CITY OF NEWPORT BEACH
PUBLIC WORKS DEPARTMENT

STANDARD SPECIAL PROVISIONS
FOR USE IN CONJUNCTION WITH THE
STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION

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1-2 DEFINITIONS

CITY COUNCIL - The officer or body constituting the awarding authority of the Agency, also known as BOARD.

CITY OR PUBLIC WORKS DEPARTMENT - City of Newport Beach Public Works Department, the legal entity for which the work is being performed, also known as AGENCY.

PUBLIC WORKS DIRECTOR - The Chief Engineer of the Agency, or other person designated by the BOARD, acting either directly or through authorized agents, also known as ENGINEER.

STANDARD DRAWINGS - Details of standard structures, devices or instructions published by the City and referred to on the plans or in specifications by title or number, also known as STANDARD PLANS.

STANDARD SPECIAL PROVISIONS - Special provisions published by the City which supplement or modify the STANDARD SPECIFICATIONS for all public works construction in the City.

STANDARD SPECIFICATIONS - Standard specifications for Public Works Construction, latest edition and supplement adopted by the City, published by Building News, Incorporated; 3055 Overland Avenue, Los Angeles, California 90034.

WATCH - Work Area Traffic Control Handbook, latest edition adopted by the City, published by Building New, Incorporated; 3055 Overland Avenue, Los Angeles, California 90034.

1-3 ABBREVIATIONS

1-3.2 Common Usage - Add the following:

Abbreviation	Words
CMP	Corrugated Metal Pipe
CML&CSP	Cement Mortar Lined & Coated Steel Pipe
FE	Flange End
FLG	Flange or Flanged
FPS	Feet Per Second
GPS	Global Position System
HDCLPE	High-density Cross-laminated Polyethylene
HDPE	High Density Polyethylene
HWY	Highway
ICV	Irrigation Control Valve
IPS	Iron Pipe Size
MJ	Mechanical Joint
MLCCSP	Mortar Lined Cement Coated Steel Pipe
NTS	Not to Scale
RCSCP	Reinforced Concrete Steel Cylinder Pipe
SFM	Sewer Force Main

SMH ..... Sewer Manhole
W..... West or Water
WWF ..... Welded Wire Fabric

2-1 AWARD AND EXECUTION OF THE CONTRACT

2-1.1 Award of Contract

The award of the contract will be to the lowest responsible bidder whose proposal complies with all requirements described in the Notice Inviting Bids. The award, if made, will be within forty-five (45) calendar days after opening of the bids.

2-1.2 Execution of Contract

The contract documents shall be executed by the successful bidder and returned to the Engineer within ten (10) days (not including Saturday, Sunday, and Federal holidays) from the date of the mailing of contract documents to the bidder for execution. A proposal shall not be considered binding upon the City until the execution of the contract by the City.

For work to be accomplished under a State Improvement Act, the contract shall be executed by the successful bidder within the time limits set forth in the particular State Improvement Act stipulated in the Resolution of Intention.

2-1.3 Time of Completion

The time of completion shall commence upon the date of award of contract, and is expressed in consecutive calendar days or by a specific date of completion.

2-1.4 Pre-construction Conference

The Contractor and Engineer shall meet in pre-construction conference at the Engineer's office, Public Works Department, 3300 Newport Boulevard, Newport Beach, California 92658-8915, telephone (949) 644-3311.

The Contractor shall contact the Engineer to schedule a pre-construction conference at a time and date convenient to both parties. At or before the conference, the Contractor shall furnish to the Engineer fully executed contract documents, permits, construction schedules, traffic control plans, shop drawings, and all other drawings which must be submitted in advance of the commencement of construction.

The Contractor's representatives at the conference shall include the field personnel who are to direct and supervise the contracted work.

2-5 PLANS AND SPECIFICATIONS

2-5.2 Precedence of Contract Documents

Standard Special Provisions shall rank in precedence between (3) Plans and (4) Standard Plans.

7-8 PROJECT SITE MAINTENANCE

7-8.1 Cleanup and Dust Control

Except for asphaltic concrete wearing surfaces and planted areas, the Contractor, upon completion of the work, shall completely remove all painted markings that were made within and about the construction limits, as required by the work. The cleaned surfaces shall have the same texture and color as adjacent unpainted surfaces. The cost for this portion of work is considered incidental to the work and no additional compensation will be made therefore.

7-8.5 Temporary Light, Power and Water

The Contractor shall make his own provisions for obtaining and applying water necessary to perform his work.

If the Contractor desires to use City water, he shall arrange for a meter, and tender a $750 meter deposit with the City. Upon return of the meter to the City, in good condition, the deposit will be returned to the Contractor, less a quantity charge for construction water usage.

