

**SPECIAL PROVISIONS  
FOR THE  
CONSTRUCTION OF SANITARY SEWERS**

**CITY OF SAN JUAN CAPISTRANO  
SAN JUAN CAPISTRANO, CALIFORNIA**

**ADOPTED BY RESOLUTION NO. 78-2-15-3  
ON FEBRUARY 15, 1978, BY THE CITY COUNCIL  
OF THE CITY OF SAN JUAN CAPISTRANO,  
CALIFORNIA.**

PUBLIC WORKS CONSTRUCTION STANDARDS MODIFICATION

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SAN JUAN CAPISTRANO, CALIFORNIA, MODIFYING THE PUBLIC WORKS CONSTRUCTION STANDARDS BY ESTABLISHING SPECIAL PROVISIONS FOR SANITARY SEWER CONSTRUCTION IN ACCORDANCE WITH THE PROVISIONS OF ORDINANCE NO. 349; STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

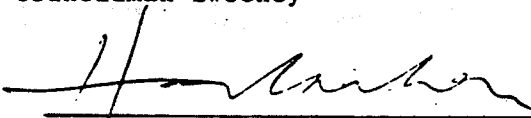
WHEREAS, the City Council has adopted Ordinance No. 349, Standard Specifications for Public Works Construction; Section 2 of said Ordinance permitting the modification or amendment to the approved Public Works Construction Standards; and,

WHEREAS, the City Engineer has established that the Special Provisions for the Construction of Sanitary Sewers are comparable to existing construction methods throughout the County of Orange. Three (3) copies have been and now are filed in the office of the City Clerk for examination.


NOW, THEREFORE, BE IT RESOLVED that the effective date of this Resolution shall be March 2, 1978.

PASSED, APPROVED AND ADOPTED this 15th day of February, 1978, by the following vote, to wit:

- AYES: Councilmen McDowell, Friess, Nash and Mayor Heckscher
- NOES: None
- ABSENT: Councilman Sweeney

  
 \_\_\_\_\_  
 YVON O. HECKSCHER, MAYOR

ATTEST:

  
 \_\_\_\_\_  
 CITY CLERK

STATE OF CALIFORNIA            )  
 COUNTY OF ORANGE            )    ss.  
 CITY OF SAN JUAN CAPISTRANO )

I, MARY ANN HANOVER, City Clerk of the City of San Juan Capistrano, California, DO HEREBY CERTIFY that the foregoing is a true and correct copy of Resolution No. 78-2-15-3, adopted by the City Council of the City of San Juan Capistrano, California, at a regular meeting thereof held on the 15th day of February, 1978.

(SEAL)

  
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 MARY ANN HANOVER, CITY CLERK

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THE CONSTRUCTION OF SANITARY SEWERS SHALL BE DONE IN ACCORDANCE WITH THE PROVISIONS OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 1976 EDITION, AND THESE SPECIAL PROVISIONS.

A COPY OF EACH SHALL BE MAINTAINED AT THE PROJECT SITE AT ALL TIMES.

## SECTION I

### EXECUTION OF WORK

#### I-01 TRENCH EXCAVATION AND BACKFILLING:

- A. Excavation: Excavation for trenches shall include the removal of all material of any nature for the installation of the pipes or structure and shall include the construction of trench shoring and timbering and all necessary installations for dewatering as required.

The Contractor shall familiarize himself with, and shall conform to the regulations of the "General Construction Safety Orders" and "Trench Construction Safety Orders" of the State of California, Department of Industrial Relations, Division of Industrial Safety.

Whenever the trench excavation is made in undisturbed ground and the earth is of a stable, well-consolidated material, tunnels connecting open trenches may be constructed provided the roof of the tunnel slopes at a minimum of one (1) foot vertical to three (3) feet horizontal and a minimum clear space of two (2) feet is allowed above the top of the pipe.

Bell holes shall be excavated in the bottom of the trench, when required, of sufficient size and depth to permit constructing the joints. Between bell holes, the entire length of the pipe shall have a uniform bearing upon undisturbed soil.

Excavations for manholes shall be of sufficient width to leave at least six (6) inches in the clear between their outer surface and the embankment or timbering which may be used.

- B. Minimum Width of Trench: The minimum width of pipe trenches, measured at the crown of the pipe, shall not be less than twelve (12) inches greater than the exterior diameter of the pipe, exclusive of bells, and the minimum base width of such trench shall not be less than twelve (12) inches greater than the exterior diameter of the pipe exclusive of special structures or connections, and such minimum width shall be exclusive of all trench timbers.
- C. Maximum Length of Open Trench: Except by special permission by the Engineer, the trench shall not be open for a total of more than 500 feet at any given time for the total project.

- D. Maximum Width of Trench: The maximum allowable width of trench for all pipelines measured at the top of the pipe shall be the outside diameter of the pipe (exclusive of bells or collars) plus sixteen (16) inches, and such maximum shall be inclusive of all timbers. A trench wider than the outside diameter plus sixteen (16) inches may be used without special bedding if the Contractor, at his expense, will furnish pipe of the required strength to carry the additional trench load. Such modifications shall be submitted to the Engineer and approved in writing.

Whenever such maximum allowable width of trench is exceeded for any reason except as provided for in the plans or specifications, or by the written direction of the Engineer, the Engineer may require, at his discretion, that the Contractor, at his expense for all labor and materials, cradle the pipe in Class 420-C-2000 concrete.

- E. Backfilling Excess Trench Depth: If any trench, through the neglect of the Contractor, be excavated below the bottom grade as required by the profiles, it shall be refilled to grade, at the Contractor's expense for all labor and material, with clean sand or sand and gravel well tamped in place.
- F. Bracing Trenches: The sides of the trenches shall be supported with plank sheeting and bracing, and all tunnels shall be timbered wherever the ground will not stand unsupported. In all cases the sheet piling or timbering shall be redrawn as the work progresses, in such manner as to prevent as much as possible the caving inward of the sides of the trench.

All excavations shall be done in accordance with all laws and ordinances of the County or State as they may apply.

- G. Crushed Rock Bedding: Where ground water is encountered or the native material does not afford a sufficiently solid foundation for pipe sub-grade as specified above, the Contractor shall excavate to such depth below sub-grade as the Engineer decides is necessary and shall construct a stable base by placing crushed rock bedding upon which sub-grade can be prepared. Crushed rock for bedding shall be two-inch (2") maximum size.
- H. Pipe Zone Backfilling: The pipe zone shall be considered to extend from the grade line to a minimum of twelve (12) inches above the top of the pipe. In the pipe zone, the backfill material shall consist of sand or select backfill material. Placing of the backfill material in the pipe zone shall be as determined by the Engineer. Particular attention is to be given to the underside of the pipe and fittings in order to provide a firm support along the full length of the pipe.

I. Pipe Zone to Top of Trench Backfilling: From the top of the selected backfill to the top of the trench, the material for backfill shall be free from stones or lumps of material exceeding three (3) inches in greatest dimension. This backfill material shall be compacted to a minimum relative density of ninety (90) percent of maximum. This compaction shall be obtained by means of water settlement or tamping, depending on the nature of the material. Sandy, granular soils may be compacted by means of water settlement. The area to be backfilled by water settlement shall be diked at suitable intervals so that water will be impounded to sufficient depth so that earth pushed or shoveled into the area will be falling into water at all times and will be completely saturated. Soils not having a sand or granular nature shall be backfilled and compacted by either of the following methods:

1. The material shall be placed in layers not exceeding eight (8) inches in thickness, loose measurement, and each layer compacted to a relative density of ninety (90) percent or more, of maximum by means of hand or pneumatic tampers.
2. The material shall be placed in layers measuring at least four (4) feet in thickness, loose measurement, and each layer compacted to a relative density of ninety (90) percent or more.

