# SECTION 10 - TECHNICAL SPECIFICATIONS

## SECTION 10-1 - MOBILIZATION

### 10-1.01 GENERAL

The work of this section includes preparatory work and operations required to mobilize for the work.

A. Section 5-3 - Permits and Licenses
B. Section 7-4 - Coordination and Cooperation
C. Section 7-5 - Project Meetings
D. Section 7-6 - Construction Schedule
E. Section 7-7 - Project Record Documents

Contract Plans and Specifications, the City Standard Specifications and Division 1 Specifications apply to the work of this section.

### 10-1.02 EXECUTION

Mobilization shall conform to the requirements of Part 2, Section 1 of the Standard Specifications as amended herein. On-site sanitary facilities will be required for the duration of the project.

### 10-1.03 ENVIRONMENTAL REQUIREMENTS

The Contractor shall comply with all air pollution, water quality, and other environmental control rules, regulations, ordinances and statutes as apply to the project and the execution of the work performed pursuant to the Contract, including the requirements of the Contra Costa Clean Water Program with respect to the Pollution Prevention Program. The major elements of this program are shown on Plan Sheet No. 20, “Pollution Prevention Plan”.

Attention is directed to Section 10-9.07, “Existing Yellow Traffic Striping and Pavement Markings”, of these Special Provisions.

The Contractor shall implement construction site best management practices for the control of non-storm water and point discharges, erosion and sediment control.

A Construction Best Management Practices (BMP’s) Action Plan, Storm Water Pollution Control Program (WPCP) and Storm Drain Inlet Protection Plan shall be required for the project.

The Contractor shall be required to implement temporary construction site best management practices (BMP's) in accordance with the *Construction Site Best Management Practices (BMP's) Manual* issued by the State of California, Department of Transportation. The temporary construction site best management practices required for this Contract shall include, but are not limited to:

A. Stockpile Management: Implement BMP's, as appropriate, for soil stabilization and sediment control as applicable to stockpiles of various materials.

B. Mobile Operations: Implement BMP's, as appropriate, for the control of equipment fueling and maintenance, concrete mixing and wash out, hauling and storage of materials. BMP's shall control the specific situations that mobile operations can create.

C. Wind Erosion Controls: Implement BMP's, as appropriate, for all disturbed soils on the project site that are subject to wind erosion when wind and dry conditions exist.

D. Tracking Controls: Implement BMP's, as appropriate, for the control of sediments and debris from the construction site.

E. Non-Storm Water and Waste Management and Materials Pollution Controls: Implement BMP's, as appropriate, to control the discharge of materials other than storm water to the storm water collection system.

The Contractor shall inspect BMP's regularly. Improperly installed, damaged or ineffective BMP's shall be corrected immediately.

## 10-1.04 WATER POLLUTION CONTROL

Water pollution control work shall conform to the provisions in Section 13, "Water Pollution Control Program" of the State Specifications and these Technical Specifications. Refer to Section 3.9 of the General Requirements regarding dust, pollution control, and management of storm, surface and other waters. Contractor shall prepare and submit a BMP Plan for approval by the Engineer prior to start of construction.

Water pollution control work shall conform to the requirements in the "Construction Site Best Management Practices (BMPs) Manual," and addenda thereto issued up to, and including, the date of advertisement of the project. These manuals are hereinafter referred to respectively as the "Preparation Manual" and the "Construction Site BMPs Manual," and collectively, as the "Manuals." Copies of the Manuals may be obtained from the Department of Transportation, Material Operations Branch, Publication Distribution Unit, and may also be obtained from the Department's Internet website at: http://www.dot.ca.gov/hq/construc/stormwater.

The Contractor shall know and fully comply with applicable provisions of the Manuals, and Federal, State, and local regulations and requirements that govern the Contractor's operations and storm water and non-storm water discharges from both the project site and areas of disturbance outside the project limits during construction. Attention is directed to

Sections 7-1, "Laws to be Observed “of the Specifications.

Water pollution control requirements shall apply to storm water and non-storm water discharges from areas outside the project site which are directly related to construction activities for this contract including, but not limited to, staging areas, storage yards and access roads. The Contractor shall comply with the Manuals for those areas and shall implement, inspect and maintain the required water pollution control practices. Installing, inspecting and maintaining water pollution control practices on areas outside the project limits not specifically arranged and provided for by the City for the execution of this contract, will not be paid for.

The Contractor shall be responsible for penalties assessed or levied on the Contractor or the City as a result of the Contractor's failure to comply with the provisions 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 and requirements as set forth therein.

Penalties as used in this section shall include fines, penalties and damages, whether proposed, assessed, or levied against the City or the Contractor, including those levied under the Federal Clean Water Act and the State Porter-Cologne Water Quality Control Act, by governmental agencies or as a result of citizen suits. Penalties shall also include payments made or costs incurred in settlement for alleged violations of the Manuals, or applicable laws, regulations, or requirements. Costs incurred could include sums spent instead of penalties, in mitigation or to remediate or correct violations.

**Retention of Funds**

Notwithstanding any other remedies authorized by law, the City may retain money due the Contractor under the contract, in an amount determined by the City, up to and including the entire amount of penalties proposed, assessed, or levied as a result of the Contractor's violation of the Manuals, or Federal or State law, regulations or requirements. Funds may be retained by the City until final disposition has been made as to the penalties. The Contractor shall remain liable for the full amount of penalties until such time as they are finally resolved with the entity seeking the penalties.

Retention of funds for failure to conform to the provisions in this section, "Water Pollution Control," shall be in addition to the other retention amounts required by the contract. The amounts retained for the Contractor's failure to conform to provisions in this section will be released for payment on the next monthly estimate for partial payment following the date when an approved Stormwater Management Plan (SWMP) has been implemented and maintained, and when water pollution has been adequately controlled, as determined by the Engineer.

When a regulatory agency identifies a failure to comply with the Manuals, or other Federal, State or local requirements, the City may retain money due the Contractor, subject to the following:

1. The City will give the Contractor seventy-two (72) hours’ notice of the City’s intention to retain funds from partial payments which may become due to the Contractor prior

to acceptance of the contract. Retention of funds from payments made after acceptance of the contract may be made without prior notice to the Contractor.

During the first progress payment period after that the Contractor fails to conform to the provisions in this section, "Water Pollution Control," the City may retain an amount equal to twenty-five percent (25%) of the estimated value of all contract work performed on the entire contract.

The Contractor shall notify the Engineer immediately upon request from the regulatory agencies to enter, inspect, sample, monitor, or otherwise access the project site or the Contractor's records pertaining to water pollution control work. The Contractor and the City shall provide copies of correspondence, notices of violations, enforcement actions or proposed fines by regulatory agencies to the requesting regulatory agency.

## 10-1.05 MEASUREMENT AND PAYMENT

The lump sum price paid for **"Mobilization"** shall be considered as full compensation for mobilization as specified herein, including but not limited to notifications, project records and documents, obtaining all required permits, licenses, and paying all fees, developing construction schedule, moving on the site any equipment required for the operations, preparatory work, coordination and cooperation, project meeting, developing construction water supply, providing on-site sanitary facilities, subcontractor insurance and bonds, Contractor insurance and bonds, development/implementation, demobilization and all other mobilization work, and no additional payment shall be allowed therefor.

The lump sum price paid for **"Water Pollution Control"** shall include full compensation for furnishing all labor, supervision, materials, equipment, tools and incidentals and for performing all operations including street sweeping, installing, maintaining, monitoring, correcting, and removing BMP's, related to water pollution control on and offsite, as shown on the plans, as specified in the State Specifications, the Standard Specifications, and these Special Provisions, and as directed by the Engineer, and no additional compensation shall be made therefor.

Payment for mobilization will be in accordance with Part 2 Section 1, "Mobilization", of the City Standard Specifications and these Special Provisions.

**END OF SECTION**

# SECTION 10-2 - CONSTRUCTION SURVEY STAKING / LAYOUT

## 10-2.01 GENERAL

The work in this section includes the furnishing of all labor, supervision, equipment, materials, tools, and incidentals and performing all operations in connection with setting construction survey stakes and marks by the Contractor and all work necessary to provide the limits, lines, alignment and grades required for proper construction staking layout and completion of the work.

## 10-2.02 EXECUTION

A. The Contractor shall set all stakes and marks to establish the lines and grades required for the completion of the work, as shown on the plans as specified in the State Specifications, the City Specifications and these Special Provisions.

B. Basic horizontal and vertical control reference points are shown on the plans. These points shall be used for layout of all work. The City will not provide electronic files for survey purposes.

C. The Contractor shall provide reference points indicating the beginning and end of all traffic legends and striping to ensure legends and striping will be placed at the locations shown on the plans.

## 10-2.03 CONSTRUCTION LAYOUT

A. The Contractor will provide and establish the necessary lines, grades, and marks to layout the horizontal and vertical alignment of all work as shown on the plans and as specified in this section. As a minimum, the Contractor shall provide suitable lines, grades, staking, and layout markings for all work including, but not limited to, the following:

1. Markings showing the location of each construction area sign.

2. Markings showing and establishing the limits of work for all sawcutting; reconstruction of curb, gutter, sidewalk, median and curb ramps; new bus turnouts and sidewalk; limits of roadway reconstruction for various inlays and slurry seal; and base failure repairs.

3. Stakes or markings for all proposed curb and gutter, curb ramps, sidewalks, bus turnouts, storm drain facilities, and traffic signal facilities.

4. Markings showing all detector loops, including the “home-run” to the detector box location.

5. Markings for the layout of all pavement delineation including stripes, symbols, pavement messages, markers and sign installations.

B. The Contractor shall set or establish the necessary construction layout stakes and markings a minimum of two (2) working days in advance of the work, and shall notify the Engineer when such markings have been set.

## 10-2.04 PROTECTION OF MONUMENTS

A. The Contractor shall protect all monumentation and survey points in their undisturbed location and condition.

B. Contractor shall provide the Engineer with seventy-two (72) hours advance notice, prior to any excavation, in the vicinity of existing monuments so that they can be field referenced.

C. The Contractor shall furnish at his/her expense all the necessary work and operations necessary to replace any existing monument, survey marker, or reference point that may be damaged or disturbed by reason of the Contractor's operations.

## 10-2.05 MEASUREMENT AND PAYMENT

The lump sum contract price paid for **"Construction Surveying"** shall include full compensation for furnishing all labor, supervision, materials, equipment, tools and incidentals and for performing all operations required to accomplish and complete construction staking and layout, as shown on the plans, as specified in the State Specifications, the Standard Specifications, and these Special Provisions, and as directed by the Engineer, and no additional compensation shall be made therefor.

**END OF SECTION**

# SECTION 10-3 - STAGE CONSTRUCTION

## 10-3.01 GENERAL

Attention is directed to Sections 5-2, "Order of Work", 7-6, "Construction Schedule", and Section 10-10.02, "Timing", of these Special Provisions, and the Stage Construction Plan showing stage construction requirements for work on Harbor Street.

The Contractor shall prosecute the work in a staged and sequential order, and provide all traffic control devices, signs, and temporary pavement delineation, as shown on the plans and as specified in these Special Provisions. Subsequent items of work in the stage construction location shall not commence until all the preceding items of work in that stage of work have been completed to the satisfaction of the Engineer.

Minor deviations from the requirements of this section may be allowed by the Engineer, if in the opinion of the Engineer, the prosecution of the contract will be better served and the work expedited. Any request for such deviations by the Contractor shall not be adopted without the Engineer's written approval.

Nothing in this section, or on the contract plans, shall be construed as to relieve the Contractor of his/her responsibility to comply with the requirements of Part 1, Section 6-11, "Public Convenience and Safety", and Part 1, Section 6-12, "General Safety", of the Standard Specifications. The Contractor shall provide traffic control devices and measures as he/she believes is necessary to provide for public safety.

Failure to comply with these requirements and provisions shall be sufficient cause for the Engineer to suspend the work in accordance with the provisions of Part 1, Section 8-3, "Temporary Suspension of Work", of the Standard Specifications and Section 8-1.05, "Temporary Suspension of the Work", of the State Specifications. In the event the Engineer orders a suspension of the work due to the failure of the Contractor to comply with the requirements of this section, the days on which the suspension order is in effect shall be considered as working days if such days are working days as set forth in Section 8-1.06, "Time of Completion", of the State Specifications. The Contractor will not be permitted to resume the work until such time as he/she has satisfactorily demonstrated to the Engineer his/her ability to perform the work in accordance with the provisions of the contract.

## 10-3.02 MEASUREMENT AND PAYMENT

Payment for "Stage Construction" shall be considered as included in the contract prices bid for the various items of work shown in the Bid Schedule, which prices shall be considered as full compensation for all labor, supervision, materials, equipment, tools and incidentals, and no additional compensation shall be allowed therefor.

