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**\*\* WARNING \*\* WARNING \*\* WARNING \*\* WARNING \*\***  
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March 14, 2008

11-SD-52,67-27.4/28.5,R1.8/R4.3  
11-2T0004  
HPLU-6211(075)E  
HPLU-6211(076)E

Addendum No. 2

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in SAN DIEGO COUNTY IN AND NEAR SANTEE ON ROUTE 52 FROM 0.7 KM WEST OF MAGNOLIA AVENUE UNDERCROSSING TO ROUTE 52/67 SEPARATION AND ON ROUTE 67 FROM BRADLEY AVENUE OVERCROSSING TO WOODSIDE AVENUE UNDERCROSSING.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on March 20, 2008.

This addendum is being issued to revise the Project Plans, the Notice to Contractors and Special Provisions and the Proposal and Contract.

Project Plan Sheets 5, 15, 98, 110, 120, 149, 154, 156, 167, and 168 are revised. Half-sized copies of the revised sheets are attached for substitution for the like-numbered sheets.

Project Plan Sheet 676 is revised as follows: "Design Pullout Resistance (Qd) = 53 kN/m" is added to the table 'GENERAL NOTES – SOIL/ROCK DESIGN PARAMETERS.'

In the Special Provisions, Section 4, "BEGINNING OF WORK, TIME OF COMPLETION, AND LIQUIDATED DAMAGES," the fourth paragraph is revised as follows:

"The Contractor may begin work at the job site before the twenty-fifth day after contract approval if:

1. The Contractor submits and obtains required approvals for the submittals before the twenty-fifth day
2. Authorized by the Engineer in writing"

In the Special Provisions, Section 4, "BEGINNING OF WORK, TIME OF COMPLETION, AND LIQUIDATED DAMAGES," the seventh paragraph is revised as follows:

"The Contractor shall pay to the State of California the sum of \$23,900 per day for each day's delay in finishing the work in excess of the number of working days specified above."

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In the Special Provisions, Section 5-1.17, "PROJECT INFORMATION," the following items are added in the fourth paragraph as follows:

"DD. FAA Determination of No. Hazard to Air Navigation  
EE. FAA Advisory Circular 70/7460-1K  
FF. FAA Advisory Circular 150/5370-2E"

In the Special Provisions, Section 10-1.01, "ORDER OF WORK," the following paragraphs are added after the second paragraph:

"The first order of work shall be the construction of drainage system number 12 and the work shall be completed within 90 working days after contract approval.

The "D-PNOF" detour line shall be used for no longer than 6 months after the detour is open to traffic.

Work to complete "MWON" Line and "MEOF" Line and on "NW" west of Station 281+00 and "EN" west of Station 281+30, as shown on the plans, will be performed by the Contractor of Caltrans Contract 11-2T0104 and it is anticipated that overlapping construction work around this areas will require coordination. Full compensation for any coordination shall be included in the various items of work involved and no additional compensation will be allowed therefore.

This project is located adjacent to Gillespie Field Airport. Notices of Proposed Construction or Alteration have been submitted to the Federal Aviation Administration and Determinations of No Hazard have been received for the permanent construction. The Determinations of No Hazard include the use of construction equipment with height up to the height of the permanent construction. The Contractor shall be responsible for submitting Notices of Proposed Construction or Alteration to the Federal Aviation Administration if it is intended for construction equipment to be higher than the permanent construction. The Contractor shall be responsible for determining any Federal Aviation Administration requirements such as lighting, flagging, and signing for construction equipment. Full compensation for complying with the Federal Aviation Administration shall be considered as included in the various items of work involved and no additional compensation will be allowed therefor

Attention is directed to "Project Information" of these special provisions."

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In the Special Provisions, Section 10-1.34, "EARTHWORK," the tenth paragraph is revised as follows:

"Surcharge embankments shall be constructed at or above the grading plane where listed in the following table:

Bridge Name or Number	Abutment Number	Bent Number	Surcharge Height (meters)	Settlement Period (days)
N67-W52/67 Separation (Bridge No. 57-1122G)	1		0*	30
E52-S67 Connector/Magnolia Ave UC (Br No. 57-1120G)	1		0*	30
E52-N67 Magnolia Ave UC (Br No. 57-1121G)	1		0*	30
S67-W52 Magnolia Ave UC (Br No. 57-1123F)	1		0*	30

\* At this location, the surcharge embankment shall be constructed by extending the grading plane (GP) in the "Elevation" view of the "Bridge Embankment Surcharge" detail of Standard Plan A62B horizontally to the centerline of abutment."

In the Special Provisions, Section 10-1.34, "EARTHWORK," the eleventh and twelfth paragraphs are deleted.

In the Special Provisions, Section 10-1.35, "GEOSYNTHETIC REINFORCED EMBANKMENT," subsection, "ASSEMBLY OF SUCCESSIVE GABION HALF CAGES (GABION-TO-GABION JOINTS)," the first paragraph is revised as follows:

"Gabion half cages shall be set in place. Individually constructed gabion half cage shall then be overlapped 102 mm and joined successively together to the next gabion half cage with 13.5-gage (2.19 mm) tie wire or 9-gage (3.76 mm) standard spiral binder before placing the geogrid fabric, backfilling the half cage with structure backfill. The 13.5-gage (2.19 mm) standard tie wire or 9-gage (3.76 mm) standard spiral binder shall secure, in one pass, all selvage or end wires of the panels of all adjacent baskets along the joint."

In the Special Provisions, Section 10-1.35, "GEOSYNTHETIC REINFORCED EMBANKMENT," the subsection, "CONCRETE LEVELING PAD," is deleted.

In the Special Provisions, Section 10-1.51, "PILING," subsection, "CAST-IN-DRILLED HOLE CONCRETE PILES," the following paragraph is added after the fourth paragraph:

"Rotator or oscillator drilling methods shall not be allowed for cast-in-drilled-hole concrete piles."

In the Special Provisions, Section 10-1.58, "ARCHITECTURAL FINISH (EXPOSED AGGREGATE)," the second paragraph is revised as follows:

"The matrix of cement and fine aggregate shall be removed from the surface of the concrete by water jetting, coarse brooming, abrasive blasting, or a combination of these procedures to expose coarse aggregates to a depth of approximately 6 mm to 12 mm from the formed or floated surface. Removal methods shall not dislodge or loosen the coarse aggregate from embedment in the concrete matrix. At the option of the Contractor, a commercial quality, water-resistant set retarder manufactured for the intended use may be used. Exposed aggregate finish shall have cement film, discoloring agents, dirt, dust, grease, loose concrete and other foreign material removed and shall be uniform in appearance."

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In the Special Provisions, Section 10-1.58, "ARCHITECTURAL FINISH (EXPOSED AGGREGATE)," the third paragraph is deleted.

In the Special Provisions, Section 10-4, "INSTALLATION AND RELOCATION OF SEWER FACILITIES," is added as attached.

In the Proposal and Contract, the Engineers Estimate Items 91, 127, 131 and 147 are revised as attached.

To Proposal and Contract book holders:

Replace the entire pages 7, 9, and 10 of the Engineer's Estimate in the Proposal with the attached revised pages 7, 9, and 10 of the Engineers Estimate. The revised Engineer's Estimate is to be used in the bid.

Inquiries or questions in regard to this addendum must be communicated as a bidder inquiry and must be made as noted in the NOTICE TO CONTRACTORS section of the Notice to Contractors and Special Provisions.

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the proposal.

Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

This office is sending this addendum by GSO overnight mail to all book holders to ensure that each receives it. A copy of this addendum is available for the contractor's use on the Internet Site:

**[http://www.dot.ca.gov/hq/esc/oe/weekly\\_ads/addendum\\_page.html](http://www.dot.ca.gov/hq/esc/oe/weekly_ads/addendum_page.html)**

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

REBECCA D. HARNAGEL, Chief  
Office of Plans, Specifications & Estimates  
Division of Engineering Services - Office Engineer

Attachments

## **SECTION 10-4. INSTALLATION AND RELOCATION OF SEWER FACILITIES**

### **10-4.01 GENERAL DESCRIPTION**

Installing force main, gravity sewer, pipe casings, and appurtenances, shall consist of constructing and installing new facilities and relocation of existing facilities, owned by Padre Dam Municipal Water District, in accordance with the provisions of the following publications: "Standard Specifications for Public Works Construction, 2006 Edition; herein known as the "Greenbook"; Sections 1 through 9, Section 15, "Existing Highway Facilities", and Section 70, "Miscellaneous Facilities", of the State Standard Specifications; the details as shown on the Plans; these Special Provisions; and as directed by the Engineer.

