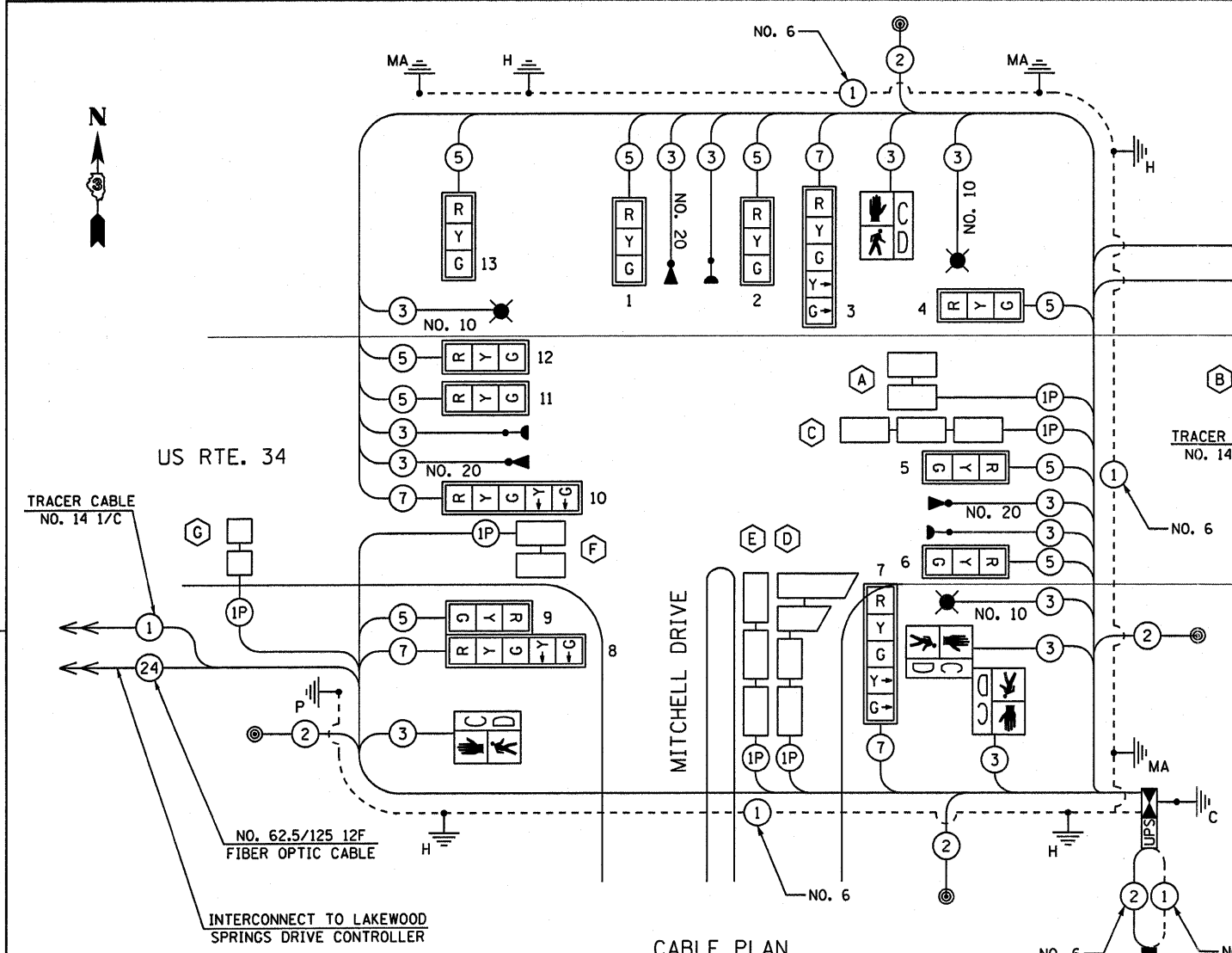


**EJM ENGINEERING, INC.**  
411 South Wells Street Suite 800  
Chicago, Illinois 60607



**CABLE PLAN LEGEND**

- EXISTING PROPOSED**
- 8" (200mm) TRAFFIC SIGNAL SECTION
  - 12" (300mm) TRAFFIC SIGNAL SECTION
  - 12" (300mm) PEDESTRIAN SIGNAL SECTION
  - CONTROLLER CABINET
  - UNINTERRUPTIBLE POWER SUPPLY
  - SERVICE INSTALLATION
  - TELEPHONE CONNECTION
  - EMERGENCY VEHICLE LIGHT DETECTOR
  - CONFIRMATION BEACON
  - PUSHBUTTON DETECTOR
  - VEHICLE DETECTOR, INDUCTION LOOP
  - DENOTES NUMBER OF CONDUCTORS, ALL CABLE NO. 14 EXCEPT AS INDICATED. ALL LOOP DETECTOR CABLE TO BE SHIELDED.
  - LUMINAIRE

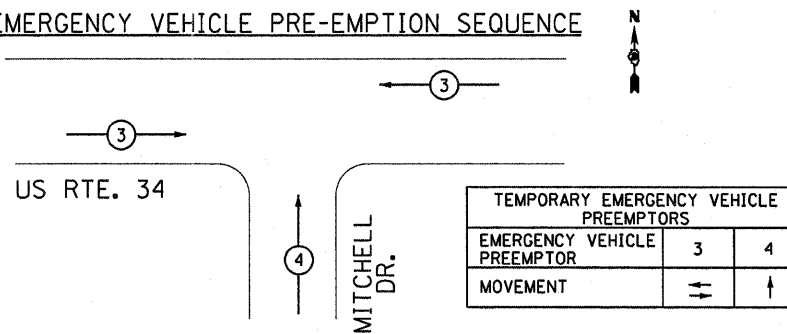
- EXISTING PROPOSED**
- SIGNAL FACE WITH BACKPLATE
  - GROUND ROD AT HANDHOLE, DOUBLE HANDHOLE, OR CONTROLLER
  - GROUND ROD AT POST OR MAST ARM POLE
  - GROUND ROD AT ELECTRIC SERVICE INSTALLATION
  - GROUND CABLE IN CONDUIT, NO.6 SOLID COPPER (GREEN)
  - FIBER OPTIC CABLE IN CONDUIT, NO. 62.5/125 MM12F & SM12F
