



**SEWER FORCE MAIN REPLACEMENT PROJECT**  
**FOR**  
**COUNTY SERVICE AREA (CSA) 70 – S3 – LYTLE CREEK**

**WARNING:**

**ALL INDIVIDUALS INTERESTED IN BIDDING ON THIS PROJECT MUST OBTAIN THE FINAL PLANS AND SPECIFICATIONS FROM THE DEPARTMENT MANAGING THE PROJECT OR AS OTHERWISE STATED IN THE ADVERTISEMENT FOR BIDS FOR THE PROJECT. DO NOT USE THE PLANS AND SPECIFICATIONS POSTED ON THE CLERK OF THE BOARD'S WEBSITE FOR BIDDING THE PROJECT.**

2. Pipeline Backfill. Except as otherwise required by the construction plans or the standard drawings, the material used in backfilling to 1' above the pipe shall be granular material approved by the Engineer and in accordance with the manufacturers requirements, sandy, or sandy gravel material obtained from required excavation or from approved borrow areas, as shown on the Contract Drawings or as directed by the Engineer.

This material shall be carefully placed and compacted to provide a firm continuous bedding and encasement for the pipe. Pipe shall be shaded the same day it is laid to protect it from possible damage and/or thermal expansion. Pipe zone backfill may be consolidated by careful flooding to saturation only if the soil has a Sand Equivalent of 30 or better and no more than 10% fines (particles passing the no. 200 sieve), otherwise mechanical compaction will be required or as specified elsewhere in these specifications.

Variation to the foregoing pipeline backfill requirement, when recommended by the pipe manufacturer or requested by the Contractor, shall be submitted for approval by the District prior to the commencement of such pipe installation. The method of compaction shall then be proven before backfilling more than the footage of pipe allowed by the contract specification. In lieu of a specific contract requirement, not more than 1000' of pipe shall be laid and backfilled prior to proving the method of compaction.

The remaining trench backfill shall consist of select backfill material from the excavation, when available, free from stones or lumps exceeding 3" in greatest dimension, and free from vegetable matter or other unsatisfactory material. This select material as defined herein and elsewhere in these specifications shall be placed in layers not exceeding 2' in depth, unless otherwise directed by the Engineer. Excavated soils that have excessive moisture must be dried, mixed, or replaced with suitable material that will meet the compaction requirements at no additional cost to Special Districts. Each lift shall be consolidated in such a manner that the backfill will meet the requirements of these specifications. Care shall be taken not to disturb the backfill previously placed, and the Contractor shall at all times protect the pipe against flotation. Material placed between successful test and failed test shall be tested at one-fifth (1/5) the distance intervals until a passing test is achieved. All material from failed test to successful test shall be removed, recompacted and retested.

3. Sewer Line Backfill. Backfill shall not be placed in trenches or excavations until the sewer lines and manholes in the particular section involved have been inspected and approved for backfilling by the Engineer.

For all sewer pipe, select granular backfill having a Sand Equivalent of 30 and less than 10% fines (particles passing the no. 200 sieve) shall be used up to an elevation 12" above the top of pipe, imported whenever the Engineer determines that native material is not satisfactory. Material for this purpose shall conform to the requirements as set forth herein. The pipe zone backfill shall be carefully packed under the haunches of the pipe and brought up simultaneously on both sides, to the full specified depth, so as to prevent any displacement of the pipe from its true alignment. In compacting by flooding, no ponding of water above the surface of the sand will be permitted.

4. Compacting and Surfacing. Except as otherwise specifically required by the encroachment permit or elsewhere in these specifications, the following requirements will apply:

The upper portion of the final lift will be backfilled with selected material from the excavation, moistened to optimum moisture content and compacted by mechanical tamping to meet the requirements of the District standards. All backfill in public roads shall be consolidated and surfacing shall be placed to meet State of California and San Bernardino County requirements as stated in the respective permit, whether or not required by the inspector for that particular agency - unless otherwise approved by the Engineer.