Except for Sections 15 and 70, Sections 10 through 95 of the State Standard Specifications shall not apply to the work in this Section 10-4 except when specific reference is made thereto.

If parking is to be restricted during construction, the Contractor shall post "Tow-Away/No Parking" signs 24 hours in advance after receiving approval from the Engineer. The sign shall contain "days/hours" information and be posted so as to be reasonably seen by the public.

The Contractor shall notify the Engineer 3 working days in advance of any lane, street or alley closures or implementing any construction detour.

The Contractor shall keep the streets in and adjacent to the construction area clean at all times. Streets shall be swept before washing.

### **COORDINATION**

The Contractor shall notify the Engineer at least 10 working days in advance of his intent to begin work on the gravity sewer.

The Contractor shall provide for a safe 1.2 m wide pedestrian walkway to all places of business, and for all residences during construction.

The Contractor shall not allow sewage to be discharged onto the ground or into any stream, creek or storm drain.

The Contractor shall distribute printed notices of proposed utility work to all occupants along streets where construction work is to be performed at least one week before starting such work.

The Contractor shall notify the owner or occupant (if not owner occupied) of the closure of driveways to be closed more than one 8-hour day at least 3 working days prior to the closure. The Contractor shall minimize the inconvenience and minimize the time period that the driveways will be closed. The Contractor shall fully explain to the owner/occupant how long the work will take and when closure is to start.

The Contractor shall perform his work in such a manner that existing private and/or public utilities will not be disturbed for a period of time in excess of 4 hours. Utilities service shall not be interrupted prior to 8:00 a.m. nor after 4:00 p.m. unless otherwise approved in writing by the Engineer.

The Contractor shall cooperate with the utility owner's personnel in order to facilitate their inspection work and shall allow them access to the site of the work.

Approvals and instructions from the utility owner's personnel will be transmitted to the Contractor through the Engineer.

### **DELIVERY, HANDLING, AND STORAGE OF MATERIALS**

Pipe and materials shall be delivered, handled, and stored per these requirements and in accordance with the manufacturer's recommendations. All pipe and materials shall be delivered to the job site from the factory and stored in a manner that will prevent unnecessary deflection or damage prior to installation. The Contractor shall be entirely responsible for damage or loss by weather or other causes. The Material Safety Data Sheets (MSDS) for all products to be used in the work shall be kept on-site by the Contractor, and the manufacturer's recommendations for proper storage of its products shall be strictly followed.

Transport pipe to the job site on padded bunks with nylon tie-down straps or padded bonding to protect the pipe. Care shall be taken during the transporting of the pipe to insure that the binding and the tie down methods do not damage, deflect, or crack the pipe in any manner. Pipe that is bent, deflected, cracked, or otherwise damaged during shipping shall be rejected and replaced by the Contractor.

Under no circumstances shall pipe be pushed or dragged along the ground. All pipe sections over 6m (20') in length shall be lifted at the quarter points from each end.

Pipe shall not be placed directly on rough ground but shall be supported in a manner which will protect the pipe against injury whenever stored at the site or elsewhere.

Polyvinyl chloride (PVC) pipe shall be stored out of direct sunlight. Any discoloration of the pipe shall be an indication of a possible reduction in impact strength. Discoloration may be sufficient reason for rejection of the pipe materials.

Any pipe section that becomes damaged as a result of handling or stockpiling shall be replaced with a new unit or repaired at the discretion of the Engineer at no additional cost.

## EXISTING UTILITIES

The Contractor's attention is directed to the possible existence of pipe and other underground improvements that may or may not be shown on the Plans. It will be the responsibility of the Contractor to locate all utility lines in the construction area prior to excavation. Once discovered, the Contractor shall preserve and protect all such improvements whether shown on the Plans or not. The Contractor shall provide and install suitable safeguards, and shall be responsible for the care and protection of all existing sewer and water pipe, telephone conduit, gas mains, culverts, or other above-ground or below-ground facilities or structures which may be encountered in or near the area of work. It shall be the responsibility of the Contractor to notify each Agency of jurisdiction and utility company and to make arrangements for location of facilities prior to beginning construction. In the event of damage to existing facilities during the progress of the work, such facilities shall be replaced or restored to original condition, as determined by the Engineer, at the Contractor's expense. The Contractor's attention is directed to Section 7-1.11, "Preservation of Property", of the State Standard Specifications.

Where a possible at-grade conflict with existing underground utilities appears on the Plans, unless prior pothole information is shown, the Contractor shall determine its location a minimum of 150 meters ahead of the work prior to trenching. Grade and alignment changes shall be made only if approved by the Engineer.

All existing services are to remain in service during construction. Contractor to provide and install all high -lines as needed to provide constant service.

The Contractor shall be responsible for determining in advance the location, elevation, alignment and pipe type and size of all existing pipelines to which connections are to be made. Potholing to determine location will be allowed only after providing the Engineer with three (3) day's advance notice. The Contractor is required to contact Underground Service Alert (USA) at 1-800-227-2600 or 1-800-422-4133 for mark-out of all utilities in the area of the work.

Any pot-holing required will be paid for as extra work as provided in Section 4-1.03D of the State Standard Specifications.

Where a water distribution main is shown on the Plans, it shall be assumed that every property, adjacent to such water main, is served by that water main.

Where existing underground utilities are undercut, particular care shall be exercised in selecting, placing, and compacting the backfill material under and around such utility to assure firm support. For at least 300 millimeters all around the undercut utility, the backfill material shall have a sand equivalent of 50 and a relative compaction of 95 percent.

Where, in the opinion of the Engineer, the native soil is unsuitable for supporting the undercut utility; the material shall be removed. The resulting depression shall be backfilled with suitable backfill material. Such excavation and backfill below the planned elevation of the bottom of the trench will be paid for as extra work as provided in Section 4-1.03D of the State Standard Specifications.

The Contractor shall alter, relocate or reconstruct portions of existing utility service connections, such as water, which may or may not have been shown on the Plans, or not accurately shown on the Plans, but which are found to interfere with the work. Such work will be paid for at the unit prices for the various contract items of work involved; except for the following:

- A. The service connection is shown on the Plans and are not marked in the field.

If the Contractor, either before commencing work or during the course of the work, finds any discrepancy between the Specifications or Plans and the physical conditions at the site of the work, Contractor shall promptly notify the Engineer in writing of such discrepancy.

## **HAZARDOUS WASTE AND UNKNOWN PHYSICAL CONDITIONS**

If conditions listed below are found during construction, or if any other conditions are found during construction that may be detrimental to the existing facilities being constructed, or to the health and safety of the public, the Contractor shall promptly notify the Engineer.

- A. Material that the Contractor or Engineer believes may be hazardous waste, as defined in Section 25117 of the Health and Safety Code, and is thus required to be removed to a Class I, Class II, or Class III disposal site in accordance with the provisions of existing law. If such material is discovered, Contractor shall immediately cease work and shall not disturb the job site except as required to protect public safety.
- B. Subsurface or latent physical conditions at the site differing from those indicated.
- C. Unknown physical conditions at the site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in work of the character provided in the Contract.

The Contractor shall promptly inform the Engineer of any such conditions found during construction. The Engineer shall investigate the conditions, and if it finds that the conditions do materially differ from those shown or expected, or do involve material that may be hazardous waste, Contractor shall cease work in the impacted area. If material that may be hazardous waste is discovered, the Contractor shall insure that the appropriate government agencies are contacted prior to any further work being performed and that a solution is implemented.

## **WATER FOR CONSTRUCTION PURPOSES**

The Contractor shall furnish all water required for construction, including water for flushing and testing. A meter shall be installed whenever water is required by the Contractor. The water and meter shall be paid for by the Contractor in accordance with the water district's, city's, or county's rates and rules.

