



SPECIFICATIONS

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SPECIFICATIONS

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01 21 00

OWNER ALLOWANCES

PART 1 – GENERAL

1.1 SUMMARY

A. Summary

1. The following Contract costs will be paid for as Owner Allowances.

B. Owner Allowance Items

Bid Schedule B – Owner Allowance for Relocation of Unknown Utilities and Mitigation of Unknown Physical Conditions

- a. This Allowance is intended to reimburse the Contractor for costs associated with the relocation or avoidance of unknown utilities and mitigation of unknown physical conditions that may prevent work from proceeding.

PART 2 – PRODUCTS

Not used

PART 3 – EXECUTION

Not used

PART 4 – MEASUREMENT AND PAYMENT

Not used

END OF SECTION

SPECIFICATIONS
DIVISION 01 – GENERAL REQUIREMENTS
SECTION 01 55 00
MOBILIZATION & DEMOBILIZATION

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - a. Mobilization and Demobilization.
 - b. Site Security and Access.
 - c. Contractor Staging and Parking.

1.2 REFERENCE STANDARDS

- A. All references made within these specifications to the standards shown in Section 1.2.B shall be limited to construction materials, methods, and all work incidental to the item of work only. Measurements and Payments shall be established as shown within Part 4 of these specifications only.
- B. The following is a list of standards which may be referenced in this section:
 - a. California Department of Transportation, Manual on Uniform Traffic Control Devices (CA MUTCD), 2014 Edition.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 MOBILIZATION

- A. This item shall consist of payment for mobilization, demobilization, preparatory work, and staging area development and is intended to compensate the Contractor for operations required to start up and close down the project, including but not limited to:
 - a. Provide the required submittals after receipt of Notice to Proceed
 - b. Obtain any required permits

01 55 00 - 1

- d. Establishment of Contractor Yard or Staging Area
- e. Movement of equipment
- f. Movement of personnel
- g. Supplies
- h. Supplies and incidentals for the Project Site
- i. Payment of Bonds and Insurance for the project
- j. Utilities required for the Work
- k. All other work required to be performed prior to the start of operations and construction
- l. Securing of the Contractor Yard or Staging Area
- m. All temporary signage, k-rail, chain-link fencing and gate(s) as required on this Project (unless otherwise specified) for the security of the staging area, work areas, and Contractor Office.
- n. Demobilization
- o. Coordination with Others
- p. Shared haul routes
- q. Contractor Quality Control Program
- r. Clean up
- s. Project Closeout

3.2 SITE SECURITY AND ACCESS

- A. Access to the Project Site
 - a. The Contractor's access to the Project Site shall be as shown on the Drawings. The Contractor shall maintain traffic control to and from the various areas of the Work. The Contractor shall immediately clean any debris deposited along any route used as a result of its construction traffic.

3.3 CONTRACTOR HAUL ROUTES, STAGING AND PARKING

- A. Contractor's staging area and staff parking are specified in Contract Documents **Articles 3.7 and 3.8**. Initial setup and maintenance of the Contractor staging area shall be included in Mobilization.

3.4 CONTRACTOR QUALITY CONTROL

- A. The Contractor shall develop and implement a Contractor Quality Control Program including but not limited to inspection and testing to ensure compliance with the requirements of this section and in accordance with the Contract Documents.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT AND PAYMENT

- A. Full compensation for Section 01 55 00 – Mobilization and Demobilization, shall be considered as included in the Contract lump sum price paid for **Bid Schedule A, item 1** (5% maximum of total construction base bid: items 3-32), and no additional compensation will be allowed therefor.

END OF SECTION

SPECIFICATIONS

DIVISION 01 – GENERAL REQUIREMENTS

SECTION 01 55 26

TRAFFIC CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. All references made within these technical provisions to the various related standard documents below shall be limited to construction materials, methods, and all work incidental to the item of work only.
 - 1. The City of San Diego Whitebook Standard Specifications for Public Works Construction – 2024 Edition, hereinafter referred to as WHITEBOOK. (Excluding any section related to “Part 1 – General Provisions” of the WHITEBOOK.)
 - 2. Greenbook Standard Specifications for Public Works Construction – 2024 Edition, hereinafter referred to as GREENBOOK. (Excluding any section related to “Part 1 – General Provisions” of the GREENBOOK.)

1.2 SUMMARY

- A. Section includes:
 - 1. Traffic Control

1.3 SUBMITTALS

- A. Contractor shall prepare and submit Traffic Control Plan.

1.4 QUALITY CONTROL

- A. A Contractor Quality Control Program (CQCP) shall be established and implemented per the requirements in the Contract Documents.

PART 2 - PRODUCTS

2.1 TEMPORARY TRAFFIC CONTROL EQUIPMENT

- A. Contractor's name or the Supplier's name who owns the traffic control devices shall be clearly noted on each device.
- B. Temporary Traffic Control Equipment Categories

1. Category 1. Category 1 TTC zone devices shall be defined as small, lightweight devices weighing less than 100 pounds (45.4 Kg) certified as crashworthy by crash testing or crash testing of similar devices. Category 1 temporary traffic control zone devices include, but are not limited to, traffic cones, plastic traffic drums, portable delineators, and channelizers.
2. Category 2. Category 2 TTC zone devices shall be defined as small, lightweight devices weighing less than 100 pounds (45.4 Kg) that are not expected to produce significant changes in vehicular velocity but could cause harm to impacting vehicles. Category 2 temporary traffic control zone devices include, but are not limited to, barricades and portable sign supports execution.
3. Category 3. Category 3 TTC zone devices shall be defined as temporary traffic-handling equipment and devices weighing 100 pounds (45.4 Kg) or more that are expected to produce significant changes in the vehicular velocity of impacting vehicles. Category 3 temporary traffic-handling equipment and devices include, but are not limited to, crash cushions, impact attenuator vehicles, temporary railing, temporary barrier, and end treatments for temporary railings and barriers.

C. Temporary Traffic Control Equipment Crashworthiness

1. Category 1 devices purchased after October 1, 1998, shall be self-certified by the vendor. Self-certification shall be based on crash testing, crash testing of similar devices, or years of demonstrable safe performance. The certification shall be submitted to the City prior to the start of the Work.
2. Category 2 devices shall be those listed on the FHWA's "Accepted Crashworthy Category 2 Hardware for Work Zones" that meets NCHRP Report 350 criteria for crashworthiness. Category 2 devices shall have FHWA acceptance and have been purchased after October 1, 2000. FHWA acceptance shall be labeled with the FHWA acceptance letter number and the name of the manufacturer prior to the start of the Work. The label shall be legible and permanently affixed by the manufacturer. Category 2 devices without a label shall not be used on the Work.
3. Category 3 devices shall be those that have been tested in accordance with NCHRP criteria. Category 3 devices shall be as specified in these Specifications or shown on the Drawings.

D. Signage

1. Unless otherwise specified, signs shall conform to the California MUTCD. Each sign shall consist of a base, standard or framework, and a sign panel. Sign units shall be capable of being delivered to the Work site and placed into immediate operation.

2. Signage shall include all temporary signs required for the direction of traffic through or around the Work site. Sign placement shall conform to the California MUTCD and the Traffic Control Plans.

E. Channelizing Devices

1. General. Channelizing devices shall include cones, tubular markers (delineators), channelizers, drums, barricades, and temporary barriers. Channelizing devices shall be placed as shown on the Drawings or the TCP.
2. Cones. Tubular Markers and Channelizers. Cones, tubular markers or channelizers shall be used in short-duration and short-term stationary temporary traffic control zones. Tubular markers or channelizers shall be used on intermediate-term stationary temporary traffic control zones and when additional visibility and stability is required.
3. Drums. Drums shall be used in lieu of cones or tubular markers for long-term stationary temporary traffic control zones or as shown on the TCP.
4. Barricades
 - a. Barricades shall not be placed in a merging lane of traffic without advance warning. Advance warning shall consist of a “High Level Warning Device”, arrow panel and other appropriate delineation. Barricades used at night shall be equipped with flashing lights.
 - b. Type 1 and 2 barricades shall be used on local streets and sidewalks. Barricades shall be Type 1, Type 2, or Type 3.
 - c. Type 1 barricades shall not be used where they may be encountered by the visually impaired unless horizontal tie bars are provided not more than 6 inches (150 mm) from the bottom of the barricade.
 - d. Type 3 barricades shall be used for closing streets to through-traffic and for other major operations where the barricades shall remain in place for extended periods.
 - e. Barricades shall be placed such that there is no gap large enough to for a vehicle to pass through, except where necessary to provide access for local traffic or emergency vehicles. Ballasting of barricades shall be by means of sand filled bags placed on the lower parts of the barricade frame or stays. Ballasting shall not be placed over any retro reflectorized rail face facing traffic.
 - f. Barricades displaced or not in an upright position shall immediately be replaced or restored to their original location, in an upright position.
 - g. You shall place “OPEN TRENCH” signs (C27(CA)) on Type 3 Barricade within the construction Work zone, ahead of any Work areas with open trenches that are greater than 3 inches in depth, in accordance with

California MUTCD SECTION 6F.103 (CA). The barricades shall be placed in a continuous manner and shall prevent pedestrian, vehicular, and biker access to the open trench area.

5. Temporary Traffic Barriers.

- a. Temporary traffic barriers and end treatments shall be placed as shown on the TCP. Water-filled plastic barriers shall be used within sidewalks and bike paths. Concrete barriers shall be used within the vehicular way and bike lanes and routes.
- b. Temporary traffic barriers shall be placed on a firm and stable foundation. The foundation shall be paved or graded to provide uniform bearing throughout the entire length of the barrier.
- c. Abutting ends of adjoining segments shall be placed and maintained in alignment without offset to each other. Segments shall be positioned straight on a tangent alignment and on a true arc on a curved alignment. Segments shall be pinned to each adjacent segment. An impact attenuating device shall be provided on the approach end.
- d. If it is necessary to leave a gap between barrier segments due to equipment or special drainage features, the gap shall be closed at all times when the Work is not actively in progress at the location of the gap.

6. Warning Lights

- a. Warning lights shall be portable, powered, lens-directed, enclosed lights with a yellow lens. Warning lights shall consist of a lighting unit, flasher unit, visor, backplate, standard, battery power source, and base. The components shall be assembled to form a complete self-contained warning light that can be delivered to the Work site and placed in immediate operation. Warning lights may be mounted on channelizing devices or on a standard and base.
- b. Standards shall be adjustable to provide a variable mounting height between 6 feet (1.8 m) to 10 feet (3.1 m) measured from the bottom of the base to the center of the lens. Standards shall be securely attached to the base. Power cables shall be multi-conductor and jacketed with neoprene and shall be of sufficient length to accommodate the full-vertical height of the standard.
- c. Bases shall be large enough to accommodate a minimum of 2, 12V automotive-type storage batteries, and shall be of such shape and mass that the warning light will not roll in the event it is struck by a vehicle or pushed over.
- d. Standards and bases shall be finished with 2 applications of orange enamel conforming to color No. 12473 of Federal Standard 595B.

- e. Warning light assemblies shall be weatherproof and capable of operating a minimum of 150 hours between battery recharges or other routine maintenance.
- f. Warning lights shall be capable of use in either a steady burn or flashing mode.
- g. Lamps shall be rated at 25W for operation with a 12V battery current.
- h. The color of the light emitted shall be yellow.
- i. Lens shall glass or plastic and conform to the requirements of ANSI D.10.1.
- j. Visors and Backplates.
 - i. Warning lights shall be equipped with an 8 inch (203.2 mm) minimum length visor and a backplate. Visors are not required during the hours of darkness.
 - ii. The interior of the visor and the front face of the backplate shall be finished with 2 applications of flat black enamel conforming to 210-1, "Paint".
- k. Warning lights shall only be used outside of the Work site to provide advance warning unless otherwise specified in the Specifications or shown on the TCP. Warning lights used for advance warning shall be clearly distinguishable from the primary delineation and shall be positioned above the normal reflectorized barricades. Warning lights shall be mounted a minimum height of 3 foot (0.9 m) high measured from the bottom of the lens to the underlying surface.
- l. Warning lights shall be used in either a steady burn or flashing mode. Visors will not be required during the hours of darkness. Torches and flares shall be used only in patrolled emergency situations.

7. Flashing Arrow Boards

- a. Flashing arrow boards shall be mounted to provide a minimum of 7-foot (2.1 m) clearance between the bottom of the panel and the roadway surface. Flashing arrow boards shall be used when the posted speed is 40 mph or more, or when curvature of the roadway limits visibility.

PART 3 - EXECUTION

3.1 GENERAL

- A. Continuous and unobstructed vehicular and pedestrian access to the adjacent properties shall be maintained unless otherwise specified in the Traffic Control Plans, or Traffic Control Permit acceptable to by the Airport Authority.

- B. Contractor shall cooperate with the various parties involved in the delivery of mail, the collection of trash, airport maintenance, and Bus and Shuttle drivers.
- C. Notify and coordinate with Metropolitan Transit System (MTS) and the San Diego County Regional Airport Authority (Airport Authority) a minimum of 5 Working Days prior to excavation, construction, or temporary traffic control affecting airport operation and transit stops.
 - 1. MTS (Street Closure and Bus Stops)
(619) 238-0100 Ext 6451
 - 2. MTS (Taxi Zones) / (Trolley Lines)
(619) 235-2644 / (619) 595-4960
 - 3. San Diego County Regional Airport Authority
(619)-400-2880
- D. Notify the remaining agencies a minimum of 2 Working Days prior to construction activities affecting the agencies.
 - 1. Fire Department Dispatch (Street or alley closure)
(858) 573-1300
 - 2. Police Department Traffic (Street or alley closure)
(619) 531-2000
 - 3. Underground Service Alert (Any excavation)
(800) 422-4133
- E. Backfill or cover trenches with steel trench plates at the end of each Workday. "STEEL PLATE AHEAD" (W8-24) signs shall be present whenever steel plates are present. Place an asphalt ramp around each trench plate. Upon completion of excavation backfill, provide a satisfactory surface for traffic. Portable concrete barriers, additional noticing, and other items may be required when trenching cannot be secured overnight by backfilling or trench-plating.
- F. Maintain, whether shown on the Drawing or not, existing traffic control signs or signals in their proper location on temporary mounting supports until permanent signs or signals are restored.