Where backfill is in areas not within public roads, it shall be consolidated and tested to meet the requirements of these specifications, except as otherwise approved by the Engineer.

Minimum acceptable field densities specified in District standards shall be determined in accordance with the testing procedures set forth elsewhere in these specifications.

Where sand material of an approved grade is used for backfilling, mechanical compaction may be eliminated and compaction obtained by jetting.

Except as otherwise required by a specific permit, where pavement is being replaced, an approved plant mixed surfacing shall be placed to a minimum thickness of 3" when compacted. Surfacing in streets shall be maintained to original street grade after laying and any settlement filled with plant mix surfacing.

The edges of trenches which are broken down during the making of subgrade shall be removed and trimmed neatly before refilling or resurfacing. When the backfill is complete and excess material removed, the surface will be graded and a layer of approved decomposed granite will be placed with a minimum thickness of 4" when compacted at optimum moisture content by rolling and to a grade to conform to the original roadway section. All pavements outside the paylines damaged by the Contractor shall be trimmed and repaired.

If the edge of the excavated trench when trimmed is within 2' of the edge of the roadway pavement, then the pavement shall be completely removed to the edge of the roadway and replaced with the replacement of the trench pavement. Except as otherwise directed by the Engineer, after a period of not less than 30 days or more than 60 days, any settlement shall be filled with decomposed granite. The top 2½" shall then be road mixed where allowed, with a minimum of 1½ gallons liquid asphalt binder of grade SC3 or 4 (as directed) per square yard and compacted to the original roadway section. Each phase shall be approved by the Engineer before proceeding to the next operation. Where allowed, the road-mixed surfacing operation shall conform to the Standard Specifications of the State of California Department of Transportation.

Pavement, curbs, gutters and walks removed, cut or damaged during the construction of facilities shall be replaced or restored to their original condition, or as otherwise specified. Local ordinances governing such replacement shall be adhered to in all respects.



Removal and/or replacement of pavement where pavement now exists, as well as removal and/or replacement of any other obstructions, will be included in the item cost for the particular installation, unless specifically itemized separately on the bidding sheet.

D. Paving

Where not required otherwise by specific contract requirements or permit requirements incorporated in the contract, the Contractor shall construct new asphalt concrete paving as indicated on the Contract Drawings and as specified herein. All paving proposals and operations shall be subject to the approval of the Engineer.

Where this work is included in a lump sum bid item, it is the Contractor's responsibility to satisfy himself as to the exact lengths and/or dimensions of new roads and pavements. Terminals of all surfacing indicated on the Contract Drawings shall join any existing surfaces in a smooth juncture.

1. Sub-base

- a) Preparation. The upper 12" of sub-base in any area to be paved shall be compacted to not less than 95% of maximum compaction, as determined by currently adopted ASTM D-1557 and procedure C.
- b) Weed Killer. After the sub-base has been prepared, a weed killer shall be applied to the entire sub-base. Weed killer shall be OUST XP as manufactured by DUPONT, or approved equal. The weed killer shall be applied according to the manufacturer's published instructions.

2. Aggregate Base Course. Shall be Class II aggregate base. The aggregate base course shall be the thickness shown on the plans and shall be placed in maximum 4" lifts. Aggregate base course shall be compacted to 95% of maximum compaction, as specified by ASTM D-1557. Aggregate base course shall be furnished, spread and compacted, as specified for Class II Aggregate Base Course in the Standard Specifications, State of California,

Department of Transportation, latest edition. A spreader box will not be required but care shall be taken to prevent segregation during placement.

3. Asphalt Concrete

- a) Asphalt Concrete shall conform to the requirements of Caltrans Standard Specifications Section 39, for Type "B". Aggregate will conform to a grading for 1/2" maximum aggregate with paving grade asphalt PG 64-10 (Section 92) unless otherwise directed by the Engineer.