On steep slopes and other locations where compaction by flooding is not practicable, the backfill shall be compacted by means of either of the above tamping methods.

Backfill material placed within twelve (12) inches or less of base of pavement, sidewalk, curb, or concrete structure, shall have an expansion, when saturated with water, of less than one and one-half (1-1/2) percent, and a minimum compacted density of ninety (90) percent of maximum. Any excavated material which does not conform to these specifications shall not be used for this portion of the backfill and new material conforming to these requirements shall be obtained and placed at the Contractor's expense.

## I-02 PROTECTION OF EXISTING UTILITIES:

- A. General: Utilities for the purposes of these specifications shall be considered as including but not limited to: Pipelines, conduits, transmission lines, and appurtenances of "Public Utilities" (as defined in the Public Utilities Act of the State of California) and those of private industry, businesses, or individuals solely for their own use or for use of their tenants; and storm drainage, sanitary sewers, street lighting, and traffic signal systems. The

accuracy or completeness of the utilities indicated on the drawings is not guaranteed. Service connections to adjacent property may or may not be shown on the drawings. It shall be the responsibility of the Contractor to determine the exact location of all utilities and their service connections. The Contractor shall make his own investigations as to the location and type of existing utilities and their appurtenances and service connections which may be affected by the contract work and shall notify the Engineer as to any utility located by him which has been incorrectly shown or omitted from the drawings.

- B. Responsibility of the Contractor: The Contractor shall be held responsible for all costs, for the repair of any and all damage to the contract work or to any utility (whether previously known or disclosed during the work), as may be caused by his operations. Utilities not shown on the drawings to be relocated or altered by others, shall be maintained in place by the Contractor. At the completion of the contract work, the Contractor shall leave all utilities and appurtenances in a condition satisfactory to the owners and the City.

### I-03 PIPE LAYING:

After the trench for the pipe has been excavated to the proper line and grade in the manner before specified, the pipe shall be laid therein in the following manner:

Before lowering, and while suspended or standing vertically at trench side, the pipe shall be inspected for defects and rung with a light hammer or other metal object to detect cracks. Any defective, damaged, or unsound pipe shall be rejected. Before any pipe is lowered into place, the trench bottom shall be prepared so that each length of pipe shall have a firm and uniform bearing over the entire length of the barrel. All adjustments in line and grade shall be made by scraping away or filling and tamping in under the barrel of the pipe and not wedging or blocking. The faces of all spigot ends and all shoulders in the hubs or sockets must be true and brought into firm contact, and any lumps and excrescences on said faces shall be cut away before the pipe is lowered into the trench. The pipe shall be laid, without break, upgrade from structure to structure and with the socket upgrade. Whenever the work ceases for any reason, the unfinished end of the pipeline shall be securely closed with tight fitting plug or cover. The interior of each pipe, after being laid, shall be thoroughly cleaned.

- A. Jointing Vitrified Clay Pipe: Mechanical compression joints for vitrified clay pipelines shall be assembled in accordance with the manufacturer's recommendation. Care shall be taken to insure that a tight compression joint is effected upon assembly.

**B. Jointing Cast-Iron Pipe:**

1. **Lead Joints:** The spigot end of the pipe shall be inserted for the full length of the socket in such a manner that the inside surface of the pipe shall be flush and even. For leaded joints a gasket of oakum shall be driven tightly into the joint from the outside using a caulking iron, leaving a depth of at least 2-1/2 inches of the annular space clear to receive the lead. The oakum shall be so placed that a gasket of uniform thickness is obtained. It shall be driven back solidly so that there are no loose ends protruding. A suitable runner mudded with clay shall then be placed around the pipe and the ends of the runner shall be clamped, leaving an opening at the top of the pipe slightly off center and sufficiently large to allow the lead to be poured. The lead shall be heated to a temperature such that when stirred it will show a rapid change in color. Scum shall be removed before pouring. Lead shall be poured at a good speed to fill the joint completely in one continuous operation. The runner shall not be removed until the lead has solidified. After the runner has been removed, the lead shall be thoroughly caulked in such a manner as to secure a watertight joint without overstraining the cast iron bell. The face of the completed joint shall be flush with the face of the bell. Spongy or imperfectly filled joints shall be burned out and repoured.
2. **Mechanical Joints:** Joints shall be in accordance with AWWA C-111-64. When tightening bolts the gland is to be brought up toward the pipe flange evenly, maintaining approximately the same distance between the gland and the face of the flange at all points around the socket to provide an effective joint seal.
3. **Neoprene-Ring Joints:** Between lengths of cast iron pipe, neoprene gasket joints can be used. Joints shall be "Tyton" as manufactured by the United States Pipe and Foundry Company or approved equal. Installation shall be in accordance with the Manufacturer's recommendations. Gasket seats and neoprene gaskets shall be thoroughly cleaned before assembly. The completed joint shall have a uniform contact by the gasket between the outer surface of the spigot and the gasket seat of the bell.

**C. Horizontal Separation:** See Standard Drawing S-5.

**D. Vertical Separation:** Whenever a sanitary sewer, including house laterals, must cross a pressure water main, the sewer shall be of one of the following types of construction:

Class 150 or heavier cast-iron pipe with hot-dip bituminous coating and with lead or mechanical joints.

Vitrified clay pipe with reinforced concrete encasement, which encasement shall have a minimum thickness of 6 inches.

Vitrified clay pipe within a continuous steel casing, which casing shall have a thickness of not less than 1/4 inch and with all voids between sewer pipe and casing pressure grouted with sand-cement grout.

If the sewer is above the water main, the special construction shall extend a sufficient distance on both sides of the crossing to provide 10 feet of horizontal clearance with the water main. If the sewer is located below the water main and within a vertical distance of 3 feet clearance distance, the special construction shall extend a sufficient distance on both sides of the crossing to provide 4 feet of horizontal clearance with the water main. These construction requirements shall not apply to those house laterals that cross below a pressure water main.

- E. Siphon Criteria: Siphons are unacceptable to the City unless extremely unusual circumstances prevail.

#### I-04 MANHOLES:

Manholes shall be constructed of precast reinforced concrete sections. The bottoms of all such structures are to be formed of concrete of the full thickness shown on the plans and the concrete shall be proportioned as herein before specified. The inside bottom of the manholes shall rise above the footing a distance equal to the diameter of the largest pipe entering or leaving the manhole, and the flow-through channel shall conform to the inverts of the sewer pipes. The surface of the channel shall be troweled to a smooth and even surface. Manhole steps shall be uniformly spaced at a maximum of 16 inches with the top step placed just under the manhole frame. The lowest step shall be placed not more than 24 inches above the shelf. The top step shall project 3 inches inside the manhole and all others 5 inches. The tops of all manholes located in paved areas shall be set flush with final paving grade. The tops of manholes located in improved but unpaved areas shall be set to be even with finished grade. Tops of manholes and cleanouts located in unimproved areas shall be set to prevent the entry of surface water as directed by the Engineer.

Precast manhole sections shall be laid concentrically to provide a smooth interior manhole surface. Joints shall be completely filled with mortar to provide watertight seals.

### I-05 CONNECTION TO EXISTING MANHOLES:

In the locations as shown on the drawings the Contractor shall break into existing manholes structures and install the new inlet lines as specified.