Only the 62 mm port shall be used for water available from fire hydrants along the job site. The 100 mm port shall be free for use in the event of a fire.

No compensation shall be paid to the Contractor for water for the initial filling or refilling, for testing or re-testing, and for re-flushing the pipeline. Water for the initial filling, refilling after dewatering for locating leaks or correcting workmanship, and final flushing shall be paid by the Contractor.

The size and location of temporary meters shall be determined by the Contractor and approved by the Engineer.

## **COST OF WATER FROM PADRE DAM MUNICIPAL WATER DISTRICT**

All water obtained from Padre Dam Municipal Water District shall be metered through a temporary meter. The temporary meter may be rented for a deposit fee from the Padre Dam Municipal Water District Shop at 9300 Fanita Parkway Santee, CA 92071 and the Contractor may, if desired, use the Contractor's own meter after the meter that is provided by Padre Dam Municipal Water District. The water and meter obtained from the Padre Dam Municipal Water District shall be paid for by the Contractor in accordance with the Padre Dam Municipal Water District rates and rules.

## **GENERAL SEWER SYSTEM REQUIREMENTS:**

- A. The existence and location of sewer facilities shown on these Plans were obtained from available Padre Dam Municipal Water District records. Padre Dam Municipal Water District and Design Engineer shall not be held responsible for any error in the location and elevation of the existing sewer facilities.
- B. All sewer mains will pass a deflection test and air pressure test prior to street paving, but after all other utilities have been completed and compaction testing approved.
- C. Pipe shall be stored on a flat surface so the barrel is evenly supported. Pipe shall not be stacked higher than 1.2 m. Gaskets shall be stored in a cool, dark place out of contact with oil and grease.
- D. Existing sewer mains shall not be used for discharge of storm waters, drainage, or other similar uses.
- E. All sewer lines shall be cleaned of foreign material, prior to connection to the Padre Dam Municipal Water District's sewer system.

## **10-4.02 METHODS OF CONSTRUCTION**

### **GENERAL DESCRIPTION**

Work consists of the construction and installation of a 150 mm gravity sewer main, a clean out and connection to the manhole on Railroad Avenue. The work after the property line must be done in accordance with the "Greenbook". The manhole on Railroad Avenue belongs to Padre Dam Municipal Water District.

### **DRAWINGS AND DATA REQUIRED**

Attention is directed to Section 5-1.02, "Plans and Working Plans", of the State Standard Specifications. The Engineer's maximum review period shall be fifteen working days and the Contractor shall make five copies of each submittal within five days after issuance of Notice to Proceed. Upon completion of the sewer facilities installation, the Contractor shall provide a complete set of record As-Built Plans, showing all work performed, to the Engineer.

- A. Pipe and Appurtenances: The Contractor shall submit to the Engineer for review and approval, prior to the fabrication of any pipe, joints, and gaskets, the following items:
  - 1. Line layout and marking diagrams which indicate the specific number of each pipe and fitting and the location of each pipe and the direction of each fitting in the completed line. In addition, the line layouts shall include: the pipe station and invert elevation at all changes in grade or horizontal alignment; the station and invert elevation to which the bell end of each pipe will be laid; all elements of curves and bends, both in horizontal and vertical alignment; and vertical alignment; and the limits of each reach of restrained and/or welded joints, or of concrete encasement.
  - 2. Manufacturer's product literature and technical data, including pipe material data and pipe installation instructions. For HDPE pipe, include pipe joining instruction and manufacture recommendations.
  - 3. Typical cross sections and joint, fitting, and appurtenance details.
  - 4. Connection details for tie into existing sewer system.
  - 5. Hydrostatic Test Reports (All Pipe)
  - 6. Sustained Pressure Testing Reports (PVC Pressure Pipe)
  - 7. Burst Strength Testing Reports (PVC Pressure Pipe)
  - 8. Three-Edge Bearing Strength Test Reports (VCP)
  - 9. List of large diameter high density polyethylene pipe installations using thermal butt-welded pipe, from the last five years, from the HDPE installer, including the linear feet(linear meter), diameters, and owner telephone number and address for each installations.
  
- B. Cleanout: The Contractor shall submit to the Engineer for review and approval, prior to the installation of the cleanout, the following items:
  - 1. Manufacturer's product literature and technical data for the plastic lining, including complete data indicating the physical properties and chemical resistance properties of the plastic lining and all details and dimensions in accordance with Plumbing Code and "Greenbook" Utility Standard Specifications.
  
- C. Sewer Bypass Plan: The Contractor shall submit to the Engineer for review and approval, the sewage bypass plan, prior to installation and operation of sewage bypass system.
  
- D. Excavation: The Contractor shall submit to the Engineer for review and approval, prior to any excavation, the following items:
  - 1. Excavation support system specified elsewhere in these Special Provisions.
  - 2. Copy of the excavation permit issued by the California Department of Industrial Safety.
  - 3. Samples of imported material. Samples shall be submitted in accordance with "Greenbook" Utility Standard Specifications.
  
- E. Grout for Structures: The Contractor shall submit to the Engineer for review and approval, prior to installation of any grout materials, the following items:
  - 1. Manufacturer's literature containing instructions and recommendations on the mixing, handling, placement, and appropriate uses for each type of non-shrink and epoxy grouts proposed for use in the work.
  - 2. Certified test results verifying the compressive strength, shrinkage, and expansion properties for proposed non-shrink and epoxy grouts.

- F. Geotextiles: The Contractor shall submit to the Engineer for review and approval, prior to installation of any geotextile materials, the following items:
1. Manufacturer material specifications and product literature.
  2. Installation Plans showing geotextile sheet layout, location of seams, direction of overlap, and sewn seams.
  3. Description of proposed method of geotextile deployment, sewing equipment, sewing methods, and provisions for holding geotextile temporarily in place until permanently secured.
- G. Sewer Facilities Testing: The Contractor shall submit to the Engineer for review and approval, prior to testing of any sewer facilities the following item:
1. Proposed plans for sewer facilities testing, including plans for water conveyance, control, and disposal; design and manufacture data for the mandrel (if proposed); and a minimum 48-hour advance written notice of proposed testing schedule.

### **PRODUCT TESTING**

Attention is directed to section 6-3, "Testing", of the State Standard Specification.

In accordance with "Greenbook" Standard Specifications, pipe which has not been installed within 120 days of the latest test shall not be accepted for installation and shall not be used.

All pipe shall be subject to inspection at the factory. The Contractor shall notify the Engineer in writing of the manufacturing start date not less than 14 days prior to the start of manufacture. For all pipe, an affidavit of compliance, certified by the manufacturer, that the proposed pipe, joints, and gaskets comply with the requirements of these Specifications and the Plans shall be submitted to the Engineer, before installation of the pipe.

PVC pipe shall be subject to testing in accordance with "Greenbook" Standard Specifications. In addition, PVC pressure pipe shall be tested in accordance with the requirements of AWWA C-900 and C-905, as applicable.

VCP pipe shall be subject to testing in accordance with "Greenbook" Standard Specifications.

### **SEWAGE DIVERSION PLAN**

Contractor shall submit a sewage diversion plan to the Engineer thirty (30) days prior to the start of construction. The Sewage Diversion Plan shall allow construction in a dry trench and shall indicate the sequence of diversion operation the Contractor will establish to maintain sewer service during construction. The Diversion Plan shall also indicate procedures that would be implemented in case of an emergency failure of a pump or by-pass. By-passes shall be of sufficient capacity to handle peak flows without storage. Duplicate peak flow capacity pump units shall be provided by the Contractor to continuously handle sewer flow without interruption in the event of failure of either pump unit. Approval must be attained prior to placement of any bypass pumping equipment on the Project.

