APPROVED
12-14-2016
BOARD OF RECREATION
AND PARK COMMISSIONERS

BOARD REPORT NO. 16-235

DATE November 16, 2016 C.D. 1

BOARD OF RECREATION AND PARK COMMISSIONERS

SUBJECT: LINCOLN PARK – PATHWAY LIGHTING IMPROVEMENTS (W.O. #E170149F) PROJECT – APPROVAL OF FINAL PLANS

AP Diaz		V. Israel	
*R. Barajas	CSP	K. Regan	
H. Fujita		N. Williams	

*for

M. Alarcon
General Manager

Approved ✓ Disapproved _____ Withdrawn _____

RECOMMENDATION

Approve the final plans and specifications, substantially in the form on file with the Board Office, for the Lincoln Park - Pathway Lighting Improvements (W.O. #E170149F) Project.

SUMMARY

Lincoln Park is located at 3501 Valley Boulevard in the Lincoln Heights area of the City. This 42.81 acre park provides a lake, a recreation center, picnic areas, play areas, tennis courts, a skate park, and a swimming pool for the surrounding community. Approximately Nine Thousand Four Hundred Twenty Eight (9,428) residents live within a one-half (½) mile walking distance of Lincoln Park. Due to the facilities, features, programs, and services it provides, Lincoln Park meets the standard for a Community Park, as defined in the City's Public Recreation Plan.

The Lincoln Park Pathway Lighting Improvements (W.O. #E170149F) Project (Project) is a Proposition K Competitive Grant (8th Cycle) funded project. The project scope of work consists of the installation of pathway lighting and pathway improvements. The Project includes installing approximately seventy-three (73) security lights as part of the renovation of lighted pathway, which measures ten (10) feet to twelve (12) feet in width and 20,000 linear feet in length that winds throughout the park.

The Department of Public Works, Bureau of Engineering (BOE) consultant, PSOMAS prepared the plans and specifications, and obtained all the necessary permits for the project. As required by the Proposition K, the project was presented to the community. Three (3) Local Voluntary Neighborhood Oversight Committee (LVNOC) meetings were conducted. The community, the LVNOC and Council District No. 1 are in full support of the project.

After review by the Department of Recreation and Parks (RAP) and BOE, it was determined that the work can be performed by RAP's pre-qualified on call contractors. Staff recommends the Project be constructed by the on call contractors and for BOE to provide construction management services in the construction of these improvements.

Sufficient funds are available for the construction and construction contingencies from the following funds and accounts:

FUNDING SOURCE	FUND/DEPT./ACCT. NO.
Proposition K Fiscal Year - 17	43K/10/10KM15
Proposition K Fiscal Year - 18	43K/10/10LM15

TREES AND SHADE

The Project provides for lighting and pathway improvements throughout the park. All existing trees will be protected during construction and no trees will be removed as a result this project.

ENVIRONMENTAL IMPACT STATEMENT

The Project has been previously evaluated for potential environmental effects, therefore the Project is determined to be exempt from the California Environmental Quality Act (CEQA). A Notice of Exemption was filed with the Los Angeles County Clerk on June 20, 2013. The current Board action is consistent with the existing CEQA exemption and the Project will not result in any additional environmental impacts. No additional CEQA documentation is required.

FISCAL IMPACT STATEMENT

The proposed construction project is fully funded by Proposition K funds. When completed, the Project provides improvements to existing walkways and security lighting. Therefore, approval of the plans has no immediate fiscal impact to RAP's General Fund. Any utility increases for the increased power usage will be included in the Department's annual budget request.

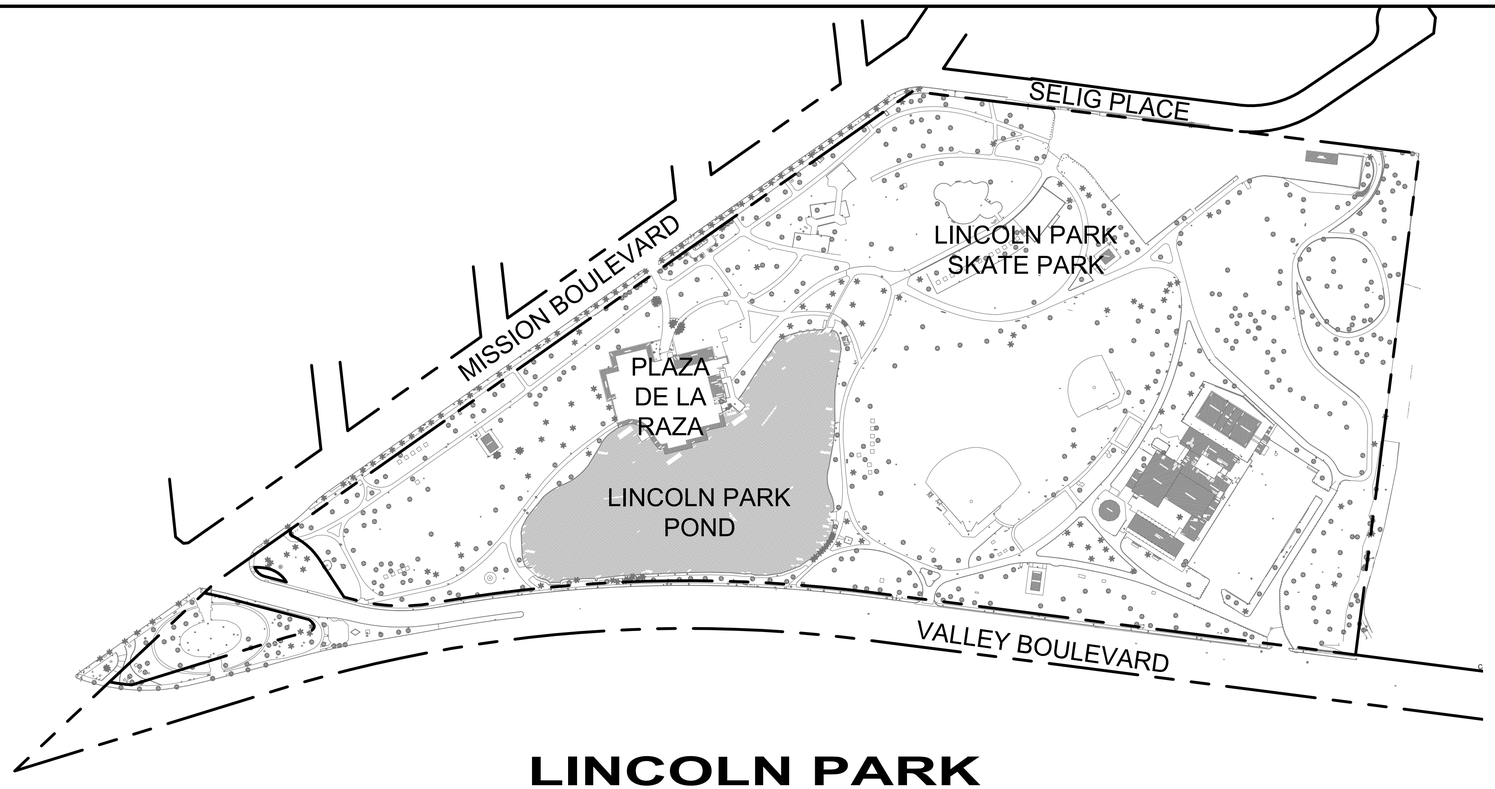
This Report was prepared by Meghan Aldrich, Project Manager, Architectural Division, Recreation and Cultural Facilities Program, Bureau of Engineering (BOE). Reviewed by Neil Drucker, Program Manager, Architectural Division, Recreational and Cultural Facilities Program, Mahmood Karimzadeh, Division Manager, Architectural Division, BOE; Deborah Weintraub, Chief Deputy City Engineer, BOE; and Cathie Santo Domingo, Superintendent, Planning, Construction and Maintenance Branch.

LIST OF ATTACHMENT(S)

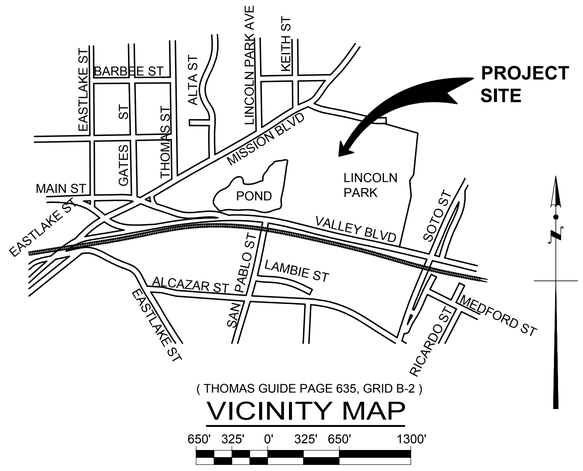
1) Final Plans for Lincoln Park – Pathway Lighting Improvements (W.O. #E170149F) Project

BUREAU OF ENGINEERING
DEPARTMENT OF PUBLIC WORKS
CITY OF LOS ANGELES

LINCOLN PARK PATHWAYS LIGHTING AND PATHWAY IMPROVEMENTS



LINCOLN PARK



(THOMAS GUIDE PAGE 635, GRID B-2)

VICINITY MAP

650' 325' 0' 325' 650' 1300'

GRAPHIC SCALE

PROJECT TEAM

CITY OF LOS ANGELES

CLIENT: **DEPARTMENT OF RECREATION AND PARKS**
MICHAEL SHULL
GENERAL MANAGER
221 N. FIGUEROA STREET, 4TH FLOOR
LOS ANGELES, CA 90012

PROJECT MANAGEMENT: **DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING RECREATION AND CULTURAL FACILITIES DIVISION**
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PROGRAM MANAGER
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LOS ANGELES, CA 90015
(213) 847- 4713
(213) 847- 1926 (FAX)
MEGHAN.ALDRICH@LACITY.ORG

CONSTRUCTION MANAGEMENT: **DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING CONSTRUCTION MANAGEMENT DIVISION**
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GROUP MANAGER
1149 SOUTH BROADWAY, 8TH FLOOR
LOS ANGELES, CA 90015

SURVEY: **DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING SURVEY DIVISION**
JIM LANTRY
CHIEF SURVEYOR

GEOTECHNICAL: **DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING GEOTECHNICAL ENGINEERING GROUP**
CHRISTOPHER F. JOHNSON
GROUP MANAGER
1149 SOUTH BROADWAY, SUITE 120
LOS ANGELES, CA 90015

CONSULTANTS

CIVIL DESIGN: **PSOMAS**
ANISSA VOYIATZES
PROJECT MANAGER
555 SOUTH FLOWER STREET, SUITE 4300
LOS ANGELES, CA 90071
(213) 223- 1400

ELECTRICAL DESIGN: **PSOMAS**
ARIEF NAFTALI
PROJECT MANAGER
555 SOUTH FLOWER STREET, SUITE 4300
LOS ANGELES, CA 90071
(213) 223- 1400

PLANS PREPARED BY:
PSOMAS
555 South Flower Street, Suite 4300
Los Angeles, CA 90071
(213) 223-1400 Fax (213) 223-1444

BUREAU OF ENGINEERING
OFFICIAL RECORD

THE CITY OF LOS ANGELES OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

REVISION DATES (DESIGN STAGE ONLY)

Sheet Version 6.0 2-2015

CITY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING

ENGINEERING
CITY OF LOS ANGELES

NO.	REVISIONS:	DATE:	BY:

WORK ACCEPTED SERIAL NO.

B - PERMITS BRXXXXXXX

INDEX NO. RP 300092

REGISTERED PROFESSIONAL ENGINEER GARY LEE MOORE No. C-44646 CIVIL STATE OF CALIFORNIA

GARY LEE MOORE, P.E. CITY ENGINEER
ACCEPTED BY :
9/20/2016 DATE
CITY ENGINEER

DEPUTY CITY ENGINEER
9/21/2016 DATE
CITY ENGINEER

VERTICAL CONTROL: BM # 11-04169 AND 11-03448 NAVD88 2000 ADJ
HORIZONTAL CONTROL: U.S.G.S DATUM EFFECTIVE JULY 1, 1925

SHEET TITLE: TITLE SHEET
PROJECT: LINCOLN PARK PATHWAY LIGHTING IMPROVEMENTS
ADDRESS: 3501 VALLEY BLVD LOS ANGELES, CA 90031

WORK ORDER NO. E170149F
FILE NO.
DRAWING NO. TTL-1
SHEET 1 OF SHEETS 14

NOTICE TO CONTRACTORS

1. SPECIFICATIONS: ALL WORK SHALL CONFORM TO THE LATEST EDITION AND SUPPLEMENTS OF "THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (GREENBOOK), AND THE CORRESPONDING "ADDITIONS AND AMENDMENTS TO THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (BROWN BOOK).
2. THIS IMPROVEMENT CONSISTS OF WORK CALLED FOR ONLY ON THIS PLAN.
3. STANDARD PLANS FOR THIS PROJECT:
   CITY OF LOS ANGELES - BUREAU OF STREET LIGHTING
   L-201-0 PULL-BOX

   CITY OF LOS ANGELES - BUREAU OF ENGINEERING
   S-137-1 ADJUSTING SEWER MAINTENACE HOLES TO GRADE
   S-410-2 TYPES OF CURB AND GUTTER
   S-444-0 WALKWAY
   S-463-2 HANDRAIL AND GUARDRAIL ON RAMPS
   S-627-0 SYMBOLS FOR CONSTRUCTION NOTES
   S-791-1 ADVANCE CONSTRUCTION NOTICE SIGNS
4. INSPECTION: ALL WORK AND MATERIALS SHALL BE INSPECTED BY THE INSPECTOR OF PUBLIC WORKS DURING CONSTRUCTION PURSUANT TO LATEST EDITION OF STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREENBOOK) AS AMENDED BY THE CITY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS "BROWN BOOK", AND THE STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION AS APPLICABLE. CALL (213) 485-5080 BEFORE NOON OF THE WORKING DAY BEFORE THE FIRST SCHEDULED DAY OF CONSTRUCTION.
   PRIOR TO THE START OF ANY CONSTRUCTION, DEMOLITION, REMOVALS, SAWCUTTING, OR INSTALLATION OF TRAFFIC CONTROL THE CONTRACTOR SHALL MEET WITH THE INSPECTOR TO DISCUSS SAFETY, TRAFFIC CONTROL REQUIREMENTS, PUBLIC ACCESS, CONSTRUCTION IMPACT MITIGATION, REMOVAL LIMITS, AND CONTRACTOR'S PLANNED SEQUENCING OF OPERATIONS.
   PRIOR TO OR AT THE PROJECT PRECONSTRUCTION MEETING THE PERMITTEE OR ITS CONTRACTOR SHALL PROVIDE THE INSPECTOR TWO SETS OF FULL-SIZE PLANS AND MAINTAIN ONE SET OF FULL-SIZE PLANS AT THE SITE DURING CONSTRUCTION. INDEXED PLANS ARE AVAILABLE FROM THE CITY'S WEBSITE AT HTTP://ENGVAULT.LACITY.ORG.
5. UNDERGROUND SERVICE ALERT: BEFORE COMMENCING ANY EXCAVATION, THE CONTRACTOR SHALL OBTAIN AN UNDERGROUND SERVICE ALERT (USA) INQUIRY I.D. NUMBER BY CALLING (800) 227-2600. TWO WORKING DAYS SHALL BE ALLOWED AFTER THE I.D. NUMBER IS OBTAINED AND BEFORE THE CONTRACTOR STARTS THE EXCAVATION WORK SO THAT UTILITY OWNERS CAN BE NOTIFIED. IF THE UTILITY OWNER IS THE CITY OF LOS ANGELES, A CONFIRMATION NUMBER INDICATING THE CITY HAS BEEN NOTIFIED SHALL BE OBTAINED BY USA AND/OR THE CONTRACTOR FROM THE APPROPRIATE CITY DEPARTMENT. THE I.D. NUMBER TOGETHER WITH THE DATE ACQUIRED SHALL BE REPORTED TO THE BUREAU OF CONTRACT ADMINISTRATION WHEN CALLING FOR INSPECTION. I.D. NUMBERS WILL NOT BE GIVEN MORE THAN 10 DAYS BEFORE STARTING EXCAVATION WORK.
6. AT LEAST THIRTY (30) DAYS BEFORE THE START OF CONSTRUCTION THE CONTRACTOR/ENGINEER SHALL CONTACT THE BUREAU OF STREET SERVICES, COORDINATING SECTION AT (213) 847-3200 TO VERIFY THAT THERE IS NO PROPOSED PROJECT IN THIS AREA.
7. NOTIFICATION: AT LEAST TEN (10) DAYS BEFORE THE START OF CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY, IN WRITING, ABUTTING PROPERTY OCCUPANTS OF THE PROPOSED CONSTRUCTION START DATE. A COPY OF SAID WRITTEN NOTIFICATION SHALL BE PROVIDED TO THE PUBLIC WORKS CONSTRUCTION MANAGEMENT INSPECTOR FOR APPROVAL BEFORE THEY ARE DISTRIBUTED TO THE OCCUPANTS OF THE ABUTTING PROPERTY.
8. ADVANCE CONSTRUCTION NOTICE SIGNS:
   IN ADDITION TO SIGNS REQUIRED BY THE PROVISIONS OF THE "WORK AREA TRAFFIC CONTROL HANDBOOK" (WATCH), LATEST EDITION, FURNISH AND PLACE SIGNS FOR GIVING ADVANCE NOTICE TO MOTORISTS OF TRAFFIC DISRUPTION AS PART OF THIS PROJECT IN ACCORDANCE WITH STANDARD PLAN S-791-1.
9. CUTS OR EXCAVATIONS IN STREETS THAT HAVE BEEN RESURFACED ONE YEAR OR LESS FROM THE DATE OF A PROPOSED CUT OR EXCAVATION ARE PROHIBITED UNLESS THE PERMITTE RESURFACES THE ENTIRE BLOCK OR INTERSECTION WITHIN WHICH SUCH CUT OR EXCAVATION OCCURS, PER ORDINANCE NO. 171922, 171923, 171924, AND SPECIAL ORDER NO. 06-0807.
10. CONSTRUCTION STAKES FOR CURB AND LONGITUDINAL GUTTER, WITH GRADE LESS THAN 0.50%, SHALL BE SET AT 12.5 FEET ON CENTER.
11. REMOVALS:
    A. REMOVE ALL EXISTING IMPROVEMENTS THAT INTERFERE WITH THE CONSTRUCTION OF THIS PROJECT.
    B. ALL UTILITIES SHALL BE REMOVED OR RELOCATED BY OTHERS. CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES.
12. IN ADDITION TO THE CONSTRUCTION OF PAVEMENT SHOWN HEREON, WORK REQUIRED UNDER THIS PLAN WILL ALSO INCLUDE THE CONSTRUCTION OF PERMANENT TRENCH RESURFACING IN ALL AREAS WHERE UTILITY LINES HAVE BEEN INSTALLED TO SERVE THIS DEVELOPMENT. CONDITIONS OF TRENCH BACKFILL AND RESURFACING SHALL BE AS SPECIFIED ON THE EXCAVATION PERMIT. PAVING OF ROADWAY AREAS SHALL BE WITHHELD UNTIL CONTEMPLATED UTILITY CHANGES OR INSTALLATIONS HAVE BEEN MADE UNDER CITY PERMIT.
13. REPAIR AND/OR REPLACE ANY EXISTING BROKEN OR OFF-GRADE PAVEMENT, CONCRETE CURB, GUTTER OR SIDEWALK IMMEDIATELY ADJACENT TO OR WITHIN THE AREA OF THIS IMPROVEMENT SATISFACTORY TO THE CITY ENGINEER.
14. SURVEY MONUMENT PRESERVATION IS REQUIRED AND SHALL INCLUDE SUBMITTAL OF PRE AND POST CONSTRUCTION SURVEY MONUMENT TIES TO BOTH HORIZONTAL AND VERTICAL CONTROL POINTS PUBLISHED IN THE LOS ANGELES CITY ENGINEER FIELD BOOKS AND PRECISE BENCHMARK BOOKS. THIS DOES NOT RELIEVE THE CONTRACTOR OF FULFILLING ANY ADDITIONAL REQUIREMENTS SET FORTH BY SECTIONS 2-9.1 AND 2-9.3 OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREENBOOK AND BROWN BOOK).
15. IMPORTANT NOTICE: ALL REQUIRED PUBLIC IMPROVEMENTS MUST BE COMPLETED BEFORE A TEMPORARY CERTIFICATE OF OCCUPANCY OR A CERTIFICATE OF OCCUPANCY WILL BE ISSUED FOR THIS PROJECT PER ORDINANCE NO. 165081.

NOTICE TO CONTRACTORS CONTINUED

16. THE CONTRACTOR SHALL PROTECT IN PLACE ALL EXISTING TREES WITHIN THE PROJECT LIMITS UNLESS OTHERWISE SPECIFIED ON THE PLANS, SEE SHEET 12 FOR TREE PROTECTION DETAIL.
17. COORDINATE ALL WORK WITH LOS ANGELES DEPARTMENT OF RECREATION AND PARKS IRRIGATION WITH JAVIER SOLIS (213) 485-5572 AND/OR JUAN BENITEZ (213) 485-4833.
18. IRRIGATION EQUIPMENT DAMAGED DURING CONSTRUCTION BY THE CONTRACTOR SHALL BE REPLACED IN KIND.
19. CONTRACTOR SHALL PREPARE A STORM WATER POLLUTION PLAN PREVENTION PLAN (SWPPP). CONTRACTOR SHALL PREVENT SEDIMENT, DEBRIS, ASPHALT AND ANY OTHER MATERIALS FROM ENTERING THE STORM DRAIN OR ANY RECEIVING WATERS. ALL STORM DRAIN INLETS SHALL BE COVERED WITH GEOFABRIC AND GRAVEL BAGS AND SHALL BE PLACED PER NPDES CONTRACTORS SWPPP.
20. CONTRACTOR SHALL FURNISH AND INSTALL ONE RAP CONSTRUCTION SIGN PER DETAIL ON SHEET 12 PRIOR TO CONSTRUCTION.
21. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF SOIL FROM PROJECT SITE AS A RESULT OF WORK PERFORMED AS PART OF THIS CONTRACT.
22. CONTRACTOR SHALL TRIM EXISTING TREE FOLIAGE AS NECESSARY TO ENSURE UNIMPEDED ILLUMINATION AS INTENDED BY THE DESIGN. IT IS ESTIMATED THAT 14 TREES NEED TRIMMING. CONTRACTOR SHALL FIELD VERIFY AND CONFIRM PRIOR TO COMMENCEMENT OF WORK.

PROJECT DESCRIPTION

THE SCOPE OF WORK INCLUDES BUT NOT LIMITED TO:
1. INSTALLATION OF NEW PEDESTRIAN PATHWAY LIGHTING.
2. REHABILITATION OF EXISTING PEDESTRIAN PATHWAY LIGHTING.
3. PATHWAY REPAIR AND ADA IMPROVEMENTS. (ADDITIVE ALTERNATE)

SHEET INDEX

BENCH MARK NO. 2
DESCRIPTION: BM11-00448
SPRM * STMPD 11-00448 1965 * 1 FT NW/O NW CURB MISSION RD 1 FT SW/O BCR SW/O MAIN ST NE END CB
BASIS: 341.363 NAVD 1988 2000 ADJ

BENCH MARK NO. 1
DESCRIPTION: BM11-04189
SPK-LFT OF S CURB VALLEY BLVD: 7.8 FT E OF BCR E OF SAN PABLO ST; SE CORNER
BASIS: 349.572 NAVD 1988 2000 ADJ

REFERENCES
DISTRICT MAP — R/W NO.
DRAINAGE MAP — SEWER MAP
SUPERSEDES PLAN

SERIAL NO.
WORK ACCEPTED: DATE:

NO.	REVISIONS:	DATE:	BY:

APPROVALS: DATE: BY:
URBAN FORESTRY
ST. LIGHTING
D.O.T.
SEWER
STRUCTURAL
SURVEY

BUREAU OF ENGINEERING
CITY OF LOS ANGELES

B- PERMITS
BRXXXXXX

INDEX NO. RP 300092

CITY ENGINEER:
GARY LEE MOORE, P.E.
ACCEPTED BY:
DATE

PLAN CHECKER
DATE

DIVISION / DISTRICT ENGINEER

DEPARTMENT OF PUBLIC WORKS
CITY OF LOS ANGELES

REGISTERED PROFESSIONAL ENGINEER ★ ARIEF NAFTALI ★ No. 21570 ★ 09/30/2018 ★ STATE OF CALIFORNIA

08/24/2016
DATE

PLANS PREPARED BY:
PSOMAS
555 South Flower Street, Suite 4300
Los Angeles, CA 90071
(213) 223-1400 Fax (213) 223-1444
ARIEF NAFTALI, P.E. 21570

VERTICAL CONTROL: BM # 11-04189 AND 11-03448 NAVD88 2000 ADJ
HORIZONTAL CONTROL: U.S.G.S DATUM EFFECTIVE JULY 1, 1925

SHEET TITLE: GENERAL NOTES & ABBREVIATIONS
PROJECT: LINCOLN PARK PATHWAY LIGHTING IMPROVEMENTS
ADDRESS: 3501 VALLEY BLVD LOS ANGELES, CA 90031

WORK ORDER NO. E170149F
FILE NO.
DRAWING NO. TTL-2
SHEET 2 OF SHEETS 14

BUREAU OF ENGINEERING OFFICIAL RECORD

REVISION DATES (DESIGN STAGE ONLY)

ELECTRICAL SPECIFICATIONS

DIVISION 1.
GENERAL PROVISIONS FOR DEPARTMENT OF RECREATIONS AND PARKS AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTIONS (SSPWC). THE LOS ANGELES CITY ELECTRICAL CODE (LATEST EDITION) ARE MADE A PART OF THESE PLANS AND SPECIFICATIONS.

WHERE CONFLICTS OCCURS BETWEEN DIVISION 1 DEPARTMENT OF RECREATION AND PARKS AND THE SSPWC, THE DIVISION 1 DEPARTMENT OF RECREATION AND PARKS DEPARTMENT SHALL TAKE PRECEDENCE. CATALOG SPECIFICATIONS WHEN DESCRIBED BY MODEL NUMBER ARE HEREBY MADE A PART OF THESE SPECIFICATIONS. WHERE OPTIONS FOR MATERIALS AND OR METHODS APPEARS IN THE STANDARD SPECIFICATIONS, OR THE LOS ANGELES ELECTRICAL CODE, THE OPTION DEFINED HEREIN SHALL BE USED. ANY DISCREPANCIES SHALL BE RESOLVED WITH THE FINAL DECISION MADE BY THE GENERAL MANAGER OF THE DEPARTMENT OF RECREATION AND PARKS OR AUTHORIZED REPRESENTATIVE.

1. GENERAL SCOPE OF WORK:

WORK IN THIS CONTRACT: ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR THE LIGHTING AND ELECTRICAL DISTRIBUTION SYSTEM. COMPLETE AND READY FOR USE, IN ACCORDANCE WITH THESE CONTRACT DRAWINGS AND THESE SPECIFICATIONS.

2. CLEANING, INSTALLATION AND REMOVAL OF RUBBISH:

BESIDES THE GENERAL CLEANING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEEING THAT THE FOLLOWING SPECIAL CLEANING FOR ALL TRADES SHALL BE DONE AT THE COMPLETION OF THE WORK AND DURING INSTALLATION.

(A.) CLEAN ALL ELECTRICAL EQUIPMENT AND DEVICES. REMOVE STAINS, DUST, DIRT, PLASTER, PAINT AND ETC.

(B) REMOVE ALL SPOTS, SOILS, PLASTERS AND PAINTS FROM ALL EXISTING WORK AND CLEAN TO ORIGINAL CONDITION.

(C) PROTECT AND CLEAN ALL FIXTURES AND EQUIPMENT.

3. CONSTRUCTION WATER, LIGHT AND POWER:

(A) THE DEPARTMENT WILL FURNISH AT NO COST TO CONTRACTOR WATER AND ELECTRICITY AS IT EXISTS ON THE SITE. CONTRACTOR SHALL FURNISH AND MAINTAIN ALL TEMPORARY LINES, FIXTURES AND EQUIPMENT FOR WATER AND ELECTRICITY AND REMOVE THE SAME AT COMPLETION OF WORK AT HIS/HER OWN EXPENSE.

(B) THE DEPARTMENT WILL NOT BE HELD RESPONSIBLE FOR FAILURE OF EXISTING SOURCES TO SUPPLY CONTINUOUS WATER OR POWER, NOR WILL THE DEPT. BE HELD RESPONSIBLE FOR THE EXISTING SOURCES TO SUPPLY ADEQUATE DEMAND AS REQUIRED BY THE CONSTRUCTION OF THIS WORK.

4. PANELBOARDS:

(A.) PANELBOARDS SHALL BE CIRCUIT BREAKER TYPE WITH BOLT-ON TYPE, TRIP FREE CIRCUIT BREAKERS. PANELBOARDS SHALL BE FURNISHED WITH COPPER BUSSING AND MAIN LUGS OR MAIN BREAKER AND ALL BRANCH CIRCUIT BREAKER AS INDICATED ON THE SCHEDULES. EACH BRANCH CIRCUIT BREAKERS SHALL HAVE PERMANENT TYPE PLASTIC OR METAL NUMBERS TO IDENTIFY THE CIRCUIT PROTECTED. MIN. SIZE SHALL BE 20"W X 5 3/4"D, HEIGHT AS REQUIRED. PANELBOARD SHALL BE SQ. D, TYPE NQOB OR EQUIVALENT CHALLENGER ,ODEL OR EQUAL.

(B.) IDENTIFICATION SHALL HAVE ENGRAVED LAMINATED PLASTIC NAMEPLATES. SCHEDULES SHALL BE TYPEWRITTEN AND SHALL DESIGNATE THE AREA OR EQUIPMENT SERVED BY EACH CIRCUIT MOUNTED IN A CARD HOLDER ON THE INSIDE OF THE DOOR AND COVERED WITH GLASS OR CLEAR PLASTIC.

(C.) SHOP DRAWINGS ARE REQUIRED. THEY SHALL INDICATE ALL THE DETAILS OF CONSTRUCTION AND EQUIPMENT. ALL ITEMS SUBMITTED FOR INSTALLATION SHALL BEAR A UL LABEL AND LISTED FOR THE PURPOSE.

(D.) CIRCUIT BREAKERS SHALL HAVE A MINIMUM OF 10,000 AMPS RMS SYMMETRICAL FOR 120/240 VOLTS AND 22,000 AMPS FOR 277/480 VOLTS SYSTEM UNLESS NOTED ON THE PLAN.

(E.) MOUNTING SHALL BE FLUSH WITH SURROUNDING WALLS UNLESS SPECIFICALLY NOTED TO BE SURFACE MOUNTED ON THE PLAN. MAXIMUM HEIGHT OF THE HIGHEST CIRCUIT BREAKER OR CONTROL DEVICES SHALL NOT BE MORE THAN 6 FT. ABOVE THE SURROUNDING FINISH FLOOR.

(F.) TIGHTEN CONNECTORS AND TERMINALS INCLUDING SCREWS AND BOLTS IN ACCORDANCE WITH EQUIPMENT MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUES FOR EQUIPMENT CONNECTORS. WHERE MANUFACTURER'S TORQUING REQUIREMENTS ARE NOT INDICATED, TIGHTEN CONNECTORS AND TERMINALS TO COMPLY WITH TIGHTENING TORQUE SPECIFIED IN UL STANDARDS 486 A & B.

5. CONTROLS:

(A.) TYPES

1. CIRCUIT BREAKERS - SHALL BE THERMAL MAGNETIC. EACH BREAKER SHALL BE EQUIPPED WITH A DEVICE FOR INDIVIDUAL PADLOCKING.
2. TIME SWITCHES - SHALL BE PARAGON MODEL NO. EC72ST SUN TRACKER ELECTRONIC LIGHTING CONTROL. CONTROL SHALL HAVE AN ASTRO-DIAL, TWO CHANNEL FEATURE, SKIP-A-DAY, OFFSET TO SUNRISE AND/OR SUNSET AND MANUAL OVERRIDE INDEPENDENTLY PROGRAMMABLE FOR EACH CHANNEL. IT SHALL BE SURFACE MOUNTABLE OR SHALL BE IN NEMA 3R FOR OUTDOOR INSTALLATION (EC72ST-N3).
3. LIGHT SWITCH TIMER - SHALL BE PARAGON MODEL NO. ET1100 SERIES. IT SHALL BE SOLID STATE WITH ADJUSTABLE TIMER RANGE FROM ONE MINUTE TO 18 HOURS. THE CONTROL SHALL BE TAMPER-PROOF WITH OUT-OF-SIGHT PROGRAMMING DIAL. THE CONTROL SHALL BE RATED UP TO 1100 WATTS AND CAPABLE OF OPERATING BETWEEN 24 VAC AND 277 VAC.
4. LOCAL SWITCHES - SHALL BE SPECIFICATION GRADE, HUBBELL 1221-I SERIES OR EQUIVALENT LEVITON MODEL OR EQUAL.
5. LIGHTING CONTACTORS - AMPERE RATING, NUMBER OF POLES, LINE VOLTAGE, CONTROL VOLTAGE, MOMENTARY OR MAINTAINED CONTACT AS INDICATED ON DRAWINGS, OR AS REQUIRED, SQUARE D CLASS 8903, OR EQUIVALENT AUTOMATIC SWITCH CO. MODEL OR EQUAL.

(B.) IDENTIFICATION - ALL CONTROL DEVICES SHALL BE IDENTIFIED BY ENGRAVED PLATES DESIGNATING THE EQUIPMENT CONTROLLED. MOTORS AND EQUIPMENT SHALL BEAR NEAT, LEGIBLE AND PERMANENT IDENTIFICATION CORRESPONDING WITH THAT ON THE CONTROL DEVICES USING ENGRAVED LAMINATED PLASTIC NAMEPLATES AFFIXED WITH A MINIMUM OF TWO ESCUTCHEON PINS OR SCREWS.

(C.) LOCATIONS - FOR OUTDOOR INSTALLATION, TIME SWITCHES AND CONTACTORS SHALL BE LOCATED IN A SEPARATE PARTITIONED SPACE INSIDE THE RAINPROOF ENCLOSURE, OR AS INDICATED IN THE PLAN.

6. BOXES:

(A.) TYPES: WEATHERPROOF CAST BOXES FOR OUTDOOR AND SURFACE WIRING AND WHERE INDICATED ON THE DRAWINGS BY SYMBOL "WP", CROUSE-HINDS FD OR RUSSELL-STOLL FD SERIES OUTLET BOXES OR EQUAL. CONCRETE PULL BOX WITH BOLT DOWN STEEL COVER IS PERMITTED FOR UNDERGROUND INSTALLATION. BROOKS PRODUCT MODEL 5PB OR EQUAL, OR AS INDICATED ON THE PLAN.

(B.) ACCESSORIES: WEATHERPROOF FOR CROUSE-HINDS FD SERIES OUTLET BOXES OR RUSSELL-STOLL FD SERIES OR EQUAL.

(C.) UNDERGROUND PULL BOXES. AVOID INSTALLATION AT THE LOWEST SPOT OF THE SURROUNDING AREAS. PULL BOX SHOULD SEAT ON 2"X4" FRAMED REDWOOD AND SHALL HAVE AT LEAST 12" LAYER OF PEA GRAVEL BENEATH THE BOX.

7. INSTALLATION OF POLES:

(A.) TYPE SHALL BE ROUND TAPERED GALVANIZED STEEL UNLESS OTHERWISE INDICATED. POLE HEIGHT SHALL BE AS NOTED ON THE PLAN AND DETAIL.

(B.) ERECTION: IN ACCORDANCE WITH APPROVED SHOP DRAWINGS, PLUMB AND PROPERLY ALIGNED. BASE PLATES SHALL BE GROUTED USING AN APPROVED STANDARD COMMERCIAL NON-SHRINK GROUTING MORTAR WITH L.A. RESEARCH REPORT NUMBER. THE NON-SHRINK MORTAR SHALL BE HELD BACK ONE INCH FROM EDGES OF BASE PLATES, AND THE SPACE THEN FILLED WITH GROUT COMPOSED OF ONE PART LOW ALKALI PORTLAND CEMENT TO TWO PARTS WASHED SAND, BEVELED AND TROWELED SMOOTH. EXPOSED SURFACES OF MORTAR SHALL BE WATER CURED WITH WET BURLAP FOR SEVEN DAYS.

(C.) GROUNDING: SECURELY GROUND ALL PARKING LOT LIGHTING POLES WITH APPROVED GROUNDING BUSHINGS AND GROUNDING CLAMPS.

(D.) CONDUITS ENTERING AND/OR LEAVING POLE FOOTING SHALL BE RIGID PVC COATED STEEL WITH PLASTIC BUSHING. MAKE TRANSITION FROM PVC TO METALLIC AT A MINIMUM DISTANCE OF 3'-0" FROM FOOTINGS.

(E.) TACK WELDING OF NUTS TO WASHER AND WASHER TO BASE PLATE IS REQUIRED.

8. CONDUIT:

(A.) REQUIRED: ALL WIRING SHALL BE IN RIGID OR PVC COATED STEEL CONDUIT EXCEPT AS FOLLOWS:

1. PVC MAYBE USED UNDERGROUND FROM PVC COATED STEEL CONDUIT STUBS LOCATED 3 FEET OUTSIDE FOOTING LINES.
2. EMT MAYBE USED ABOVE GROUND INSIDE BUILDINGS WHERE NOT ENCASED IN MASONRY OR CONCRETE AND NOT SUBJECT TO PHYSICAL DAMAGE.

(B.) TYPES:

5. RIGID STEEL CONDUIT: IN ACCORDANCE WITH USA STD C80.1 AND ASTM B-6.
6. ELECTRICAL METALLIC TUBING: IN ACCORDANCE WITH USA STD C80-3 & ASTM B-6.
7. PVC CONDUIT: SHALL CONFORM TO NEMA STANDARD TC-6-1967, WC-1094 AND UL STANDARD 651, 1974 HEAVY WALL SCHEDULE 40 BURIED NOT LESS THAN 24 INCHES BELOW GRADE.
8. PVC EXTERNALLY COATED RIGID STEEL CONDUIT, RIGID STEEL ZINC COATED WITH ADDITIONAL COATING OF PVC CONFORMING TO ANSI C-80 & NEMA RN1.

(C.) FITTINGS AND ACCESSORIES:

1. FOR RIGID STEEL CONDUIT: APPROVED TYPES; ERICSON COUPLING OR THREADLESS CONNECTORS FOR JOINING RUNS. GROUNDING BUSHING SHALL BE THOMAS & BETTS OR APPLETON MALLEABLE IRON INSULATED GROUNDING BUSHINGS, UL FILE E14814A. FACTORY ELLS SHALL NOT BE USED UNDERGROUND.
2. FOR ELECTRICAL METALLIC TUBING: COMPRESSION GLAND OR STEEL SET SCREW TYPE COUPLINGS AND CONNECTORS WITH INSULATED THROAT.

(D.) SIZES: MINIMUM 3/4" CONDUIT UNLESS NOTED ON THE PLAN.

(E.) CONCRETE COVER:

U.O.N. UNDERGROUND CONDUIT RUNS IN RECREATION AND PARKS PROPERTY INSTALLED WITH SCHEDULE 40 PVC SHALL HAVE A MINIMUM 6" TOP COVER OF CONCRETE OVER ITS ENTIRE LENGTH (EXCEPT UNDER CONCRETE SIDEWALKS), AND SHALL HAVE AN EQUIPMENT GROUNDING CONDUCTOR SIZED ACCORDING TO THE PREVAILING CODE BUT NOT LESS THAN SHOWN ON THE PLAN. CONCRETE COVER SHALL BE MINIMUM OF CLSM (SLURRY) MIX OR AS REQUIRED BY DWP.

9. CONDUIT INSTALLATION:

(A.) ALL CONDUITS SHALL BE CONCEALED EXCEPT WHERE OTHERWISE INDICATED ON THE DRAWINGS.

(B.) PVC COATED STEEL CONDUIT WHICH WILL BE BURIED IN THE GROUND SHALL HAVE WATER TIGHT JOINTS. JOINTS SHALL BE ASSEMBLED WITH LEAD PLATE (ANTI-SEIZE METALLIC LEAD BASE) MIL-A-907 AS MANUFACTURED BY ARMITE LABORATORIES.

(C.) INSTALL EXPANSION FITTINGS IN ALL RACEWAY WHENEVER EXPANSION JOINTS ARE CROSSED. FITTINGS SHALL BE EQUAL TO "OZ" TYPE "XZ" OR "TX".

(D.) NO HORIZONTAL CONDUIT SHALL BE INSTALLED IN CONCRETE SLABS-ON-GRADE. SLEEVES FOR CONDUIT PENETRATING FLOORS SHALL TERMINATE 3 INCH ABOVE THE FLOOR. CONDUITS SHALL BE PROTECTED FROM CORROSION BY ONE OF THE FOLLOWING METHODS. (EXTEND 3" ABOVE AND 3" BELOW TOP OF CONCRETE.)

1. PVC EXTERNALLY COATED STEEL CONDUIT BY ROBROY INDUSTRIES.
2. SPIRAL WRAP WITH 40 MIL HALF LAP PLASTIC TAPE.
3. PVC SLEEVE.

(E.) TOPS OF UNDERGROUND CONDUIT RUNS OUTSIDE OF BUILDING OR UNDER CONCRETE SLABS SHALL NOT BE LESS THAN 24" BELOW FINISHED GRADE, NOR LESS THAN THAT REQUIRED BY THE DEPARTMENT OF WATER AND POWER. UNDERGROUND CONDUIT SHALL NOT PASS OVER TANKS OR OTHER UNDERGROUND EQUIPMENT OR THROUGH FOOTINGS EXCEPT AS DETAILED ON THE STRUCTURAL DRAWINGS.

(F.) ALL CONDUIT BENDS INSTALLED UNDERGROUND SHALL BE THE LONG RADIUS TYPE WITH RADII NOT LESS THAN 10 TIMES THE INTERNAL DIAMETER OF THE CONDUIT AND WITH NOT MORE THAN TWO 90° BENDS AND ONE 45° SWEEP IN ANY RUN. EXCEPTION: FOR POWER AND LIGHT CONDUIT ABOVE GROUND, FACTORY ELLS ARE PERMITTED.

(G.) EACH RUN SHALL BE TESTED IMMEDIATELY AFTER INSTALLATION TO ASSURE FREEDOM FROM OBSTRUCTION AND EACH END PLUGGED AFTER THE TESTING IS COMPLETED. A GALVANIZED IRON PULL WIRE NO. 12 AWG OR 1 /8-INCH NYLON POLYPROLENE CORD SHALL BE INSTALLED IMMEDIATELY AFTER CONDUIT INSTALLATION IN EACH CONDUIT IN WHICH THE CONDUCTORS WILL NOT BE IMMEDIATELY INSTALLED.

(H.) CONDUITS "JACK-THRU" AND/OR BORED THRU UNDERGROUND SHALL BE MINIMUM 1" RIGID STEEL CONDUIT.

1. CONDUITS IN UNDERGROUND PULL BOXES SHALL BE SEALED WITH "LHD"-1# OR 5# DUCT SEAL AS MANUFACTURED BY DOTTIE CO. OR APPROVED EQUAL.

10. CONDUCTORS:

(A.) TYPE THHN/THWN, 600 VOLTS INSULATION PER UL 83 FOR ALL GENERAL WIRING SUBJECT TO TEMPERATURES AT 75°C MINIMUM, WET OR DRY LOCATIONS.

(B.) TYPES:

8. COPPER WIRE FOR ALL CONDUCTORS.
9. SOLID WIRE FOR NO. 10 AWG AND SMALLER FOR GENERAL WIRING.
10. STRANDED FOR WIRES NO. 8 AWG AND LARGER OR FOR FLEXIBILITY WHERE INDICATED ON THE DRAWINGS AS FLEXIBLE CONDUIT CONNECTION.
11. NO CONDUCTORS SMALLER THAN NO. 12 AWG EXCEPT FOR CONTROL WIRES WHICH SHALL BE NO. 14 AWG OR AS INDICATED ON THE PLAN.
12. CONDUCTORS FROM BASE OF NEW OR EXISTING POLES UP TO LUMINAIRES SHALL BE NO. 10 AWG MINIMUM UNLESS OTHERWISE NOTED ON THE PLAN. PROVIDE APPROXIMATELY 18" SLACK IN HAND HOLE AND PULL BOXES.
13. FOR IRRIGATION CONTROL WIRES, REFER TO IRRIGATION SPECIFICATIONS.

(C.) SPLICES:

1. BRANCH AND FEEDER CONDUCTOR JOINTS SHALL BE LOCATED ONLY IN OUTLET BOXES, FIXTURES OR PULL BOXES. CONDUCTOR JOINTS SHALL NOT BE MADE IN CONDUIT FITTINGS.
2. ALL SPLICES IN UNDERGROUND PULL BOXES SHALL BE SCOTCH BAGGED AND WATER TIGHT.

(D.) COLOR CODE:

1. FOR POLYPHASE CIRCUITS, IDENTIFY EACH PHASE THROUGHOUT THE CIRCUIT WITH DESIGNATION PHASE A (BLACK), PHASE B (RED) AND PHASE C (BLUE).
2. FOR CONDUCTOR SMALLER THAN NO. 6 AWG COLOR CODING SHALL BE ACCOMPLISHED BY INHERENT INSULATION COLOR. TAGGING PAINT OR OTHER MARKINGS SHALL NOT BE USED FOR COLOR IDENTIFICATION.

(E.) INSPECTION:

CONTRACTOR SHALL NOTIFY THE GENERAL MANAGER OR AUTHORIZED REPRESENTATIVE 48 HOURS PRIOR TO START OF PULLING WIRE THROUGH ANY OF THE UNDERGROUND CONDUIT RUNS. THE CONTRACTOR SHALL START PULLING WIRE ONLY AFTER THE AUTHORIZED REPRESENTATIVE INSPECTS AND FIND THAT: THE WIRE CONTAINS NO SPLICES, THE NEUTRAL WIRE IS WHITE AND THE EQUIPMENT GROUND WIRE IS GREEN.

11. TAGGING:

REQUIRED: ON BOTH HOT AND NEUTRAL WIRES OF ALL CIRCUIT IN SWITCHBOARD AND PANELBOARDS, AT PULL, JUNCTION AND OUTLET BOXES AT EACH DEVICE OR LIGHTING FIXTURE. TAGGING SHALL PROVIDE POSITIVE AND PERMANENT IDENTIFICATION AND SHALL BE SCOTCH NUMERAL TAPE BY THE MINNESOTA MINING AND MANUFACTURING CO.

12. EQUIPMENT AND ELECTRICAL CONNECTIONS:

(A.) SEE GENERAL REQUIREMENTS SECTION 15 FOR MATERIAL TESTING.

(B.) PROVIDE ALL INSTRUMENTS, EQUIPMENT AND LABOR REQUIRED FOR THE SPECIFIED TESTS. CONDUCT ALL TESTS IN THE PRESENCE OF THE GEN. MANAGER OR AUTHORIZED REPRESENTATIVE. CONDUCT THE TEST AT SUCH TIME AS THE GEN. MANAGER MAY DIRECT OR AS SPECIFIED. TESTS FAILING TO CONFORM TO THE REQUIREMENTS OF THE DRAWING AND SPECIFICATIONS, AND ANY PIECE OF EQUIPMENT THAT FAILS THE TEST DESCRIBED HEREIN WILL BE REJECTED AND SUITABLE EQUIPMENT SHALL BE PROVIDED AND INSTALLED. TABULATE AND FORWARD TO THE PROJECT MANAGER IN TRIPLICATE ALL THE PERTINENT TEST DATA. INCLUDE THE DATE OF THE TEST, IDENTIFICATION OF ALL ITEMS TESTED, READINGS FOR EACH TEST, COMMENTS WHERE REQUIRED AND THE SIGNATURES OF THE INDIVIDUAL CONDUCTING THE TEST AND OF THE GEN. MANAGER'S REPRESENTATIVE OBSERVING THE TEST. FORWARD ALL THE TEST DATA TO THE PROJECT MANAGER WITHIN 10 DAYS OF THE TEST PERFORMANCE BUT IN NO CASE LATER THAN 5 DAYS BEFORE THE SCHEDULED FINAL INSPECTION.

(C.) THE FOLLOWING TESTS SHALL BE PERFORMED IN THE PRESENCE OF THE DEPT. INSPECTOR OR REPRESENTATIVE. TABULATE TEST RESULTS FOR THE DEPT. OF RECREATION AND PARKS RECORDS.

1. CONDUCTORS 600-VOLT CLASS: AFTER WIRING IS COMPLETED AND CONNECTED FOR OPERATION, BUT PRIOR TO PLACING SYSTEMS IN SERVICE AND BEFORE ANY BRANCH CIRCUIT BREAKERS ARE CLOSED, PERFORM INSULATION RESISTANCE TESTS IN ALL CIRCUITS. MEASURE THE INSULATION RESISTANCE BETWEEN EACH CONDUCTORS AND GROUND. TAKE READINGS AFTER THE VOLTAGE HAS BEEN APPLIED FOR A MINIMUM OF ONE MINUTE. THE MINIMUM INSULATION RESISTANCE BASED ON THE ALLOWABLE AMPACITY OF THE CONDUCTOR AS FIXED BY NFPA 70 SHALL BE AS FOLLOWS:

AMPERES	OHMS
25 THROUGH 50	250,000
51 THROUGH 100	100,000
101 THROUGH 200	50,000
201 THROUGH 400	25,000

REVISION DATES (DESIGN STAGE ONLY)

Sheet Version 6.0 2-2015

BUREAU OF ENGINEERING
CITY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS

B - PERMITS BRXXXXXX
INDEX NO. RP 300092
WORK ACCEPTED
SERIAL NO.
NO. REVISIONS: DATE: BY:

BUREAU OF ENGINEERING APPROVAL:
OFFICE (e.g. VALLEY DISTRICT)
CHECKED BY: (PRINTED NAME)
SIGNATURE: DATE:

PSOMAS
DESIGN GROUP
ENGINEER: ARIEF NAFTALI, PE
DESIGNED BY: EDUARDO LOPEZ
DRAWN BY: EDUARDO LOPEZ
CHECKED BY: ARIEF NAFTALI, PE
APPROVED BY: ARIEF NAFTALI, PE

ARIEF NAFTALI
No. 21570
09/30/2018
REGISTERED PROFESSIONAL ENGINEER
ELECTRICAL

BUREAU OF ENGINEERING
OFFICIAL RECORD

08/24/2016
DATE

PLANS PREPARED BY:
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ARIEF NAFTALI P.E. 21570

VERTICAL CONTROL: BM # 11,647 NAVD88 AND 11,034 NGVD29
HORIZONTAL CONTROL: U.S.G.S. DATUM EFFECTIVE JULY 1, 1925

SHEET TITLE: ELECTRICAL NOTES
PROJECT: LINCOLN PARK PATHWAY LIGHTING IMPROVEMENTS
ADDRESS: 3501 VALLEY BOULEVARD, LOS ANGELES, CA 90031

WORK ORDER NO. E170149F
FILE NO.
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ELECTRICAL SPECIFICATIONS (CONT.)

2. HIGH VOLTAGE CONDUCTORS (ABOVE 600 VOLTS): AFTER INSTALLATION AND BEFORE SPLICING AND TERMINATING, PERFORM A FIELD ACCEPTANCE TEST ON CABLES PRIOR TO TESTING. THE CABLES SHALL NOT BE CONNECTED TO ANY EQUIPMENT. THE TEST PROCEDURE SHALL BE IN ACCORDANCE WITH AEIC AND NEMA. FIELD ACCEPTANCE TEST SHALL BE 15 KV FOR DC FOR 15 MINUTES. IF CABLE FAILS TO PASS INITIAL TEST, PERFORM SUBSEQUENTACCEPTANCE TESTS UNTIL THE WORK IS IN COMPLIANCE WITH THE CONTRACT REQUIREMENTS.

3. GROUND RODS: GROUND RESISTANCE TEST SHALL BE PERFORMED IN NORMALLY DRY WEATHER NOT LESS THAN 48 HOURS AFTER RAINFALL. GROUND RESISTANCE SHALL BE MEASURED FOR EACH PIECE OF EQUIPMENT TO THE GROUND ELECTRODE. USE A PORTABLE GROUND TESTING MEGGER TO TEST EACH GROUND OR GROUP OF GROUNDS. THE EQUIPMENT SHALL BE EQUIPPED WITH A METER READING DIRECTLY IN OHMS OR FRACTIONS THEREOF TO INDICATE THE GROUND VALUE OF THE GROUND ELECTRODE UNDER TEST. PROVIDE ONE COPY OF THE GROUND MEGGER'S DIRECTIONS, INDICATING THE METHOD TO BE USED.

13. LIGHTING FIXTURES:

(A.) TYPES:

1. AS INDICATED HEREINAFTER AND IN THE LIGHTING FIXTURE LIST, ALL FIXTURES MUST BE UL LISTED AND SUPPORTING MEMBERS SUCH AS RODS AND PIPES MUST BE APPROVED BY THE CITY OF LOS ANGELES ELECTRICAL TESTING LABORATORY.

2. ALL FIXTURES USED AS RACEWAYS SHALL CONFORM TO THE CODE REQUIREMENTS FOR MAXIMUM NUMBER OF CONDUCTORS PERMITTED. BOX TEMPERATURES SHALL NOT EXCEED 75°C ADJACENT TO THHN/THWN WIRE.

3. ALL FIXTURES SHALL BE UL LISTED FOR THE PURPOSE, WET LOCATION FOR OUTDOOR INSTALLATION, AND DAMP LOCATION FOR SHOWERS AND CANOPIES.

(B.) FITTINGS AND ACCESSORIES: AS NECESSARY FOR PROPER INSTALLATION AND OPERATION.

(C.) DEVIATION SHALL BE SUBMITTED TO THE DEPARTMENT FOR APPROVAL PRIOR TO PURCHASE AND INSTALLATION.

(D.) SPORTS LIGHTING FIXTURES: SUBMIT AN AIMING DIAGRAM FROM FIXTURE MANUFACTURER TO THE DEPARTMENT FOR APPROVAL PRIOR TO INSTALLATION. CONTRACTOR SHALL ENSURE THAT FIXTURES ARE INSTALLED IN ACCORDANCE TO APPROVED AIMING DIAGRAM.

14. RECORD DRAWINGS:

(A.) IMMEDIATELY AFTER WORK IS INSTALLED, CAREFULLY DRAW ON PRINTS IN RED INK ALL WORK WHICH IS INSTALLED AT VARIANCE WITH THE WORK AS INDICATED ON THE DRAWINGS. INDICATE BY MEASURED DIMENSION TO BUILDING CORNERS OR OTHER PERMANENT MONUMENTS THE EXACT LOCATION OF ALL CHANGES.

(B.) ACCURATE LOCATIONS OF ALL POLES, CONDUIT RUNS, WIRING, NAMES AND MODEL NUMBERS OF ACCEPTED SUBSTITUTE EQUIPMENT, ELECTRICAL OUTLETS AND OTHER EQUIPMENT AS INSTALLED SHALL BE PROVIDED IN STRICT ACCORDANCE WITH THESE SPECIFICATIONS.

15. OPERATING MANUALS AND INSTRUCTIONS:

(A.) THE CONTRACTOR SHALL FURNISH TO THE CITY FOUR BOUND COPIES OF OPERATING AND MAINTENANCE MANUAL FOR ALL ELECTRICAL EQUIPMENT.

(B.) THE CONTRACTOR SHALL EXPLAIN IN DETAIL ALL MANUALS FOR THE OPERATION AND MAINTENANCE OF ALL EQUIPMENT TO THE RECREATION AND PARKS MAINTENANCE PERSONNEL BEFORE COMPLETION AND ACCEPTANCE OF THE PROJECT.

ELECTRICAL GENERAL NOTES

1. THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO SUBMISSION OF BID TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND EXTENT OF THEIR WORK. SUBMISSION OF A PROPOSAL OR BID ACKNOWLEDGES FULL RESPONSIBILITY FOR FURNISHING A COMPLETE AND PROPERLY FUNCTIONING SYSTEM.

2. IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS THAT A COMPLETE AND WORKABLE ELECTRICAL INSTALLATION BE PROVIDED FOR ALL EQUIPMENT DESCRIBED. ANY INCONSISTENCY SHALL BE BROUGHT TO THE PROJECT MANAGER'S ATTENTION FOR CLARIFICATION. CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR, COORDINATE ALL WORK WITH OTHER TRADES AND COMPLY WITH ALL APPLICABLE CODES.

3. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS PRIOR TO JOB START AND OBTAIN FINAL INSPECTION APPROVAL FROM THE DEPARTMENT OF BUILDING AND SAFETY PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.

4. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL ELECTRICAL EQUIPMENT AND MATERIALS TO THE DEPARTMENT FOR APPROVAL PRIOR TO ORDERING AND SHALL BE RESPONSIBLE FOR ANY DELAYS INCURRED DUE TO REJECTED ITEMS. EXISTING IRRIGATION, ELECTRICAL AND OTHER UTILITY SUBSTRUCTURES MAYBE IN THE WAY. THE CONTRACTOR SHALL EXERCISE CAUTION DURING EXCAVATION AND INSTALLATION OF CONDUIT RUNS SPECIFIED ON THESE PLANS.

5. IT IS THE RESPONSIBILITY OF THE CONTRACTOR AND HIS/HER SUB-CONTRACTOR TO BE FAMILIAR WITH THE DESIGN PLANS AND LIMITS OF WORK. ALL EXISTING SUBSTRUCTURES THAT ARE WITHIN THE PROJECT LIMITS AND NOT PART OF THE IMPROVEMENT SUCH AS IRRIGATION SYSTEM, STORM DRAINS INCLUDING SIDEWALK ETC. SHALL BE MAINTAINED IN WORKING CONDITION AT ALL TIMES. ANY DAMAGE DONE IN THE COURSE OF CONSTRUCTION SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE PROJECT MANAGER.

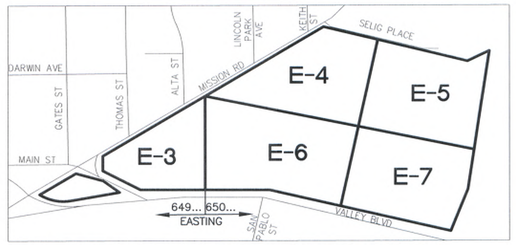
6. CONDUIT RUNS ARE SHOWN DIAGRAMMATICALLY AND MAYBE VARIED IN THE FIELD. MINIMUM CONDUIT SIZE SHALL BE 3/4-INCH UNLESS NOTED ON THE PLAN. EXPOSED CONDUIT SHALL BE PAINTED TO MATCH THE ADJACENT FINISH.

7. CONTRACTOR SHALL FURNISH TO THE DEPARTMENT A VANDAL PROOF SCREW DRIVER FOR EACH TYPE OF VANDAL PROOF SCREWS USED IN THE PROJECT.

8. PVC INSTALLED UNDERGROUND SHALL BE 24-INCHES DEEP AND COVERED WITH AT LEAST 6-INCH CONTROLLED LOW STRENGTH MATERIAL (CLSM) SEE DETAIL HEREON.

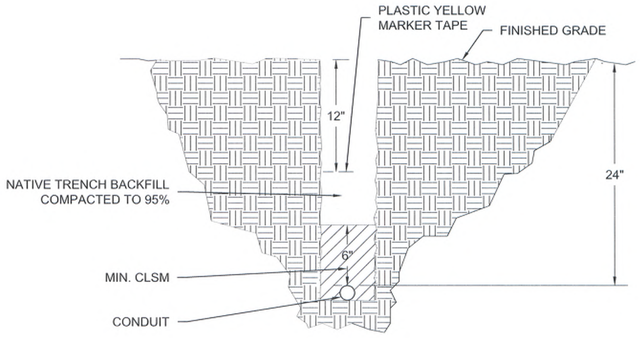
9. WHERE ADA PATH OF TRAVEL IS TO BE INTERRUPTED DUE TO CONSTRUCTION, CONTRACTOR SHALL PROVIDE ALTERNATIVE PATH AND SIGNAGE PRIOR TO COMMENCING WORK.

10. WHERE UNEXPECTED AND UNFORESEEN WORK IS ENCOUNTERED, CONTRACTOR SHALL INFORM THE CITY OR ENGINEER OF RECORD AS SOON AS POSSIBLE OR WITHIN 24 HOURS OF DISCOVERY. A PROPOSAL FOR THE ADDITIONAL WORK IS REQUIRED FOR REVIEW AND APPROVAL PRIOR TO COMMENCING WORK.



ELECTRICAL SHEET MAP INDEX

NO SCALE



TYPICAL CONDUIT INSTALLATION DETAIL

NO SCALE

BUREAU OF ENGINEERING
OFFICIAL RECORD

ARIEF NAFTALI
REGISTERED PROFESSIONAL ENGINEER
No. 21570
09/30/2018
CIVIL
STATE OF CALIFORNIA

PLANS PREPARED BY:
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(213) 223-1400 Fax (213) 223-1444
ARIEF NAFTALI, P.E. 21570
06/24/2016
DATE

BUREAU OF ENGINEERING
CITY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS

BUREAU OF ENGINEERING
APPROVAL:
OFFICE: (e.g., VALLEY DISTRICT)
CHECKED BY: (PRINTED NAME)
SIGNATURE: DATE:

DESIGN GROUP	PSOMAS
ENGINEER:	ARIEF NAFTALI PE
DESIGNED BY:	EDUARDO LOPEZ
DRAWN BY:	EDUARDO LOPEZ
CHECKED BY:	ARIEF NAFTALI PE
APPROVED BY:	ARIEF NAFTALI PE

NO.	REVISIONS:	DATE:	BY:

SERIAL NO.
WORK ACCEPTED

B - PERMITS BRXXXXXX
INDEX NO. RP 300092

VERTICAL CONTROL: BM # 11-04189 NAVD88 AND 11-03448 NGVD29
HORIZONTAL CONTROL: U.S.G.S DATUM EFFECTIVE JULY 1, 1925

SHEET TITLE: ELECTRICAL NOTES AND SHEET MAP INDEX
PROJECT: LINCOLN PARK PATHWAY LIGHTING IMPROVEMENTS
ADDRESS: 3501 VALLEY BOULEVARD, LOS ANGELES, CA 90031

WORK ORDER NO.
E170149F
FILE NO.
DRAWING NO.
E-2
SHEET 4 OF SHEETS 14

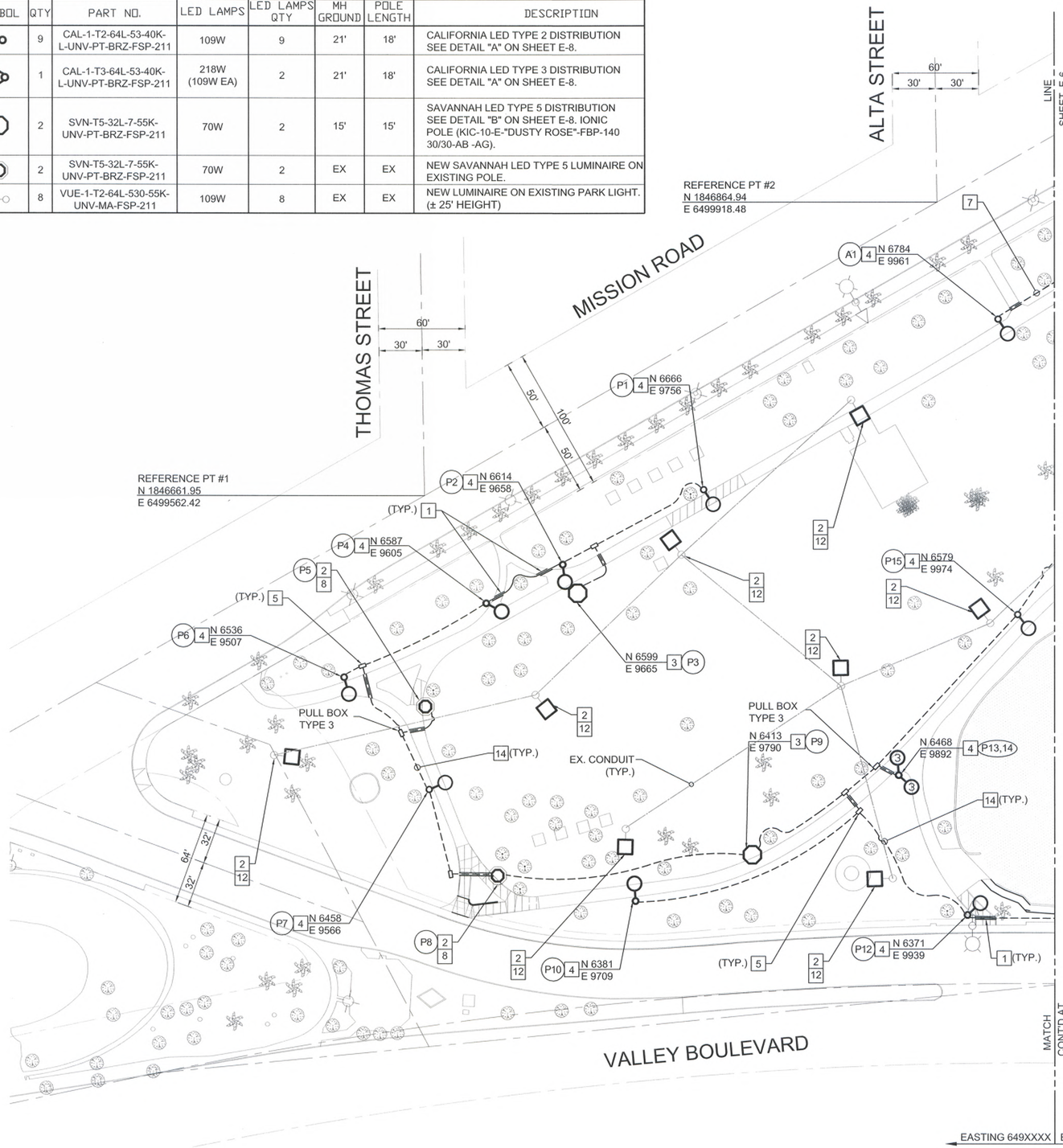
THE CITY OF LOS ANGELES OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

REVISION DATES:
(DESIGN & PLOT ONLY)

Sheet Version # 0 2-2015

PROPOSED LUMINAIRE AND/OR POLE SCHEDULE (THIS SHEET ONLY)

SYMBOL	QTY	PART NO.	LED LAMPS	LED LAMPS QTY	MH GROUND	POLE LENGTH	DESCRIPTION
	9	CAL-1-T2-64L-53-40K-L-UNV-PT-BRZ-FSP-211	109W	9	21'	18'	CALIFORNIA LED TYPE 2 DISTRIBUTION SEE DETAIL "A" ON SHEET E-8.
3 3	1	CAL-1-T3-64L-53-40K-L-UNV-PT-BRZ-FSP-211	218W (109W EA)	2	21'	18'	CALIFORNIA LED TYPE 3 DISTRIBUTION SEE DETAIL "A" ON SHEET E-8.
	2	SVN-T5-32L-7-55K-UNV-PT-BRZ-FSP-211	70W	2	15'	15'	SAVANNAH LED TYPE 5 DISTRIBUTION SEE DETAIL "B" ON SHEET E-8. IONIC POLE (KIC-10-E-"DUSTY ROSE"-FBP-140 30/30-AB -AG).
	2	SVN-T5-32L-7-55K-UNV-PT-BRZ-FSP-211	70W	2	EX	EX	NEW SAVANNAH LED TYPE 5 LUMINAIRE ON EXISTING POLE.
	8	VUE-1-T2-64L-530-55K-UNV-MA-FSP-211	109W	8	EX	EX	NEW LUMINAIRE ON EXISTING PARK LIGHT. (± 25' HEIGHT)



CONSTRUCTION NOTES

1. INSTALL 4" PVC SCHEDULE 40 SLEEVE, MINIMUM 24" BELOW GRADE.
2. REMOVE EXISTING LUMINAIRE ASSEMBLY AND REPLACE WITH LUMINAIRE LED PER SCHEDULE HEREON. CONTRACTOR SHALL FURNISH AND INSTALL APPURTENANT FITTING AS REQUIRED.
3. REMOVE EXISTING DECORATIVE ELECTROLIER AND FOUNDATION COMPLETE. FURNISH AND INSTALL NEW ELECTROLIER PER SCHEDULE HEREON. CONSTRUCT NEW FOUNDATION.
4. FURNISH AND INSTALL NEW ELECTROLIERS PER SCHEDULE HEREON. CONSTRUCT FOUNDATION COMPLETE.
5. INSTALL COMPOSITE TYPE 2 PULL BOX PER CITY OF LOS ANGELES PUBLIC WORKS STANDARD PLAN L-201-0. UNLESS OTHERWISE NOTED.
7. INSTALL 1.5" PVC SCH 40 WITH 2#6 AWG AND 1#6 GROUND WIRE PER WIRING DIAGRAM "A" ON SHEET E-8.
8. INTERCEPT AND CONNECT EXISTING WITH NEW CONDUITS. REMOVE EXISTING WIRES AND REPLACE. FURNISH AND INSTALL FITTING AS REQUIRED.
12. CONNECT SERVICE WIRES TO THE NEW LUMINAIRE TO MAKE AN OPERABLE SYSTEM.
14. INSTALL 1.5" PVC SCH 40 WITH 3#4 AWG AND 1#6 GROUND WIRE PER WIRING DIAGRAM "P" ON SHEET E-9.

LEGEND

- # — EXISTING SPORTS LIGHTING (# = NUMBER OF LIGHTS) (TO BE PROTECT-IN-PLACE)
- EXISTING OTHER LIGHTING (TO BE PROTECT-IN-PLACE)
- PROPOSED PVC SCH 40 CONDUITS AND CONDUCTORS
- 4" PVC SLEEVE CONDUIT
- PROPOSED PULL BOXES
- (PX) OR (AX) — CIRCUIT LOAD
- PANEL DESIGNATION ("A" OR "P" FOR "PL") / LUMINAIRE COUNT
- N XXXX / E XXXX = N 184XXXX / E 649XXXX

BUREAU OF ENGINEERING — OFFICIAL RECORD

SCALE: 1"= 40'

40' 20' 0' 40' 80'

GRAPHIC SCALE

PLANS PREPARED BY:
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ARIEF NAFTALI, P.E. 21570
08/24/2016
DATE

PROFESSIONAL ENGINEER — ARIEF NAFTALI — No. 21570 — 09/30/2018 — ELECTRICAL — CALIFORNIA

VERTICAL CONTROL: BM # 11-04169 NAVD88 AND 11-03448 NGVD29
HORIZONTAL CONTROL: U.S.G.S DATUM EFFECTIVE JULY 1, 1925

SHEET TITLE: ELECTRICAL PLAN
PROJECT: LINCOLN PARK PATHWAY LIGHTING IMPROVEMENTS
ADDRESS: 3501 VALLEY BOULEVARD, LOS ANGELES, CA 90031

WORK ORDER NO. E170149F
FILE NO.
DRAWING NO. E-3
SHEET 5 OF SHEETS 14

CITY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING
ENGINEERING — CITY OF LOS ANGELES

NO.	REVISIONS:	DATE:	BY:

WORK ACCEPTED — SERIAL NO.

B - PERMITS BRXXXXXX
INDEX NO. RP 300092

BUREAU OF ENGINEERING APPROVAL:
OFFICE: (e.g., VALLEY DISTRICT)
CHECKED BY: (PRINTED NAME)
SIGNATURE: DATE:

PSOMAS
DESIGN GROUP
ENGINEER: ARIEF NAFTALI, PE
DESIGNED BY: EDUARDO LOPEZ
DRAWN BY: EDUARDO LOPEZ
CHECKED BY: ARIEF NAFTALI, PE
APPROVED BY: ARIEF NAFTALI, PE

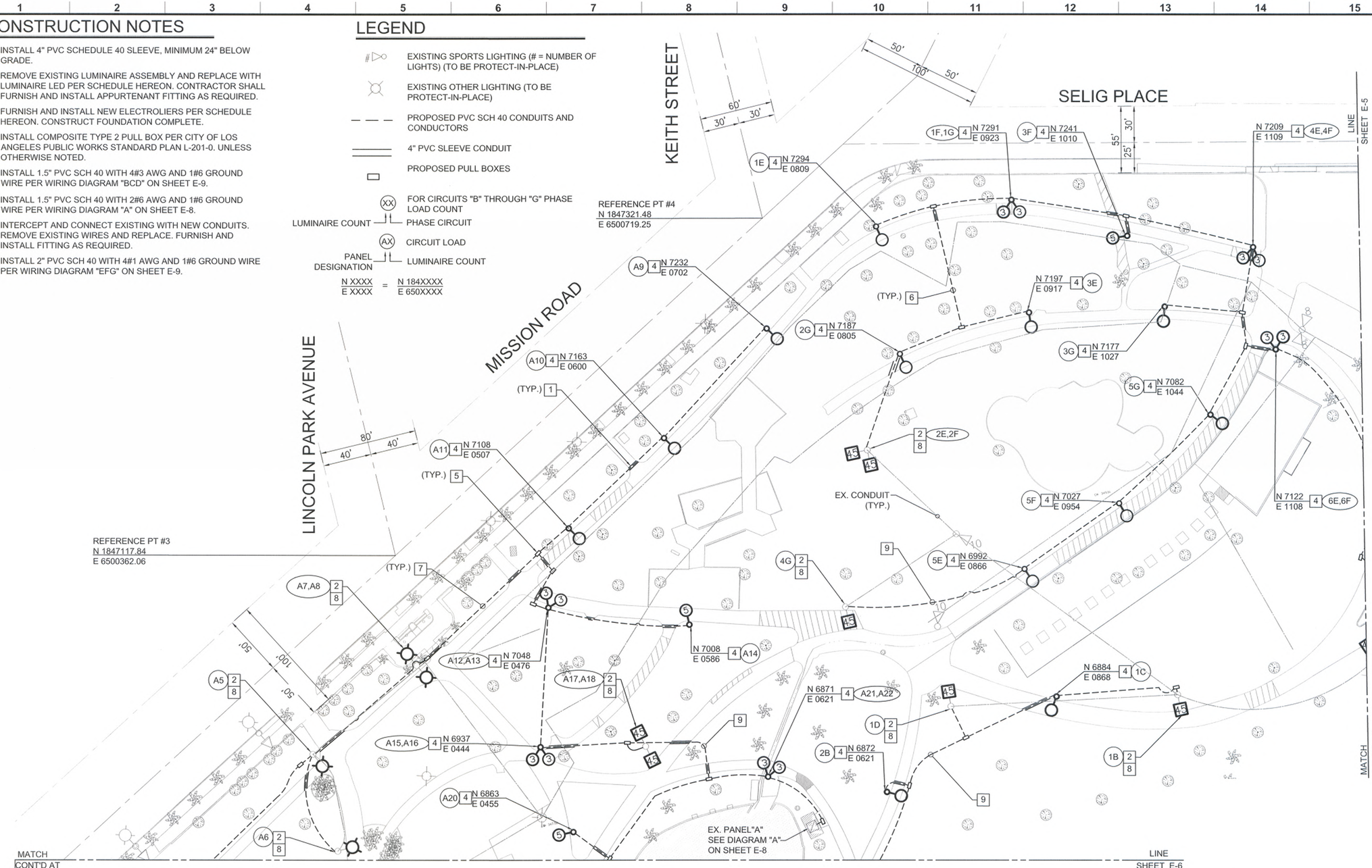
REVISION DATES (DESIGN STAGES ONLY)

CONSTRUCTION NOTES

1. INSTALL 4" PVC SCHEDULE 40 SLEEVE, MINIMUM 24" BELOW GRADE.
2. REMOVE EXISTING LUMINAIRE ASSEMBLY AND REPLACE WITH LUMINAIRE LED PER SCHEDULE HEREON. CONTRACTOR SHALL FURNISH AND INSTALL APPURTENANT FITTING AS REQUIRED.
4. FURNISH AND INSTALL NEW ELECTROLIERS PER SCHEDULE HEREON. CONSTRUCT FOUNDATION COMPLETE.
5. INSTALL COMPOSITE TYPE 2 PULL BOX PER CITY OF LOS ANGELES PUBLIC WORKS STANDARD PLAN L-201-0. UNLESS OTHERWISE NOTED.
6. INSTALL 1.5" PVC SCH 40 WITH 4#3 AWG AND 1#6 GROUND WIRE PER WIRING DIAGRAM "BCD" ON SHEET E-9.
7. INSTALL 1.5" PVC SCH 40 WITH 2#6 AWG AND 1#6 GROUND WIRE PER WIRING DIAGRAM "A" ON SHEET E-8.
8. INTERCEPT AND CONNECT EXISTING WITH NEW CONDUITS. REMOVE EXISTING WIRES AND REPLACE. FURNISH AND INSTALL FITTING AS REQUIRED.
9. INSTALL 2" PVC SCH 40 WITH 4#1 AWG AND 1#6 GROUND WIRE PER WIRING DIAGRAM "EFG" ON SHEET E-9.

LEGEND

- EXISTING SPORTS LIGHTING (# = NUMBER OF LIGHTS) (TO BE PROTECT-IN-PLACE)
- EXISTING OTHER LIGHTING (TO BE PROTECT-IN-PLACE)
- PROPOSED PVC SCH 40 CONDUITS AND CONDUCTORS
- 4" PVC SLEEVE CONDUIT
- PROPOSED PULL BOXES
- (XX) FOR CIRCUITS "B" THROUGH "G" PHASE LOAD COUNT
- LUMINAIRE COUNT — PHASE CIRCUIT
- (AX) CIRCUIT LOAD
- PANEL DESIGNATION — LUMINAIRE COUNT
- N XXXX / E XXXX = N 184XXXX / E 650XXXX



PROPOSED LUMINAIRE AND/OR POLE SCHEDULE (THIS SHEET ONLY)

SYMBOL	QTY	PART NO.	LED LAMPS	LED LAMPS QTY	MH GROUND	POLE LENGTH	DESCRIPTION
	12	CAL-1-T2-64L-53-40K-L-UNV-PT-BRZ-FSP-211	109W	12	21'	18'	CALIFORNIA LED TYPE 2 DISTRIBUTION SEE DETAIL "A" ON SHEET E-8.
3 3	6	CAL-1-T3-64L-53-40K-L-UNV-PT-BRZ-FSP-211	218W (109W EA)	12	21'	18'	CALIFORNIA LED TYPE 3 DISTRIBUTION SEE DETAIL "A" ON SHEET E-8.
5	3	CAL-1-T5-64L-53-40K-L-UNV-PT-BRZ-FSP-211	109W	3	21'	18'	CALIFORNIA LED TYPE 5 DISTRIBUTION SEE DETAIL "A" ON SHEET E-8.
45	7	VUE-1-T2-64L-530-55K-UNV-MA-FSP-211	109W	7	EX	EX	NEW LUMINAIRE ON EXISTING PARK LIGHT. (± 45' HEIGHT)
	4	VUE-1-T2-64L-530-55K-UNV-MA-FSP-211	109W	4	EX	EX	NEW LUMINAIRE ON EXISTING PARK LIGHT WITH MAST ARM.

(EXISTING) PANEL A

120/240 VOLTS, 1 PHASE — 3 WIRE, 60 BUS AMPS — (EXISTING) WALL TYPE MOUNTING — 60 MAIN BKR. SIZE, 60 MAIN LUG SIZE

REMARK	WATTAGE L1	WATTAGE L2	LTG	REC	MISC	BKR	CIR		CIR	BKR	MISC	REC	LTG	WATTAGE L1	WATTAGE L2	REMARK
(EXISTING)						(20)	1		2							(EMPTY)
(EXISTING)						(20)	3		4	(15)						(EXISTING)
(EXISTING)						(20/2)	5		6	(20/2)						(EXISTING)
							7		8							
(EXISTING)						(20)	9		10	(20)						(EXISTING)
(EXISTING)						(20)	11		12							(EMPTY)
(EXISTING)						(20)	13		14	20/2			22	2250		LED LIGHTS (1-22)
(EMPTY)						(20)	15		16				22		2250	

CONNECTED LOAD (VA) _____
25% LCL (VA) _____
ADJUSTED TOTAL (VA) _____

LONG CONTINUOUS LOAD (VA) _____
ADJUSTED TOTAL AMPS _____

SCALE: 1"= 40'
40' 20' 0' 40' 80'
GRAPHIC SCALE

BUREAU OF ENGINEERING OFFICIAL RECORD

08/24/2016 DATE

PLANS PREPARED BY:
PSOMAS
555 South Flower Street, Suite 4300
Los Angeles, CA 90071
(213) 223-1400 Fax (213) 223-1444
ARIEF NAFTALI, P.E. 21570

CITY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING
ENGINEERING
CITY OF LOS ANGELES

NO.	REVISIONS:	DATE:	BY:

WORK ACCEPTED — SERIAL NO.

B - PERMITS BRXXXXXX

INDEX NO. RP 300092

BUREAU OF ENGINEERING APPROVAL:
OFFICE: (e.g., VALLEY DISTRICT)
CHECKED BY: (PRINTED NAME) DATE:
SIGNATURE:

PSOMAS	
DESIGN GROUP	
ENGINEER:	ARIEF NAFTALI, PE
DESIGNED BY:	EDUARDO LOPEZ
DRAWN BY:	EDUARDO LOPEZ
CHECKED BY:	ARIEF NAFTALI, PE
APPROVED BY:	ARIEF NAFTALI, PE

VERTICAL CONTROL: BM # 11-04189 NAVD88 AND 11-03448 NGVD29
HORIZONTAL CONTROL: U.S.G.S DATUM EFFECTIVE JULY 1, 1925

SHEET TITLE: ELECTRICAL PLAN

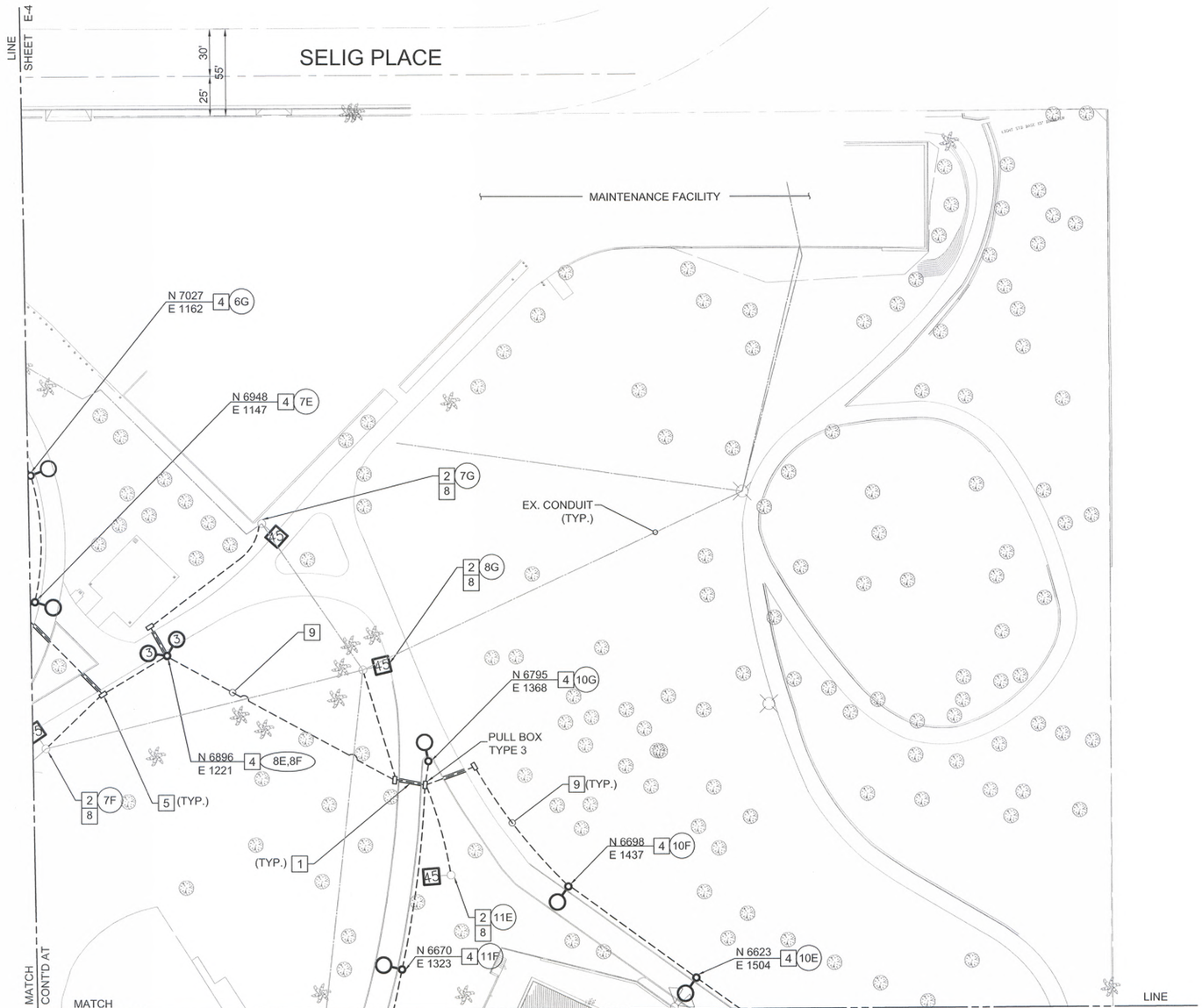
PROJECT: LINCOLN PARK PATHWAY LIGHTING IMPROVEMENTS

ADDRESS: 3501 VALLEY BOULEVARD, LOS ANGELES, CA 90031

WORK ORDER NO. E170149F
FILE NO.
DRAWING NO. E-4
SHEET 6 OF SHEETS 14

REVISION DATES (DESIGN STAGE ONLY)

PROPOSED LUMINAIRE AND/OR POLE SCHEDULE (THIS SHEET ONLY)							
SYMBOL	QTY	PART NO.	LED LAMPS	LED LAMPS QTY	MH GROUND	POLE LENGTH	DESCRIPTION
	6	CAL-1-T2-64L-53-40K-L-UNV-PT-BRZ-FSP-211	109W	6	21'	18'	CALIFORNIA LED TYPE 2 DISTRIBUTION SEE DETAIL "A" ON SHEET E-8.
3 3	1	CAL-1-T3-64L-53-40K-L-UNV-PT-BRZ-FSP-211	218W (109W EA)	2	21'	18'	CALIFORNIA LED TYPE 3 DISTRIBUTION SEE DETAIL "A" ON SHEET E-8.
45	4	VUE-1-T2-64L-530-55K-UNV-MA-FSP-211	109W	4	EX	EX	NEW LUMINAIRE ON EXISTING PARK LIGHT. (± 45' HEIGHT)



CONSTRUCTION NOTES

1. INSTALL 4" PVC SCHEDULE 40 SLEEVE, MINIMUM 24" BELOW GRADE.
2. REMOVE EXISTING LUMINAIRE ASSEMBLY AND REPLACE WITH LUMINAIRE LED PER SCHEDULE HEREON. CONTRACTOR SHALL FURNISH AND INSTALL APPURTENANT FITTING AS REQUIRED.
4. FURNISH AND INSTALL NEW ELECTROLIERS PER SCHEDULE HEREON. CONSTRUCT FOUNDATION COMPLETE.
5. INSTALL COMPOSITE TYPE 2 PULL BOX PER CITY OF LOS ANGELES PUBLIC WORKS STANDARD PLAN L-201-0. UNLESS OTHERWISE NOTED.
8. INTERCEPT AND CONNECT EXISTING WITH NEW CONDUITS. REMOVE EXISTING WIRES AND REPLACE. FURNISH AND INSTALL FITTING AS REQUIRED.
9. INSTALL 2" PVC SCH 40 WITH 4#1 AWG AND 1#6 GROUND WIRE PER WIRING DIAGRAM "EFG" ON SHEET E-9.

LEGEND

- # — EXISTING SPORTS LIGHTING (# = NUMBER OF LIGHTS) (TO BE PROTECT-IN-PLACE)
- EXISTING OTHER LIGHTING (TO BE PROTECT-IN-PLACE)
- PROPOSED PVC SCH 40 CONDUITS AND CONDUCTORS
- 4" PVC SLEEVE CONDUIT
- PROPOSED PULL BOXES
- (XX) — FOR CIRCUIT "B" THROUGH "G" PHASE LOAD COUNT
- LUMINAIRE COUNT — PHASE CIRCUIT

N XXXX / E XXXX = N 184XXXX / E 650XXXX

BUREAU OF ENGINEERING OFFICIAL RECORD

SCALE: 1"= 40'

40' 20' 0' 40' 80'

GRAPHIC SCALE

REGISTERED PROFESSIONAL ENGINEER ARIEF N. AFTALI No. 21570 09/30/2018 CIVIL STATE OF CALIFORNIA

PLANS PREPARED BY:
PSOMAS
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Los Angeles, CA 90071
(213) 223-1400 Fax (213) 223-1444
ARIEF NAFTALI, P.E. 21570

08/24/2016
DATE

VERTICAL CONTROL: BM # 11-04189 NAVD88 AND 11-03448 NGVD29
HORIZONTAL CONTROL: U.S.G.S DATUM EFFECTIVE JULY 1, 1925

SHEET TITLE: ELECTRICAL PLAN
PROJECT: LINCOLN PARK PATHWAY LIGHTING IMPROVEMENTS
ADDRESS: 3501 VALLEY BOULEVARD, LOS ANGELES, CA 90031

WORK ORDER NO. E170149F
FILE NO.
DRAWING NO. E-5
SHEET 7 OF SHEETS 14

CITY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING

ENGINEERING CITY OF LOS ANGELES

NO. REVISIONS: DATE: BY:
WORK ACCEPTED SERIAL NO.
B - PERMITS BRXXXXXX
INDEX NO. RP 300092

BUREAU OF ENGINEERING APPROVAL:
OFFICE: (e.g., VALLEY DISTRICT)
CHECKED BY: (PRINTED NAME)
SIGNATURE: DATE:

	DESIGN GROUP
ENGINEER:	ARIEF NAFTALI, PE
DESIGNED BY:	EDUARDO LOPEZ
DRAWN BY:	EDUARDO LOPEZ
CHECKED BY:	ARIEF NAFTALI, PE
APPROVED BY:	ARIEF NAFTALI, PE

PSOMAS

REVISION DATES (DESIGN STAGE ONLY):

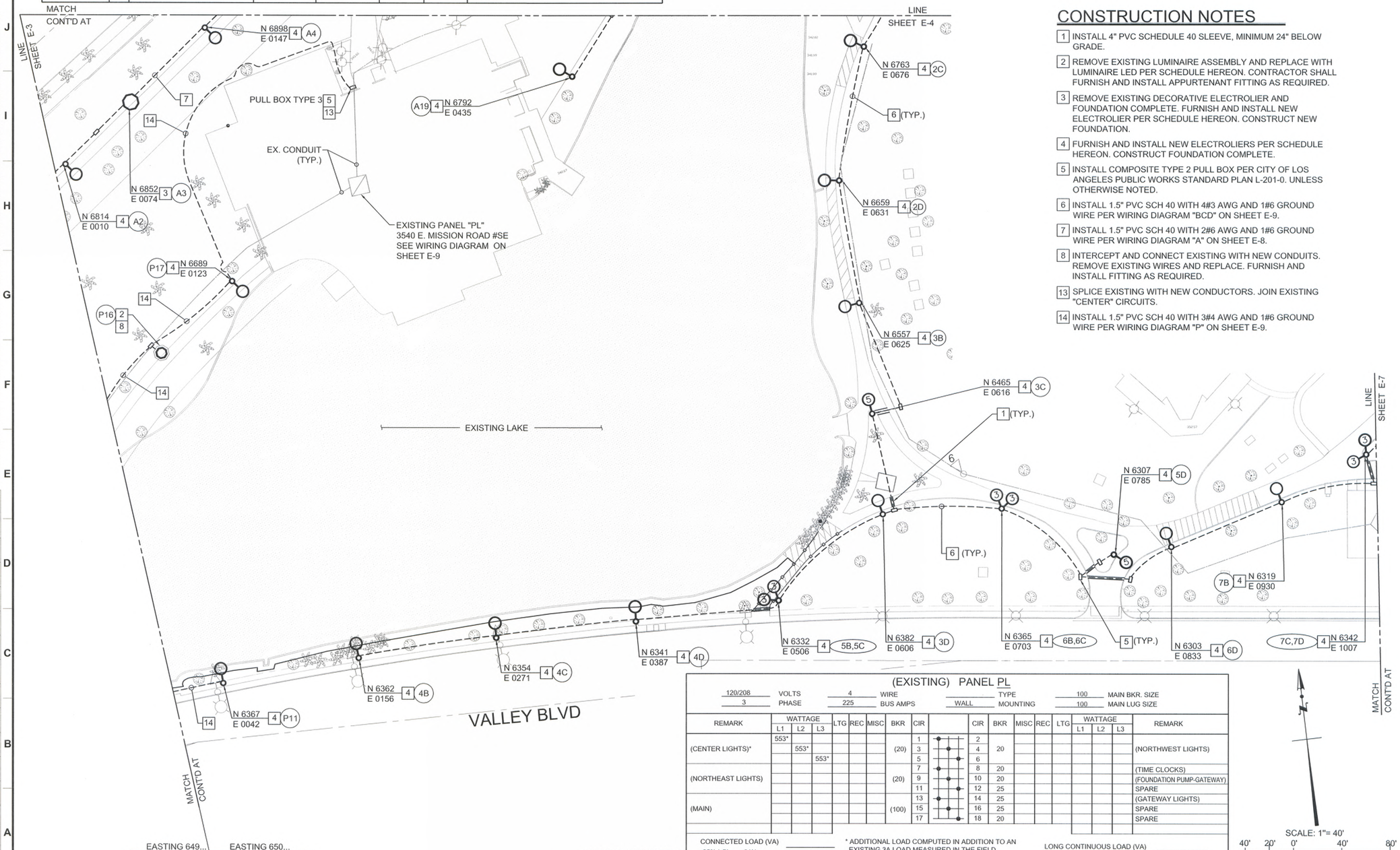
PROPOSED LUMINAIRE AND/OR POLE SCHEDULE (THIS SHEET ONLY)

SYMBOL	QTY	PART NO.	LED LAMPS	LED LAMPS QTY	MH GROUND	POLE LENGTH	DESCRIPTION
	14	CAL-1-T2-64L-53-40K-L-UNV-PT-BRZ-FSP-211	109W	14	21'	18'	CALIFORNIA LED TYPE 2 DISTRIBUTION SEE DETAIL "A" ON SHEET E-8.
5	2	CAL-1-T5-64L-53-40K-L-UNV-PT-BRZ-FSP-211	109W	2	21'	18'	CALIFORNIA LED TYPE 5 DISTRIBUTION SEE DETAIL "A" ON SHEET E-8.
3 3	3	CAL-1-T3-64L-53-40K-L-UNV-PT-BRZ-FSP-211	218W (109W EA)	6	21'	18'	CALIFORNIA LED TYPE 3 DISTRIBUTION SEE DETAIL "A" ON SHEET E-8.
	1	SVN-T5-32L-7-55K-UNV-PT-BRZ-FSP-211	70W	1	15'	15'	SAVANNAH LED TYPE 5 DISTRIBUTION SEE DETAIL "B" ON SHEET E-8. IONIC POLE (KIC-10-E-"DUSTY ROSE"-FBP-140 30/30-AB -AG).
	1	SVN-T5-32L-7-55K-UNV-PT-BRZ-FSP-211	70W	1	15'	15'	NEW SAVANNAH LED TYPE 5 LUMINAIRE ON EXISTING POLE.

