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ADDENDUM NO. 3

DATE: November 11, 2019
**TO: ALL PLAN HOLDERS OF THE:
Citywide Fiber Network Infrastructure-Community Park Fiber Optic
Project**
FROM: Yat Cho – CITY OF MORGAN HILL
SUBJECT: Change and Clarification

1) Add the attached “PART D – Technical Provisions” as part of the bid specification.

Attachments: Technical Specifications – 20 Pages

ADDENDUM ACKNOWLEDGMENT

Bidder acknowledges receipt of this addendum, which shall be attached to the proposal.

Contractor’s Representative

Date

**THIS DOCUMENT AND THE ATTACHMENTS SHALL BECOME PART OF THE
PROJECTS SPECIFICATION**

PART D - TECHNICAL PROVISIONS

D1 GENERAL REQUIREMENTS

1.01 ORDER OF WORK

- a. Description: Order of work shall conform to the provisions in Section 5-1.05, "Order of Work," of the Standard Specifications and these special provisions.
- b. Measurement and Payment: Full compensation for conforming to the provisions in this section "Order of Work" including coordination with utility companies and contractors, and notification to all affected residents shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefore.

1.02 MAINTAINING TRAFFIC

- a. Description: Attention is directed to Sections 7-1.08, "Public Convenience," 7-1.09, "Public Safety," and 12, "Construction Area Traffic Control Devices," of the Standard Specifications and to the provisions in "Public Safety" of these special provisions and these special provisions. Nothing in these special provisions shall be construed as relieving the Contractor from the responsibilities specified in Section 7-1.09.

Flaggers shall be provided at non-signalized intersections when traffic conditions warrant as determined by the Engineer. At least one lane of traffic shall be provided through the construction area during construction. Two lanes of traffic shall be provided through the project area during non-construction time. No full street closure of 3rd Street shall be allowed.

Vehicular, pedestrian, and customer access to all properties, driveways, sidewalks, patios, doorways, entrances and parking lots shall be maintained at all times. Contractor shall provide trench plates where necessary to accommodate access or provide other means of access.

The Contractor must submit a Stage Construction Plan and traffic control plan (both stamped by a professional engineer), including the project's traffic control plan, to the City for review and approval prior to beginning any work.

- b. Measurement and Payment: Full compensation for conforming to the provisions in this section "Maintaining Traffic," including preparation and modification of a Stage Construction Plan (including the project's traffic control plan) shall be considered as included in the contract lump sum price paid for Traffic Control System, and no additional compensation will be allowed therefor.

1.03 PUBLIC SAFETY

- a. Description: The Contractor shall provide for the safety of traffic and the public in conformance with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications and these technical provisions.

The Contractor shall install temporary railing (Type K) between a lane open to public traffic and an excavation, obstacle or storage area when the following conditions exist:

- 1) Excavations—The near edge of the excavation is 12 feet or less from the edge of the lane, except:
 - a) Excavations covered with sheet steel or concrete covers of adequate thickness to prevent accidental entry by traffic or the public.
 - b) Excavations less than one foot deep.
 - c) Trenches less than one foot wide for irrigation pipe or electrical conduit, or excavations less than one foot in diameter.
 - d) Excavations parallel to the lane for the purpose of pavement widening or reconstruction.
 - e) Excavations at side slopes, where the slope is steeper than 1:4 (vertical-horizontal).
 - f) Excavations protected by existing barrier or railing.
- 2) Temporarily Unprotected Permanent Obstacles.—The work includes the installation of a fixed obstacle together with a protective system, such as a sign structure together with protective railing, and the Contractor elects to install the obstacle prior to installing the protective system; or the Contractor, for the Contractor's convenience and with permission of the Engineer, removes a portion of an existing protective railing at an obstacle and does not replace such railing complete in place during the same day.
- 3) Storage Areas—Material or equipment is stored within 12 feet of the lane and the storage is not otherwise prohibited by the provisions of the Standard Specifications and these technical provisions. Contractor shall also locate and secure a construction storage area. The storage area shall be subject to review, correction and acceptance by the Engineer prior to authorizing a "Notice to Proceed."

Except for installing, maintaining and removing traffic control devices, whenever work is performed or equipment is operated in the following work areas, the Contractor shall close the adjacent traffic lane unless otherwise provided in the Standard Specifications and these technical provisions:

Approach Speed of Public Traffic (Posted Limit)	Work Areas
45 Miles Per Hour	Within 6 feet of a traffic lane but not on a traffic lane
35 to 45 Miles Per Hour	Within 3 feet of a traffic lane but not on a traffic lane

The lane closure provisions of this section shall not apply if the work area is protected by permanent or temporary railing or barrier.

