

5. COLOR SCHEME: PROGRAMMED SIGNAL HEADS SHALL HAVE THE STATED COLOR SCHEME

6. CANDLE POWER: THE SIGNAL SECTION WITH THE YELLOW INDICATION, PRIOR TO PROGRAMMING, WHEN DIRECTED DOWNWARD 5 DEGREES FROM THE HORIZONTAL, SHALL PROVIDE A MINIMUM CANDLEPOWER OF 2500 CANDELAS IN THE DIRECTION OF THE AXIS AND A MAXIMUM CANDLEPOWER OF 100 CANDELAS AT 15 DEGREES HORIZONTALLY IN EACH DIRECTION FROM THE AXIS. SAID SIGNAL HEAD WITH YELLOW INDICATION SHALL BE PROGRAMMED SO THAT A MINIMUM CANDLEPOWER OF 2500 CANDELAS CAN BE DIRECTED ALONG THE OPTICAL AXIS AND A CANDLEPOWER OF LESS THAN 100 CANDELAS DIRECTED AT 1/2 DEGREE HORIZONTAL FROM THE AXIS AND NO MEASURABLE LIGHT IS DIRECTED FROM 1 TO 15 DEGREES HORIZONTAL FROM THE AXIS. UNDER THE SAME CONDITIONS, THE CANDLEPOWER OF THE RED INDICATION SHALL BE AT LEAST 19 PERCENT OF THE YELLOW INDICATION, AND THE CANDLEPOWER OF THE GREEN INDICATION SHALL BE AT LEAST 38 PERCENT OF THE YELLOW INDICATION.

7. LAMPS: ALL TRAFFIC SIGNAL LAMPS SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE EQUIPMENT AND MATERIALS STANDARDS OF THE INSTITUTE OF TRANSPORTATION ENGINEERS--TRAFFIC SIGNAL LAMPS. A NOMINAL 130 WATT, 120 VOLT, A21 CLEAR TRAFFIC SIGNAL LAMP SHALL BE USED IN ALL 12 INCH VEHICLE TRAFFIC SIGNAL INDICATIONS.

8. DIMMING DEVICES: DIMMING DEVICES SHALL BE PROVIDED TO GRADUALLY REDUCE THE CANDLEPOWER AS A FUNCTION OF THE INDIVIDUAL BACKGROUND ILLUMINATION OF EACH SIGNAL HEAD FOR NIGHTTIME OPERATION TO APPROXIMATELY 15 PERCENT OF THAT FOR DAYTIME OPERATION.

IV. TRAFFIC SIGNAL POLES, PEDESTALS AND CONDUIT

A. GENERAL

1. LOAD: ALL TRAFFIC SIGNAL POLES SHALL CONFORM TO THE 2001 EDITION OF THE AMERICAN ASSOCIATION FOR STATE HIGHWAY AND TRANSPORTATION OFFICIALS' "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES, AND TRAFFIC SIGNALS" HANDBOOK AND ALL INTERIMS. THE POLES SHALL ALSO ACCOMMODATE WIND LOADINGS WHICH MAY CAUSE DEFLECTIONS OF THE MAST ARM IN THE VERTICAL. THESE DEFLECTIONS SHALL NOT BE SUCH THAT THERE IS LESS THAN A 15 FOOT CLEARANCE BETWEEN THE ROADWAY AND THE LOWEST POINT OF THE SIGNAL ASSEMBLY.

2. SHOP DRAWINGS: ALL TRAFFIC SIGNAL POLES SHALL BE DETAILED ON SHOP DRAWINGS BY THE MANUFACTURER INDICATING POLE AND ARM DIMENSIONS AND ATTACHMENT METHOD ALONG WITH SIGNAL WEIGHT, PROJECTED AREAS, AND TYPE OF MOUNTING THAT IS DESIGNED TO ACCOMMODATE. ALL NEW TRAFFIC SIGNAL POLES OR POLES NOT PREVIOUSLY APPROVED WILL REQUIRE SUBMISSION OF DESIGN CALCULATIONS ALONG WITH THE SHOP DRAWINGS.