City shall designate to Contractor the location of the fire hydrant or other connection acceptable for withdrawal of construction and temporary water. City reserves the right to limit the location, times and rates of withdrawal of such water.

7-10 PUBLIC CONVENIENCE AND SAFETY

7-10.3 Street Closures, Detours, Barricades

The Contractor shall provide barriers, guards, lights, signs, temporary bridges, flag persons, watch persons, and other safety devices in accordance with WATCH.

At least seven (7) calendar days before approval is required to commence a particular item of work, the Contractor shall submit to the Engineer, drawings indicating street closures, detours and barricades and all other safety devices. Such drawings shall be submitted in accord with Standard Specifications Section 2-5.3, Shop Drawings & Submittals.

207-9 CAST IRON AND DUCTILE IRON PIPE

207-9.2.1 General

Cast iron pipe and cast iron fittings shall not be permitted for water or other liquids.

Where ductile iron is specified for water pipe and for water fittings, cast iron shall not be considered an equivalent or a suitable alternate.

207-9.2.2 Pipe Joints

Flanged pipe joints manufactured in accord with AWWA specification C-115 shall have ductile iron thread-on flanges. Cast or grey iron flanges are not acceptable.

207-9.2.3 Fittings

Ductile iron fittings shall be manufactured in accord with AWWA specification C-110, latest revision.

Compact pattern body ductile iron fittings manufactured in accord with AWWA specification C-153, latest revision, may be used by special permission of the Utilities Department.

207-9.2.6 Polyethylene Encasement for External Corrosion Protection

Polyethylene (PE) wrap at least eight mils thick shall encase all ductile iron pipe and fittings as specified in AWWA specification C-105, latest revision.

As an alternate, to the eight-mil thick, low density (PE), the use of high-density cross-laminated polyethylene (HDCLPE) material specified in the latest revision of AWWA C-105 is acceptable.

207-10 STEEL PIPE

207-10.2.2 Design Criteria

The use of steel pipe for water main requires special permission from the Engineer and shall be subject to special design requirements. In no case shall the steel pipe wall thickness be less than G-inch.

Unless otherwise specified, the minimum thickness for steel pipe shall conform to the following table:

Pipe Diameter	Minimum Thickness
Up to 12"	0.2500"
16", 18" & 20"	0.3125"
24", 30" & 36"	0.3750"

207-10.2.5 Joints

Bell and spigot ends with rubber gaskets nor other Carnegie-Style gasketed joints, nor rolled-steel lap joints for steel pipe shall be specified without special permission from the Engineer.

Joints for steel pipe shall be full penetration double-butt welded joints. Joints shall have steel butt-straps welded inside and out. Refer to the project plans for joint welding details.

Where pipe diameter is less than 30 inches, butt-straps shall be fabricated with 4-inch diameter threaded hand-holes to allow mortar lining of the pipe interior joint.

Butt-straps shall be furnished as half-cylinders.

Special pipe sections, not designed for direct burial and smaller than 30 inches in diameter shall be joined by full penetration butt welding. Where these joints cannot be welded inside the pipe joint, the joints shall be completed with a manufactured backing ring. Backing rings shall be as manufactured by Robvon® of Avenel, New Jersey or approved equal.

207-10.2.7 Special Sections

Steel pipe fittings shall be factory forged-type, smooth radius, steel pipe fittings with beveled ends for butt-welding.

Fabricated or mitred-type pipe bends and fittings referenced in the AWWA standards shall not be permitted and shall not be used.

All fittings shall be mortar lined and coated at the factory by the manufacturer in accord with AWWA specifications for cement mortar lining. Exterior coatings shall be as specified by the Engineer.

207-11 CORRUGATED STEEL PIPE AND PIPE ARCHES

207-11.1 General

Unless otherwise specified, the minimum gage for corrugated steel pipe shall conform to the following:

Pipe Diameter	Minimum Gage Thickness
Up to 24"	16
30"	14
36" & 42"	12
48" & 54"	10
60" & 66"	8

Corrugated steel pipe shall have 2O" x H" annular corrugations. A bituminous coating shall be applied to corrugated steel pipe exterior and bands in accordance with the requirements of this Section prior to shipment from the factory. The bottom 90° quadrant of the pipe interior shall be coated with a factory applied, pre-approved bituminous coating.

207-13 CORRUGATED ALUMINUM PIPE AND PIPE ARCHES

207-13.1 General

Unless otherwise specified, the minimum gage for corrugated aluminum pipe shall conform to the following:

Pipe Arch Diameter	Gage
Through 12"	14
15" through 21"	12
24"	10
30"	8

Corrugated aluminum pipe shall have 2O" x H" annular corrugations. A bituminous coating shall be applied to corrugated aluminum pipe and bands in accordance with the requirements of this Section prior to shipment from the factory.