LEGEND

- EXISTING FLOOD LIGHTS 400W (TO BE PROTECT-IN-PLACE)
- EXISTING OTHER LIGHTING (TO BE PROTECT-IN-PLACE)
- # EXISTING SPORTS LIGHTING (# = NUMBER OF LIGHTS) (TO BE PROTECT-IN-PLACE)
- 4" PVC SLEEVE CONDUIT
- PROPOSED PVC SCH 40 CONDUITS AND CONDUCTORS
- PROPOSED PULL BOXES
- PROPOSED SERVICE ENCLOSURE
- (XX) FOR CIRCUIT "B" THROUGH "G" PHASE LOAD COUNT
- LUMINAIRE COUNT — PHASE CIRCUIT
- (PX) OR (AX) CIRCUIT LOAD COUNT
- PANEL DESIGNATION ("A" OR "P" FOR "PL") — LUMINAIRE COUNT

N XXXX / E XXXX = N 184XXXX / E 650XXXX



CONSTRUCTION NOTES

1. INSTALL 4" PVC SCHEDULE 40 SLEEVE, MINIMUM 24" BELOW GRADE.
2. REMOVE EXISTING LUMINAIRE ASSEMBLY AND REPLACE WITH LUMINAIRE LED PER SCHEDULE HEREON. CONTRACTOR SHALL FURNISH AND INSTALL APPURTENANT FITTING AS REQUIRED.
3. REMOVE EXISTING DECORATIVE ELECTROLIER AND FOUNDATION COMPLETE. FURNISH AND INSTALL NEW ELECTROLIER PER SCHEDULE HEREON. CONSTRUCT NEW FOUNDATION.
4. FURNISH AND INSTALL NEW ELECTROLIERS PER SCHEDULE HEREON. CONSTRUCT FOUNDATION COMPLETE.
5. INSTALL COMPOSITE TYPE 2 PULL BOX PER CITY OF LOS ANGELES PUBLIC WORKS STANDARD PLAN L-201-0. UNLESS OTHERWISE NOTED.
6. INSTALL 1.5" PVC SCH 40 WITH 4#3 AWG AND 1#6 GROUND WIRE PER WIRING DIAGRAM "BCD" ON SHEET E-9.
7. INSTALL 1.5" PVC SCH 40 WITH 2#6 AWG AND 1#6 GROUND WIRE PER WIRING DIAGRAM "A" ON SHEET E-8.
8. INTERCEPT AND CONNECT EXISTING WITH NEW CONDUITS. REMOVE EXISTING WIRES AND REPLACE. FURNISH AND INSTALL FITTING AS REQUIRED.
13. SPLICE EXISTING WITH NEW CONDUCTORS. JOIN EXISTING "CENTER" CIRCUITS.
14. INSTALL 1.5" PVC SCH 40 WITH 3#4 AWG AND 1#6 GROUND WIRE PER WIRING DIAGRAM "P" ON SHEET E-9.

(EXISTING) PANEL PL

120/208 VOLTS — 4 WIRE — TYPE — 100 MAIN BKR. SIZE
3 PHASE — 225 BUS AMPS — WALL MOUNTING — 100 MAIN LUG SIZE

REMARK	WATTAGE L1	WATTAGE L2	WATTAGE L3	LTG	REC	MISC	BKR	CIR		CIR	BKR	MISC	REC	LTG	WATTAGE L1	WATTAGE L2	WATTAGE L3	REMARK
(CENTER LIGHTS)*	553*						(20)	1		2								
		553*						3		4	20							(NORTHWEST LIGHTS)
			553*					5		6								
(NORTHEAST LIGHTS)							(20)	7		8	20							(TIME CLOCKS)
								9		10	20							(FOUNDATION PUMP-GATEWAY)
(MAIN)							(100)	11		12	25							SPARE
								13		14	25							(GATEWAY LIGHTS)
								15		16	25							SPARE
								17		18	20							SPARE

CONNECTED LOAD (VA) _____
25% LCL (VA) _____
ADJUSTED TOTAL (VA) _____

* ADDITIONAL LOAD COMPUTED IN ADDITION TO AN EXISTING 3A LOAD MEASURED IN THE FIELD MAY 5, 2016.

LONG CONTINUOUS LOAD (VA) _____
ADJUSTED TOTAL AMPS _____

*ADDITIONAL LIGHTING LOAD SEE WIRING DIAGRAM ON SHEET E-9.

SCALE: 1"= 40'
40' 20' 0' 40' 80'
GRAPHIC SCALE

BUREAU OF ENGINEERING OFFICIAL RECORD

REGISTERED PROFESSIONAL ENGINEER ARIEF N. NAFTALI No. 21570 09/30/2018 CIVIL ELECTRICAL

PLANS PREPARED BY:
PSOMAS
555 South Flower Street, Suite 4300
Los Angeles, CA 90071
(213) 223-1400 Fax (213) 223-1444
ARIEF NAFTALI, P.E. 21570

08/24/2016 DATE

VERTICAL CONTROL: BM # 11-04189 NAVD88 AND 11-03448 NGVD29
HORIZONTAL CONTROL: U.S.G.S DATUM EFFECTIVE JULY 11, 1925

SHEET TITLE: ELECTRICAL PLAN
PROJECT: LINCOLN PARK PATHWAY LIGHTING IMPROVEMENTS
ADDRESS: 3501 VALLEY BOULEVARD, LOS ANGELES, CA 90031

PSOMAS
DESIGN GROUP
ENGINEER: ARIEF NAFTALI PE
DESIGNED BY: EDUARDO LOPEZ
DRAWN BY: EDUARDO LOPEZ
CHECKED BY: ARIEF NAFTALI PE
APPROVED BY: ARIEF NAFTALI PE

BUREAU OF ENGINEERING APPROVAL:
OFFICE: (e.g., VALLEY DISTRICT)
CHECKED BY: (PRINTED NAME)
SIGNATURE: DATE:

NO. REVISIONS: DATE: BY:
WORK ACCEPTED SERIAL NO.
INDEX NO. RP 300092
B - PERMITS BRXXXXXX

BUREAU OF ENGINEERING
CITY OF LOS ANGELES

CITY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS

WORK ORDER NO. E170149F
FILE NO.
DRAWING NO. E-6
SHEET 8 OF SHEETS 14

THE CITY OF LOS ANGELES OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

REVISION DATES (DESIGN STAGE ONLY)

Sheet Version 2.0 2-2015

PROPOSED LUMINAIRE AND/OR POLE SCHEDULE (THIS SHEET ONLY)

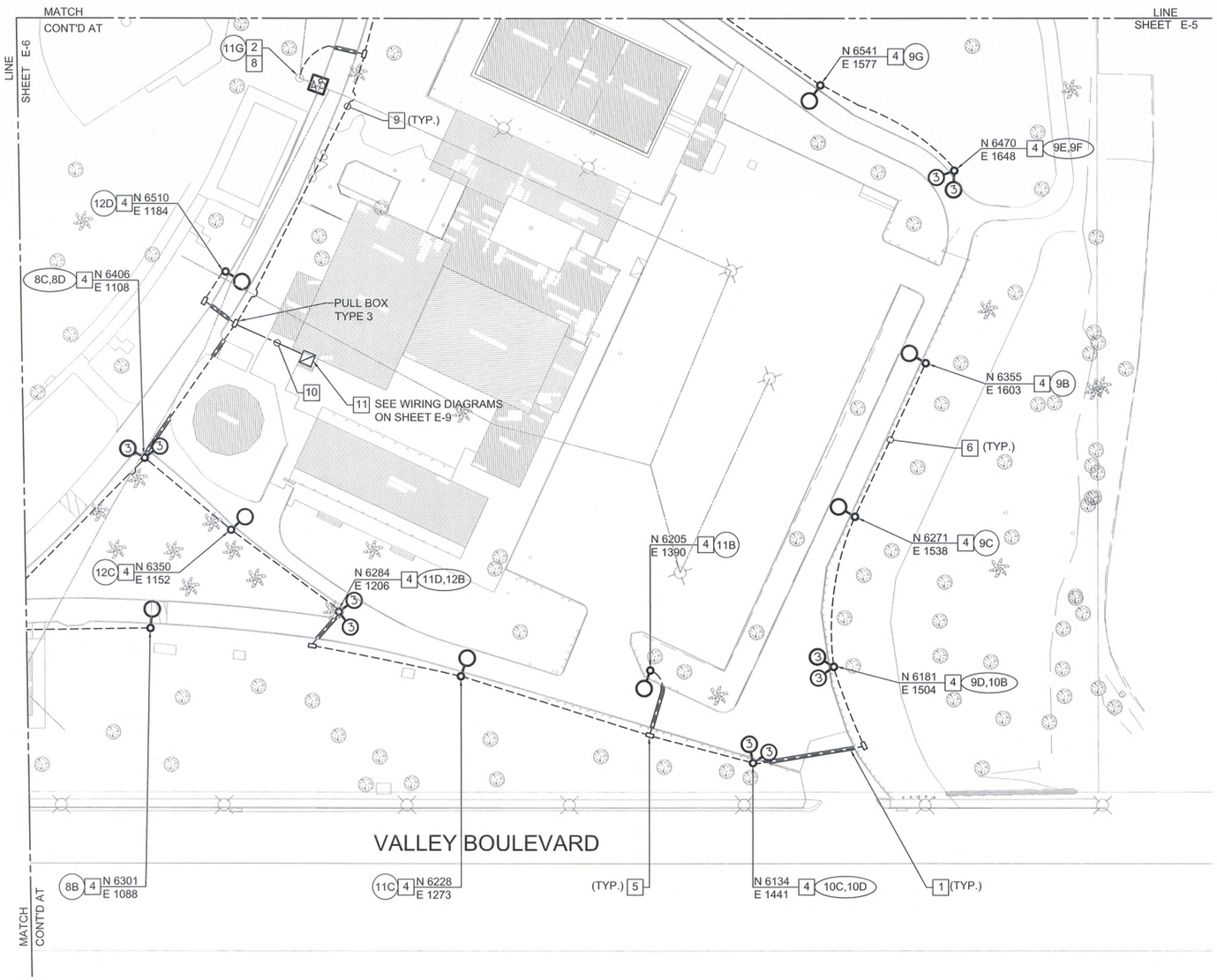
SYMBOL	QTY	PART NO.	LED LAMPS	LED LAMPS QTY	MH GROUND	POLE LENGTH	DESCRIPTION
	8	CAL-1-T2-64L-53-40K-L-UNV-PT-BRZ-FSP-211	109W	8	21'	18'	CALIFORNIA LED TYPE 2 DISTRIBUTION SEE DETAIL "A" ON SHEET E-8.
3 3	5	CAL-1-T5-64L-53-40K-L-UNV-PT-BRZ-FSP-211	218W (109W EA)	10	21'	18'	CALIFORNIA LED TYPE 3 DISTRIBUTION SEE DETAIL "A" ON SHEET E-8.
45	1	VUE-1-T2-64L-530-55K-UNV-MA-FSP-211	109W	1	EA	EA	NEW LUMINAIRE ON EXISTING PARK LIGHT. (± 45' HEIGHT)

LEGEND

- #▷○ EXISTING SPORTS LIGHTING (# = NUMBER OF LIGHTS) (TO BE PROTECT-IN-PLACE)
- EXISTING OTHER LIGHTING (TO BE PROTECT-IN-PLACE)
- PROPOSED RIGID GALVANIZED STEEL
- PROPOSED PVC SCH 40 CONDUITS AND CONDUCTORS
- 4" PVC SLEEVE CONDUIT
- PROPOSED PULL BOXES
- PROPOSED SERVICE ENCLOSURE
- (XX) CIRCUITS "B" THROUGH "G" PHASE LOAD COUNT
- LUMINAIRE COUNT — PHASE CIRCUIT
- N XXXX / E XXXX = N 184XXXX / E 650XXXX

CONSTRUCTION NOTES

1. INSTALL 4" PVC SCHEDULE 40 SLEEVE, MINIMUM 24" BELOW GRADE.
2. REMOVE EXISTING LUMINAIRE ASSEMBLY AND REPLACE WITH LUMINAIRE LED PER SCHEDULE HEREON. CONTRACTOR SHALL FURNISH AND INSTALL APPURTENANT FITTING AS REQUIRED.
4. FURNISH AND INSTALL NEW ELECTROLIERS PER SCHEDULE HEREON. CONSTRUCT FOUNDATION COMPLETE.
5. INSTALL COMPOSITE TYPE 2 PULL BOX PER CITY OF LOS ANGELES PUBLIC WORKS STANDARD PLAN L-201-0. UNLESS OTHERWISE NOTED.
6. INSTALL 1.5" PVC SCH 40 WITH 4#3 AWG AND 1#6 GROUND WIRE PER WIRING DIAGRAM "BCD" ON SHEET E-9.
8. INTERCEPT AND CONNECT EXISTING WITH NEW CONDUITS. REMOVE EXISTING WIRES AND REPLACE. FURNISH AND INSTALL FITTING AS REQUIRED.
9. INSTALL 2" PVC SCH 40 WITH 4#1 AWG AND 1#6 GROUND WIRE PER WIRING DIAGRAM "EFG" ON SHEET E-9.
10. INSTALL 3" RIGID GALVANIZED STEEL WITH 4#1 AND 4#3 AWG. MOUNT CONDUIT ON WALL PER NEC AND FURNISH AND INSTALL APPURTENANT EQUIPMENT.
11. INSTALL NEW PANEL "B-G" SQUARE "D" TYPE NQ 120/20V, 3ϕ, 4W, 100A WITH 100A MAIN BREAKER AND 20A IP BRANCH BREAKERS (EH) OR APPROVED EQUAL. SEE PANEL SCHEDULE BELOW.



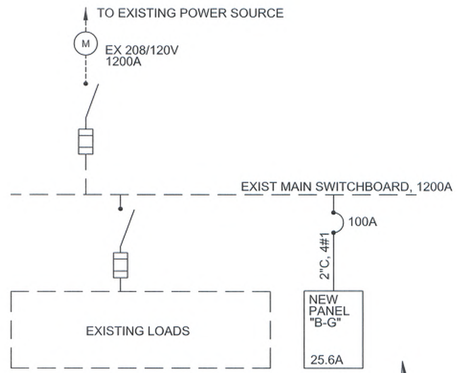
PANEL B-G

120/208 VOLTS / 3 PHASE — 4 WIRE / 100 BUS AMPS — NQ WALL TYPE MOUNTING — 100 MAIN BKR. SIZE / 100 MAIN LUG SIZE

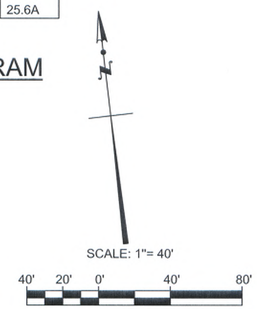
REMARK	WATTAGE L1	WATTAGE L2	WATTAGE L3	LTG	REC	MISC	BKR	CIR		CIR	BKR	MISC	REC	LTG	WATTAGE L1	WATTAGE L2	WATTAGE L3	REMARK
LED LIGHTS (1-12)	1308			12			20	1		2	20			11	1199			LED LIGHTS (1-11)
LED LIGHTS (1-12)		1308		12			20	3		4	20			11		1199		LED LIGHTS (1-11)
LED LIGHTS (1-12)			1308	12			20	5		6	20			11			1199	LED LIGHTS (1-11)
								7		8								
								9		10								
								11		12								
								13		14								
								15		16								
								17		18								

CONNECTED LOAD (VA) 7,521
25% LCL (VA) 1,880
ADJUSTED TOTAL (VA) 9,401

LONG CONTINUOUS LOAD (VA) 7,521
ADJUSTED TOTAL AMPS 25.6



SINGLE LINE DIAGRAM
NTS



BUREAU OF ENGINEERING OFFICIAL RECORD

PLANS PREPARED BY:
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ARIEF NAFTALI, P.E. 21570

08/24/2016 DATE

BUREAU OF ENGINEERING
APPROVAL:
OFFICE, (e.g., VALLEY DISTRICT)
CHECKED BY: (PRINTED NAME)
SIGNATURE: DATE:

VERTICAL CONTROL: BM # 11-04189 NAVD88 AND 11-03448 NGVD29
HORIZONTAL CONTROL: U.S.G.S DATUM EFFECTIVE JULY 1, 1925

SHEET TITLE: ELECTRICAL PLAN
PROJECT: LINCOLN PARK PATHWAY LIGHTING IMPROVEMENTS
ADDRESS: 3501 VALLEY BOULEVARD, LOS ANGELES, CA 90031

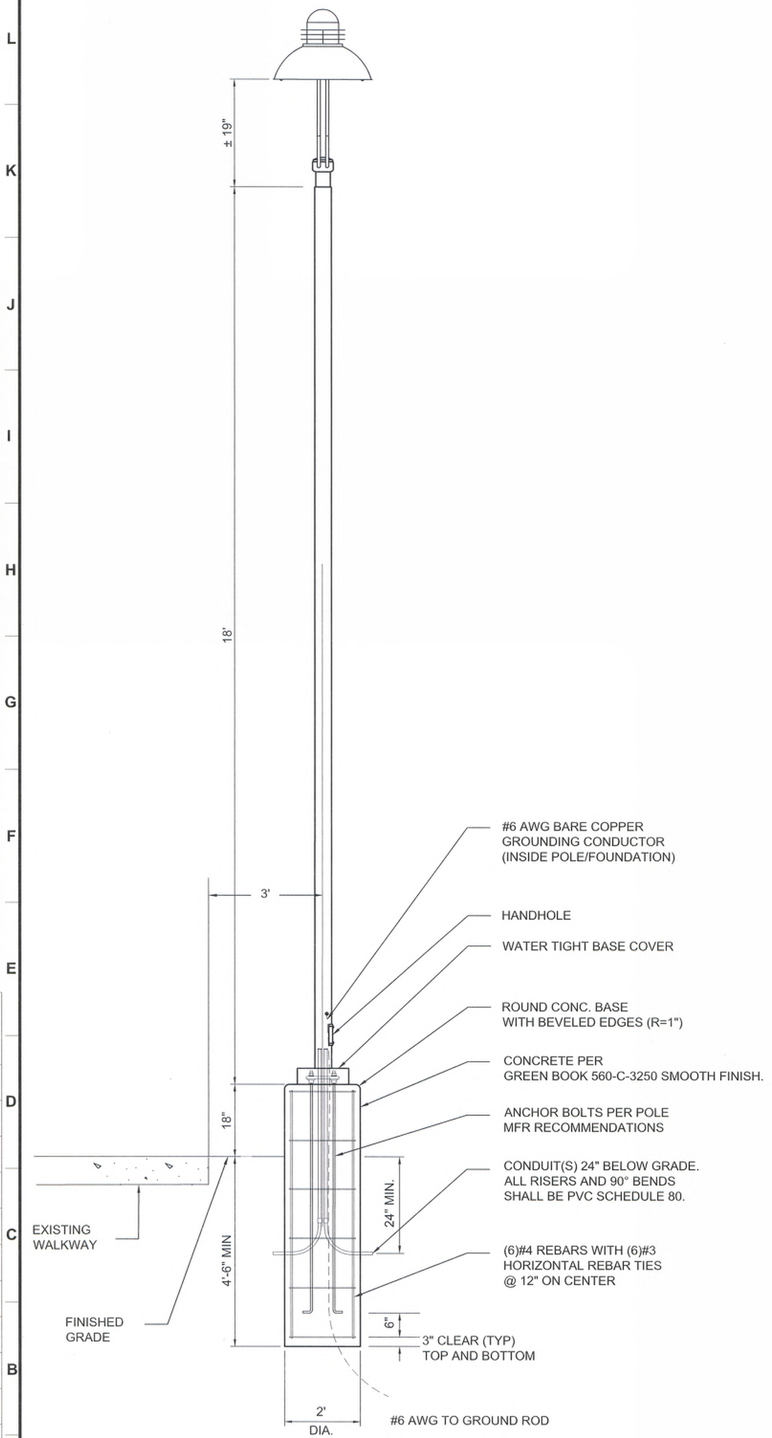
WORK ORDER NO. E170149F
FILE NO.
DRAWING NO. E-7
SHEET 9 OF SHEETS 14

BUREAU OF ENGINEERING
NO. REVISIONS: DATE: BY:
SERIAL NO.
WORK ACCEPTED
B - PERMITS BRXXXXXX
INDEX NO. RP 300092

CITY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
PSOMAS
DESIGN GROUP
ENGINEER: ARIEF NAFTALI, PE
DESIGNED BY: EDUARDO LOPEZ
DRAWN BY: EDUARDO LOPEZ
CHECKED BY: ARIEF NAFTALI, PE
APPROVED BY: ARIEF NAFTALI, PE

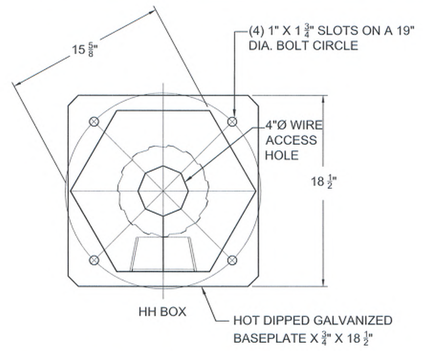
ENGINEERING CITY OF LOS ANGELES

REVISION DATES: (DESIGN STAGE ONLY)

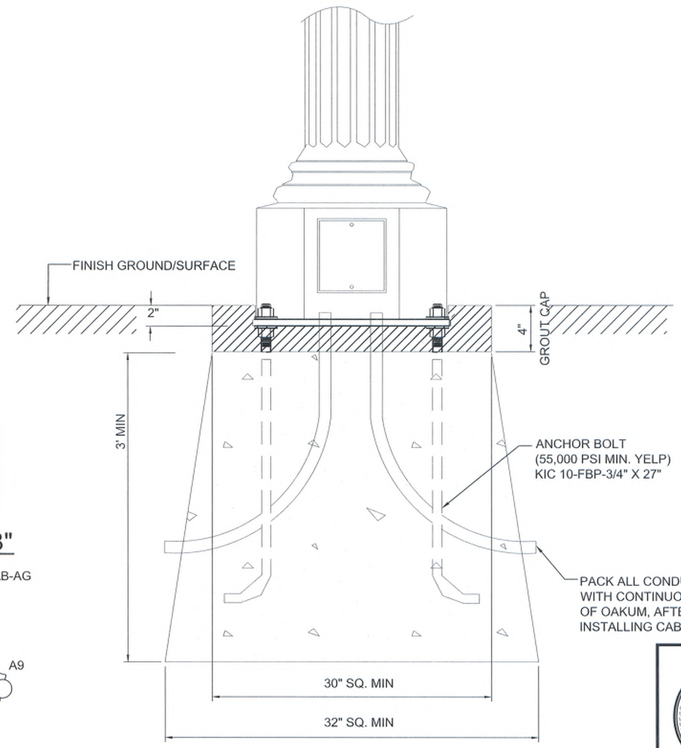


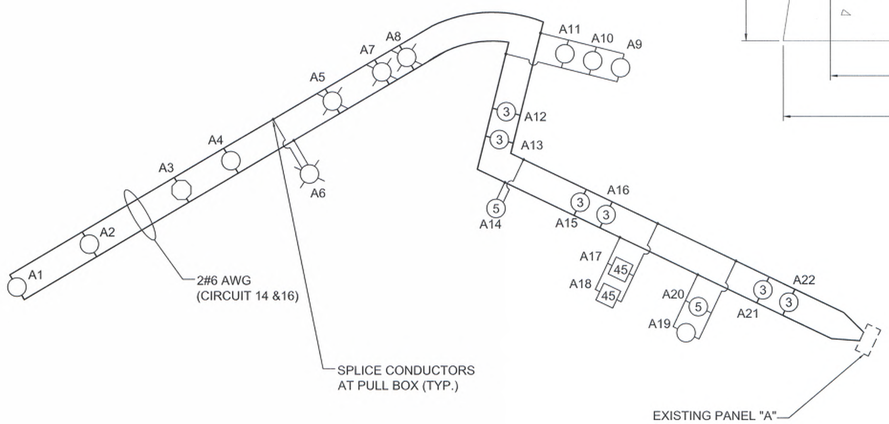
DETAIL "A"
NTS

DETAIL "B"
KIC-10-E-"DUSTY ROSE"-FBP-140 30/30-AB-AG POLE
NTS



FLUSH BASEPLATE DETAIL
NTS





WIRING DIAGRAM "A"
NTS

REVISION DATES (DESIGN STAGE ONLY)

Sheet Version 1.0 2-2015

BUREAU OF ENGINEERING
ENGINEERING
CITY OF LOS ANGELES

BUREAU OF PUBLIC WORKS
DEPARTMENT OF PUBLIC WORKS
CITY OF LOS ANGELES

NO. | REVISIONS: | DATE: | BY:

WORK ACCEPTED | SERIAL NO.

INDEX NO. RP 300092

B - PERMITS BRXXXXXX

BUREAU OF ENGINEERING APPROVAL:
OFFICE: (e.g., VALLEY DISTRICT)
CHECKED BY: (PRINTED NAME)
SIGNATURE: DATE:

PSOMAS
DESIGN GROUP
ENGINEER: ARIEF NAFTALI PE
DESIGNED BY: EDUARDO LOPEZ
DRAWN BY: EDUARDO LOPEZ
CHECKED BY: ARIEF NAFTALI PE
APPROVED BY: ARIEF NAFTALI PE

REGISTERED PROFESSIONAL ENGINEER ARIEF NAFTALI No. 21570 09/30/2018 CIVIL

08/24/2016
DATE

PLANS PREPARED BY:
PSOMAS
555 South Flower Street, Suite 4300
Los Angeles, CA 90071
(213) 223-1400 Fax (213) 223-1444
ARIEF NAFTALI, P.E. 21570

VERTICAL CONTROL: BM # 11-04189 NAVD88 AND 11-03448 NGVD29
HORIZONTAL CONTROL: U.S.G.S DATUM EFFECTIVE JULY 1, 1925

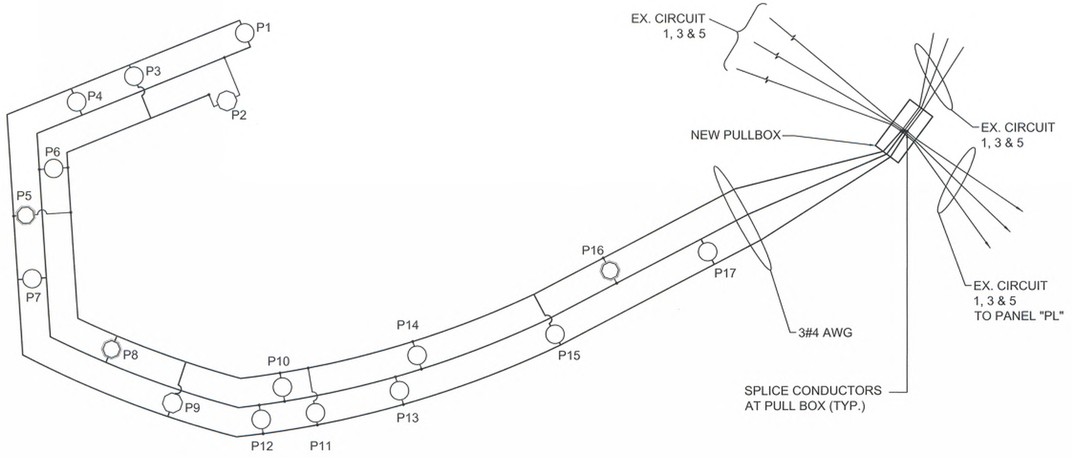
SHEET TITLE: ELECTRICAL DETAILS

PROJECT: LINCOLN PARK PATHWAY LIGHTING IMPROVEMENTS

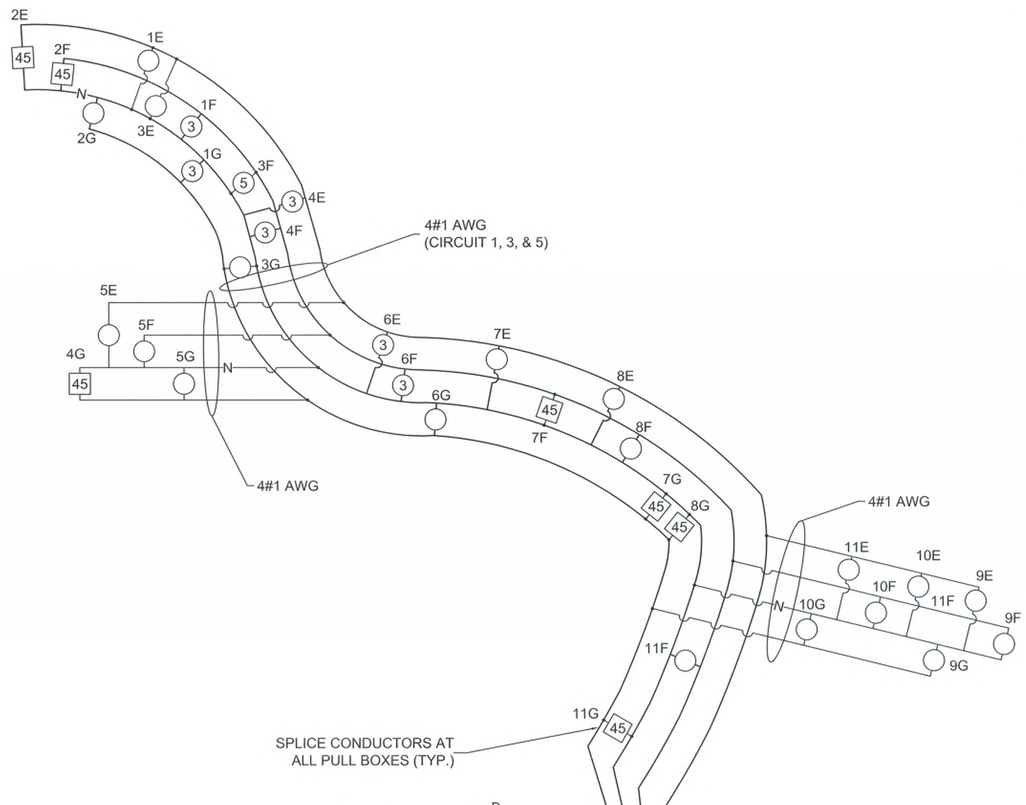
ADDRESS: 3501 VALLEY BOULEVARD, LOS ANGELES, CA 90031

BUREAU OF ENGINEERING OFFICIAL RECORD

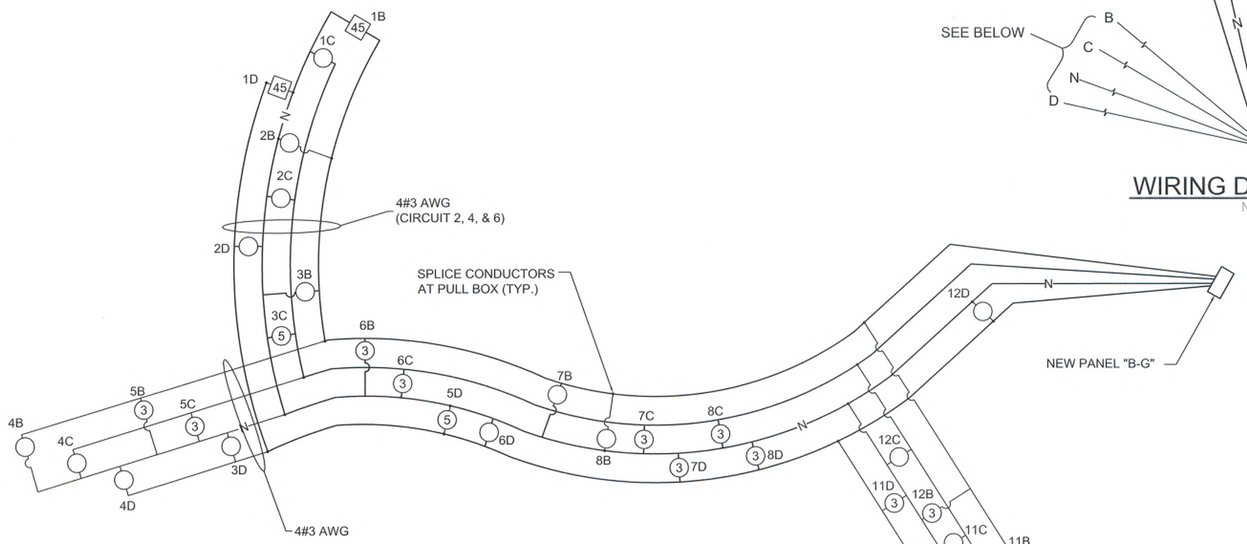
WORK ORDER NO. E170149F
FILE NO.
DRAWING NO. E-8
SHEET 10 OF SHEETS 14



WIRING DIAGRAM "P"
NTS



WIRING DIAGRAM "EFG"
NTS



WIRING DIAGRAM "BCD"
NTS

LEGEND

- CALIFORNIA TYPE 2 LED
- (3) CALIFORNIA TYPE 3 LED
- (5) CALIFORNIA TYPE 5 LED
- NEW SAVANNAH TYPE 5 LED
- NEW SAVANNAH TYPE 5 LED ON EXISTING POLE
- [45] NEW LUMINAIRE ON EXISTING 45' POLE
- [ ] NEW LUMINAIRE ON EXISTING 25' POLE

BUREAU OF ENGINEERING
OFFICIAL RECORD

PROFESSIONAL ENGINEER ARIEF NAFTALI No. 21570 09/30/2018 REGISTERED ELECTRICAL ENGINEER

PLANS PREPARED BY:
PSOMAS
555 South Flower Street, Suite 4300
Los Angeles, CA 90071
(213) 223-1400 Fax (213) 223-1444
ARIEF NAFTALI P.E. 21570

08/24/2016
DATE

BUREAU OF ENGINEERING
ENGINEERING
CITY OF LOS ANGELES

BUREAU OF ENGINEERING APPROVAL:
OFFICE (e.g. VALLEY DISTRICT):
CHECKED BY: (PRINTED NAME):
DATE:
SIGNATURE:

B - PERMITS
BRXXXXXX

INDEX NO. RP 300092

NO.	REVISIONS:	DATE:	BY:

WORK ACCEPTED
SERIAL NO.

PSOMAS
DESIGN GROUP

ENGINEER:	ARIEF NAFTALI, PE
DESIGNED BY:	EDUARDO LOPEZ
DRAWN BY:	EDUARDO LOPEZ
CHECKED BY:	ARIEF NAFTALI, PE
APPROVED BY:	ARIEF NAFTALI, PE

VERTICAL CONTROL: BM # 11-04189 NAVD88 AND 11-03448 NGVD29
HORIZONTAL CONTROL: U.S.G.S. DATUM EFFECTIVE JULY 1, 1925

SHEET TITLE: ELECTRICAL DETAILS

PROJECT: LINCOLN PARK PATHWAY LIGHTING IMPROVEMENTS

ADDRESS: 3501 VALLEY BOULEVARD, LOS ANGELES, CA 90031

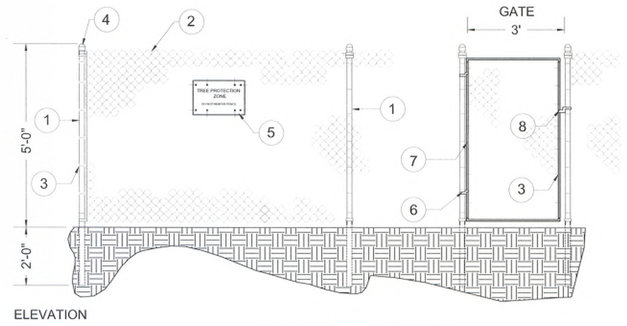
WORK ORDER NO.
E170149F
FILE NO.
DRAWING NO.
E-9
SHEET 11 OF SHEETS 14

DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING
CITY OF LOS ANGELES

THE CITY OF LOS ANGELES OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

REVISION DATES
(DESIGN STAGE ONLY)

Sheet Version 1.0 2-2015



ELEVATION

FENCING MATERIALS

1. POSTS: O.D., LINE POSTS 2-3/8 IN. O.D. POST SPACING TO BE 10'-0" MAX. POSTS TO BE DRIVEN 2' BELOW RELATIVE GRADE.
2. FABRIC: 9 GAUGE, 2 IN. MESH, KNUCKLE TOP AND BOTTOM, PLACE ON OUTER SIDE OF POST.
3. TIE WIRES: 11 GAUGE AT 12" O.C.
4. POST TOPS MALLEABLE IRON OR PRESSED STEEL.
5. 24"x18" SIGN. ATTACH WITH TIE WIRES. SIGN TO BE PROVIDED BY RAP.
6. HINGES: INDUSTRIAL BULLDOG HINGE (180 SWING) 2 HINGES PER GATE, ONE TOP AND ONE BOTTOM.
7. GATE FRAME: SIDES, 2-3/8" DIA
8. LOCKABLE CAST ALUMINUM FORK LATCH POST TOPS MALLEABLE IRON OR PRESSED STEEL.

NOTES:
1. CHAIN LINK FENCE MATERIALS SHALL CONFORM TO THE CHAIN LINK FENCE AND MISCELLANEOUS METAL CONSTRUCTION SECTION OF THE NOTICE TO CONTRACTORS.
2. THE BOTTOM OF THE FABRIC SHALL BE POSITIONED ONE INCH ABOVE FINISH GRADE.
3. PROVIDE FOR ONE 3' WIDE GATE PER ENCLOSURE.
4. ALL FENCING TO HAVE A STANDARD GALVANIZED FINISH

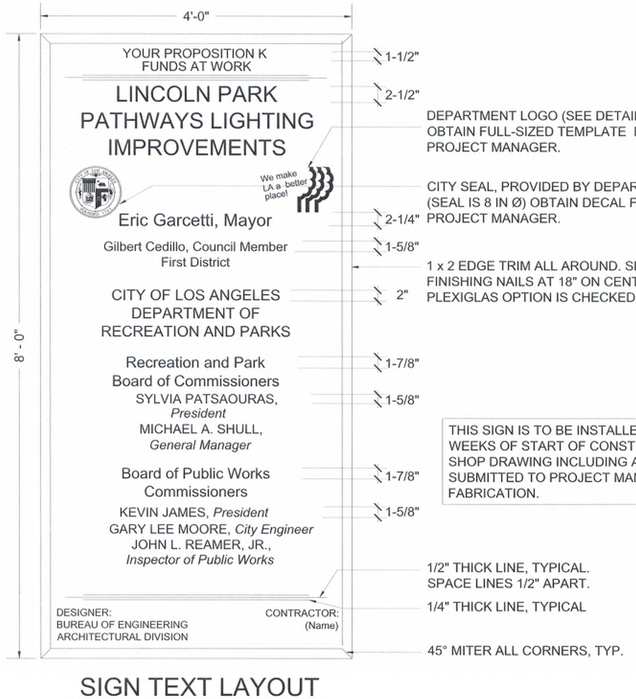
5' HIGH TREE PROTECTION FENCE

SCALE: NTS

CONSTRUCTION NOTES:

- CONSTRUCT
- EXISTING
- REMOVE & DISPOSE
- REMODEL EXISTING
- REMOVE & RECONSTRUCT

14. ASPHALT CONCRETE PAVEMENT (t=4")
16. CRUSHED MISCELLANEOUS BASE (t=4")



DEPARTMENT LOGO (SEE DETAIL AT RIGHT) OBTAIN FULL-SIZED TEMPLATE FROM PROJECT MANAGER.

CITY SEAL, PROVIDED BY DEPARTMENT (SEAL IS 8 IN Ø) OBTAIN DECAL FROM PROJECT MANAGER.

1 x 2 EDGE TRIM ALL AROUND. SECURE WITH FINISHING NAILS AT 18" ON CENTER UNLESS PLEXIGLAS OPTION IS CHECKED

THIS SIGN IS TO BE INSTALLED WITHIN 2 (TWO) WEEKS OF START OF CONSTRUCTION. SHOP DRAWING INCLUDING ALL TEXT SHALL BE SUBMITTED TO PROJECT MANAGER PRIOR TO FABRICATION.

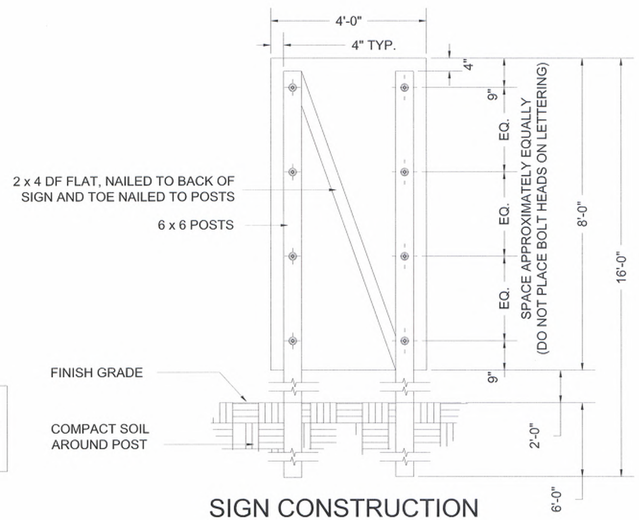
1/2" THICK LINE, TYPICAL. SPACE LINES 1/2" APART.

1/4" THICK LINE, TYPICAL

45° MITER ALL CORNERS, TYP.

SIGN TEXT LAYOUT

SCALE: NTS



SIGN CONSTRUCTION VIEWED FROM REAR

SCALE: NTS

We make LA a better place!

(OBTAIN FULL SCALE FACSIMILE OF DEPARTMENT LOGO FROM PROJECT MANAGER)

DETAIL OF DEPARTMENT LOGO

SCALE: NTS

NOTES:
1. SIGN SHALL BE CONSTRUCTED OF 3/4" ACX PLYWOOD. LETTERING SHALL BE PLACED ON "A" SIDE. 1" X 2" TRIM ALL AROUND, FLAT SIDE TO FACE, SECURE WITH WOOD GLUE AND 1 1/4" LONG WIRE BRADS.
2. PAINT ALL EXPOSED WOOD SURFACES WITH ONE COAT PRIMER AND TWO COATS ENAMEL, PER DUNN-EDWARDS PRINTED SPECIFICATIONS, OR APPROVED EQUAL. COLORS: SIGN, TRIM, POSTS, AND DIAGONAL BRACING-SNOWCAP (WHITE) Q9-36P; ALL LETTERING (EXCLUDING CITY SEAL) AND TREE SILHOUETTE DESIGN SHALL BE EMORALD GREEN.
3. SECURE SIGN TO 6 X 6 POSTS WITH 1/2" DIAMETER CARRIAGE BOLTS OF SUFFICIENT LENGTH TO SECURE SIGN TO POSTS. FOUR BOLTS PER POST. PROVIDE GALVANIZED WASHERS UNDER NUTS. DO NOT PLACE BOLTS THROUGH LETTERING.
4. AT COMPLETION OF PROJECT. CONTRACTOR SHALL REMOVE SIGN AND DELIVER TO RECREATION AND PARKS CENTRAL SERVICE YARD. 3900 CHEVY CHASE BLVD., LOS ANGELES.
5. IF BOX TO LEFT IS CHECKED, ENTIRE FACE OF SIGN SHALL BE COVERED WITH 4' X 8' X 3/16" SHEET OF CLEAR, PLEXIGLAS. SECURE TO FACE OF SIGN WITH 1" X 2" EDGE TRIM. SECURE EDGE TRIM WITH NUMBER 12 X 1-1/4" STAINLESS STEEL FLAT HEAD WOOD SCREWS. SPACE AT 18" ON CENTER. AROUND PERIMETER OF SIGN.
6. SEE LANDSCAPE CONSTRUCTION NOTES FOR ADDITIONAL INFORMATION AND REQUIREMENTS. SIGN SHALL BE INSTALLED WITHIN TWO WEEKS OF THE START OF CONSTRUCTION.

PARK CONSTRUCTION SIGN

SCALE: NTS

BUREAU OF ENGINEERING
OFFICIAL RECORD

PLANS PREPARED BY:
PSOMAS
555 South Flower Street, Suite 4300
Los Angeles, CA 90071
(213) 223-1400 Fax (213) 223-1444
ARIEF NAFTALI, P.E. 21570
08/24/2016
DATE

VERTICAL CONTROL: BM # 11-04189 NAVD88 AND 11-03448 NGVD29
HORIZONTAL CONTROL: U.S.G.S DATUM EFFECTIVE JULY 1, 1925

SHEET TITLE: DETAILS
PROJECT: LINCOLN PARK PATHWAY LIGHTING IMPROVEMENTS
ADDRESS: 3501 VALLEY BOULEVARD, LOS ANGELES, CA 90031

WORK ORDER NO. E170149F
FILE NO.
DRAWING NO. E-10
SHEET 12 OF SHEETS 14

CITY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING
CITY OF LOS ANGELES ENGINEERING

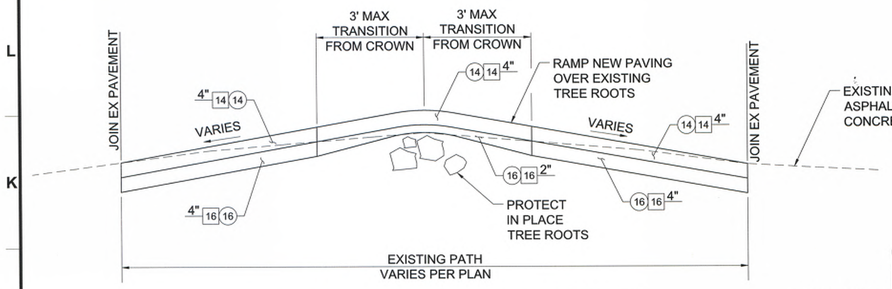
PSOMAS
DESIGN GROUP
ENGINEER: ARIEF NAFTALI, PE
DESIGNED BY: EDUARDO LOPEZ
DRAWN BY: EDUARDO LOPEZ
CHECKED BY: ARIEF NAFTALI, PE
APPROVED BY: ARIEF NAFTALI, PE

DATE: BY:
NO. REVISIONS:
SERIAL NO.
WORK ACCEPTED

B - PERMITS BRXXXXXX
INDEX NO. RP 300092

BUREAU OF ENGINEERING APPROVAL:
OFFICE: (e.g., VALLEY DISTRICT)
CHECKED BY: (PRINTED NAME)
SIGNATURE: DATE:

REVISION DATES (DESIGN STAGE ONLY)



TYPICAL TRANVERSE SECTION AT ROOT UPLIFT PATH REPAIR LOCATIONS

SCALE: NTS

CONSTRUCTION NOTES:

- CONSTRUCT
- EXISTING
- REMOVE & DISPOSE
- REMODEL EXISTING
- REMOVE & RECONSTRUCT

14. ASPHALT CONCRETE PAVEMENT (t=4")
16. CRUSHED MISCELLANEOUS BASE (t=4")
17. ADJUST MANHOLE TO GRADE
56. SOD
60. 6" MOW STRIP (PER DETAIL 6/ DET-1 ON SHEET 14)
77. UNCLASSIFIED EXCAVATION
78. NATIVE (90% COMPACTION)

LINE LEGEND

- RIGHT OF WAY
- EXISTING TOPO
- EASEMENT
- PROPOSED IMPROVEMENTS

GENERAL NOTES

1. PROTECT IN PLACE ALL CURB AND GUTTER AND EXISTING IMPROVEMENTS UNLESS OTHERWISE SPECIFIED.
2. CONTRACTOR SHALL COORDINATE WITH LAURA BAUERNFEIND (213-485-3674) FOR TREE REMOVAL AND WORK AROUND EXISTING TREE ROOTS.
3. PROTECT IN PLACE ALL TRESS AND EXISTING VEGETATION UNLESS OTHERWISE SPECIFIED.
4. PROTECT IN PLACE ALL TREES AND TREE ROOTS UNLESS NOTED OTHERWISE.
5. AT ALL PATHWAY REPAIRS LOCATIONS, RAMP NEW PAVING OVER THE EXISTING TREE ROOTS. SEE DETAIL HEREON.

LINE / CURVE TABLE

#	DELTA/BRG	RADIUS	LENGTH	TANGENT
A	118°59'05"	8.50'	17.65'	14.43'

GRADING NOTES

1. ALL WORK DETAILED ON THESE PLANS UNDER THE JURISDICTION OF THE BOARD OF PUBLIC WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION AND SUPPLEMENTS OF "THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (GREENBOOK), THE CORRESPONDING "ADDITIONS AND AMENDMENTS TO THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (BROWN BOOK) AND IN THE PRESENCE OF AN INSPECTOR APPOINTED BY THE BOARD OF PUBLIC WORKS.
2. APPROVED HEREON IS THE WORK IN DEDICATED OR PROPOSED PUBLIC STREETS, EASEMENTS, AND WATERCOURSES UNDER JURISDICTION OF THE BOARD OF PUBLIC WORKS AND SLOPES ADJACENT TO SUCH STREETS, SUBJECT TO THE PROVISIONS OF PERMIT BR. NO EROSION CONTROL OR DRAINAGE DEVICES SHALL BE INSTALLED IN THE AREA COVERED BY PERMIT BR, EXCEPT AS SHOWN HEREON, OR AS APPROVED BY THE BOARD OF PUBLIC WORKS.
3. THIS GRADING PLAN WHEN APPROVED BY THE DISTRICT ENGINEER, AS WELL AS PERMITS FOR WORK WITHIN STATE OR COUNTY RIGHT-OF-WAY, SHALL BE ON THE SITE OF WORK AT ALL TIMES.
4. IF AT ANY TIME DURING GRADING OPERATIONS, ANY UNFAVORABLE GEOLOGICAL CONDITIONS ARE ENCOUNTERED, GRADING IN THAT AREA WILL STOP UNTIL APPROVED CORRECTIVE MEASURES ARE OBTAINED.
5. DEPARTMENT OF PUBLIC WORKS, BUREAU OF ENGINEERING, GEOTECHNICAL ENGINEERING GROUP, 1149 S. BROADWAY STREET SUITE 120, LOS ANGELES, CA 90015, (213) 847-0538, SHALL BE NOTIFIED PRIOR TO COMMENCING GRADING OPERATIONS. ALL FILLS SHALL BE COMPACTED TO 90% RELATIVE COMPACTION UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEERING GROUP, AND SPECIFIED BY THE ENGINEER OR UNLESS OTHERWISE SHOWN ON THESE PLANS.
6. DRAINAGE FROM ALL LOTS SHALL BE CARRIED TO THE IMPROVED STREET GUTTER BY MEANS OF AN APPROVED DRIVEWAY OR DRAINAGE STRUCTURE.
7. ALL SLOPES IN PRIVATE PROPERTY ADJOINING STREETS, DRAINAGE CHANNELS, OR OTHER PUBLIC FACILITIES SHALL BE GRADED NOT STEEPER THAN 2 TO 1 FOR CUT AND FILL.
8. IF ANY GRADING OPERATIONS COVERED BY SAID PERMIT BR SHALL EXTEND INTO OR THROUGH OR SHALL BE COMMENCED DURING THE PERIOD OF OCTOBER 1 TO APRIL 15, THE PERMITTEE WILL BE REQUIRED TO SUBMIT PLANS OF THE TEMPORARY EROSION CONTROL METHODS AND DEVICES HE PROPOSES TO USE IN CONNECTION WITH THE GRADING OPERATIONS TO BE PERFORMED DURING THAT PERIOD. SAID PLANS SHALL BE SUBMITTED TO THE CITY ENGINEER ON OR BEFORE SEPTEMBER 15, OR AT LEAST 30 DAYS BEFORE COMMENCING GRADING OPERATIONS, AND SHALL BE APPROVED BY THE DISTRICT OR DIVISION ENGINEER BEFORE ANY GRADING IS PERFORMED DURING SAID PERIOD.
9. WHERE EXPANSIVE SOILS UNDERLIE PUBLIC PROPERTY OR PRIVATE STREETS, THESE AREAS SHALL BE OVER-EXCAVATED THREE (3) VERTICAL FEET BELOW FINAL GRADE AND REPLACED WITH NON-EXPANSIVE SOIL AS APPROVED BY THE CITY ENGINEER.

ABBREVIATIONS

BC	BEGINNING OF CURVE
BEG	BEGINNING
BW	BOTTOM OF WALL
CF	CURB FACE
CLR	CLEAR
CONST	CONSTRUCTION
EC	END OF CURVE
EG	EXISTING GROUND
EX	EXISTING
FS	FINISHED SURFACE
GB	GRADE BREAK
H	HEIGHT
MAX	MAXIMUM
MIN	MINIMUM
R/W	RIGHT OF WAY
TW	TOP OF WALL
VAR	VARIES

BID ALTERNATE AT ALL WORK RELATED TO PAVEMENT REPAIR

SECTION TITLE

SECTION # / SECTION / SCALE: TAKEN ON SHT -

SECTION LAYOUT

SECTION # / SHOWN ON SHT. -

DETAIL CALLOUT AND TITLE

SHEET NUMBER WHERE DETAIL OR SECTION APPEARS ON, WHEN THE DETAIL OR SECTION APPEARS ON THE SAME SHEET THAT IT WAS TAKEN FROM, USE A HORIZONTAL LINE

SECTION OR DETAIL IDENTIFICATION

SHEET NUMBER WHERE DETAIL OR SECTION IS TAKEN FROM

BUREAU OF ENGINEERING OFFICIAL RECORD

PROFESSIONAL ENGINEER VOYIATZES ANISSA 57710 12/31/17 REGISTERED CIVIL STATE OF CALIFORNIA

08/24/2016 DATE

PLANS PREPARED BY:
PSOMAS
555 South Flower Street, Suite 4300
Los Angeles, CA 90071
(213) 223-1400 Fax (213) 223-1444
ANISSA VOYIATZES, P.E. 57710

CITY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS BUREAU OF ENGINEERING

VERTICAL CONTROL: BM # 11-04169 NAVD88 AND 11-03448 NGVD29
HORIZONTAL CONTROL: U.S.G.S DATUM EFFECTIVE JULY 1, 1925

BUREAU OF ENGINEERING APPROVAL:
OFFICE: (e.g., VALLEY DISTRICT)
CHECKED BY: (PRINTED NAME)
SIGNATURE:
DATE:

NO.	REVISIONS:	DATE:	BY:

WORK ACCEPTED
SERIAL NO.

B - PERMITS BRXXXXXX
INDEX NO. RP 300092

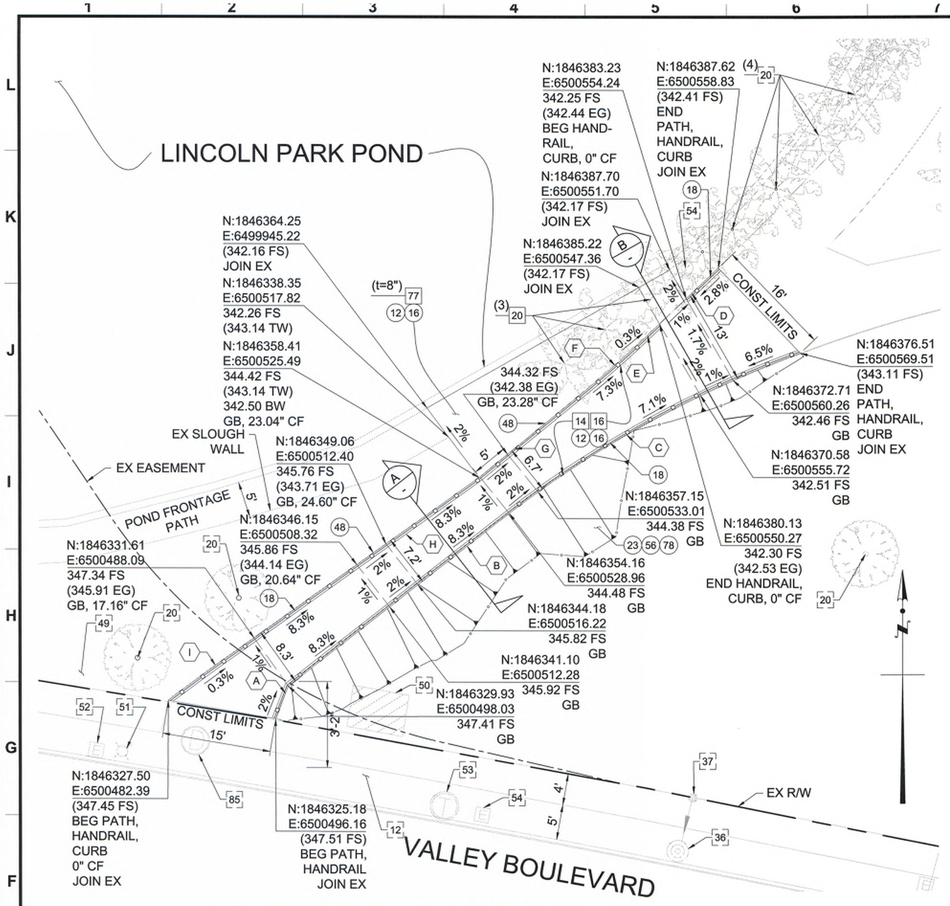
ENGINEERING CITY OF LOS ANGELES

PSOMAS
DESIGN GROUP
ENGINEER: ANISSA VOYIATZES, PE
DESIGNED BY: VINCENT HELLENS
DRAWN BY: HUGO CAMBEROS
CHECKED BY: LISETTE BICE, PE
APPROVED BY: ANISSA VOYIATZES, PE

SHEET TITLE: ADDITIVE ALTERNATE - PAVEMENT REPAIR PLAN
PROJECT: LINCOLN PARK PATHWAY LIGHTING IMPROVEMENTS
ADDRESS: 3501 VALLEY BOULEVARD, LOS ANGELES, CA 90031

WORK ORDER NO. E170149F
FILE NO.
DRAWING NO. C-1
SHEET 13 OF SHEETS 14

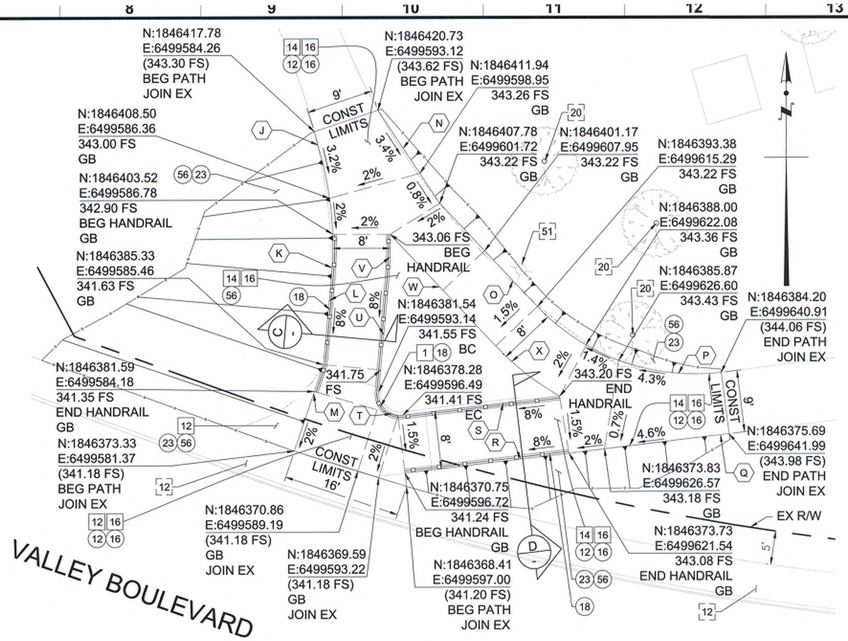
REVISION DATES (DESIGN STAGE ONLY)



ACCESSIBLE RAMP IMPROVEMENTS

SCALE: 1"=10'

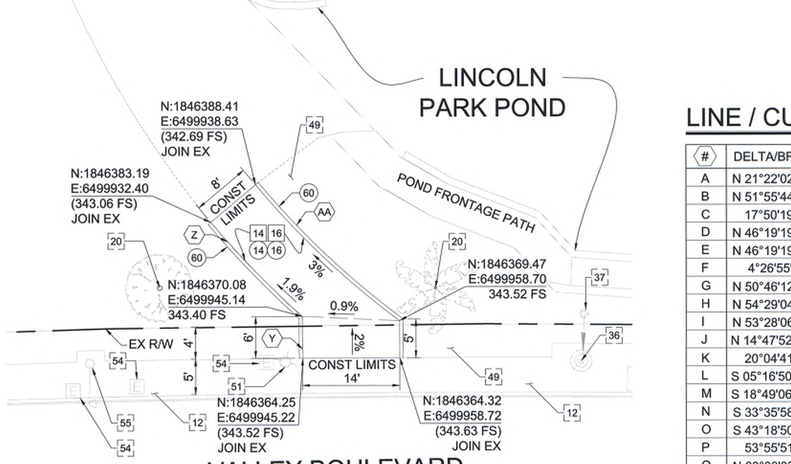
1 | C-1 | 13



ACCESSIBLE RAMP IMPROVEMENTS

SCALE: 1"=10'

2 | C-1 | 13



ACCESSIBLE RAMP IMPROVEMENTS

SCALE: 1"=10'

3 | C-1 | 13

CONSTRUCTION NOTES:

- CONSTRUCT
- EXISTING
- REMOVE & DISPOSE
- REMODEL EXISTING
- REMOVE & RECONSTRUCT

1. CONCRETE CURB
12. CONCRETE WALK (t=4")
14. ASPHALT CONCRETE PAVEMENT (t=4")
16. CRUSHED MISCELLANEOUS BASE (t=4")
18. PEDESTRIAN HANDRAIL PER CITY OF LOS ANGELES STD. PLAN S-463-2, TYPE A1 AND PER DETAIL 5 ON SHEET 14)
20. TREE
23. GRADE ONLY
36. UTILITY POLE
37. POLE ANCHOR
48. RETAINING CURB (VARIABLE HEIGHT, PER DETAIL 4/DET-1 ON SHEET 14)
49. ROCKSCAPE
50. CANOPY
51. STREET LIGHT
52. STREET LIGHTING PULL BOX
53. ELECTRICAL MANHOLE
54. ELECTRICAL PULL BOX
55. TRAFFIC SIGNAL SIGN
56. SOD
60. 6" MOW STRIP (PER DETAIL 6/ DET-1 ON SHEET 14)
77. UNCLASSIFIED EXCAVATION
78. NATIVE (90% COMPACTION)
85. STORM DRAIN MANHOLE

LINE LEGEND

- RIGHT OF WAY
- GRADE BREAK
- EXISTING TOPO
- EASEMENT
- DAYLIGHT
- HAND RAIL
- GRADING SLOPE

GENERAL NOTES

1. PROTECT IN PLACE ALL CURB AND GUTTER AND EXISTING IMPROVEMENTS UNLESS OTHERWISE SPECIFIED.
2. CONTRACTOR SHALL COORDINATE WITH LAURA BAUERNFEIND (213-485-3674) FOR TREE REMOVAL AND WORK AROUND EXISTING TREE ROOTS.
3. CONTRACTOR SHALL GRADE TO PROVIDE PROPER DRAINAGE IN THE DIRECTION SPECIFIED BY THE ENGINEER, (H:V) MIN 50:1, MAX 3:1.
4. PROTECT IN PLACE ALL TREES AND TREE ROOTS UNLESS NOTED OTHERWISE.

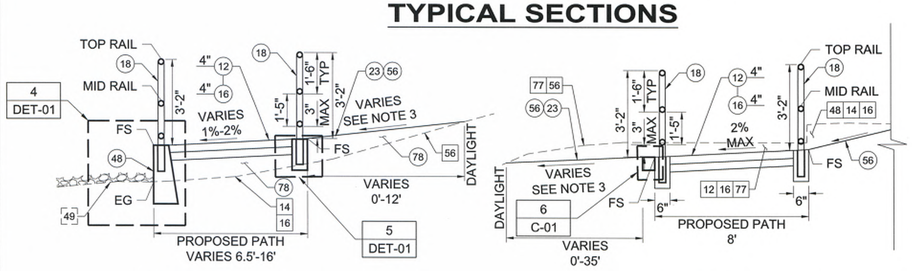
BUREAU OF ENGINEERING — OFFICIAL RECORD

BID ALTERNATE AT ALL WORK RELATED TO PAVEMENT REPAIR

LINE / CURVE TABLE

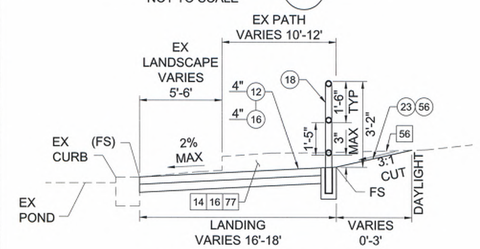
#	DELTA/BRG	RADIUS	LENGTH	TANGENT
A	N 21°22'02" E	-	4.87'	-
B	N 51°55'44" E	-	32.44'	-
C	17°50'19"	155.00'	48.26'	24.33'
D	N 46°19'19" E	-	6.22'	-
E	N 46°19'19" E	-	2.28'	-
F	4°26'55"	160.00'	12.42'	6.21'
G	N 50°46'12" E	-	18.23'	-
H	N 54°29'04" E	-	46.58'	-
I	N 53°28'06" E	-	6.94'	-
J	N 14°47'52" W	-	3.84'	-
K	20°04'41"	47.05'	16.49'	8.33'
L	S 05°16'50" W	-	12.44'	-
M	S 18°49'06" W	-	6.22'	-
N	S 33°35'58" E	-	15.54'	-
O	S 43°18'50" E	-	19.79'	-
P	53°55'51"	30.00'	28.24'	15.26'
Q	N 83°08'03" E	-	17.50'	-
R	N 83°09'28" E	-	28.00'	-
S	N 83°09'28" E	-	23.00'	-
T	102°15'55"	3.00'	5.35'	3.72'
U	S 5°16'50" W	-	15.51'	-
V	07°01'33"	55.05'	6.37'	3.38'
W	N 43°18'50" W	-	21.41'	-
X	17°07'29"	38.00'	11.36'	5.72'
Y	S 00°45'17" E	-	5.82'	-
Z	08°20'59"	125.63'	18.31'	9.17'
AA	13°36'24"	117.03'	27.79'	13.96'

TYPICAL SECTIONS



SECTION A — NOT TO SCALE

SECTION C — NOT TO SCALE



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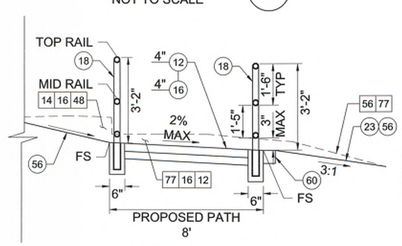
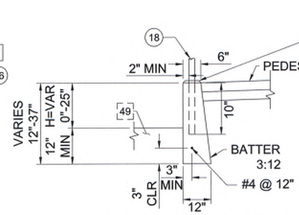
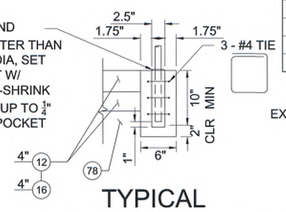


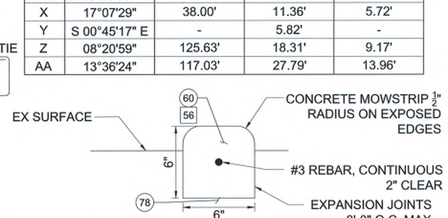
SECTION D — NOT TO SCALE



RETAINING CURB DETAIL — SCALE: NTS — 4 | DET-1



TYPICAL HANDRAIL ANCHOR — SCALE: NTS — 5 | DET-1



MOWSTRIP DETAIL — SCALE: NTS — 6 | DET-1

REVISION DATES (DESIGN STAGE ONLY)

PLANS PREPARED BY:
PSOMAS
555 South Flower Street, Suite 4300
Los Angeles, CA 90071
(213) 223-1400 Fax (213) 223-1444
ANISSA VOYIATZES, P.E. 57710
08/24/2016
DATE

PROFESSIONAL ENGINEER — ANISSA VOYIATZES — No. 57710 — 10/31/17 — STATE OF CALIFORNIA — REGISTERED

CITY OF LOS ANGELES — DEPARTMENT OF PUBLIC WORKS — BUREAU OF ENGINEERING

ENGINEERING — CITY OF LOS ANGELES

DATE: BY: — NO. REVISIONS: — WORK ACCEPTED — SERIAL NO.

B - PERMITS: BRXXXXXX

INDEX NO. RP 300092

BUREAU OF ENGINEERING APPROVAL
OFFICE (e.g., VALLEY DISTRICT):
CHECKED BY: (PRINTED NAME)
SIGNATURE: DATE:

VERTICAL CONTROL: BM # 11-04189 NAVD88 AND 11-03448 NGVD29
HORIZONTAL CONTROL: U.S.G.S DATUM EFFECTIVE JULY 1, 1925

SHEET TITLE: **ADDITIVE ALTERNATE - CIVIL DETAILS AND TYPICAL SECTIONS**
PROJECT: LINCOLN PARK PATHWAY LIGHTING IMPROVEMENTS
ADDRESS: 3501 VALLEY BOULEVARD, LOS ANGELES, CA 90031

DESIGN GROUP: PSOMAS
ENGINEER: ANISSA VOYIATZES, PE
DESIGNED BY: VINCENT HELLENS
DRAWN BY: HUGO CAMBEROS
CHECKED BY: LISETTE BICE, PE
APPROVED BY: ANISSA VOYIATZES, PE

WORK ORDER NO. E170149F
FILE NO.
DRAWING NO. DET-1
SHEET 14 OF SHEETS 14

GENERAL CONDITIONS
AND
GENERAL REQUIREMENTS

FOR

CONSTRUCTION

OF

LINCOLN PARK PATHWAY LIGHING IMPROVEMENTS PROJECT

3501 VALLEY BLVD.
LOS ANGELES, CA 90031

ENGINEERING
CITY OF LOS ANGELES

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GENERAL CONDITIONS

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GENERAL CONDITIONS

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GENERAL

1. DEFINITIONS

The following terms as used in the Contract shall be defined and interpreted as follows:

ADDENDA

Written documents issued during the bidding period which modify, supersede, or supplement the original Contract Documents.

AGREEMENT

See "CONTRACT."

AS SHOWN, AS INDICATED, AND AS SPECIFIED

These words are understood to be followed by the words "in the Contract Documents."

BENEFICIAL USE

Use of a building, system, structure, or facility by the CITY.

BID

The offer of the Bidder submitted on the prescribed forms setting forth the price(s) for the Work.

BIDDING PERIOD

The time period allocated to the Bidder to enable preparation of a Bid or Proposal.

BIDDER

The person or persons, partnership, firm or corporation submitting a Bid or proposal for the Work defined in the Contract Documents.

BID GUARANTY

The cash, certified check or Bidders Surety Bond accompanying the Bid as a guaranty that the Bidder will enter into a contract with the RECREATION AND PARK COMMISSION for the performance of the Work.

BOARD OF RECREATION AND PARK COMMISSIONERS

The Board of Recreation and Park Commissioners, of the City of Los Angeles.

BOND

Bid bond, performance and payment bond or other instrument of security.

CHANGE ORDER

A written order to the CONTRACTOR signed by the GENERAL MANAGER directing an addition, deletion or revision in the Work, or an adjustment in the Contract Price or time which is issued after the effective date of the Contract and effects less modification than is effected by a Supplemental Agreement. A Change Order may or may not also be signed by the CONTRACTOR.

CITY

The CITY of Los Angeles, a municipal corporation.

CLAIM

A written demand or assertion by one of the parties seeking, as a matter of right, an interpretation of the Contract Documents, payment of money, extension of time or other relief. The party asserting the claim must set forth the facts and circumstances for which the other party is responsible.

CODE

Codes of the State of California as well as any other Federal or local law, statute, ordinance, rule or regulation.

CONTRACT

A binding agreement between the CITY and the CONTRACTOR for the Work described in the Contract Documents.

CONTRACT COMPLETION DATE

The date the CITY accepts the entire Work as being in compliance with the Contract Documents, and authorizes the final payment in accordance with the requirements set forth in Article 25, FINAL PAYMENT of the General Requirements.

CONTRACT DOCUMENTS

The following documents constitute a part of and comprise the Contract Documents: Agreement, Notice Inviting Bids or Proposals, Instruction to Bidders, Contractor's Bid or Proposal, Special and Supplementary Conditions, General Requirements, Geotechnical Baseline Report (if provided for the in the General Requirements), Federal and State Requirements, Standard and Reference Specifications, Standard Plans, Plans and Specifications, Soil Reports and Subsurface Investigation Reports, Summary of First Notice Replies, Addenda and Notice to Bidders issued prior to the opening of bids, Plan Clarifications, Request for Information, Supplemental Agreements and Change Orders issued after Contract award.

CONTRACTOR DEFAULT

See TERMINATION OF CONTRACT BY CITY (CONTRACTOR DEFAULT) Article of these General Conditions.

CONTRACT PRICE

The total amount of money for which the Contract is awarded.

CONTRACT UNIT PRICE

The amount stated in the Bid for a single unit of an item of Work.

CONTRACTOR

The person or persons, partnership, firm or corporation who enters into the Contract as stipulated in the Agreement awarded by the CITY. Prime Contractor and Contractor shall mean the same.

CONTRACTOR'S REPRESENTATIVE

The representative of the CONTRACTOR at the site who shall supervise and direct the construction and who is authorized to receive and fulfill instructions from the PROJECT MANAGER or INSPECTOR.

DAYS

Unless otherwise specifically stated, the term "days" will be understood to mean consecutive calendar days.

EASEMENT

Permission to access or utilize property not owned by the CITY.

EQUAL

See "OR EQUAL".

GENERAL CONDITIONS

Instructions to the CONTRACTOR setting forth its responsibilities and the CITY'S responsibilities for proper execution of the Work indicated herein.

GENERAL MANAGER

GENERAL MANAGER of the Department of Recreation and Parks, or an authorized representative.

GENERAL REQUIREMENTS

Instructions to the CONTRACTOR setting forth its responsibilities and the CITY'S responsibilities for proper execution of the administration and technical aspects of the project indicated herein.

GEOTECHNICAL DESIGN SUMMARY REPORT /GEOTECHNICAL BASELINE REPORT (GBR)

The report that sets forth the geotechnical interpretations regarding anticipated conditions for the design and construction of the project. This report establishes a geotechnical baseline that provides the basis for identification of changed site/ground conditions.

GEOTECHNICAL SITE ASSESSMENT

SEE AGEOTECHNICAL DESIGN SUMMARY REPORT.@

HOLIDAY

Those holidays and dates observed by the CITY. A list of such holiday dates is available from the RECREATION AND PARK COMMISSION Office.

IMMEDIATELY NOTIFY

The obligation to cause verbal notification of some condition or event as soon as possible upon discovery or knowledge of the condition or event and in all instances, no more than two (2) hours.

INSPECTOR

The Inspector of Public Works, the Director of the Bureau of Contract Administration, or an authorized representative(s) located at the Public Works Building, 1149 S. Broadway, 3rd Floor, Los Angeles, CA, 90015.

JOBSITE

The area upon or in which the CONTRACTOR'S operations are carried on and such other areas adjacent thereto as may be designated as such by the Contract Documents.

LAW

Any Federal, State or local law, statute, ordinance, rule, regulation or code.

LIQUIDATED DAMAGES

The amount the CONTRACTOR shall pay to the CITY, as determined by rates and amounts as fixed and agreed in the Contract Documents, due to the CONTRACTOR'S failure to complete the Work or submit the schedule within the time specified, or for non-compliance with other specified requirements.

MODIFICATIONS

Includes Change Orders and Supplemental Agreements. A modification may only be issued after the effective date of the Contract.

NON-CONFORMING WORK

Non-conforming Work is Work which does not conform in all respects to all requirements in the Contract Documents, including damaged Work and damaged materials, without respect to the causes or nature of such lack of conformity.

NOTICE OF AWARD

The written notice by the CITY to the successful Bidder stating that upon compliance by the successful Bidder of required conditions, the City will execute the Contract.

NOTICE TO BIDDERS

A notice included in the bidding documents that informs prospective bidders of the bidding procedures and the opportunity to submit a bid.

NOTICE TO CONTRACTOR

The written notice by the CITY to the CONTRACTOR which officially advises on direction and provides information pertinent to the Contract.

NOTICE TO PROCEED

The written notice by the CITY to the successful Bidder stating that the Work or portions of the Work may commence.

NOTICE TO WITHHOLD

The written notice by the CITY to the CONTRACTOR advising that certain payments shall be withheld due to unacceptable execution of the Work by the CONTRACTOR.

OR EQUAL

The product, equipment, or material which is proposed by the CONTRACTOR for use in the Work which in the sole judgment of the PROJECT MANAGER is equal to, better than and as suitable as the product or material specified in the Contract Documents as to function, performance, reliability, quality, and general configuration.

PARTIAL ACCEPTANCE

Any portion of the Work which has been completed in accordance with the plans and specifications and has been accepted in writing by the PROJECT MANAGER and the INSPECTOR on the "Statement of Partial Completion" form.

PLANS OR DRAWINGS

The drawings, profiles, cross sections, working drawings, and supplemental drawings, or reproductions thereof, issued or approved by the PROJECT MANAGER, which show the location, character, dimensions or details of the Work.

PROJECT

The Work and/or construction operations executed through the performance of this Contract.

PROJECT MANAGER

The authorized representative of the GENERAL MANAGER.

PROTEST

See definition of Claim.

REFERENCE SPECIFICATIONS

Those bulletins, standards, rules, methods of analysis or test, codes, and specifications of other agencies, PROJECT MANAGER societies, or industrial associations referred to in the Contract Documents. These refer to the latest edition, including amendments in effect and published at the time of advertising the project, adopted by the RECREATION AND PARK COMMISSION, if applicable, unless specifically referred to by edition, volume, or date.

RIGHTS OF ENTRY

Written permission from an owner of a facility or property to access the facility or property for a specific purpose.

RIGHT OF WAY

Rights of way, easements, or rights of entry for the Work will be provided by the CITY. The CONTRACTOR shall make arrangements, pay for, and assume all responsibility for acquiring, using, and disposing of additional work areas and facilities temporarily required in addition to those provided by the CITY. The CONTRACTOR shall indemnify and hold the CITY harmless from all claims for damages caused by such actions.

SPECIAL PROVISIONS

Any provision which supplements or modifies the Specifications.

SPECIFICATIONS

The Contract Documents and revisions to it which were prepared to specifically describe the commercial, legal, technical and nontechnical requirements of the project. Specifications include but are not limited to Terms, Provisions, General Conditions, General Requirements, Special Provisions, Technical Specifications, Equipment Schedules, and all revisions made to the specifications in Addenda, Notice To Bidders, and Change Orders or Modifications, signed by the GENERAL MANAGER.

STANDARD PLANS

Details of standard structures, devices or instructions referred to on the plans or in the specifications by title or number issued by the CITY.

STANDARD SPECIFICATIONS

Documents, Materials and items specified in Article 5 of these General Conditions.

STARTUP

That stage of performance testing as defined in the specifications which use the actual process fluid, material, or medium for a specified number of days of continuous operation without major interruptions and prior to acceptance by the CITY.

SUBCONTRACTOR

A "Subcontractor" is a contractor who is licensed pursuant to California Business and Professions Code, Section 7000 *et.seq.* and who contracts directly with the prime CONTRACTOR. The Subcontractor performs some part of the Work of the Contract. A Subcontractor does not have any direct contract with the CITY related to the project.

SUB-SUBCONTRACTOR

A "Sub-subcontractor" is a Subcontractor, within the definition of that term, who has a contract with a Subcontractor and has no Contract with the City related to the project.

SUPERVISOR

The designated individual who is responsible for the proper execution or installation of some portion or portions of the Work. The SUPERVISOR reports directly or indirectly to the CONTRACTOR'S REPRESENTATIVE.

SUPPLEMENTAL AGREEMENT

A written amendment of the Contract Documents which modifies the Contract in price or scope by a percentage which is more than can be accomplished by a Change Order and signed by the CITY and the CONTRACTOR.

SUPPLIER

An individual, organization, or firm who is not required for the purposes of the Work to be licensed pursuant to California Business and Professions Code as a CONTRACTOR, Subcontractor, or Sub-subcontractor, within the meanings of those terms as defined herein above, who provides equipment and/or materials for the Work, to the CONTRACTOR, a Subcontractor, or a Sub-subcontractor, including that fabricated to a special design, but who does not perform labor at the site except for labor or labor supervision required by

some manufacturers as part of their equipment installation for warranty or other purposes. The term "supplier" also includes fabricator, manufacturer, or vendor.

SURETY

Any individual, firm or corporation, bound with and for the CONTRACTOR for the acceptable performance, execution and completion of the Work, and for the satisfaction of all obligations incurred.

TERMS

Unless otherwise stated, the words "directed, required, permitted, ordered, instructed, designated, considered necessary, prescribed, approved, acceptable, satisfactory," or words of like meaning, refer to actions, statements, judgments, conclusions, and decisions within the responsibility of the PROJECT MANAGER or the INSPECTOR.

UNAVOIDABLE DELAY

Delay arising from causes beyond the control and without the fault or negligence of the CONTRACTOR and its Subcontractors at all tiers.

UTILITY

Tracks, overhead or underground wires, cables, pipeline, conduits, ducts, or structures, sewers, or storm drains owned, operated, or maintained in or across a public right of way, private easement, or jobsite.

VOLUME I

Are the items in the bid package entitled “CITY OF LOS ANGELES, CALIFORNIA, DEPARTMENT OF RECREATION AND PARKS INSTRUCTION TO BIDDERS, PROPOSAL, AFFIDAVIT AND BOND FOR…” inclusive.

VOLUME II

Are the items in the bid package entitled “CONTENTS GENERAL CONDITIONS”, “CONTENTS GENERAL REQUIREMENTS”, and any specifications and attachments inclusive.

WORK

Includes all material, labor, utility services, tools, expendable equipment, and all appliances, machinery, transportation, appurtenances and specified services necessary to perform and complete the Contract; and such additional items not specifically indicated or described that can be reasonably inferred as belonging to the item described or indicated and as required by good practice to provide a complete and satisfactory system or structure. As used herein, "provide" shall be understood to mean "furnish and install, complete in place."

WORKSITE

See "JOBSITE."

WORKDAY

Any day within the period between the start of the Contract time and the date provided in the Contract for completion or the date established in the Statement of Completion by the CITY acknowledging that all Work under the contract is complete, whichever occurs last, other than:

- Saturday,
- Sunday,
- any day designated as a holiday by the CITY, and,
- any other day designated as a holiday in a Master Labor Agreement entered into by the CONTRACTOR or on behalf of the CONTRACTOR as an eligible member of a Contractor's Association,

- any day the CONTRACTOR is prevented from working for cause as established by UNAVOIDABLE DELAY of these General Conditions; and,
- any day the Contractor is prevented from working during the first five (5) hours of the workday with at least sixty percent (60%) of the normal Work force from cause as established by an Unavoidable Delays of these General Conditions.

CONTRACT DOCUMENTS

2. SCOPE

A. The work to be performed under this Contract shall consist of furnishing all tools, equipment, materials, supplies and manufactured articles, and for furnishing all transportation, services, including fuel, power and water, and essential communications, and the performance of all labor, Work, or operations required for the fulfillment of the Contract, in strict accordance with the specifications, schedules, and drawings, all of which are made a part hereof, and including such detail sketches as may be furnished by the PROJECT MANAGER from time to time during the construction in explanation of said drawings. The items shall be complete and all Work, material, and services not expressly called for in the Specifications, or not shown on the drawings, which may be necessary for complete and proper construction to carry out the Contract in good faith shall be performed, furnished, and installed by the CONTRACTOR at no increase in cost to the CITY.

B. The Work required by the Contract shall be completed within one hundred and twenty five (125) calendar days of the date specified by the General Manager in the notice to proceed with the work. The Contract completion time shall consist of one hundred and eighty (180) calendar days for construction, and sixty (60) calendar days for maintenance.

3. AUTHORITY OF THE RECREATION AND PARK COMMISSION, PROJECT MANAGER, AND INSPECTOR

The GENERAL MANAGER, RECREATION AND PARKS has the final authority in all matters affecting the Work The CONTRACTOR shall promptly comply with instructions from the PROJECT MANAGER or the INSPECTOR.

On all questions relating to quantities, the acceptability of material, equipment, or Work, the execution, progress or sequence of Work, and the meaning of specifications or drawings, the decision of the PROJECT MANAGER is final and binding, and shall be precedent to any payment under the Contract, unless otherwise ordered by the BOARD OF RECREATION AND PARKS.

The PROJECT MANAGER is authorized to require performance of the Work consistent with the meaning of the plans and specifications and to approve necessary additive changes in Plans up to a maximum as authorized by the Recreation and Park Commission. The PROJECT MANAGER may initiate changes in Plans or scope of Work, regardless of cost, for submission to the RECREATION AND PARK COMMISSION for its approval.

The INSPECTOR is authorized to enforce compliance with Plans and Specifications, to determine the acceptability of materials and workmanship, administer requirements with respect to subcontracts, and to prepare and process progress payment estimates. In the event of a dispute between the CONTRACTOR and the INSPECTOR, the latter is authorized to reject materials or suspend the Work until any questions at issue can be referred to and decided by the RECREATION AND PARK COMMISSION or, in design matters, by the PROJECT MANAGER.

The INSPECTOR may sample and test all materials to be incorporated into the Work. The INSPECTOR may delegate this authority to sample materials and perform tests to the Department of General Services, Standards Division, or other approved agencies, the CONTRACTOR will pay for testing.

4. INTENT OF CONTRACT DOCUMENTS

The Contract Documents are complementary, and what is called for by one part shall be as binding as if called for by all. The intent of the Documents is to include all Work consistent therewith and reasonably inferable there from as being necessary for completion of the Contract. Materials or Work described in words that indicate the proper execution and a well known technical or trade designation shall be held to refer to such recognized standards.

It is understood and agreed that the written terms and provisions of the Contract Documents represent the entire and integrated agreement between the parties hereto and supersede all prior negotiations, representations, or agreements, either written or oral. The Contract Documents shall not be construed to create any contractual relationship of any kind between the PROJECT MANAGER or the INSPECTOR and the CONTRACTOR.

5. STANDARD SPECIFICATIONS

The applicable portions of the Standard Specifications for Public Works Construction (SSPWC) shall become part of these Contract Documents, and unless otherwise specified, all Work and materials shall conform to the Standard Specifications as modified by the corresponding issue of Standard Plan No. S-610 as amended or revised and adopted by the RECREATION AND PARK COMMISSION in effect on the date of advertising for bids.

6. INTERPRETATION OF PLANS AND SPECIFICATIONS

Every part of the Contract, as shown on the Plans and described in the Specifications, must be completed and finished. No deviations are to be made from the Plans or Specifications without previous written authorization from the PROJECT MANAGER.

In general, the Plans will show dimensions, positions and type of construction, and the Specifications will define materials, quantities, and if indicated, required methods of construction. Any Work called for on the Plans and not mentioned in the Specifications, or vice versa, shall be performed as though fully set forth in both. Work not particularly detailed, marked, or specified shall be the same as similar parts that are detailed, marked, or specified.

The Plans have been drawn to the indicated scales except where otherwise noted. Dimensions indicated by figures or numerals shall govern in all cases whether drawn to scale or not. Larger scale drawings shall take precedence over smaller scale drawings. Drawings shall not be scaled for dimensions.

The general character of the detailed Work is shown on the Contract drawings, but minor modifications may be made in larger scale drawings. The PROJECT MANAGER will furnish additional details, when needed, to more fully explain the Work, and the same shall be considered part of the Contract.

Where on any drawings, a portion of the Work is drawn out or detailed and the remainder is indicated in outline, the drawn out or detailed parts shall apply also to all other like portions of the Work. Where ornament or other detail is indicated by starting only, such detail shall be continued throughout the courses or parts in which it occurs and shall also apply to all other similar parts in the Work, unless otherwise indicated.

References made to other specifications and codes refer to the edition including amendments in effect and published at the time of advertising the project or issuing the permit, unless specifically referred to by edition, volume, or date as noted in the Contract Documents.

The CONTRACTOR shall furnish and install all equipment and materials required to complete installations whether or not the quantities are specifically shown, called out, or reflected in the Contract Drawings.

7. PRECEDENCE OF CONTRACT DOCUMENTS

In resolving inconsistencies or ambiguities among two (2) or more components of the Contract Documents, the highest precedence shall be given to Permits from the other agencies as may be required by law and decreasing order as follows:

1. Permits from other agencies as may be required by law
2. Agreement
3. Special Provisions
4. General Conditions
5. Specifications - Division 01: General Requirements
6. Specifications - Divisions 02 - 17
7. Geotechnical Site Assessment
8. Drawings
9. Standard Plans
10. Standard Specifications

11. Reference Specifications

12. Reference Drawings

Supplemental Agreements, Change Orders, PROJECT MANAGER'S written interpretations and clarifications, Notice to Bidders and Addenda, in the precedence listed, will take precedence over all other Contract Document components referenced therein. Figure dimensions on Drawings will take precedence over scaled dimensions.

Detailed Drawings, including Process and Instrumentation Drawings (P & ID's), will take precedence over general Drawings.

8. ACCURACY OF PLANS AND SPECIFICATIONS

Omissions from the Plans and Specifications shall not relieve the CONTRACTOR from the responsibility of furnishing, making, or installing all items required by law or usually furnished, made, or installed in a project of the scope and character indicated by the Plans and Specifications. If the CONTRACTOR is of the opinion that it will incur costs above and beyond what would reasonably be anticipated in meeting the above requirements, it shall inform the PROJECT MANAGER in writing within twenty (20) calendar days after discovering the omission and before starting the Work.

The Plans show conditions as they are supposed or believed by the PROJECT MANAGER to exist, but it is not intended or to be inferred that the conditions as shown thereon constitute a representation or warranty, expressed or implied, by the CITY or its officers, that such conditions are actually existent, nor shall the CITY, or any of its officers, be liable for any loss sustained by the CONTRACTOR as a result of any variance between conditions as shown on the Plans, and the actual conditions revealed during progress of the Work or otherwise, except as indicated in Article 53, Differing Site Conditions of these General Conditions.

9. EXAMINATION OF COVERED WORK

If any Work is covered without inspection, approval or consent of the INSPECTOR, and examination is required by the INSPECTOR, it shall be uncovered at the CONTRACTOR'S sole expense.

Examination of covered Work may be ordered by the PROJECT MANAGER and if so ordered, the Work shall be uncovered by the CONTRACTOR. If such Work is found to be in accordance with the Contract Documents, the CITY will issue a Change Order authorizing payment for the cost of examination and replacement. If such Work is found to be not in conformance with the Contract Documents, the CONTRACTOR shall correct the non-conforming Work and the cost of examination and correction of the non-conforming Work shall be borne solely by the CONTRACTOR.

10. UNNOTICED DEFECTS

Any non-conformity in the Work that is discovered before Contract Completion, or before final payment has been made, or during the guarantee period, shall be removed and replaced by the CONTRACTOR with Work which conforms to the provisions of the Contract Documents. Failure on the part of the PROJECT MANAGER or the INSPECTOR to condemn or reject non-conforming Work shall not constitute acceptance or implied acceptance of such Work.

11. BUILDING CODES AND REGULATIONS

The CONTRACTOR shall perform the Work in accordance with the requirements of the Los Angeles City Building Code and all other regulations, laws, and ordinances, even though such requirements are not specifically mentioned in the Specifications or shown on the drawings.

It is not the responsibility of the CONTRACTOR to make certain that the Contract Documents are in accordance with applicable laws, statutes, building codes and regulations. If the CONTRACTOR observes that any of the Contract Documents are at variance therewith in any respect, it shall promptly notify the PROJECT MANAGER in writing, and any necessary changes shall be accomplished by issuance of a Change Order.

If the CONTRACTOR performs any Work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the PROJECT MANAGER, it shall assume full responsibility therefore and shall bear all costs attributable thereto.