3. SHAFT: THE SHAFT SHALL INCLUDE HIGH STRENGTH ANCHOR BOLTS, WASHERS, AND NUTS, CONFORMING TO SECTION 1613, TYPE II OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS. ANCHOR BOLT WASHERS CONFORMING TO THE REQUIREMENTS OF THE LATEST EDITION OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS, SPECIFICATION F436 WILL ALSO BE ACCEPTABLE. IT ALSO SHALL INCLUDE COVER LEAVES, A HANDHOLE AND COVER, CAST POLE TOP, A J-HOOK WIRE SUPPORT, AND A SUITABLE DEVICE FOR ATTACHING THE MAST ARM TO THE SHAFT. THE SHAFT SHALL INCLUDE 1 INCH RUBBER GROMMETS AT ALL OUTLETS FOR SIGNAL WIRING.

4. COMBINATION POLES: WHERE A COMBINATION LIGHTING/SIGNAL POLE IS SPECIFIED ON THE PLAN, THE ABOVE APPLIES WITH THE LUMINAIRE ARM TO BE MOUNTED IN THE SAME VERTICAL PLANE AS THE SIGNAL ARM.

5. ARMS: ALL SIGNAL POLE ARMS SHALL INCLUDE 1 INCH RUBBER GROMMETS AT OUTLETS FOR SIGNAL WIRING AND REMOVABLE END CAPS.

6. FOUNDATIONS: BEFORE PLACING THE CONCRETE FOR THE FOUNDATION, THE CONTRACTOR SHALL MAKE SURE THAT THE APPROPRIATE ANCHOR BOLTS ARE PLACED IN PROPER ORIENTATION, ELEVATION AND VERTICALLY. THIS MAY BE ACCOMPLISHED BY USING POSITIONING PLATES AND TYING THE ANCHOR BOLT ASSEMBLY TO THE REINFORCING CAGE.

THE ANCHOR BOLT THREADS SHALL BE PROTECTED FROM CONCRETE FOULING WHEN THE CONCRETE IS PLACED. BEFORE PLACING ANY CONCRETE, EXCAVATION MUST BE INSPECTED BY THE CITY.

CONCRETE IS TO BE STRUCTURE CLASS AS NOTED IN CITY STANDARD TECHNICAL SPECIFICATIONS. THE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF CONCRETE SHALL BE 4,000 POUNDS PER SQUARE INCH (PSI). SAMPLES OF FRESH CONCRETE WILL BE OBTAINED AND HANDLED BY THE CITY IN ACCORDANCE WITH THE SPECIFICATIONS, AT EACH INTERSECTION. COMPRESSION TESTS WILL BE PERFORMED BY THE CITY.

THE FOUNDATION CAN BE IN ONE OR TWO POURS. IF DONE IN ONE POUR, THE TOP 6 INCHES OF THE POLE AND PEDESTAL FOUNDATIONS SHALL BE FORMED IN A SQUARE AND SHALL BE LEVEL WITH THE ADJACENT SIDEWALK OR APPROXIMATELY 2 INCHES ABOVE THE FINISHED GRADE IF NO SIDEWALK IS PRESENT. IF DONE IN TWO POURS, THE FIRST POUR NEEDS TO BE 6 INCHES OR LESS FROM THE FINISH GRADE. THE SECOND POUR AS NOTED ABOVE NEEDS TO BE LEVEL WITH THE SIDEWALK OR 2 INCHES ABOVE FINISHED GRADE IF NO SIDEWALK IS PRESENT. IT MAY BE NECESSARY TO WAIT FOR A NEW SIDEWALK TO BE PLACED PRIOR TO FINISHING SECOND POUR TO OBTAIN PROPER GRADES.

CONCRETE SHALL BE PLACED SO AS TO AVOID SEGREGATION OF THE MATERIALS AND THE DISPLACEMENT OF THE REINFORCEMENT. CHUTES USED SHALL BE SUCH THAT CONCRETE SLIDES IN THEM AND DOES NOT FLOW. PLACEMENT MAY BE THROUGH ELEPHANT TRUNKS OR SIMILAR DEVICES TO PREVENT SEGREGATION. CHUTES, TROUGHS AND PIPES SHALL BE MADE OF ALUMINUM.