**END OF SECTION**

# SECTION 10-4 - CONSTRUCTION AREA SIGNS

## 10-4.01 GENERAL

This work shall consist of providing construction area signs as appropriate to maintain traffic and provide safe pedestrian and bicycle access.

Construction area signs and project special signs, as shown on the plans and where directed by the Engineer, shall be furnished, erected, maintained, moved and removed when no longer needed, all as specified in Sections 12-3.06, “Construction Area Signs”, and Section 12-3.06A, “Stationary Mounted Signs”, of the State Specifications.

Signs shall be kept clean and in good repair. Sign sizes shall be as shown on the plans.

The Contractor shall notify the appropriate regional notification center for operators of subsurface installations at least forty-eight (48) hours prior to commencing any excavation for construction area signposts. The regional centers include, but are not limited to the following:

Underground Service Alert (USA) 1-800-227-2600
Northern California

All excavations required to install construction area signs shall be performed using hand tools without the use of power drills or equipment.

## 10-4.02 MEASUREMENT AND PAYMENT

Full compensation for complying with the requirements of this section shall be considered as included in the price paid for **“Pedestrian, Bicycle Access and Traffic Control System”** and no additional compensation shall be allowed therefor.

**END OF SECTION**

# SECTION 10-5 - CONSTRUCTION AREA TRAFFIC CONTROL DEVICES

## 10-5.01 GENERAL

Traffic control shall conform to the latest edition of the *"California Manual on Uniform Traffic Control Devices"* issued by the U.S. Department of Transportation/Federal Highway Administration and Caltrans, and Caltrans Standard Plans.

No deviation in traffic control from the references mentioned above will be allowed unless written permission is granted by the Engineer.

It is the responsibility of the Contractor performing work on or adjacent to a public thoroughfare to install and maintain such devices which are necessary to provide passage for the traveling public (including pedestrians and bicyclists) through the work, as well as for the safeguard of workers.

## 10-5.02 PUBLIC SAFETY

The Contractor shall provide for the safety of the traffic and the public in accordance with the provisions in Section 7-1.09, "Public Safety", of the Standard Specifications and these Special Provisions.

## 10-5.03 TRAFFIC CONES

If an emergency condition or unexpected delay occurs, during the hours of darkness, traffic cones shall be affixed with reflective cone sleeves. The reflective sheeting of sleeves on the traffic cones shall be visible at 1,000 feet at night under illumination of legal high beam headlights, by persons with vision of or corrected to 20/20.

Reflective cone sleeves shall conform to the following:

1. Removable flexible reflective cone sleeves shall be fabricated from reflective sheeting, have a minimum height of thirteen (13) inches and shall be placed a maximum of three (3) inches from the top of the cone. The sleeves shall not be in place during daylight hours.

2. Permanently affixed semitransparent reflective cone sleeves shall be fabricated from semitransparent reflective sheeting have a minimum height of thirteen (13) inches, and shall be placed a maximum of three (3) inches from the top of the cone. Traffic cones with semitransparent reflective cone sleeves may be used during daylight hours.

3. Permanently affixed double band reflective cone sleeves shall have two (2) white reflective bands. The top band shall be six (6) inches in height, placed a maximum of four (4) inches from the top of the cone. The lower band shall be four (4) inches in height, placed two (2) inches below the bottom of the top band. Traffic cones with double band reflective cone sleeves may be used during daylight hours.

The type of reflective cone sleeve used shall be at the option of the Contractor. Only one type of reflective cone sleeve shall be used on this project.

## 10-5.04 BARRICADES

Type III barricades shall conform to the requirements specified in the Standard Specification for Type III barricades except as modified in these Special Provisions. Type III barricades shall be constructed of lightweight materials and shall have no rigid stay bracing for "A" frame designs.

The entire area of orange and white shall be retro-reflectorized with a material that has a smooth, sealed out surface that will display the same approximate size, shape and color day and night. The predominant color for other barricade components shall be white, except that unpainted galvanized metal or aluminum components may be used.

Type II reflective sheeting for stripes on barricade rail races shall conform to the requirements of one of the materials specified on the latest lighting of prequalified and tested signing and delineation materials and products maintained by the Department of Transportation, State of California.

Barricades shall be kept in good repair, and shall be cleaned or repainted as necessary to preserve their appearance.

Owner identification shall not be imprinted on the reflectorized face of any rail. It may be imprinted elsewhere, as on supports and on non-reflectorized rail faces.

Barricades used shall have a minimum of 270 square inches of retro-reflective area facing traffic.

If barricades are susceptible to overturning in the wind, sandbags may be placed on the lower parts of the frame or stays to provide the required ballast, but shall not be placed on top of any striped rail.

## 10-5.05 TEMPORARY SIGNS

Portable signs shall only be permitted for temporary lane closures. All construction area signs shall conform to Section 10-4, "Construction Area Signs", of these Special Provisions. The Contractor shall temporarily cover the existing signs which conflict with temporary signs as required by the plans or as directed by the Engineer.

## 10-5.06 MEASUREMENT AND PAYMENT

Full compensation for complying with the requirements of this section shall be considered as included in the price paid for **"Pedestrian, Bicycle Access and Traffic Control System"** and no additional compensation shall be allowed therefor.

**END OF SECTION**

# SECTION 10-6 - MAINTAINING TRAFFIC

## 10-6.01 GENERAL

Lane closures shall conform to the details shown in the *"California Manual on Uniform Traffic Control Devices"*, Caltrans Standard Plan T11, "Traffic Control System for Lane Closure on Conventional Highways", and the provisions specified in Section 10-7, "Traffic Control System", of these Special Provisions.

"Traffic Lane" shall be defined as that portion of the roadway for the movement of a single line of vehicles.

"Lane Closure" shall be defined as the temporary closure of a portion or the full width of an existing traffic lane. The temporary shifting of an existing traffic lane to shoulders, parking areas, medians or other areas of the roadway shall be considered a lane closure.

The Contractor shall schedule, stage and conduct all construction operations with regard to public convenience and in a manner to provide for the safe and expeditious movement of traffic.

Prior to commencing any activity within any public right-of-way, the Contractor shall implement traffic control measures in accordance with the approved traffic control plan.

The Contractor shall furnish and install temporary "No Parking" signs as needed to facilitate the work in public parking areas, in accordance with the provisions in Section 7-2, "Utilities and Public Notifications", of these Special Provisions.

Temporary access to private homes, business establishments, etc., shall be provided by the Contractor at all times except when temporary closure is authorized by the Engineer or is otherwise shown on the plans.

Temporary closure of driveways may be allowed subject to the advance written approval of property owners and the Engineer. However, in no case shall a driveway remain closed for more than eight (8) hours unless otherwise approved by the property owner and authorized by the Engineer. Prior to closure of driveways, the Contractor shall coordinate and notify the property owner or resident at least three (3) times of such closure. Closure notices shall be given to the property owner or resident forty-eight (48) hours, twenty-four (24) hours and one (1) hour prior to each closure.

Temporary driveways in excavation areas shall be provided with temporary compacted backfill materials with temporary asphalt surfacing as approved by the Engineer, or with permanent asphalt concrete, to meet field conditions and enable sufficient support for vehicles using such temporary access.

Openings shall be provided through temporary barricades and access provided to adjacent properties as directed by the Engineer in order to meet the requirements of Part 1, Section 6, "Legal Relations and Responsibilities", of the Standard Specifications and Sections 7-1.08, "Public Convenience", and 7-1.09, "Public Safety", of the State Specifications.

Personal vehicles of the Contractor's employees shall not be parked on the traveled way, including any section closed to public traffic.

Pedestrian access and emergency vehicle access shall be provided at all times through the construction areas.

In order to provide for the safe and expeditious movement of traffic through and around work zones at existing signalized intersections the Contractor shall:

1. Coordinate with the Engineer for signal operation or any changes in signal operation.
2. Make any such temporary modifications to traffic signals necessitated by the Contractor's schedule and staging of the work.

Flashing Arrow Signs (FAS) shall be utilized in all lane closure operations on Harbor Street.

Qualified flaggers shall be utilized:

1. When it is necessary to change traffic controls frequently.
2. For stopping of through traffic for equipment movement.
3. For alternate directional use of a single traffic lane.
4. To expedite the safe movement of traffic through or around work zones.

Flaggers shall be properly positioned, attired and equipped to perform these functions.

Should permanent pavement markings become obliterated due to construction, the permanent markings should be restored as soon as practicable. If the Contractor is unable to restore permanent markings by the end of the shift, then temporary markings shall be provided prior to the Contractor leaving the job site. Temporary markings shall conform to the requirements of Section 5-05 of the *"California Manual on Uniform Traffic Control Devices"* except that the spacing between temporary markings shall be reduced to approximately sixteen (16) feet.

## 10-6.02 OPEN LANE REQUIREMENTS

The Contractor shall provide and maintain a minimum of one (1) eleven (11') foot wide-open travel lane, in each direction, for public traffic at all times when any work is in progress.

## 10-6.03 HOURS FOR LANE CLOSURES

Standard single lane closure on Range Road shall be restricted to between the hours of 8:30 A.M. and 2:45 P.M., Monday through Friday (school days). Work area traffic control requiring the closure of multiple lanes or the detour of traffic (within signalized intersections) shall be limited to the hours of 9:00 AM and 2:45 PM.

The full width of the traveled way shall be open for use by public traffic on Saturdays, Sundays, holidays, at the end of each working period, and when construction activities are not actively in progress unless otherwise shown on the plans or specified in these Special Provisions.

The temporary full closure of streets is not permitted.

The Contractor's operations shall be so scheduled that the traffic control can be discontinued and all lanes open to traffic no later than the stated time.

At the end of each work period, components of the traffic control systems which are not needed shall be removed from the traveled way and shoulder.

The Contractor shall schedule and sequence his operations within the specified hours for lane closures such that lanes closed for the street work shall remain closed until applied pavement materials (crack sealing, asphalt concrete, pavement delineation, etc.) have sufficiently cured to accommodate traffic and are reopened to public traffic no later than the end of the allowed lane closure hours.

Minor deviations from the requirements of this section which do not significantly change the cost of the work may be permitted upon the written request of the Contractor if, in the opinion of the Engineer, public traffic will be better served and the work expedited. Such deviations shall not be adopted until the Engineer has indicated his/her written approval. All other modifications will be made by contract change order.

Failure to comply with the requirements and provisions in this section shall be sufficient cause for the Engineer to suspend the work in accordance with the provisions of Part 1 Sections 8-3, “Temporary Suspension of Work”, of the Standard Specifications and 8-1.05, “Temporary Suspension of the Work”, of the State Specifications. In the event the Engineer orders a suspension of the work due to the failure of the Contractor to comply with the requirements of this section, the days on which the suspension order is in effect shall be considered as working days if such days are working days as set forth in Section 8-1.06, “Time of Completion”, of the State Specifications. The Contractor will not be permitted to resume the work until such time as he/she has satisfactorily demonstrated to the Engineer his/her ability to perform the work in accordance with the provisions of the contract.

## 10-6.04 MEASUREMENT AND PAYMENT

The Contractor shall provide all markers, portable signs, cones, delineators, barricades, flashing arrow signs necessary to ensure the safe passage of traffic through the work zone.

Full compensation for complying with the requirements of this section shall be considered as included in the price paid for **“Pedestrian, Bicycle Access and Traffic Control System”** and no additional compensation shall be allowed therefor.

The costs of furnishing all flaggers and guards under the provisions of this section and Sections 7-1.08, “Public Convenience”, 7-1.09, “Public Safety”, and 12-2.02, “Flagging Costs”, of the State Specifications will be borne by the Contractor and shall be considered included in the price paid for “Traffic Control System” and no additional compensation shall be allowed therefor.

**END OF SECTION**

## SECTION 10-7 - PEDESTRIAN BICYCLE ACCESS AND TRAFFIC CONTROL SYSTEM

### 10-7.01 GENERAL

Traffic control system shall consist of closing traffic lanes in accordance with the provisions of Part 1, Section 6, “Legal Relations and Responsibility”, of the Standard Specifications and Section 12, “Construction Area Traffic Control Devices”, of the State Specifications, and the provisions in Sections 10-3, “Stage Construction”, Section 10-5, “Construction Area Traffic Control Devices”, and 10-6, “Maintaining Traffic”, of these Special Provisions.

The provisions in this section shall not relieve the Contractor from his/her responsibility to provide such additional devices or take such measures as may be necessary to comply with the provisions in Part 1, Section 6, “Legal Relations and Responsibility”, of the Standard Specifications and Section 7-1.09, “Public Safety”, of the State Specifications.

Each vehicle used to place, maintain, and remove components of traffic control system on the roadway 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 said components. The signs shall be controllable by the operator of the vehicle while the vehicle is in motion. The minimum size specified for Type II flashing arrows in the table following the second paragraph of Section 12-3.03, “Flashing Arrow Signs”, of the State Standard Specifications is amended to read “36 inches by 72 inches”.