12. LENGTH OF WORKDAY AND WORKWEEK

Eight (8) hours of labor shall constitute a calendar day's work for employees of the CONTRACTOR under this Contract. Said employees shall be paid not less than the prevailing wage rate for the first eight (8) hours work of each day.

A working day shall be Monday through Friday, and work shall be between 7:00 a.m. and 4:00 p.m., unless otherwise approved by the PROJECT MANAGER or the RECREATION AND PARK COMMISSION or revised by CITY Ordinance.

When work in excess of eight (8) hours per day, or forty (40) hours during any one (1) week is performed, wages for all hours over eight (8) hours in any day or over forty (40) hours during any one (1) week shall be paid at the prevailing wage rate, as provided in the California Code and the CITY's code requirements.

13. PAYMENT OF EMPLOYEES

The CONTRACTOR and each Subcontractor shall pay each employee engaged in Work on the project under this Contract in compliance with the Federal and State wage provisions indicated on the appropriate page of the Proposal (General Instruction and Information for Bidders), and LENGTH OF WORKDAY AND WORK WEEK of these General Conditions.

The certified payroll and the Statement of Compliance shall be submitted to the INSPECTOR by the CONTRACTOR and all Subcontractors performing Work on the project, regardless of dollar amount or type of contract.

If there is a difference between the Federal and State minimum wage rates for similar classifications of labor, the CONTRACTOR and its Subcontractors shall pay not less than the higher wage rate.

When the CONTRACTOR intends to use a craft or classification not shown on the general prevailing wage determinations, it will be required to pay the wage rate of that craft or classification most closely related to it as shown in the general prevailing wage determinations. In case of disagreement between the CONTRACTOR and the CITY, the INSPECTOR shall make the final determination as to the prevailing wages for the Work.

14. CONVICT-MADE MATERIALS

No materials manufactured or produced in a penal or correctional institution shall be incorporated in the project under this Contract.

15. SALES; BUSINESS OR USE TAX

Purchases of materials and equipment which will be incorporated or installed permanently in the Contract Work, or which will be used in the operation of the CONTRACTOR or Subcontractors, and not incorporated in the Contract Work, are not exempt from City of Los Angeles and California State Sales or Use Taxes as applicable. The CITY shall consider any required business taxes to be included in the overhead costs of the CONTRACTOR.

16. NONDISCRIMINATION IN EMPLOYMENT

The CONTRACTOR shall comply with all of the provisions of the Los Angeles Administrative Code, Mandatory Provision Pertaining to Nondiscrimination in Employment.

The CONTRACTOR shall submit Monthly Ethnic Composition of Work Force Reports to the INSPECTOR indicating the number of employees in the various work categories and ethnic groups and gender on forms furnished by the CITY. Failure to furnish the reports shall constitute grounds for the CITY to withhold the progress payment.

Nondiscrimination Clause: "The CONTRACTOR shall not discriminate during the performance of this Contract against any employee or applicant for employment because of employee's or applicant's race, religion, national origin, ancestry, sex, age, sexual orientation or physical handicap." The CONTRACTOR shall include in all subcontracts awarded under this Contract the same Nondiscrimination Clause.

If conflicts exist between these provisions and the Federal Rules and Regulations governing the same, the more stringent requirements shall prevail.

17. APPRENTICE UTILIZATION

Any Contract awarded hereunder will require the CONTRACTOR to comply with the provisions of the California Labor Code relating to apprentice employment and training; and will require the CONTRACTOR to assume full responsibility for compliance with said section with respect to all Apprenticing Occupations involved in the Project. (Compliance with said Apprentice Utilization provisions of the Labor Code is not required for Public Works Contracts involving less than $30,000 or less than twenty (20) Working days in duration).

18. LAWS AND REGULATIONS

The CONTRACTOR shall observe and comply with all Federal, State, and local laws, ordinances, codes, orders, and regulations which in any manner affect those engaged or employed on the Work, the materials used in the Work, or the conduct of the Work. If any discrepancy or inconsistency should be discovered in this Contract in relation to any such law, ordinance, code, order, or regulation, the CONTRACTOR shall report the same in writing to the PROJECT MANAGER. The CONTRACTOR shall indemnify and save harmless the CITY, and its officers, agents, and employees, against all claims or liability arising from violation of any such law, ordinance, code, order, or regulation, whether by itself or by its employees or subcontractors as stated in these Contract Documents. Any particular law or regulation specified or referred to elsewhere in these specifications shall not in any way limit the obligation of the CONTRACTOR to comply with all other provisions of Federal, State, and local laws and regulations.

19. PERMITS AND CONSTRUCTION EASEMENTS

The CONTRACTOR shall anticipate, obtain and pay for all permits, excluding the General Building Permit, necessary for performance of the Work.

The CONTRACTOR shall obtain and pay all costs incurred and submit to the PROJECT MANAGER copies of all permits required for the construction and installation of all Work called for on this project. All costs shall be included in the CONTRACTOR'S bid. The permit list to be obtained by the CONTRACTOR shall include, but not be limited to the following:

1. Night Work, hauling, overload, grading, excavation, demolition, foundation, and associated building permits.
2. Electrical permits.
3. Mechanical permits.
4. Plumbing permits.
5. South Coast Air Quality Management District permits.
6. Fire sprinkler permit.
7. All Federal, State, County and CITY issued permits.

Rights of ways, easements, or rights of entry for the Work will be provided by the CITY. The CONTRACTOR shall make arrangements, pay for, and assume all responsibility for acquiring, using, and disposing of Work areas and facilities temporarily required which are necessary in addition to those provided by the CITY. The CONTRACTOR shall indemnify and hold the CITY harmless for all claims for damages caused by such actions.

20. PARTIES EXCLUDED FROM THE WORK

Lists of individuals, firms and organizations which have been debarred, suspended or have voluntarily excluded themselves from Federal Procurement and Non Procurement Program is maintained by US General Services Administration. A copy can be obtained from Superintendent of Documents, US Government Printing Office, Washington, DC 20402, Tel: (202) 783-3238.

The CITY will not conduct business with an individual, firm or organization, and the CONTRACTOR shall not employ or otherwise utilize any Subcontractor, supplier or equipment vendor at any tier which is on the U.S. General Services Administration "List of Parties Excluded from Federal Procurement and Non Procurement Programs". The CONTRACTOR shall not utilize or otherwise employ any subcontractors or suppliers on the

CITY's list of nonresponsible bidders maintained by the General Services Division of the Bureau of Contract Administration.

21. BUSINESS TAX REGISTRATION CERTIFICATES

The CONTRACTOR represents that it has, or will obtain upon award, the Business Tax Registration Certificate(s) required by the Los Angeles City Business Tax Ordinance. The CONTRACTOR shall maintain, or obtain as necessary, all such Certificates required of it under said Ordinance and shall not cause or allow any such Certificate to be revoked or suspended.

The CITY requires all firms that have business activity within the City of Los Angeles to pay CITY business taxes.

Payments for goods or services will be withheld unless proof of tax compliance is provided to the CITY. All firms and individuals that do business with the CITY will be required to provide a Business Tax Registration Certificate number or an exemption number as proof of compliance with Los Angeles City business tax requirements in order to receive payment for goods or services.

The Tax and Permit Division of the City Clerk's Office has the sole authority to determine whether a firm is covered by business tax requirements.

22. FINANCIAL LIABILITY

The CITY's liability under this Contract shall not exceed the CITY's appropriation to fund the Contract at the time of Contract award. However, if the CITY shall appropriate funds for any successive years, the CITY'S maximum liability shall not exceed the extent of such appropriation, subject to the terms and conditions of this Contract.

THE CONTRACTOR'S RESPONSIBILITIES

23. CONTRACTOR'S OBLIGATIONS

Only competent workers shall be employed on the Work. Any worker, at the journey level or above, employed on the Work shall have a current license or certificate as required for the type of Work being performed, issued by the Department of Building and Safety of the City of Los Angeles and any such other organization as required.

Any person or subcontractor employed who is found by the PROJECT MANAGER AND/OR INSPECTOR to be incompetent, disorderly or otherwise objectionable, or who fails or refuses to perform Work properly, acceptably and as directed shall be immediately removed from the Work by the CONTRACTOR and not be reemployed on the Work.

The CONTRACTOR, at its sole cost and expense, shall perform all labor and services and furnish all the materials, tools, and appliances, except as hereinafter otherwise definitely provided, necessary or proper for performing and completing the Work required, in the manner and within the time stipulated in these specifications. The CONTRACTOR shall furnish, erect, maintain, and remove the construction plant and such temporary works as may be required. If, at any time before the commencement or during the progress of the Work or any part of it, the CONTRACTOR'S methods or appliances appear to the PROJECT MANAGER or the INSPECTOR to be unsafe, inefficient, or inadequate for securing the safety of the workers, the quality of the Work required, or the rate of progress stipulated, the PROJECT MANAGER or the INSPECTOR may order the CONTRACTOR to increase their safety and efficiency or to improve their character, and the CONTRACTOR shall comply with such orders at its own expense. Neither the making of such demands by the PROJECT MANAGER nor the failure to make such demands shall relieve the CONTRACTOR of its obligation to secure the safe conduct of the Work, the quality of Work required, nor the rate of progress stipulated in the Contract. The CONTRACTOR shall be fully responsible for the safety, efficiency, and adequacy of its plant, appliances, and methods, and for any damage which may result from their failure or their improper construction, maintenance, or operation. All of the labor and materials shall be performed and furnished strictly pursuant to and in conformity with the Contract Documents, the lines and grades and other directions of the PROJECT MANAGER or the INSPECTOR as given from time to time during the progress of the Work under the terms of the Contract, and in accordance with working drawings to be furnished from time to time as provided herein. The CONTRACTOR shall complete the entire Work to the satisfaction of the PROJECT MANAGER and INSPECTOR and in accordance with the Specifications and drawings herein mentioned, at the prices fixed in the Contract.

Where articles or materials are especially manufactured or fabricated for delivery under these specifications, the CONTRACTOR shall at all times employ such workforce, plant, materials, and tools as will be sufficient to complete the performance of the Contract and every part thereof within the time limits stipulated herein. If the CONTRACTOR fails to employ sufficient workforce, plant, materials, tools, or to maintain adequate progress, the PROJECT MANAGER may require an increase in progress at any point or points or a modification of plans and procedure in such a manner as to accelerate the Work. Failure to adequately staff the project shall be just cause for the CITY to terminate the Contract.

24. CONTRACTOR'S REPRESENTATIVE AT THE SITE

A technically qualified and English-speaking project representative shall be designated in writing as the CONTRACTOR'S representative at the job site, who shall supervise the Work and shall provide competent supervision of the Work until its completion. The CONTRACTOR'S project representative shall be assigned full time and exclusively to this project. Alternate representatives with qualifications equal to or better than the previous representative may be designated. The CONTRACTOR'S representatives shall have at least five (5) years of verifiable experience as the person primarily responsible for supervision of the Work on projects of the same or similar size and nature as this project. Within five (5) days after the Notice of Award the CONTRACTOR shall provide a statement to the PROJECT MANAGER with the following:

1. Identification and resume, showing the qualifications and experience of the CONTRACTOR'S representative and the alternate appointed to act in the place of the CONTRACTOR'S representative.
2. References of not less than two (2) previous projects on which the CONTRACTOR'S representative and the alternate had supervisory responsibility on a project of a similar nature and at least one-half or more of the cost of this project. Such references shall include names, addresses, and telephone numbers of owner representatives who worked on the project as well as project information such as project type, size, location and duration.

The PROJECT MANAGER reserves the right to disapprove any candidate named as the CONTRACTOR'S representative or alternate who fails to meet the provisions set forth herein. The PROJECT MANAGER reserve the right to remove, without any right to work on the project, either the CONTRACTOR'S representative or alternate, who in the sole opinion of the PROJECT MANAGER has demonstrated incompetence, lack of ability, or other unsuitability to perform supervision of the Work.

If the CONTRACTOR'S representative or alternate leave the employ of the CONTRACTOR, the CONTRACTOR will be required to replace the individual(s) and fulfill the requirements of this Article within fifteen (15) calendar days. In no event shall any Work proceed in the absence of an approved representative.

The CONTRACTOR'S representative or alternate shall have full authority to act on behalf of the CONTRACTOR, including, but not limited to final approval of Change Orders and Supplemental Agreements. All directions given by the PROJECT MANAGER to said representative or alternate shall be considered as having been given to the CONTRACTOR. Such instructions given by the PROJECT MANAGER to the CONTRACTOR'S representative or alternate will be confirmed in writing. All instructions and directions given by the PROJECT MANAGER or the INSPECTOR will be limited to matters properly falling within the PROJECT MANAGER'S or the INSPECTOR'S authority as specified in AUTHORITY OF THE RECREATION AND PARK COMMISSION, PROJECT MANAGER AND INSPECTOR of these General Conditions.

The CONTRACTOR'S representative or alternate shall be present at the site of the Work at all times while Work under the Contract is in progress. Failure to observe this requirement shall constitute suspension of the Work by the CONTRACTOR, until such time as said representative or alternate is again present at the site, and no payment will be allowed for any Work performed in the absence of said representative or alternate. Work performed in violation of these provisions shall be removed and reconstructed, re-fabricated, or reinstalled under the required supervision. No extensions of time will be granted, nor will additional payment be allowed for any costs to the CONTRACTOR for slowdown, delays, idled equipment, or any other costs incurred by the CONTRACTOR as the direct or indirect result of such suspension.

Whenever the Work is defined as being suspended under the provisions of this Article, any such suspension in excess of ten (10) calendar days shall constitute just cause for the CITY to terminate the Contract under the provisions of TERMINATION OF CONTRACT BY CITY (CONTRACTOR DEFAULT) of these General Conditions.

25. FAMILIARITY WITH PLANS AND SPECIFICATIONS

It shall be the responsibility of the CONTRACTOR to be thoroughly familiar with all details of the Project, including the Work of CONTRACTOR'S forces and all Subcontractors. The CONTRACTOR shall call the following to the attention of both the PROJECT MANAGER and the INSPECTOR in writing within twenty-four (24) hours of discovery, before any Work is performed:

1. Errors and omissions in the Plans and Specifications;
2. Work on the Plans or in the Specifications which, if so constructed, would result in a conflict or interference with other Work or the Work of other trades, including the location of fixtures and equipment;
3. Existing improvements visible at the job site, for which no existing disposition is made on the Plans or in the Specifications but which could reasonably be assumed to interfere with the satisfactory completion of the improvements contemplated by the Plans and Specifications.

Failure to notify shall constitute a waiver by the CONTRACTOR of any claim for delay or other damages occasioned by such defect. If the CONTRACTOR proceeds with the Work without instructions from the PROJECT MANAGER, the incorrect Work shall be removed and corrections made to comply with the PROJECT MANAGER'S instructions, at no cost to the CITY. The requirements of this Article are applicable to typographical errors in the Specifications and notational errors on the Plans where ambiguity or inadequate description exists.

26. JOB CONDITIONS

The CONTRACTOR shall visit the job site as soon as practicable after award of the Contract and ascertain all conditions affecting necessary procedure and sequencing of Work operations in the execution of the Work, including condition of available roads and streets, or clearances, restrictions and other limitations affecting transportation and ingress and egress to the job site. The CONTRACTOR shall determine the nature and types of Work to be performed and shall be responsible for all Work to be accomplished.

The CONTRACTOR shall enter the job site as noted in Article 4, SITE SECURITY of the General Requirements. The CONTRACTOR will be restricted to the immediate Work areas on the job site and shall in no case go beyond the Work limits noted on the drawings or as otherwise directed by the PROJECT MANAGER. The job site shall be enclosed with a temporary chain link fence and gates which shall be removed upon completion of the Work. The CONTRACTOR shall confine all operations of the contracted Work to the boundaries of the job site(s) and shall not interfere with CITY personnel and CITY operations or the Work of other contractors working on or near the site.

CONTRACTOR'S employee access to the job site by private vehicles is prohibited.

No vehicle is allowed in the facility or on the job site except delivery trucks and CONTRACTOR'S identified vehicles and equipment. It shall be the CONTRACTOR'S sole responsibility to arrange and pay for offsite employee parking and transportation, if necessary, so as not to affect the availability of public parking on the grounds of the facility or park site. The CONTRACTOR shall fully cooperate with all authorities on the job site and other contractors not related to the Work of this Contract who might be at the job site and shall comply with all regulations in force at the job site.

27. RESPONSIBILITY FOR SITE

The CONTRACTOR shall be in full charge of and be responsible for the job site and the construction Work of this Contract, subject to the directions of the PROJECT MANAGER or the INSPECTOR. Article 33, INTERFACE/COORDINATION REQUIREMENTS of the General Requirements describes interfaces with other contractors working on the job site. No other operations of any nature shall be performed except as specifically authorized in the Contract Documents or as authorized by the PROJECT MANAGER.

The CONTRACTOR shall exercise care not to damage improvements and adjacent land. The CONTRACTOR shall correct any damage caused within seventy-two (72) hours by restoring the land and improvements damaged to their original condition and shall indemnify and hold the CITY harmless for any such damage as specified in INDEMNIFICATION of these General Conditions.

28. WORKMANSHIP AND MATERIALS

All materials, parts and equipment furnished by the CONTRACTOR for the Work shall be new, high grade and free from defects. Materials and Work quality shall be subject to the INSPECTOR'S approval.

29. INJURY AND ILLNESS PREVENTION - SAFETY MEASURES

Safety is the responsibility of the CONTRACTOR. The CONTRACTOR shall observe and comply with the safety provisions of all applicable laws, building and construction codes, safety and health regulations of the California Code of Regulations, and with applicable CITY Safety Policies.

If a Work procedure or condition exists that is a violation of said safety standards, the PROJECT MANAGER or INSPECTOR may order the CONTRACTOR to comply with said safety provisions, and the CONTRACTOR shall comply with such orders at its own expense. If the CONTRACTOR fails to act promptly, the PROJECT MANAGER or INSPECTOR is authorized to suspend the Work. Failure of the PROJECT MANAGER or the INSPECTOR to make such demands shall not relieve the CONTRACTOR of its obligations to secure the safe conduct of the Work.

In the event of an emergency constituting an immediate hazard to the health or safety of the public or CITY employees, property, or licensee, the CITY may undertake, at the CONTRACTOR'S sole expense, without prior notice, all Work necessary to correct such hazardous conditions when it was caused by Work of the CONTRACTOR not being in accordance with the requirements of this Contract.

First aid facilities and supplies shall be kept and maintained by the CONTRACTOR at the site of the Work. The CONTRACTOR shall cause all persons within the construction area to wear protective helmets. In addition, all employees of the CONTRACTOR and its Subcontractors shall be provided with, and required to use, personal protective and life saving equipment set forth in California Construction Safety Orders and the OSHA Safety and Health Standards for Construction.

30. PROTECTION OF PERSONS AND PROPERTY AND RESTORATION OF EXISTING IMPROVEMENTS

The CONTRACTOR shall not destroy, remove, or otherwise disturb any existing survey monuments or reference points without authorization from the PROJECT MANAGER. No pavement breaking or excavation shall be started until all survey monuments or other reference points that will be disturbed by the construction operations have been properly referenced by the PROJECT MANAGER. It shall be the CONTRACTOR'S responsibility to notify the PROJECT MANAGER and the INSPECTOR of the time and location that Work will be done. Such notification shall be sufficiently in advance of construction so that there will be no delay due to waiting for survey points to be satisfactorily referenced for restoration. All survey monuments or reference points disturbed, without authorization by the PROJECT MANAGER, shall be accurately restored by the CITY at the CONTRACTOR'S sole expense after all street or roadway resurfacing has been completed.

All paved areas including asphaltic concrete beams cut or damaged as a result of construction shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit. All temporary and permanent pavement shall conform to the requirements of the affected pavement owner. All pavement which is subject to partial removal shall be neatly saw cut in straight lines.

In order to obtain a satisfactory junction with adjacent surfaces, the CONTRACTOR shall saw cut back and trim the edge so as to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in straight lines. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement.

Where sidewalks have been removed for purposes of construction, the CONTRACTOR shall place suitable temporary sidewalks, properly protected, promptly after backfilling and shall maintain them in satisfactory condition until the final restoration thereof has been made.

All utilities encountered along the line of the Work shall be maintained continuously in service during all the operations under the Contract, unless other arrangements satisfactory to the PROJECT MANAGER are made. Utilities shall include, but not be limited to, all above or below-ground conduit, pipes, ducts, cables, and appurtenances associated with oil, gas, water, steam, irrigation, process, sewer, storm drain, wastewater, air, electrical, power, instrumentation, communication, telephone, cable, TV, and lighting systems, whether or not owned by the CITY.

The CONTRACTOR shall protect all existing utilities and improvements not designated for removal. Necessary potholing shall be accomplished at the CONTRACTOR'S expense. The CONTRACTOR shall determine the exact locations and depths of all utilities indicated on the drawings. The CONTRACTOR shall make exploratory excavations of all utilities. All such exploratory excavations shall be performed as soon as practicable after award of the Contract and in any event, a sufficient time in advance of construction to avoid possible delays to the CONTRACTOR'S Work. When such exploratory excavations show the utility location as indicated on the drawings to be in error, the CONTRACTOR shall so notify the INSPECTOR and the PROJECT MANAGER. The CONTRACTOR should not rely upon plan designation of location of underground utilities. The number of exploratory excavations and extent of potholing required shall be that number which is sufficient to determine the alignment and grade of the utility. No costs shall be allowed for such Work except those included in the CONTRACTOR'S proposal.

Prior to any excavation in the vicinity of any existing underground facilities, the CONTRACTOR shall notify the INSPECTOR and the PROJECT MANAGER, and the respective authorities representing the owners or agencies responsible for such facilities, not less than three (3) working days, nor more than five (5) working days, of their intention to begin excavation. The CONTRACTOR shall make arrangements for and provide access such that a representative of said owners or agencies may be present during such Work.

Where the proper completion of the Work requires the temporary or permanent removal and/or relocation of an existing utility or other improvement which is shown on the drawings, the CONTRACTOR shall at its own expense, remove and, without unnecessary delay, temporarily replace or relocate such utility or improvement to a place and in a manner as directed by the PROJECT MANAGER, and the owner of the facility. In all cases of such temporary removal or relocation, restoration to former location shall be accomplished by the CONTRACTOR in a manner that will restore or replace the utility or improvement as nearly as possible to its former locations and to as good or better condition than found prior to removal. When utilities that are to be removed are encountered within the area of operations, the CONTRACTOR shall notify the PROJECT MANAGER not less than fifteen (15) days in advance for necessary measures to be taken to prevent interruption of service.

The CONTRACTOR shall notify the PROJECT MANAGER thirty (30) calendar days in advance of any proposed connection, and shall notify the PROJECT MANAGER and the INSPECTOR twenty-four (24) hours prior to the actual connection, to any existing utility.

Any utility or improvement which is damaged by the CONTRACTOR shall be immediately repaired at the CONTRACTOR'S expense, to a condition equal to, or better than, the condition it was in prior to such damage or temporary relocation. If the CONTRACTOR fails or refuses to promptly repair the utility or improvement, the CITY may perform the necessary Work at the CONTRACTOR'S expense and no time extension shall be allowed to the CONTRACTOR. The CONTRACTOR is not relieved of provisions of this Article even in the event such damage occurs after backfilling or is not discovered until after completion of backfilling.

All repairs to a damaged improvement shall be inspected and approved by the INSPECTOR and an authorized representative of the improvement owner before being concealed by backfill or other Work. In case of damage, which in the opinion of the PROJECT MANAGER or the INSPECTOR, threatens the safety of persons or property, the CONTRACTOR shall immediately make all repairs necessary for removal of the hazard. Should the CONTRACTOR fail to promptly take all necessary action, the CITY has the option to remove any hazard resulting

from damages caused by the CONTRACTOR at the CONTRACTOR'S expense without waiving any other rights the CITY may have, and no time extension will be allowed to the CONTRACTOR.

In the event that the CONTRACTOR damages any existing utilities that are not shown on the drawings or the locations of which are not made known to the CONTRACTOR prior to excavation, the CONTRACTOR shall immediately notify the INSPECTOR and take all measures necessary to prevent further damage. The CONTRACTOR shall then immediately make a written report to the PROJECT MANAGER and shall make repairs as directed by the PROJECT MANAGER. Payment for this extra Work will be made pursuant to the provisions contained in Article 27, PAYMENT FOR CHANGES AND EXTRA WORK of the General Requirements.

Notwithstanding that an existing utility or substructure is not shown on the original Plans and Specifications, if the existence and location thereof was made known to the CONTRACTOR prior to excavation, the utility or substructure constitutes an existing known condition, and the CONTRACTOR is responsible for protecting the utility or substructure.

Damage to a utility known to the CONTRACTOR shall be repaired at the CONTRACTOR'S expense.

31. NON-CONFORMING WORK

Except as set forth in this Article, all non-conforming Work and materials, in place or not, shall be removed immediately from the site or corrected to conform to all requirements of the Contract Documents, by the CONTRACTOR, at the sole expense of the CONTRACTOR.

If the CONTRACTOR fails to remove, replace or correct any non-conforming Work or materials within seventy two (72) hours of discovery, the PROJECT MANAGER may cause such Work or materials to be removed and replaced. Such removal and replacement shall be at the sole expense of the CONTRACTOR and all such cost shall be deducted from any amounts that are due or may become due to the CONTRACTOR.

Failure of the INSPECTOR or the PROJECT MANAGER to notify the CONTRACTOR of any non-conforming Work shall not constitute acceptance of any non-conforming Work. The CONTRACTOR'S obligation to remove, replace or correct any non-conforming Work, whenever discovered, shall continue to the end of the guaranty-warranty period provided for in Article 16, GUARANTY-WARRANTY of the General Requirements. The CITY reserves and retains all rights and remedies at law against the CONTRACTOR and their Surety for correction of any and all latent defects discovered after the guaranty-warranty period.

The Contract Documents may be modified for the purpose of allowing non-conforming Work to become acceptable in lieu of the CONTRACTOR'S obligation to remove and replace all such non-conforming Work. Such modification shall be effective only upon the written agreement of the CONTRACTOR and the PROJECT MANAGER. Such written agreement shall be issued as a Change Order, which shall include all of the following provisions.

1. A statement that the Work as constructed is non-conforming Work.
2. The specifications by which the non-conforming Work will be made to conform to the requirements of the Contract Documents.
3. A statement that all modifications to the non-conforming Work shall be at the sole expense of the CONTRACTOR.
4. A statement that the CONTRACTOR waives and releases any and all claims against the CITY, including time and impacts, in any way whatsoever related to the non-conforming Work, the modification of such non-conforming Work, and the time to negotiate such a modification.
5. The amount representing the value of the Work specified in the Contract Documents less the value of the Work as constructed, as a credit to the CITY, which shall be deducted from the amount of the Contract.

No Work shall proceed which shall make the non-conforming Work more costly to correct nor to modify such non-conforming Work until the PROJECT MANAGER and the CONTRACTOR execute such a Change Order. The PROJECT MANAGER may grant permission, in response to a written request from the CONTRACTOR, to proceed with the Work before finalization of such a Change Order, if they find the request to be in the best interest of the CITY.

Any delays or impacts arising on the Work as a result of construction or delivery of non-conforming Work or materials shall be at the CONTRACTOR'S sole expense, regardless of whether the Work ultimately becomes the subject of a Change Order, and no time extension shall be allowed to the CONTRACTOR.

Acceptance by the INSPECTOR of such previous non-conforming Work, after execution of the Change Order, does not act to waive or otherwise negate the CONTRACTOR'S obligations to guarantee such Work as set forth in Article 16, GUARANTY-WARRANTY of the General Requirements.

Failure of the CONTRACTOR to comply with the requirements of this Article shall constitute default of the Contract by the CONTRACTOR and the CITY may terminate the Contract as provided for in TERMINATION OF CONTRACT BY CITY (CONTRACTOR DEFAULT).

32. SUBCONTRACTORS AND SUB-SUBCONTRACTORS (Revised as of 3/25/2010)

The Contractor shall perform on the site and with its own organization not less than thirty (30%) of the total Contract Price, unless a different percentage is designated in the Bid Proposal. Any items designated "specialty items" in the Bid Proposal may be performed by subcontract and the amount of all such "specialty items" may be deducted from the Contract Price before computing the amount of Work required to be performed by the Contractor with its own organization. The dollar value included in the percentage performed by the Contractor shall include the value of labor, materials and equipment to be incorporated or used in the Work and directly purchased by the Contractor and shall not include the value of Work, including labor, materials and equipment, incorporated or used in the Work, performed or provided by Subcontractors.

Bidders must list all Subcontractors in the Bid, regardless of the dollar amount of the work to be performed, if the Bidder wishes to have the Subcontract amount credited toward meeting the MBE/WBE/SBE/EBE/DVBE/OBE levels of participation of the Project. Subcontractors added to the project following acceptance of the Bid and award of the Project will not be credited toward meeting the MBE/WBE/SBE/EBE/DVBE/OBE levels of participation for this Project.

Listed vendors and/or Suppliers will be limited to 60% of their listed dollar value toward achieving the anticipated MBE/WBE/SBE/EBE/DVBE/OBE levels of participation for this Project, unless the vendor and/or Supplier manufactures or substantially alters the materials/supplies.

The designated percentage of the total Contract Price the Contractor is to perform may not be reduced below that level by the addition of Subcontractor's added after Award of the Project.

The Inspector, acting on behalf of the Board of Recreation and Park Commissioners, will be responsible for approval of all Subcontractors, whether Bid-listed or not, and all Sub-subcontractors employed on the Project.

The Contractor must list in the original bid each Subcontractor who will perform Work or render services in an amount in excess of one-half of 1 percent of the Contractor's total Bid or $10,000.00, whichever is greater.

Subletting or Subcontracting of any portion of the Work in excess of one-half of 1 percent of the Contractor's original total Bid or $10,000.00, whichever is greater, for which no Subcontractor was designated in the original Bid shall only be permitted in cases of public emergency or necessity, and then only after a finding reduced to writing as a public record of the Inspector setting forth the facts constituting the emergency or necessity.

If the Contractor fails to specify a Subcontractor, or if the Contractor specifies more than one Subcontractor for the same portion of Work to be performed under the Contract in excess of one-half of 1 percent of the Contractor's total original Bid or $10,000.00, whichever is greater, the Contractor agrees that it is fully qualified to perform that portion of Work itself, and that it shall perform that portion itself.

The Contractor shall set forth in its Bid the following: The name, location of the place of business, telephone

number, California State Contractor's License Number and dollar amount of each Subcontractor who will perform Work, labor, service, supply specifically fabricated materials or equipment in an amount in excess of one-half of 1 percent of the Contractor's total Bid, or $10,000.00, whichever is greater.

The Contractor shall list only one Subcontractor for each portion of Work as defined by the Contractor in its Bid.

Acceptance by the Board of Recreation and Park Commissioners of its Bid is dependent upon each Bid listed Subcontractor, and all subsequently approved additional Subcontractors, performing the dollar value of Work listed or approved. Any reduction, increase, or other change to any Subcontract amount without prior approval by Board of Recreation and Park Commissioners is considered an Unauthorized Subcontractor Substitution and is subject to a penalty of ten (10) percent of the Subcontract amount, whether Bid-listed or not. A Subcontract dollar value increased or reduced as the result of a Change Order issued by the Engineer to add or delete from the original scope of Work shall not be subject to a penalty for an Unauthorized Subcontract Substitution.

Acceptance by the Board of Recreation and Park Commissioners of its Bid shall not entitle Subcontractors to recognition for any direct or contractual relationship with the City, nor shall it constitute approval of the use of any materials other than those specified.

The Contractor shall be responsible for all acts of all Subcontractors at all tiers. The Contractor shall coordinate all work performed by subcontractors in the interest of the City.

All Subcontractors who will be working on the Project shall be approved in writing by the Inspector prior to beginning Work, regardless of the dollar amount of Work to be performed, and whether or not they were listed in the original Bid.

Requests for approval of all Subcontractors, or request for substitution of a Subcontractor, shall be made in writing to the Inspector located at the Public Works Building, 1149 S. Broadway, 3rd Floor, Los Angeles, CA, 90015, and said request shall contain the following information for each Subcontractor:

1) Project Name
2) Project Work Order Number
3) Subcontractor's Name
4) Subcontractor's Address
5) Subcontractor's Phone Number
6) Subcontractor's Status (WBE, MBE, SBE, EBE, DVBE, OBE)
7) Subcontractor's State of California Contractor License Number
8) Subcontractor's City Business Tax Registration Certificate Number (BTRC)
9) Dollar amount of Subcontract work to be performed
10) Description of Subcontract work to be performed

Failure to provide any of the information listed will result in denial of approval until such time as the information is provided.

Failure to obtain approval of the Inspector prior to each Subcontractor performing Work on the Project may result in suspension of Work by that Subcontractor, removal of Work performed by unapproved Subcontractors, assessment of penalties, and possible sanctions against the Contractor.

Additional Subcontractors may be added after the time of original Bid. The value of Work to be performed by

additional Subcontractors may not be greater than one-half of 1 percent of the Contractor's original total Bid or ten thousand dollars ($10,000.00), whichever is greater, unless the Subcontractor will be performing Work added by Change Order causing changes or deviations from the original Contract.

The Contractor shall provide the dollar amount of Work to be performed in all requests for additional Subcontractors. Failure to specify a dollar amount of Work to be performed will result in denial of additional Subcontractors until such time as the amount is provided.

Failure of the Contractor to request and obtain approval for a reduction in either a Bid-listed Subcontract amount or the Subcontract amount of a Subcontract added after the original Bid shall result in a penalty of ten percent of the Subcontract amount.

A Contractor whose Bid is accepted may not:

1) Substitute any person as Subcontractor in place of a Subcontractor listed in the original Bid, except that the Inspector, acting on behalf of the Board of Recreation and Park Commissioners, may consent to the substitution of another Subcontractor for one of the following situations:

A) When the Subcontractor listed in the original Bid or proposal after having had a reasonable opportunity to do so fails or refuses to execute a written contract, when that written contract, based upon the general terms, conditions, plans and specifications for the project involved or the terms of that Subcontractor's written bid, is presented to the subcontractor by the Contractor.

B) When the listed Subcontractor becomes bankrupt or insolvent.

C) When the listed Subcontractor fails or refuses to perform its subcontract.

D) When the listed Subcontractor fails or refuses to meet the bond requirements of the Contractor as set forth herein.

E) When the Contractor demonstrates to the Inspector's satisfaction that the name of the Subcontractor was listed as a result of an inadvertent clerical error.

F) When the listed Subcontractor is not licensed pursuant to the State of California Contractor's License Law.

G) When the listed Subcontractor refuses to obtain a City of Los Angeles Business Tax Receipt Certificate (BTRC).

H) When the Inspector concurs with the Contractor that the Work being performed by the listed Subcontractor is unsatisfactory and not in substantial accordance with the Contract Documents, or the listed Subcontractor is delaying or disrupting the progress of the work.

I) When the listed Subcontractor fails to submit an Affirmative Action Plan acceptable to the Inspector.

J) When the Board of Recreation and Park Commissioners determines that a listed Subcontractor is not a responsible contractor.

2) Permit a Subcontract to be voluntarily assigned or transferred or allow it to be performed by anyone other than the original Subcontractor listed in the original Bid, without the consent of the Inspector.

3) Other than in the performance of Change Orders causing changes or deviations from the original Contract, sublet or Subcontract any portion of the Work in excess of one half of 1 percent of the Contractor's total Bid as to which its original Bid did not designate a Subcontractor.

4) Reduce the dollar amount of a Bid-listed Subcontract without the written approval of the Inspector.

A request for substitution of any Subcontractor, whether Bid-listed or not, must be made in writing to the Inspector and must include letter(s) of explanation as to the reason for the requested substitution.

It is considered a substitution if anyone other than the Bid-listed and/or approved Subcontractor(s), including the Contractor, performs any portion of the Work designated to be performed by said Subcontractor.

Failure to obtain approval for a Subcontractor substitution may result in rejection of the affected Work, penalties assessed for failure to obtain approval, and possible sanctions by the City.

All substitutions of Subcontractors, whether MBE/WBE/SBE/EBE/DVBE/OBE or not, shall be approved in writing by the Board of Recreation and Park Commissioners prior to any Work being performed by the substituting Subcontractor.

The Contractor shall conduct a Business Inclusion Program Outreach prior to approval of any requested Subcontractor substitution, regardless of the status (MBE/WBE/SBE/EBE/DVBE/OBE) of the contractor being substituted for. For MBE/WBE/SBE/EBE/DVBE/OBE Subcontractor substitution requests, the Contractor shall comply with the Business Inclusion Program Outreach requirements of Pages 15-15R of the Instructions to Bidders (Volume I). The Business Inclusion Program Outreach for any requested Subcontractor substitution must be reviewed and approved by the Special Research and Investigation Section of the General Services Division of the Bureau of Contract Administration, whether the Subcontractor was Bid listed or approved after the Award of the Project.

There shall be no decrease in dollar value of Work to be performed by Subcontractors approved as a substitute for a Bid-listed Subcontractor without a change in scope of the Work to be performed by the originally Bid-listed Subcontractor. Written evidence of a change of scope must be provided by the Engineer prior to approval of a change in dollar value of a Bid-listed Subcontractor.

Prior to approval of the Contractor's request for substitution, the Inspector shall give notice in writing to the Subcontractor affected by the Contractor's request to substitute and of the reasons for the request. The notice shall be served by certified or registered mail to the last known address of the Subcontractor. The listed Subcontractor who has been so notified shall have five (5) Workdays within which to submit written objections to the substitution. Failure to file these written objections within five (5) Workdays of notification shall constitute the listed Subcontractor's consent to the substitution. Notification by the Inspector may be made by phone in lieu of written notification via certified or registered mail if agreed to by the listed Subcontractor and followed by written request. Upon notification by phone, the listed Subcontractor may file written objections within five (5) days of notification.

If written objections are filed, the Inspector shall give notice of at least five (5) Workdays to the listed Subcontractor of a hearing on the Contractor's request for substitution.

The Contractor, as a condition to assert a claim of Inadvertent Clerical Error in the listing of a Subcontractor, shall within two Workdays after the time of the original Bid opening by the Board of Recreation and Park Commissioners give written notice to the Inspector and the Board of Recreation and Park Commissioners and copies of such notice to both the Subcontractor he claims to have listed in error and the intended Subcontractor who had bid to the Contractor prior to Bid opening.

Written notice of an Inadvertent Clerical Error shall be forwarded within two (2) days after the time of the original Bid opening by every Contractor claiming such an error. Failure to submit such notice within the time prescribed shall make any such subsequent claim of Inadvertent Clerical Error invalid.

Any listed Subcontractor who has been notified by the Contractor of an Inadvertent Clerical Error shall be allowed six (6) Workdays from the time of the Bid opening to submit to the Inspector and to the Contractor written objection to the Contractor's claim of Inadvertent Clerical Error. Failure of such listed Subcontractor to file such written notice within the six (6) Workdays shall constitute agreement that an advertent clerical error was made.

The Inspector shall, in the absence of compelling reasons to the contrary, consent to the requested substitution based on an Inadvertent Clerical Error if:

1) The Contractor, the Subcontractor listed in error, and the intended Subcontractor each submit an affidavit to the Inspector along any additional information as the parties may wish to submit that an Inadvertent Clerical Error was in fact made, provided that the affidavits from each of the three parties are filed within eight (8) Workdays from the time of the original Bid opening, or

2) If such affidavits are filed by both the Contractor and the intended Subcontractor within eight days of the original Bid opening but the Subcontractor whom the Contractor claims to have listed in error does not submit within six (6) Workdays, to the Inspector and to the Contractor, written objection to the Contractor's claim of Inadvertent Clerical Error as provided in this article.

   If such affidavits are filed by both the Contractor and the intended Subcontractor but the listed Subcontractor has, within six (6) Workdays from the time of the original Bid opening, submitted to the Inspector and to the Contractor written objection to the Contractor's claim of Inadvertent Clerical Error, the Inspector shall investigate the claims of all parties and schedule a public hearing before the Board of Recreation and Park Commissioners to determine the validity of such claims. Any determination shall be based on the facts contained in the declarations submitted under penalty of perjury by all three parties and supported by testimony given to the Board of Recreation and Park Commissioners. The Board of Recreation and Park Commissioners may, on its motion or that of any other party, admit testimony of other Contractors, any Bid registries or depositories, or any other party in possession of facts, which may have a bearing on the decision of the Board of Recreation and Park Commissioners. The findings of the Board of Recreation and Park Commissioners shall be final.

33. RESPONSIBILITY OF CONTRACTOR TO ACT IN EMERGENCY

In case of an emergency that threatens loss of or damage to property or injury to persons, the CONTRACTOR shall act, without instructions from the CITY, as the situation may warrant. The CONTRACTOR shall immediately inform the PROJECT MANAGER and the INSPECTOR of the emergency action taken. Any claim shall be submitted to the PROJECT MANAGER. If practical the amount of compensation, if any, shall be determined by agreement prior to the issuance of a Change Order. However, if the emergency is created or aggravated by the CONTRACTOR, it shall be liable for the resulting damages. If the CONTRACTOR fails to take the necessary action as required by such an emergency the CITY may assign another CONTRACTOR or use its own forces to perform the emergency Work at the CONTRACTOR'S sole expense.

34. ASSIGNMENT

The CONTRACTOR shall not assign, transfer, convey or otherwise dispose of this Contract or any of the proceeds there under unless written consent of the CITY has been obtained. No right under this Contract or claim for any proceeds due or to become due hereunder shall be asserted against the CITY, or persons acting for the CITY, by reason of any so-called assignment, transfer or conveyance of this Contract or any part thereof unless such assignment, transfer or conveyance has been authorized by the written consent of the CITY. The instrument of assignment, transfer or conveyance shall contain a clause subordinating the claim of the assignee, transfer or conveyor to all prior liens for services rendered or materials supplied for the execution of the Work.

35. INDEPENDENT CONTRACTOR

The CONTRACTOR represents that it is fully experienced and properly qualified to perform the class of Work required for the CONTRACT and that it is properly licensed, equipped, organized and financed to perform the

Work. The CONTRACTOR shall be an independent contractor. The CONTRACTOR is not an agent of the CITY in the performance of the CONTRACT, and shall maintain complete control over its employees and its Subcontractors and Suppliers of any tier. Nothing contained in the CONTRACT or any Subcontract awarded by the CONTRACTOR shall create any relationship between any Subcontractor and the CITY. The CONTRACTOR shall perform the Work in accordance with its own methods, in compliance with the terms of the CONTRACT.

INDEMNIFICATION AND INSURANCE REQUIREMENTS

36. INDEMNIFICATION

Except for the active negligence or willful misconduct of the CITY, the CONTRACTOR undertakes and agrees to defend, indemnify and hold harmless, through legal counsel acceptable to the CITY, the CITY, and any and all of the CITY'S Boards, Officers, Agents, Employees, Assigns, and Successors in Interest from and against all suits and causes of action, claims, losses, demands and expenses, including, but not limited to, attorney's fees and cost of litigation, damage or liability of any nature whatsoever, arising out of or related to the performance or nonperformance by CONTRACTOR or its Subcontractors, Sub-Subcontractors, or Suppliers, of any tier, of any portion of the construction of the Project, including but not limited to CONTRACTOR'S negligent acts, errors, omissions, breach of contract, breach of warranty (express or implied), or willful misconduct.

It is agreed that such defense and indemnity shall extend to the CITY'S PROJECT MANAGER, Architect/Engineer or other Design Consultant providing services under written agreement with the CITY covering any portion of the Project. Provided, however, that the Design Consultant shall be solely responsible for the enforcement of any request made by said Consultant for indemnification or defense by the CONTRACTOR. It is further provided that the CITY shall have no liability whatsoever for any failure of the CONTRACTOR to comply with any request from the Consultant for indemnity or defense.

It is further agreed that the defense and indemnity obligations of the CONTRACTOR under this Article shall not extend to the liability of the Design Consultant or its agents, employees or subconsultants, arising as a result of such indemnitee's own active negligence, errors or omissions or from (1) the preparation or approval of maps, Plans, opinions, reports, surveys, change orders, designs or Specifications, or (2) the giving of or failure to give directions or instructions by the indemnitee provided that such giving or failure to give is the primary cause of the dame or injury.

37. INSURANCE

A. GENERAL

During the term of this Contract and without limiting the CONTRACTOR's indemnification of the CITY, the CONTRACTOR shall provide and maintain at its own expense, insurance having the limits customarily carried and actually arranged by the CONTRACTOR but not less than the amounts and types listed on the Insurance Requirements Form in Volume 1 of these Contract Documents, covering its operations hereunder subject to the following conditions as they may variously apply:

1. ADDITIONAL INSURED/ADDITIONAL INTEREST/LOSS PAYEE

The CITY, it's Recreation and Park Commissions, Officers, Agents, Employees and Design Consultant shall be included as:

a. Additional Insureds in all required General Liability and property insurance and Additional Interests in all required Automobile Liability insurance.

b. Named Insureds in all required Owners and Contractors Protective Liability insurance policies.

c. Loss Payee As Its Interest May Appear in all required property, fidelity or Surety coverages.

d. Listing of other entities as additional insures may be required for specific projects due to their funding source (such as, Prop A funded projects require that Los Angeles County be listed as an additional insured).

The CITY and other interests listed above need not be named on Workers' Compensation/Employer's Liability, Professional Errors and Omissions and Second-party Legal Liability coverages (such as Garage Keepers' Legal).

2. INSURANCE APPROVAL

All insurance required hereunder shall conform to the CITY requirements established by Charter, ordinance or policy. Evidence of insurance shall be submitted to the Department's Risk Control Coordinator and approved by the City Attorney prior to commencement of any Work or tenancy under this Contract in accordance with the Los Angeles Administrative Code.

3. ALTERNATIVE PROGRAMS

Alternative Risk Financing mechanisms such as Risk Retention Groups, Risk Purchasing Groups, off-shore carriers and captive insurance programs are subject to review of their financial statements by the CITY before an approval can be granted by the City Attorney.

4. ADMITTED CARRIER/LICENSED CALIFORNIA BROKER

Insurance shall be obtained from brokers or carriers authorized to transact insurance business in California. Surplus lines insurance from carriers who are not admitted in California must be submitted through a California-licensed broker or agent.

Surplus lines coverage must also contain a Service of Suite provision whereby the underwriters will submit as necessary to any court of competent jurisdiction in California and agree that all matters arising there under will be determined in accordance with the law and practice of such court. It must further give the name and address of the underwriter's agent for service of process located within California or must nominate the California Insurance Commissioner as such agent.

5. PRIORITY OF COVERAGE

The CONTRACTOR's insurance shall not call on the CITY's program for contributions.

6. CANCELLATION/REDUCTION IN COVERAGE NOTICE

With respect to the interest of the CITY, if an insurance company elects to cancel insurance before the stated expiration date, or declines to renew in the case of a continuous policy, or materially reduces the coverage period by changing the retroactive date (if any), or the extended discovery period (if any), or reduces the stated limits other than by impairment of an aggregate limit, or materially reduces the scope of coverage which affects the CITY's interest, the company will provide the CITY at least thirty (30) calendar days prior written of such election. Notice will be made by receipted delivery addressed as follows: CITY ATTORNEY, INSURANCE AND BONDS, 1240 City Hall East, 200 NORTH MAIN STREET, LOS ANGELES, CA 90012-4168. It is understood, however, that such notice to the CITY shall not affect the company's right to give a lesser notice to the Named Insured in the event of nonpayment of premium. (L.A. Admin. Code Section 11.54).

7. ACCEPTABLE EVIDENCE

The appropriate CITY Special Endorsement forms, contained in Volume 1 of these Contract Documents, are the preferred form of evidence of insurance. Alternatively, the CONTRACTOR may submit two (2) certified copies of the policy or other evidence acceptable to the City Attorney containing language which complies with subparagraphs 1) through 6) above.

With respect to Professional Liability insurance, either a signed copy of the Policy Declarations Page or a letter from the CONTRACTOR's insurance broker certifying coverage, together with a thirty (30) day cancellation notice endorsement in favor of the CITY as specified in subparagraph 6) will satisfy this requirement.

8. SEPARATION OF INSUREDS

Except with respect to the insurance company's limits of liability, each liability insurance policy shall apply separately to each insured against whom a claim or suit is brought. The inclusion of any person or organization as an insured shall not affect any right which such person or organization would have as a claimant if not so included.

9. RENEWAL

Once the insurance has been approved by the CITY, evidence of renewal of an expiring policy may be submitted on a manually signed renewal endorsement or certificate form. If the policy or carrier has changed, however, new evidence as specified in paragraphs 1) through 8) above, must be submitted.

B. AGGREGATE LIMITS/REDUCTION IN COVERAGE

If any of the required insurance coverages contain aggregate limits, or apply to other operations or tenancy of the CONTRACTOR not related to this Contract, the CONTRACTOR shall give the CITY prompt, written notice of any incident, occurrence, claim, settlement or judgement against such insurance which in the CONTRACTOR's best judgement may diminish the protection such insurance affords the CITY. Further, the CONTRACTOR shall immediately take all reasonable and available steps to restore such aggregate limits or shall provide other insurance protection for such aggregate limits. The CITY may, at its option, specify a minimum acceptable aggregate for each line of coverage required.

The CONTRACTOR shall not make any substantial reductions in scope of coverage (e.g., elimination of contractual liability or reduction of discovery period) which may affect the CITY's protection without the CITY's prior written consent.

C. SELF-INSURANCE AND SELF-INSURED RETENTIONS

Self-insurance programs and self-insured retention in insurance policies are subject to separate approval by the CITY upon review of evidence of the CONTRACTOR's financial capacity to respond. Additionally, such programs or retention must provide the CITY with at least the same protection from liability and defense of suits as would be afforded by first-dollar insurance.

D. MODIFICATION OF COVERAGE

The CITY reserves the right at any time during the term of this Contract to change the amounts and types of insurance required hereunder by giving the CONTRACTOR ninety (90) calendar days advance written notice of such change. If such change should result in substantial additional cost to the CONTRACTOR, the CITY agrees to negotiate additional compensation.

E. FAILURE TO PROCURE INSURANCE

The required coverage and limits are subject to availability on the open market at reasonable cost as determined by the CITY. Non-availability or non-affordability must be documented by a letter from the CONTRACTOR'S insurance broker or agent indicating a good faith effort to procure the required insurance and showing, as a minimum, the names of the insurance carriers and the declinations or quotations received from each.

Within the foregoing constraints, the CONTRACTOR'S failure to procure or maintain required insurance or a self-insurance program during the entire term of this Contract shall constitute a material breach of this Contract under which the CITY may immediately suspend or terminate this Contract or, at its discretion, procure or renew such insurance to protect the CITY'S interests and pay any and all premiums in connection therewith, and recover all monies so paid from the CONTRACTOR.

F. UNDERLYING INSURANCE

The CONTRACTOR shall be responsible for requiring indemnification and insurance as it deems appropriate from its consultants, agents and Subcontractors, if any, to protect the CONTRACTOR's and the CITY'S interests, and for ensuring that such persons comply with any applicable insurance statutes. The CONTRACTOR is encouraged to seek professional advice in this regard.

G. WORKERS' COMPENSATION

By signing this Contract, the CONTRACTOR hereby certifies that it is aware of the provisions of Section 3700 *et seq.*, of the Labor Code which require every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that Code, and that it will comply with such provisions at all such times as they may apply during the performance of the Work pursuant to this Contract.

A waiver of subrogation in favor of the CITY will be required when Work is performed on CITY premises under hazardous conditions.

H. ALL RISK BUILDER'S RISK/INSTALLATION FLOATER

During the course of construction, the CONTRACTOR shall secure and maintain an All Risk Builder's Risk Insurance policy covering loss, damage or destruction of property, including materials in transit and stored on and off site, in an amount equal to the value of the construction and materials on hand.

An Installation Risk or "Floater" Policy, written to cover only specific types of equipment during construction, may be provided to cover damage to Work or high valued equipment or materials.

Coverage shall remain in force until the Work is completed and accepted by the CITY. Acceptable evidence of coverage shall be in the form of an endorsement to the policy which names the CITY as an additional named insured and as Loss Payee As Its Interest May Appear.

I. TYPICAL COVERAGES REQUIRED

The coverages required in A above shall be at least as broad as:

1. General Liability: Insurance Services Office Commercial General Liability coverage (Occurrence Form CG 00 01).
2. Automobile Liability: Insurance Services Office Form Number CA 00 01 (Ed. 1/87) covering Automobile Liability, code 1 (any auto).
3. Professional Liability: If applicable, errors and omissions liability appropriate to the consultant's profession, with a discovery period of not less than twelve (12) months after completion of Work or termination of Contract.

J. TYPICAL LIMITS OF LIABILITY

Unless otherwise specified in Form Gen. 146/IR, the CONTRACTOR shall maintain limits no less than:

1. General Liability: $1,000,000 per occurrence for bodily injury, personal injury and property damage. If Commercial General Liability or other form with a general aggregate limit is used, either the general aggregate shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.
2. Automobile Liability: $1,000,000 per accident for bodily injury and property damage, combined or equivalent in split limits.
3. Employer's Liability: $1,000,000 per accident for bodily injury or disease.
4. Professional Liability: $1,000,000 per occurrence.

K. CONTRACT BONDS

Before the execution of the Contract by the RECREATION AND PARK COMMISSION, the bidder shall file with the RECREATION AND PARK COMMISSION Surety bonds satisfactory to the RECREATION AND PARK COMMISSION in the amounts and for purposes noted below. Bonds shall be duly executed by a responsible corporate Surety, authorized to issue such bonds in the State of California and secured through an authorized agent with an office in California. Bonds shall be issued by a Surety who is listed in the latest revision of U.S. Department of Treasury Circular 570, is authorized to issue bonds in California, and whose bonding limitation shown in said circular is sufficient to provide bonds in the amount required by the

Contract. The Bidder shall pay all bond premiums, costs, and incidentals. On Contracts estimated by the PROJECT MANAGER to be less than $2 million, bonds may be obtained from an insurance company with a Certificate of Authority from the California Insurance Commissioner authorizing the company to write Surety insurance within the State of California.

Each bond shall be signed by both the Bidder and the Surety, and the signature of the authorized agent of the Surety shall be notarized.

The Bidder shall provide two good and sufficient surety bonds. The "Payment Bond" (Material and Labor Bond) shall be for not less than one hundred percent (100%) of the Contract price, to satisfy claims of material suppliers and of mechanics and laborers employed by it on the Work. The bond shall be maintained by the CONTRACTOR in full force and effect until the Work is accepted by the RECREATION AND PARK COMMISSION, and until all claims for materials and labor are paid, and shall otherwise comply with the California Civil Code.

The "Performance Bond" shall be for one hundred percent (100%) of the Contract price to guaranty faithful performance of all Work, within the time period prescribed, in a manner satisfactory to the RECREATION AND PARK COMMISSION, and that all materials and Workmanship will be free from original or developed defects, and comply with requirements and guaranty specified in Article 16, GUARANTY-WARRANTY of the General Requirements.

Should any Surety at any time be unsatisfactory to the RECREATION AND PARK COMMISSION, notice will be given the CONTRACTOR to that effect. No further payments shall be deemed due or will be made under the contract until a new Surety shall qualify and be accepted by the RECREATION AND PARK COMMISSION.

Changes in the Work, or extensions of time, made pursuant to the Contract, shall in no way release the CONTRACTOR or Surety from its obligations. Notice of such changes or extensions shall be waived by the Surety. In addition to the bonds detailed above, the CONTRACTOR shall provide a guarantee bond as detailed in Article 16, GUARANTY-WARRANTY of the General Requirements.

38. SERVICE OF NOTICE

The delivering of any notice, instruction, claim or protest, or other written communication, personally to the CONTRACTOR or the CONTRACTOR'S representative or to the PROJECT MANAGER, or to the City Clerk of the CITY shall constitute service therefore upon the CONTRACTOR, the PROJECT MANAGER, or the CITY, respectively.

The depositing of a post-paid (Registered Mail) wrapper directed to the official address of the CONTRACTOR, the PROJECT MANAGER, or the CITY in any post office, of any notice, instruction, claim or protest, or written communication, shall be deemed sufficient service thereof upon the CONTRACTOR, the PROJECT MANAGER, or the CITY, respectively, and the date of said service shall be the day following the date of postmark.

The official address of the CONTRACTOR shall be the address given in the accepted bid or such other address as the CONTRACTOR may subsequently designate in writing either to the PROJECT MANAGER or to the CITY. The official name and address of the PROJECT MANAGER and the CITY will be supplied to the CONTRACTOR after the award.

39. AGENT TO ACCEPT SERVICE

The CONTRACTOR shall maintain within Los Angeles County a duly authorized agent as identified in the Article entitled SERVICE OF NOTICE to accept service of legal process on its behalf, and shall keep the CITY advised of such agent's name and address during the duration of the CONTRACT and for three (3) years after the Final Payment, or as long as the CONTRACTOR has warranty obligations under Article 16, GUARANTY-WARRANTY of General Requirements, whichever period terminates later. In the event that no such duly authorized agent is on file with the CITY, the CONTRACTOR agrees that the Secretary of State of the State of California shall be the Contractor's agent for service of legal process.

PROGRESS OF WORK

40. TEMPORARY SUSPENSION OF WORK

If the Work of the Contract is suspended or delayed, the CONTRACTOR shall so notify the PROJECT MANAGER in writing within twenty-four (24) hours after the start thereof. If the CONTRACTOR is entitled to reimbursement for such suspension or delay, as specified hereinafter, the CONTRACTOR shall submit a completely detailed statement of the costs thereof, to the PROJECT MANAGER, within twenty (20) calendar days after the termination thereof. Failure to submit such statement of costs or notification within the time specified shall be deemed a waiver of any claims for delay or damages or both by the CONTRACTOR.

If the Work of the Contract is suspended or delayed through no fault of the CITY, all expenses and losses shall be borne by the CONTRACTOR.

If the Work of the Contract is suspended or delayed by an act of the CITY, or by failure of the CITY to furnish required information, and the CONTRACTOR thereby incurs expenses or sustains losses which could not have been avoided by the judicious handling of forces and equipment, and if by a diligent prosecution of the Work the CONTRACTOR could not have completed the Work before such suspension, the CONTRACTOR will be paid such amount as the RECREATION AND PARK COMMISSION may find to be a fair and reasonable compensation for such part of the CONTRACTOR'S actual loss. In no case shall any compensation be made to cover any loss other than actual cash paid for wages, rental of equipment, and materials used in protection of the Work, all of which must be supported by satisfactory written evidence. Such wages shall not include the wages or salary of any individual not necessary for protection of the Work. The CONTRACTOR shall not be entitled to any mark-up for overhead or profit on damages or for extended duration.

The CONTRACTOR shall maintain complete and accurate daily records of all costs due to delay, clearly distinguishing them from the costs of other portions of the Work, and shall submit a detailed written report of such costs to the PROJECT MANAGER within twenty (20) calendar days of incurring the delay. Failure to comply shall result in waiver by the CONTRACTOR to any claims for additional payment and schedule change. In addition, the CONTRACTOR shall submit evidence of any cause of delay specified herein if it has not already done so.

As soon as practicable, following receipt of such report and evidence, if required, the PROJECT MANAGER will determine the nature and extent of such costs and will, if the PROJECT MANAGER finds that payment is due, issue a Change Order therefore, subject to the provisions in Article 27, PAYMENT FOR CHANGES AND EXTRA WORK of the General Requirements. If the PROJECT MANAGER determines that payment is not due, the CONTRACTOR will be so advised in writing. Should the CONTRACTOR disagree with such finding, CONTRACTOR may submit a notice of protest to the PROJECT MANAGER as provided in CLAIMS AND PROTESTS in these General Conditions. The CONTRACTOR shall provide the PROJECT MANAGER with access to its daily cost records or certified copies thereof as requested. All such records shall be retained by the CONTRACTOR and open to inspection and audit by the CITY and the PROJECT MANAGER'S authorized representatives. Except for the additional compensation provided herein before, the CONTRACTOR shall have no claim for damage or compensation for any delay or hindrance whether or not contemplated by the Contract.

41. UNAVOIDABLE DELAY

Should the CONTRACTOR be obstructed or delayed or completion of the Work from causes beyond its control and without its fault or negligence, and solely due to acts of God, acts of government in its sovereign capacity, riots, insurrections, wars, fires, floods, earthquakes, tidal waves, epidemics, quarantine restrictions, industry-wide strikes, freight embargoes, or unusually severe weather, it shall be entitled to a noncompensable extension of time.

The CONTRACTOR shall only be entitled to a noncompensable extension of time for Unavoidable delay in the Work which negatively impacts the critical path of the approved project schedule, and causes the Work of the project to extend beyond the approved Contract Completion date.

The CONTRACTOR shall be entitled to a noncompensable time extension only if it notifies the PROJECT MANAGER immediately at the time the CONTRACTOR is prevented from proceeding with the Work and follows with written notification of the causes of the delay within five (5) calendar days from the beginning of any delay. Also, the CONTRACTOR shall notify the PROJECT MANAGER immediately at the end of the delay and follow up with written notification of the cessation of delay within five (5) calendar days from the end of the delay.

Any claim for a time extension shall be made in writing within twenty (20) calendar days after the conclusion of the delay. The PROJECT MANAGER shall ascertain the facts and the extent of the delay and extend the time for completing the Work if, in his/her judgement, the findings of fact justify such an extension. The PROJECT MANAGER'S decision shall be final and conclusive, subject only to appeal as provided by CLAIMS AND PROTESTS of these General Conditions.

42. ARCHAEOLOGICAL AND PALEONTOLOGICAL DISCOVERIES

If discovery is made of items of archaeological or paleontological interest, the CONTRACTOR shall immediately cease excavation in the area of discovery and shall not continue until ordered by the PROJECT MANAGER. When resumed, excavation operations within the area of discovery shall be as directed by the PROJECT MANAGER.

Discoveries which may be encountered may include, but not be limited to, dwelling sites, stone implements or other artifacts, animal bones, human bones and fossils. The CONTRACTOR shall be entitled to an extension of time and compensation in accordance with the provision of TEMPORARY SUSPENSION OF WORK of these General Conditions.

43. OTHER CONTRACTS

The CITY may perform other Work related to the Project at the site by the CITY'S own forces, have other Work performed by utility owners or let other direct contracts therefore which shall contain General Conditions similar to these. If such other Work to be performed was not noted in the Contract Documents, written notice thereof will be given to the CONTRACTOR prior to starting any such other Work; and, if the CONTRACTOR believes that such performance will involve additional expense to the CONTRACTOR or requires additional time and the parties are unable to agree as the extent thereof, the CONTRACTOR may make a claim therefore as provided under CLAIMS AND PROTESTS of these General Conditions.

The CONTRACTOR shall afford each utility owner and other contractor who is a party to such a direct contract (or the CITY, if the CITY is performing the additional Work with the CITY'S employees) proper and safe access to the site and a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such Work, and shall properly connect and coordinate the Work with theirs. The CONTRACTOR shall do all cutting, fitting and patching of the Work that may be required to make its several parts come together properly and integrate with such other Work. The CONTRACTOR shall not endanger any Work of others by cutting, excavating or otherwise altering their Work and will only cut or alter their Work with the written consent of the PROJECT MANAGER and the others whose Work will be affected. The duties and responsibilities of the CONTRACTOR under this Article are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of the CONTRACTOR in said direct contracts between the CITY and such utility owners and other contractors.

If any part of the CONTRACTOR'S Work depends upon proper execution or results of the Work of any such other contractor or utility owner or the CITY, the CONTRACTOR shall inspect and promptly report to the PROJECT MANAGER in writing any delays, defects or deficiencies in such Work that renders it unavailable or unsuitable for such proper execution and results. The CONTRACTOR'S failure to do so will constitute an acceptance of the other Work as fit and proper for integration with the CONTRACTOR'S Work except for latent or nonapparent defects and deficiencies in the other Work.

44. TERMINATION OF CONTRACT BY CITY (CONTRACTOR NOT AT FAULT)

The CONTRACT may be terminated, in whole or in part, at any time, by the CITY, at its sole discretion, without cause and for the CITY'S convenience. Such termination will be accomplished by delivery of a notice of Termination to the CONTRACTOR, specifying the extent to which performance of the Work under the CONTRACT or portion of the CONTRACT shall be terminated and the date upon which such termination shall become effective.

After receipt of a Notice of Termination, except as otherwise directed by the CITY the CONTRACTOR shall:

1. Stop Work under the CONTRACT on the date and to the extent specified in the Notice of Termination.

2. Notify the CITY in writing of all outstanding orders, Subcontracts and contracts entered into by CONTRACTOR for performance of the Work, including the (i) name and address of the vendor, supplier or Subcontractor; (ii) a copy of the complete contract, order or Subcontract; (iii) an accounting of the Work performed and compensation earned by the vendor, supplier or Subcontractor, and (iv) such other information as the CITY may request to assist it in determining whether to terminate or accept assignment of the order, Subcontract or contract.

3. Upon written notice by CITY, terminate all Subcontracts, orders and contracts, of any tier, related to the performance of the Work that the CITY determines shall be terminated and not assigned.

4. Place no further orders or Subcontracts for Goods or services, except as may be necessary for completion of that portion of the Work that has not been terminated.

5. Settle outstanding liabilities and claims arising out of such termination of orders and Subcontracts, with the Acceptance of the CITY if required (which Acceptance shall be final for the purposes of this Article). Assign to the CITY in the manner, at the times, and to the extent directed by the CITY all of the rights, titles, and interests of the CONTRACTOR under such orders, contracts and Subcontracts so terminated.

6. Transfer title and deliver to the CITY in the manner, at the times and to the extent directed by it, the:

    a. Fabricated or unfabricated parts, Work in process, completed Work, supplies, and other Goods procured as a part of, or acquired in connection with the performance of the Work terminated; and

    b. Completed or partially completed plans, drawings, information and other items that would have been required (per the Technical Specifications) to be furnished to the CITY if the Contract had been completed.

7. Use its best efforts to sell the property of the types referred to above in the manner, at the times, to the extent, and at the price(s) directed or authorized by the CITY, providing that the:

    a. CONTRACTOR is not required to extend credit to any purchaser;

    b. CONTRACTOR may acquire any such property under the prescribed conditions; and/or proceeds of any such transfer or disposition are applied or otherwise credited to reduce payments made by the CITY to the CONTRACTOR under the CONTRACT.

8. Take any action that may be necessary, or that the CITY may direct, for the protection and preservation of the property related to the CONTRACT that is in the possession of the CONTRACTOR and in which the CITY has or may acquire an interest.

9. Complete performance of that portion of the Work that has not been terminated by the Notice of Termination, as applicable and in accordance with the CONTRACT.

After receipt of a Notice of Termination for the CITY's convenience, the CONTRACTOR shall submit its termination claim to the CITY requesting payment of such sums as are permitted under the terms of this Article, in the form and with the certification(s) prescribed by the CITY for Claims and Protests. Such Claim shall be submitted promptly but in no event later than six months from the effective date of termination, unless one or more extensions are granted in writing by the CITY upon written request by the CONTRACTOR during such six month period or authorized extension thereof. However, the CITY may receive and act upon any termination claim at any time after the six month period or any extension thereof, if it determines that the facts justify such action. Upon failure of the CONTRACTOR to submit its termination claim within the time specified, the CITY will determine the amount due the Contractor, if any, on the basis of information available, and will pay the CONTRACTOR the amount so determined. Such determination shall be final and binding and payment shall be in full settlement for the Work performed under the CONTRACT.

Subject to the provisions of this Article, the CONTRACTOR and the CITY may agree upon the total or partial amount to be paid to the CONTRACTOR by reason of the total of or partial termination pursuant to this Article. The agreed upon amount shall under no circumstances include any sum for lost profits on the terminated portion

of the Work or for consequential damages, of any kind. If agreement is reached, the CONTRACT will be amended by Modification accordingly and the CONTRACTOR will be paid the agreed upon amount.

In the event of failure of the CONTRACTOR and the CITY to agree on the total amount to be paid the CONTRACTOR by reason of the termination of Work pursuant to this Article, the CITY will pay the CONTRACTOR the amounts determined by the City as follows, exclusive of any amounts agreed upon in accordance with the preceding Paragraph:

The CONTRACTOR'S actual cost for the Work properly performed by the CONTRACTOR as of the date of termination, including a 5% allowance for profit on such costs; plus, the reasonable cost of preserving and protecting property; plus other reasonable costs incidental to the termination of the Work under the CONTRACT, including expense incurred to determine the amounts due; provided however, that the maximum payable or paid for any portion of the completed Work shall not exceed the values listed in the corresponding bid item of Schedule of Values.

The total sum to be payable or paid to the CONTRACTOR, exclusive of the settlement amounts described in the Paragraph immediately above, shall not exceed the total CONTRACT Price less the:

1. Payments made previously by CITY for the Work; plus
2. A prorated portion of the total CONTRACT Price for the terminated portion of the Work as determined by the PROJECT MANAGER.

Except for normal spoilage and to the extent that the CITY will have otherwise expressly assumed the risk of loss, the fair value (as determined by the CITY) of property that is destroyed, lost, stolen, or damaged (so as to become undeliverable to the CITY or other buyer as described above) shall be excluded from the amounts paid to the CONTRACTOR.

In arriving at the amount due the CONTRACTOR under this Article, a deduction shall be made for the following:

1. Any claim that the CITY may have against the CONTRACTOR in connection with the CONTRACT; and
2. The agreed upon price for and/or proceeds from the sale of Goods or other items acquired or sold by the CONTRACTOR that have not been otherwise recovered by or credited to the CITY.

Under such terms and conditions as it may prescribe and at its sole discretion, the CITY may make partial payments against costs incurred by the CONTRACTOR in connection with terminated portion of the CONTRACT whenever the CITY decides that the aggregate of such payments is within the amount to which the CONTRACTOR is entitled hereunder. If the total of such payments is in excess of the amount finally agreed upon or determined to be due under this Article, such excess shall be payable by the CONTRACTOR or to the CITY upon demand together with interest at a rate equal to that set forth in California Code of Civil Procedure, Section 685.010.

Under no circumstances shall the CONTRACTOR be entitled to anticipatory or unearned profits or consequential damages as a result of a termination of partial termination under this Article, or for any other termination by the CITY. The payment to the Contractor determined in accordance with this Article shall constitute the exclusive remedy of the CONTRACTOR for termination hereunder.

Anything contained in the CONTRACT to the contrary notwithstanding, a termination under this Article shall not waive any right or claim to damages that the CITY may have; the CITY may pursue any clause of action that it may have by law or under the CONTRACT; and shall not relieve CONTRACTOR of its warranty obligations with respect to any Work performed prior to such termination.

If the termination hereunder is only for a part of the Work, the Contract Price shall be reduced by the amount of the Contract Price applicable to the portion of the Work, which is terminated, including overhead and profit, on the basis of one or more of the following:

1. Unit prices stated in the CONTRACT or agreed upon by the CITY and the CONTRACTOR.

2. A lump sum determined by the PROJECT MANAGER, based on the estimate costs including overhead and profit of the terminated portions of the Work.

45. TERMINATION OF CONTRACT BY CITY (CONTRACTOR DEFAULT)

In the event of conduct by the CONTRACTOR which is determined by the PROJECT MANAGER or the to constitute default, the CITY may either suspend the Work under the provisions of TEMPORARY SUSPENSION OF WORK of these General Conditions or, upon ten (10) calendar days' written notice to the CONTRACTOR, terminate the Contract as provided herein. Default by the CONTRACTOR shall occur whenever it shall declare bankruptcy; become insolvent or assign its assets for the benefit of its creditors; fail to provide materials, equipment, or workmanship meeting the requirements of the Specifications; disregard or violate provisions of the Contract Documents or the PROJECT MANAGER's instructions; fail to prosecute the Work according to the approved progress schedule; or fail to provide a qualified representative, competent workers or Subcontractors. Upon request, the RECREATION AND PARK COMMISSION will provide the CONTRACTOR a hearing by the RECREATION AND PARK COMMISSION to contest the recommendation of the PROJECT MANAGER as to default by the CONTRACTOR.

In the event the Contract is terminated pursuant to this Article, the CITY may take possession of the Work and of all materials, tools, equipment, and property of the CONTRACTOR, which have been provided in connection with the Work, and may complete the Work by whatever method or means the CITY may select. The unpaid balance of the Contract cost for completing the Contract Work shall be used to complete the Work in accordance with the Contract Documents. If cost of completing the Work exceeds the unpaid balance, the CONTRACTOR shall pay the excess amount to the CITY. If such cost is less than the unpaid balance, the CONTRACTOR shall not have claim to the difference except to such extent as may be necessary, in the opinion of the PROJECT MANAGER, to reimburse the CONTRACTOR or the CONTRACTOR'S sureties for any unpaid expense properly incurred for materials, tools, equipment, property, and labor devoted to the prosecution of the Work, or which the CITY shall have received the benefit. In computing such expenses, as it relates to equipment and property, the salvage value at completion of Work shall be deducted from the salvage value at the time the contract was terminated, and the difference shall be considered as an expense. If after termination for failure of the CONTRACTOR to fulfill contractual obligations (CONTRACTOR Default), it is determined by a Court of competent jurisdiction that the CONTRACTOR had not failed to fulfill contractual obligations, the termination shall be deemed to have been for the convenience of the CITY. In such an event, adjustment of the Contract price shall be made as provided in TERMINATION OF CONTRACT BY CITY (CONTRACTOR NOT AT FAULT) of these General Conditions.

46. PRE-FINAL INSPECTION

Approximately two weeks before completion of the Work, the contractor will schedule a Pre-final Inspection to be attended by the Bureau of Contract Administration Inspector, the Project Manager, the Contractor and invited parties associated with the Project. At this time, a list of items requiring correction or completion before the Final Inspection will be compiled. In addition, at this time the Contractor shall arrange for the delivery of manufacturers' data, manuals, and operating instructions and keys to the appropriate Department of Recreation and Parks personnel.

47. FINAL INSPECTION

Approximately seven (7) days prior to completion of the Work, the Contractor shall first notify the Bureau of Contract Administration Inspector and then the Project Manager that he desires a Final Inspection of the Project. During this inspection, which will be arranged as soon as possible, the Inspector, the Project Manager, the Contractor and other parties concerned with contractual requirements will compile a Final Inspection Correction List, incorporating all items of work and corrections required to complete the Project. This list must be completed within thirty (30) days of Final Inspection, or a new Final Inspection will be held and a new Final Inspection Correction List compiled.

48. PARTIAL ACCEPTANCE

The CITY shall have the right to utilize or place into service any item of equipment or other usable portion of the Work prior to completion of the entire project. Whenever the CITY plans to exercise said right, the CONTRACTOR will be notified in writing by the CITY, identifying the specific portion or portions of the Work to be so utilized or

otherwise placed into service. Following inspection by the Bureau of Contract Administration's Final Inspector and establishment of a Final Inspection Correction List, a Statement of Partial Completion will be issued.

It shall be understood by the CONTRACTOR that until a Statement of Partial Completion is issued, all responsibility for care and maintenance of all items or portions of the Work to be placed in use shall be borne by the CONTRACTOR. Upon issuance of a Statement of Partial Completion, the CITY will accept responsibility for the protection and maintenance of all such items or portions of the Work described in the written notice, and it is further understood that the manufacturer's warranties of any affected equipment will commence not later than the date for commencement of the warranties indicated on the Statement of Partial Completion. However, the CONTRACTOR shall retain full responsibility for satisfactory operation of the total project and the CONTRACTOR'S guarantee period shall commence only after the final acceptance of the Contract by the RECREATION AND PARK COMMISSION. Such guarantee of total systems operation shall include that portion or portions previously placed into beneficial use by the CITY.

The issuance of a Statement of Partial Completion for any part of the Work shall not relieve the CONTRACTOR of its obligation to promptly remedy any omissions and latent or unnoticed defects in the Work covered by the Statement of Partial Completion. The CITY shall have the right to restrict the CONTRACTOR'S use of the occupied portion of the Work but shall allow the CONTRACTOR reasonable access to complete or correct items required by the Contract Documents.

The CITY may, if the Work is progressing satisfactorily, release part of the retention on portions of the Work for which a Statement of Partial Completion has been issued, provided that the following conditions have been met:

1. Partial final inspection corrections have been completed to the satisfaction of the INSPECTOR;
2. The CONTRACTOR submits a written request for release of retention which includes a verifiable valuation of the identified portions of the Work covered by the Statement of Partial Completion;
3. Impacted Subcontractors, major suppliers and the CONTRACTOR's Surety all agree in writing to release of retention;
4. If any minor corrections remain which do not directly affect operations or maintenance then twice the values of the remaining cleanup items shall be retained on each request for release; and
5. The CONTRACTOR signs a Change Order which specifically states the value of the retention being released.

The PROJECT MANAGER shall issue a no-change-in-contract-cost Change Order reflecting the Work for which a Statement of Partial Completion has been issued and the amount of the retention to be released. This Change Order shall authorize reduction of the retention on the next payment.

49. FINAL ACCEPTANCE

When all Work has been completed on the entire project, the CONTRACTOR shall notify the INSPECTOR and the PROJECT MANAGER in writing and request a final inspection by the INSPECTOR. The inspection conducted by the Final Inspector will include the CONTRACTOR and major Subcontractors' representatives. The CONTRACTOR shall promptly and diligently correct all items on the Final Inspection Correction List. The correction list Work will be reinspected until all Work is complete. If deemed necessary by the PROJECT MANAGER, a deductive Change Order may be issued for twice the value of final correction list items remaining to be corrected to attain completion, and permit the acceptance of the Contract by the RECREATION AND PARK COMMISSION.

Final payment to the CONTRACTOR is made following action by the RECREATION AND PARK COMMISSION that formally adopts the recommendation of the PROJECT MANAGER to accept the Contract. Said action by the RECREATION AND PARK COMMISSION establishes the following:

1. The start date of the CONTRACTOR'S material and workmanship warranty/guarantee for the total project.

2. The start date of any equipment or material warranties for which the "warranty clock" had not started.

50. LIQUIDATED DAMAGES

Time is of the essence in completing the Work required by the Contract. If the CONTRACTOR fails or refuses to complete the Work or any part thereof within the time fixed by the terms of the Contract, or any approved extension thereof, the actual damage to the CITY due to the delay will be difficult or impossible to determine. In lieu thereof, the CONTRACTOR shall pay to the CITY, as fixed and agreed, liquidated damages for each calendar day of delay in completion, the sum of **$ 1,200.00 per day**. The CONTRACTOR shall be liable for the amount thereof. The CITY reserves the right, however, to terminate the CONTRACTOR's completing the Work, charging against the CONTRACTOR and its sureties any excess cost occasioned the CITY thereby, together with liquidated damages accruing until such time as the CITY may reasonably complete the Work.

Permitting the CONTRACTOR to continue and complete the Work, or any portion thereof, after the time fixed herein for completion, or after the expiration of any extensions of said time, shall in no way operate as a waiver on the part of the CITY of any of its rights under the Contract.

51. COMPENSATION FOR DELAY, DISRUPTION, AND UNANTICIPATED OVERHEAD

Notwithstanding anything to the contrary in the Contract Documents, CONTRACTOR agrees the provisions of this Article, set forth CONTRACTOR'S sole and exclusive rights to compensation for costs, expenses or damages, of any kind, arising from or relating to (i) delay, disruption, hindrance, interference, schedule compression, and the impact, ripple or cumulative effect thereof; or (ii) additional supervision, administration, excess, extended or extraordinary overhead, loss of productivity, or similar costs, expenses or damages incurred as a result of or related to extras, changes, additions or deletions in the Work, errors, omissions, conflicts or ambiguities in the Contract Documents, suspensions of the Work, acts or omissions of CITY or its representatives, agents, contractors or consultants, Differing Site Conditions, or other unforeseen circumstances, of any kind.

CONTRACTOR shall not be entitled to, and hereby conclusively waives, any right to recovery of compensation, costs, expenses or damages for delays, disruptions, hindrances or interferences (including without limitation interruption of schedules, extended, excess or extraordinary field and indirect overhead costs, loss of productivity and the impact, ripple or cumulative effect on other Work) that are the result of Unavoidable Delays or which are caused by the acts or omissions of CONTRACTOR or of its SUBCONTRACTORS, of any tier.

CONTRACTOR'S rights to recovery of compensation, costs, expenses and damages for delay, disruption, hindrance and interference (including without limitation interruption of schedules, extended, excess and extraordinary field and indirect overhead costs, loss of productivity and the impact, ripple or cumulative effect on other Work) that are the result of extras, changes, additions or deletions in the Work for which CONTRACTOR is entitled to an adjustment of the Contract Price as set forth in CHANGES AND EXTRA WORK of these General Conditions and shall constitute the sole, exclusive and complete compensation that the CITY is obligated to pay CONTRACTOR for all such costs, expenses and damages incurred by CONTRACTOR and its SUBCONTRACTORS, of every tier.

Time extension in calendar days will be granted only if delays are caused by unforeseen events beyond the control of both the CONTRACTOR and the City. Such delays will entitle the CONTRACTOR to an extension of time as provided herein, but the CONTRACTOR shall not be entitled to damages or additional payment due to such delays. War, government regulations, labor disputes, strikes (when not brought solely against the CONTRACTOR, its subcontractors or material suppliers), fires, floods, adverse weather necessitating cessation of work, other similar action of the elements, inability to obtain materials, equipment or labor, required "extra work", or other specific reasons as may be further described in the specifications may constitute such a delay.

No extension of time will be granted for a delay caused by the inability to obtain materials unless the CONTRACTOR furnishes to the Project Manager documentary proof of the inability to obtain such materials in a timely manner in accordance with the sequence of the CONTRACTOR'S operations and the approved construction schedule.

The amount of time given to the CONTRACTOR is limited to the amount of time the Project is directly impacted by the above described delays. Direct impact means no other project work can proceed.

The CONTRACTOR may be compensated for delays caused solely by the failure of the City to furnish necessary rights-of-way, failure to deliver materials shown in the CONTRACTOR Documents to be furnished by the City, or for the suspension of the work by the City for its own convenience or benefit. If compensable delays could not have been avoided by the judicious handling of forces, equipment or plant, there shall be paid to the CONTRACTOR such amount as the General Manager may find to be fair and reasonable compensation for such part of the CONTRACTOR'S actual loss as was unavoidable.

If the CONTRACTOR desires payment for a delay as specified above or an extension of time, it shall, within thirty (30) days after the beginning of the delay, file with the General Manager a written request and report as to the cause and extent of the delay. The request of payment or extension must be made at least fifteen (15) days before the specified completion date, so as to allow for appropriate investigation. Failure by the CONTRACTOR to file these items within the times specified will be considered grounds for refusal by the City to consider such a request.

Any and all extensions of time granted under the Provisions of these Specifications shall not release the sureties on the bonds accompanying the Contract for the work required herein. The bonds shall remain in full force and effect until the discharge of the Contract.

CHANGES TO THE CONTRACT

52. CHANGES AND EXTRA WORK

The PROJECT MANAGER may, at any time, with or without notice to the Sureties, by written order designated or indicated to be a Change Order, order performance of extra work or make any change, addition or deletion in the Work, including but not limited to changes in the Specifications including Plans and Designs; in the time, method or manner of performance of the Work; in the CITY furnished facilities, equipment, materials, services, or site; or directing acceleration in the performance of the Work.

Upon receipt of such Change Order, the CONTRACTOR shall promptly proceed with the Work covered thereby, which shall be performed in accordance with the provisions of the Contract Documents except as otherwise specifically provided.

In the event that CONTRACTOR receives any written order or direction by the CITY, PROJECT MANAGER that is not so designated or indicated to be a Change Order, but which CONTRACTOR believes to constitute an extra, change, addition or deletion in the Work, then CONTRACTOR shall, prior to performance of any Work related thereto, give written confirmation notice to the PROJECT MANAGER confirming CONTRACTOR'S belief that such order or direction is believed to be a Change Order within one (1) working day of CONTRACTOR'S receipt of such order or direction.

CONTRACTOR conclusively waives any right to additional compensation, costs, expenses, damages or extension of time associated with an extra, change, addition or deletion to the Work that is performed by CONTRACTOR without either (i) a written order signed by the CITY, PROJECT MANAGER designated or indicated to be a Change Order and any change, addition or deletion, or (ii) a written confirmation notice issued by CONTRACTOR in accordance with the provisions of this Article.

Should a change be required and it is not feasible to delay construction of that portion of the Work until such time as a regular Change Order can be issued, and the estimated increase in Contract cost does not exceed the amount which can be authorized by the PROJECT MANAGER, an Emergency Change Authorization, in writing, will be issued in the field by the PROJECT MANAGER, and the CONTRACTOR shall then proceed with the Work without delay. Such Emergency Change Authorization shall be followed by a subsequent regular Change Order.

Except as provided in this Article, no order, Statement, or conduct of the PROJECT MANAGER shall be treated as a change under this Article or shall entitle the CONTRACTOR to an adjustment in the Contract Price or Contract Completion Date.

If any change under this Article causes an increase or decrease in the CONTRACTOR'S cost or the time required to perform any part of the Work under this Contract, whether or not said costs or time are specified by any order, the PROJECT MANAGER will make an adjustment to the Contract Price and modify the Contract in writing. Except for claims based on defective Specifications, no claim for any change under this Article shall be allowed for any costs incurred more than twenty (20) calendar days before the CONTRACTOR gives written notice as required. Except as otherwise provided in the Contract Documents, in the case of defective specifications for which the PROJECT MANAGER is responsible, the adjustment shall include any increased cost the CONTRACTOR reasonably incurred in attempting to comply with those defective specifications.

If the CONTRACTOR intends to assert a claim for an adjustment in the Contract Price under this Article, it must, within twenty (20) calendar days after receipt of a written Change Order or the furnishing of a written confirmation notice as hereinbefore specified, submit a written statement to the PROJECT MANAGER setting forth the general nature and monetary extent of such claim and all factual grounds therefor. The CONTRACTOR may include the statement of claim in the written notice as hereinbefore specified. Failure to comply with the twenty (20) calendar day notice requirement shall be deemed a waiver of claims by the CONTRACTOR.

No adjustment shall be made under this Article for any suspension, delay, interruption, change or any other cause, to the extent that an adjustment is provided for or excluded under any other provision of the Contract.

Recovery of compensation, costs, expenses or damages resulting from delay, disruption, hindrance, or interference in the performance of the Work (including without limitation interruption of schedules, extended, excess or extraordinary field overhead and indirect overhead costs, loss of productivity and the impact, ripple or cumulative effect on other Work), shall not be permitted, and all rights thereto are conclusively waived by CONTRACTOR, except to the extent allowed by COMPENSATION FOR DELAY, DISRUPTION AND UNANTICIPATE OVERHEAD of these General Conditions.

No claim by the CONTRACTOR shall be allowed if the claim is made after final payment under this Contract.

53. DIFFERING SITE CONDITIONS

The following provisions shall apply only in the event that there is not a Geotechnical Baseline Report for the Project. If a Geotechnical Baseline Report is so identified, then the provisions of this Article shall not apply and the CONTRACTOR'S rights arising from Differing Site Conditions shall be governed solely by the provisions of the General Requirements pertaining to the CONTRACTOR'S rights in the event of Differing Site Conditions.

Upon discovery and before further disturbance of any unforeseen conditions, the CONTRACTOR shall immediately notify the INSPECTOR and the PROJECT MANAGER, followed by a written notice to the PROJECT MANAGER within twenty-four (24) hours of subsurface or latent physical conditions at the site differing materially from those indicated in the Contract Documents; or unknown physical conditions at the site, of an unusual nature, differing materially from those ordinarily encountered and generally recognized as inherent in the Work of the character provided for in this Contract; or materially differing from that represented in the Contract Documents which the CONTRACTOR believes may be hazardous waste, as defined in the California Health and Safety Code, that is required to be removed to a Class I, Class II or Class III disposal site in accordance with provisions of existing law.

The PROJECT MANAGER shall promptly investigate the conditions. If the PROJECT MANAGER finds that conditions materially differ and will cause an increase or decrease in the CONTRACTOR'S cost or the time required to perform any part of the Work under this contract, whether or not changed as a result of such conditions, the PROJECT MANAGER shall, make an adjustment in the Contract Price by Modification to the Contract in writing.

If the CONTRACTOR intends to seek an adjustment to the Contract Price or Contract Completion Date based upon this Article, it must, within twenty (20) calendar days after it first discovered or should have discovered in the exercise diligence and extreme care the existence of Differing Site Conditions, submit a written statement setting forth a detailed cost breakdown in the form required by Article 27, PAYMENT FOR CHANGES AND EXTRA WORK of the General Requirements, setting forth the basis of CONTRACTOR'S calculation of the costs saved or, detailed information demonstrating the effect on the CONTRACTOR'S schedule of performance in the same manner as required by the Contract Documents for obtaining approval of extensions of time, identification of the

Escrow Bid Documents that formed the basis of the CONTRACTOR'S bid estimate to perform the Work affected by such conditions, and a complete and detailed explanation of the factual basis for the request.

Failure by CONTRACTOR to strictly comply with the requirements of this Article concerning the timing and content of any notice of Differing Site Conditions or of any request for adjustment in Contract Price or Contract Completion Date based on Differing Site Conditions shall be deemed waiver of any claim by the CONTRACTOR for increase in the Contract Price or extension of the Contract Completion Date by reason of such conditions.

CONTRACTOR'S right to compensation for (i) delay, disruption, hindrance, interference, schedule compression, and the impact, ripple or cumulative effect thereof; or (ii) additional supervision, administration, excess, extended or extraordinary overhead, loss of productivity, or similar costs, expenses or damages incurred as a result of or related to any Claim based on Differing Site Conditions shall be limited to such sums as are allowable under COMPENSATION FOR DELAY, DISRUPTION, AND UNANTICIPATED OVERHEAD of these General Conditions.

No claim by the CONTRACTOR for an adjustment hereunder be allowed if asserted after final payment under this Contract.

LEGAL REQUIREMENTS

54. CLAIMS AND PROTESTS

A Claim or Protest that involves an extra, change, addition or deletion to the Work as set forth in CHANGES AND EXTRA WORK of these General Conditions shall arise upon issuance of a final decision of the PROJECT MANAGER denying, in whole or in part, a request for adjustment in the Contract Price or Contract Completion Date; provided however, that failure to comply with the requirements of CHANGES AND EXTRA WORK of these General Conditions shall be conclusively deemed to constitute grounds to deny such Claim or Protest.

A Claim or Protest that does not involve an extra, change, addition or deletion to the may be asserted only if the CONTRACTOR shall immediately and prior to performing the Work affected thereby give written notice to the PROJECT MANAGER of such circumstances and of CONTRACTOR'S intention to file a Claim or Protest based thereon. Unless otherwise directed by the PROJECT MANAGER the CONTRACTOR shall proceed without delay to perform the Work and to conform to any order, instruction, or decision of the PROJECT MANAGER with respect thereto.

The CONTRACTOR shall, within twenty (20) calendar days after it first knew, or in the exercise of diligence and extreme care should have known, of the circumstances giving rise to the Claim or Protest, file a written Claim or Protest with the PROJECT MANAGER, stating in detail all objections, grounds and reasons therefore. The CONTRACTOR shall, upon instruction by the PROJECT MANAGER provide, within ten (10) days or such other time as agreed to between the PROJECT MANAGER, the INSPECTOR, and the CONTRACTOR, any and all documents, records or other materials identified by the PROJECT MANAGER as necessary for the resolution of the CONTRACTOR's Claim or Protest.

Claims or Protests seeking time extensions shall be accompanied by such documentation as is required by Article 18, CONTRACTOR'S CONSTRUCTION SCHEDULE AND REPORTS of the General Requirements. Claims or Protests seeking recovery of compensation or adjustments to the CONTRACT PRICE, whether or not based on extras, changes, additions or deletions to the Work, shall be in the form of Change Order Cost Quotations prepared in accordance with and subject to all of the requirements of Article 27, PAYMENT FOR CHANGES AND EXTRA WORK of the General Requirements, including without limitation the prohibition on use of total cost and modified total cost methodologies.

CONTRACTOR waives all rights to assert any claims or seek any relief in the form of extensions of time or recovery of additional compensation, costs, expenses, damages from the CITY that are not presented as a Claim or Protest in the manner specified and within the time stated herein. CONTRACTOR further hereby agrees that in the interest of avoiding the additional expense and potential inequity of piecemeal resolution of Claims or Protests, all decisions by PROJECT MANAGER shall be final and binding not only as to all matters asserted in the Claim or Protest, but also as to all matters (including without limitation all rights to extensions of time and recovery of extra compensation, costs, expenses and damages) not asserted in the Claim or Protest that were known to CONTRACTOR, or that could have been reasonably discovered by CONTRACTOR in the exercise of

diligence and extreme care, at the time of submission of the Claim or Protest and that are in any way related to the subject matter of the Claim or Protest. All orders, instructions and decisions of the PROJECT MANAGER will be limited to matters properly falling within their respective authority as specified in AUTHORITY OF THE RECREATION AND PARK COMMISSION, PROJECT MANAGER AND INSPECTOR of these General Conditions.

The CONTRACTOR will be informed of the PROJECT MANAGER's decision within thirty (30) days after the CONTRACTOR last submits data pertinent to the protest previously mentioned. In the case of a Claim or Protest that involves an extra, change, addition or deletion to the Work as set forth in CHANGES AND EXTRA WORK of these General Conditions, if the Contractor accepts the decision of the PROJECT MANAGER, then the CONTRACTOR and CITY shall enter into a Change Order adjusting the Contract Price and Contract Completion Date in accordance with such decision. In the case of a Claim or Protest does not involve an extra, change, addition or deletion to the Work as set forth in CHANGES AND EXTRA WORK of these General Conditions and the CONTRACTOR accepts the decision of the PROJECT MANAGER, then the CONTRACTOR and CITY shall enter into a Modification of the Contract setting forth the terms of the decision and, if appropriate, its effect on the Contract Price or Contract Completion Date. If the CONTRACTOR does not accept the decision of the PROJECT MANAGER, then further appeal of the PROJECT MANAGER's or the decision must be made to the RECREATION AND PARK COMMISSION in writing within twenty (20) calendar days after receipt of the PROJECT MANAGER's decision. The RECREATION AND PARK COMMISSION shall afford the CONTRACTOR an opportunity to be heard and to offer evidence in support of its appeal. All determinations of the RECREATION AND PARK COMMISSION with respect to Claims or Protests shall be final and binding.