3.2 VEHICULAR ACCESS

- A. Vehicular access to the airport shall be maintained to the curb line except, when necessary, construction precludes such access.

- B. If backfill has been completed to the extent that safe access may be provided and the street is opened to local traffic, you shall immediately clear the street and provide and maintain access.
- C. Maintain full width of all traffic lanes of the existing roadway during non-working hours and on Saturday, Sunday, designated Holidays, and when construction operations are not actively in progress on Working Days.
- D. Contractor shall conduct roadway construction operations in a manner that provides a surface safe for vehicular traffic. Vertical changes of pavement elevations 1½ inches (37.5 mm) or greater shall have a beveled edge of 4 horizontal to 1 vertical.
- E. When sufficient width is available, maintain a minimum of 2 travel lanes in each direction at all times unless otherwise specified in the Contract Documents.
- F. Do not interrupt the operation of the existing traffic signals and lighting unless otherwise specified in the Contract Documents.
- G. Whenever a portion of the roadway is completed, make that section of the road available to traffic immediately if it does not conflict with the rest of the traffic control devices and if it does not compromise public safety.
- H. Furnish flag persons, when required, to give adequate warning to traffic or to the public of any dangerous conditions to be encountered.
- I. Unless otherwise specified or shown on the Traffic Control Plans, clearances to obstructions shall be as follows:
 - 1. Two (2) feet (609.6 mm) from vertical obstructions including, but not limited to, longitudinal curbs, guardrails, or temporary traffic barriers.
 - 2. Ten (10) feet (3.0 m) from the edge of the traveled way to fixed objects unprotected by barriers. When the minimum clearance to fixed objects cannot be provided, temporary barriers shall be placed to protect the fixed object. On local streets with speed limits of 40 miles per hour (70 km/hour) or less, temporary asphalt concrete curb may be used in lieu of temporary traffic barriers.
 - 3. Five (5) feet (1.5 m) from any excavation or drop off of 2 inches (50.8 mm) or greater to allow placement of temporary barriers to keep traffic out of the Work site and minimize traffic surcharge on the excavation. When the 5-foot (1.5 m) clearance to an excavation or drop off cannot be maintained, temporary traffic barriers shall be placed to separate vehicles, bicycles, and pedestrians from the excavation or drop off.

3.3 PEDESTRIAN ACCESS

- A. Pedestrian zones and public transportation stops, as well as pedestrian crossings of the Work site at intervals not exceeding 300 foot (91.4 m) shall be maintained unless otherwise approved in advance, in writing, and in accordance with the Contract Documents by the Airport Authority. When sidewalks are closed, an alternate walkway shall be provided. Pedestrians shall not be directed into direct conflict with vehicles operating within the Work site or other traffic. Where it is necessary to divert pedestrians into the parking lane or a street, barricades or temporary traffic barriers shall be provided to separate the pedestrian walkway from the adjacent traffic lane.
 - 1. Approval from the Airport Authority must be obtained in advance and in accordance with the Contract Documents before closing a crosswalk.
- B. Vertical changes of surface elevations in areas subject to pedestrian traffic of ½ inch (12.5 mm) or greater shall have a beveled edge of 12 horizontal to 1 vertical.
- C. Walkways within the Work site shall be a minimum of 4 foot (1.2 m) in width and 6 foot (1.8 m) in width in high volume pedestrian area with passing spaces at least 60 inches (1524 mm) by 60 inches (1524 mm) every 200 feet (61.0 m). Obstructions within walkways shall be illuminated during hours of darkness. The minimum vertical clearance to any obstruction larger than 4 inches (101.6 mm) within a walkway shall be 7 feet (2.1 m).
- D. The minimum horizontal clearance (buffer space) between walkways within the Work site and Work areas or operating equipment shall be a minimum of 5 feet (1.5 m).

3.4 ADA REQUIREMENTS

- A. Temporary facilities shall be detectable by a person with a visual disability traveling with the aid of a long cane and include accessibility features consistent with the features present in the existing pedestrian facility. A detectable barrier shall be placed across the full width of the closed sidewalk.
- B. Channelized pedestrian routes shall be clear of obstacles and shall have a continuous detectable edging. The accessible route shall have the following:
 - 1. Clear headroom of at least 80 inches (2032 mm).
 - 2. A surface that is firm, stable, and slip resistant.
 - 3. No level changes in excess of 1/2 inch (12.5 mm) vertically (in the absence of a curb ramp, ramp, elevator, or platform lift).
 - 4. A curb ramp slope of less than 8.3% (1:12).
 - 5. A path of travel slope of less than 5% (1:20) and a cross slope of less than 2% (1:50).

6. Routes that are under scaffolding conforming to ADA requirements.
7. Audible information devices (when shown on Drawings or Traffic Control Permit).

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT AND PAYMENT

- A. Full compensation for Section 01 55 26 – Traffic Control, shall be considered as included in the Contract lump sum price paid for **Bid Schedule A, item 2** (5% maximum of total construction base bid: items 3-32), and no additional compensation will be allowed therefor.

END OF SECTION

SPECIFICATIONS
DIVISION 02 – EXISTING CONDITIONS
SECTION 02 41 00
DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. This section includes demolition activities within the limits of the work to construct the new sidewalk improvements and other purposes as specified in these specifications and as shown on the drawings, including but not limited to the following:
1. Pre-demolition meeting
 2. Identification of utilities
 3. Protection of existing site improvements and utilities to remain in place.
 4. Saw-cutting Asphalt Concrete (AC) and Portland Cement Concrete (PCC) pavement.
 5. Demolition of AC and PCC pavement and site elements.
 6. Removal and reinstallation of miscellaneous site improvements.
 7. Removal and reinstallation of miscellaneous structures.
 8. Backfilling voids left by removals.
 9. Clean up.

1.2 REFERENCE STANDARDS

- A. All references made within these technical provisions to the various standards shown in Section 1.2.B shall be limited to construction materials, methods, and all work incidental to the item of work only. Measurements and Payments shall be established as shown within Part 3 and 4 of these technical provisions only.
- B. The following is a list of standards which may be referenced in this Section:
1. American National Standards Institute (ANSI): A10.6, Safety Requirements for Demolition Operations.
 2. Occupational Safety and Health Administration (OSHA) 29 CFR 1926 Safety and Health Regulations for Construction

3. California Division of Occupational Safety and Health (CAL/OSHA) - Title 8 of the California Code of Regulations
4. Standard Specifications for Public Works Construction the "Greenbook" Standard Specifications, 2024 Edition.
5. City of San Diego "Whitebook", 2024 Edition. (Excluding any section related to "Part 1 – General Provisions" of the WHITEBOOK.)

1.3 DEFINITIONS

- A. Debris: All materials generated as part of demolition activities or designated for removal as part of Site cleanup activities.
- B. ACM: Asbestos-containing material.
- C. ACP: Asbestos Cement Pipe
- D. Demolition: Dismantling, razing, destroying, or wrecking of any fixed building, structure, surface or subsurface feature, site element, or any part thereof.
- E. Remove: Detach items from existing construction and legally dispose of them in accordance with the Contract Documents unless indicated to be removed and salvaged or removed and reinstalled.
- F. Existing to Remain: Existing items of construction that are not to be removed, and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
- G. Modify: Provide all necessary material and labor to modify an existing item to the condition indicated or specified.
- H. Relocate: Remove, protect, clean and reinstall equipment, including electrical, instrumentation, and all ancillary components required to make the equipment fully functional, to the new location identified on the drawings.
- I. Salvage/Salvageable: Remove and deliver to the specified location(s), the equipment, building materials, or other items so identified to be saved from destruction, damage, or waste; such property to remain that of the Authority.

1.4 SUBMITTALS

- A. Demolition Plan and Schedule: Contractor shall submit a Demolition Plan and Schedule, see paragraph 1.7 B.
- B. Existing Conditions: Contractor shall provide documentation of existing items, adjoining construction, and site improvements, actual locations of capped

conduits and equipment abandoned in place that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.

1. Use sufficiently detailed photographs or video which shall be submitted electronically.
 2. Include plans and notations to indicate damage.
- C. Contractor's Phasing Plan and Traffic Control Plan: Contractor shall submit a phasing plan showing traffic flow and construction progress that minimizes operational impacts of this project during construction.
- D. Shop Drawings: Submit shop drawings for structure adjustments.

1.5 QUALITY CONTROL

- A. Regulatory Requirements: Contractor shall comply with the Contract Documents and Governmental Rules regarding hauling and disposal.
- B. Contractor shall protect the demolition excavations, and the safety of workers and the public, in conformance with the requirements of California Occupational Safety and Health Administration (CAL/OSHA), particularly "Article 6 — Excavations" of Subchapter 4 of the Title 8 California Code of Regulations.
- C. When special inspections are required under the California Building Code, Chapters 17 and 17A, coordinate with the Authority Representative for an Authority-hired inspection agency and ensure that inspections and verifications are performed.
- D. During times that the Work is performed, the Contractor shall provide at least one fully competent and experienced General Superintendent at the Project Site to represent the Contractor in all matters in accordance with Special Conditions, Article 4.1.4.

1.6 PROJECT CONDITIONS

- A. Contractor shall remove all existing site improvements indicated on Drawing.
- B. Contractor shall remove, abandon, or protect in place all existing utilities as indicated on Drawings.
- C. Contractor shall restore and clean-up site once site demolition operations are completed.
- D. Contractor shall comply with the Contract Documents and Governmental Rules, Contractor's safety requirements shall conform to ANSI A10.6.

- E. Contractor shall conduct demolition to minimize interference with adjacent and occupied building areas.
- F. Contractor shall schedule and minimize interference with other construction activities and contractors during demolition activities.
- G. Ambient Conditions: Contractor shall not perform demolition activities when weather conditions are such, in the opinion of the Authority Representative, that the work cannot be performed satisfactorily.

1.7 PRE-DEMOLITION MEETING

- A. Pre-Demolition Meeting: Prior to beginning demolition activities, the Contractor shall hold a mandatory pre-demolition conference at the Project Site and make arrangements for attendance of the: Authority Representative, Contractor, and its Subcontractors.

The purpose of this meeting is to review methods and procedures related to demolition including, but not limited to the following:

- 1. Review and finalize the demolition schedule, and verify the availability of materials, demolition personnel, equipment, and facilities needed to complete the demolition and avoid delays.
- 2. Review requirements of the Work performed by other trades.
- 3. Review areas where existing construction is to remain and requiring protection.
- 4. Safety requirements pertaining to this project to ensure safe passage of persons around the area of demolition.
- 5. Special soil handling requirements.
- 6. Review Contractor Demolition Plan and Schedule.

- B. Demolition Plan and Schedule

- 1. Contractor shall prepare a Demolition Plan and Schedule that includes the following information:
 - a. A detailed sequence for demolition and removal work that includes starting and ending dates for each activity.
 - b. Contractor shall provide a plan to minimize utility services interruptions and a schedule as to how long utility services will be affected in accordance with the Contract Documents.

- c. Coordination activities for the shutoff, capping, and continuation of utility services, in accordance with the Contract Documents.
- d. Means for protecting items to remain.
- e. Contractor shall submit the required Demolition Plan and Schedule to the Authority Representative seven (7) Days prior to the pre-demolition conference for approval.

PART 2 — PRODUCTS (Not Used)

PART 3 — EXECUTION

3.1 GENERAL

- A. Contractor shall review the site and examine the drawings and specifications to determine the extent of the Work before beginning any demolition.
- B. Contractor shall inventory and record the condition of items to be removed and reinstalled, and items to be removed and/or salvaged.
- C. Contractor shall obtain all required approvals of the Authority Representative as applicable to schedule shutdowns of utilities and services.
- D. Contractor shall perform demolition and removal work in accordance with applicable rules of the jurisdictional authorities.
- E. Contractor shall locate existing exposed and buried active utilities, and determine the requirements for their protection, or their disposition with respect to the demolition work.
- F. Contractor shall demolish, remove existing facilities, employ methods required to complete the removals, abandon and/or salvage as indicated on the drawings.
- G. Contractor shall neatly sawcut and remove adjacent pavements and facilities in accordance with the Contract drawings using cutting methods least likely to damage facilities to remain.
- H. Contractor shall fill all holes from the demolition process and backfill with appropriate materials. See Paragraph 3.15.
- I. Blasting and burning shall not be permitted.

3.2 PROTECTION OF UTILITIES

- A. Contractor shall reference the Contract Documents for interactions with and protection of existing utilities.

B. Electrical Shut-down Periods:

1. Arrange timing of shut-down periods of in-service panels with the Authority Representative. Do not shut down any utility without prior written approval.
2. Keep shut-down period to minimum or use intermittent period as directed by the Authority Representative.

C. Contractor shall provide shoring, underpinning, and structural support for existing utility lines and structures that become suspended or otherwise unsupported because of adjacent excavation operations.

D. Unforeseen existing electrical / data conduit and wiring embedded within or just below the existing sidewalk to be demolished that is not shown on the Drawings may be present. The Contractor shall locate this conduit prior to demolition and trace the wiring to determine the source and if the line is active.

3.3 PRESERVATION OF REFERENCE MARKERS

A. Contractor shall reference the Contract Documents for items related to the preservation of survey control monuments or other reference markers.

3.4 NOISE AND DUST ABATEMENT

A. Contractor shall provide continuous noise and dust abatement as required to prevent disturbance and nuisance to the public and workers, to Airport operations, and the occupants of adjacent premises and surrounding areas in accordance with the Contract Documents.

B. When a certain level of noise is unavoidable because of the nature of the work or equipment involved, and such noise is objectionable to the occupants of adjacent premises, Contractor shall make arrangements with the Authority Representative to perform such work or operate such equipment at the most appropriate time periods of the day and shall notify occupants of adjacent premises of demolition activities at least 72 hours prior to demolition work.

C. Contractor shall sweep pavements as often as necessary to control the spread of debris that may result in foreign object damage potential to vehicular traffic.

D. Before beginning to excavate, Contractor shall place temporary erosion and sediment controls around proposed excavations in accordance with the Contract Documents and Governmental Rules to eliminate erosion and sedimentation problems.

3.5 BRACING, SHORING AND LATERAL SUPPORTS

- A. Contractor shall provide and secure bracing, shoring, or lateral supports to shore unstable trenches and areas created as a result of demolition work.