The Contractor shall submit to the Engineer per the requirements indicated in Plans and Data Required, for approval, prior to the commencement of sewer bypass work, the following items:

- A. Sewer Bypass Pumping Plan: The sewer bypass pumping system plan and calculations shall be prepared and stamped by a civil engineer registered in the State of California. The sewer bypass pumping plan shall include, but not be limited to the following:
1. Plans showing location of bypass pumps, piping, power source, all appurtenances, required crossings of traveled roadways and methods for crossings, and trunk sewer main and lateral connections.
  2. Calculations showing bypass pumping and piping meet the design capacity requirements.
  3. Name and manufacturer designation of equipment used in sewer bypass pumping system.
  4. Name, address, phone and fax number, e-mail, and contact name of bypass pumping system manufacturer, or representative.
  5. Emergency sewer bypass pumping contingency plan.
  6. Name, address, and phone number of all personnel in-charge of and overseeing bypass pumping system, and all personnel maintaining bypass pumping system.
  7. Name, address, phone number, and pager number of two (2) contacts employed by the Contractor that can be called by Padre Dam Municipal Water District, Engineer, or other appointed representative for emergencies 24 hours a day.

- B. Spill Prevention, Control, and Contingency Plan: A spill prevention, control and contingency (SPCC) plan shall be submitted to the Engineer for approval. The SPCC plan must include information in compliance with the Regional Water Quality Control Board requirements.

The Contractor, Padre Dam Municipal Water District, and Engineer shall meet at a designated date and location set by the Engineer and Padre Dam Municipal Water District, after submittal and review of the bypass pumping system plan by the Engineer and Padre Dam Municipal Water District. This meeting will be conducted by the Engineer and Padre Dam Municipal Water District. This meeting is designed to allow both the Contractor, Padre Dam Municipal Water District, and Engineer to discuss issues and concerns on the bypass pumping system and plan. Final approval of the bypass pumping system plan will not take place until completion of the meeting and all changes to the plan required by the Engineer and Padre Dam Municipal Water District met by the Contractor.

### **SEWAGE BY-PASS**

The Contractor shall maintain sewage flows in the existing sewers at all times except when flows shall be by-passed as mentioned herein.

By-passing of sewage shall be necessary at locations where the existing sewers are in conflict with the new construction work or to facilitate air testing of new sewer pipes as mentioned elsewhere in these Special Provisions.

The Contractor shall install the sewer bypass pumping system in accordance with the approved bypass pumping system plan. The bypass pumping system shall be installed and operational prior to commencement of the sewer connection work.

Wherever required, the Contractor shall provide all plugs, piping, pumps, power sources, valves, stand-by equipment, and appurtenances necessary to remove sewage from the existing system and shall legally dispose of the sewage into the closest downstream sewer system. Pumps and bypass lines shall be of adequate size and provide adequate capacity to handle all flows to be diverted.

Victaulic coupled steel pipe shall be used to pump sewage and shall be sized for peak flow velocity not to exceed 3 m per second. (Flows in the existing sewers vary depending on the season and the time of the day). When pumping is required to maintain sewage flows, the Contractor shall furnish at the job site stand-by-pumping equipment and piping of equal capacity to account for failure of mechanical equipment.

The bypass pumping system shall be operational during the entire time to install the new sewer main and complete all connections. This may include nighttime operation of the bypass system. The Contractor shall provide personnel on the site at all times, located at the bypass pumping station, in order to assure that the bypass pumping system is operational at all times. The Contractor shall also provide additional fuel or another power source on the site to maintain continuous operation of the bypass-pumping system.

It shall be the Contractor's responsibility to inform the affected homeowners and businesses regarding its by-pass operations and any potential of flooding. By-passing of sewage into surface water or drainage courses shall not be permitted. All sewers and lateral connections shall remain in continuous and full operation. It shall be Contractor's responsibility to notify property owners regarding any disruption/ non-availability of facilities during temporary disconnection of house connection sewers (laterals). Sewer service must be restored to each and every customer by the end of the work day.

On non-working days and during extended shut down periods, the Contractor shall suspend by-passing and restore flows to the existing sewers or new sewers (which have been air pressure tested) through use of adequate size flow through plug(s) and flexible pipe connection between the new and the existing pipe. The plug shall be secured to Engineer's satisfaction and the site shall be fenced in for security purposes. The by-pass line when in operation shall be guarded day and night against damage including vandalism. Any sewage spill resulting from the Contractors operations shall be the Contractors responsibility and no additional payment will be made.

All bypass systems shall meet all Padre Dam Municipal Water District and City of Santee noise restrictions, particularly at night. At no time shall the bypass pumping system be allowed to fail during construction of the new sewer main and until the existing sewer is connected to the new piping and operating properly.

All costs related to spills or backups due to the failure of the bypass pumping system shall be borne by the Contractor.

In the event of a sewage spill, the Contractor shall immediately notify the County's emergency operation center at telephone number (619)-565-5255 and then follow directions of the Engineer and the County Health Department and proceed with clean up and mopping in accordance with Proposition 65 for sanitizing the area contaminated by spill. The Contractor shall paint the emergency contact phone number adjacent to the end of the trench during the construction period. If sewage backup occurs and enters buildings, houses, or surcharges above the surface of the existing ground, the Contractor shall be responsible for clean up, repair, property, damage costs, and claims.

## **SEWER MAIN REMOVAL AND DISPOSAL**

Existing sewer pipes where shown on the Plans to be abandoned shall be removed and disposed of in accordance with the provisions of Section 7-1.13 of the State Standard Specifications. All resulting sewer pipe openings into existing structures, that are to remain in place, shall be plugged with minor concrete.

## **EXCAVATION**

Excavation shall conform to the provisions in Section 19-3, "Structure Excavation and Backfill", of the State Standard Specifications, these Special Provisions, and to the lines and grades shown on the Plans and as directed by the Engineer.

## **TRENCH EXCAVATION**

Whenever work involves trench excavation, the Contractor shall provide all necessary shoring, bracing, sloping, or other provisions to be made for worker protection from hazard of caving ground during the excavation. If such plan varies from the shoring system standards established by the Construction Safety Orders of the Division of Industrial Safety, a Civil Engineer or Structural Engineer registered in the State of California shall prepare and stamp the Plans and calculations. In accordance with "Excavation Support Systems" and "Drawings and Data Required" listed elsewhere in these Special Provisions, the Contractor shall submit to the Engineer for approval all excavation support systems proposed.

Contractor shall comply with the Safety Orders of California, Code of Regulations: Title 8, Section 1539 (Excavation, Trenches, Earthwork).

Trench excavation shall conform to the provisions in Sections 5-1.02A, "Trench Excavation Safety Plans," and 19-1.02 "Preservation of Property," of the State Standard Specifications, the Contract Plans, and these Special Provisions.

Excavation for underground conduits shall be in accordance with "Greenbook" Standard Specifications and the requirements contained herein. Unless otherwise shown on the plans or ordered, excavation for pipelines and utilities shall be open-cut trenches. Trench widths shall be kept as narrow as is practical for the method of pipe zone densification selected by the Contractor, but shall have a minimum width at the bottom of the trench equal to the outside diameter of the pipe plus 610 mm for mechanical compaction methods.

Safe and suitable ladders which project 0.7 m above the top of the trench shall be provided for all trenches over 1.2 m in depth. One ladder shall be provided for each 15 m of open trench, or fraction thereof, and be so located that workers in the trench need not move more than 8 m to a ladder.

Shoring is considered to be adequate sheeting, shoring, bracing, or equivalent method for (1) protection of life and limb which shall conform to applicable safety orders; (2) protection of existing underground and above-ground private and public improvements; and (3) the remedy of any and all conditions encountered, regardless of depth, (including, but not limited to trench sloughing, pavement separation, etc.) during the construction of the project.

Should a bracing system utilize steel H-beams or piles or other similar vertical supports, driving of said vertical supports will not be permitted except for the last 1.2 m above the bottom of pile, except where this procedure is impracticable. The vertical support may then be driven to the required depth, not to exceed 1.2 m. During the drilling and driving operations the Contractor shall take care to avoid damage to utilities.

At locations where the drilling of such holes is impracticable because of the existence of rocks, running sand, or other similar conditions, and provided said impracticability is demonstrated to the satisfaction of the Engineer by actual drilling operations by the Contractor, the Engineer may, upon request of the Contractor, approve the use of means other than drilling for the purpose of placing the vertical support. Such other means, however, must be of a nature which will accomplish, as nearly as possible, the purpose of the drilling, namely, the prevention of damage to existing surface or subsurface improvements, both public and private.