If any component in the traffic control system is displaced, or ceases to operate or function as specified, from any cause, during the progress of the work, the Contractor shall immediately repair said component to its original condition or replace said component and shall restore the component to its original locations.

Failure to comply with the requirements and provisions in this section shall be sufficient cause for the Engineer to suspend the work in accordance with the provisions of Part 1 Sections 8-3, “Temporary Suspension of Work”, of the Standard Specifications and 8-1.05, “Temporary Suspension of the Work”, of the State Specifications. In the event the Engineer orders a suspension of the work due to the failure of the Contractor to comply with the requirements of this section, the days on which the suspension order is in effect shall be considered as working days if such days are working days as set forth in Section 8-1.06, “Time of Completion”, of the State Specifications. The Contractor will not be permitted to resume the work until such time as he/she has satisfactorily demonstrated to the Engineer his/her ability to perform the work in accordance with the provisions of the contract.

### 10-7.02 TRAFFIC CONTROL PLANS

The area of the work encompasses segments of arterial roads serving regional and local through traffic and adjoining land uses. The Contractor shall be required to conduct all operations with regard to public convenience and in a manner to provide for the safe and expeditious movement of traffic in accordance with these Special Provisions.

The Contractor shall prepare and submit three (3) copies of a detailed proposed traffic control plan to the Engineer within ten (10) working days after receipt of notice to proceed. The traffic control plan shall be prepared by a registered civil or traffic engineer, and shall provide sufficient information and details to show typical lane closures, channeling, any proposed detours, locations and usage of flagmen, typical construction zone signing, sidewalk closure, provisions for pedestrians, signal modification, etc. for each street and location of work. The traffic control plan shall show in detail the proposed sequencing of the work together with the proposed traffic control system for each work task. The proposed traffic control system shall in all respects satisfy the requirements of these Special Provisions. The Engineer will review the proposed traffic control plan and return it to the Contractor for any necessary revisions or corrections. The Contractor shall revise and resubmit three (3) copies of the plan to the Engineer within ten (10) working days, and this process shall be repeated, until the proposed traffic control plan is accepted by the Engineer. The Contractor will not be permitted to perform any lane closures or implement any part of the traffic control plan until it has been accepted by the Engineer.

The plan shall include notifications to other agencies and to the public including but not necessarily limited to:

1. Notifications of road closures to the following:
    a. Police, Fire and Ambulance Services
    b. Tri-Delta Transit
    c. Pittsburg Unified School District
2. Posting of temporary parking restrictions.
3. Provide notifications to property owners or tenants when construction activities will obstruct driveways.
4. Notifications required as a condition of any permit.

The Contractor shall provide to the Engineer for review and approval a copy of any notice to be posted or distributed regarding the construction schedule, lane or intersection closure, temporary parking restrictions, or detours. The Engineer may approve or reject noting deficiencies. If rejected, the deficiencies noted shall be corrected.

The Contractor shall immediately advise the Engineer of any proposed change in the Traffic Control Plan and shall obtain the approval of the Engineer prior to implementing any change. A revised plan shall be provided to the Engineer within five (5) working days of the adoption of the change.

A revised Traffic Control Plan shall be submitted if in the opinion of the Engineer, public safety, public convenience, or the safety of construction workers warrants a change in the plan.

The traffic control plan shall include location of all traffic signals and traffic signal detection devices within the traffic control area.

If special signal timing is required in the traffic control plan, specify all changes and their effects.

The traffic control plan shall include provisions for the temporary relocation of existing bus stops as may be necessary subject to the approval of the Tri-Delta Transit.

## 10-7.03 TRAFFIC CONTROL SUPERVISOR

The Traffic Control System should be placed, maintained and removed under the direct supervision of a person who is certified by either the Institute of Transportation Engineers (ITE), the American Traffic Safety Services Association (ATSSA), the International Municipal Signal Association (IMSA) or the State of California Department of Transportation (Caltrans) as having successfully completed training in the design and operation of work zone traffic control, or other person trained and deemed competent by the Contractor in accordance with an Injury and Illness Prevention Plan (IIPP) in accordance with §3202 of the General Industry Safety Orders.

Any project manager, superintendent, foreman or lead worker shall be deemed competent unless the Contractor designates a competent person to be present at the jobsite.

## 10-7.04 MEASUREMENT AND PAYMENT

The contract lump sum price paid for **"Pedestrian, Bicycle Access and Traffic Control System"** shall include full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals and for doing all the work involved, including but not limited to, notifications, placing, removing, storing, maintaining, moving to new locations, replacing, and disposing of all the components of the traffic control system including traffic control plans, all lane closures and detours necessary for any activities during the life of the project as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer and no additional compensation shall be allowed therefor.

The costs of furnishing all flaggers and guards under the provisions of this section and Sections 7-1.08, "Public Convenience", 7-1.09, "Public Safety", and 12-2.02, "Flagging Costs", of the State Specifications will be borne by the Contractor and shall be considered included in the price paid for "Traffic Control System" and no additional compensation will be allowed therefor.

The adjustment provisions in Part 1, Section 4-3, "Changes", of the Standard Specifications and Section 4-1.03, "Changes", of the State Specifications, shall not apply to the item of traffic control system. Adjustments in compensation for traffic control system will be made only for increased or decreased traffic control system required by changes ordered by the Engineer and will be made on the basis of the cost of the increased or decreased traffic control necessary. Such adjustment will be made on a force account basis as provided in Part 1, Section 9-3, "Extra Work", of the Standard Specifications and Section 9-1.03, "Force Account Payments", of the State Specifications for increased work, and estimated on the same basis in the case of decreased work.

Traffic control system required by work which is classified as extra work, as provided in Part 1, Section 4-3.5, "Extra Work", of the Standard Specifications and Section 4-1.03D, "Extra Work", of the State Specifications, will be paid for as part of said extra work.

**END OF SECTION**

# SECTION 10-8 - TEMPORARY PAVEMENT DELINEATION

## 10-8.01 GENERAL

Temporary pavement delineation shall be furnished, placed, maintained and removed in accordance with the provisions in Section 12-3.01, "General", of the State Specifications and these Special Provisions. Nothing in these Special Provisions shall be construed as to reduce the minimum standards specified in the *"California Manual on Uniform Traffic Control Devices"* published by Caltrans or as relieving the Contractor from his/her responsibility as provided in Part 1, Section 6, "Legal Relations and Responsibility", of the Standard Specifications and Section 7-1.09, "Public Safety", of the State Specifications.

Whenever the work causes obliteration of pavement delineation, temporary or permanent pavement delineation shall be in place prior to opening the traveled way to public traffic. Laneline or centerline pavement delineation shall be provided at all times for traveled ways open to the public.

The Contractor shall install all temporary pavement delineation including lane lines, limit lines, pavement stripes, crosswalks, legends, arrows, markings, traffic stripes, bike lane markings, swing lines, and all other delineation at the same layout, size and width and following the same or equivalent striping patterns or details as the obliterated pavement delineation it is replacing or as the planned permanent striping shown on the plans. There shall be no exceptions to this requirement. Failure by the Contractor to satisfy this requirement shall be sufficient cause for the City to have the required temporary delineation installed and all costs for this work will be deducted from any progress payments due to the Contractor. The intent of this requirement is to have a complete temporary pavement delineation installation in place on any traveled way open to public traffic.

All work necessary, including any required lines or marks, to establish the alignment of temporary pavement delineation shall be performed by the Contractor. Surfaces to receive temporary pavement delineation shall be dry and free of dirt and loose material. Temporary pavement delineation shall not be applied over existing pavement delineation or other temporary pavement delineation. Temporary pavement delineation shall be maintained until superseded or replaced with a new pattern of temporary pavement delineation or permanent pavement delineation. Temporary pavement delineation that is damaged from any cause during the progress of work shall be immediately repaired or replaced by the Contractor at his/her own expense.

## 10-8.02 TEMPORARY PAVEMENT DELINEATION - PAINT

On the base course(s) of all asphalt concrete pavement, the Contractor shall provide temporary pavement delineation using painted traffic stripes and pavement markings. Temporary traffic tape or markers will not be allowed in place of paint unless approved in writing by the Engineer. The temporary traffic striping and markings shall be complete in place prior to opening the traveled way to public traffic.

Painting temporary traffic stripes and markings shall conform to the provisions of Part 2, Section 11-5, "Painted Striping and Markings", of the Standard Specifications and Sections 84-1, "General", and 84-3, "Painted Traffic Stripes and Pavement Markings", of the State Specifications.

No temporary painted striping shall be applied on any existing pavement to remain or to the finish course (top layer) of any new asphalt concrete pavement.

## 10-8.03 TEMPORARY PAVEMENT DELINEATION – TAPE AND MARKERS

All temporary pavement delineation placed on the asphalt concrete finish course (top layer) of new asphalt pavement, or on existing pavements to remain shall be temporary raised reflective pavement markers and temporary removable traffic tape. Painted striping or markings in place of temporary markers and tape is not allowed. The temporary markers and tape shall be in place prior to opening the traveled way to the public.

The minimum laneline and centerline delineation to be provided for shall be temporary reflective raised pavement markers placed at longitudinal intervals of not more than twenty (20) feet. The temporary reflective raised pavement markers shall be the same color and striping detail as the laneline or centerline the markers replace. At locations where temporary pavement markers replace a double yellow line, two (2) markers shall be placed, side-by-side, at not more than twenty (20) foot intervals. Temporary reflective raised pavement markers shall be, at the option of the Contractor, one of the following temporary pavement markers listed for short term day/night use (14 days or less) or long term day/night use (6 months or less) in the latest listing of "Prequalified and Tested Signing and Delineation Materials" maintained by Caltrans:

**Temporary Markers For Long Term Day/Night Use (6 months or less)**

A. Vega Molded Products "Temporary Road Marker" (3 inches x 4 inches)

**Temporary Markers For Short Term Day/Night Use (14 days or less)**

A. Apex Universal, Model 932
B. Filtrona Extrusion, Models T.O.M., T.R.P.M., and "HH" (High Heat)
C. Hi-Way Safety, Inc., Model 1280/1281
D. Glowlite, Inc., Model 932

Removable type traffic tape and pavement marking tape shall be one of the following temporary removable construction grade types listed in the latest listing of "Prequalified and Tested Signing and Delineation Materials" maintained by Caltrans:

**Temporary (Removable) Striping and Pavement Marking Tape (6 months or less)**

A. Advanced Traffic Marking, Series 200
B. Brite-Line, Series 100
C. Garlock Rubber Technologies, Series 2000
D. P.B. Laminations, Aztec, Grade 102

E. Swarco Industries, "Director-2"

F. Trelleborg Industries, R140 Series

G. 3M, Series 620 "CR", and Series A750

H. 3M, Series A145, Removable Black Line Mask
(Black Tape: for use only on Asphalt Concrete Surfaces)

I. Advanced Traffic Marking Black "Hide-A-Line"
(Black Tape: for use only on Asphalt Concrete Surfaces)

J. Brite-Line "BTR" Black Removable Tape
(Black Tape: for use only on Asphalt Concrete Surfaces)

K. Trelleborg Industries, RB-140
(Black Tape: for use only on Asphalt Concrete Surfaces)

Removable type traffic tape shall be applied in accordance with the manufacturer's installation instructions and shall be rolled slowly with a rubber tired vehicle or roller to ensure complete contact with the pavement surface. Traffic stripe tape shall be applied straight on tangent alignments and on a true arc on curved alignments. Traffic stripe tape shall not be applied, when the air or pavement temperature is less than 50°F, unless the installation procedures to be used are approved by the Engineer, prior to beginning installation of the tape.

Removable type traffic tape and temporary raised pavement markers shall be removed, when as determined by the Engineer, it is no longer required for the direction of public traffic, conflicts with a new pattern for the area, or is applied to the final layer of surfacing or existing pavement to remain in place.

The Contractor shall remove and dispose of these materials in accordance with Part 1, Section 6-18, "Disposal Outside Project Limits", of the Standard Specifications and Section 7-1.13, "Disposal of Materials Outside the Highway Right-of-Way", of the State Specifications.

## 10-8.04 MEASUREMENT AND PAYMENT

Full compensation for complying with the requirements of this section shall be considered as included in the price paid for **"Pedestrian, Bicycle Access and Traffic Control System"** and no additional compensation shall be allowed therefor.

**END OF SECTION**

# SECTION 10-9 - EXISTING HIGHWAY FACILITIES

## 10-9.01 GENERAL

The work performed in connection with various existing highway facilities shall conform to the provisions in Section 15, "Existing Highway Facilities", of the State Specifications and these Special Provisions.

Nothing in these Special Provisions shall relieve the Contractor from his/her responsibility as provided in Part 1, Section 6 of the Standard Specifications and Section 7-1.09, "Public Safety", of the State Specifications, and Section 5-1.03 of these Special Provisions.

The Contractor shall protect all existing utilities and survey points and monuments from damage. Utilities and survey points and monuments damaged by the Contractor's operation shall be restored at the Contractor's expense.

