SECTION 32 00 01
SITE RESTORATION AND REHABILITATION

PART 1 GENERAL

1.1 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. A615: Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.

B. Current Caltrans Standard Specifications

1. Section 26 – Aggregate Bases
2. Section 39 – Asphalt Concrete
3. Section 51 – Concrete Structures
4. Section 73 – Concrete Curbs and Sidewalks
5. Section 90 – Portland Cement Concrete

1.2 GENERAL RESTORATION REQUIREMENTS

A. Asphalt Concrete Surfacing:

1. Except in areas of pavement reconstruction, all streets, paths, or other paved areas in which the surface is removed, broken, or damaged, or in which the ground has caved in or settled due to the installation of the improvements, shall be repaired and resurfaced and brought to the original grade by the Contractor.

2. Pavement replacement shall be in kind subject to the following minimum pavement sections:

a. Streets and all other areas subject to vehicular traffic: 3 inches asphalt concrete over 8 inches aggregate base material, except where shown on the Plans or as directed by the Project Manager.

b. Asphalt paths and walks: 2 inches asphalt concrete over 4 inches Class 2 aggregate base.

3. In areas of pavement reconstruction, trench backfill will be as shown on the Plans except that the asphalt concrete will be deleted. Backfill will be brought to the level of existing grade with Class 2 aggregate base.
B. Concrete Surfacing:

1. Unless otherwise noted, all walkways, paths, driveways, curbs and other improvements damaged or removed as a result of construction shall be reconstructed by the Contractor to the same dimensions and with the same materials used in the original work subject to the following minimum requirements:

   a. Concrete sidewalks: 4-inches of 6-sack concrete over 4-inches of Class 2 aggregate base.

   b. Concrete driveways: 6-inches of 6-sack concrete with No. 4 rebar at 12-inches on center over 4-inches of Class 2 aggregate base

   c. Concrete pads: 8-inches of 6-sack concrete with No. 4 rebar at 12-inches on center over 4-inches of Class 2 aggregate base.

2. All work shall match the appearance of the existing improvements as nearly as practicable. Lampblack or other pigments shall be added to the concrete to obtain the necessary results.

C. Landscaped Areas:

1. All landscaped areas shall be left with a neatly graded surface, free of depressions, conforming to the adjacent existing ground. No mounds of earth shall be left along trenches.

2. Plants destroyed during construction shall be replaced with new plants of the same size and species as the original plants unless noted otherwise. Any damage to the existing irrigation system by the Contractor shall be repaired at no cost to the Owner.

3. Existing sod areas may be rolled, properly stored, and re-laid. Existing sod which cannot be saved, shall be replaced with new sod. Re-seeding is not acceptable.

4. Replanted and/or replacement plants and sod shall be maintained by the Contractor at his expense, for 45 days after acceptance by the Owner.

D. Removal of Striping, Pavement Markers and Pavement Markings

1. All stripes and pavement markings not in conformance with the proposed striping plan shall be removed by grinding or sandblasting. Black paint will not be allowed unless specifically indicated on the drawings. All thermoplastic material and raised pavement markers shall be removed prior to the application of an asphalt overlay.
2. After removal of paint and thermoplastic traffic striping or pavement markings, an asphalt seal coat of Reed & Graham OverKote Asphalt Pavement Coating or approved equal shall be applied 10 feet beyond the limit of the thermoplastic material removal and to the entire width of the street.

E. Replacement of Striping, Pavement Markers and Pavement Markings:

1. Work shall match existing markings in materials, color, and dimension.

2. Except where otherwise noted, striping, pavement markers and pavement markings shall be applied to restored areas regardless of the condition of the existing striping, markers and markings.

PART 2 PRODUCTS

2.1 PAVING MATERIALS

A. Aggregate base shall conform to Class 2 aggregate base, ¾-inch maximum size, as specified in Section 26 of the Caltrans Standard Specifications.

B. Asphalt Concrete:

1. Paving asphalt to be mixed with aggregate shall be steam-refined asphalt, AR-4000, conforming to Section 92 of the Caltrans Standard Specifications.

2. Mineral aggregate shall be Type B mineral aggregate as specified in Section 39 of the Caltrans Standard Specifications.

3. Maximum aggregate size shall be ½-inch for the surface coarse and ¾-inch for the base coarse.

4. Liquid asphalt for prime coat shall be Grade SC-70 in conformance with Section 93 of the Caltrans Standard Specifications.

