BUILDING D - SWITCHGEAR PROJECT

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GOVERNMENT PRINTING OFFICE - BUILDING D
735 N. CAPITOL ST, NW
WASHINGTON DC 20401-0002

PRE-PURCHASE DOCUMENTS
AUGUST 01, 2011

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DRAWING INDEX

GENERAL

G-000	COVER SHEET

ELECTRICAL

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E-602	ELECTRICAL SINGLE LINE DIAGRAM

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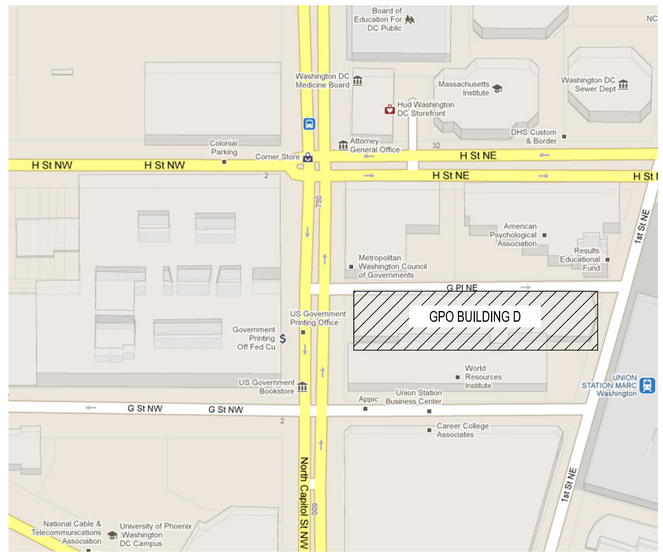

LIGHT FIXTURE SYMBOLS

LP-1:1	4' FLUORESCENT STRIP FIXTURE, SURFACE OR STEM MOUNTED, LP-1:1 INDICATES PANEL AND CIRCUIT, UPPER CASE LETTER INDICATES FIXTURE TYPE.	-
(e) LP-1:1	4' FLUORESCENT STRIP FIXTURE, SURFACE OR STEM MOUNTED, NUMBER INDICATES PANEL AND CIRCUIT, UPPER CASE LETTER INDICATES FIXTURE TYPE, LOWER CASE LETTER (e) INDICATES LIFE SAFETY	-
	EXIT LIGHT SIGN, CEILING SURFACE MOUNTED, SHADED AREA INDICATES FACE DIRECTION, NUMBER INDICATES CIRCUIT	-
	EXIT LIGHT SIGN, WITH CHEVRON DIRECTIONAL ARROW, CEILING SURFACE MOUNTED, SHADED AREA INDICATES FACE DIRECTION, NUMBER INDICATES CIRCUIT	-
	EXIT LIGHT SIGN, WALL MOUNTED, SHADED AREA INDICATES FACE DIRECTION NUMBER INDICATES CIRCUIT	6'-8" AFF ROR 0'-6" FROM TOP OF DOOR TO BOTTOM OF EXIT SIGN

RECEPTACLE SYMBOLS

	RECEPTACLE-20 AMP, 125 VOLT, NEMA 5-20R, DUPLEX , FLUSH WALL MOUNTED OR SURFACE MOUNTED ON EXISTING CONCRETE WALLS	1'-6" AFF, UON
	RECEPTACLE-20 AMP, 125 VOLT, NEMA L5-20R, DUPLEX, CEILING MOUNTED	-
W	TELEPHONE OUTLET, FLUSH WALL MOUNTED.	4'-6" AFF, UON