New flow-through channels shall be constructed in each manhole base to accommodate the new sewer lines. Smooth transitions shall be installed from the inverts of the newly installed pipes to the existing manhole outlets.

Openings in the sides of the manholes shall be sufficient to permit the inserting of the sewer pipes and the forming of 5-sack grout around the newly installed pipes. Other details shall be in accordance with the Standard Drawings.

### I-06 HOUSE CONNECTIONS:

The term "house connection" as used in these specifications or on the plans is used to designate a lateral sewer, laid from a main sewer to a point at the property line, or other location, as shown on the plans, from which sewer service can be obtained by proper extension. The house connection shall be constructed on an unyielding foundation, with joints closely and accurately fitted, true to line, and on a straight grade from the bend joining the main sewer to their upper ends, unless otherwise indicated on the plans. House connections shall not be laid on a slope greater than 45 degrees from a horizontal line unless required or approved by the Engineer. Wyes for house connections shall be installed as specified below. The house connections sewer lines shall be jointed to Y branches by eighth bends. All eighth bends are a part of the house connection sewer line. The top of pipe of the upper end of each house connection shall be built to a depth of 5 feet below the surface of the ground, except where different depths are indicated on the plans. Where a house connection sewer is to be connected with a chimney, all bends leading away from the Y branch are a part of said house connection sewer line. All house connections shall be installed with a suitable stopper of the size of the connection. House connections shall be properly field marked by means of an "S" on the top of the curb or by other means, approved by the Engineer, where necessary.

### I-07 SEPARATE WYES AND TEES:

Commercially manufactured wyes and tees shall be installed where indicated on the plans and/or at such other locations required by the Engineer. Where conditions are such that the connecting pipe cannot be adequately supported on undisturbed earth or tamped backfill, the pipe shall be encased in concrete or supported on a concrete cradle as directed by the Engineer. Concrete required shall be installed at the Contractor's expense. All wye and tee branches not to be joined to house connections shall be installed with a suitable stopper of the size of the wye or tee branch. The Y branches, unless

otherwise specified, will be inclined upward at an angle not greater than 45 degrees from a horizontal line. If so shown on the plans, T branches shall be substituted for Y branches. No Y or T branch shall be placed closer than 5 feet to the centerline of any manhole or clean-out. The use of double wyes will not be permitted except as specified or required for chimneys.

I-08 TESTS FOR LEAKAGE:

Tests for pipeline leakage shall be in accordance with the following specifications:

- A. Leakage Due to Internal Pressure: In sections of line where significant ground water is not present above the average pipe invert, the Engineer shall inspect all pipeline joints after completion of final pipe jointing. Based on this inspection the Engineer shall decide whether water pressure tests or air pressure tests shall be conducted and shall stipulate the pipeline sections to be tested in all sewer lines. If required, water pressure tests shall be conducted as follows:

The pipeline between manholes in the sections to be tested shall be filled with water and the ends of the line plugged with a plumbers plug. Sufficient time shall be permitted to elapse between the filling and the testing of the line to permit absorption of water by the pipe walls. The manhole shall be filled to a level not less than four feet above the level of the sewer in the upper manhole. One gallon of water shall be added and the time required for the water level to return to the mark shall be measured. The time so measured shall not be less than that computed by the following formula:

$$\text{Minimum Time (minutes)} = \frac{7,063}{\text{Diameter (inches)} \times \text{Test Length (feet)}}$$

If the leakage is greater than allowed, the pipe shall be overhauled by the Contractor at his expense until the joints shall hold satisfactorily under this test.

- B. Leakage Due to Infiltration: If, in the construction of a section of the sewer of any size, excessive ground water is encountered, the test for leakage, described in Section "A" above, shall not be used, but instead a test for infiltration shall be conducted for each section of the work if ordered by the Engineer. The end of the sewer at the upper structure shall be closed sufficiently to prevent the entrance of water; pumping of ground water shall be discontinued for at least three days and the section shall be tested for infiltration. The infiltration shall not exceed 1,000 gallons per diameter inch per mile per day of main line sewer being tested and does not include the length of house connections entering that section. Where any infiltration in excess of

this amount is discovered before completion and acceptance of the sewer, the sewer shall be overhauled by the Contractor at his expense and the amount of infiltration reduced to a quantity within the specified amount before the sewer is accepted. Should, however, the infiltration be less than the specified amount, the Contractor shall stop any individual leaks that may be observed, when ordered to do so by the Engineer.

- C. Leakage Measured Using the Air Pressure Method: The Contractor shall plug the ends of the sewer lines being tested with plugs and brace the ends of the pipe where needed. It is recommended that the Contractor make an initial air test of the sewer main after installation and backfill and consolidation of the trench, and prior to installation of the house laterals. Such preliminary tests shall not constitute the final test. The final leakage test shall be conducted in the following manner, and shall include the sewer main and laterals as a unit:

The line shall be supplied with air until 3-1/2 pounds per square inch guage (psig) pressure has been reached, at which time the flow to the pipe shall be shut off. The Inspector will then accurately determine the time loss of 1/2 psig pressure, to 3 psig pressure. The input air pressure shall not exceed 5 psig and shall be regulated by a suitable regulator valve. The air test equipment is to be approved by the Engineer.

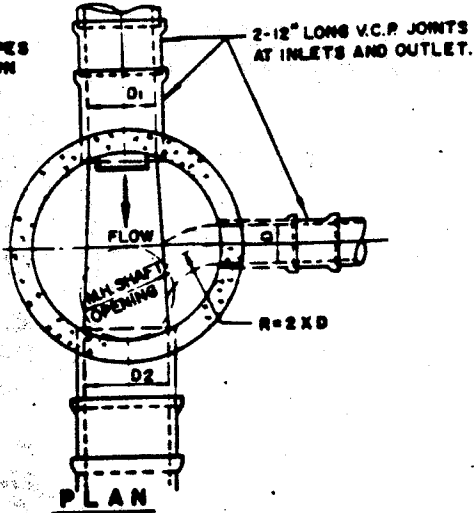
The pressure loss of 1/2 psig pressure shall not occur in a time period of less than 1 minute. If the time loss is less than 1 minute, the Contractor shall make such repairs as are necessary to the satisfaction of the Engineer to eliminate the excessive leakage.

WHEN BROKEN END OF PIPE IS WITHIN MANHOLE, SPEAK BACK FLUSH WITH INSIDE OF MANHOLE WALL AND PLASTER BROKEN EDGES SMOOTH. WHEN UNBROKEN END OF PIPE IS IN MANHOLE, LEAVE SQUARE END AND FILL FILLETS AT UPPER SECTION TO DRAW.

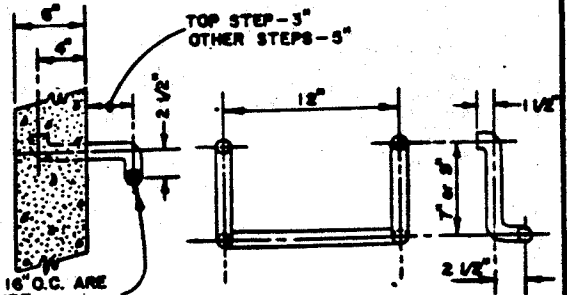
THE CROWN ELEVATION OF ALL PIPES SHALL BE THE SAME AS THE CROWN ELEVATION OF THE LARGEST PIPE UNLESS OTHERWISE INDICATED.

THE FIRST TWO PIPE JOINTS INTO AND OUT OF EACH MANHOLE SHALL BE A 1' SECTION.