In all matters concerning the validity, interpretation, performance, effect or otherwise of the Contract, the Federal regulations (if and to the extent expressly incorporated by reference in the Contract Documents), the laws of the State of California, and the Charter of the City of Los Angeles shall govern and be applicable. Pending final disposition of a protest, the CONTRACTOR shall proceed diligently with the performance of the Contract and in accordance with the previously mentioned decision.

Any Claim or Protest, including without limitation any Claim or Protest filed on behalf of or having its source in a claim by Subcontractor, Sub-Subcontractor, or Supplier, at any tier, which the CONTRACTOR chooses to make to the CITY, shall be accompanied by the certification language set forth below signed by a responsible managing officer of the CONTRACTOR'S organization, who has the authority to sign Subcontracts or Purchase Orders on behalf of the CONTRACTOR, and who has personally investigated and confirmed the truth and accuracy of the matters set forth in such certification. Submission of certification in accordance herewith is a condition precedent to the CITY's consideration of or decision on the Claim or Protest and to the filing and maintenance of any legal action or proceeding to enforce or recover monies under such Claim or Protest. Failure to submit such a certification along with the Claim or Protest, shall result in the Claim or Protest being returned to the CONTRACTOR without any decision and shall waive the CONTRACTOR's right to pursue the Claim or Protest either on its own behalf or on behalf of such Subcontractor or Supplier.

I hereby certify under penalty of perjury that I am a managing officer of (CONTRACTOR'S name) and that I have reviewed this Claim or Protest presented herewith on CONTRACTOR'S behalf and/or on behalf of (Subcontractor's/Supplier's name(s)) and that the following statements are true and correct:

1. The facts alleged in or that form the basis for the Claim or Protest are true and accurate; and,
2. CONTRACTOR does not know of any facts or circumstances, not alleged in the Claim or Protest, that by reason of their not being alleged render any fact or statement alleged in the Claim or Protest materially misleading; and,
3. CONTRACTOR has, with respect to any request for money or damages alleged in or that forms the basis for the Claim or Protest, reviewed the job cost records (including those maintained by CONTRACTOR and by any Subcontractor or Supplier, of any tier, that is asserting all or any portion of the Claim or Protest) and confirmed with mathematical certainty that the losses or damages suffered by CONTRACTOR and /or such Subcontractor or Supplier were in fact suffered in the amounts and for the reasons alleged in the Claim or Protest; and,

4. CONTRACTOR has, with respect to any request for extension of time or claim of delay, disruption, hindrance or interference alleged in or that forms the basis for the Claim or Protest, reviewed the job schedules (including those maintained by CONTRACTOR and by any Subcontractor or Supplier, of any tier, that is asserting all or any portion of the Claim or Protest) and confirmed on an event-by-event basis that the delays or disruption suffered by CONTRACTOR and /or such Subcontractor or Supplier were in fact experienced for the durations, in the manner, and with the consequent effects on the time and/or sequence of performance of the Work, as alleged in the Claim or Protest; and,

5. CONTRACTOR has not received payment from CITY for, nor has CONTRACTOR previously released CITY from, any portion of the Claim or Protest.

Signature: _____

Name: _____

Title: _____

Company: _____

Date: _____

No Claim or Protest by the CONTRACTOR shall be allowed if made after final payment under this Contract.

55. COMMENCEMENT OF STATUTE OF LIMITATIONS

Unless otherwise provided in this Contract, all claims, counterclaims, disputes and other matters in question between the CITY and the CONTRACTOR arising out of or relating to this Contract or the breach of it will be decided by a Court of competent jurisdiction. It is understood that this Contract is executed and to be performed within the City and County of Los Angeles.

Any applicable statute of limitations shall commence to run and any alleged cause of action by the CONTRACTOR against the CITY arising out of or related to the Project shall be deemed to have accrued in any and all events no later than 30 days after CONTRACTOR'S submittal of its last application for progress payment.

56. GOVERNING LAW

The terms and conditions of this Contract shall be construed and interpreted under, and all respective rights and duties shall be governed by, the laws of the State of California. Wherever applicable each provision of these Contract Documents shall be interpreted in such a manner as to be effective and valid under applicable law, but if any provision of these Contract Documents shall be prohibited by or invalid under applicable law, such provision shall be ineffective to the extent of such prohibition or invalidity, without invalidating the remainder of such provision or the remaining provisions of these Contract Documents.

57. VENUE

This Contract will be executed and performed within the City and County of Los Angeles, California.

58. NO WAIVER OF RIGHTS

Neither the inspection by the CITY, nor any order by the CITY for payment of money, nor any payment for or acceptance of the whole or any part of the Work by the CITY, nor any extension of time, nor any possession taken by the CITY, shall operate as a waiver of any provision of this Contract, or any power herein reserved to the CITY, or any right to damages herein provided, nor shall any waiver of any breach in this Contract be held to be a waiver of any other or subsequent breach.

59. ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE

The acceptance by the CONTRACTOR of final payment shall release the CITY, the PROJECT MANAGER, the INSPECTOR, their officers, agents, representatives, or employees, as representatives of the CITY, from all claims and all liability to the CONTRACTOR for all things done or furnished in connection with the Work and every act of the CITY relating to or arising out of the Work.

60. PATENTS AND COPYRIGHTS

The CONTRACTOR shall include in its bid the patent fees or royalties on any patented article or process which may be furnished or used in the Work. The CONTRACTOR shall indemnify and hold the CITY harmless from any legal action that may be brought for infringement of patents. The CONTRACTOR'S attention is directed to "Notice of Patents, Data, and Copyright Regulations" of the Federal Labor Standards.

The CONTRACTOR shall bear all costs arising from the use of patented goods and /or processes used on and/or incorporated into the Work. When use of these goods and/or processes are judged to be an infringement and their use is banned, the Contractor, at its own expense, shall, with concurrence of the PROJECT MANAGER, do one of the following:

1. Secure for the CITY the right to continue using goods and/or processes by suspension of the injunction or by procuring a license(s);
2. replace said goods and/or processes with non-infringing goods and /or processes;
3. modify said goods and/or processes so that they become non-infringing; or
4. remove said goods and/or processes and refund the sum paid therefore without prejudice to any other rights of the CITY.

The preceding Subarticle shall not apply to any goods manufactured to the detailed design of the CITY contained in the Contract Documents.

61. PUBLIC RECORDS ACT

All records, documents, plans, specifications and all other information relating to the conduct of the CITY's business, including information submitted by the CONTRACTOR, shall become the exclusive property of the CITY and except as provided by law shall be deemed public records. Said information shall be subject to the provisions of the California Public Records Act (Government Code Sections 6250 *et seq.*).

Under no circumstances, will the CITY be responsible or liable to the CONTRACTOR, submitter or any other party for the disclosure of any records or information submitted to the CITY, regardless of whether such records or information are labeled "TRADE SECRET", "CONFIDENTIAL", or "PROPRIETARY" (or words to similar effect) and regardless of, whether the disclosure is required by law or a court order or occurs through inadvertence, mistake, or negligence on the part of the CITY or its officers, employees, and/or contractors.

The CITY will not advise as to the nature or content of documents entitled to protection from disclosure under the California Public Records Act", including interpretations of the Act or the definition of "Trade Secret". The submitting party shall be solely responsible for all determinations made under the Act, and where appropriate for clearly and prominently marking each and every page or sheet of information with "TRADE SECRET", "CONFIDENTIAL", or "PROPRIETARY". Each submitting party is advised to contact its own legal counsel concerning the California Public Records Act and its applicability to the submitting party's own circumstances.

In the event of litigation concerning the disclosure of any information submitted by the submitting party, the CITY's sole involvement will be as a stake holder, retaining the information until otherwise ordered by a court. The submitting party, at its sole expense and risk, shall be responsible for any and all fees and costs for prosecuting or defending any action concerning the information, and shall indemnify and hold the CITY harmless from all costs and expenses including attorneys' fees, in connection with such action.

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GENERAL

1. ABBREVIATIONS AND REFERENCE STANDARDS

A. ABBREVIATIONS

Wherever the following abbreviations are used they shall have the meanings indicated:

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AGA	American Gas Association
AGMA	American Gear Manufacturers' Association
AI	The Asphalt Institute
AISC	American Institute of Steel Construction
AISI	American Iron & Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute
APA	American Plywood Association
API	American Petroleum Institute
AREA	American Railway Engineering Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating, and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASQC	American Society for Quality Control
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Institute
AWS	American Welding Society
AWWA	American Water Works Association
CBM	Certified Ballast Manufacturers
CRS	Concrete Reinforcement and Steel Institute
EPA	Environmental Protection Agency
ETL	Department of Building & Safety Electrical Test Laboratory
FCI	Fluid Control Institute, Inc.
ICBO	International Conference of Building Officials
ICEA	Insulated Cable Engineers Association
IEEE	Institute of Electrical and Electronics Engineers
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
LABC	City of Los Angeles Building Code
NAAMM	National Architectural Association of Metal Manufacturers
NEC	National Electrical Code
NECA	National Electrical Contractors Association

NEMA	National Electrical Manufacturers Association
NOAA	National Oceanic and Atmospheric Administration (Dept. of Commerce)
OSHA	Occupational Safety and Health Administration (Dept. of Labor)
PCA	Portland Cement Association
RCSC	Research Council on Structural Connections of the Engineering Foundation
SAMA	Scientific Apparatus Manufacturer's Association
SSPWC	Standard Specifications for Public Works Construction
SWRCB	State Water Resources Control Board
UBC	Uniform Building Code, International Conference of Building Officials
UL	Underwriters Laboratories, Inc.
USGS	United States Geological Survey
WATCH	Work Area Traffic Control Handbook
WCLIB	West Coast Lumber Inspection Bureau
WCRSI	Western Concrete Reinforcing Steel Institute
WRI	Wire Reinforcement Institute
WWPA	Western Wood Products Association

B. REFERENCE STANDARDS

1. APPLICABLE PUBLICATIONS - Whenever in these Specifications references are made to published specifications, codes, standards, or other requirements, it shall be understood that wherever no date is specified, only the latest specifications, standards, or requirements of the respective issuing agencies which have been published as of the date that the Work is advertised for bids shall apply; except to the extent that said standards or requirements may be in conflict with applicable laws, ordinances or governing codes. No requirements set forth herein or shown on the Drawings shall be waived because of any provision of, or omission from, said standards or requirements.

2. SPECIALISTS' ASSIGNMENTS - In certain instances, specification text requires (or implies) that specific Work is to be assigned to specialists or expert entities, which must be engaged for the performance of that Work. Such assignments shall be recognized as special requirements over which the CONTRACTOR has no choice or option. These requirements shall not be interpreted so as to conflict with the enforcement of building codes and similar regulations governing the Work; also they are not intended to interfere with local union jurisdiction settlements and similar conventions. Such assignments are intended to establish which party or entity involved in a specific unit of Work is recognized as "expert" for the indicated construction processes or operations. Nevertheless, the final responsibility for fulfillment of the entire set of Contract requirements remains with the CONTRACTOR.

3. CODES AND SAFETY STANDARDS - Without limiting the generality of other requirements of the Specifications, Work specified herein shall conform to or exceed the applicable requirements of the following Codes and Safety Standards.

   a. Applicable Codes:

      - City of Los Angeles Building Code
      - City of Los Angeles Mechanical Code
      - City of Los Angeles Plumbing Code
      - City of Los Angeles Fire Code
      - City of Los Angeles Electrical Code

   b. References herein to "Building Code" shall mean City of Los Angeles Building Code. Similarly references to "Mechanical Code," "Plumbing Code," "Fire Code," and "Electric Code" shall mean City of Los Angeles Mechanical Code, City of Los Angeles Plumbing Code, City of Los Angeles Fire Code and City of Los Angeles Electric Code respectively.

   c. Applicable Safety Standards:

      - OSHA Regulations for Construction
      - OSHA Standards
      - Cal-OSHA

   d. References herein to "OSHA Regulations for Construction" shall mean Title 29, Part 1926, Construction Safety and Health Regulations, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

   e. References herein to "OSHA Standards" shall mean Title 29, Part 1910, Occupational Safety and Health Standards, Code of Federal Regulations (OSHA), including all changes and amendments thereto.

   f. References herein to "Cal-OSHA" shall mean State of California, Department of Industrial Relations, as amended to date, and all changes and amendments thereto

which are effective as of the date of construction.

g. The latest edition of the codes as approved and adopted for use by the CITY as of the date of award shall apply to the Work herein, including all addenda, modifications, amendments, or other lawful changes thereto.

4. STANDARD SPECIFICATIONS - References in the Contract Documents to "Standard Specifications" shall mean the Standard Specifications for Public Works Construction (SSPWC), including all current supplements, addenda, and revisions thereof, except that the provisions therein for measurement and payment shall not apply.

5. STANDARD PLANS - References herein to "Standard Plans" shall mean the Standard Plans issued by the City of Los Angeles which drawings are hereby incorporated in and made a part of these Contract Documents, and copies of which are available for a fee.

6. CONFLICT BETWEEN CODES, SAFETY STANDARDS, REFERENCE STANDARDS, DRAWINGS AND OTHER CONTRACT DOCUMENTS - In case of conflict between codes, reference standards, drawings and other Contract Documents, the most stringent requirements shall govern. Conflicts shall be brought to the attention of the PROJECT MANAGER for clarification and directions prior to ordering or providing any materials or labor. The CONTRACTOR shall bid for the most stringent requirements.

CONTRACT DOCUMENTS

2. DESCRIPTION OF WORK

A. SUMMARY

The work to be done under this Contract includes the furnishing of project management, labor, materials, tools and equipment for the construction of the LINCOLN PARK PEDESTRIAN PATH LIGHTING PROJECT for the City of Los Angeles, Department of Recreation and Parks, all in accordance with the Contract Documents, including the GENERAL CONDITIONS , GENERAL REQUIREMENTS, specifications and plans. The scope of work includes but not limited to Pedestrian Path Lighting Improvements, Upgrades, Rehabilitation and their appurtenant work.

B. GENERAL SCOPE OF WORK

Work In This Contract: Work in this Contract includes all labor, materials and equipment necessary for construction of LINCOLN PARK PEDESTRIAN PATH LIGHTING IMPROVEMENTS as noted on the Contract Drawings and all other Contract Documents including the GENERAL CONDITIONS and GENERAL REQUIREMENTS.

Work Not In This Contract: "Work not in this Contract," "Work by others" and "Work by others but arranged and paid for by CONTRACTOR" are listed as follows:

i. All work or equipment indicated on the Contract Drawings as "Not in Contract" or "N.I.C." or anything which implied exclusion from the Contract in any manner.

ii. All work or equipment indicated on the Contract Drawings or in this project as "work by others," and "work by others, but arranged and paid for by CONTRACTOR." The CONTRACTOR shall provide all necessary coordination, arrangement. And scheduling in accordance with General Conditions. CONTRACTOR shall appropriately pay for all charges, fees and costs specified to be paid for by the CONTRACTOR.

C. PROJECT IDENTIFICATION

1. The Project Name is LINCOLN PARK PEDESTRIAN PATH LIGHTING IMPROVEMENTS located at 3501 Valley Boulevard, Los Angeles, CA 90031

2. Contract Documents have been prepared by the Bureau of Engineering through its Consultant Psomas.

3. Contract Drawings are dated August 15, 2016.

D. SUMMARY OF REFERENCES

1. Contracted Work can be summarized by references to the Contract General Conditions, Sections in the Project Manual, Contract Drawings, Addenda, Notice to Bidders and Modifications to the Contract Documents.

2. It is recognized that the Contracted Work may also be unavoidably affected or influenced by other governing codes and Regulations, natural phenomenon, including weather conditions and other forces outside the Contract Documents.

E. BID ALTERNATES

1. This Section specifies administrative and procedural requirements for Alternates. This project includes one ADDITIVE ALTERNATE item. The scope of work for the additive bid alternate item is as follows:

   Additive Alternate Item - Pathway Repair and ADA improvements

2. Definition: An Additive Alternate is for certain construction activity defined in the Bidding Requirements that may be added to Total Contract Bid amount if the CITY decides to accept a corresponding change in either the amount of construction to be completed, or in the products, materials, equipment, systems or installation methods described in the Contract Documents. Bidders are required to submit a cost amount for the Alternate listed on the Bid Form, which shall be separate from the Basic Bid for the remaining balance of the Contract Work.

3. Coordination: Coordinate related Work and modify or adjust adjacent Work as necessary to ensure that Work affected by each accepted Alternate is complete and fully integrated into the project.

4. Notification: Immediately following the award of the Contract, prepare and distribute to each party involved, notification of the status of the Additive Alternate. Indicate whether Alternate has been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to Alternate. CONTRACTOR shall at the earliest practical date advice the PROJECT MANAGER of the date when the final selection of the Alternative and purchase of each product or system described by the Alternate must be completed to avoid delaying the Work, as applicable.

5. General Requirements:

   i. Requirement to use if the cost amount for the Alternate is part of the total contract cost: When, during the progress of the project, the PROJECT MANAGER intends to proceed with the Alternate, the PROJECT MANAGER shall notify the CONTRACTOR in writing and an adjustment to contract cost shall be based on the cost amount submitted for the Alternate by the CONTRACTOR.

   ii. Requirement to use if the cost amount for the Alternate is not part of the total contract cost: If the PROJECT MANAGER intends to proceed with the Alternate, the PROJECT MANAGER shall issue a Change Order to the CONTRACTOR in accordance with the provisions on CHANGE ORDERS of the GENERAL REQUIREMENTS, based on the cost amount submitted for the Alternate by the CONTRACTOR.

   iii. In any case, execution of the Alternate shall be made by the PROJECT MANAGER within twenty-one (21) calendar days after the Notice-to-Proceed, and adjustment of Contract cost shall be based on the amount submitted for the Alternate by the CONTRACTOR. There shall not be any additional

overhead and profit allowance, extra compensation or time extension to the CONTRACTOR.

F. GROUND BREAKING CEREMONY

The Ground Breaking Ceremony for this project may be requested and may occur before the Notice-to-Proceed is issued. The CONTRACTOR shall coordinate and verify with the PROJECT MANAGER the ceremony schedule after the award of the contract. The CONTRACTOR shall prepare, after the award of the contract, all submittals for the construction sign and secure all necessary approvals. The CONTRACTOR shall provide necessary coordination for the Ground Breaking Ceremony, occurring before or during the construction and limit costs to the allowance provided in the Schedule of Work and Prices

3. DIVISIONS OF SPECIFICATIONS

The specifications are arranged into the Construction Specifications Institute (CSI) sixteen (16) Division format with an additional Division 17 for Instrumentation and Controls (if applicable).

A. The organization of the Specifications into divisions, sections, parts, and paragraphs shall not control or limit the CONTRACTOR in dividing the Work among Subcontractors of any tier. The CONTRACTOR shall be solely responsible for all subcontract arrangements of Work regardless of the organization of the specifications.

B. Titles of Specification sections and paragraphs are for convenience of reference only, and do not form a part of the Specifications.

THE CONTRACTOR'S RESPONSIBILITIES

4. SITE SECURITY

A. In addition to the responsibilities specified in other Articles of these Requirements, and the General Conditions, the CONTRACTOR shall be responsible for the security of all its construction equipment, materials, tools, facilities, and vehicles (personal, private, or contractual) while performing the Work of this Contract. This requirement shall be effective twenty-four (24) hours per day for the duration of the Contract. CONTRACTOR shall familiarize themselves with the location of the job site and scan the premises by means necessary to protect the property, including but not limited to, provision of fencing, guards, security system or other means as necessary.

5. ENVIRONMENTAL CONTROL AND MITIGATION

A. CONTROL

1. Fugitive Dust and Smoke Control:

Comply with the requirements of Title 8, California Code of Regulations, concerning handling of asbestos dust.

a. Criteria for Fugitive Dust - Detailed descriptions and explanations of specific impact mitigation measures are contained in South Coast Air Quality Management District (SCAQMD) Rules and Regulations (Rule 403, Limitation on Fugitive Dust Emissions). Key features of mitigation options described are as follows:

i. Do not cause or allow emissions of fugitive dust from any transport, handling, construction or storage activity to remain visible in atmosphere beyond property line of the emission source.

ii. Take precautions to minimize fugitive dust emissions from operations involving demolition, excavation, grading, clearing of land and disposal of solid waste. Utilizes at least one Reasonably Available Control Measure (RACM) for each

potential source of fugitive dust. Do not cause or allow particulate matter to exceed 50 mg/m^3 when determined as difference between upwind and downwind samples collected on high volume particulate matter samplers or other EPA approved equivalent method for PM-10 monitoring at the property line for a five hour period during the time of active operations.

iii. Take precautions to prevent visible particulate matter from being deposited upon public roadways as a direct result of their operations. Precautions include, removal of particulate matter from equipment before movement to paved streets or prompt removal of material from paved streets onto which such material has been deposited.

b. As a minimum - Use the following procedures and techniques:

i. Cover loads of materials, debris and soil transported from construction sites. Trim or remove loose material from loads before leaving Project.

ii. Daily or more frequently, if necessary, water down and sweep adjacent streets and sidewalks that have construction vehicles carrying debris and excavated materials.

iii. Establish regular cycles and locations for cleaning trucks that haul soil from site.

iv. Water down construction sites whenever required to suppress dust, particularly during handling of excavation soil or debris or during demolition.

v. If conveyors are used, cover all transfer points along conveyor system moving soil. Minimize drop height to the stockpile. Provide a sprinkler system that will apply water to soil before it drops to stockpile.

vi. Any adapted measures developed by SCAQMD on Best Available Control Measures (BACM) for Fugitive Dust and Rule 403 will be incorporated into the site operations for Fugitive Dust Control.

vii. Burning of wastes is prohibited. Remove scrap and waste material and dispose of in accordance with laws, codes, regulations, ordinances and permits.

viii. Use construction equipment designed and equipped to prevent or control air pollution in conformance with most restrictive regulations of EPA, State and local authorities. Maintain evidence of such design and equipment and make available for inspection by Authority or its designee.

ix. Establish and maintain records of routine maintenance program for internal combustion engine powered vehicles and equipment used on Project. Keep records available for inspection by Authority or its designee.

x. Comply with the requirements of Title 8, California Code of Regulations, concerning handling of asbestos dust.

xi. Implement Fugitive Dust Measures listed in tables 1 and 2 of SCAQMD Rule 403 and perform record keeping in accordance with Sections (e)(1) of said rule. Make records available to Authority or its designee for inspection.

2. Rubbish Control

a. Through all phases of construction, including suspension of Work and until final acceptance of the Project, keep the site of the Work and other areas used by it in a neat and clean condition, and free from an accumulation of rubbish and debris. Dispose of rubbish and waste materials of any nature occurring at the worksite and establish

regular intervals of collection and disposal of such materials and waste. Keep CONTRACTOR haul roads free from dirt, rubbish, and unnecessary obstructions resulting from its operations. Take care to prevent spillage on haul routes. Remove such spillage immediately and clean the area. Confine equipment and material storage to areas approved by the PROJECT MANAGER. Dispose of rubbish and surplus materials off the construction site, at the CONTRACTOR's expense, in accordance with local codes and ordinances governing locations and methods of disposal, and in conformance with all applicable safety laws, and the requirements of the OSHA Safety and Health Standards for Construction. Include cleanup cost in the CONTRACTOR's Bid.

3. Sanitation

   a. Fixed or portable chemical toilets shall be provided for the use of the CONTRACTOR's employees. These accommodations shall be maintained in a neat and sanitary condition. Toilets at construction job sites shall conform to the requirements of Title 8, California Code of Regulations.

   b. Wastewater conveyance and disposal shall not be interrupted. Should the CONTRACTOR disrupt existing sewer facilities, sewage shall be conveyed in closed conduits and disposed of in a sanitary sewer system. Sewage shall not be permitted to flow in trenches or be covered by backfill. Establish a regular schedule for collection of sanitary and organic waste. Dispose of wastes and refuse from sanitary facilities provided by the CONTRACTOR or organic material wastes from any other source related to the CONTRACTOR's operations away from the site in a manner satisfactory to the INSPECTOR and in accordance with laws and regulations pertaining thereto. Dispose of such wastes at the CONTRACTOR's expense.

4. Chemicals

   The following paragraph does not relieve the CONTRACTOR from its responsibility for obtaining prior approval from the PROJECT MANAGER for chemical usage when otherwise required.

   a. Provide four (4) copies of the MSDS to the PROJECT MANAGER for all chemicals used during Project construction or furnished for Project operation, prior to bringing them on site, whether soil conditioning agents, lubricants, defoliant, soil sterilant, herbicide, pesticide, disinfectant, polymer, soil conditioning agents, lubricants, reactant, or of other classification, which shall show approval of either the U.S. Environmental Protection Agency or the U.S. Department of Agriculture. Use of all such chemicals and disposal of residues shall be in strict accordance with the printed instructions of the manufacturer.

5. Odor Control

   a. The CONTRACTOR shall furnish all labor, materials, and equipment required and shall carry out effective measures wherever and as often as necessary to prevent the discharge of a nuisance odor from its operation into the atmosphere in such quantity as will violate the regulations of any legally constituted authority. During construction, the CONTRACTOR shall notify the PROJECT MANAGER and the INSPECTOR at least forty-eight (48) hours in advance when potential odor-causing activities are scheduled for construction.

6. Noise and Vibration - Comply with requirements of CITY noise ordinances and mitigation specified below.

   a. Lighting – Shield worksite lighting to prevent disturbance to adjacent properties.

B. MITIGATION

   1. General

a. The CONTRACTOR shall mitigate the adverse environmental impacts associated with the Work of the Contract. The CONTRACTOR shall indemnify and hold harmless the CITY from any and all fines, penalties or damages incurred by the CITY for violation of any environmental mitigation measures or permit caused by the CONTRACTOR's failure to comply with environmental mitigation measures of this Article. The measures that the CONTRACTOR shall take to mitigate environmental impacts include, but are not limited to the following:

b. The CONTRACTOR, a minimum of thirty (30) days prior to beginning Work on each new major activity, shall submit a written plan to the PROJECT MANAGER, detailing how the environmental impacts for the activity shall be mitigated. The plan shall include, at a minimum:

i. Anticipated site conditions;

ii. Equipment to be utilized;

iii. Means and methods of construction;

iv. Impacts likely to occur;

v. Mitigation methods to be employed.

2. Storm Water Pollution Control

a. Comply with the State General Construction Activity Storm Water Permit.

b. Minimum Water Quality Protection Requirements – The Contractor is required to meet the following minimum standards of good housekeeping:

i. Eroded sediments and other pollutants must be retained on site and may not be transported from the site via sheet flow, swales, area drains, natural drainage, or wind.

ii. Stockpiles of earth and other construction-related materials must be protected from being transported from the site by wind or water.

iii. Fuels, oils, solvents, and other toxic materials must be stored in accordance with their listing and are not to contaminate the soil nor the surface waters. All approved toxic storage containers are to be protected from the weather. Spills must be cleaned up immediately and disposed of in a proper manner. Spills may not be washed into the drainage system.

iv. Excess or waste concrete may not be washed into the public way or any drainage system. Provisions shall be made to retain concrete wastes on-site until they can be appropriately disposed of or recycled.

v. Trash and construction-related solid wastes must be deposited into a covered receptacle to prevent contamination of rainwater and dispersal by wind.

vi. Sediments and other materials may not be tracked from the site by vehicle traffic. The construction entrance roadways must be stabilized so as to inhibit sediments from being deposited into the public ways. Accidental depositions must be swept immediately and my not be washed down by rain or by any other means.

c. Wet Weather Erosion Control Plan (WWECP) – Pursuant to Section 61.02 of the LAMC, whenever it appears that the construction site will have grading between October 1 and

April 15, the Contractor shall submit a WWECP to the Project Manager for approval within 30 days after award of contract or get approval 30 days prior to the beginning of the rainy season, whichever is longer. Note: Guidance on preparing the WWECP can be found in the Development Best Management Practices Handbook – Part A, Construction Activities adopted by the Board of Public Works on August 2, 1999, as authorized by Section 64.72 of the Los Angeles Municipal Code. This handbook can be obtained at cost at the public/permit counters of the Bureau of Engineering.

d. The Contractor shall file a "Notice of Intent" (NOI) with the State Water Resources Control Board to comply with the California General Construction Activity Stormwater Permit (NPDES No. CAS000002) and prepare and implement a Stormwater Pollution Prevention Plan (SWPP). Whenever the CONTRACTOR is required to get any type of permit from the Department of Building and Safety (DBAS), the CONTRACTOR shall show a Waste Discharge Identification Number (WDID) to the DBAS as proof of submittal of the NOI. If the CONTRACTOR does not need any type of permit from the DBAS, the CONTRACTOR shall show the WDID to the PROJECT MANAGER.

3. Noise and Vibration

a. General

i. The Work specified in this Article consists of eliminating excessive noise and vibration generated by construction activities, complying with applicable noise regulations and specifications requirements, monitoring and reporting noise and vibration measurements.

ii. Use equipment with effective noise-suppression devices and employ other noise

control measures such as enclosures and noise barriers necessary to meet the noise limits specified and to protect the public. Schedule and conduct operations in a manner that will minimize, to the greatest extent feasible, the disturbance to the public in areas adjacent to the construction activities and to occupants of buildings in the vicinity of the construction activities.

iii. Noncompliance Corrective Action – If, at any time prior to or during the construction, complaints are received from the public, the PROJECT MANAGER shall direct the CONTRACTOR to undertake immediate corrective action through equipment modification, additional noise abatement equipment or a change in operating procedures.

b. Construction Vibration

i. Ground-borne vibrations from equipment may have the potential of causing an impact to the existing structure. The CONTRACTOR shall mitigate and/or repair any damage caused by vibration.

6. MOBILIZATION

A. GENERAL

Mobilization shall include, but not be limited to, the following items, all as required for the proper performance and completion of the work:

1. Obtaining all permits, insurance, and bonds.
2. Moving onto the job-site all CONTRACTOR's plant and equipment as required.
3. Erecting temporary buildings and other construction facilities.
4. Installing temporary construction power and wiring.

5. Establishing fire protection system for its temporary facilities.
6. Developing construction water supply.
7. Providing field office trailers for the CONTRACTOR AND INSPECTOR, complete with all specified furnishings and utility services, including telephones.
8. Providing connections to onsite sanitary facilities as specified.
9. Providing for potable water facilities as specified. This includes a means by which all on site contractor, subcontractor or supplier personnel can wash their hands with soap.
10. Arranging for and erection of CONTRACTOR's work and storage yards and sheds.
11. Submittal of all required Subcontractor insurance certificates and bonds.
12. Posting all CAL-OSHA required notices and establishment of safety programs.
13. Have the CONTRACTOR's representative at the job site full time.
14. Furnishing of Construction Schedule, Bid Breakdown and Submittal Schedules.

B. TEMPORARY CONSTRUCTION UTILITIES AND WORKSITE FACILITIES

The Contractor shall provide the following worksite facilities, as indicated below:

Yes (1) The Contractor shall provide adequate sanitary conveniences for use of persons employed on the work. These conveniences shall be properly secluded from public observation and maintained in a neat and sanitary condition in the manner and places required by the Project Manager. The use of these conveniences shall be strictly enforced, and they shall be maintained at all times until completion of the work, when they shall be removed from the premised and the area left clean and free from any nuisance. They shall also comply with all applicable laws, ordinances and regulations pertaining to the public health and sanitation of dwelling and camps.

Wastewater shall not be interrupted. Should the Contractor disrupt existing sewer facilities, sewage shall be conveyed in closed conduits and disposed of in a sanitary sewer system. Sewage shall not be permitted to flow in trenches or be covered by backfill.

Yes (2) The Contractor shall provide the power and light needed for construction until permanent meter installation is completed. The Contractor shall make all necessary arrangements with the City Department of Water and Power; assume all costs; and make and remove all connections to power facilities as necessary for required tests.

Yes (3) The Contractor shall provide the water needed for construction until permanent meter installation is completed. The Contractor shall make all necessary arrangements with the City Department of Water and Power; assume all costs; and make and remove all connections to water facilities as necessary for required tests.

Yes (4) The Contractor shall provide the gas needed for construction until permanent meter installation is completed. The Contractor shall make all necessary arrangements with the Gas Company; assume all costs; and make and remove all connections to gas facilities as necessary for required tests.

Yes (5) The Contractor shall provide a temporary shed on the site for the safe storage of his material and equipment. The floor shall be weathertight with a wood floor above grade. The shed shall be removed upon completion of the work or by order of the General Manager.

Yes (6) The Contractor shall provide an office for the Inspector for the entire period of construction or until the General Manager orders its removal. The office, to be located as the General Manager directs, shall be weathertight and have not less than 100 square feet floor area; screened windows that open in opposite walls; a door with latch set and hasp for padlocking; a built in counter of sufficient size for a full set of job blue prints with a drawer for filing 9" x 12" folders; a stool and a plan rack for

drawings; an electric heater, a 12" electric fan and electric lights.

Yes (7) The Contractor shall provide a job telephone for the use of City personnel only. The Contractor shall make all necessary arrangements with the telephone company; assume all costs and pay for all calls. The telephone is to be located so that it is easily accessible from the job office and provided with an outside extension bell.

Yes (8) The Contractor shall maintain temporary drainage to keep excavations, pits and trenches free of water accumulation, by pumping if necessary. The Contractor shall protect against damage caused by water backing up in sewers and drains.

Yes (9) The Contractor shall exercise every reasonable precautions to protect channels, storm drains and bodies of water from pollution; and shall conduct and schedule construction operations so as to minimize or avoid muddying and silting of said channels, drains and waters. Water pollution control work shall consist of constructing any facilities which may be required to prevent, control and abate water pollution.

The Project Manager, authorized representative of the General Manager, in charge of this project is:

Meghan Aldrich at (213) 847-4713

All correspondence should be addressed to the Project Manager at [Note new address as of 03/29/12]:

Department of Public Works, Bureau of Engineering Recreation and Cultural Facilities Program
1149 S. Broadway, 8th Floor, Los Angeles, California 90015

7. REMOVAL, CLEANUP, AND DEMOBILIZATION

A. Upon completion of the contracted Work, remove all CONTRACTOR tools, materials and other articles from the CITY's property. Should the CONTRACTOR fail to take prompt action to this end, the CITY at its option and without waiver of such other rights as it may have, on thirty (30) calendar days notice, may treat them as abandoned property. Sweep floors broom clean, clean exterior and interior surfaces and windows and remove rubbish and debris resulting from the contracted Work and maintain the job site in a clean, orderly and safe condition at all times until completion of the physical Work and written Notice of Partial Acceptance. Failure to comply with this requirement shall be grounds for the CITY to assess clean-up costs in the amount of 5% of the mobilization cost.

8. RECORD DRAWINGS

A. Record Drawings are full size drawings (Plans) which are marked up during construction to delineate the actual in-place constructed conditions. Record Drawings shall be provided by the CONTRACTOR for this Project. Requirements for Record Drawings as specified elsewhere shall supplement the requirements specified herein.

B. Record Drawings shall include all changes in the plans including those issued as Change Orders, Plan Clarifications, Addenda, Notice to Bidders, responses to Requests for Information, Jobsite Memos, and any additional details needed for the construction of the Project but not shown on the plans. Substructures encountered while excavating that are left in place shall be located by survey, to the satisfaction of the PROJECT MANAGER, shown, and identified on the Record Drawings. Substructures, including but not limited to concrete structures, electrical conduit and duct banks, drains and sanitary sewer pipelines, process piping, water lines, etc, whose installed location differs from that shown on the original plans shall be precisely located by survey to the satisfaction of the PROJECT MANAGER and recorded on the as-built drawings before backfilling.

C. Mark Record Drawings with red ink or chemical fluid on one (1) set of full size prints to produce a record of the complete installation. Prepare additional drawings that may be required to indicate record conditions on 24" x 36" paper. Additions to Contract Drawings shall employ and use drafting standards, which are consistent with the drafting standards, used in the Contract Drawings.

D. Keep Record Drawings on the job and update during construction and make available for the PROJECT MANAGER'S inspection and copying at all times. The PROJECT MANAGER will review the Record Drawings before submittal of monthly payment requests. If in the opinion of the PROJECT MANAGER, the Record Drawings are not current, approval of the monthly payment may be withheld

until the drawings are made current. Submit a signed certification with each monthly payment request stating that the Record Drawings are current and accurate as of the date of the payment request.

E. Where the plans are diagrammatic or lacking precise details, produce dimensioned full size sheets as the Record Drawings. For installations outside of structures, the locations shall be given by coordinates and elevations. Where substructures are encased in concrete, the outside dimensions of the encasement shall also be given.

F. In the case of those drawings which depict the detail requirements for equipment to be assembled and wired in the factory, the Record Drawings shall be updated by indicating those portions which are superseded by final Shop Drawings and by including appropriate reference information describing the Shop Drawings by manufacturer, drawing and revision numbers.

G. At the completion of the Work and after final inspection, copy the Record Drawing (as installed) data, using red ink, onto a new set of high quality prints provided by the CITY. Certify to the completeness and accuracy of the "as installed" information indicated on the prints with its signature. Then deliver as a submittal to the PROJECT MANAGER for review and approval both the field developed prints and the final signed prints as a condition precedent to the CITY'S release of any retained funds.

9. EXCAVATION SHORING, FORMS, AND FALSEWORK

A. Whenever Work under the Contract involves trench excavation five (5) feet or more in depth, or any kind of shoring, design and prepare plans for the required shoring, bracing, and sloping. In addition to the Division 2 specified requirements, submit plans and calculations to the PROJECT MANAGER in advance of excavation to ensure workers' protection from the hazard of caving ground during the excavation. If such plan varies from the shoring system standards established by the Cal-OSHA Construction Safety Orders, the plan shall be prepared by a California registered civil or structural PROJECT MANAGER employed by the CONTRACTOR, and include all costs therefore in the price named in the Contract for completion of the Work as set forth in the Contract Documents. Nothing in this Article shall be deemed to allow the use of a shoring, sloping, or other protective system less effective than that required by the Construction Safety Orders. Nothing in this Article shall be construed to impose liability on the CITY, PROJECT MANAGER, INSPECTOR, or any of their officers, agents, representatives, or employees.

B. Secure approval, in advance, from authorities concerned for the use of any bridges proposed by it for public use. Temporary bridges shall be clearly posted as to load limit, with signs and posting conforming to current requirements set forth in the Traffic Manual published by the California Department of Transportation, covering "signs". This manual shall also apply to the street closures, barricades, detours, lights, and other safety devices required.

C. Comply fully with the requirements of the Cal-OSHA Construction Safety Orders, regarding the design of forms, false work, and shoring for concrete placement, and the inspection of same before placement of concrete. Where the Construction Safety Orders requires the services of a civil PROJECT MANAGER registered in the State of California to approve design calculations and Working Drawings of the false work or shoring system, to inspect such system prior to placement of concrete, employ a registered civil PROJECT MANAGER for these purposes, and all costs therefore shall be included in the price named in the Contract for completion of the Work as set forth in the Contract Documents.

D. No Work under this Article shall start until the PROJECT MANAGER has accepted the plans and the CONTRACTOR has obtained permits required and furnished a copy to the PROJECT MANAGER.

10. SUBMITTALS

A. Furnish a schedule and list of required submittals to the PROJECT MANAGER, in accordance to CONTRACTOR'S CONSTRUCTION SCHEDULE AND REPORTS of these General Requirements, including required submittals by Subcontractors.

B. Wherever called for in these specifications or on the plans, or where required by the PROJECT MANAGER, furnish to the PROJECT MANAGER for review 10 copies of each submittal. The term "submittal" as used herein shall be understood to include detail design calculations, design drawings, Shop Drawings, Working Drawings fabrication and installation drawings, erection drawings, lists, graphs, operating instructions, catalog sheets, data sheets, samples, and similar items. Unless otherwise required, Submit said submittals to the PROJECT MANAGER at a time sufficiently early (see paragraph
F. below) to allow review of same by the PROJECT MANAGER and to accommodate the rate of construction progress required under the Contract without delaying the Contract Work and with due regard for the possibility of resubmittals. Submittals shall be in English.

C. Design or Shop Drawings or other submittal shall be accompanied by the standard "CONTRACTOR's SUBMITTAL TRANSMITTAL" form. A submittal not accompanied by such a form, or where all applicable items on the form are not completed, or are incorrectly completed, may be returned, at the PROJECT MANAGER'S discretion, for resubmittal.

D. Normally, a separate transmittal form shall be used for each specific item or class of material or equipment for which a submittal is required. Transmittal of a submittal of various items using a single transmittal form will be permitted only when the items taken together constitute a manufacturer's "package" or are so functionally related that expediency indicates a review of the group or package as a whole. A multiple-page submittal shall be collated into sets, and each set shall be stapled or bound, as appropriate, prior to transmittal to the PROJECT MANAGER.

E. Shop Drawings shall show in detail the size, sections, and dimensions of all the member(s); the arrangement and construction of all connections and joints; all holes, straps, and other fittings required for attaching Work; and other pertinent details. When required, PROJECT ENGINEERING computations shall be submitted. Be responsible for delivering reviewed copies of Shop Drawings to all others whose Work is dependent thereon. Maintain at the site of the Project, a complete file of approved Shop Drawings and manufacturers' data for this Project, at all times.

F. Except as may otherwise be provided herein, the PROJECT MANAGER will make a reasonable attempt to return prints of each submittal to the CONTRACTOR, with its comments noted thereon, within 30 calendar days following their receipt by the PROJECT MANAGER. It is considered reasonable that the CONTRACTOR shall make a complete and acceptable submittal to the PROJECT MANAGER by the second submission of a submittal item. The CITY reserves the right to withhold moneys due the CONTRACTOR to cover additional costs of the PROJECT MANAGER's review beyond the third submittal. Submittal will be returned to the CONTRACTOR with one of three (3) markings:

G. If three (3) copies of a submittal are returned to the CONTRACTOR marked "NO EXCEPTIONS TAKEN/PROCEED," formal revision and resubmission of said submittal will not be required.

H. If three (3) copies of a submittal are returned to the CONTRACTOR marked "MAKE CORRECTIONS NOTED/PROCEED CONDITIONALLY," formal revision and resubmission of said submittal will not be required.

I. If one (1) copy of a submittal is returned to the CONTRACTOR marked "REJECTED-RESUBMIT/DO NOT PROCEED," revise said submittal and resubmit TEN (10) copies of said revised submittal to the PROJECT MANAGER.

J. Work for which Shop Drawings are required shall be performed in accordance with the reviewed and approved copies. Fabrication of an item shall not commence before the PROJECT MANAGER has reviewed the pertinent submittal and returned the copies to the CONTRACTOR marked either "NO EXCEPTIONS TAKEN/PROCEED," or "MAKE CORRECTIONS NOTED/PROCEED CONDITIONALLY." Revisions indicated on submittals shall be considered as changes necessary to meet the requirements of the Contract Documents and shall not be taken as the basis for claims for extra Work.

K. CONTRACTOR submittals shall be carefully reviewed by an authorized representative of the CONTRACTOR prior to submission to the PROJECT MANAGER. Each submittal shall be dated, signed, and certified by the CONTRACTOR as being correct and in strict conformance with the Contract Documents. No consideration for review by the PROJECT MANAGER of any CONTRACTOR submittal will be made for any items that have not been so certified by the CONTRACTOR. Non-certified submittals will be returned to the CONTRACTOR without action taken by the PROJECT MANAGER, and any delays caused thereby shall be the total responsibility of the CONTRACTOR.

L. The PROJECT MANAGER's review of CONTRACTOR submittal shall not relieve the CONTRACTOR of the entire responsibility for the correctness of details and dimensions and conformance to the specifications. Assume all responsibility and risk for any misfits due to any errors in the submittal. Any fabrication or other Work performed in advance of the receipt of accepted submittals shall be entirely at the CONTRACTOR's risk and expense. Be responsible for the dimensions and the design of adequate connections and details.

11. SUBSTITUTIONS AND "OR EQUAL" SUBMITTAL

A. Make "Or Equal" submittals within thirty (30) calendar days after issuance of Notice-to-Proceed. A request or submittal received after the specified period will be considered as NOT EQUAL to that so specified and will be processed as a substitution described hereinafter.

B. Clearly identify manufacturers' data submitted to the PROJECT MANAGER for review and acceptance each proposed substitute with the corresponding Contract Drawing detail and Specification section. If the PROJECT MANAGER decides to accept for use in the Project a material, process or article which is not the equal of that specified, make substitution in the manner described in Article 52 CHANGES AND EXTRA WORK of the General Conditions, with a credit to the CITY for the difference in value.

C. The PROJECT MANAGER will determine whether the material offered is equivalent to that specified. Any revision to structures, piping, mechanical, electrical, instrumentation, or any other Work made necessary by such substitution must be approved by the PROJECT MANAGER, and the entire cost both direct and indirect of these revisions shall be borne by the CONTRACTOR.

D. Materials, processes, or articles may be requested as a substitution by the CONTRACTOR, in lieu of that specified, under the following conditions:

1. Submit in writing and in the manner described in SUBMITTAL of these General Requirements.

2. Submit thirty (30) calendar days before starting the Work, as established by the PROJECT MANAGER, so as not to cause any delay in completion of the Project. No other request will be considered after expiration of the period specified, except that in exceptional cases where it is determined to be in the best interest of the CITY, as approved by the PROJECT MANAGER.

3. Agree to pay for all PROJECT ENGINEERING and design services, if required, to make changes and adjustments in material and Work of trades directly or indirectly affected by the substitute, to the satisfaction of the PROJECT MANAGER, at no cost to the CITY.

4. All requests for substitution shall be made through the CONTRACTOR. Submissions by the CONTRACTOR shall imply the CONTRACTOR's approval of such substitution.

5. No requests for substitutions will be considered during the bidding period.

6. Furnish adequate data with each request for approval of a substitute to enable the PROJECT MANAGER to evaluate the proposed substitution.

12. SURVEYING

A. DEFINITIONS

1. CONTRACTOR's Surveyor - Shall be a registered (licensed) Land Surveyor or Registered Civil Engineer authorized to practice land surveying by the State of California in compliance with Business and Professions Code Section 8700, *et. Seq*. cited as the Land Surveyor's Act.
2. Construction Stakes - Durable markers that will maintain elevations, station, and offset for the duration of use as reference markers for construction.
3. Surveying - Described in Section 8726 of the Land Surveyor's Act.
4. Survey Manual - City of Los Angeles, Bureau of PROJECT ENGINEERING Manual, Part J – Survey.

B. SURVEY SERVICES

1. The CONTRACTOR's Surveyor shall comply with State Law and the latest edition of the Standard Specifications for Public Works Construction, "Green Book", and its supplement.
   a. The contractor shall employ the Contractor's Surveyor.
   b. All work shall utilize CCS 83, Zone 5, and NAVD 88 control systems.
   c. CONTRACTOR's Surveyor to utilize horizontal & vertical control provided by PROJECT MANAGER and referenced on drawings.
   d. Work shall conform to the lines, elevations, and grades shown on the plans.
   e. CONTRACTOR's Surveyor shall notify the PROJECT MANAGER, in writing, of all material discrepancies between existing survey control and the current Work. Any material discrepancies shall be resolved prior to start of construction.
   f. During progress of construction, CONTRACTOR's Surveyor to provide surveying services as necessary, or as requested by PROJECT MANAGER or INSPECTOR, to assure construction complies with Contract Documents.
   g. CONTRACTOR's Surveyor shall fulfill duties of "PROJECT MANAGER" described in Standard Specifications for Public Works Section 2.9, Surveying, except that the City forces shall be notified 7 days prior to the CONTRACTOR disturbing any street centerline control monuments so they can be preserved by City forces.
2. Safety - CONTRACTOR's Surveyor shall conform to recommended safety standards for all Work, as set forth in the latest edition of Work Area Traffic Control Handbook (WATCH) adopted by the City of Los Angeles Board of Public Works. Compliance with the Confined Space Regulations in the California Code or Regulations, Title 8, Section 5157 of the Cal/OSHA Safety Orders is mandatory.

C. CONSTRUCTION SURVEYS:

1. Conform to Survey Manual Part J, Section J 600 of Bureau of PROJECT MANAGER.
2. CONTRACTOR's Surveyor - Provide all reference stakes and form checks necessary for construction and inspection of improvements. Document construction staking in survey field notes as described in Part C.4 in this Article. Staking may include, but is not limited to - removals, joins, rough grade, slope, utilities, storm drain, sewer, curb, walk, paving, wall, tunnels, building stakes and other staking necessary for construction and inspection.
3. Form Checks - CONTRACTOR's Surveyor to check forms where durable points may be disturbed, removed, or is impractical to be used to verify the design location. Record measured

location in survey field notes as described in Part C.4 in this Article. Notify PROJECT MANAGER of all variations from plan locations.

4. Staking Interval and Offset Lines - Staking intervals shall be in accordance with Survey Manual, Figure J 615.225A. CONTRACTOR's Surveyor to set stake lines at an offset distance from the improvement to ensure proper grade, station and alignment.

5. Utility Stakes - CONTRACTOR's Surveyor shall provide stakes for utilities, public or private, which require location or relocation unless PROJECT MANAGER states otherwise.

13. SITE INVESTIGATION

A. Before beginning the Work, inspect related and appurtenant Work and report in writing to the PROJECT MANAGER conditions which will prevent proper completion of the Work. Except as provided for in Article 53, DIFFERING SITE CONDITIONS, of the General Conditions, failure to report any such conditions shall constitute acceptance of all site conditions, and required removal, repair, or replacement caused by unsuitable conditions shall be performed by the CONTRACTOR at its sole cost and expense without any adjustment in the Contract Price or extension of the Contract Completion Date.

14. INSPECTION OF THE WORK

A. Whenever the CONTRACTOR intends to carry on the Work of this Contract on a Saturday, Sunday, or holiday, or more than two eight (8) hours a day shifts on Monday through Friday, or any variation in the time of the workday as set forth in the GENERAL CONDITIONS, length of the workday and work week, notification shall be given to the INSPECTOR and the PROJECT MANAGER of such intention at least forty-eight (48) hours in advance so that inspection may be arranged. No Work shall be allowed during these times without the approval of the INSPECTOR and no demolition will be permitted on Saturdays, Sundays, or holidays without the prior approval of the Board. All CITY inspection required by the CONTRACTOR on holidays, weekends and overtime for the sole convenience of the CONTRACTOR shall be accomplished at the sole expense of the CONTRACTOR by issuance of a deductive Change Order.

B. Conduct the Work under the general observation of the PROJECT MANAGER and be subject to inspection by the INSPECTOR to ensure compliance with the requirements of the Contract Documents. Such inspection may include mill, Plant, shop or field inspection, as required. The INSPECTOR shall be permitted access to all parts of the Work, including Plants where materials or equipment are manufactured or fabricated. Materials and articles furnished by the CONTRACTOR shall be subject to inspection, and no materials or articles shall be used in the Work until they have been inspected and accepted by the INSPECTOR.

C. Do not backfill, bury, cast concrete, hide or otherwise cover Work until it has been inspected by the INSPECTOR, and other Agencies from which a permit is required. Whenever the CONTRACTOR is ready to backfill, bury, cast in concrete, hide, or otherwise cover any Work under the Contract, notify the INSPECTOR not less than forty-eight (48) hours in advance to request inspection before beginning such Work of covering. Failure of the CONTRACTOR to notify the INSPECTOR at least forty-eight (48) hours in advance of such inspections will be cause for the INSPECTOR to require a sufficient delay in the progress of Work to allow time for such inspections and any remedial or corrective Work required, and costs of such delays, including its effect upon other portions of the Work, shall be borne by the CONTRACTOR. Work so covered in the absence of inspection shall be subject to uncovering at the sole expense of the CONTRACTOR. Where uninspected Work cannot be uncovered, such as in concrete cast over reinforcing steel, such Work shall be subject to demolition, removal, and reconstruction under proper inspection, and no additional payment will be allowed therefore.

D. The presence of the PROJECT MANAGER or the INSPECTOR, shall not relieve the CONTRACTOR of the responsibility for the proper execution of the Work in accordance with all requirements of the Contract Documents. Compliance is a duty of the CONTRACTOR, and said duty shall not be avoided

by any act or omission on the part of the PROJECT MANAGER or the INSPECTOR. If the CONTRACTOR fails to replace any defective or damaged Work or material after reasonable notice, the INSPECTOR may cause such Work or materials to be replaced. The replacement shall be deducted from the amount to be paid to the CONTRACTOR, otherwise the CONTRACTOR shall pay the CITY if there remains insufficient or no amount to be paid by the CITY to the CONTRACTOR.

E. The INSPECTOR will have the right, at all times and places, to reject any articles or materials to be furnished hereunder which, in any respect, fail to meet the requirements of these specifications, regardless of whether the defects in such articles or materials are detected at the point of manufacture or after completion of the Work at the site. If the INSPECTOR, through an oversight or otherwise, has not rejected materials or Work which is defective or which is contrary to the specifications, such material, no matter in what stage or condition of manufacture, delivery, or erection, may be rejected by the INSPECTOR upon discovery. Promptly remove rejected articles or materials from the site of the Work after notification of rejection. Costs of removal and replacement of rejected articles or materials as specified herein shall be borne by the CONTRACTOR.

F. At the completion of Work, after completion of all corrections, a final inspection will be made by the INSPECTOR, the PROJECT MANAGER, and the CONTRACTOR, as applicable. The INSPECTOR will provide a Final Inspection Correction List itemizing all Work necessary to complete the Project satisfactorily.

15. SAMPLING, TESTING AND FABRICATION INSPECTION

A. GENERAL

1. Materials and fabricated articles furnished by the CONTRACTOR may be subject to inspection and testing and no materials or fabricated articles shall be incorporated into the Work until they have been accepted by the INSPECTOR. The CONTRACTOR shall ensure that all items requiring shop inspection are inspected at their source as required by the CONTRACT.

2. Fabrication may be subject to inspection by the INSPECTOR, to ensure strict compliance with the requirements of the Contract Documents. Such inspection may include mill, plant, shop or field inspection, as required. The PROJECT MANAGER or INSPECTOR shall be permitted access to all parts of the Work, including Plants where materials or equipment are manufactured or fabricated. When a third party inspector is approved, meetings may be scheduled with the PROJECT MANAGER or INSPECTOR at the manufacturing facility to review the progress of the Work and the inspection activities.

3. Fabricate items using Shop Drawings that have been submitted to the PROJECT MANAGER and approved in accordance with SUBMITTALS of the GENERAL REQUIREMENTS. Provide shop inspection on materials and/or equipment so designated on the CONTRACTOR's approved Shop Drawings.

4. Material which is subject to or requires shop inspection and arrives at the job site without inspection by the INSPECTOR will be rejected by the INSPECTOR and shall be removed from the job site by the CONTRACTOR at the CONTRACTOR's sole expense.

B. SAMPLES AND TEST SPECIMENS

1. CONTRACTOR shall obtain, perform and pay for all testing. Testing shall be performed at a certified laboratory approved by the PROJECT MANAGER.

2. Samples and test specimens required under these specifications shall be furnished, prepared for testing, and delivered, to the approved testing laboratory at no cost to the CITY.

3. In addition to any other inspection or quality assurance provisions that may be specified, the PROJECT MANAGER or the INSPECTOR shall have the right to independently select, test, and analyze, at the expense of the CITY, additional test specimens of any or all of the materials to be used. Whenever any portion of the Work fails to meet the requirements of the

specifications as shown by the results of independent testing or investigation all costs of such independent inspection and investigation, and all costs of removal, correction, and reconstruction or repair of any such Work shall be borne solely by the CONTRACTOR.

4. When the manufacturer, fabricator, supplier, or subcontractor provides the results of tests from samples taken at the mill, factory, or warehouse, the PROJECT MANAGER or INSPECTOR will accept the test reports provided the following conditions are met:

    a. The Testing Agency was approved by the PROJECT MANAGER or INSPECTOR prior to performing the tests, and that all necessary certifications were valid at the time the tests were performed.

    b. The tests were performed in conformity with the specifications for the specified materials or items.

    c. The reports are made in the form of an affidavit specified hereinafter.

5. Whenever the approved independent testing laboratory or inspector takes samples of materials other than at the site, the deliveries to the site of materials represented by such samples shall be identified as specified for the specific material. The results of such tests shall be reported to the INSPECTOR in the form of affidavits attested to by the testing agency. Such affidavits shall furnish the following information with respect to the material sampled:

    a. Manufacturer's name and brand.

    b. Place of sampling.

    c. Sufficient information to identify the lot, group, bin, or silo from which the samples were taken.

    d. Amount of material in the lot sampled.

    e. Statement that the material has passed the requirements.

    f. Notarized signature and title of the person making the affidavit and the date of execution of the affidavit.

6. THIRD PARTY INSPECTION REQUIREMENTS

    a. The proposed third party inspection and/or testing company must gain approval by the PROJECT MANAGER after award. Obtain this approval before producing any material or manufacturing any product or equipment. The approved inspection and/or testing agency shall not sublet or assign its Work to any other agency.

    b. Comply with requirements as identified in the CONTRACT.

    c. The Work and activities of the third party inspection and/or testing agency shall be monitored by the INSPECTOR during meetings to ensure compliance with the Contract Documents.

7. THIRD PARTY TESTING AND INSPECTION LABORATORY APPROVAL PROCEDURES

    a. The PROJECT MANAGER will approve third party inspection and/or testing agencies/laboratories.

    b. Requests for approval of a third party inspection agency and/or test laboratory shall be in writing from the CONTRACTOR to the PROJECT MANAGER.

    c. The letter requesting approval of a third party test laboratory and/or private inspection agency shall contain all of the following information:

        i. Complete title of Project.

        ii. Project Work order number.

        iii. Name of proposed testing laboratory or inspection agency.

iv. Address and telephone number of proposed testing laboratory/inspection agency.

v. Contact person at proposed testing laboratory/inspection agency.

d. The PROJECT MANAGER will notify the CONTRACTOR by letter if the testing laboratory/inspection agency has been approved.

16. GUARANTY/WARRANTY

A. The CONTRACTOR shall and does hereby warrant and guaranty that Work executed under this Contract will be free from defects of materials and workmanship for a period of one (1) year from the date of final acceptance of the Project by the Recreation and Park Commission, except certain specific items of Work, materials and equipment requiring a guaranty or warranty for a greater period of time as hereinafter specified. In the event, that portions of the Work are sufficiently complete to allow use or occupancy by the CITY in the manner and for the purposes intended prior to final completion and acceptance of the Project, the guarantee period for those portions will commence on the date shown on the Statement of Partial Completion.

B. The CONTRACTOR hereby agrees to indemnify and save harmless the CITY, and their officers, agents and employees against and from all claims and liability arising from damage and injury due to said defects. The CONTRACTOR shall repair or replace, at no cost to the CITY, any and all such defective Work and all other Work damaged thereby, which becomes defective during the term of the above-mentioned guaranties and warranties.

C. Within thirty (30) calendar days prior to completion of all Work the CONTRACTOR shall submit to the PROJECT MANAGER original copies of all manufacturers guaranties covering all supplied and installed equipment and, where applicable, systems.

D. In addition to the requirements of Contract Bonds, of the General Conditions, it shall be understood that the Surety for the faithful performance bond, submitted in conformance with the terms of the Contract for this Project, is liable on its bond for all obligations of the CONTRACTOR including guaranty provisions.

E. The CONTRACTOR shall, within twenty-four (24) hours of notice from the PROJECT MANAGER of any Work not in accordance with the requirements of the Contract, or any defects in the Work, commence and prosecute with due diligence all work necessary to fulfill the terms of this Article and to complete the Work within a period of time as approved by the PROJECT MANAGER. In the event of failure by the CONTRACTOR and/or its surety to respond to the notice or to complete the Work required by this Article within the time specified, the CITY shall proceed to have such Work done at the CONTRACTOR's expense. The CONTRACTOR or its Surety shall promptly reimburse the CITY all direct and indirect cost associated with performing this Work.

17. STORAGE OF MATERIALS AND EQUIPMENT

A. Store and protect materials and equipment in accordance with the manufacturer's instructions, with seals and labels intact and legible. Exercise measures necessary to ensure preservation of the quality, quantity, and fitness of the materials or equipment and perform the manufacturers recommended maintenance of the material or equipment. Absorb any and all cost incurred to store, protect, and maintain the materials and equipment without modification to the Contract Amount.

B. Do not store construction materials in streets, roads, or highways for more than 5 days after unloading. Materials or equipment not installed or used in construction within 5 days after unloading shall be stored elsewhere by the Contractor at its expense unless authorized additional storage time.

C. Do not store construction equipment at the worksite before its actual use on the Work, nor after use for more than 5 days after it is no longer needed.

D. Excavated material, except that which is to be used as backfill in the adjacent trench within three days shall not be stored in public streets unless otherwise permitted. Remove excess material after placing

backfill from the site immediately.

PROGRESS OF THE WORK

18. CONSTRUCTION SCHEDULE AND COMMENCEMENT OF WORK

A. After notification of award and prior to start of any work, the Contractor shall submit its Schedule of Values to the Project Manager for review and approval. Upon approval of the Schedule of Values, and prior to start of any contract work, other than mobilization, the Contractor shall submit its Baseline Schedule to the Project Manager for acceptance. The Baseline Schedule shall be based on the approved Schedule of Values. The approved Schedule of Values work items shall be the basis for the construction elements for the accepted Baseline Schedule and the Monthly Billing items. As a minimum the Baseline Schedule shall indicate the work plan of all specifications sections. The Baseline Schedule shall include, but is not limited to: all items noted on I.2.a. through I.2.f. and I.2.h. through I.2.o. The Baseline Schedule shall recognize the protection, removal, or relocation of utilities and how they affect construction. The Baseline Schedule shall also reflect completion of all work under the Contract within the specified time and in accordance with the Specifications.

Unless otherwise provided, the Contract time shall commence as indicated in the Notice-to-Proceed letter. The Work shall start within 10 days thereafter, and be diligently prosecuted to completion within the time provided in the Specifications or as modified through change order.

Upon acceptance of the Baseline Schedule by the Project Manager, the Contractor shall maintain a copy of the accepted schedule in the jobsite office, recording thereon progress of the work at the end of each

calendar week.

B. Methodology: The Baseline Schedule and all Updated Progress/Recovery Construction Schedules (UPRS) shall be in the form of a Critical Path Method schedule showing chronological relationship of all activities of the project. The principles and definitions of the terms used herein shall be as set forth in the Associated General Contractor's publication "As-Planned CPM Schedule - Handbook", latest edition. To the extent there are any conflicts between the Associated General Contractor's publication and the Specifications, the Specifications shall govern. The Contractor shall utilize Primavera Sure-Trak 3.0 or Microsoft Project 2000 as the computer program for formatting the Baseline Schedule, and subsequent updated schedules.

C. The Contractor shall have the right to complete the job in advance of the scheduled completion date and within the allowable days allotted for the project. In the event that the Contractor elects to finish the project in advance, a Change Order shall be issued to reflect reduced duration and revised completion date. The Contractor shall not be entitled to any additional compensation for early project completion.

D. A schedule showing the Work completed in less than the Contract Time, which has been accepted by Owner and amended by Change Order, shall be considered to have Project Float. The Project Float is the time between the scheduled completion of the Work and Contract Substantial Completion. Project Float is a resource available to both City and Contractor. No compensation shall be due to the Contractor for use of this float time by either party.

E. Float Ownership: Neither City nor Contractor owns float. The Project owns the float. As such, liability for delay of any Substantial Completion date rests with the party whose actions, last in time, actually cause delay to a Substantial Completion date.

F. The Contractor shall forward to the General Manager, along with the monthly Request for Payment, the Updated Schedule, referred to in Section B of this Article, indicating the progress of any part of the work not up to Baseline Schedule, stating the existing status, cause of delay, impact of change orders and approximate time of completion.

G. If the Contractor should fall behind the progress schedule by more than one month, the Contractor must provide the General Manager with an Updated Progress/Recovery Schedule (UPRS). Failure to comply with the full requirements of this Article shall be cause for withholding all future progress payments until full compliance. Failure to provide more than 2 consecutive Updated Schedules or

UPRS shall constitute grounds for cancellation of the project.

H. The Department reserves the right to request a two-week "look ahead" schedules if the Department determines that the submitted UPRS does not reflect the as-built condition, manpower utilization or sequential progress necessary to fulfill the intent of the UPRS.

I. Network Details:

1. The Schedule shall include time-scaled network diagram, based on working days, as well as tabulations. It shall be constructed to show the order in which the Contractor proposed to carry out the Work, to indicate restrictions of access and to show availability of work areas, and availability and use of manpower, materials and equipment. The Contractor shall utilize the Schedule in planning, scheduling, coordinating, and performing the Work under the Contract (including activities of Subcontractors, equipment venders, and Suppliers). Provide the Project Manager with written confirmation of the concurrence of listed trade Subcontractors and Suppliers with the Schedule. Major trade Subcontractors and Suppliers shall approve the Schedule before they are submitted.

2. The Schedule shall provide the Project Manager and Inspector with a tool to monitor and follow the progress of all phases of the Work. The Schedule submitted to the Project Manager shall comply with all limits imposed by the scope of Work, and with all constraints, restraints or sequences included in the Contact. The degree of detail shall include factors to the satisfaction of the Project Manager, including, but not limited to:

a. Physical breakdown of the Project including estimated starting and completion dates of activities.

b. Float Time.

c. Contract milestones and completion dates, building occupancy date, constraints, restraints, sequences of Work shown in the Contract, the maintenance period and the final completion date. Durations shall be in calendar day.

d. Type of Work to be performed, and the sequences.

e. Purchases, submittals, submittal reviews, manufacturing, tests, delivery, and installation activities for all major materials and equipment.

f. Deliveries of City furnished equipment and/or materials in accordance with the dates or schedule windows of such items set forth in the Contractor furnished by the Project Manager, or items to be salvaged and delivered to the City.

g. Preparation, submittal and approval of Shop Drawings and material samples showing a thirty (30) day minimum time specified for the Project Manager's review of normal or routine submittals. A forty (40) day review time for all major submittals and the same time frame shall be allowed for at least one (1) re-submittal on all major submittals.

h. Impact of Change Orders issued to the Contract.

i. Approvals required by regulatory agencies or other third parties.

j. Plans for all subcontract Work.

k. Access to and availability of Work areas including all anticipated shutdowns.

l. Identification of linkage between preceding, concurrent and follow-on Sub- contractors and utilities that are shown on the Plans or called out in the Specifications.

m. Actual tests, submission of test reports, and approval of test results.

n. Training and classes required under the Contract.

o. Pre-Final and Final Inspection punch lists and final cleanup, allow time for preparation of the punch lists.

p. Clearly identify any manpower, material, or equipment restrictions, as well as any activity requiring unusual shift Work, specified overtime, or Work at times other than regular days or hours.

3. Durations of the labor, equipment, and materials required to perform each activity shall be based on a normal work day unless otherwise approved by the Project Manager.

4. Critical or near critical paths resulting from the use of manpower or equipment restraints shall be kept to a minimum. Near critical paths shall be defined as those paths having fifteen (15) working days or less of total float as shown on the accepted Baseline Schedule.

5. Time scale shall show a continuous flow of information from left to right. The critical path shall be clearly and graphically identified on the schedule.

J. SCHEDULE REPORTS

1. The Schedule submitted to the Project Manager shall include the time scaled network diagram. Network diagrams shall be based on early start and early finish dates of activities shown and any related calculations generated by the scheduling program which describes the events and activities depicted.

K. APPROVAL OF BASELINE SCHEDULE

1. Acceptance Process:

2. The Project Manager will accept or reject, in writing, the Contractor's submission within fourteen
(14) days after receipt of required information. The Construction Schedule, once accepted, becomes the Baseline Schedule which shall be used for monitoring and evaluating all facets of Contract performance, including, but not limited to: payment progress, changes, and delays.

3. Revise the Schedule, periodically per B, F, G, and H of this Article.

L. REVISIONS TO ACCEPTED BASELINE SCHEDULE

1. No change to the accepted Baseline Schedule shall be made without the prior written approval of the Project Manager.

M. UPDATES TO ACCEPTED BASELINE SCHEDULE AND PROGRESS PAYMENTS

1. Updated Schedules or UPRS:

a. See Section F of this Article.

b. The Update Report shall show the activities or portions of activities completed during the reporting period and their total value as the basis for the Contractor's monthly request for payment. Payments made pursuant to Partial Payments of these General Requirements will be based on the total value of such activities completed or partially completed after verification by the Inspector. The report shall state the percentage of the Work actually complete as of the report date.

N. RESPONSIBILITY FOR COMPLETION

1. Whenever it becomes apparent from the Updated Schedule or UPRS that phasing, milestone, constraint, restraint, or Contract completion dates will not be met, the Contractor shall execute some or all of the following remedial actions:

a. Increase construction manpower in such quantities and crafts as necessary to eliminate the backlog of Work.

b. Increase the number of working hours per shift, shifts per working day, working days per week, the amount of construction equipment, or any combination of the foregoing to eliminate the backlog or Work. Contractor shall be responsible for all additional costs associated in having the Inspector present at the job site for all periods in excess of the basic work day.

c. Reschedule the Work in conformance with the Specification requirements.

2. Before implementing any of the above actions, the Contractor shall notify and obtain written approval from the Project Manager.

3. Under no circumstances will the addition of equipment or construction forces, increasing the working hours or any other method, manner, or procedure to return to the contractually required completion date be considered justification for a Change Order or be treated as acceleration where the need for a UPRS has been caused by the Contractor and/or its Subcontractors or Suppliers, at any tier.

4. The Project Manager may elect to withhold progress payments until the Contractor's progress indicates that the milestone date(s) and/or the Contract completion date will be met.

19. WORK BY CITY OR OTHERS

A. Be responsible for ascertaining the nature and extent of any simultaneous, collateral and essential work by others. The CITY, its employees and contractors, and others, shall have the right to operate within or adjacent to the worksite to perform such Work.

B. The CITY, the CONTRACTOR, and each of such employees, contractors and others, shall coordinate their operations and cooperate to hold interference to a minimum.

C. Include in its Bid all costs involved as a result of coordinating its Work with others. The CONTRACTOR shall not be entitled to additional compensation from the CITY for damages resulting from such simultaneous, collateral and essential Work. The CONTRACTOR's coordinating efforts shall include redeployment of his Work forces to other parts of the Work.

PAYMENT FOR WORK

20. PARTIAL PAYMENTS (Revised as of 02/01/12)

A. Unless otherwise prescribed by law, three (3) working days prior to the last work day of each month, or other such date mutually agreed upon by the CONTRACTOR and the INSPECTOR, the CONTRACTOR shall prepare and submit to the INSPECTOR, an estimate of the cumulative amount and value of acceptable Work performed by the CONTRACTOR at the jobsite up to that date. Said amount shall also include the value of all acceptable materials and equipment for the Contract that have been delivered and suitably stored but not yet used in the Work, subject to the requirements of PAYMENTS FOR MATERIALS OR EQUIPMENT DELIVERED AND STORED ON THE JOBSITE and PAYMENT FOR MATERIALS OR EQUIPMENT STORED OFF THE JOBSITE of these General Requirements.

B. Payments for undelivered, specifically manufactured equipment to be incorporated into the Work, excluding "off the shelf " or catalog items, will be made when all of the following conditions exist:

1. The equipment must be specifically designated in the Technical Specifications for partial payment prior to delivery.

2. The equipment to be specifically manufactured for the Project could neither be readily utilized on nor diverted to another job, and,

3. A fabrication period of more than six (6) months is anticipated,

C. Upon verification and approval by the INSPECTOR, such estimate shall be processed by the INSPECTOR in accordance with the provisions of the California Public Contracts Code.

D. The CITY may retain a portion of the amount otherwise due to the CONTRACTOR, as follows:

1. Retention of **five percent (5%)** will be held on the original Contract value on each approved payment claim until the amount paid of the original Contract equals fifty percent (50%). The CITY may then, at its sole discretion discontinue further retention on the original Contract value for all subsequently approved payment claims.

2. At any time during the course of the Contract, the CITY may, at its sole discretion, reinstate the

five percent (5%) retention.

3. Additional deductions will be made from each monthly payment request for amounts due the CITY as follows:

    a. Equipment or materials furnished by the CITY.

    b. Services rendered to the CONTRACTOR by the CITY.

    c. Amounts due the CITY for liquidated damages or penalties under the terms of the Contract.

    d. Amounts required to be deducted by federal, state, or local governmental authority or other provisions of these Contract Documents.

E. From the balance thus determined will be deducted the amount of all previous payments, and the remainder shall constitute the monthly payment due the CONTRACTOR. Within thirty (30) calendar days after receipt of the INSPECTOR's recommendation by the Department of the monthly payment due the CONTRACTOR and subject to the deductions provided, herein, the CITY will pay the amount found due.

F. On lump-sum items the INSPECTOR's estimate of the monthly payment due the CONTRACTOR will not be required to be made by strict measurement, and an approximate estimate will suffice.

G. The monthly payments may be withheld or reduced, for the following reasons:

1. If the CONTRACTOR is not diligently or efficiently complying with the express intent of the Contract.

2. If there are unresolved Notices of Non-Compliance.

3. If Technical Manuals are not submitted.

4. If Record Drawings are not kept up-to-date.

5. If progress photographs are not submitted, and

6. If construction schedules are not submitted in accordance with these General Requirements.

7. The CONTRACTOR shall promptly submit the following in response to requests by the INSPECTOR:

8. Information and records necessary to determine the cost of the Work for purposes of estimating monthly payment.

9. Itemized statements, in a form satisfactory to the INSPECTOR, of the actual cost of all acceptable materials delivered by the CONTRACTOR to the site.

H. The making of any payment to the CONTRACTOR shall not relieve the CONTRACTOR from contractual obligations. These payments shall not be construed as the transfer of ownership of any equipment or materials to the CITY.

I. Responsibility of ownership shall remain with the CONTRACTOR who shall be obligated to store, protect, repair, replace, rebuild or otherwise restore any fully or partially completed Work or structure for which payment has been made. The CONTRACTOR shall replace any materials or equipment required to be provided under the Contract that may be damaged, lost, stolen, or otherwise degraded in any way prior to acceptance of the Work under the Contract.

J. At its own expense, the CONTRACTOR has the option, to substitute for any money being withheld by the CITY, securities equivalent to the amount being withheld. Securities eligible for such substitution are bank or savings and loans certificates of deposit or such securities eligible for investment pursuant to California Government Code. Any such security or securities so substituted for monies withheld, shall be owned by the CONTRACTOR who shall receive earned interest.

K. Such security shall, at the request and expense of the CONTRACTOR, be deposited with CITY or with a State or Federally Chartered Bank as the escrow agent who shall pay such monies to the

CONTRACTOR upon notification by the CITY that payment can be made. Such notification will be given at the expiration of sixty (60) calendar days from the date of acceptance of the Work by the Board, or as prescribed by law, provided, however, that there will be a continued retention of necessary securities to cover such amounts as are required by law to be withheld by properly executed and filed notices to stop payment, or as may be authorized by the Contract to be further retained.

L. Any escrow agreement entered into pursuant to this provision shall contain as a minimum, the following provisions - the amount of securities to be deposited; the terms and conditions of conversion to cash in case of the default of the CONTRACTOR; and the termination of the escrow upon completion of the Contract and the other requirements as herein above provided.

21. PAYMENT FOR MOBILIZATION

A. General Mobilization

1. Payment for general mobilization shall be limited to those items of Work described in MOBILIZATION, of these General Requirements.

2. The CONTRACTOR shall submit to the PROJECT MANAGER for approval a breakdown of the amount established for mobilization. The payment for each item of mobilization will be made when that item of mobilization has been completed and as specified below:

3. When the monthly partial payment estimate of the amount earned, not including the amount earned for mobilization, is five percent (5%) or more of the original Contract amount, the total amount earned for mobilization may be up to fifty percent (50%) of the Contract item price for mobilization or five percent (5%) of the original Contract amount, whichever is less will be included in the said estimate for payment.

4. When the monthly partial payment estimate of the amount earned, not including the amount earned for mobilization, is ten percent (10%) or more of the original Contract amount, the total amount earned for mobilization may be up to seventy-five (75%) of the Contract item price for mobilization or seven point five percent (7.5%) of the original Contract amount, whichever is less will be included in the said estimate for payment.

5. When the monthly partial payment estimate of the amount earned, not including the amount earned for mobilization, is twenty percent (20%) or more of the original Contract amount, the total amount earned for mobilization may be up to ninety-five percent (95%) of the Contract item price for mobilization or nine point five percent (9.5%) of the original Contract amount, whichever is less will be included in the said estimate for payment.

6. When the monthly partial payment estimate of the amount earned, not including the amount earned for mobilization, is fifty percent (50%) or more of the original Contract amount, the total amount earned for mobilization may be up to one hundred percent (100%) of the Contract item price for mobilization or ten percent (10%) of the original Contract amount, whichever is less will be included in the said estimate for payment.

7. After acceptance of the Contract by the BOARD, the amount, if any, of the Contract item price for mobilization in excess of ten percent (10%) of the original Contract amount will be included for payment in the final monthly payment.

8. The Contract lump sum price paid for mobilization shall include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the Work involved in mobilization as specified herein.

9. The adjustment provisions in PAYMENT FOR CHANGES AND EXTRA WORK of these General Requirements, and the retention of funds provisions of PARTIAL PAYMENTS of these General Requirements shall not apply to the Contract lump sum item for Mobilization.

10. When other Contract items are adjusted as provided in PAYMENT FOR CHANGES AND EXTRA WORK of these General Requirements, if the costs applicable to such item of Work include mobilization costs, such mobilization costs will be deemed to have been recovered by

the CONTRACTOR by the payments made for mobilization and will be excluded from consideration in determining compensation under said Article.

11. When the Contract does not include a Contract pay item for mobilization as specified above, full compensation for any necessary mobilization required shall be considered as included in the prices paid for the various Contract items of Work involved and no additional compensation will be allowed.

22. PAY ITEM DEFINITIONS

This Article describes methods of measurement and payment for lump sum and unit priced items listed on the Schedule of Work and Prices, contained in the Contract Proposal.

A. The Contractor shall not take advantage of any apparent error or omission on the Drawings or Specifications, and the PROJECT MANAGER shall be permitted to make corrections and interpretations as may be deemed necessary for fulfillment of the intent of the Contract Documents.

B. All portions of the Work are either in an applicable allowance, lump sum, or unit price item listed on the schedule of Work and Prices. Work for which there is not a separate item will be considered incidental to the contract and no additional compensation shall be allowed.

C. ALLOWANCES

1. Fixed allowances may have been allocated to the Schedule of Work and Prices for certain items of work. Requirements for each Allowance Item are specified below or a reference is given to the General Requirements article that describes the work. Allowance item work is to be performed only as directed by the PROJECT MANAGER. Unless otherwise noted, Allowances will be paid on a time and materials basis in accordance with Section C, PARTIAL PAYMENTS of these General Requirements.

2. If allowance items are not executed or are only partially executed or the allowance for any item is not expended or partially expended, then a deductive change order shall be issued for the amount that is not expended. If, however, these items are over expended then an appropriate change order shall be executed in accordance with, PAYMENT FOR CHANGES AND EXTRA WORK, of these General Requirements.

D. LUMP SUM ITEMS:

1. Payment of the lump sum items established in the contractor's Bid under the various line items in the Bid Form shall be full compensation for all labor, materials, and equipment required to furnish, install, construct, and test the Work covered under the lump sum bid item.

2. Payment for the lump sum items established in the Contractor's Bid shall also fully compensate the Contractor for any other work which is not specified or shown, but which is necessary to complete the Work.

3. Payments for Lump Sum Work other than Mobilization will be based upon physical progress for each activity in accordance with the breakdown of the Lump Sum prices agreed to in the Schedule of Values.

E. UNIT PRICE ITEMS:

1. Payment for all work shall be in accordance with the unit price bid items in the schedule of Work and Prices and shall be full compensation for all labor, materials, and equipment required to furnish, install, construct and test the Work covered under the unit price bid item. Work for which there is not a price schedule item will be considered incidental to the Work and no additional compensation shall be allowed.

2. Payment will be made only for the actual quantities of work performed in compliance with the Drawings and Specifications. The Contractor will receive reimbursement equal to the approved quantity times applicable unit price.

23. SCHEDULE OF VALUES

A. The Schedule of Values will be used as a basis for determining progress payments on a lump sum Contract or any designated lump sum bid item. The Schedule of Values shall be a schedule of cost loaded construction activities equal, in total, to the lump sum bid and shall be in such form and sufficient detail to correctly represent a reasonable apportionment of the lump sum. Prior to submitting an invoice for payment, the CONTRACTOR shall have submitted a detailed Schedule of Values and obtained approval from the PROJECT MANAGER.

B. Each lump sum bid item on the Schedule of Work and Prices as set forth in the Bid must be broken down separately. The breakdown of each lump sum bid item must cover the cost of construction required by the plans and specifications for that item. The sum of the values for the construction activities, within a bid item must equal the total amount bid for that item.

C. Each activity in the Schedule of Values shall delineate one construction activity. For example, the placement of concrete between construction joints, the construction of an electrical duct bank or pipeline between points A & B. The costing for each activity should include all costs for the labor and materials or equipment required to complete the activity. For example, concrete construction activities should include all costs for the forming, placing of reinforcement, placing concrete and curing. The cost for pipeline construction activities should include materials, equipment and installation including pipeline supports or thrust blocks. The excavation and backfill for a pipeline or structure may be separate activities. No non- construction activity shall be cost loaded.

24. NOTICE TO WITHHOLD AND/OR STOP NOTICE

A. When a "Notice to Withhold" or "Stop Notice" is served upon the CITY, or the BOARD, pursuant to the lien statutes of the State of California, to withhold sufficient funds from payments to the CONTRACTOR in support of a claim resulting from default by the CONTRACTOR in payment for labor or materials used in prosecution of the Contract, the CITY shall withhold from payment due the CONTRACTOR an amount of money equal to the amount of the claim stated in the "Notice to Withhold" or "Stop Notice," and an additional amount equal to twenty-five percent (25%) of the amount of said claim, to defray the costs of litigation in the event of court action on the claim, for a total withholding of one and one quarter times the stated amount of the claim. At the discretion of the CITY, the CITY may allow the CONTRACTOR to file with the CITY the bond referred to in the Civil Code of the State of California after which said monies will not be withheld on account of such "Notice to Withhold" or "Stop Notice."

B. In the event the Contract is terminated for CONTRACTOR default, any funds due the CONTRACTOR and retained by the CITY in accordance with PARTIAL PAYMENTS of these General Requirements, shall become the property of the CITY to the extent necessary to repay to the CITY any excess in the Contract price above the cost of the Work completed at the time of termination. After issuance of notice to discontinue Work, no further payments will be made to the CONTRACTOR for the Work covered by the notice until completion of Work and final settlement has been made.

25. FINAL PAYMENT

A. Final payment to the CONTRACTOR is made following action by the BOARD that formally adopts the recommendation of the PROJECT MANAGER to accept the Contract.

B. After acceptance of the Work by the BOARD and not more than sixty (60) calendar days after filing Notice of Completion, the CITY will make final payment to the CONTRACTOR of the amount remaining after deducting all prior payments and all amounts to be kept or retained under the provisions of the Contract, including the following items:

1. Liquidated damages, as applicable;

2. Lien claims or Stop Notices filed on behalf of suppliers, Subcontractors, and labor performed in connection with the Project; except, that upon submittal of a Stop Notice Release Bond issued by an approved Surety Company executed in favor of the CONTRACTOR, the CITY will release such portion of the retainage funds to said CONTRACTOR that is being held solely to cover Stop Notice Claims.

3. No claim of the CONTRACTOR under this Article shall be allowed unless the CONTRACTOR

has given the required written notice. Nor shall a claim by the CONTRACTOR for an equitable adjustment hereunder be allowed if asserted after final payment under this Contract.

26. CHANGE ORDER REQUESTS

A. The CONTRACTOR's quotations for preliminary change orders for extras, changes, additions, or deletions to the Work as described in Article 52 CHANGES AND EXTRA WORK of the General Conditions shall be submitted to the PROJECT MANAGER, in writing, on the Change Order Cost Quotation Form provided by the PROJECT MANAGER, and in conformance with the requirements of PAYMENT FOR CHANGES AND EXTRA WORK of these General Requirements. Examples of these forms are bound at the end of these General Requirements. The quotation shall be firm for a period of not less than sixty (60) calendar days from the date of receipt of the quotation by the PROJECT MANAGER. Submit its written cost quotation and Time Impact Analysis not later than two (2) weeks after being requested to provide such quotation, unless the PROJECT MANAGER allows more time. Delays in submitting quotations beyond the two (2) weeks set forth herein, which cause a delay in the issuance of a Change Order or a delay to the completion date of the Project, shall not be cause for a claim or a time extension under the Contract.

B. The PROJECT MANAGER's request for quotation on a preliminary change shall not be considered authorization to proceed with the changed Work prior to the issuance of a formal Change Order, unless directed otherwise in writing by the PROJECT MANAGER, nor shall such request constitute justification for a delay to the existing Work or a time extension under the Contract.

27. PAYMENT FOR CHANGES AND EXTRA WORK

Payment to the CONTRACTOR, or credit to the CITY, for any extra, change addition or deletion to the Work under the Contract, or settlement of any claim under the Contract, covered by any Change Order, shall be determined by the methods set forth herein. The PROJECT MANAGER may change the plans and specifications, character of the Work, or quantity of Work provided the total arithmetic dollar value of all such changes, both additive and deductive, does not exceed twenty-five percent (25%) of the Contract price. Should it become necessary to exceed this limitation, the change shall be by written Supplemental Agreement between the CONTRACTOR and the CITY, which shall be executed by a Change Order.

A. LUMP SUM

A total sum for the changed Work may be mutually determined by the PROJECT MANAGER and the CONTRACTOR. The CONTRACTOR shall furnish a breakdown of the costs satisfactory to the PROJECT MANAGER, of the proposed lump sum, in complete accordance with C through J of this Article. Such lump sum costs shall be full and final compensation as described in D of this Article. All cost proposals for lump sum Change Orders shall be presented in accordance with C through J of this Article.

B. COST REIMBURSEMENT (TIME AND MATERIALS) WORK

The costs of all changed Work submitted under the cost reimbursement (time and materials) method shall be formulated in accordance with the provisions of C through J of this Article.

Additionally, if the method or amount of payment cannot be agreed upon prior to the beginning of the Work, the PROJECT MANAGER may issue a unilateral Change Order in the amount determined reasonable by the PROJECT MANAGER for the changed Work and direct the CONTRACTOR to proceed with the changed Work or the PROJECT MANAGER may direct in writing that the Work be done on a cost reimbursement (time and materials) basis, and the CONTRACTOR shall provide all labor, equipment, and materials necessary to complete the Work in a satisfactory manner and within a reasonable period of time. For Work performed, payment shall be made for the documented actual cost, in accordance with the following provisions.

1. Labor, up to and including general foremen, who are directly assigned to the changed Work. Employees identified as superintendents shall not be charged as labor on changed Work, but shall be covered under overhead costs. These costs shall include actual documented payroll costs including wages, payroll taxes as established by law (i.e., FICA, Federal and State Unemployment Taxes), fringe benefits as established by negotiated labor agreements, and

any insurance costs (such as Worker's Compensation and General Liability Insurance but shall not include Automobile Liability Insurance, OCIP coverage, or any other insurance costs which are provided for in B.6 below which are currently assessed against labor costs. A detailed breakdown of the subcomponents of labor costs, by all crafts shall be submitted to the PROJECT MANAGER, by the CONTRACTOR and all SUBCONTRACTORS, for approval, as part of the documentation of labor costs, within forty-five (45) days after issuance of the Notice to Proceed. No other subcomponents of labor costs shall be considered, unless approved in writing by the PROJECT MANAGER.

2. Materials - The cost of materials used in performing the changed Work will be the cost, including sales tax, to the purchaser, whether CONTRACTOR, Subcontractor or other forces, from the supplier thereof, except as the following are applicable:

   a. Cash or trade discounts available to the purchaser shall be credited to the CITY notwithstanding the fact that such discounts may not have been taken by the CONTRACTOR.

   b. For materials secured by other than a direct purchase and direct billing to the purchaser, the cost will be deemed to be the price paid to the actual supplier as determined by the PROJECT MANAGER. Markup, except for actual costs incurred in the handling of such materials, will not be allowed.

   c. Payment for materials from sources owned wholly or in part by the purchaser shall not exceed the price paid by the purchaser for similar materials from said sources on Contract items or the current wholesale price for such materials delivered to the job site, whichever price is lower.

   d. If, in the opinion of the PROJECT MANAGER, the cost of materials is excessive, or the CONTRACTOR does not furnish satisfactory evidence of the cost of such materials, then the cost shall be deemed to be the lowest current wholesale price for the quantity concerned, delivered to the job site less cash or trade discount. The CITY reserves the right to furnish materials for the Work and no claim shall be made by the CONTRACTOR for costs and profit on such materials.

   e. For the purposes of this Article, a "Supplier" is defined as any person or persons, firm or business, who supplies materials, of construction and/or permanent equipment, but who does not perform any portion of the Work of the Contract on site, for the CONTRACTOR, except that labor or labor supervision which may be required by some manufacturers as part of their equipment installation for warranty or other purposes.

3. EQUIPMENT COSTS, including ownership, lease or rental costs, as well as operating costs, for individual equipment units whose replacement value is in excess of $1,000. Transportation and set up costs shall be included, but only if the equipment is imported to the worksite solely to perform Work on the changed Work included in the Change Order and the CONTRACTOR can demonstrate that the changed Work cannot or could not be performed economically with equipment already at the site. Equipment costs shall be determined in accordance with the requirements set forth in H of this Article.

4. SUBCONTRACTOR COSTS, provided that such costs are direct costs to the CONTRACTOR for performing the changed Work as set forth in E of this Article.

5. BOND COSTS on the incremental change in the value of the Contract shall be determined and paid for as set forth in I.1 of this Article.

6. INSURANCE COSTS (other than labor insurance or OCIP coverage) shall be determined and paid for as set forth in I.2 of this Article.

C. GENERAL

1. It is the intent of the CITY to settle all Change Orders full and final at the time the Change Order is issued. Therefore, the following paragraph will be incorporated, in writing, on all Change Orders.

"The compensation (time and cost) set forth in a Change Order comprises the total compensation due the CONTRACTOR, all Subcontractors, and all Suppliers, for the Work or change defined in the Change Order, including impact on unchanged Work. By signing the Change Order, the CONTRACTOR acknowledges and agrees on its behalf and on the behalf of all Subcontractors, and all Suppliers, that the stipulated compensation includes payment for all Work contained in the Change Order, plus all payment for the interruption of schedules, extended field overhead costs, delay, and all impact, ripple effect or cumulative impact on all other Work under this Contract. The signing of the Change Order indicates that the Change Order constitutes full mutual accord and satisfaction for the change, and that the time and/or cost under the Change Order constitutes the total adjustment to price or time or performance owed the CONTRACTOR, all Subcontractors, and all Suppliers as a result of the change. The CONTRACTOR, on behalf of himself, all Subcontractors, and all Suppliers, agrees to waive all rights, without exception or reservation of any kind whatsoever, to file any further claim related to this Change Order. No further claim or request for adjustment of any type, excepting only bond and insurance cost as set forth in these General Requirements of the Contract Documents for any reasonably foreseeable cause shall arise out of or as a result of this Change Order or the impact of this Change Order on the remainder of the Work under this Contract."

2. Costs which shall not be paid in Change Orders under this Contract include, but are not limited to, interest costs of any type; claim preparation or filing costs; legal expenses; the costs of preparing or reviewing proposed Change Orders or Change Order proposals; lost revenue; lost profits; lost income or earnings; rescheduling costs; costs of idled equipment when such equipment is not at the site or has not yet been employed on the Work; lost earnings or interest on unpaid retainage; claims consulting costs; and the costs of corporate officer or staff visiting the site; any compensation due to the fluctuation of foreign currency conversion or exchange rates; loss of other business; changes in taxes or increased tax rates of any kind or any costs identified as unallowable under the provisions of the Federal Acquisition Regulations.

3. Extensions of time shall be based solely upon the effect of delays to the Work as a whole. Extensions of time shall not be granted for delays to the Work, unless the CONTRACTOR can clearly demonstrate, through analysis of the current updated schedule, that the delay to the Work as a whole arose or will arise from causes other than normal weather, beyond the control and without fault or negligence of the CONTRACTOR, or any Subcontractor, at any tier, and that such delays did or will, in fact, delay the progress of the Work as a whole. The CONTRACTOR shall not be entitled to a time extension unless it submits a Time Impact Analysis which is a calculation of the extent of the delay to the end date of the Work and which shows that the Work has been or will be extended beyond the current Contract completion date. A Time Impact Analysis is an estimating procedure which utilizes the networking techniques (fragnets) and a written analysis of the facts associated with the alleged delay to demonstrate the effect of the alleged delay on the critical path of the schedule. A "fragnet" is defined as a sequence of new activities and/or activity revisions that are proposed to be added to the existing current updated schedule to demonstrate (mathematically and graphically) the influence of the alleged delay on the end date of the Work and shall be the sole method for incorporating delays and impacts into the schedule. The objective of a Time Impact Analysis is to pinpoint, isolate, and quantify all time impact associated with a specific issue and determine its time relationship to past or current delays. Time extensions shall not be allowed for delays to parts of the Work that are not on the critical path of the currently approved monthly updated Project Schedule. Time extensions shall not be granted, nor delay damages of any kind whatsoever paid to the CONTRACTOR, until all available float, slack, or contingency time on the Project is used and the end date of the Work is moved beyond the current, adjusted Contract completion date.

