

Technical Specifications

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Technical Specifications

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**TECHNICAL SPECIFICATIONS
FOR
INSPECTION OF WORK**

All work shall be subject to inspection per Sections 3-9 and 3-10 of the General Conditions and the General Conditions as a whole.

The District and Owner's Engineer shall at all times have access to the work during construction and shall be furnished with every reasonable facility for ascertaining full knowledge respecting the progress, workmanship and character of materials used and employed in the work.

The Owner shall submit a schedule to the District and Owner's Engineer outlining the proposed construction operation including the hours of work. If any changes in the project schedule or hours of work are made, the Owner shall give at least two working days written notice to the District and Owner's Engineer so that proper inspection may be provided.

The inspection of the work shall not relieve the Owner of any of his obligations to complete the work as prescribed by the District Specifications and Approved Plans. Defective work shall be made good and unsuitable materials may be rejected notwithstanding the fact that such defective work and unsuitable materials have been previously overlooked by the District and/or Project Engineer.

The District shall have the authority to suspend the work wholly or in part for such time as it may deem necessary due to the failure to perform any provisions of District Specifications. The work shall be resumed when methods or defective work are corrected as ordered or approved in writing by the District.

--END OF SECTION--


WATER NOTES

1. THE WATER FACILITIES TO BE DEDICATED TO THE NCSD (DISTRICT) SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE NCSD STANDARD SPECIFICATIONS.
2. THE DISTRICT SHALL BE NOTIFIED AT LEAST SEVEN (7) WORKING DAYS PRIOR TO START OF CONSTRUCTION. TELEPHONE (805) 939-1133. CONSTRUCTION WILL NOT TAKE PLACE ON WEEKENDS UNLESS SPECIFICALLY APPROVED BY DISTRICT. A PRECONSTRUCTION MEETING IS REQUIRED IN ACCORDANCE WITH DISTRICT STANDARDS SECTION GC 3.6.
3. THE CONSTRUCTION PLANS MUST BE APPROVED BY THE DISTRICT PRIOR TO THE START OF ANY WATER FACILITIES CONSTRUCTION. TWO (2) SETS OF APPROVED PLANS SHALL BE FURNISHED TO THE DISTRICT AND ONE (1) SET TO THE DISTRICT'S ENGINEER. PRIOR TO DISTRICT APPROVAL, THE PLANS MUST BE SIGNED BY A CALIFORNIA REGISTERED CIVIL ENGINEER. ALL UTILITIES SHALL APPROVE PLANS PRIOR TO NCSD.
4. ALL PIPE, FITTINGS, MATERIALS, AND INSTALLATION SHALL CONFORM TO THE LATEST EDITIONS OF THE AWWA SPECIFICATIONS.
5. PRIOR TO ACCEPTANCE OF THE WATER FACILITIES, ALL NECESSARY EASEMENT DOCUMENTS SHALL BE PROPERLY EXECUTED AND RECORDED. THREE (3) COPIES EACH OF THE RECORDED DOCUMENTS SHALL BE FURNISHED TO THE DISTRICT.
6. WATER MAINS SHALL BE INSTALLED 5-FEET FROM THE FACE OF CURB UNLESS OTHERWISE INDICATED ON THE PLANS.
7. ALL WATER SERVICES SHALL BE METERED, DISTRICT EMPLOYEES TO DROP-IN METERS.
8. CONTRACTORS WILL COORDINATE ALL TIE-INS OF NEW WATER MAINS TO EXISTING WATER MAINS WITH THE DISTRICT TO MINIMIZE SERVICE INTERRUPTIONS. PROVIDE AT LEAST 2 WORKING DAYS NOTICE PRIOR TO CONSTRUCTION.
9. THE WATER SYSTEM, INCLUDING LATERALS, SHALL BE HYDROSTATICALLY TESTED PRIOR TO PLACING STREET PAVEMENT.
10. VALVES SHALL BE FLANGE CONNECTED TO FITTINGS WHEN LOCATED ADJACENT TO FITTINGS.
11. WATER LINES SHALL HAVE A MINIMUM COVER OF 36 INCHES.
12. FITTINGS SHALL BE FLANGED OR MECHANICAL JOINTS.
13. CONTRACTOR SHALL ADJUST VALVE BOXES, FIRE HYDRANT BREAK-OFF FLANGES, METER BOXES, ETC. TO SUBDIVISION FINISH GRADES AFTER CURBS AND GUTTERS, SIDEWALKS, AND STREETS HAVE BEEN CONSTRUCTED AT NO COST TO DISTRICT.
14. WHERE FIRE HYDRANTS ARE INSTALLED OR UP GRADED, THE CONTRACTOR SHALL INSTALL REFLECTORIZED, RAISED PAVEMENT MARKERS (STIMSONITE HYDRANT MARKERS), ALSO COMMONLY CALLED "BLUE DOTS". A TWO PART EPOXY ADHESIVE SHALL BE USED TO INSTALL THE MARKERS. ONE MARKER SHALL BE INSTALLED PERPENDICULARLY OPPOSITE EACH FIRE HYDRANT, APPROXIMATELY 6-INCHES OFFSET FROM THE CENTERLINE OF THE STREET ON THE HYDRANT SIDE OF THE STREET.
15. SERVICES THAT DO NOT COME STRAIGHT OFF THE MAIN ARE TO HAVE TAPE MARKED "CAUTION WATER LINE BELOW". TAPE TO BE INSTALLED 15-INCHES ABOVE THE SERVICE.
16. FIRE HYDRANTS, METER BOXES AND BLOWOFFS SHALL BE LOCATED NO CLOSER THAN 5-FEET FROM BEGINNING OF CURB RETURN, DRIVEWAY OR ANY OTHER UTILITY.
17. DURING CONSTRUCTION OF THE IMPROVEMENTS, THE OWNER SHALL NOTE DEVIATIONS FROM THE PLANS ON A SET OF PLANS SPECIFICALLY SET ASIDE FOR THIS PURPOSE. ANY CHANGES SHALL BE MADE ON THE ORIGINALS OF THE PLANS WITH A SUITABLE NOTE ON EACH SHEET STATING THAT THE ORIGINALS ARE THE "RECORD DRAWINGS".
18. UPON COMPLETION OF CONSTRUCTION, ONE COMPLETE SET OF RECORD DRAWINGS, ORIGINAL PLOTS ON MYLAR, ALONG WITH ELECTRONIC (AUTOCAD DWG.) FILES SHALL BE FURNISHED TO THE DISTRICT.
19. WORK SHALL BE DONE IN ACCORDANCE WITH THE APPROPRIATE ENCROACHMENT PERMITS.
20. DISINFECT PIPELINES PER DISTRICT STANDARDS - DO NOT USE TABLETS.

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 DATE: Aug 09, 2007 9:01am XREFS: JULY 2007 BORDER

**NIPOMO
COMMUNITY SERVICES DISTRICT**

STANDARD WATER NOTES

DATE	REVISION				DATE DRAWN	SHEET NO.			
		<small>Copy of document found at www.NoNewWpFax.com</small>			JULY 2007	W-1			

SEWER NOTES

1. THE SEWER FACILITIES TO BE DEDICATED TO THE NCSD (DISTRICT) SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE DISTRICT.
2. THE DISTRICT SHALL BE NOTIFIED AT LEAST SEVEN (7) WORKING DAYS PRIOR TO START OF CONSTRUCTION. TELEPHONE (805) 929-1133. A PRECONSTRUCTION MEETING IS REQUIRED IN ACCORDANCE WITH DISTRICT STANDARDS SECTION GC 3.6
3. THE CONSTRUCTION PLANS MUST BE APPROVED BY THE DISTRICT PRIOR TO THE START OF ANY SEWER CONSTRUCTION. TWO (2) SETS OF APPROVED PLANS SHALL BE FURNISHED TO THE DISTRICT AND ONE (1) SET TO THE DISTRICT'S ENGINEER. PRIOR TO DISTRICT APPROVAL, THE PLANS MUST BE SIGNED BY A CALIFORNIA REGISTERED CIVIL ENGINEER. ALL UTILITIES SHALL APPROVE PLANS PRIOR TO NCSD.
4. PRIOR TO ACCEPTANCE OF THE SEWER FACILITIES, ALL NECESSARY EASEMENT DOCUMENTS SHALL BE PROPERLY EXECUTED AND RECORDED. THREE (3) COPIES EACH OF THE RECORDED DOCUMENTS SHALL BE FURNISHED TO DISTRICT.
5. PRIOR TO THE ACCEPTANCE OF THE SEWER FACILITIES, ALL PIPING SHALL BE MANDREL INSPECTED, AND TESTED FOR LEAKAGE AND INFILTRATION. ALL PIPING SHALL BE TELEVISION INSPECTED. ALL PIPING SHALL BE CLEANED PER DISTRICT STANDARDS, IN CONFORMANCE WITH THE TECHNICAL SPECIFICATIONS FOR CLEAN-UP.
6. THE MANHOLE FRAME AND COVER AND CONCRETE SUPPORT FOR MANHOLES SHALL BE RAISED AND CONSTRUCTED TO FINISHED PAVED GRADE AFTER PAVING IS COMPLETED. THE RING SECTION SHALL NOT BE MORE THAN 18" FROM THE CONE. THE SEWER SYSTEM SHALL BE CLEANED PRIOR TO ACCEPTANCE.
7. WORK SHALL BE DONE IN ACCORDANCE WITH THE APPROPRIATE ENCROACHMENT PERMITS.
8. THE SEWER SYSTEM, INCLUDING LATERALS, SHALL BE HYDROSTATIC OR AIR TESTED, AFTER ALL UNDERGROUND UTILITIES ARE CONSTRUCTED, AND PRIOR TO PLACING STREET PAVEMENT.
9. EXISTING SEWER LOCATIONS AND FLOWLINE ELEVATIONS SHALL BE VERIFIED BY THE CONTRACTOR BEFORE START OF CONSTRUCTION. THE DISTRICT SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES.
10. UPON COMPLETION OF CONSTRUCTION, ONE COMPLETE SET OF DRAWINGS, ORIGINAL PLOTS ON MYLAR, ALONG WITH ELECTRONIC FILES SHALL BE FURNISHED TO THE DISTRICT.
11. ALL SEWER MANHOLES SHALL BE COATED PER DISTRICT STANDARDS.

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 DATE: Aug 09, 2007 12:01pm XREFS: BORDER

		NIPOMO COMMUNITY SERVICES DISTRICT		
		STANDARD SEWER NOTES		
DATE	REVISION	<i>BOYLE ENGINEERING CORPORATION</i>	DATE DRAWN JULY 2007	SHEET NO. S-1
<small>Copy of document found at www.NoNewWipTax.com</small>				

TECHNICAL SPECIFICATIONS FOR EARTHWORK

A GENERAL DESCRIPTION

Earthwork shall consist of performing operations necessary to complete all excavation, preparation of subgrade, ditching, structural excavation, trenching, backfill compacting, sloping, trimming the subgrade, and finish grading; as shown on the Plans or contained in the Specifications. The Contractor shall furnish all labor, material, tools and equipment necessary for earthwork operations and perform all incidental work thereto as required.

Earthwork shall include all clearing and grubbing, removal and disposal of paving, removal of water, excavation of all classes of earth and rock regardless of character and subsurface conditions and disposal of all excess excavation.

A-1 SCOPE OF WORK

The work includes furnishing all services, labor, materials, equipment, and perform all operations in connection with all earthwork necessary for the construction of the improvements as indicated on the Plans and in the Specifications. Excavation shall include the removal of water and all material of whatever nature and shall include clearing of sites for construction.

A-2 EARTHWORK IN STATE AND COUNTY RIGHTS-OF-WAY

Earthwork within the rights-of-way of the State of California, Department of Transportation and the County Public Works Department shall be performed in accordance with requirements and provisions of the permits issued by those agencies for the construction within their respective rights-of-way. Where there is a conflict between the District's Specifications and those of the State or County, the more stringent requirements and provisions shall take precedence.

A-3 SAFETY PRECAUTIONS

All excavations shall be performed, protected and supported as required for safety and in the manner set forth in the operating rules, orders and regulations prescribed by the Division of Industrial Safety of the State of California. Barriers shall be placed at each end of all excavations and at such places as may be necessary along excavations to warn all pedestrian and vehicular traffic of such excavations.

A-4 BRACING EXCAVATIONS

All excavations shall be properly supported in the manner prescribed by the rules, orders and regulations of the Division of Industrial Safety of the State of California. Excavations shall be so braced, sheeted and supported that they will be safe and the ground alongside the excavation will not slide or settle, and all existing improvements of any kind, either on public or private property, will be fully protected from damage. If

any damage does result to such improvements, the Contractor, at his own expense, shall make the necessary repairs or reconstruction required as directed by the District.