- b) Proportioning, Mixing, Spreading and Compacting. The proportioning and mixing of aggregates and asphalt, and the spreading and compacting of the asphalt concrete to make up the asphalt pavement, shall be in accordance with the Standard Specifications, State of California, Department of Transportation, latest edition. The paving machine shall have a self-screening spreader unless approved otherwise by the Engineer.
- c) Tack Coat. Tack coat shall be Type SS1H grade Anionic Asphalt Emulsion as per Caltrans Standard Specification 94.
- d) Prime Coat. When indicated on the Plans or in the Special Provisions, a prime coat consisting of Grade SC-250 liquid asphalt shall be applied in accordance with Caltrans Standard Specification Sections 39 and 93.
- e) Paving. The asphalt concrete pavement shall be no less than the thickness as shown on the plans and shall be applied in two (2) lifts. The first lift shall be the leveling course and the second lift shall be the wearing course not less than 1" thick and shall bring the pavement to full thickness.

The finished surface shall be free from depressions exceeding 1/4" as measured with a 10-foot straightedge in any direction, except where the drawings show a grade break.

- f) Seal Coat. Seal coat shall be a Bituminous Fog Seal in accordance with Caltrans Standard Specification Section 37.
- g) Joining Existing Pavement. Existing paving which is to be joined by new paving shall be saw-cut to provide straight true neat joints.
- h) Paving Headers. Edges of paving shall be bounded by 2 x 6 net new rough cut redwood unless otherwise shown on the plans.
- i) Asphalt Curbs. Automatic curbing machines shall be used to construct asphalt curbs. The curb cross section used shall be as shown on the drawings or as approved by the District.
- j) Paving Removal. Where paving is shown to be removed on the drawings, it shall mean that all asphaltic concrete and aggregate base shall be removed.

4. Removal and Replacement

- a) General. Replacement of street, driveway, alley entrance, and other type pavements shall be of the same material as the existing pavement, constructed in accordance with the applicable drawings and specifications.

The Contractor shall install temporary asphalt pavement of the first course of permanent replacement immediately following backfilling and compaction of trenches that have been cut through pavement. Except as otherwise provided, this preliminary pavement shall be maintained in a safe and reasonably smooth condition until required backfill compaction is obtained and final pavement replacement is ordered by the Engineer. Temporary paving removed shall be hauled from the job site and disposed of at the Contractor's expense.

Where a longitudinal trench is partly in pavement, the pavement shall be replaced to the original pavement edge, on a straight line, parallel to the centerline of the roadway.

Where no part of a longitudinal trench is in the pavement, surfacing replacement will only be required where existing surfacing materials have been removed or damaged.

When the trench cut is in aggregate surfaced areas, the replacement shall be of aggregate base course material compacted to 95% of its maximum compaction.

- b) Asphalt Pavement Replacement. Asphalt pavement replacement shall be of the same thickness as the adjacent pavement and shall match as nearly as possible the adjacent pavement in texture.

Existing asphalt pavements to be removed for trenches or other underground construction or repair shall be cut by a wheel cutter, clay spade, or other device without damaging adjacent pavement that is not to be removed. The Engineer's decision as to the acceptability of the cutting device and its manner of operation shall be final.

The existing pavement shall be cut and trimmed after placement of required ABC and just prior to placement of asphalt concrete for pavement replacement, and the trimmed edges shall be painted with a light coating of asphalt cement or emulsified asphalt immediately prior to constructing the new abutting asphalt pavements. No extra payment shall be provided for these items, and all costs incurred in performing this work shall be incidental to pipe laying or pavement replacement.

Asphalt pavement replacement shall conform to the contour of the original pavement. A 10-foot straightedge shall be laid parallel to the centerline of the trench when the trench is running parallel to the street and across the pavement replacement when the trench crosses the street at an angle. Any deviation in the cut pavement replacement and the old pavement greater than 1/4" in 10 feet (10-foot straightedge) shall be removed and corrected.