SWITCH SYMBOLS

S	SWITCH-20 AMP, 125/277 VOLT SINGLE POLE	4'-0" AFF
S^3	SWITCH-20 AMP, 125/277 VOLT THREE-WAY	4'-0" AFF

ONE LINE DIAGRAM SYMBOLS

SYMBOL	DESCRIPTIONS
DMM	DIGITAL MULTI-METER, REFER TO SPECIFICATIONS
SS	SURGE SUPPRESSOR
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
	GLOW TUBES
	COMBINATION STARTER/ DISCONNECT
AF/AS	FUSED SWITCH WITH FUSE AND SWITCH AMPERE RATING
	DISCONNECT SWITCH
	FUSE
AT/AF ST EO	CIRCUIT BREAKER WITH AMPERE TRIP (AT) AND FRAME AMPERE RATING (AF). "ST" INDICATES SHUNT TRIP, "EO" INDICATED ELECTRICALLY OPERATED.
AT/AF ST EO	DRAWOUT CIRCUIT BREAKER WITH AMPERE TRIP (AT) AND FRAME AMPERE RATING (AF). "ST" INDICATES SHUNT TRIP, "EO" INDICATED ELECTRICALLY OPERATED.
	ISOLATION TRANSFORMER
	POWER TRANSFORMER, VOLTAGES AS INDICATED
	WYE GROUNDED NEUTRAL WINDING
	DELTA WINDING
M	MOTOR
A	AMMETER
V	VOLTMETER
W	WATT METER
	BUS BAR
K	KEY INTERLOCK
E	ELECTRIC INTERLOCK
	MECHANICAL INTERLOCK
	CONTACT
	NORMALLY CLOSED CONTACT
	THERMAL OVERLOADS
	BATTERY GENERAL
	CONNECTION TO GROUND
100A OR MLO	PANELBOARD, WITH AMPERE RATING OF MAIN CIRCUIT BREAKER OR MAIN LUGS ONLY (MLO).
M	UTILITY CO. APPROVED SOCKET WITH METER INSTALLED
PLC	PROGRAMMABLE LOGIC CONTROLLER

POWER DISTRIBUTION CONTROL SYMBOLS

SYMBOL	DESCRIPTIONS	MH (UON)
CB	ENCLOSED CIRCUIT BREAKER	5'-6" TO TOP
	NON-FUSED DISCONNECT	5'-6" TO TOP
	FUSED DISCONNECT	5'-6" TO TOP
	COMBINATION STARTER/ DISCONNECT	
PB	PULL BOX, MINIMUM SIZE PER NEC, U.O.N..	5'-6" TO TOP
T1	TRANSFORMER	5'-6" TO TOP
	HARD WIRED CONNECTION	4'-0"
EPO	EMERGENCY POWER OFF DEVICE	
	DISTRIBUTION BOARD	6'-6" TO TOP
	120/208 VOLT PANELBOARD	6'-6" TO TOP
	277/480 VOLT PANELBOARD	6'-6" TO TOP
J	JUNCTION BOX, MOUNTED ABOVE SUSPENDED CEILING (UON)	
J	JUNCTION BOX, FLUSH FLOOR MOUNTED	
J	JUNCTION BOX, WALL MOUNTED	

MISCELLANEOUS SYMBOLS

SYMBOL	DESCRIPTIONS
1	DRAWING NOTE NUMBER
2	FEEDER NUMBER
3	DRAWING REVISION NUMBER
4	FEEDER CONNECTION REFERENCE WITH DESIGNATION

WIRING SYMBOLS

SYMBOL	DESCRIPTIONS
	FLEXIBLE CONDUIT CONNECTION
	WIRE/ CONDUIT CONCEALED ABOVE
	WIRE/ CONDUIT EXPOSED
	WIRE/ CONDUIT CONCEALED BELOW
	WIRE/CONDUIT TO BE REMOVED
	UNDERGROUND DUCT BANK - ELECTRIC
	CONDUIT STUBBED OUT AT LOCATION SHOWN. PROVIDE INSULATED BUSHING, END CAP AND PULLROPE.
RP-1:1	HOMERUN INDICATION WITH PANEL DESIGNATION AND CIRCUIT NUMBER PROVIDE 2 #12 + 1 #12G IN 3/4" C. WIRED TO 20A/ 1P CIRCUIT BREAKER FOR EACH HOMERUN ARROW INDICATED UNLESS NOTED OTHERWISE.