CONCRETE SHALL GENERALLY BE COMPACTED WITH THE AID OF MECHANICAL VIBRATING EQUIPMENT. VIBRATION SHALL BE TRANSMITTED DIRECTLY TO THE CONCRETE. THE DURATION OF VIBRATION AT ANY LOCATION SHALL BE HELD TO MINIMUM NECESSARY TO PRODUCE THOROUGH COMPACTION.

THE CONCRETE SHALL BE CURED WITH AN APPROVED MOISTURE BARRIER SUCH AS WET BURLAP OR POLYETHYLENE FOR A PERIOD OF 72 HOURS. COLD WEATHER CURING SHALL BE SUCH THAT THE CONCRETE TEMPERATURE SHALL BE MAINTAINED ABOVE FREEZING FOR THE ENTIRE CURING PERIOD. DO NOT ATTACH POLES UNTIL THE CONCRETE HAS CURED FOR 14 DAYS. THE POLES CAN BE INSTALLED AFTER 7 DAYS IF THE CYLINDER BREAKS AT AT LEAST 3500 PSI.

7. INSTALLATION: THE CONTRACTOR SHALL VISUALLY VERIFY THAT THE TRAFFIC SIGNAL POLES ARE PLUMB AFTER THE MAST ARM AND OTHER LOADS HAVE BEEN APPLIED. ADJUSTMENT SHALL BE MADE USING LEVELING NUTS ON THE ANCHOR BOLTS. THE FINAL DISTANCE BETWEEN THE TOP OF THE FOUNDATION AND AND THE BOTTOM OF THE LEVELING NUTS SHALL NOT EXCEED 1 INCH.

B. STEEL TRAFFIC SIGNAL POLES

1. GENERAL: STEEL TRAFFIC SIGNAL POLES SHALL CONFORM TO SUBSECTIONS 1605 AND 1606 OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS AND THE REQUIREMENTS ON THE PLAN. THE POLES AND ARMS SHALL BE TAPERED MONOTUBE MADE ONLY OF ONE LENGTH OF STRUCTURAL STEEL SHEET OF NOT LESS THAN NO. 7 MANUFACTURING STANDARD GAUGE MEETING THE REQUIREMENTS OF THE LATEST EDITION OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) SPECIFICATION A595 "SPECIFICATION FOR STEEL TUBES, LOW-CARBON, TAPERED FOR STRUCTURAL USE". AS AN ACCEPTABLE ALTERNATIVE, THE POLES AND ARMS SHALL HAVE A MINIMUM OF 12 SIDES MADE ONLY OF ONE LENGTH OF STRUCTURAL STEEL SHEET OF NOT LESS THAN NO. 7 MANUFACTURING STANDARD GAUGE MEETING THE REQUIREMENTS OF THE LATEST EDITION OF THE ASTM SPECIFICATION A570 "SPECIFICATION FOR STRUCTURAL QUALITY HOT-ROLLED CARBON STEEL SHEET AND STRIP" OR A572 "SPECIFICATION FOR HIGH-STRENGTH LOW-ALLOY COLUMBIUM-VANADIUM STEELS OF STRUCTURAL QUALITY" WITH A MINIMUM YIELD STRENGTH OF 55 KILO POUNDS PER SQUARE INCH AND A MAXIMUM SILICONE CONTENT OF 0.06 PERCENT. ONLY ONE LONGITUDINAL WELD, AND NO TRAVERSE WELDS, SHALL BE PERMITTED IN THE FABRICATION OF THE SHAFT OR ARM. (EXCEPTION: MULTIPLE GAUGE ARMS DESIGNED FOR LENGTHS OF 40 FEET OR GREATER MAY HAVE BOLTED TELESCOPIC FIELD JOINTS SO AS TO DEVELOP FULL STRENGTH OF THE ADJACENT SHAFT SECTIONS TO RESIST BENDING ACTION.)

2. GALVANIZATION: STEEL TRAFFIC SIGNAL POLES SHALL BE GALVANIZED TO THE REQUIREMENTS OF THE LATEST EDITION OF THE AMERICAN SOCIETY FOR TESTING AND MATERIALS A123 "SPECIFICATIONS FOR ZINC (HOT DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS".

