

BILL OF MATERIALS (For Information Only)		
ITEM	QUANTITY	UNIT
Traffic Signal Pole Steel w/Mastarm (Std.)	4	Each
Concrete Controller Pad	1	Each
Concrete Footing - Pole	4	Each
Service Box - 36" Dia.	4	Each
Ground Rod and Clamp	5	Each
Conduit Clamp	As Needed	Each
Pedestrian Signal Lamp L.E.D. (Combination 16"x18" w/ Count Down)	8	Each
12" L.E.D. Unit	56	Each
Back Plate for Signal Head (Type A)	8	Each
Back Plate for Signal Head (Type I)	4	Each
Entrance Head	1	Each
Circuit Breaker and Box	1	Each
Traffic Signal Head - 12" (Type A) w/Mounting Bracket	12	Each
Traffic Signal Head - 12" (Type I) w/Mounting Bracket	4	Each
Pedestrian Signal - 12" (Type K) w/Mounting Bracket	8	Each
Pedestrian Pushbutton w/Sign	8	Each
Pad Mounted Cabinet and Controller System - Type 2070 (See Note)	1	Each
Lead-In Wire No. 8 Awg 1/c (Type THHN)	89	L.F.
Multi-Conductor Cable No. 14 Awg 2/c	29	L.F.
Multi-Conductor Cable No. 14 Awg 5/c	521	L.F.
Multi-Conductor Cable No. 14 Awg 7/c	1217	L.F.
Stranded No. 8 Awg 1/c (Type THHN)(Ground)	725	L.F.
Conduit 1" (RG)	33	L.F.
Conduit 2" (RG)	47	L.F.
Conduit 3" (RG)	368	L.F.
Video Detection Camera and Mounting Hardware (Riser Bracket)	1	Each
Video Detection Processor Unit (Items Vantage or Aprvd Equal)	1	Each
Video Power Cable No. 16 Awg 3/c	785	L.F.
Video Cable 75 ohm Coaxial (Belden #8281)	785	L.F.
TV Monitor	1	Each
Video System Programming Unit	1	Each
Street Name Signs	4	Each
Left Turn Sign (R10-12) w/Mounting Hardware	4	Each

EQUIPMENT SPECIFICATIONS 2070 CONTROLLER

A. Controller Units: The 2070L controllers supplied shall meet the requirements outlined in CalTrans TEES 2002 (latest revision), and the following requirements:

- The 2070L controllers shall have a 19" EIA rack mountable chassis (mated to the 170 cabinet). Controllers shall be EAGLE or ECONOLITE.
- 2070-1B CPU module with RJ-45 Ethernet port.
- 2070-2A C1 field I/O module for compatibility with CalTrans style C1 connector.
- 2070-3B 8X40 front panel with LCD display.
- 2070-4A 10 amp power supply.
- 2070-7A asynchronous serial communications module (RS-232).
- Any unused slot position shall have a cover plate.

B. Conflict monitors:

The Conflict Monitors supplied shall be 2010 ECL conflict monitors.

C. 1-Loop-back cable for 2070-2A Field I/O (Type 170, 104 pin and 37 pin connector).

D. 1-Loop-back cable for 2070-7A port.

Note: The contractor shall supply and install all necessary material and equipment for the complete installation and operation of the Traffic Signal whether specifically mentioned or not.

TRAFFIC SIGNAL POLE SUMMARY										
POLE NO.	STATION	TYPE	ARM LENGTH	SIGNALS ON ARM	X1	X2	X3	OTHER EQUIPMENT ON ARM	SIGNALS ON POLE	SIGNS ON POLE
1	75+90.1, 43.6' Lt.	B	45'	3-E	11'	10.5'		1-D, 1-G, 1-H, 1-I	1-E, 2-F	-
2	76+00.0, 51.3' Rt.	B	39'	3-E	10'	10'		1-D, 1-G, 1-H, 1-I	1-E, 2-F	2-J
3	76+86.8, 44.1' Lt.	B	47'	3-E	10'	10'		1-D, 1-G, 1-H, 1-I	1-E, 2-F	2-J
4	76+83.1, 39.5' Rt.	B	41'	3-E	11'	10.5'		1-D, 1-G, 1-H, 1-I	1-E, 2-F	-