  - PEDESTRIAN SIGNAL HEAD WITH COUNTDOWN TIMER

THE INDUCTION LOOP DETECTORS SHALL BE RACK MOUNTED AND THE REVISION NUMBER SHOULD BE 34 OR HIGHER.

THE GROUNDING SYSTEM SHALL INCLUDE GROUND RODS AND CONNECTIONS IN HANDHOLES. ALL GROUND ROD CONNECTIONS SHALL BE AN IRREVERSIBLE COMPRESSION GROUND TAP INSTALLED WITH A HYDRAULIC 12 TON PRESS TOOL OR EQUAL.

ALL SIGNAL INDICATIONS SHALL BE L.E.D.

**EMERGENCY VEHICLE PRE-EMPTION SEQUENCE**



**DETECTOR LOOP INDUCTANCE CHART**

LOOP SYSTEM	LABEL	NUMBER OF TURNS	INDUCTANCE (MH)	FREQUENCY (HERTZ)	J PIN STATUS
A	PHASE 6 WB STBR	3	343	36,123	OFF
B	PHASE 6 WB FAR	3	281	30,510	ON
C	PHASE 1 WB STBR LL	3	499	21,496	ON
D	PHASE 8 NB STBR RL	3	555	24,111	ON
E	PHASE 8 NB STBR LL	3	390	24,090	ON
F	PHASE 2 EB STBR	3	344	30,352	OFF
G	PHASE 2 EB FAR	3	284	35,902	ON

J PIN STATUS:  
"ON" MEANS STANDARD DETECTOR SETUP.  
"OFF" MEANS THE J WIRE HAS BEEN DISCONNECTED BUT INTACT AT THE HARNESS PANEL WITH THE NECESSARY SPADE CONNECTION ATTACHED, MARKED, AND INSULATED.