207-17 PVC PLASTIC PIPE

PVC pipe specified under this section of the Standard Specifications may not be used for potable water system construction.

207-17.3.3 Solvent Cement Joints

Solvent cement joints shall not be used without special approval from the Engineer.

207-17.3.4 Injection Sealed Joints

Injection sealed joints shall not be used without special approval from the Engineer.

207-25 POLYVINYL CHLORIDE (PVC) PLASTIC PRESSURE PIPE

207-25.1 General

All polyvinyl chloride (PVC) pipe less than 18 inches in diameter, used for water mains, shall be SDR-14 (Class 200) and shall be manufactured in strict accord with the latest revisions of AWWA Standard C-900 and the applicable ASTM standards, unless otherwise noted.

All PVC pipe used for water mains 18 inches or larger shall be manufactured in strict accord with the latest revisions of AWWA Standard C-905. The class of the pipe shall be as indicated on the plans. However, in no case shall it be less than pressure class 150.

207-21.2 Material & Conformance Requirements

Pipe shall have integral bell and spigot joints with elastomeric gaskets in accord with AWWA Standard C-900 Section 2.2. Elastomeric gaskets shall comply with the requirements specified in AWWA Standard C-900 Sections 2.1.5 and 2.1.5.1 and ASTM F-477.

Material used to produce the pipe and couplings shall be made from Class 12454-A or B virgin compounds as defined in AWWA Standard C-900 Section 2.1 and ASTM Standard D-1784, with an established hydrostatic design basis rating of 4,000 psi for water at 73.4° F (23° C).

The manufacturer shall furnish an affidavit stating that all delivered materials comply with the requirements of AWWA Standard C-900 and these special provisions.

The pipe shall be as manufactured by J-M Manufacturing Company, Certainteed Corporation, Pacific Western Extruded Plastics Company or City approved equal.

207-21.3 Pipe & Coupling Color & Markings

Each pipe length shall be marked showing the nominal pipe size, O.D. base, material code, e.g., "PVC 1120", dimension ratio number, e.g., DR 14, the AWWA pressure class, and the AWWA specifications designation (AWWA Standard C-900) in accord with AWWA Standard C-900 Section 2.6.

Each coupling shall be marked showing the nominal size, O.D., base material code designation, e.g. PVC, dimension ratio number and AWWA designation number.

For potable water application, the pipe shall be white or blue in color and the seal of the testing agency that verified the suitability of the material for such service shall be included.

For reclaimed water applications, the pipe shall be purple in color and marked as described above and marked, "CAUTION: RECLAIMED WATER - DO NOT DRINK".

207-21.4 Fittings

All fittings for PVC pressure pipe shall be mechanical joint ductile iron fittings. They shall be manufactured in accord with the latest revisions of AWWA Standards C-110, C-153, C-111, C-104 and Section 207-9 of the Standard Specifications. All fittings shall be manufactured from ductile iron material. Cast or grey iron shall not be considered as acceptable or as a suitable alternative material. All fittings connecting PVC pipe shall also have mechanical joint ends and be fitted with retainer glands.

All fittings shall be thrust-blocked and anchored in accord with City of Newport Beach Standard Drawing STD-510-L. Retainer glands shall not be considered a substitute for concrete thrust blocks. Compact body fittings (AWWA Standard C-153) will not be permitted unless otherwise approved by the Utilities Department.

207-21.5 Service Saddles

Service saddles for PVC pressure pipe shall be the wide single-band or flat, double-strap style. Both saddle and band shall be bronze and shall be specifically designed for use with AWWA Standard C-900 PVC pipe.

Each saddle shall accurately fit the outside diameter of the pipe without causing distortion of the pipe. The saddle shall be securely held in place with bolts and nuts. The service saddle shall have a published working pressure at least equal to the pressure class of the pipe on which it is installed.

Service saddles shall be as manufactured by Ford, Romac or James Jones or approved equal by the City of Newport Beach Utilities Department.

All saddles shall be provided with torque information and installation instructions. Saddles shall be installed so they provide full bearing and prevent distortion of the pipe when tightened.

All service connections to PVC pressure pipe water mains shall be constructed with bronze service saddles with iron-pipe threads for receiving a bronze corporation stop in accord with City of Newport Beach Standard Drawings STD-502-L and STD-503-L.

207-21.6 Installation Procedures & Workmanship

PVC pressure pipe and fittings shall be installed per AWWA Manual M-23 "*PVC Pipe - Design & Installation*", and as herein specified.

Pipe and fittings shall be assembled with a non toxic lubricant as recommended by the manufacturer and as approved by the National Sanitation Foundation (NSF).

PVC solvent cements or other solvent primers shall not be used.

Proper care shall be used to prevent damage in handling, moving and placing the pipe. Hoist pipe with equipment to prevent damage. A cloth belt sling or a continuous fiber rope shall be used to prevent scratching the pipe.

