

City of San Leandro
Civic Center, 835 E. 14th Street
San Leandro, California 94577
www.sanleandro.org



**FIBER LOOP PROJECT
PROJECT NO. 11-120-28-192**

ADDENDUM NO. 1

June 27, 2012

TO: All Prospective Bidders

The additions and/or deletions contained in this Addendum shall be made a part of the plans and specifications and contract documents for the above described project, and shall be subject to all applicable requirements thereunder, as if originally shown and/or specified.

THE CONTRACT DOCUMENTS SHALL BE REVISED AS FOLLOWS:

Section 5-2 is added: See attachments
Section 316 is replaced: See attachments
Plan Sheet 1 is replaced: See attachments
Plan Sheet 3 is replaced: See attachments
Plan Sheet 4 is replaced: See attachments
Plan Sheet 8 is replaced: See attachments

PLEASE NOTE:

The Bid Opening Date Remains Tuesday, July 3, 2012 at 3:00 P.M.

Acknowledge this addendum and include a signed copy of the Acknowledgement Form in your Proposal. This addendum can also be downloaded from City's website:
<http://www.sanleandro.org/depts/finance/purchasing/bids/>

If you have any questions, please call the Project Engineer, Dean Hsiao, at (510)577-3410 or via email at dhsiao@sanleandro.org.

Very truly yours,

Kenneth Joseph, P.E., City Engineer
Engineering and Transportation Department
kjoseph@sanleandro.org

cc: Internal Plans & Specs Distribution List
COSL Current Plan-holders

Enclosures: Section 5-2
Replacement for section 316
Project Plans – Drawing Sheets 1,3,4,8

Stephen H. Cassidy, Mayor

City Council:

Pauline Russo Cutter
Ursula Reed

Michael J. Gregory
Diana M. Souza

Jim Prola
Joyce R. Starosciak



5-2 PROTECTION The following provisions are added to the Standard Specifications:

In addition to the requirements of Section 5-2 of the Standard Specifications, In the event of disturbance or damage to a sewer line to the extent that an emergency sewer point repair is required, the Contractor shall contact the Engineer (and Caltrans if in its ROW) immediately for additional instructions prior to beginning repairs.

Contractor shall protect the existing sanitary sewer system from blockages, surcharges, and overflows. Contractor shall not plug, reroute, or bypass flows that will cause undue stress on the system or cause overflows at the Water Pollution Control Plant (WPCP) or within the community. When pipeline cleaning operations are being performed, (per Section 500-1.1.4 of the Standard Specifications), debris and particulates shall be collected at the downstream manhole and removed from the pipeline. In addition, Contractor shall implement flow velocity reduction measures at a downstream manhole to maximize the collection of particulates and debris (i.e., use of a flow-through plug, grating, 'chain-ball,' weir, etc.).

Contractor shall manage all flows in the work area and notify the Engineer through a **SYSTEM OUTAGE REQUEST (SOR)**. Contractor shall submit the included SOR form on a weekly basis to the Engineer at least 48 hours prior to commencing the System Outage. All System Outage Requests shall include a sketch of the affected areas, bypass and plugging plans, flow and volume calculations, and a schedule of downtime and service restoration.

At least 30 minutes prior to concluding a System Outage, the Contractor shall again contact the Engineer and WPCP. The Contractor shall control the release of any sewage volumes stored in the system. No great rush of flows shall be allowed in any part of the system. The Contractor shall be responsible for any damage caused by the uncontrolled discharge of high flows. The Contractor shall be held responsible for overburdening the sewer collection system and WPCP causing the discharge of sewage into the environment. Additionally, the Contractor shall reimburse the City for any fines levied by regulatory agencies due to spills, backups, or overflows resulting from the Contractor's failure to comply with the requirements herein.

WPCP Phone Numbers:

Monday – Friday	7:00 a.m. to 4:00 p.m.	(510) 577-3434
	After Hours	(510) 577-3459

5-2.1 Communication Systems In the event of disturbance or damage to a voice or data service provided by Information Services to the extent that an emergency repair is required, the Contractor shall contact the Engineer immediately for additional instructions prior to beginning repairs. The Contractor shall respond to restore the services within four (4) hours of receiving directions from the City.

For planned system outage, Contractor shall notify the Engineer through a **SYSTEM OUTAGE REQUEST (SOR)**. Contractor shall submit the included SOR form on a weekly basis to the Engineer at least 48 hours prior to commencing the System Outage. All System Outage Requests shall include a sketch of the affected areas, and a schedule of downtime and service restoration.