## 10-9.02 TREE TRIMMING AND TREE PROTECTION

This project includes work on streets with mature trees adjacent to the roadway. In some locations, the tree canopy may extend over the roadway. It is the responsibility of the Contractor to conduct his/her operations around said tree canopy such that the work is accomplished without damage to trees. The Contractor shall trim said trees in order to better facilitate construction operations. Any trimming that may be required must be approved at least two (2) working days in advance by the Engineer.

Tree trimming shall be done in accordance with "Pruning Standards", published by the Western Chapter of the International Society of Arboriculture.

Trees and plants (including root systems) that are not to be removed shall be fully protected from injury by the Contractor at the Contractor's expense. If tree roots are exposed, while excavating near existing trees to be protected, the roots shall be trimmed to a neat, clean cut with a sharp pruning saw and painted with two (2) applications of root sealing material.

Tree trimming shall include clearing and grubbing of existing shrubs that are in conflict with the work.

## 10-9.03 TREE REMOVAL

Work shall consist of the removal of individual trees with trunk diameter of 6-inches or greater at the locations shown on the plans. Stumps and roots shall be removed to 18-inches below finished grade. Resulting holes shall be backfilled with native material and compacted to 90% relative compaction.

Trees and shrubs with trunks less than or equal to 6-inches in diameter shall be removed as part of tree trimming and tree protection.

## 10-9.04 EXISTING UNDERGROUND FACILITIES

Attention is directed to Part 1, Section 7 of the Standard Specifications and Sections 8-1.10, "Utility and Non-Highway Facilities", and 15, "Existing Highway Facilities", of the State Specifications.

The Contractor's attention is directed to the existing storm drain, water, gas electric, traffic signal, sanitary sewer, cable TV, fiber optic, and telephone lines within the limits of work. Prior to excavating near these existing facilities, the Contractor shall pothole these facilities in order to verify the location and inform the Engineer of the actual depth of each line. The Contractor shall use caution while potholing these facilities, and shall adjust the limits and/or depths of the various paving work shown on the plans, as directed by the Engineer.

The Contractor's attention is directed to the existence of narrow width (rockwheel) trenches containing concrete backfill within the limits of work. The Contractor shall use caution while working around these trenches so as not to damage the existing concrete backfill materials or underlying conduits or facilities.

## 10-9.05 EXISTING TRAFFIC SIGNAL DETECTOR LOOPS

Attention is directed to Sections 7-2, "Utilities and Public Notifications", 10-10, "Roadway Excavation", and 10-24, "Traffic Signal System", of these Special Provisions.

At least two (2) working days in advance of any sawcutting, cold planing, excavation, or any other work in the vicinity of any signalized intersection, the Contractor shall notify Underground Service Alert (USA).

The Contractor shall protect in place existing traffic signal detector loop wires that are to remain as shown on the contract plans and as otherwise directed by the Engineer. The layout and limits of the cold planing and other contract work shall be approved in advance by the Engineer.

If any part of any loop conductor (to remain in place), including the portion leading to the adjacent pull box, is damaged by the Contractor's operations, the entire detector loop shall be replaced at the Contractor's expense.

All loop detectors to be replaced shall be installed in accordance with Section 10-24, "Traffic Signal System", of these Special Provisions.

## 10-9.06 PAVEMENT DELINEATION REMOVAL

At the locations shown on the plans, and when otherwise required by these Special Provisions, the Contractor shall remove and dispose of all existing traffic striping, markings, pavement markers and any conflicting temporary pavement delineation. Existing striping and marker removal shall be in accordance with Sections 15-2.02B, "Traffic Stripes and Pavement Markings", and 15-2.02C, "Pavement Markers", of the State Specifications. Removal by sandblasting will not be allowed.

## 10-9.07 EXISTING YELLOW TRAFFIC STRIPING AND PAVEMENT MARKINGS

Attention is directed to Section 10-1.03, "Environmental Requirements", of the Special Provisions.

The Contractor's attention is directed to the State Health and Safety and Cal-OSHA regulations and requirements regarding the removal, handling and disposal of yellow thermoplastic and painted traffic striping and pavement markings. The Contractor is responsible for any additional requirements necessary to comply with the regulations.

Where grinding or other methods approved by the Engineer are used to remove yellow thermoplastic and yellow painted traffic stripe and pavement marking, the removed residue, including dust, shall be contained and collected immediately. Sweeping equipment shall not be used. Collection shall be by a high efficiency particulate air (HEPA) filter equipped vacuum attachment operated concurrently with the removal operations or other equally effective methods approved by the Engineer.

Nothing in these Special Provisions shall relieve the Contractor of the Contractor's responsibilities as specified in Section 7-1.09, "Public Safety", of the Standard Specifications.

## 10-9.08 CONCRETE REMOVAL

At the locations shown on the plans, the Contractor shall remove existing portland cement concrete curb, gutter, sidewalk, curb ramps, median nose, and stamped concrete surfacing. The work also consists of the removal of AC dike and AC walkway, storm drain inlets and inlet tops and storm drain pipe. Removed items shall be disposed of in accordance with Part 1, Section 6-18, "Disposal Outside Project Limits", of the City Standard Specifications and Section 7-1.13, "Disposal of Materials Outside the Right of Way", of the State Specifications.

Existing concrete to be removed shall be sawcut at the nearest joint or score line. Any existing concrete damaged by reason of the Contractor's operations outside this limit shall be repaired at the Contractor's expense. The repair shall be made by removing and replacing the entire portion between weakened plane joints or score lines.

In the area of new bus turnouts, the resulting voids from the removal of existing concrete items such as curb and gutter, sidewalk and stamped concrete surfacing, on those areas noted on the plans, shall be backfilled with Class 2 aggregate base or asphalt concrete, as specified on the details on the plans. Where Class 2 aggregate base is used, it shall be compacted to the relative compaction value shown on the plans.

The resulting void created by removal of the Type "B" inlet as shown on the plans shall be backfilled with Class 2 aggregate base and compacted to 90% relative compaction.

## 10-9.09 ADJUST UTILITIES TO GRADE

This work shall consist of adjusting City owned facilities such as storm drain manholes, storm drain valves and cleanouts, sanitary sewer manholes and rodding inlets, traffic signal detector handholes, water valve frames and water facility pull boxes to below the grading plane in excavation (roadway inlay) areas, and then to finished grade following placement of the top layer of asphalt concrete pavement. The Contractor shall adjust these City owned facilities to below the planed surface prior to cold planing/excavation operation.

Work by the Contractor shall include locating, referencing, and setting sufficient marks prior to adjusting facilities below the planed surface or grading plane to enable their subsequent retrieval by the Contractor. The Contractor shall reference and set marks for all City owned facilities. The Contractor shall submit a plan to the Engineer at least forty-eight (48) hours in advance of any excavation showing all reference points and offset distances set for each frame, cover and monument.

Adjustments below the planed surface shall include placement of a temporary false bottom in sanitary sewer manholes, removal of rings as required, placing and securing an acceptable temporary lid or cover below the planed surface or grading plane elevations, and placement of temporary asphalt concrete over and around the temporary lid or cover as required to allow for the passage of vehicular traffic prior to and following cold planing or excavation operations.

The final adjustment to finished grade of all manhole frames shall consist of resetting the manhole frame to grade by adjusting and/or reconstructing the existing concrete riser rings within the throat area. The existing concrete collar shall be reconstructed to conform to City Standard Detail SD-507, “Precast Manhole and Type 1 Base”, and the existing concrete riser rings shall be replaced, if damaged. The reconstructed sections shall be at least equal in quality to the existing structure. In no case shall the precast barrel section be disturbed. Cast iron extension or adjustment rings will not be allowed in the adjusted structure.

Water valve frames shall be adjusted to finished grade by removing the existing concrete collar, raising the frame and cover to finished grade, and constructing a new concrete collar. For all adjustments, the top surface of the adjusted facility shall be within 1/8 inch of the adjacent finished grade. Adjustment to final grade shall not be made until the top layer of paving has been completed immediately surrounding it.

This work shall also include placement of temporary asphalt around the manholes/valves if the permanent asphalt concrete patching cannot be placed the same day the facility is adjusted to finished grade.

The Contractor shall cooperate and coordinate all adjustments with the various utility owners who will be adjusting their facilities. In addition, the Contractor shall arrange with the utility owners, in a timely manner, the adjustments of their facilities.

## 10-9.10 ADJUST PULL BOX TO GRADE

The work shall consist of adjustment of traffic signal, street light, and other pull boxes to grade as part of the construction of new bus turnouts and reconstruction of curb ramps. Each box shall be set on four (4) bricks, one (1) brick at each corner of the box. The bricks shall be set on firm soil to avoid settlement of the box.

All existing pull boxes requiring adjustment shall be reused in the project and the Contractor shall take care not to damage them. Any pull boxes damaged as a part of the Contractor's activities shall be replaced at the Contractor's expense.

## 10-9.11 RAISE FIRE HYDRANT TO GRADE

This work consists of raising fire hydrants in the area of the new bus turnouts. Existing fire hydrants shall be removed from the water supply line below the breakoff spool, and the buried water supply riser shall be extended by the use of a new cast iron spool. The finished elevation of the fire hydrant and all other completed work shall be consistent with City Standard Detail W-405.

## 10-9.12 TREE WELLS

The existing header board, located within the tree wells adjacent to Pittsburg High School as shown on the plans, shall be removed and disposed of and new header board shall be placed at the new grades. New header board shall be 2-inch x 6-inch pressure treated Douglas Fir rated for ground contact. The header board shall be supported using 24-inch long 3/4-inch diameter galvanized steel pipe at 4-feet on center maximum spacing. The steel pipe shall be attached to header with two galvanized steel pipe clamps and #10 galvanized screws, 1-1/4" in length. In-line joints within header boards shall not be allowed.

Each tree well consists of an existing irrigation sprinkler head that shall be raised to the new grade by extending the riser pipes using pipe materials that are consistent with the existing facility.

Clean topsoil shall be placed within in each tree well affected by the work to bring the existing ground up to the new grade.

Attention is directed to Section 10-9.02, "Tree Trimming and Tree Protection", of these Special Provisions while working adjacent to existing trees to remain.

## 10-9.13 RELOCATE IRRIGATION PULL BOX

This work consists of relocating an existing irrigation pull box and related irrigation facilities to behind the new sidewalk as shown on the plans. Attention is directed to Section 10-9.10, "Adjust Pull Box to Grade", with respect to the requirements for resetting the pull box in a new location.

Irrigation facilities within the existing pull box shall be relocated to the new pull box area using pipe materials consistent with the existing materials. Existing irrigation facilities shall be salvaged and reused as practicable.

Resulting holes shall be backfilled with Class 2 Aggregate Base and compacted to 95% relative compaction.

## 10-9.14 REMOVE ROADSIDE SIGN PANEL

Roadside sign panels shall be removed at the locations shown on the plans and salvage for use elsewhere on the project.

## 10-9.15 MEASUREMENT AND PAYMENT

The contract price paid per each for "**Remove Trees"** shall include full compensation for furnishing all labor, supervision, materials, tools, equipment, and incidentals and for doing all the work involved, including but not limited to, trimming, hauling, disposal, shrub removal, stump removal and backfill, and all other work as specified in these Special Provisions, and as directed by the Engineer and no additional compensation shall be allowed therefor.

The various contract prices paid for the removal items of work shall include full compensation for furnishing all labor, supervision, materials, tools, equipment, and incidentals and for doing all the work involved, including but not limited to, sawcutting, removal, loading, hauling, disposal, backfill and all other work as shown on the plans, and as specified in the Standard Specification, the State Specifications, these Special Provisions, and as directed by the Engineer and no additional compensation shall be allowed therefor.

Payment for backfilling and compaction of void areas created from the removal of existing concrete items shall be considered as included in the contract prices bid for the various concrete removal items of work shown on the bid schedule and no additional compensation will be allowed therefor.

The contract prices paid per each for **"Adjust To Grade Traffic Signal/Electrical Box",** items of work shall include full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals necessary to adjust the facilities to below the cold plane surface or grading plane elevation and raise to finished grade following the top layer of asphalt concrete paving; including but not limited to locating, referencing, and setting marks; submitting a plan forty-eight (48) hours in advance of excavation; constructing false bottoms; furnishing temporary lids and covers; and placement of temporary and permanent asphalt concrete around the adjustment prior to opening to public traffic, as shown on the plans, as specified in the State Specifications and these Special Provisions, and as directed by the Engineer and no additional compensation shall be allowed therefor.

.