Excavations shall be so braced or sheeted so as to provide conditions under which workmen may work safely and efficiently at all times. The sheetings, shoring and bracing shall be arranged so as to not place any stress on portions of the completed work until the general construction thereof has proceeded far enough to provide ample strength. Any damage to structures occurring through settlements, water or earth pressures, slides, caves or other causes due to failure or lack of sheeting or bracing or improper bracing or through negligence or fault of the Contractor in any other manner, shall be repaired by the Contractor at his own expense.

Where timber sheeting extends below the invert of the pipe, it shall be cut off at the top of the pipe and the upper portion removed without harming the support conditions. This requirement will not be necessary where steel sheeting is used for shoring below the invert of the pipe.

Care shall be exercised in the drawing or removing of sheeting, shoring, bracing and timbering to prevent the caving or collapsing of the excavation faces which are being supported.

A-5 OPEN EXCAVATIONS AND STOCKPILING

Open excavations and stockpiling shall be constructed in a manner to prevent water running into excavations. Obstruction of surface drainage shall be avoided and means shall be provided whereby storm and wastewater can flow uninterruptedly in existing or established flowage courses, other surface drains or temporary drains. Material for backfill or for protection of excavation in public roads from surface drainage shall be neatly placed and kept shaped so as to cause the least possible interference with public travel. Free access must be provided to all fire hydrants, water valves, meters, private drives, roads or existing access routes.

A-6 SAND

1/2" minus sand is to be used for pipe bedding or pipe zone; it shall be free from foreign materials such as rocks, sticks, vegetation, etc., and shall meet the following gradation:

Sieve Size	Percentage Passing (By Weight)
3/8-inch	100
No. 4	75 – 100
No. 30	12 – 50
No. 100	5 – 20
No. 200	0 - 10

A-7 AGGREGATE FOR PIPE BEDDING FOUNDATION

If aggregate is required for pipe bedding foundation, it shall be No. 67 crushed aggregate as defined by ASTM D 448 and shall be free from foreign and organic matter.

Gradation – ASTM D 448 (No. 67)

Sieve Size	Percentage Passing (By Weight)
1 inch	100
3/4-inch	90 – 100
3/8 inch	20 – 55
No. 4	0 – 10
No. 8	0 - 5

A-8 OBSTRUCTIONS

All underground improvements shall be preserved and protected. Where it is necessary to remove and replace or to relocate such improvements in order to prosecute the work, they shall be removed, maintained in operation, and permanently replaced as directed by the owner of the discovered obstruction or as directed by the District.

A-9 COMPACTION TESTS

Compaction tests will be made by the testing laboratory designated by the Owner’s Engineer. The number of tests, and their location and depth, shall be determined by the Owner’s Engineer after consulting with the District. Relative compaction specified herein shall be a percentage of the maximum dry density as determined by ASTM D1557 (5 layer only). Compaction tests shall be taken in accordance with D-1556 or as approved by the District.

Backfill of excavations within the rights-of-way of County streets and State highways shall be performed in accordance with the requirements and to the satisfaction of the County Public Works Department or the State Division of Highways. Where a conflict exists between the District’s requirements and those of either the County or the State, the more stringent requirement shall apply.

The costs of compaction testing shall be born by the owner.

A-10 CORRECTION OF FAULTY GRADES

Where excavation is inadvertently carried below subgrade and/or foundation elevations, suitable provision shall be made for adjustment of the subgrade. The subgrade or foundation shall be restored to a condition similar to the condition existing prior to the over-excavation and by means acceptable to the District.

A-11 CLEARING AND GRUBBING

The Contractor shall perform all required clearing and grubbing and the disposal of all trees, brush, roots and other perishable and objectionable materials.

The ground surface of all areas where material is to be excavated or where embankments, stockpiles, fills or structures are to be placed, shall be cleared of all vegetation and rubbish, and all brush, roots, and tree roots shall be grubbed and removed from such areas. All cleared and grubbed areas shall be maintained free from vegetable growth.

Organic material from clearing and grubbing operations will not be incorporated in pipe backfill.

A-12 BLASTING AND EXPLOSIVES

Written permission of the District shall be obtained from the General Manager prior to any blasting or use of explosives. Explosives, if used, shall be of such quantity and power and shall be used in such locations so as to minimize opening of seams and disturbing of the material outside the prescribed limits of excavation. As excavation approaches its final limits, the depths of holes for blasting and the quantity of explosives used for each hole shall be reduced so that the underlying or adjacent material will be disturbed or shattered as little as possible.

Extreme care shall be exercised when blasting in the vicinity of existing structures, utilities or construction facilities of others.

All blasting shall be performed in conformance with the provisions of the Construction Safety Orders of the California Department of Industrial Safety, California Administrative Code, Article 5, Title 8.

A-13 DEWATERING

There shall be provided and maintained at all times during construction ample means and devices with which to promptly remove and properly dispose of all water from any source entering the excavations or other parts of the work. Dewatering shall be accomplished by methods which will ensure a dry excavation and preservation of the final lines and grades of the bottoms of excavations. Said methods may include well points, sump pumps, suitable rock or gravel placed below the required bedding for drainage and pumping purposes, temporary pipelines and other means, all subject to the approval of the District.

Dewatering for structures and pipelines shall commence when groundwater is first encountered and shall be continuous until such times as water can be allowed to rise in accordance with the provisions of this section. No concrete footings or floors shall be laid in water nor shall water be allowed to rise over them until the concrete or mortar has set at least eight hours. Water shall not be allowed to rise unequally against walls for a period of 28 days.

The water from the work shall be disposed of in a suitable manner without damage to adjacent property. No water shall be drained into work built or under construction without prior consent of the District. Water shall be disposed of in such a manner as not to be a menace to the public health.

B PIPELINE AND TRENCH EARTHWORK

B-1 GENERAL

Work in connection with pipeline and trench earthwork shall include but not be limited to any or all of the following described operations: clearing; excavation of all classes and of whatever substance encountered; backfilling; fine grading; preparation for right-of-way; subgrade for pipe and structures; and paving and performing any other similar, incidental, or appurtenant earthwork operation which may be necessary to properly complete the work indicated.

B-2 EXCAVATION FOR PIPE TRENCHES

Trenches for pipelines shall be excavated to the lines and grades shown on the Plans, as provided in the Specifications, and as approved by the District.

B-3 TRENCH WIDTH

The overall trench width shall not be more than 16 inches nor less than 12 inches wider than the largest outside diameter of the pipe to be laid therein, measured at a point 12 inches above the top of the pipe. Excavating and retrenching shall be true to line so that a clear space of not more than 8 inches or less than 6 inches in width is provided on each side of the largest outside diameter of the pipe in place. For the purpose of this article, the largest outside diameter shall be the outside diameter of the bell, on bell and spigot pipe, and outside diameter of coupling for sleeve coupling pipe.

Where the trench width, measured at a point 6 inches above the top of the bell or sleeve of the pipe is wider than the maximum set forth above, the trench area around the pipe shall be reworked to restore a trench condition and provide load factor acceptable to the District. The reworking may result in one or more of the following operations, subject to the approval of the District: (1) Shaping the bottom of the trench to fit the pipe; (2) Placing sand around the pipe and to a point 6 inches above the top of the pipe; (3) Lowering the grade of

the pipe until the trench condition can be met; (4) Installing a concrete cradle for the pipe; and (5) Providing concrete encasement for the pipe to a point 3 inches above the top of the pipe.

B-4 LIMIT OF EXCAVATION

Except by special permission of the District, the maximum length of open trench shall not exceed 600 feet in the aggregate at any one location including excavation, construction, pipe laying and backfilling. In addition, at locations where access may be somewhat limited, requiring rerouting of traffic unnecessarily, the District may reduce the maximum length of open trench permitted.

B-5 TRENCH BOTTOM FOR PIPE

The trench bottom shall be graded to provide a smooth, firm foundation at every point throughout the length of the pipe.

The trench shall be excavated to the established grade line of the outside bottom of the pipe. The bottom of the trench shall then be scarified to a minimum depth of 6 inches below the bottom of the pipe and uniformly graded to produce a firm but yielding subgrade which will provide uniform support of the pipe along the full length of each section. The bedding material so prepared throughout a minimum depth of 6 inches shall meet the requirements of Section A-6 of these specifications.

If it becomes necessary to excavate below the established grade line in order to remove boulders or other interfering objects, the voids shall be filled with material meeting Section A-6 requirements densified in the manner specified for bedding materials.

Where excavation is in rock, hardpan, shale, or other similar hard and unyielding materials, the trench shall be excavated to a depth at least 6 inches below the established grade line of the outside bottom of the pipe and filled with material as specified in Section A-6 to grade line. The subgrade shall then be completed as previously stated. The material so placed shall be compacted to 90% relative compaction.

When excavation is in soft, unstable or excessively wet material which is unsuitable as a foundation for the pipe, such material shall be removed as directed by the District and replaced with aggregate (Section A-7) to a depth approximately 3 inches below the grade line. The subgrade shall then be completed to the underside of the pipe using trench side native material if suitable, or imported sand if so directed by the District.

At each joint in the pipe, the bottom of the trench shall be recessed in such a manner as to relieve the bell of the pipe or the pipe coupling of all load and to ensure continuous bearing along the pipe barrel upon the bedding material.

B-6 TRENCH BACKFILL

All trenches shall be backfilled after pipe, fittings and appurtenances have been installed. A 2-inch layer of sand shall be placed above pipe, fittings, and appurtenances before backfilling commences. Whenever a relative compaction requirement value is specified, it shall be a percentage of the maximum density as determined hereafter. Optimum moisture content and maximum density shall be determined in accordance with ASTM D 1557 and density of soil in place shall be determined using the methods approved by the District.

All wood and waste material shall be removed from excavation preparatory to backfilling. Backfill material shall be approved in all cases by the District and shall be free of trash, wood, large rock, or other objectionable debris. Backfilling shall include the refilling and compaction of the fill in trenches of excavations up to the subgrade of the street or to the existing ground surface.

B-7 PIPE BEDDING

The pipe shall be carefully bedded during initial pipe zone backfill operations by hand placing, slicing with a shovel and tamping or "walking in" the material under the lower sector of the pipe to produce firm support for the full length of the barrel with full bearing on said bottom segment of the pipe equal to a minimum of 1/2 of the outside diameter of the barrel or 12-inches, whichever is greater (see Standard Detail W-2).

B-8 PROCEDURE AT PIPE ZONE

Subsequent backfill in the pipe zone shall consist of placing material as required in these specifications simultaneously on each side of the pipe for the full width of the trench and compacting said material to a relative compaction of 90% within the limits of the pipe zone. The pipe zone begins at the bottom of the pipe barrel and extends to a horizontal plane 12 inches above the top of the outside diameter of the pipe.

The pipe shall be carefully bedded by hand, placing and compacting clean imported sand as provided herein from the pipe foundation and/or subgrade to the springline of the pipe prior to backfilling above the pipe within the "pipe zone". Clean imported sand shall be used for the pipe bedding.

The pipe bedding, using clean imported sand, shall be compacted by approved methods to a relative compaction of 90%. The pipe bedding backfill shall be brought to optimum moisture content and shall be placed in layers not exceeding 6 inches in thickness and each layer shall be solidly tamped with the proper tools so as not to injure, damage or disturb the pipe. Backfilling shall be carried on simultaneously on each side of the pipe to assure proper protection of the pipe. Water settling for compaction may be approved by the District in the event the foundation and bedding materials are sufficiently granular and sandy in nature that the required compaction will be obtained.

Where pipe is not very deep and the pipe zone extends into the street zone, that portion of the pipe zone within the street zone shall be compacted as set forth in Section B-11 of these specifications.

B-9 PROCEDURE ABOVE PIPE ZONE

The remaining portion of the trench to within 2-1/2 feet of the finished roadway surface or ground surface, as the case may be, shall be backfilled, compacted and/or consolidated by approved methods to obtain a relative compaction of 90%. Backfilling may be done with native trench side material except that no oil cake, bituminous pavement, recycled concrete, rock or other lumpy material shall be used in the backfill, unless these materials are scattered and do not exceed 3 inches in any dimension. Material of perishable, spongy, or otherwise improper nature shall not be used in backfilling and no material greater than 3 inches in any dimension shall be placed within 1 foot of any pipe, manhole or structure.

B-10 COMPACTION IN OPEN FIELDS

In open fields, where paving or structures will not be above the excavated area, backfill and compaction as specified in Section B-9 hereinbefore shall extend to the top of the trench, leaving the top slightly mounded.

B-11 PROCEDURE AT STREET ZONE

The top 2-1/2 feet of the trench within roadbed areas shall be compacted in horizontal layers not exceeding 8 inches in thickness, using approved hand, pneumatic or mechanical type tampers to obtain a relative compaction of 95% with a moisture content within 2% of optimum. Flooding and jetting will not be permitted within roadbed areas. Compaction requirements in the street zone may be modified by the backfill requirements of other government agencies in areas where these agencies have jurisdiction.