Contractor shall schedule planned system outage for voice or data service provided by Information Services outside City's normal business hours and such outage shall be approved by the Engineer. At least 30 minutes prior to concluding a System Outage, the Contractor shall contact the Engineer and confirm that the outage is being performed as planned.

END



City of San Leandro
Engineering & Transportation Department
 Civic Center • 835 East 14th Street
 San Leandro, California 94577-3782
 510.577.3428 (voice)
 510.577.3294 (fax)

SYSTEM OUTAGE REQUEST

To:		Fax:		
Company:		Date:		
From:		Phone:		
Re: System Outage Request – Notification				Pages:
Project:				
CC:				
<input type="checkbox"/> Urgent	<input type="checkbox"/> For Review	<input type="checkbox"/> Please Comment	<input type="checkbox"/> Please Reply	<input type="checkbox"/> For Your Info

Contractor: _____

Reason: _____

Duration: _____

Location: _____

Outage Description: _____

Contacts (24 hr.): _____

Original will not follow. Original will follow by:

Regular Mail
 Federal Express/UPS
 E-mail/Other

SECTION 316 FIBER OPTIC SYSTEM

316-1 FIBER OPTIC CABLE The Contractor shall furnish and install fiber optic cable as shown on the plans. Installation procedures and technical support information shall be furnished at the time of delivery. Installation procedures shall be in conformance with the procedures specified by the cable manufacturer for the specific cable being installed.

During cable installation, the bend radius shall be maintained at a minimum of twenty times the outside diameter of the cable. After installation, the bend radius shall be maintained at a minimum of ten times the outside diameter of the cable.

When installing fiber optic cable, the Contractor shall also install a pull rope and/or one (1) #8 AWG THW stranded bare copper locating wire as shown on the plans.

F/O cable shall be installed without splices except where specifically allowed on the plans or described in these special provisions.

If the fiber cable reel is left outside overnight during installation, the Contractor must provide their own security for the cable.

The cable shall be clearly marked with a permanent plastic yellow tag in each pull box it passes through. During installation the Contractor must keep a log that notes the meter marking on the cable at every pull box. This will help determine the exact location of problems along the cable run during the OTDR testing. The Contractor must submit the log to the City of their records.

316-1.1. MEASUREMENT AND PAYMENT Section 316-1 is added to the standard specifications as follows: Payment for all work described in section 316-1 "Fiber Optic Cable" is included in the contract price paid for bid items four (4), six (6), and seven (7) and no separate payment shall be made.

316-2. REMOVAL OF FIBER OPTIC CABLE The existing fiber optic cable shall be removed before new fiber optic cable is installed. The Contractor shall remove and discard existing fiber optic cable only. The existing splice closure, lateral fiber optic cable, pull rope, and tracer wire shall remain. The existing fiber optic cable can be used as a pull rope to install new fiber optic cable.

316-2.1. MEASUREMENT AND PAYMENT Section 316-2 is added to the standard specifications as follows: Payment for all work described in section 316-2 "Removal of Fiber Optic Cable" is included in the contract price paid for bid item five (5) and no separate payment shall be made.

316-3 REPLACEMENT OF EXISTING CABLE AND WIRES The Engineer will inspect any existing cable and wire removed from existing conduit prior to reinstallation with the new fiber optic cable. If the Engineer determines that an existing cable or wire is in need of replacement, they shall so direct the Contractor. Payment for furnishing such replacement cable or wire shall be determined based on the unit prices received for similar cabling in this project. The cost of installation of replacement cable is included in the bid price for fiber optic cable installation.

316-3.1. RESTORATION OF EXISTING CABLE AND WIRES At locations where the Contractor must remove existing conductors to install the new fiber cable or new signal conductors, the Contractor is responsible for ensuring that existing cable and wiring is reconnected exactly as found or as specified in the plans and is left fully functional after new cables are installed. The Contractor shall conduct tests, in the presence of the Engineer, to record the operational condition of existing wires and cables prior to removal if it is suspected that such wires or cables are not currently fully functional.

316-3.2 MODIFICATION OF EXISTING FIBER CONNECTION The Contractor shall perform necessary fiber optic cable reconnection at the existing termination panel and in the existing splice enclosure as shown on the plans.