MANHOLE SHAFT OPENING TO BE PLACED ON DOWNSTREAM SIDE OF MANHOLE. LADDER RUNGS ARE REQUIRED. SEE SECT. 2-06.

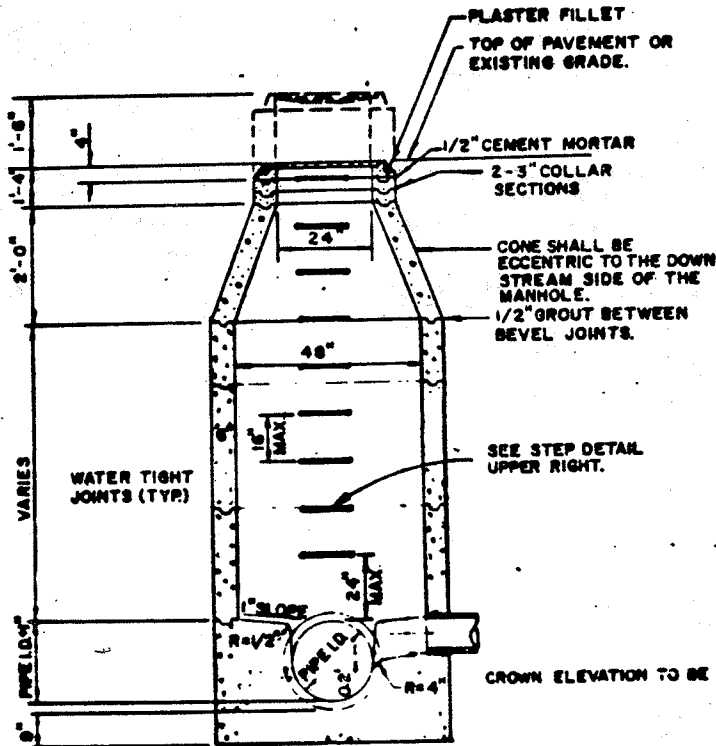


NOTE: FOR FRAME AND COVER DETAILS, REFER TO PLATE S-8, STANDARD MANHOLE FRAME AND COVER.

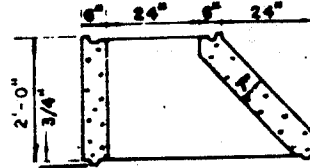


STRUT TYPE SAFETY STEPS SPACED 16" O.C. ARE CAST IN PLACE AT TIME OF MANUFACTURE.

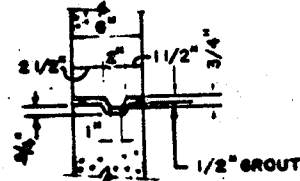
### STEP DETAIL



STEP NOTE: MATERIAL SHALL BE 3/4" DIA. STEEL CONFORMING TO A.S.T.M. A-15 OR A-107 GALVANIZED AFTER FABRICATION IN ACCORD WITH A.S.T.M. A-123.



### CONE DETAIL



### JOINT DETAIL

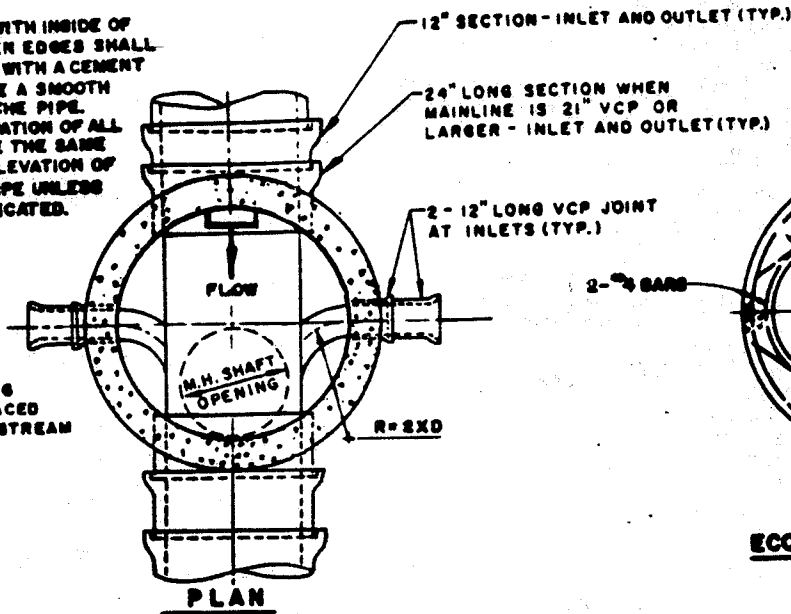
BASE POURED AGAINST UNDISTURBED SOIL.

## STANDARD 48" MANHOLE

NOTE: 48" I.D. MANHOLE TO BE USED ON SEWERS 20" IN DIAMETER AND UNDER.

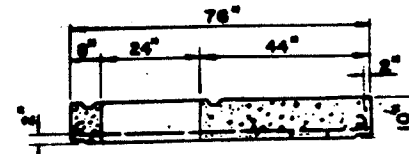
CITY OF SAN JUAN CAPISTRANO	
STANDARD MANHOLE DETAILS	
1978	W. D. Murphy CITY ENGINEER R.C.E. NO. 17629 DATE
S-1	

CUT PIPE FLUSH WITH INSIDE OF MANHOLE. BROKEN EDGES SHALL BE PLASTERED WITH A CEMENT MORTAR TO GIVE A SMOOTH ENTRANCE TO THE PIPE. THE CROWN ELEVATION OF ALL PIPES SHALL BE THE SAME AS THE CROWN ELEVATION OF THE LARGEST PIPE UNLESS OTHERWISE INDICATED.

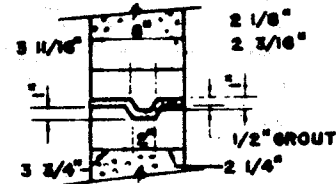
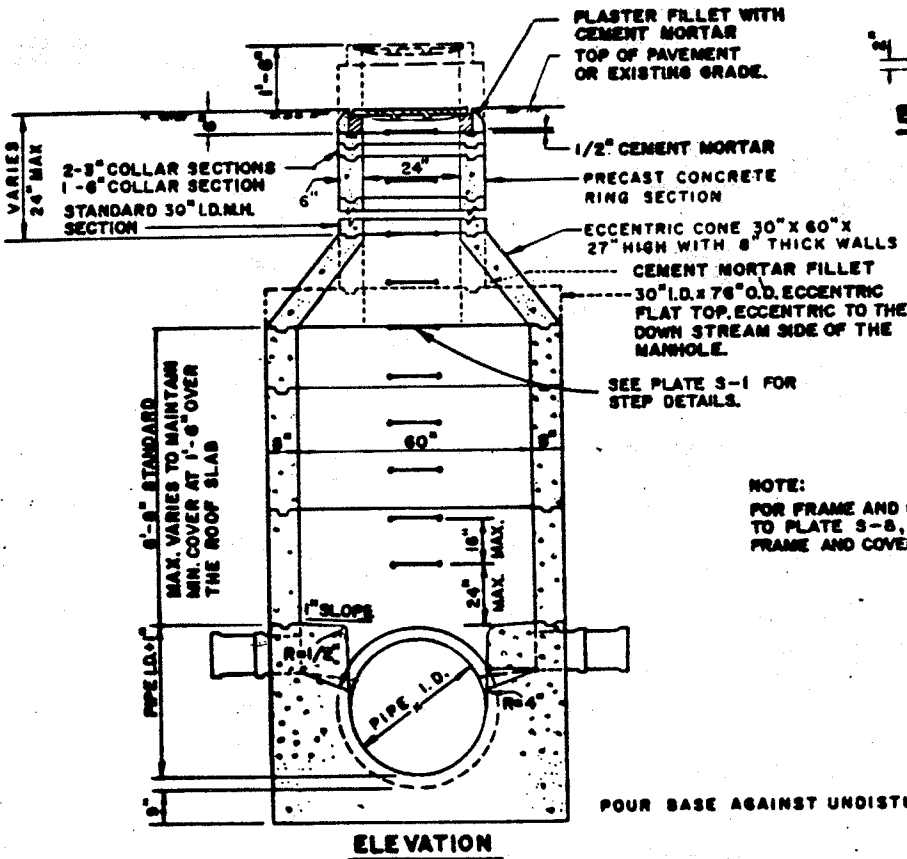


THE MANHOLE SHAFT OPENING SHALL BE PLACED ON THE DOWNSTREAM SIDE OF THE MANHOLE.