3.6 PROTECTION OF SITE

- A. Traffic Control Signs: Where pedestrian and driver safety is endangered in the area of removal Work, use traffic barricades with flashing lights as directed by the Authority Representative.
- B. Existing Work:
 - 1. Survey the site and examine the drawings and specifications to determine the extent of the Work before beginning any demolition or renovation.
 - 2. Take necessary precautions to avoid damage to existing items scheduled to remain in place, to be reused, or to remain the property of the Authority; any Contractor-damaged items shall be repaired or replaced as directed by the Authority Representative.
 - 3. Do not overload pavements to remain.
 - 4. Do not overload already stabilized areas until the Authority Geotechnical Representative agrees it is acceptable to do so.
- C. Protection of Personnel:
 - 1. During demolition, continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site.
 - 2. Provide temporary barricades and other forms of protection to protect Authority personnel, passengers, and the general public from injury due to demolition Work.
 - 3. Provide protective measures as required to provide free and safe passage of Authority personnel, passengers, and the general public to occupy portions of the structure.

3.7 SAWCUT AND REMOVAL OF EXISTING AC AND PCC PAVEMENT AND SITE IMPROVEMENTS

- A. Care shall be taken in removing the pavement such that damage does not occur to the existing pavement which is to remain in place and that all removals are accomplished by making a neat vertical full depth saw cut at the boundaries of the area to be removed. Where necessary to prevent damage to pavement that is to remain, additional saw-cutting within the removed pavement and parallel to the

removal boundaries shall be performed. Adjacent materials designated to remain that are damaged by the Contractor due to its operations, including saw cuts, shall be replaced at no additional cost to the Authority and to the satisfaction of the Authority Representative.

- B. Sawcut existing AC pavement per Section 300-1.3.2.a "Bituminous Pavement" of the "Greenbook" Standard Specifications and these specifications. Sawcut existing PCC pavement per Section 300-1.3.2.b "Concrete Pavement" of the "Greenbook" Standard Specifications and by these specifications.
- C. Sawcut existing PCC curbs, gutters, walks, and median hardscape per Section 300-1.3.2.c "Concrete Curb, Walk, Gutters, Cross Gutters, Driveways, and Alley Intersections" of the "Greenbook" Standard Specifications and these specifications.
- D. Provide neat sawcut at locations shown on Drawings and all limits of PCC and AC removals.
- E. Remove existing PCC curb, and all other AC or PCC site improvements as shown on the Drawings. Contractor shall fully remove and dispose of Miscellaneous Concrete Structures as called out on the Drawings. All materials to be removed shall be directly taken off site to an acceptable receiving site and shall become property of the Contractor. Contractor shall include all costs for all handling, hauling off-site, hauling on-site, disposing, pulverizing, crushing, or blending in the contract unit price for each associated pay item. The Airport Authority will retain title to all pre-existing on-site Regulated Materials and Pollutants encountered during the Work, in accordance with the Contract Documents.
- F. Remove and dispose of existing AC pavement. The areas and approximate thickness of pavement to be removed are indicated on the drawings. The Contractor shall load, haul off-site and dispose all removed AC pavement. Material hauled off-site shall become the property of the Contractor and shall be handled accordingly. Contractor shall include all costs for this work in the contract unit price for the removal of AC pavement.
- G. Remove and dispose of existing PCC sidewalk. The areas and approximate thickness of sidewalk to be removed are indicated on the drawings. For areas where only the top portion of the concrete is shown to be removed, the Contractor shall protect the existing concrete to remain below the depth shown to be removed. The Contractor shall load, haul off- site and dispose all removed PCC pavement. Material hauled off-site shall become the property of the Contractor and shall be handled accordingly. Contractor shall include all costs for this work in the contract unit price for the removal of PCC pavement. The Airport Authority will retain title to all pre-existing on-site Regulated Materials and Pollutants encountered during the Work, in accordance with the Contract Documents.

3.8 ASPHALT MILLING

- A. Milling shall be performed with a power-operated milling machine or grinder, capable of producing a uniform finished surface. The milling machine or grinder shall operate without tearing or gouging the underlying surface. The milling machine or grinder shall be equipped with grade and slope controls, and a positive means of dust control. All millings shall be removed and disposed of off of Airport property, in accordance with the Contract Documents. If the Contractor mills or grinds deeper or wider than the drawings specify, the Contractor shall replace the material removed with new material.
- B. The milling machine shall be capable of cutting a vertical edge without chipping or spalling the edges of the remaining pavement and it shall have a positive method of controlling the depth of cut. The Contractor shall layout the area to be milled with a straightedge in increments of 1-foot (30 cm) widths. The area to be milled shall cover only the area indicated on the Drawings or as directed by the Authority Representative. Any excessive area that is milled because the Contractor doesn't have the appropriate milling machine, or areas that are damaged shall be repaired by the Contractor.
- C. The milling machine shall have a minimum width of 7 feet, and it shall be equipped with electronic grade control devices that will cut the surface to the grade specified. The tolerances shall be maintained within +0 inch and -1/4 inch (+0 mm and -6mm) of the specified grade. The machine must cut vertical edges and have a positive method of dust control. The machine must have the ability to remove the millings or cuttings from the pavement and load them into a truck. All millings shall be removed and disposed of off the airport.
- D. The Contractor shall sweep the milled surface immediately after the milling until all residual materials are removed from the pavement surface. Prior to paving, the Contractor shall wet down the milled pavement and thoroughly sweep and/or blow the surface to remove loose residual material. Waste materials shall be collected and removed from the pavement surface and adjacent areas by sweeping or vacuuming. Waste materials shall be removed and disposed of off of the Airport property in accordance with the Contract Documents.

3.9 REMOVAL OF EXISTING MISCELLANEOUS SITE IMPROVEMENTS

- A. Contractor shall fully remove and dispose of existing curb ramps at the locations indicated on the drawings. The curb wing walls and associated with each ramp shall also be removed. Contractor shall include all costs for removal, cleaning, hauling, and disposal of the curb ramp in the contract unit price of existing curb ramp demolition.
- B. Contractor shall fully remove and dispose of existing signs as indicated on the drawings. The post, footings, and other elements associated with each sign shall

also be removed at the same time. Contractor shall include all costs for removal, hauling, and disposal of the sign in the cost of bid item for the removal of the sign.

- C. Contractor shall fully remove and dispose of existing speed bump at the location indicated on the drawings. Contractor shall include all costs for removal, cleaning, hauling, and disposal of the speed bump in the contract unit price of existing speed bump demolition.

3.10 REMOVAL, RELOCATION, AND REINSTALLATION OF EXISTING MISCELLANEOUS SITE IMPROVEMENTS

- A. Contractor shall fully remove existing signs as indicated on the drawings. The footings and other elements associated with each sign shall also be removed at the same time as applicable. The sign shall be temporarily installed in a location approved by the Authority Representative. The sign shall be removed from its temporary location and reinstalled at the location shown on the drawings after new concrete has sufficiently cured. The handling, removal, temporary relocation, and reinstallation of the sign shall be included in the cost of bid item for remove, store, and reinstall sign.

3.11 DISPOSAL OF MATERIALS

- A. Demolition waste shall be handled in accordance with the Contract Documents and Governmental Rules.
- B. Contractor to coordinate with the Authority Representative if the demolition waste is determined as unsuitable materials.

3.12 BACKFILLING VOIDS LEFT BY REMOVALS

- A. All voids left by removals shall be backfilled with properly compacted engineering fill material per Section 31 20 00 "Earth Moving". The cost to place this fill material shall be incidental to the removal item that caused the void.

3.13 CLEANUP

- A. After removals and demolition, Contractor shall clean and grade the area. All excavations and depressions shall be backfilled and graded to drain. There shall be no debris, rubble, or litter left at the site from any of the demolition operations and the site shall be clean. Debris and rubbish shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Governmental Rules regarding hauling and disposal shall apply.
- B. Contractor shall repair existing surfaces damaged during work, by cleaning and restoring to match original condition.

3.14 CONTRACTOR QUALITY CONTROL

- A. The Contractor shall develop and implement a Contractor Quality Control Program (CQCP) including but not limited to inspection and testing to ensure compliance with the requirements of this section and in accordance with the Contract Documents.
- B. Inspections:
 - 1. The Contractor shall have a testing and inspection agency perform the inspections required by regulatory agencies, and the disposal facilities.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT AND PAYMENT

- A. Full compensation for Section 02 41 00 – Demolition, shall be considered as included in the Contract price paid for various work items under **Bid Schedule A**, and no additional compensation will be allowed therefor.

END OF SECTION

SPECIFICATIONS
DIVISION 03 - CONCRETE
SECTION 03 20 00
CONCRETE REINFORCING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Welded-wire reinforcement.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project Site.

1.3 SUBMITTALS

- A. Product Data: For the following:
 - 1. Each type of steel reinforcement.
 - 2. Welded Wire supports.
- B. Shop Drawings: Comply with ACI SP-066:
 - 1. Include placing drawings that detail fabrication and placement.
- C. Construction Joint Layout: Indicate proposed construction joints required to build the structure.
 - 1. Location of construction joints is subject to approval of the Authority Representative.
- D. Welding certificates.
 - 1. Reinforcement to Be Welded: Welding procedure specification in accordance with AWS D1.4/D1.4M
- E. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Epoxy-Coated Reinforcement: CRSI's "Epoxy Coating Plant Certification."
- F. Material Test Reports: For the following, from a qualified testing agency:
 - 1. Steel Reinforcement:
 - a. For reinforcement to be welded, mill test analysis for chemical composition and carbon arc of the steel in accordance with ASTM A706/A706M.

2. Mechanical splice couplers.

G. Field quality-control reports.

1.4 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.4/D 1.4M.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

A. Plain-Steel Welded-Wire Reinforcement: ASTM A1064/A1064M, plain, fabricated from as-drawn steel wire into flat sheets.

B. Deformed-Steel Welded-Wire Reinforcement: ASTM A1064/A1064M, flat sheet.

C. Galvanized-Steel Welded-Wire Reinforcement: ASTM A1064/A1064M, plain, fabricated from galvanized-steel wire into flat sheets.

D. Epoxy-Coated Welded-Wire Reinforcement: ASTM A884/A884M, Class A coated, Type 1, plain steel.

2.2 REINFORCEMENT ACCESSORIES

A. Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening welded-wire reinforcement in place.

1. Manufacture supports from steel wire, plastic, or precast concrete in accordance with CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

- a. For concrete surfaces exposed to view, where legs of wire supports contact forms, use CRSI Class 1 plastic-protected steel wire, all-plastic supports, or CRSI Class 2 stainless steel supports.
- b. For epoxy-coated reinforcement, use CRSI Class 1A epoxy-coated or other dielectric-polymer-coated wire supports.
- c. For dual-coated reinforcement, use CRSI Class 1A epoxy-coated or other dielectric-polymer-coated wire supports.
- d. For zinc-coated reinforcement, use galvanized wire or dielectric-polymer-coated wire supports.
- e. For stainless steel reinforcement, use CRSI Class 1 plastic-protected steel wire, all-plastic supports, or CRSI Class 2 stainless steel supports.

B. Steel Tie Wire: ASTM A1064/A1064M, annealed steel, not less than 0.0508 inch (1.2908

mm) in diameter.

1. Finish: Galvanized.

- C. Stainless Steel Tie Wire: ASTM A1022/A1022M, not less than 0.0508 inch (1.2908 mm) in diameter.

2.3 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protection of In-Place Conditions:
1. Do not cut or puncture vapor retarder.
 2. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

3.2 INSTALLATION OF STEEL REINFORCEMENT

- A. Comply with CRSI's "Manual of Standard Practice" for placing and supporting reinforcement.
- B. Accurately position, support, and secure reinforcement against displacement.
1. Locate and support reinforcement with supports to maintain minimum concrete cover.
- C. Provide concrete coverage in accordance with ACI 318 (ACI 318M).
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded-wire reinforcement at the longest practicable lengths.
1. Support welded-wire reinforcement in accordance with CRSI "Manual of Standard Practice."
 - a. For reinforcement less than W4.0 or D4.0, continuous support spacing shall not exceed 12 inches (305 mm).
 2. Lap edges and ends of adjoining sheets at least one wire spacing plus 2 inches (50 mm) for plain wire and 8 inches (200 mm) for deformed wire.
 3. Offset laps of adjoining sheet widths to prevent continuous laps in either direction.
 4. Lace overlaps with wire.

3.3 JOINTS

- A. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved in advance, in writing, and in accordance with the Contract Documents by the Authority Representative.
 - 1. Place joints perpendicular to main reinforcement.
 - 2. Continue reinforcement across construction joints unless otherwise indicated.
 - 3. Do not continue reinforcement through sides of strip placements of floors and slabs.

3.4 INSTALLATION TOLERANCES

- A. Comply with ACI 117 (ACI 117M).

3.5 FIELD QUALITY CONTROL

- A. Special Inspections: The Airport Authority will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Testing Agency: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- C. Inspections:
 - 1. Steel-reinforcement placement.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT AND PAYMENT

- A. Full compensation for Section 03 20 00 – Concrete Reinforcing, shall be considered as included in the Contract Price paid for various work items under **Bid Schedules A**, and no additional compensation will be allowed therefor.

END OF SECTION

SPECIFICATIONS
DIVISION 05 – METALS
SECTION 05 73 00
DECORATIVE RAILINGS

PART 1 — GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Stainless-steel decorative railings.
- B. Related Sections:
 - 1. Section 32 16 10 — Concrete and Metal Site Elements:
Execution requirements for anchors specified in this section.

1.2 REFERENCES

- A. American Society of Civil Engineers:
 - 1. ASCE 7 - Minimum Design Loads for Buildings and Other Structures.
 - 2. ASCE 19 - Standard Applications of Steel Cables for Buildings.
- B. ASTM International:
 - 1. ASTM A36/A36M - Standard Specification for Carbon Structural Steel.
 - 2. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.
 - 3. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - 4. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - 5. ASTM A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
 - 6. ASTM A269 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - 7. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes.