316-3.3. MEASUREMENT AND PAYMENT Section 316-1 is added to the standard specifications as follows: Payment for all work described in section 316-3 "Replacement of Existing Cable and Wires" is included in the contract price paid for bid items six (6), and seven (7) and no separate payment shall be made.

316-4 FIBER OPTIC CABLE SPLICING AND TESTING The fiber optic cable plant shall consist of fiber optic cables, fiber patch cords and pigtails. The Contractor shall perform fiber continuity and attenuation testing and fiber backscatter measurements at several stages in the system construction.

Testing shall be performed with an OTDR (optical time domain reflectometer) and/or optical power meter and light source, as directed below, and testing shall be done at the following stages in the system construction:

1. OTDR test at cable delivery (reel test)
2. OTDR test following cable installation prior to connectorization, termination or splicing
3. OTDR and power meter/light source post-connectorization test, following installation of all splices, pigtails, connectors and termination devices. This test shall be performed end-to-end, on all strands that are spliced or onto which optical equipment is terminated.

Each test at each stage of construction shall be performed at the 1310 nm and the 1550 nm wavelengths.

The Contractor shall submit written documentation of each test result, at each stage of testing. The written documentation, in order to be considered for acceptance, shall include the parameter measurements as specified herein. The Contractor must submit all results to the Engineer, with a transmittal letter indicating which test results are being submitted. The Contractor shall receive written approval from the Engineer to proceed with any further testing for subsequent stages.

All fibers shall be tested end to end. The end to end total attenuation shall not exceed the sum of the maximum allowable attenuation for the component cable segments, splices and typical loss for connectors. Nor shall the attenuation from an individual connector or splice exceed the maximum allowable losses. If the fibers in the cable installed under this project exceed the allowable loss, the Contractor shall take corrective measures to bring the cable's total attenuation below the allowable limit, including replacement of the cable at the Contractor's expense.

The Contractor shall perform all OTDR testing in the presence of the Engineer. The Engineer shall attach their written mark to all test documentation made by the Contractor at the time of the test. Testing performed by the Contractor and not witnessed by the Engineer shall not be accepted, re-testing will be required. The Contractor shall verify that the attenuation and optical continuity of each active and spare optical fiber in the cable plant satisfies the specified requirements.

Attenuation shall be calculated by the insertion method. Calibration between the light source and the power meter shall be performed at the beginning of each day of testing.

The Contractor shall record the attenuation of each optical link. Optical links shall be identified in the test results by identifying the label identifier on each drop cable and by identifying the field cabinet at which light was launched and at which it was received.

An acceptable OTDR shall be used to measure the backscattered light profile of the designated optical links. The OTDR shall include all necessary hardware to couple it to either a connectorized or non-connectorized

fiber. While performing backscatter measurements, the end of the fiber link that is not connected to the OTDR shall be capped to prevent the ingress of infrared radiation. The OTDR used shall be provided with certification of its most recent calibration and shall not be more than 12 months old.

A 3000 foot launch cable or launch cable box set for a 3000 foot fiber cable shall be inserted between the OTDR and the optical link to overcome the initial "dead zone" on the fiber trace.

The OTDR testing shall be done at a scale of at least 1dB per division on the vertical scale. It shall have a dynamic range of at least 30dB at 1310nm and distance measurement accuracy of $\pm 0.01\%$.

The Contractor shall record each optical link measured for attenuation by means of an electronic data file of the OTDR trace. The Contractor shall supply a licensed software package (installed on the Network Management Computer) to read, store, compare, and analyze the electronic data files created by the OTDR instrument. A hard copy printout of each trace shall also be provided, which shall include the measurements listed below. The OTDR traces shall be compared with this software following each testing stage of the installation. Documentation of this comparison shall be provided to the Engineer, as specified above. Optical links shall be designated in the test results by indicating the label identifier on each drop cable and by identifying the field cabinet at which light was launched.

The OTDR traces shall be marked noting the physical location of each splice or connector. The notation shall be clear and understandable.

The OTDR shall be of a manufacture recommended by the cable supplier. The OTDR operator shall hold a current operators certificate for the equipment used. This certificate shall represent not less than 16 hours of training from the equipment manufacture. This certificate shall be presented to the Engineer at the start of testing.

The test results shall include the following measurements:

- total measured length of the optical link (m)
- total end-to-end attenuation of the optical link (dB), not including launch cable
- end-to-end attenuation per unit length (dB/km), not including launch cable
- mean attenuation of each splice in the optical link under test (dB)
- wavelength of the measurement (nm)

Attenuation shall be measured in decibels.