When traffic cones or delineators are used to delineate a temporary edge of a traffic lane, the line of cones or delineators shall be considered to be the edge of the traffic lane, however, the Contractor shall not reduce the width of an existing lane to less than 10 feet without written approval from the Engineer.

When work is not in progress on a trench or other excavation that required closure of an adjacent lane, the traffic cones or portable delineators used for the lane closure shall be placed off of and adjacent to the edge of the traveled way. The spacing of the cones or delineators shall be not more than the spacing used for the lane closure. Suspended loads or equipment shall not be moved nor positioned over public traffic or pedestrians.

- b. Measurement and Payment: Full compensation for conforming to the provisions in this section "Public Safety," including furnishing and installing traffic control devices including cones or delineators, shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

1.04 EXCAVATION SAFETY PLANS

- a. Description: Section 5-1.02A, "Trench Excavation Safety Plans," of the CSS is amended to read:

5-1.02A EXCAVATION SAFETY PLANS

- The Construction Safety Orders of the Division of Occupational Safety and Health shall apply to all excavations. For all excavations 5-feet or more in depth, the Contractor shall submit to the Engineer a detailed plan showing the design and details of the protective systems to be provided for worker protection from the hazard of caving ground during excavation. The detailed plan shall include any tabulated data and any design calculations used in the preparation of the plan. Excavation shall not begin until the detailed plan has been reviewed and approved by the Engineer.
- Detailed plans of protective systems for which the Construction Safety Orders require design by a registered professional engineer shall be prepared and signed by an engineer who is registered as a Civil Engineer in the State of California, and shall include the soil classification, soil properties, soil design calculations that demonstrate adequate stability

of the protective system, and any other design calculations used in the preparation of the plan.

- No plan shall allow the use of a protective system less effective than that required by the Construction Safety Orders.
- If the detailed plan includes designs of protective systems developed only from the allowable configurations and slopes, or Appendices, contained in the Construction Safety Orders, the plan shall be submitted at least 5 days before the Contractor intends to begin excavation. If the detailed plan includes designs of protective systems developed from tabulated data or designs for which design by a registered professional engineer is required, the plan shall be submitted at least 3 weeks before the Contractor intends to begin excavation.
- Attention is directed to Section 7-1.01E, "Trench Safety."

- b. Measurement and Payment: Full compensation for conforming to the provisions in this section "Excavation Safety Plans" shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefore.

1.05 DUST CONTROL

- a. Description: Dust control shall conform to the provisions in Section 10, "Dust Control," of the Standard Specifications and these Technical provisions.
- b. Measurement and Payment: Full compensation for conforming to the provisions in this section "Dust Control" shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

1.06 WATER POLLUTION CONTROL

- a. **General: Water pollution control work shall conform to the provisions in Section 7-1.01G, "Water Pollution," of the Standard Specifications and these special provisions.**

For the entire duration of construction activities for this project, the California Stormwater Quality Association Stormwater (CASQA) Best Management Practice (BMP) Handbook for construction shall be used. Furthermore, contractor is fully responsible to provide erosion and sediment control for the entire construction site at all times. Contractor shall be responsible for initiating the required control measures. CASQA BMP information can be viewed and downloaded at

<http://cabmphandbooks.com/Construction/asp>

The Contractor shall know and fully comply with the applicable provisions of the Manuals and Federal, State, and local regulations that govern the Contractor's operations

and storm water discharges from both the project site and areas of disturbance outside the project limits during construction.

Under no circumstances, shall concrete wash water, water from sawcutting operations or any other contaminated water be allowed to enter the storm drain system or other drainage courses.

Unless arrangements for disturbance of areas outside the project limits are made by the Department and made part of the contract, it is expressly agreed that the Department assumes no responsibility whatsoever to the Contractor or property owner with respect to any arrangements made between the Contractor and property owner to allow disturbance of areas outside the project limits.

The Contractor shall be responsible for the costs and for liabilities imposed by law as a result of the Contractor's failure to comply with the requirements set forth in this section "Water Pollution Control" including, but not limited to, compliance with the applicable provisions of the Manuals and Federal, State, and local regulations. For the purposes of this paragraph, costs and liabilities include, but are not limited to, fines, penalties, and damages whether assessed against the State or the Contractor, including those levied under the Federal Clean Water Act and the State Porter Cologne Water Quality Act.