C. Portland Cement Concrete:

1. Concrete shall be Class A concrete conforming to Section 90 of the Caltrans Standard Specifications.

2. Cement shall be Type II cement conforming to Section 90 of the Caltrans Standard Specifications.

3. Aggregate shall be ¾-inch maximum size conforming to Section 90 of the Caltrans Standard Specifications.
4. Water shall be clear and free from injurious amounts of oil, acid, alkali, organic matter or other deleterious substances.

5. Reinforcing bars shall conform to the requirements of ASTM Designation A615 Grade 40 and Section 52 of the Caltrans Standard Specifications.

6. Filled joints, unless noted otherwise on the Plans, shall be 1/4 inch thick, the full depth of the concrete section and conforming to Section 51 of the Caltrans Standard Specifications.

7. Joint filler shall conform to Section 51 of the Caltrans Standard Specifications for pre-molded expansion joint filler and expanded polystyrene joint filler.

8. Lamp black shall be added to concrete for curbs, gutters, and sidewalks as required to conform to existing work. For new concrete which is not required to match adjacent concrete, ½ pound lamp black shall be mixed per cubic yard of concrete.

9. No admixtures will be allowed without prior approval of the Project Manager.

2.2 TRAFFIC PAINT, THERMOPLASTIC AND PAVEMENT MARKERS

A. Traffic paint and glass beads shall conform to the requirements of Section 84-3 of the Caltrans Standard Specifications.

B. Thermoplastic Material shall conform to the requirements of Caltrans Standard Specifications Section 84-2.

C. Glass Beads to be applied to surface of the paint and thermoplastic shall conform to the requirements of State Specification 8010-11E-22 (Type II).

D. Pavement Markers and Adhesives

1. Reflective and non-reflective pavement markers shall be ceramic and conform to the requirements of Section 85 of the Caltrans Standard Specifications.

2. Adhesive for pavement markers shall be Rapid Set Type epoxy conforming to Section 95-2.04 of the Caltrans Standard Specifications or hot melt bituminous adhesive conforming to Section 85-1.055 of the Caltrans Standard Specifications.

**PART 3 EXECUTION**

3.1 PREPARATION

A. Before resurfacing material is placed, pavement edges and conform limits shall be ground and trimmed back far enough to provide clean, solid faces and shall be free of any loose material. Trenches shall be sawcut 6 inches back from edge of trench.
B. The top 6 inches of subgrade under all areas to be paved shall be scarified and compacted to 95% maximum dry density.

C. Aggregate base shall be placed, spread, and compacted to 95% maximum dry density in conformance with Section 26 of the Caltrans Standard Specifications.

3.2 ASPHALT CONCRETE PAVING

A. Asphalt concrete shall be proportioned, mixed, placed, spread and compacted in layers in conformance with Section 39 of the Caltrans Standard Specifications. No layer of asphalt concrete shall be less than 1 inch in compacted thickness nor shall any layer exceed the maximum thickness allowed per Section 39.

B. Before placing asphalt concrete, an asphalt emulsion tack coat (paint binder) shall be applied to all vertical surfaces of existing pavement, curbs, gutters, construction joints and all existing pavement to be surfaced, in conformance with Section 39 of the Caltrans Standard Specifications.

3.3 CONCRETE CONSTRUCTION

A. All concrete shall be mixed and placed in accordance with Caltrans Standard Specifications, Section 90.

B. Construction of concrete substructures shall conform to applicable provisions of Section 51 of the Caltrans Standard Specifications. Unless noted otherwise herein, all exposed surfaces of structures shall have Class 1 surface finish.

C. Construction of concrete curbs and sidewalks shall conform to Caltrans Standard Specifications, Section 73.

D. Curing shall conform to Section 90-7 of the Caltrans Standard Specifications. No pigments shall be used in curing compounds unless otherwise approved.

E. All work shall be subject to the inspection of the Project Manager. No concrete shall be placed until the Project Manager has approved the forms and reinforcement.

F. Concrete shall not be dropped freely where reinforcing bars will cause segregation, nor shall it be dropped freely more than 6 feet. Spouts, elephant trunks, tremies, or other approved means shall be used to prevent segregation.
3.4 SURFACE STRUCTURES

A. The Contractor shall be responsible for referencing surface structures prior to beginning work. Access to existing valves, manholes and vaults shall be provided at all times. The location of existing valves, manholes and vaults shall be staked and referenced during construction.