4. The CONTRACTOR'S Cost Breakdowns submitted under the lump sum method described in paragraph A and its Change Order Quotations submitted under the cost reimbursement (time and materials) method described in paragraph B (including without limitation requests for cost reimbursement for delay, disruption, hindrance and interference associated with extras,

changes, additions or deletions) shall be itemized in a manner that, with mathematical certainty and without reliance upon probabilities or inferences, segregates the direct, actual reimbursable costs associated with each individual extra, change, addition, deletion and (on an event-by-event basis) each individual delay or disruption event. Such Change Order Cost Quotations shall not be based, in whole or in part, upon any methodology (such as "total cost" or "modified total cost" methodologies) that purports to calculate the CONTRACTOR'S additional costs of performance of the extra, change, addition or deletion (including without limitation the additional costs of delay, disruption or other impact) based on the difference between CONTRACTOR'S total actual Project or line item costs (with or without fee) and its original bid estimate for the Project or any original bid estimate line item. In connection with the foregoing, CONTRACTOR represents and warrants that it has the ability to generate and maintain complete and accurate cost accounting records that will reflect:

a. The actual costs incurred or saved for each individual item of extra work, change, addition, deletion (including without limitation any costs of associated delay, disruption, interference, hindrance and the cumulative impact of each extra, change, addition, deletion on other parts of the Work); and,

b. On an event-by-event basis, the effect of each delay or disruption that forms the basis of each request for extension of time, regardless of their scope, number, complexity, cumulative effect, or time of issuance or occurrence.

5. Except as provided in Article 51, COMPENSATION FOR DELAY, DISRUPTION, UNANTICIPATED OVERHEAD of the General Conditions, CONTRACTOR shall have no right to recovery of any compensation, costs, expenses or damages resulting from delay, disruption, interference, or hindrance in the performance of the Work (including without limitation interruption of schedules, excess or extraordinary extended field and indirect overhead costs, loss of productivity and the impact, ripple or cumulative effect on other Work).

6. CONTRACTOR waives any claim or rights and remedies based on abandonment, quantum merit, rescission or other similar legal theory by reason of any of the following circumstances, which the CONTRACTOR acknowledges and agrees are within the reasonable contemplation of the parties:

a. Extras, changes, additions and deletions to the Work after execution of the CONTRACT and issued from time to time throughout the period of construction, regardless of their scope, number, cumulative value, or complexity, to correct errors, omissions, conflicts, and ambiguities in the Contract Documents, or to implement discretionary changes the scope of Work requested by the CITY;

b. The issuance and performance of extras, changes, additions and deletions in a manner that is not in sequence with the as-built or as-planned progress of the Work;

c. Changes due to Differing Site Conditions;

d. Suspensions of the Work or parts thereof, or limitations on access to portions or all of the Work, for the convenience of CITY or in the interests of the Project;

e. Delay or disruption to the Work due to failure of the CITY, PROJECT MANAGER or INSPECTOR to timely perform any contractual obligation.

D. OVERHEAD COSTS

To the costs under Paragraphs C.1., C.2., and C.3., above, an added fixed fee to provide compensation for all overhead costs shall be allowed as established in Paragraph E.1 below. This overhead rate is not applicable to the costs under Paragraphs C.4. through C.6. above.

The overhead rates determined in Paragraphs 1 and 2 below shall be applied to all additive and deductive Change Orders, of this Article.

1. GENERAL AND ADMINISTRATIVE OVERHEAD RATE:

a. An allowance of eight percent (8%) for overhead costs will be allowed to the CONTRACTOR, only when CONTRACTOR uses its own organization to perform a part of the Work under the Change Order based upon the value of labor, material and construction equipment required to accomplish said part of the change Paragraphs C.1., C.2., and C.3.

b. An allowance of twelve percent (12%) for overhead costs will be allowed to the Subcontractors (at any tier), only when Subcontractors use their own organization to perform a part of the Work under the Change Order, based upon the value of labor, material, and construction equipment required to accomplish said part of the change Paragraphs C.1., C.2.,and C.3.

c. Overhead percentages shall be considered to include all insurance costs other than specifically mentioned in this Article, all field and office supervisors and assistants, all onsite project administration, security costs, the cost of small tools and consumables, incidental job burdens, and all general home office expenses and no separate allowance will be made therefore. Assistants to field and office supervisors include all clerical, stenographic, and general office help. Incidental job burdens include, but are not necessarily limited to, office equipment and supplies, temporary toilets, telephone and conformance to OSHA requirements. Items such as, but not necessarily limited to, review and coordination, estimating, PROJECT MANAGER, scheduling, and expediting relative to Change Orders, and updating and furnishing Record Drawings to incorporate changes, are associated with field and office supervision and are considered to be included in the CONTRACTOR's overhead percentage set forth herein.

d. For those Change Orders with both additive and deductive costs, the overhead rate shall be determined by the net amount of the additive and deductive work.

E. SUBCONTRACTOR COSTS

1. Where Work under the Change Order is performed in whole or in part by a Subcontractor, at any tier, the cost of the Change Order shall include the cost to the Subcontractor. Subcontractor's costs shall be presented in strict accordance with A., B., and C., above, and D. through J. as applicable.

2. An additional fixed fee of six percent (6%) based upon the sum of the costs of all Subcontractors, at any tier, involved in the Work of the Change Order, shall be allowed to the CONTRACTOR for profit and General and Administrative Overhead Costs. An additional fixed fee of six percent (6%) shall be allowed to first tier Subcontractors for profit and General and Administrative Overhead costs for any Work involved in the Change Order that is performed by Sub-subcontractors. No additional fixed fee shall be allowed for Change Order Work performed by Subcontractors to Sub- subcontractors, at any tier.

F. PROFIT

To the costs of C.1., C.2., and C.3., above, plus applicable overhead costs from D.1.a. or D.2.b., if a SUBCONTRACTOR at any tier above, an added fixed fee for Profit shall be allowed as established herein.

1. An allowance of ten percent (10%) for Profit for the party performing the Work under the Change Order, shall be included on all Change Orders that are negotiated full and final in advance of any changed Work being performed.

2. An allowance of five percent (5%) for Profit for the party performing the Work under the Change Order shall be included on all Change Orders where any portion of the Work is performed before the Change Order is executed full and final by both the PROJECT MANAGER and the CONTRACTOR.

3. No added fixed fee for Profit shall be allowed for any cost other than those costs under C.1., C.2., and C.3., of this Article, if Subcontractor at any tier above. No fixed fee for profit shall be allowed on the costs of C.4., C.5., C.6., or F of this Article.

4. On Change Orders with both additive and deductive cost components, the profit allowance on net additive Change Orders shall be based on the Change Order amount after overhead rates have been added. The profit allowance shall be as set forth in Paragraphs 1 and 2 above as applicable. No profit allowance shall be included for net deductive Change Orders.

G. CITY FURNISHED MATERIALS AND EQUIPMENT

The CITY reserves the right to furnish such materials and equipment as it deems expedient, and the CONTRACTOR shall have no claim for profit or overhead on the cost of such materials and equipment.

H. EQUIPMENT COSTS

Full rental costs for rental or leased equipment shall not exceed the rates as set forth in the Rental Rate Blue Book (the Blue Book) published by Dataquest, Inc., Palo Alto, California, as adjusted to the regional area of the Work under this Contract. Owned equipment costs shall not exceed the rates listed in the Cost Reference Guide (the CRG) for Construction Equipment, published by Dataquest, Inc., Palo Alto, California. The most recent published edition in effect at the commencement of actual equipment use shall be used.

1. RENTED OR LEASED EQUIPMENT

a. For equipment rented or leased (including lease with purchase option) in arm's length transactions from outside vendors, the CONTRACTOR shall be paid the actual invoiced, rented or leased rates provided that the invoiced lease or rental rates do not exceed the rates set forth in the Blue Book. Arm's length rental or lease transactions are those in which the firm involved in rental or lease of such equipment is not associated with, owned by, have common management, directorship, facilities, or stockholders with the firm renting the equipment. Submittal by a CONTRACTOR of a rental or leased invoice from the lessor will be prima facie proof of compliance with the above. However, such invoices are not conclusive proof; if questioned, the burden of proof remains with the CONTRACTOR. In no event shall the leased equipment rate billed to the CITY be at rates exceeding those prescribed in the following table:

Actual Usage (Change Order & Contract Work Combined)	Blue Book Payment Category
Less than 8 hours	Hourly Rate
8 or more hours but less than 7 days	Daily Rate
7 or more days but less than 30 days	Weekly Rate
30 calendar days or more	Monthly Rate

b. When in Use:

Actual equipment use time documented by the INSPECTOR or PROJECT MANAGER shall be the basis that the equipment was utilized on the changed Work and paid for under the Change Order. In addition to the lease or rental rate, equipment operating costs shall not exceed the estimated hourly operating rate as set forth in the Blue Book. The hours of operation shall be based upon actual equipment usage on the changed Work as recorded by the INSPECTOR or PROJECT MANAGER. For multiple shift Work sequences, the allowable equipment rate shall not exceed fifty percent (50%) of the base rate, for second or third shifts.

c. When Idle:

Idle equipment is equipment on site and necessary to perform the Work under the change but not in actual use due solely to the impact of the changed Work. Equipment operating costs due to idle time, documented by the INSPECTOR or PROJECT

MANAGER, shall be paid at the rate determined in Paragraph I above. Idle time shall include a reasonable time allowance to and from the Project site.

2. OWNED AND OTHER EQUIPMENT

a. Equipment rates for owned equipment or equipment provided in other than arm's length transactions will not exceed the total hourly costs as set forth in the Cost Reference Guide. Adjustments to the listed rates provided for under the section of the Cost Reference entitled "Cost and Production Formulas" shall not be allowed. Except as noted herein below, this equipment hourly rate plus the estimated operating cost per hour from the Cost Reference Guide will be paid for each hour the equipment actually performs Work on the changed Work. Daily records listing the equipment units and their respective operators, identification code, and actual usage on the Work under the Change Order, as certified at the end of each Work day (or work shift if the Work is being performed in multiple work shift sequence) by the INSPECTOR or PROJECT MANAGER shall be the record upon which actual equipment use shall be based. For multiple shift Work sequences, the allowable equipment rate shall not exceed the hourly depreciation and operating costs listed in the Cost Reference Guide, for second or third shifts. It is agreed that this rate shall represent payment in full for all the CONTRACTOR's direct costs.

b. When Idle:

Equipment necessary to be on the site to complete the Work, but not in actual use due solely to the impact of the changed Work, shall not exceed fifty percent (50%) of the hourly rates identified in the "Ownership" column under the heading "Hourly Operating and Overhaul Expenses" set forth in the Cost Reference Guide, provided that its presence and necessity on the site has been documented by the INSPECTOR or PROJECT MANAGER, and further provided that the equipment was idled solely by actions of the CITY. Idle equipment time will only be paid as a function of delays specifically directed or caused by the CITY's actions. In no event shall the idle time claimed in a day for a particular piece of equipment exceed the normal Work schedule established for the Project - usually eight (8) hours per day or forty (40) hours per week, and excluding Saturdays, Sundays, and holidays. For multiple shift Work sequence, the allowable idle equipment rate shall not exceed fifty percent (50%) of the hourly depreciation costs listed in the Cost Reference Guide, for second or third shifts. It is agreed that this rate shall represent payment in full for all the CONTRACTOR's direct costs.

3. EQUIPMENT HAULAGE AND SET UP COSTS

a. Documented and actual equipment haulage and set up costs shall be paid for, if applicable as set forth in C of this Article.

4. OTHER EQUIPMENT COST GUIDES

a. In the event that a piece of equipment used on a Change Order is not listed in the Blue Book or the CRG, costs may be derived from the Associated General CONTRACTOR's of America Equipment Ownership Guide, the Associated Equipment Dealers Guide, or the Equipment Rate Guide published by the U.S. Army Corps of PROJECT MANAGERs as adjusted appropriately for the type of Work and use and the regional area of the Work under this Contract.

I. BONDS AND INSURANCE COSTS

1. Bond premium adjustment, consequent upon the Change Orders issued by the PROJECT MANAGER, shall be paid at the time of completion of the Work and will not be included in individual Change Orders. Additional bond costs on the incremental value of all Change Orders issued under the Contract shall be paid for through issuance of a separate Change Order upon receipt, by the PROJECT MANAGER, or a fully paid invoice from the CONTRACTOR's and

Subcontractor's sureties. No allowances for overhead or profit shall be included in such separate Change Order.

2. Insurance costs, other than insurance assessed on labor costs, consequent upon the Change Orders issued by the PROJECT MANAGER, shall be paid for by the PROJECT MANAGER at the time of completion of the Work and will not be included in individual Change Orders. Additional insurance costs on the incremental value of all Change Orders issued under the Contract shall be paid through issuance of a separate Change Order upon receipt of a fully paid invoice from the CONTRACTOR's and Subcontractor's insurance carriers. On Contracts where the duration exceeds 365 calendar days from Notice to Proceed, the CONTRACTOR and its Subcontractors will be allowed to submit such fully paid invoices at the end of every year after issuance of the Notice to Proceed, and again at the end of the Project.

J. RECORDS

1. The CONTRACTOR's records shall make clear the distinction between the direct costs of Work paid for under the Change Order and the costs of the base scope Work under the Contract. Furnish the INSPECTOR with daily report sheets in duplicate of each day's cost reimbursement Work no later than the working day following execution of said Work. The daily report sheets shall itemize the materials and equipment used in the Work. The daily report sheets shall provide for identification and classification of workers; the hourly rates of pay and hours worked; and the size, type, identification number, and hours operated for each piece of equipment. The Daily Report sheets shall itemize the materials used in the Work.

2. Substantiate material charges by copies of vendor's invoices. Submit such invoices with the daily report sheets or, if not available at that time, submit with subsequent daily report sheets. Sign daily report sheets by the CONTRACTOR or his authorized agent and the INSPECTOR at the time of submittal.

3. On a weekly basis submit to the PROJECT MANAGER an approximate accounting of the Contract expended on the cost reimbursement Work to date and an estimate of the Impact to the time of performance of Work.

28. PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA

A. If the PROJECT MANAGER determines that any price, including profit or fee, negotiated in connection with any Change Order under this contract, or any cost reimbursable under this Contract, was increased because:

1. The CONTRACTOR furnished cost or pricing data which was not accurate, complete, and current as certified in the CONTRACTOR's Certificate of Current cost or Pricing Data;

2. A Subcontractor or prospective Subcontractor furnished cost or pricing data was submitted in support of a subcontract cost estimate furnished by the CONTRACTOR but which was not accurate, complete, and current as of the date certified in the CONTRACTOR's Certificate of Current Cost or Pricing Data.

3. The CONTRACTOR or a Subcontractor or prospective Subcontractor, at any tier, furnished any data not within paragraph 1 or 2 above, which was not accurate as submitted;

then price shall be reduced accordingly and the Contract shall be modified in writing as may be necessary to reflect such reduction. However, any reduction in the Contract price due to defective subcontract data of a perspective Subcontractor, when the subcontract was not subsequently awarded to such Subcontractor, will be limited to the amount (plus applicable overhead and profit allowances) by which the actual subcontract or actual cost to the CONTRACTOR if there was no Subcontract, was less than the prospective subcontract cost estimate submitted by the CONTRACTOR; provided that the actual subcontract price was not affected by defective cost or pricing data.

B. The following certification from the CONTRACTOR is required to be provided on all Change Order quotations or requests for adjustment in excess of $10,000.

1. CERTIFICATION OF CURRENT COST AND PRICING DATA.

2. This is to certify that, to the best of my knowledge and belief, cost or pricing data submitted in writing, or specifically identified in writing if actual submission of the data is impracticable, to the CITY in support of [CONTRACTOR is to insert appropriate identification such as Change Order quotation, proposal quotation, price adjustment, etc.] are accurate, complete, and current as of [CONTRACTOR to insert date].

CONTRACT NO.:

PROPOSED CHANGE ORDER NO.:

FIRM:

NAME:

TITLE:

DATE:

SIGNATURE:

29. PAYMENT FOR MATERIALS OR EQUIPMENT DELIVERED AND STORED ON THE JOB

A. Partial payment for materials or equipment delivered to the worksite and stored shall be subject to the following conditions:

1. Payment will not be made for any materials or equipment unless each individual piece of the material or equipment becomes a permanent part of the Work and has a value of more than
$5,000.

2. The material or equipment is required by the specifications, and is specifically manufactured for the Project and could not readily be utilized or diverted to another job.

3. The CONTRACTOR shall provide secure storage facilities as required in STORAGE OF MATERIALS AND EQUIPMENT of these General Requirements.

4. No payment will be made for living or perishable Plant material, or for degradable materials such as rock, sand, cement, or for reinforcing steel, miscellaneous piping, off the shelf and catalog items, and similar items of construction, until they are incorporated into the Work.

5. The payment for the materials or equipment shall not exceed ninety-five percent (95%) of the invoice cost. The amount paid shall not exceed the total amount of the bid item less an amount estimated for installation.

6. Include cost loaded activities for the materials and equipment, for which payment will be requested, in the Schedule of Values. The CONTRACTOR shall provide all documentation necessary to establish the cost of the materials or equipment.

7. Suppliers, fabricators, or manufacturers who intend to furnish materials or equipment to the CITY must file a notice with the CITY in accordance with the State of California lien laws.

8. Each supplier, fabricator or manufacturer shall file a list, with the INSPECTOR, indicating the materials or equipment to be furnished to the Project. They shall also provide a notarized declaration from their company indicating the employees authorized to sign an unconditional release for the company. The persons signing the declaration and the unconditional release shall be identified by name and title.

9. Each request for payment shall include a notarized Unconditional Release, which conforms to the California Civil Code. The release shall be signed by an authorized employee identified in the corporate declaration. The request shall include the suppliers invoice for the materials or equipment.

10. Absorb costs incurred to meet the requirements of this Article without modification to the Contract amount.

30. PAYMENT FOR MATERIALS OR EQUIPMENT STORED OFF THE JOBSITE

A. Partial payment for materials or equipment stored off the jobsite shall be subject to the following conditions:

1. Payment will not be made for any materials or equipment unless each individual piece of the material or equipment becomes a permanent part of the Work and has a value of more than
$5,000, unless otherwise approved by the city.

2. The materials or equipment is required by the specifications, and is specifically manufactured for the Project and could not readily be utilized or diverted to another job.

3. No payment will be made for living or perishable Plant material, or for degradable materials such as rock, sand, cement, or for reinforcing steel, miscellaneous piping, off the shelf and catalog items, or similar items, until they are incorporated into the Work.

4. Payment for the materials or equipment stored shall not exceed sixty percent (60%) of the invoice cost of the materials or equipment. Percent of the invoice paid shall be at the discretion of the CITY. The amount paid shall not exceed the total amount of the bid item less an amount estimated for installation.

5. Include cost loaded activities for the materials and equipment, for which payment will be requested, in the Schedule of Values. Provide documentation necessary to establish the cost of the materials or equipment.

6. Suppliers, fabricators, or manufacturers who intend to furnish materials or equipment to the CITY must file a notice with the CITY in accordance with the State of California lien laws.

7. Each supplier, fabricator or manufacturer shall file a list, with the INSPECTOR, indicating the materials or equipment to be furnished to the Project. They shall also provide a notarized declaration from their company indicating the employees authorized to sign an unconditional release for the company. The persons signing the declaration and the unconditional release shall be identified by name and title.

8. Each request for payment shall include a notarized Unconditional Release, which conforms to the California Civil Code. The release shall be signed by an authorized employee identified in the corporate declaration. The request shall include the suppliers invoice for the materials or equipment.

9. Store the materials and equipment as required in STORAGE OF MATERIALS AND EQUIPMENT of these General Requirements, in a bonded warehouse or facility approved by the INSPECTOR. The storage site shall be located within 50 miles of the geographic limits of the CITY. The materials and equipment shall be physically segregated from all other materials or equipment within the facility and shall be identified as being the "PROPERTY OF THE CITY OF LOS ANGELES". Exercise measures necessary to ensure preservation of the quality, quantity, and fitness of such materials or equipment and perform the manufacturers recommended maintenance of the materials or equipment. Inspect the materials and

equipment, and submit a monthly written report to the INSPECTOR listing the equipment stored, results of their inspection, and the maintenance performed.

10. Grant the INSPECTOR and the PROJECT MANAGER access to the storage facility at any time and assist the INSPECTOR and the PROJECT MANAGER in conducting a full view, piece by piece, inventory of all such material or equipment.

11. Provide additional insurance necessary to insure the materials or equipment against loss of damage. The insurance provided shall be provided as stated in Article 37, INSURANCE of the General Conditions. The insurance shall cover the material or equipment, while stored at the approved site, while in transit to the project site, while being off-loaded at the site and until the material or equipment is incorporated into the Work and the Contract is accepted by the BOARD.

12. Be responsible for damage to, defects therein, misfabrication thereof, or loss of the materials or equipment.

13. Be responsible for any resulting Project delays or consequential damages as if the CONTRACTOR were the owner of the material or equipment until it is incorporated in the Work and accepted by the CITY.

14. Absorb any and all cost incurred to meet the requirements of this Article without modification in the Contract amount.

15. Present the storage arrangements in writing and sign a Security Agreement, which shall be submitted to the INSPECTOR for approval by the CITY ATTORNEY. This agreement shall set forth the terms of ownership, storage and insurance necessary to insure the material or equipment against damage or loss.

31. PAYMENT FOR PERMITS

See PAYMENT FOR MOBILIZATION of these General Requirements.

32. AUDIT AND ACCESS TO RECORDS

A. Maintain books, records, documents and other evidence directly pertinent to performance of Work under this Contract in accordance with generally accepted accounting principles and practices consistently applied. Also maintain the financial information and data used by the CONTRACTOR in the preparation or support of cost submissions required for this Contract, or any Modifications or claims, and a copy of the cost summary submitted to the CITY. The CITY authorized representatives shall have access, at all times during normal business hours, to such books, records, documents and other evidence for the purpose of inspection, audit and copying. Provide proper facilities for such access and inspection.

B. Agree to make A through G of this Article applicable to this Contract and Modifications or claims affecting the Contract price. Agree to include A through G of this Article in all his contracts and all tier Subcontracts in excess of $5,000, and to make A through G of this Article applicable to Modifications and claims related to Project performance.

C. Audits conducted under this Article shall be in accordance with generally accepted auditing standards and established procedures and guidelines of the reviewing or audit agency.

D. Agree to the disclosure of information and reports resulting from access to records under A and B of this Article, to the CITY and affected agencies.

E. Records under A and B of this Article shall be maintained and made available during performance of Work under this Contract until final payment, or until settlement of all disputes, claims, or litigation, whichever occurs later. In addition, those records which relate to any portion of this Contract, to any Modification, to any dispute, to litigation, to the settlement of claims arising out of such performance, or to costs or items to which an audit exception has been taken, shall be maintained and made available until final payment or until final resolution of such dispute, litigation, claim or exception, whichever occurs later.

F. This right of access Article applies to financial records pertaining to this Contract and all Contract Modifications. In addition this right of access applies to all records pertaining to all contracts, contract modifications, and contract amendments:

1. To the extent the records pertain directly to Contract performance;

2. If there is any indication that fraud, gross abuse or corrupt practices may be involved; or

3. If the Contract is terminated for default or for convenience.

G. Access to records is not limited to the required retention periods. The authorized representatives designated in A of this Article shall have access to records at any reasonable time for as long as the records are maintained.

H. Provided that CITY has made demand for access or audit pursuant to this Article, CONTRACTOR's compliance with provisions A through G of this Article shall be a condition precedent to maintenance of any legal action or proceeding by the CONTRACTOR against the CITY and to CONTRACTOR's right to Progress or Final Payment. Without limitation to the foregoing or to any other provisions for withholding set forth in the Contract Documents, CITY shall have the right, in its sole discretion and in addition to any right of withholding of retention, to further withhold from any payment to CONTRACTOR a sum of up to ten percent (10%) of the total amount set forth in CONTRACTOR's current, unpaid Application(s) for Payment, until CONTRACTOR has complied with any outstanding and unsatisfied request by CITY for audits under this Article. Upon CONTRACTOR's compliance with this Article, any monies withheld pursuant to this Paragraph solely due to CONTRACTOR's failure to permit an audit requested by CITY shall be released to CONTRACTOR.

I. CONTRACTOR hereby consents and agrees that any failure by CONTRACTOR to provide access to records as provided in A through G of this Article shall be specifically enforceable by issuance of a preliminary and/or permanent mandatory injunction by a court of competent jurisdiction based on affidavits submitted to such court, without the necessity of oral testimony, to compel CONTRACTOR to permit access and inspection of the records or to require delivery of the records to CITY for inspection.

MISCELLANEOUS

33. INTERFACE/COORDINATION REQUIREMENTS

A. Vehicular and pedestrian traffic adjacent to the laydown area and/or within the jobsite must be maintained. If an existing street in the CONTRACTOR's work area is to be demolished or obstructed, the CONTRACTOR shall be responsible for providing access through or around the effected area, including signs, barricades, and lights, as approved by the PROJECT MANAGER and any local agencies having jurisdiction over any public access areas. The CONTRACTOR shall follow WATCH standards and City of Los Angeles Department of Transportation Worksite Traffic Control Plans for all traffic, including a minimum traffic lane dimensions for vehicles and pedestrians.

B. The CONTRACTOR shall not park any vehicles, including concrete, hauling and delivery trucks, in any street at any time unless approved by the PROJECT MANAGER. Access must be maintained at all times for emergencies, sampling, equipment operations, maintenance and like items.

C. Before altering any vehicular or pedestrian access, the CONTRACTOR shall notify the PROJECT MANAGER thirty (30) days in advance on forms provided by the PROJECT MANAGER. The CONTRACTOR shall then request the alteration on forms provided by the PROJECT MANAGER. Requests shall include reasons for the alteration, times, boundary limits, special safety measures, proposed traffic rerouting with widths of such route, and a map detailing the above. Such requests shall be submitted to the PROJECT MANAGER not less than fifteen (15) days before the requested date of the access alteration. If any of the information changes, an additional fifteen (15) days may be required after the changes are brought to the attention of the PROJECT MANAGER. Approval when granted, will always be conditional. Final approval of the request, including date and time, will be given three (3) days in advance. The CITY retains the right to ticket and impound vehicles blocking traffic.

34. PROGRESS PHOTOGRAPHS

A. As directed by the PROJECT MANAGER, take a minimum of 4 views of each Project worksite location, at 14 days intervals during the entire period of Contract Work. Take the first photographs before start of construction operations at the jobsite. Take the final photographs when all Contract Work has been completed and accepted by the CITY regardless of time intervals since previous photographs were taken. View locations shall be as directed by the PROJECT MANAGER.

B. Provide 4, 8-inch by 10-inch color prints of each photograph on double weight glossy paper with each monthly progress report. Clearly label each print with the name of the job, view location, date of exposure and CONTRACTOR's name. Photographs and prints shall be of professional quality.

C. Submittal of progress photographs shall be a condition precedent to the making of the monthly payments.

35. COMMUNITY RELATIONS

A. The contractor shall cooperate with the City in conducting a public relations program for the project. The program will provide information to address concerns and complaints and to promote a positive project image. Contractor cooperation shall include the following:

1. The Project Manager shall attend public meetings, when requested by the PROJECT MANAGER.
2. Provide safe access for on-site community meetings and tours, on average twice per month per work site. Tours will be conducted by the PROJECT MANAGER and will be coordinated with the Contractor to limit interference with the work.
3. Do not provide any information directly to the public or news media without approval of the PROJECT MANAGER.

36. PROJECT CLOSEOUT

A. CLOSEOUT TIMETABLE

The CONTRACTOR shall establish dates for equipment testing and acceptance periods (as required under the Contract). Such dates shall be established not less than one week prior to beginning any of the foregoing items, to allow the CITY, the PROJECT MANAGER, and their authorized representatives sufficient time to schedule attendance at such activities.

B. FINAL SUBMITTALS

1. The CONTRACTOR, prior to requesting final payment, shall obtain and submit the following items to the PROJECT MANAGER.
    a. Written guarantees, where required.
    b. Technical manuals and instructions.
    c. Maintenance stock items; spare parts; special tools.
    d. Completed record drawings.
    e. Certificates of inspection and acceptance by local governing agencies having jurisdiction.
    f. Releases from all parties who are entitled to claims against the subject project, property, or improvement pursuant to the provisions of law.

C. FINAL CLEANUP

The CONTRACTOR shall perform all tasks specified in REMOVAL, CLEANUP AND DEMOBILIZATION of these General Requirements.

D. MAINTENANCE AND GUARANTEE

1. The CONTRACTOR shall make all repairs and replacements promptly upon receipt of written order from the PROJECT MANAGER. If the CONTRACTOR fails to make such repairs or replacements promptly, the PROJECT MANAGER reserves the right to do the work and the CONTRACTOR and his surety shall be liable to the CITY for the cost thereof.

2. Replacement of earth fill or backfill, where it has settled below the required finish elevations, shall be considered as a part of such required repair work, and any repair or resurfacing constructed by the CONTRACTOR which becomes necessary by reason of such settlement shall likewise be considered as a part of such required repair work.

E. BOND

1. The CONTRACTOR shall provide a bond to guarantee performance of the provisions contained in Article 31 and Article 37 (Paragraph K) of the General Conditions, Article 24 of these General Requirements, Paragraph D of this Article.

ATTACHMENTS

ATTACHMENT TO GENERAL REQUIREMENTS ARTICLE 27
CHANGE ORDER COST QUOTATION FORM

DATE___/___/20____

Estimate Summary for Prime CONTRACTOR Total Costs
W.O._____C.O._____CONTRACT #_____ ESTIMATOR_____P.E.____

		LABOR PER General Requirements 27 **Journeyman MH** **Supervision MH**	**$**
	2)	**MATERIALS (and Other Taxables) Including Sales**	**$**
	3)	**EQUIPMENT(Rented, Leased, and/or OWNED) Blue Book and/or CRG, including Sales Tax if applicable**	**$**
SUBTOTAL	**(A)_____**	**1) + 2) + 3)**	**$**
	4)	**G and A OH per General Requirements 27 Show**	**$**
SUBTOTAL	**(B)_____**	**(A) + 4)**	**$**
	5)	**PROFIT_____% x Line (B) Per General**	**$**
SUBTOTAL	**(C)**	**(B) + 5)**	**$**
	6)	**SUBCONTRACTS (All Subcontractors)**	**$**
	7)	**FIXED FEE FOR ALL SUBS 6% Per General**	**$**
SUBTOTAL	**(D)_____**	**(C + 6) + 7)**	**$**
	8)	**FIELD OFFICE OVERHEAD: $_____X _____DAYS Exclude**	**$**
	9)	**SCHEDULING COSTS ($200 Max.) Exclude if not**	**$**
SUBTOTAL	**(E)**	**(D) + 8) + 9)**	**$**
	10)	**IMPACT COST, per General Requirements 27 Show calculations on**	**$**
GRAND TOTAL		**(E) +10)**	**$**

CHANGE ORDER COST QUOTATION FORM

Estimate Summary for Prime CONTRACTOR Total Costs **DATE___/___/20____**

W.O._____C.O._____CONTRACT #_____

ESTIMATOR_____P.E._____

		LABOR PER General Requirements 27 **Journeyman Supervision** **_____ MH _____MH**	**$**
	2)	**MATERIALS (and Other Taxables)** **Including Sales Tax**	**$**
	3)	**EQUIPMENT(Rented, Leased, and/or OWNED)** **Blue Book and/or CRG, including Sales Tax if applicable**	**$**
SUBTOTAL	**(A)**	**_____1) + 2) + 3)**	**$**
	4)	**G and A OH per General Requirements 27** **Show calculations on separate sheet**	**$**
SUBTOTAL	**(B)**	**(A) + 4)**	**$**
	5)	**PROFIT_____% x Line (B)** **Per General Requirements 27**	**$**
SUBTOTAL	**(C)**	**_____(B) + 5)**	**$**
	6)	**SUBCONTRACTS (ALL SUB-SUBS)**	**$**
	7)	**FIXED FEE FOR ALL SUB-SUBS 6%** **Per General Requirements 27**	**$**
SUBTOTAL	**(D)**	**_____(C + 6) + 7)**	**$**
	8)	**FIELD OFFICE OVERHEAD:** **$_____X_____DAYS** **Exclude if not required**	**$**
SUBTOTAL	**(E)_____(D) + 8)**		**$**
		IMPACT COST, per General Requirements 27 **Show calculations on separate sheet**	**$**
GRAND TOTAL		**FOR SUBCONTRACTOR (E) + 9)** **To Line 6) of Prime CONTRACTOR'S Summary**	**$**

BUREAU OF ENGINEERING

TECHNICAL SPECIFICATIONS

PROJECT TASK ORDER NO. 25
FOR
LINCOLN PARK PEDESTRIAN PATH LIGHTING
WORK ORDER NO. E170149F

Prepared By:
Psomas
555 S Flower Street, Suite 4300
Los Angeles, CA 90071

City of Los Angeles
California

Department of Public Works
Bureau of Engineering

ENGINEERING
CITY OF LOS ANGELES

LINCOLN PARK PEDESTRIAN PATH LIGHTING

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TECHNICAL SPECIFICATIONS

LINCOLN PARK PEDESTRIAN PATH LIGHTING
(**NOT TO BE USED FOR BIDDING PURPOSES**)

The Technical Provisions Shall Apply for the Bid Items Listed Below:

No.	Item	Unit of Measurement	Estimate Quantity	Item Cost
Miscellaneous				
1	MOBILIZATION	LS	1	
2	PROJECT SIGNS	LS	1	
3	CONSTRUCTION STAKING/ SURVEY	LS	1	
4	GEOTECHNICAL SERVICES DURING CONSTRUCTION	LS	1	
5	LIGHTING IMPROVEMENTS, ELECTRICAL:	LS	1	
	SAVANNAH LED LUMINAIRES AND LAMPS	EA	6	
	VUE LED LUMINAIRES AND LAMPS	EA	24	
	CAL LED LUMINAIRES AND LAMPS	EA	86	
	20 FT-HIGH STEEL POLES	EA	70	
	10 FT-HIGH DECORATIVE POLES	EA	3	
	SINGLE LUMINAIRE ARM	EA	54	
	DUAL LUMINAIRE ARM	EA	16	
	REMOVE EXISTING DECORATIVE POLE AND FOUNDATION	EA	3	
	LIGHT FOUNDATIONS	EA	73	
	1.5” PVC SCH 40 CONDUIT (INCLUDING TRENCHING)	LF	6,050	
	2” PVC SCH 40 CONDUIT (INCLUDING TRENCHING)	LF	2,770	
	3” RIGID GALVANIZED STEEL	LF	60	
	4” SLEEVE PVC SCH 40 CONDUIT (INCLUDING TRENCHING)	LF	670	
	ELECTRICAL AWG WIRING (#1)	LF	12,900	
	ELECTRICAL AWG WIRING (#3)	LF	12,150	
	ELECTRICAL AWG WIRING (#4)	LF	5,280	
	ELECTRICAL AWG WIRING (#6)	LF	12,910	
	PULL BOXES (TYPE 2)	EA	42	
	PULL BOXES (TYPE 3)	EA	4	
	NEW SUBPANEL B - G"	LS	1	
	NEW CIRCUIT BREAKERS AT PANEL “A”	LS	1	
	UPGRADE EXISTING CIRCUIT BREAKER AT PANEL “PL”	LS	1	
6	CIVIL IMPROVEMENTS *(ADDITIVE ALTERNATE)*:	LS	1	
	MOBILIZATION	LS	1	
	CONSTRUCTION STAKING/ SURVEY	LS	1	
	GEOTECHNICAL SERVICES DURING CONSTRUCTION	LS	1	
	REMOVAL OF AC/ PCC/ BASE	CY	289	
	TREE REMOVAL	EA	3	
	4-IN ASPHALT CONCRETE PAVEMENT	TN	226	
	4-IN CRUSHED MISCELLANEOUS BASE	CY	141	
	PCC PAVEMENT	SF	2,326	

	CONCRETE CURB	LF	100	
	CONCRETE MOWSTRIP	LF	50	
	PEDESTRIAN HANDRAIL	LF	275	
	SEEDING AND SODDING	SF	1,250	
	GRADING	LS	1	
	MANHOLE ADJUST TO GRADE	EA	1	
	TREE PROTECTION	LS	1	

01 GENERAL

All roadwork shall conform to the requirements of the Standard Specifications for Public Works Construction (Green Book) including the current Cumulative Supplement, the Addition and Amendments (Brown Book), latest edition, and the following special provisions.

Wherever in the Contract Documents (including the General Conditions and General Requirements) the term "Technical Specifications" is used, it shall be understood to mean these special provisions in combination with the applicable provisions in any other “Technical Specifications” included in the project manual. In case of conflict between the Standard Specifications and these special provisions, the special provisions shall take precedence over and shall be used in lieu of the conflicting portions. Additions or changes to the specification sections to clarify scope of work do not limit the general clauses of the specification that pertain to other work required.

a) LIGHTING AND ELECTRICAL WORK

Contractor shall furnish and install all items pertinent to Lighting Improvements and Electrical Work (Items no. 5 through 23) as shown on plans.

Full compensation to furnish materials and perform labor required on the plans, as specified and as necessary to complete the contract, including, but not limited to, these major items:

- Complete wiring system for lighting and power, as shown, including panelboards, conduits, wires, feeders, outlets, wiring devices, switches, photocells, contactors, etc., for a complete and fully operable lighting and power system and grounding complete as required by Code.
- Connection and testing of all equipment and controls specified in this and other sections.
- Grounding and bonding complete as required by code.
- Furnish a complete set of electrical contractor-signed reproducible as-builts attesting to the accuracy of the installations.
- Trenching, backfilling and compaction to include replacement or restoration of existing AC or concrete, stone/coble paving, landscaping, curbs and irrigation impacted by construction activities, to match and join existing.
- Trimming of existing tree foliage as necessary to ensure unimpeded illumination as intended by the design.
- Removal, transport and replacement of existing luminaires as required.

Shall be considered as included in the contract price paid per units as listed in the Bid Schedule and no separate payment will be made therefore.

b) REMOVAL OF ASPHALT CONCRETE, PORTLAND CEMENT CONCRETE, BASE

Remove asphalt concrete pavement, Portland cement concrete pavement, crushed miscellaneous base, and subbase material a minimum depth of 8-inches as shown on the plans. The existing pavement shall be removed and disposed of by the Contractor and shall not be reused for pathway construction.

Full compensation for labor, sawcutting, excavation, grading, disposal, removal of asphalt concrete pavement, Portland cement concrete pavement, crushed miscellaneous base, and subbase, shall be

considered as included in the contract price paid per lump sum for clearing, grubbing, and stripping Section 02210. No separate payment will be made therefore.

c) TREE REMOVAL

Tree removal shall include removing the tree and stump as shown on the plans. The existing tree shall be removed and coordinated with City of Los Angeles Urban Forestry for disposal location.

Full compensation labor, permitting, excavation, grading, and removal of tree shall be considered as included in the contract price paid per lump sum for clearing, grubbing, and stripping Section 02210. No separate payment will be made therefore.

d) ASPHALT CONCRETE PAVEMENT

Contractor shall furnish and install Asphalt concrete pavement. Asphalt mix shall be PG 64-10 and the Contractor shall furnish Certified Weight Tickets for materials delivered to the job site. Asphalt concrete shall be laid in accordance with the requirements of Section 302-5 of the Standard Specification.

Full compensation labor, materials, equipment, and furnishing asphalt concrete, shall be considered as included in the contract price paid per tonnage for asphalt concrete pavement and no separate payment will be made therefore.

e) CRUSHED MISCELLANEOUS BASE

Contractor shall furnish and install crushed miscellaneous base. The Contractor shall furnish Certified Weight Tickets for materials delivered to the job site. Crushed miscellaneous base shall comply with the requirements in Section 200-2.4 and shall be placed in accordance with requirements of Section 203-3 of the standard Specification.

Full compensation labor, materials, equipment, and furnishing crushed miscellaneous base, shall be considered as included in the contract price paid per cubic yards for crushed miscellaneous base and no separate payment will be made therefore.

f) PCC PAVEMENT

Contractor shall furnish and install Portland cement concrete pavement per Section 3 of these Specifications and as shown on the plans.

Full compensation for labor, sawcutting, excavation, and furnishing Portland cement concrete pavement, shall be considered as included in the contract price paid per square foot for Portland Cement Concrete Pavement Section 03300. No separate payment will be made therefore.

g) CONCRETE CURB

Contractor shall furnish and install concrete curb as shown on the plans.

Full compensation for labor, sawcutting, excavation, and furnishing concrete curb shall be considered as included in the contract price paid per linear foot of concrete curb. Cost for base material shall be included as incidental work and no separate payment will be made therefore.

h) CONCRETE MOWSTRIP

Contractor shall furnish and install concrete mowstrip as shown on the plans.
Full compensation for labor, sawcutting, excavation, and furnishing concrete mowstrip shall be considered as included in the contract price paid per linear foot of concrete mowstrip. Cost for base material shall be included as incidental work and no separate payment will be made therefore.

i) PEDESTRIAN HANDRAIL

Contractor shall furnish and install pedestrian handrail as shown on the plans.

Full compensation for labor, steel, equipment, tools, and furnishing pedestrian handrail shall be considered as included in the contract price paid per linear foot of pedestrian handrail and no separate payment will be made therefore.

j) SEEDING AND SODDING

Contractor shall furnish and install mulch and sod as shown on the plans.

Full compensation for labor, excavation, grading, and furnishing mulch and sod shall be considered as included in the contract price paid per square foot of mulch and sodding and no separate payment will be made therefore.

SECTION 01412
ENHANCED ELECTRICAL SAFETY POLICY

1.1 The Requirement

The Board of Public Works Enhanced Electrical Safety Policy is applicable for all projects with on-site electrical work estimated at $100,000.00 or more. See Proposal, Part III for Federal funded projects, or Part IV for City funded projects.

A. The key elements of the Enhanced Electrical Safety Policy are:

1. Requiring a minimum of 70 percent of all “Journeyman Wiremen” to be graduates of a State of California Approved Electrical Apprenticeship Program or hold a valid C-10 California Contractor’s License issued by the State of California.

2. Requiring a minimum of 20 percent of the jobsite electrical workers to be OSHA 10-hour General Industry Safety and Health Certified.

3. Requiring at least one jobsite electrical worker to be OSHA 30-hour General Industry Safety and Health Certified.

B. The Contractor is required to certify their compliance. The Contractor shall complete and sign BCA Form 168 and submit with their Bid Proposal. Failure to sign and submit BCA Form 168 may result in the contractor’s bid being deemed non-responsive.

1. To guarantee that required levels of compliance are maintained, the Contractor is required to submit the BCA Form 168 to the Project Inspector prior to commencing work and at any time there are significant changes to staffing levels performing electrical work for the duration of the project.

C. **Electrical Work** is defined as placement, installation, erection, or connection of any electrical wires, fixtures, appliances, apparatus, raceways, conduits, solar photovoltaic cells, or any part thereof, which generates, transmits, transforms, or utilizes electrical energy in any form for any purpose, regardless of voltage.

D. **Electrical Work** is to be performed by Journeyman Electrician, Transportation System Electrician, Transportation System Technician, or Apprentices currently being trained in a California Approved Electrical Apprenticeship Program under the supervision of a Journeyman electrician.

(END OF SECTION)

SECTION 02210
CLEARING, GRUBBING AND STRIPPING

PART ONE - GENERAL

1.1 DESCRIPTION

A. All site clearing and grubbing on the job-site indicated on the project plans.

B. Site clearing shall consist of removing all vegetable growth such as trees, roots, stumps, shrubs, brush, limbs; and stone, boulders, clods, wood and other vegetative growth from the growth surface. Clearing shall also include the removal and disposal of trash piles, rubbish, etc.

C. Grubbing shall consist of the removal and disposal of wood roots, stumps, shrubs, brush, stone, boulders, clods, vegetable growth, etc. below the ground or subgrade surface.

D. CONTRACTOR shall furnish all tools, equipment materials and supplies and shall perform all labor to complete the work associated with removal of all natural and artificial objectionable material from the designated areas of work as indicated in the plans.

E. This work shall also include the protection from injury and preservation of existing improvements, adjacent property, utility vegetation and existing objects designated to remain.

F. Prior to commencing the work, obtain acceptance from the ENGINEER regarding methods to be used and disposal of removed materials.

G. Related Sections:

1. Documents affecting work of this Section included, but are not necessarily limited to the GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, DIVISION 1 - GENERAL REQUIREMENTS and other Sections of the Project Manual.

2. Site Demolition in Section 02220.

3. Earthwork in Section 02310.

1.2 QUALITY ASSURANCE

A. Labor: Use adequate numbers of skilled laborers thoroughly trained in site-clearing operations and experienced in the necessary crafts and completely familiar with the specified requirements and methods needed for the proper performance of the work of this Section.

B. Codes and Regulations: Perform all work of this Section in strict accordance with applicable Government Codes and Regulations especially meeting all safety standards and requirements of CAL/OSHA, County and 1999 Los Angeles City Building Code and applicable Amendments. Conform to all storm water pollution control measures as required and provided in Section 02310 - EARTHWORK of the Project Manual. Provide additional measures, added materials and devices as may be needed as directed by the City Engineer or the Consultant at no added cost to the City.

C. Miscellaneous Requirements:

1. Erection and maintenance of protections

2. Dust Control

3. Repair of Damages

4. Cleaning and Removal of Rubbish

D. Permits and Licenses: Procure all City, County and State Permits and Licenses, including Municipal Business License and pay all charges and fees for the same.

E. Contractor Submittals - Submit schedule of clearing, grubbing, and erosion control measures to be put in place for all work scheduled during the rainy season (October - April).

PART TWO – PRODUCTS

2.1 MATERIALS

A. Soil Sterilant: As specified in Section 02310 - EARTHWORK.

B. Provide Materials not specifically described but required for completion of the work of this Section as selected by the Contractor subject to the approval of the City Engineer or the Consultant.

PART THREE - EXECUTION

3.1 SITE CONDITIONS

Examine the job-site and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper site-clearing operations, as directed by the City Engineer or the Consultant. Do not proceed until such detrimental conditions have been corrected.

3.2 PROTECTION

A. Protect Existing Structures and Site Improvements indicated to remain from damage by approved methods and/or as authorized by the City Engineer. Removal of all protections shall be when work of this Section is completed or when so authorized by the City Engineer or the Consultant. Apply protections to adjacent properties as required and directed by the City Engineer.

B. Protect Existing Utilities indicated to remain in place traversing the job-site and serving existing adjacent facilities.

C. Protect Existing Trees and Shrubs indicated to remain by providing temporary surrounding fencing so located a sufficient distance away so that trees and shrubs will not be damaged by site-clearing operations.

D. Protection of Persons and Property (existing structures and site improvements).

1. Provide barricades, warning signs at open depressions and holes on adjacent public accesses.

2. Provide operating warning lights during hours from dusk to dawn each day or as otherwise required.

3. Protect existing remaining structures, utilities, sidewalks, pavements other facilities from damage as caused by settlement, undermining, washout or other hazards created by site-clearing operations of this Section.

4. Provide and maintain pedestrian and vehicular access in accordance with Work Area Traffic Control Handbook (WATCH), latest edition.

E. Use means necessary to prevent air pollution or dust from becoming a nuisance to the public, to neighbors and to others performing work on or near the job-site. Comply with governing regulations.

F. Maintain access to Lincoln Park at all times.

G. The project site shall be maintained in conformance with Section 7-8 - PROJECT SITE MAINTENANCE of the Standard Specifications for Public Works Construction (SSPWC) and the requirements of this Project Manual.

3.3 SITE CLEARING AND GRUBBING

A. General:

1. For drawing clarity, not all trees, shrubs, brush, grass, weeds, or exact amount of trash or debris are shown on the drawings. Contractor shall carefully study the Plans, and the Survey, visit the job site and verify the extent of the work to be done prior to the Bid.

2. Prior to starting job-site clearing operations in the company of the City Engineer or, Soil Engineer and Inspector; visit the job site and verify the extent of the work.

3. Site clearing and grubbing shall conform to Section 300-1 - CLEARING AND GRUBBING of SSPWC and applicable requirements of the Project Manual.

4. Site clearing and grubbing shall be done in the presence of the Soil Engineer. Contractor shall notify the City Engineer 72 hours prior to clearing operation.

B. Site Clearing and Grubbing Operations

1. To a depth of at least **8" inches** below finish grade indicated on Plans. Clean out all vegetable growth, roots, stomps, clods and other objective materials.

2. Treat roots remaining in the soil with a weed killer approved and as directed by the City Engineer.

3. Remove all concrete and masonry debris. .

4. Remove all existing rubbish and debris or those resulting from work operations of this Section as soon as possible, do not allow to pile up. Do not burn rubbish and debris on the job-site.

3.4 STRIPPING

A. Stripping shall include the removal and disposal of all organic sod, topsoil, grass and grass roots, and other objectionable material remaining after clearing and grubbing from the areas designated to be stripped. The depth of stripping shall be as shown on the Drawings and specified herein.

B. Topsoil from the strippings shall be stockpiled and used for the finished site grading. Excess topsoil will be placed in the waste disposal areas designated by the ENGINEER.

3.5 REMOVAL AND DISPOSAL OF CLEARING AND GRUBBING DEBRIS

A. General: All materials removed shall be disposed of outside of the right-of-way. No accumulation of flammable material shall remain on or adjacent to the right-of-way. The pathway and adjacent areas shall be left with a neat and finished appearance.

B. Bituminous Pavement: Bituminous pavement removal shall be in conformance with SSPWC Section 300-1.3.2.

C. Concrete Pavement: Concrete pavement removal shall be in conformance with SSPWC Section 300-1.3.2.

3.6 STORAGE OF MATERIALS AT THE JOB-SITE

Storage not permitted beyond brief accumulation awaiting pick up by removal trucks. Delays in the removal of site-clearing materials from the job-site shall be subject to the approval of the City Engineer or the Consultant.

(END OF SECTION)

SECTION 02310
EARTHWORK

PART ONE - GENERAL

1.1 SUMMARY

A. Provided and execute earthwork as indicated on the Contract Drawings but not limited to the following:

1. General excavating and trenching for various trades.

2. General exterior grading and cutting.

3. General excavating for site improvements.

4. Select base materials for under concrete slab and under paving.

5. Filling and Backfilling.

6. Structure excavation, unclassified fill and borrow excavation defined in Section +300 – EARTHWORK of the "Standard Specifications for Public Works Construction (SSPWC)".

B. **Related Sections:**

1. Documents affecting work of this Section include, but are not necessarily limited to the GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, DIVISION 1 - GENERAL REQUIREMENTS and other applicable Sections of the Project Manual.

3. Clearing, Grubbing and Stripping in Section 02210.

4. Concrete Work in Division 3.

1.2 QUALITY ASSURANCE

A. **Labor:** Use adequate numbers of skilled laborers to are thoroughly trained and experienced in the necessary crafts and who are completely familiar with specified requirements and the methods needed for proper performance of the Work of this Section.

B. **Equipment:** Use equipment adequate in size, capacity, and numbers to accomplish the work of this Section in a timely manner.

C. **Codes and Standards:** Perform excavation work in compliance with applicable ordinance of governing authorities having jurisdiction including, but not limited to, the 1999 L. A. City Building Code and applicable Amendments; Division 1-DEPARTMENT OF INDUSTRIAL RELATIONS of Title 8 of the California Code of Regulations; Section 300 - EARTHWORK of SSPWC; and City of Los Angeles Standard Plan S-610 - "Notice to Contractors Comprehensive", Latest Edition.

1. In addition to complying with Codes and Standards having jurisdiction, comply with directions of the Soil Engineer.

D. The Contractor shall provide necessary measures for storm water pollution control and water quality protection. The Contractor shall meet the standards of good housekeeping at all time.

E. **Testing and Inspection Services:** The City will engage a qualified soil testing and inspection service for quality control testing during earthwork operations. Testing shall be performed in accordance with the soil investigation reports and testing standards, the instructions of the Soil Engineer and the applicable Sections of General Conditions.

F. **Soil Engineer: T**he City will retain the services of a Soil Engineer for the purpose of soil investigations and testing, all the necessary inspections and observations, and certifications.

G. **Survey:** The Contractor shall employ the services of a California licensed surveyor for the purposes of survey control, layout, grade and cross-sections required to control work. Survey work shall conform to Section 011112 - SUMMARY OF WORKS, and Section 2.94 - LINE AND GRADE of SSPWC.

1.3 SUBMITTALS

Conform to provisions of the GENERAL REQUIREMENTS.

A. Sources of imported materials.

C. Method of Back-Filling and Compaction.

D. Dewatering Plans.

F. Competent Person Trench/Excavation Certification

G. **Test Reports-Excavating:** Contractor shall submit the following reports directly to the Los Angeles City Department of Building & Safety, prepared by the Soil Engineer and the testing service, with a copy to the City Engineer.

1. Test reports on borrow material.
2. Verification of each footing subgrade.
3. Field density test reports.
4. One optimum moisture-maximum density curve for each type of soil encountered.
5. Other test reports as required by the Soil Engineer and the local cognizant agency.

1.4 PERMITS

A. The Contractor shall perform all work in accordance with the permit requirements of the Los Angeles City Department of Building and Safety, including obtaining the grading permit, hauling permit and bond, and making the notification to the adjacent property owners; no additional compensation will be allowed therefore.

B. Contractor shall furnish City Engineer with a duplicate copy of OSHA excavation permit, and all other required permits prior to the start of the excavation work.

1.5 JOB CONDITIONS

A. **Required Work Coordination:** The Contractor shall fully coordinate the work operations of this Section with that of other trades involved and with the City Engineer or the Consultant to assure proper sequence of work, limitations, methods and time of work so as to minimize or avoid interference with the existing utilities as well as performance of work by the other Contractors. Contractor shall include minimum two weeks in its Construction Schedule to allow the Soil Engineer to prepare final Soil Report to be submitted to the Los Angeles City Department of Building and Safety Grading Division for final approval if the Soil Engineer is obtained by the City. The Contractor shall coordinate and arrange for all the inspections with the local authorized agencies and the Bureau of Contract Administration.

B. **Trench Safety:** Attention is directed to the provisions of Section 6705 of the Labor Code concerning trench excavation safety plans.

C. **Air Pollution Control:** The Contractor shall comply with all air pollution control rules, regulations, ordinances and statutes which apply to work performed pursuant to the Contract, including any air pollution control rules, regulations, ordinances and statutes, specified in Section 1107 of the Government Code.

D. **Use of Pesticides:** The Contractor shall comply with all rules and regulations of the Department of Food and Agriculture, the Department of Health, the Department of Industrial Relations and all other agencies which govern the use of pesticides required in the performance of the Work on the Contract.

1. Pesticides shall include, but shall not be limited to herbicides, insecticides, fungicides, rodenticides, germicides, menatocides, bactericides, inhibitors, fumigants, defoliants, soil sterilants, and repellents.

2. Any substance or mixture of substances intended for preventing, repelling, mitigating or destroying weeds, insects, diseases, rodents, or nematodes and any substance of mixture for substances intended for use as a plant regulator, defoliant shall be considered as a pesticide.

E. **Sound Control Requirements:** The Contractor shall comply with all local sound control and noise level rules, regulations and ordinances which apply to any work performed pursuant to the Contract.

Each combustion engine, used for any purpose on the job or related to the job, shall be equipped with a muffler of a type recommended by the manufacturer. No internal combustion engine shall be operated on the project without said muffler.

F. **Use of Explosives:** The use of explosives is not permitted.

1.6 PROTECTIONS

A. **General:** Comply with provisions of Section 25 - PROTECTION OF PERSONS AND PROPERTY AND RESTORATION OF EXISTING IMPROVEMENTS in GENERAL CONDITIONS. Protect and guard all excavations against damage to life, limb and property as prescribed by Los Angeles City Department of Building and Safety.

B. **Protections of Persons and Property:** Provide and install signs, lights and barricades at danger points on and off the job-site to guard against accidents, etc.

1. Protection and restoration of existing improvements shall conform to Section 7-9 - PROTECTION AND RESTORATION OF EXISTING IMPROVEMENTS of SSPWC and other Section of the Project Manual.

2. Barricade open excavations occurring as part of this work and post with warning lights.

3. Operate and maintain warning lights as recommended by authorities having jurisdiction.

4. Protect structures, utilities, sidewalks, pavements and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

5. Perform excavation within drip-line of large trees to remain by hand, and protect the root system from drainage or dry out to the greatest extent possible. Maintain moist condition for root system and cover exposed roots with burlap. Paint root cuts of 1" diameter and larger with emulsified asphalt tree paint.

C. Existing Improvements (including trees and shrubs Indicated to Remain): Protect against damage resulting from Contractor's operations. Repair or replace damaged items to the full satisfactions of the City at no added cost to the City.

D. **Water:** Divert or pump out of all excavations until concrete and other items are placed therein, forms removed and backfilling is completed. The Contractor shall provide a mean for distilling the water before discharging it.

F. **Existing Utilities:** Utilities shown on the drawings are shown pursuant to a search of available records and are shown as a matter of information and not as a matter of fact. Conforming with GENERAL REQUIREMENTS and other Sections of the Project Manual, the Contractor shall locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.

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1. Should uncharted, or incorrectly charted piping or other utilities be encountered during excavation, consult City immediately for directions. Cooperate with City and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility Company.

2. Do not interrupt existing utilities serving facilities occupied and used by City and others, during occupied hours, except when permitted in writing by the Consultant Architect or the City Engineer and then only after acceptable temporary utility services have been provided.

3. Provide a minimum of 48-hour notice to Consultant Architect or the City Engineer, and receive written notice to proceed before interrupting any utility. Obtain clearance and notify all utility companies in the area and call Underground Service Alert by calling (800) 422-4133. Deliver utility clearance ticket number to the City Engineer prior to the start of any work.

1.7 INSPECTION

A. **Required:** All excavations and trenches shall be inspected by the Los Angeles City Building and Safety Inspector, and the Soil Engineer before filling, backfilling and/or other subsequent work is placed therein.

1.8 MATERIAL HANDLING

A. **Delivery:** All materials, tools, equipment, etc. to be delivered to the job-site, in such a manner coordinated with progress of work of this Section.

B. **Material Storage:** Stockpile satisfactory excavated materials where directed, until required for backfill or dispose of in accordance with Section 300-2.6 - SURPLUS MATERIALS of SSPWC. Place, grade and shape stockpiles for proper drainage.

1. Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain.

2. Dispose of excess soil material and waste materials as herein specified.

PART TWO – PRODUCTS

2.1 SOIL MATERIALS

A. **Suitable Excavated Material:** Suitable materials from excavations for use in fill and embankments shall be free from shale, sod, large clods or hard lumps of earth, roots, trash or other debris; that has a liquid limit of less than 30 and a plasticity index of less than 9; and is readily compatible to specified density. No rock, cobbles or broken concrete exceeding 2 inches in maximum dimension shall be placed in compacted fill without the specified approval of the City Engineer or the Consultant. No rock, cobles or broken concrete exceeding 1 inch in maximum dimension shall be placed in compacted fill of the utility trench.

B. **Fill Material:** Furnish imported earth material as necessary; if specified in the contract requirements or if the amount of suitable earth materials obtained from the job-site excavations is not sufficient to properly construct the required fill, subject to the approval of the City Engineer or the Soil Engineer prior to use.

1. Obtain imported fill material from a source approved by the City Engineer or the Consultant prior to importing to the job-site.

2. Imported fill material shall be free of foreign materials, vegetable growths, sod, rocks, expansive soils and all debris.

3. Lime for Treatment of Imported Fill Material: As here after specified in accordance with Section 301-5 - LIME-TREATED SOIL of SSPWC.

4. Where fill material exhibits a wide variation in consistency, the City Engineer or the Consultant may require blending to stabilize and upgrade the material as directed by the City Engineer or the Consultant.

6. In landscape (planting area), fill shall not be saline or contain anything that would prevent normal plant growth: See LAWNS, Section 02920 of the Project Manual for verification of required or approved fill material.

7. Fill material is subject to the approval of the Soil Engineer or City Engineer.

C. **Base Material:** "Untreated-Crushed Aggregate Base", 3/4-inch maximum size aggregate, as specified in Section 200-2.2 - UNTREATED BASE MATERIAL of SSPWC.

2.2 WEED KILLER/SOIL STERILANT

Provide a dry, free-flowing, dust-free chemical compound, soluble in water, capable of inhibiting growth of vegetation, and approved for use on this Work by governmental agencies having jurisdiction.

A. Tinted for visual identification, shall be as follow:

1. United States Borax Corp. “Polyborchlorate” or equal.
2. Pacific Coast Borax Co. “Polyborchlorate”.
3. Amspray Corp. “Pavex”.
4. Elanco “Spike 801".

2.3 TOPSOIL

A. Where required by and shown on the Civil Drawings or otherwise required, provide topsoil consisting of friable, fertile soil of loamy character, containing an amount of organic matter normal to the region, capable of sustaining healthy plant life, and reasonably free from subsoil, roots, heavy or stiff clay, stones larger than 2 inches in greatest dimension, noxious weeds, sticks, brush, litter, and other deleterious matter.

B. Obtain topsoil from sources within the project limits, provide imported topsoil from approved sources outside the project limits, or from both sources.

2.4 OTHER MATERIALS

Provide other materials, not specifically described but required for a complete and proper installation, as selected by the Contractor subject to the approval of the City Engineer or the Consultant.

PART THREE - EXECUTION

3.1 SURFACE CONDITIONS

Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the Work. Do not proceed until detrimental conditions are corrected.

3.2 WATER QUALITY PROTECTION

A. Eroded sediments and other pollutants must be retained on side and may not be transported from the site via sheetflow, swales, area drains, natural drainage, or wind.

B. Stockpiles of earth and other construction-related materials must be protected from being transported from the site by wind or water.

C. Fuels, oils, solvents, and other toxic materials must be stored in accordance with their listing and are not to contaminate the soil nor the surface waters. All approved toxic storage containers are to be protected from the weather. Spills must be cleaned up immediately and disposed of in a proper manner. Spills may not be washed into the drainage system.

D. Excess or waste concrete may not be washed into the public way or any drainage system. Provisions shall be made to retain concrete wastes on-site until they can be appropriately disposed of or recycled.

E. Trash and construction-related solid wastes must be deposited into a covered receptacle to prevent contamination of rainwater and dispersal by wind.

F. Sediments and other materials may not be tracked from the site by vehicle traffic. The construction entrance roadways must be stabilized so as to inhibit sediments from being deposited into the public ways. Accidental depositions must be swept up immediately and may not be washed down by rain or by any other means.

3.3 SITE PREPARATION

A. **Subgrades:** Scarify for recompaction to a depth of 6-inches, bring to optimum moisture content and then recompact to at least 95% maximum density for subgrade as per ASTM D1557 - TESTED METHOD FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING MODIFIED EFFORT (56,000 FT - LBF/FT^3.). Prepare subgrade in accordance with Section 301-1 - SUBGRADE PREPARATION of SSPWC.

B. **Grading:** To elevations of existing adjoining pathway surfaces, private property and

surfaces immediately adjacent to the job-site limits indicated on the Plans; make all grades in a straight line from any point to any other perimeter point.

G. Dewatering:

1. Remove all water, including rain water, encountered during trench and sub-structure work to an approved location by pumps, drains, and other approved methods.

2. Keep excavations and site construction area free from water.

C. Dust Control: Use means necessary to prevent dust becoming a nuisance to the public, to neighbors, and to other work being performed on or near the job-site.

I. Moisture Control: Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer of soil material. Apply water in manner to prevent free water appearing on surface during or subsequent to compaction operations.

1. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

2. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing, or pulverizing until moisture content is reduced to a satisfactory value.

J. Rework: Any previously compacted or tested subgrade and fill material, which are affected or disturbed, in the opinion of the Soil Engineer, by the inclemency of the weather such as rains, floods, earthquake or others shall be reworked, retested and re-inspected at no additional cost to the City.

K. Approval of Subgrade: By the Soil Engineer and the Los Angeles City Building and Safety Inspector prior to placing any fill.

3.5 GRUBBING AND GRADING

A. Rough: Leave cut and fill sufficiently high to require cutting by fine grading.

B. Fine: To elevations required to ensure proper drainage or finished elevations indicated on drawings; finish elevations for planting areas as specified for top soil fill in Section 02920 – LAWN.

C. Subgrade Preparation: Required for all areas, other than filled or backfill areas, over which moisture barrier material, slabs, walks or pavement will be placed; in accordance with provision specified herein and Section 301-1 - SUBGRADE PREPARATION of SSPWC.

D. Inspection Required: Prior to placing base material, concrete or other materials.

E. Grading for New Asphalt Concrete Paving:

1. Rough: Cut and fill to be left sufficiently high to require cutting by fine grading and preparation of the surface for placement of the required select base material to thickness noted on the Contract Drawings or matching that of adjacent existing select base materials.

2. Fine: To exact elevations necessary for required new paving and paving repairs.

3. Testing and Inspection Required: Prior to placing of select base and asphalt paving materials.

3.6 EXCAVATING

A. General:

1. Excavation consists of the removal and disposal of materials necessary to establish required grade elevations and certified compacted fill for new construction pursuant to Section 300-2 UNCLASSIFIED EXCAVATION of SSPWC.

2. Excavated materials suitable for use as fill and/or backfill to be stockpiled where directed by the City Engineer or the Consultant.

3. Non-approved and excess excavated materials to be legally removed and disposed of from the job-site.

4. Encountered Existing Underground Piping or Conduits: Immediately stop the trench operations at the point of encounter, notify the City Engineer of such condition and submit support drawings to the City Engineer for approval. The support drawings shall be in conformance with the Los Angeles City Bureau of Engineering Standard Plans S-253, SUPPORTS FOR STORM DRAIN AND SEWER PIPES ACROSS TRENCHES, latest edition; CAL/OSHA and the utility company's requirements.

B. For Site Improvements:

1. For Concrete and Asphaltic Site Improvements such as concrete and/or asphalt pavements, concrete curbs: Excavate to exact limits of such work without excessive removal of existing subgrade. Scarify and compact top 6 inches of subgrade and compact at 95% relative density.

C. For Walls (including wall footings): Width not less than 18-in. from face of wall and sufficient for necessary forms, cribbing, bracing, inspection, and application for watering on walls, where required.

D. Corrections: Required of all unauthorized excavations made below indicated depths, as recommended by the Soil Engineer at no added cost to the City.

3.7 FILLING

A. General: Construct in accordance with Section 300-4- UNCLASSIFIED FILL of SSPWC and place in layers not exceeding 8-inches thickness, compacted to a relative compaction of not less than 95% when tested in accordance with Section 211-2 - COMPACTION TESTS of SSPWC, except that fill in planting areas may be compacted to 90% relative compaction.

B. In Planting Areas and Tree Wells: If flooding method is specified for fill material, place saturated fill (exclusive of topsoil fill) prior to construction of adjacent improvements to minimize settlement as follows:

C. Fill all holes on the existing job-site or resulting from site-clearing or demolition operations.

D. Topsoil Fill: Designated as "Imported/Class A" or "Unclassified/Class C" as specified herein. The City Engineer or authorized representative shall determine the suitability of topsoil prior to use. Transport topsoil from the source to its final position unless stockpiling is specified.

1. "Imported/Class A" Topsoil: From a source outside the limits of the project selected by the Contractor and in compliance with Inspection requirements specified in General Conditions. Within 90 days after Notice-To-Proceed submit the proposed source of topsoil to the City Engineer for approval. After the City Engineer or authorized representative makes an initial inspection at the site of the proposed imported material, the Contractor shall perform the required tests as deemed necessary to determine that the material meets the requirements with the accompany of City Engineer or Authorized representative. The Contractor shall submit to the City Engineer a written report of a soil testing laboratory registered by the State of California for agricultural soil evaluation which states that the proposed source complies with this Section, and proposed soil amendments. After the testing report and proposed soil amendments are reviewed by the City Engineer, the Contractor shall comply with all the recommendations of the soil testing laboratory and add any additional soil amendments necessary to achieve proper nutrient levels to support a healthy plant growth, at no additional cost to the City.

   "Imported/Class A" topsoil shall be of a uniform composition and structure, fertile and friable sandy loam garden soil, and be free of roots, clods and stones larger than1-inch in greatest dimension, pockets of coarse sand, noxious weeds, sticks, brush and other litter and not be infested with nematodes or other undesirable insects and plant disease organisms.

   "Imported/Class A" topsoil shall meet the following additional requirements.

   a. Gradation Limits: Sand - 50-80 percent, clay - 20 percent maximum, and silt - 30 percent maximum. The sand, clay and silt gradation limits shall be as defined in ASTM D-422 – TEST METHOD FOR PARTICLE – SIZE ANALYSIS OF SOILS.

   b. Permeability Rate: Hydraulic conductivity rate shall be not less than one inch per hour nor more than 20 inches per hour when tested in accordance with the USDA Handbook Number 60, method 34b or other approved methods.

   c. Agricultural Suitability and Fertility Analysis Tests: The topsoil shall be fertile and friable garden soil suitable for sustaining and promoting the growth of the specified plants. The topsoil shall comply with maximum permissible element concentration.

2. "Unclassified/Class C" Topsoil: Soil found in selected places of the project site is to be used in the designated landscape area, and compacted in place as part of the earthwork specified for the project. After the selected place(s) have been cleared of vegetation and grubbed, stockpiled the existing on-site soil in an area clear of new construction or where approved by the City Engineer. Four (4) test samples of on-site soils shall be taken under the supervision of the City Engineer or Authorized Representative from the stockpiled existing on-site soil. Soil Amendments shall be added in accordance to the soil testing laboratory's recommendation upon approval of the City Engineer.

E. **Inspection Required:** Prior to placement of fill materials. See Subsection 1.7A of this Section.

F. **Concrete and Asphalt Site Improvements Walkways:** Compact top 6 inches of existing subgrade and each 8" layer of backfill or fill material at 95% relative density.

3.8 BACKFILLING

A. **Prior to Backfilling:** Remove debris, trash and form materials from excavations.

B. **Inspection Required:** Prior to backfilling operations.

C. **Placement of Backfill:** In layers not exceeding 8-inches thickness, moisten to optimum moisture content and tamp until required 95% relative compaction is secured and finish to suitable elevations to provide for anticipated settlement and shrinkage.

3.9 SELECT BASE

A. Place in accordance with Section 301-2 - UNTREATED BASE of SSPWC.

B. **Locations:** Place select base beneath concrete and asphalt concrete paving, and concrete curb areas to 4 inch thickness noted on the Plans.

d. **Thickness:** At least 4 inches concrete paving, and at least 4-inches under asphalt concrete paving.

NOTE: Place to thickness matching that of original thickness of select base under existing removed concrete or asphalt concrete paving and make ready to receive paving repair materials. Aggregate base shall be compacted to 95% relative density in accordance with Section 301-2 - UNTREATED BASE of SSPWC.

3.11 SOIL STERILIZATION

Apply specified soil sterilization material to areas to receive select base materials and all exterior area including concrete and asphalt paving, concrete walkway, concrete curb and gutter, by methods recommended by the manufacturer. Certify in writing that the material has been applied.

3.12 DISPOSAL OF EXCESS AND WASTE MATERIALS

A. **Removal from City's Property:** Remove waste materials, including unacceptable excavated material, trash and debris, and dispose of it off City's property in a legal manner and to conform with the requirements shown in General Requirements.

B. Provide written consent of the owner of the property upon which the surplus material is to be deposited, pursuant to General Requirements and Section 300-26 - SURPLUS MATERIAL of SSPWC.

B. Borrow Excavation: Where borrow material is required for the work, the Contractor shall submit the material samples and testing results to the Soil Engineer prior to any excavation or import work is performed in accordance with Section 300-5 - BORROW EXCAVATION of SSPWC.

(END OF SECTION)

SECTION 02920
LAWNS

PART ONE - GENERAL

1.1 DESCRIPTION OF WORK

A. This Section covers seeding and sodding.

B. Related Work Specified Elsewhere: See Section 02310, EARTH WORK for spreading of topsoil and finished grading.

PART TWO - PRODUCTS

2.1 MATERIALS

a. Seed mixture shall be recleaned first quality seed conforming to the following.

70 percent Kentucky Blue Grass	90 percent	purity
	85-90 percent	germination
15 percent Creeping Red Fescue	95 percent	purity
	85-90 percent	germination
10 percent Perennial Rye	95 percent	purity
	85-90 percent	germination
5 percent White Clover	90 percent	purity
	80-85 percent	germination

b. Sod shall be living or growing grasses, at least 90 percent Kentucky Blue Grass, Nursery grown, strongly rooted, 2 years old, and free of weeds, undesirable plants and other material which will be detrimental or will hinder the proper development of the sod. Mow the sod grasses to a height not to exceed 2-1/2 inches (63 mm) and thoroughly water before lifting the sod. Cut all sod to provide a minimum thickness of 1-1/2 inches (38 mm) of soil adhering firmly to the roots. Cut the sod in strips a minimum of 15 inches (375 mm) wide.

c. Fertilizer shall be one of the following:
   i. Pulverized cattle manure shall be well rotted, pulverized and free from straw or other unsuitable substances. Rate of application shall be 4 cubic yards per l,000 square feet (3.3 cubic metres per 100 square metres).
   ii. Dried Sewage Sludge. Apply at the rate of 50 lbs. per 1,000 square feet (24 kg per 100 square metres).
   iii. Commercial fertilizer, 10-6-4, shall be uniform in composition, free-flowing material and shall conform to state fertilizer laws. Deliver fertilizer in unopened bags or other convenient containers, each fully labeled and bearing the name, trademark, composition and warranty of the producers.

d. Mulch shall be threshed straw of oats, wheat, barley, rice or soy beans of lengths not more than 8 inches (200 mm) long.

PART THREE - EXECUTION

3.1 PREPARATION

A. After the topsoil has been cleaned of all material such as loose sod, roots, stones, wire, etc., and carefully raked smooth and leveled, spread fertilizer uniformly over the areas using a mechanical spreader and harrow and rake fertilizer into the topsoil to a depth of 2 inches (50 mm). Make application at least 2 days before seeding or sodding. After application of fertilizer, level out any irregularities by raking.

3.2 INSTALLATION/APPLICATION/PERFORMANCE/ERECTION

A. Perform all Work in accordance with the requirements of the Drawings and specifications and in a manner which will preserve the line and levels shown on the Drawings and which will produce a completely established lawn.

B. Application:

a. Seeding.

i. Seed all graded areas disturbed during construction not receiving other surfacing. Before any seed is sown, the ground must be smooth, friable and of a uniformly fine texture. Do not seed in windy or unfavorable weather when the ground is too wet to rake easily, frozen or too dry. Sow seed uniformly at a rate of 4 lbs. per l,000 square feet (l.94 kg per 100 square metres) using drills, seeders, or by broadcasting to provide complete coverage. After sowing, cover the seed lightly by raking, roll with a 200 lb. (91 kg) roller and water with a fine spray. Purchase only unmixed seeds unless certified as to quality and mixture. Do all mixing at the Project Site from the original packages.

ii. Mulching. Following the completion of seeding operations, mulch the seeded areas. Spread the mulch uniformly in a continuous blanket at a rate of l-l/2 tons per acre (280 kg per l,000 square metres). Start the mulching operation at the windward side using a mechanical spreader, a mulch blower or by hand. Following the spreading of the mulch blanket, anchor the mulch into the soil to a depth of 2 inches (50 mm) with a "mulch tiller," non-offset dull bladed disk-harrow or other similar equipment.

C. Sodding.

i. Sod all areas indicated not to receive other surfacing. Correct all irregularities in the subgrade so that it is firm, smooth, friable and of a uniformly fine texture. Before laying the sod, moisten the subgrade thoroughly. Lay the sod solid, edge to edge, with no voids, and with staggered joints and roll it immediately with a 500 lb. (227 kg) roller. Brush or rake the screened topsoil over the sodded area and then water the sod thoroughly. The completed surface shall be true to finished grade. Any undesirable strips of sod will be rejected.

ii. Sod on Slopes. Hold sod on slopes steeper than 4 horizontal to l vertical in place by wooden pins l inch (25 mm) square and 6 inches (150 mm) long driven into the sod and soil at 18 inch (450 mm) intervals. The tops of the wooden pins shall be flush with the top of the sod.

D. Fertilizer

i. Apply commercial fertilizer at the rate recommended by the manufacturer.

3.3 ADJUSTMENT AND CLEANING

b. Following the completion of seeding and sodding protect and maintain all areas until substantial completion of the Project. Any areas showing sparse or no stand or established lawn grasses, shall be reseeded, resodded, watered and/or mulched as required. Protection shall include the provision of necessary barriers against pedestrian traffic. Maintenance shall include watering, weeding, mowing, refertilizing, reseeding, remulching and resodding as necessary to produce a completely established lawn.

3.4 SCHEDULES

A. Time.

a. Seeding and sodding seasons are from March 1st to June 15th and from August 15th to November 1st.

(END OF SECTION)

SECTION 03100
CONCRETE FORMWORK

PART ONE - GENERAL

1.1 THE REQUIREMENT

i) The CONTRACTOR shall furnish all materials for concrete formwork, bracing, shoring, and supports and shall design and construct all falsework and scaffolding, all in accordance with the provisions of the Contract Documents.

1.2 DEFINITIONS

1. Exposed Concrete: All concrete that is visible in the finished work, including concrete to be painted.

2. Unexposed Concrete: All other concrete that is concealed in the finished work, including plastered surfaces and attic and utility spaces.

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. Section 02220 Earthwork.

B. Section 03200 Reinforcement Steel.

C. Section 03290 Joints in Concrete.

D. Section 03300 Cast-in-Place Concrete.

E. Section 03315 Grout.

F. Section 03370 Concrete Curing.

1.4 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

i) Comply with the reference standards and Standard Specifications as specified in the GENERAL REQUIREMENTS.

ii) Comply with the current provisions of the following Codes and Standards, as applicable:

(1) Government Standards:

PS 1	U.S. Product Standard for Concrete Forms, Class I
PS 20	American Lumber Softwood Standard
CSS	Caltrans Standard Specifications

(2) Commercial Standards:

ACI 347	Recommended Practice for Concrete Formwork
ACI 117	Standard Tolerances for Concrete Construction and Materials

1.5 CONTRACTOR SUBMITTALS

i) Submittals shall be made in accordance with the GENERAL REQUIREMENTS.

ii) The following submittals and specific information shall be provided.

(1) Falsework Calculations and Drawings: The CONTRACTOR shall comply with all the latest applicable Sections of the Division of Industrial Safety, Construction Safety Orders. For all falsework or vertical shoring installations where the height of the falsework or vertical shoring, as measured from the top of the sills to the soffit of the superstructure, exceeds 14 feet, or where individual horizontal span lengths exceed 16 feet, or where provision for vehicular, pedestrian, or railroad traffic through falsework or vertical shoring is made, Plans and Calculations shall be prepared and signed by a Civil Engineer, registered in the State of California. A copy of the falsework plan or shoring layout shall be available on the job site at all times. The Engineer who designed the falsework or vertical shoring shall personally inspect such work and provide a written certification that the work conforms to the design.

Scaffolding Calculations and Drawings: Scaffolding shall be defined in accordance with and shall conform to the Construction Safety Orders of the Division of Industrial Safety. If scaffolding is constructed for this project over or adjacent to traffic, or suspended from the traveled way, the Contractor shall submit to the Engineer working drawings for scaffolding systems. The scaffolding manufacturer's name, address, and phone number shall be shown on the working drawings. The working drawings, details and calculations for the scaffolding shall be stamped and signed by an engineer who is registered as a Civil Engineer in the State of California. In addition, prior to submitting the working drawings to the Engineer, the working drawings shall be stamped and signed by an independent reviewer who is registered as a Civil Engineer in the State of California. The independent reviewer shall not be employed by the same entity preparing the working drawings.

(2) The CONTRACTOR shall, in accordance with the requirements in GENERAL REQUIREMENTS file with the City detailed plans of the falsework and scaffolding proposed to be used. Such plans and calculations shall be in sufficient detail to indicate the general layout, pattern layout, dimensioned to precisely locate grooves, form panel jointing, and similar features. The submittal shall also include sizes of members, anticipated stresses, grade of materials to be used, and typical soil conditions.

a. Form Release Compound

b. Form Ties and Spreaders

c. Installation Instructions

1.6 QUALITY ASSURANCE

A. Tolerances: The variation from established grade or lines shall not exceed 1/4-inch in 10 feet and there shall be no offsets or visible waviness in the finished surface. All other tolerances shall be within the tolerances specified in ACI 117, unless noted otherwise.

B. Laborers: Use adequate number of skilled laborers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

C. Prior to construction of formwork for concrete beams and slabs above grade, Contractor shall conduct a meeting at the site to determine and define all cambers required for the project. ENGINEER, Contractor and Contractor's formwork installer shall be in attendance at this meeting.

D. Engage a licensed surveyor to verify that work is within specified tolerances. Surveyor shall report in writing to the ENGINEER, with copy to Contractor, certifying work as acceptable or indicating deviations from allowable tolerances.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials for forms in timely manner to ensure uninterrupted progress.

B. Store materials by methods that prevent damage and permit ready access for inspection and identification.

PART TWO - PRODUCTS

2.1 GENERAL

A Except as otherwise expressly accepted by the ENGINEER, all lumber brought on the job site for use as forms, shoring, or bracing shall be new material. All forms shall be smooth surface forms and shall be of the following materials:

Walls	-	Steel or plywood panel
Columns	-	Steel, plywood or fiber glass
Roof, floor, deck and soffit	-	Plywood, Steel Panels
All other work	-	Steel panels, plywood or tongue and groove lumber

2.2 FORM AND FALSEWORK MATERIALS

i) Materials for concrete forms, formwork, and falsework shall conform to the following requirements:

1. Lumber shall be Douglas Fir or Southern Pine, construction grade or better, in conformance with U.S. Product Standard PS20.

2. Plywood for concrete formwork shall be new, waterproof, synthetic resin bonded, exterior type Douglas Fir or Southern Pine plywood manufactured especially for concrete formwork and shall conform to the requirements of PS 1 for Concrete Forms, Class I, and shall be edge sealed.

3. Form materials shall be metal, wood, plywood, or other material approved by the ENGINEER that will not adversely affect the concrete and will facilitate placement of concrete to the shape, form, line, and grade shown. Metal forms shall be an approved type that will accomplish such results.

   Forms for exposed exterior concrete surfaces shall be American Plywood Association (APA) High Density Overlay (HDO) Plyform Class I Ext. 48" X 96" X 3/4" minimum thickness.

   Forms for other concrete surfaces shall be American Plywood Association (APA) Douglas Fir B-B Plyform Class I Exterior PS 1, 3/4-inch minimum thickness.

4. Coated Form Plywood: For exposed painted concrete, plastic overlaid plywood of grade specified above, factory coated with a form coating and release agent equal to “Noxcrete”.

5. Tube forms: Sonoco “Seamless Sonotubes”, Alton Building Products “Sleek Seamless Standard Wall”, or equal, type leaving no marks in concrete, 1-piece lengths for full required height.

ii) Unless otherwise shown, exterior corners in exposed concrete members shall be provided with 3/4-inch chamfers. Re-entrant corners in concrete members shall not have fillets unless otherwise shown.

iii) Forms and falsework to support the roof and elevated floor slabs shall be designed for the total dead load, and a minimum construction live load of 30 psf .

iv) Forms proposed for use at bridges shall comply with Caltrans Standard Specification Section 51.

2.3 FORM TIES

i) Form ties with integral waterstops shall be provided with a plastic cone or other suitable means for forming a conical hole to insure that the form tie may be broken off back of the face of the concrete. The maximum diameter of removable cones for rod ties, or of other removable form-tie fasteners having a circular cross-section, shall not exceed 1-1/2-inches; and all such fasteners shall be such as to leave holes of regular shape for reaming.

ii) Form ties for water-retaining structures shall have integral waterstops. Removable taper ties may be used except for water bearing structures, when approved by the ENGINEER. A preformed neoprene or polyurethane tapered plug sized to seat at the center of the wall shall be inserted in the hole left by the removal of the taper tie.

2.4. FORM RELEASE COMPOUND

A. Form release compound shall be non-staining clear coating free from oil, silicone, wax, and not grain-raising, Use “Nox-crete Form coating” by Nox Crete, “Formshield” by Euclid Chemical Company, “Burke Bio Release” by Edoco, or “Cast-Off” by Sonneborn, or an approved equal. Where form liners are used, provide form compound recommended by form liner manufacturer. However, regardless of product use, provide form compound that is VOC compliant for the area used.

2.5 EARTH FORMS

Unless otherwise indicated or required, concrete for footings and pile caps may be placed directly against vertical excavated surfaces, provided the material will stand without caving, that minimum reinforcing steel clearances are maintained, and suitable provisions are taken to prevent raveling of top edges or sloughing of loose material from walls of excavation. Sides of excavation shall be made with a neat cut and the width made as indicated. Concrete which is exposed to view on exterior shall be formed to maintained depth of 6 inches below finished grade.

PART THREE -- EXECUTION

3.1 GENERAL

i) Forms to confine the concrete and shape it to the required lines shall be used wherever necessary. The CONTRACTOR shall assume full responsibility for the adequate design of all forms, and any forms which are unsafe or inadequate in any respect shall promptly be removed from the WORK and replaced at the CONTRACTOR's expense. A sufficient number of forms of each kind shall be provided to permit the required rate of progress to be maintained. The design and inspection of concrete forms, falsework, and shoring shall comply with applicable local, state and Federal regulations. Plumb and string lines shall be properly installed before concrete placement and shall be maintained during placement. Such lines shall be used by CONTRACTOR's personnel and by the INSPECTOR and shall be in sufficient number and properly installed. During concrete placement, the CONTRACTOR shall continually monitor plumb and string line form positions and immediately correct deficiencies.

ii) Concrete forms shall conform to the shape, lines, and dimensions of members as called for on the Drawings, and shall be substantial, free from surface defects, and sufficiently tight to prevent leakage. Forms shall be properly braced or tied together to maintain their position and shape under a load of freshly-placed concrete. If adequate foundation for shores cannot be secured, trussed supports shall be provided.

iii) Camber: Place suitable jacks, wedges, or similar means to induce camber and to correct settlement in forms before and during concrete placing. Camber shall be as determined in pre-installation meeting specified above. In general, formwork shall be capable of accommodating camber of 1/8" per 10' of span plus 1/4".

3.2 FORM DESIGN

i) All forms shall be true in every respect to the required shape and size, shall conform to the established alignment and grade, and shall be of sufficient strength and rigidity to maintain their position and shape under the loads and operations incident to placing and vibrating the concrete. Suitable and effective means shall be provided on all forms for holding adjacent edges and ends of panels and sections tightly together and in accurate alignment so as to prevent the formation of ridges, fins, offsets, or similar surface defects in the finished concrete. Plywood, 3/4-inch and greater in thickness, may be fastened directly to studding if the studs are spaced close enough to prevent visible deflection marks in the concrete. The forms shall be tight so as to prevent the loss of water, cement and fines during placing and vibrating of the concrete. Specifically, the bottom of wall forms that rest on concrete footings or slabs shall be provided with a gasket to prevent loss of fines and paste during placement and vibration of concrete. Such gasket may be a 1- to 1-1/2-inch diameter polyethylene rod held in position to the underside of the wall form. Adequate clean-out holes shall be provided at the bottom of each lift of forms. The size, number, and location of such clean-outs shall be as acceptable to the INSPECTOR.

3.3 CONSTRUCTION

i) Vertical Surfaces: All vertical surfaces of concrete members shall be formed, except where placement of the concrete against the ground is shown. Not less than 1-inch of concrete shall be added to the thickness of the concrete member as shown where concrete is permitted to be placed against trimmed ground in lieu of forms. Such permission will be granted only for members of comparatively limited height and where the character of the ground is such that it can be trimmed to the required lines and will stand securely without caving or sloughing until the concrete has been placed.

ii) Construction Joints: Concrete construction joints will not be permitted at locations other than those shown or specified, except as may be acceptable to the ENGINEER. When a second lift is placed on hardened concrete, special precautions shall be taken in the way of the number, location, and tightening of ties at the top of the old lift and bottom of the new to prevent any unsatisfactory effect whatsoever on the concrete. Pipe stubs and anchor bolts shall be set in the forms where required.

C. Provide for openings, offsets, keyways, recesses, moldings, reglets, chamfers, blocking, screeds, bulkheads, anchorages, inserts and other features as required. Fill form joints to produce smooth surfaces, intersections, and arrises. Use polymer foam or equivalent fillers at joints and where forms abut or overlap existing concrete to prevent leakage of mortar.

D. Set embedded piping and rough hardware in forms to be embedded in concrete in a manner so that the required strength of the structure will not be reduced.

B. Apply form release compound on formwork in accordance with manufacturer’s instructions prior to placing of reinforcing steel, anchorages, and embedded items.

C. Construct forms suitable for removal without hammering or prying against and damaging the concrete.

D. Openings in Forms: Provide as required to facilitate cleaning and inspection. Close such openings immediately after cleaning and before placement of concrete. Provide air relief holes in formed top surfaces of concrete elements as required.

H. Form Ties:

(1) Embedded Ties: Holes left by the removal of form tie cones shall be clean and rough before being filled with mortar as specified for "Finish of Concrete Surfaces" in Section 03300, "Cast-in-Place Concrete". Wire ties for holding forms will not be permitted. No form-tying device or part thereof, other than metal, shall be left embedded in the concrete. Ties shall not be removed in such manner as to leave a hole extending through the interior of the concrete members. The use of snap-ties which cause spalling of the concrete upon form stripping or tie removal will not be permitted. If steel panel forms are used, rubber grommets shall be provided where the ties pass through the form in order to prevent loss of cement paste. Where metal rods extending through the concrete are used to support or to strengthen forms, the rods shall remain embedded and shall terminate not less than 1-inch back from the formed face or faces of the concrete.

(2) Removable Ties: Where taper ties are approved for use in non water bearing structures, the larger end of the taper tie shall be on the wet side of walls in water retaining structures. After the taper tie is removed, the hole shall be thoroughly cleaned and roughened for bond. A precast neoprene or polyurethane tapered plug shall be located at the wall centerline. The hole shall be completely filled with non-shrink grout for water bearing and below-grade walls. The hole shall be completely filled with non-shrink or regular cement grout for above-grade walls which are dry on both sides. Exposed faces of walls shall have the outer 2-inches of the exposed face filled with a cement grout which shall match the color and texture of the surrounding wall surface.

I. Coordination:

1. Provide slots, openings, chases, recesses, grounds, nailers and screeds required by other trades and subsequent work.

2. Ensure that conduit, pipes, sleeves, anchors, hangers and ties are secured in forms before concrete is placed.

3.4 REUSE OF FORMS

Forms may be reused only if in good condition and only if acceptable to the INSPECTOR. Light sanding between uses will be required wherever necessary to obtain uniform surface texture on all exposed concrete surfaces. Exposed concrete surfaces are defined as surfaces which are permanently exposed to view. In the case of forms for the inside wall surfaces of water retaining structures, unused tie rod holes in forms shall be covered with metal caps or shall be filled by other methods acceptable to the INSPECTOR.

3.5 REMOVAL OF FORMS

Careful procedures for the removal of forms shall be strictly followed, and this work shall be done with care so as to avoid damage the concrete. No heavy loading on green concrete will be permitted. The period of time for formwork removal shall be in accordance with ACI 318, Chapter 6 and Section 303-1.4 of Standard Specifications and as follows:

1. Do not remove formwork until concrete has attained sufficient strength to support its own weight and all superimposed loads including construction loads and to permit form and falsework removal with complete safety.

2. In the case of concrete members subject to bending stresses, where the member relies upon forms for vertical support, forms shall remain in place until test cylinders attain a minimum comprehensive strength of 75 percent of the 28-day strength specified in Section 03300, "Cast in-Place Concrete", provided, that no forms shall be disturbed or removed

under individual panel or unit before the concrete in the adjacent panel or unit has attained 75 percent of the specified 28-day strength and has been in place for a minimum of 7 days.

3. Forms for roofs and elevated slabs shall remain in place a minimum of 10 days after concrete has been placed.

4. Forms for all vertical walls and columns shall remain in place at least 3 days after the concrete has been placed.

5. Formwork removal shall also be subject to the curing requirements of section 3370 of these specifications and as authorized by the ENGINEER.

6. Reshore structural members as specified below because of design requirements or construction conditions to permit successive construction.

The time required to establish said strength shall be determined by the ENGINEER based on test cylinders made for this purpose from the concrete placed and in accordance with ACI 318 and the curing requirements of section 3370. If the time so determined is more than the minimum time specified above, then that time shall be used as the minimum length of time. Forms for all parts of the WORK not specifically mentioned herein shall remain in place for periods of time as determined by the ENGINEER.

3.6 MAINTENANCE OF FORMS

Forms shall be maintained at all times in good condition, particularly as to size, shape, strength, rigidity, tightness, and smoothness of surface. Forms, when in place, shall conform to the established alignment and grades. Before concrete is placed, the forms shall be thoroughly cleaned. The form surfaces shall be treated with a nonstaining mineral oil or other lubricant acceptable to the ENGINEER. Any excess lubricant shall be satisfactorily removed before placing the concrete. Where field oiling of forms is required, the CONTRACTOR shall perform the oiling at least two weeks in advance of their use. Care shall be exercised to keep oil off the surfaces of steel reinforcement and other metal items to be embedded in concrete.