Conformance with the provisions in this section "Water Pollution Control" shall not relieve the Contractor from the Contractor's responsibilities as provided in Section 7, "Legal Relations and Responsibilities," of the Standard Specifications.

- b. Measurement and Payment: Full compensation for all requirements of this section will be considered as included in the various items of work and no separate payment will be allowed therefor.

1.07 DAMAGE REPAIR

- a. Description: Attention is directed to Section 7-1.16, "Contractor's Responsibility for the Work and Materials," and Section 7-1.11, "Preservation of Property," of the Standard Specifications and these Technical provisions. Attention is also directed to Section 1.01, "Order of Work" in these technical provisions.

Any damage to existing facilities or properties or any need to alter, remove, or destroy existing facilities during the period of the work shall be returned to the original condition.

For work in the vicinity of 3rd Street and Depot Street, Contractor shall reconstruct all disturbed sidewalks, curb, gutter, curb ramps, roadway, landscaping, irrigation, and pedestrian crosswalks "in-kind" per the plans, details and specifications of the "Depot Street Reconstruction Project" dated 5/2006.

- b. Measurement and Payment: All damage to existing facilities shall be repaired and or replaced at the Contractor's expense.

1.08 RESPONSIBILITY FOR DAMAGE

- a. General: Responsibility for damage shall conform to the provisions in Section 7-1.12, "Responsibility for Damage," of the Standard Specifications.

1.09 PROGRESS SCHEDULE

- a. General: The progress schedule shall be in accordance with Section 8-1.04 of the CSS. Furthermore, on a weekly basis, the schedule shall be updated and submitted to the Engineer. This update shall show the progress on salient features, mark the dates of completion and incorporate changes in construction sequencing or in items of construction.
- b. Format: The construction schedule shall be a CPM format. The schedule shall be submitted in the following formats: Time-scaled Logic Diagram showing the name of the activity, the logical relationships, the duration, and the actual or scheduled start dates in a bar chart format; and an Activity Report showing the name of the activity, the actual and scheduled finish and start dates, the scheduled and actual durations, the logical relationships and other pertinent data. The schedule shall be subject to review, correction and acceptance by the Engineer.
- c. Periodic Scheduling Meetings: Weekly scheduling meetings will be required in which the project teams of the Contractor and his agents and the City can meet to discuss the schedule and progress of project.
- d. Measurement and Payment: Full compensation for conforming to the provisions in this section "Progress Schedule" shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

1.10 COORDINATION OF WORK

- a. Description: The Contractor shall give specified notifications and withdraw his forces from work areas for the specified time windows for utility companies to perform specified relocation activities. The Contractor shall otherwise coordinate their operations with those of utility companies.

The Contractor shall also be responsible for coordinating the work with businesses and property owners including the shutdowns by written notification. All properties affected by shutdowns shall be notified in writing, 48 hours prior to the interruption. The

contractor shall attempt to notify the affected occupants or residents, in person, on the same day of the shutdown.

Failure to notify property owners with written notification shall result in stopping the project progress.

- b. Measurement and Payment: Full compensation for conforming to the provisions in this section "Coordination of Work" shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

1.11 FINAL CLEAN UP

- a. Description: The Contractor shall clean up all rubbish and excess materials from the work site, the material storage site, and all ground occupied by Contractor in connection with this work. The Contractor shall leave all parts of the work in a neat and presentable condition, prior to the final inspection of the work by the Engineer.
- b. Measurement and Payment: Full compensation for conforming to the provisions in this section "Final Clean Up" shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

1.12 PRESERVATION OF PROPERTY

- a. Description: Attention is directed to the provisions in Section 7-1.11, "Preservation of Property," of the Caltrans Standard Specifications and these technical provisions.

Utility Protection

Contractor shall call U.S.A. (Underground Service Alert), 1-800-642-2444 forty-eight (48) hours in advance of construction (for locating utilities) in conformance with Section 1.14, "Obstructions," of these technical provisions.

The Contractor is cautioned that the Contractor will be liable for any damage to the telephone and Power Company wires, cables, splices, risers or any part of the pole line or underground structure.

It shall be the sole responsibility of the Contractor to pothole and verify the exact locations and depth of all utilities prior to making borings or excavations. Power poles and overhead wires shall be protected. Contractor shall notify the Engineer of Contractor's findings in writing where possible conflicts may exist.