The pipe shall be lowered and not dropped from the truck or loading areas. Dropped pipe will be rejected by the City.

All pipe, fitting, valves and other pipeline materials shall be lowered into the trench in a manner that prevents damage, and the pipe shall not be dropped, dragged or handled in a manner that will cause bruises, cracks, scuffing or other damage.

Rubber rings for pipe joints shall be stored and protected in a proper manner to prevent deterioration or damage.

Prior to laying pipe, the bottom of the trench shall be graded and prepared to provide uniform bearing throughout the entire length of each piece of pipe. Bell holes of ample dimension shall be dug in the bottom of the trench at the locations of each joint to facilitate the joining. The trench shall have a flat or semi-circular bottom conforming to the grade to which the pipe is to be laid.

The pipe shall be accurately placed in the trench to the lines and grades on the plans. Where the grade is not shown, pipe shall have a cover of 42 inches in paved areas and 48 inches in unpaved areas. Fittings shall be supported independently of the pipe.

Laying lengths shall be 20 feet with the manufacturer's option to supply up to 15% of the pipe in random (minimum length 10 feet) sections.

207-21.6.1 PVC Pipe Bending & Deflection

Combined horizontal and vertical deflections at PVC pipe joints shall not exceed the manufacturer's recommendation [the maximum total deflection allowed shall be (2°) two degrees].

The pipe shall not be laid along curves at a radius less than that listed below.

The minimum curve radii are determined by the limit of (2°) two degrees deflection for PVC pipe joints with factory-assembled bell couplings:

Length of Pipe Section	Minimum Curve Radius
20 feet	573 feet
10 feet	287 feet

For curves of small radius, use ductile iron fittings.

No longitudinal bending shall be allowed in the installation of PVC pressure pipe 8 inches in diameter and larger. All deflections shall be accomplished by the use of joints and fittings specifically designed for use with PVC AWWA Standard C-900 pipe and the deflections as installed shall not exceed the manufacturers written recommendations.

Longitudinal bending will be permitted in 6-inch and smaller PVC pressure pipe, and shall not exceed the manufacturers written recommendations and AWWA Manual M-23.

207-21.6.2 Pipe Joint Assembly

The joint shall be cleaned and free of dirt, grit or debris. Precaution shall be taken while joining to prevent dirt from entering the joint space. The spigot and bell shall slide together without displacement of the rubber gasket.

The best laying practice is with the bell facing in the direction of laying.

Insert the rubber ring into the groove, making sure the ring is completely seated. Lubricate the spigot.

The spigot shall be inserted into the bell and forced slowly into position by use of a large bar lever and a wood block across the pipe end. For

large pipe, a "come-along" (with padding that will not scratch the pipe) may be used.

Joints between PVC pipe and cast iron or ductile iron, valves and fittings shall be mechanical-joint connections with retainer glands.

After assembling the joint, the position of the rubber ring gaskets shall be checked with a suitable gauge. Rubber gaskets shall be located, for the full circumference of the pipe, an even distance from the face of the valve or fitting.

207-21.6.3 PVC Pipe Cutting

Pipe shall be cut with a special cutting tool as manufactured by the Pilot Manufacturing Company or equal, as approved by the City or its representative.

When pipe is cut and is to be joined to a cast iron fitting or another piece of pipe, the end shall be beveled in the field or shop to create a beveled end equal in workmanship to the machined ends of the pipe as furnished by the manufacturer. Such machining shall not result in undercutting the wall thickness and must be approved by the City prior to installation.

207-21.6.4 Preventing Foreign Matter from Entering Pipe

At all times when pipe laying is not in progress, the open end of the pipe shall be closed with a tight, fitting cap or plug to prevent the entrance of animals or foreign materials into the pipe. These provisions shall apply during the noon hour as well as overnight. In no event shall the pipeline be used as drains for removing water which has infiltrated into the trench. The Contractor shall maintain the inside of the pipe free from foreign materials and in a clean and sanitary condition until it is accepted by the City.

207-21.7 Hydrostatic Test for PVC Pressure Pipe

PVC pressure pipe shall be tested at a hydrostatic pressure of 225 psi for a duration of two (2) hours minimum for each test.

Temporary or permanent thrust blocks shall be cast-in-place, as required, prior to testing, and the contractor shall provide all necessary braces,

plugs, thrust blocks, caps, flanges, and other materials to permit proper conduct of the pressure testing.

Concrete for thrust blocks shall be cast sufficiently in advance of the pressure test to prevent failure. Three (3) days are recommended as the minimum.