3.7 FALSEWORK

i) The CONTRACTOR shall be responsible for the design, engineering, construction, maintenance, and safety of all falsework, including staging, walkways, forms, ladders, and similar appurtenances, which shall equal or exceed the applicable requirements of the provisions of the OSHA Safety and Health Standards for Construction, the requirements of the Construction Safety Orders of the California Division of Industrial Safety, and the requirements specified herein.

ii) All falsework shall be designed and constructed to provide the necessary rigidity and to support the loads. Falsework for the support of a superstructure shall be designed to support the loads that would be imposed if the entire superstructure were placed at one time.

iii) Falsework shall be placed upon a solid footing, safe against undermining, and protected from softening. When the falsework is supported on timber piles, the maximum calculated pile loading shall not exceed 20 tons. When falsework is supported on any portion of the structure which is already constructed, the load imposed by the falsework shall be spread, distributed, and braced in such a way as to avoid any possibility of damage to the structure.

D. Reshoring:

1. Minimum reshoring with falsework shall consist of not less than half the full required falsework added under the last placed floor over which full falsework is to be placed for the next floor above. Leave reshoring in place for at least 10 days after the floor above is placed, but in no case remove falsework until the next concrete placing has attained a compressive strength equal to 75% of that required for the 28 days age as determined by controlled test cylinders.
2. Maintain a form and falsework removal record.

E. Falsework proposed for use at bridges shall comply with Caltrans Standard Specification Section 51

(END OF SECTION)

SECTION 03200
REINFORCEMENT STEEL

PART ONE - GENERAL

1.1 THE REQUIREMENT

i) The CONTRACTOR shall furnish, fabricate, and place all concrete reinforcement steel, welded wire fabric, couplers, and concrete inserts for use in reinforced concrete and masonry construction and shall perform all appurtenant work, including all the wires, clips, supports, chairs, spacers, and other accessories, all in accordance with the Contract Documents.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 03100 Concrete Formwork.

B. Section 03290 Joints in Concrete.

C. Section 03300 Cast-in-Place Concrete.

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

i) Comply with the reference standards of the GENERAL REQUIREMENTS.

ii) Comply with the current provisions of the following Codes and Standards, as applicable:

(1) Commercial Standards:

ACI 315	Details and Detailing of Concrete Reinforcement.
ACI 318	Building Code Requirements for Reinforced Concrete.
ACI 350	Code Requirements for Environmental Engineering Concrete Structures.
ACI 530	Building Code Requirements & Specifications for Masonry Structures
WRI	Manual of Standard Practice for Welded Wire Fabric.
AWS D1.4	Structural Welding Code - Reinforcing Steel.
ASTM A 82	Specification for Steel Wire, Plain, for Concrete Reinforcement.
ASTM A 185	Specification for Welded Steel Wire Fabric For Concrete Reinforcement.
ASTM A 497	Welded Deformed Steel Wire Fabric for Concrete Reinforcement.
ASTM A 615	Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
ASTM A 706	Low-alloy Deformed Steel Bars for Concrete Reinforcement
ASTM A 775	Specifications for Epoxy Coated Bar Reinforcement
ASTM A 884	Specifications for Epoxy Coated Wire Reinforcement

CRSI Manual of Standard Practice

CRSI Recommended Practice for Placing Bar Supports, Specifications and Nomenclature

CRSI Recommended Practice for Placing Reinforcing Bars

2. Government Standards:

CSS Caltrans Standard Specifications.

1.4 CONTRACTOR SUBMITTALS

i) Submittals shall be made in accordance with the GENERAL REQUIREMENTS.

ii) The following submittals and specific information shall be provided.

(1) The CONTRACTOR shall furnish shop bending diagrams, placing lists, splice lengths and location, and drawings of all reinforcement steel prior to fabrication in accordance with GENERAL REQUIREMENTS.

(2) Details of the concrete reinforcement steel and concrete inserts shall be submitted by the CONTRACTOR at the earliest possible date after receipt by the CONTRACTOR of the Notice to Proceed. Said details of reinforcement steel for fabrication and erection shall conform to ACI 315 and the requirements specified and shown. The shop bending diagrams shall show the actual lengths of bars, to the nearest inch measured to the intersection of the extensions (tangents for bars of circular cross section) of the outside surface. The shop drawings shall include bar placement diagrams which clearly indicate the dimensions of each bar splice.

(3) Where mechanical couplers are required or permitted to splice reinforcement steel, the CONTRACTOR shall submit Los Angeles City Department of Building and Safety's Research Report approval and manufacturer's literature which contains instructions and recommendations for installation for each type of coupler used; certified test reports which verify the load capacity of each type and size of coupler used; and shop drawings which show the location of each coupler with details of how it is to be installed in the formwork.

(4) If reinforcement steel is required or permitted to be spliced by welding at any location, the CONTRACTOR shall submit mill test reports which shall contain the information necessary for the determination of the carbon equivalent as specified in AWS D1.4. The CONTRACTOR shall submit a written welding procedure for each type of weld for each size of bar which is to be spliced by welding; merely a statement that AWS procedures will be followed is not acceptable.

1.5 QUALITY ASSURANCE

i) The CONTRACTOR shall make provisions for sampling reinforcing steel delivered to the job site. Two sampling bars, cut from different bars and 3 feet in length for bar sizes # 3 through # 5 and 5 feet in length for bars sizes # 6 and larger, shall be taken from each 10 tons or fraction thereof, of each size and heat number delivered to the job site. When the name of the manufacturer, heat identification number, or chemical analysis is not known, the sampling interval shall be each 2.5 tons or fraction thereof, of each bar size and heat number. Tests shall consist of 2 bent tests and 2 tensile tests. Costs of initial tests will be paid by the CITY. Additional tests due to material failing initial tests shall be paid by the CONTRACTOR.

ii) If reinforcement steel is welded at any location, the CONTRACTOR shall submit certifications of procedure qualifications for each welding procedure used and certification of welder qualifications, for each welding procedure, and for each welder performing the work. Such certification and qualifications shall be as required by the Los Angeles Department of Building and Safety.

iii) The CONTRACTOR shall provide samples of each type of weld used in the work in a quantity and of dimensions adequate for testing. At the discretion of the INSPECTOR, radiographic testing of direct butt welds will be performed. The CONTRACTOR shall provide assistance necessary to facilitate testing. The CONTRACTOR shall repair any weld which fails to meet the requirements of AWS D1.4. The costs of testing will be paid by the CITY; except, the costs of all tests which fail to meet specified requirements shall be paid by the CONTRACTOR.

iv) The CONTRACTOR shall provide to the INSPECTOR written identification of reinforcement steel by manufacturer's heat number and mil certification, and the fabricator's release number and type from the point of fabrication to the place of final incorporation of the rebar into the work.

1.6 MARKING AND SHIPPING

A. Tag bundled bars with identification, and transport and store so as not to damage any material. Use metal tags indicating size, length and other marking shown on placement drawings. Maintain tags after bundles are broken.

PART TWO - PRODUCTS

2.1 REINFORCEMENT STEEL

i) All reinforcement steel for all cast-in-place reinforced concrete construction shall conform to the following requirements:

(1) Bar reinforcement shall conform to the requirements of ASTM A615, Grade 60 Billet Steel Reinforcement with supplementary requirement S-1, and ASTM A706 for rebars subject to welding, or as otherwise shown.

1. Bar reinforcement for wall boundary elements, special moment frames, or when subject to welding, shall conform to ASTM A706, unless noted otherwise.

3. Welded wire fabric reinforcement shall conform to the requirements of ASTM A185 , or ASTM A497 and the details shown; provided, that welded wire fabric with longitudinal wire of W9.5 size wire shall be either furnished in flat sheets or in rolls with a core diameter of not less than 10 inches; and provided further, that welded wire fabric with longitudinal wires larger than W9.5 size shall be furnished in flat sheets only.

4. Spiral reinforcement may be cold-drawn steel wire conforming to the requirements of ASTM A82, when approved by the ENGINEER.

5. All reinforcements shall be shop fabricated. Bending of reinforcing in the field will not be allowed.

6. Epoxy coated reinforcing steel shall conform to the requirements of ASTM A775 and A884, and shall be used where indicated on the drawing.

7. Reinforcement with any of the following defects will not be acceptable and be immediately removed from the site:

a. Bar lengths, depths, and/or bends exceeding the specified fabrication tolerances.

b. Bends or kinks not shown on the Drawings

c. Bars with reduced cross-section due to excessive rusting or other cause.

ii) Accessories:

(1) Accessories shall include all necessary chairs, slab bolsters, concrete blocks, tie wires, dips, supports, spacers, and other devices to position reinforcement during concrete placement. Slab bolsters shall have gray plastic-coated legs.

(2) Concrete blocks (dobies), used to support and position reinforcement steel, shall have the same or higher compressive strength as specified for the concrete in which it is located. Where the concrete blocks are used on concrete surfaces exposed to view, the color and texture of the concrete blocks shall match that required for the finished surface. Wire ties shall be embedded in concrete block bar supports.

3. Use bar supports complying with CRSI recommendations, unless otherwise shown on the Contract Drawings.

4. Do not use wood, brick, or other non-complying material.

6. For exposed-to-view completed concrete surfaces, where legs of supports are in contact with forms, provide supports with either hot-dip galvanized or plastic-protected legs. CONTRACTOR's selection subject to the ENGINEER's approval.

2.2 MECHANICAL COUPLERS

i) Mechanical couplers shall comply with the applicable Department of Building and Safety's Research Report. Location of the Mechanical Couplers shall be approved by the ENGINEER. The couplers shall develop a tensile strength which exceeds 125 percent of the yield strength of the reinforcement bars being spliced at each splice. CONTRACTOR to provide the required number of couplers and bars for testing in accordance with the Report

ii) Where the type of coupler used is composed of more than one component, all components required for a complete splice shall be supplied. This shall apply to all mechanical splices, including those splices intended for future connections.

iii) The reinforcement steel and coupler used shall be compatible for obtaining the required strength of the connection. Clearance and coverage requirements shall be maintained at all times.

iv) Couplers which are located at a joint face shall be a type which can be set either flush or recessed from the face as shown. The couplers shall be sealed during concrete placement to completely eliminate concrete or cement paste from entering. After the concrete is placed, couplers intended for future connections shall be plugged and sealed to prevent any contact with water or other corrosive materials. Threaded couplers shall be plugged with plastic plugs which have an O-ring seal.

v) Hot-forged sleeve-type couplers shall not be used.

2.3 WELDED SPLICES

i) Welded splices shall be provided where shown and where approved by the ENGINEER. All welded splices of reinforcement steel shall develop a tensile strength which exceeds 125 percent of the yield strength of the reinforcement bars which are connected. Provide two samples of each bar size for testing. When welding is to be done in the field, provide field prepared samples. Preparation shall be made by welder actually preparing the production run.

ii) All materials required to conform the welded splices to the requirements of AWS D1.4 shall be provided.

C. All welding shall be performed by City of Los Angeles certified welders. All shop welding shall be performed at shops of a City of Los Angeles approved fabricator.

PART THREE - EXECUTION

3.1 GENERAL

i) All reinforcement steel, welded wire fabric, couplers, and accessories shall be fabricated, and placed in accordance with the requirements of the City of Los Angeles Building Code, CRSI Recommended Practices and Manual, and WRI, and the supplementary requirements specified herein.

3.2 FABRICATION

i) General: Reinforcement steel shall be accurately formed to the dimensions and shapes shown, and the fabricating details shall be prepared in accordance with ACI 315 and ACI 318 or ACI 350 (as applicable), except as modified by the Drawings. Bars shall be bent cold.

ii) The CONTRACTOR shall fabricate reinforcement bars for structures in accordance with bending diagrams, placing lists, and placing drawings. Said drawings, diagrams, and lists shall be prepared by the CONTRACTOR as specified under GENERAL REQUIREMENTS.

iii) Fabricating Tolerances: Bars used for concrete reinforcement shall meet the following requirements for fabricating tolerances:

(1) Sheared length: ± 1 inch

(2) Depth of truss bars: + 0, - 1/2 inch

(3) Stirrups, ties, and spirals: ± 1/2 inch

(4) All other bends: ± 1 inch

3.3 PLACING

i) Placing: Reinforcement steel shall be accurately positioned as shown, and shall be supported and wired together to prevent displacement, using annealed iron wire ties or suitable clips at intersections. All reinforcement steel shall be supported using approved accessories and chairs which are strong and rigid enough to prevent any displacement of the reinforcement steel and shall comply with the applicable Department of Building and Safety's Research Report. Where concrete is to be placed on the ground, supporting concrete blocks (or dobies) shall be used, in sufficient numbers to support the bars without settlement, but in no case shall such support be continuous. All concrete blocks used to support reinforcement steel shall be tied to the steel with wire ties which are embedded in the blocks. Use care not to damage vapor barriers where they occur.

ii) The portions of all accessories in contact with the formwork shall be made of concrete, plastic, or steel coated with a 1/8-inch minimum thickness of plastic which extends at least 1/2-inch from the concrete surface. Plastic shall be gray in color.

iii) Tie wires shall be bent away from the forms in order to provide the specified concrete coverage.

iv) Bars additional to those shown which may be found necessary or desirable by the CONTRACTOR for the purpose of securing reinforcement in position shall be provided by the CONTRACTOR at its own expense.

v) Placing Tolerances: Unless otherwise specified, reinforcement placing tolerances shall be within the limits specified in Section 7.5 of ACI 318 except where in conflict with the requirements of the City of Los Angeles Building Code.

vi) Bars may be moved as necessary to avoid interference with other reinforcement steel, conduits, or embedded items. If bars are moved more than one bar diameter, or enough to exceed the above tolerances, the resulting arrangement of bars shall be reviewed and accepted by the ENGINEER.

vii) Welded wire fabric reinforcement placed over horizontal forms shall be supported on slab bolsters having gray, plastic-coated standard type legs as specified in Paragraph B herein. Slab bolsters shall be spaced not less than 30 inches on centers, shall extend continuously across the entire width of the reinforcement mat, and shall support the reinforcement mat in the plane shown.

viii) Welded wire fabric placed over the ground shall be supported on wired concrete blocks (dobies) spaced not more than 3 feet on centers in any direction. The construction practice of placing welded wire fabric on the ground and hooking into place in the freshly placed concrete shall not be used.

3.4 SPACING OF BARS

i) Spacing of reinforcement shall comply with ACI 318 requirements.

ii) Spacing of bars on bridge structures shall conform to the requirements in CSS Section 52-1.

3.5 SPLICING

i) General: Reinforcement bar splices shall only be used at locations shown. When it is necessary to splice reinforcement at points other than where shown, the character of the splice and location shall be as acceptable to the ENGINEER.

ii) Splices of Reinforcement: The length of lap for reinforcement bars, unless otherwise shown shall be in accordance with ACI 318, Section 12.15.1 for a class B splice. Stagger splices in horizontal wall bars at least 48” longitudinal in alternate bars and opposite faces.

iii) Laps of welded wire fabric shall be in accordance with the ACI 318. Adjoining sheets shall be securely tied together with No. 14 tie wire, one tie for each 2 running feet. Wires shall be staggered and tied in such a manner that they cannot slip.

iv) Splices in column spiral reinforcement, when necessary, shall be made by welding or by a lap of 1-1/2 turns.

E. Field welding of bars: In accordance with the approved submittal. Continuous inspection required.

F. Mechanical couplers: Install in accordance with the approved submittal.

G. Bending or Straightening: Reinforcement shall not be straightened or rebent in a manner which will injure the material. Bars with kinks or bends not shown shall not be used. All bars shall be bent cold, unless otherwise permitted by the ENGINEER. No bars partially embedded in concrete shall be field-bent except as shown or specifically permitted by the ENGINEER.

H. Splicing of reinforcement on bridge structures shall conform to CSS Section 52-1.

3.6 CLEANING AND PROTECTION

The surfaces of all reinforcement steel and other metalwork to be in contact with concrete shall be thoroughly cleaned of all dirt, grease, loose scale and rust, grout, mortar and other foreign substances immediately before the concrete is placed. Where there is delay in depositing concrete, reinforcement shall be reinspected and, if necessary recleaned. Bars with reduced cross-section due to excessive rusting or other cause will not be acceptable for use and shall be replaced by the CONTRACTOR at no additional cost to the CITY.

3.7 FIELD QUALITY CONTROL

A. Inspection: Secure inspection and acceptance from INSPECTOR before concrete is placed. Make arrangements in advance for geotechnical inspection of foundations, continuous inspection as required, and/or structural observation by the designated registered design professional prior to concrete placement.

(END OF SECTION)

SECTION 03290
JOINTS IN CONCRETE

PART ONE - GENERAL

1.1 THE REQUIREMENT

i) The CONTRACTOR shall construct all joints and bearing pads in concrete at the locations shown. Joints required in concrete structures are of various types and will be permitted only where shown, unless specifically accepted by the ENGINEER.

1.2 RELATED WORK SPECIFIED ELSEWHERE

i) Section 03100 Concrete Formwork.

ii) Section 03200 Reinforcement Steel.

iii) Section 03300 Cast-in-Place Concrete.

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

i) Comply with the reference standards of the GENERAL REQUIREMENTS.

ii) Comply with the current provisions of the following Codes and Standards, as applicable:

1 Federal Specifications:

TT-S-0227E(3)	Sealing Compound, elastomeric type, Multi-component for Caulking, Sealing, and Glazing Buildings and Other Structures).

2. Other Government Standards:

CSS	Caltrans Standard Specifications.

3. Commercial Standards:

ASTM C 920	Specification for Elastomeric Joint Sealants.
ASTM D 624	Test Method for Rubber Property -- Tear Resistance.
ASTM D 638	Test Method for Tensile Properties of Plastics.
ASTM D 746	Test Method for Brittleness Temperature of Plastics and Elastomers by Impact.
ASTM D 747	Test Method for Apparent Bending Modulus of Plastics by Means of a Cantilever Beam.
ASTM D 1751	Premolded Joint Filler
ASTM D 1752	Specification for Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
ASTM D 2240	Test Method for Rubber Property -- Durometer Hardness.

1.4 TYPES OF JOINTS

A. Construction Joints: When fresh concrete is placed against a hardened concrete surface, the joint between the two pours is called a construction joint. Unless otherwise specified, all joints in water bearing members shall be provided with a waterstop and sealant groove of the shape specified and as shown on the plans.

B. Contraction Joints: Contraction joints are similar to construction joints except that the fresh concrete shall not bond to the hardened surface of the first pour, which shall be coated with a bond breaker. The slab reinforcement shall be stopped 4-1/2 inches from the joint, unless noted otherwise; which is provided with a sleeve-type dowel, to allow shrinkage of the concrete of the second pour. Waterstop and sealant groove shall also be provided.

C. Expansion Joints: To allow the concrete to expand freely, a space is provided between the two pours, the joint shall be formed as shown on the plans. This space is obtained by placing a filler joint material against the first pour, which acts as a form for the second pour. Unless otherwise specified, all expansion joints in water bearing members shall be provided with an approved type waterstop.

Premolded expansion joint material shall be installed with the edge at the indicated distance below or back from finished concrete surface, and shall have a slightly tapered, dressed, and oiled wood strip secured to or placed at the edge thereof during concrete placement, which shall later be removed to form space for sealing material. The space so formed shall be filled with a joint sealant material as specified in the Paragraph in Part 2 entitled "Joint Sealant." In order to keep the two elements in line the joint shall be provided with a sleeve-type dowel as shown.

D. Control Joints (Weakened Plane): The function of the control joint is to provide a weaker plane in the concrete, where shrinkage cracks will probably occur. A groove, of the shape and dimensions as shown on the plans, is formed or saw-cut in the concrete and shall be filled with a joint sealant material as specified in the Paragraph in Part 2 entitled "Joint Sealant."

E. All other Joints, bearing devices, and elastomeric bearing pads for bridge structures shall comply with CSS Section 51.

1.5 CONTRACTOR SUBMITTALS

i) Submittals shall be made in accordance with GENERAL REQUIREMENTS.

ii) The following submittals and specific information shall be provided.

(1) Waterstops: Prior to use of the material required under this contract, qualification samples shall be submitted. Such samples shall consist of extruded or molded sections of each size or shape to be used. The material sample shall be representative of the material to be furnished under this contract. The balance of the material to be used under this contract shall not be produced until after the ENGINEER has reviewed and approved the qualification samples.

(2) Joint Sealant: Prior to ordering the sealant material, the CONTRACTOR shall submit to the ENGINEER for review and approval, data to show compliance with the requirements of the Contract Documents. Certified test reports from the sealant manufacturer on the actual batch of material being supplied indicating compliance with the above requirements shall be furnished the ENGINEER before the sealant is used on the job.

(3) Shipping Certification: The CONTRACTOR shall provide written certification from the manufacturer as an integral part of the shipping form, to show that all of the material shipped to this project meets or exceeds the physical property requirements of the Contract Documents. Supplier certificates are not acceptable.

(4) The CONTRACTOR shall submit placement shop drawings showing the location and type of all joints for each structure.

1.6 QUALITY ASSURANCE

A. Waterstop manufacturer shall demonstrate five years (minimum) continuous, successful experience in production of waterstops.

B. Waterstop Inspection: It is required that all waterstop field joints shall be subject to inspection, and no such work shall be scheduled or started without having made prior arrangements with the INSPECTOR to provide for the required inspections. Not less than 24 hours' notice shall be provided to the INSPECTOR for scheduling such inspections.

C. All field joints in waterstops shall be free of misalignment, bubbles, inadequate bond, porosity, cracks, offsets, and other defects which would reduce the potential resistance of the material to water pressure at any point. All defective joints shall be replaced with material which shall pass said inspection, and all faulty material shall be removed from the site and disposed of by the CONTRACTOR at its own expense.

D. The following waterstop defects represent a partial list of defects which shall be grounds for rejection:

(1) Offsets at joints greater than 1/16-inch or 15 percent of material thickness, at any point, whichever is less.

(2) Exterior crack at joint, due to incomplete bond, which is deeper than 1/16-inch or 15 percent of material thickness, at any point, whichever is less.

(3) Any combination of offset or exterior crack which will result in a net reduction in the cross section of the waterstop in excess of 1/16-inch or 15 percent of material thickness at any point, whichever is less.

(4) Misalignment of joint which result in misalignment of the waterstop in excess of 1/2-inch in 10 feet.

(5) Porosity in the welded joint as evidenced by visual inspection.

(6) Bubbles or inadequate bonding.

E. Waterstop Samples: Prior to use of the waterstop material in the field, a sample of a fabricated metered cross and a tee constructed of each size or shape of material to be used shall be submitted to the ENGINEER for approval. These samples shall be fabricated so that the material and workmanship represent in all respects the fittings to be furnished under this contract. Field samples of fabricated fittings (crosses, tees, etc.) will be selected at random by the INSPECTOR for testing. When tested, they shall have a tensile strength across the joints equal to at least 600 psi.

F. Construction Joint Sealant: The CONTRACTOR shall prepare adhesion and cohesion test specimens as specified herein, at intervals of 5 working days while sealants are being installed.

G. The sealant material shall show no signs of adhesive or cohesive failure when tested in accordance with the following procedure in laboratory and field tests:

(1) Sealant specimen shall be prepared between 2 concrete blocks (1-inch by 2-inch by 3-inch). Spacing between the blocks shall be 1/2-inch. Coated spacers (2-inch by 1-1/2-inch by 1/2-inch) shall be used to insure sealant cross-sections of 1/2-inch by 2 inches with a width of 1/2-inch.

(2) Sealant shall be cast and cured according to manufacturer's recommendations except that curing period shall not exceed 24 hours.

(3) Following curing period, the gap between blocks shall be widened to one inch. Spacers shall be used to maintain this gap for 24 hours prior to inspection for failure.

H. Store waterstops under tarps to protect from oil, dirt, and sunlight.

1.7 GUARANTEE

i) The CONTRACTOR shall provide a 5-year written guarantee of the entire sealant installation against faulty and/or incompatible materials and workmanship, together with a statement that it agrees to repair or replace, to the satisfaction of the CITY, at no additional cost to the CITY, any such defective areas which become evident within said 5-year guarantee period.

PART TWO - PRODUCTS

2.1 PVC WATERSTOPS

i) General: Waterstops shall be extruded from an elastomeric polyvinyl chloride compound containing the plasticizers, resins, stabilizers, and other materials necessary to meet the requirements of these Specifications. No reclaimed or scrap material shall be used. The CONTRACTOR shall obtain from the waterstop manufacturer and shall furnish to the ENGINEER for review, current test reports and a written certification of the manufacturer that the material to be shipped to the job meets the physical requirements as outlined in the U.S. Army Corps of Engineers Specification CRD-C572 and those listed herein.

ii) Flatstrip and Center-Bulb Waterstops: Flatstrip and center-bulb waterstops shall be as detailed and as manufactured by: Kirkhill Rubber Co., Brea, California; Greenstreak, St. Louis, MO, Water Seals, Inc., Chicago, Illinois; Progress Unlimited, Inc., New York, New York; or an approved equal; provided, that at no place shall the thickness of flat strip waterstops, including the center bulb type, be less than 3/8-inch.

iii) Multi-Rib Waterstops: Multi-rib waterstops, where required, shall be as detailed and as manufactured by Water Seals, Inc., Chicago, Illinois; Progress Unlimited, Inc., New York, New York; Greenstreak, St. Louis, MO, or an approved equal. Prefabricated joint fittings shall be used at all intersections of the ribbed-type waterstops.

iv) Other Types of Waterstops: When other types of waterstops, not listed above are required and shown, they shall be subjected to the same requirements as those listed herein.

v) Waterstop Testing Requirements: When tested in accordance with the specified test standards, the waterstop material shall meet or exceed the following requirements:

Physical Property, Sheet Material	Value	ASTM Std.
Tensile Strength-min (psi)	1750	D 638, Type IV
Ultimate Elongation-min (percent)	350	D 638, Type IV
Low Temp Brittleness-max (degrees F)	-35	D 746
Stiffness in Flexure-min (psi)	400	D 747
Accelerated Extraction (CRD-C572)		
Tensile Strength-min (psi)	1500	D 638, Type IV
Ultimate Elongation-min (percent)	300	D 638, Type IV
Effect of Alkalies (CRD-C572)		
Change in Weight (percent)	+0.25/-0.10	------
Change in Durometer, Shore A	+5	D 2240

Finish Waterstop

Tensile Strength-min (psi)	1400	D 638, Type IV
Ultimate Elongation-min (percent)	280	D 638, Type IV

F. Accessories

1. Provide factory made waterstop fabrications for all changes of direction, intersections, and transitions leaving only straight butt joint splices for the field.

2. Provide hog rings or grommets spaced at 12 inches on center along length of waterstop.

3. Provide Teflon coated thermostatically controlled waterstop splicing irons for field butt splices.

2.2 RUBBER WATERSTOPS

For bridge structures, neoprene waterstop requirements shall conform to CSS Section 51-1.

2.3 JOINT SEALANT

i) Joint sealant shall be polyurethane polymer designed for bonding to concrete which is continuously submerged in water.

ii) Joint sealant material shall meet the following requirements:

Work Life	45 - 90 minutes
Time to Reach 20 Shore "A" Hardness (at 77 degrees F, 200 gr quantity)	24 hours, maximum
Ultimate Hardness	30 - 40 Shore "A"
Tensile Strength	250 psi, minimum
Ultimate Elongation	400 percent, minimum
Tear Resistance (Die C ASTM D 624)	75 pounds per inch of thickness, minimum
Color	Light Gray

For bridge structures, additional requirements of CSS Section 51 shall also apply.

iii) All polyurethane sealants for waterstop joints in concrete shall conform to the following requirements:

(1) Sealant shall be 2-part polyurethane with the physical properties of the cured sealant conforming to or exceeding the requirements of ASTM C 920 or Federal Specification TT-S-00227 E(3) for 2-part material, as applicable.

(2) For vertical joints and overhead horizontal joints, only "non-sag" compounds shall be used; all such compounds shall conform to the requirements of ASTM C 920 Class B, or Federal Specification TT-S-0027 E(3), Type II.

(3) For plane horizontal joints, the self-leveling compounds which meet the requirements of ASTM C 920 Class A, or Federal Specification TT-S-0027 E(3), Type I shall be used. For joints subject to either pedestrian or vehicular traffic, a compound providing non-tracking characteristics, and having a Shore "A" hardness range of 25 to 35, shall be used.

(4) Primer materials, if recommended by the sealant manufacturer, shall conform to the printed recommendations of the sealant manufacturer.

iv) All sealants, wherever shown, or required hereunder shall be Rubbercalk 2101-I or 270 as manufactured by Products Research Company; GS 102 or GS 1102 as manufactured by General Sealants Corp; or an approved equal. For sanitary structures mastic/sealant material shall be Ram Nek Sealant by Henry Co.; Sika Flex 1A, Sikadur 51 NS by Sika Corp.

v) Mastic joint sealer shall be a material that does not contain evaporating solvents; that will tenaciously adhere to concrete surfaces; that will remain permanently resilient and pliable; that will not be affected by continuous presence of water and will not in any way contaminate potable water; and that will effectively seal the joints against moisture infiltration even when the joints are subject to movement due to expansion and contraction. The sealer shall be composed of special asphalts or similar materials blended with lubricating and plasticizing agents to form a tough, durable mastic substance containing no volatile oils or lubricants and shall be capable of meeting the test requirements set forth hereinafter, if testing is required by the ENGINEER.

2.4 PREFORMED JOINT FILLER

i) Preformed joint filler material shall be of the preformed non-extruding type joint filler constructed of cellular neoprene sponge rubber or polyurethane of firm texture. Bituminous fiber type will not be permitted. All non-extruding and resilient-type preformed expansion joint fillers shall conform to the requirements and tests set forth in ASTM D 1752 for Type I, except as otherwise specified herein.

B. Unless otherwise noted, preformed joint filler shall be a non-extruding, resilient, bituminous type conforming to the requirements of ASTM D 1751.

2.5 BACKING ROD

i) Backing rod shall be an extruded closed-cell, polyethylene foam rod. The material shall be compatible with the joint sealant material used and shall have a tensile strength of not less than 40 psi and a compression deflection of approximately 25 percent at 8 psi. The rod shall be 1/8-inch larger in diameter than the joint width except that a one-inch diameter rod shall be used for a 3/4-inch wide joint.

2.6 BOND BREAKER

i) Bond breaker shall be Super Bond Breaker as manufactured by Burke Company, San Mateo, California; Hunt Process 225-TU as manufactured by Hunt Process Co., Santa Fe Springs, California; Select Cure CRB as manufactured by Select Products Co., Upland, California; or an approved equal. It shall contain a fugitive dye so that areas of application will be readily distinguishable.

2.7 BEARING DEVICES AND ELASTOMERIC BEARING PADS

Bearing devices and elastomeric bearing pads shall comply with CSS Section 51.

PART THREE - EXECUTION

3.1 GENERAL

i) Unless otherwise shown, waterstops of the type specified herein shall be embedded in the concrete across joints as shown. All waterstops shall be fully continuous for the extent of the joint. Splices necessary to provide such continuity shall be accomplished in conformance to printed instructions of manufacturer of the waterstops. The CONTRACTOR shall take suitable

precautions and means to support and protect the waterstops during the progress of the work and shall repair or replace at its own expense any waterstops damaged during the progress of the work. All waterstops shall be stored so as to permit free circulation of air around the waterstop material.

ii) When any waterstop is installed in the concrete on one side of a joint, while the other half or portion of the waterstop remains exposed to the atmosphere for more than 2 days, suitable precautions shall be taken to shade and protect the exposed waterstop from direct rays of the sun during the entire exposure and until the exposed portion of the waterstop is embedded in concrete.

3.2 SPLICES IN WATERSTOPS

i) Splices in waterstops shall be performed by heat sealing the adjacent waterstop sections in accordance with the manufacturer's printed recommendations and the following requirements:.

(1) The material not be damaged by heat sealing.

(2) The splices have a tensile strength of not less than 60 percent of the unspliced materials tensile strength.

(3) The continuity of the waterstop ribs and of its tubular center axis be maintained.

ii) Butt joints of the ends of two identical waterstop sections may be made while the material is in the forms.

iii) All joints with waterstops involving more than 2 ends to be jointed together, and all joints which involve an angle cut, alignment change, or the joining of 2 dissimilar waterstop sections shall be prefabricated by the CONTRACTOR prior to placement in the forms, allowing not less than 24-inch long strips of waterstop material beyond the joint. Upon being inspected and approved, such prefabricated waterstop joint assemblies shall be installed in the forms and the ends of the 24-inch strips shall be butt welded to the straight run portions of waterstop in place in the forms.

3.3 JOINT CONSTRUCTION

i) Setting Waterstops:

1. In order to eliminate faulty installation that may result in joint leakage, particular care shall be taken of the correct positioning of the waterstops during installation. Adequate provisions must be made to support the waterstops during the progress of the WORK and to insure the proper embedment in the concrete. The symmetrical halves of the waterstops shall be equally divided between the concrete pours at the joints. The center axis of the waterstops shall be coincident with the joint openings. Maximum density and imperviousness of the concrete shall be insured by thoroughly working it in the vicinity of all joints

2. In placing flat-strip waterstops in the forms, means shall be provided to prevent them from being folded over by the concrete as it is placed. Unless otherwise shown, all waterstops shall be held in place with light wire ties on 12-inch centers which shall be passed through the edge of the waterstop and tied to the curtain of reinforcing steel. Horizontal waterstops, with their flat face in a vertical plane, shall be held in place with continuous supports to which the top edge of the waterstop shall be tacked. In placing concrete around horizontal waterstops, with their flat face in a horizontal plane, concrete shall be worked under the waterstops by hand so as to avoid the formation of air and rock pockets.

3. Adequate means shall be provided for anchoring the waterstop in concrete. Waterstops shall be positioned so that they are equally embedded in the concrete on each side of the joint.

4. For bridge structures, waterstops shall conform to CSS Section 51-1.

ii) Joint Location:

Construction joints, and other types of joints, shall be provided where shown. When not shown, construction joints shall be provided at 25-foot maximum spacing for all concrete construction, subject to the approval of the ENGINEER, unless noted otherwise. Where joints are shown spaced greater than 25 feet apart, additional joints shall be provided to maintain the 25-foot maximum spacing. The location of all joints, of any type, shall be submitted for acceptance by the ENGINEER.

iii) Joint Preparation:

Special care shall be used in preparing concrete surfaces at joints where bonding between two sections of concrete is required. Unless otherwise shown, such bonding will be required at all horizontal joints in walls. Surfaces shall be prepared in accordance with the requirements of Section 03300, "Cast-in-Place Concrete." Except on horizontal wall construction joints, wall to slab joints or where otherwise shown or specified, at all joints where waterstops are required, the joint face of the first pour shall be coated with a bond breaker as specified herein.

iv) Construction Joint Sealant:

1. Construction joints in water-bearing floor slabs, and elsewhere as shown, shall be provided with tapered grooves which will be filled with construction joint sealant. The material used for forming the tapered grooves shall be left in the grooves until just before the grooves are cleaned and filled with joint sealant. After removing the forms from the grooves, all laitance and fins shall be removed, and the grooves shall be sand-blasted. The grooves shall be allowed to become thoroughly dry, after which they shall be blown out; immediately there-after, they shall be primed and filled with the construction joint sealant. The primer used shall be supplied by the same manufacturer supplying the sealant. No sealant will be permitted to be used without a primer. Care shall be used to completely fill the sealant grooves. Areas designated to receive a sealant filler shall be thoroughly cleaned, as outlined for the tapered grooves, prior to application of the sealant.

2. Sealant application shall be in accordance with the manufacturer's printed instructions. The surfaces of the groove for the sealant shall not be coated. Concrete next to waterstops shall be placed in accordance with the requirements of Section 03300, Cast-in-Place Concrete.

3. The primer and sealant shall be placed strictly in accordance with the printed recommendations of the manufacturer, taking special care to properly mix the sealant prior to application. All sealant shall cure at least 7 days before the structure is filled with water.

4. All sealant shall be installed by a competent waterproofing specialty contractor who has a successful record of performance in similar installations. Before work is commenced, the crew doing the WORK shall be instructed as to the proper method of application by a representative of the sealant manufacturer.

5. Thorough, uniform mixing of 2-part, catalyst-cured materials is essential; special care shall be taken to properly mix the sealer before its application. Before any sealer is placed, the CONTRACTOR shall arrange to have the crew doing the WORK carefully instructed as to the proper method of mixing and application by a representative of the sealant manufacturer.

6. Any joint sealant which after the manufacturer's recommended curing time for the job conditions of the WORK hereunder, fails to fully and properly cure shall be completely removed; the groove shall be thoroughly sandblasted to remove all traces of the uncured or partially cured sealant and primer, and shall be re-sealed with the specified joint sealant. All costs of such removal, joint treatment, re-sealing, and appurtenant work shall be at the expense of the CONTRACTOR.

3.4 BEARING DEVICES AND ELASTOMERIC BEARING PADS

Bearing devices and elastomeric bearing pads shall comply with CSS Section 51.

(END OF SECTION)

SECTION 03300
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 THE REQUIREMENT

A. The CONTRACTOR shall furnish all materials for concrete in accordance with the provisions of this Section and shall form, mix, place, cure, repair, finish, and do all other work as required to produce finished concrete, in accordance with the requirements of the Contract Documents.

B. The following types of concrete shall be covered in this Section:

1. Structural Concrete: Concrete to be used in all cases except where noted otherwise in the Contract Documents.

2. Sitework Concrete: Concrete to be used for curbs, gutters, sidewalks, pavements, fence and guard post embedment, and underground duct bank encasement unless otherwise shown.

3. Lean Concrete: Concrete to be used for thrust blocks, pipe trench cut-off blocks and cradles, where the preceding items are detailed on the Drawings as unreinforced. Concrete to be used as protective cover for dowels intended for future connection.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 03100 Concrete Formwork.

B. Section 03200 Reinforcement Steel.

E. Section 03290 Joints in Concrete.

G. Section 03315 Grout.

K. Section 03370 Concrete Curing

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Comply with the reference standards and the Standard Specifications of the GENERAL REQUIREMENTS.

B. Comply with the current provisions of the following Codes and Standards, as applicable.

1. Commercial Standards:

ACI 117	Standard Tolerances for Concrete Construction and Materials
ACI 301	Specifications for Structural Concrete for Buildings
ACI 305R	Standard Specifications for Hot Weather Concreting
ACI 306.1	Standard Specifications for Cold Weather Concreting
ACI 318	Building Code Requirements for Reinforced Concrete
ACI 347	Recommended Practice for Concrete Formwork
ACI 350	Recommended Practice for Sanitary Structure

ASTM C 31	Practices for Making and Curing Concrete Test Specimens in the Field
ASTM C 33	Specification for Concrete Aggregates
ASTM C 39	Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C 40	Test Method for Organic Impurities in Fine Aggregates for Concrete
ASTM C 42	Methods of Obtaining and Testing Drilled Cores and Sawed Beams of Concrete
ASTM C 88	Test Method for Soundness of Aggregates by use of Sodium Sulfate or Magnesium Sulfate
ASTM C 94	Specification for Ready-Mixed Concrete
ASTM C 117	Standard Test Method for Materials Finer than No. 200 Sieve in Mineral Aggregates by Washing
ASTM C 131	Test Method for Resistance to Degradation of Small-Sized Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.
ASTM C 136	Method for Sieve Analysis of Fine and Coarse Aggregate
ASTM C 143	Test Method for Slump of Portland Cement Concrete
ASTM C 157	Test Method for Length Change of Hardened Hydraulic Cement Mortar and Concrete.
ASTM C 192	Method of Making and Curing Concrete Test Specimens in the Laboratory.
ASTM C 260	Specification for Air-Entraining Admixtures for Concrete.
ASTM C 289	Test Method for Potential Reactivity of Aggregates (Chemical Method)
ASTM C 311	Method for Sampling and Testing Fly Ash or Natural Pozzolans for Use as a Mineral Admixture in Portland Cement Concrete
ASTM C 494	Specification for Chemical Admixtures for Concrete
ASTM C 618	Specification for Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete
ASTM D 2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate

2. Government Standards:

CSS	Caltrans Standard Specifications

1.4 CONTRACTOR SUBMITTALS

A. Submittals shall be made in accordance with GENERAL REQUIREMENTS.

B. The following submittals and specific information shall be provided.

1. Mix Designs: Prior to beginning the WORK, the CONTRACTOR shall submit to the ENGINEER, for review, and acceptance, preliminary concrete mix designs for each class and type of concrete specified herein. The mix designs shall be designed by an independent testing laboratory acceptable to the ENGINEER. All costs related to such mix design shall be borne by the CONTRACTOR.

Each concrete mix submittal shall contain the following information, as applicable:

1) Location and purpose of the mix.
2) Slump on which the design is based.
3) Total gallons of water per cubic yard, and the water/cement ratio.
4) Brand, type, composition and quantity of cement.
5) Brand type, composition and quantity of fly ash.
6) Specific Gravity, source and gradation of each aggregate.
7) Ratio of fine to total aggregate per cubic yard.
8) Weight (surface dry) of each aggregate per cubic yard.
9) Brand, type, and ASTM designation, active chemical ingredients and quantity of each admixture.
10) Copy of the Building and Safety Research Report Approval for each concrete admixture.
11) Air content.
12) Compressive strength based on 7 day and 28 day compression tests, including standard deviation calculations, corroborative data (if applicable), and required average comprehensive strength per ACI 318, Section 5.
13) Time of initial and final set.
14) Certification stamp and signature by a Civil or Structural engineer registered in the State of California, experienced in concrete mix design.
15) Certificate of Compliance for Cement.
16) Concrete pour sequence.

2. Certified Delivery Tickets: Where ready-mix concrete is used, the CONTRACTOR shall provide certified weighmaster delivery tickets at the time of delivery of each load of concrete. Each certificate shall show the public weighmaster's signature, and the total quantities, by weight of cement, sand, each class of aggregate, admixtures, and the amounts of water in the aggregate and added at the batching plant as well as the amount of water allowed to be added at the site for the specific design mix. Each certificate shall, in addition, state the mix number, total yield in cubic yards, and the time of day, to the nearest minute, corresponding to when the batch was dispatched, when it left the plant, when it arrived at the job, the time that unloading began, and the time that unloading was finished.

3. When a water reducing admixture is to be used, the CONTRACTOR shall furnish mix designs for concrete both with and without the admixture.

4. The CONTRACTOR shall furnish a Certificate of Compliance signed by the supplier identifying the type of fly ash and stating that the fly ash complies with ASTM C 618 and these Specifications, together with all supporting test data prior to the use of the fly ash the sample represents. The supporting data shall also contain test results confirming that the fly ash in combination with the cement and water to be used meets all strength requirements and is compatible with air-entraining agents and other admixtures.

5. The CONTRACTOR shall submit to the ENGINEER for review the design mix for fly ash concrete together with the design mix for Portland cement (non-fly ash) concrete as specified in this Section.

1.5 QUALITY ASSURANCE

A. Laborers: Use adequate number of skilled laborers who are thoroughly trained and experienced in the necessary crafts and completely familiar with the specified requirements and the methods needed for proper performance of the Work of this Section.

B. Compliance with Regulations: All materials shall comply with the current rules and regulations of the local air quality management district, with the rules regarding volatile organic compounds, and with FDA rules and regulations for dangerous substances in construction products.

C. Concrete Manufacturer: Furnish concrete from licensed commercial ready-mix concrete plants conforming to ASTM C94 and approved by City of Los Angeles Department of Building and Safety. Requirements herein govern when exceeding ASTM C94.

D. Continuous Inspection: Construct structural concrete exceeding 2,500 psi compressive strength under continuous inspection of DEPUTY INSPECTOR. Obtain inspection and approval of forms and reinforcing by CONTRACTOR's Independent Testing/Inspection Laboratory three (3) working days before placing structural concrete in order to be verified by ENGINEER.

E. Tests on component materials and for compressive strength and shrinkage of concrete will be performed as specified herein. Test for determining slump will be in accordance with the requirements of ASTM C 143.

F. The cost of all laboratory tests on cement, aggregates, and concrete compressive strength, will be borne by the CITY. However, the CONTRACTOR shall be responsible for all other required tests, and shall be charged for the cost of any additional tests and investigation on work performed which does not meet the specifications.

G. Concrete for testing shall be supplied by the CONTRACTOR at no cost to the CITY, and the CONTRACTOR shall provide assistance and facilities to the INSPECTOR in obtaining samples, and disposal and cleanup of excess material. The CONTRACTOR shall provide the test cylinders, as described in item 1.5.H, to the INSPECTOR for the required testing.

H. Field Compression Tests:

1. Compression test specimens will be taken during construction from the first placement of each concrete mix used and at intervals thereafter as selected by the INSPECTOR to insure continued compliance with these specifications. Each set of test specimens will be a minimum of 4 cylinders.

2. Compression test specimens for concrete shall be made in accordance with ASTM C 31. Specimens shall be 6-inch diameter by 12-inch high cylinders.

3. Compression tests shall be performed in accordance with ASTM C 39. Two test cylinders will be tested at 7 days as necessary and two at 28 days. Any remaining cylinders will be held to verify test results, if needed.

I. Evaluation and acceptance of Compressive Strength Concrete shall be based on the following criteria:

1. Concrete shall be sampled and tested in accordance with the ASTM's stated in Subsection 1.3.B.1.

2. Acceptance of concrete placed shall be based on 28-day compressive strength test results. A 28-day compressive strength test shall consist of the average compressive strength of two concrete test cylinders fabricated from a single load of fresh concrete except that, if a cylinder should show evidence of improper handling, molding, or testing, said cylinder shall be discarded and the compressive strength test shall then consist of the remaining cylinder.

3. Concrete compressive strength tests representing concrete poured-in-place, shall attain the 28-day compressive strength specified in the specifications or as shown on the plans.

4. In-place concrete represented by a compressive cylinder strength test failing to meet the specified 28-day compressive strength shall be removed from the work at no cost to the CITY. Also, the CONTRACTOR shall at its own expense make any corrective changes in the mix deemed necessary by the ENGINEER. The changes in the mix proportions or placement procedures shall be approved by the ENGINEER prior to the placement of any additional concrete subsequent to a failing compressive strength test.

5. As an alternative to the removal of concrete represented by a failed cylinder compressive strength test and subject to the approval of the ENGINEER, the concrete represented by the failed compressive strength cylinder test or tests may be cored in place. The corings shall be completed no later than 10 days from notification of failure by the ENGINEER. The cores shall be taken by the CONTRACTOR in the presence of the INSPECTOR and tested at the CONTRACTOR's expense in accordance with ASTM C 42 by a certified laboratory acceptable to the INSPECTOR. The cores shall be 4 inch diameter (min.) unless otherwise directed by the ENGINEER. At least three cores shall be taken in each area represented by a failed 28-day concrete compressive strength cylinder test. Unless otherwise directed by the ENGINEER, the cores shall be tested wet following a 40-hour submergence. If each core tests at least 85 percent of the specified 28-day compressive strength or greater, the concrete represented may be accepted provided the CONTRACTOR accepts the payment provisions stated below. Concrete represented by failing core tests shall not be paid for and shall be removed by the CONTRACTOR from the work at no cost to the CITY.

6. Payment to the CONTRACTOR for concrete accepted by the ENGINEER based on core test results but represented by failing compressive cylinder test results shall be reduced as follows:

    a. When the result of a single compressive cylinder strength test is less than the specified 28-day compressive strength but 95 percent or more of the 28-day compressive strength, the CONTRACTOR shall pay the CITY **$15** per cubic yard for each in-place cubic yard of concrete represented by the deficient compressive strength cylinder test as determined by the actual sampling interval; and.

    b. When the result of a single compressive strength cylinder test is less than 95 percent of the specified 28-day compressive strength but is acceptable based on core test results taken in accordance with Subsection 1.5.I.5, the CONTRACTOR shall pay the CITY **$20** per cubic yard for each in-place cubic yard of concrete represented by the deficient compressive strength cylinder test as determined by the actual sampling interval.

J. Shrinkage Tests:

1. Drying shrinkage tests shall be provided by the CONTRACTOR for the trial batch specified in the Paragraph in Part 2 entitled "Trial Batch and Laboratory Tests," and during construction to insure continued compliance with these Specifications.

2. Drying shrinkage specimens shall be 4-inch by 4-inch by 11-inch prisms with an effective gage length of 10 inches, fabricated, cured, dried and measured in accordance with ASTM C 157 modified as follows: specimens shall be removed from molds at an age of 23 ±1 hours after trial batching, shall be placed immediately in water at 70 degrees F ±3 degrees F for at least 30 minutes, and shall be measured within 30 minutes thereafter to determine original length and then submerged in saturated lime water at 73 degrees F ±3 degrees F. Measurement to determine expansion expressed as a percentage of original length shall be made at age 7 days. This length at age 7 days shall be the base length for drying shrinkage calculations ("0" days drying age). Specimens then shall be stored immediately in a humidity control room maintained at 73 degrees F ±3 degrees F and 50 percent ±4 percent relative humidity for the remainder of the test. Measurements to determine shrinkage expressed as percentage of base length shall be made and reported separately for 7, 14, 21, and 28 days of drying after 7 days of moist curing.

3. The drying shrinkage deformation of each specimen shall be computed as the difference between the base length (at "0" days drying age) and the length after drying at each test age. The average drying shrinkage deformation of the specimens shall be computed to the nearest 0.0001 at each test age. If the drying shrinkage of any specimen departs from the average of that test age by more than 0.0004-inch, the results obtained from that specimen shall be disregarded. Results of the shrinkage test shall be reported to the nearest 0.001 percent of shrinkage. Compression test specimens shall be taken in each case from the same concrete used for preparing drying shrinkage specimens. These tests shall be considered a part of the normal compression tests for the project. Allowable shrinkage limitations shall be as specified in Part 2, herein.

K. Construction Tolerances: The CONTRACTOR shall set and maintain concrete forms and perform finishing operations so as to ensure that the completed work is within the tolerances specified in Section 03100 “Concrete Formwork”. Surface defects and irregularities are defined as finishes and are to be distinguished from tolerances.

L. For each class of fly ash, all testing and sampling procedures shall conform with these Specifications and ASTM C 311, including the restriction that one sample weighing 4 pounds shall be taken from at least each 200 tons of fly ash supplied.

M. Separate storage facilities shall be provided for fly ash. Fly ash shall be stored in such a manner as to permit ready access for the purpose of inspection and sampling and suitably protected against contamination or moisture. Should any fly ash show evidence of contamination or moisture or be otherwise unsuitable, the INSPECTOR may reject it and require that it be removed from the site. Each class of fly ash used in concrete for this project shall be from the same source.

PART TWO - PRODUCTS

1.1 CONCRETE MATERIALS

A. Materials shall be delivered, stored, and handled so as to prevent damage by water or breakage. Only one brand of cement shall be used. Cement reclaimed from cleaning bags or leaking containers shall not be used. All cement shall be used in the sequence of receipt of shipments.

B. All materials furnished for the work shall comply with the requirements of ACI 301, as applicable. For bridge structures, materials for concrete shall conform to Section 90-2 to 90-4 of CSS.

C. Storage of materials shall conform to the requirements of ACI 301.

D. Materials for concrete shall conform to the Standard Specifications and the following requirements.

1. Concurrent with strength design criteria, concrete shall also be proportioned to provide the requisite durability to satisfy the exposure conditions imposed by either environment and/or service. Durability, in this context, refers to the ability of the concrete to resist deterioration from the environment or service in which it is placed. Concrete proportioned in accordance with ACI 318, or ACI 350 for sanitary structures, chapter 4, Durability Requirements, will meet this criteria.

2. Aggregates shall be obtained from pits acceptable to the INSPECTOR, shall be non-reactive, and shall conform to ASTM C 33. Lightweight sand for fine aggregate will not be permitted.

a. When tested in accordance with ASTM C 289, the ratio of silica released to reduction in alkalinity shall not exceed 1.0.

b. When tested in accordance with ASTM C 40, the fine aggregate shall produce a color in the supernatant liquid no darker than the reference standard color solution.

c. When tested in accordance with ASTM C 131, the coarse aggregate shall show a loss not exceeding 42 percent after 500 revolutions, or 10.5 percent after 100 revolutions.

d. When tested in accordance with ASTM C 88, the loss resulting after five cycles shall not exceed 10 percent for fine or coarse aggregate when using sodium sulfate.

e. When tested in accordance with ASTM C 117, materials finer than No. 200 sieve shall not exceed 1% for gravel, and 1.5% for crushed aggregate.

f. When tested in accordance with ASTM D 2419, the California sand equivalent values operating range shall not be below 71%.

3. Ready-mix concrete shall conform to the requirements of ASTM C 94.

4. Admixtures: The ENGINEER may require the use of admixtures or the CONTRACTOR may propose to use admixtures to control the set, effect water reduction, and increase workability. In either case, the addition of an admixture shall be at the CONTRACTOR's expense. The use and continued use of an admixture shall be approved by the ENGINEER. Admixtures specified herein, other than calcium chloride, shall conform to the requirements of ASTM C 494. The required quantity of cement shall be used in the mix regardless of whether or not an admixture is used. Admixtures shall contain no free chloride ions, be non-toxic after 30 days, and shall be compatible with and made by the same manufacturer as the air entraining admixture.

   These admixtures shall not be used in greater doses than those recommended by the manufacturer or permitted by the ENGINEER. The permitted dosage of the admixture shall not exceed that which will result in an increase in the drying shrinkage of the concrete in excess of 20 percent when used in precast or prestressed concrete, or 10 percent when used in any other structural concrete. The strength of concrete containing the admixture in the amount proposed shall, at the age of 48 hours and longer be not less than that of similar concrete without the admixture. The admixture shall not adversely affect the specified air content, unless permitted by the ENGINEER.

   a. Set controlling admixture shall be either with or without water-reducing properties. Where the air temperature at the time of placement is expected to be consistently over 80 degrees F, a set retarding admixture such as Sika Chemical Corporation's Plastiment, Master Builder's Pozzolith 300R, or an approved equal shall be used. Where the air temperature at the time of placement is expected to be consistently under 40 degrees F, a set accelerating admixture such as Sika Chemical Corporation's Plastocrete 161FL, Master Builder's Pozzolith 50C, or an approved equal shall be used.

   b. Low range water reducer shall conform to ASTM C 494, Type A where ambient temperature is 80 degrees F or lower, or Type D where ambient temperature is above 80 degrees F. It shall be either a hydroxylated carboxylic acid type or a hydroxylated polymer type. The quantity of admixture used and the method of mixing shall be in accordance with the manufacturer's instructions and recommendations.

   c. High range water reducer shall be sulfonated polymer conforming to ASTM C 494, Type F or G.

      If the high range water reducing agent is added to the concrete at the batch plant, it shall be second generation type, Daracem 100, as manufactured by W.R. Grace & Co.; Pozzolith 430R, as manufactured by Masterbuilders; or an approved equal. High range water reducer shall be added to the concrete after all other ingredients have been mixed and initial slump has been verified.

      If the high range water reducer is added to the concrete at the job site, it shall be used in conjunction with a low range water reducer and shall be Pozzolith 400N and Pozzolith MBL82, as manufactured by Masterbuilders; WRDA 19 and WRDA 79, as

manufactured by W.R. Grace & Co.; or an approved equal. Concrete shall have a slump of 3-inches ± 1/2-inch prior to adding the high range water reducing admixture at the job site. The high range water reducing admixture shall be accurately measured and pressure injected into the mixer as a single dose by an experienced technician. A standby system shall be provided and tested prior to each day's operation of the job site system.

Concrete shall be mixed at mixing speed for a minimum of 30 mixer revolutions after the addition of the high range water reducer.

e. Air-entraining agent meeting the requirements of ASTM C 260, shall be used. Sufficient air-entraining agent shall be used to provide a total air content of 3 to 4 percent; provided that, when the mean daily temperature in the vicinity of the worksite falls below 40 degrees F for more than one day, the total air content provided shall be 5 to 6 percent. The CITY reserves the right, at any time, to sample and test the air-entraining agent received on the job by the CONTRACTOR. The air-entraining agent shall be added to the batch in a portion of the mixing water. The solution shall be batched by means of a mechanical batcher capable of accurate measurement.

5. Calcium Chloride: Except as otherwise provided herein, calcium chloride will not be permitted to be used in concrete.

1.2 CURING MATERIALS

A. Materials for curing concrete shall conform to Section 03370 “Curing Concrete, Part 2.

1.3 NON-WATERSTOP JOINT MATERIALS

A. Materials for non-waterstop joints in concrete shall conform to Section 03290 “Joints In Concrete”, Part 2.

1.4 MISCELLANEOUS MATERIALS

A. Floor sealer/hardener shall be a colorless, aqueous solution of zinc and/or magnesium fluosilicate or of sodium silicate, and shall be as manufactured by Masterbuilders Company, W.R. Grace Co., or an approved equal. The solution shall be delivered ready for use in the manufacturer's original sealed containers. Each gallon of the fluosilicate solution shall contain not less than 2 pounds of crystals.

B. Dampproofing agent shall be an asphalt emulsion, such as Sonneborn Hydrocide 660, Flintkote C-13-E Foundation Coating, or an approved equal.

C. Epoxy adhesives shall be per the following products for the applications specified:

2c For bonding freshly-mixed, plastic concrete to hardened concrete, Sikadur Hi-Mod Epoxy Adhesive, as manufactured by Sika Chemical Corporation; Concresive 1001-LPL, as manufactured by Adhesive Engineering Company; or an approved equal.

3c For bonding hardened concrete or masonry to steel, Colma-Dur Gel, Sikadur Hi-Mod Gel, or an approved equal.

D. Drypack: Field mixture of 1 part Portland cement to 2 parts fine aggregate mixed to a damp consistency such that a ball molded in the hands will stick together and hold its shape. At CONTRACTOR's option, the specified admixture may be added for increased workability at lower water/cement ratio. In lieu of field mixing, CONTRACTOR may use factory mixed drypack material, such as Master Builders "SetGrout" or Euclid "Euco Dry Pack Grout", or an approved equal.

E. Expansion Joint Filler: Asphalt impregnated fiber or non-extruding foam type, conforming to ASTM D994 and D1751, or D1752.

F. Construction Joint Materials: “Key-Kold”, “Kwik-Joint” of profiles indicated, or an approved equal.

G. Bonding Agent: “Weld-Crete”, manufactured by Larsen Products Co. or “Concresive", manufactured by Master Builders, or an approved equal.

1.5 CONCRETE DESIGN REQUIREMENTS

A. General: Concrete shall be composed of cement, admixtures, aggregates and water. These materials shall be of the qualities specified. The exact proportions in which these materials are to be used for different parts of the work will be determined during the trial batch. In general, the mix shall be designed to produce a concrete capable of being deposited so as to obtain maximum density and minimum shrinkage and, where deposited in forms, to have good consolidation properties and maximum smoothness of surface. Mix designs with more than 41 percent of sand of the total weight of fine and coarse aggregate shall not be used. The aggregate gradations shall be formulated to provide fresh concrete that will not promote rock pockets around reinforcing steel or embedded items. The proportions shall be changed whenever necessary or desirable to meet the required results at no additional cost to the CITY. All changes shall be subject to review by the ENGINEER.

B. Water-Cement Ratio and Compressive Strength: The minimum compressive strength and cement content of concrete shall be not less than that specified in the following tabulation.

Type of Work	Min. 28-Day Compressive Strength (psi)	Aggregate Gradation	Cement per cu yd (sacks)	Max W/C Ratio (by weight)
Structural Concrete *				
a. Sanitary Structures:	4,000	C	7.0	0.45
b. Other Structures **:	3,250	C	6.0	0.54 **
Sitework concrete:	2,500	C	5.5	0.50
Lean concrete:	2,000	C	4.8	0.71

Note: One sack of cement equals 94 lb.
* Use “B” Aggregate gradation when placing conditions permit.
** For Slabs on grade, maximum W/C ratio shall be 0.45.

C Adjustments to Mix Design: The mixes used shall be changed whenever such change is necessary or desirable to secure the required strength, density, workability, and surface finish and the CONTRACTOR shall be entitled to no additional compensation because of such changes.

D. Fly ash/pozzolan may be used per requirements of the Standard Specifications, when approved by the ENGINEER as a partial cement replacement in concrete as follows:

4c Fly ash shall replace not more than 10 percent by weight of the Portland cement in the design mix. The design mix shall contain a minimum of 7 sacks of cement per cubic yard before the replacement is made.

5c Fly ash for hydraulic/liquid containing structures shall be Class F fly ash only. Fly ash for all other structures shall be Class C or F fly ash.

1.6 CONSISTENCY

The quantity of water entering into a batch of concrete shall be just sufficient, with a normal mixing period, to produce a concrete which can be worked properly into place without segregation, and which can be compacted by the vibratory methods herein specified to give the desired density, impermeability and smoothness of surface. Subject to the w/c ratio requirements of section 2.5, the quantity of water shall be changed as necessary, with variations in the nature or moisture content of the aggregates, to maintain uniform production of a desired consistency. The consistency of the concrete in successive batches shall be determined by slump tests in accordance with ASTM C 143. The slumps shall be as follows:

Part of Work	Slump (in)
With high range water reducer added	8-inches max
Other work	per Standard Specifications

1.7 TRIAL BATCH AND LABORATORY TESTS

A. Before placing any concrete, a Department of Building and Safety certified testing laboratory approved by the ENGINEER shall prepare, within 30 calendar days after the date of the Notice to Proceed, a trial batch of each concrete mix, based on the preliminary concrete mixes submitted by the CONTRACTOR. During the trial batch the aggregate proportions may be adjusted by the testing laboratory using the two coarse aggregate size ranges to obtain the required properties. If one size range produces an acceptable mix, a second size range need not be used. Such adjustments shall be considered refinements to the mix design and shall not be the basis for extra compensation to the CONTRACTOR. All concrete shall conform to the requirements of this Section, whether the aggregate proportions are from the CONTRACTOR's preliminary mix design, or whether the proportions have been adjusted during the trial batch process. The trial batch shall be prepared using the aggregates, cement and admixture proposed for the project. The trial batch materials shall be of a quantity such that the testing laboratory can obtain 3 drying shrinkage, and 10 compression test specimens from each batch. The cost of not more than 3 laboratory trial batch tests for each specified concrete strength shall be borne by the CONTRACTOR. Any additional trial batch testing required shall be performed at the expense of the CONTRACTOR.

   The trial batch procedure may be waived when test data of prior performance of the proposed mix design, performed by a Department of Building and Safety certified testing laboratory, is presented by the CONTRACTOR and approved by the ENGINEER.

   The requirements of this section may be waived for concrete mixes specified by the Class per the Standard Specifications.

B. The determination of compressive strength will be made by testing 6-inch diameter by 12-inch high cylinders; made, cured and tested in accordance with ASTM C 192 and ASTM C 39. 5 compression test cylinders shall be tested at 7 days and 5 at 28 days. The average compressive strength for the 5 cylinders tested at 28 days for any given trial batch shall not be less than the appropriate sections of ACI 318 of the specified compressive strength.

C. A sieve analysis of the combined aggregate for each trial batch shall be performed according to the requirements of ASTM C 136. Values shall be given for percent passing each sieve.

1.8 SHRINKAGE LIMITATION

A. The maximum concrete shrinkage for specimens cast in the laboratory from the trial batch, as measured at 21-day drying age or at 28-day drying age shall be 0.036 percent or 0.042 percent, respectively. The CONTRACTOR shall only use a mix design for construction that has first met the trial batch shrinkage requirements.

B. The maximum concrete shrinkage for specimens cast in the field shall not exceed the trial batch maximum shrinkage requirement by more than 25 percent.

C. If the required shrinkage limitation is not met during construction, the CONTRACTOR shall take any or all of the following actions, at no additional cost to the CITY, for securing the specified shrinkage requirements. These actions may include changing the source or aggregates, cement and/or admixtures; reducing water content; washing of aggregate to reduce fines; increasing the number of construction joints; modifying the curing requirements; or other actions designed to minimize shrinkage or the effects of shrinkage.

1.9 MEASUREMENT OF CEMENT AND AGGREGATE

The amount of cement and of each separate size of aggregate entering into each batch of concrete shall be determined by direct weighing equipment furnished by the CONTRACTOR and acceptable to the ENGINEER; provided that, where batches are so proportioned as to contain an integral number of conventional sacks of cement, and the cement is delivered at the mixer in the original unbroken sacks, the weight of the cement contained in each sack may be taken without weighing as 94 pounds.

1.10 MEASUREMENT OF WATER

The quantity of water entering the mixer shall be measured by a suitable water meter or other measuring device of a type acceptable to the ENGINEER and capable of measuring the water in variable amounts within a tolerance of one percent. The water feed control mechanism shall be capable of being locked in position so as to deliver constantly any specified amount of water to each batch of concrete, and the meter shall include a set-back register with a readily visible vertical face and double hands indicating in cubic feet and decimals thereof. A positive quick-acting valve shall be used for a cut-off in the water line to the mixer. The operating mechanism must be such that leakage will not occur when the valves are closed

1.11 READY-MIXED CONCRETE

A. At the CONTRACTOR's option, ready-mixed concrete may be used meeting the requirements as to materials, batching, mixing, transporting, and placing as specified herein and in accordance with ASTM C 94, including the following supplementary requirements.

B. Ready-mixed concrete shall be delivered to the site of the work, and discharge shall be completed within 90 minutes after the addition of the cement to the aggregates or before the drum has been revolved 250 revolutions, whichever is first. In hot weather, or under conditions contributing to quick stiffening of the concrete, the ready-mixed concrete shall be discharged before the temperature of the concrete exceeds 90 degrees F.

C. Truck mixers shall be equipped with electrically-actuated counters by which the number of revolutions of the drum or blades may be readily verified. The counter shall be of the re-settable, recording type, and shall be mounted in the driver's cab. The counters shall be actuated at the time of starting mixers at mixing speeds.

D. Each batch of concrete shall be mixed in a truck mixer for not less than 70 revolutions of the drum or blades at the rate of rotation designated by the manufacturer of equipment. Additional mixing, if any, shall be at the speed designated by the manufacturer of the equipment as agitating speed. All materials including mixing water shall be in the mixer drum before actuating the revolution counter for determining the number of revolution of mixing.

E. Truck mixers and their operation shall be such that the concrete throughout the mixed batch as discharged is within acceptable limits of uniformity with respect to consistency, mix, and grading. If slump tests taken at approximately the 1/4 and 3/4 points of the load during discharge give slumps differing by more than 2-inches when the specified slump is more than 3-inches, the mixer shall not be used on the work unless the causing condition is corrected and satisfactory performance is verified by additional slump tests. All mechanical details of the mixer, such as water measuring and discharge apparatus, condition of the blades, speed of rotation, general

mechanical condition of the unit, and clearance of the drum, shall be checked before a further attempt to use the unit will be permitted.

F. Each batch of ready-mixed concrete delivered at the job site shall be accompanied by a certified weighmaster delivery ticket furnished to the INSPECTOR in accordance with the Paragraph in Part 1 entitled "Certified Delivery Tickets".

G. The use of non-agitating equipment for transporting ready-mixed concrete will not be permitted. Combination truck and trailer equipment for transporting ready-mixed concrete will not be permitted. The quality and quantity of materials used in ready-mixed concrete and in batch aggregates shall be subject to continuous inspection at the batching plant by the INSPECTOR.

1.12 PRESTRESSING CONCRETE

Prestressing of concrete for bridge structures shall comply with Section 50 of CSS.

2.13 CONCRETE BARRIER

Concrete barrier materials shall comply with Section 83-2.02 of CSS.

PART THREE - EXECUTION

1.1 PROPORTIONING AND MIXING

A. Proportioning: Proportioning of the concrete mix shall conform to the requirements of Chapter 3 "Proportioning" of ACI 301; provided that the maximum slump for any concrete shall not exceed 4-inches except when the use of high range water reducer is permitted which increases the maximum slump to 8-inches. Proportioning for bridge structures shall comply with Section 90-5 of the CSS.

B. Mixing: Mixing of concrete shall conform to the requirements of Chapter 7 of said ACI 301 Specifications.

C. Slump: Maximum slumps shall be as specified herein in Section 2.6.

D. Retempering: Retempering of concrete or mortar which has partially hardened will not be permitted.

1.2 PREPARATION OF SURFACES FOR CONCRETING

A. General: Wet wood forms sufficiently to tighten up cracks. Wet other materials sufficiently to reduce adsorption and to help maintain concrete workability. Earth surfaces shall be thoroughly wetted by sprinkling, 24 hours prior to the placing of any concrete, and these surfaces shall be kept moist by frequent sprinkling up to the time of placing concrete thereon. The surface shall be free from standing water, mud, and debris at the time of placing concrete.

B. Vapor Barrier: Install under interior floor slabs on grade. Lap joints 6" in the direction of concrete spreading and tape seal. Seal the joints at walls and around penetrations with tape. Cover barrier with 2" layer of clean damp sand.

C. Screeds: Set screeds at walls and maximum 8’ centers between. Set to provide level floor. Check with an instrument level, transit, or laser during placing operation to maintain level floor.

D. Screeds Over Vapor Barrier: Use weighted pad or cradle type screeds and do not drive stakes through the vapor barrier. Check with an instrument level, transit, or laser.

E. Metal Floor Decking: Verify that decking joints are sealed and there are no openings or voids that will permit concrete leakage.

F. Expansion Joint Filler: Install where slabs abut buildings and elsewhere as indicated. Install full depth of concrete with top level with finished surface of concrete.

G. Joints in Concrete: Concrete surfaces upon or against which concrete is to be placed, where the placement of the old concrete has been stopped or interrupted so that, as determined by the ENGINEER, the new concrete cannot be incorporated integrally with that previously placed, are defined as construction joints. The surfaces of horizontal joints shall be given a compacted, roughened surface for good bond. Except where the Drawings call for joint surfaces to be coated, the joint surfaces shall be cleaned of all laitance, loose or defective concrete, and foreign material. Such cleaning shall be accomplished by sandblasting followed by thorough washing. All pools of water shall be removed from the surface of construction joints before the new concrete is placed.

H. After the surfaces have been prepared all approximately horizontal construction joints shall be covered with a layer of mortar approximately two-inch thick, or as shown on the plans. The mortar shall have the same proportions of cement and sand as the regular concrete mixture. The water-cement ratio of the mortar in place shall not exceed that of the concrete to be placed upon it, and the consistency of the mortar shall be suitable for placing and working in the manner hereinafter specified. The mortar shall be spread uniformly and shall be worked thoroughly into all irregularities of the surface. Wire brooms shall be used where possible to scrub the mortar into the surface. Concrete shall be placed immediately upon the fresh mortar. When casting deep walls (more than 6 feet high) over slabs or footings, in lieu of the two-inch thick mortar, a 6-inch lift of a rich pea gravel mix with the same water-cement ratio as the wall concrete shall be placed and spread uniformly. Wall concrete shall follow immediately and shall be placed upon the fresh pea gravel mix.

I. Embedded Items: No concrete shall be placed until all formwork, installation of parts to be embedded, reinforcement steel, and preparation of surfaces involved in the placing have been completed and ACCEPTED by the INSPECTOR at least 24 hours before placement of concrete. All surfaces of forms and embedded items that have become encrusted with dried grout from concrete previously placed shall be cleaned of all such grout before the surrounding or adjacent concrete is placed.

J. Conduits and Sleeves:

1. Locate so as not to reduce the strength of construction. Do not place pipes, except conduits in a slab of less than 3-1/2" thickness.

2. In supported concrete slabs, do not bury conduit having any outside diameter greater than 33% of the thickness of the slab. Increase slab thickness locally to meet this requirement.

3. Do not place conduit between the bottom of reinforcing steel and the bottom of supported slab.

4. In placing conduits at slabs on earth, place below the reinforcement, and encase in concrete by increasing thickness of the slab locally to at least 3" of concrete around the conduit on all sides.

K. All inserts or other embedded items shall conform to the requirements herein.

L. All reinforcement, anchor bolts, sleeves, inserts, and similar items shall be set and secured in the forms where shown or by shop drawings and shall be acceptable to the INSPECTOR before any concrete is placed. Accuracy of placement is the responsibility of the CONTRACTOR.

M. Where concrete is to be cast against old concrete, (greater than 60 days of age), the surface of the old concrete shall be thoroughly cleaned and roughened by sand-blasting, exposing the aggregate. In concrete shear-walls, suspended slabs and roof slabs, the interface surface at construction joints shall be roughened to a full amplitude of one quarter inch. The hardened surface shall be cleaned of all latent foreign material and washed clean, prior to the application of an epoxy bonding agent.

N. Concrete shall not be placed in any structure until all water entering the space to be filled with concrete has been properly cut off or has been diverted by pipes, or other means, and carried out of the forms, clear of the work. Concrete shall not be deposited underwater nor shall the CONTRACTOR allow still water to rise on any concrete until the concrete has attained its initial set. Water shall not be permitted to flow over the surface of any concrete in such manner and at such velocity as will injure the surface finish of the concrete. Pumping or other necessary dewatering operations for removing ground water, if required, will be subject to the review of the ENGINEER.

O. Corrosion Protection: Pipe, conduit, dowels, and other ferrous items required to be embedded in concrete construction shall be so positioned and supported prior to placement of concrete that there will be a minimum of 2-inches clearance between said items and any part of the concrete reinforcement. Securing such items in position by wiring or welding them to the reinforcement will not be permitted.

P. Openings for pipes, inserts for pipe hangers and brackets, and the setting of anchors shall, where practicable, be provided for during the placing of concrete.

Q. Anchor bolts shall be accurately set, and shall be maintained in position by templates while being embedded in concrete.

R. Cleaning: The surfaces of all metalwork to be in contact with concrete shall be thoroughly cleaned of all dirt, grease, loose scale and rust, grout, mortar, and other foreign substances immediately before the concrete is placed.

1.3 HANDLING, TRANSPORTING, AND PLACING

A. General: Do not place concrete during rain or adverse weather conditions without means to prevent all damage. Conform to requirements specified hereinafter whenever concrete placement is required during cold or hot weather. Placing of concrete shall conform to the applicable requirements of ACI 301 and the requirements of this Section.

B. Non-Conforming Work or Materials: Concrete which upon or before placing is found not to conform to the requirements specified herein shall be rejected and immediately removed from the work. Concrete which is not placed in accordance with these Specifications, or which is of inferior quality, shall be removed and replaced by and at the expense of the CONTRACTOR.

C. Concrete shall not be placed except in the presence of duly authorized representative of the INSPECTOR. The CONTRACTOR shall notify the INSPECTOR in writing at least 48 hours in advance of placement of any concrete.

D. Placement in Wall Forms: Concrete shall not be dropped through reinforcement steel or into any deep form, whether reinforcement is present or not, causing separation of the coarse aggregate from the mortar on account of repeatedly hitting rods or the sides of the form as it falls, nor shall concrete be placed in any form in such a manner as to leave accumulation of mortar on the form surfaces above the placed concrete. In such cases, some means such as the use of hoppers and, if necessary, vertical ducts of canvas, rubber, or metal shall be used for placing concrete in the forms in a manner that it may reach the place of final deposit without separation. In no case shall the free fall of concrete exceed 4 feet below the ends of ducts, chutes, or buggies. Concrete shall be uniformly distributed during the process of depositing and in no case after depositing shall any portion be displaced in the forms more than 6 feet in horizontal direction. Concrete in forms shall be deposited in uniform horizontal layers not deeper than 2 feet; and care shall be taken to avoid inclined layers or inclined construction joints except where such are required for sloping members. Each layer shall be placed while the previous layer is still soft. The rate of placing concrete in forms shall not exceed 5 feet of vertical rise per hour.

E. Casting New Concrete Against Old: An approved epoxy adhesive bonding agent shall be applied to the old surfaces according to the manufacturer's written recommendations. This provision shall not apply to joints where waterstop is installed, see Section 03290, "Joints in Concrete".

F. Conveyor Belts and Chutes: All ends of chutes, hopper gates, and all other points of concrete discharge throughout the CONTRACTOR'S conveying, hoisting and placing system shall be so designed and arranged that concrete passing from them will not fall separated into whatever receptacle immediately receives it. Conveyor belts, if used, shall be of a type acceptable to the ENGINEER. Chutes longer than 50 feet will not be permitted. Minimum slopes of chutes shall be such that concrete of the specified consistency will readily flow in them. If a conveyor belt is used, it shall be wiped clean by a device operated in such a manner that none of the mortar adhering to the belt will be wasted. All conveyor belts and chutes shall be covered. Sufficient illumination shall be provided in the interior of all forms so that the concrete at the places of deposit is visible from the deck or runway.

G. Placement in Slabs: Concrete placed in sloping slabs shall proceed uniformly from the bottom of the slab to the top, for the full width of the pour. As the work progresses, the concrete shall be vibrated and carefully worked around the slab reinforcement, and the surface of the slab shall be screeded in an up-slope direction.

H. Temperature of Concrete: The temperature of concrete when it is being placed shall be not more than 90 degrees F nor less than 40 degrees F in moderate weather, and not less than 50 degrees F in weather during which the mean daily temperature drops below 40 degrees F. Concrete ingredients shall not be heated to a temperature higher than that necessary to keep the temperature of the mixed concrete, as placed, from falling below the specified minimum temperature. If concrete is placed when the weather is such that the temperature of the concrete would exceed 90 degrees F, the CONTRACTOR shall employ effective means, such as precooling of aggregates and mixing water using ice or placing at night, as necessary to maintain the temperature of the concrete, as it is placed, below 90 degrees F. The CONTRACTOR shall be entitled to no additional compensation on account of the foregoing requirements.

I. Cold Weather Placement:

1. Earth foundations shall be free from frost or ice when concrete is placed upon or against them. Fly ash concrete shall not be placed when the air temperature falls below 50 degrees F.

2. Normal Concrete: When the temperature is below 40 degrees F, the temperature of the concrete placed in the forms shall be at least 60 degrees F. When the temperature is below 30 degrees F, the temperature of the concrete as mixed shall be 65°F. In all cases, when the daily average temperature is below 40 degrees F, the concrete shall be kept at 55 degrees F for the 72 hours, and then allowed to drop uniformly to the air temperature over the next 24 hours. Concrete temperature shall be measured by placing a thermometer 2" below the top of the concrete being placed.

3. Air-entrained concrete shall be kept at the above temperature for 27 hours and above freezing for an additional 72 hours.

4. No calcium chloride shall be used to accelerate hardening of concrete. CONTRACTOR to certify that any additive used does not contain calcium chloride.

5. If low temperature accelerating admixture is proposed, adjust concrete mix as required and obtain approval of the ENGINEER.

6. All concrete materials, reinforcement, forming materials and ground with which concrete is to come in contact shall be free of frost.

7. The covering or other protection used in connection with the curing shall remain in place and intact for at least 24 hours.

8. The work shall be protected from the elements, flowing water, and defacements of any nature during the construction operations.

9. Conform to the provisions of ACI 306.1, except as modified herein.

J. Hot Weather Placement:

Conform to ACI 305R and the following requirements:

1. Take extra care to reduce the temperature of the concrete being placed, and to prevent rapid drying of newly placed concrete. When the outdoor ambient temperature is more than 90 degrees F, shade the fresh concrete as soon as possible after placing, and start curing as soon as the surface of the fresh concrete is sufficiently hard to permit it without damage.

2. Concrete placement temperatures shall be controlled by the CONTRACTOR and shall not be limited to:

A. Shading and cooling the aggregate;

B. Avoiding use of hot cement;

C. Cooling mixing water by additions of ice;

D. Insulating water supply lines and tanks; and

E. Insulating mixer drums or cooling them with sprays or wet burlap.

1.4 PUMPING OF CONCRETE

A. General: If the pumped concrete does not produce satisfactory end results, the CONTRACTOR shall discontinue the pumping operation and proceed with the placing of concrete using conventional methods.

B. Pumping Equipment: The pumping equipment must have 2 cylinders and be designed to operate with one cylinder only in case the other one is not functioning. In lieu of this requirement, the CONTRACTOR may have a standby pump on the site during pumping.

C. The minimum diameter of the hose (conduits) shall be 4-inches.

D. Pumping equipment and hoses (conduits) that are not functioning properly, shall be replaced.

E. Aluminum conduits for conveying the concrete will not be permitted.

F. Gradation of coarse aggregates shall conform to ASTM C 33 and shall be as close to the middle range as possible.

G. Gradation of fine aggregate shall conform to ASTM C 33, with 15 to 30 percent passing the number 50 screen and 5 to 10 percent passing the number 100 screen. The fineness modulus of sand used shall not be over 3.00.

H. Field Control: Concrete samples for slump per ASTM C 143 and test cylinders per ASTM C 31 and C 39.

1.5 ORDER OF PLACING CONCRETE

A. The order of placing concrete in all parts of the work shall be acceptable to the ENGINEER. In order to minimize the effects of shrinkage, the concrete shall be placed in units as bounded by construction joints shown. The placing of units shall be done by placing alternate units in a manner such that each unit placed shall have cured at least 7 days before the contiguous unit or units are placed, except that the corner sections of vertical walls shall not be placed until the 2 adjacent wall panels have cured at least 14 days.

B. The surface of the concrete shall be level whenever a run of concrete is stopped. To insure a level, straight joint on the exposed surface of walls, a wood strip at least 3/4-inch thick shall be tacked to the forms on these surfaces. The concrete shall be carried about 1/2-inch above the underside of the strip. About one hour after the concrete is placed, the strip shall be removed and any irregularities in the edge formed by the strip shall be leveled with a trowel and all laitance shall be removed.

1.6 TAMPING AND VIBRATING

A. As concrete is placed in the forms or in excavations, it shall be thoroughly settled and compacted, throughout the entire depth of the layer which is being consolidated, into a dense, homogeneous mass, filling all corners and angles, thoroughly embedding the reinforcement, eliminating rock pockets, and bringing only a slight excess of water to the exposed surface of concrete during placement. Vibrators shall be high speed power vibrators (8,000 to 10,000 rpm) of an immersion type in sufficient number and with (at least one) standby units as required.

B. Operation of Vibrators: Do not horizontally transport concrete in forms with vibrators nor allow vibrators to contact forms or reinforcing. Push vibrators vertically into the preceding layers that are still plastic and slowly withdraw, producing maximum obtainable density in concrete without creating voids or segregation. In no case disturb concrete that has partially set. Vibrate at intervals not exceeding two-thirds the effective visible vibration diameter of the submerged vibrator. Avoid excessive vibration that causes segregation. Use and type of vibrators shall conform to ACI 309 "Recommended Practice for Consolidation of Concrete".

C. Correction of Segregation: Before placing next layer of concrete, and at the top of last placement for vertical elements, remove concrete containing excess water or fine aggregate or showing deficiency of coarse aggregate and fill the space with compacted concrete of correct proportions.

D. Care shall be used in placing concrete around waterstops. The concrete shall be carefully worked by rodding and vibrating to make sure that all air and rock pockets have been eliminated. Where flat-strip type waterstops are placed horizontally, the concrete shall be worked under the waterstops by hand, making sure that all air and rock pockets have been eliminated. Concrete surrounding the waterstops shall be given additional vibration, over and above that used for adjacent concrete placement to assure complete embedment of the waterstops in the concrete.

E. Concrete in walls shall be internally vibrated and at the same time rammed, stirred, or worked with suitable appliances, tamping bars, shovels, or forked tools until it completely fills the forms or excavations and closes snugly against all surfaces. Subsequent layers of concrete shall not be placed until the layers previously placed have been worked thoroughly as specified. Vibrators shall be provided in sufficient numbers, with standby units as required, to accomplish the results herein specified within 15 minutes after concrete of the prescribed consistency is placed in the forms. The vibrating head shall be kept from contact with the surfaces of the forms. Care shall be taken not to vibrate concrete excessively or to work it in any manner that causes segregation of its constituents.

1.7 FINISHING CONCRETE SURFACES

A. General: Surfaces shall be free from fins, bulges, ridges, offsets, honeycombing, or roughness of any kind, and shall present a finished, smooth, continuous hard surface. Allowable deviations from plumb or level and from the alignment, profiles, and dimensions shown are defined as tolerances and are specified in Part 1, herein. These tolerances are to be distinguished from irregularities in finish as described herein. Aluminum finishing tools shall not be used.

B. Formed Surfaces: Formed surfaces for all structures other than building structures and bridge decks, shall be finished per Section 303-1.9 of Standard Specifications. Concrete for bridge decks shall be finished per CSS Section 51-1.17. Concrete for building and retaining wall structures shall be finished per architectural finish as specified hereon, or as shown on Drawings.

1.8 CURING AND DAMPPROOFING

Curing and Dampproofing shall conform to Section 03370 “Curing Concrete”, Part 3.

1.9 PROTECTION

The CONTRACTOR shall protect all concrete against injury until final acceptance by the CITY. Fresh concrete shall be protected from damage due to rain, hail, sleet, or snow. The CONTRACTOR shall provide such protection while the concrete is still plastic and whenever such precipitation is imminent or occurring. Immediately following the first frost in the fall, the CONTRACTOR shall be prepared to protect all concrete against freezing. After the first frost, and until the mean daily temperature in the vicinity of the worksite falls below 40 degrees F for more than one day, the concrete shall be maintained at a temperature not lower than 50 degrees F for at least 72 hours after it is placed.

The CONTRACTOR shall protect all concrete against injury or damage from excessive heat, lack of moisture, overstress, or any other cause until final acceptance by the CITY. Particular care shall be taken to prevent the drying of concrete and to avoid roughening or otherwise damaging the surface. Any concrete found to be damaged, or which may have been originally defective, or which becomes defective at any time prior to the final acceptance of the completed work, or which departs from the established line or grade, or which, for any other reason, does not conform to the requirements of the Contract Documents, shall be satisfactorily repaired or removed and replaced with acceptable concrete at the CONTRACTOR'S expense.

1.10 TREATMENT OF SURFACE DEFECTS

A. As soon as forms are removed, all exposed surfaces shall be carefully examined and any irregularities shall be immediately rubbed or ground in a satisfactory manner in order to secure a smooth, uniform, and continuous surface. Plastering or coating of surfaces to be smoothed will not be permitted. No repairs shall be made until after inspection by the ENGINEER. In no case will extensive patching of honeycombed concrete be permitted. Concrete containing minor voids, holes, honeycombing, or similar depression defects shall be repaired as specified herein. Concrete containing extensive voids, holes, honeycombing, or similar depression defects, shall be completely removed and replaced. All repairs and replacements herein specified shall be promptly executed by the CONTRACTOR at its own expense.

B. Defective surfaces to be repaired shall be cut back from trueline a minimum depth of 1/2-inch over the entire area. Feathered edges will not be permitted. Where chipping or cutting tools are not required in order to deepen the area properly, the surface shall be prepared for bonding by the removal of all laitance or soft material, and not less than 1/32-inch depth of the surface film from all hard portions, by means of an efficient sandblast. After cutting and sandblasting, the surface shall be wetted sufficiently in advance of shooting with shotcrete or with cement mortar so that while the repair material is being applied, the surfaces under repair will remain moist, but not so wet as to overcome the suction upon which a good bond depends. The material used for repair purposes shall consist of a mixture of one sack of cement to 3 cubic feet of sand. For exposed walls, the cement shall contain such a proportion of Atlas white Portland cement as is required to make the color of the patch match the color of the surrounding concrete.

C. Holes left by tie-rod cones shall be reamed so as to leave the surfaces of the holes clean and rough. These holes then shall be repaired in an approved manner with non-shrink grout. Holes left by form-tying devices having a rectangular cross-section, and other imperfections having a depth greater than their least surface dimension, shall not be reamed but shall be repaired in an approved manner with non-shrink grout.

D. All repairs shall be built up and shaped in such a manner that the completed work will conform to the requirements of this Section, as applicable, using approved methods which will not disturb the bond, cause sagging, or cause horizontal fractures. Surfaces of said repairs shall receive the same kind and amount of curing treatment as required for the concrete in the repaired section.

E. Prior to filling any structure with water, all cracks that may have developed shall be repaired to the satisfaction of the ENGINEER. This repair method shall be done on the water bearing face of members. Prior to backfilling, faces of members in contact with fill, which are not covered with a waterproofing membrane, shall also have cracks repaired as specified herein.

1.11 PRESTRESSING CONCRETE

Prestressing concrete for bridge structures shall comply with CSS Section 50.

3.12 CONCRETE BARRIER

Concrete barrier construction shall comply with Section 83-2.02 of CSS.

(END OF SECTION)

SECTION 03315
GROUT

PART ONE - GENERAL

1.1 THE REQUIREMENT

A. The CONTRACTOR shall furnish all materials for grout in accordance with the provisions of this Section and shall form, mix, place, cure, repair, finish, and do all other work as required to produce finished grout, in accordance with the requirements of the Contract Documents.

B. All grouts shall be City of Los Angeles approved product. The CONTRACTOR shall submit a copy of the Los Angeles Research Report with submittals.

C. The following types of grout shall be covered in this Section:

1. Non-Shrink Grout: This type of grout is to be used wherever grout is shown in the Contract Documents, unless another type is specifically referenced.

2. Cement Grout

3. Epoxy Grout

1.2 RELATED WORK SPECIFIED ELSEWHERE

B. Section 03300 Cast-in-Place Concrete.

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

C. Comply with the reference standards of the GENERAL REQUIREMENTS.

D. Comply with the current provisions of the following Codes and Standards, as applicable.

1. Commercial Standards:

CRD-C 621	Corps of Engineers Specification for Non-shrink Grout
ASTM C 109	Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in or 50-mm Cube Specimens)
ASTM C 531	Test Method for Linear Shrinkage and Coefficient of Thermal Expansion of Chemical- Resistant Mortars, Grouts, and Monolithic Surfacings
ASTM C 579	Test Methods for Compressive Strength of Chemical-Resistant Mortars and Monolithic Surfacings
ASTM C 827	Test Method for Early Volume Change of Cementitious Mixtures
ASTM C 1107	Standard Specification for Packaged dry hydraulic cement grout (non-shrink)
ASTM D 696	Test Method for Coefficient of Linear Thermal Expansion of Plastics

2. Other Government Standards:

CSS Caltrans Standard Specifications.

1.4 CONTRACTOR SUBMITTALS

A. Submittals shall be made in accordance with GENERAL REQUIREMENTS.

B. The following submittals and specific information shall be provided.

1. The CONTRACTOR shall submit certified test results verifying the compressive strength, shrinkage, and expansion requirements specified herein; and manufacturer's literature containing instructions and recommendations on the mixing, handling, placement and appropriate uses for each type of non-shrink and epoxy grout used in the work.

1.5 QUALITY ASSURANCE

A. Field Tests:

1. Compression test specimens will be taken during construction from the first placement of each type of grout, and at intervals thereafter as selected by the ENGINEER to insure continued compliance with these specifications. The specimens will be made by the INSPECTOR

2. Compression tests and fabrication of specimens for cement grout and non-shrink grout will be performed as specified in ASTM C 109 at intervals during construction as selected by the ENGINEER. A set of three specimens will be made for testing at 7 days, 28 days, and each additional time period as appropriate.

3. Compression tests and fabrication of specimens for epoxy grout will be performed as specified in ASTM C 579, Method B, at intervals during construction as selected by the ENGINEER. A set of three specimens will be made for testing at 7 days, and each earlier time period as appropriate.

4. All grout, already placed, which fails to meet the requirements of these specifications, is subject to removal and replacement at the cost of the CONTRACTOR.

5. The cost of all laboratory tests on grout will be borne by the CITY, but the CONTRACTOR shall assist the INSPECTOR in obtaining specimens for testing. However, the CONTRACTOR shall be charged for the cost of any additional tests and investigation on work performed which does not meet the specifications. The CONTRACTOR shall supply all materials necessary for fabricating and containing the test specimens.

B. Construction Tolerances: Construction tolerances shall be as specified in the Section 03300, "Cast-in-Place Concrete," except as modified herein and elsewhere in the Contract Documents.

PART TWO - PRODUCTS

1.1 CEMENT GROUT

A. Cement Grout: Cement grout shall be composed of one part cement, three parts sand, and the minimum amount of water necessary for the mixture to flow under its own weight. Where needed to match the color of adjacent concrete, white Portland cement shall be blended with regular cement as needed. In addition, where needed, an approved admixture may be added to increase workability at a low water/cement ratio. The minimum compressive strength at 28 days shall be 4000 psi.

B. Cement grout materials shall be as specified in Section 03300, "Cast-in-Place Concrete".

1.2 PREPACKAGED GROUTS

A. Non-Shrink Grout:

1. Non-shrink grout shall be a prepackaged, inorganic, non-gas-liberating when tested in accordance with C1107, non-metallic, cement-based grout requiring only the addition of water. Manufacturer's instructions shall be printed on each bag or other container in which the materials are packaged. The specific formulation for each class of non-shrink grout specified herein shall be that recommended by the manufacturer for the particular application.

2. Class A non-shrink grouts shall have a minimum 28 day compressive strength of 5,000 psi; shall have no shrinkage (0.0 percent) and a maximum 4.0 percent expansion in the plastic state when tested in accordance with ASTM C 827; and shall have no shrinkage (0.0 percent) and a maximum of 0.2 percent expansion in the hardened state when tested in accordance with CRD C 621.

3. Class B non-shrink grouts shall have a minimum 28 day compressive strength of 5,000 psi and shall meet the requirements of CRD C 621.

4. Application:

   a. Class A non-shrink grout shall be used for the repair of all holes and defects in concrete members which are water bearing or in contact with soil or other fill material, grouting under all equipment base plates, and at all locations where grout is specified in the contract documents; except, for those applications for Class B non-shrink grout and epoxy grout specified herein. Class A non-shrink grout may be used in place of Class B non-shrink grout for all applications.

   b. Class B non-shrink grout shall be used for the repair of all holes and defects in concrete members which are not water-bearing and not in contact with soil or other fill material, grouting under all base plates for structural steel members, and grouting railing posts in place.

B. Epoxy Grout:

1. Epoxy grout shall be a pourable, non-shrink, 100 percent solids system. The epoxy grout system shall have three components: resin, hardener, and specially blended aggregate, all premeasured and prepackaged. The resin component shall not contain any non-reactive diluents. Resins containing butyl glycidyl ether (BGE) or other highly volatile and hazardous reactive diluents are not acceptable. Variation of component ratios is not permitted unless specifically recommended by the manufacturer. Manufacturer's instructions shall be printed on each container in which the materials are packaged.