3. AS NOTED IN ASTM 123 SECTION 9 - IT IS THE RESPONSIBILITY OF THE POLE MANUFACTURER TO ENSURE COMPLIANCE WITH THIS SPECIFICATION. THIS SHALL BE ACHIEVED BY AN IN-PLANT INSPECTION PROGRAM DESIGNED TO MAINTAIN THE COATING THICKNESS, FINISH, AND APPEARANCE WITHIN THE REQUIREMENTS OF THIS SPECIFICATION.

4. AS NOTED IN SECTION 6, RENOVATIONS MUST BE LIMITED TO NO MORE THAN 36 SQUARE INCHES PER PIECE. RENOVATIONS LARGER THAN THIS WILL BE CAUSE FOR REJECTION.

5. RENOVATIONS SHOULD BE MADE IN ACCORDANCE WITH ASTM 780, "REPAIR OF DAMAGED AND UNCOATED AREAS OF HOT-DIP GALVANIZED COATINGS". RENOVATIONS TO BE COMPLETED WITH ZINC BASED SOLDERS, PAINTS CONTAINING ZINC DUST OR SPRAYED ZINC AS DESCRIBED IN THIS ASTM.

C. ALUMINUM TRAFFIC SIGNAL PEDESTALS

1. GENERAL: ALUMINUM TRAFFIC SIGNAL PEDESTALS SHALL CONSIST OF A CAST ALUMINUM BASE. THE SHAFT SHALL BE SPUN FROM ONE PIECE OF SEAMLESS TUBING, MEETING THE REQUIREMENTS OF SUBSECTION 1626.02(b)(2) OF THE LATEST EDITION OF THE STANDARD SPECIFICATIONS HAVING A MINIMUM NOMINAL 0.125 INCH WALL THICKNESS. THE SHAFT SHALL HAVE NO LONGITUDINAL WELDS NOR CIRCUMFERENTIAL WELDS. ALL PEDESTALS SHALL HAVE THE SHAFT ATTACHED TO THE BASE WITH A ROUND ALUMINUM COLLAR ASSEMBLY WITH STAINLESS STEEL HARDWARE.

2. FINISH: THE SHAFT SHALL HAVE A UNIFORM POLISHED FINISH. EACH SHAFT SHALL BE PROTECTED DURING SHIPMENT AND INSTALLATION.

D. GENERAL:

TRENCHING THROUGH EXISTING PAVEMENT WILL NOT BE PERMITTED UNLESS APPROVED BY THE ENGINEER. CONDUIT UNDER EXISTING PAVEMENT SHALL BE INSTALLED USING AN APPROVED BORING METHOD ONLY. CONDUIT RUNS ARE TYPICAL ONLY AND MAY BE ADJUSTED DURING INSTALLATION TO CLEAR OBSTRUCTIONS AND FACILITATE WIRING AS APPROVED BY THE ENGINEER.

E. METALLIC CONDUIT AND FITTINGS

1. CONDUIT: METALLIC CONDUIT SHALL BE RIGID STEEL CONDUIT MEETING THE REQUIREMENTS OF THE LATEST EDITION OF THE AMERICAN NATIONAL STANDARDS INSTITUTE SPECIFICATION C80.1 "SPECIFICATIONS FOR ZINC-COATED RIGID STEEL CONDUIT".

2. FITTINGS: METALLIC CONDUIT FITTINGS SHALL BE ZINC COATED AND SHALL MEET THE REQUIREMENTS OF THE LATEST EDITION OF THE AMERICAN NATIONAL STANDARDS INSTITUTE SPECIFICATION C80.4 "SPECIFICATION FOR FITTINGS FOR RIGID METAL CONDUIT AND ELECTRICAL METALLIC TUBING".

3. BONDING: ALL METALLIC CONDUITS SHALL BE ELECTRICALLY BONDED BY A GROUNDING BUSHING AND #6 SOLID BARE COPPER WIRE.

F. NONMETALLIC CONDUIT AND FITTINGS

1. CONDUIT: NONMETALLIC CONDUIT SHALL BE SCHEDULE 40 RIGID POLYVINYL CHLORIDE MEETING THE REQUIREMENTS OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION STANDARD TC-2 AND SHALL BE LISTED BY THE UNDERWRITERS' LABORATORY, INC.