The roadbed area as used herein shall be considered as extending two feet beyond the curbs, gutters or paved shoulders.

From existing street grade to 2-1/2 feet below street grade, the material for backfill may contain stones ranging in size up to 2 inches in diameter in quantity, but not exceeding 20% of the volume, where said coarse materials are well distributed throughout the finer material and the specified compaction can be obtained.

B-12 EXCESS EXCAVATED MATERIAL

All surplus material not required for backfill shall be disposed of by the Contractor outside the limits of the public rights-of-way and/or easements.

No excavated material shall be deposited on private property, unless written permission is secured by the Owner. Before the District will accept the work as being completed, the Owner shall file a written release

signed by all property owners with whom he has entered into agreements for disposal of excess excavated material, absolving the District from any liability connected therewith.

B-13 IMPORTED PIPE BACKFILL MATERIAL

Whenever the excavated material is not suitable for backfill, as determined by the District, the Contractor shall arrange for and furnish suitable imported material.

C STRUCTURES EARTHWORK

C-1 GENERAL

Structure excavation shall include the removal of all material of whatever nature necessary for the construction of structures and foundations required.

The sides of excavations for structures where all vertical surfaces are formed shall be sufficient to leave at least 2 feet in the clear as measured from the extreme outside of formwork or structure, as the case may be. Where excavation is inadvertently carried below designated elevations, suitable provision shall be made for adjustment of construction, as directed by the District, to meet requirements incurred by the deeper excavation beneath structures, and overdepth excavation in such locations shall be rectified by backfilling with sand, graded gravel, or concrete as directed by the District. All overdepth excavations for footings shall be backfilled with Class C concrete, as defined in the Technical Specifications for Concrete Construction.

C-2 SUBBASE FOR STRUCTURES

Where indicated on the Plans, a crushed rock subbase shall extend from firm ground undisturbed by the construction operations to the structure base slab for all concrete structures. Any remaining disturbed or loose material shall be removed before the crushed rock subbase is placed. The subbase shall be compacted to the specified compaction, 90% minimum or as approved by the District, by means of a vibratory roller.

C-3 SUBBASE MATERIALS

Mineral aggregate shall conform with the following gradation requirements:

Sieve Size	Percent Passing Sieves
3/4-inch	90 – 100
No. 4	40 – 60
No. 30	13 – 23
No. 200	0 – 2

C-4 BACKFILLING

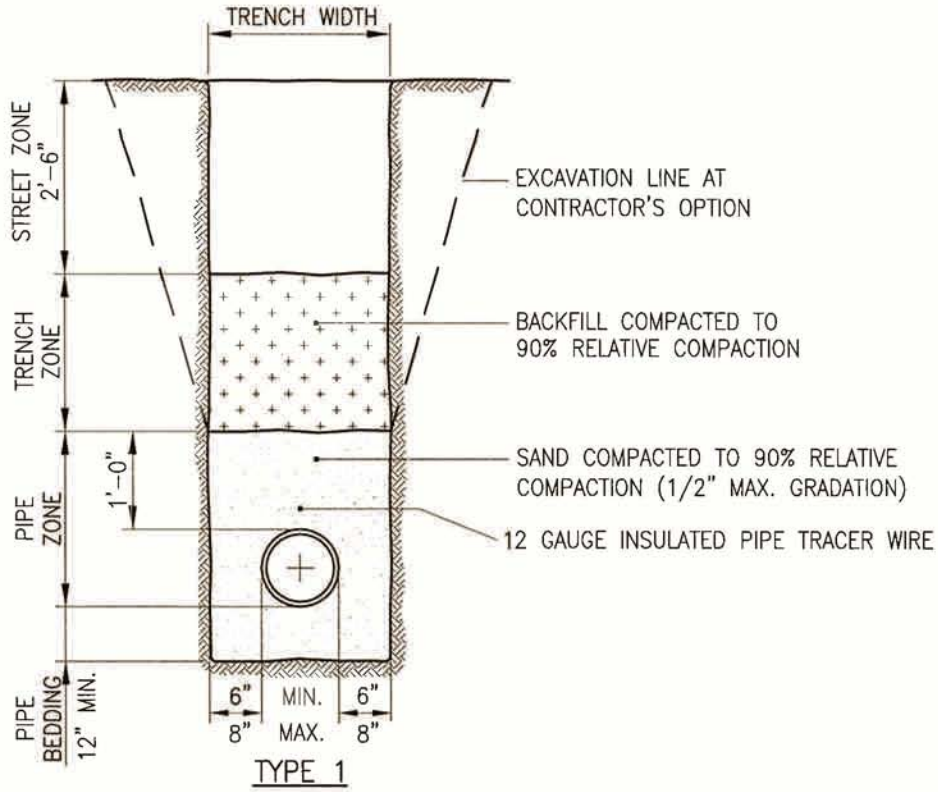
After compaction of foundation footings and walls of the structure and of construction below the elevation of the final grade and prior to backfilling, all forms shall be removed, and the excavation shall be cleared of debris. Backfilling shall not be commenced until the structure and excavation involved shall have been inspected and approved by the District. Material for backfilling shall consist of selected excavation material, imported sand, gravel or other material approved by the District and shall be free of trash, lumber or other debris. No material of a perishable or spongy nature and no stone or piece of rock greater than 4 inches in the greatest dimension shall be used in backfilling.

Compaction shall be obtained by means of mechanical tamping. Backfill of excavated material shall be placed in horizontal layers not exceeding 9 inches in thickness and shall have a moisture content within 2% of optimum, such that the required degree of compaction may be obtained. Each layer shall be compacted by hand, mechanical tampers, or other suitable equipment to the specified relative compaction.

Where backfill or fill is against only one side of a concrete structure, no fill shall be placed until the concrete in place has obtained an acceptable seven-day strength based upon a concrete cylinder test, unless otherwise directed by the District.

Particular care shall be exercised when backfilling at the various structures to obtain adequate compaction beneath pipes connected thereto and to avoid injury or displacement of such pipes or projections of the structures.

--END OF SECTION--



NOTES:

1. SAND SHALL BE PER STANDARD SPECIFICATIONS FOR EARTHWORK.
2. SEE STANDARD SPECIFICATIONS FOR EARTHWORK IF TRENCH WIDTH EXCEEDS THE MAXIMUM SHOWN ON THIS DRAWING.
3. STREET ZONE TO BE COMPACTED TO 95% RELATIVE COMPACTION IF UNDER ROAD BED OR TO 90% RELATIVE COMPACTION IF OUTSIDE OF PAVEMENT PER (ASTM D-1557, 5 LAYER). SEE TECHNICAL SPECIFICATIONS FOR EARTHWORK.
4. SEE STREET IMPROVEMENT PLANS (IF APPLICABLE) FOR PAVING REQUIREMENTS.
5. MINIMUM COVER OVER ALL DISTRIBUTION MAINS TO BE 3'-0" AS MEASURED FROM THE BOTTOM OF PAVEMENT.

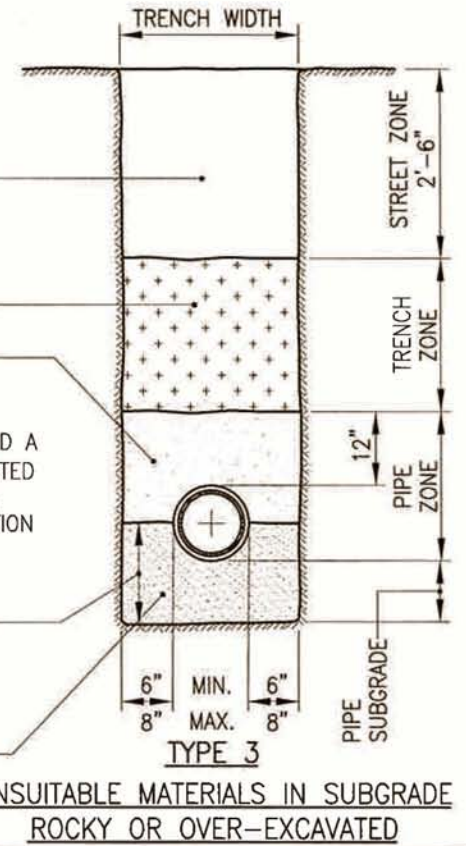
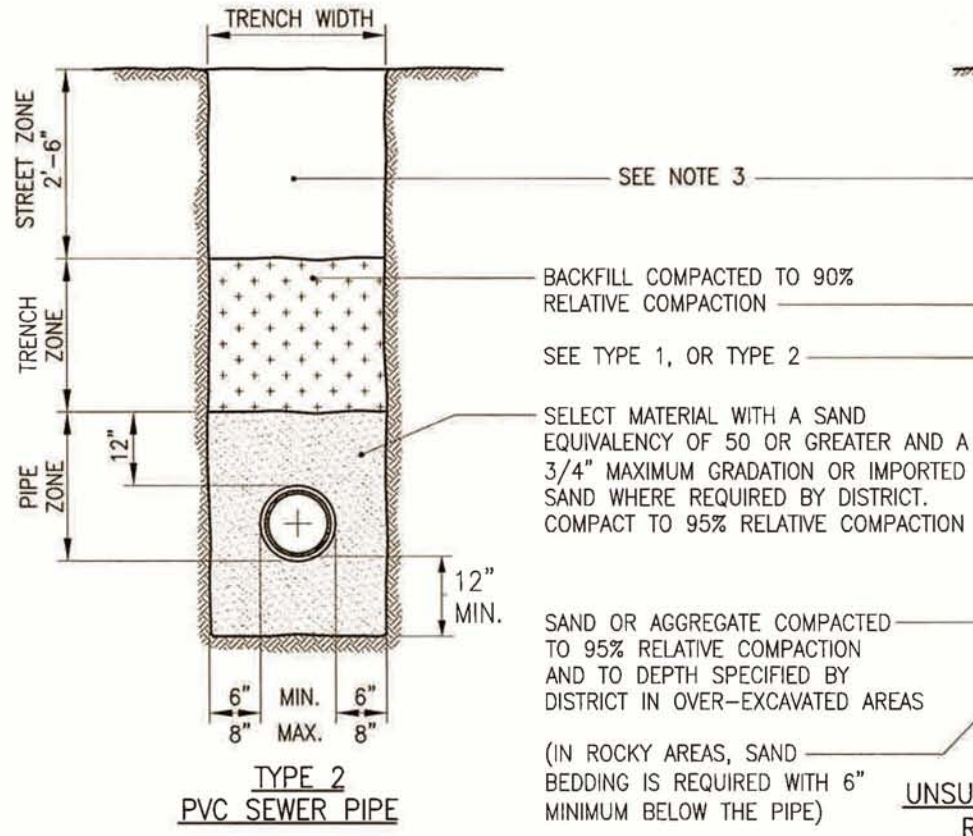
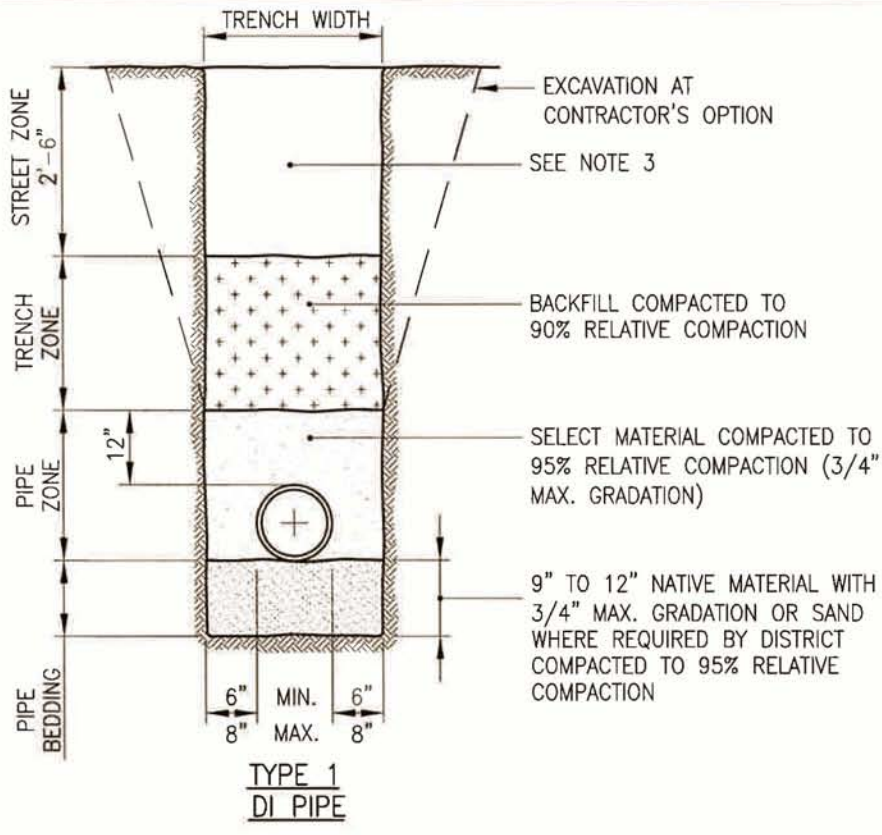
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 DATE: Aug 09, 2007 9:04am XREFS: JULY 2007 BORDER