Prior to excavation, all potential utility crossings shall be potholed by the contractor to identify and verify required utility relocations. Contractor must obtain an Encroachment

Permit from the City prior to any potholing work. Potholing locations shall be directed by an inspector or engineer.

Should it become necessary in the performance of the work to disconnect or re-route any underground utility due to a direct conflict with the new work, Contractor shall inform the Engineer prior to performing any work.

- b. Measurement and Payment: Full compensation for conforming to the provisions in this section "Preservation of Property" shall be considered as included in the contract prices paid for the various items of work involved and no additional compensation will be allowed therefor.

The contract unit price paid, as shown in the Bid Schedule for **Potholing**, as shown in the **Bid Schedule I, Bid item #1 and Bid Schedule II, Bid Item #1**, shall include full compensation for all labor, materials, tools, equipment and incidentals, and for doing all the work involved in Potholing, including all flagging and temporary backfilling or steel plating, complete in place, as shown in the plans, as specified in the technical provisions and as directed by the Engineer and no additional compensation will be allowed therefor.

D2 ROADWAY

2.01 MOBILIZATION

- a. Description: Mobilization shall conform to the provisions in Section 11, "Mobilization," of the Standard Specifications.
- b. Measurement and Payment: The contract unit price paid, as shown in the **Bid Schedule for Mobilization, as shown in Bid Schedule I, Bid Item #2**, shall include full compensation for mobilization and demobilizing construction equipment and vehicles necessary to perform the work specified herein, in the Standard Specifications, and these technical provisions and as directed by the Engineer.

2.01 CONSTRUCTION AREA SIGNS

- a. Description: Construction area signs shall be furnished, installed, maintained, and removed when no longer required in conformance with the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications and these technical provisions.

Attention is directed to the provisions in "Prequalified and Tested Signing and Delineation Materials" of these technical provisions. Type II retroreflective sheeting shall not be used on construction area sign panels.

The Contractor shall notify the appropriate regional notification center for operators of subsurface installations at least 2 working days, but not more than 14 calendar days, prior to commencing excavation for construction area sign posts. The regional notification centers include, but are not limited to, the following:

Notification Center	Telephone Number
Underground Service Alert-Northern California (USA)	1-800-642-2444 1-800-227-2600
Underground Service Alert-Southern California (USA)	1-800-422-4133 1-800-227-2600

Excavations required to install construction area signs shall be performed by hand methods without the use of power equipment, except that power equipment may be used if it is determined there are no utility facilities in the area of the proposed post holes.

Sign substrates for stationary mounted construction area signs may be fabricated from fiberglass reinforced plastic as specified under "Prequalified and Tested Signing and Delineation Materials" of these technical provisions.

The Contractor may be required to cover certain signs during the progress of the work. Signs that are no longer required or that convey inaccurate information to the public shall be immediately covered or removed, or the information shall be corrected. Covers for construction area signs shall be of sufficient size and density to completely block out the complete face of the signs. The retro-reflective face of the covered signs shall not be visible either during the day or at night. Covers shall be fastened securely so that the signs remain covered during inclement weather. Covers shall be replaced when they no longer cover the signs properly.

- b. Measurement and Payment: Full compensation for construction area signs, including furnishing all labor, materials (including signs), tools, equipment, and incidentals, and for doing all the work involved in placing, removing, storing, maintaining, moving to new locations, replacing, and disposing of the components of the construction area signs shown on the plans, shall be considered as included in the lump sum price paid for Traffic Control System, and no separate payment will be made therefor.

2.02 TRAFFIC CONTROL SYSTEM

- a. Description: A traffic control system shall consist of closing traffic lanes in conformance with the details shown on the plans, the provisions in Section 12, "Construction Area Traffic Control Devices," of the Standard Specifications, the provisions under "Maintaining Traffic" and "Construction Area Signs", and these technical provisions. **At least one lane in each direction of traffic shall be opened for traffic at all times during construction. No full street closure shall be allowed.**

The provisions in this section will not relieve the Contractor from the responsibility to provide additional devices or take measures as may be necessary to comply with the provisions in Section 7-1.09, "Public Safety," of the Standard Specifications.

