VOLTAGE DROP CALCULATION FOR CABINET C1

PROJECT	ROOSEVELT ROAD	LOCATION	NE OF HOME AND ROOSEVELT
CABINET	C1	CABLE SIZE	3-1/C NO.4 & 1-1/C NO.6
CIRCUIT	A	CONDUCTOR	COPPER
SYSTEM VOLTAGE	480V	LUMINAIRE VOLTAGE	240V

NO. OF LUMINAIRES	CURRENT/LUMINAIRE	DISTANCE	2X	RESISTIVITY	VOLTAGE DROP
5	1.42A	192FT	2	0.321/1000	0.875V
4	1.42A	265FT	2	0.321/1000	0.966V
3	1.42A	260FT	2	0.321/1000	0.711V
2	1.42A	231FT	2	0.321/1000	0.421V
1	1.42A	238FT	2	0.321/1000	0.217V
				TOTAL	3.191V

TOTAL VOLTAGE DROP/ SYSTEM VOLTAGE
=0.665%

VOLTAGE DROP CALCULATION FOR CABINET C1

PROJECT	ROOSEVELT ROAD	LOCATION	NE OF HOME AND ROOSEVELT
CABINET	C1	CABLE SIZE	3-1/C NO.4 & 1-1/C NO.6
CIRCUIT	B	CONDUCTOR	COPPER
SYSTEM VOLTAGE	480V	LUMINAIRE VOLTAGE	240V

NO. OF LUMINAIRES	CURRENT/LUMINAIRE	DISTANCE	2X	RESISTIVITY	VOLTAGE DROP
6	1.42A	58FT	2	0.321/1000	0.317V
5	1.42A	261FT	2	0.321/1000	1.190V
4	1.42A	266FT	2	0.321/1000	0.970V
3	1.42A	248FT	2	0.321/1000	0.678V
2	1.42A	233FT	2	0.321/1000	0.425V
1	1.42A	255FT	2	0.321/1000	0.232V
				TOTAL	3.812V

TOTAL VOLTAGE DROP/ SYSTEM VOLTAGE
=0.794%

VOLTAGE DROP CALCULATION FOR CABINET C1

PROJECT	ROOSEVELT ROAD	LOCATION	NE OF HOME AND ROOSEVELT
CABINET	C1	CABLE SIZE	3-1/C NO.4 & 1-1/C NO.6
CIRCUIT	C	CONDUCTOR	COPPER
SYSTEM VOLTAGE	480V	LUMINAIRE VOLTAGE	240V

NO. OF LUMINAIRES	CURRENT/LUMINAIRE	DISTANCE	2X	RESISTIVITY	VOLTAGE DROP
6	1.42A	62FT	2	0.321/1000	0.339V
5	1.42A	235FT	2	0.321/1000	1.071V
4	1.42A	240FT	2	0.321/1000	0.875V
3	1.42A	238FT	2	0.321/1000	0.651V
2	1.42A	241FT	2	0.321/1000	0.439V
1	1.42A	288FT	2	0.321/1000	0.263V
				TOTAL	3.638V

TOTAL VOLTAGE DROP/ SYSTEM VOLTAGE
=0.758%

VOLTAGE DROP CALCULATION FOR CABINET C1

PROJECT	ROOSEVELT ROAD	LOCATION	NE OF HOME AND ROOSEVELT
CABINET	C1	CABLE SIZE	3-1/C NO.4 & 1-1/C NO.6
CIRCUIT	D	CONDUCTOR	COPPER
SYSTEM VOLTAGE	480V	LUMINAIRE VOLTAGE	240V

NO. OF LUMINAIRES	CURRENT/LUMINAIRE	DISTANCE	2X	RESISTIVITY	VOLTAGE DROP
6	1.42A	182FT	2	0.321/1000	1.000V
5	1.42A	235FT	2	0.321/1000	1.071V
4	1.42A	238FT	2	0.321/1000	0.868V
3	1.42A	240FT	2	0.321/1000	0.656V
2	1.42A	247FT	2	0.321/1000	0.450V
1	1.42A	67FT	2	0.321/1000	0.061V
				TOTAL	4.102V

TOTAL VOLTAGE DROP/ SYSTEM VOLTAGE
=0.855%

VOLTAGE DROP CALCULATION FOR CABINET C2

PROJECT	ROOSEVELT ROAD	LOCATION	NW OF SCOVILLE AND ROOSEVELT
CABINET	C2	CABLE SIZE	3-1/C NO.4 & 1-1/C NO.6
CIRCUIT	A	CONDUCTOR	COPPER
SYSTEM VOLTAGE	480V	LUMINAIRE VOLTAGE	240V