8. ASTM A297/A297M - Standard Specification for Steel Castings, Iron- Chromium and Iron-Chromium-Nickel, Heat Resistant, for General Application.
9. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.
10. ASTM A312/A312M - Standard Specification for Seamless and Welded Austenitic Stainless Steel Pipes.
11. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.
12. ASTM A354 - Standard Specification for Quenched and Tempered Alloy Steel Bolts, Studs, and Other Externally Threaded Fasteners.
13. ASTM A368 - Standard Specification for Stainless Steel Wire Strand.
14. ASTM A473 - Standard Specification for Stainless Steel Forgings.
15. ASTM A479/A479M - Standard Specification for Stainless Steel Bars and Shapes for Use in Boilers and Other Pressure Vessels.
16. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.
17. ASTM A501 - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.
18. ASTM A554 - Standard Specification for Welded Stainless Steel Mechanical Tubing.
19. ASTM A563 - Standard Specification for Carbon and Alloy Steel Nuts.
20. ASTM A572/A572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel.
21. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
22. ASTM B32 - Standard Specification for Solder Metal.
23. ASTM B85 - Standard Specification for Aluminum-Alloy Die Castings.

24. ASTM B695 - Standard Specification for Coatings of Zinc Mechanically Deposited on Iron and Steel.
25. ASTM E935 - Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings.
26. ASTM E985 - Standard Specification for Permanent Metal Railing Systems and Rails for Buildings.
27. ASTM F436 - Standard Specification for Hardened Steel Washers.
28. ASTM Standard G82 - 98(2009) Standard Guide for Development and Use of a Galvanic Series for Predicting Galvanic Corrosion Performance.
29. ASTM STP 576 - Galvanic and Pitting Corrosion -- Field and Laboratory Studies.

C. American Welding Society:

1. AWS A5.8 - Specification for Filler Metals for Brazing and Braze Welding.
2. AWS D1.1 - Structural Welding Code - Steel.
3. AWS D1.3 - Structural Welding Code - Sheet Steel.
4. AWS D1.6 - Structural Welding Code - Stainless Steel.

D. California Building Code (CBC), 2022 with City of San Diego Amendments.

E. National Ornamental & Miscellaneous Metals Association:

1. NOMMA Guideline 1 - Joint Finishes.

F. Sheet Metal and Air Conditioning Contractors:

1. SMACNA - Architectural Sheet Metal Manual.

G. SSPC: The Society for Protective Coatings:

1. SSPC SP 2 - Hand Tool Cleaning.

1.3 DEFINITIONS

- A. Railings: Guards, handrails, and similar devices used for protection of occupants at open-sided floor areas, pedestrian guidance and support, visual separation, or wall protection.

- B. Dissimilar Metals: Defined by ASTM Standard G82, ASTM STP 576, and SMACNA Architectural Sheet Metal Manual Appendix C.

1.4 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Design railings, including comprehensive engineering analysis by a qualified professional engineer registered in the State of California, using performance requirements and design criteria indicated.
- B. General: Railings to withstand structural loads indicated, determine allowable design working stresses of railing materials based on the following:
 - 1. Stainless Steel: 60 percent of minimum yield strength.
- C. Structural Performance: Railings shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Handrails and Top Rails of Guards:
 - a. Uniform load of 50 lbf/ft. applied in any direction.
 - b. Concentrated load of 200 lbf applied in any direction.
 - c. Uniform and concentrated loads need not be assumed to act concurrently.
 - 2. Infill of Guards:
 - a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq.ft.
 - b. Infill load and other loads need not be assumed to act concurrently.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes acting on exterior metal fabrications by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects.
 - 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.
- E. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.5 SUBMITTALS

- A. Product Data: For the following:

1. Manufacturer's product lines of railings assembled from standard components.
2. Grout, anchoring cement, and paint products.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- C. Samples for Verification: For each type of exposed finish required.
 1. Sections of each distinctly different linear railing member, including handrails, top rails, posts, and balusters.
 2. Fittings and brackets.
 3. Welded connections.
 4. Assembled samples of railing systems, made from full-size components, including top rail, post, handrail, and infill. Show method of finishing members at intersections. Samples need not be full height.
- D. Delegated-Design Submittal: For installed products indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- E. Mill Certificates: Signed by manufacturers of stainless-steel products certifying that products furnished comply with requirements.
- F. Welding certificates.
- G. Manufacturer's Installation Instructions.

1.6 PRE-INSTALLATION MEETINGS

- A. Convene minimum one week prior to commencing work of this section.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect shop-finished metal surfaces with wrapping or strippable coating before shipping. Do not use adhesive papers or spray coatings that bond when exposed to sunlight or weather.
- B. Accept decorative railings on site in manufacturer's protective packaging. Inspect for damage.

- C. Store decorative railings to prevent distortion of fabricated shape. Puncture protective wrappings at ends for ventilation.
- D. Protect metal finishes from surface contamination, staining, scratching, abrasion, and other physical damage when handling and during installation.

1.8 FIELD MEASUREMENTS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with railings by field measurements before fabrication and indicate measurements on Shop Drawings.

1.9 SEQUENCING

- A. Sequence work to install decorative railings after adjacent and overhead finishing work capable of damaging metal finishes is complete.

1.10 COORDINATION AND SCHEDULING

- A. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project Site in time for installation.
- B. Schedule installation so wall attachments are made only to completed walls. Do not support railings temporarily by any means that do not suit structural performance requirements.

1.11 MANUFACTURER'S WARRANTY

- A. Furnish (5) five years manufacturer's warranty.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Products: Subject to compliance with requirements, provide products indicated in accordance with the Contract Documents.
- B. Source Limitations: Obtain each type of railing from single manufacturer.
- C. Product Options: Information on Drawings and Specifications establishes requirements for system's aesthetic effects and performance characteristics. Aesthetic effects are indicated by dimensions, arrangements, alignment, and profiles of components and assemblies as they relate to sightlines, to one another, and to adjoining construction.

Performance characteristics are indicated by criteria subject to verification by one or more methods including structural analysis, preconstruction testing, field testing, and in- service performance.

1. Do not modify intended aesthetic effects, except with the Authority Representative's approval. If modifications are proposed, submit comprehensive explanatory data to the Authority Representative for review.
- D. Welding Qualifications: Qualify procedures and personnel according to the following:
1. AWS D1.6 "Structural Welding Code - Stainless Steel".

2.2 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- B. Brackets, Flanges, and Anchors: Same metal and finish as supported rails unless otherwise indicated.
1. Post-installed anchors in Concrete: As indicated on Drawings and as specified in Section 32 16 10 — 'Concrete and Metal Site Elements'
 2. Provide cast-metal brackets with flange tapped for concealed anchorage to threaded hanger bolt.

2.3 STAINLESS STEEL

- A. Tubing: ASTM A 554, Grade MT 316 or Grade MT 316L as required.
- B. Pipe: ASTM A 312, Grade TP 316 or Grade TP 316L as required.
- C. Castings: ASTM A 743, Grade CF 8M or CF 3M as required.
- D. Sheet, Strip, Plate, and Flat Bar: ASTM A 666, Type 316 or Type 316L as required.
- E. Bars and Shapes: ASTM A 276, Type 316 or Type 316L as required.
1. Loos & Co., Inc.; Cableware Division
 2. Ronstan International Inc.
 3. Secosouth, Inc.,
 4. Or equal

2.4 FASTENERS

- A. Fastener Materials: Unless otherwise indicated, provide the following:
 - 1. Stainless-Steel Components: Type 316 stainless-steel fasteners.
 - 2. Dissimilar Metals: Type 316 stainless-steel fasteners.
- B. Fasteners for Anchoring to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads.
- C. Provide concealed fasteners for interconnecting railing components and for attaching railings to other work unless otherwise indicated.
 - 1. Provide tamper-resistant flat-head machine screws for exposed fasteners unless otherwise indicated.
- D. Anchors, General: Anchors capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
- E. Post-Installed Anchors:
 - 1. Post-installed anchors in Concrete: As indicated on Drawings and as specified in Section 32 16 10 — 'Concrete and Metal Site Elements'.
 - 2. Alloy Group 2 stainless-steel bolts, ASTM F 593, and nuts, ASTM F 594.

2.5 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welding.
- B. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturers for interior and exterior applications.
- C. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project Site to create pourable anchoring, patching, and grouting compound.

1. Water-Resistant Product: At locations exposed to the exterior environment, including concealed locations, and where indicated, provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.

2.6 FABRICATION

- A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- B. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- C. Assemble railings in the shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- D. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- E. Formwork true to line and level with accurate angles and surfaces.
- F. Fabricate connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate. Locate weep holes in inconspicuous locations.
- G. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.
- H. Connections: Fabricate railings with welded connections unless otherwise indicated.
- I. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
 - a. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals. Obtain fusion without undercut or overlap.
 - b. Remove flux immediately.

- c. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 1 welds: no evidence of a welded joint.
 - d. Use materials and methods that match the color of base metal, minimize distortion, and develop maximum strength and corrosion resistance.
 - e. Remove flux immediately.
 - f. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and brazed surface matches contours of adjoining surfaces.
- J. Mechanical Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
 - 1. Fabricate splice joints for field connection using an epoxy structural adhesive if this is manufacturer's standard splicing method.
- K. Form changes in direction as follows:
 - 1. As detailed.
 - 2. By bending to smallest radius that will not result in distortion of railing members.
- L. Bend members in jigs to produce uniform curvature for each configuration required; maintain cross section of members throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- M. Close exposed ends of hollow railing members with prefabricated end fittings.
- N. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns.
- O. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.
 - 1. At brackets and fittings fastened to plaster or gypsum board partitions, provide crush-resistant fillers, or other means to transfer loads through wall finishes to structural supports and prevent bracket or fitting rotation and crushing of substrate.

- P. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.
- Q. Toe Boards: Where indicated, provide toe boards at railings around openings and at edge of open-sided floors and platforms. Fabricate to dimensions and details indicated.

2.7 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipment.
- C. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved samples. Variations in appearance of other components are acceptable if they are within the range of approved samples and are assembled or installed to minimize contrast.

2.8 STAINLESS-STEEL FINISHES

- A. Surface Preparation: Remove tool and die marks and stretch lines, or blend into finish.
- B. Polished Finishes: Grind and polish surfaces to produce uniform finish, free of cross scratches.
- C. Run grain of directional finishes with long dimensions of each piece.
- D. Dull Satin Finish: No. 4.
- E. When polishing is completed, passivate and rinse surfaces. Remove embedded foreign matter and leave surfaces chemically clean.

PART 3 — EXECUTION

3.1 EXAMINATION

- A. Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements have been clearly marked for installer. Locate reinforcements and mark locations if not already done.

3.2 INSTALLATION, GENERAL

- A. Fit exposed connections together to form tight, hairline joints.
- B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
 - 1. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 - 2. Set posts plumb within a tolerance of 1/16 inch in 3 feet.
 - 3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed ¼ inch in 12 feet.
- C. Adjust railings before anchoring to ensure matching alignment at abutting joints.
- D. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.
- E. Finish joints in accordance with NOMMA Guideline 1.

3.3 RAILING CONNECTIONS

- A. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in “Fabrication” Article whether welding is performed in the shop or in the field.
- B. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches beyond joint on either side, fasten internal sleeve securely to one side, and locate joint within 6 inches of post.

3.4 ANCHORING POSTS

- A. Form or core-drill holes not less than 5 inches deep and ¾ inch larger than outside dimensions of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout or anchoring cement, mixed and

placed to comply with anchoring material manufacturer's written instructions.

- B. Cover anchorage joint with flange of same metal as post, welded to post after placing anchoring material.
- C. Anchor posts to metal surfaces with flanges, angle type, or floor type as required by conditions, connected to posts and to metal supporting members as follows:
 - 1. For stainless-steel railings, weld flanges to posts and bolt to metal-supporting surfaces.

3.5 ATTACHING RAILINGS

- A. Anchor railing ends to concrete and masonry with flanges connected to railing ends and anchored to wall construction with anchors and bolts.
- B. Anchor railing ends to metal surfaces with flanges bolted to metal surfaces and welded to railing ends.
- C. Attach handrails to walls with wall brackets except where end flanges are used. Provide brackets with 1-1/2 inches of clearance from inside face of handrail and finished wall surface. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
 - 1. Use type of bracket with flange tapped for concealed anchorage to threaded hanger bolt.
 - 2. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
- D. Secure wall brackets and railing end flanges to building construction as follows:
 - 1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.
 - 2. For steel-framed partitions, fasten brackets with toggle bolts installed through flanges of steel framing or through concealed steel reinforcements.

3.6 FIELD QUALITY CONTROL

- A. The Contractor shall provide Field Quality Control in accordance with the Contract Documents.

- B. If tests indicate Work does not meet the specified requirements, remove Work, replace, and retest at no cost to the Airport Authority.

3.7 CLEANING

- A. Clean stainless steel by washing thoroughly with clean water and soap, rinsing with clean water, and wiping dry.

3.8 PROTECTION OF FINISHED WORK

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.
- B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in the field to the shop; make required alterations and refinish entire unit or provide new units.

PART 4 — MEASUREMENT AND PAYMENT

4.1 MEASUREMENT AND PAYMENT

- A. Full compensation for Section 05 73 00 – Decorative Railings, shall be considered as included in the Contract price paid for various items under **Bid Schedule A**, and no additional compensation will be allowed therefor.

END OF SECTION

SPECIFICATIONS
DIVISION 26 - ELECTRICAL

SECTION 26 05 00

BASIC ELECTRICAL REQUIREMENTS

PART 1 – GENERAL

1.1 SUMMARY

- A. Basic Electrical Requirements are specifically applicable to these Specifications and associated Specifications Sections.
- B. Section includes but not limited to the following:
 - 1. Power/Electrical System
 - 2. Lighting System
 - 3. Utility Work
 - 4. Connection of Electrically Powered Mechanical Equipment
 - 5. Temporary Construction Power
 - 6. All Incidentals Necessary for a Complete and Fully Operational Electrical System.