NIPOMO COMMUNITY SERVICES DISTRICT	
WATER PIPE BEDDING AND BACKFILL DETAILS	
DATE	REVISION <small>BOYLE ENGINEERING CORPORATION</small> <small>DATE DRAWN</small> JULY 2007 <small>SHEET NO.</small> W-2

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 DATE: Aug 09, 2007 10:18am XREFS: BORDER

NOTES:

1. SAND AND SELECT MATERIAL SHALL BE PER TECHNICAL SPECIFICATIONS FOR EARTHWORK.
2. SEE TECHNICAL SPECIFICATIONS FOR EARTHWORK IF TRENCH WIDTH EXCEEDS THE MAXIMUM SHOWN ON THIS DRAWING.
3. STREET ZONE TO BE COMPACTED TO 95% RELATIVE COMPACTION IF WITHIN ROADBED OR TO 90% RELATIVE COMPACTION IF OUTSIDE OF ROADBED. SEE TECHNICAL SPECIFICATIONS FOR EARTHWORK.
4. MINIMUM COVER OVER ALL SEWER MAINS TO BE 5' AS MEASURED FROM FINISHED GRADE.
5. PERCENT RELATIVE COMPACTION IS THE PERCENT OF THE MAX. DRY DENSITY AS DETERMINED BY ASTM D-1557 (5 LAYER)



		NIPOMO COMMUNITY SERVICES DISTRICT	
		SEWER PIPE BEDDING AND BACKFILL DETAILS	
DATE	REVISION	<i>BOYLE ENGINEERING CORPORATION</i>	DATE DRAWN JULY 2007
			SHEET NO. S-2

**TECHNICAL SPECIFICATIONS
FOR
DUCTILE IRON WATER PIPE**

A PIPE

A-1 MATERIAL

Ductile iron pipe (DIP) used for water distribution systems shall be manufactured in accordance with AWWA C151 and cement mortar lined in conformance with AWWA C104.

A-2 WALL THICKNESS

The class of pipe used shall be determined by the procedures outlined in AWWA C150. Minimum internal design pressure shall be 150 psi. An "anticipated surge pressure" of 100 psi shall be used in designing for internal pressure.

A-3 PIPE END CONFIGURATIONS

Pipe end configurations (push-on, mechanical joint, restrained or flanged) shall be indicated on the Plans. Mechanical joints and push-on joints shall conform to the requirements of AWWA C111. Flanged joints shall conform to AWWA C115, if flanges are threaded, or to the flanged joint provisions of AWWA C110 if flanges are cast integrally with the pipe. Threaded flanges are to be used only on pipe spools shorter than a standard length of ductile iron pipe (18 feet or 20 feet) needed in special circumstances as shown on the Plans and approved by the District.

A-4 MARKING

Each joint of DIP shall be clearly marked with the following information by the pipe manufacturer:

Class (per AWWA C150)

Casting period

Year cast

The letters "DI" or "DUCTILE"

B FITTINGS

Fittings shall be manufactured of ductile iron conforming to the requirements of AWWA C110 with a 350 psi pressure rating. All fittings shall be cement-mortar lined in accordance with AWWA C104.

Ductile iron fittings conforming to AWWA C-153 ("compact fittings") may be used where restrained joint fittings and pipe are used to resist thrust instead of concrete thrust blocks, subject to approval by the District. "Compact fittings", if used, shall be cement mortar lined in accordance with AWWA C104.

Fitting ends shall be selected to match the end of the pipe joint, valve, or fitting to which it is to be joined. Requirements for fitting end configurations are outlined in AWWA C110 and C111 (refer to A-3, Pipe End Configurations). Fittings shall be flanged to valves.

Gaskets for mechanical joints shall conform to the requirements of AWWA C111 with duck tips and backs.

Gaskets for flange joints shall be rubber, full-face, bolt holes prepunched, and 1/8-inch thick conforming to the dimensions for flanges in AWWA C110.

C INSTALLATION

Trenching, bedding of DIP, and backfilling of trenches shall conform to the Standard Specification for Earthwork. Curved alignments are allowable without the need for fittings provided the maximum deflection at a pipe joint does not exceed 5 degrees for pipe equal to or less than 12-inches in diameter or 3 degrees for pipe 14 through 18 inches in diameter (in no case shall deflections at pipe joints exceed manufacturer's recommendations). Deflecting pipe joints is allowable only for push-on or mechanical jointed pipe.

All DIP shall be encased in polyethylene wrap per AWWA C105. Tape for securing the polyethylene wrap shall be 2-inch wide adhesive tape such as Polyken 900 (polyethylene), Scotchwrap 5 (polyvinyl) or equal as approved by the District. (Refer to Technical Specifications for Plastic Film Wrap).

At times when pipe laying is not in progress, the open end of pipes shall be closed by a vermin-proof plug secured so as to discourage tampering by children.

D THRUST RESTRAINT

Thrust restraint for DIP may be provided by the use of concrete thrust blocks or restrained joints. Acceptable joint restraint devices include special joint designs that are standard products of domestic DIP manufacturers. If restrained joints are to be used, the Owner shall submit to the District for review and approval information of the type of joint proposed along with calculations for the number of joints of DIP to be restrained on each side of a fitting or valve. The type of joint and number of joints of DIP to be restrained at each location shall be shown on the Plans.

If concrete thrust blocks are to be used, they shall be called out on the Plans at each point needed. Thrust blocks shall be constructed of concrete containing six sacks of cement per cubic yard and placed between the fitting to be anchored and undisturbed earth. The bearing area against undisturbed earth shall be called out on the Plans at each location a thrust block is required. The concrete shall be placed so that pipe joints and fittings will be accessible for repairs.

E HYDROSTATIC TESTING AND DISINFECTION OF POTABLE WATER LINES

Installed pipe shall be tested and disinfected in accordance with the Testing and Disinfection of Water Pipe Technical Specification.

--END OF SECTION--

**TECHNICAL SPECIFICATIONS
FOR
POLYVINYL CHLORIDE WATER PIPE**

A PIPE

A-1 CLASSIFICATION

Polyvinyl chloride (PVC) pipe shall be manufactured for use in potable water service and shall conform to Class 150 (minimum) as described in AWWA C900 for pipe up to 12 inches diameter.

A-2 SIZE

This specification covers PVC pipe with nominal diameters not exceeding 12 inches. If larger diameter pipe is required, PVC pipe may be used if approved in writing by the District.

A-3 JOINTS

Only elastomeric gasket jointed PVC pipe shall be used. Either the integral bell design or the separate sleeve-type coupling joint may be used. Gaskets shall meet the requirement of AWWA C900. Oil resistant gaskets may be required in some instances by the District. PVC pipe may not be used in areas subject to contamination by petroleum distillates.

A-4 MARKING

Each standard length of PVC, pipe and coupling if separate sleeve-type couplings are used, shall be marked with the nominal diameter, the OD base (cast iron pipe OD base is required), the material code (PVC 1120), the dimension ratio (DR) number, AWWA C900, the manufacturer's name, and seal of the testing agency that verified the suitability of the pipe material for potable water service.

If pipe is stored at a project site, it shall not be stacked higher than four feet and no weight shall be placed on bells or couplings. Stored pipe shall be covered to protect it from ultraviolet light (sun's rays). PVC pipe with noticeable color changes resulting from exposure to ultraviolet light may be rejected at the discretion of the District.

B FITTINGS

Fittings shall be manufactured of ductile iron conforming to the requirements of AWWA C110, 350 psi pressure rating. All fittings shall be cement-mortar lined in accordance with AWWA C104.

Ductile iron fittings conforming to AWWA C153 ("compact fittings") may be used where restrained joint fittings and pipe are used to resist thrust instead of concrete thrust blocks, subject to approval by the District. "Compact fittings", if used, shall be cement mortar lined in accordance with AWWA C104.

Fittings shall be rubber ring, hub end, suitable for direct connection to the mating PVC pipe except when connecting to a valve. Valves and fittings shall be flanged together.

Flanges shall conform to the bolt circle and bolt hole dimensions for flanges in AWWA C110. Gaskets for flanged joints shall be full-face, cut from 1/8-inch thick rubber with bolt holes prepunched.

Nuts and bolts for bolting flanged joints shall be standard hexagonal head machine bolts and hexagonal nuts conforming to the requirements of ASTM A307, Grade B. All buried flanged-end fittings shall be bolted with cadmium-plated steel nuts and bolts. All bolts shall be lubricated with graphite and oil. Flanged faces shall be wire brushed and cleaned prior to joining each flange.

All buried fittings and valves shall be wrapped in polyethylene film per the Technical Specifications for Plastic Film Wrap.

C INSTALLATION

Trenching, bedding of PVC pipe, and backfilling of trenches shall conform to the Technical Specification for Earthwork.

Unless a separate sleeve-type coupling jointed pipe is used, the manufacturer of which recommends deflecting pipe at the joints to follow a curved alignment, deviations from a straight pipeline alignment shall be made only by use of cast iron fittings, or pipe couplings with District approval. Joining of pipe shall be in accordance with the manufacturer's printed instructions, which shall be furnished to the District. Fittings shall be supported independently of the pipe. Five-foot lengths of pipe shall be used in and out of each fitting and valve and wherever pipe passes through a rigid structure.

Concrete thrust blocks shall be installed at the locations and in accordance with the Plans and shall consist of concrete containing not less than six sacks of portland cement per cubic yard. Concrete thrust blocks shall be placed between the undisturbed ground and the fittings to be anchored. The bearing area against undisturbed soil shall be as shown on the Plans. The concrete shall be so placed that the pipe joints and fittings will be accessible to repairs.

Insulated tracer wire shall be placed above all PVC pipe and service laterals, tracer wire shall be 12-gauge minimum. Bring tracer wire up in valve boxes, meter boxes, etc. Coil wire in box with sufficient length to extend two feet above finish grade.

At times when pipe laying is not in progress, the open end of pipes shall be closed by a vermin-proof plug secured so as to discourage tampering by children.

D HYDROSTATIC TESTING AND DISINFECTION OF POTABLE WATER LINES

Installed pipe shall be tested and disinfected in accordance with the Technical Specification for Testing and Disinfection of Water Pipe.

--END OF SECTION--

**TECHNICAL SPECIFICATIONS
FOR
RESILIENT SEAT GATE VALVES**

A GENERAL

These specifications designate the requirements for the manufacture and installation of resilient seat gate valves.

B MATERIALS AND WORKMANSHIP

B-1 GENERAL

Resilient seat gate valves shall conform to the requirements of AWWA C-509 and the requirements set forth herein.

Resilient seat gate valves, unless otherwise indicated, shall be the same size as the main in which they are installed and shall be connected to ductile iron fittings by flanges or mechanical joints. All valves shall be non-rising stem, counterclockwise opening. Valves shall have the same type ends as the pipe or fitting on which they are installed. Valves are to have 2-inch-square cast-iron operating nuts. Valves shall be marked with raised lettering cast on the body indicating manufacture and working pressure. Minimum water working pressure to be 200 psig.

Valves shall be iron bodied, bronze mounted, with modified wedge disc or parallel-faced disk with replaceable resilient seats. The bronze stem nut shall be solid bronze conforming to ASTM B-62 (4-6% zinc). The bronze stem shall be cast bronze or forged bronze bar stock containing a maximum of 2% zinc. Valves shall be manufactured by Mueller, Clow or approved equivalent.

B-2 INTERIOR AND EXTERIOR COATINGS

The interior of the valve body and wedge shall be coated at the place of manufacture. Surfaces shall be sandblasted in accordance with SSPC-SP-5 (white metal blast cleaning). Interior coating shall consist of two coats of epoxy resin, Keysite 740 or equal, applied to a minimum total dry-film thickness of 10 mils. The exterior of valves shall be coated with epoxy at the place of manufacture.

B-3 VALVE BOXES

Valve box assemblies shall conform to the requirements shown on the Standard Detail for Valve Boxes W-7.

B-4 FLANGED VALVES

Valves with flanged ends shall be bolted with cadmium plated steel machine bolts and nuts conforming to ASTM A-307, Grade B. All bolt threads shall be lubricated with graphite and oil prior to installation. Flange faces shall be wire brushed and cleaned prior to joining each flange. Gaskets shall be full-face, 1/8-inch neoprene (durometer 60-80) with prepunched bolt holes.