The Contractor shall demonstrate that each fiber and splice satisfies the specified requirements.

316-4.1 MAKE AND TEST ALL F/O SPLICES AND CONNECTOR INSTALLATIONS The Contractor shall notify the Engineer no less than five (5) working days prior to beginning any splicing and/or connectorization operations.

All splices shall be made in a controlled, weather-proof, dust-proof environment. No open air splices shall be permitted.

The Contractor shall make splices and terminations at locations shown on the plans and as approved by the Engineer.

The F/O cable splices shall be the fusion type and shall not exceed 0.08 dB loss per splice.

Splices shall be housed in splice trays, within in a splice closure or Fiber Termination Units. All splices shall be protected with a thermal shrink sleeve.

The Contractor shall coil a minimum of thirty (30) feet of each cable entering an underground splice closure and sufficient additional length to allow the splice to be performed above ground in a vehicle specifically equipped for such work. Such coiled cable shall be located adjacent to the splice enclosure. A segment of cable routed between two splice enclosures shall have a minimum of thirty (30) feet of cable coiled at each end, for a total of thirty (30) feet. Cable routed through a splice chamber or fiber-optic pull box without being spliced shall have thirty (30) feet of cable left coiled within that pull box to accommodate future splicing. Thirty feet of cable shall be coiled in cabinets. Different lengths of coiled cable shall be provided where shown on the plans.

In non-fiber optic pull boxes, the cable shall be routed as needed to avoid exceeding the minimum bending radius.

Only those fibers that are to be spliced shall be removed from the cable and buffer tubes. All other fibers shall remain in their tubes and shall be suitably protected. The Contractor shall seal all cables where the cable jacket is removed. The cable shall be sealed per the cable manufacturer's recommendation with an approved blocking material.

The Contractor shall submit to the Engineer for approval the resumes with references of people who will be performing splices. Splices shall be performed only by experienced personnel with experience including successful completion of no less than 2000 fusion splices. Only those individuals approved by the Engineer shall be allowed to make fiber optic splices.

Splices shall be made as shown on the Splicing Details in the Plans. Intermediate splices may be made for convenience to connect cable segments between designated splice locations, but no such splices shall be less than 3,000 feet apart, and will not be separately paid for. The Contractor must receive written approval from the Engineer before performing any splices that are not indicated on the plans. The Contractor shall install an additional fiber optic pull box at intermediate splice locations if not already shown on the plans, and the cost of any such intermediate splices and pull boxes shall be incidental to and included in the bid price for "Install Splice Enclosure and Splice Cables".

The Contractor shall keep accurate detailed records of each splice and each splice location. These records shall include the date each splice was made, the name of the splicer, splice location, splice loss, fiber and tube color codes, splice tray number and position of the fiber within the tray. For each splice enclosure, the Contractor shall provide the Engineer with a chart indicating the source and destination of every fiber spliced in that enclosure, and indicating the tray and position within each tray. This also applies to fibers terminated in patch panels.

To log the fiber routes, terminations and splices, the Contractor shall use a series of numbers and letters to describe the cable, tube, fiber and location of the termination or splice. The exact procedure used to log the splicing must be approved by the engineer before the splicing begins.

316-4.2. MEASUREMENT AND PAYMENT Section 316-4 is added to the standard specifications as follows: Payment for all work described in section 316-4 "Fiber Optic Cable Splicing and Testing" is included in the contract price paid for "**Prepare Work Site for Fiber Splicing**", **Bid Item No. 10**, and "**Make/Test Fiber Optic Splice & Connector Installation**", **Bid Item No. 11** and no separate payment shall be made therefore.

316-5 PROGRAM ETHERNET SWITCHES The Contractor shall program managed CISCO and EtherWAN Ethernet switches installed at City facilities and in the controller cabinets to automatically manage Ethernet ring redundancy. The Ethernet switches shall discover network loops and break them before they can cause a broadcast storm. The Ethernet switches automatically activate the redundant link if the primary link fails.

316-5.1. MEASUREMENT AND PAYMENT Section 316-5 is added to the standard specifications as follows: Payment for all work described in section 316-5 "Program Ethernet Switches" is included in the contract price paid for bid item three (3) and no separate payment will be made therefore.