## **EXCESS TRENCH EXCAVATION**

Wherever the Contractor over-excavates the bottom of a trench, the bottom of the trench for sewer mains shall be backfilled in accordance with "Bedding" listed elsewhere in these Special Provisions.

Over-excavations shall be corrected by backfilling with approved imported granular material or crushed rock, compacted to 95% relative compaction, as directed by the Engineer.

The Contractor shall remove and legally dispose of all excess excavated material and demolition debris.

It is the intent of these Specifications that all surplus material shall be legally disposed of by the Contractor. Before acceptance of the work by the Engineer, the Contractor shall provide the Engineer with written releases signed by all property owners with whom the Contractor has entered into agreements for disposing of excess excavated material, absolving the Owner from any liability connected therewith.

Over excavation and associated bedding not ordered by the Engineer shall be at the Contractor's expense.

## **DEWATERING**

The Contractor shall provide and maintain at all times during construction ample means and devices to promptly remove and dispose of all water from any source entering excavations or other parts of the work. Dewatering shall be performed by methods that will ensure a dry excavation and preservation of the final lines and grades of the bottoms of excavations. Dewatering methods may include well points, sump points, suitable rock or gravel placed as pipe bedding for drainage and pumping, temporary pipelines, or other means, all subject to the approval of the Engineer. The cost of all dewatering activities shall be borne by the Contractor.

Sewer systems shall not be used as drains for dewatering trenches or excavations, nor for disposal of collected or accumulated groundwater, without the approval of the Engineer and Agency of jurisdiction.

Concrete shall not be poured in water, nor shall water be allowed to rise around concrete or mortar until it has set at least four hours.

The Contractor is responsible for meeting all Federal, State, and local laws, rules and regulations, including all Regional Water Quality Control Board conditions, regarding the treatment and disposal of water from dewatering operations at the construction site.

The Engineer shall be present for all dewatering.

The Contractor shall keep all excavations free from water during construction. Where groundwater is encountered, the static water level shall be drawn down a minimum of 300 millimeters below the bottom of the excavation to maintain the undisturbed state of the native soils to prevent softening of the bottom of the excavation, and to allow the placement of any fill to the specified density. Disposal of the water shall not damage property or create a public nuisance. The Contractor shall have on hand pumping equipment and machinery in good working condition for emergencies. Dewatering systems shall operate continuously until the backfill has been completed to 300 millimeters above the normal static groundwater level. Water may be discharged into an existing storm drain, channel, or street gutter only with the approval of the Engineer.

Dewatering systems shall not remove natural soils.

Release of the ground water to its static level shall be controlled to prevent the disturbance of the natural foundation soils or compacted fill and to prevent flotation or movement of structures or pipes.

Crushed rock shall be used for drainage when required by the Engineer. When crushed rock is used, filter fabric shall be installed between the rock and backfill material. Crushed rock shall be the 25 millimeters crushed rock gradation in accordance with "Greenbook" Standard Specifications.

When crushed rock for drainage is so ordered by the Engineer, crushed rock will be paid for as extra work as provided in Section 4-1.03D of the State Standard Specifications.

The Contractor shall anticipate and correct any erosion problem arising from its operations. The Contractor shall abide by the conditions of the Regional Water Quality Control Board, General Construction Activity Storm Water Permit and the project Storm Water Pollution Prevention Plan (SWPPP).

## **BEDDING FOR SEWER MAINS**

All sanitary sewer pipes shall be bedded with 10 mm crushed rock. The crushed rock shall be in accordance with "Greenbook" Standard Specifications.

All pipe shall be bedded in either sand, gravel, crushed aggregate, or native free-draining granular material having a sand equivalent of not less than fifty and a expansion when saturated of not more than half of one percent (0.5%). The sand shall be in accordance with "Greenbook" Standard Specifications.

All sewer pipe bedding shall have a pH within the range of 6.0 to 8.5, a resistivity of 2,000 ohm-cm, or greater, a soluble sulfate content of 500 ppm or less and a soluble chloride content of 200 ppm or less. The analytical methods described in California Test 643 shall be used to measure pH and resistivity. The analytical methods described in California Tests 417 and 422 shall be used to measure soluble sulfates and soluble chlorides, respectively.

## **ADDITIONAL BEDDING**

When so ordered by the Engineer, additional bedding required below subgrade to replace soft or unstable material will be paid for as extra work as provided in Section 4-1.03D of the State Standard Specifications.

Material for additional bedding shall be the 25 millimeters crushed rock gradation in accordance with "Greenbook" Standard Specifications.

## **PIPE LAYING-GENERAL**

All pipe shall be carefully inspected for defects before being placed in the trench. Pipe shall be bedded true to line and grade, with uniform bearing for the entire barrel length. Pipe sections shall be so laid and fitted together that when complete, the sewer sections will have a smooth and uniform interior. Each section of pipe shall be laid in the order and position shown on the laying schedule. Unless indicated otherwise, the pipe shall be laid to the design line and grade, within approximately 15 mm plus or minus. No tolerance is permitted on pipes designed for zero slope. Bell holes shall be dug so that the pipe rests on the barrel. All material shall be removed from the interior of the pipe, and the inner surface of the bell and the outer surface of the spigot ends shall be thoroughly cleaned to insure good joints.

Except for short runs which may be permitted by the Engineer, sections of pipe shall be laid in a sequence moving in an upgrade direction on grades exceeding 10 percent. Pipe which is laid in a downgrade direction shall be blocked and held in place until sufficient support is furnished by the following pipes to prevent movement.

Installation of all pipe shall be in accordance with "Greenbook" Standard Specifications. Pipe laying shall proceed upgrade with spigot ends pointing in direction of flow. After a section of pipe has been lowered into the prepared trench and immediately before joining the pipe, the ends of the pipe to be joined shall be cleaned, and the rubber gasket lubricated, all in accordance with the pipe manufacturer's written instructions. Assembly of the pipe length shall be in accordance with the recommendations of the manufacturer of the type of joint used. When cutting or machining of the pipe is necessary, only tools and methods recommended in writing by the pipe manufacturer shall be employed.

If water enters the trench from any source, pipe laying operations shall be stopped and dewatering operations shall be adjusted to prevent the pipe from floating. The Contractor shall reinstall all affected pipe to its specified condition and grade.

VCP pipe installation shall be in accordance with Section 306-1.2.3 of the Utility Standard Specifications.

PVC pipe installation be in accordance with "Greenbook" Standard Specifications, and per ASTM D 2321. In addition, installation of PVC pressure pipe shall conform to all applicable requirements of AWWA M23.

HDPE pipe installation shall comply with ASTM D 2321, Section 7. Allow extra length of pipe to compensate for contraction in the cooler trench bottom. Sections of polyethylene pipe and fittings shall be joined into continuous lengths as much as possible. The joining method shall be the thermal butt fusion method, performed in strict accordance with the pipe manufacturer's recommendations and producing joint strength equal to or greater than the pipe strength. Butt fusion shall conform to ASTM D 2657 and pipe manufacturer's criteria for the type of joining. Fusion equipment used in the joining procedure shall be capable of meeting all requirements of the pipe manufacturer, including fusion temperature, alignment, and fusion pressure. Fusion equipment shall be operated only by technicians who have been certified by a gas public utility or by the fusion equipment supplier.

In accordance with "Greenbook" Standard Specifications, pipe which is not installed within 120 days of the latest test shall not be accepted for installation and shall be removed from the project site by the Contractor.

Immediately after a connection has been made to an existing manhole, the sewer main entering the manhole shall be sealed and shall be kept sealed until all sewer lines tributary to the connection have been tested and accepted by the Engineer.

At night, and whenever the work ceases for any reason, the unfinished end of the sewer shall be securely closed with a tight fitting cap or plug to prevent the entrance of mud, sand or other obstructing material. The sewer shall be clean and unobstructed at the time of its completion and acceptance, and shall be true to the line and grade as shown on the Plans and profiles.

All necessary precautions shall be taken to prevent uplift or floating of the pipe prior to the completion of the back filling operation. The Contractor shall assume full responsibility for any damage due to this cause and shall restore and replace the pipe to its specified condition and grade at no increased cost to the Owner.