B-5 MECHANICAL JOINTED VALVES

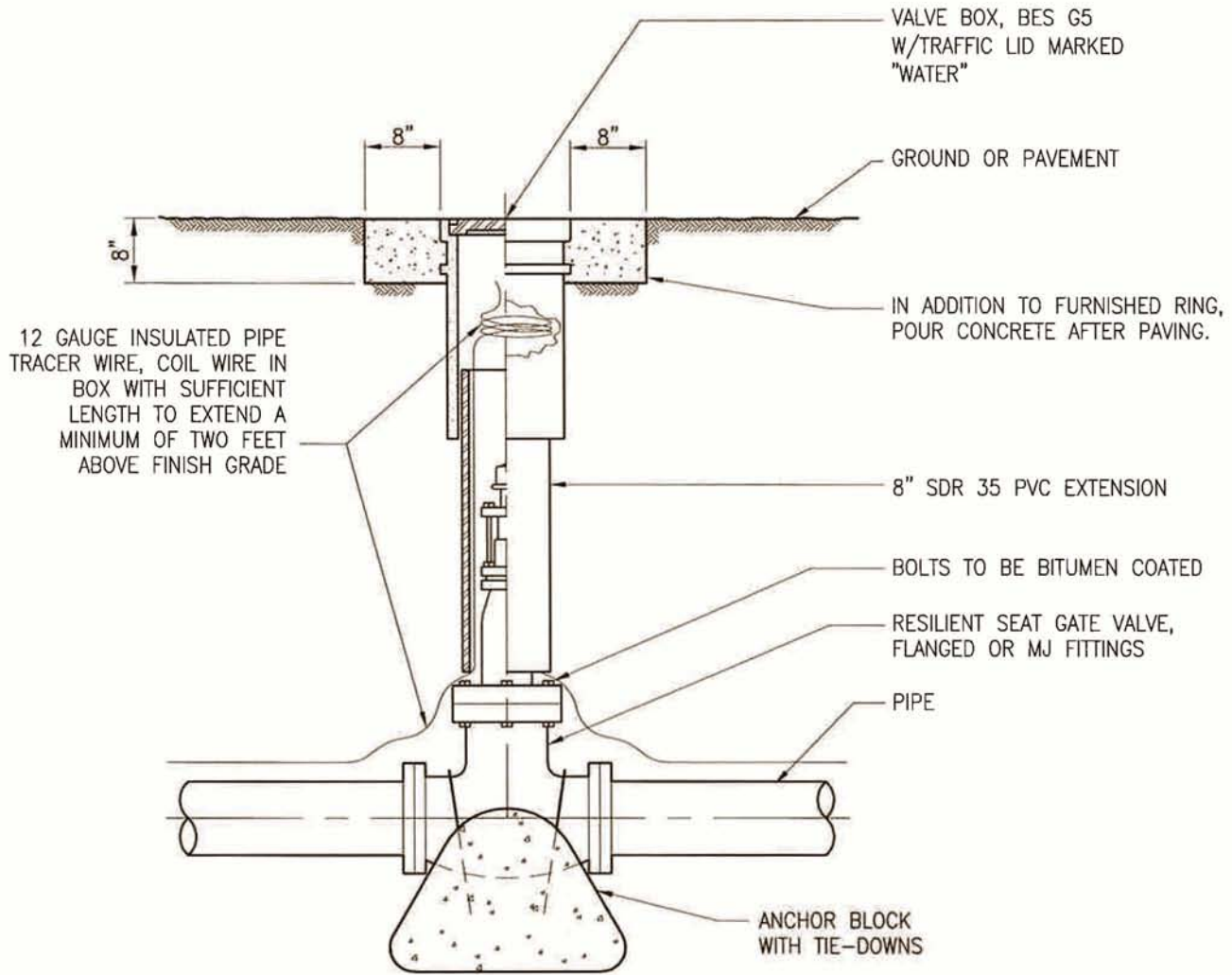
Valves with mechanical joint ends shall conform to the requirements of AWWA C111. Gaskets shall conform to AWWA C111 with duck tips and backs.

B-6 PLASTIC FILM WRAP

All buried valves and fittings shall be completely encapsulated with a 10-mil wrap of polyethylene film as set forth in the Technical Specifications for Plastic Film Wrap of Valves, Flanges and Other Fittings.

--END OF SECTION--

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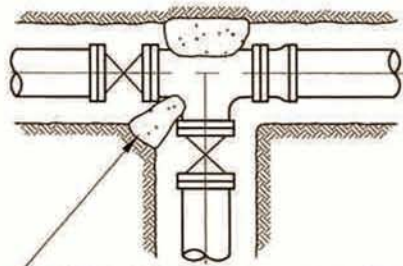
SECTION - ELEVATION

NOTE:
 WHEN VALVE BOX IS USED FOR SEWER APPURTENANCE, THE LID SHALL BE MARKED "SEWER".

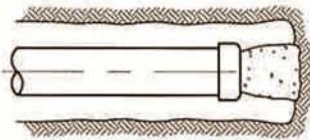
NIPOMO
 COMMUNITY SERVICES DISTRICT

VALVE BOX ASSEMBLY

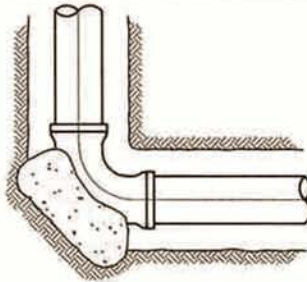
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			JULY 2007	W-3



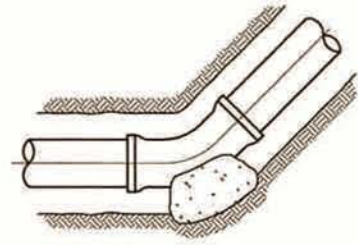
CONDITION 1
(OUTLET OR FIRE HYDRANT)



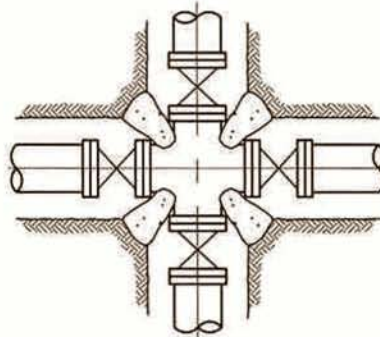
CONDITION 4
(END CAP)



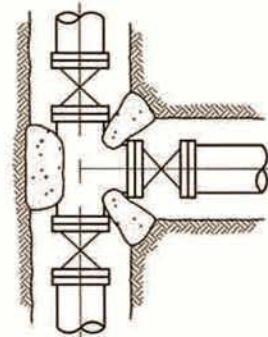
CONDITION 2
(ANGLE = 90°)



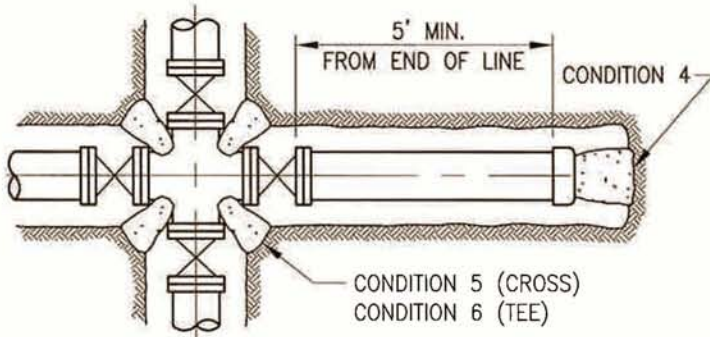
CONDITION 3
(ANGLE = 45°)



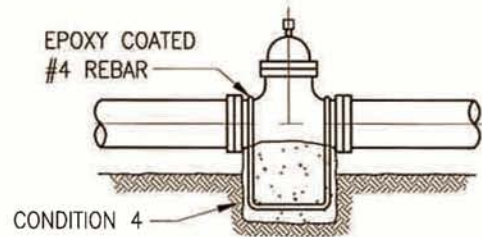
CONDITION 5
(MAINLINE CROSS)



CONDITION 6
(MAINLINE TEE)



CROSS OR TEE AT END OF LINE



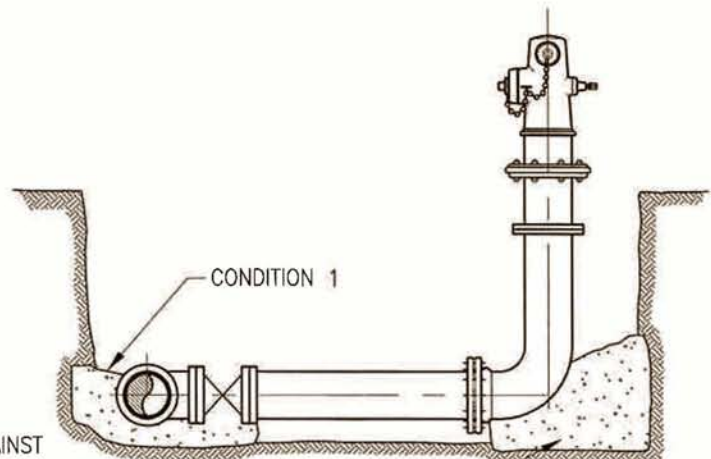
ANCHOR FOR IN LINE VALVES

PIPE SIZE	THRUST BLOCK BEARING AREA IN SQ. FT.					
	CONDITION					
	1	2	3	4	5	6
6"	5.0	7.0	4.0	5.0	3.5 EACH	3.5 EACH
8"	8.5	12.0	6.5	8.5	6.0 EACH	6.0 EACH
10"	13.0	18.5	10.0	13.0	9.0 EACH	9.0 EACH
12"	18.5	26.0	14.0	18.5	13.0 EACH	13.0 EACH

BASED ON 1500 P.S.F., 200 P.S.I. TEST PROCEDURE

NOTES:

1. SIZE THRUST BLOCK ACCORDING TO THE LARGEST OUTLET DIAMETER ON TEE OR CROSS.
2. ALL THRUST BLOCK BEARING FACES SHALL BE POURED AGAINST UNDISTURBED SOIL OR APPROVED COMPACTED MATERIAL.
3. SEE SPECIFICATIONS FOR CONCRETE REQUIREMENTS.



FIRE HYDRANT

NIPOMO
COMMUNITY SERVICES DISTRICT

TYPICAL THRUST BLOCK DETAILS

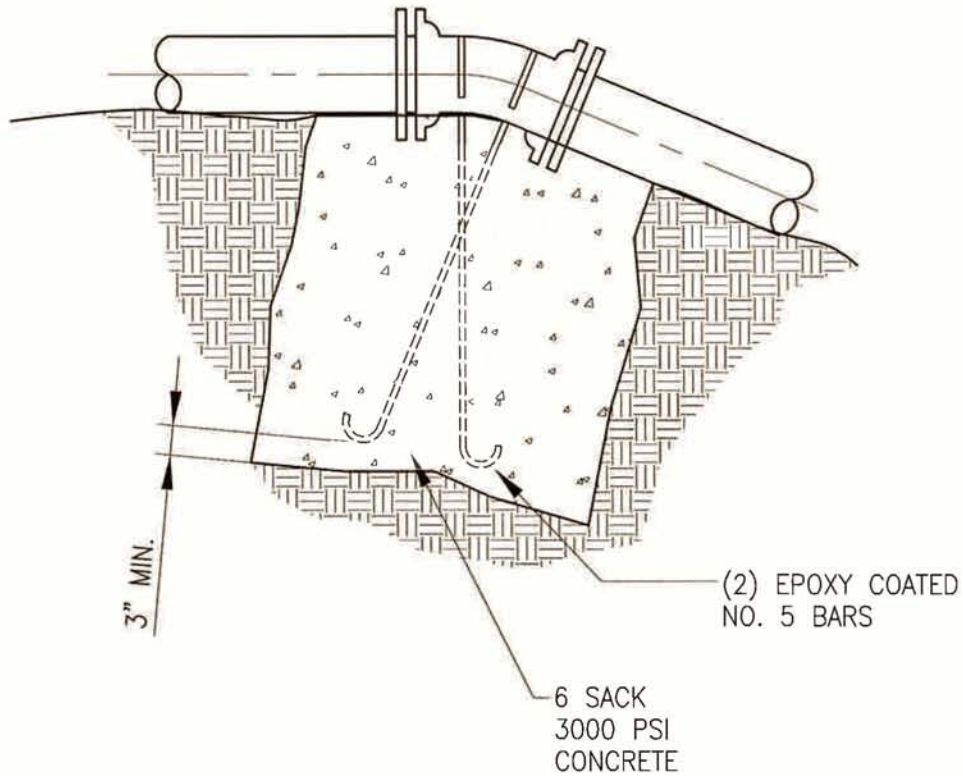
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DATE DRAWN
JULY 2007

SHEET NO.
W-4

DATE

REVISION



GENERAL NOTES:

1. CONCRETE BLOCK SHOULD BE APPROXIMATELY EQUAL IN ALL DIMENSIONS.
2. ALL BOLTED FLANGED ITEMS SHALL HAVE 30 MIL PLASTIC WRAP AND TAPED COVERING BOLTS AND FITTINGS.