2. FITTINGS: METALLIC CONDUIT FITTINGS SHALL BE FABRICATED FROM POLYVINYL CHLORIDE HAVING THE SAME CHEMICAL AND PHYSICAL PROPERTIES AS THE CONDUIT WITH WHICH IT IS TO BE USED. EACH SHALL BEAR THE UNDERWRITERS' LABORATORY, INC. LABEL. THE JOINTS SHALL BE MADE IN ACCORDANCE WITH THE MANUFACTURERS' RECOMMENDATIONS.

3. HDPE: HIGH DENSITY POLYETHYLENE PIPE (HDPE). THE HDPE CONDUIT SHALL HAVE AN OUTSIDE DIAMETER AS SPECIFIED IN THE PLANS. IT SHALL HAVE INTERNAL RIBS AND BE SCHEDULE 40 AND ORANGE IN COLOR.

V. PULL BOXES

A. GENERAL: SERVICE AND JUNCTION BOX LOCATIONS ARE TYPICAL ONLY AND MAY BE ADJUSTED DURING INSTALLATION TO CLEAR OBSTRUCTIONS AND FACILITATE WIRING AS APPROVED BY THE ENGINEER. THE QUANTITY OF BOXES AS SHOWN IN THE PLANS MAY NOT BE REDUCED. HOWEVER, ADDITIONAL BOXES MAY BE PROVIDED AT THE CONTRACTOR'S EXPENSE. SERVICE AND JUNCTION BOXES SHALL NOT BE LOCATED IN SIDEWALK RAMPS. ALL SERVICE AND JUNCTION BOXES SHALL BE FREE OF TRASH, WIRE SCRAPS, ETC.

B. BEDDING: AN 8 INCH LAYER OF AGGREGATE SHALL BE PROVIDED UNDER ALL SERVICE AND JUNCTION BOXES. THE AGGREGATE UNDER SERVICE AND JUNCTION BOXES SHALL MEET THE REQUIREMENTS OF CA-6 DESCRIBED IN SUBSECTION 1102 OF THE STANDARD SPECIFICATIONS. THIS AGGREGATE WILL BE VISUALLY ACCEPTED BY THE ENGINEER.

C. CONDUIT ENTRANCES: THE AREA AROUND THE CONDUIT ENTRANCE SHALL BE FILLED WITH A MORTAR GROUT OR A SILICONE SEALANT.

D. SERVICE BOXES: ALL SERVICE BOXES ARE TO BE EITHER PRE CAST CONCRETE WITH A CAST IRON COVER OR FIBERGLASS REINFORCED POLYMER CONCRETE WITH A FIBERGLASS REINFORCED POLYMER CONCRETE COVER. SERVICE BOXES SHALL BE PROVIDED WITH CABLE HOOKS AS DETAILED IN THE PLANS.

E. JUNCTION BOXES: THE CONTRACTOR MAY FURNISH EITHER PRE CAST CONCRETE JUNCTION BOXES WITH A CAST IRON COVER OR FIBERGLASS REINFORCED POLYMER CONCRETE JUNCTION BOXES WITH A FIBERGLASS REINFORCED POLYMER CONCRETE COVER.

VI. LUMINAIRES AND LAMPS

A. LUMINAIRES: 400, 250, AND 100 WATT LUMINAIRES SHALL HAVE A HOUSING OF A SINGLE PIECE OF ALUMINUM ALLOY CASTING WITH AN INTEGRAL SLIP-FITTER FOR 2 INCH BRACKET MOUNTING WITH A NATURAL UNPAINTED ALZAK ALUMINUM REFLECTOR. THE BALLASTS SHALL BE AUTO-REGULATOR TYPE FOR HIGH PRESSURE SODIUM AT A VOLTAGE OF 120 VOLTS. THE REFRACTOR SHALL BE GLASS OR ACRYLIC WITH TYPE III LIGHT DISTRIBUTION. A PHOTOELECTRIC RECEPTACLE SHALL BE PROVIDED WITH EACH LUMINAIRE. ALL LUMINAIRES SHALL HAVE CUTOFF TYPE LENSES.

B. LAMPS

1. 400 WATT LAMPS: 400 WATT LAMPS SHALL BE 50,000 LUMEN HIGH PRESSURE SODIUM.