The contract price per linear foot to **"Remove Concrete Curb/Curb Gutter and Base"** and the contract price paid per square foot for **"Remove Concrete Sidewalk, Curb Ramp, and Base"** and **"Remove Concrete Pavement and Base"** shall include full compensation for furnishing all labor, supervision, materials, tools, equipment, and incidentals and for doing all the work involved, including but not limited to, sawcutting, removal; loading; hauling; disposal; backfill; compaction, and all other work as shown on the Plans, as specified in the Standard Specifications, the State Specifications, these Special Provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

The contract price per square foot to **"Remove Asphalt Pavement, Base And Subsoils"** shall include full compensation for furnishing all labor, supervision, materials, tools, equipment, and incidentals and for doing all the work involved, including but not limited to, sawcutting, removal; loading; hauling; disposal; backfill; compaction, and all other work as shown on the Plans, as specified in the Standard Specifications, the State Specifications, these Special Provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

Payment for protecting and working around existing utilities and protecting existing manholes, water valves, traffic signal detector loops, and survey points and monuments, and payment for notifying and cooperating with utility companies shall be considered as included in the contract prices bid for the various items of work shown on the bid schedule and no additional compensation shall be allowed therefor.

**END OF SECTION**

# SECTION 10-10 - ROADWAY EXCAVATION

## 10-10.01 GENERAL

Existing asphalt concrete and base material shall be removed by cold planing or wedge grinding to the required depth.

The Contractor shall provide for the public safety and public convenience in accordance with the provisions of Part 1, Section 6, “Legal Relations and Responsibilities”, of the Standard Specifications, Section 7-1.08, “Public Convenience”, and 7-1.09, “Public Safety”, of the State Specifications, and these Special Provisions.

## 10-10.02 TIMING

The Contractor’s attention is directed to Section 10-3, “Stage Construction”, and Section 10-6, “Maintaining Traffic”, of these Special Provisions.

All excavations shall be scheduled such that the specified depth of existing asphalt concrete and base materials is removed, the existing base (if encountered) is compacted to 95% relative compaction to 0.50’ below the grinding plane, and the base courses of asphalt concrete are placed during the same working period (day), prior to opening the roadway to public traffic. The Contractor shall only excavate the amount of material each day that can be replaced with asphalt concrete base material during the allowed lane closure hours each day. No longitudinal drop-off will be allowed between adjacent lanes at the end of the working period.

No public traffic will be permitted to travel on any unpaved or cold planed portion of the street.

## 10-10.03 EXCAVATION

Roadway excavation shall conform to the provisions in Part 2, Section 2, “Earthwork and Soils", of the Standard Specifications, Section 19, “Earthwork”, and Section 42-2, “Grinding”, of the State Specifications, and these Special Provisions.

Wedge grinding or cold planing shall be performed utilizing machines equipped with a cutter head no less than five (5) feet in width. The cold planing machine shall be operated so as not to produce fumes or smoke. The cold planing machine shall be capable of planing the pavement without requiring the use of a heating device to soften the pavement during or prior to the planing operation. The depth, width and shape of the cut shall be as indicated on the typical cross sections or as directed by the Engineer. The final cut shall result in a uniform surface conforming to the typical cross sections or details. The outside lines of the planed area shall be neat and uniform. The road surfacing to remain in place shall not be damaged in any way by the planing.

No longitudinal drop-off will be allowed at any time between any adjacent lanes open to public traffic at the end of the working period. When allowed by the Engineer, the Contractor may cold plane the final longitudinal pass between adjacent travel lanes such that a minimum 30:1 slope is maintained between the cold planed surface and the adjacent

existing pavement grade when opened to public traffic. There shall be no adjustment in compensation to the Contractor for making additional passes or to comply with this requirement.

The material planed from the roadway surface shall be removed in accordance with Part 1, Section 6-18, "Disposal Outside Project Limits", of the Standard Specifications and Section 7-1.13, "Disposal of Material Outside the Highway Right of Way", of the State Specifications. All excavated material shall be loaded for off-haul as it is generated. Under no circumstances shall excavated material be stockpiled on the project site, in any City right-of-way, or on any parcel of land adjoining the site. Removal operations of planed material shall be concurrent with planing operations, unless otherwise directed by the Engineer. The Contractor shall immediately remove any incidental pavement grindings resulting from cold planing from any roadway area open to public traffic.

The Contractor's attention is directed to the existence of utility trenches with portland cement concrete backfill in the roadway area. The cold planing machine should be capable of cold planing through portland cement concrete. Any damage to utilities backfilled with portland cement concrete shall be repaired by the Contractor at his expense. No additional compensation will be allowed for cold planing through portland cement concrete.

The Contractor's attention is also directed to the existence of the cement treated base (CTB) material as shown on the Plans.

Cold planed excavation material may consist of asphalt concrete, base material and native material. The material, to be excavated by cold planing, may contain reinforcing fabric and/or other particles that are a by-product of asphalt concrete. The City makes no guarantee that the material excavated by cold planing will be reusable or recyclable. No additional compensation shall be allowed to the Contractor if the cold planed material is not reusable or recyclable. Any testing, if required, by the disposal site shall be arranged and paid for by the Contractor.

Unsuitable material encountered below the grading plane shown on the plans shall be excavated and disposed of as directed by the Engineer. Unsuitable material shall be as defined in Part 2, Section 2-9.1, "Unsuitable Material", of the Standard Specifications and Section 19-2.02, "Unsuitable Material", of the State Specifications.

Excavated material will not be allowed to accumulate within the right-of-way. Any storage of materials shall be in accordance with the requirement of Part 1, Section 6-15, "Storage of Material-Temporary Equipment", of the Standard Specifications.

## 10-10.04 TEMPORARY RAMPS

Where transverse joints are planed in the pavement at conform lines, no drop-off shall remain between the existing pavement and the planed area when the pavement is opened to public traffic. If asphalt concrete has not been placed to the level of existing pavement before the pavement is to opened to public traffic, a temporary asphalt concrete ramp shall be constructed. The asphalt concrete shall be placed to the level of the existing pavement and tapered on a slope of 30:1 or flatter to the level of the planed area as detailed on the plans. Temporary asphalt concrete ramps shall also be placed at other side streets and driveways, as detailed on the plans. Material for temporary ramps and tapers shall be

commercial quality (hot mix) asphalt concrete and may be spread and compacted by any method that will produce a smooth riding surface. A commercial grade roofing paper or other suitable material shall be placed beneath the temporary ramps and tapers.

A construction warning sign to notify road users of the condition shall be temporarily installed in advance of the approach. The sign shall be a W8-1 "BUMP". An alternate sign with the legend "UNEVEN PAVEMENT" may be substituted. All signs shall be retroreflectorized.

Temporary asphalt concrete tapers shall be completely removed before placing the permanent surfacing. The removed ramp materials shall be disposed of outside the highway right-of-way in accordance with the provisions in Part 1, Section 6-18, "Disposal Outside Project Limits", of the Standard Specifications and Section 7-1.13, "Disposal of Material Outside the Highway Right of Way", of the State Standard Specifications.

## 10-10.05 MEASUREMENT AND PAYMENT

The contract price paid per square foot for **"Milling (Cold Plane Asphalt Concrete Payment)"** shall include full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals, and for doing all the work involved, including, but not limited to, cold planing, loading, hauling, testing (if needed) and disposing of planed material, preparing and compacting subgrade, and street sweeping, including furnishing the asphalt concrete for and constructing, maintaining, removing, and disposing of temporary asphalt concrete ramps, and all other work as shown on the plans, as specified in the Standard Specifications, the State Specifications and these Special Provisions, and as directed by the Engineer and no additional compensation shall be allowed therefor.

**END OF SECTION**

# SECTION 10-12 - AGGREGATE BASE

## 10-12.01 GENERAL

This work shall consist of furnishing and placing Class 2 Aggregate Base in accordance with Part 2, Section 3-3, “Aggregate Base”, of the Standard Specifications and these Special Provisions.

Class 2 Aggregate Base shall be furnished, placed, and compacted to the lines and grades shown on the plans. Aggregate Base shall be compacted to ninety-five (95) percent relative compaction, in accordance with ASTM D1557, under PCC curb, gutter, driveways, and bus turnouts and ninety (90) percent relative compaction under PCC sidewalks and PCC curb ramps.

Class 2 Aggregate Base material shall conform to the grading requirements of Part 2, Section 3-3.2, “Materials”, for 3/4” maximum grading of the Standard Specifications.

## 10-12.02 MEASUREMENT AND PAYMENT

There shall be no separate measurement or payment for furnishing and placing aggregate base used in the construction of curb and gutter, sidewalks, driveways, bus turnouts and curb ramps, and full compensation shall be considered as included in the contract unit prices paid for those bid items.

**END OF SECTION**

# SECTION 10-14 - HOT MIX ASPHALT

## 10-14.01 GENERAL

The work included in this section shall be performed in accordance with the requirements of Section 39, "Asphalt Concrete", of the State Specifications and these Special Provisions. The Contractor's attention is directed to Section 10-3, "Stage Construction", and Section 10-6, "Maintaining Traffic", of these Special Provisions.

## 10-14.02 ASPHALT

The amount of asphalt binder to be mixed with the aggregate for Type "A" asphalt concrete for paving shall be determined in conformance with the requirements in California Test 367. The Contractor shall submit asphalt concrete mix designs sufficiently in advance of manufacturing to allow for City review and approval. The Engineer may direct the amount of asphalt binder to be mixed with the aggregate. In the event that an increase or decrease is ordered, the unit price of asphalt concrete items stated in the Contractor's proposal shall be considered valid to cover any cost relating to the addition or reduction of liquid asphalt quantity and no adjustment in compensation will be made therefor.

Asphalt binder to be mixed with aggregate shall be a steam-refined paving asphalt in conformance with the provisions in Section 92, "Asphalts", of the State Standard Specifications. PG 64-10 asphalt binder shall be used for all applications.

## 10-14.03 AGGREGATE

Aggregate for asphalt concrete inlay finish courses shall be Type "A", 1/2" maximum, medium aggregate grading.

Aggregate for asphalt concrete inlay base layers and asphalt concrete base failure repair areas shall be Type "A", 3/4" maximum, medium aggregate grading.

## 10-14.04 PLACEMENT

The Contractor's attention is directed to roadway excavation, Section 10-10.02, "Timing", of these Special Provisions. In AC inlay areas, the existing pavement shall be cold planed and the new AC base course(s) placed in the same working period (day).

Attention is directed to Section 39-5.01, "Spreading Equipment", of the State Specifications. Asphalt concrete shall be spread and compacted to the thickness shown on the plans. All layers shall be spread with a self-propelled paving machine. A motor grader or loader with special attachments will not be considered a "self propelled paving machine". The use of "pick-up" machines will only be allowed on previously paved surfaces. The use of "pick-up" machines will not be allowed on unpaved surfaces, such as aggregate base, aggregate subbase or native material. Asphalt concrete shall be compacted and finished in conformance with said Section 39, "Spreading Equipment", amended as follows:

Section 39-5.02, “Compacting Equipment”, of the State Specifications is amended to read:

The Contractor shall furnish a sufficient number of rollers to obtain the specified compaction and surface finish required by these Specifications.

All rollers shall be equipped with pads and water systems which prevent sticking of asphalt mixtures to the wheels. A parting agent, which will not damage the asphalt mixture, as determined by the Engineer, may be used to aid in preventing the sticking of the mixture to the wheels.

The second paragraph of Section 39-6.01, “General Requirements”, of the State Specifications is amended to read:

Asphalt concrete shall be compacted by any means to obtain the specified relative compaction before the temperature of the mixture drops below 150°F. Additional rolling to achieve the specified relative compaction will not be permitted after the temperature of the mixture drops below 150°F. or once the pavement is opened to public traffic. When vibratory rollers are used as finish rollers the vibratory unit shall be turned off.

Section 39-6.03, “Compacting”, of the State Specifications is amended by deleting the fifth, and seventh through tenth paragraphs and adding the following before the eleventh paragraph:

Asphalt concrete shall be compacted to a relative compaction of not less than ninety-five (95) percent and shall be finished to the lines, grades and cross section shown on the plans. In-place density of asphalt concrete will be determined prior to opening the pavement to public traffic.

Relative compaction will be determined by California Test 375. Laboratory specimens will be compacted in conformance with California Test 304. Lots will be established for asphalt concrete areas to be tested, as specified in California Test 375.

If the test results for any lot of asphalt concrete indicate that the relative compaction is below 95.0 percent, but above 92.9 percent, the Contractor will be advised that he/she is not attaining the required relative compaction and that his/her materials or his/her procedures, or both, need adjustment. Asphalt concrete spreading operations shall not continue until the Contractor has notified the Engineer of the adjustment that will be made in order to meet the required compaction.