2. The chemical formulation of the epoxy grout shall be that recommended by the manufacturer for the particular application.

3. The mixed epoxy grout system shall have a minimum working life of 45 minutes at 75 degrees F.

4. The epoxy grout shall develop a compressive strength of 5,000 psi in 24 hours and 10,000 psi in seven days when tested in accordance with ASTM C 579, Method B. There shall be no shrinkage (0.0 percent) and a maximum 4.0 percent expansion when tested in accordance with ASTM C 827.

5. The epoxy grout shall exhibit a minimum effective bearing area of 95 percent. This shall be determined by a test consisting of filling a 2-inch diameter by 4-inch high metal cylinder mold covered with a glass plate coated with a release agent. A weight shall be placed on the glass plate. At 24 hours after casting, the weight and plate shall be removed and the

area in plan of all voids measured. The surface of the grout shall be probed with a sharp instrument to locate all voids.

6. The peak exotherm of a 2-inch diameter by 4-inch high cylinder shall not exceed 95 degrees F when tested with 75 degree F material at laboratory temperature. The epoxy grout shall exhibit a maximum thermal coefficient of 30 x 10^{-6} inches/inch/degree F when tested according to ASTM C 531 or ASTM D 696.

7. The CONTRACTOR shall demonstrate the ability of the epoxy grout system to completely fill the size and depth of the intended hole, blockout, or area before the system is submitted for consideration by the ENGINEER.

8. Application: Epoxy grout shall be used to embed all anchor bolts and reinforcing steel required to be set in grout, and for all other applications required in the Contract Documents.

1.3 CURING MATERIALS

Curing materials shall be as specified in Section 03300, "Cast-in-Place Concrete" for cement grout and as recommended by the manufacturer of prepackaged grouts.

1.4 CONSISTENCY

The consistency of grouts shall be that necessary to completely fill the space to be grouted for the particular application. Dry pack consistency is such that the grout is plastic and moldable but will not flow. Where "dry pack" is called for in the Contract Documents, it shall mean a grout of that consistency; the type of grout to be used shall be as specified herein for the particular application.

1.5 MEASUREMENT OF INGREDIENTS

A. Measurements for cement grout shall be made accurately by volume using containers. Shovel measurement shall not be allowed.

B. Prepackaged grouts shall have ingredients measured by means recommended by the manufacturer.

PART THREE - EXECUTION

1.1 GENERAL

A. All surface preparation, curing, and protection of cement grout shall be as specified in Section 03300, "Cast-in-Place Concrete". The finish of the grout surface shall match that of the adjacent concrete.

B. The manufacturer of Class A non-shrink grout and epoxy grout shall provide on-site technical assistance upon request. All costs related to this requirement shall be borne by the CONTRACTOR.

C. All mixing, surface preparation, handling, placing, consolidation, and other means of execution for prepackaged grouts shall be done according to the instructions and recommendations of the manufacturer.

1.2 CONSOLIDATION

Grout shall be placed in such a manner, for the consistency necessary for each application, so as to assure that the space to be grouted is completely filled.

(END OF SECTION)

SECTION 03370
CONCRETE CURING

PART ONE - GENERAL

1.1 THE REQUIREMENT

A. The Contractor shall furnish all tools, equipment, materials, and supplies and shall perform all labor required to complete the work as indicated on the Drawings and specified herein.

B. This section covers the work necessary for the concrete curing requirements.

1.2 RELATED WORK SPECIFIED ELSEWHERE

A. Section 03100 Concrete Formwork.

B. Section 03300 Cast-In-Place Concrete.

1.3 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

A. Comply with the reference standards and Standard Specifications of the GENERAL REQUIREMENTS.

B. Comply with the current provisions of the following Codes and Standards, as applicable.

1. Federal Specifications:

   UU-B-790A (Int.Amd. 1) Building Paper, Vegetable Fiber (Kraft, Waterproofed, Waterproofed, water Repellant and Fire Resistant)

2. Commercial Standards:

ACI 308	Standard Practice for Curing Concrete
ASTM C 156	Test Method for Water Retention by Concrete Curing Materials
ASTM C 171	Specifications for Sheet Materials for Concrete Curing
ASTM C 309	Specifications for Liquid Membrane-Forming Compounds for Curing Concrete

3. Government Standards:

CSS	Caltrans Standard Specifications

1.4 CONTRACTOR SUBMITTALS

A. Submittals shall be made in accordance with the GENERAL REQUIREMENTS.

1.5 QUALITY ASSURANCE

A. Quality Control Data:

1. Curing Compound: Manufacturer's Certification of Compliance, to include statement that product meets ASTM C 309**,** additional permeability requirement, and coverage.

2. Retardant For Exposed Aggregate Finish on Formed Surface: Manufacturer's Certification of Compliance including statement that product is suitable for and will meet job requirements.

3. Curing method, procedures and method of application to be used shall be in compliance with the requirements as specified herein.

PART TWO - PRODUCTS

2.1 CURING MATERIALS

A. Materials for curing concrete as specified herein shall conform to the Standard Specifications and the following requirements:

1. Polyethylene sheet for use as concrete curing blanket shall be white and conform to ASTM C 171. The loss of moisture when determined in accordance with the requirements of ASTM C 156 shall not exceed 0.055 grams per square centimeter of surface.

2. Polyethylene-coated waterproof paper sheeting for use as concrete curing blanket shall consist of white polyethylene sheeting free of visible defects, uniform in appearance, having a nominal thickness of 2 mils and permanently bonded to waterproof paper conforming to the requirements of Federal Specification UU-B-790A (Int. Amd. 1). The loss of moisture, when determined in accordance with the requirements of ASTM C 156, shall not exceed 0.055 gram per square centimeter of surface.

3. Polyethylene-coated burlap for use as concrete curing blanket shall conform to ASTM C 171. The loss of moisture, when determined in accordance with the requirements of ASTM C 156, shall not exceed 0.055 grams per square centimeter of surface.

4. Curing mats for use in Curing Method 6 as specified herein, shall be heavy shag rugs or carpets or cotton mats quilted at 4-inches on center. Curing mats shall weigh a minimum of 12 ounces per square yard when dry.

5. Evaporation retardant shall be a material such as Confilm as manufactured by Masterbuilders, Cleveland, OH**;** or an approved equal**.**

B. Curing Compound:

1. Curing compound shall consist of a liquid which, when applied to fresh concrete by means of a spray gun, will form an impervious membrane over the exposed surfaces of the concrete.
2. The membrane may be either asphaltic or paraffin derivatives to which other waterproofing materials may have been added. Concrete curing compounds shall be designated by type as follows:

Type 1 – Clear or translucent without dye

Type 1-D - Clear or translucent with red fugitive dye

Type 2 - White pigmented

Type 3 - Light gray pigmented

Type 4 - Black pigmented

3. Provide curing compound meeting requirements of ASTM C 309, with additional requirement that permeability not exceed 0.039 gm/square cm/72 hours, when tested in accordance with ASTM C 156 standards.

4. Provide evaporation retardant where required to prevent rapid evaporation of water from fresh exposed concrete.

5. When pigmented curing compounds are used, at the time of use, the compound shall be thoroughly mixed, with the pigment uniformly dispensed throughout the mixture.

6. Unless otherwise specified, Type 1-D curing compound shall be used, except that Type 2 shall be used for the top surface of bridge decks.

2.2 FLOOR HARDENER (SURFACE-APPLIED)

A. Floor hardener shall be a colorless, aqueous solution of zinc and/or magnesium fluosilicate.

B. Each gallon of fluosilicate solution shall contain minimum of 2 pounds of crystals.

C. All hardeners shall be furnished by the CONTRACTOR and shall be delivered ready mixed in sealed original containers bearing the manufacturer's name and product identification.

PART THREE - EXECUTION

3.1 CURING OF CONCRETE

3.2 CURING AND DAMPPROOFING METHODS

General: All concrete shall be cured for not less than 10 days after placing, in accordance with the methods specified herein for the different parts of the work, and described in detail in the following paragraphs. Curing concrete for bridge structures shall comply with Section 90-7 of the CSS.

Surface to be Cured or Dampproofed (except bridge structures)	Method
Unstripped forms	1
Wall sections with forms removed	6
Construction joints between footings and walls, and between floor slab and columns	2

Encasement concrete and thrust blocks	3
All concrete surfaces not specifically provided for elsewhere in this Paragraph	4

Method 1: Wooden forms shall be wetted immediately after concrete has been placed and shall be kept wet with water until removed. If steel forms are used the exposed concrete surfaces shall be kept continuously wet until the forms are removed. If forms are removed within 10 days of placing the concrete, curing shall be continued in accordance with Method 6, herein.

Method 2: The surface shall be covered with burlap mats which shall be kept wet with water for the duration of the curing period, until the concrete in the walls has been placed. No curing compound shall be applied to surfaces cured under Method 2.

Method 3: The surface shall be covered with moist earth not less than 4 hours, nor more than 24 hours, after the concrete is placed. Earthwork operations that may damage the concrete shall not begin until at least 7 days after placement of concrete.

Method 4: The surface shall be sprayed with a liquid curing compound.

1 Curing compound shall be applied in 2 coats according to the manufacturer's printed instructions. The direction of application of the second coat shall be perpendicular to the first. The second coat shall be applied when the first coat is dry to touch, but not to exceed 4 hours. Each coat shall be applied at a rate not more than 200 square feet per gallon and in such a manner as to cover the surface with a uniform film which will seal thoroughly.

2 Where the curing compound method is used, care shall be exercised to avoid damage to the seal during the curing period. The CONTRACTOR shall maintain and monitor the curing compound membrane for a minimum of 10 days. Should the seal be damaged or broken before the expiration of this curing period, the break shall be repaired immediately by the application of additional curing compound over the damaged portion.

3 Wherever curing compound may have been applied by mistake to surfaces against which concrete subsequently is to be placed and to which it is to adhere, said compound shall be entirely removed by wet sandblasting just prior to the placing of new concrete.

4 Application of the curing compound to the concrete shall commence as soon as the finished surface of the concrete reaches a uniformly damp appearance with no free water on the surface. Curing compound shall also be applied no later than 2 hours after removal of forms from contact with formed surfaces or after the placement of concrete on the subgrade. At any point, the application rate shall be within 50 square feet per gallon of the nominal rate and the average application rate shall be within 25 square feet per gallon of the nominal rate specified when tested in accordance with California Test 535.

5 Repairs required to be made to formed surfaces shall be made within the said 2-hour period; provided, however, that any such repairs which cannot be made within the said 2-hour period shall be delayed until after the curing compound has been applied. When repairs are to be made to an area on which curing compound has been

applied, the area involved shall first be wet-sandblasted to remove the curing compound, following which repairs shall be made as specified herein.

6 At the time of use, pigmented curing compounds shall be maintained in a thoroughly mixed condition. Containers of curing compound shall remain air-tight when not in use.

7 The CONTRACTOR shall apply curing compound in the presence of the INSPECTOR. Curing compound shall be applied to form a continuous and uniform membrane.

Method 5: Immediately after the concrete has been screeded, it shall be treated with a liquid evaporation retardant. The retardant shall be used again after each work operation as necessary to prevent drying shrinkage cracks.

1. Immediately after each square foot of the concrete has been finished, it shall be given a coat of curing compound in accordance with Method 4, herein. Not less than one hour nor more than 4 hours after the coat of curing compound has been applied, the surface shall be wetted with water delivered through a fog nozzle, and concrete-curing blankets shall be placed on the slabs. The curing blankets shall be polyethylene sheet, polyethylene-coated waterproof paper sheeting or polyethylene-coated burlap. The blankets shall be laid with the edges butted together and with the joints between strips sealed with 2-inch wide strips of sealing tape or with edges lapped not less than 3-inches and fastened together with a waterproof cement to form a continuous watertight joint.

2. The curing blankets shall be left in place during the 10-day curing period and shall not be removed until after concrete for adjacent work has been placed. Should the curing blankets become torn or otherwise ineffective, the CONTRACTOR shall replace damaged sections. During the first 3 days of the curing period, no traffic of any nature and no depositing, temporary or otherwise, of any materials shall be permitted on the curing blankets. During the remainder of the curing period, foot traffic and temporary depositing of materials that impose light pressure will be permitted only on top of plywood sheets 5/8-inch minimum thickness, laid over the curing blanket. The CONTRACTOR shall add water under the curing blanket as often as necessary to maintain damp concrete surfaces at all times.

Method 6: Concrete slabs shall be treated with an evaporation retardant as specified in Method 5. The concrete shall be kept continuously wet by the application of water for a minimum period of at least 10 consecutive days beginning immediately after the concrete has been placed or forms removed. Heavy curing mats shall be used as a curing medium to retain the moisture during the curing period. The curing medium shall be weighted or otherwise held in place to prevent being dislodged by wind or any other causes. Until the concrete surface is covered with the curing medium the entire surface shall be kept damp by applying water using nozzles that atomize the flow so that the surface is not marred or washed. The curing blankets and concrete shall be kept continuously wet by the use of sprinklers or other means both during and after normal working hours. Immediately after the application of water has terminated at the end of the curing period, the curing medium shall be removed and curing compound immediately applied in accordance with Method 4, herein. The CONTRACTOR shall dispose of excess water from the curing operation to avoid damage to the work.

Method 7:

1. Method 6 shall be used for curing.

2. Immediately after completion of curing the surface shall be sprayed with a dampproofing agent consisting of an asphalt emulsion. Application shall be in 2 coats. The first coat shall be diluted to 1/2 strength by the addition of water and shall be sprayed on so as to provide a maximum coverage rate of 100 square feet per gallon of dilute solution. The second coat shall consist of an application of the specified material, undiluted, and shall be sprayed on so as to provide a maximum coverage rate of 100 square feet per gallon. Dampproofing material shall be as specified herein.

3. As soon as the asphalt emulsion, applied as specified herein, has taken an initial set, the entire area thus coated shall be coated with whitewash. Any formula for mixing the whitewash may be used which produces a uniformly coated white surface and which so remains until placing of the backfill. Should the whitewash fail to remain on the surface until the backfill is placed, the CONTRACTOR shall apply additional whitewash.

Method 8: Floor slabs to be covered with resilient flooring shall be coated with an asphaltic membrane curing compound such as Hunt's Process Black, or an approved equal.

3.3 EVAPORATION RETARDANT APPLICATION PROTECTION

A. Spray onto surface of fresh concrete immediately after screeding to react with surface moisture.

B. Reapply after smoothing surface with a bull float to ensure continuous, compacted monomolecular layer until final finishing is completed.

C. After finishing, apply water curing as specified.

3.4 CURING AND PROTECTION IN COLD WEATHER

A. Concrete shall not be placed during cold weather where conditions would require procedures as specified in ACI 306.

B. The Engineer, at his option, may allow cold weather placement of concrete if an extended period of cold weather is anticipated.

C. Water curing of concrete may be reduced to 6 days during periods when the mean daily temperature in the vicinity of the worksite is less than 40 degrees F; provided that, during the prescribed period of water curing, when temperatures are such that concrete surfaces may freeze, water curing shall be temporarily discontinued.

D. Concrete cured by an application of curing compound will require no additional protection from freezing if the protection at 50 degrees F for 72 hours is obtained by means of approved insulation in contact with the forms or concrete surfaces; otherwise, the concrete shall be protected against freezing temperatures for 72 hours immediately following 72 hours protection at 50 degrees F. Concrete cured by water curing shall be protected against freezing temperatures for 3 days immediately following the 72 hours of protection at 50 degrees F.

E. Discontinuance of protection against freezing temperatures shall be such that the drop in temperature of any portion of the concrete will be gradual and will not exceed 40 degrees F in 24 hours. In the spring, when the mean daily temperature rises above 40 degrees F for more than 3 successive days, the specified 72-hour protection at a temperature not lower than 50 degrees F may be discontinued for as long as the mean daily temperature remains above 40 degrees F; provided, that the concrete shall be protected against freezing temperatures for not less than 48 hours after placement.

F. Where artificial heat is employed, special care shall be taken to prevent the concrete from drying. Use of unvented heaters will be permitted only when unformed surfaces of concrete adjacent to the heaters are protected for the first 24 hours from an excessive carbon dioxide atmosphere by application of curing compound; provided, that the use of curing compound for such surfaces is otherwise permitted by these Specifications.

3.5 CLEAR HARDENER APPLICATION (SURFACE APPLIED)

A. Before application, thoroughly cure floors to receive hardener for minimum 28 days, keep clean, unpainted, free from membrane curing compounds, and dry with all work above them completed.

B. Do not use curing compounds where floor hardeners are specified. Use water curing only.

C. Apply hardener evenly, using three coats, allowing 24 hours between coats as follows:

1. First Coat: 1/3 strength, second coat 1/2 strength, and third coat 2/3 strength, mix with water.

2. Apply each coat so as to remain wet on surface for 15 minutes.

3. Apply approved hardeners in accordance with manufacturer's instructions.

4. After final coat is completed and dry, remove surplus hardener from surface by scrubbing and mopping with water.

(END OF SECTION)

16 ELECTRICAL

Section 16360
Electrical / Lighting

General provisions for department of recreations and parks and the standard specifications for public works constructions (SSPWC). The Los Angeles city electrical code (latest edition) are made a part of these plans and specifications.

Where conflicts occurs between division 1 department of recreation and parks and the SSPWC, the division 1 department of recreation and parks department shall take precedence. Catalog specifications when described by model number are hereby made a part of these specifications. Where options for materials and or methods appears in the standard specifications, or the Los Angeles electrical code, the option defined herein shall be used. Any discrepancies shall be resolved with the final decision made by the general manager of the department of recreation and parks or authorized representative.

1.0 GENERAL SCOPE OF WORK:

Work in this contract: all labor, materials and equipment necessary for the lighting and electrical distribution system. Complete and ready for use, in accordance with these contract drawings and these specifications.

2.0 CLEANING, INSTALLATION AND REMOVAL OF RUBBISH:

Besides the general cleaning, the contractor shall be responsible for seeing that the following special cleaning for all trades shall be done at the completion of the work and during installation.

A. Clean all electrical equipment and devices. Remove stains, dust, dirt, plaster, paint and etc.

B. Remove all spots, soils, plasters and paints from all existing work and clean to original condition.

C. Protect and clean all fixtures and equipment.

3.0 CONSTRUCTION WATER, LIGHT AND POWER:

A. The department will furnish at no cost to contractor water and electricity as it exists on the site. Contractor shall furnish and maintain all temporary lines, fixtures and equipment for water and electricity and remove the same at completion of work at his/her own expense.

B. The department will not be held responsible for failure of existing sources to supply continuous water or power, nor will the dept. be held responsible for the existing sources to supply adequate demand as required by the construction of this work.

4.0 PANELBOARDS:

A. Panelboards shall be circuit breaker type with bolt-on type, trip free circuit breakers. Panelboards shall be furnished with copper bussing and main lugs or main breaker and all branch circuit breaker as indicated on the schedules. Each branch circuit breakers shall have permanent type plastic or metal numbers to identify the circuit protected. Min. Size shall be 20"w x 5 3/4"d, height as required. Panelboard shall be SQ. D, type NQOB or equivalent challenger, model or equal.

B. Identification shall have engraved laminated plastic nameplates. Schedules shall be typewritten and shall designate the area or equipment served by each circuit mounted in a card holder on the inside of the door and covered with glass or clear plastic.

C. Shop drawings are required. They shall indicate all the details of construction and equipment. All items submitted for installation shall bear a UL label and listed for the purpose.

D. Circuit breakers shall have a minimum of 10,000 Amps RMS symmetrical for 120/240 volts and 22,000 amps for 120/208 Volts system unless noted on the plan.

E. Mounting shall be flush with surrounding walls unless specifically noted to be surface mounted on the plan. Maximum height of the highest circuit breaker or control devices shall not be more than 6 ft. above the surrounding finish floor.

F. Tighten connectors and terminals including screws and bolts in accordance with equipment manufacturer's published torque tightening values for equipment connectors. Where manufacturer's torqueing requirements are not indicated, tighten connectors and terminals to comply with tightening torque specified in UL Standards 486 A & B.

5.0 CONTROLS:

A. Types:

1. Circuit breakers - shall be thermal magnetic. Each breaker shall be equipped with a device for individual padlocking.

2. Time switches - shall be paragon model no. EC72ST sun tracker electronic lighting control. Control shall have an astro-dial, two channel feature, skip-a-day, offset to sunrise and/or sunset and manual override independently programmable for each channel. It shall be surface mountable or shall be in NEMA 3R for outdoor installation (EC72ST-N3).

3. Light switch timer - shall be paragon model no. ET1100 series. It shall be solid state with adjustable timer range from one minute to 18 hours. The control shall be tamper-proof with out-of-sight programming dial. The control shall be rated up to 1100 watts and capable of operating between 24V AC and 277V AC.

4. Local switches - shall be specification grade, Hubbell 1221-i series or equivalent Leviton model or equal.

5. Lighting contactors - ampere rating, number of poles, line voltage, control voltage, momentary or maintained contact as indicated on drawings, or as required, Square D Class 8903, or equivalent automatic switch co. Model or equal.

B. Identification - all control devices shall be identified by engraved plates designating the equipment controlled. Motors and equipment shall bear neat, legible and permanent identification corresponding with that on the control devices using engraved laminated plastic nameplates affixed with a minimum of two escutcheon pins or screws.

C. Locations - for outdoor installation, time switches and contactors shall be located in a separate partitioned space inside the rainproof enclosure, or as indicated in the plan.

6.0 BOXES:

A. Types: weatherproof cast boxes for outdoor and surface wiring and where indicated on the drawings by symbol "WP", Crouse-Hinds FD or Russell-Stoll FD series outlet boxes or equal. Concrete pull box with bolt down steel cover is permitted for underground installation. Brooks product model 5PB or equal, or as indicated on the plan.

Accessories: weatherproof for Crouse-Hinds FD series outlet boxes or Russell-Stoll FD series or equal.

Underground pull boxes. Avoid installation at the lowest spot of the surrounding areas. Pull box should seat on 2”x4” framed redwood and shall have at least 12” layer of pea gravel beneath the box.

7.0 INSTALLATION OF POLES:

A. Type shall be round tapered galvanized steel unless otherwise indicated. Pole height shall be as noted on the plan and detail.

B. Erection: in accordance with approved shop drawings, plumb and properly aligned. Base plates shall be grouted using an approved standard commercial non-shrink grouting mortar with L.A. Research report number. The non-shrink mortar shall be held back one inch from edges of base plates, and the space then filled with grout composed of one part low alkali Portland cement to two parts washed sand, beveled and troweled smooth. Exposed surfaces of mortar shall be water cured with wet burlap for seven days.

C. Grounding: securely ground all parking lot lighting poles with approved grounding bushings and grounding clamps.

D. Conduits entering and/or leaving pole footing shall be rigid PVC coated steel with plastic bushing. Make transition from PVC to metallic at a minimum distance of 3'-0" from footings.

E. Tack welding of nuts to washer and washer to base plate is required.

8.0 CONDUIT:

A. Required: all wiring shall be in rigid or PVC coated steel conduit except as follows:

1. PVC maybe used underground from PVC coated steel conduit stubs located 3 feet outside footing lines.

2. EMT may be used above ground inside buildings where not encased in masonry or concrete and not subject to physical damage.

B. Types:

1. Rigid steel conduit: in accordance with USA STD C80.1 and ASTM B-6.

2. Electrical metallic tubing: in accordance with USA STD C80-3 & ASTM B-6.

3. PVC conduit: shall conform to NEMA standard tc-6-1967, WC-1094 and UL standard 651, 1974 heavy wall schedule 40 buried not less than 24 inches below grade.

4. PVC externally coated rigid steel conduit, rigid steel zinc coated with additional coating of PVC conforming to ANSI c-80 & NEMA M1.

C. Fittings and accessories:

1. For rigid steel conduit: approved types; Ericson coupling or threadless connectors for joining runs. Grounding bushing shall be Thomas & Betts or Appleton malleable iron insulated grounding bushings, UL File E14814A. Factory ells shall not be used underground.

2. For electrical metallic tubing: compression gland or steel set screw type couplings and connectors with insulated throat.

D. Sizes: Minimum 3/4" conduit unless noted on the plan.

E. Concrete cover:

U.O.N. Underground conduit runs in recreation and parks property installed with schedule 40 PVC, unless otherwise shown on plans, and shall have a minimum 6" top cover of concrete over its entire length (except under concrete sidewalks), and shall have an equipment grounding conductor sized according to the prevailing code but not less than shown on the plan. Concrete cover shall be minimum of CLSM (slurry) mix or as required by DWP.

9.0 CONDUIT INSTALLATION:

A. All conduits shall be concealed except where otherwise indicated on the drawings.

B. PVC coated steel conduit which will be buried in the ground shall have water tight joints. Joints shall be assembled with lead plate (anti-seize metallic lead base) mil-a-907 as manufactured by Armite laboratories.

C. Install expansion fittings in all raceway whenever expansion joints are crossed. Fittings shall be equal to "OZ" type "XZ" or "TX".

D. No horizontal conduit shall be installed in concrete slabs-on-grade. Sleeves for conduit penetrating floors shall terminate 3 inch above the floor. Conduits shall be protected from corrosion by one of the following methods. (Extend 3" above and 3" below top of concrete.)

1. PVC externally coated steel conduit by Robroy industries.

2. Spiral wrap with 40 mil half lap plastic tape.

3. PVC sleeve.

E. Tops of underground conduit runs outside of building or under concrete slabs shall not be less than 24" below finished grade, nor less than that required by the department of water and power. Underground conduit shall not pass over tanks or other underground equipment or through footings except as detailed on the structural drawings.

F. All conduit bends installed underground shall be the long radius type with radii not less than 10 times the internal diameter of the conduit and with not more than two 90° bends and one 45° sweep in any run. Exception: for power and light conduit above ground, factory ells are permitted.

G. Each run shall be tested immediately after installation to assure freedom from obstruction and each end plugged after the testing is completed. A galvanized iron pull wire no. 12 AWG or 1 /8-inch nylon polyprolene cord shall be installed immediately after conduit installation in each conduit in which the conductors will not be immediately installed.

H. Conduits "jack-thru" and/or bored thru underground shall be minimum 1" rigid steel conduit.

Conduits in underground pull boxes shall be sealed with "LHD"-1# or 5# Duct Seal as manufactured by Dottie co. or approved equal.

10.0 CONDUCTORS:

A. Type THHN/THWN, 600 volts insulation per UL 83 for all general wiring subject to temperatures at 75°c minimum, wet or dry locations.

B. Types:

1. Copper wire for all conductors.

2. Solid wire for no. 10 AWG and smaller for general wiring.

3. Stranded for wires no. 8 AWG and larger or for flexibility where indicated on the drawings as flexible conduit connection.

4. No conductors smaller than no. 12 AWG except for control wires which shall be no. 14 AWG or as indicated on the plan.

5. Conductors from base of new or existing poles up to luminaires shall be no. 10 AWG minimum unless otherwise noted on the plan. Provide approximately 18" slack in hand hole and pull boxes.

6. For irrigation control wires, refer to irrigation specifications.

C. Splices:

1. Branch and feeder conductor joints shall be located only in outlet boxes, fixtures or pull boxes. Conductor joints shall not be made in conduit fittings.

2. All splices in underground pull boxes shall be scotch bagged and water tight.

D. Color code:

1. For polyphase circuits, identify each phase throughout the circuit with designation phase a (black), phase b (red) and phase c (blue).

2. For conductor smaller than no. 6 AWG color coding shall be accomplished by inherent insulation color. Tagging paint or other markings shall not be used for color identification.

E. Inspection:

Contractor shall notify the general manager or authorized representative 48 hours prior to start of pulling wire through any of the underground conduit runs. The contractor shall start pulling wire only after the authorized representative inspects and find that: the wire contains no splices, the neutral wire is white and the equipment ground wire is green.

11.0 TAGGING:

Required: on both hot and neutral wires of all circuit in switchboard and panelboards, at pull, junction and outlet boxes at each device or lighting fixture. Tagging shall provide positive and permanent identification and shall be scotch numeral tape by the Minnesota mining and manufacturing co.

12.0 EQUIPMENT AND ELECTRICAL CONNECTIONS:

A. See Division 1 Section 38 for material testing.

B. Provide all instruments, equipment and labor required for the specified tests. Conduct all tests in the presence of the gen. Manager or authorized representative. Conduct the test at such time as the gen. Manager may direct or as specified. Tests failing to conform to the requirements of the drawing and specifications, and any piece of equipment that fails the test described herein will be rejected and suitable equipment shall be provided and installed. Tabulate and forward to the project manager in triplicate all the pertinent test data. Include the date of the test, identification of all items tested, readings for each test, comments where required and the signatures of the individual conducting the test and of the gen. Manager's representative observing the test. Forward all the test data to the project manager within 10 days of the test performance but in no case later than 5 days before the scheduled final inspection.

C. The following tests shall be performed in the presence of the dept. Inspector or representative. Tabulate test results for the dept. Of recreation and parks records.

1. Conductors 600-volt class: after wiring is completed and connected for operation, but prior to placing systems in service and before any branch circuit breakers are closed, perform insulation resistance tests in all circuits. Measure the insulation resistance between each conductors and ground. Take readings after the voltage has been applied for a minimum of one minute. The minimum insulation resistance based on the allowable ampacity of the conductor as fixed by NFPA 70 shall be as follows:

Amperes	Ohms
25 through 50	250,000
51 through 100	100,000
101 through 200	50,000
2 through 400	25,000

2. High voltage conductors (above 600 volts): after installation and before splicing and terminating, perform a field acceptance test on cables prior to testing. The cables shall not be connected to any equipment. The test procedure shall be in accordance with AEIC and NEMA. Field acceptance test shall be 15 kv for dc for 15 minutes. If cable fails to pass initial test, perform subsequent acceptance tests until the work is in compliance with the contract requirements.

3. Ground rods: ground resistance test shall be performed in normally dry weather not less than 48 hours after rainfall. Ground resistance shall be measured for each piece of equipment to the ground electrode. Use a portable ground testing megger to test each ground or group of grounds. The equipment shall be equipped with a meter reading directly in ohms or fractions thereof to indicate the ground value of the ground electrode under test. Provide one copy of the ground megger's directions, indicating the method to be used.

13.0 LIGHTING FIXTURES:

A. Types:

1. As indicated hereinafter and in the lighting fixture list, all fixtures must be UL listed and supporting members such as rods and pipes must be approved by the city of Los Angeles electrical testing laboratory.

2. All fixtures used as raceways shall conform to the code requirements for maximum number of conductors permitted. Box temperatures shall not exceed 75°c adjacent to THHN/THWN wire.

3. All fixtures shall be UL listed for the purpose, wet location for outdoor installation, and damp location for showers and canopies.

B. Fittings and accessories: as necessary for proper installation and operation.

C. Deviation shall be submitted to the department for approval prior to purchase and installation.

D. Sports lighting fixtures: submit an aiming diagram from fixture manufacturer to the department for approval prior to installation. Contractor shall ensure that fixtures are installed in accordance to approved aiming diagram.

14.0 RECORD DRAWINGS:

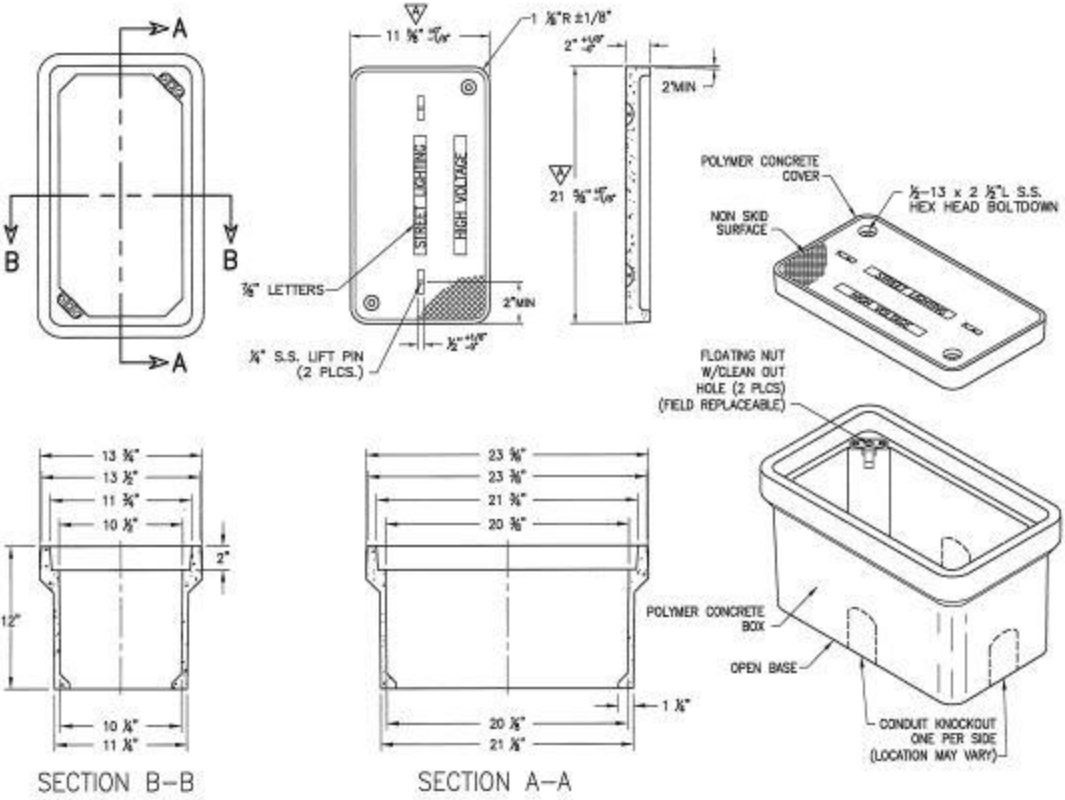
A. Immediately after work is installed, carefully draw on prints in red ink all work which is installed at variance with the work as indicated on the drawings. Indicate by measured dimension to building corners or other permanent monuments the exact location of all changes.
B. Accurate locations of all poles, conduit runs, wiring, names and model numbers of accepted substitute equipment, electrical outlets and other equipment as installed shall be provided in strict accordance with these specifications.

15.0 OPERATING MANUALS AND INSTRUCTIONS:

A. the contractor shall furnish to the city four bound copies of operating and maintenance manual for all electrical equipment.

B. the contractor shall explain in detail all manuals for the operation and maintenance of all equipment to the recreation and parks maintenance personnel before completion and acceptance of the project.

APPENDIX A
(CITY OF LOS ANGELES STANDARD DRAWINGS)



1. WHERE "PULL-BOX" IS SPECIFIED IN THE PLANS, IT SHALL CONSIST OF A PULL-BOX AND LID, AND SHALL MEET THE REQUIREMENTS OF THIS PLAN.
2. PULL-BOXES CAN BE MADE OF OTHER NON-CONCRETE, NON-CORROSIVE MATERIALS UPON APPROVAL BY THE ENGINEER.
3. ALL EDGES AND CORNERS SHALL HAVE SMOOTH AND UNIFORM RADIUS OF 1/4" OR LESS UNLESS OTHERWISE SPECIFIED HEREON.
4. VOIDS, BLEMISHES, OR IMPERFECTIONS EXCEEDING 3/8" IN MAXIMUM DIMENSION SHALL NOT EXIST IN ANY SURFACE.
5. ALL SURFACES EXPOSED AFTER INSTALLATION SHALL BE SMOOTHLY FINISHED. CHIPS AND VOIDS THEREIN ARE NOT PERMITTED.
6. MOLD, JOINT, OR SEAM LINES WITHIN 1" OF THE TOP OF THE BOX SHALL BE SMOOTHLY FINISHED.
7. CONDUIT KNOCKOUTS SHALL BE REMOVABLE WITHOUT DAMAGE TO THE REMAINDER OF THE BOX.
8. LIDS MADE OF POLYMER CONCRETE MUST HAVE A MINIMUM OF TWO LAYERS OF CONTINUOUS REINFORCEMENT, ONE AT THE TOP AND ONE AT THE BOTTOM. PULL BOXES MADE OF POLYMER CONCRETE MUST HAVE CONTINUOUS REINFORCEMENT ON THE INNER AND THE OUTER FACE OF THE BOX
9. WHERE REINFORCING INTERSECTS, IT SHALL BE SECURE.
10. THE LIFT EAR IN THE PULL-BOX LID SHALL BE SECURELY ATTACHED TO THE REINFORCING MATERIAL OR MADE EQUALLY SECURE IN THE LID BY SOME OTHER METHOD.
11. LETTERS SHOWN ON LID SHALL NOT BE DIFFERENT FROM OR OF A SIZE LESS THAN THAT INDICATED HEREON.
12. LID SHALL SEAT EVENLY ON THE LID FLANGE AND SHALL NOT ROCK MORE THAN 1/8" INCH.
13. ONE LID SLOT #1/2"-13 x 2 1/2"L MINIMUM SHALL BE PROVIDED WHICH SHALL EXTEND THROUGH PULL-BOX AND LID. THEY SHALL SECURE THE LID WITH HEX HEAD NUT AND WASHER WHICH SHALL BE RECESSED BELOW THE TOP OF LID. BOLTS SHALL BE LOCATED SYMMETRICALLY WITH RESPECT TO THE TOP SURFACE OF THE LID AND SHALL HAVE A NON-CORROSIVE SURFACE.
14. ALL PULLBOXES AND LIDS MUST COMPLY WITH ALL TEST PROVISIONS OF ANSI/SCTE 77 2007 "SPECIFICATIONS FOR UNDERGROUND ENCLOSURE INTEGRITY". PULLBOXES MUST COMPLY WITH THE TIER 22 RATING. THE LIDS MUST COMPLY WITH THE TIER 15 RATING. MARKINGS SHOWING THE RATING MUST BE LABELED OR STENCILED ON THE INSIDE AND OUTSIDE FACE OF THE BOX AND ON THE UNDERSIDE OF THE LID.
15. STEEL BOX AND STEEL BOX LID SHALL NOT SHOW ANY EVIDENCE OF FAILURE WHEN SUBJECTED TO ANSI/SCTE 77 TEST LOADING. THE LID WITH THE LOAD SUPPORTED BY THE PULL BOX FOR 10 CYCLES. THE TEST LOAD SHALL BE APPLIED ON A SMOOTH STEEL LOAD PLATE (1"X15"X10") THAT IS POSITIONED OVER A 1/2" THICK RUBBER PAD
16. PULL BOX SHALL NOT SHOW EVIDENCE OF FAILURE WHEN SUBJECTED TO ANSI/SCTE 77 SPECIFICATIONS AT THE CENTER OF AND PERPENDICULAR TO ANY SIDE WITH THE OPPOSITE SIDE UNIFORMLY SUPPORTED. TEST LOAD SHALL BE APPLIED AS IN NOTE 15 ABOVE.
17. THE PULL-BOX LID SHALL NOT PUNCTURE, CRACK OR SPLIT WHEN SUBJECTED TO AN IMPACT OF 70 FOOT-POUNDS MINIMUM USING A "C" TUP PER ASTM D-2444.
18. LIDS SHALL NOT CHIP WHEN DROPPED.
19. TWO PULL-BOXES MAY BE SELECTED FROM EACH LOT OF ONE HUNDRED DELIVERED, AND USED FOR TEST PURPOSES. FAILURE OF ANY TEST PULL-BOX MAY BE CAUSE FOR REJECTION OF THE LOT.
20. WHERE A PULL-BOX WITH EXTENSION IS SPECIFIED IN THE PLANS, IT MAY CONSIST OF A SECOND PULL-BOX INSTALLED IMMEDIATELY BENEATH THE FIRST, OR IT MAY BE A DIFFERENT PART WHICH MEETS THE APPLICABLE DIMENSIONS AND SPECIFICATIONS OF THIS PLAN.
21. PULL-BOXES SHALL BE INSTALLED ON A BED OF 1" CRUSHED ROCK WHICH SHALL BE A MINIMUM OF 12 INCHES IN DEPTH AND SHALL EXTEND A MINIMUM OF 6 INCHES BEYOND THE PULL-BOX SIDES.
22. ALL MATERIALS MUST BE NEW AND ALL PRODUCTS SHALL HAVE CONSISTENT DIMENSIONS, THICKNESS AND COLOR WITHIN THE ALLOWABLE MANUFACTURING TOLERANCE SPECIFIED IN THE SUBMITTAL OR REFERENCED STANDARDS.
23. REQUIRED INFORMATION AND SUBMITTAL
    IN ADDITION TO THE INFORMATION AS REQUIRED IN PUBLIC WORKS MATERIAL APPROVAL PROCEDURES, THE FOLLOWING INFORMATION SHALL BE SUBMITTED TO THE CITY ENGINEER BEFORE ANY TESTING OR APPROVAL CAN BE GRANTED.
    (a) FOR MATERIALS AND PRODUCTS CONSISTING OF PLASTIC RESIN, FIBERGLASS MATERIALS, FIBERGLASS REINFORCED PLASTIC (FRP), REINFORCED PLASTIC MORTAR (RPM), POLYMER CONCRETE OR VERIFIED POLYMER COMPOSITE, OR ANY COMBINATION THEREOF:
    (1) A DESCRIPTION OF ANY FELT OR OTHER FABRIC USED TO MANUFACTURE THE PRODUCTS.
    (2) WOVEN, NON-WOVEN OR PUNCHED.
    (3) PROPERTIES OF AGGREGATES, CHOPPED GLASS FIBERS OR OTHER REINFORCING REQUIRED:
        I. THE AMOUNT, LOCATION AND ORIENTATION OF THE CHOPPED GLASS FIBERS.
        II. THE GRADE OF THE GLASS FIBERS.
        III. THE TYPE AND GRADATION OF ANY AGGREGATES OR SANDS USED.
24. CONDPS AND FRAMES WITH MATERIALS THAT ARE MADE OF PLASTIC RESIN, FIBERGLASS, FRP, RPM, POLYMER CONCRETE OR VERIFIED POLYMER COMPOSITE SHALL NOT BE USED IN VEHICULAR TRAFFIC AREAS.
25. ALL PULL BOXES AND LIDS MUST BE TESTED AND CERTIFIED BY AN INDEPENDENT THIRD PARTY TESTING LAB AT NO COST TO THE CITY. THE CITY HAS A RIGHT TO RECERTIFY EACH MANUFACTURER EVERY YEAR AT NO COST TO THE CITY.
26. MANUFACTURER WILL WARRANTEE THEIR PULL BOXES AND LIDS FOR 2 YEARS

BUREAU OF STREET LIGHTING

DEPARTMENT OF PUBLIC WORKS

CITY OF LOS ANGELES

PULL-BOX

STANDARD PLAN
COMPOSITE TYPE 2

REGISTERED PROFESSIONAL ENGINEER
EDIN G. EBRAHIMIAN
No. C45683
Exp. 12/31/12
CIVIL
STATE OF CALIFORNIA

SUBMITTED BY: O.E.Nowak

DATE: May 24, 2011

APPROVED: May 24, 2011

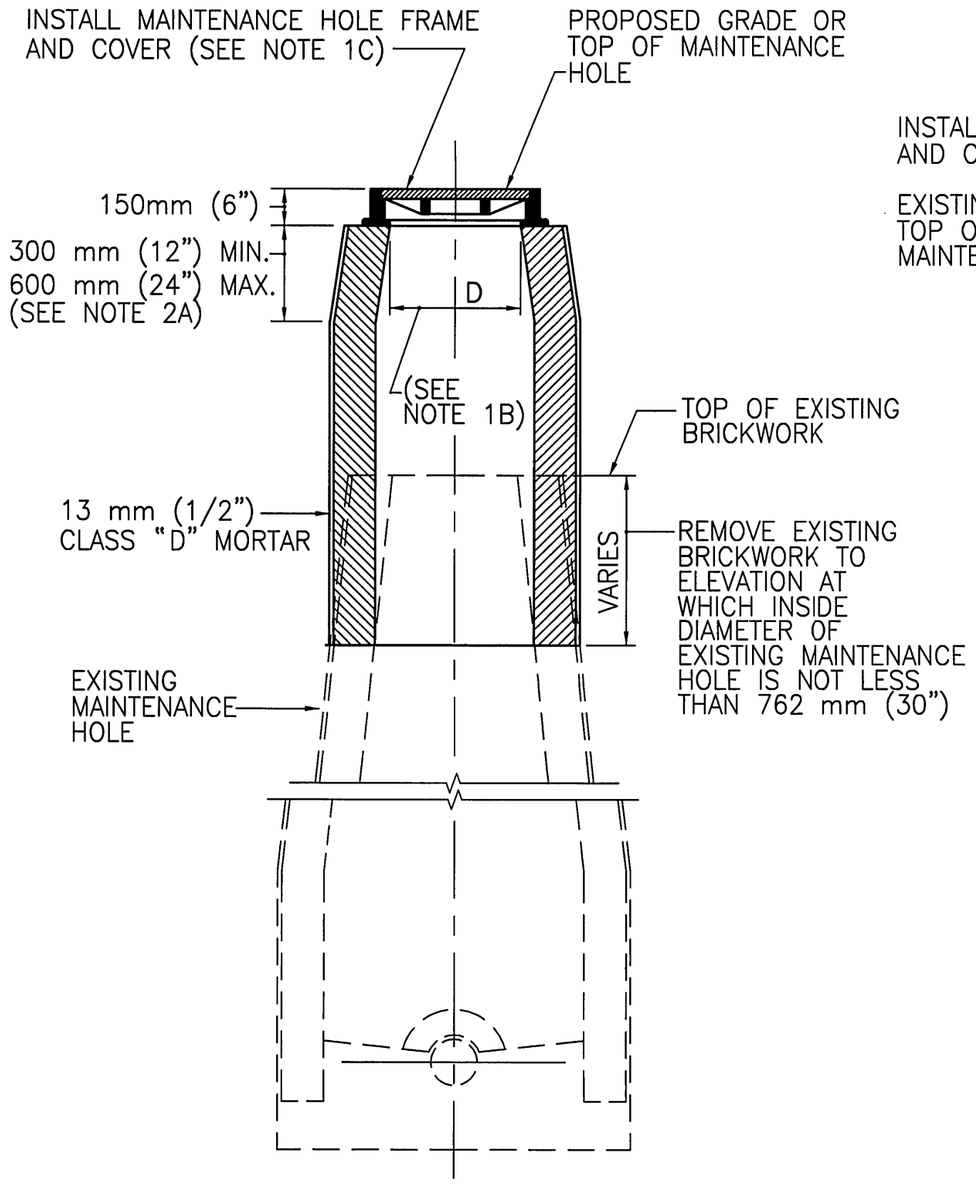
DIRECTOR, BUREAU OF STREET LIGHTING

REVISIONS		
NO.	DESCRIPTION	DATE
A	REVISED COVER DIMENSIONS	3/2/10
B	MODIFIED TO MEET ANSI/SCTE77 2007	3/31/11

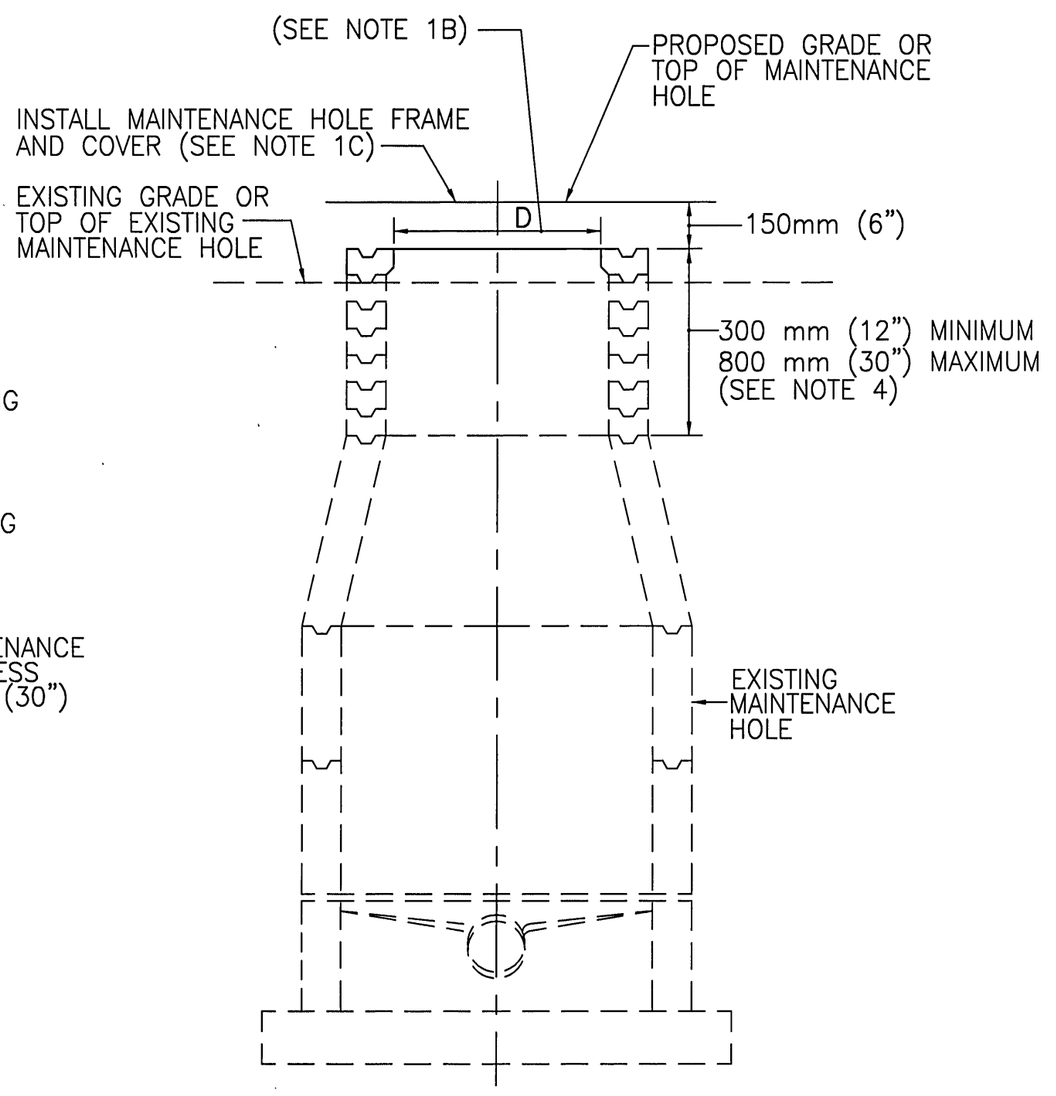
SUPERSEDES	REFERENCES
L-201-0	

VAULT INDEX NUMBER: L-201-1

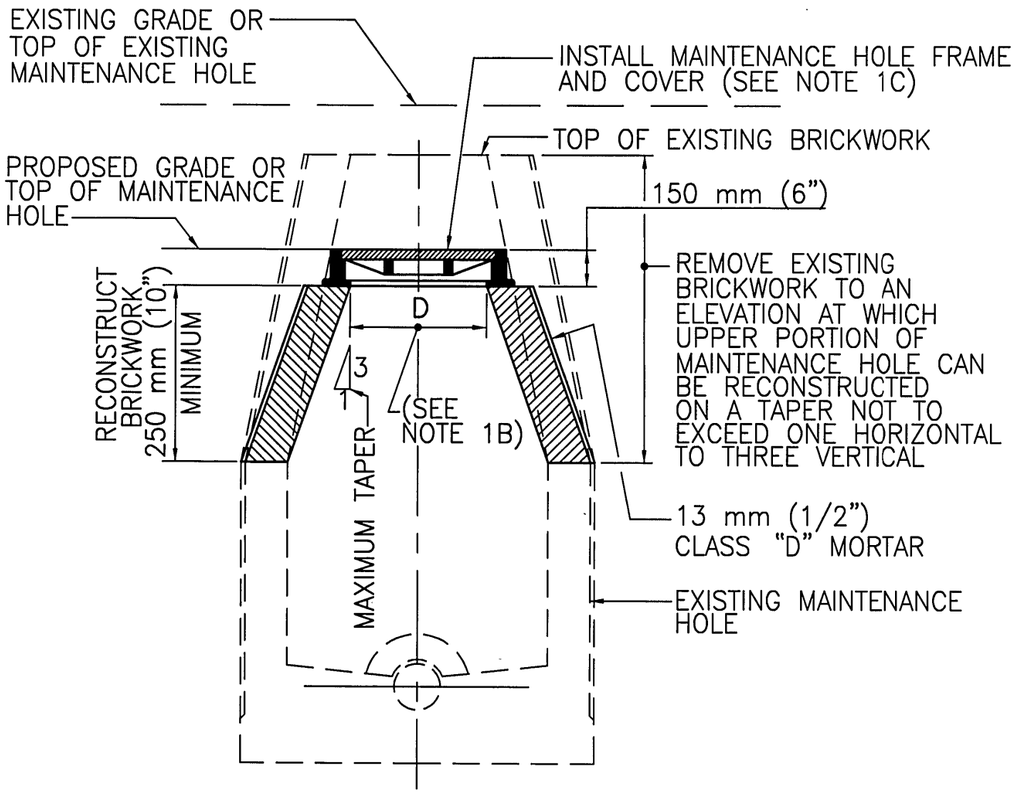
SHEET 1 OF 1 SHEETS



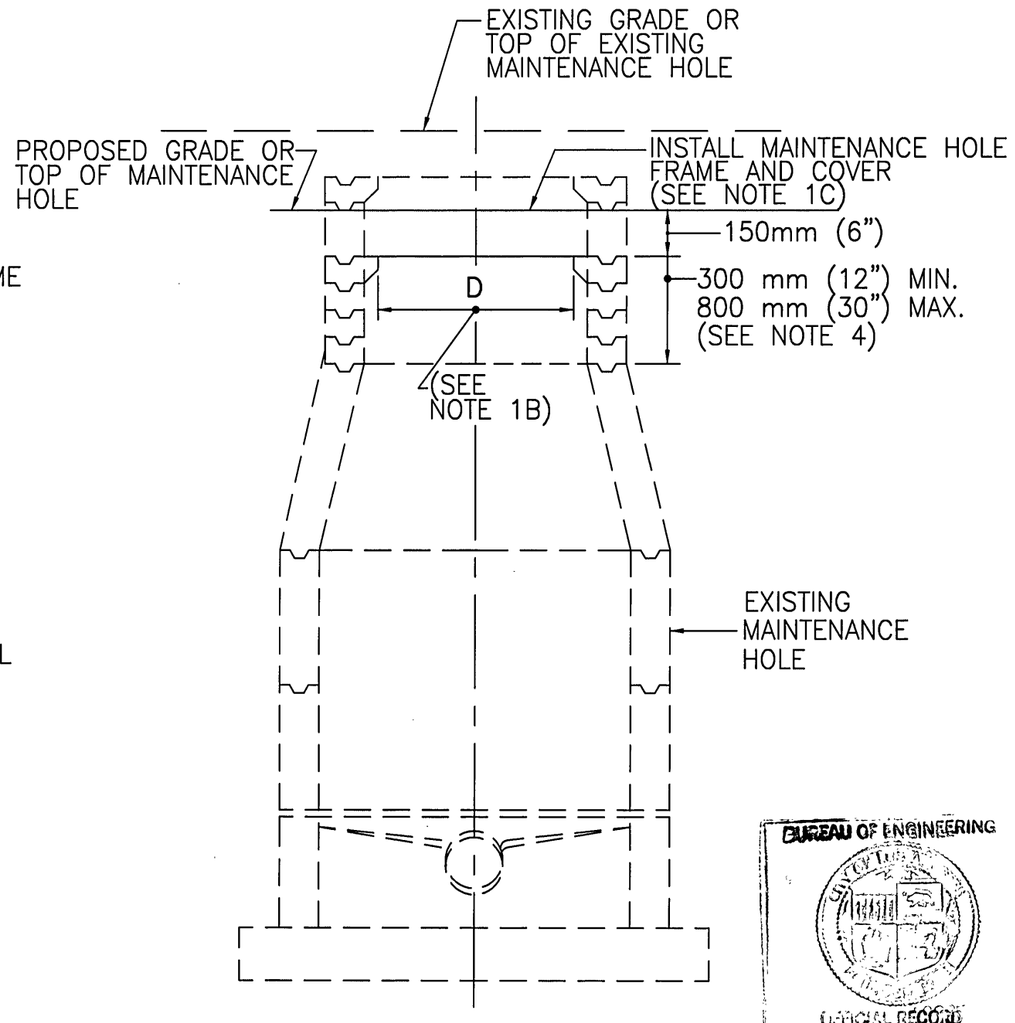
RAISING EXISTING BRICK MAINTENANCE HOLES



RAISING EXISTING PRECAST CONCRETE SEWER MAINTENANCE HOLES



LOWERING EXISTING BRICK MAINTENANCE HOLES



LOWERING EXISTING PRECAST CONCRETE SEWER MAINTENANCE HOLES

BUREAU OF ENGINEERING
CITY OF LOS ANGELES
OFFICIAL RECORD

BRICK MAINTENANCE HOLES

PRECAST CONCRETE SEWER MAINTENANCE HOLES

DEPARTMENT OF PUBLIC WORKS

BUREAU OF ENGINEERING

CITY OF LOS ANGELES

ADJUSTING SEWER MAINTENANCE HOLES TO GRADE

STANDARD PLAN
S-137-1

SUBMITTED 9-7 2005
ENGINEER OF DESIGN
DEPUTY CITY ENGINEER

APPROVED 9-29 2005
CITY ENGINEER

DESIGNED BY	DRAWN BY	CHECKED BY
P.H.L.	R.H.L.	P.H.L.

REGISTERED PROFESSIONAL ENGINEER
GARY LEE MOORE
No. C-49445
Exp. 9-30-06
CIVIL
STATE OF CALIFORNIA

REVISIONS					SUPERSEDES	REFERENCES
NO.	DATE	DESCRIPTION	ENGR. OF DESIGN	CITY ENGR.	B-4008	S-121 S-140 S-141 S-142 S-282
1	08/01/05	METRICATED UNITS				
					VAULT INDEX NUMBER	
					SHEET 1 OF 2 SHEETS	

B-4564

NOTES FOR ADJUSTING MAINTENANCE HOLE (MH) TO GRADE

1. GENERAL

   A. UNLESS OTHERWISE SHOWN, MH'S SHALL CONFORM TO STANDARD PLANS S-140, S-141, AND S-142.

   B. DIMENSION D SHALL BE THE SAME AS THE SIZE OF MH FRAME AND COVER TO BE USED.

   C. THE CONTRACTOR MAY REUSE THE EXISTING MH FRAME AND COVER, UNLESS IT IS DAMAGED BY THE CONTRACTOR DURING THE CONSTRUCTION OPERATIONS OR WHEN OTHERWISE INDICATED ON THE PROJECT PLANS. ITEMS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED WITH IDENTICAL NEW ITEMS AT NO EXPENSE TO THE CITY.

   D. BRICK AND PLASTER SHALL CONFORM TO THE STANDARD SPECIFICATIONS, SECTION 202-1.

   E. EXISTING STEPS LOCATED WITHIN REMOVAL LIMITS SHALL NOT BE REPLACED. WHEN REMOVAL OF EXISTING STEPS BEYOND THE MH REMOVAL LIMITS IS INDICATED ON THE PROJECT PLANS, THE STEPS SHALL BE REMOVED TO A DEPTH OF 50 mm (2") BEYOND THE INSIDE FACE OF THE BRICK MH, AND THE HOLE SHALL BE FILLED WITH CLASS "C" MORTAR.

2. RAISING EXISTING BRICK MH'S

   A. BRICK MH'S TO BE RAISED LESS THAN 300 mm (12") MAY BE EXTENDED VERTICALLY, PROVIDED THAT AT A DEPTH OF 800 mm (30") BELOW THE TOP OF THE MH AT ITS NEW ELEVATION, THE INSIDE DIAMETER OF THE MH IS 762 mm (30") OR GREATER.

   B. BRICK MH'S TO BE RAISED LESS THAN 90 mm (3 1/2") MAY BE RAISED BY APPLYING CLASS "C" MORTAR TO THE TOP OF THE EXISTING BRICKWORK. IF THE BRICK MH IS TO BE RAISED 90 mm (3 1/2") OR MORE, A NEW COURSE OR COURSES OF BRICKWORK SHALL BE PLACED ON TOP OF THE EXISTING BRICK WORK.

3. LOWERING EXISTING BRICK MH'S

   A. WHERE A BRICK MH IS TO BE LOWERED LESS THAN 300 mm (12"), THE FRAME MAY BE RESET ON THE EXISTING BRICKWORK AND THE 250 mm (10") MINIMUM BRICKWORK RECONSTRUCTION BE OMITTED, PROVIDE THAT THE BASE OF THE FRAME DOES NOT OVERHANG THE BRICKWORK ON THE INSIDE SURFACE OF THE MH MORE THAN AVERAGE OF 40 mm (1 1/2") IN ANY QUADRANT NOR MORE THAN 50 mm (2") AT ANY POINT.

4. RAISING EXISTING PRECAST CONCRETE SEWER MH'S

   A. PRECAST CONCRETE MH'S TO BE RAISED LESS THAN 75 mm (3") MAY BE RAISED BY APPLYING CLASS "C" MORTAR TO THE TOP OF THE EXISTING MH PROVIDED THE TOTAL HEIGHT OF MORTAR, EXISTING AND NEWLY APPLIED, DOES NOT EXCEED 75 mm (3").

   B. WHERE THE PRECAST CONCRETE MH IS TO BE RAISED 75 mm (3") OR MORE, OR WHERE THE TOTAL HEIGHT OF MORTAR, EXISTING OR NEWLY APPLIED, WOULD EXCEED 75 mm (3"), GRADE RINGS SHALL BE UTILIZED. CLASS "C" MORTAR MAY BE USED FOR FINAL ADJUSTMENT, BUT NOT MORE THAN 75 mm (3") IN HEIGHT. WHERE RAISING THE MH WOULD RESULT IN THE UPPER SEGMENT OF THE SHAFT BEING MORE THAN 800 mm (30") IN HEIGHT, REMOVE THE REDUCER AND THE UPPER SEGMENT OF THE SHAFT, INSTALL ADDITIONAL RINGS OR PIPE TO THE LOWER SEGMENT OF THE SHAFT, AND REINSTALL THE REDUCER AND GRADE RINGS AS REQUIRED.

5. LOWERING EXISTING PRECAST CONCRETE SEWER MH'S

   A. REMOVE SUFFICIENT GRADE RINGS TO LOWER THE MH AS REQUIRED. APPLY CLASS "C" MORTAR TO A HEIGHT NOT EXCEEDING 75 mm (3") FOR ADJUSTMENT TO FINAL GRADE.

   B. WHERE REMOVAL OF GRADE RINGS WOULD RESULT IN THE UPPER SEGMENT OF THE SHAFT BEING LESS THAN 300 mm (12") IN HEIGHT, REMOVE THE REDUCER AND SUFFICIENT SECTIONS OF THE LOWER SEGMENT OF THE SHAFT AND REINSTALL ANY NECESSARY SEGMENT OF THE LOWER SHAFT, THE REDUCER, AND THE GRADE RINGS TO CONFORM TO ANY REQUIREMENTS OF THIS PLAN.

   C. EXISTING GRADE RINGS NEED NOT BE REMOVED IF EXISTING MORTAR MAY BE REMOVED, AND AT LEAST 13 mm (1/2") OF MORTAR MAY BE PLACED ON TOP OF THE EXISTING GRADE RINGS TO RESEAT THE FRAME.

6. REPLACEMENT OF BRICK REDUCER WITH PRECAST CONCRETE REDUCER AND SHAFT

   UNLESS OTHERWISE INDICATED ON THE PLANS, THE CONTRACTOR MAY INSTALL A PRECAST CONCENTRIC CONCRETE REDUCER, CONCRETE GRADE RINGS, AND CONCRETE PIPE IN LIEU OF RECONSTRUCTING A BRICK REDUCER, PROVIDED:

   A. THE MAXIMUM I. D. OF SEWER PIPE CONNECTED TO THE MH DOES NOT EXCEED 200 mm (8").

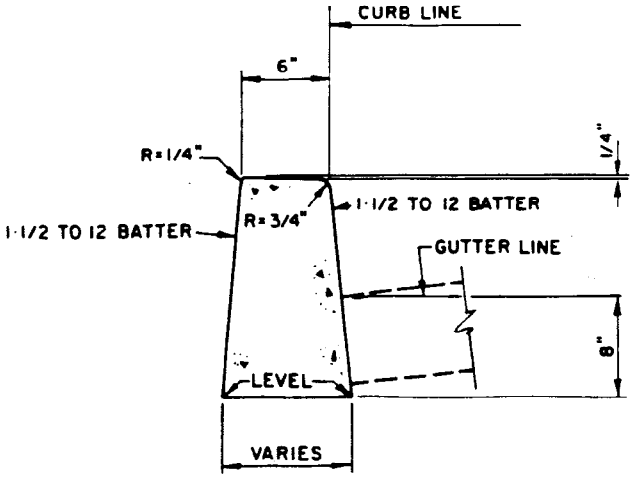
   B. THE CONTRACTOR SECURES PRIOR APPROVAL FROM THE ENGINEER TO INSTALL THE CONCENTRIC REDUCER ONTO THE MH SHAFT. THE ENGINEER MAY, AS PART OF THE INSTALLATION REQUIREMENTS, REQUIRE THE CONTRACTOR TO COAT THE INSIDE OF THE REDUCER, RINGS, AND PIPE WITH AN APPROVED COATING.

   C. THE CONCRETE GRADE RINGS, THE CONCRETE REDUCER AND ANY CONCRETE PIPE SHALL BE JOINED TOGETHER AND BEDDED ONTO THE EXISTING BRICK MH WITH CLASS "C" MORTAR. THE DEPTH, WIDTH, AND THICKNESS OF THE MORTAR SHALL BE OF SUFFICIENT DIMENSIONS TO PROPERLY AND ADEQUATELY JOIN AND BED THE COMPONENT PARTS.

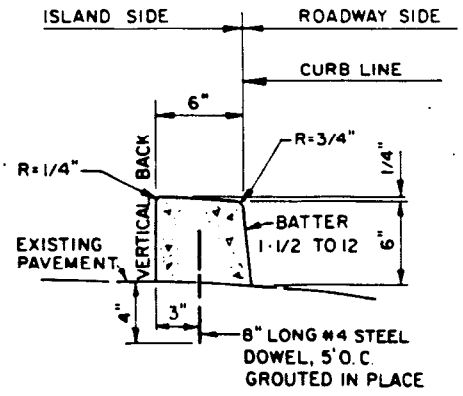
7. UNLESS OTHERWISE NOTED, EXCESS PRECAST GRADE RINGS, REDUCERS AND CONES FROM A PARTICULAR MH MAY BE REUSED ON OTHER MH'S ON THE PROJECT. EXCESS PRECAST GRADE RINGS, CONES AND REDUCERS SHALL BE SALVAGED AND DELIVERED TO THE NEAREST CITY SANITATION YARD.

8. LINED MH SHAFTS SHALL HAVE EXISTING LINING EDGES REPAIRED OR LINING APPLIED TO THE INTERIORS OF UNLINED GRADE RINGS, BRICKS, CONES, REDUCERS, TRANSITIONS PER BROWN BOOK AND STANDARD PLAN S-121.

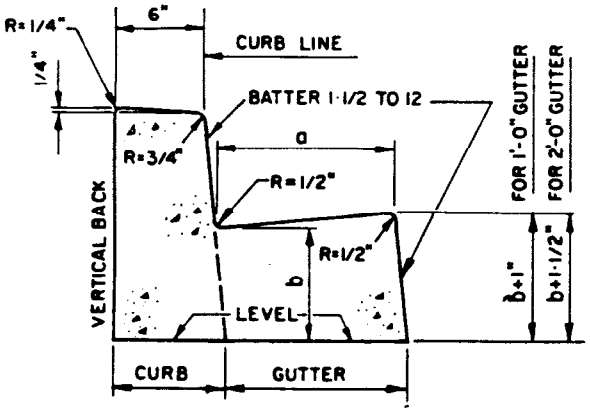
STANDARD PLAN NO. S-137-1	VAULT INDEX NUMBER	SHEET 2 OF 2 SHEETS



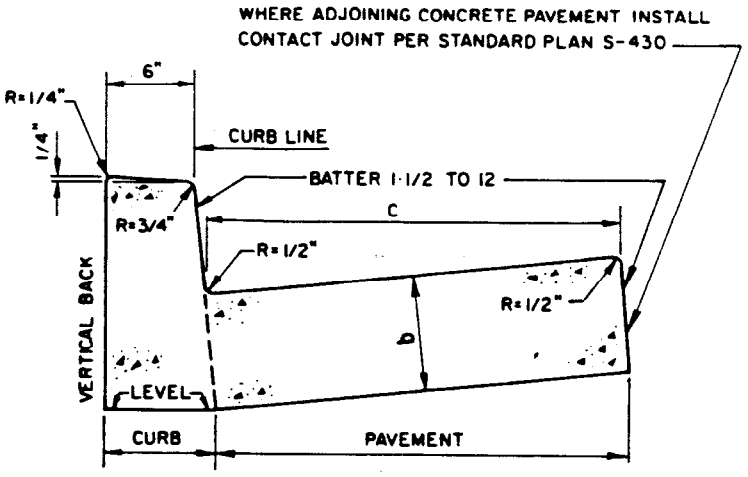
▽2 TYPE A CURB



TYPE C DOWELED CURB



TYPE C
INTEGRAL CURB AND GUTTER



TYPE C INTEGRAL CURB AND CONCRETE PAVEMENT

BARRIER CURBS

DEPARTMENT OF PUBLIC WORKS

BUREAU OF ENGINEERING — CITY OF LOS ANGELES

TYPES OF CURB AND GUTTER

STANDARD PLAN
S-410-2

SUBMITTED June 28, 1989
ENGINEER OF DESIGN
DEPUTY ENGINEER

APPROVED July 21, 1989
CITY ENGINEER

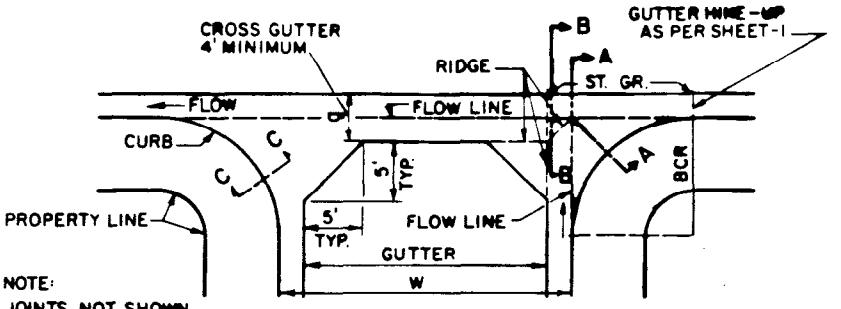
DESIGNED BY	DRAWN BY	CHECKED BY
RAB	RGM	RGS

REGISTERED PROFESSIONAL ENGINEER — RALPH E. VALENZUELA — Exp 3/31/91 — No 12490 — CIVIL — STATE OF CALIFORNIA

▽ REVISIONS		SUPERSEDES	REFERENCES
NO.	DESCRIPTION		
2	REVISED TYPE A CURB AND ALL NOTES. DELETED TYPE B CURB.		
	ADDED TYPE E AND F CURB AND GUTTER.		

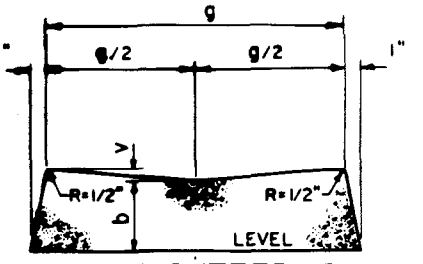
VAULT INDEX NUMBER B-4102

SHEET 1 OF 4 SHEETS



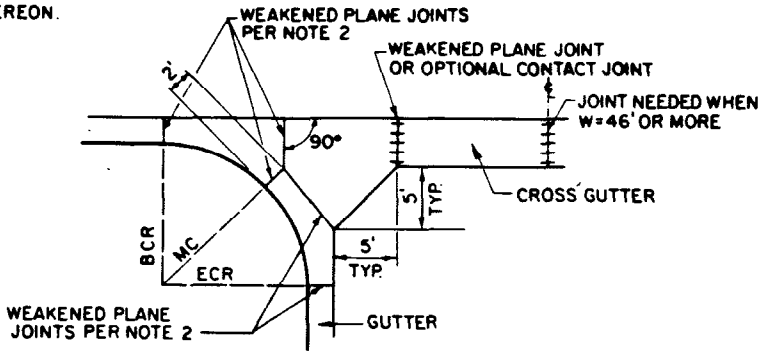
NOTE:
JOINTS, NOT SHOWN, SHALL BE AS PER TYPICAL JOINT PLAN HEREON.

TYPICAL INTERSECTION GUTTER PLAN

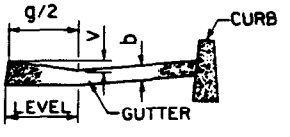


CROSS GUTTER OR LONGITUDINAL GUTTER

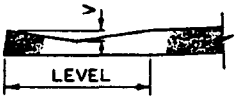
CROSS GUTTER		LONGITUDINAL GUTTER	
g	v	g	v
		2'	3/4"
4'	3/8"	4'	1-1/2"
4'+TO 6'	5/8"	4'+TO 6'	2"



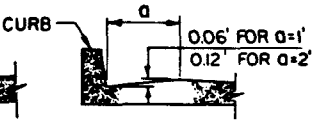
TYPICAL JOINT PLAN



SECTION A-A



SECTION B-B



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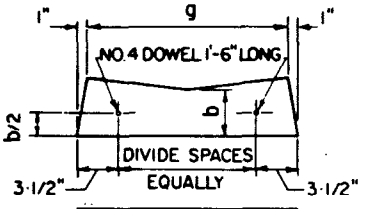
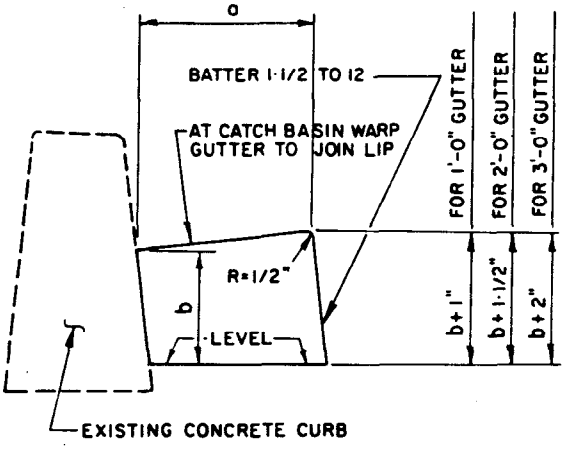


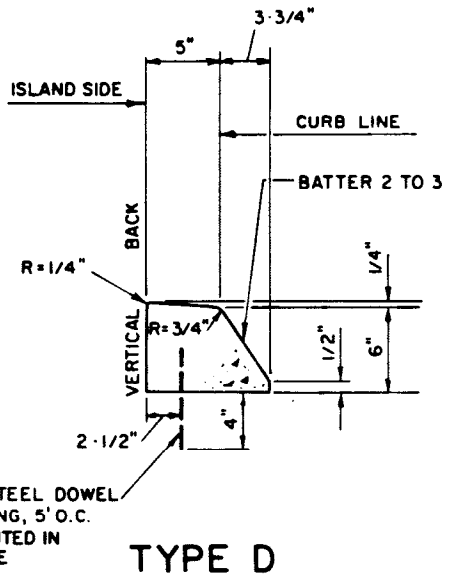
g	NO. OF DOWELS
2'	2
4'	4
6'	6

DOWELS FOR GUTTER CONTACT JOINTS

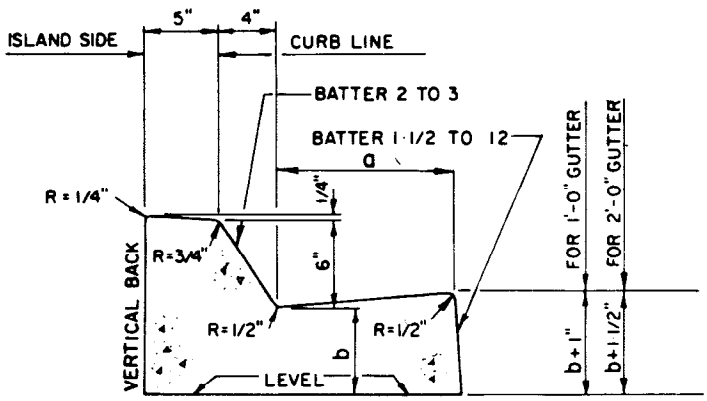


CONCRETE GUTTER

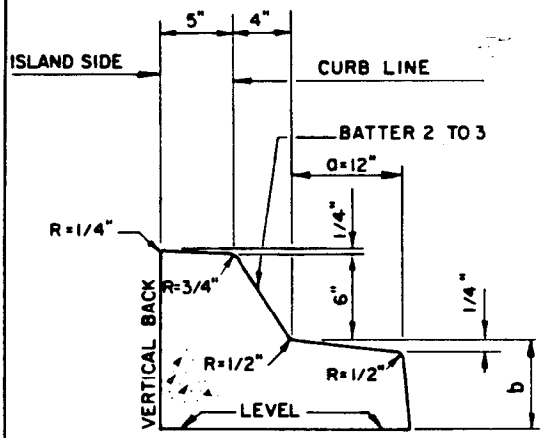
GUTTERS



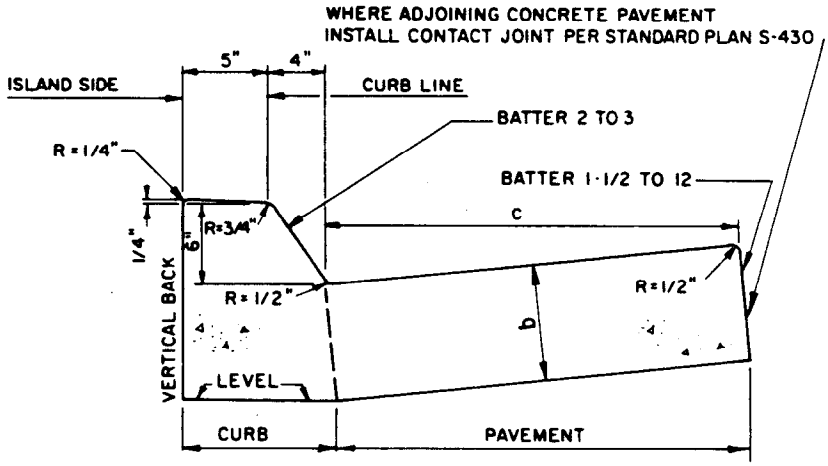
TYPE D
DOWELED CURB



TYPE D
INTEGRAL CURB AND GUTTER



▽2 TYPE E
INTEGRAL CURB AND GUTTER



▽2 TYPE F
INTEGRAL CURB AND CONCRETE PAVEMENT

MOUNTABLE CURBS

NOTES

2 1. CURBS AND GUTTERS SHALL BE CONSTRUCTED OF PCC CONFORMING TO SUBSECTION 201-1 AND 303-5.

2 2. WEAKENED-PLANE JOINTS IN CURB AND GUTTER SHALL CONFORM TO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION SUBSECTION 303-5.4.3 (C) OR SHALL BE 1-1/2 INCH DEEP SAWCUTS MADE WITHIN 10 TO 24 HOURS AFTER CONCRETE IS PLACED AND SHALL BE PLACED AT LOCATIONS SHOWN ON THE TYPICAL JOINT PLAN HEREON AND AT REGULAR INTERVALS NOT EXCEEDING 20 FEET BETWEEN RETURNS. THEY SHALL ALSO BE LOCATED AT THE E.C. OF ALLEY RETURNS WHERE WALK IS FULL WIDTH. WHERE CROSS GUTTER TRANSITION EXTENDS BEYOND THE CURB RETURN, THE JOINTS SHALL NORMALLY BE PLACED AT THE ENDS OF THE TRANSITION. HOWEVER, JOINTS SHALL ALSO BE PLACED AT THE ENDS OF THE CURB RETURN WHEN THE CROSS GUTTER TRANSITION EXTENDS MORE THAN 5 FEET BEYOND THE RETURN. WHERE GUTTER IS ADJACENT TO CONCRETE PAVEMENT, THE JOINT SHALL BE ALIGNED WITH THE PAVEMENT JOINTS WHERE PRACTICAL.

2 3. A CONTACT JOINT SHALL BE PLACED IN LONGITUDINAL ALLEY GUTTER WHERE IT JOINS CONCRETE ALLEY INTERSECTION.

2 4. CURBS CONSTRUCTED ADJACENT TO EXISTING CURBS HAVING A BATTER OTHER THAN SPECIFIED FOR THE NEW CURBS SHALL BE CONSTRUCTED WITH A TRANSITION SECTION BETWEEN THE CURBS HAVING DIFFERENT BATTERS. THE MINIMUM TRANSITION LENGTH SHALL BE:

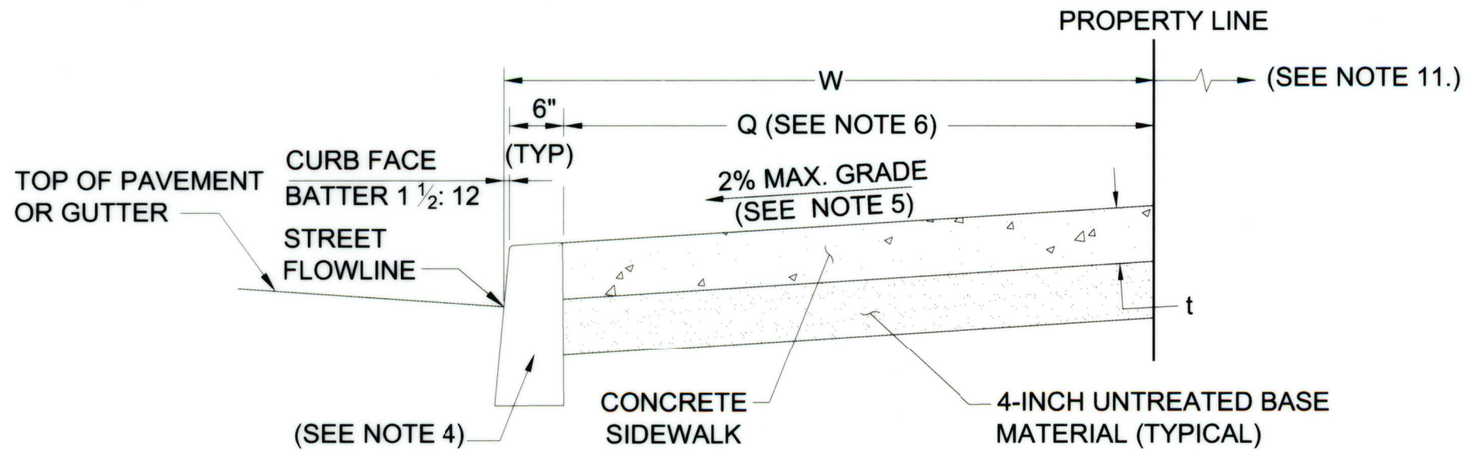
TYPE OF CURB	MINIMUM TRANSITION LENGTH
BARRIER CURB TO BARRIER CURB	5'
MOUNTABLE CURB TO MOUNTABLE CURB	10'
BARRIER CURB TO MOUNTABLE CURB	20'

2 5. THE DOWELS IN THE DOWELED CURB MAY BE DELETED AND THE CURB BONDED TO THE SURFACE BY A BONDING AGENT APPROVED BY THE ENGINEER.

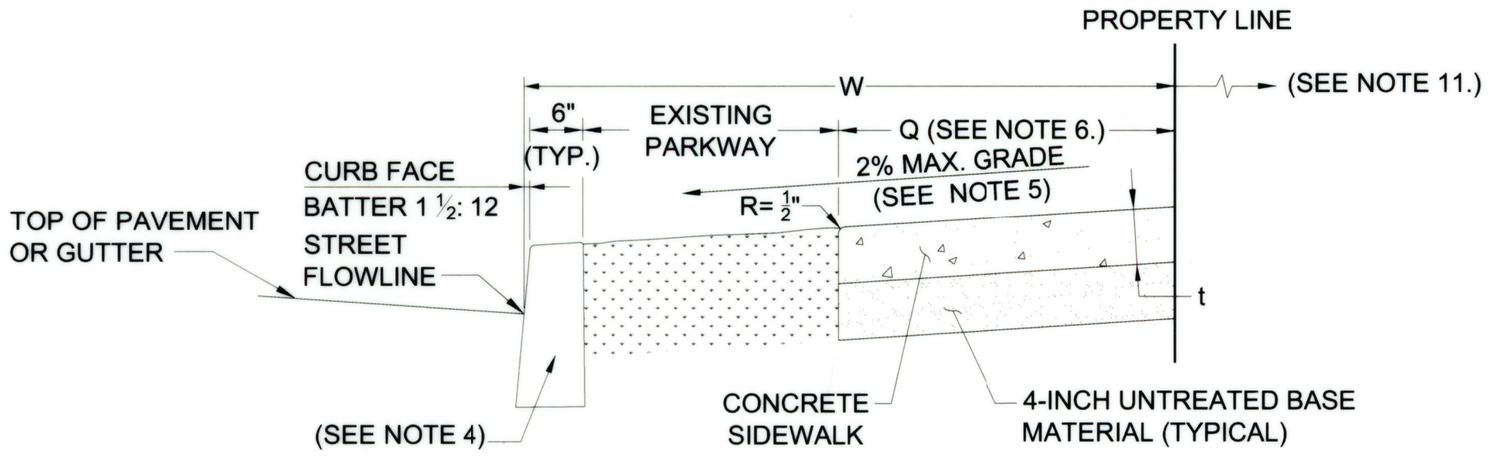
2 6. MOUNTABLE CURBS SHALL NOT BE USED ADJACENT TO PEDESTRIAN WALKWAYS.

2 7. DIMENSIONS: (UNLESS OTHERWISE SPECIFIED)

a=2'-0"
b=0'-6"
c=10'-0"



BORDER WITH FULL WIDTH SIDEWALK
NTS



BORDER WITH SIDEWALK AND PARKWAY
NTS

NOTES

1. ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION ADOPTED BY THE BOARD OF PUBLIC WORKS AS MODIFIED BY THE CORRESPONDING ISSUE OF THE CITY OF LOS ANGELES DEPARTMENT OF PUBLIC WORKS BROWN BOOK.
2. CONCRETE SIDEWALK SHALL HAVE A MINIMUM THICKNESS (t) OF 3 INCHES.
3. MINIMUM 4-INCH UNTREATED BASE MATERIAL SHALL BE INSTALLED UNDER CONCRETE SIDEWALK.
4. EITHER TYPE "A" CONCRETE CURB OR TYPE "C" INTEGRAL CONCRETE CURB AND GUTTER SHALL BE CONSTRUCTED ADJACENT TO ALL SIDEWALKS. SEE THE LATEST VERSION OF STANDARD PLAN S-410 FOR TYPES OF CURBS. IF EXISTING CURB REQUIRES REMOVAL AND REPLACEMENT, RECONSTRUCT CURB TO MATCH EXISTING CURB TYPE. CITY ENGINEER SHALL DETERMINE THE TYPE OF CURB FOR ALL NEW CURB CONSTRUCTION.
5. THE SIDEWALK SHALL HAVE A MINIMUM WIDTH "Q" OF 5 FEET AND BE SLOPED TOWARD THE STREET FLOW LINE. THE MAXIMUM SIDEWALK GRADE INCLUDING THE 1/4-INCH CONSTRUCTION TOLERANCE IS 2 PERCENT. THE MINIMUM SIDEWALK GRADE INCLUDING THE 1/4-INCH CONSTRUCTION TOLERANCE IS 0.5 PERCENT.
6. SIDEWALK WIDTH "Q" OF LESS THAN 5 FEET SHALL REQUIRE APPROVAL BY THE CITY ENGINEER (A MINIMUM 5 BY 5 FEET SQUARE PASSING SPACES SHALL BE REQUIRED AT INTERVALS OF NO GREATER THAN 200 FEET).
7. THE STREET BORDER (W) SHALL BE IN ACCORDANCE WITH DIMENSIONS LISTED ON THE LATEST VERSION OF STANDARD PLAN S-470.
8. AS AN ELEMENT OF THE SIDEWALKS, CURB RAMPS SHALL BE CONSTRUCTED AT ALL STREET CORNERS AND MID-BLOCK CROSSWALKS IN ACCORDANCE WITH THE LATEST VERSION OF STANDARD PLAN S-442, UNLESS CROSSING IS PROHIBITED AT A PARTICULAR LOCATION.
9. THE ESTABLISHMENT OF NEW PARKWAYS SHALL REQUIRE APPROVAL BY THE CITY ENGINEER.
10. RECONSTRUCTION OF SIDEWALKS MAY REQUIRE REMODELING ON PRIVATE PROPERTY TO JOIN CONSTRUCTION OF NEW SIDEWALK TO PRIVATE IMPROVEMENTS.
11. AT LOCATIONS WHERE ANY REQUIREMENTS OF THIS STANDARD PLAN S-444-0 CANNOT BE MET, THE DESIGNER AND/OR CONTRACTOR SHALL REQUEST DIRECTION FROM THE CITY ENGINEER PRIOR TO THE COMPLETION OF DESIGN.

BUREAU OF ENGINEERING
OFFICIAL RECORD

BUREAU OF ENGINEERING — DEPARTMENT OF PUBLIC WORKS — CITY OF LOS ANGELES

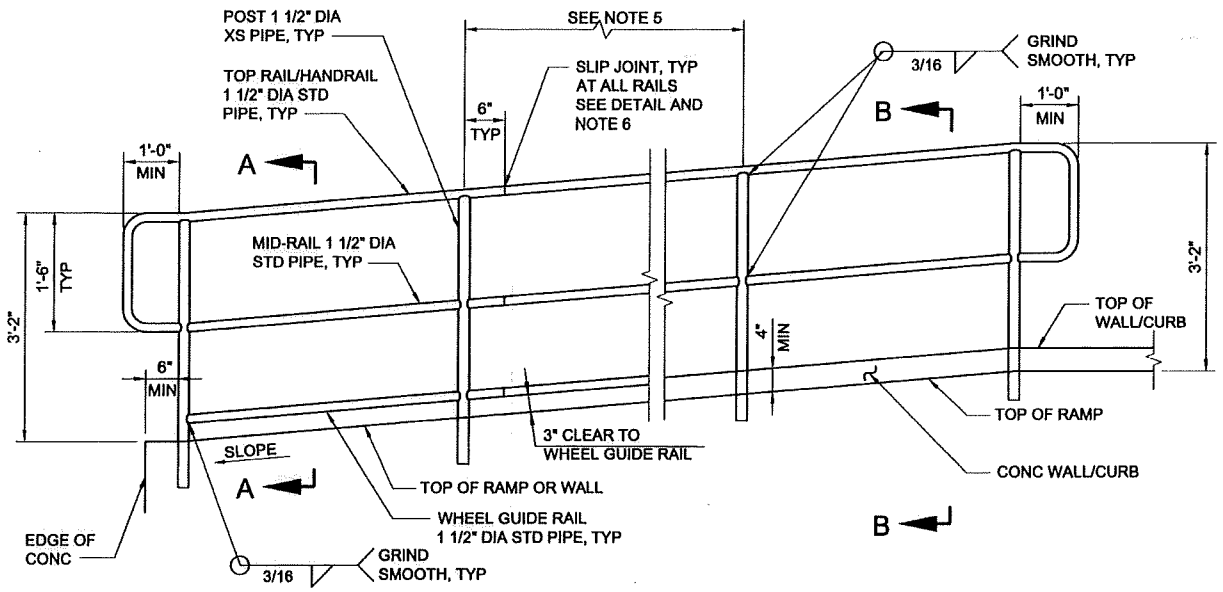
SIDEWALKS

STANDARD PLAN
S-444-0

PREPARED	SUBMITTED	APPROVED	SUPERSEDES	REFERENCES
MARK CHMIELOWIEC, P.E. BUREAU OF ENGINEERING CHECKED RAFFI MASSABKI, P.E. BUREAU OF ENGINEERING	6-24-14 for SAMARA ALI-AHMAD, P.E. DATE ENGINEER OF DESIGN BUREAU OF ENGINEERING 6/25/14 KENNETH REDD, P.E. DATE DEPUTY CITY ENGINEER	6-25-14 GARY LEE MOORE, P.E. DATE CITY ENGINEER REGISTERED PROFESSIONAL ENGINEER GARY LEE MOORE No. C-49446 Exp. CIVIL STATE OF CALIFORNIA		S-442 S-440

VAULT INDEX NUMBER: B - 4726

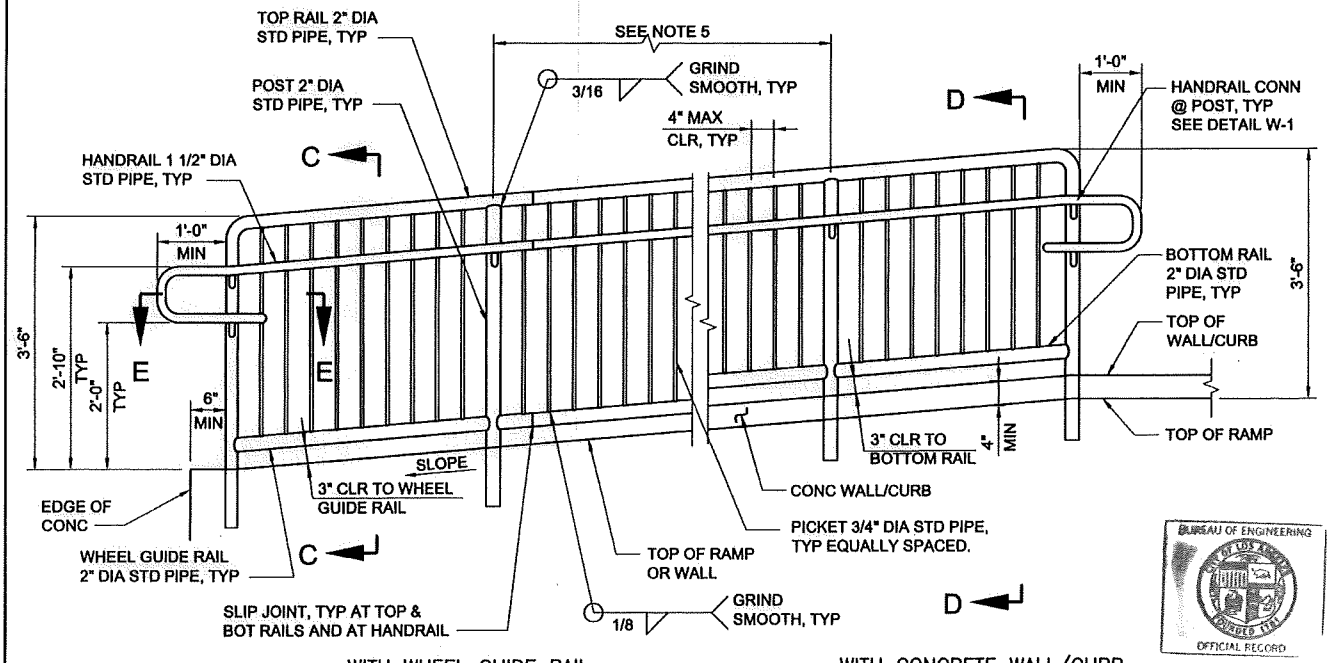
SHEET 1 OF 1 SHEET



WITH WHEEL GUIDE RAIL

WITH CONCRETE WALL/CURB

TYPE A1 - HANDRAIL ON RAMPS LESS THAN 2'-6" ABOVE THE ADJACENT GRADE



WITH WHEEL GUIDE RAIL

WITH CONCRETE WALL/CURB

BUREAU OF ENGINEERING OFFICIAL RECORD

TYPE A2 - GUARDRAIL AND HANDRAIL ON RAMPS 2'-6" OR MORE ABOVE THE ADJACENT GRADE

HANDRAIL AND GUARDRAIL ON RAMPS

(WALKING SURFACE SLOPE > 5%)

DEPARTMENT OF PUBLIC WORKS

BUREAU OF ENGINEERING

CITY OF LOS ANGELES

PEDESTRIAN PIPE GUARDRAILS & HANDRAILS

STANDARD PLAN S-463-2

SUBMITTED Jan 19 2010

Jeon Park
ENGINEER OF DESIGN

Shaibu Rafiu
DEPUTY CITY ENGINEER

APPROVED 1-20 2010

Gary Lee Moore
CITY ENGINEER

DESIGNED BY	DRAWN BY	CHECKED BY
E.S.K.	M.C.	T.L.