INTERCONNECT TO LAKEWOOD SPRINGS DRIVE CONTROLLER  
NO. 62.5/125 12F FIBER OPTIC CABLE

**ELECTRICAL LOAD CHART**

US RTE. 34			
SIGNAL SECTION	NUMBER	WATTAGE EACH	BURN TIME (PERCENTAGE)
RED	8	17	20
YELLOW	8	25	5
GREEN	8	15	75
YELLOW ARROW	2	12	5
GREEN ARROW	2	12	5
WALK (SYMBOL)	2	25	50
HAND (SYMBOL)	2	25	50

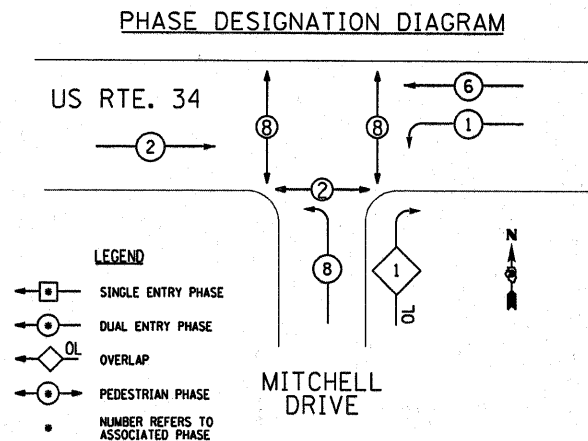
MITCHELL DRIVE			
SIGNAL SECTION	NUMBER	WATTAGE EACH	BURN TIME (PERCENTAGE)
RED	5	17	75
YELLOW	3	25	5
GREEN	3	15	20
YELLOW ARROW	5	12	5
GREEN ARROW	5	12	20
WALK (SYMBOL)	2	25	50
HAND (SYMBOL)	2	25	50