316-6 INSTALL FIBER TERMINATION PANEL IN CABINET The Contractor shall furnish and install fiber termination panel as shown on the plans. According to manufacturer's recommendations, the Contractor shall securely mount the termination unit to the top shelf of the cabinet, or to the side of the cabinet above the top shelf. Alternate locations shall be coordinated with, and approved by, the Engineer. It shall be mounted such that there is easy access to the fibers and connections yet they are protected and do not interfere with access to other cabinet equipment. Any doors on the termination unit must be able to open without interfering with other equipment in the cabinet.

The termination panel or associated device shall have provision for securely fastening the terminated fiber optic cable jacket and strength members.

316-6.1. MEASUREMENT AND PAYMENT Section 316-6 is added to the standard specifications as follows: Payment for all work described in section 316-6 "Install Fiber Termination Panel in Cabinet" is included in the contract price paid for bid item nine (9) and no separate payment will be made therefore.

316-7 INSTALL FIBER OPTIC PIGTAILS The Contractor shall furnish and install fiber optic pigtails as shown on the plans. The optical fiber shall not be bent less than a two (2) inch radius during installation or after final assembly in the splice tray. Each bare fiber shall be individually restrained in the splice tray. The placement and attachment of optical fibers in the splice tray shall be such that there is no discernible tensile force on the optical fiber. The raw fiber coming from the field cable shall have two complete wraps in the splice tray.

Installation of fiber optic pigtails does not include splicing. The splicing shall be performed per the requirements described under Section 316-4 above.

Field connectorization is not allowed.

316-7.1. MEASUREMENT AND PAYMENT Section 316-7 is added to the standard specifications as follows: Payment for all work described in section 316-7 "Install Fiber Optic Pigtails" is included in the contract price paid for bid item twelve (12) and no separate payment will be made therefore.

316-8 INSTALL SPLICE CLOSURE The Contractor shall furnish and install splice closures as shown on the plans. The optical fiber shall not be bent less than a two (2) inch radius during installation or after final assembly in the splice tray. Each bare fiber shall be individually restrained in the splice tray. The placement and attachment of optical fibers in the splice tray shall be such that there is no discernible tensile force on the optical fiber. The raw fiber coming from the field cable shall have two complete wraps in the splice tray.

316-8.1. MEASUREMENT AND PAYMENT Section 316-8 is added to the standard specifications as follows: Payment for all work described in section 316-8 "Install Splice Closure" is included in the contract price paid for bid item eight (8) and no separate payment will be made therefore.

316-9 INSTALL FIBER PATCH CORD The Contractor shall furnish and install fiber patch cords as shown on the plans. The fiber path cord for each data link shall have been tested and verified in accordance with the contract prior to the installation.

The Contractor shall install duplex single mode fiber patch cords to connect the Ethernet switches to the fiber termination panels. Since Ethernet switches or termination panels may be equipped with different types of fiber connectors, the Contractor is responsible for ensuring the connectors on the patch cords are

fully compatible with those on the fiber termination panel and Ethernet switch. The Contractor shall neatly route the patch cord from the Ethernet switch to the termination panel. No cables shall be installed with a bend radius less than the manufacturer's minimum recommended bending radius.

316-9.1. MEASUREMENT AND PAYMENT Section 316-9 is added to the standard specifications as follows: Payment for all work described in section 316-9 "Install Fiber Patch Cord" is included in the contract price paid for bid item thirteen (13) and no separate payment will be made therefore.

316-10 ACCEPTANCE TESTING The acceptance testing shall include conducting acceptance tests and subsequent re-tests, and documentation of the test results. The Contractor shall provide a test plan to demonstrate the connectivity of each data channel with or without the Ethernet ring redundancy. The test plan shall detail all tests to be performed and the expected test results. The Contractor shall provide all test equipment, labor and ancillary items required to perform the testing. All material, equipment and cable shall be tested after installation at the site in accordance with the plans and special provisions. Acceptance testing shall not commence until all material required by these special provisions and plans are delivered, installed, and aligned and all site test results have been approved by the Engineer. The Contractor shall document all test results. In the event that any aspect of the tests are determined by the Engineer to have failed, the Contractor shall determine the cause of the failure and make repairs to the satisfaction of the Engineer.

The Contractor shall conduct acceptance testing outside City's business hours approved by the Engineer.

316-10.1. MEASUREMENT AND PAYMENT All costs for testing and preparing documentation shall be included in and incidental to the bid cost for the item tested and documented. There will be no additional payments for testing and documentation of any project component or service.

END