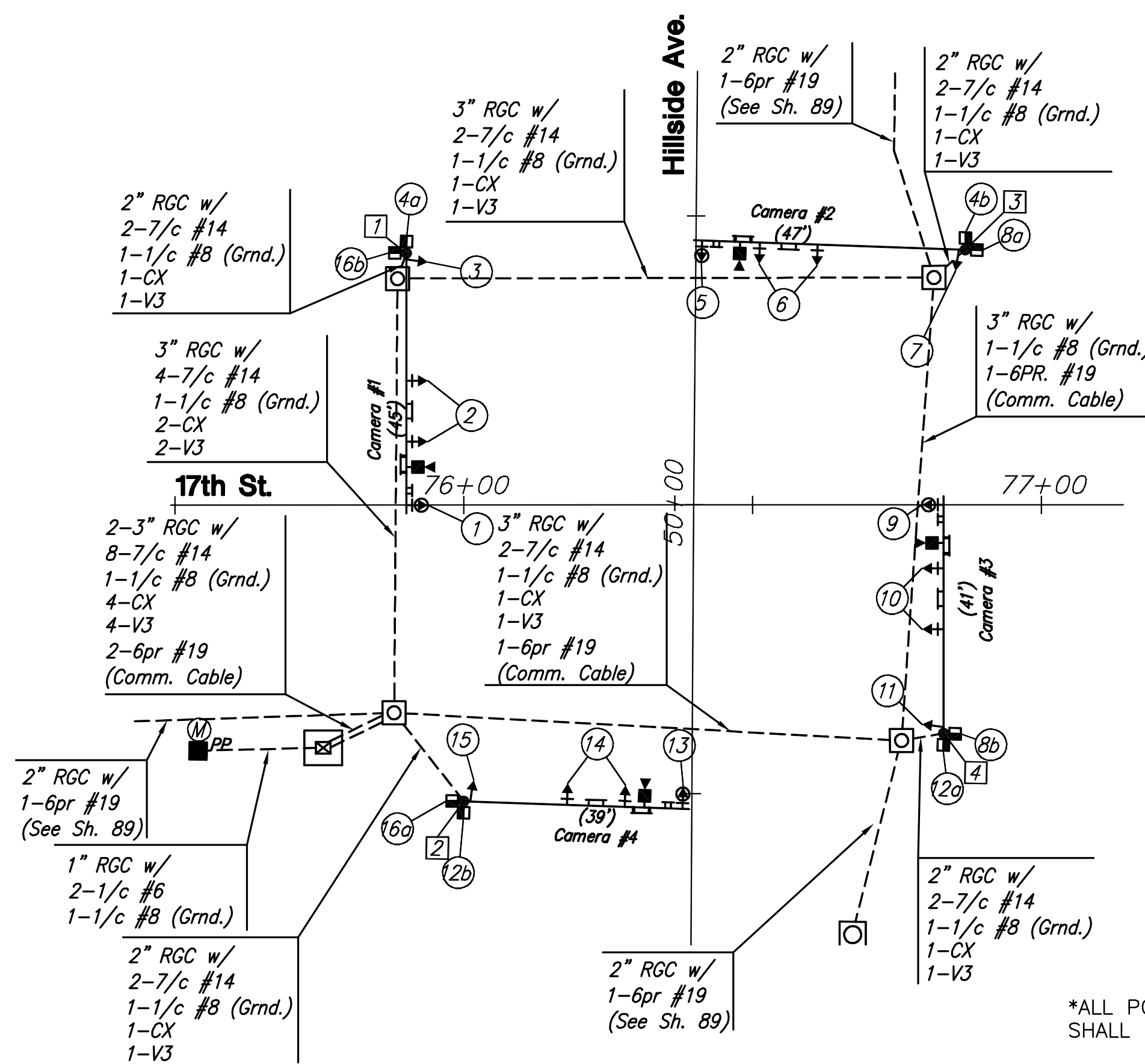
- A - Joint Use Steel Pole with Mast Arm
- B - Standard Steel Pole with Mast Arm
- C - Pedestal Pole (10' Aluminum)
- D - Left Turn Sign (R10-12)
- E - Traffic Signal
- F - Pedestrian Signal with Push Button
- G - Street Name Sign
- H - Video Detection Camera
- I - Wind Damper
- J - Street Name Sign (9" Metro)(See Sh. No. 90 for details)

STREET NAME SIGN SUMMARY		
LEGEND	60" x 18"	9" METRO
17th St	2	
Hillside	2	
Hillside 1700 N		1
Hillside 1800 N		1
17th St N 3100 E		1
17th St N 3200 E		1
TOTAL	4	4