CONCRETE VOLUME			
SIZE	11-1/4' BEND	22-1/2' BEND	45' BEND
12"	1 YD	3 YDS	6 YDS
10"	1 YD	2 YDS	4 YDS
8"	0.5 YD	1 YD	2 YDS

NIPOMO
COMMUNITY SERVICES DISTRICT

STANDARD ANCHOR BLOCK DETAIL

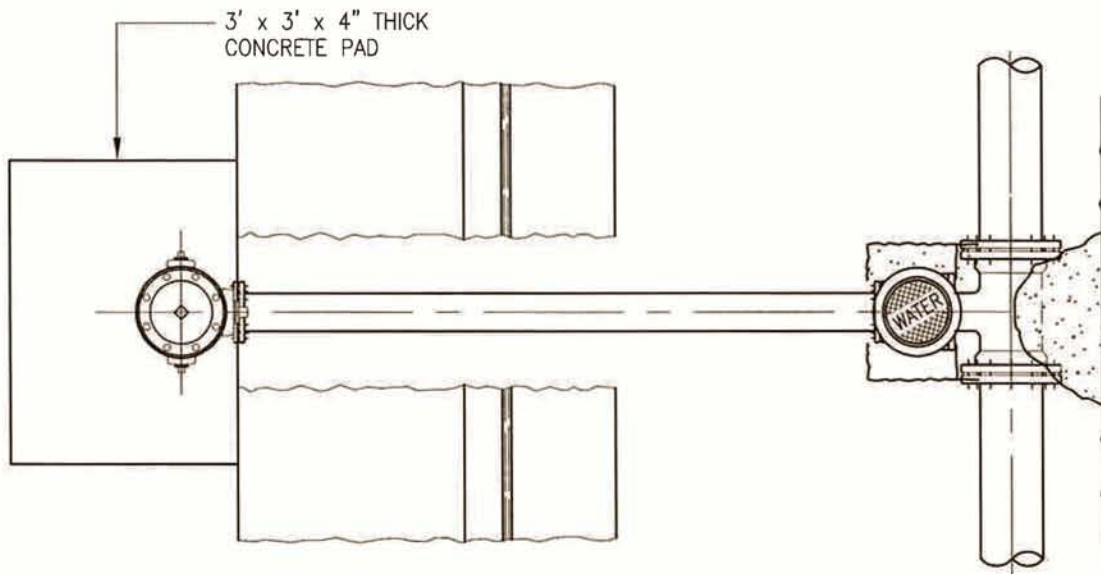
BOYLE ENGINEERING CORPORATION

DATE DRAWN
JULY 2007

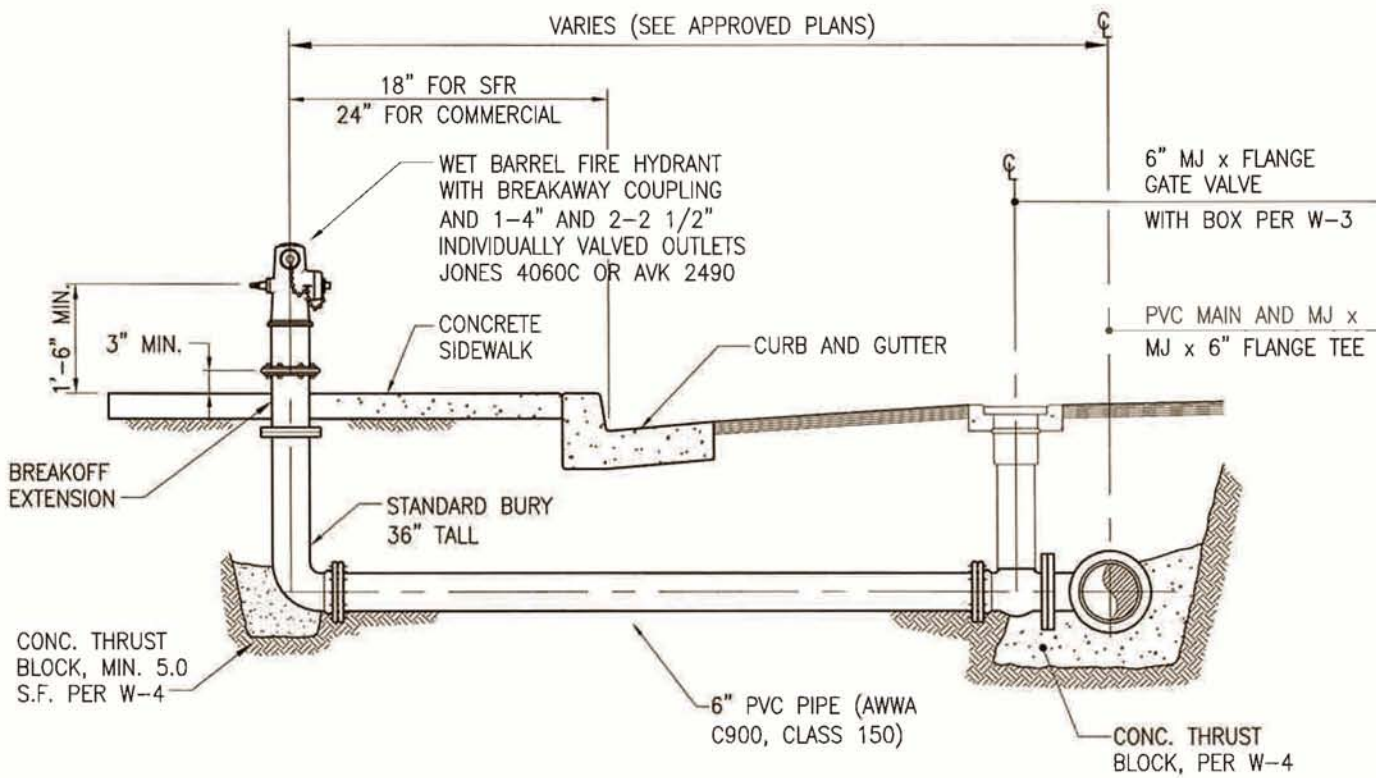
SHEET NO.
W-5

DATE REVISION

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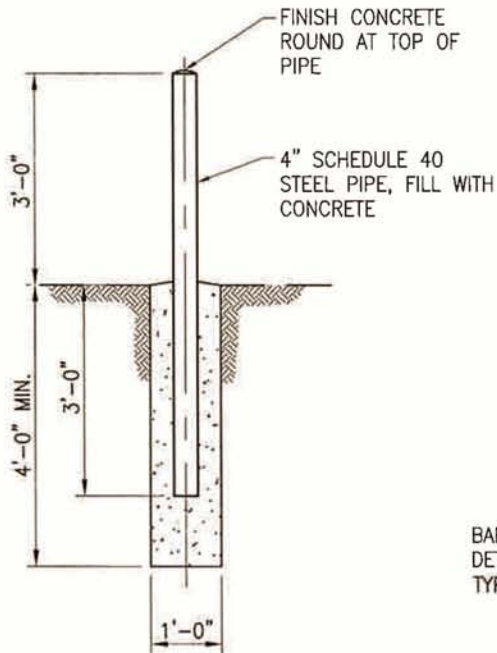
PLAN



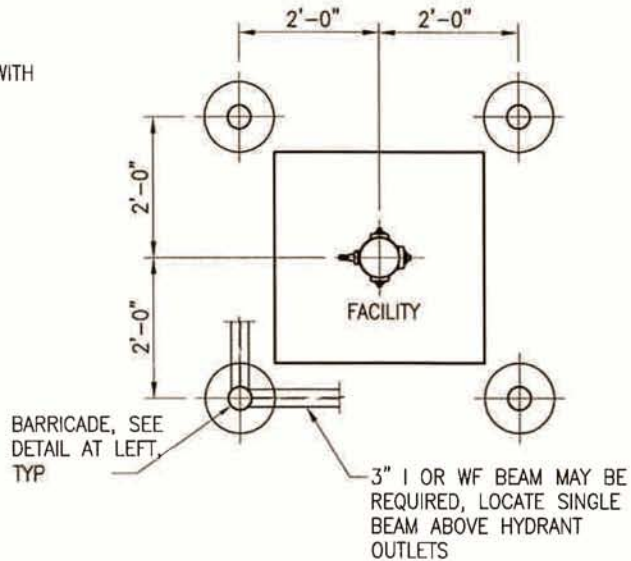
ELEVATION

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 DATE: Aug 09, 2007 9:22am XREFS: JULY 2007 BORDER

		NIPOMO COMMUNITY SERVICES DISTRICT	
		FIRE HYDRANT ASSEMBLY	
		<i>BOYLE ENGINEERING CORPORATION</i>	DATE DRAWN JULY 2007
DATE	REVISION		SHEET NO. W-6



**BOLLARD/BARRICADE
DETAIL**



**BOLLARD/BARRICADE
PLAN**

NOTES:

1. EXACT LOCATION OF BARRICADES MAY BE CHANGED BY THE DISTRICT IN THE FIELD.
2. SEE APPROVED PLANS FOR NUMBER OF BARRICADES TO BE USED AND FOR BRACES, IF REQUIRED.
3. THE EXTERIOR OF THE ABOVE GROUND PORTION OF THE BARRICADE SHALL BE PAINTED WITH TWO COATS OF DEVOE BAR-RUST 233H EPOXY COATING AND TWO COATS OF DEVOE NO. 379 DEVTHANE (MEDIUM YELLOW).
4. FOR SAFETY, BARRICADES SHALL NOT BE INSTALLED INSIDE THE CLEAR ZONE OF A ROADWAY AS DEFINED BY CALTRANS.

		<p>NIPOMO COMMUNITY SERVICES DISTRICT</p>		
		<p>BOLLARD/BARRICADES</p>		
		<p><i>BOYLE ENGINEERING CORPORATION</i></p>		
DATE	REVISION	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">DATE DRAWN JULY 2007</td> <td style="width: 40%;">SHEET NO. W-7</td> </tr> </table>	DATE DRAWN JULY 2007	SHEET NO. W-7
DATE DRAWN JULY 2007	SHEET NO. W-7			

**TECHNICAL SPECIFICATIONS
FOR
PLASTIC FILM WRAP OF VALVES, FLANGES
AND OTHER FITTINGS**

A GENERAL

This specification designates the requirements for the manufacture and installation of polyethylene plastic wrap around all valves, flanges, and other fittings when buried underground.

B MATERIALS

The polyethylene film shall be of virgin polyethylene and shall meet the requirements of ASTM D 1248 for Type I, Class A, Grade E-1 and shall have a flow rate not exceeding 0.4 grams/minute per ASTM D 1238.

The polyethylene film shall be 10 mils in thickness. The length shall be sufficient to firmly attach the film to the pipe on either side of the valve, flange or fitting. The following minimum flat sheet widths shall be used for the specified valve sizes:

Nominal Valve or Flange Size (Inches)	Minimum Flat Sheet Width (Inches)
6	24
8	24
10	30
12	36
16 and Larger	48

Tape for securing the polyethylene wrap shall be 2-inch-wide adhesive tape, such as Polyken 900 (polyethylene), Scotchwrap 5 (polyvinyl), or approved equal. The tape shall be such that the adhesive will bond securely to both metal surfaces and polyethylene film.

C INSTALLATION

The valves shall be wrapped by passing the flat sheet of film under the valve bottom and bringing the ends up around the body to the stem and securing it in place with 2-inch strips of the plastic adhesive tape. The polyethylene shall be secured around the valve stem in such a manner as to leave the stem free to operate. The film shall be brought completely around the flanges and secured to the pipe with plastic adhesive tape on either side of the valve, flange or fitting.

--END OF SECTION --

**TECHNICAL SPECIFICATIONS
FOR
WATER SERVICES**

A WATER SERVICES

Water services shall be installed at the location shown on the Plans using the type of materials, valves, and appurtenances as shown on the Standard Details included with these Specifications. The water services shall be terminated at an angle meter stop at the locations shown on the Standard Details.

B WATER METERS

Water meters shall be installed by the District (refer to Standard Detail W-3).

C METER BOXES

Concrete meter boxes shall be purchased and installed by the Owner for each meter connection as shown in Standard Detail W-3.

D MATERIALS

Schedule 80 PVC or copper tubing shall be used for all services.

Angle meter stop, corporation stop, and customer valve shall be ball type. Angle meter stops and customer valves shall be lockable. Water service materials are listed below, and are also indicated on the appropriate standard detail. Alternate equivalent materials may only be used with written approval from the District.