- c) Portland Cement Concrete Pavement Replacement. Where trenches lie within the portland cement concrete section of streets, alleys, driveways, sidewalks, etc., such concrete shall be saw-cut (to a depth of not less than 1½") to neat, vertical, true lines in such a manner that the adjoining surfaces will not be damaged.

The pavement replacement shall be Class "A" concrete placed to the dimension as shown on the drawings. Expansion joints shall match the existing expansion joints in the old pavement.

The surface shall be wood float finish with no greater variance than 1/4" in a 10-foot straightedge either across the pavement replacement or longitudinal with the centerline of the ditch. Any greater variance than the above 1/4" shall be cause for rejection of the pavement replacement. Before placing the concrete replacement, the edges of the old pavement shall be thoroughly cleaned and given a wash of neat cement and water.

- d) Curb, Gutter, and Sidewalk Replacement. Where any concrete curb, gutter, or sidewalk has been removed or displaced, the same shall be replaced to the nearest construction joints with new asphalt or concrete to the same dimensions, material, and finish as the original construction that was removed.

Expansion joints shall be the same spacing and thickness as on the original construction.

- e) Expansion Joints. Expansion joints shall be constructed in curb, walk, and gutter as shown on the plans or as specified herein. Such joints shall be filled with premolded joint filler. No such joints shall be constructed in crossgutters, alley intersections or driveways except as may be approved by the Engineer.

One-half inch (13 mm) joints shall be constructed in curb and gutter at the end of all returns except where crossgutter transitions extend beyond the curb return, in which case they shall be placed at the ends of the crossgutter transition. No joints shall be constructed in returns.

Where monolithic curb and gutter is constructed adjacent to concrete pavement, no expansion joints will be required except at EC and BC of curb returns. Expansion joint filler 1/4" (6 mm) thick shall be placed in walk at the EC and BC of all walk returns, around all utility poles which may project into the concrete along the line of the work, and in walk returns between the walk and the back of curb returns when required by the Engineer. At the EC and BC and around utility poles, the joint filler strips shall extend the full depth of the concrete being placed. Joint filler strips between walk and curb shall be the depth of the walk plus 1" (25 mm) with the top set flush with the specified grade of the top of curb. All expansion joint filler strips shall be installed vertically, and shall extend to the full depth and width of the work in which they are installed, and be constructed perpendicular to straight curb or radially to the line of the curb constructed on a curve. Expansion joint filler materials shall completely fill these joints to within 1/4" (6 mm) of any surface of the concrete. Excess filler material shall be trimmed off to the specified dimension in a neat and workmanlike manner. During the placing and tamping of the concrete, the filler strip shall be held rigidly and securely in proper position.

f) Weakened Plane Joints.

- (i) General. Weakened plane joints shall be straight and constructed in accordance with Subsections "Control Joint" and "Plastic Control Joint" below, unless otherwise shown on the drawings.

In walk, joints shall be tranverse to the line of work and at regular intervals not exceeding 10' (3 m). At curves and walk returns, the joints shall be radial.

In gutter, including gutter integral with curb, joints shall be at regular intervals not exceeding 20' (6 m). Where integral curb and gutter is adjacent to concrete pavement, the joints shall be aligned with the pavement joints where practical.

- (ii) Control Joints. After preliminary troweling, the concrete shall be parted to a depth of 2" (50 mm) with a straightedge to create a division in the coarse aggregate. The concrete shall then be reflowed to fill the parted joint with mortar. Headers shall be marked to locate the weakened plane for final joint finishing, which shall be accomplished with a jointer tool having a depth of 1/2" (13 mm) and a radius of 1/8" (3 mm). The finished joint opening shall not be wider than 1/8" (3 mm).