207-21.7.1 PVC Pipe Allowable Leakage

No installation shall be accepted if the leakage is greater than that determined by the following formula:

$$L = \frac{ND\sqrt{P}}{7,400}$$

Where L = allowable leakage (gallons per hour)
N = number of joints in the tested line
D = nominal diameter of pipe (inches)
P = average test pressure (pound per square inch)

Typical leakage values for pipe tested at 225 psi are given in the table below:

Nominal Diameter	Allowable Leakage in GPH Per 100 feet of Pipe
6"	0.06
8"	0.08
12"	0.12

The duration of the test shall be not less than two (2) hours, and measurement shall be made by means of a calibrated suction tank or City-provided, calibrated test meter, showing the amount of water required by the test pump to maintain the required test pressure. Water shall be accurately measured during the test. Test reports with original leakage readings shall be furnished by the contractor to the City.

The contractor shall conduct the pressure test in the presence of the City Utilities Department representative.

207-21.7.2 Testing of Pipe & Piping Appurtenance

Testing of pipe and piping appurtenances shall be conducted by installing test heads at the locations indicated by the City and testing the pipe in separate reaches; provided that the contractor will not be required to separately test pipe reaches of less than 1,000 feet in length. Furnishing, installing and removing test heads shall be included in the price(s) bid for the various kinds of pipe, and no additional payment will be made therefore.

207-21.8 Inspection of PVC Pressure Pipe

The pipe shall be carefully inspected for defects. Any length of pipe found to be defective in workmanship or material, or damaged shall be rejected and removed from the work site immediately.

In the event that a portion of a length of pipe is damaged, the damaged portion may be cut off in a manner approved by the City. The damaged portions shall be discarded. The remaining undamaged portions may be used after properly milling the pipe ends.

The contractor shall be responsible for any and all damage to materials, and shall bear the expense of repairing or replacing damaged materials.

207-22 PIPE APPURTENANCES

207-22.1 General

Unless otherwise specified, all pipe appurtenances shall comply with the appropriate Standard Drawing(s) of the City of Newport Beach.

207-22.2 Butterfly Valves

Butterfly valves shall meet or exceed the requirements established by the latest revision of AWWA C-504. Unless otherwise specified, valves less than 16 inches in diameter shall be manually operated valves with an enclosed, buried-service operator.

All valves 12 inches in diameter and larger shall be internally lined with an approved, thermally cured, fusion-bonded, epoxy lining system. Electrostatic or fluidized bed applications are acceptable methods. Brush-on epoxy shall not be used as a substitute for a fusion-bonded system.

All valves larger than 16 inches in diameter shall be installed in a valve vault and shall be equipped with a manual worm-gear reduction operator with hand wheel and position indicator.

Shafts shall be fabricated from Type 304 or Type 316 stainless steel.

Discs shall be fabricated from Type 316 stainless steel or ASTM B-143-A bronze containing less than 10% zinc and 2% aluminum. Cast iron or cast steel discs may be permitted only on special approval from the Engineer and only if the mating seat surface is Type 316 stainless steel.

All valves shall be furnished with stainless steel packing retainer plate bolts and thrust bearing cover plate bolts. For buried service valves, the traveling nut operator shall have a 2-inch square operating nut held in place with a stainless steel cap nut. All operator case bolts shall be stainless steel.

Valve ends may be gasketed tyton push-on type joint, hub end, flanged end, or mechanical joint end as called for in the construction plans. All end configurations shall conform to the pipe manufacturer's specifications and the project plans and specifications.

207-22.3 Resilient Wedge Gate Valves

Where specifically shown on project plans approved by the Engineer, resilient wedge gate valves may be used. Gate valves shall be solid, single, resilient-wedge type design and shall equal or exceed the requirements established by specifications of AWWA.

Valves shall be as manufactured by AVK or approved equal and shall be per AWWA Specification C-509 for resilient seated gate valves, latest revision.

Valve wedge disk and disk nut shall be fully encapsulated in an approved rubber coating.

Valves may be furnished with bronze or stainless steel discs. Where cast bronze is approved the bronze shall be comprised of 85 percent copper, 5 percent tin, 5 percent lead, and 5 percent zinc.

The stem shall be non-rising, shall be stainless steel.

Valves shall be furnished with triple O-ring stem seals and stainless steel bonnet bolts. Bonnet bolts shall be recessed into the valve body and shall be sealed from exposure via a hot-melt applied sealing compound. The operating nut shall be a 2-inch square bronze stem operating nut. Operating nut shall be held in place with a stainless steel cap nut.

Valve ends may be gasketed tyton push-on type joint, hub end, flanged end, or mechanical joint end as called for in the construction plans. All end configurations shall conform to the pipe manufacturer's specifications and the project construction plans.

Valve body and bonnet shall be fabricated from ductile iron and shall be electrostaticly coated inside and out. Electrostatic powder coating shall be applied per SSPC SP-6 or SP-10 surface preparation criteria and shall be applied to a preheated material surface via the fluidized bed process or applied via the electrostatic process and then be cured by the post-heat thermal fusion method.