If the test results for any lot of asphalt concrete indicate that the relative compaction is less than 93.0 percent, the asphalt concrete represented by that lot shall be removed, except as otherwise provided below. Asphalt concrete spreading operations shall not continue until the Contractor makes significant adjustments to his/her materials or procedures or both in order to meet the required compaction. The adjustments shall be as agreed to by the Engineer. However, if requested by the Contractor and approved by the Engineer, asphalt concrete with a relative compaction of 90.0 percent or greater may remain in place and the Contractor shall pay to the City an amount of reduced compensation for such lot with low compaction. The City may deduct the amount of reduced compensation from any moneys due, or that may become due, the Contractor under the contract. The amount of reduced compensation the Contractor shall pay to

the City will be calculated using the total tons represented in the lot with low compaction times the contract price per ton for the contract item of asphalt concrete involved times the following reduced compensation factors:

| Relative Compaction (Percent) | Reduced Compensation Factor | Relative Compaction (Percent) | Reduced Compensation Factor |
|---|---|---|---|
| 93.0 | 0.000 | 91.4 | 0.062 |
| 92.9 | 0.002 | 91.3 | 0.068 |
| 92.8 | 0.004 | 91.2 | 0.075 |
| 92.7 | 0.006 | 91.1 | 0.082 |
| 92.6 | 0.009 | 91.0 | 0.090 |
| 92.5 | 0.012 | 90.9 | 0.098 |
| 92.4 | 0.015 | 90.8 | 0.108 |
| 92.3 | 0.018 | 90.7 | 0.118 |
| 92.2 | 0.022 | 90.6 | 0.129 |
| 92.1 | 0.026 | 90.5 | 0.142 |
| 92.0 | 0.030 | 90.4 | 0.157 |
| 91.9 | 0.034 | 90.3 | 0.175 |
| 91.8 | 0.039 | 90.2 | 0.196 |
| 91.7 | 0.044 | 90.1 | 0.225 |
| 91.6 | 0.050 | 90.0 | 0.300 |
| 91.5 | 0.056 | | |

If abrasive grinding is used to bring the finished surface to specified surface tolerances, additional grinding with equipment utilizing diamond blades shall be performed as necessary to extend the area ground in each lateral direction so that the lateral limits of grinding are at a constant offset from, and parallel to the nearest lane line or pavement edge, and in each longitudinal direction so that the grinding begins and ends at lines normal to the pavement centerline, within any ground area.

All ground areas shall be neat rectangular areas of uniform surface appearance. Abrasive grinding shall conform to the requirements in the third, fourth, fifth and sixth paragraphs in Section 42-2.02, “Construction”, of the State Specifications.

The Contractor shall furnish and use canvas tarpaulins to cover **all** loads of asphalt concrete from the time that the mixture is loaded until it is discharged from the delivery vehicle. The tarpaulins shall completely cover the exposed asphalt concrete. Batch data and load slips shall be presented to the Engineer as asphalt is delivered to the project site to allow verification of location and use. Failure to do so may result in non-payment for questionable quantities.

At least forty-eight (48) hours prior to starting any paving operations, the Contractor shall submit to the Engineer a plan outlining his/her proposed sequencing of paving the roadway. The Contractor shall specify the width of spread (the location longitudinal joints) and the proposed overlap of each course. The Contractor shall not commence paving operations until approved to do so by the Engineer. The sequence of paving shall be such as to avoid paving a lane width with cold joints on both sides. The final lift of asphalt concrete (top

layer) shall be placed independently and in one continuous operation within the limits of work of each stage or street.

The Contractor shall sequence his/her operations and place asphalt concrete in such a manner that there shall be no longitudinal drop-off between adjacent traffic lanes opened to public traffic at the end of each working period's paving operation.

The Contractor shall not perform paving operations when the weather is rainy or foggy. It shall be the Contractor's responsibility, based on weather predictions, to schedule his/her paving operations to avoid paving in the rain or fog. If the day's operations are canceled because of predicted rain or fog, a non-working day will be allowed regardless of actual working conditions. Asphalt concrete shall not be placed on any surface which contains ponded water or excessive moisture in the opinion of the City Engineer. If paving operations are in progress and rain or fog forces a shut down, loaded trucks in transit shall return to the plant and no compensation will be allowed therefor.

Reference is made to the State Specifications, Section 94, "Asphaltic Emulsions". On the day that the next lift is to be placed, the previous layer surface is to be swept clean and all vertical and horizontal surfaces tack coated with asphaltic emulsion RS-1 before additional layers of asphalt concrete area spread. The rate of application shall be as directed by the Engineer. Prime coat to subgrade is not required in accordance with Part 2, Section 4-2, "Prime Coat", of the Standard Specifications.

Prior to placing each layer of asphalt concrete, a tack coat shall be applied to the surface of all faces of gutters, gutter lips, and vertical curb surfaces against where the new pavement is to be placed.

Reference is made to the State Specifications, Section 39-4.02, "Prime Coat and Paint Binder". At the Contractor's option, paving asphalt may be used for paint binder instead of asphaltic emulsion. If paving asphalt is used, the grade shall be PG64-10 and the rate of application will be determined by the Engineer. The paving asphalt shall be applied at a temperature of not less than 285°F. nor more than 350°F. Paint binder shall be required on all vertical faces upon which new asphalt concrete is to be placed.

The area to which paint binder has been applied shall be closed to public traffic. Care shall be taken to avoid tracking binder material onto existing pavement surfaces beyond the limits of construction. Payment for paint binder shall be included in the various contract items of work for asphalt concrete, and no additional compensation will be allowed therefor.

Conforms between existing pavement and newly constructed top layer of asphalt concrete or overlay pavement shall be made by tapering the new pavement as shown on the plans. The asphalt concrete shall extend to the gutter lip, unless otherwise shown on the plans or directed by the Engineer. In areas without curbs, the asphalt concrete shall extend to the edge of pavement or to the limits of paving and shall be tapered as shown on the plans.

At the end of each working period, the Contractor shall construct temporary asphalt concrete ramps at any transverse drop-offs that may exist prior to opening the lanes to public traffic. Asphalt concrete shall be placed to the level of the newly placed layer of A.C. and tapered on a slope of 30:1 or flatter to the level of the planed surface or previously

placed layer of A.C. or as shown on the plans. A commercial grade roofing paper or other suitable material shall be placed beneath the temporary asphalt concrete ramps and tapers to facilitate their subsequent removal. Material for temporary ramps and tapers shall be commercial quality asphalt concrete (hot mix) and may be spread and compacted by any method that will produce a smooth riding surface. Temporary asphalt concrete ramps and tapers shall be completely removed, including the removal of all loose material from the underlying surface, before placing the next layer of asphalt concrete. Such removed material shall be disposed of outside the highway right-of-way in accordance with the provisions in Part 1, Section 6-18, "Disposal Outside the Project Limits", of the Standard Specifications and Section 7-1.13, "Disposal of Material Outside the Highway Right of Way", of the State Specifications.

## 10-14.06 MEASUREMENT AND PAYMENT

The contract prices paid per ton for **"Hot Mix Asphalt (Type A)",** shall be considered as full compensation for furnishing all labor, supervision, materials, tools, equipment, and incidentals to complete the necessary work in inlays, including but not limited to, sawcutting and removing asphalt concrete at conform lines; asphalt concrete; asphalt hauling; key cutting at conforms; placing; spreading and compacting; paint binder; tack coat; sweeping; corrective work; constructing, maintaining, removing, and disposing of temporary asphalt concrete ramps as shown on the plans, as specified in the Standard Specifications, the State Specifications and these Special Provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

There will be no separate measurement or payment for furnishing the asphalt concrete for temporary ramps and tapers and for constructing, maintaining, removing, and disposing of the tapers as specified in these Special Provisions. Full compensation for furnishing asphalt concrete for temporary ramps and tapers and for constructing, maintaining, removing, and disposing of the tapers shall be considered as included in the prices paid for other contract items of work and no additional compensation will be allowed therefor.

Payment for asphalt concrete used for patch paving at gutter replacement locations shall be included in the contract prices paid for PCC curb and gutter and PCC curb ramp, and no additional compensation will be allowed therefor.

**END OF SECTION**

# SECTION 10-15 - EARTHWORK

## 10-15.01 GENERAL

The work in this section consists of placing native material backing and grading an earth swale behind new sidewalk, as shown on the plans and as specified in these Special Provisions. All work shall be in conformance with Section 19, "Earthwork", of the Standard Specifications.

## 10-15.02 SIDEWALK BACKING

The Contractor shall furnish, place and compact native material backing adjacent to the finished edge of the back of new sidewalk, as shown on the plans and at the locations designated by the Engineer. Sidewalk backing material shall be native material generated from other excavation operations from the site. The native materials shall have a maximum aggregate size of 1-1/2", be free of organic matter and other deleterious substances, and shall be of such nature that it can be compacted to 90% relative compaction.

Sidewalk backing material shall then be placed and compacted to 90% relative compaction, the same day the material is placed. The depth of the sidewalk backing will vary, depending on the proposed grades and existing grades.

Project Limits", of the General Provisions of the Standard Specifications.

## 10-15.04 MEASUREMENT AND PAYMENT

The contract price paid per lump sum for **"Clearing, Grubbing and Earthwork"** shall include full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals and for doing all the work involved including, but not limited to, furnishing, clearing, grubbing, hauling, placing, spreading and compacting native material; grading an earth swale; and all other work as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer and no additional compensation shall be allowed therefor.

Full compensation for backfill behind proposed PCC rolled curb and gutter shall be considered as included in the contract price paid per linear foot for "Minor Concrete (Sidewalk) and Base" and "Minor Concrete (Curb Ramp) and Base", Minor Concrete (Retaining Curb at Back of Walk)" and no separate payment shall be made therefor.

**END OF SECTION**

# SECTION 10-16 - MINOR CONCRETE CONSTRUCTION

## 10-16.01 GENERAL

This work shall consist of constructing concrete curb, gutter, sidewalk, curb ramps, retaining curbs, concrete pavement, including aggregate base or sand bedding; and as shown on the contract plans and Standard Details, as specified in the Standard Specifications, these Special Provisions, and as directed by the Engineer. Unless otherwise specified herein, or on the plans, all such work shall be in conformance with Section 51, "Concrete Structures", or Section 73, "Concrete Curbs and Sidewalks", of the State Specifications and Section 5, "Concrete and Masonry Construction", of the City Standard Specifications.

## 10-16.02 PREPARATION

The work shall include, but is not limited to, grading and preparation of the subgrade, adjusting existing utility boxes to grade, and placement and compaction of aggregate base to the lines and grades shown on the plans and City Standard Details. Minimum subgrade and aggregate base compaction under sidewalk, curb ramps, and stamped concrete surfacing shall be ninety (90) percent relative compaction. Minimum subgrade and aggregate base compaction under median noses, curb and gutter, driveways and bus turnouts shall be ninety-five (95) percent relative compaction. Compaction shall be as determined by ASTM D1557. Aggregate base shall be Class 2, conforming to Section 10-12, "Aggregate Base", of these Special Provisions.

## 10-16.04 MINOR CONCRETE CONSTRUCTION

New curb, gutter, sidewalk, retaining curb, concrete pavement and curb ramps shall be constructed in accordance with the details shown on the plans, the City Standard Details, these Special Provisions and as directed by the Engineer. Pedestrian access shall be maintained through the construction site at all times.

Proposed curb ramps shall conform to the latest version of Caltrans Standard Detail A88A using the concrete type specified in these Special Provisions. All curb ramps shall include a detectable warning surface which shall be a cast-in-place vitrified polymer composite (Armor-Tile ADA-C or approved equal) and shall be federal yellow in color. Orientation of the truncated dome pattern shall be parallel with the panel edges.

The Contractor's attention is directed to Section 10-6, "Maintaining Traffic", of these Special Provisions. Construction of new PCC curb, gutter, curb ramps, driveways and sidewalks must be coordinated with the property owners by the Contractor. This work will require advance notification and coordination by the Contractor.

The Contractor's attention is directed to Section 5-2, "Order of Work", of these Special Provisions.

Concrete used for curb, gutter, sidewalk, retaining curbs, concrete pavement, curb ramps shall be 5-sack portland cement concrete with 2,500 psi.

Reinforcing steel shall be grade 40 or 60, conforming to Section 52, "Reinforcement", of the State Specifications.

Curing compound shall be non-pigmented curing compound with fugitive dye conforming to the requirements of ASTM Designation: C309, Type 1-D, Class A.

Work shall include temporary asphalt concrete patch paving at gutter lips, and temporary asphalt concrete ramps at curb ramp (handicap ramp) locations.

## 10-16.05 RETROFIT EXISTING CURB RAMP (GRIND EXISTING CONCRETE AND INSTALL DETECTABLE WARNING SURFACE

The work shall consist of installing surface applied tactile truncated dome detectable surface warning tiles (Armor-Tile, as manufactured by Engineered Plastics, ADA-S or approved equivalent) to existing concrete pavement at the locations shown on the plans. The detectable surface warning tiles shall be federal yellow and shall be installed in accordance with the manufacturer's specifications and recommendations. If the existing concrete surface contains grooving, the grooving shall be removed by grinding prior to installation of the detectable surface warning tiles.