- (iii) Plastic Control Joints. The joint material shall be a T-shaped plastic strip at least 1" (25 mm) deep, having suitable anchorage to prevent vertical movement, and having a removable stiffener with a width of at least 3/4" (20 mm). After preliminary troweling, the concrete shall be parted to a depth of 2" (50 mm) with a straightedge. The plastic strip shall be inserted in the impression so that the upper surface of the removable stiffener is flush with the concrete. After floating the concrete to fill all adjacent voids, the removable stiffener shall be stripped. During final troweling, the edges shall be finished to a radius of 1/8" (3 mm) using a slit jointer tool.

### 3.4 FIELD QUALITY CONTROL

#### A. Contractor's Responsibility for Safety

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work. This requirement will apply continuously 24 hours a day every day until final acceptance of the work and shall not be limited to normal working hours.

#### B. Warnings and Barricades

The Contractor shall provide and maintain barricades, guards, temporary bridges and walkways, watchmen, night lights and danger signals illuminated from sunset to sunrise, and all other necessary appliances and safeguards to protect the work, life, property, the public, excavations, equipment, and materials. Barricades shall be of substantial construction and shall be painted such as to increase their visibility at night. Suitable warning signs shall be so placed and illuminated at night as to show in advance where construction, barricades, or detours exist. Guard rails shall be provided for bridges and walkways over or adjoining excavations, shafts, and other openings and locations where injury may occur.

#### C. Fire Prevention

The Contractor's Safety Officer shall inspect the entire work and site, including storage areas, at frequent intervals to verify that fire prevention measures are constantly enforced.

#### D. Fire Extinguishers and Hoses

The Contractor shall furnish and maintain fully charged fire extinguishers of the appropriate type, supplements with temporary fire hoses wherever an adequate water supply exists, at the places where burning, welding, or other operations that may cause a fire are being performed.

E. Flammable or Toxic Materials

Only a working supply of flammable or toxic materials shall be permitted on or on any of the permanent structures and improvements, and shall be removed therefrom at the end of each day's operations. The Contractor shall store flammable or toxic materials and waste separate from the work and stored materials for the work in a manner that prevents spontaneous combustion or dispersion, and none shall be placed in any sewer or drain piping nor buried on the site.

F. Safety Helmets, Clothing, and Equipment

The Contractor shall not permit any person for whom he is responsible or liable to enter or remain on the site of the work unless the person is equipped with and wearing a safety helmet and other protective clothing and safety equipment conforming to the requirements of the District or regulatory agencies, and shall discharge from the site all persons not so equipped. The Contractor shall post conspicuous signs at appropriate locations warning the public and persons engaged upon the work of this requirement. The Contractor shall furnish for their temporary use such safety helmets, protective clothing, and safety equipment as the Engineer may request of him.

G. Hazardous Areas

The Contractor shall not permit or allow any person or persons to enter any pipe or space containing hazardous or noxious substances or gases, or where there is an insufficient amount of oxygen to sustain life and consciousness, or any other hazardous area unless equipped with lawful and appropriate safety equipment and life-supporting apparatus, and unless those entering are continuously monitored and guarded by and in communication with other persons outside the space or area who are equipped in the same way, can give an alarm to others for assistance, and initiate immediate rescue operations in the event of mishap.

H. Work During an Emergency

The Contractor shall perform any and all operations and shall furnish any materials and equipment necessary during an emergency endangering life or property and, in all cases, shall notify the District of the emergency as soon as practical, but shall not wait for instruction before proceeding to properly protect both life and property. Any additional compensation or extension of contract time claimed by the Contractor on account of an emergency shall be applied for as provided in the specifications.

I. Compaction Tests

All compaction tests required by either the governing agency having jurisdiction over the right-of-way or by the District shall be performed by the District or its agent at District expense. However, in the event these tests prove the compaction to be unacceptable to either the governing agency or the District, all subsequent tests required by the governing agency or the District shall be performed at the Contractor's expense.