2. 250 WATT LAMPS: 250 WATT LAMPS SHALL BE 30,000 LUMEN, HIGH PRESSURE SODIUM.

3. 100 WATT LAMPS: 100 WATT LAMPS SHALL BE 9,000 LUMEN HIGH PRESSURE SODIUM.

C. LIGHTING SECONDARY CABLE: THE LIGHTING DISTRIBUTION CABLE AND POLE AND BRACKET CABLE SHALL BE STRANDED, ANNEALED, TYPE U.S.E.-2 COPPER WIRE.

D. PHOTOELECTRIC CONTROL: PHOTOELECTRIC CONTROL SHALL BE SOLID STATE TYPE, 1000 WATT/1800 VA MAX., SINGLE POLE, DOUBLE THROW, TWIST LOCK MOUNTING, 120 VOLT OPERATION. THE OPERATING LEVELS SHALL BE 3 FC ON - 1.8 FC OFF WITH AN ALLOWABLE 25 PERCENT VARIANCE ON OR OFF. THE PHOTOELECTRIC CONTROL SHALL HAVE A MINIMUM OF A 30 SECOND TIME DELAY OFF.

E. ALL STREET LIGHTS SHALL BE FUSED IN POLE BASE.

F. FUSED CONNECTOR KITS SHALL BE SIZED TO THE CONDUCTORS SPECIFIED IN THE PLANS AND SHALL BE SUPPLIED WITH MOLDED RUBBER BOOTS FOR WATERPROOFING. THE CONNECTOR SHALL BE CAPABLE OF WITHSTANDING MULTIPLE DISCONNECTS WITHOUT DAMAGE TO THE WATERTIGHT SEALS OR TERMINALS. EACH CONNECTOR SHALL INCLUDE ALL PARTS AND MATERIALS NECESSARY TO COMPLETE IT'S INSTALLATION. SUCH AS FUSES, LUBRICATING COMPOUND, AND ASSEMBLY DEVICES.

G. THE FUSE SHALL BE A MINIMUM OF 5 AMP CARTRIDGE TYPE AS RECOMMENDED BY THE CONNECTOR MANUFACTURER.

VII. SIGNS

A. GENERAL: THE DESIGN DETAILS (COLOR, LETTER HEIGHT AND LETTER SERIES) FOR ALL REGULATORY AND WARNING SIGNS SHALL BE SHOWN IN THE LATEST EDITION OF THE STANDARD HIGHWAY SIGNS MANUAL UNLESS SHOWN OTHERWISE IN THE PLANS. SIGN BLANKS FOR ALL REGULATORY AND WARNING SIGNS SHALL BE 0.080 INCH THICK ALUMINUM ALLOY UNLESS OTHERWISE NOTED IN PLANS. ALL SIGNS SHOWN IN THE BILL OF MATERIALS ON THE TRAFFIC SIGNAL QUANTITIES SHEET SHALL BE INCLUDED IN THE LUMP SUM COST FOR THE BID ITEM OF "TRAFFIC SIGNAL INSTALLATION".

B. OVERHEAD STREET NAME SIGNS

1. OVERHEAD STREET NAME SIGNS SHALL BE TYPE 5052-H38 ALUMINUM ALLOY, .125 INCH THICK. THE SIGN FACES SHALL BE DIRECT APPLIED WHITE ENCLOSED LENS HIGH PERFORMANCE REFLECTIVE SHEETING BACKGROUND. THE LEGEND AND BORDER SHALL BE FORMED USING THE CUTABLE FILM PROCESS. THE CUTABLE FILM SHALL BE 3M-1177C GREEN SCOTCHLITE ELECTROCUIT FILM. SERIES "E" - 6 INCH UPPER CASE FOR "SW", "ST", "AV", "BLVD", ETC. SERIES "E" - 8 INCH UPPER CASE WITH 6" LOWER CASE FOR NAME. THE BORDER SIZE SHALL BE 3/4" WIDE. ALL CORNERS ON SIGN BLANKS SHALL BE ROUNDED.

C. LAYOUT: BEFORE FINAL FABRICATION AND SHIPMENT, THE MANUFACTURER OR SUPPLIER SHALL PROVIDE THE ENGINEER WITH A LAYOUT OF EACH SIGN SHOWING THE EXACT STREET NAME LETTERING TO BE PLACED ON THE SIGN.