## 10-16.07 RESTORE EXISTING IRRIGATION SYSTEM AND LANDSCAPING

Any irrigation system and/or landscaping damaged during the replacement of the curb, gutter, sidewalk, median noses and curb ramps shall be replaced in kind by the Contractor.

The irrigation system in conflict with the new curb ramps and median noses shall be repaired and/or relocated to clear the new curb ramp and median nose construction. The Contractor shall coordinate replacement/relocation of the irrigation system with the property owners. The Contractor shall remain responsible for irrigating the landscape area until the irrigation system is fully functional.

## 10-16.08 MEASUREMENT AND PAYMENT

The contract prices paid per linear foot for **"Minor Concrete (Curb and Gutter) including Base", "Minor Concrete (Retaining Curb at Back of Walk)"** and the contract prices paid per square foot for **"Minor Concrete (Case A Curb Ramp) and Base", "Minor Concrete (Sidewalk) and Base", "Concrete Pavement and Base"** shall include full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals to complete the work including, but not limited to, demolition; excavation; loading; offhaul; disposal; sawcutting; protecting and cutting tree roots; preparing and compacting subgrade; steel plates; AC patch paving at the lip of gutter; temporary AC ramps; placing and compacting aggregate base; retaining curb; adjusting utility boxes to grade; concrete; curing; repairing, replacing, relocating and maintaining the irrigation system and landscaping; maintaining pedestrian access and all other work as shown on the plans and the City Standard Details as specified in the Standard Specifications, the State

Specifications and these Special Provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

These pay items noted above shall include Including AB" and no additional compensation will be allowed therefor.

The contract unit price paid per square foot for **"Detectable Warning Surface"** shall include full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals necessary to install surface applied tactile truncated dome detectable surface warning tiles, including, but not limited to, furnishing and installing the detectable surface warning tiles per the manufacturer's specifications; and all other work as shown on the plans, as specified in the State Standard Specifications and these Special Provisions, and as directed by the Engineer and no additional compensation will be allowed therefor.

**END OF SECTION**

# SECTION 10-21 - ROADSIDE SIGNS

## 10-21.01 GENERAL

The work shall consist of relocating and furnishing and installing roadside signs, as shown on the plans and as specified in the State Standard Specifications and these Special Provisions.

The Contractor shall provide protection, as necessary to prevent damage, to existing improvements indicated, on the plans or by the Engineer, to remain in place, to adjoining property, and to City property, and shall restore damaged improvements to their original condition as acceptable to the Engineer and/or property owners.

## 10-21.02 ROADSIDE SIGNS

Signs to be relocated, as shown on the plans, shall be mounted on new galvanized steel posts. Sign panels shall be salvaged and reused unless directed otherwise by the Engineer.

Resulting holes from removing signs shall be backfilled immediately with Class 2 aggregate base and compacted to 90% relative compaction.

New roadside signs on galvanized steel posts with PCC foundations shall be installed at the locations shown on the plans, or where directed by the Engineer, and shall conform to the requirements of Section 56-2, “Roadside Signs”, of the State Standard Specifications and City Standard Detail T-606, “Traffic Signs”.

Steel post foundations shall be 5-sack portland cement concrete with 2,500 psi.

Roadside signs to be located in existing sidewalk may be placed by drilling a hole in the sidewalk one inch (1”) larger than the pole.

## 10-21.03 MEASUREMENT AND PAYMENT

The contract unit price paid per each for **“Remove and Relocate Sign”** shall include full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals and for doing all the work involved in removing and relocating roadside signs and sign panels, including backfilling and regrading, as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer and no additional compensation shall be allowed therefor.

Removing and replacing sidewalk for sign post installation, if necessary, shall be considered as included in the contract unit price paid for roadside sign bid items and no additional compensation will be allowed therefor.

**END OF SECTION**

## SECTION 10-22 - TRAFFIC STRIPES AND PAVEMENT MARKINGS

The provisions of Section 84, "Traffic Stripes and Pavement Markings", of the Standard Specifications shall apply in their entirety unless modified or supplemented herein.

### 10-22.01 GENERAL

Traffic stripes and pavement markings shall conform to the provisions of Section 84, "Traffic Stripes and Pavement Markings", of the Standard Specifications and these Special Provisions. Traffic striping and pavement markings shall be placed in accordance with the applicable details as shown on Caltrans Standard Plans and the Contract Plans.

Temporary "cat tracking" and layout marks shall be placed by the Contractor for all striping (including limit lines and crosswalks). Temporary "cat tracks" shall be approved by the Engineer prior to final striping.

Traffic stripes and pavement markings shall not be placed on new asphalt concrete pavement until the roadway has been opened to public traffic for a period of not less than seven (7) calendar days. All traffic stripes and pavement markings shall be placed within fourteen (14) calendar days of the final paving.

The roadway to receive traffic stripes and pavement markings shall be thoroughly cleaned by utilizing a street sweeper, prior to any striping application.

Any damage to the newly placed stripes or markings due to the failure of the Contractor to protect the work, and correction of errors, shall be repaired by the Contractor at the Contractor's expense.

### 10-22.02 THERMOPLASTIC TRAFFIC STRIPES AND PAVEMENT MARKINGS

All limit lines, shoulder stripes, crosswalks, and legends shall be thermoplastic unless otherwise indicated on the plans or directed by the Engineer.

Thermoplastic traffic stripes and pavement markings shall conform to the provisions of Section 84-2, "Thermoplastic Traffic Stripes and Pavement Markings", of the Standard Specifications and these Special Provisions.

Thermoplastic material shall conform to the requirements of State Specifications No. 8010-21C-19. Thermoplastic material for traffic stripes shall be applied at a minimum thickness of 0.070 inch.

### 10-22.03 PAINTED RED CURB

Painted red curb shall conform to the provisions in Sections 84-1, "General", and 84-3, "Painted Traffic Stripes and Pavement Markings", of the State Standard Specifications and these Special Provisions.

Paint shall be applied only on thoroughly dry and clean surfaces and during periods of favorable weather. Painting will not be permitted when the atmospheric temperature is at or below 40°F, or when freshly painted surfaces may become damaged by rain, fog, or condensation, or when it can be anticipated that the atmospheric temperature will drop below 35°F during the drying period. If fresh paint is damaged by the elements, it shall be replaced by the Contractor at his/her expense.

Painting of red curb shall include the application of two (2) coats of traffic paint. The second coat of paint shall not be applied until the Engineer has inspected the application of the first coat and determined that the work is satisfactory. The method of paint shall be approved by the Engineer.

Any tracking of fresh paint onto unpainted surfacing shall be removed by methods approved by the Engineer.

## 10-22.04 MEASUREMENT AND PAYMENT

Traffic stripes will be measured and paid for by the linear foot along the line of the traffic stripes without deductions for gaps, shown in the standard plan details, for broken traffic stripes. Gaps in traffic stripes at intersections or driveways will not be paid for.

The contract prices paid per linear foot for the various thermoplastic and painted stripes, striping details and painted curb shall include full compensation for furnishing all labor, supervision, materials, tools, equipment, and incidentals and for doing all the work involved including, but not limited to, any necessary cat tracks; dribble lines and layout work; cleaning surfaces to receive stripes; thermoplastic; glass beads; paint; and all other work as shown on the plans, as specified in the Standard Specifications and these Special Provisions, and as directed by the Engineer and no additional compensation shall be allowed therefor.

Thermoplastic pavement legends and markings shall be measured and paid for by the square foot for the actual area installed.

The contract prices paid per lump sum for **"Thermoplastic Striping"** shall include full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals and for doing all work involved in placing thermoplastic pavement legends and markings, including, but not limited to, any necessary layout work, thermoplastic, glass beads and all other work as shown on the plans, as specified in the Standard Specifications and these Special Provisions and as directed by the Engineer and no additional compensation shall be allowed therefor.

**END OF SECTION**

# 10-23 TRAFFIC SIGNAL SYSTEMS

## 10-23.01 GENERAL

Payment for the various items shown on the Bid Schedule, is the total compensation to be received by the Contractor for furnishing everything necessary to complete the Work, including, but not limited to, tools, equipment, supplies, manufactured articles, labor, operations, and incidentals appurtenant to the items of work described in the Contract Documents. Furnishing and installing traffic signal and payment shall conform to the provisions in Sections 86 and 87, "Electrical Systems," of the latest edition Standard Specifications, Amendments to the Standard Specifications, and these special provisions.

No payment will be made for any item that is not specifically set forth in the Bid Schedule(s), and all costs therefor shall be included in the prices named in the Bid Schedule(s) for the various appurtenant items of work.

## 10-23.02 EQUIPMENT ORDERS

The Contractor shall furnish all equipment and materials specified in the plans and these special provisions that are not furnished by the City. All equipment shall be new and purchased by the Contractor for this project only.

### Submittals and issuance of Notice to Proceed

Within twenty-one (21) calendar days after the award of the contract, the Contractor shall submit equipment and materials submittals to the Engineer for review and approval. The Contractor shall allow fourteen (14) calendar days for the Engineer to review the equipment and materials submittals. If revisions are required as determined by the Engineer, the Contractor shall revise and resubmit the equipment and materials submittals within seven (7) calendar days of receipt of the Engineer's comments and shall allow seven (7) working days for the Engineer to review the revisions. Once the submittals are approved by the Engineer, the Contractor must order equipment and materials and then submit a copy of each vendor Equipment and Material Purchase Order within (7) calendar days to the Engineer.

The Contractor must have copies of approved Equipment and Material submittal(s) and Purchase Order(s) prior to the coordination and issuance of the Notice to Proceed. Delay in equipment delivery shall not be considered as justification for the suspension of the construction contract.

## 10-23.03 EQUIPMENT LIST AND DRAWINGS

Equipment list and drawings shall conform to the provisions of the Standard Specifications and these Special Provisions.

The Contractor shall furnish four complete cabinet wiring diagrams for each furnished controller assembly, battery backup system, video detection system, and emergency vehicle preemption system. The cabinet wiring diagram shall include an approximately 6 inches x 8 inches or larger schematic drawing of the project intersection on a separate 8 ½" x 11" sheet of paper, which shall include the following information, at a minimum:

- North arrow
- Street names
- Pavement delineation and markings
- Signal poles
- Traffic signal heads with phase designations
- Pedestrian signal heads with phase designations
- Loop detectors with input file designations

## 10.23-04 WARRANTIES, GUARANTIES, INSTRUCTION SHEETS, AND MANUALS

Warranties, guaranties and instruction sheets shall conform to these Special Provisions.

- LED modules shall have five (5) years of manufacturer warranty.
- Battery Backup System (BBS) shall have five (5) years of manufacturer warranty. The first three (3) years shall be termed the “Advanced Replacement Program”. Under this program, the manufacturer will send out a replacement within two business days of the call notifying them of an issue. The replacement unit may be either a new unit or a re- manufactured unit that is up to the latest revision. The last two years of the warranty will be factory-repair warranty for parts and labor on the BBS.
- Video Detection System shall have three (3) years of manufacturer warranty. During the warranty period, technical support from factory-certified personnel or factory-certified installers shall be available via telephone within four (4) hours of the time when a service call is made.
- Edge Lit LED internally illuminated street name sign shall have two (2) year of manufacturer warranty.
- All other equipment and systems shall have at least one (1) year of manufacturer warranty.

Furnish the manufacturer’s standard written warranty pertaining to defects in materials and workmanship for all equipment, and two (2) sets of user, operation, and maintenance manuals, written in English, on all equipment and components for the traffic signal and highway lighting system to the Engineer.

## 10.23-05 BID SCHEDULE

All pay line items will be paid at the unit price rates provided in the Bid Schedule(s) for each items of work. The quantities of work or material stated as unit price items on the Bid Schedule(s) are supplied only to provide an indication of the general scope of the Work. The City does not agree that the actual amount of work or material will correspond with the quantities indicated in the Bid Schedule(s) and the City reserves the right after award of the Contract to increase or decrease the quantity of any bid item of work.

## 10.23-06 TRAFFIC SIGNAL MODIFICATION

a. Measurement for payment for the traffic signal modification at W. Leland Road and Range Road intersection will be based upon acceptable completion of such work in a lump sum unit in compliance with the requirements of the Contract Documents.

b. Payment for the traffic signal modification at W. Leland Road and Range Road intersection will be made at the unit lump sum bid price named in the Bid Schedule, which price shall constitute full compensation for furnishing all labor, tools, equipment, cables, pedestrian pushbuttons, mounting hardware, traffic control, and incidentals, and for doing all the work involved, including pulling necessary cables through existing and proposed conduits and termination in the cabinet as shown on the plans, as all the works necessary to render the traffic signals fully operable, site clean-up and restoration per the requirements of the Contract Documents.

c. The Contractor shall provide a lump sum price breakdown, if requested by the Engineer.