Each vehicle used to place, maintain and remove components of a traffic control system on multilane highways shall be equipped with a Type II flashing arrow sign which shall be in operation when the vehicle is being used for placing, maintaining or removing components. Vehicles equipped with Type II flashing arrow sign not involved in placing, maintaining or removing components when operated within a stationary lane closure shall only display the caution display mode. The sign shall be controllable by the operator of the vehicle while the vehicle is in motion. The flashing arrow sign shown on the plans shall not be used on vehicles which are being used to place, maintain and remove components of a traffic control system and shall be in place before a lane closure requiring its use is completed.

The traffic cones shown to be placed transversely across closed traffic lanes and shoulders on the plans entitled "Traffic Control System for Lane Closures on Freeways and Expressways" and "Traffic Control System for Lane and Complete Closures on Freeways and Expressways" shall not be placed.

If components in the traffic control system are displaced or cease to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair the components to the original condition or replace the components and shall restore the components to the original location.

When lane closures are made for work periods only, at the end of each work period, components of the traffic control system, except portable delineators placed along open trenches or excavation adjacent to the traveled way, shall be removed from the traveled way and shoulder. If the Contractor so elects, the components may be stored at selected central locations designated by the Engineer within the limits of the highway right of way.

- b. Measurement and Payment: Full compensation for Traffic Control System, shall be considered as included in the various contract items of work involved and no separate payment will be made therefor. Work includes the furnishing all labor, materials (including signs), tools, equipment, and incidentals, and for doing all the work involved in placing, removing, storing, maintaining, moving to new locations, replacing, and disposing of the components of the traffic control system, as specified in the Standard Specifications and these technical provisions, and as directed by the Engineer.

2.03 EARTHWORK

- a. Description: Earthwork shall conform to the provisions in Section 19, "Earthwork," of the Standard Specifications and these technical provisions.

Surplus excavated material shall become the property of the Contractor and shall be disposed of outside the highway right of way in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications. Under no circumstances shall the contractor place excavated materials, even on a temporary basis, on private property without the written consent of the property owner.

Where a portion of the existing surfacing is to be removed, the outline of the area to be removed shall be cut on a neat line with a power-driven saw to a minimum depth of 2-inches before removing the surfacing.

Sand bedding material and 100% sand backfill material for trenches shall conform to the plans and shall be compacted to a relative dry density of 90% and 95% respectively. Sand bedding for trench restoration shall be free from clay or organic material, suitable for the purpose intended, and shall be of such size that 90% to 100% will pass a No. 4 sieve and no more than 10% will pass a No. 200 sieve and must be PG&E approved.

Above the level of the bedding material, Contractor shall backfill the trench with Class 2 Aggregate Base and shall be compacted to a relative dry density of 95%. At the

discretion of the Engineer, the existing base rock may remain for the trench width provided that the base rock is compacted and is not contaminated.

Earthwork shall include excavation, backfill, sand bedding material, and any other materials used in as shown in the Modified City Standard Detail U-4 as included in the contract drawings.

- b. Measurement and Payment: Full compensation earthwork, shall be considered as included in the contract items of work involved, and no separate payment will be made therefor.

2.04 AGGREGATE BASE

- a. Description: Aggregate base shall be Class 2, 3/4" maximum grading, and shall conform to the provisions in Section 26, "Aggregate Bases," of the Standard Specifications and these technical provisions.
- b. Measurement and Payment: Full compensation for aggregate base, shall be considered as included in the contract items of work involved, and no separate payment will be made therefor.

2.05 ASPHALT CONCRETE

- a. Description: **Asphalt concrete shall be Type B and shall conform to the provisions in Section 39, "Asphalt Concrete," of the Standard Specifications and these technical provisions.**

- b. Materials:

- A. Aggregates:

- 1. Base Course: In accordance with Section 26 of State Standard Specifications, **Class 2, 3/4-inch maximum size gradation.**
 - 2. Asphalt Concrete: In accordance with Section 39 of the State Standard Specifications, **Type A, 3/4-inch maximum, coarse gradation.**
 - 3. Asphalt Concrete Surface Course: In accordance with Section 39 of the State Standard Specifications, **Type A, 1/2-inch maximum, coarse gradation**

- B. Asphalt Materials:

- 1. Asphalt Cement: In accordance with Section 92 of State Standard Specifications, PG 64-10.
 - 2. Asphaltic Emulsion: In accordance with Section 94 of State Standard Specifications, Grade SS-1h.
 - 3. Asphalt Concrete Surface Course: Asphalt concrete shall be hot mix and conform to Section 39-2.02 of State Standard Specifications. Asphalt Binder

shall be viscosity graded asphalt in accordance with Section 92 of the State Standard Specifications.