Double disc style gate valves shall not be considered as a substitute or and equivalent to resilient wedge gate valves and shall not be permitted.

207-22.4 Valve Boxes

Valve boxes shall be Brooks Products, Inc., Valve Box No. 4TT or approved equal. All below-grade valves not in vaults shall be provided with valve boxes and schedule 40 PVC pipe risers.

Valves with operator nuts greater than four (4) feet below ground or street surface shall be fitted with a valve nut extension.

Valve operator extensions shall be structural tube fiberglass or schedule 80 PVC as manufactured by Pipeline Products, Inc. of San Marcos, California or preapproved equivalent manufacturer. Extensions shall be of a length so as to have the valve operator nut of the extension at an elevation not more than three (3) feet below the ground or street surface. Valve extension shall not be pinned or bolted to the valve operator.

207-22.5 Grooved-Pipe Couplings

Unless otherwise specified, all grooved pipe and fitting connections shall be made utilizing Victaulic® brand couplings and components.

Grooved pipe and pipe to fitting connections shall be designed for a working pressure of not less than 150 psi. Couplings shall be heavy-duty rated couplings; Victaulic® Style 37 for ductile iron pipe and fittings and Victaulic® Style 77 for steel pipe and other iron-pipe-sized (IPS) fittings.

Couplings shall be equipped with rubber gaskets for water service, and shall be designed for use with pipe which has been machined to the dimensions of Class A shouldered-end ductile iron pipe.

All nuts, bolts and washers used in Victaulic® couplings shall be fabricated from Type 316 stainless steel.

End-Seal type couplings shall be used in wastewater lift station installations where lined pipe ends may be exposed to corrosive fluids from inside the pipe.

207-22.6 Sleeve-Type Couplings

Unless otherwise specified, all sleeve-type couplings shall have a ductile iron body, center sleeve and followers and shall be fitted with Type 316, stainless steel bolts, nuts and washers. Coupling hardware shall be installed with an approved anti-seize compound on all threaded parts.

Center sleeves shall be a minimum of two times the minimum center sleeve length specified in the AWWA Standard for flexible couplings.

Couplings shall be M & H, Dresser, Ford, Rockwell, Romac, JCM, Clow, or approved equal.

207-22.7 Magnetic Water & Gas Main Locating

All non-metallic pipe installed as part of the City's public water supply mains or natural gas transmission pipeline system shall have a tracer wire or metallic warning tape installed per these provisions.

207-22.7.1 Tracer Wire

Tracer wire shall be solid soft drawn copper wire. Wire shall be insulated with polyethylene insulation. Wire gauge shall be minimum size of No. 10 AWG. Minimum insulation thickness shall be 0.110-inches.

Wire shall be installed by laying on top of the water main and taped every 10 linear feet of pipe run. Wire shall be brought to grade at all valve locations inside the valve riser box and at all gas condensate traps inside the blow-off valve box. See a utility department rep. for proper Installation of wire through valve riser and box.

207-22.7.2 Metallic Warning Tape

Warning tape shall be by TerraTape™ as manufactured by Reef Industries Company of Houston, Texas or LineGuard™ as manufactured by Kolbi Industries of Chicago, Illinois or DectectaTape™ as manufactured by Allen Systems of Houston, Texas. Tape shall be a minimum width of three (3) inches and a minimum thickness of five (5) mils.

Warning tape shall be manufactured of PVC plastic coated metalized foil conductor so as to be detectable by a magnetic locator at ground surface.

Warning tape shall be color coded yellow or orange for natural gas lines and blue for potable water mains. Black letters, 1H-inches high shall identify the type of main buried below. The lettered message shall repeat no less than every 4 linear feet of tape.

Tape shall be installed with the trench backfill directly over the top of the centerline of the underlying main. Tape shall not be closer than 2 feet above the pipe and shall not be more than 2H-feet below the finished surface.

209 ELECTRICAL COMPONENTS

209-2.1 Electroliers

The luminaire shall have all ballast components (magnetic regulator ballast, capacitor and starting-aid) mounted in an easily removable and replaceable housing assembly connected by means of quick-disconnect plugs.

The housing assembly, when in the "dropped" or "maintenance" position, shall be retained by a two-prong hinge pin. The hinge pins shall be axially oriented with their ends facing away from each other.

In luminaires rated 35 to 150 lamp-watts, the pin ends shall be 3L inches apart and K inches in diameter. The housing assembly for these wattages shall be 12 inches long, 4H inches wide at the hinge end and tapered to 10H inches at the latching end.

In luminaires of 200 to 400 lamp watts, the pin ends shall be 3M inches apart and oval in cross section, K x G inches. The housing assembly for these wattages shall be 15 inches long, 5 inches wide at the hinge end and tapered to 13K inches at the latching end.