D-1 SERVICE SADDLES

For AC/DI PIPE

1" – 2" FIP TAP W/BRZ BODY AND BRZ STRAPS

JAMES JONES PART # J979

FORD PART # 202B

For PVC C900 PIPE

1" – 2" FIP TAP W/BRZ BODY AND SS STRAPS

JAMES JONES PART # J969

FORD PART # 202BS

D-2 CORP STOPS - BALL TYPE

1"- 2" MIP X CTS COMPRESSION BALL CORP

JAMES JONES PART # J1535

FORD PART #FB1100

1" – 2" MIP X PVC COMPRESSION BALL CORP
JAMES JONES PART #J1977
FORD PART # FB1102

D-3 ANGLE METER STOP - BALL TYPE

1" CTS X MCN COMPRESSION ANGLE BALL VALVE
JAMES JONES PART# J1963W
FORD PART # BA43-W

1-1/2" – 2" CTS COMPRESSION X METER FLG BALL VALVE
JAMES JONES PART # J1975W
FORD PART # BFA43-W

1" PVC COMPRESSION X MCN ANGLE BALL VALVE
JAMES JONES PART #J4211W
FORD PART # NOT AVAILABLE

1-1/2" – 2" PVC COMPRESSION X METER FLANGE
JAMES JONES PART # J1979W
FORD PART # NOT AVAILABLE

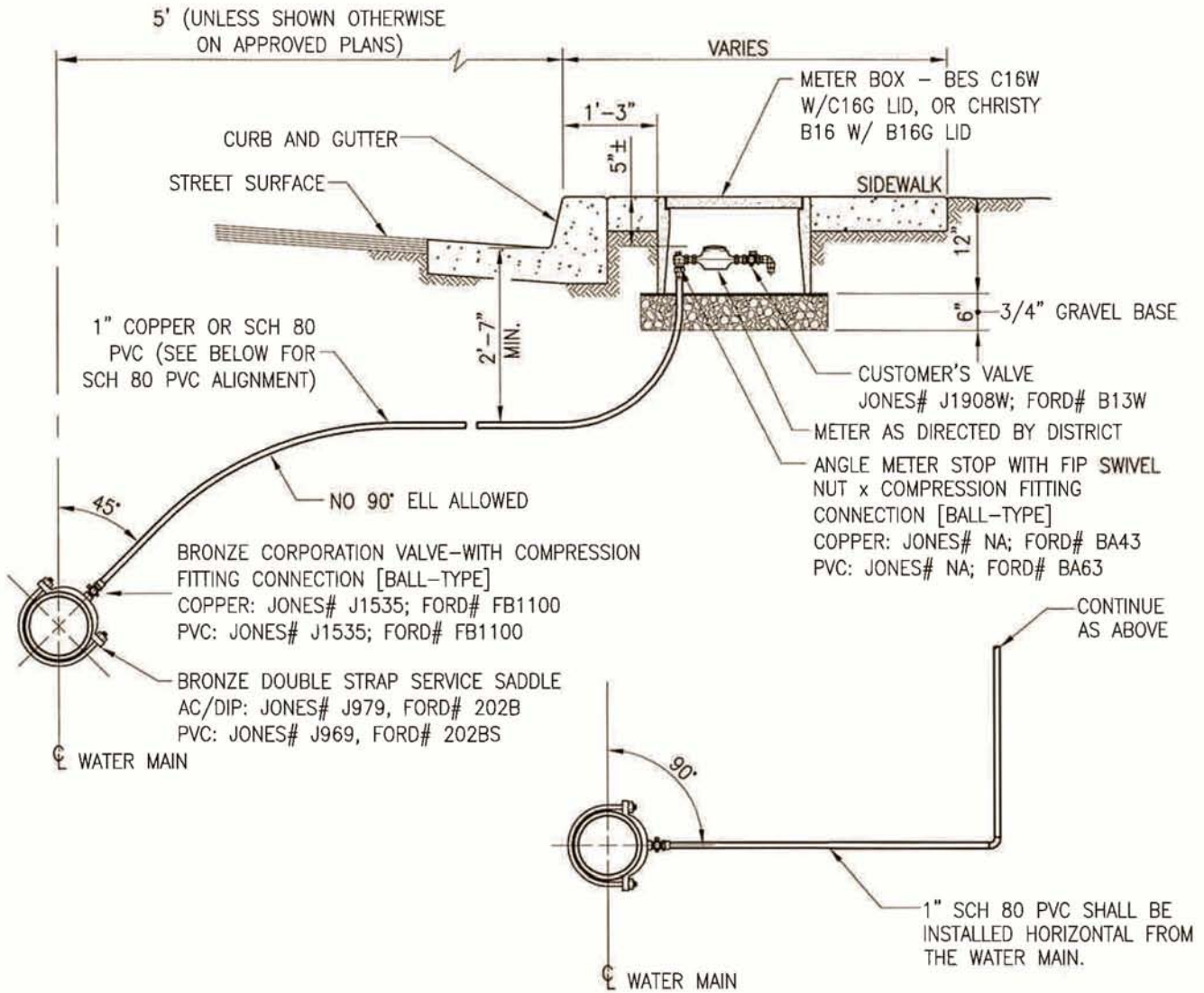
D-4 CUSTOMER BALL VALVE

1" FIP X MCN BALL VALVE W/LEVER HANDLE
JAMES JONE PART # J1908W
FORD PART # B13-W

1-1/2" - 2" FIP X METER FLANGE BALL VALVE W/LEVER HANDLE
JAMES JONES PART # J1913W
FORD PART # BF13-W

--END OF SECTION--

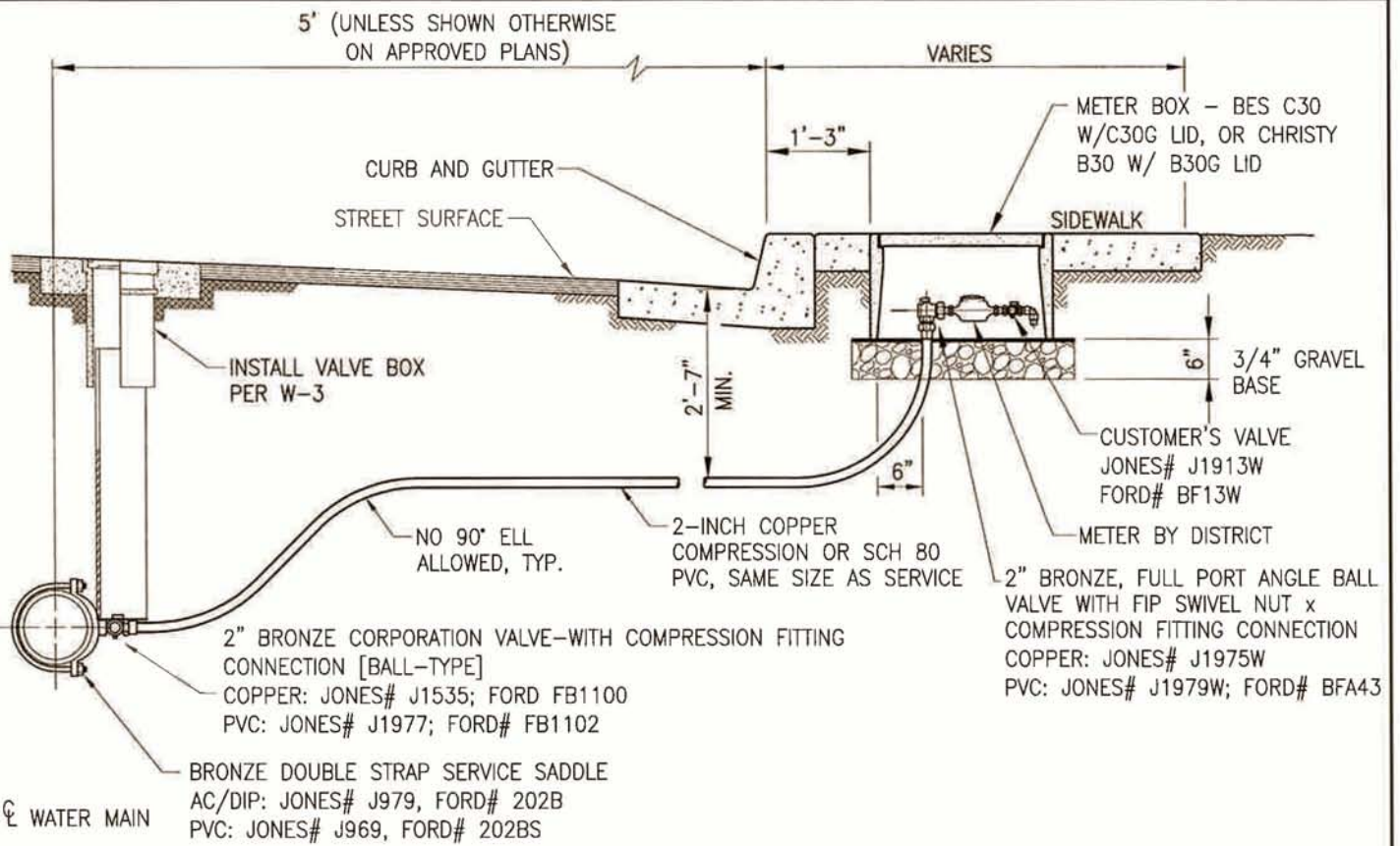
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 DATE: Aug 09, 2007 9:27am XREFS: JULY 2007 BORDER
 USER: jfroelicher



GENERAL NOTES:

1. SIZE OF THE SERVICE MUST BE APPROVED BY THE DISTRICT, MINIMUM SHALL BE 1-INCH SERVICE.
2. THE WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE METER STOP.
3. METER BOXES SHALL BE CONSTRUCTED IMMEDIATELY BEHIND THE SIDEWALK WHERE SIDEWALKS ARE ADJACENT TO CURB.
4. IF METER BOX IS LOCATED ON A SLOPE NEXT TO A CURB OR SIDEWALK, A PROTECTIVE RETAINING WALL SHALL BE CONSTRUCTED.
5. CORPORATION VALVE TAP SHALL HAVE A SERVICE SADDLE AND SHALL BE MADE AS SPECIFIED BY THE PIPE MANUFACTURER'S INSTALLATION GUIDE. ALL DRY TAPS SHALL BE MADE WITH MACHINE WITH GUIDE OR PILOT FOR TAP. (DIRECT TAPS WILL NOT BE ALLOWED)
6. PROVIDE 12 GAUGE INSULATED TRACER WIRE ALONG EACH SERVICE OF SUFFICIENT LENGTH TO EXTEND INTO METER BOX AND A MINIMUM OF 24-INCHES ABOVE FINISH GRADE. COIL NEATLY INSIDE BOX.
7. SERVICE FOR PARCELS 10,000 SF OR LESS REQUIRE A 3/4" x 1" REDUCING ANGLE STOP OR A REDUCING FITTING.

		NIPOMO COMMUNITY SERVICES DISTRICT	
		3/4" & 1" STANDARD WATER SERVICES	
		<i>BOYLE ENGINEERING CORPORATION</i>	DATE DRAWN JULY 2007
DATE	REVISION		SHEET NO. W-8



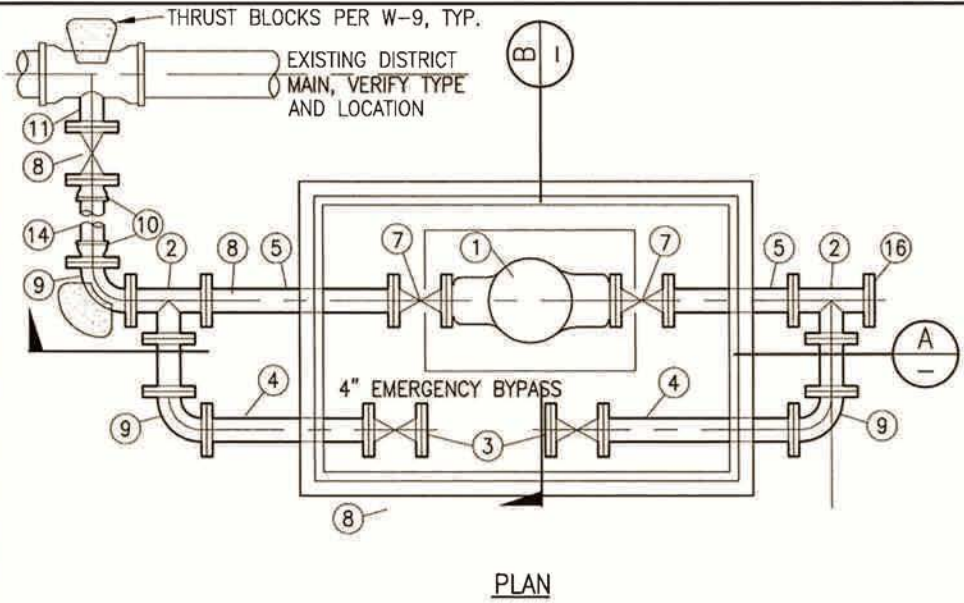
GENERAL NOTES:

1. IF METER BOX IS LOCATED ON A SLOPE NEXT TO A CURB, OR SIDEWALK, A PROTECTIVE RETAINING WALL SHALL BE CONSTRUCTED.
2. CORPORATION VALVE TAP SHALL BE MADE AS SPECIFIED BY THE PIPE MANUFACTURER'S INSTALLATION GUIDE. ALL DRY TAPS SHALL BE MADE WITH MACHINE WITH GUIDE OR PILOT FOR TAP.
3. SIZE OF THE SERVICE MUST BE APPROVED BY THE DISTRICT.
4. THE WATER SERVICE SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE METER STOP.
5. CORPORATION VALVE TAP SHALL HAVE A SERVICE SADDLE AND SHALL BE MADE AS SPECIFIED BY THE PIPE MANUFACTURER'S INSTALLATION GUIDE. ALL DRY TAPS SHALL BE MADE BY MACHINE WITH GUIDE OR PILOT FOR TAP. (DIRECT TAPS WILL NOT BE ALLOWED)
6. PROVIDE 12 GAUGE INSULATED TRACER WIRE ALONG EACH SERVICE OF SUFFICIENT LENGTH TO EXTEND INTO METER BOX AND A MINIMUM OF 24-INCHES ABOVE FINISH GRADE. COIL NEATLY INSIDE BOX.