1.2 REFERENCE STANDARDS

- A. All references made within these technical provisions to the various standards shown in this Section shall be limited to construction materials, methods, and all work incidental to the items of work only.
- B. The following is a list of standards which may be referenced in this Section:
 - 1. NFPA 70 – National Electrical Code.
 - 2. ANSI C2 – National Electrical Safety Code.
 - 3. NEMA – National Electrical Manufacturer's Association.
 - 4. UL – Underwriters Laboratories
 - 5. NFPA – National Fire Protection Association.
 - 6. IEEE – The Institute of Electrical and Electronics Engineers
 - 7. IESNA – The Illuminating Engineering Society of North America
 - 8. NETA – International Electrical Testing Association
 - 9. API – American Petroleum Institute
 - 10. AGA – American Gas Association

1.3 WORKING CLEARANCES

- A. Working clearances around equipment requiring electrical services shall be verified by Contractor to comply with Code requirements. Should there be apparent violations of clearances; the Contractor shall notify the Representative before proceeding with connection or placing of equipment.
- B. In the case of panelboards, safety switches and other equipment requiring wire and cable terminations, the Contractor shall ascertain that lug sizes and wiring gutters or space allowed for proper accommodation and termination of the wires and cables are adequate.

1.4 PROTECTION OF ELECTRICAL EQUIPMENT

- A. Electrical equipment shall be protected by the weather, especially from water dripping or splashing upon it, at all times during shipment, storage and after installation. Should any apparatus be subjected to possible injury by water, it shall be thoroughly dried out and put through a dielectric test, at the expense of the contractor, to ascertain the suitability of this apparatus. The results of the test shall be submitted to the Representative and if the apparatus is found to be unsuitable, the contractor shall replace it without additional cost...

1.5 UTILITIES

- A. The Contractor shall install a fully operational electrical service as described in the Drawings.

1.6 TEMPORARY POWER AND LIGHTS DURING CONSTRUCTION

- A. Contractor to provide and maintain adequate temporary power and lighting at all times during construction, so that the various other trades can accomplish their work in a flawless manner. Particular attention will be given to power and lighting for masonry, painting, tile work and any other finish work.

1.7 MATERIAL STANDARDS

- A. Material shall comply with standards of Underwriters' Laboratories, Inc., where standards have been established for the particular product and the various NEMA, ANSI, ASTM, IEEE, AEIC, IPCEA or other publications referenced.

1.8 TEST EQUIPMENT

- A. The contractor shall provide all test equipment and supplies deemed necessary to complete all the work and deliver fully operation systems at no extra cost to the Airport Authority.

1.9 SUBMITTALS

A. Shop Drawings.

1. The Contractor shall prepare all electrical shop drawings for Authority Representative review and acceptance.
2. Submit shop drawings to include complete submittal of related systems, products, and accessories Submit Shop Drawings on the following as required:
 - a. Low Voltage Power/Electrical System
 - 1) Conduit and Conduit Fittings
 - 2) Wire
 - 3) Pull Boxes
 - 4) Panelboards
 - 5) Panelboard Layouts
 - 6) Circuit Breakers
 - 7) Disconnects
 - 8) Fuses
 - 9) Conduit Support Systems
 - 10) Wiring Devices
 - b. Lighting System
 - 1) All Light Fixtures
 - a) Computer Printout of Lighting Layout
 - b) Sample Fixture (as directed by Representative)
 - c) IES Photometric Files
 - d) Poles & Foundations
 - c. Miscellaneous Electrical Equipment
 - 1) Miscellaneous Electrical Parts
 - d. Drawings
 - 1) Coordination drawing of All Electrical Room
 - 2) Conduit layout drawings
 - 3) As-Built Drawings
 - 4) Mark dimensions and values in units to match those specified.

B. Product Data: Submit for all electrical products identified.

1.10 REGULATORY REQUIREMENTS

- A. Conform to applicable Governmental Rules.
- B. Electrical: Conform to NFPA 70 & National Electric Safety Code
- C. Obtain permits and request inspections from the authority having jurisdiction.

1.11 FINAL INSPECTION AND TESTING

- A. After the electrical installation is complete, the Contractor shall deliver to the Authority Representative the following information with his request for final inspection.
 - 1. One set of contract drawings marked to show all significant changes in equipment ratings and locations, alterations in locations of conduit runs, or of any data differing from the contract drawings. This shall include revised or changed panelboard and switchgear schedules.
 - 2. Certificates of final inspection from local authority.
 - 3. A tabulation of all motors listing their respective manufacturer, horsepower, nameplate voltage and current, actual running current after installation and overload heater rating.
- B. The electrical work shall be thoroughly tested to demonstrate that the entire system is in proper working order and in accordance with the plans and specifications. Each motor with its control shall be run as nearly as possible under operating conditions for a sufficient length of time to demonstrate correct alignment, wiring capacity, speed and satisfactory operation. All main switches and circuit breakers shall be operated, but not necessarily at full load. Contractor may be required during final inspection, at the request of the Representative to furnish test instruments for use during the testing.
- C. All wiring shall be given a megger test using a 1000 Volt megger. This test shall be performed after conductors are pulled, but before final connections are made. The Representative shall be given two (2) days' written notice of the anticipated test date so that he may witness the test if so desired. In any event, the Contractor shall record the circuit designation and the megger reading on each phase. This written record shall be submitted to the Representative. The cost of this test or any retest caused by insufficient megger readings shall be the responsibility of the Contractor (All tests shall be done in accordance with NETA Standards).

1.12 ELECTRICAL STAFFING REQUIREMENTS

- A. The electrical contractor shall provide a "Master Electrician" who has been deemed a "Master Electrician" by exam through the State, or any other Local

Permitting Authority as the Electrical Superintendent for the project. The Electrical Superintendent shall be on the project site any time any electrical work is performed by the contractor.

- B. In addition, the Contractor shall provide one Journeyman electrician for every four electrical helpers used on the project site.

1.13 AS-BUILT DRAWINGS

- A. The contractor shall provide detailed as-built drawings for the project indicating all power wiring. All Drawings shall be delivered to the Authority Representative in an AutoCAD 2012 Format in accordance with the Contract Documents.
- B. The As-Built drawings shall include detailed drawings of all duct banks, underground conduit, above ground conduit, motor control centers, PLC control panels, and control drawings. These drawings shall indicate exact location of all underground electrical wiring and fiber optic cables.
 - 1. The location shall indicate the following
 - a. Centerline location
 - b. Width / Cross section
 - c. Depth

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.1 CONTRACTOR QUALITY CONTROL

- A. The Contractor shall develop and implement a Contractor Quality Control Program including but not limited to inspection and testing to assure compliance with the requirements of the Contract Documents.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT AND PAYMENT

- A. Full compensation for Section 26 05 00 – Basic Electrical Requirements, shall be considered as included in the Contract price paid for various work items under **Bid Schedule A**, and no additional compensation will be allowed therefor.

END OF SECTION

SPECIFICATIONS
DIVISION 26 - ELECTRICAL
SECTION 26 56 00
EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Exterior luminaires with lamps and ballasts.
 - 2. Luminaire-mounted photoelectric relays.
 - 3. Poles and accessories.
 - 4. Luminaire lowering devices.
 - 5. Foundations

1.2 DEFINITIONS

- A. CCT: Correlated color temperature.
- B. CRI: Color-rendering index.
- C. HID: High-intensity discharge.
- D. LER: Luminaire efficacy rating.
- E. Luminaire: Complete lighting fixture, including ballast, reflector, wiring and housing.
- F. Pole: Luminaire support structure, including tower used for large area illumination.
- G. Standard: Same definition as "Pole" above.

1.3 REFERENCES

- A. National Electrical Manufacturer's Association (NEMA) LE5-1993:
 - 1. Procedure for determining Luminaire efficiency ratings.
- B. Underwriters Laboratories, Inc. (UL):
 - UL 48: Electrical Discharge Lighting Systems (Cold Cathode)

UL 496:	Edison Base Lampholders
UL 542:	Lampholders, Starter Holders for Fluorescent Lamps
UL 676:	Underwater Lighting Fixtures
UL 924:	Emergency Lighting and Power Equipment
UL 935:	Fluorescent Lamp Ballasts
UL 1012:	Power Units Other Than Class 2
UL 1029:	HID Lamp Ballasts
UL 1310:	Class Power Units
UL 1570:	Fluorescent Lighting Fixtures
UL 1571:	Incandescent Lighting Fixtures
UL 1572:	High Intensity Discharge Lighting Fixtures
UL 1838:	Landscape Lighting Systems
UL 1994:	Egress Path Marking Systems

1.4 SYSTEM DESCRIPTION

- A. Light fixture schedule series numbers are a design series reference and do not necessarily represent the exact catalog number, size, voltage, wattage, type of lamp, ballast, finish trim, ceiling type, mounting hardware, ceiling trim or special requirements as specified hereinafter or as required by the particular installations. Provide complete fixtures to correspond with the number of lamps, wattage, light distribution and/or size specified.
- B. If there are discrepancies between fixture illustrations and the written description in the fixture schedule, the written description in the fixture schedule shall take precedence.
- C. Light fixture voltage shall match voltage of circuit serving the light fixture.

1.5 SUBMITTALS

- A. Product Data:
 - 1. For standard catalog items, provide original product sheets, -neatly and clearly marked- to indicate that light fixture, ballasts and lamps fully comply with contract documents. Include photometric report by an independent certified testing laboratory when required in fixture schedule. Manufacturer's test report is not acceptable.
 - 2. Submittals shall have fixture types and project name clearly indicated and shall be prepared by the authorized manufacturer's representative serving the project area. A list of manufacturer's representatives (including address, telephone and fax numbers) identifying which light fixture types they represent shall be included with submittals.
- B. Shop Drawings:
 - 1. For linear light sources (cold cathode or neon), submit scale plans and

details of the lamp layout, method of installation of the lampholders, lamps, reflectors, transformer housings and locations, secondary feeds and a complete bill of materials. Field dimensions required to be furnished by the contractor shall be shown on shop drawings. Shop drawings shall be revised after receipt of field dimensions to show exact location of lamps and lamp holders. A copy of the final complete shop drawings shall be included in the Operation and Maintenance Manuals.

2. For custom or modified fixtures, submit scaled drawings prepared by the manufacturer showing details of construction, lengths of runs, pendant and power feed locations, accessory pieces, finishes, and list of materials. Contractor to provide manufacturer with field dimensions where required.
 3. For fiber optic systems, submit scale plans showing cable layout, number and type of fiber bundles, light box location and a complete bill of materials. Show field dimensions on shop drawings.
- C. Pole and Support Component Certificates: Signed by manufacturers of poles, certifying that products are designed for indicated load requirements in AASHTO LTS-5-E and that load imposed by luminaire and attachments has been included in design. The certification shall be based on design calculations by a professional engineer.
- D. Product Samples, complete with housing, trim with 8' cord, plug, and specified lamp shall be submitted if requested in the fixture schedule.
- E. Operation and Maintenance Data.

1.6 QUALITY ASSURANCE

- A. Fixtures and components shall be new and listed by Underwriters Laboratories (UL) or other Nationally Recognized Testing Laboratory (NRTL) acceptable to the local Authority Having Jurisdiction (AHJ).

1.7 MANUFACTURER'S WARRANTY

- A. LED Luminaires: Provide manufacturer's warranty for a period of not less than three years for repair or replacement of defective electrical parts, including light source, drivers and power supplies.

1.8 MOCKUPS

- A. Where required in the contract documents, provide a mock-up of the lighting systems. The mock-up shall be erected in a time period and location that is acceptable to the Airport Authority.
- B. The mock-up installation shall closely conform with the conditions of the actual installation as to: height, distance from the soffit, ground, wall, number and type

of lamps, materials, colors, etc. Submit a drawing of the mock-up condition for approval prior to commencing construction.

- C. The purpose will be to study the general appearance and performance of the systems. Minor modifications may be required as a result of the mock-up to meet the specified performance criteria. These modifications that do not materially effect the cost of the installation, shall be incorporated at no additional cost to the Authority.

1.9 PROTOTYPES

- A. All custom fixtures require a prototype to be submitted prior to commencement of final fabrication. The purpose of the prototype will be to review finishes, lamp placement within the fixture, lamp type and reflector shape or size. Modifications may be required as a result of the prototype review. These modifications and others that do not materially affect the cost of the fixture shall be incorporated at no additional cost to the Authority.

1.10 EXTRA MATERIALS

- A. Lamps: Provide one case or 10 percent (whichever is less) of each type used on the project. Turn over to the Authority Representative and obtain signed receipt.
- B. Fuses: Provide one case or 10 percent (whichever is less) of each type used on the project. Turn over to the Authority Representative and obtain signed receipt.
- C. Adjustable Accent Lights (recessed or surface mounted): Provide additional lenses, color filters and other accessories to be used during final focusing, as follows:
 - 1. 20 percent or one case (whichever is less) of each lamp type (type, beam spreads, and wattages to be determined by the Authority Representative). A spot and a flood lamp of the same wattage are considered to be two different lamp types.
 - 2. 10 percent or one dozen each, (whichever is less) lenses, color filters and louvers (to be determined by the Authority Representative).

PART 2 – PRODUCTS

2.1 GENERAL MATERIAL REQUIREMENTS

- A. Finish mounting hardware and accessories to prevent corrosion and discoloration to adjacent materials.
- B. For weatherproof or vaportight installations, painted finishes of fixtures and

accessories shall be weather resistant enamel using proper primers or galvanized and bonderized epoxy, so that the entire assembly is completely corrosion resistant for the service intended. Where aluminum parts come into contact with bronze or steel parts, apply a coating material to both surfaces to prevent corrosion.

- C. Non-vaportight fixtures to have 1/8-inch dia. weep holes as required for proper drainage. Weep holes to be configured to prevent light leaks.
- D. Fixtures shall be free of light leaks and designed to provide sufficient ventilation of lamps to provide the photometric performance required. Ballasts and transformers shall be adequately vented.
- E. Lampholders shall hold lamps securely against normal vibrations and maintenance handling.
- F. Reflector Cones:
 - 1. Provide minimum 45° lamp and lamp image cut-off for all vertically mounted lamps. For horizontal lamps provide minimum 33° cut-off. There shall be no visible lamp flashing in the cone.
 - 2. Plastic materials shall not be used for reflector cones, unless noted otherwise in the Light Fixture Schedule.
 - 3. Reflector cones shall not be riveted or welded to housing and shall be removable without tools. Retention devices shall not deform the cone in any manner. Trim shall be flush with finished ceiling without gaps or light leaks. Where the flange trim is separate from the cone, it shall have the same finish as the cone.
 - 4. Reflector cones shall be of uniform gauge, not less than 0.032-inch thick, high purity aluminum Alcoa 3002 alloy, free of spin marks or other defects.
 - 5. Manufacture reflector under the Alzak process. Refer to fixture schedule for cone color and specular or diffuse finish requirements. For fixtures using compact fluorescent lamps, provide additional finish equivalent to Color-Chek that eliminates iridescence. Submit one sample of each cone type for review when required in the fixture schedule.
- G. Finish of egress door shall be matte baked enamel paint in color as selected by the Authority Representative.
- H. Light fixtures containing lamps which require protective shielding shall have tempered clear glass lenses, unless noted otherwise in the Light Fixture Schedule.
- I. For adjustable fixtures, provide positive locking devices to fix aiming angle.