**ECCENTRIC FLAT TOP**



**ECCENTRIC FLAT TOP DETAIL**



**JOINT DETAIL**

NOTE:  
 FOR FRAME AND COVER DETAILS REFER TO PLATE S-8, STANDARD MANHOLE FRAME AND COVER.

NOTE: THE STANDARD 60 INCH MANHOLE SHALL BE USED ON SEWERS 24" IN DIAMETER AND LARGER, OTHER SPECIAL CASES, OR WHEN THE INVERT OF THE MANHOLE IS 12' DEEP.

CITY OF SAN JUAN CAPISTRANO  
**STANDARD 60 INCH MANHOLE**

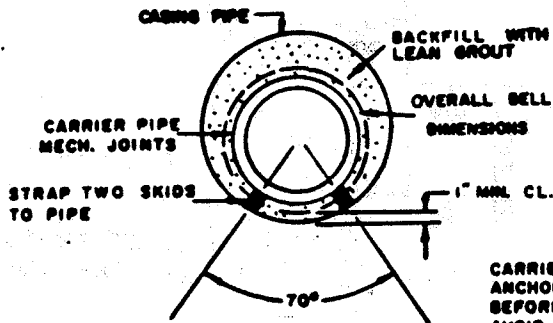
1978

*W. D. Murphy*  
 CITY ENGINEER

R.C.E. NO. 17629

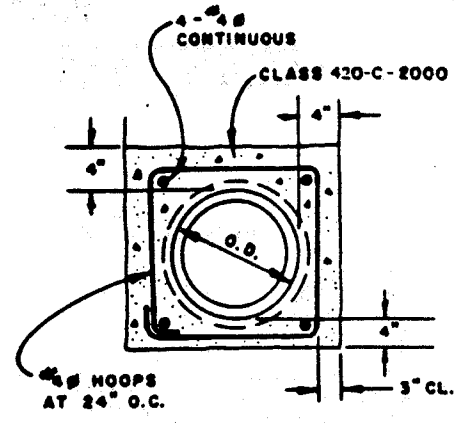
DATE

S-2



CARRIER PIPE SHALL BE ANCHORED AND/OR WEIGHED BEFORE GROUTING TO AVOID FLOATING.

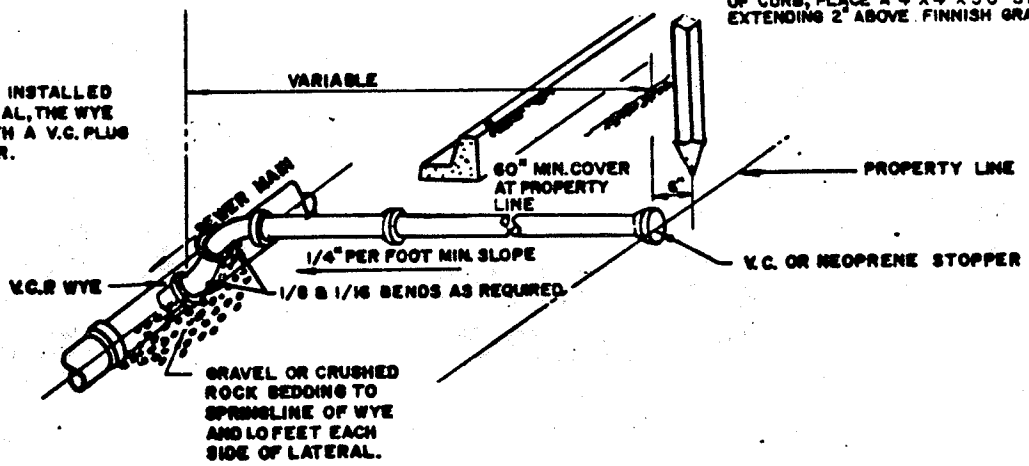
**TYPICAL PIPE CASING**



**REINFORCED CONCRETE ENCASEMENT**

CONCRETE ENCASEMENT SHALL BE EXTENDED TO 3" FROM BELL AND A ONE FOOT SECTION OF PIPE SHALL BE USED BEFORE AND AFTER THE ENCASEMENT. APPLY FORM OIL OR THIN PLASTIC SHEET OR OTHER ACCEPTABLE MATERIAL TO PREVENT BONDING.

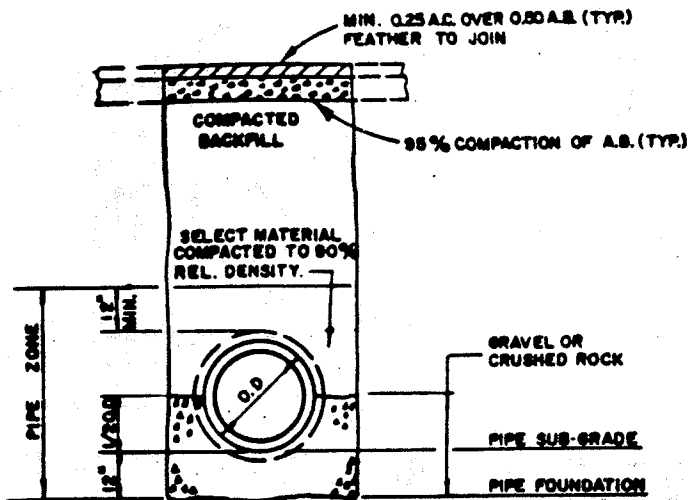
WHERE V.C.P WYE IS INSTALLED WITHOUT HOUSE LATERAL, THE WYE SHALL BE PLUGGED WITH A V.C. PLUG OR NEOPRENE STOPPER.



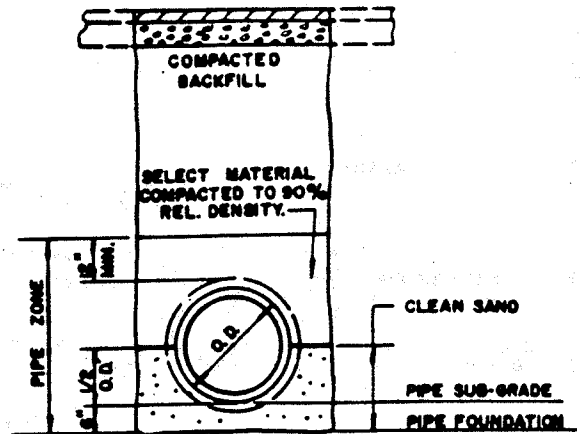
LOCATE SEWER WITH A 1-1/2" HIGH "S" CHISEL IN TOP OF CURB WHERE THE LATERAL CROSSES UNDER THE CURB. WHERE NO CURB EXISTS OR WHERE THE LATERAL ENDS 8' OR MORE BACK OF CURB, PLACE A 4" X 4" X 3'0" STAKE EXTENDING 2" ABOVE FINISH GRADE.