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 DATE: Aug 09, 2007 9:29am XREFS: JULY 2007 BORDER

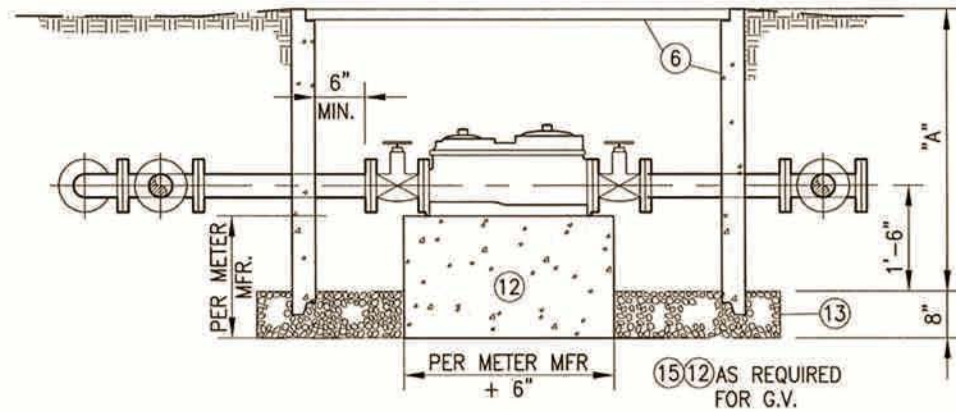
NIPOMO COMMUNITY SERVICES DISTRICT	
1-1/2" & 2" STANDARD WATER SERVICES	
	<i>BOYLE ENGINEERING CORPORATION</i>
DATE	DATE DRAWN JULY 2007
REVISION	SHEET NO. W-9

DWG: W:\Nipomo CSD (19996) \N0910001\WATER STANDARD\CAD\PlanSet\W10.dwg
 DATE: Aug 09, 2007 9:31am XREFS: JULY 2007 BORDER
 USER: jfroelicher



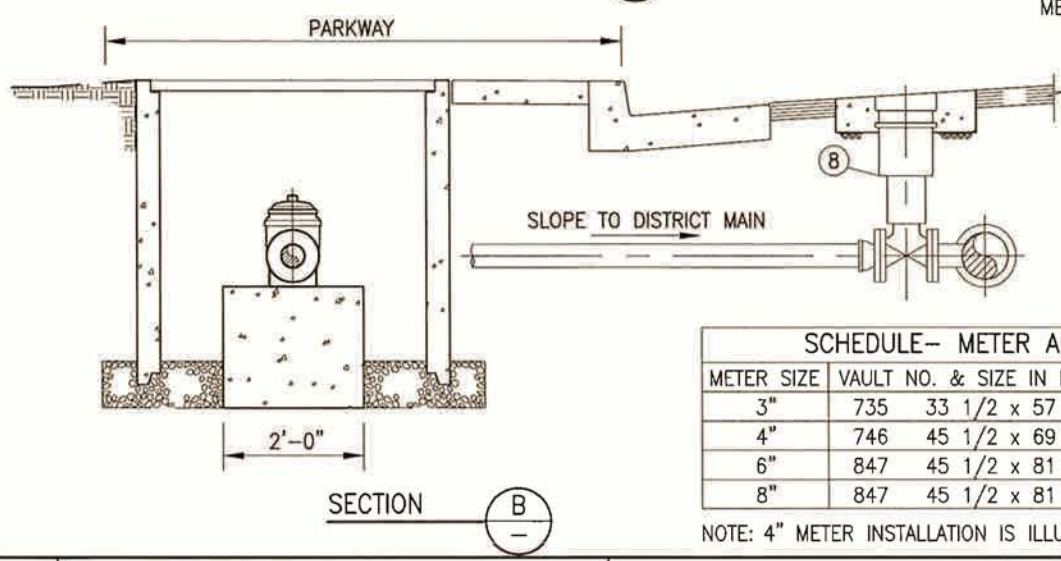
MATERIAL LIST

- ① METER AS DETERMINED BY DISTRICT
- ② DUCTILE IRON PIPE TEE, FLG.x FLG.x FLG.
- ③ BLIND FLANGE
- ④ DUCTILE IRON PIPE, FLG.x FLG.
- ⑤ DUCTILE IRON PIPE, FLG.x FLG.
- ⑥ PRECAST CONCRETE VAULT, GALVANIZED COVER WITH 7"x 14" READING LID
- ⑦ FLANGED GATE VALVE W/ HAND WHEEL
- ⑧ GATE VALVE, FLANGED, WITH VALVE BOX
- ⑨ DUCTILE IRON PIPE 90° BEND, FLG.x FLG.
- ⑩ RESTRAINED FLANGE COUPLING ADAPTER
- ⑪ DUCTILE IRON PIPE TEE WITH FLANGED OUTLET
- ⑫ CLASS "A" CONCRETE SUPPORTS AS REQUIRED TO SUPPORT THE GATE VALVES AND METER
- ⑬ CLASS II AGGREGATE BASE
- ⑭ POLYVINYL CHLORIDE PIPE, (PVC), AWWA C900 OR DUCTILE IRON PIPE
- ⑮ ADJUSTABLE PIPE SUPPORT, REQUIRED FOR 6" AND 8" ONLY
- ⑯ BLIND FLANGE



SECTION A-A

NOTE: 3" METER SHALL HAVE 4" DIAMETER PIPING AND VALVES REDUCED TO 3" AT THE METER.



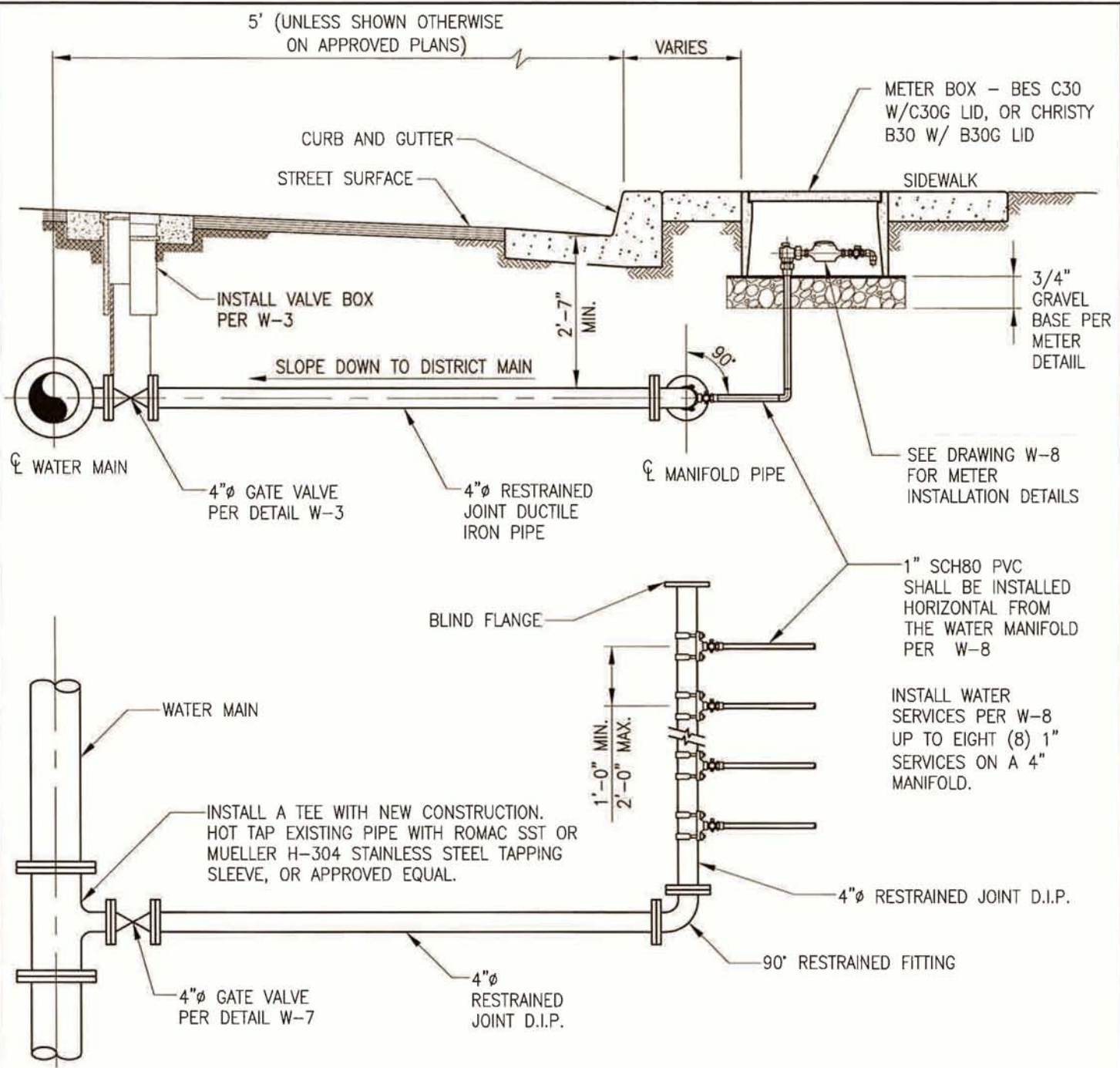
SECTION B-B

SCHEDULE-- METER AND VAULT SIZES		
METER SIZE	VAULT NO. & SIZE IN INCHES	DIMENSION "A"
3"	735 33 1/2 x 57 1/2	3'-3"±
4"	746 45 1/2 x 69 1/2	4'-0"±
6"	847 45 1/2 x 81 1/2	4'-0"±
8"	847 45 1/2 x 81 1/2	4'-0"±

NOTE: 4" METER INSTALLATION IS ILLUSTRATED ON THIS SHEET.

NIPOMO COMMUNITY SERVICES DISTRICT	
STANDARD LARGE DIAMETER WATER METER	
<i>BOYLE ENGINEERING CORPORATION</i>	DATE DRAWN JULY 2007
DATE REVISION	SHEET NO. W-10

DWG: W:\Nipomo CSD (19996) \N0910001\WATER STANDARDS\CAD\Plans\W11.dwg USER: jfroelicher
 DATE: Aug 09, 2007 9:34am XREFS: JULY 2007 BORDER



GENERAL NOTES:

1. IF METER BOX IS LOCATED ON A SLOPE NEXT TO A CURB, OR SIDEWALK, A PROTECTIVE RETAINING WALL SHALL BE CONSTRUCTED.
2. SIZE OF THE SERVICE MUST BE APPROVED BY THE DISTRICT.
3. THE WATER MAINFOLD SHALL EXTEND PERPENDICULAR TO THE CENTERLINE OF THE STREET FROM THE WATER MAIN TO THE ELBOW AND SHALL HAVE TAPE MARKED "CAUTION WATER LINE BELOW". TAPE TO BE 15-INCHES ABOVE THE PIPE.
4. PROVIDE 12 GAUGE INSULATED TRACER WIRE ALONG EACH SERVICE OF SUFFICIENT LENGTH TO EXTEND INTO METER BOX AND A MINIMUM OF 24-INCHES ABOVE FINISH GRADE. COIL NEATLY INSIDE BOX.

		NIPOMO COMMUNITY SERVICES DISTRICT	
		4" MANIFOLD WATER SERVICE	
DATE	REVISION	BOYLE ENGINEERING CORPORATION Copy of document found at www.NoNewVipTAX.com	DATE DRAWN JULY 2007
			SHEET NO. W-11