Fixture shall be capable of being relamped without adjusting aiming angle.

- J. Fixtures recessed in suspended ceilings where the space above the ceiling is either an air supply or return plenum shall conform with NEC Article 300- 22.
- K. Safety: Provide safety devices for removable fixture elements (cones, reflectors, lenses, etc.) to support removable elements when not in normal operating position. Safety devices shall be detachable if necessary and shall not interfere with fixture performance, maintenance or the seating of any fixture element, and not be visible during normal fixture operation. Safety device shall be made of corrosion resistant materials.
- L. Finishes:
 - 1. Painted surfaces shall have an outdoor life expectancy of not less than 20 years without any visible rust or corrosion.
 - 2. Finishes to comply with requirements set by the American Architectural Manufacturers Association (AAMA):
 - a. Baked on enamel and high performance powder coating finish on aluminum: AAMA 304-05
 - b. Anodized aluminum: AAMA 611-98
 - c. Clear coat on aluminum: AAMA 612-02
 - 3. Finish colors shall be as specified.
- M. Diffusers: materials shall be UV stabilized.

2.2 LUMINAIRE-MOUNTED PHOTOELECTRIC RELAYS

- A. Comply with UL 773 or UL 773A.
- B. Contact Relays: Factory mounted, single throw, designed to fail in the on position, and factory set to turn light unit on at 1.5 to 3 fc (16 to 32 lx) and off at 4.5 to 10 fc (48 to 108 lx) with 15-second minimum time delay. Relay shall have directional lens in front of photocell to prevent electric light sources from causing false turnoff.
 - 1. Relay with locking-type receptacle shall comply with ANSI C136.10.
 - 2. Adjustable window slide for adjusting on-off set points.

2.3 LIGHT EMITTING DIODE (LED) FIXTURES

- A. Housing: Rigid aluminum construction.
- B. Finish: Visible surfaces. Powder coated paint or natural aluminum as specified

in Light Fixture Schedule. Color and finish as selected by architect. Concealed parts, (lamp holders, yokes, brackets, etc.) matte black.

- C. Lamp Holder Housing: Cast aluminum with integral heat radiating fins to assure cool lamp base operation, with sufficient heat dissipation to meet device manufacturer's guidelines for junction temperature, certification programs, and test procedures for thermal management.
- D. Off-state Power: Luminaires shall not draw power in the off state. Exception: Luminaires with integral occupancy, motion, photo-controls or individually addressable fixtures with external control and intelligence are exempt from this requirement. The power draw for such luminaires shall not exceed 0.5 watts when in the off state.

2.4 WIRING

- A. Wiring shall be as required by code for fixture wiring.
- B. Flexible cord wiring between fixture components or to electrical receptacle and not in wireways shall have a minimum temperature rating of 105°C.
- C. Cords shall be fitted with proper strain reliefs and watertight entries where required by application.
- D. No internal wiring shall be visible at normal viewing angles, i.e. above 45° from vertical.

2.5 LAMPS

- A. Each lamp type in the Project shall be manufactured by the same manufacturer.
- B. Light Emitting Diode Type:
 - 1. LED modules/arrays shall have a minimum CRI of 80 unless otherwise specified in the Light Fixture Schedule.
 - 2. Color temperature variation shall not exceed +/- 100 degrees Kelvin at installation, and +/- 200 degrees Kelvin over the life of the module. Provide CCT as noted in the Light Fixture Schedule.
 - 3. LED modules/arrays shall deliver at least 70 percent of initial lumens, when installed in-situ, for a minimum of 50,000 hours.
 - 4. Mechanically fasten board to heat sink as required to meet LED manufacturer's heat dissipation requirements.
 - 5. Manufacturers: Bega, Cree, Philips (Lumileds), Nichia, Osram, GE, or equal.

2.6 LIGHTING STANDARDS

- A. Pole/Luminaire Assemblies and Bollards: Supply luminaires, davit arms, brackets, poles, handhole covers, base components and all other accessories for a complete assembly. Manufacturer shall be responsible for proper fitting of all elements and the structural integrity of the unit. Provide assembly to withstand 100 mph steady wind rated poles with 1.3 gust factor.
- B. Provide watertight insulating fuse and holder in the base of each lighting standard to individually protect each lighting fixture. Fuse holder similar to Buss style "HEX" (HEB permitted for 120V or 277V), with Buss fuse of appropriate ampacity and voltage. Provide fuse for each hot circuit wire; do not fuse neutral.

2.7 EMERGENCY BATTERY PACKS

- A. Where fluorescent fixtures are indicated or specified to have self-contained battery backup, provide battery pack(s) with 1100 lumen output for single lamp operation or as indicated. Unit shall have high temperature nickel cadmium battery, automatic transfer switch, battery charger high frequency inverter, installed test/charging indicator and switch, dual voltage, and be UL listed to standard 924. Provide normal switching connection where indicated.
- B. Provide extended temperature performing batteries as required based on local historical metrological annual low temperatures at the site.
- C. Testing: Apply power for 24 hours, disconnect power observe, measure and record light output for specified 90 minute period. Continue to run on battery until automatic low battery cut-off circuit disconnects battery. Restore normal power and verify battery returns to charging mode.
- D. Manufacturer's Warranty: Entire unit shall be warranted for 5 years, battery shall have 15 years life expectancy with 5 years full warranty and 7 additional years prorated warranty. Full warranty to cover labor and materials without charge. Prorated warranty to cover material only.

PART 3 - EXECUTION

3.1 LIGHTING FIXTURES, GENERAL

- A. Provide mounting accessories and trims as required for wall and ceiling construction types shown in Finish Schedule and on Drawings.
- B. Verify weight and mounting method of fixtures and provide suitable supports. Fixture mounting assemblies shall comply with local seismic codes and regulations.
- C. Refer to landscape architecture, civil, and architectural plans for coordination of lighting fixture locations with other devices and site elements. Where conflicts

occur, coordinate with the Authority Representative prior to installing any of the systems.

- D. Lighting fixtures located in recessed ceilings with a fire resistive rating of 1-hour or more shall be enclosed in an approved fire-resistive rated box equal to that of the ceiling.
- E. Adjust aperture rings on all recessed fixtures to be flush with the finished ceiling.
- F. For fluorescent lamps operated on dimming ballasts, operate lamps at full output for the number of hours (continuous burn) recommended by the lamp manufacturer before dimming.
- G. Adjust variable position lampholders for proper lamp position prior to fixture installation.
- H. Blemished, damaged or unsatisfactory fixtures or accessories shall be replaced.
- I. For pendant mounted fixtures, mounting height is from finished ceiling to top of pendant light fixture. For wall mounted fixtures, center on outlet box unless otherwise noted. Verify mounting provisions and other requirements prior to order of light fixtures and provide as required.
- J. In accessible suspended ceilings, provide 72-inches flexible conduit wiring connection (flexible tubing not permitted) from a rigidly supported junction box.
- K. All finishes shall be unmarred upon project completion. Repair or replace damaged finishes.
- L. Replace all burned out or inoperative lamps at the end of the construction prior to Final Acceptance.

3.2 DIFFUSERS AND ENCLOSURES

- A. Remove protective plastic covers from lighting fixture diffusers only after construction work, painting and clean-up are completed. Remove all dirty lamps, reflectors and diffusers; clean and reinstall. When cleaning "Alzak" reflectors, use a manufacturer recommended cleaning solution. Reflectors damaged or impregnated with fingerprints shall be replaced at no cost to the Authority.
- B. For LED fixtures, whether surface mounted or recessed, remove all construction dirt and dust from heat sink fins to ensure proper dissipation of heat.

3.3 ADJUSTMENT OF LIGHT FIXTURES

- A. Focus all adjustable light fixtures under the direction of the Authority

Representative during a scheduled period of time prior to the completion of the project.

3.4 LIGHTING BOLLARDS

- A. Provide galvanized anchor bolts and nuts, and plumb to true vertical using a nut above and below the base plate on the anchor bolts. Provide steel reinforced concrete footing with grout between base plate and concrete footings. Bollard footing shall be flush with grade when located in paved surface. Ground all components

3.5 LIGHTING STANDARDS

- A. Provide rebar reinforced concrete base. For bolted poles, provide galvanized anchor bolts and nuts and plumb to true vertical using a nut above and below the base plate on the anchor bolts. Pack grout between base plate and concrete base and provide drain hole below base plate to prevent accumulation of moisture inside pole base. Provide two piece or individual covers for nuts exposed above the baseplate of the same color as the pole. Ground pole and light fixture.

3.6 CORROSION PREVENTION

- A. Aluminum: Do not use in contact with earth or concrete. When in direct contact with a dissimilar metal, protect aluminum by insulating fittings or treatment.
- B. Steel Conduits: Comply with Division 26 Section "Raceway and Boxes for Electrical Systems." In concrete foundations, wrap conduit with 0.010-inch- (0.254-mm-) thick, pipe-wrapping plastic tape applied with a 50 percent overlap.

3.2 FIELD QUALITY CONTROL

- A. Inspect each installed fixture for damage. Replace damaged fixtures and components.
- B. Illumination Observations: Verify normal operation of lighting units after installing luminaires and energizing circuits with normal power source.
 - 1. Verify operation of photoelectric controls.
- C. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

3.3 DEMONSTRATION

- A. Train the Authority's maintenance personnel to adjust, operate, and maintain luminaire lowering devices.

PART 4 – MEASUREMENT AND PAYMENT

4.1 MEASUREMENT AND PAYMENT

- A. Full compensation for Section 26 56 00 – Exterior Lighting, shall be considered as included in the Contract price paid for various items under **Bid Schedule A**, and no additional compensation will be allowed therefor.

END OF SECTION

SPECIFICATIONS
DIVISION 31 – EARTHWORK
SECTION 31 20 00
EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

A. This section Includes:

1. Temporary Erosion and Sediment Control measures
2. Unclassified Excavation
3. Over-Excavation for Subgrade Stabilization

1.2 REFERENCE STANDARDS

A. All references made within these specifications to various standards shall be limited to construction materials, methods, and all work incidental to the item of work only. Measurements and Payments shall be established as shown within Part 4 of these specifications only.

B. The following is a list of standards which may be referenced in this Section:

1. Standard Specifications for Public Works Construction ("Greenbook" Standard Specifications, 2024 Edition). (Excluding any section related to "Part 1 – General Provisions" of the GREENBOOK.)

1.3 SUBMITTALS

A. Traffic and Safety Plan

1. Refer to Section 01 56 26 – Traffic Control

B. Mix Design: Contractor shall submit a job mix design for all import and select fill material to be used on project.

1. Provide copies of gradation reports and material certificates signed by material producer and Contractor, certifying that each material complies with, or exceeds, specified requirements.
2. Provide samples upon request.

1.4 QUALITY CONTROL

A. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E 329 and ASTM D 3740 for testing indicated.

1.5 PROJECT CONDITIONS

- A. Any discrepancy between actual conditions and the contract documents shall be brought to the attention of the Authority Representative.
- B. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth moving operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from the authorities having jurisdiction, unless otherwise shown on the Drawings.
 - 2. Provide alternate routes around closed or obstructed traffic paths if required by the authorities having jurisdiction.
- C. Utility Locator Service: Notify local "811" before beginning earth moving operations.
- D. Do not commence earth moving operations until temporary erosion and sedimentation control measures are in place as specified in the Contract Documents.
- E. The Authority Representative shall be present during grading operations to evaluate the suitability of the various soil types exposed during excavation at the site for use as Engineered Fill and resistance R-values used in design. Do not commence earth moving operations without the presence of the Authority Representative.
- F. Blasting shall not be permitted.

1.6 DEFINITIONS

- A. Backfill
 - 1. Soil material or controlled low-strength material used to fill an excavation.
 - a. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
 - b. Final Backfill: Backfill placed over initial backfill to fill a trench.
- B. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.
- C. Engineered Fill: Imported or satisfactory on-site native soil suitable for use as fill or backfill material.
- D. Import Fill: Imported satisfactory soil material from an approved off-site export site.

- E. Select Fill: Materials meeting the requirements of Section 2.1 to be placed as shown in the plans.
- F. Unsatisfactory Materials: Materials that are saturated in their native condition and cannot be brought to firm and unyielding conditions during compaction, or otherwise unsuitable for use, as determined by the Authority Representative.
- G. Structures: Footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- H. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill, drainage fill, drainage structure, drainage course, or topsoil materials.
- I. Utilities: On-site underground pipes, conduits, ducts, and cables.
- J. Unsuitable Material: Any material containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction.

PART 2 - PRODUCTS

2.1 SELECT FILL MATERIAL

- A. Select fill shall consist of clean sand and/or 0.75-inch gravel meeting the requirements of Table 1.

Table 1 Characteristics of Select Fill Material	
Sand Equivalent Value (ASTM D 2419), Min	30
Expansion Index (ASTM D 4829), Max	0
Percentage of Fines Passing #200 Sieve (ASTM D 6913), Max	5

- B. Select fill shall be free of oversized rock, organic materials, expansive clay, and deleterious debris.
- C. Soils excavated from the site meeting all requirements in Section 2.1 may be used as select fill.

PART 3 - EXECUTION

3.1 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Refer to the Contract Documents.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations.
- B. Protect and maintain erosion and sedimentation controls during earth moving operations.

3.3 DEWATERING AND FLOW CONTROL

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project Site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations.