TRAFFIC SIGNAL CABINET			
ITEM	NUMBER	WATTAGE EACH	BURN TIME (PERCENTAGE)
CONTROLLER	1	100	100
LOOP DETECTORS	8	4	100

LIGHTING			
ITEM	NUMBER	WATTAGE EACH	BURN TIME (PERCENTAGE)
LUMINAIRE	3	250	50

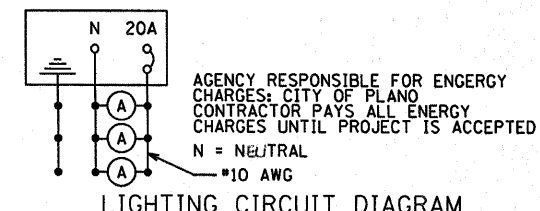


**SCHEDULE OF QUANTITIES**

DESCRIPTION	UNIT	QUANTITY
SIGN PANEL - TYPE 1	SQ FT	21.5
SIGN PANEL - TYPE 2	SQ FT	20
SERVICE INSTALLATION - GROUND MOUNTED	EACH	1
UNDERGROUND CONDUIT, PVC, 1" DIA.	FOOT	432
UNDERGROUND CONDUIT, PVC, 2" DIA.	FOOT	965
UNDERGROUND CONDUIT, PVC, 3" DIA.	FOOT	123
UNDERGROUND CONDUIT, PVC, 4" DIA.	FOOT	234
HANDHOLE, PORTLAND CEMENT CONCRETE	EACH	7
DOUBLE HANDHOLE, PORTLAND CEMENT CONCRETE	EACH	1
ELECTRIC CABLE IN CONDUIT, 600V (XLP-TYPE USE) 3-1/C NO. 10	FOOT	579
LUMINAIRE, SODIUM VAPOR, HORIZONTAL MOUNT, 250 WATT	EACH	3
FULL-ACTUATED CONTROLLER AND TYPE IV CABINET, SPECIAL	EACH	1
UNINTERRUPTIBLE POWER SUPPLY, EXTENDED	EACH	1
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 2C	FOOT	808
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 3C	FOOT	850
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 5C	FOOT	1708
ELECTRIC CABLE IN CONDUIT, SIGNAL NO. 14 7C	FOOT	698
ELECTRIC CABLE IN CONDUIT, LEAD-IN, NO. 14 1 PAIR	FOOT	1847
ELECTRIC CABLE IN CONDUIT, SERVICE NO. 6 2C	FOOT	26
ELECTRIC CABLE IN CONDUIT, EQUIPMENT GROUND CONDUCTOR, NO. 6 1C	FOOT	416
TRAFFIC SIGNAL POST, 16FT	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 34 FT.	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 36 FT.	EACH	1
STEEL COMBINATION MAST ARM ASSEMBLY AND POLE 52 FT.	EACH	1
CONCRETE FOUNDATION, TYPE A	FOOT	8
CONCRETE FOUNDATION, TYPE C	FOOT	4
CONCRETE FOUNDATION, TYPE E 36-INCH DIAMETER	FOOT	33
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, BRACKET MOUNTED	EACH	3
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 3-SECTION, MAST ARM MOUNTED	EACH	6
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 5-SECTION, BRACKET MOUNTED	EACH	2
SIGNAL HEAD, POLYCARBONATE, LED, 1-FACE, 5-SECTION, MAST ARM MOUNTED	EACH	2
PEDESTRIAN SIGNAL HEAD, LED, 1-FACE, BRACKET MOUNTED WITH COUNTDOWN TIMER	EACH	6
TRAFFIC SIGNAL BACKPLATE, LOUVERED, FORMED PLASTIC	EACH	13
INDUCTIVE LOOP DETECTOR	EACH	7
DETECTOR LOOP, TYPE 1	FOOT	1070
LIGHT DETECTOR	EACH	3
LIGHT DETECTOR AMPLIFIER	EACH	1
PEDESTRIAN PUSH-BUTTON	EACH	6
TEMPORARY TRAFFIC SIGNAL INSTALLATION	EACH	1
REMOVE EXISTING TRAFFIC SIGNAL EQUIPMENT	EACH	1
REMOVE EXISTING HANDHOLE	EACH	3
REMOVE EXISTING CONCRETE FOUNDATION	EACH	5
ELECTRIC CABLE IN CONDUIT, NO. 20 3/C, TWISTED, SHIELDED	FOOT	584

CONTROLLER SHALL BE ECONOLITE BRAND EQUIPMENT

PEDESTRIAN PUSH-BUTTON DETECTOR SHALL BE 4EVER BRAND EQUIPMENT OR APPROVED EQUAL



**LIGHTING CIRCUIT DIAGRAM**

AGENCY RESPONSIBLE FOR ENERGY CHARGES: CITY OF PLANO  
CONTRACTOR PAYS ALL ENERGY CHARGES UNTIL PROJECT IS ACCEPTED  
N = NEUTRAL  
#10 AWG

<b>PB Americas, Inc.</b> 230 WEST MONROE STREET, SUITE 900 CHICAGO, IL 60606 312782-8150	FILE NAME = duncanbd	DESIGNED - GR	REVISED - BDD 09/26/2011
	PLOT SCALE = 20.0000' / 1"	DRAWN - GR	REVISED -
	PLOT DATE = 9/27/2011	CHECKED - BS	REVISED -
		DATE - 4/8/2011	REVISED -

**STATE OF ILLINOIS  
DEPARTMENT OF TRANSPORTATION**

**CABLE PLAN AND SCHEDULE OF QUANTITIES  
US RTE 34 AND MITCHELL DRIVE**

SCALE: N.T.S. SHEET NO. 7 OF 14 SHEETS STA. TO STA.

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
591	13R-2;14R-1 & BR-1(1);15R-1	KENDALL	429	241

CONTRACT NO. 66985  
ILLINOIS FED. AID PROJECT

FINAL SUBMITTAL