Tests will be scheduled within 24 hours of the Contractor's request for tests, at locations to be selected by the District and/or the governing agency. However, tests shall not be scheduled until a minimum 4-hours work is available for the testing laboratory, as determined by the Engineer. Results of these tests shall then be available within 48 hours.

In-place soil densities shall be determined by the sand cone method of test in accordance with currently adopted ASTM Standard D-1556, or by the nuclear method of test in accordance with ASTM Standard D-2922.

Optimum soil moisture-compaction relations shall be determined by the method of test specified in ASTM Standard D-1557, except as otherwise specified in the Special Conditions.

Soils testing provided by Special Districts to determine compliance with the requirements of this specification does not relieve the Contractor of his/her responsibility.

In accordance with provisions for guarantee of the work, the Contractor shall return at his expense to correct any backfill conditions subsequently found to be substandard by either failure or more extensive testing. The Contractor shall provide all labor and equipment necessary to prepare for all tests and to assist the soils engineer in taking the tests, as directed by the Engineer.

J. Clean-up During Construction

The Contractor shall keep the premises occupied by him in a neat and clean condition, and free from unsightly accumulation of rubbish. Upon completion of the work and before the final estimate is submitted, the Contractor shall, at his own cost and expense, satisfactorily dispose of or remove from the vicinity of the work all plants, buildings, rubbish, rock, unused and excavated materials belonging to him or used under his direction during the construction, and in the event of his failure to do so, the same may be removed and disposed of by the District at the Contractor's expense. Contractor's responsibility shall include satisfactory disposal of all debris or protective material resulting from material delivery such as plastic wrappings, pipe stulls, etc., whether or not the Contractor furnished such material.

The Contractor shall carry on his operations in such sequence and in such manner as to interfere as little as possible with other improvements. When the construction is adjacent to or on residential property or cultivated fields or orchards, disposal of material and backfill operations shall be performed in such manner as to restore the properties to their original condition as nearly as practical as determined by the Engineer. Topsoil shall be carefully removed, stockpiled, and replaced after the backfill is placed.



As a part of the clean-up operation on facilities in private right-of-way, the Contractor shall restore the soil the full width of the right-of-way to a mechanical condition equivalent to that which existed at the time of the construction operations on such areas, by thoroughly loosening the soil with subsoilers, or other acceptable means and by discing and leveling if necessary, any stones, gravel, or other deleterious material left in spoil banks. On such lands debris shall be removed by the Contractor before his final preparation of the soil and shall be disposed of as required for excavated materials.

In unimproved areas the finish surfaces over pipelines shall be graded to drain surface water away from the center line of the actual trench and provide drainage away from all the structures. No ponding of surface water will be allowed within the construction right-of-way.

Contractor shall complete total trench restoration to original condition or better. Failure of the contractor to comply with the Engineer's cleanup orders may result in an order to suspend work until the conditions are corrected. No additional compensation will be allowed as a result of such suspension.

**END OF SECTION 02201**

**SPECIFICATIONS - DETAILED PROVISIONS**  
**Section 02221 - Trenching, Backfilling, and Compacting**

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"NOT FOR BID"

**SECTION 02221**  
**TRENCHING, BACKFILLING, AND COMPACTING**

**PART 1 - GENERAL**

- 1.1 REQUIREMENT  
(SEE SECTION 02201)
- 1.2 STRUCTURE PROTECTION  
(SEE SECTION 02201)
- 1.3 JOB CONDITIONS  
(SEE SECTION 02201)
- 1.4 GUARANTEE  
(SEE SECTION 02201)

**PART 2 - PRODUCTS**

- 2.1 MATERIALS  
(SEE SECTION 02201)

**PART 3 - EXECUTION**

- 3.1 WEATHER LIMITATIONS  
(SEE SECTION 02201)
- 3.2 PREPARATION  
(SEE SECTION 02201)
- 3.3 CONSTRUCTION  
(SEE SECTION 02201)

A. Excavation

- 1. Trench Excavation  
(SEE SECTION 02201)

Where it becomes necessary to excavate beyond the limits of normal excavation lines in order to remove boulders or other interfering objects, backfill the voids

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remaining, as directed by the engineer but not less than 90% of maximum compaction. This work is to be done at no extra cost to owner. Where trenching occurs in existing turf areas, remove turf in sections and keep roots damp. Replace turf upon completion of backfilling.