**TYPICAL HOUSE LATERAL**

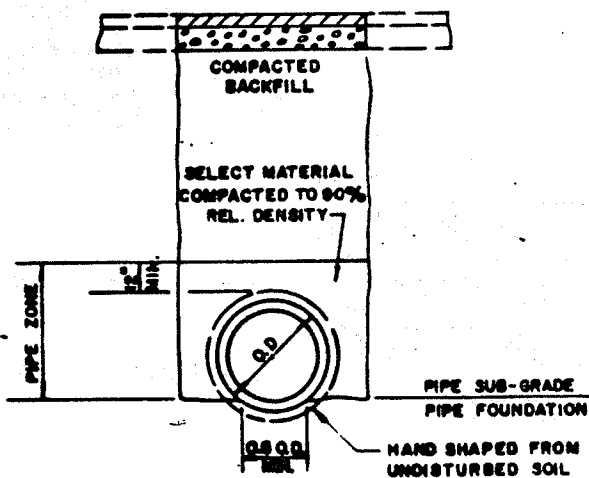
CITY OF SAN JUAN CAPISTRANO		
PIPE CASING, CONCRETE ENCASEMENT & HOUSE LATERAL		
1978	W.D. Murphy CITY ENGINEER	R.C.E. NO. 17629
		DATE



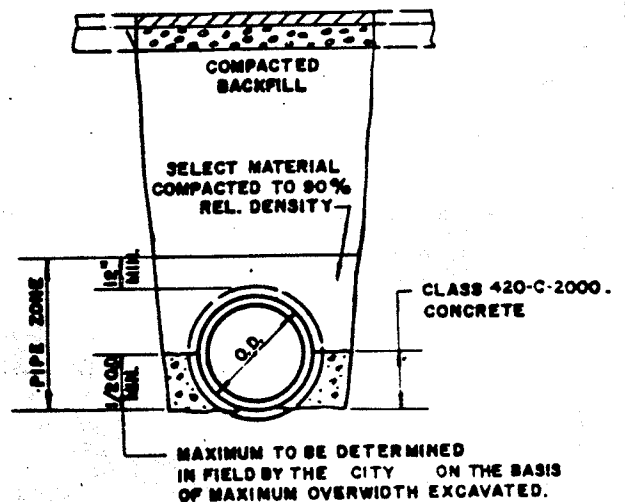
**TYPE I**



**TYPE II**



**TYPE III**



**TYPE IV**

**NOTES:**

1. THE TRENCH WIDTH AT THE UPPER LIMIT OF THE PIPE ZONE SHALL BE WITHIN THE FOLLOWING LIMITS FOR TYPE I, II, AND III BEDDING:  
 MAXIMUM TRENCH WIDTH - O.D. OF PIPE OR BELL PLUS 16"  
 MINIMUM TRENCH WIDTH - O.D. OF PIPE OR BELL PLUS 12"
2. TYPE III BEDDING SHALL BE USED WHERE THE TRENCH WIDTH AT THE UPPER LIMIT OF THE PIPE ZONE EXCEEDS THE MAXIMUM WIDTH SPECIFIED ABOVE.
3. BACKFILL ABOVE THE PIPE ZONE SHALL CONFORM TO THE REQUIREMENTS OUTLINED IN SECTION 306 I.3 OF THE STANDARD SPECS.
4. MINIMUM PAVING SECTION IS .25 A.C. OVER 50 A.B. OR AS SPECIFIED BY THE CITY ENGINEER. FEATHER AND JOIN TO THE EXISTING PAVEMENT TO THE SATISFACTION OF THE CITY ENGINEER.

CITY OF SAN JUAN CAPISTRANO

**PIPE BEDDING DETAILS**

1978

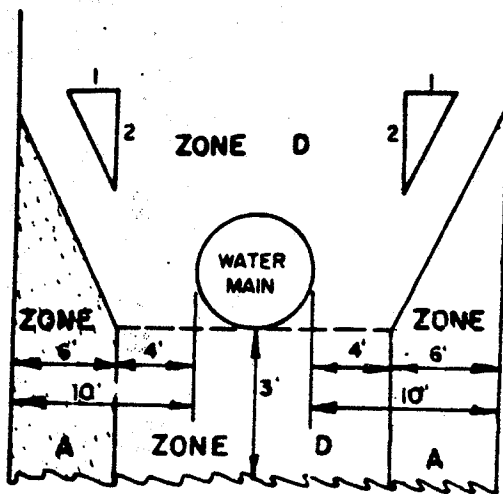
*W.D. Murphy*  
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R.C.E. NO. 17629

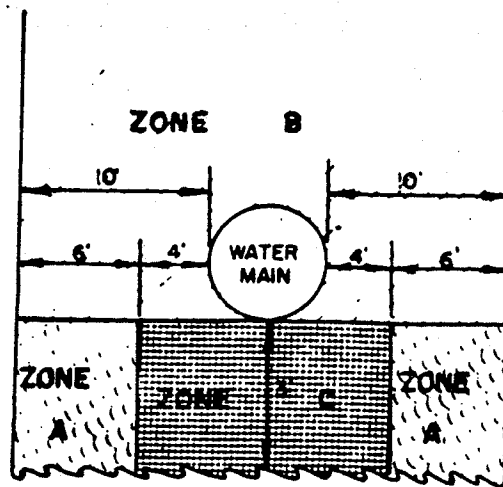
DATE

**S-4**

**DESIGN REQUIREMENTS FOR SANITARY SEWERS IN THE VICINITY OF PRESSURE WATER MAINS**



**PARALLEL CONST.**



**PERPENDICULAR CONST.**

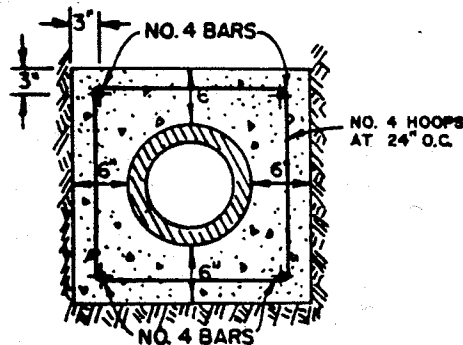
IF A SANITARY SEWER IS TO BE LOCATED WITHIN 10 FEET OF A PRESSURE WATER MAIN WITHIN ANY OF THE ABOVE INDICATED ZONES, SPECIAL CONSTRUCTION WILL BE REQUIRED AS SHOWN BELOW.

IF A MAIN LINE SEWER MUST CROSS A PRESSURE WATER WITHIN ANY OF THE ABOVE INDICATED ZONES, OR IF A HOUSE LATERAL MUST CROSS IN ZONE B, SPECIAL CONSTRUCTION WILL BE REQUIRED AS SHOWN BELOW.

ZONE	SEWER CONSTRUCTION REQUIREMENTS
A	V.C.P. WITH COMPRESSION JOINTS.
B OR C	C.I.P. (CLASS 150) APPROVED MECHANICAL JOINTS; OR V.C.P. WITH SPECIAL CONCRETE ENCASEMENT PER (DETAIL 1); OR V.C.P. GROUTED IN CONTINUOUS STEEL CASING.
D	DO NOT LOCATE ANY PARALLEL SEWER IN THIS AREA WITHOUT HEALTH DEPARTMENT APPROVAL.