NO. OF LUMINAIRES	CURRENT/LUMINAIRE	DISTANCE	2X	RESISTIVITY	VOLTAGE DROP
7	1.42A	20FT	2	0.321/1000	0.128V
6	1.42A	264FT	2	0.321/1000	1.444V
5	1.42A	276FT	2	0.321/1000	1.258V
4	1.42A	260FT	2	0.321/1000	0.948V
3	1.42A	268FT	2	0.321/1000	0.733V
2	1.42A	268FT	2	0.321/1000	0.489V
1	1.42A	258FT	2	0.321/1000	0.235V
				TOTAL	5.235V

TOTAL VOLTAGE DROP/ SYSTEM VOLTAGE
=1.091%

VOLTAGE DROP CALCULATION FOR CABINET C2

PROJECT	ROOSEVELT ROAD	LOCATION	NW OF SCOVILLE AND ROOSEVELT
CABINET	C2	CABLE SIZE	3-1/C NO.4 & 1-1/C NO.6
CIRCUIT	B	CONDUCTOR	COPPER
SYSTEM VOLTAGE	480V	LUMINAIRE VOLTAGE	240V

NO. OF LUMINAIRES	CURRENT/LUMINAIRE	DISTANCE	2X	RESISTIVITY	VOLTAGE DROP
6	1.42A	148FT	2	0.321/1000	0.810V
5	1.42A	282FT	2	0.321/1000	1.285V
4	1.42A	258FT	2	0.321/1000	0.941V
3	1.42A	271FT	2	0.321/1000	0.741V
2	1.42A	272FT	2	0.321/1000	0.496V
1	1.42A	253FT	2	0.321/1000	0.231V
				TOTAL	4.504V

TOTAL VOLTAGE DROP/ SYSTEM VOLTAGE
=0.938%

VOLTAGE DROP CALCULATION FOR CABINET C2

PROJECT	ROOSEVELT ROAD	LOCATION	NW OF SCOVILLE AND ROOSEVELT
CABINET	C2	CABLE SIZE	3-1/C NO.4 & 1-1/C NO.6
CIRCUIT	C	CONDUCTOR	COPPER
SYSTEM VOLTAGE	480V	LUMINAIRE VOLTAGE	240V

NO. OF LUMINAIRES	CURRENT/LUMINAIRE	DISTANCE	2X	RESISTIVITY	VOLTAGE DROP
4	1.42A	125FT	2	0.321/1000	0.456V
3	1.42A	269FT	2	0.321/1000	0.736V
2	1.42A	276FT	2	0.321/1000	0.503V
1	1.42A	241FT	2	0.321/1000	0.220V
				TOTAL	1.914V

TOTAL VOLTAGE DROP/ SYSTEM VOLTAGE
=0.399%

VOLTAGE DROP CALCULATION FOR CABINET C2

PROJECT	ROOSEVELT ROAD	LOCATION	NW OF SCOVILLE AND ROOSEVELT
CABINET	C2	CABLE SIZE	3-1/C NO.4 & 1-1/C NO.6
CIRCUIT	D	CONDUCTOR	COPPER
SYSTEM VOLTAGE	480V	LUMINAIRE VOLTAGE	240V

NO. OF LUMINAIRES	CURRENT/LUMINAIRE	DISTANCE	2X	RESISTIVITY	VOLTAGE DROP
4	1.42A	255FT	2	0.321/1000	0.923V
3	1.42A	277FT	2	0.321/1000	0.758V
2	1.42A	259FT	2	0.321/1000	0.472V
1	1.42A	287FT	2	0.321/1000	0.262V
				TOTAL	2.421V

TOTAL VOLTAGE DROP/ SYSTEM VOLTAGE
=0.504%

VOLTAGE DROP CALCULATION FOR CABINET C3

PROJECT	ROOSEVELT ROAD	LOCATION	NW OF LOMBARD AND ROOSEVELT
CABINET	C3	CABLE SIZE	3-1/C NO.4 & 1-1/C NO.6
CIRCUIT	A	CONDUCTOR	COPPER
SYSTEM VOLTAGE	480V	LUMINAIRE VOLTAGE	240V