## 10.23-07 MAINTAINING EXISTING AND TEMPORARY ELECTRICAL SYSTEMS

Maintaining existing and temporary electrical systems, at W. Leland Road and Range Road intersection, shall conform to the provisions in Section 87-20, “Temporary Electrical Systems," Section 87-21 "Maintaining Existing Electrical Systems," of the Standard Specifications and these Special Provisions. Attention is also directed to Section 87-21, "Removing, Reinstalling or Salvaging Electrical Equipment," of the Standard Specifications.

The Contractor is to maintain the existing traffic signal equipment in lieu of a temporary traffic signal during construction. The existing traffic signal will be removed after the proposed signals are installed and functional to the satisfaction of the Engineer.

Existing traffic signals shall be maintained and operational at all times, unless specifically allowed by the Engineer. In the event that power sources must be disconnected, the provision of power to existing signals and lighting shall be furnished by the Contractor, including arrangements, fees and monthly expenses.

Authorization and coordination from the Engineer are required for each traffic signal system shutdown. Traffic signal system shutdowns shall be limited to periods between the hours of 9:00 A.M. and 2:45 P.M.

Traffic signals shall be provided with full traffic actuation for all lanes and all approaches of traffic. Arrangements, fees and monthly expenses for temporary or re-routed power sources for temporary traffic signals and / or lighting shall be the responsibility of the contractor.

The Contractor may request authorization from the Engineer to use temporary overhead conductors for temporary traffic signal operation. Statutory line-height requirements shall be maintained at all times.

The Contractor shall submit plans or details for temporary traffic signals, or temporary alterations to traffic signals, to the Engineer for approval at least 7 calendar days in advance of the intended date of implementation.

The Contractor shall furnish and install temporary wood poles, signal poles, foundations, lighting, pull boxes, conduit, and necessary equipment to maintain functionality of traffic signals shown or not shown on the plans.

Payment for maintaining existing electrical system should not be paid for separately but shall be incidental to the traffic signal modification.

## 10.23-08 PEDESTRIAN PUSH BUTTONS

Pedestrian, bicycle, and equestrian push buttons shall conform to the provisions in Sections 86-1.02U and 87-1.03U, "Pedestrian Push Button Assemblies", of the Standard Specifications and these Special Provisions.

Push button assembly shall be Type B per Standard Plans ES-5C.

Push button housing shall be die-cast or permanent mold cast aluminum powder coated frame with stainless steel inserts and sign screws.

Push button sign shall be white powder coat base with black heat cured ink. Right and left arrow signs shall be doubled sided.

Push button shall be Polara Engineering, Inc. model BDLM2-Y or approved equal.
Pedestrian push buttons installed on traffic signal poles located in the sidewalk shall be within 5 feet of the adjacent handicap curb ramp. Pedestrian push buttons installed on traffic signal poles located behind the sidewalk shall be within 1 1/2 feet of the back of sidewalk. If a traffic signal pole cannot meet either of the above criteria, the associated pedestrian push button shall be installed on a separate pedestrian push button post.

This item should not be paid for separately but shall be incidental to the traffic signal modification.

## 10.23-09 CONDUCTORS, CABLES AND WIRING

Conductors and Cables shall conform to the provisions in Sections 86-1.02F and 87-1.03F, "Conductors and Cables," of the Standard Specifications and these Special Provisions.

Wiring shall conform to the provisions in Section 87-1.03F(2), " Conductors Signal Cables," of the Standard Specifications and these Special Provisions.

Specific cabling and wiring requirements for various systems or components shall be in

accordance with the Special Provisions entitled to each herein.

Signal cable shall be installed continuously without splicing from the controller cabinet to each traffic signal pole. Traffic signal conductors, multiple circuit conductors, and signal cable conductors shall not be spliced unless otherwise shown

All outer cable jacket for 12 conductor cable shall be removed from the traffic signal standard hand hole to the terminal block located at the side mount traffic signal head.

Where splice is required, Type C or Type T splice shall be used and insulated as shown in the Standard Plans, ES-13A (see 87-1.03H Conductor and Cables Splices).

Where splice is required, "Liquid Electrical Tape" or equivalent in black color shall be used to provide a watertight electrical insulating coating with "Method B" as shown in the Standard Plans, ES-13A.

Minimum luminaire wiring shall be No. 10 AWG, including wiring within poles and mast arms.

These items should not be paid for separately but shall be incidental to the traffic signal modification.

## 10.23-10 FOUNDATIONS

Foundations shall conform to the provisions in Section 51, "Concrete Structures," and Section 86-2.03, "Foundations," of the Standard Specifications and these Special Provisions. Cast-in- drilled-hole concrete pile foundations for traffic signal and lighting standards shall conform to "Piling" of these special provisions.

Portland cement concrete shall conform to Section 90-2, "Minor Concrete", of the Standard Specifications and shall be Class 3 except pole foundations shall be Class 2 with Type V
223
Portland cement with a maximum W/C ratio of 0.4. Additionally, an impermeable membrane (6- mil visqueen) shall be placed under and around the concrete foundation for signal pole.

Construct Type 332 controller cabinet foundation per Standard Plans ES-3C. Vibrate all foundation concrete to eliminate air pockets.

This item should not be paid for separately but shall be incidental to the traffic signal modification.

## 10.23-11 STANDARDS, POLES, STEEL PEDESTALS AND POSTS

Standards, poles, steel pedestals, and posts shall conform to the provisions in Section 86-1.02J, "Standards, Poles, Steel Pedestals and Posts," of the Standard Specifications and these Special Provisions.

Pedestrian Pushbutton pole material shall be spun aluminum unless otherwise specified.

Poles installed at the near-right approach of each intersection shall be banded conforming to the strap and saddle method per Standard Plans RS4 for the emergency installation of stop signs.

If required by the serving electric utility, and confirmed by the Engineer, State Certified Electric Workers shall be utilized for the installation of standards, steel pedestals, and posts in accordance with State of California High Voltage Safety Orders.

Payment for this item shall be by unit price and shall include all the works necessary for site clean-up and restoration per the requirements of the Contract Documents.

## 10.23-12 CONDUITS

Conduit shall conform to the provisions in Section 86-2.05, "Conduit," of the Standard Specifications and these Special Provisions.

Conduits shall be Type 3, Schedule 80 Polyvinyl Chloride (PVC) conforming to UL Publication 651 requirements for Rigid Non-Metallic Conduit, for underground installation only.

Conduit depth shall not exceed 60 inches below finish grade.

Conduit size shall be 2 inches minimum unless otherwise specified. New conduit shall not pass through foundations or standards.

Conduit bends shall be factory bends. Bend radius for signal interconnect conduits shall be 3 feet minimum.

A pull rope and a bare #12 AWG wire shall be installed in conduits intended for future use.

Bell bushings are required for all conduit ends. The ends of conduits terminating in pull boxes and controller cabinets shall be sealed with sealing compound approved by the Engineer after conductors have been installed.

Conduits shall be installed via jacking or drilling method per Section86-2.05C, "Installation", of the Standard Specifications.

This item should not be paid for separately but shall be incidental to the traffic signal modification.

## 10-23.13 TRENCHING INSTALLATION

The Engineer shall approve trenching installation on a case-by-case basis where conduit

cannot be installed by jacking or drilling. Jacking or Drilling shall be attempted a minimum of three times prior to requesting trenching installation.

If ordered by the Engineer, all pavements shall be cut to a depth of 3 inches with an abrasive type saw or with a rock cutting excavator specifically designed for this purpose. Cuts shall be neat and true with no shatter surface outside the removal area.

Trench shall be 2 inches wider than the outside diameter of the conduit being installed however not exceeding 6 inches in total width. The conduit shall be placed in the bottom of the trench. Conduit depth shall be at a minimum of 30 inches below finished grade, with a minimum of 26 inches cover over the conduit.

The trench shall be backfilled with two-sack slurry to the finish grade before final paving. Prior to final paving, grind pavement centered along the length of the trench a minimum width of 3 feet and depth of 0.10 feet and excavate backfilled to a depth of 0.30 feet below the final pavement surface. Final paving shall conform to "Hot Mix Asphalt" of these Special Provisions.

If directed by the Engineer, the two-sack slurry backfill can be installed to a depth of 0.30 feet below the final pavement surface and cured for a minimum of two days prior to final paving if the trench area is not open to traffic.

This item should not be paid for separately but shall be incidental to the traffic signal modification.

**10.23-14 MODIFY PULL BOXES**

The existing pull box shall be modified to allow connection with new conduits as shown on the plans. The pull box will remain at its current location but be made heavy duty o sustain traffic movements. Pull boxes shall conform to the provisions in Section 86-2.06, "Pull Boxes," of the Standard Specifications and these Special Provisions.

Traffic pull boxes shall conform to the provisions in Section 86-2.07, "Traffic Pull Boxes," of the Standard Specifications and these Special Provisions.

Pull boxes shall have a "Fibrelyte" or equivalent cover and bolt down design. Cover shall have a non-skid surface.

Pull box covers shall be marked in accordance with Standard Plans ES-8 without the word "CALTRANS".

This item should not be paid for separately but shall be incidental to the traffic signal modification.

## 10.23-15 CONDUCTORS, CABLES AND WIRING

Conductors and Cables shall conform to the provisions in Section 86-2.08, "Conductors and Cables," of the Standard Specifications and these Special Provisions.

Wiring shall conform to the provisions in Section 86-2.09, "Wiring," of the Standard Specifications and these Special Provisions.

Specific cabling and wiring requirements for various systems or components shall be in accordance with the Special Provisions entitled to each herein.

Signal cable shall be installed continuously without splicing from the controller cabinet to each traffic signal pole. Traffic signal conductors, multiple circuit conductors, and signal cable conductors shall not be spliced unless otherwise shown

All outer cable jacket for 12 conductor cable shall be removed from the traffic signal standard hand hole to the terminal block located at the side mount traffic signal head.

Where splice is required, Type C or Type T splice shall be used and insulated as shown in the Standard Plans, ES-13A.

Where splice is required, "Liquid Electrical Tape" or equivalent in black color shall be used to provide a watertight electrical insulating coating with "Method B" as shown in the Standard Plans, ES-13A.

Minimum luminaire wiring shall be No. 10 AWG, including wiring within poles and mast arms.

These items should not be paid for separately but shall be incidental to the traffic signal modification.

## 10-24.16 COST BREAK-DOWN

The Contractor shall furnish to the Engineer a cost break-down for each contract lump sum item of work described in this Section 10-3.02.

Contractor shall determine the quantities required to complete the work shown on the plans. The quantities and values shall be included in the schedule of values submitted to the Engineer. Contractor shall be responsible for the accuracy of the quantities and values used. The Engineer may reject a schedule of values noting any deficiencies. If rejected, Contractor shall revise and re-submit the schedule of values.

No adjustment in compensation will be made in the contract lump sum prices paid for the various electrical work items due to any differences between the quantities shown in the cost break-down furnished by the Contractor and the quantities required to complete the work as shown on the plans and as specified in these special provisions.

The sum of the amounts for the units of work listed in the cost break-down for electrical work shall be equal to the contract lump sum price bid for the work. Overhead, profit, bond premium, temporary construction facilities, plant and other items shall be included in each

individual unit listed in the cost break-down; however, costs for traffic control system shall not be included.

The cost break-down shall be submitted to the Engineer for approval within 10 days from the date of Contractor's receipt of the Notice to Proceed. The cost break-down shall be approved, in writing, by the Engineer before any partial payment for the items of electrical work will be made.

At the Engineer's discretion the approved cost break-down may be used to determine partial payments during the progress of the work and as the basis of calculating the adjustment in compensation for the item or items of electrical work due to changes ordered by the Engineer. When an ordered change increases or decreases the quantities of an approved cost break-down, the adjustment in compensation may be determined at the Engineer's discretion in the same manner specified for increases and decreases in the quantity of a contract item of work in accordance with Section 4-1.03B, "Increased or Decreased Quantities," of the Standard Specifications.

The cost breakdown shall, as a minimum, include the following items:

foundations - each type

conduit - list by each size and installation method

pull boxes - each type

conductors - each size and type

## 10-24.14 MEASUREMENT AND PAYMENT

The contract prices paid per each for various types of **"Restore Detector Loop System"** shall be considered full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals, including all necessary cutting, splicing, testing and connections, and for doing all work involved in installing new functional vehicle detector loops in coordination with final paving as shown on the plans, as specified in these Special Provisions, and as directed by the Engineer; and no additional compensation shall be allowed therefor.

The contract price paid per lump sum for **"Install New Pedestrian Push Buttons (PPB) and Signal Conduits/Conductors"** shall be considered full compensation for furnishing all labor, supervision, materials, tools, equipment and incidentals, including all push button, advisory sign, saddle, wire, all material, equipment, paint, painting, cutting, splicing, testing and connections, and for doing all work involved in installing new pedestrian push buttons and signal conduits/conductors as shown on the plans, as specified in these Special Provisions, and as directed by the Engineer; and no additional compensation shall be allowed therefor.

**END OF SECTION**