**GENERAL NOTES**

1. EXTEND BOTH ENDS OF ENCASEMENT TO A POINT ONE INCH SHORT OF FIRST PIPE JOINT BEYOND LOCATIONS SPECIFIED ON PLAN. USE ONE FOOT SECTION OF PIPE AT BOTH ENDS BEFORE USING STANDARD LENGTHS.
2. APPLY FORM OIL, THIN PLASTIC SHEET, OR OTHER ACCEPTABLE MATERIAL TO PIPE, TO PREVENT BOND BETWEEN PIPE AND CONCRETE.
3. USE CLASS 420-C-2000 P.C.G. FOR ALL CASES.



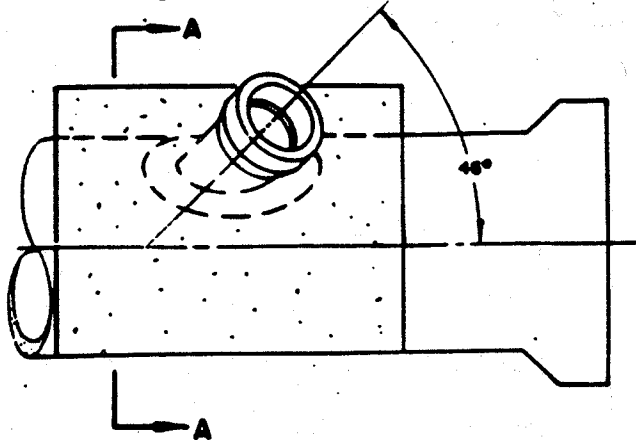
**SPECIAL ENCASEMENT DETAIL 1**

(SEE STD. S-3)

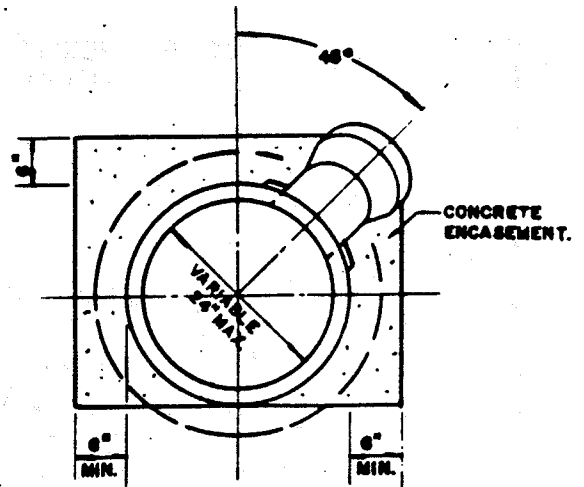
*no sewers within 25' horizontally of a 5 PSI or less waterline*

<b>CITY OF SAN JUAN CAPISTRANO</b>	
<b>SEPARATION OF WATER AND SEWER LINES</b>	
1978	W.D. <i>W.D. O'Connell</i> CITY ENGINEER R.C.F. NO 17629
	DATE <b>S-5</b>

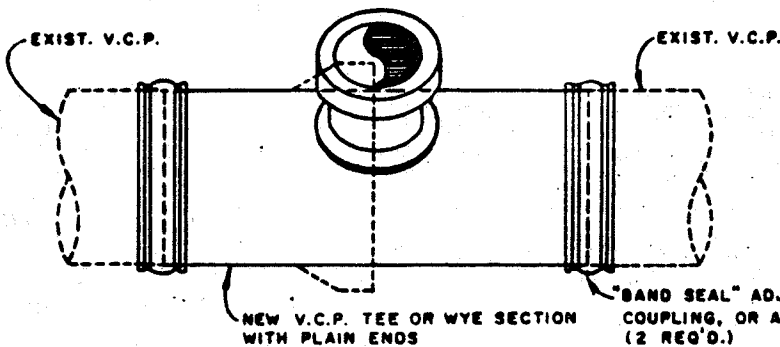
THE BELL ON THE COLLAR WYE SADDLE SHALL NOT BE ENCASED IN CONCRETE.  
 TAP TO BE MADE AT APPROX.  $\frac{1}{4}$  OF JOINT. ENCASE 12" EACH SIDE OF OPENING WITH CLASS 420-C-2000 P.C.C.



ELEVATION



SECTION A-A



DETAIL MAKING CONNECTION  
 TO AN EXISTING SEWER:  
 FOR MAKING 6" LATERAL ON  
 8" MAIN OR AS REQUIRED BY  
 THE CITY ENGINEER.

COLLAR WYE SADDLE

NOTES:

1. THE SEWER LINE SHALL BE SCORED TO THE APPROXIMATE SHAPE OF THE COLLAR WYE OR TEE FITTING. THE CONTRACTOR SHALL EITHER CUT A NEAT OPENING WITH A CIRCULAR CERAMIC SAW OF 2", 4", 6", OR 8" DIAMETERS, OR MAKE A SMALL HOLE, NOT LARGER THAN ONE-INCH IN DIAMETER, IN THE APPROXIMATE CENTER OF THE SCORED AREA WITH A POINTED TOOL, SIMILAR TO A MASON'S PICK, AND CHIP WITH A CHISEL AND SHORT HANDLE, HAND HELD HAMMER IN A SPIRAL FASHION TO THE SCORED LINE.
2. THE CONTRACTOR SHALL SECURE THE COLLAR WYE SADDLE TO THE SEWER AS APPROVED BY THE CITY ENGINEER.
3. THE CONTRACTOR SHALL ENCASE THE SADDLE CONNECTION WITH CLASS 420-C-2000 P.C.C. AFTER THE CONNECTION IS APPROVED BY THE CITY ENGR. TO THE LIMITS INDICATED ABOVE
4. THE CONTRACTOR SHALL KEEP ALL CLAY CHIPS, DIRT, EPOXY, MORTAR, AND CONCRETE OUT OF THE SEWER SADDLED, AND SHALL PERFORM A CLEANING AND BALLING OF THE REACH SADDLED IF DIRECTED TO DO SO BY THE CITY ENGINEER.
5. THE CONTRACTOR SHALL REPAIR OR REPLACE ANY DAMAGED PIPE, AS DIRECTED BY THE CITY ENGINEER.
6. THE CONTRACTOR SHALL EPOXY ALL SADDLE CONNECTIONS TO THE SATISFACTION OF THE CITY ENGINEER.

CITY OF SAN JUAN CAPISTRANO

SADDLE CONNECTION

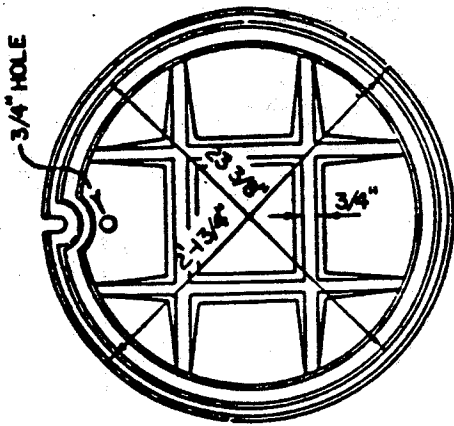
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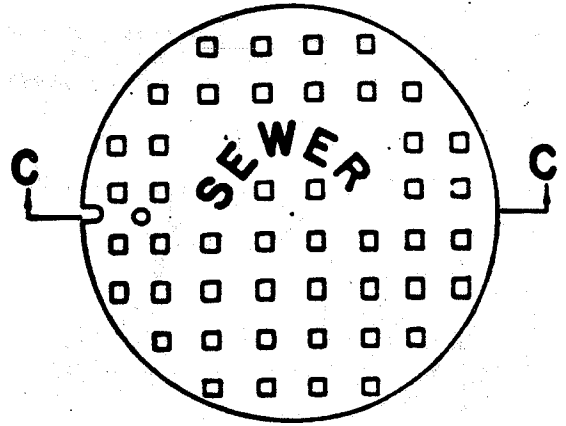
R.O.E. NO. 17629