3.4 UNCLASSIFIED EXCAVATION

- A. Unclassified excavation shall consist of all excavation to construct the project regardless of its nature. This item includes excavation, grading, and compaction to 95% as shown on the Drawings.
- B. Excavations not designated as unclassified excavation include the following: structure excavation, PCC concrete pavement removal, AC pavement removal, temporary excavations, minor excavations to remove existing site elements, excavation for underground utilities, and any excavation separately designated in these specifications.
- C. Excavate, shape and finish all earthwork to new subgrade, parkway, and top of slope in conformance with the lines and grades shown on the Drawings. Slopes shall be excavated per Section 300-2.5 "Slopes" of the "Greenbook" Standard Specifications, except the construction tolerance of the completed slope shall be reduced from 6 inches to 2 inches as measured at right angles to the slope.
- D. No excavation beyond the limits shown on the Drawings shall take place without prior written authorization of the Authority Representative.
- E. As directed by the Authority Representative, the Contractor shall either haul off-site all or some of the excavated materials or re-use excavated materials to meet the criteria of the base or fill materials, if suitable per the appropriate specification. The Contractor shall load for transport, properly transport, and dispose at the Republic Services Class III Otay Landfill

(Landfill) in Chula Vista, California, any soil that is surplus or that is unsuitable for use on Site or that is identified by the Authority Representative. Contractor shall include all costs for handling, hauling off-site or hauling on-site, and recycling, disposing or stockpiling, in the contract unit price for "Unclassified Excavation."

1. A designated area for temporary stockpiling, crushing, mixing, or blending is not designated for this project.
 2. It is anticipated that a portion of the excavated material will be unsatisfactory due to high moisture content and/or unsuitable soils characteristics. Contractor shall include all costs for handling wet or unsuitable material in the contract unit price for "Unclassified Excavation." Contractor will not be allowed any additional compensation or contract time for handling wet or unsuitable material.
- F. Unclassified Excavation quantities are based on the calculated difference in elevation between the existing ground and the proposed elevations shown on the Drawings. Unclassified excavation does not include trenching for utilities or undercuts required to install retaining walls or hardscape. The Authority Representative may elect to survey the existing site prior to the start of construction to document the existing grade conditions delivered to the Contractor to execute this contract.

3.5 PLACEMENT OF ENGINEERED FILL MATERIAL

- A. Preparation.
1. Subgrade shall be prepared in accordance with paragraph 3.8 below.
- B. Engineered Fill shall be placed in accordance with Subsection 300-4.5 "Placing Materials for Fill" of the "Greenbook" Standard Specifications as modified below:
1. Delete the 3rd and the last paragraph.
- C. Water shall be applied to the engineered fill material in accordance with Subsection 300-4.6 "Application of Water" of the "Greenbook" Standard Specifications as modified below:
1. The onsite soil placed as engineered fill material should be moisture conditioned between +1 and +3 percent above optimum moisture content.
- D. Engineered fill material shall be compacted in accordance with Subsection 300-4.7 "Compaction" of the "Greenbook" Standard Specifications as modified below:

1. Relative compaction shall be based on ASTM D 1557.
 2. Relative compaction for subgrade shall be in accordance with Subsection 3.8 "Subgrade Preparation" of this Section.
- E. Slopes shall be graded in accordance with Subsection 300-4.8 "Slopes" of the "Greenbook" Standard Specifications, as modified in Section 312000, 3.4C.
- F. All loading, on-site hauling, stockpiling, scarifying, placing, spreading, grading, shaping, moisture conditioning, compacting, and consolidating required to place the engineered fill material from on-site excavation to the lines and grades of the roadway prism, slopes, and miscellaneous pavement areas will be considered as included in the Contract Price for "Unclassified Excavation" as defined in Section 31 20 00, "Earth Moving".
- G. All loading, on-site hauling, stockpiling, proof rolling, placing, spreading, grading, shaping, moisture conditioning, compacting and consolidating required to place the imported engineered fill material to the lines and grades of the roadway prism, slopes, and miscellaneous pavement areas will be considered as included in the Contract Price for paragraph 3.8, "Subgrade Preparation".
- H. Placing fill material to fill voids due to removal of existing site elements (footings, piles, utilities) shall be considered as included in the contract unit cost of the item removed and not included in the Contract Price for paragraph 3.8, "Subgrade Preparation".

3.6 GRADING

- A. Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
1. Provide a smooth transition between adjacent existing grades and new grades.
 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

3.7 SUBGRADE PREPARATION

- A. Finish subgrades to required elevations within the following tolerances:
1. Subgrade for pavement, sidewalk, or other roadway structures shall not vary more than 0.02 feet from the specified grade and cross section.

2. Subgrade for subbase or base material shall not vary more than 0.04 feet from the specified grade and cross section.
 3. Subgrade stabilization indicated on plans and within these specifications is based upon limited geotechnical data and is subject to change. Unstable subgrade soils shall be identified during the initial grading by the Authority Representative. After the existing AC, concrete and other construction debris have been removed, the bottom of the excavations shall be proof rolled with heavy grading equipment or loaded water truck, to check for yielding or soft areas that flex or pump under load. Any yielding or soft areas shall be over-excavated as specified in section 31 20 00, "Earth Moving".
- B. Soils under traffic loaded asphalt pavement and concrete that will not be stabilized with cement shall be prepared as follows:
1. Complete rough grading of roadway prism.
 2. Remove upper 12-inches of subgrade, as deemed necessary by the Authority Representative.
 3. Conduct subgrade stabilization.

3.8 OVER-EXCAVATION FOR SUBGRADE STABILIZATION

- A. Contractor shall thoroughly inspect the exposed subgrade prior to placing the select fill material. Subject to Authority approval, Contractor shall over-excavate any soft areas of clay, ground yielding or soil pumping until the soft or yielding subgrade soils are completely removed up to a maximum depth of 12 inches. The over-excavated subgrade shall be filled with the select fill material.

3.9 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
1. Scarify or remove and replace soil material to depth as directed by Authority's Geotechnical Representative; reshape and recompact.
- C. Where settling occurs before project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.

1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.10 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. During any excavation or earthmoving operations, any materials that are saturated in their native condition and cannot be brought to firm and unyielding conditions during compaction, as determined by the Authority Representative, shall be considered as unsatisfactory materials. Soils that are deemed unsatisfactory material for reuse shall be classified as surplus material. Surplus material shall be disposed of offsite in accordance with the Contract Documents and Governmental Rules. The Contractor shall load for transport, properly transport, and dispose at the Republic Services Class III Otay Landfill (Landfill) in Chula Vista, California, any soil that is surplus or that is unsuitable for use on Site or that is identified by the Authority Representative.

3.11 CONTRACTOR QUALITY CONTROL

- A. The Contractor shall develop and implement a Contractor Quality Control Program including but not limited to inspection and testing to ensure compliance with the requirements of this section and in accordance with the Contract Documents.

PART 4 — MEASUREMENT AND PAYMENT

4.1 MEASUREMENT AND PAYMENT

- A. Full compensation for Section 31 20 00 – Earth Moving, shall be considered as included in the Contract price paid for various items under **Bid Schedule A**, and no additional compensation will be allowed therefor.

END OF SECTION

SPECIFICATIONS
DIVISION 31 – EARTHWORK
SECTION 31 25 00
EROSION AND SEDIMENTATION CONTROL

PART 1 — GENERAL

1.1 SUMMARY

- A. This section Includes:
1. The temporary control measures as shown on the Drawings or as directed by the Authority Representative during the life of the Contract to control water pollution, soil erosion, and siltation through the use of berms, dikes, dams, sediment basins, fiber mats, gravel, and other erosion control devices or methods, and as required by the approved Storm Water Pollution Prevention Plan (SWPPP). The temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this Contract to the extent practical to ensure economically effective and continuous erosion control throughout the construction period.

1.2 REFERENCE STANDARDS

- A. All references made within these specifications to the various standards shown in paragraph 1.2.B below shall be limited to construction materials, methods, and all work incidental to the item of work only.
- B. In addition to the requirements in the Contract Documents, the following is a list of standards which may be referenced in this Sections:
1. San Diego County Regional Airport Authority BMP Design Manual.
 2. The California Stormwater Quality Association Handbook.

1.3 SUBMITTALS

- A. Prior to the start of construction, the Contractor shall submit schedules for accomplishment of temporary and permanent erosion control work, in accordance with the Contract Documents.
- B. The Contractor shall submit a proposed method of erosion and dust control on haul roads, and plant sites.

1.4 QUALITY CONTROL

- A. Standard: Provide materials and construction methods complying with Section 3 "Erosion and Sediment control BMPs" of the "California

Stormwater Quality Association Handbook” Fact Sheets. All BMPs are to be installed according to the manufacturer’s installation instructions.

PART 2 — PRODUCTS

2.1 STORM DRAIN INLET PROTECTION

- A. Storm Drain Inlet Protection and related materials shall be in accordance with Section 3 “Erosion and Sediment control BMPs” of the “California Stormwater Quality Association Handbook” Fact Sheet SE-10.

2.2 STREET SWEEPING

- A. Street sweeping and vacuuming shall be in accordance with Section 3 “Erosion and Sediment control BMPs” of the “California Stormwater Quality Association Handbook” Fact Sheet SE-7.

2.3 Fiber Rolls

- A. Fiber Rolls shall be in accordance with Section 3 “Erosion and Sediment control BMPs” of the “California Stormwater Quality Association Handbook” Fact Sheet SE-5.

PART 3 — EXECUTION

3.1 CONSTRUCTION DETAILS

- A. The Contractor shall refer to the Contract Documents for Best Management Practices related to erosion control measures.

3.2 STORM WATER MANAGEMENT

- A. The Contractor shall refer to and provide storm water management in accordance with the Contract Documents.

3.3 CONTRACTOR QUALITY CONTROL PLAN

- A. The Contractor shall refer to and provide a Contractor Quality Control Plan in accordance with the Contract Documents.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT AND PAYMENT

- A. Full compensation for Section 31 25 00 – Erosion and Sedimentation Control, shall be considered as included in the Contract price paid for various items under **Bid Schedule A**, and no additional compensation will be allowed therefor.

END OF SECTION

SPECIFICATIONS

DIVISION 32 – EXTERIOR IMPROVEMENTS

SECTION 32 12 13

HOT MIX ASPHALT

PART 1 - GENERAL

1.1 SUMMARY

- A. This section Includes:
 - 1. Hot-mix asphalt concrete paving.

1.2 REFERENCE STANDARDS

- A. All references made within these technical provisions to the various standards shown in paragraph 1.2.B below shall be limited to construction materials, methods, and all work incidental to the item of work only.
- B. The following is a list of standards which may be referenced in this Section:
 - 1. California Department of Transportation (Caltrans) Standard Specifications, 2025 Edition. (Excluding any section related to “Division I – General Provisions” of the Caltrans Standard Specifications.)
 - 2. Standard Specifications for Public Works Construction (“Greenbook” Standard Specifications, 2024 Edition). (Excluding any section related to “Part 1 – General Provisions” of the GREENBOOK.)

1.3 SUBMITTALS

- A. Mix Design: Asphalt Concrete — Surface Course: Contractor shall submit a job mix design for 3/8 inch Type A HMA with PG 70-10 in accordance with Section 39-2.02 Caltrans Standard Specifications.
 - 1. Submittal shall identify source and individual grading of each material used to produce the mix design (including the percentage and individual gradation of any manufactured or natural sands), the combined aggregate gradation, aggregate quality reports, the optimum binder content (OBC), void content, RAP percentage, antistripping additives, plant identification, mix number, and the source and performance grade of the paving asphalt. Guidelines for submittal is indicated in Section 39-2.01A(3) Caltrans Standard Specifications.

2. All mix design documentation including aggregate test data, and job mix formula shall be within 12 months of submittal.
 3. Provide copies of material certificates signed by material producer and Contractor, certifying that each paving material item complies with, or exceeds, specified requirements.
- B. Mix Design: Asphalt Concrete — Base Course: Contractor shall submit a job mix design for 3/4 inch Type A HMA with PG 70-10 in accordance with Section 39-2.02 Caltrans Standard Specifications.
1. Submittal shall identify source and individual grading of each material used to produce the mix design (including the percentage and individual gradation of any manufactured or natural sands), the combined aggregate gradation, aggregate quality reports, the optimum binder content (OBC), void content, RAP percentage, antistripping additives, plant identification, mix number, and the source and performance grade of the paving asphalt. Guidelines for submittal is indicated in Section 39-2.01A(3) Caltrans Standard Specifications.
 2. All mix design documentation including aggregate test data, and job mix formula shall be within 12 months of submittal.
 3. Provide copies of material certificates signed by material producer and Contractor, certifying that each paving material item complies with, or exceeds, specified requirements.
- C. Certificates for Emulsified Asphalt: Provide copies of material certificates signed by material producer and Contractor, certifying that item complies with, or exceeds, specified requirements.

1.4 QUALITY CONTROL

- A. Regulatory Requirements:
1. Hot Mix Asphalt: Comply with Section 39 “Hot Mix Asphalt” of the Caltrans Standard Specifications, Quality Control and Acceptance shall be in accordance with Sections 39-2.02A(4)(b) and 39-2.02A(4)(e).
 2. Cold Milling: Comply with Section 39-3.04 “Cold Planing Asphalt Concrete Pavement” of the Caltrans Standard Specifications.
- B. Manufacturer Qualifications: A paving-mix manufacturer registered with and approved by Caltrans.

- C. The Authority shall provide an independent Testing Agency for daily on-site monitoring, testing, and inspections during paving operations. The Testing Agency shall conduct both quality control and acceptance testing.
- D. Hot mix asphalt that fails to meet the Quality and Acceptance requirements shall be removed and replaced at no additional cost to the Authority.
- E. Pre-installation Conference: Conduct conference at Project Site.
 - 1. Review methods and procedures related to hot-mix asphalt paving including, but not limited to, the following:
 - 2. Review condition of soil-cement and preparatory work.
 - 3. Review requirements for protecting paving work, including restriction of traffic during installation period and for remainder of construction period.
 - 4. Review proposed sources of paving materials, including capabilities and location of plant that will manufacture hot-mix asphalt.
 - 5. Coordinate work closely with areas needing soil cement.

PART 2 - PRODUCTS

2.1 HOT MIX ASPHALT

- A. Hot mix asphalt shall conform to the following sections of the Caltrans Standard Specifications:
 - 1. Section 39-2.02B "Materials"
- B. Hot mix asphalt for the pavement shall be 3/8-inch HMA Type A for surface course and 3/4-inch HMA Type A for base course.
- C. Asphalt shall be placed as specified on the Drawings.
- D. Asphalt binder shall grade PG 70-10.
- E. Tack Coat shall be grade SS-1h.