B. All surface structures within the limits of proposed paving shall have traffic rated (ASSHTO H-20 loading) frames and covers as specified.

C. Grade Adjustments:

1. Frames, grates and covers of all existing surface structures (manholes, vaults, valve boxes, drain inlets, monument boxes, etc.) shall be adjusted to finish grade within 48 hours of surface paving. Grade rings shall be supplied and installed by the Contractor as needed to meet finish grade. No more than three (3) grade rings may be used.

2. Frames of new or adjusted surface structures shall be supported by concrete with minimum dimensions as follows: 6 inches wide by 6 inches deep for structures less than 18 inches in diameter and 6 inches wide by 9 inches deep for structures 18 inches or greater in diameter.

3. The highest rung of ladders in new or adjusted surface structures shall be no more than 12 inches from the top of the structure, and all rungs shall be spaced evenly (12 inches maximum). Ladder rungs shall conform to State Industrial Safety requirements.

4. Structures Within Paved Areas:

a. A structure located in an area paved with asphalt concrete shall not be constructed to final grade until the adjacent pavement or surfacing has been completed.

b. After asphalt concrete paving is complete, the asphalt shall be cut out 6 inches wider than the frames of all surface structures. Each frame shall then be raised to finished grade (allowable tolerance ± 1/8-inch) and supported by concrete as noted above. The concrete shall be left 1½-inches lower than finished grade. This depressed area shall be paved to finished grade with hot-mix asphalt concrete, ½-inch maximum aggregate size within 48 hours. Cold-applied asphalt patching material will not be allowed.

5. When reconstruction or adjustment of a concrete drainage facility requires partial removal of concrete, sufficient concrete shall be removed to permit new reinforcing steel to be spliced to existing reinforcing steel as specified in Caltrans Standard...
Specifications Section 52-1.08, "Splicing". Existing reinforcement that is to be incorporated in new work shall be protected from damage and shall be thoroughly cleaned of all adhering material before being embedded in new concrete. Concrete removal shall be performed without damage to any portion that is to remain in place. All damage to the existing concrete which is to remain in place, shall be repaired to a condition equal to that existing prior to the beginning of removal operations. The cost of repairing existing concrete damaged by the Contractor's operations shall be at its expense.

6. All manholes that are to be lowered shall be removed to an approximate depth of 3.5 feet below finish grade and shall then be reconstructed with the proper taper to finish grade.

7. When existing manholes or inlets are to be abandoned, all pipes entering the manhole or inlet shall be securely closed by tight fitting plug or wall of Class A or Class B concrete not less than 0.5 foot thick. The bases of manholes or inlets shall be broken in a manner to prevent entrapment of water. The manhole or inlet shall be demolished to an elevation 3 feet below finish grade and backfilled.

3.5 TRAFFIC PAINT AND GLASS BEADS

A. All new surfaces shall have the traffic paint applied in two applications in accordance with Section 84-3 of the Caltrans Standard Specifications. The first or priming coat shall be in light applications without glass beads to seal the pavement. The first coat shall be dry before application of the second coat.

B. Restriping where indicated on the drawings, shall coincide with the original painting and shall be applied in one application in accordance with Section 84-3 of the Caltrans Standard Specifications.

C. All surfaces to be painted shall be clean and dry prior to painting. Ample time shall be allowed between placement of the asphalt pavement and the initial painting application. There shall be a minimum drying time between paint applications of approximately 20 minutes.

D. Glass beads shall be placed on all traffic stripes (except black stripes) and pavement markings except for the first or priming coat on new asphalt surfaces. All glass beads shall be applied directly to the wet traffic paint with a method that provides uniform distribution.

E. Striping shall not be applied at temperatures below 40° F or if pavement surfaces are wet.

F. The alignment of all striping shall be accurately laid out. Lines which do not conform to the alignment as set forth in the Plans, or which have a wavy appearance, shall be removed and replaced by the Contractor at its expense.
3.6 THERMOPLASTIC MATERIAL AND GLASS BEADS

Thermoplastic material and glass beads shall be applied in accordance with Caltrans Standard Specifications Section 84-2.04. Minimum application thickness shall be 0.1-inch for traffic stripes and 0.15-inch for pavement markings.

3.7 PAVEMENT MARKERS

A. All surfaces shall be clean and dry prior to application of the markers.

B. Installation of pavement markers shall conform to the requirements of Section 85-1.06 of the Caltrans Standard Specifications.

END OF SECTION