D. MOUNTING:

1. REGULATORY SIGNS: THE RIO SERIES SIGNS SHALL BE MOUNTED ON THE MAST ARM TO THE RIGHT OF THE LEFT SIGNAL HEAD USING AN APPROVED MOUNTING BRACKET AS SHOWN IN THE TRAFFIC SIGNAL INSTALLATION DETAILS. THE MOUNTING BRACKET SHALL BE CAPABLE OF WITHSTANDING A WIND LOAD IN EXCESS OF 100 MPH.

2. OVERHEAD STREET NAME SIGNS: THE OVERHEAD STREET NAME SIGNS SHALL BE MOUNTED ON THE SIGNAL MAST ARM, BETWEEN THE SIGNAL POLE AND THE FIRST TRAFFIC SIGNAL HEAD ASSEMBLY. THE FINAL LOCATION WILL BE DETERMINED BY THE ENGINEER. INSTALLATION OF SIGNS ON MAST ARMS SHALL BE ACCOMPLISHED WITH SUITABLE STAINLESS STEEL BANDING, CLAMPS, AND BRACKETS CAPABLE OF WITHSTANDING 100 MPH WINDS. STREET NAME SIGNS OVER 18 INCHES IN HEIGHT SHALL BE INSTALLED USING APPROVED SIGN MOUNTING BRACKETS. ALL BOLTS INSERTED THROUGH SIGN FACES SHALL HAVE FLAT WASHERS INSTALLED BETWEEN THE REFLECTIVE SHEETING AND BOLT HEADS. BOLT HOLES IN SIGNS SHALL BE DRILLED IN THE FIELD. SIGNS SHALL BE MOUNTED SUCH THAT THE LEGEND IS LEVEL.

3. PEDESTRIAN PUSH-BUTTON SIGNS: SIGNS SHALL BE MOUNTED TO THE TRAFFIC SIGNAL POLE ABOVE THE APPROPRIATE PEDESTRIAN PUSH-BUTTON MOUNTING SHALL BE ACCOMPLISHED USING SUITABLE STAINLESS STEEL BANDING, CLAMPS AND BRACKETS CAPABLE OF WITHSTANDING 100 MPH WINDS.

E. ACCEPTANCE: ALL SIGNS WILL BE ACCEPTED ON THE BASIS OF CATALOG CUTS AND VISUAL INSPECTION BY THE ENGINEER WHEN DELIVERED TO THE PROJECT SITE.

VIII. PEDESTRIAN PUSH BUTTON STATION

GENERAL: EACH PEDESTRIAN PUSH BUTTON STATION SHALL CONSIST OF ONE OR TWO PARTS. IF TWO PARTS ONE CONSISTS OF A ONE PIECE PUSHBUTTON ASSEMBLY, SPEAKER AND DIRECTIONAL SIGN. PART TWO CONSISTS OF A POWER SUPPLY AND CONTROL UNIT FOR THE PUSHBUTTON ASSEMBLY LOCATED IN THE ASSOCIATED PEDESTRIAN HEAD. THE BUTTONS, RELATED HARDWARE AND AUDIBLE SIGNAL SHALL BE COMPLIANT WITH THE AMERICANS WITH DISABILITIES ACT.

PUSH BUTTON ASSEMBLY: THE PUSHBUTTON ASSEMBLY SHALL INCLUDE A VIBRATING ARROW BUTTON AND A SPEAKER IN ONE PIECE, A R10-14C SIGN SHALL BE EITHER PART OF OR SEPARATE FROM ASSEMBLY. THE PUSHBUTTON ASSEMBLY SHALL BE CONNECTED TO THE POWER SUPPLY AND CONTROL UNIT LOCATED IN THE ASSOCIATED PEDESTRIAN HEAD BY A FOUR WIRE CABLE.

THE PUSHBUTTON ASSEMBLY SHALL HAVE AN ADA COMPLIANT VIBRATING WEATHERPROOF PUSHBUTTON WITH AN ARROW INDICATION MOLDED INTO THE BUTTON.