NO. OF LUMINAIRES	CURRENT/LUMINAIRE	DISTANCE	2X	RESISTIVITY	VOLTAGE DROP
5	1.42A	77FT	2	0.321/1000	0.351V
4	1.42A	265FT	2	0.321/1000	0.966V
3	1.42A	266FT	2	0.321/1000	0.727V
2	1.42A	269FT	2	0.321/1000	0.490V
1	1.42A	260FT	2	0.321/1000	0.237V
				TOTAL	2.772V

TOTAL VOLTAGE DROP/ SYSTEM VOLTAGE
=0.578%

VOLTAGE DROP CALCULATION FOR CABINET C3

PROJECT	ROOSEVELT ROAD	LOCATION	NW OF LOMBARD AND ROOSEVELT
CABINET	C3	CABLE SIZE	3-1/C NO.4 & 1-1/C NO.6
CIRCUIT	B	CONDUCTOR	COPPER
SYSTEM VOLTAGE	480V	LUMINAIRE VOLTAGE	240V

NO. OF LUMINAIRES	CURRENT/LUMINAIRE	DISTANCE	2X	RESISTIVITY	VOLTAGE DROP
5	1.42A	217FT	2	0.321/1000	0.989V
4	1.42A	240FT	2	0.321/1000	0.875V
3	1.42A	300FT	2	0.321/1000	0.820V
2	1.42A	250FT	2	0.321/1000	0.456V
1	1.42A	258FT	2	0.321/1000	0.235V
				TOTAL	3.376V

TOTAL VOLTAGE DROP/ SYSTEM VOLTAGE
=0.703%

VOLTAGE DROP CALCULATION FOR CABINET C3

PROJECT	ROOSEVELT ROAD	LOCATION	NW OF LOMBARD AND ROOSEVELT
CABINET	C3	CABLE SIZE	3-1/C NO.4 & 1-1/C NO.6
CIRCUIT	C	CONDUCTOR	COPPER
SYSTEM VOLTAGE	480V	LUMINAIRE VOLTAGE	240V

NO. OF LUMINAIRES	CURRENT/LUMINAIRE	DISTANCE	2X	RESISTIVITY	VOLTAGE DROP
5	1.42A	198FT	2	0.321/1000	0.903V
4	1.42A	254FT	2	0.321/1000	0.926V
3	1.42A	288FT	2	0.321/1000	0.788V
2	1.42A	260FT	2	0.321/1000	0.474V
1	1.42A	250FT	2	0.321/1000	0.227V
				TOTAL	3.318V

TOTAL VOLTAGE DROP/ SYSTEM VOLTAGE
=0.691%

VOLTAGE DROP CALCULATION FOR CABINET C3

PROJECT	ROOSEVELT ROAD	LOCATION	NW OF LOMBARD AND ROOSEVELT
CABINET	C3	CABLE SIZE	3-1/C NO.4 & 1-1/C NO.6
CIRCUIT	D	CONDUCTOR	COPPER
SYSTEM VOLTAGE	480V	LUMINAIRE VOLTAGE	240V

NO. OF LUMINAIRES	CURRENT/LUMINAIRE	DISTANCE	2X	RESISTIVITY	VOLTAGE DROP
5	1.42A	71FT	2	0.321/1000	0.324V
4	1.42A	260FT	2	0.321/1000	0.948V
3	1.42A	246FT	2	0.321/1000	0.673V
2	1.42A	293FT	2	0.321/1000	0.534V
1	1.42A	250FT	2	0.321/1000	0.228V
				TOTAL	2.707V

TOTAL VOLTAGE DROP/ SYSTEM VOLTAGE
=0.564%

Highway Lighting Voltage Drop Calculations

$V_d = 2(D)\ (I)\ (R)$

V_d = Voltage Drop

D = Length of cable

2 = Multiplier; since current leaves and returns

I = Total current in segment

R = DC Resistance of the cable

$\%V_d = \frac{V_d}{480}(100)$

TERRA ENGINEERING LTD.
225 W. OHIO ST., FOURTH FL.
CHICAGO, IL 60654
(312)467-0123

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

VOLTAGE DROP CALCULATION FOR CABINETS

SCALE: 1" = 20' | SHEET NO. 3 OF 29 SHEETS | STA. | TO STA.

FILE NAME =	USER NAME = IDOT	DESIGNED - EE	REVISED -
DIRTE38-sht-light03.dgn		DRAWN - PY	REVISED -
	PLOT SCALE = 20.0000 ' / IN.	CHECKED - JB	REVISED -
	PLOT DATE = 3/11/2010	DATE -	REVISED -

F.A.P. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
347	09-00248-00-RS	COOK	274	223
		CONTRACT NO. 63432		
	ILLINOIS FED. AID PROJECT			