209-2.3 Conduit

Electrical conduit shall be 1G inches in diameter, schedule 40, PVC or thicker.

Installation and all appurtenant items installed shall conform to the plans and the applicable provisions of the City's published *"Design Criteria for Public Works Construction"*, latest revision and the City's Standard Drawings.

Solvent weld joints shall be used for all conduit and fitting joints. Threaded fittings shall not be used.

Galvanized metallic conduit shall not be used.

210-1 PAINT

210-1.6.1 General

Replace this subsection with the following: Call City of Newport Beach Traffic Engineering Section at (949)644-3344 for current paint specifications.

211-2 COMPACTION TESTS

211-2.1 Laboratory Maximum Density

Method 2 shall be used for compaction tests.

300-1 CLEARING AND GRUBBING

300-1.3.1 General

The Contractor shall dispose of all excess or waste material from the job site, and shall include all fees for such disposal in the appropriate bid item.

300-1.3.3 Solid Waste Diversion

Unless specified elsewhere in the project specifications, non-reinforced concrete and asphalt wastes generated from the jobsite shall be disposed of at a facility which crushes such materials for reuse.

Excess soil and other recyclable solid wastes shall not be disposed of at a sanitary landfill.

302-5 ASPHALTIC CONCRETE PAVEMENT

302-5.1 General

Testing of underground conduit installations at any given point shall be completed and approved by the Engineer before the surface course is placed at that point.

306-1 OPEN TRENCH OPERATIONS

306-1.2.2 Pipe Laying

Unless specified otherwise in the Specifications, pipe shall be jointed in strict accordance with the manufacturer's recommendations, and shall be provided with a protective coating at least equal to the protective coating on the pipe being joined.

306-1.2.3 Field Jointing of Clay Pipe

Only Type "G" joints are acceptable for vitrified clay pipe with the exception that Type "D" may be used for laterals.

306-1.2.5 Field Jointing of Non-Reinforced Concrete Pipe

All flanged joints shall be joined with hex head nuts and bolts fabricated in the United States of America from Type 316 stainless steel.

Mechanical joint pipe and fittings shall have either Type 316 stainless steel or malleable iron hex head nuts and t-head bolts.

Above-grade pipe installations such as backflow devices may have pipe flanges joined with cadmium plated nuts and bolts. In no case shall this type of material be used in below-grade installations.

306-1.2.14 Field Jointing of Steel Pipe

Field-welded joints shall be in accordance with the Standard for Field Welding of Steel Water Pipe Joints, AWWA Specification C-206.

306-1.2.15 Connections to Existing Water Mains

The Contractor shall obtain the Utilities Department approval prior to connecting into existing water mains. 72 hours notice is required in all instances.

Where connections require shutdowns of the existing water system such that any customer is without water service, the shutdown period shall be four (4) hours or less.

Where any shutdown is longer than four (4) hours, the Contractor shall install bypass; or, if any resident or business cannot do without water during the initial four (4) hours, Contractor must provide water.

Dry connections to existing mains shall be made at a time which shall cause the least inconvenience to water consumers, and shall be planned in such a manner that the duration of any shutdown will be kept to a minimum. No additional compensation will be paid for overtime which may be necessary in making connections to existing mains.

When a dry connection to an existing main is made, at least two (2) ounces of HTH (Calcium Hypochlorite) shall be placed in the pipe at each point where the existing main is cut. All new pipe and fittings at the connection shall be swabbed internally with an approved chlorine solution. All connections shall be made in the presence of the City Utilities Department representative.

306-1.2.16 Thrust Blocks and Anchor Blocks

Thrust blocks and anchor blocks shall be installed along force mains where the direction of pipe changes 11G degrees or more, at fittings, at stub ends and at all other locations shown on the plans. All thrust blocks shall be formed and poured with no water standing in trench or hole.

Concrete for thrust blocks and anchor blocks shall be cured as specified for "Pipe Bedding and Encasement" in the Concrete Class Use Table, Section 201 of the Standard Specifications, prior to pressure testing or trench backfilling.

306-1.3 Backfill and Densification

The compaction provisions of this section are amended as follows: All trench backfill and bedding shall be compacted to 95 percent minimum relative compaction.

306-1.3.3 Water Densified Backfill

Delete Subsection 306.1.3.3 of the Standard Specifications. Water densified backfill, including flooding, will not be permitted, unless authorized by the Engineer.

306-1.4.5 Water Pressure Test

The Contractor shall test all mains in the presence of the Engineer. Caulked joint pipe shall be center loaded, and all joints shall be exposed during the test. Rubber gasket joints need not be exposed.

The test shall consist of holding the test pressure in each section of the main tested for a period of not less than two (2) hours. The test pressure at the upper end of each section of main tested shall be 75 psi greater than the rated operating pressure of the main, unless otherwise specified.