Sheet piling used for shoring shall extend at least 610 mm below the bottom of the trench. After completion of the pipe, it may be removed by cutting at least 300 mm above the top of the pipe. No vibratory methods for pile removal will be accepted, and piling lower than 300 mm above the top of the pipe shall be left in place.

## BACKFILL

Backfill material shall consist of material obtained from the excavation, imported material, granular bedding material, or unclassified material. The Contractor shall import at his expense materials in excess of the approved material obtained from excavation as required to complete the backfill and grading work as indicated.

Fill and backfill shall be placed in accordance with the applicable provisions of Section 300 shall be in accordance "Greenbook" Standard Specifications, and the requirements stated herein.

Backfill shall not be dropped directly upon any structure or pipe. Backfill shall not be placed around or upon any structure until the concrete has been properly cured in accordance with the requirements of the "Greenbook" Standard Specifications and has attained sufficient strength to withstand the loads imposed.

Except for drain rock materials being placed in over-excavated areas or trenches, backfill shall not be placed until all water is removed from the excavation.

Materials shall be placed and spread evenly in layers. When compaction is achieved using mechanical equipment the layers shall be evenly spread so that when compacted each layer shall not exceed 150 mm in thickness. Flooding and jetting methods shall not be used to densify backfill.

During spreading, each layer shall be thoroughly mixed as necessary to promote uniformity of material in each layer. Bedding materials shall be brought up evenly around the pipe so that when compacted the material will provide uniform bearing and side support.

Where the material moisture content is below the optimum moisture content water shall be added before or during spreading until the proper moisture content is achieved. During backfilling the soil moisture content should be maintained at or with two or three percent above the optimum moisture content of the backfill materials.

Where the material moisture content is too high to permit the specified degree of compaction the material shall be dried until the moisture content is satisfactory.

The relative compaction of fill, backfill, and base material shall be accordance with "Greenbook" Standard Specifications, with the following exceptions:

- |                                                                                                                                                                   |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 1. Subgrade where trench has been over excavated                                                                                                                  | 95% |
| 2. One foot layer of crushed aggregate backfill in over excavated trench. Where trench is over excavated more than 610 mm, minimum of 2 layers shall be compacted | 95% |
| 3. Pipe zone for flexible and rigid pipe.                                                                                                                         | 95% |
| 4. Backfill above the bedding (pipe) zone.                                                                                                                        | 95% |
| 5. Backfill for section with 0.6m directly below pavement material                                                                                                | 95% |
| 6. Fill beneath structures.                                                                                                                                       | 95% |

The trench backfill shall be placed and mechanically compacted. Compaction shall be in accordance with "Greenbook" Standard Specifications, and these Special Provisions.

All soils testing shall be done in accordance with "Greenbook" Standard Specifications, and by a testing laboratory of the Owner's choice at the Owner's expense.

Compaction Tests: Compaction tests shall be performed in accordance with "Greenbook" Standard Specifications. Where soil material is required to be compacted to a percentage of maximum density, the maximum density shall be determined in accordance with Section 211-2, of the Utility Standard Specifications. In case the tests of the fill or backfill show non-compliance with the required density, the Contractor shall accomplish such remedy as may be required to insure compliance. Subsequent testing to show compliance shall be by a testing laboratory selected by the Owner and shall be at the Contractor's expense.

- A. Backfill, General. Unclassified backfill material shall be in accordance with "Greenbook" Standard Specifications, except as noted below:
1. The largest dimension of any rock shall be less than 100 mm in any dimension.
  2. Material shall be free of biodegradable materials, hazardous substance contamination, oil alkali, broken Portland cement concrete products, and bituminous type pavement materials.
  3. At least 70 percent (by weight) of unclassified material shall pass U.S. Standard 19 mm sieve, and no more than 40 percent (by weight) of unclassified fill shall pass U.S. Standard #200 Sieve.

Rock products, consisting of crushed rock, rock dust, gravel, sand, and stone shall be clean, hard, sound, durable, uniform in quality and free of disintegrated material, organic matter, oil alkali, or other deleterious substance, and shall be in accordance with "Greenbook" Standard Specifications, unless otherwise specified.

Untreated base materials shall be crushed aggregate base in accordance with "Greenbook" Standard Specifications, unless otherwise specified.

- A. Backfill, Pipe Zone. Backfill, pipe zone, material shall be defined as material supporting, surrounding and extending to 300 mm above the top of a pipe, and shall be in accordance with "Greenbook" Standard Specifications, except as modified herein. Pipe zone material shall be 19 mm crushed rock or gravel meeting the requirements of "Greenbook" Standard Specifications, unless otherwise indicated on the Plans.
- B. Backfill, Structure. Backfill, structure, material shall be in accordance with "Greenbook" Standard Specifications, unless otherwise indicated on the Plans. Backfill above the bedding shall be considered as starting at the subgrade for cast-in-place structures such as manholes, transition structures, junction structures, vaults, and valve boxes.

#### **IMPORTED BACKFILL**

The densification method for imported backfill material shall be the same as the method for non-imported backfill.

A minimum relative compaction of 90 % shall be achieved.

Separate payment for imported backfill will be made only when the excavation is done in heavy clay, highly expansive or other deleterious material, and the imported backfill is ordered by the Engineer. The Engineer will be responsible for decisions whether or not the excavated material is suitable for backfill and when separate payment is made for imported backfill. When ordered by the Engineer, imported backfill will be paid for as extra work provided in Section 4-1.03D of the State Standard Specifications.

#### **TRENCH RESURFACING**

Trench resurfacing where required shall consist of asphalt concrete or Portland cement concrete as per Section 39, "Asphalt Concrete" or Section 90, "Portland Cement Concrete", of the State Standard Specifications and these Special Provisions, as shown on the Plans, and as directed by the Engineer.

Whenever excavation is made through pavement, sidewalk, driveway or drainage ditch, temporary bituminous resurfacing 50 millimeter thick shall be placed and maintained in accordance with "Greenbook" Standard Specifications unless permanent pavement is placed within 24 hours after backfill of trench.

#### **SEWER FACILITIES TESTING**

Testing of sewer pipes for leakage shall be performed after backfill and compaction tests have been approved. Leak testing shall be in accordance with "Greenbook" Standard Specifications and these Special Provisions.

Prior to air pressure testing, each pipe shall be "Wayne" balled and mandreled in the presence of the Engineer.

The Contractor shall notify the Engineer at least three working days in advance of performing any pressure test, except no pressure test shall be made on Saturdays, Sundays or designated legal holidays, unless otherwise approved in writing by the Engineer.

Connected sewers shall be by-passed so as to isolate and cap the section to be tested.

The gage utilized for the test shall be of a scale and range equivalent to 60 mm diameter, 0-70 kPa range (2.5 kPa maximum increments). Gauges supplied by the Contractor shall have a recent certification of accuracy from an approved testing agency.

Pipes that fail the above test shall be repaired and retested at the Contractor's expense until all pipes pass the appropriate pressure tests.

The Contractor shall furnish all materials including water, equipment, bracing, connections, labor and expense required for testing of pipeline. The Contractor shall be responsible for the result of any failure under test which is attributable to defective material and/or workmanship furnished by the Contractor or to the Contractor's negligence or improper conduct of the test.

## **DEFLECTION TESTING PVC PIPE**

Flexible and semi-rigid main line pipe shall be tested for deflection, joint displacement, and other obstructions by mandrel test in accordance with "Greenbook" Standard Specifications.

The test shall be performed not less than 30 days after completion of the trench backfill, but prior to permanent resurfacing. The mandrel shall be a full circle, solid cylinder, or a rigid, non-adjustable, odd-numbered leg (9 leg minimum) steel cylinder which has been approved by the Engineer as to design and manufacture and shall be in accordance with "Greenbook" Standard Specifications.

Obstructions and deflections, greater than 5 percent, encountered by the mandrel shall be corrected by the Contractor.

## **10-4.03 MATERIALS FOR SEWER SYSTEM WORK**

### **GENERAL DESCRIPTION**

Provide materials and appurtenances of the sizes and types indicated on the Plans and that shall comply with the applicable Sections of these Special Provisions.