DATE

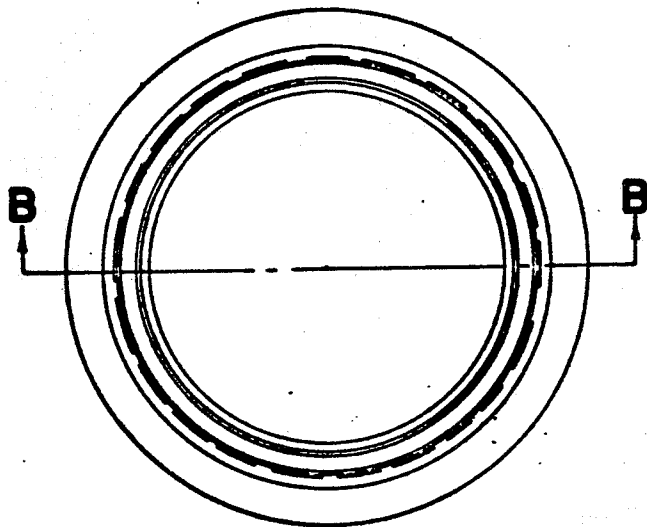
S-6



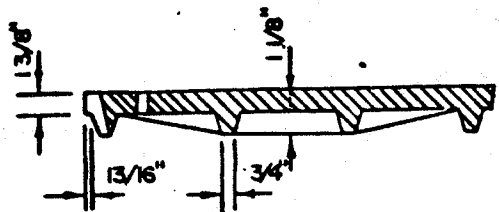
**COVER - BOTTOM VIEW**



**COVER - TOP VIEW**



**RING PLAN**



**SECTION C-C**

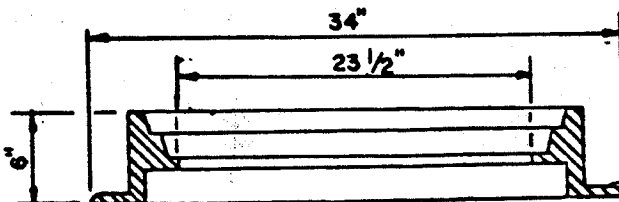
**NOTES:**

CAST IRON SHALL HAVE MINIMUM TENSILE STRENGTH OF 30,000 LBS. PER SQUARE INCH.

ALHAMBRA FOUNDRY CO. TYPE A-1270 OR EQUAL.

WEIGHT OF FRAME AND COVER = 440 LBS. MINIMUM

CASTINGS SHALL CONFORM TO ASTM. A 48 CLASS 35.



**SECTION B-B**

CITY OF SAN JUAN CAPISTRANO

STANDARD MANHOLE  
FRAME & COVER

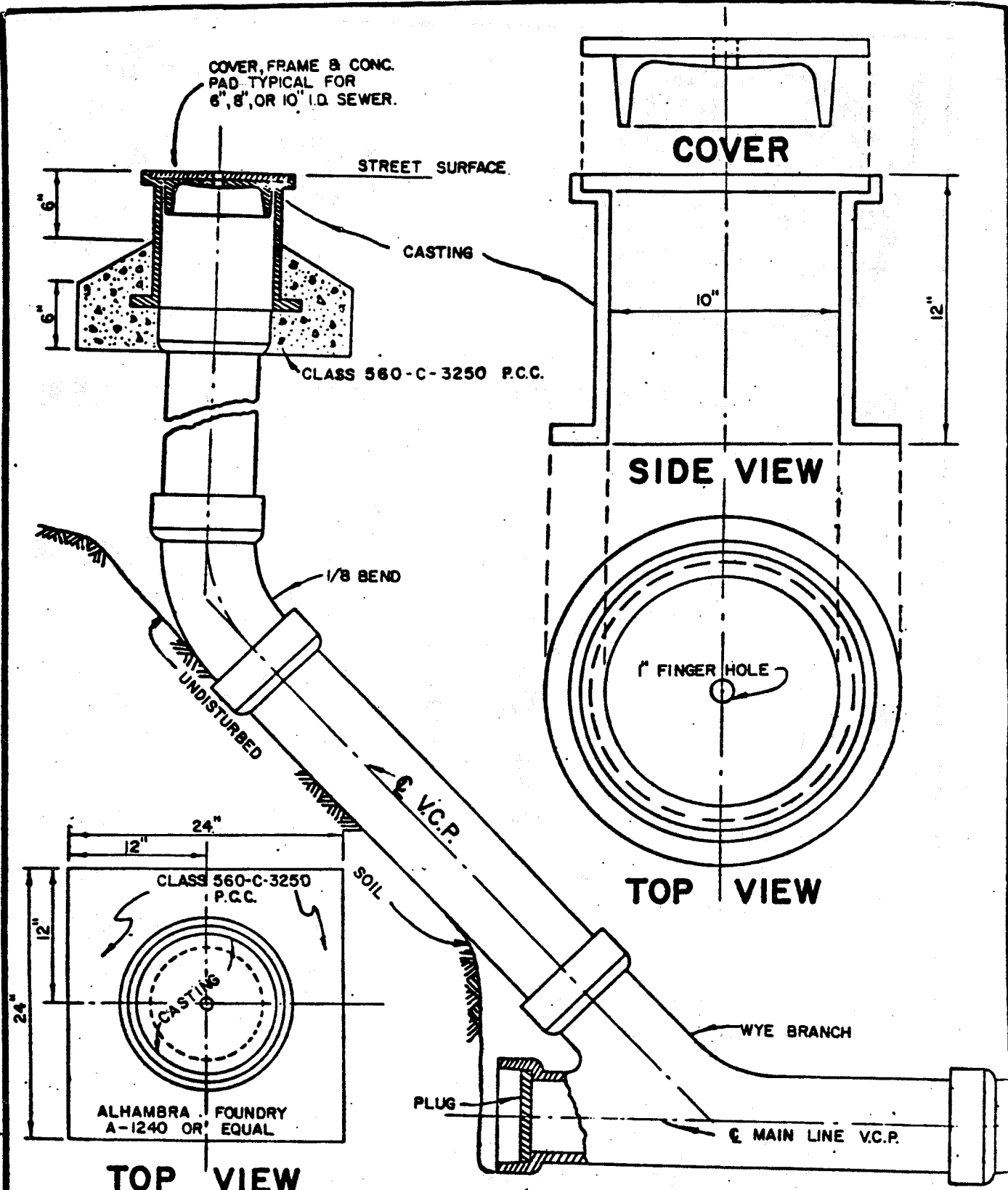
1978

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**NOTES:**

- 1. CLEAN-OUT PIPE MUST BE SAME DIAMETER AS MAINLINE SEWER.
- 2. CLEAN-OUTS ARE FOR COMMERCIAL OR INDUSTRIAL USE ONLY AND ARE TO BE LOCATED AT R.

<b>CITY OF SAN JUAN CAPISTRANO</b>		
<b>STD. CLEAN-OUT</b>		
1978	<i>W. D. Myer</i> CITY ENGINEER	R.C.E. NO. 17629 DATE
		<b>S-8</b>