Letters shall be series "E" Modified

STATE	PROJECT NO.	YEAR	SHEET NO.	SHEETS
KANSAS	87 N-0349-01	2009	83	133

- LEGEND**
- Steel Traffic Signal Pole (Joint use)
 - Steel Traffic Signal Pole (Std. Pole)
 - Traffic Signal Indication (Type A) w/Backplate
 - Traffic Signal Indication (Type I) w/Backplate
 - ↘ Mast Arm Suspended Traffic Signal
 - Video Detection Camera
 - Service Box
 - Pedestrian Indication
 - ⊗ Meter Box and Power Disconnect
 - Rigid Galvanized Conduit (RGC)
 - PVC Conduit
 - TT Overhead Street Name Sign
 - TT Overhead Sign R10-12 (Lt. Turn Yield on Green)
 - TT Wind Damper
 - PP Power Pole
 - CX Video Coax Cable
 - V3 Video Power Cable (#16 AWG 3/c)



L.E.D. Signal Heads: All lenses in each signal head shall be a self-contained, sealed unit designed to fit a regular 12-inch traffic signal housing. It shall incorporate a minimum of 186 high reliability, high intensity LED indicators. The lens shall provide a light beam spread of 30 degrees on all sides of its center axis which shall be designed to provide a 5 to 7 degree downward angle.

The lens shall be made of UV stabilized plastic. The rear cover shall be of non-flammable material and the entire unit shall be totally sealed to preclude the entrance of water, dust or other contaminants.

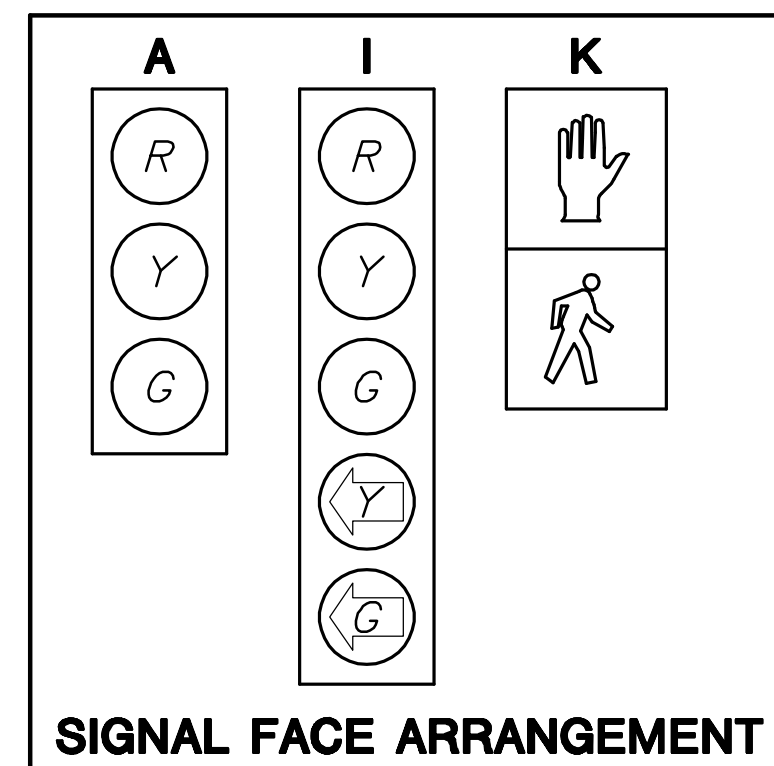
The self-contained, regulated power supply shall allow the unit to operate over an input voltage range between 89 and 135 volts A.C. and shall be configured in at least 3 parallel circuits for reliability. Light output shall be comparable to that provided by a standard, 12 inch traffic signal lens illuminated by a 150 watt incandescent lamp. The red wave length shall be 630 to 660 nm.

The manufacturer shall warrant the unit against defects in workmanship and materials for a period of at least five years after date of shipment. This warranty shall be assigned to the maintenance agency.