All pipe installed as gravity sewer pipe shall be polyvinyl chloride (PVC), as specified in these Special Provisions, and as shown on the Plans.

Pipe and fittings for connection sewer (laterals) shall be PVC in accordance with "Greenbook" Standard Specifications.

### **AWWA C905, DR-25 POLYVINILYL CHLORIDE (PVC) SEWER PIPE**

AWWA C905, DR-25 PVC sewer pipe shall be in accordance to the "Greenbook" Standard Specifications and these Special Provisions, shall be of the diameter and pressure class or pressure rating indicated, shall be provided complete with rubber gaskets, and all specials and fittings as required in the Plans. The dimensions and pressure classes for Dimension Ratios shall conform to the requirements of AWWA C905, as appropriate.

All joints for the pipe shall be either an integral bell manufactured on the pipe or a restrained joint employing a harness, coupling, or gland type restraint. The bell and coupling shall be the same thickness as of the pipe barrel, or greater thickness. The sealing ring groove in the coupling shall be of the same design as the groove in cast iron fittings and valves available from local water works supply distributors.

Deflection at the joint shall not exceed 1.5 degrees or one-half the maximum deflection recommended by the manufacturer, whichever is less. No deflection of the joint shall be allowed for joints which are over-belled or not belled to the stop mark.

Pipe shall be identified in conformance with AWWA C905, as appropriate.

### **SDR-35 POLYVINILYL CHLORIDE (PVC) SEWER**

SDR-35 Polyvinyl Chloride (PVC) Sewer Pipe, fittings, couplings, and appurtenances shall conform to ASTM D3034, and shall be in accordance with "Greenbook" Standard Specifications. The gasket shall be neoprene, polyurethane, or synthetic rubber with equal or greater resistance to solvency, chemical, or biological attack.

The rubber ring joints shall be per ASTM D3034.

In addition to the identification marks specified "Greenbook" Standard Specifications, the Contractor shall also require the manufacturer to mark the date of extrusion on the pipe. This dating shall be done in conjunction with records to be held by the manufacturer for 2 years, covering quality control tests, raw material batch number, and other information deemed necessary by the manufacturer.

## **MEASUREMENT AND PAYMENT**

Items of work measured as provided in these Special Provisions will be paid for as lump sum for sanitary sewer system and shall include the various sizes and types of sewer mains, sewer laterals, sewer cleanout and includes the sand backfill, the various types of minor concrete, and no extra payment will be made for televising sewer.

Abandon sewer pipe and modify existing manhole as shown on plans shall be measured and included in the lump sum paid for sanitary sewer system.

Compensation for all other concrete and miscellaneous iron and steel involved in constructing the sewer work shall be considered as included in the contract lump sum paid for sanitary sewer system and no separate payment will be made therefor.

When imported backfill is ordered by the Engineer, it will be paid for as extra work as specified in Section 4-1.03D of the State Standard Specifications.

Compensation for furnishing all labor and materials including structure excavation, structure backfill, and bedding material, temporary cap, and polyethylene wrapping, dewatering pipe, testing, metallic tape locator for non-metallic pipe, pipe, pipe joints, linings, coatings, pipe fittings, tees, and bends, reducers, adapters, and end caps, spacers and supports within any casing and other appurtenances, tools, equipment and incidentals involved in constructing the sewer system, complete in place as specified in these Special Provisions and as directed by the Engineer shall be considered as included in the lump sum paid for sanitary sewer system and no additional compensation will be allowed therefore.

Compensation for protective work operations required to accommodate or safeguard public traffic or existing facilities (including fencing) and for all trenching and shoring, control of water in and outside the excavations and trenches, and all sewage diversion systems shall be considered as included in the lump sum paid for the sanitary sewer system work involved, and no additional compensation will be allowed therefor.

### **10-4.04 TELEVISIONING SEWER MAINS**

Existing sewer mains to be televised as shown on the plans, shall be inspected by CCTV (Closed Circuit Television) and shall be recorded on to a color VHS (Video Home System) or DVD (Digital Video Disc) prior to any work including but not limited to pile driving, driving of heavy equipments, and excavation. This existing sewer mains shall be inspected by closed circuit color VHS or DVD television again after completion of work including but not limited to trench backfill, grading, and placement of pavement or permanent trench resurfacing, to determine the existence and extent of any obstructions, structural deficiencies, or sags. The conditions of the sewer mains before and after work must be the same. Any deficiencies, cracks, or sag must be repaired or replaced prior to the Contractor leaving the job site.

The Contractor shall furnish all equipment and materials required for inspection

The contractor, in cooperation with the engineer, shall televise the existing sewer mains. It shall be the Contractor's responsibility to provide a record log of the TV inspection

The Contractor shall review the videotapes or DVDs for any discrepancies and or deficiencies of the sewer pipes and submit a written list of all deficiencies including proposed repairs to the Engineer. The Contractor shall submit two copies of the videotapes or DVDs and report to the Engineer within five (5) days after the sewer mains were videotaped. The Engineer shall have fifteen (15) working days to review the videotapes or DVDs. In the event that deficiencies or sags are discovered by the Engineer five (5) working days shall be allowed for the Engineer to judge whether the deficiencies or sags are repairable in place. If the Engineer determines that the deficiencies or sags are non-repairable in place, the affected portion(s) shall be reconstructed at the Contractor's expense.

The Contractor shall not be entitled to any additional working days due to delays resulting from the need to correct any deficiencies or sags, either repairable or non-repairable in place, as determined by the Engineer.

## **TELEVISION EQUIPMENT**

Televising equipment shall include the television camera, television monitor, cables, power source, lights and other equipment necessary for the televising operation. The camera system shall include a pan-and-tilt, radial viewing, pipe inspection camera that pans plus or minus 275 degrees and rotates 360 degrees with zooming capability. The Contractor shall use a camera with an accurate footage counter that displays, on the operator's monitor and the videotape or DVD, the distance of the camera from the centerline of the starting manhole. The Contractor shall use a camera with height adjustment so that the camera lens is always centered at one-half the inside diameter, or higher, in the pipe being televised. The Contractor shall provide a lighting system that allows the features and condition of the pipe to be clearly seen. A reflector in front of the camera may be required to enhance lighting in large diameter pipe. The camera system shall be controlled from the operator's truck. CCTV inspections may be recorded onto digital media such as DVD with the prior permission of the Engineer

Recording shall be on a 4-head VHS format VCR recorded at standard play mode in color or on a DVD disk that can be replayed on standard US NTSC (National Television System(s) Committee) DVD player.

The video equipment utilized shall be specifically designed and constructed to be operative in one hundred percent humidity conditions. Lighting for the camera shall minimize reflective glare. Lighting and camera quality shall be suitable to provide a clear, continuously in-focus picture of the entire inside periphery of the pipe for all conditions encountered during the inspection. A reflector in front of the camera may be required to enhance lighting in large diameter pipe.

Videocassette or DVD capacity shall be adequate to record inspection of at least one complete pipe segment between manholes, but no more than 5 segments shall be recorded on a single cassette or DVD. Recording of a single segment shall not extend to more than one videocassette or one DVD. The Contractor shall not leave gaps in the recording of a segment between manholes.

Only segments between manholes on the same sewer main shall be included on one videotape or DVD.

Two permanent labels are required. One label shall be placed on the spine and the other on the face of the videotape or in case of DVD one label shall be placed on the DVD case and the other on the DVD disk.

### **CASSETTE SPINE LABEL INFORMATION**

- A Contractor Name
- B Project Name
- C Tape Number
- D Date Televised
- E Date Submitted

### **DVD CASE LABEL INFORMATION**

- A Contractor Name
- B Project Name
- C DVD Disk Number
- D Date Televised
- E Date Submitted

### **CASSETTE FACE LABEL INFORMATION**

- A Name of street
- B From Manhole Number and VCR counter number
- C To Manhole Number and VCR counter number
- D Pipe Length and Size
- E Project Name
- F Tape Number

### **DVD DISK LABEL INFORMATION**

- A Name of street
- B From Manhole Number and VCR counter number
- C To Manhole Number and VCR counter number
- D Pipe Length and Size
- E Project Name
- F Disk Number

For each cassette or DVD the Contractor shall prepare a TV Inspection Report which shall be a complete written log of pipe conditions and connections, indexed to the footage counter.