Water necessary to maintain the test pressure shall be measured through a meter or by other means satisfactory to the Engineer. The leakage shall be considered the amount of water entering the main during the test, less the measured leakage through valves and bulkheads.

Leakage shall not exceed 45 gallons per inch diameter per mile per 24 hours for asbestos cement pipe; shall not exceed 20 gallons per inch

diameter per mile per 24 hours for ductile iron pipe; and shall not exceed 5 gallons per inch diameter per mile per 24 hours for steel pipe.

The allowable leakage for PVC pressure pipe shall be determined in accord with Section 207-21.7.1 "*PVC Pipe Allowable Leakage*" of these *Standard Special Provisions*.

All leaks shall be repaired and any defective pipe shall be replaced with new pipe.

Mains larger than 12 inches in diameter equipped with butterfly valves shall be tested at the rated working pressure of the valves with the valves closed, and tested again at full test pressure with the valves in the open position.

All labor, materials, tools and equipment for the testing shall be furnished at the expense of the Contractor.

306-1.4.7 Water Main Disinfection

Water mains shall be disinfected in accord with the following excerpts from AWWA Standard C-601:

1. Gas chlorination methods shall be used for all:
    a. 12 inch and larger mains.
    b. Installations of greater than 2,500 linear feet of pipe.
    c. Cases where the new main has been allowed to become contaminated with trench water or other foreign matter.
2. Tablet chlorination:
    a. Tablets must be placed at the top of the main. If placed in the pipe before laying, the joint must be laid tablet side up;
    b. Dosage: Two (2) tablets per 13 feet of pipe length for 6 and 8-inch diameter pipe; Three (3) for 10-inch diameter; and two (2) per fire hydrant.
    c. Mains shall be filled very slowly; valves and services shall be operated to provide contact with the chlorinated water.
3. Sampling and Flushing:

a. Dose at 50.0 mg./l. of available chlorine and retain for 24 hours.

b. When dosing at 50.0 mg./l. check for at least 25.0 mg./l. residual throughout length of line at end of 24 hours.

c. Flush main until chlorine is no higher than prevailing residual in the surrounding public system or less than 1.0 mg./l.. NOTE: The contractor shall provide sample locations at each end of main, or at least every 500 feet.

d. A sample will be taken for bacteriological testing. The bacteriological test takes 48 hours.

4. Additional Notes:

a. Field samples for residual and bacteriological test will be taken by the City Utilities Department personnel only, Monday through Friday.

b. Tie-ins to the existing public water system may be made Monday through Thursday only. Scheduling work and sampling is required at least 72 hours in advance.

c. Special circumstances may require special procedures.

5. Main Repairs and Tie-ins:

a Swabbing and Flushing:
(1). The following procedure is considered as a minimum that may be used during tie-ins and main repairs.

b. Swabbing with Hypochlorite Solution:

(1). The interior of all pipe and fittings used in making tie-ins or repairs (particularly couplings and tapping sleeves) shall be swabbed with 5% Hypochlorite Solution before installation.

c. Flushing:

(1). Thorough flushing shall be started as soon as repairs are completed and shall continue until discolored or highly chlorinated water is completely eliminated.

306.1.4.8 Ball Test for Gravity Sewers

After completion of all work, except street or trench resurfacing, a sewer ball equal to the diameter of the pipe, and approved by the Engineer, shall be sent through sewers from the uppermost structure. The Contractor shall, at his own expense, furnish all materials including water for carrying out the operation and removal of any obstructions that prevent the ball from traveling through the pipe.

Sewer mains shall be CCTV video televised and videotape recorded on VHS format tape after the Ball Test. City shall provide the video camera and operator without charge for a single inspection of each length of main. In those instances where the installed sewer main fails to pass inspection, a re-test shall be required.

The Contractor shall pay the cost of all re-test and subsequent video inspections at the City's established rate and charges in effect at the time of the re-test.

310-5 PAINTING VARIOUS SURFACES

310-5.6.7 Layout, Alignment, and Spotting

Delete Paragraph 1 of Subsection 310-5.6.7 "Layout, Alignment, and Spotting", and add the following: The Contractor shall perform all layout, alignment and spotting.

The Contractor shall be responsible for the completeness and accuracy of layout, alignment and spotting. Traffic striping shall not vary more than H-inch in 50 feet from the alignment shown in the plans.

The Contractor shall mark or otherwise delineate the new traffic lanes and pavement markings within 24 hours after the removal of the existing striping and markings. No street shall be without the proper striping over a weekend.

310-5.6.11 Pavement Markers

All pavement markers shall comply with Section 85 of the State of California Standard Specifications. Non-reflective markers shall be ceramic. All new markers shall have glass faces or be 3M series 290.