PART 3 — EXECUTION

3.1 HOT MIX ASPHALT —TYPE A

- A. Hot mix asphalt (including application of tack coat) for pavement shall be constructed in accordance with the following sections of the Caltrans Standard Specifications.
 - 1. 39-2.01C and 39-2.02C "Construction".
 - 2. 39-2.01A(4)(i)(iii) "Pavement Smoothness".

3.2 CONTRACTOR QUALITY CONTROL PROGRAM

- A. The Contractor shall develop and implement a Contractor Quality Control Program (CQCP) including but not limited to inspection and testing to ensure compliance with the requirements of this section and the Contract Documents.

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT AND PAYMENT

1. Full compensation for Section 32 12 13 – Hot Mix Asphalt, shall be considered as included in the Contract price paid for various items under **Bid Schedule A**, and no additional compensation will be allowed therefor.

END OF SECTION

SPECIFICATIONS
DIVISION 32 – EXTERIOR IMPROVEMENTS
SECTION 32 16 10
CONCRETE AND METAL SITE ELEMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This item shall consist of the preparation and construction of both concrete and metal site elements in accordance with the Contract Documents.
- B. Section Includes:
 - 1. Concrete sidewalk
 - 2. Concrete curbs
 - 3. Accessible Passenger Drop Offs
 - 4. Cobblestone
 - 5. Jaywalking Barrier

1.2 REFERENCE STANDARDS

- A. All references made within these specifications to the various standards shown in Section 1.2.B below shall be limited to construction materials, methods, and all work incidental to the item of work only.
- B. The following is a list of standards which may be referenced in this section:
 - 1. Standard Specifications for Public Works Construction (“Greenbook” Standard Specifications, 2024 Edition). (Excluding any section related to “Part 1 – General Provisions” of the GREENBOOK.)
 - 2. The City of San Diego “Whitebook”, 2024 Edition. (Excluding any section related to “Part 1 – General Provisions” of the WHITEBOOK.)
 - 3. City of San Diego Regional Public Works Standard Drawings.
 - 4. California Department of Transportation (Caltrans) Standard Specifications, 2025 Edition. (Excluding any section related to “Division I – General Provisions” of the Caltrans Standard Specifications.)

1.3 SUBMITTALS

- A. Mix Design Portland Cement Concrete: Contractor shall submit a job mix design for each class of Portland cement concrete (PCC) required for the project per Section 201-1.1.1 "General", of the "Greenbook" Standard Specifications.
 - 1. Mix design shall specify the proportions of aggregate, water, and when applicable, supplementary cementitious materials (SCMs), chemical admixtures, and reclaimed concrete material. The mix design also includes the gradation and source of aggregate, the type and source of Portland cement and SCMs, the brand and designation of chemical admixtures, and the slump requirement. Integral color admixtures shall be included with the mix design submittal for applicable mix designs.
 - 2. If multiple mix designs are submitted together, each mix design shall clearly indicate what it will be used for.
 - 3. Provide copies of material certificates signed by material producer and Contractor, certifying that each PCC material item complies with, or exceeds, specified requirements.
- B. Product Data: Submit manufacturer's product data for all types of truncated domes, cobblestones, fiber fabric.
- C. Shop Drawings: Submit shop drawings for reinforcing steel and accessories.
- D. Samples:
 - 1. Submit four (4) 2.5' x 2.5' acid treated color concrete pavement samples for the Authority Representative to select the color.
 - 2. Submit sample of glue-down truncated domes.
- E. Bollards: Contractor shall submit manufacturer details and shop drawings.
- F. Jaywalking Barrier: Contractor shall submit manufacturer details and shop drawings.
- G. Contractor Quality Control Plan.

1.4 QUALITY CONTROL

- A. Standard: Provide materials and construction methods complying with Section 201 "Concrete, Mortar, and Related Materials" and Section 303 "Concrete and Masonry Construction" of the "Greenbook" Standard Specifications. Install proprietary materials per manufacturer's installation instructions.

- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94 requirements for production facilities and equipment in accordance with Special Conditions, Article 4.1.

1.5 MOCK-UPS

- A. Prior to constructing concrete sidewalk and surface treated sidewalk, perform a mock-up of a minimum of 5-foot x 5-foot area.
- B. The mock-up shall include the construction of each joint type.
- C. Locate the mock-up in a conveniently accessible and protected place. The location shall be approved by the Authority Representative. The approved mock-up will be standard for future installation.
- D. Demolish and remove the mock-up upon completion. Approved mock-ups may become part of the completed Work if accepted by the Authority Representative.

PART 2 - PRODUCTS

2.1 PORTLAND CEMENT CONCRETE

- A. Portland cement concrete and related materials shall be in accordance with Section 201 "Concrete, Mortar, and Related Materials" of the "Greenbook" Standard Specifications. Chemical admixtures and supplementary cementitious materials will be allowed only with approval of the Authority Representative.
- B. Concrete Mix Designs shall be in accordance with details shown on the Drawings or Table 201-1.1.2 of the "Greenbook" Standard Specifications if no mix design is designated.
- C. Joint Materials
 - 1. Preformed Compression Joint Seals must comply with ASTM D 2628. Lubricant adhesive used with the seals must comply with ASTM D 2835. Preformed compression joint seals must have 5 or 6 cells, except seals for Type A2 and Type B joints may have 4 cells. Install preformed compression joint seals in compliance with the manufacturer's instructions. Show evidence that the seals are compressed from 40 to 50 percent for the joint width and depth.
 - 2. Isolation Joint Filler shall be in accordance with Caltrans Standard Specification Section 40-1.02E "Joint Filler".
- D. Steel Reinforcement

1. The sidewalk shall consist of welded steel wire fabric conforming to the requirements of ASTM A1064, or as indicated on the Drawings.
- E. Color Pigment
1. Color Pigment shall be used on concrete sidewalks. The color pigment shall conform to the requirements of ASTM C 979, synthetic mineral-oxide pigments or colored water-reducing admixtures, color stable, free of carbon black, nonfading, and resistant to lime and other alkalis. The color for the concrete sidewalk shall match the inclined columns on the face of the terminal building.

2.2 TRUNCATED DOMES

- A. Truncated domes shall be yellow and sized as indicated in the Drawings.
- B. Truncated domes embedded into new concrete shall be as indicated in the Drawings.
- C. Glue-down truncated domes shall be surface applied tactile systems by ADA Solutions, Armor-Tile, or equal.
- D. Glue-down truncated dome tiles shall meet all California ADA requirements and be placed in 36" x 48" tiles.

2.3 COBBLESTONE LANDSCAPING

- A. Cobblestone Landscaping shall match size and coloration of existing landscaping.
- B. Filter fabric should be installed under, as indicated on the plans.

2.4 JAYWALKING BARRIER

- A. Jaywalking barrier shall be sized and spaced as indicated on the plans.
- B. Jaywalking barrier shall be mounted onto the new concrete foundation as indicated on the plans.

PART 3 — EXECUTION

3.1 PORTLAND CEMENT CONCRETE SITE ELEMENTS

- A. Concrete curbs, sidewalks, and swales shall be constructed in accordance with Section 303-5 "Concrete Curbs, Walks, Gutters, Cross Gutters, Alley Intersections, Access Ramps, and Driveways", of the "Greenbook" Standard Specifications as modified below:

1. Delete Section 303-5.9 "Measurement and Payment".
 2. Dimensions and thicknesses of PCC site elements shall be as shown on the Drawings.
 3. At the bottom of all curb ramps, the slope of the zero-inch curb shall match the slope of the adjacent curb ramp pavement, and the slope of the gutter pan shall be less than 5 percent.
 4. Concrete sidewalks shall have a quarried stone finish.
- B. PCC foundations and footings shall be constructed in accordance with Section 303-1 "Concrete Structures" of the "Greenbook" Standard Specifications and these specifications.

3.2 STEEL REINFORCEMENT INSTALLATION

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

3.3 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by PCC. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.4 FORMWORK INSTALLATION

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Chamfer exterior corners and edges of permanently exposed concrete.

3.5 ACCESSIBLE PASSENGER DROP OFF

- A. Accessible passenger drop-off zones shall be constructed at the locations shown on the Drawings.

- B. All accessible drop off zones shall be built per the details on the Drawings, to the slopes indicated, and not exceed the cross slopes required for accessible areas.
- C. Construction of the accessible drop-off zones shall include the installation of truncated domes and railings as shown on the Drawings.

3.6 TRUNCATED DOMES

- A. Truncated domes that are embedded into new concrete shall be installed per the Drawings. The cost of embedded truncated domes shall be incidental to other items.
- B. Truncated domes specified in the Drawings as glue-down shall be installed per manufacturers' recommendations.

3.7 CONTRACTOR QUALITY CONTROL

- A. The Contractor shall develop and implement a Contractor Quality Control Program (CQCP) including but not limited to inspection and testing to ensure compliance with the requirements of this section and in accordance with the Contract Documents.

PART 4 — MEASUREMENT AND PAYMENT

4.1 MEASUREMENT AND PAYMENT

- A. Full compensation for Section 32 16 10 – Concrete and Metal Site Elements, shall be considered as included in the Contract price paid for various items under **Bid Schedule A**, and no additional compensation will be allowed therefor.

END OF SECTION

SPECIFICATIONS
DIVISION 32 – EXTERIOR IMPROVEMENTS
SECTION 32 17 23
PAVEMENT MARKINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Painted markings applied to asphalt paving.
 - 2. Painted markings applied to concrete surfaces.
 - 3. Installation of signs.

1.2 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project Site with at a minimum representative from Prime Contractor, Subcontractor, and Authority Representative.

1.3 SUBMITTALS

- A. Product Data:
 - 1. Pavement-marking paint, solvent-borne.
 - a. Color: White

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Aexcel Inc.
 - 2. Colorado Paint Company; a subsidiary of Swarco Industries Inc.
 - 3. Columbia Paint & Coatings, Inc.; a subsidiary of Sherwin-Williams Company (The).
 - 4. Conco Paints.
 - 5. Diamond Vogel Paints.
 - 6. Dow Chemical Company (The).
 - 7. Dunn-Edwards Corporation (a Nippon Paint Holdings Co. Ltd. company).

8. Ennis-Flint.
9. Farrell-Calhoun.
10. General Paint.
11. Kelly-Moore Paint Company Inc.
12. McCormick Paints.
13. PPG Paints.
14. Rodda Paint Co.
15. Rust-Oleum Corporation; a subsidiary of RPM International, Inc.
16. Scott Paint.
17. Sherwin-Williams Company (The).
18. Transpo Industries, Inc.
19. Or equal

2.2 PERFORMANCE REQUIREMENTS

- A. Accessibility Standard: Comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design" and the California Building Standards Code.

2.3 PAVEMENT-MARKING PAINT

- A. Pavement-Marking Paint, Solvent-Borne: MPI #32, solvent-borne traffic-marking paint.
 1. Color: White.
- B. Pavement-Marking Paint: MPI #97, latex traffic-marking paint.
 1. Color: White.
- C. Glass Beads: AASHTO M 247, Type 1.

2.4 TRAFFIC SIGNS

- A. The Contractor shall provide 16-gauge aluminum signs of the type, size, shape, and pattern shown on the Drawings, or as designated by the Authority Representative. Traffic signs shall be in conformance with the California Manual on Uniform Traffic Control Devices, latest edition, unless otherwise specified. Sign faces shall be reflectorized porcelain enamel. Materials and construction methods shall conform to Caltrans Standard Specifications Section 56-2. Sign posts shall have anchor post and sleeve installed per San Diego Regional Standards Drawing M-45. Excavation, backfill, and all other incidentals necessary for completed sign installation shall be included in this item, including periodic relocation as may be needed to accommodate construction phasing.

PART 3 - EXECUTION

3.1 PAVEMENT MARKING

- A. Do not apply pavement-marking paint until layout, colors, and placement have been verified with Representative.
- B. Allow asphalt paving or concrete surfaces to age for a minimum of 30 days before starting pavement marking.
- C. Sweep and clean surface to eliminate loose material and dust.
- D. Apply paint with mechanical equipment to produce pavement markings, of dimensions indicated, with uniform, straight edges. Apply at manufacturer's recommended rates to provide a minimum wet film thickness of 15 mils.
 - 1. Apply graphic symbols and lettering with paint-resistant, die-cut stencils, firmly secured to asphalt paving or concrete surface.
 - 2. Broadcast glass beads uniformly into wet markings at a rate of 6 lb/gal.

3.2 TRAFFIC SIGNS

- A. All sign posts shall be erected plumb.
- B. Signs erected on a single post shall be positioned such that the post is in the center of the sign.
- C. Signs shall be placed to have their face plumb.

3.3 REMOVAL OF EXISTING PAVEMENT MARKINGS

- A. Existing pavement markings which are shown to be removed shall be blocked out into rectangular shapes. Markings within the rectangular shapes shall be removed by waterblasting or grinding such that 90% of all paint is removed to the satisfaction of the Authority Representative. The remaining pavement area within the rectangular shape shall be treated with the same removal process such that the entire rectangular shape is uniform in appearance. On bituminous pavements, the Contractor shall apply a pavement sealer to the entire blocked out area of treatment for paint removal. Pavement sealer shall be applied in accordance with the manufacturer's recommendations.

Black paint may be used to temporarily cover existing markings which will be restored upon completion of construction only when approved by the Authority Representative. Prior to repainting the original markings, the Contractor shall remove the black paint and the original markings as prescribed above. The removal area may be limited to the existing markings only if there is no impact to the adjacent pavement surface. If the removal impacts the adjacent surface, the Contractor shall perform the removal process in the rectangular shapes prescribed above. Otherwise, black paint shall not be used to cover markings.

If the condition of interim markings are flaking or in otherwise poor condition such that the permanent markings will not properly adhere, the Contractor shall remove the faulty areas

PART 4 - MEASUREMENT AND PAYMENT

4.1 MEASUREMENT AND PAYMENT

- A. Full compensation for Section 32 17 23 - Pavement Markings, shall be considered as included in the Contract price paid for various items under **Bid Schedule A**, and no additional compensation will be allowed therefor.

END OF SECTION