All streets:

- a. Aggregate: **Type A, 1/2-inch maximum, coarse gradation** (Final Lift), **Type A, 3/4-inch Maximum**, (Base Lift)
 - b. Asphalt Binder: PG 64-10.
 - c. Asphalt binder mixed with aggregate shall be such that the air void content of the resulting asphalt concrete shall be not less than 3 percent or more than 5 percent.
 - d. Stabilometer value as determined by California Test Method No. 366 shall be 38 minimum.
- b. Submittals: Submit aggregate gradation and quality test results, mix design and certifications for each ingredient indicating that it complies with the specifications.
- c. Measurement and Payment: Full compensation for asphalt concrete, shall be considered as included in the contract items of work involved, and no separate payment will be made therefore.

D3 FIBER OPTIC

3.01 FIBER OPTIC CONDUIT

a. **Description:** The work to be done shall consist of constructing all or portions of the City fiber optic system. Fiber Optic Conduit shall conform to the provisions in Section 86, "Signals, Lighting and Electrical Systems," and Section 87, "Electrical Systems," of the Standard Specifications and these technical provisions.

City Fiber optic layout indicated on the drawings is diagrammatic and locations of splice boxes are approximate only. The exact locations and routing of conduit shall be done in a neat arrangement and shall overcome local difficulties of structural nature. No change in the work shall be done without the written approval of the Engineer.

The drawings indicate in a schematic and general way the desired location and arrangement of conduit runs and are to be followed as closely as possible. Proper judgment must be exercised in executing the work in order to secure the best possible installation in the available space and to overcome local difficulties of space limitations or structural interference.

The locations of the splice boxes have been determined as accurately as possible and are shown on the plans. The Contractor shall verify details pertaining to the exact locations and requirements of the service utilities before submitting a proposal. Also, before submitting his proposal, he shall determine the location, type, and size of each existing service and associated equipment, giving special attention to features that may affect the installation and connection of the proposed new conduit, equipment, fittings, and connectors which will be necessary to serve the existing facilities of each customer. No consideration for extra costs will be given resulting from failure of contractor to give sufficient attention to this requirement.

All work shall be performed in a safe, workmanlike manner. Work performed, methods and equipment used shall be in conformance with the prevailing State and Federal Occupational Safety Health Acts and applicable portions of Section 7 of the Standard Specifications. Costs from delays and losses due to operations not in conformance with these Specifications, or stoppages by OSHA inspectors, City Inspector or the Engineer as a result of such nonconformance shall be borne solely by the contractor.

The installation of underground fiber optic conduit may be open trench and/or Horizontal Directional Drilling (HDD).

Materials

All conduit and fittings shall be U.L. approved. Unless otherwise noted or required, use minimum 2" Schedule 40 PVC conduit and fittings below grade.

For aboveground installation and at light pole location, provide and use 1" metallic rigid steel conduit stub at the pole base for fiber path to the pole camera.

For aboveground installation at building locations (two locations), provide and install 2" conduit stub from splice box to the building. Additionally, provide and install 2" conduit with pull box into equipment locations through ceiling accessible space.

Conduits, pull boxes, vaults, pedestal and manholes shall be furnished by the Contractor. Conduits, pull boxes, vault boxes, manholes, and other materials shall meet the requirements of the respective serving utilities.

All conduits shall be sized as indicated on the plans and shall be of the types listed below:

Splicing. Splicing shall be performed on the electric services by the contractor. Where service equipment will not accept aluminum cable, contractor will connect to the existing copper conductors with suitable type of aluminum to copper connectors.

Splice Box Installation - Splice box shall be Christy type N30 style box or approved equal (Reference Sheet 2 of plans) and shall conform to the Plans, the Standard Specifications and these Special Provisions. Splice boxes shall include lid and security hold-down bolts, unless otherwise noted. Splice boxes shall be installed with duct entrances, draw bolts, sumps, ground rods, and other required hardware as indicated on the plans or as directed by the Engineer. Precast concrete boxes shall have duct terminators for all conduits or ducts entering boxes. If special knockout locations are required, they will be indicated by the utility company.