2. Cover Provide minimum trench depth indicated below to maintain a minimum cover over the top of each listed utility, unless otherwise indicated in specifications or on the drawings.

- |    |                      |     |
|----|----------------------|-----|
| a) | 1. Water lines:      | 48" |
| b) | 2. Gas lines:        | 24" |
| c) | 3. Electrical lines: | 36" |

3. Excavated Materials  
(SEE SECTION 02201)

4. Disposal of Excavated Materials  
(SEE SECTION 02201)

5. Bracing and Shoring  
(SEE SECTION 02201)

B. Fill, Backfill and Grading  
(SEE SECTION 02201)

1. Structure Backfill  
(SEE SECTION 02201)

2. Pipeline Backfill  
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3. Compacting and Surfacing  
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3.4 FIELD QUALITY CONTROL

A. Contractor's Responsibility for Safety  
(SEE SECTION 02201)

B. Warnings and Barricades  
(SEE SECTION 02201)

C. Compaction Tests  
(SEE SECTION 02201)

**END OF SECTION 02221**

**SPECIFICATIONS - DETAILED PROVISIONS**  
**Section 02762 - Furnish & Install Plastic Sewer System**

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"NOT FOR BID"

**SECTION 02762  
FURNISH & INSTALL PLASTIC SEWER SYSTEM**

**PART 1 - GENERAL**

**1.1 DESCRIPTION**

The Contractor shall furnish all labor, material, tools, and equipment required for the complete construction of pipelines, manholes, clean-outs, and other allied structures and appurtenances as stated on the Bidding Sheets, shown on the Contract Drawings, and specified herein, all within the time as stated in the Contract Documents.

These provisions establish the requirements for the use of plastic pipe (i.e., ABS, PVC, and ABS and PVC Composite pipe) for house lateral and main line sewer construction. Use is limited to those projects which specify or indicate plastic sewer pipe as an alternate.

Plastic pipe may only be used where indicated on plans approved by the District. When plastic pipe is used, one type shall be used between consecutive manholes and shall include the house laterals in that system. When pipe and fittings are fabricated by the same manufacturer, contractor will not be allowed to use fittings from other manufacturers. ABS solid wall pipe shall be used for laterals with ABS and PVC Composite pipe systems. Plastic laterals may be used with clay pipe main except those mains subject to industrial flows, as determined by the Engineer.

Plastic pipe shall not be used for curved sewers which are 12" diameter or larger. Plastic pipe shall not be used for sewers serving industrial areas, or areas that, in the opinion of the District, are likely to be rezoned to industrial zones.

Refer to Section 02201 of the District's standard specifications for requirements relating to Construction methods and Earthwork and Section 02221 for requirements relating to Trenching, Backfilling and Compacting.

**1.2 RECORDS**

A true and accurate record of the location of all wye or tee branches, laterals, clean-outs, and other connections and appurtenances shall be kept by the Contractor, and such record shall be furnished to the Engineer prior to, or immediately upon, completion of the work. The location of the end of all laterals and main stub-outs shall be shown at ground surface by a marker approved by the Engineer.

**1.3 CARE & HANDLING**

Pipe shall be stored at the jobsite in unit packages provided by the manufacturer. Caution shall be exercised to avoid compression, damage or deformation to bell ends of the pipe. If pipe is to be exposed to direct sunlight for more than 14 days, pipe must be covered with an opaque material while permitting adequate air circulation above and around the pipe to prevent excessive heat accumulation.