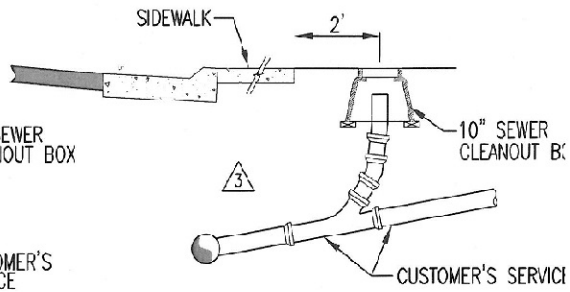


- ①— CAST-IRON CLEAN-OUT AND COLLAR ASSEMBLY
- ②— 4" OR 6" DIA. MECHANICAL WING NUT PLUG, CHERNE INDUST., OR APPROVED EQUAL. (PROVIDE 3" CLEARANCE BETWEEN TOP OF CAP AND BOTTOM OF COVER)
- ③— GROUT 2" THICK MINIMUM, SLOPE TO TOP OF PIPE.

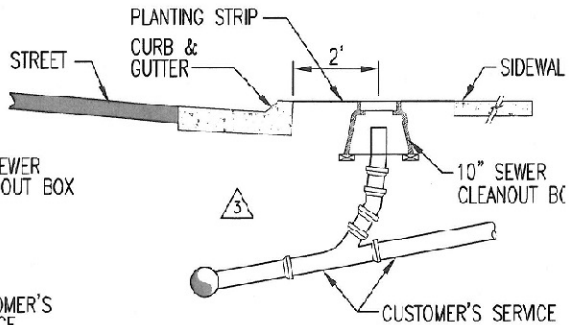
**CAST-IRON CLEAN-OUT BOX**

**NOTES:**

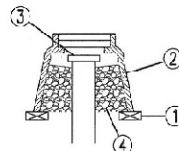
- 1. CLEANOUTS LOCATED IN NON-TRAVELED WAY SHALL HAVE CARSON BOX OR APPROVED EQUAL. ⚠
- 2. CLEANOUTS IN TRAVELED WAY SHALL HAVE CAST IRON CLEANOUT BOX AS SHOWN ABOVE. ⚠



**STREET TAP WITH SIDEWALK**



**STREET TAP WITH PLANTING STRIP**



- ①— PROVIDE 2" x 3" x 3" REDWOOD, PRESSURE TREATED OR MASONARY SUPPORT.
- ②— 10" SEWER CLEAN-OUT BOX WITH LOCK BOLT COVER (GREEN COLOR) CARSON IND. MODEL NO. 910-10 BODY w/ 910-3 LID OR APPROVED EQUAL. ⚠
- ③— 4" OR 6" DIA. MECHANICAL WING NUT PLUG, CHERNE INDUST., OR APPROVED EQUAL. (PROVIDE 3" CLEARANCE BETWEEN TOP OF CAP AND BOTTOM OF COVER)
- ④— BACKFILL IN CONFORMANCE WITH SEC. 26 OF THE STD. SPECS.

**CARSON BOX**

APPROVED BY: *[Signature]*

<b>RANCHO MURIETA COMMUNITY SERVICES DISTRICT</b>	
<b>TYPICAL SEWER SERVICE LOCATIONS</b>	
Scale NONE Date Drawn By	<b>S-15</b>