Ducts and Conduit Installation - Extreme care shall be exercised to ensure that concrete and other foreign matter does not enter ducts or conduit being laid. All burrs or rough edges in conduit or duct shall be made smooth. All ducts and conduit shall be proved free of obstructions, dirt and debris by means of a mandrel. The mandrel diameter shall be not more than 1/2 inch smaller than the duct or conduit diameter. For straight runs and long sweeps, the mandrel length shall be one foot. A flexible or spherical type mandrel may be used only on runs, which contain a radius bend of 36 inches or less.

Bends in duct or conduit shall be made in the form of long radius sweeps. Performed bends shall be used only as shown on the plans. A pull line shall be installed in each empty conduit or duct. Transitions from one diameter to another shall only be made at splice boxes, enclosures, manholes or vaults.

Pull lines shall be furnished and installed by the Contractor. Mandrels shall be furnished by the Contractor and conduit shall be proven free of debris or irregularities.

b. Measurement and Payment: The contract price paid per linear feet for Fiber Optic Conduit using the open-trench method and/or the HDD method as indicated on **Bid Schedule I, Item 3 and Bid Schedule II, Item 2**, shall include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved in including, furnishing and installing the conduit, including trenching, excavation and backfill, sand backfill, fiber optic conduit installation, concrete backfill, pavement removal and restoration, sidewalk, curb and gutter removal and restoration, as shown on the plans as specified in the plans and these special provisions, and as directed by the Engineer.

Full compensation for splice boxes shall be considered as included in the contract lump sum paid for under Fiber Optic Conduit thereof and no additional compensation will be allowed thereof.

Full compensation for furnishing, placing, and maintaining all supports and shoring that may be required for excavation shall be considered as included in the contract lump sum price paid for trench excavation and worker protection and no additional compensation will be allowed therefore.

3.02 FIBER OPTIC TRENCH (Open Trench Method)

a. Description: Fiber optic trenches shall conform to the provisions in Section 86, "Signals, Lighting and Electrical Systems," and Section 87, "Electrical Systems," of the Standard Specifications, details on the plans and these special provisions.

General - The Contractor shall be responsible for the verification of all final dimensions at the work site and should not depend solely on the plans since minor dimensional deviations could occur between existing utility facilities and the proposed improvements.

The Contractor shall be responsible for construction of all work and providing all materials, except for materials to be furnished by others as specified herein. All other work necessary to trench, excavate, backfill and compact, pavement removal and restoration for the joint underground facilities, including vaults and boxes, shall be performed and considered as included in the work hereunder. All work not performed in accordance with the plans, Standard Specifications and these special provisions, or to the satisfaction of the Engineer shall be immediately so altered or replaced to rectify the deficiencies to the Engineer's satisfaction, as specified herein.

Contractor is responsible for any reinspection fees necessitated by their work.

Safeguards – The Contractor shall be responsible for planning and conducting the work to adequately safeguard all persons and property from injury, providing warning devices as necessary, but not limited to, signs, lights, flares, reflectors, flaggers, shoring, bracing and any other facilities which may be required.

Trenching and Backfilling - Trenching or substructure excavation may necessitate operation over, under and adjacent to other underground and surface facilities. The Contractor shall locate, prospect and expose all adjacent or crossing underground facilities subject to damage. The Contractor shall be responsible for damage to, or disturbance of, these facilities and shall be held liable for any such direct or consequential damage to the utility or other facilities resulting from his operation. Should damage occur, the Contractor shall immediately notify the facilities owner and the Engineer and shall arrange to repair the damages.

Facility Replacement - Damage to any trench occupant's facilities caused by operations of the Contractor, shall be repaired or replaced by either the Contractor or the utility owner at the Contractor's expense.

Location of Underground Facilities – The Contractor’s attention is directed to “Potholing” and “Obstructions,” of these special provisions for requirements before any trench or excavation is started.

Grade - All excavations shall be measured from final official grades and benchmarks to an accuracy of ± 2.5 inches.

Dimensions - Minimum excavation depths and width are as shown on the plans. Excavations shall be to dimensions necessary to maintain specified separation of all joint trench occupants’ facilities and to provide the minimum covers specified herein regardless of existing field conditions. Preliminary trench grading shall be greater than the specified minimum dimensions. All trench dimensions specified or shown are minimum unless otherwise specified.

Trench - Trenches shall be wide enough to install pipe or conduit without damaging coating or inducing unnecessary stress. At horizontal angles, trenches shall provide clearance to accommodate bends or other appurtenances.

The bottom of trench shall be smooth and provide a firm base for the pipe or conduit. At horizontal angles, trench shall have sufficient width to allow the minimum bending radius of conduit.