### **TELEVISION PROCEDURES**

- A. Contractor shall notify the Engineer 48 hours in advance of TV inspection so that the Engineer may observe inspection operations.
- B. In addition, the Contractor shall clean all associated sewer manholes, and shall pan the camera to document the conditions of manholes. Camera operator shall slowly inspect each connection and sewer transitions from one pipe material to another.
- C. The Contractor shall move the camera downstream at a uniform rate not greater than 10 meters per minute. The Contractor shall stop and thoroughly inspect each of the following:
  - 1. Collapsed pipe, obstructions
  - 2. Structural cracking, with and without deflection
  - 3. Sag, excessively deflected joint
  - 4. Cracked and open joints
  - 5. Protruding joint sealing material
  - 6. Missing, damaged, bulging PVC sheet liner.
- D. The camera operator shall log on a suitable form, observations in the inspection of the above items.
- E. If the camera is unable to pass an obstruction even though flow is unobstructed, the Contractor shall also approach the obstruction from the other direction in order to obtain complete video or DVD on both sides of the obstruction. The Contractor shall notify the Engineer whenever such an obstruction is encountered. The Engineer will determine if the obstruction must be removed.
- F. Audio and written documentation shall accompany all videotape(s) or DVDs submitted to the Engineer.
- G. If voice recording is used on the videotape or DVD the recording shall have brief informative comments on unusual conditions, type and size of connection and fitting, collapsed sections, the presence of scale and corrosion, location and description of each defect, and other significant data.
- H. The Contractor shall prepare an inspection report, which shall be a complete written log of pipe conditions, indexed to the footage counter. The Contractor shall turn over the original videotape and written reports to the Engineer at completion of the inspection.

### **MEASUREMENT AND PAYMENT**

Full compensation for televising sewer mains shall be considered as included in the prices paid for various items of work involved and no additional compensation will be allowed therefor.

**ENGINEER'S ESTIMATE**

**11-2T0004**

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
81	490770	FURNISH PILING (CLASS 625) (ALTERNATIVE V)	M	331		
82 (S)	490771	DRIVE PILE (CLASS 625) (ALTERNATIVE V)	EA	39		
83 (S)	500001	PRESTRESSING CAST-IN-PLACE CONCRETE	LS	LUMP SUM	LUMP SUM	
84 (S)	041260	PRESTRESSING (TRANSVERSE)	LS	LUMP SUM	LUMP SUM	
85 (F)	510050	STRUCTURAL CONCRETE	M3	60		
86 (F)	510051	STRUCTURAL CONCRETE, BRIDGE FOOTING	M3	489		
87 (F)	510053	STRUCTURAL CONCRETE, BRIDGE	M3	18 602		
88 (F)	510060	STRUCTURAL CONCRETE, RETAINING WALL	M3	3590		
89 (F)	510072	STRUCTURAL CONCRETE, BARRIER SLAB	M3	327		
90 (F)	510088	STRUCTURAL CONCRETE, APPROACH SLAB (TYPE N MODIFIED)	M3	298		
91 (F)	510502	MINOR CONCRETE (MINOR STRUCTURE)	M3	232		
92 (F)	510524	MINOR CONCRETE (SOUND WALL)	M3	8		
93 (F)	511045	EXPOSED AGGREGATE FINISH	M2	220		
94 (F)	041261	ARCHITECTURAL TREATMENT (GRID TEXTURE)	M2	2575		
95 (S)	041262	FURNISH PRECAST PRESTRESSED CONCRETE T BEAM	EA	28		
96 (S)	041263	ERECT PRECAST PRESTRESSED CONCRETE T BEAM	EA	28		
97 (S)	041264	FURNISH PRECAST PRESTRESSED CONCRETE SQUARE BEAM	EA	15		
98 (S)	041265	ERECT PRECAST PRESTRESSED CONCRETE SQUARE BEAM	EA	15		
99 (S-F)	518002	SOUND WALL (MASONRY BLOCK)	M2	503		
100 (S)	518051	PTFE SPHERICAL BEARING	EA	52		

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REVISED PER ADDENDUM NO. 2 DATED MARCH 14, 2008

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
121	562004	METAL (RAIL MOUNTED SIGN)	KG	340		
122	566011	ROADSIDE SIGN - ONE POST	EA	12		
123	566012	ROADSIDE SIGN - TWO POST	EA	12		
124	568001	INSTALL SIGN (STRAP AND SADDLE BRACKET METHOD)	EA	11		
125	620904	300 MM ALTERNATIVE PIPE CULVERT	M	40		
126	620909	450 MM ALTERNATIVE PIPE CULVERT	M	10		
127	620913	600 MM ALTERNATIVE PIPE CULVERT	M	2380		
128	620919	750 MM ALTERNATIVE PIPE CULVERT	M	520		
129	620924	900 MM ALTERNATIVE PIPE CULVERT	M	68		
130	620933	1200 MM ALTERNATIVE PIPE CULVERT	M	460		
131	650077	750 MM REINFORCED CONCRETE PIPE	M	51		
132	650084	1200 MM REINFORCED CONCRETE PIPE	M	260		
133	690281	600 MM BITUMINOUS COATED CORRUGATED STEEL PIPE DOWNDRAIN (2.77 MM THICK)	M	76		
134	703233	GRATED LINE DRAIN	M	210		
135	013266	BASIN RISER	EA	1		
136	013267	300 MM BITUMINOUS COATED CORRUGATED STEEL PIPE RISER (4.27 MM THICK)	M	5		
137	705337	600 MM ALTERNATIVE FLARED END SECTION	EA	4		
138	707479	900 MM REINFORCED CONCRETE PIPE RISER	M	19		
139 (S)	013268	SANITARY SEWER SYSTEM	LS	LUMP SUM	LUMP SUM	
140	719589	MINOR CONCRETE (BACKFILL)	M3	8		

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REVISED PER ADDENDUM NO. 2 DATED MARCH 14, 2008

Item No.	Item Code	Item Description	Unit of Measure	Estimated Quantity	Unit Price	Item Total
141	721011	ROCK SLOPE PROTECTION (BACKING NO. 2, METHOD B)	M3	80		
142	013269	MINOR CONCRETE (APRON AND DITCH LINING - COLORED)	M3	170		
143	729010	ROCK SLOPE PROTECTION FABRIC	M2	290		
144	731510	MINOR CONCRETE (CURB, GUTTER, SIDEWALK AND DRIVEWAY)	M3	77		
145 (F)	731517	MINOR CONCRETE (GUTTER)	M	127		
146	731530	MINOR CONCRETE (TEXTURED PAVING)	M2	580		
147 (S-F)	750001	MISCELLANEOUS IRON AND STEEL	KG	17 620		
148 (S-F)	750041	ISOLATION CASING	KG	26 900		
149 (S-F)	750501	MISCELLANEOUS METAL (BRIDGE)	KG	70		
150 (S-F)	750505	BRIDGE DECK DRAINAGE SYSTEM	KG	15 350		
151 (S)	800386	CHAIN LINK FENCE (TYPE CL-1.2, VINYL-CLAD)	M	280		
152 (S)	800391	CHAIN LINK FENCE (TYPE CL-1.8)	M	460		
153 (S)	800392	CHAIN LINK FENCE (TYPE CL-1.8, VINYL-CLAD)	M	150		
154 (S)	013270	3.7 M CHAIN LINK GATE (TYPE CL-1.2, VINYL-CLAD)	EA	2		
155 (S)	802596	3.7 M CHAIN LINK GATE (TYPE CL-1.8)	EA	2		
156	013271	CONCRETE BARRIER MARKER	EA	180		
157	820107	DELINEATOR (CLASS 1)	EA	36		
158	820118	GUARD RAILING DELINEATOR	EA	32		
159 (S)	832001	METAL BEAM GUARD RAILING	M	130		
160 (S-F)	833033	CHAIN LINK RAILING (TYPE 7 MODIFIED)	M	226		

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REVISED PER ADDENDUM NO. 2 DATED MARCH 14, 2008