THE PUSHBUTTON ASSEMBLY SHALL HAVE A WEATHERPROOF SPEAKER BUILT INTO THE BACK OF THE UNIT THAT CAN PROVIDE A LOCATING TONE, AND A USER SELECTABLE "WALK SIGN IS ON FOR X STREET" VOICE MESSAGE OR PERCUSSIVE TONE TO REPEAT FOR THE DURATION OF THE WALK INDICATION. THE VOLUME OF THE SPEAKER CAN BE SET MANUALLY OR CAN BE SET TO AUTOMATICALLY ADJUST THE AMBIENT NOISE LEVEL. UNDER AUTOMATIC ADJUSTMENT THE VOLUME OF THE AUDIBLE SOUNDS AUTOMATICALLY ADJUST IN RELATION TO THE AMBIENT NOISE LEVEL FOR THE CYCLE THAT FOLLOWS. ALL OPERATIONS OF THE PUSHBUTTON ASSEMBLY SHALL BE FIELD SELECTABLE BY MEANS OF A CONFIGURATION UNIT.

WHERE TWO ACCESSIBLE PUSHBUTTONS ON THE SAME CORNER OF THE INTERSECTION ARE SEPARATED BY A DISTANCE OF AT LEAST TEN (10) FEET, THE AUDIBLE WALK INDICATION SHALL BE A PERCUSSIVE TONE. WHERE TWO ACCESSIBLE PEDESTRIAN PUSHBUTTONS ON THE SAME CORNER OF THE INTERSECTION ARE NOT SEPARATED BY A DISTANCE OF AT LEAST TEN (10) FEET, THE AUDIBLE WALK INDICATION SHALL BE A VOICE MESSAGE. WHEN THERE IS ONLY ONE ACCESSIBLE PEDESTRIAN PUSHBUTTON ON THE CORNER, THE AUDIBLE WALK INDICATION SHALL BE A VOICE MESSAGE.

THE PUSHBUTTON ASSEMBLY SHALL HAVE A SIGN INDICATING INSTRUCTIONS TO CROSS.

POWER SUPPLY AND CONTROL UNIT: THE POWER SUPPLY AND CONTROL UNIT SHALL CONSIST OF A UNIT APPROXIMATELY 7" X 4" AND BE LOCATED IN THE ASSOCIATED PEDESTRIAN HEAD FOR THE PUSHBUTTON ASSEMBLY THAT IT CONTROLS OR BUILT INTO PUSHBUTTON UNIT. THE UNIT WILL HAVE FOUR INPUTS ON A BARRIER DIVIDED TERMINAL STRIP. THESE INPUTS WILL BE FOR GROUND, WALK, DON'T WALK, AND AC NEUTRAL. THE UNIT WILL HAVE FOUR OUTPUTS ON A BARRIER DIVIDED TERMINAL STRIP. THESE OUTPUTS WILL BE FOR DC+ AND DC- OR 12VDC POWER, WALK OUTPUT, AND DON'T WALK OUTPUT. THE OUTPUTS SHALL BE CONNECTED TO THE PUSHBUTTON ASSEMBLY BY A FOUR WIRE CABLE. THE UNIT SHALL BE FUSED USING TWO 0.5 AMP FUSES OR MOV 5 JOULES. THE UNIT WILL BE CONFORMABLY COATED FOR DIRT AND MOISTURE PROTECTION.

7	04-30-13	ADDED PED. POLE COLLAR SPEC.	KAP	LGV
6	11-21-11	UPDATED PEDESTRIAN BUTTON SPEC.	KAP	LGV
5	09-27-10	ADDED PEDESTRIAN BUTTON SPECIFICATION	KAP	LGV
4	12-31-09	ADDED REFERENCE TO 2001 AASHTO	KAP	LGV
3	10-01-09	REVISED FOUNDATION NOTE ADDED	CDR	LGV
2	01-14-08	ADD HDPE CONDUIT DETAIL	KAP	LGV
1	01-14-08	ADD 333SD-ITS CABINET DETAILS	KAP	LGV
NO.	DATE:	REVISION	BY:	APP'D

DRAWN BY: K.PELTON

APP'D BY: *K.Pelton*



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STANDARD DETAILS

TRAFFIC SIGNAL SPECIFICATIONS

DATE: _____

PAGE: _____ OF _____

DRAWING: _____ DT-110

PROJ. _____