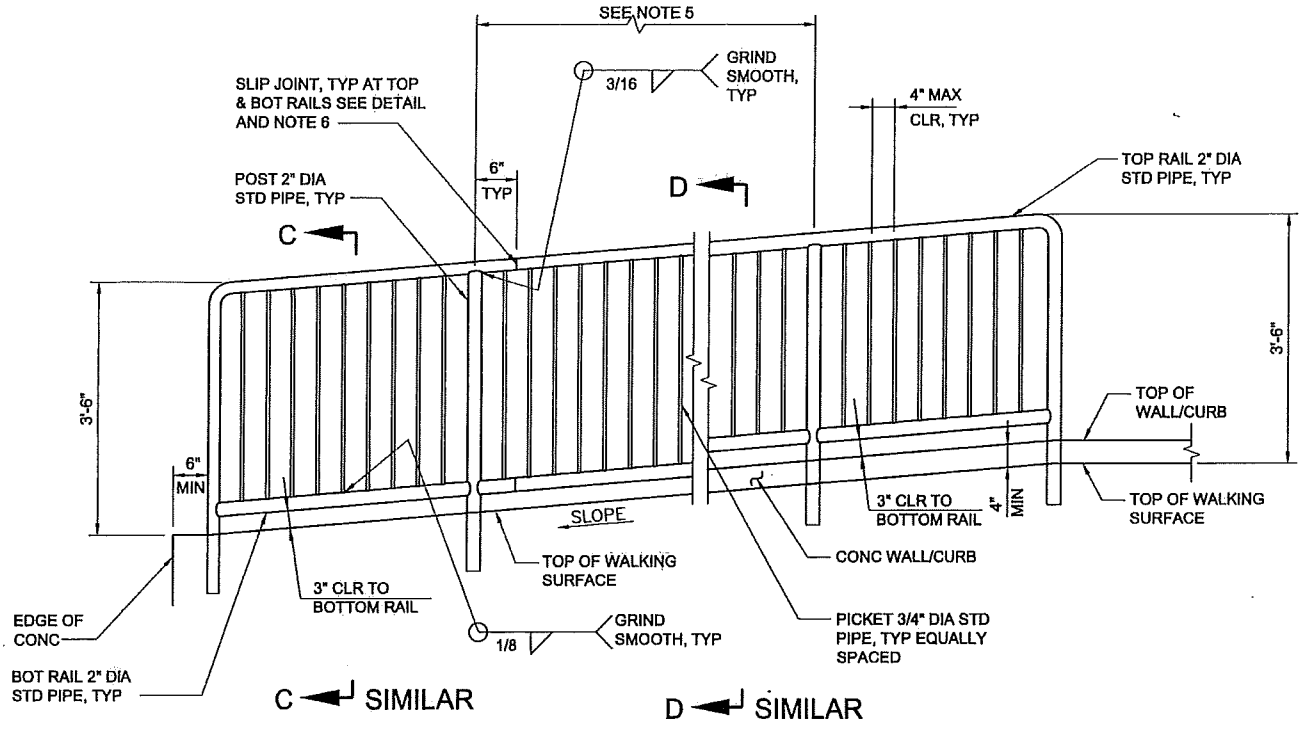
REGISTERED PROFESSIONAL ENGINEER GARY LEE MOORE No. C-19448 Exp. 9-30-10 CIVIL STATE OF CALIFORNIA

REVISIONS				
NO.	DATE	DESCRIPTION	ENGR. OF DESIGN	CITY ENGR.

SUPERSEDES	REFERENCES
B-4058	S-463-1

VAULT INDEX B-4633

SHEET 1 OF 4 SHEETS



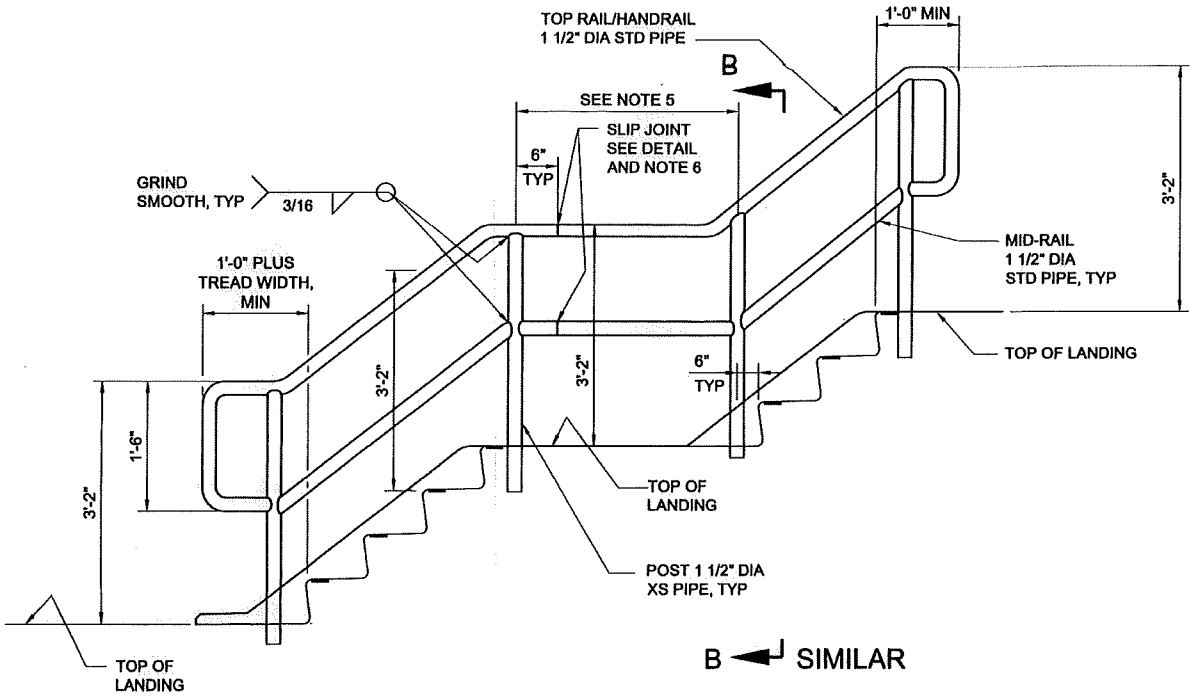
WITHOUT CONCRETE CURB

WITH CONCRETE WALL/CURB

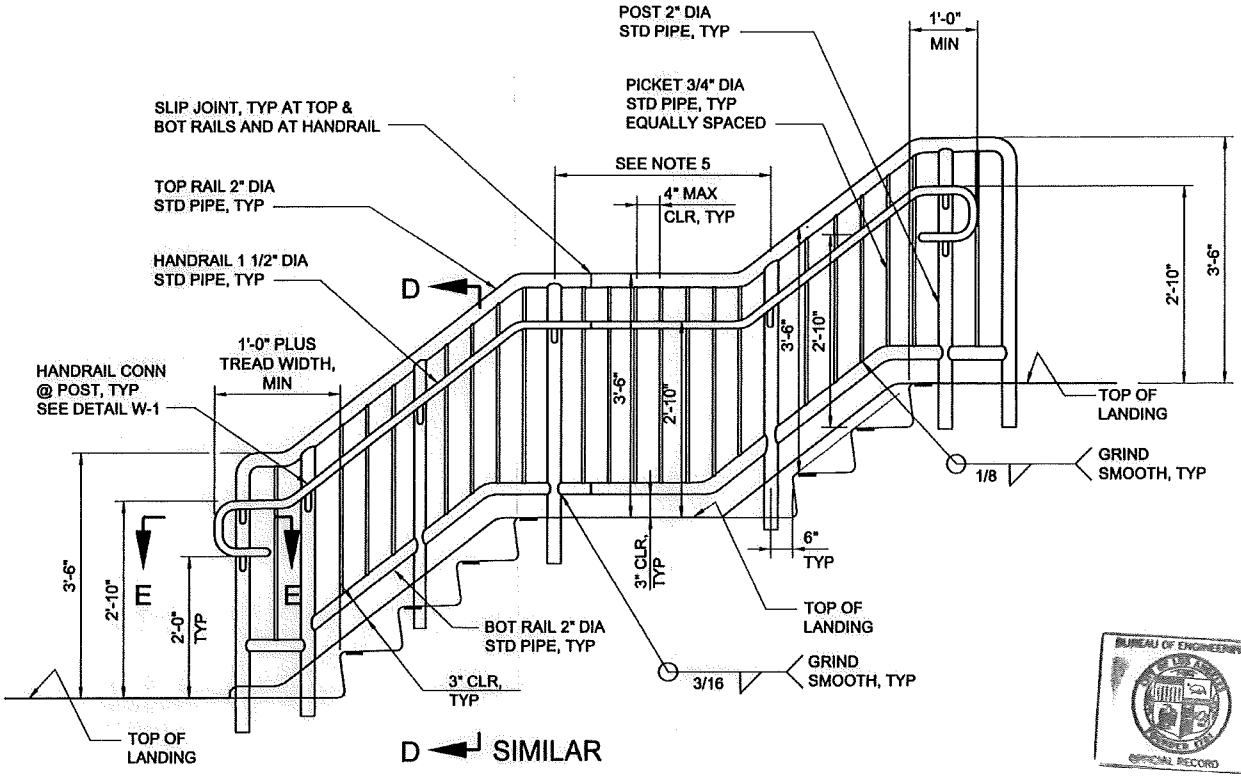
TYPE B1 - GUARDRAIL ALONG WALKWAYS 2'-6" OR MORE ABOVE THE ADJACENT GRADE

GUARDRAIL ON OPEN SIDE OF WALKWAYS

(WALKING SURFACE SLOPE < 5%)



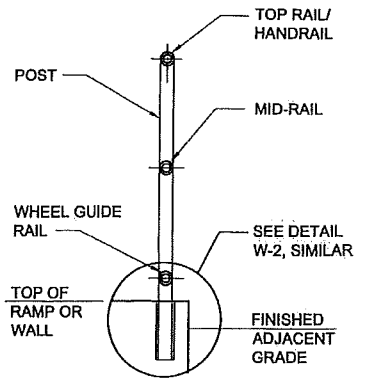
TYPE C1 - HANDRAIL ON STAIRWAYS LESS THAN 2'-6" ABOVE THE ADJACENT GRADE



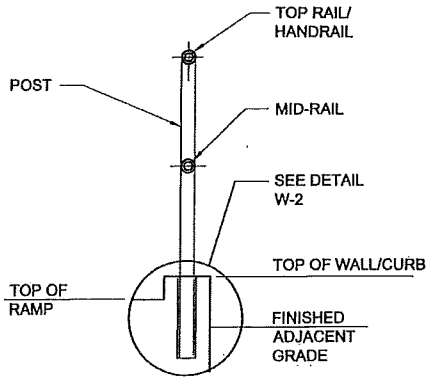
TYPE C2 - GUARDRAIL AND HANDRAIL ON STAIRWAYS 2'-6" OR MORE ABOVE THE ADJACENT GRADE

HANDRAIL AND GUARDRAIL ON STAIRWAYS

STANDARD PLAN NO. S-463-2	VAULT INDEX NUMBER B - 463 3	SHEET 3 OF 4 SHEETS



SECTION A–A
NOT TO SCALE



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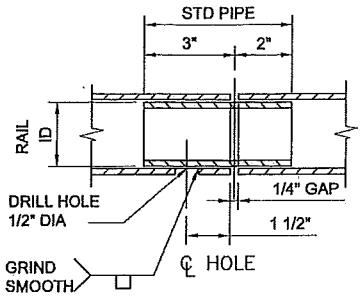
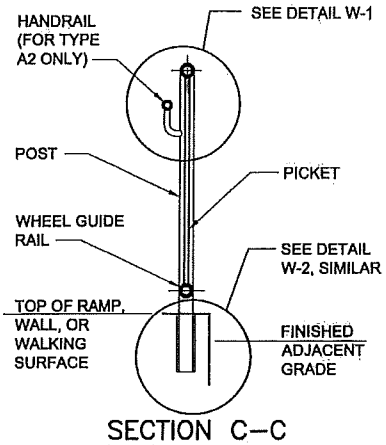


SLIP JOINT DETAIL
NOT TO SCALE



SECTION C–C
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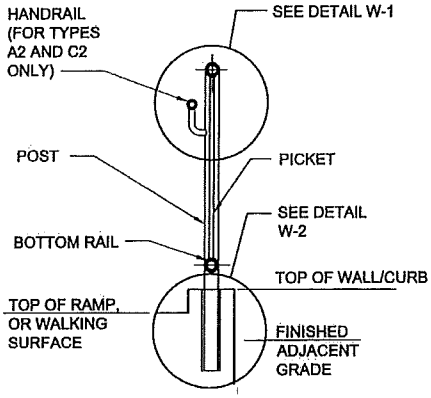

SECTION D–D
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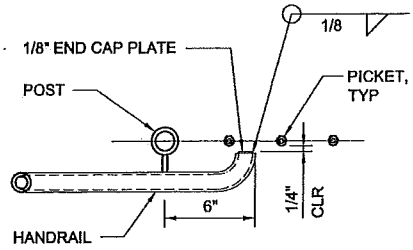

SECTION E–E
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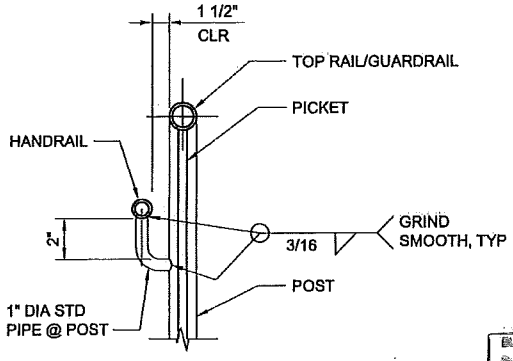
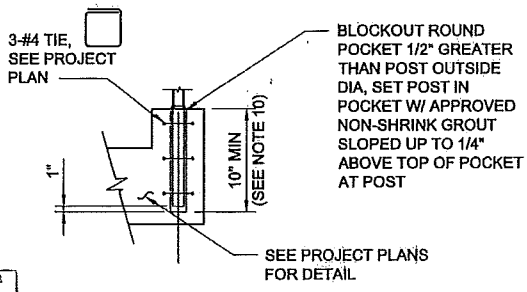


DETAIL W–1
NOT TO SCALE



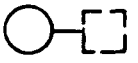
DETAIL W–2
NOT TO SCALE

NOTES:

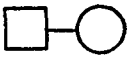
1. STRUCTURAL PIPES SHALL CONFORM TO ASTM A53, GRADE B (Fy=35 KSI) AND STRUCTURAL STEEL PLATE SHALL CONFORM TO ASTM A36.
2. STEEL SHALL BE FABRICATED AND ERECTED IN CONFORMANCE WITH THE LATEST AISC SPECIFICATIONS AND CODE OF STANDARD PRACTICE BY A LICENSED FABRICATOR APPROVED BY THE CITY OF LOS ANGELES DEPARTMENT OF BUILDING AND SAFETY.
3. WELDING SHALL BE DONE BY WELDERS CERTIFIED BY THE CITY OF LOS ANGELES DEPARTMENT OF BUILDING AND SAFETY, USING APPROVED E70XX ELECTRODES ONLY, UNO. WELDING SHALL CONFORM TO APPLICABLE AWS WELDING CODES, LATEST EDITION. ALL SHOP WELDS SHALL BE DONE IN A SHOP APPROVED BY THE CITY OF LOS ANGELES DEPARTMENT OF BUILDING AND SAFETY. CONTINUOUS INSPECTION SHALL BE PROVIDED ON WELDS AS SPECIFIED IN THE LOS ANGELES BUILDING CODE, UNO. INSPECTION SHALL BE DONE BY A LOS ANGELES CITY LICENSED DEPUTY INSPECTOR AT THE CONTRACTOR'S EXPENSE.
4. ALL STEEL STRUCTURAL COMPONENTS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
5. MAXIMUM SPACING OF POSTS SHALL BE 5 FEET ON STRAIGHT ALIGNMENTS AND 4 FEET ON CURVED ALIGNMENTS LESS THAN 30 FEET RADIUS. SPACING SHALL BE UNIFORM BETWEEN CHANGES IN ALIGNMENT.
6. PROVIDE SLIP JOINTS AT STAIRWAY AND RAMP EXPANSION JOINTS OR AT EVERY 24 FEET ON CENTER MAXIMUM.
7. ALL RAILS AND ANY ADJACENT SURFACES TO IT SHALL BE FREE OF ANY SHARP OR ABRASIVE ELEMENTS. EDGES SHALL HAVE A MINIMUM RADIUS OF 1/8 IN.
8. ALL FIELD WELDS AS REQUIRED SHALL BE GROUND SMOOTH. GALVANIZED COATING SHALL BE REPAIRED AFTER FIELD WELDING.
9. 90 DEGREE BEND RADIUS TO THE CENTER OF PIPE SHALL BE WITHIN TWO (2) TO THREE (3) TIMES OF NOMINAL DIAMETER OF THE PIPE.
10. SEE PROJECT PLANS FOR ADDITIONAL DETAILS AND REQUIREMENTS FOR POST ANCHORAGE.

CONSTRUCTION SYMBOLS


CONSTRUCT


REMODEL EXISTING


EXISTING


REMOVE & CONSTRUCT


REMOVE


WORK BY OTHERS

NOTE: WHEN ONE CHOOSES TO USE CONSTRUCTION SYMBOLS, THE USE OF THIS STANDARD PLAN IS MANDATORY. PERTINENT ITEM NUMBERS AND DESCRIPTIONS SHALL BE SHOWN ON EACH SHEET.

ITEM NUMBER	DESCRIPTION	DATA TO BE SHOWN ON LEADER
1.	CONCRETE CURB	TYPE
2.	TYPE C INTEGRAL CURB & GUTTER	b,a
3.	TYPE C INTEGRAL CURB & PAVEMENT	b,c
4.	CONCRETE GUTTER	b,a
5.	CONCRETE LONGITUDINAL GUTTER	b,g
6.	CONCRETE INTERSECTION GUTTER	b,a,g
7.	BUS PAD	W,t,P,L
8.	CONCRETE PAVEMENT	THICKNESS,CLASS
9.	STREET OR ALLEY PER TYPICAL SECTION	
10.	CONCRETE DRIVEWAY	CASE,W,X,Y,a,t
11.	CONCRETE ALLEY INTERSECTION	W,R,t
12.	CONCRETE WALK	THICKNESS
13.	CURB RAMP	CASE,W,X,Y
14.	ASPHALT CONCRETE PAVEMENT	THICKNESS
15.	ASPHALT CONCRETE BERM PER DETAIL	
16.	UNTREATED BASE MATERIAL	THICKNESS,TYPE
17.	ADJUST MANHOLE TO GRADE	TYPE,+(RAISE)',-(LOWER)'
18.	METAL BEAM GUARDRAIL	LIN. FT.
19.	RECONSTRUCT MANHOLE TO GRADE	TYPE,+(RAISE)',-(LOWER)'

BUREAU OF ENGINEERING | DEPARTMENT OF PUBLIC WORKS | CITY OF LOS ANGELES

SYMBOLS FOR CONSTRUCTION NOTES

STANDARD PLAN S-627-0

SUBMITTED 11/8 1989

ENGINEER OF DESIGN L. L. Lewis

DEPUTY ENGINEER

APPROVED 11/21 1989

CITY ENGINEER Robert S. Horii

DESIGN BY	DRAWN BY	CHECK BY
RAB	G MCD	RGS

REGISTERED PROFESSIONAL ENGINEER
ROBERT S. HORII
EXP. 12/31/92
NO. 11782
CIVIL
STATE OF CALIFORNIA

NO.	DESCRIPTION

REVISIONS

SUPERSEDES | REFERENCES

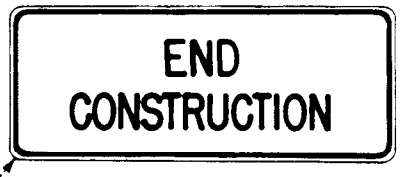
VAULT INDEX NO. B-4106

SHEET 1 OF 3 SHEETS

ITEM NUMBER	DESCRIPTION	DATA TO BE SHOWN ON LEADER
20.	REMOVE TREE	DIA.,STATION,OFFSET TO CL
21.	COLDPLANE (MILL) AC PAVEMENT	
22.	EXTRUDED ASPHALT CONCRETE (AC) CURB	HEIGHT
23.	GRADE ONLY	
24.	PLANT TREE	SPECIES,GALLON SIZE
25.	TREE WELL COVER - TYPE A	(A-1,OR A-2)
26.	TREE WELL	TYPE(1 OR 2)
27.	GEOTEXTILE	TYPE,WOVEN OR NONWOVEN
28.	JOINT	TYPE
29.	CURB DRAIN	INSIDE DIMENSIONS,MATERIAL
30.	WOODEN WARNING RAIL	LIN. FT.
31.	PIPE HANDRAIL	
32.	GRIND CONCRETE PAVEMENT	
33.	RELOCATE PARKING METER	
34.	VARIABLE THICKNESS ASPHALT CONCRETE PAVEMENT	
35.	INSTALL GUIDE MARKER	
36.	RELOCATE UTILITY POLE	POLE NUMBER
37.	RELOCATE POLE ANCHOR	
38.	RELOCATE AND/OR ADJUST STREET LIGHTING PULL BOX TO GRADE	
39.	RELOCATE AND/OR ADJUST TRAFFIC SIGNAL PULL BOX TO GRADE	
40.	RELOCATE AND/OR ADJUST CATV PULL BOX TO GRADE	
41.	RELOCATE AND/OR ADJUST FIRE HYDRANT TO GRADE	
42.	RELOCATE AND/OR ADJUST ELECTROLIER TO GRADE	
43.	RELOCATE AND/OR ADJUST DWPPS VENT TO GRADE	
44.	RELOCATE AND/OF ADJUST DWPPS MANHOLE TO GRADE	
45.	RELOCATE AND/OR ADJUST DWPWS MANHOLE TO GRADE	
46.	RELOCATE AND/OR ADJUST WATER METER TO GRADE	
47.	RELOCATE STREET SIGN	
48.	TO 77 RESERVED FOR STREET RELATED ITEMS.	
78.	ALLEY GRATING BASIN (AGB)	NO. GRATING ,V
79.	REINFORCED CONCRETE PIPE (RCP)	DIAMETER,D-LOAD
80.	PAVEMENT REMODELING AT CATCH BASIN	X,Y,M
81.	CURBSIDE GRATING BASIN (CGB)	NO. GRATING ,V
82.	JUNCTION STRUCTURE (J.S.)	TYPE
83.	CORRUGATED STEEL PIPE (CSP)	TYPE, DIA ,GAGE
84.	REINFORCED CONCRETE BOX	W BY H
85.	STORM DRAIN MANHOLE	TYPE
86.	WARPED GUTTER AT CATCH BASIN	DIMENSIONS
87.	CATCH BASIN NO.36	NO. GRATING ,V

ITEM NUMBER	DESCRIPTION	DATA TO BE SHOWM ON LEADER
88.	CATCH BASIN NO. 44	W,H,U,S
89.	CATCH BASIN NO. 47	DIMENSIONS
90.	LOW FLOW INLET STRUCTURE	L,X,A
91.	LOW FLOW OUTLET STRUCTURE	L,X,A
92.	SIDEWALK OUTLET STRUCTURE	DIMENSIONS
93.	SIDEWALK CULVERT WITH STEEL PLATE COVER	F,W,H,(J-K),(L-M)
94.	SEAL PER DETAIL	
95.	REINFORCED CONCRETE PIPE-LINED	DIA,D ITEM NUMBER
96.	SEAL WITH 8" BRICK & MORTAR	
97.	CONCRETE COLLAR	
98.	MONOLITHIC CONNECTION	
99.	SIDE OPENING CATCH BASIN	W,V,B
100. TO 130.	RESERVED FOR STORM DRAIN RELATED ITEMS.	
131.	SEWER PIPE	DIMENSIONS
132.	VITRIFIED CLAY PIPE(VCP)	DIMENSIONS
133.	SUPPORT OF PIPES ACROSS TRENCH	CASE
134.	IRON PIPE	DIA.,CAST OR DUCTILE,THICKNESS, CLASS
135.	MANHOLE INNER COVER	B OR C
136.	SEWER MANHOLE	STD. PLAN DESIGNATION, DM,H,SHALLOW
137.	HOUSE CONNECTION SEWER (H.C.)	TYPE,DIA
138.	SADDLE	
139.	CHIMNEYS	TYPE, DIA,H,H_1,H_2
140.	TERMINAL CLEANOUT STRUCTURE "Y" (TCS"Y")	D
141.	CONCRETE BLANKET	LIN.FT.
142.	PIPE ANCHOR	L,Z
143.	TUNNEL	LIN.FT.
144.	JACK PIPE	LIN.FT.
145.	SPECIAL MANHOLE FOR R.C.P. PER DETAIL	
146. TO 176.	RESERVED FOR SEWER RELATED AND MISCELLANEOUS ITEMS.	

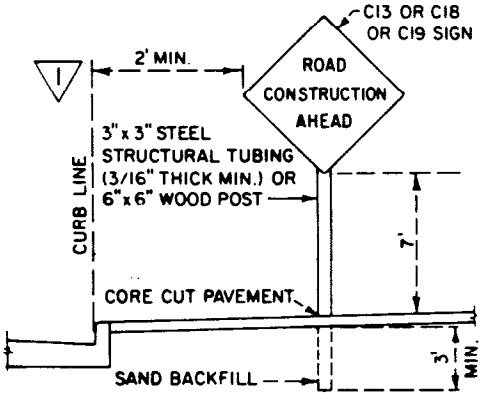
C18 (36"x 36")
PLACED AT BEGINNING OF THE WORK AND AT LEAST ONE PER BLOCK, AND AT CROSS STREETS.



C13 (48"x 24")
PLACED AT END OF WORK

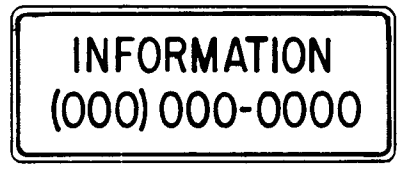
1 C13, C18 AND C19 SIGNS SHALL BE REFLECTORIZED WITH BLACK LETTERS ON AN ORANGE BACKGROUND (SEE MOUNTING AND PLACEMENT DETAILS AT LOWER RIGHT). LETTERS SHALL BE 5" SERIES C.

C19 (36"x 36")
FOR STREET CLOSURES PLACED AS SPECIFIED FOR C18 SIGNS



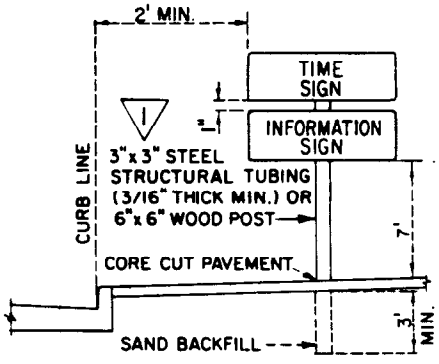
1 

"TIME SIGN" (48"x24") WITH BLACK LETTERS (5"SERIES C) ON AN ORANGE BACKGROUND. (SEE MOUNTING AND PLACEMENT DETAILS AT RIGHT.) (SEE NOTE 6 FOR WORDING)



"INFORMATION SIGN" (48"x24") WITH BLACK LETTERS (5"SERIES C) ON AN ORANGE BACKGROUND. (SEE MOUNTING AND PLACEMENT DETAILS AT RIGHT.) (SEE NOTE 5 FOR TELEPHONE NUMBER.)

1 INFORMATION SIGN TO BE MOUNTED BELOW TIME SIGN AND C13 SIGN



TYPICAL MOUNTING AND PLACEMENT DETAILS
NOT TO SCALE

DEPARTMENT OF PUBLIC WORKS

BUREAU OF ENGINEERING — CITY OF LOS ANGELES

ADVANCE CONSTRUCTION NOTICE SIGNS

STANDARD PLAN
S-791-1

SUBMITTED June 15, 1989
ENGINEER OF DESIGN
Lawrence A. Hucks
DEPUTY ENGINEER

APPROVED 9/27/11, 1989
CITY ENGINEER

DESIGNED BY	DRAWN BY	CHECKED BY
RAB	RGM/GMcD	RGS

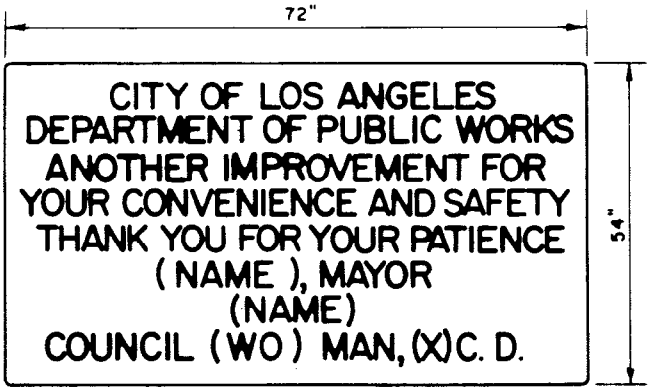
REGISTERED PROFESSIONAL ENGINEER — ROBERT G. HORII — EXP 12/31/92 — NO 11162 CIVIL — STATE OF CALIFORNIA

NO.	DESCRIPTION
1	REVISED: NOTES, TITLE OF SIGNS, TYPICAL MOUNTING AND PLACEMENT DETAILS, CREDIT SIGNS, AND ADDED TIME SIGN.

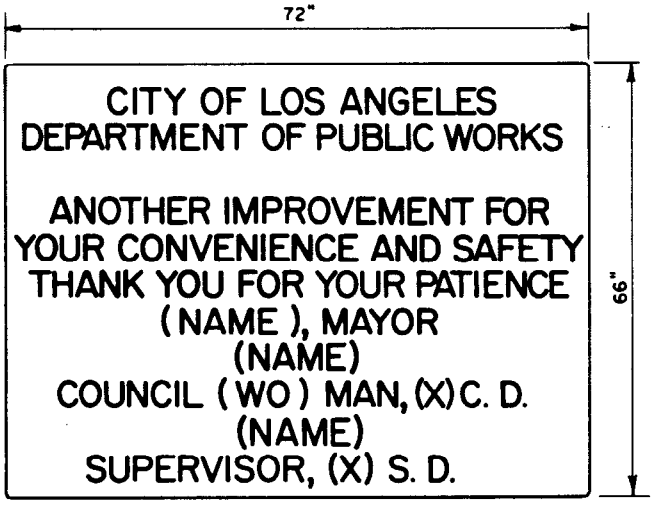
SUPERSEDES	REFERENCES
B-4097	

VAULT INDEX NUMBER B-4100

SHEET 1 OF 4 SHEETS



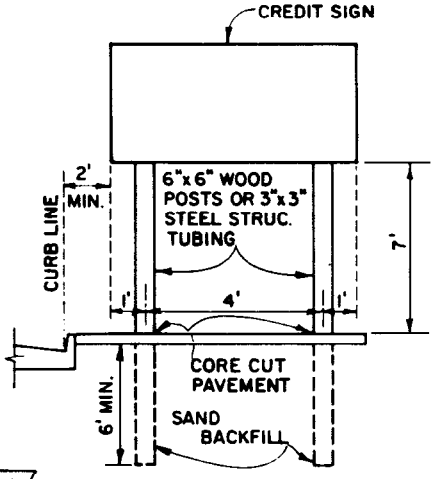
1 TYPE I CREDIT SIGN



1 TYPE II CREDIT SIGN

1 ALL CREDIT SIGNS PLACED 100 FEET IN ADVANCE OF BEGINNING OF WORK.

1 CREDIT SIGNS (72" x 66" MAXIMUM) WITH WHITE LETTERS (4" SERIES C) ON A BLUE BACKGROUND WITH A WHITE BORDER. (SEE MOUNTING AND PLACEMENT DETAILS AT RIGHT.)



1 TYPICAL MOUNTING AND PLACEMENT DETAILS

NOT TO SCALE

STANDARD PLAN NO. S-791-1	VAULT INDEX NUMBER B-4100	SHEET 2 OF 4 SHEETS

NOTES

1. THESE SIGNS ARE IN ADDITION TO THOSE REQUIRED BY, AND SHALL CONFORM TO, THE PROVISIONS OF THE LATEST ADOPTED EDITION OF THE "WORK AREA TRAFFIC CONTROL HANDBOOK" (**WATCH**).

2. ALL SIGN AND PLATE PANELS SHALL CONSIST OF HIGH QUALITY REFLECTORIZED SHEETING APPLIED TO A BASE OF ALUMINUM OR PLYWOOD. BASE MATERIAL SHALL BE EXTERIOR GRADE PLYWOOD NOT LESS THAN 3/8 INCH THICK OR SHEET ALUMINUM NOT LESS THAN 0.063 INCH THICK FOR WIDTHS UP TO 42 INCHES AND NOT LESS THAN 0.080 INCH THICK FOR WIDTHS GREATER THAN 42 INCHES. ALL PANELS SHALL BE THE PRODUCT OF A COMMERICIAL TRAFFIC SIGN MANUFACTURER.

3. SIGN PANELS SHALL FACE AND BE VISIBLE TO ONCOMING TRAFFIC AND BE SECURELY FASTENED TO POSTS WITH COMMERICIAL BOLTS, NUTS AND WASHERS SO AS TO RESIST DISPLACEMENT.

▽1 4. THE SIGNS SHALL BE PLACED AT LEAST **7** DAYS BEFORE START OF CONSTRUCTION. PRIOR TO INSTALLATION OF ANY SIGNS, THE CONTRACTOR SHALL HAVE APPLICABLE INSURANCE ON FILE WITH THE CITY ATTORNEY'S OFFICE. UNLESS OTHERWISE SPECIFIED ON THE PLANS, THE SIGNS SHALL BE PLACED AS FOLLOWS:

   A. **C18 SIGNS** SHALL BE PLACED AT THE BEGINNING OF THE WORK AND ONE PER BLOCK WITHIN THE LIMITS OF THE WORK. HOWEVER, NO TWO SUCCESSIVE SIGNS SHALL BE SPACED GREATER THAN 1000 FEET APART. **C18 SIGNS** SHALL ALSO BE PLACED ON CROSS STREETS ONE BLOCK PRECEEDING THE WORK.

   B. **C13 SIGNS** SHALL BE PLACED AT THE END OF THE WORK.

   C. WHEN A STREET CLOSURE IS ALLOWED, **C19 SIGNS** SHALL BE PLACED AS SPECIFIED FOR **C18 SIGNS.**

   D. THE **CREDIT SIGN** SHALL BE PLACED 100 FEET IN ADVANCE OF BEGINNING OF WORK, TWO SIGNS IF WORK INVOLVES BOTH SIDES OF STREET. **CREDIT SIGNS** SHALL BE REQUIRED ON ALL PROJECTS EXCEPT PERMIT PROJECTS. SEE PLANS FOR TYPE AND NAMES.

   E. THE COMBINATION **TIME AND INFORMATION SIGN** SHALL BE PLACED **20** FEET BEHIND THE FIRST **C18 SIGN** AND 20 FEET BEHIND ALL **C13 SIGNS** AND **C19 SIGNS.**

5. FOR CASH AND ASSESSMENT ACT CONTRACTS, THE INFORMATION TELEPHONE NUMBER SHALL BE THE NUMBER OF THE DESIGN OFFICE SPECIFIED ON THE PROJECT PLANS. FOR PERMIT PROJECTS, IT SHALL BE THE NUMBER OF THE PERMITTEE OR ITS RESPONSIBLE DESIGNEE. FOR PROJECTS PERFORMED BY CITY FORCES, THE TELEPHONE NUMBER SHALL BE THAT OF THE BUREAU PERFORMING THE WORK.

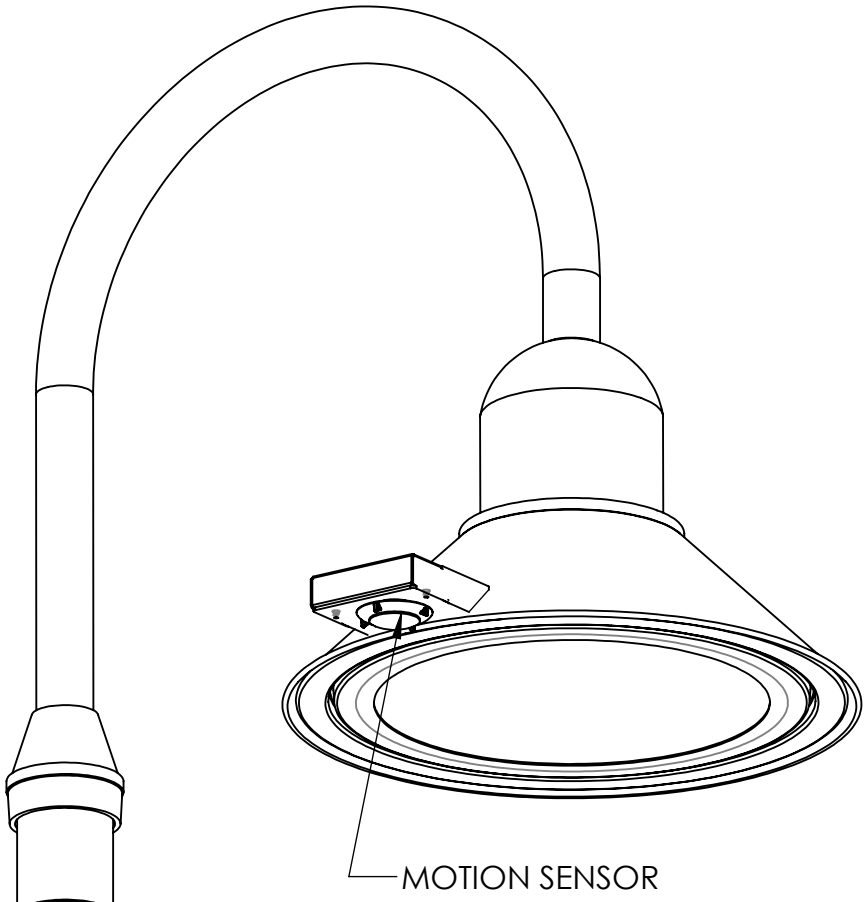
▽1 6. FOR WORDING OF THE **TIME SIGN**, CONTACT THE ENGINEER, THE PERMITTEE OR THE RESPONSIBLE DESIGNEE.

7. ALL COSTS INCURRED IN FURNISHING, INSTALLING, MAINTAINING, AND REMOVING THE SIGNS SHALL BE INCLUDED IN OTHER ITEMS FOR WHICH BIDS ARE ENTERED.

▽1 8. SIGNS AT THE BEGINNING AND END OF THE PROJECT SHALL BE LOCATED CLOSE TO, BUT SHALL NOT INTERFERE WITH, THE CONSTRUCTION.

APPENDIX B
(STREET LIGHTING SPECIFICATIONS)

CALIFORNIA SERIES MOTION SENSOR LOCATION



NEXT ASSY	USED ON
APPLICATION	

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±.031
THREE PLACE DECIMAL ±.015

MATERIAL

FINISH

DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	JR	4/16/15
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		

COMMENTS:

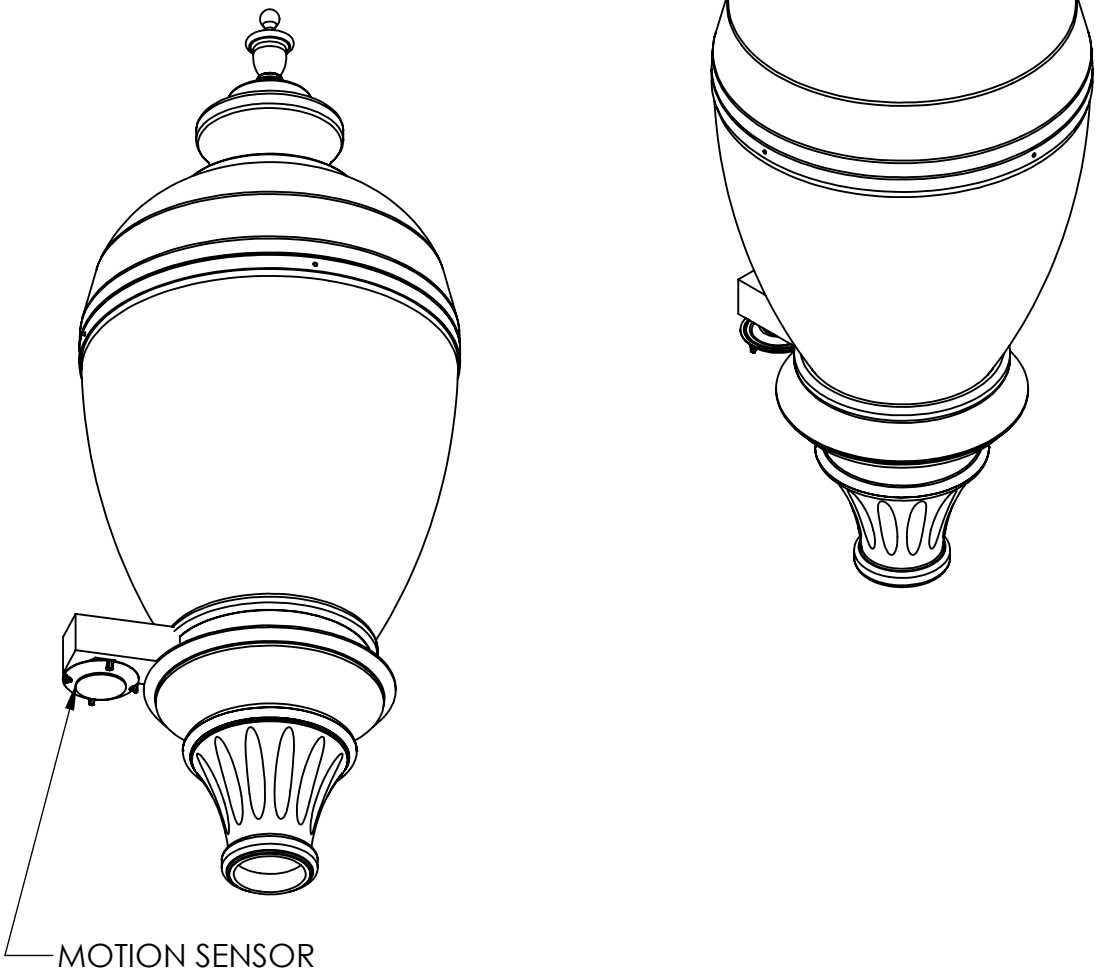
NATIONAL LIGHTING SOLUTIONS
19500 S. Rancho Way #105
Rancho Dominguez, CA. 90220
PH: 310-341-2037

CALIFORNIA MOSTION SENSOR LOCATION

SIZE	DWG. NO.	REV.
A	CAL-MS	--

SCALE:1:100	WEIGHT:	SHEET 1 OF 1

SAVANNAH MOTION SENSOR LOCATION



NEXT ASSY	USED ON
APPLICATION	

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±.031
THREE PLACE DECIMAL ±.015

MATERIAL

FINISH

DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	JR	4/16/15
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		

COMMENTS:

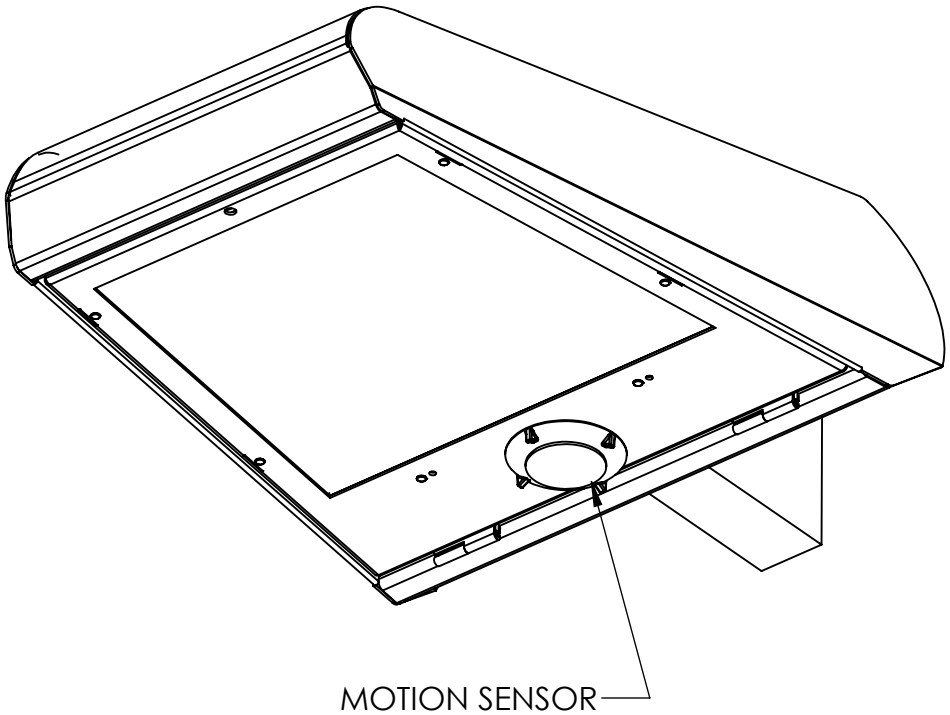
NATIONAL LIGHTING SOLUTIONS
19500 S. Rancho Way #105
Rancho Dominguez, CA. 90220
PH: 310-341-2037

SAVANNAH MOTION SENSOR LOCATION

SIZE	DWG. NO.	REV.
A	Savannah -MS	--

SCALE:1:20 | WEIGHT: | SHEET 1 OF 1

VUEs MOTION SENSOR LOCATION



NEXT ASSY	USED ON
APPLICATION	

DIMENSIONS ARE IN INCHES
TOLERANCES:
FRACTIONAL ±
ANGULAR: MACH ± BEND ±
TWO PLACE DECIMAL ±.031
THREE PLACE DECIMAL ±.015

MATERIAL

FINISH

DO NOT SCALE DRAWING

	NAME	DATE
DRAWN	JR	1/13/16
CHECKED		
ENG APPR.		
MFG APPR.		
Q.A.		

COMMENTS:

NATIONAL LIGHTING SOLUTIONS
19500 S. Rancho Way #105
Rancho Dominguez, CA. 90220
PH: 310-341-2037

MOTION SENSOR LOCATION

SIZE	DWG. NO.	REV.
A	VUE-MS	--

SCALE:1:10 | WEIGHT: | SHEET 1 OF 1

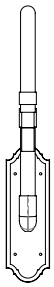
NATIONAL LIGHTING SOLUTIONS

ARCHITECTURAL ARM 3

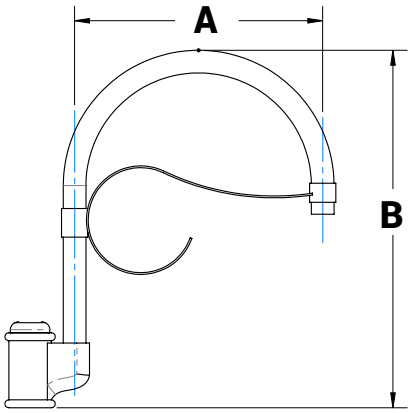
ARMS

A3 Single

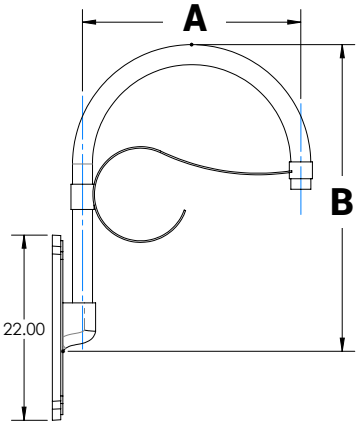
A3 Double 180



A3 Wall Mount



A3 Single



A3-WM Cast Wall Plate

MODEL	A	B	C	EPA SGL	EPA DBL	EPA WM
A3-S	17 in.	29 in.	2⅜ in. ø	1.2	1.9	.9
A3-L	26 in.	38 in.	2⅜ in. ø	1.5	2.8	1.4

Architectural Arm 3 is constructed of extruded aluminum tubing. Integrates with poles or tenons of 3-1/2", 4", 4-1/2", or 5" OD and is secured with 3/8" stainless steel Allen set screws.

Contact NLS for custom configuration or others mounting options. Arms are designed, tooled, fabricated and assembled in the USA.

MADE IN U.S.A
Designed, Tooled, Manufactured and Assembled in the U.S.A.
Proudly By: NATIONAL LIGHTING SOLUTIONS

Project Name:

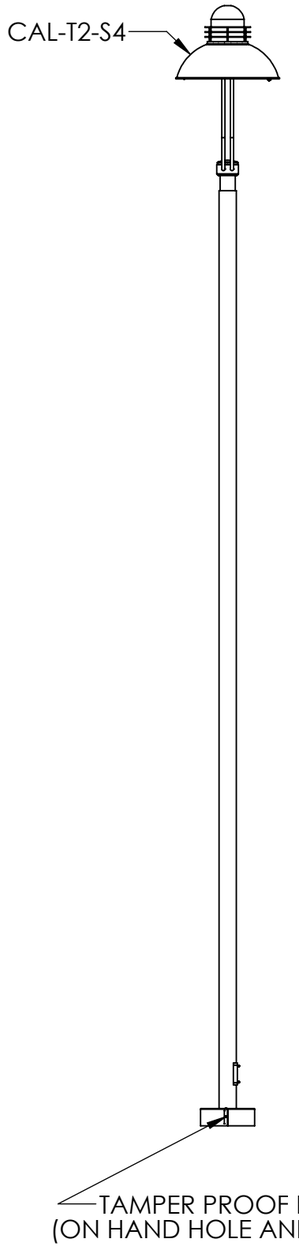
Type:

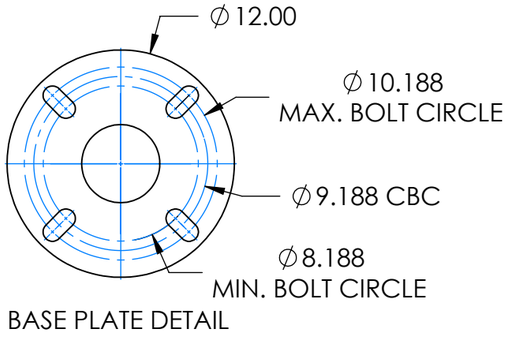
Cat #	Mounting	Pole or Tenon Diameter	Color
Architectural Arm 3 Small **(A3-S)**	Single **(SGL)**	3" Round **(3R)**	Bronze **(BRZ)**
	Double 180° **(D180)**	4" Round **(4R)**	White **(WHT)**
	Wall Mount **(WM)**	4 ½" Round **(412R)**	Silver **(SVR)**
Architectural Arm 3 Large **(A3-L)**		5" Round **(5R)**	Black **(BLK)**
			Green **(GN)**
			Custom **(CS)**

NATIONAL LIGHTING SOLUTIONS
19500 Rancho Way Suite, Rancho Dominguez CA 90220
PH: 310-341-2037
www.nls-online.com

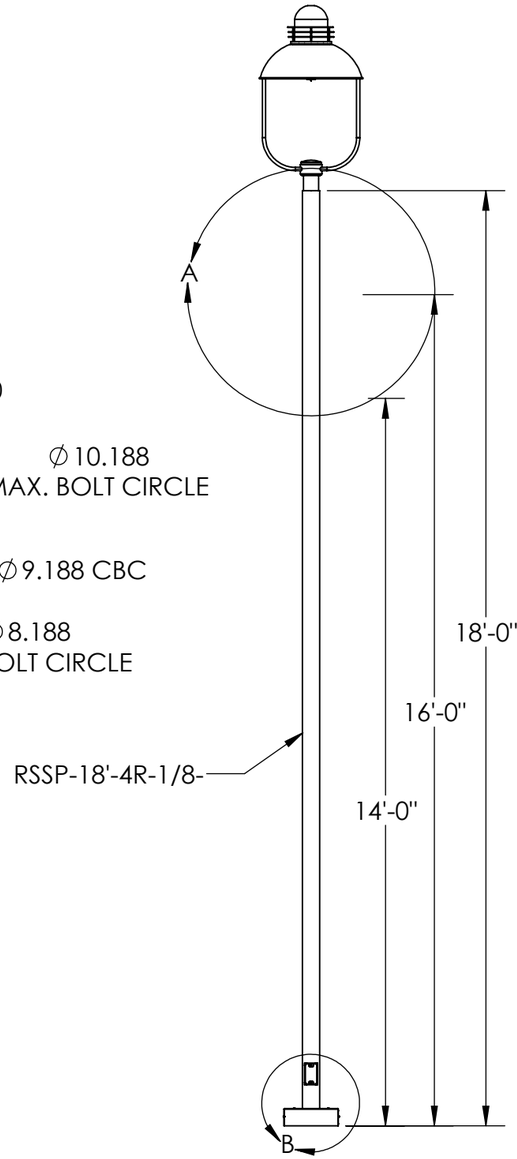
Los Angeles Park & Recreation
Pole detail
POCKET PARK

REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED

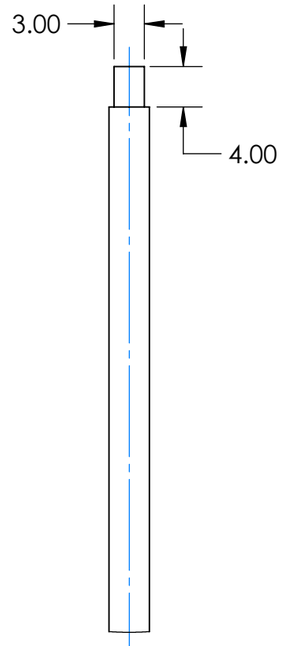




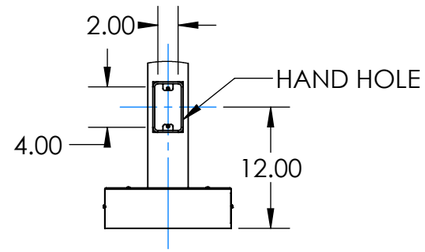
BASE PLATE DETAIL



POLE DETAIL



DETAIL A



DETAIL B

THIS DRAWING IS SIBMITTED FOR YOUR APPROVAL, PROCESSING OF YOUR PART WILL NOT CONTINUE UNTIL WE RECEIVE A COPY OF THIS DRAWING APPROVED FOR PRODUCTION

APPROVED BY_____**DATE**_____

		UNLESS OTHERWISE SPECIFIED:		NAME	DATE
		DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONAL ± ANGULAR: MACH ± 1 BEND ± 1 TWO PLACE DECIMAL ± .031 THREE PLACE DECIMAL ± .015	DRAWN	JR	7/30/15
			CHECKED		
			ENG APPR.		
			MFG APPR.		
		INTERPRET GEOMETRIC TOLERANCING PER:	Q.A.		
		MATERIAL	COMMENTS:		
NEXT ASSY	USED ON	FINISH			
APPLICATION		DO NOT SCALE DRAWING			

NATIONAL LIGHTING SOLUTIONS
19500 S. Rancho Way #105
Rancho Dominguez, CA. 90220
Ph: 310-341-2037

TITLE:

CST RSSP 18'-4R-1/8-CST12-9BC-3430-T3R-RBC- TPH

SIZE	DWG. NO.	REV
B	Pocket Park CAL+Pole	--

SCALE: NTS | WEIGHT: | SHEET 1 OF 1

NATIONAL LIGHTING SOLUTIONS

CALIFORNIA LED

ARCHITECTURAL AREA LIGHTING

The beautiful and simple California Series LED Pedestrian Luminaires depict not only the California lifestyle, but the architecture of California as well. This ornamental piece is a delightful sight to see and a great model to illuminate any urban, rural, retail, or park, or campus setting.

The different caps and shades depict different California styles and a touch of California's historic Spanish mission era. The California Series is the perfect selection to combine both design and efficiency in light performance. Designed, tooled, manufactured and assembled in the USA.

STAR POWER REFLECTOR

The Star Power reflector is an excellent system which provides great value and performance.

LED WATTAGE CHART

	16L	32L	48L	64L
350 milliamps	18w	-	-	-
530 milliamps	-	52w	80w	103w
700 milliamps	-	72w	109w	141w

Project Name:

Type:

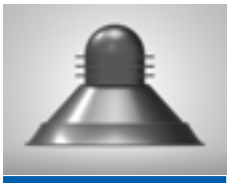
Cat #	Top/Shade	Light Dist.	# of LEDs	Milliamps	Kelvin	Type	Volts	Mount	Color	Shields	Options
California Small 18" Diameter **(CAL-S)** **16L Max* *(Shade 6 Only)*	Top 1 **(TP1)**	Type 2 **(T2)**	16 **(16L)**	350 **(35)**	4000K **(40K)**	LED **(L)**	120-277 **(UNV)**	Post Top **(PT)**	Bronze **(BRZ)**	House Side Shield **(HSS)**	Bird Spikes **(BS)**
California 1 25" Diameter **(CAL-1)** **64L Max*	Top 2 **(TP2)**	Type 3 **(T3)**	32 **(32L)**	530 **(53)**	5500K **(55K)**		347-480 **(HV)**	Arm Mount **(AM)**	White **(WHT)**		Marine Grade Finish **(MGF)**
California 2 30" Diameter **(CAL-2)** *(Shade 6 Only)*	Top 3 **(TP3)**	Type 4 **(T4)**	48 **(48L)**	700 **(7)**					Silver **(SVR)**		Photocell **(PC)** **Must specify voltage*
	Shade 1 **(S1)**	Type 5 **(T5)**	64 **(64L)**						Green **(GN)**		Watt Stopper w/ Motion Sensor **(FSP-211)**
	Shade 2 **(S2)**								Black **(BLK)**		Surge Protector **(10K)**
	Shade 3 **(S3)**										Acrylic Rings **(AR)**
	Shade 4 **(S4)**										**Rotated Optics** Rotate Optic Right **(ROR)**
	Shade 5 **(S5)**										Rotate Optic Left **(ROL)**
	Shade 6 **(S6)**										

PRODUCT SPECIFICATIONS

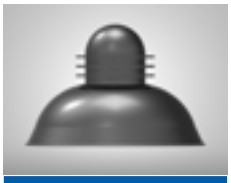
Housing: Heavy Duty Marine Grade Cast and Spun Aluminum with 6 shade options and 3 cap options.
LED: Luxeon Series by Lumileds
Optics: Star Power Optical System; Type 2, 3, 4 + 5 full cutoff
Watts: 18, 52-141 watts.
Electrical: Conforms to UL 1598 Standards
Driver: By Advance
Kelvin: 4000, or 5500
Finish: 5 Millimeters Powder Coat
Hardware: Stainless Steel
Warranty: Standard Warranty is 5 years for Driver and LEDs

PRODUCT DIMENSIONS


SHADE 1


SHADE 2


SHADE 3


SHADE 4


SHADE 5


SHADE 6

Smooth


TOP 1

Alum. Rings


TOP 2

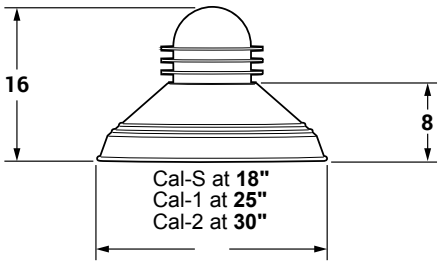
Top 3


TOP 3


Post Top Smooth


Arm Mount

EPA	California
Single	2.7



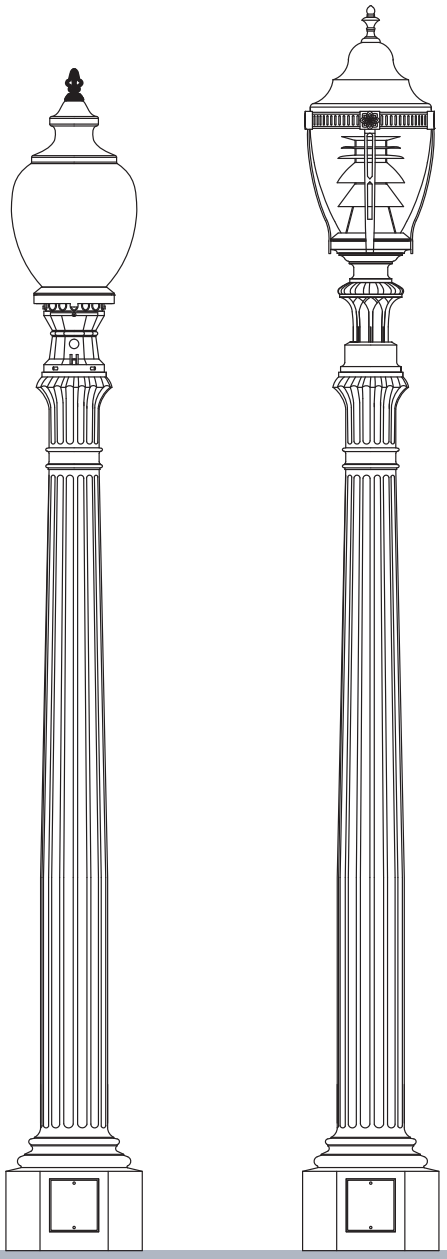
CALIFORNIA - LUMEN DATA CHART

PART NUMBER	T3 LUMENS	T3 EFFICACY	T5 LUMENS	T5 EFFICACY	Watts
CAL-1-XX-32L-53-40K	4628	89	4940	95	52
CAL-1-XX-32L-53-55K	4888	94	5200	100	52
CAL-1-XX-32L-7-40K	5976	83	6480	90	72
CAL-1-XX-32L-7-55K	6336	88	6768	94	72
CAL-1-XX-48L-53-40K	7120	89	7600	95	80
CAL-1-XX-48L-53-55K	7520	94	8000	100	80
CAL-1-XX-48L-7-40K	9047	83	9810	90	109
CAL-1-XX-48L-7-55K	9592	88	10246	94	109
CAL-1-XX-64L-53-40K	9270	90	10094	98	103
CAL-1-XX-64L-53-55K	9785	95	10609	103	103
CAL-1-XX-64L-7-40K	11844	84	13113	93	141
CAL-1-XX-64L-7-55K	12549	89	13677	97	141

NATIONAL LIGHTING SOLUTIONS
19500 Rancho Way Suite 105, Rancho Dominguez CA 90220
Call Us Today 310-341-2037
www.nls-online.com

THE IONIC

The Ionic decorative concrete pole has a unique look that will make any architectural lighting project stand out. Its 15 fluted shaft and ornate historical styling dates back to the early 1900's. From top to bottom, not a detail has been missed, and it is the perfect fit for one of King Luminaire's decorative post top fixtures. It is available in an above grade height of 10'.



Specifications Details

Description	Catalog Number	"A" Pole Height Above Grade	"D" Tip Dimension	"B" Direct Burial Length & "F" Dia.	Pole Weight Direct Burial	Pole Weight Base Plate
Ionic KIC	KIC10	9' 9"	10"	4' 6" x 9 1/2"	860 lbs	655 lbs

Other heights may be available. Contact factory.

How to Catalog for Ionic Concrete Pole

Pole Style
KIC

Height
9' 9"

Color**
10 – Midnight Lace
11 – Eclipse Black
30 – Salt & Pepper
40 – Pearl Gray
90 – Saluki bronze

Tenon (Post Top Mount)
Specify Tenon Size

For example 140 30/30 = 2 7/8" OD & 3" long

Arms* (Pendant Mount)
KA15 – Bishops Crook
KA16 – Florentine
KA30 – Scroll Arm
KA40 – Mini Scroll Arm
KA69 – Jefferson Arm
KA75 – Santiago Arm

Options*
DR – Duplex Receptacle
GFI – Ground Fault Duplex Receptacle
SR – 1 Outlet
LRN – Ladder Rest
BPC – Base Plate Cover
AB – Anchor Bolts
BA – Banner Arms (clamp on only)
FH – Flag Holders (clamp on only)

Finish
E – Etched Finish

Footing Details
DB – Direct Buried
FBP – Flush Baseplate
SBP – Stub Baseplate

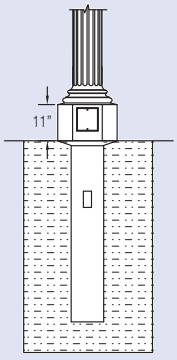
Coating
NA – Non Acrylic
A – Acrylic
AG – Anti Graffiti Coating***

Pole Style	Height	Color**	Tenon (Post Top Mount)	Options*	Coating
KIC	9' 9"	E	40	DB	140 30/30	KA15	GFI	NA

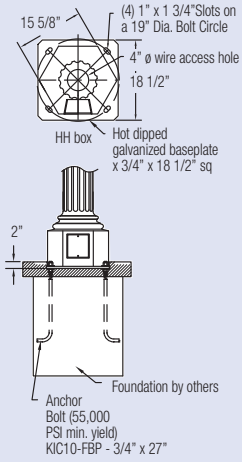
***** Consult website for full listings. ****** See decor colors on page 2 for full selection of colors.
***Anti Graffiti Coating is extra, consult factory for more details.

Footing Details

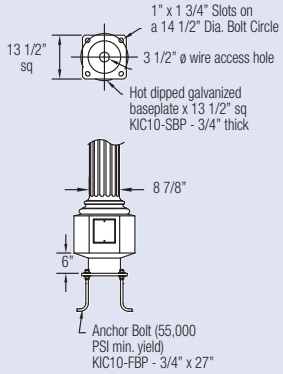
Direct Embedment
(Simple and Cost Effective)
1. Auger the setting hole.
2. Set pole in hole and plumb straight.
3. Backfill* with required backfill tamping every 4" to 6".



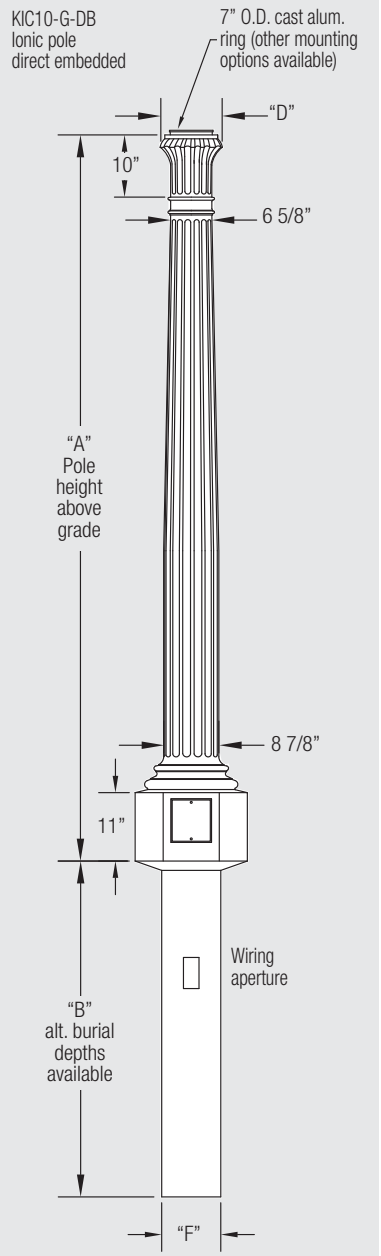
Baseplate Option 1: FBP

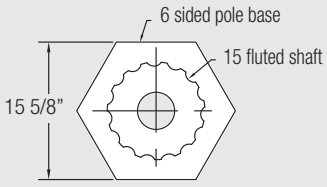


Baseplate Option 2: SBP



*Generally the excavated material can be used for backfill, in some situations better backfill may be required.





Typical Pole Cross Section

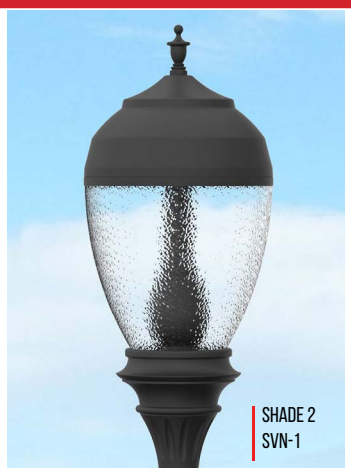
NATIONAL LIGHTING SOLUTIONS

SAVANNAH LED SERIES

AREA/STREET LIGHTING

The Savannah Series Luminaire adds a touch of class and elegance to any Retail, Commercial, or Residential Project. Beautiful by day and efficient by night, the Savannah Series utilizes utilizes the latest in LED technology. The Savannah Series comes in either 3000, 4000 or 5500 Kelvin and is available as a pole mount and wall mount as well. The luminaire is powder coated with a rich textured finish adding to luminaire appeal.

The Savannah is available in two different globe designs, three top shades and additional decorative options. The Savannah series is available with three different reflector systems and is the perfect fixture for Shopping Centers, Office Buildings, upscale Residential Projects, or any project where elegance will add ambience and value.



STAR POWER REFLECTOR

The Star Power reflector is an excellent sytem which provides great value and performance and provides the extra benefit of concealing the optics within the hard top of the fixture creating a full cutoff lighting effect.

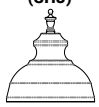
MADE IN U.S.A
Designed, Tooled, Manufactured and Assembled in the U.S.A.
Proudly By NATIONAL LIGHTING SOLUTIONS

LED WATTAGE CHART

	16L	32L
350 milliamps	19w	35w
530 milliamps	27w	55w
700 milliamps	33w	70w

Project Name:

Type:

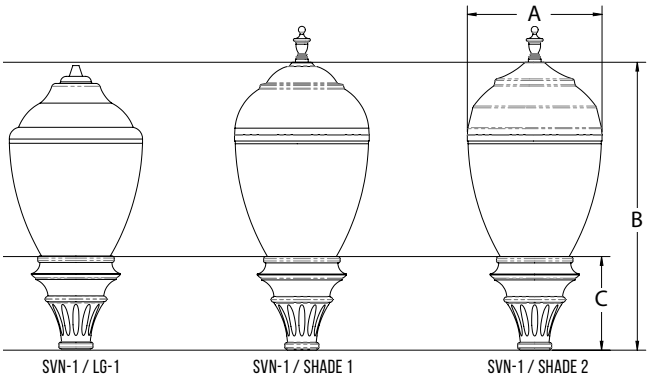
Cat #	Shade / Lens	Light Dist	No. of LEDs	Milliamps	Kelvin	Volts	Mounting	Color	Options
Savannah 1 **(SVN-1)**  Savannah 2 **(SVN-2)** 	Shade 1 **(SH1)**  Shade 2 **(SH2)**  Shade 3 **(SH3)**  No Shade Lens Globe 1 **(LG1)** Lens Globe 2 **(LG2)**	Type 2 **(T2)** Type 3 **(T3)** Type 5 **(T5)**	16 **(16L)** 32 **(32L)**	350 **(35)** 530 **(53)** 700 **(7)**	3000K **(30K)** 4000K **(40K)** 5500K **(55K)**	120-277 **(UNV)**	Post Top Mount **(PT)** *Over 3" OD Tenon	Bronze **(BRZ)** White **(WHT)** Black **(BK)** Custom **(CS)**	Opal Acrylic **(OPL)** Polycarbonate Lens **(PLY)** Decorative Filigree + Strut Combo **(FSC)** Photocell **(PC)** *Must specify voltage* Surge Protector **(10K)** House Side Shield **(HSS)**

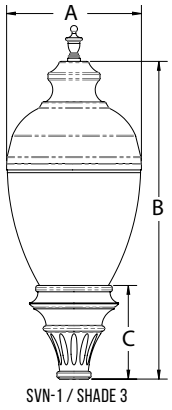
PRODUCT SPECIFICATIONS

Housing: Cast Aluminum
LED: Luxeon M Series by Lumileds
Optics: Star Power Optical System
Watts: 19W - 70W
Electrical: Conforms to UL 1598 Standards

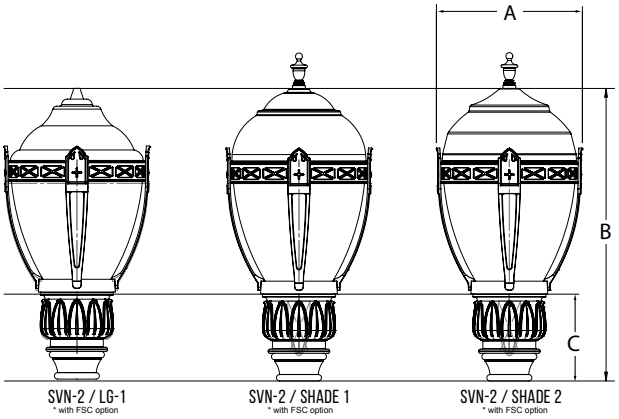
Driver: By Advance and Inventronics
Kelvin: 3000K, 4000K, or 5500K
Finish: 5 Millimeters Powder Coat
Warranty: Standard Warranty is 5 years for Driver and LEDs

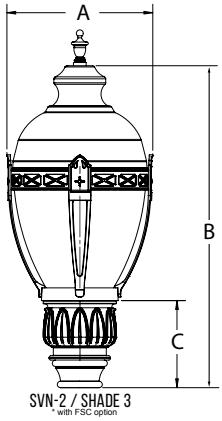
PRODUCT DIMENSIONS / OPTIONS



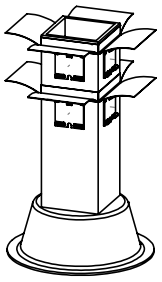


DIMENSIONS			
	A	B	C
SVN-1/LG-1	15.88 in	33.83 in	11 in
SVN-1/SH1	15.88 in	33.83 in	11 in
SVN-1/SH2	15.88 in	33.83 in	11 in
SVN-1/SH3	15.88 in	37.33 in	11 in





DIMENSIONS			
	A	B	C
SVN-2/LG-1	17.5 in	25.8 in	10.3 in
SVN-2/SH1	17.5 in	34.46 in	10.3 in
SVN-2/SH2	17.5 in	34.46 in	10.3 in
SVN-2/SH3	17.5 in	37.92 in	10.3 in



STAR POWER VERTICAL OPTICS FOR A NON-"HARD-TOP" VERSION.

CALIFORNIA - LUMEN DATA CHART

CATALOG NUMBER	T2 Lumens	T2 Lm/W	T3 Lumens	T3 Lm/W	T5 Lumens	T5 Lm/W	Watts
SVN-1-XXX-XX-16L-35-30K-UNV-PT-WHT-XXX	1596	84	1786	94	1824	96	19
SVN-1-XXX-XX-16L-53-30K-UNV-PT-WHT-XXX	2385.2	89	2438.8	91	2465.6	92	26.8
SVN-1-XXX-XX-16L-7-30K-UNV-PT-WHT-XXX	2640	80	2706	82	2739	83	33
SVN-1-XXX-XX-32L-35-30K-UNV-PT-WHT-XXX	3150	90	3220	92	3290	94	35
SVN-1-XXX-XX-32L-53-30K-UNV-PT-WHT-XXX	4785	87	4895	89	4950	90	55
SVN-1-XXX-XX-32L-7-30K-UNV-PT-WHT-XXX	5460	78	5600	80	5670	81	70
SVN-1-XXX-XX-16L-35-40K-UNV-PT-WHT-XXX	1824	96	1862	98	1900	100	19
SVN-1-XXX-XX-16L-53-40K-UNV-PT-WHT-XXX	2492.4	93	2546	95	2572.8	96	26.8
SVN-1-XXX-XX-16L-7-40K-UNV-PT-WHT-XXX	2706	82	2772	84	2805	85	33
SVN-1-XXX-XX-32L-35-40K-UNV-PT-WHT-XXX	3290	94	3360	96	3430	98	35
SVN-1-XXX-XX-32L-53-40K-UNV-PT-WHT-XXX	5005	91	5115	93	5170	94	55
SVN-1-XXX-XX-32L-7-40K-UNV-PT-WHT-XXX	5600	80	5740	82	5810	83	70
SVN-1-XXX-XX-16L-35-55K-UNV-PT-WHT-XXX	1881	99	1938	102	1957	103	19
SVN-1-XXX-XX-16L-53-55K-UNV-PT-WHT-XXX	2626.4	98	2680	100	2706.8	101	26.8
SVN-1-XXX-XX-16L-7-55K-UNV-PT-WHT-XXX	2871	87	2937	89	2970	90	33
SVN-1-XXX-XX-32L-35-55K-UNV-PT-WHT-XXX	3395	97	3465	99	3500	100	35
SVN-1-XXX-XX-32L-53-55K-UNV-PT-WHT-XXX	5280	96	5390	98	5445	99	55
SVN-1-XXX-XX-32L-7-55K-UNV-PT-WHT-XXX	5950	85	6090	87	6160	88	70

SHADE 1

SHADE 2

SHADE 3

LENS GLOBE 1

LENS GLOBE 2

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NATIONAL LIGHTING SOLUTIONS

VŪE LED SERIES

AREA LIGHTING

The Vūe Series is a collaboration of form, optics, and thermal management reducing energy costs, utilizing the least amount of poles and fixtures per project meeting IES minimum foot candle levels, and extending maintenance cycles at a competitive price.

The Vūe has specific optical systems designed for Parking Lots, Roadways, Auto Dealerships, Tennis Courts, and Sports Field Lighting. The Vūe's optical system is called "Star Power." The flexibility and power of the "Star Power" optics enables the Vūe to gain a distinct advantage over its competitors for almost any distribution pattern. The system features 95 percent optical material which goes through a linear diffusion process to stretch the virtual image of the diode both magnifying it and creating a large range of angular flux both horizontally and vertically. This added range increases the width of the light pattern at a greater distance compared to optical systems which rely on refraction principles using plastics. Star Power optics are also the most reliable, other plastic optics will oxidize over time as well as tend to lose its seal while exposed long-term to the elements.

Product Features

The "Vūe Series" is the Best Value Outdoor Lighting Solution

- Produces 100 lumens per System Watt of controlled illumination.
- Based on wattage, fixture can weigh from 17 to 32 pounds.
- Has an End of Life modular efficient chip upgrade solution, which takes less than a minute to perform.
- Has a Beautiful, Sleek and Stealth shape.
- Can be mounted directly on to a Wall, Pole, Mast Arm, or adjustable Knuckle Mount.
- Light Distributions are Types 2, 3, 4, 5 and Tennis Optic.
- Is the Perfect Long Life Solution for any Municipality, School, or Infrastructure.
- The Vūe conforms to the strictest Made in the USA standards.
- Designed, Tooled, Fabricated and Assembled in California.

STAR POWER REFLECTOR

The Star Power reflector is an excellent system which provides great value and performance.

LED WATTAGE CHART

	32L	48L	64L	80L	96L	112L	128L	144L	160L	176L	192L
530 milliamps	56w	80w	109w	136w	161w	192w	216w	240w	-	-	-
700 milliamps	72w	114w	149w	179w	218w	255w	287w	326w	364w	390w	426w
1050 milliamps	112w	167w	225w	275w	325w	380w	429w	480w	529w	572w	615w

Project Name:

Type:

Cat #	Light Dist.	No. of LEDs	Milliamps	Kelvin	Volts	Mounting	Color	Shields	Options
VUE-1 *(225W Max)* **(VUE-1)**	Type 2 **(T2)**	32 **(32L)**	530 **(53)**	4000K **(40K)**	120-277 **(UNV)**	Direct Pole Square **(DPS)**	Bronze **(BRZ)**	House Side Shield **(HSS)**	Bird Spikes **(BS)**
VUE-2 *(325W Max)* **(VUE-2)**	Type-3 **(T3)**	48 **(48L)**	700 **(7)**	5500K **(55K)**	347-480 **(HV)**	Direct Pole Round **(DPR)**	White **(WHT)**	Front Side Shield **(FSS)**	Marine Grade Finish **(MGF)**
VUE-3 *(615W Max)* **(VUE-3)**	Type-4 **(T4)**	64 **(64L)**	1050 **(1)**			Knuckle Mount **(KM)**	Silver **(SVR)**		Photocell **(PC)** **Must specify voltage*
	Type-5 **(T5)**	80 **(80L)**				Trunion Mount **(TM)**	Black **(BLK)**		Photocell + Receptacle **(PCR)** **Must specify voltage*
	Tennis Optic **(TT)**	96 **(96L)**				Tennis Arm **(TA)**	Green **(GN)**		Motion Sensor **(MS)**
		112 **(112L)**				Mast Arm **(MA)**	Custom **(CS)**		Surge Protector **(10K)**
		128 **(128L)**				Wall Mount ***Includes 6" Bolt On Arm (WM)**			Watt Stopper w/ Motion Sensor **(FSP-211)**
		144 **(144L)**				Direct Wall Mount ***Includes Wall Plate (DWM)**			Rotate Optic Right ***Size 3 Only*** **(ROR)**
		160 **(160L)**							Rotate Optic Left ***Size 3 Only*** **(ROL)**
		176 **(176L)**							
		192 **(192L)**							

PRODUCT SPECIFICATIONS

Housing: Aluminum.
LED: Luxeon M Series by Lumileds
Optics: Optics Type T2, T3, T4, T5 and Tennis Optic (TT)
Watts: 56-615 Watts
L70: 148,000 to 162,000

UL: UL 1598 Listed
Driver: Dimming driver as standard by Advance or ULT
Kelvin: 4000, or 5500
Finish: 5 Millimeters Powder Coat
Warranty: Standard Warranty is 5 years for Driver and LEDs

PRODUCT DIMENSIONS

VUE 1 - LUMEN DATA CHART

PART NUMBER	T2 OPTIC	Lm/W	T3 OPTIC	Lm/W	TT/T4 OPTIC	Lm/W	T5 OPTIC	Lm/W	TT Optic	Lm/W	Calculated L70	SYSTEM WATTS
VUE-1-32L-530-4000K	5359	96	5418	97	5632	101	5041	90	N/A	N/A	148,000	56
VUE-1-32L-530-5500K	5824	104	5764	103	5992	107	5363	96	N/A	N/A	148,000	56
VUE-1-32L-700-4000K	6447	90	6381	89	6633	92	5810	81	N/A	N/A	153,000	72
VUE-1-32L-700-5500K	6858	95	6788	94	7056	98	6315	88	N/A	N/A	153,000	72
VUE-1-32L-1050-4000K	8392	75	8305	74	8633	77	7727	69	N/A	N/A	162,000	112
VUE-1-32L-1050-5500K	8927	80	8835	79	9184	82	8220	73	N/A	N/A	162,000	112
VUE-1-48L-530-4000K	7821	98	7741	97	8047	101	7201	90	N/A	N/A	148,000	80
VUE-1-48L-530-5500K	8320	104	8235	103	8560	107	7661	96	N/A	N/A	148,000	80
VUE-1-48L-700-4000K	9760	86	9660	85	10041	88	8986	79	N/A	N/A	153,000	114
VUE-1-48L-700-5500K	10383	91	10276	90	10682	94	9560	84	N/A	N/A	153,000	114
VUE-1-48L-1050-4000K	12512	75	12384	74	12872	77	11521	69	N/A	N/A	162,000	167
VUE-1-48L-1050-5500K	13311	80	13174	79	13694	82	12256	73	N/A	N/A	162,000	167
VUE-1-64L-530-4000K	10656	98	10547	97	10964	101	9812	90	N/A	N/A	148,000	109
VUE-1-64L-530-5500K	11336	104	11220	103	11663	107	10438	96	N/A	N/A	148,000	109
VUE-1-64L-700-4000K	12894	87	12762	86	13265	89	11872	80	N/A	N/A	153,000	149
VUE-1-64L-700-5500K	13717	92	13576	91	14112	95	12630	85	N/A	N/A	153,000	149
VUE-1-64L-1050-4000K	17607	78	17426	77	18114	81	16213	72	N/A	N/A	162,000	225
VUE-1-64L-1050-5500K	18730	83	18538	82	19270	86	17247	77	N/A	N/A	162,000	225

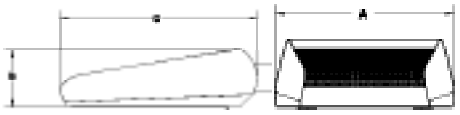
VUE 2 - LUMEN DATA CHART

PART NUMBER	T2 OPTIC	Lm/W	T3 OPTIC	Lm/W	TT/T4 OPTIC	Lm/W	T5 OPTIC	Lm/W	TT Optic	Lm/W	Calculated L70	SYSTEM WATTS
VUE-2-80L-530-4000K	12675	93	12544	92	13040	96	11081	81	12849	94	148,000	136
VUE-2-80L-530-5500K	14012	103	13767	101	14158	104	12474	92	14119	104	148,000	136
VUE-2-80L-700-4000K	15701	88	15539	87	16153	90	14040	78	15638	87	153,000	179
VUE-2-80L-700-5500K	16703	93	16531	92	17184	96	14936	83	17184	96	153,000	179
VUE-2-80L-1050-4000K	20394	74	20184	73	20981	76	19883	72	20057	73	162,000	275
VUE-2-80L-1050-5500K	21695	79	21472	78	22320	81	21152	77	22041	80	162,000	275
VUE-2-96L-530-4000K	15005	93	14850	92	15437	96	13088	81	14946	93	148,000	161
VUE-2-96L-530-5500K	15962	99	15798	98	16422	102	13923	86	16422	102	148,000	161
VUE-2-96L-700-4000K	19122	88	18925	87	19672	90	17104	78	18879	87	153,000	218
VUE-2-96L-700-5500K	20342	93	20133	92	20928	96	18196	83	20710	95	153,000	218
VUE-2-96L-1050-4000K	25217	78	24958	77	25944	80	24557	76	24624	76	162,000	325
VUE-2-96L-1050-5500K	26827	83	26551	82	27600	85	26124	80	27255	84	162,000	325
VUE-2-112L-530-4000K	17521	91	17340	90	18025	94	15269	80	17484	91	148,000	192
VUE-2-112L-530-5500K	18639	97	18447	96	19176	100	16244	85	N/A	N/A	148,000	192
VUE-2-112L-700-4000K	21841	86	21616	85	22470	88	19571	77	N/A	N/A	153,000	255
VUE-2-112L-700-5500K	23235	91	22996	90	23904	94	20820	82	N/A	N/A	153,000	255
VUE-2-128L-530-4000K	20130	93	19923	92	20710	96	17538	81	N/A	N/A	148,000	216
VUE-2-128L-530-5500K	21415	99	21195	98	22032	102	18657	86	N/A	N/A	148,000	216
VUE-2-128L-700-4000K	25174	88	24915	87	25904	90	22549	79	N/A	N/A	153,000	287
VUE-2-128L-700-5500K	26781	93	26505	92	27552	96	23988	84	N/A	N/A	153,000	287
VUE-2-144L-530-4000K	24510	102	24259	101	25216	105	21377	89	N/A	N/A	148,000	240
VUE-2-144L-530-5500K	26075	109	25807	108	26826	112	22741	95	N/A	N/A	148,000	240
VUE-2-144L-700-4000K	28595	88	28301	87	29419	90	25613	79	N/A	N/A	153,000	326
VUE-2-144L-700-5500K	30420	93	30107	92	31296	96	27248	84	N/A	N/A	153,000	326

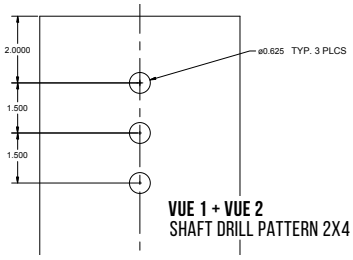
VUE 3 - LUMEN DATA CHART

PART NUMBER	T2 OP-TIC	Lm/W	T3 OPTIC	Lm/W	TT/T4 OPTIC	Lm/W	T5 OPTIC	Lm/W	TT Optic	Lm/W	Calculated L70	SYSTEM WATTS
VUE-3-112L-1050-4000K	28506	75	28,241	74	29328	77	26,332	69	N/A	N/A	162,000	380
VUE-3-112L-1050-5500K	30326	80	30,014	79	31200	82	27,924	73	N/A	N/A	162,000	380
VUE-3-128L-1050-4000K	32,235	75	31,903	74	33,164	77	29,777	69	N/A	N/A	162,000	429
VUE-3-128L-1050-5500K	34292	80	33,939	79	35280	82	31,576	74	N/A	N/A	162,000	429
VUE-3-144L-1050-4000K	36,474	76	36,099	75	37,525	78	33,692	70	N/A	N/A	162,000	480
VUE-3-144L-1050-5500K	38802	81	38,403	80	39920	83	35,728	74	N/A	N/A	162,000	480
VUE-3-160L-700-4000K	31,928	88	31,600	87	32,848	90	29,492	81	N/A	N/A	153,000	364
VUE-3-160L-700-5500K	33966	93	33,616	92	34944	96	31,275	86	N/A	N/A	153,000	364
VUE-3-160L-1050-4000K	40,055	76	39,644	75	41,210	78	37,000	70	N/A	N/A	162,000	529
VUE-3-160L-1050-5500K	42612	81	42,174	80	43840	83	39,237	74	N/A	N/A	162,000	529
VUE-3-176L-700-4000K	34,209	88	33,856	87	35,194	90	31,599	81	N/A	N/A	153,000	390
VUE-3-176L-700-5500K	36392	93	36,017	92	37440	96	33,509	86	N/A	N/A	153,000	390
VUE-3-176L-1050-4000K	43,930	77	43,478	76	45,195	79	40,580	71	N/A	N/A	162,000	572
VUE-3-176L-1050-5500K	46734	82	46,253	81	48080	84	43,032	75	N/A	N/A	162,000	572
VUE-3-192L-700-4000K	37,297	88	36,914	87	38,372	90	34,453	81	N/A	N/A	153,000	426
VUE-3-192L-700-5500K	39,678	93	39,270	92	40,821	96	36,535	86	N/A	N/A	153,000	426
VUE-3-192L-1050-4000K	47,940	78	47,447	77	49,321	80	44,284	72	N/A	N/A	162,000	615
VUE-3-192L-1050-5500K	51000	83	50475	82	52469	85	46960	76	N/A	N/A	162,000	615

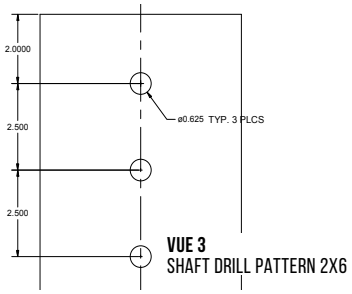
DIMENSION	VUE-1	VUE-2	VUE-3
A	16.99 in	21.56 in	26.17 in
B	6.38 in	8.00 in	8.36 in
C	21.48 in	27.06 in	32.94 in



EPA	VUE-1	VUE-2	VUE-3
Single	.72	1.16	1.42
Double	1.44	2.32	2.86
Triple	2.24	2.5	4.78
Quad	2.6	3.6	4.88



VUE 1 + VUE 2
SHAFT DRILL PATTERN 2X4



VUE 3
SHAFT DRILL PATTERN 2X6

DesignLights Consortium (DLC) qualified Product. Some configurations of this product family may not be DesignLights Consortium (DLC) listed, please refer to the DLC qualified products list to confirm listed configurations. **http://www.designlights.org**

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