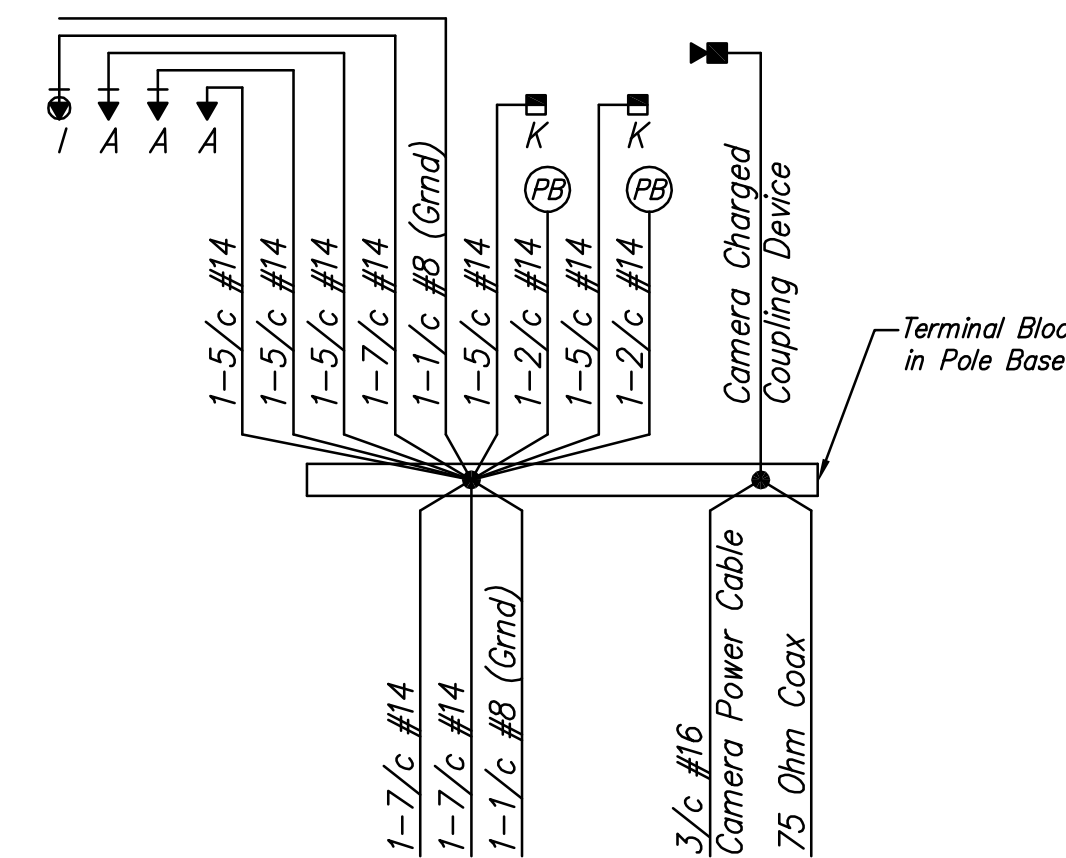
RECAPITULATION OF TRAFFIC SIGNAL QUANTITIES		
BID ITEM	QUANTITY	UNIT
TRAFFIC SIGNAL INSTALLATION (17TH & GROVE)	1	L.S.
TRAFFIC SIGNAL INSTALLATION (17TH & HILLSIDE)	1	L.S.
TEMPORARY TRAFFIC SIGNAL (17TH & GROVE)	1	L.S.
TEMPORARY TRAFFIC SIGNAL (17TH & HILLSIDE)	1	L.S.
JUNCTION BOX	27	EACH
6-PR #19 COMMUNICATION CABLE	4,246	L.F.
CONDUIT 2" (RG)	3,783	L.F.

TRAFFIC SIGNAL HEAD SUMMARY				
SIGNAL NO.	TYPE	SIZE	MOUNTING BRACKET	QUANTITY
1	I	5-12"	TYPE I	1
2	A	3-12"	TYPE I	2
3	A	3-12"	TYPE III	1
4a, 4b	K	2-12"	TYPE II	2
5	I	5-12"	TYPE I	1
6	A	3-12"	TYPE I	2
7	A	3-12"	TYPE III	1
8a, 8b	K	2-12"	TYPE II	2
9	I	5-12"	TYPE I	1
10	A	3-12"	TYPE I	2
11	A	3-12"	TYPE III	1
12a, 12b	K	2-12"	TYPE II	2
13	I	5-12"	TYPE I	1
14	A	3-12"	TYPE I	2
15	A	3-12"	TYPE III	1
16a, 16b	K	2-12"	TYPE II	2

All Signal Heads to be L.E.D.



All lenses in each head shall be L.E.D. unit per note.



Pole 1, Pole 2, Pole 3, & Pole 4

MKEC
ENGINEERING
CONSULTANTS, INC.
411 N. WEBB ROAD
WICHITA, KS. 67206
316-684-9600

17th STREET
FROM GROVE TO HILLSIDE

17th St and Hillside Ave. Traffic Signal Plan

SHEET TITLE
87 N-0349-01
PROJECT NUMBER

JRA
DESIGN BY
JSB
DRAWN BY
JRA
CHECKED BY

ISSUED
May 28, 2009
REVISED

SHEET NO.
83 of 133