During performance of the work, the Contractor shall be responsible for maintaining the excavated trench in satisfactory condition. In the event of inclement weather if the trench fails or fills with water, it shall be the Contractor’s responsibility to restore the trench to acceptable conditions and the facilities to their appropriate trench configuration without any additional cost.

Trench bottoms shall be level, flat, and without surface irregularities and shall be clear and free of debris at the time the trench is made available for placement of facilities. This shall include the excavation for substructures and supply of sand bedding and aggregate base for placement of substructures as required. All trench elevation changes shall be by gradual transition.

The disposal of all surplus excavated materials shall be the responsibility of the Contractor. The method of disposal shall be to the satisfaction of the Engineer. Trenching spoil shall be placed so as to not interfere with the existing facilities.

Backfilling - No backfilling shall be done until all facilities are placed therein (or on a particular level) and inspected by the Engineer and the representative of each utility company to ensure that proper separation and required cover are achieved. If any backfilling is performed without approval, the Engineer will have the right to require removal of the backfill for examination without any additional cost.

Backfill Materials - The bedding and backfill material for joint trench or substructure excavation shall be covered in Section 2.07 Earthwork and Section 2.08 Aggregate Base under these Technical Provisions. Additionally, reference sheet 2 trench restoration detail on plans.

Bedding - The bottom of the trench shall be cleared of rocks or other hard substances and sand bedding of at least 2 inch shall be placed as shown on the plans. Such bedding shall be compacted prior to installation of facilities.

Shading - In a multilevel trench, upon installation of facilities on each level, the trench shall be backfilled and compacted to the next level as specified so that other joint trench occupants may install their respective facilities before the remainder of the trench is backfilled.

Compaction - Backfill material shall be compacted in 6-inch lifts to 95 percent relative compaction. Compaction shall not begin until a minimum of 18 inch of cover is placed over the facilities. Backfill should be tamped at the sides of the polyethylene pipe and duct.

Existing Improvements - Where removal of existing portland cement concrete sidewalk or asphalt pavement is required for the installation of underground service, the surfacing shall be neatly sawcut along the limits of excavation. **Any Concrete sidewalk, handicap ramps, park strip, driveways and similar items needed to be removed or damaged during construction of underground utilities shall be replaced back to the nearest expansion and/or construction joint. Replacement shall be via saw cutting and replaced in its entirety per City of Morgan Hill Standards.**

The Contractor shall replace landscaping, curbs, curbs and gutters in kind where removed or damaged as a result of utility operations.

b.Measurement and Payment: Full compensation for fiber optic trenching using the open trench method shall be considered as included in the contract lump sum paid for under Fiber Optic Conduit thereof and no additional compensation will be allowed thereof.

FIBER OPTIC CABLE AND EQUIPMENT

a.Description: The work shall consist of furnishing and installing Fiber Optic Cable and the necessary equipment in conformance with the Plans, the Standard Specifications and these Special Provisions. The work to be done shall consist of constructing all or portions of the shall conform to the provisions in Section 86, "Signals, Lighting and Electrical Systems," and Section 87, "Electrical Systems," of the Standard Specifications and these technical provisions.

b.Material: Fiber optic cable shall be CommScope Fiber indoor/outdoor cable or approved equal. (See appendix for Commscope product cut sheet). Reference plans for the 12 strand and 6 strand conductor.

The approximate footage for 12 strand fiber optic cable shall be 2200 LF

The approximate footage for 6 strand fiber optic cable shall be 1210 LF

All fiber optic cable shall be terminated with LC connectors and mounted in an adaptor panel (size to be discussed at mandatory preconstruction meeting).

c.Measurement and Payment: The contract lump sum paid for Fiber Optic Cable with the necessary equipment as indicated on Bid Schedule I, Item 4, Bid Schedule II, Item 3 shall

include full compensation for furnishing all labor, materials, tools, equipment and incidentals, and for doing all work involved as shown on the plans as specified in the plans and these special provisions, and as directed by the Engineer.

D8 SUPPLEMENTAL WORK

8.01 SUPPLEMENTAL WORK

- a. Description: The work shall include any new or unforeseen work not specified for on the plans and specification. The lump sum dollar amount listed in the bid schedule will be included in each bidder's proposal. Supplemental work shall be performed only upon direct written authorization from the Project Engineer. Agreed price may be used as an alternate method of payment, if directed by the Project Engineer.