FIRE ALARM

SYMBOL	DESCRIPTIONS
F	FIRE ALARM MANUAL PULL STATION, WALL MOUNTED
F	FIRE ALARM STROBE, WALL MOUNTED.
30CD F	FIRE ALARM COMBINATION HORN/STROBE, WALL MOUNTED CANDELA RATING IS LISTED NEXT TO THE STROBE.
SD	SMOKE DETECTOR, CEILING MOUNTED
FACP	FIRE ALARM CONTROL PANEL
RAP	REMOTE ANNUNCIATOR PANEL

ABBREVIATIONS - ELECTRICAL

A
A,AMPS AMPERES
AF AMPERE FRAME
AFF ABOVE FINISHED FLOOR
AFG ABOVE FINISHED GRADE
AHU AIR HANDLING UNIT
AIC AMPERE INTERRUPTING CAPACITY
AT AMPERE TRIP
ATC AIR TERMINAL CHAMBER
ATS AUTOMATIC TRANSFER SWITCH

B
BG BELOW GRADE
BLDG BUILDING

C
C. CONDUIT
CAB CABINET
CAT. CATALOG
CB CIRCUIT BREAKER
CKT CIRCUIT
CPT CONTROL POWER TRANSFORMER
℄ CENTER LINE
CT CURRENT TRANSFORMER

D
DN DOWN
DT DOUBLE THROW
DWG DRAWING

E
(e) EMERGENCY
EC EMPTY CONDUIT
EF EXHAUST FAN
EMT ELECTRICAL METALLIC CONDUIT
EX EXISTING

F
F FUSED
FA FIRE ALARM
FAAP FIRE ALARM ANNUNCIATOR PANEL
FACP FIRE ALARM CONTROL PANEL
FCU FAN COIL UNIT
FDR FEEDER
FLUOR FLUORESCENT
FR FRAME

G
G, GRD GROUND
GA GAUGE
GFCI GROUND FAULT CIRCUIT INTERRUPTER
GFP GROUND FAULT PROTECTION
GRC GALVANIZED RIGID CONDUIT

H
HP HORSEPOWER
HV HIGH VOLTAGE
HZ HERTZ

I
IMC INTERMEDIATE METAL CONDUIT

J
JB JUNCTION BOX

K
K KILO
KCM THOUSAND CIRCULAR MILS
KV KILOVOLTS
KVA KILOVOLT AMPERES
KW KILOWATTS

L
LF LINEAR FOOT
LP LIGHTING PANEL
LV LOW VOLTAGE

M
MA MILLIAMPERE
MAX MAXIMUM
MCB MAIN CIRCUIT BREAKER
MLO MAIN LUGS ONLY
M.H. MOUNTING HEIGHT
MH MANHOLE
MIN MINIMUM
MOP METHOD OF PROCEDURE
MTD MOUNTED
MTS MANUAL TRANSFER SWITCH

N
NC NORMALLY CLOSED
N,NEUT NEUTRAL
NEC NATIONAL ELECTRICAL CODE
NF NON-FUSED
NIC NOT IN CONTRACT
NL NIGHT LIGHT
NO NORMALLY OPEN
No. NUMBER
NTS NOT TO SCALE

O
OC ON CENTER
OH OVERHEAD

P
PB PULL BOX
PH PHASE
PNL PANEL
PT POTENTIAL TRANSFORMER
PVC POLYVINYL CHLORIDE

R
RGS RIGID GALVANIZED STEEL
RP RECEPTACLE PANEL

S
SA SURGE ARRESTER
SF SQUARE FOOT
SP SINGLE POLE
SS SURGE SUPPRESSOR
ST SHUNT TRIP
SW SWITCH
SWBD SWITCHBOARD
SWGR SWITCHGEAR

T
TYP TYPICAL

U
UG UNDERGROUND
UON UNLESS OTHERWISE NOTED

V
V VOLTS
VFD VARIABLE FREQUENCY DRIVE

W
W WIRE, WATTS
W/ WITH
W/SF WATTS PER SQUARE FOOT
WP WEATHERPROOF

X
XFMR TRANSFORMER

MISCELLANEOUS

1P ONE POLE
2P TWO POLE
3P THREE POLE
Ø PHASE
1Ø SINGLE PHASE
3Ø THREE PHASE

PROJECT GENERAL NOTES:

1. THE INSTALLATION FOR ALL WORK SHALL BE IN ACCORDANCE WITH THE FOLLOWING REGULATIONS, CODES, ETC.
   A. LOCAL CODES AND ORDINANCES.
   B. THE LASTEST EDITION OF NATIONAL ELECTRICAL CODE PRESENTLY IN EFFECT.
2. PRIOR TO BEGINNING ANY WORK, THE CONTRACTOR SHALL SECURE ANY NECESSARY PERMITS FROM THE AUTHORITY HAVING JURISDICTION, THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS AND PAY ALL GOVERNMENT TAXES, FEES, AND OTHER COSTS, INCLUDING UTILITY CONNECTIONS OR EXTENSIONS WHEN APPLICABLE, IN CONNECTION WITH HIS WORK; FILE ALL NECESSARY PLANS; PREPARE ALL REQUIRED DOCUMENTS AND OBTAIN REQUIRED CERTIFICATE OF INSPECTION FOR WORK AND DELIVER SAME TO THE ARCHITECT BEFORE REQUEST FOR ACCEPTANCE OF A FINAL PAYMENT FOR THE WORK PERFORMED.
3. ALL MATERIALS FURNISHED AND ALL WORK INSTALLED SHALL COMPLY WITH THE RULES AND RECOMMENDATIONS WHEN APPLICABLE OF THE LOCAL UTILITY COMPANY, THE FIRE INSURANCE RATING ORGANIZATION HAVING JURISDICTION, AND OF LOCAL AND STATE GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION, THE CONTRACTOR SHALL INCLUDE IN HIS WORK WITHOUT EXTRA COST OF ANY LABOR, MATERIALS, SERVICES APPARATUS, DRAWINGS (IN ADDITION TO CONTRACT DRAWINGS AND DOCUMENTS) IN ORDER TO COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, AND REGULATIONS, WHETHER OR NOT INDICATED AND/OR SPECIFIED.
4. ALL EQUIPMENT SHALL BE "UL" LISTED AND BE SO LABELED, NO EXCEPTIONS.
5. BEFORE SUBMITTING BIDS, THE CONTRACTOR SHALL VISIT THE SITE AND EXAMINE ALL ADJOINING EXISTING EQUIPMENT, AND SPACE CONDITIONS ON WHICH HIS WORK IS IN ANY WAY DEPENDENT FOR THE BEST WORKMANSHIP AND OPERATION ACCORDING TO THE INTENT OF THE SPECIFICATION AND DRAWINGS. CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES OR QUESTIONS PRIOR TO SUBMITTING HIS BID.
6. THE CONTRACTOR SHALL COORDINATE WORK WITH ALL OTHER TRADES NEW OR EXISTING, PRIOR TO START OF CONSTRUCTION.
7. CONTRACTOR SHALL GUARANTEE WORK TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR BEGINNING FROM THE DAY OF FINAL ACCEPTANCE OF THE WORK GUARANTEE WORK SHALL BE PERFORMED PROMPT AND AT NO ADDITIONAL COST TO OWNER. GUARANTEE SHALL APPLY TO ALL MATERIALS, EQUIPMENT, AND SERVICES.
8. GROUND SYSTEM IN ACCORDANCE WITH THE LATEST EDITION OF NATIONAL ELECTRIC CODE AND AS INDICATED ON DRAWINGS.
9. ALL ELECTRICAL CONDUCTORS, CONDUITS AND JUNCTION BOXES SHALL RUN BEHIND OR ABOVE FINISHED SURFACES, PROVIDE ACCESS PANELS WHERE REQUESTED.
10. ELECTRIC CONDUCTORS SHALL BE COPPER, CONDUCTORS NO. 10 AWG AND SMALLER SHALL BE SOLID, #8 AWG AND ABOVE STRANDED, WITH NEC TYPE THWN/THHN, RATED 600 VOLT, HEAT RESISTANT THERMOPLASTIC INSULATION AND CLEAR NYLON JACKET RATED 90 DEGREES CELSIUS UNLESS OTHERWISE NOTED.
11. MINIMUM CONDUIT SIZE SHALL BE 3/4 INCH FOR POWER AND CONTROL CIRCUITS. RACEWAY SHALL BE EMT U.O.N. ALL COLOR CODING REQUIREMENTS PER LOCAL JURISDICTION SHALL BE FOLLOWED. LABEL ALL JUNCTION BOXES WITH VOLTAGE AND CIRCUITS CONTAINED.
12. PROVIDE PULL WIRE IN ALL EMPTY CONDUITS.
13. THE CIRCUIT NUMBERS ARE FOR IDENTIFICATION PURPOSES AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTLY PHASING THE CIRCUITS IN THE PANELS. MAXIMUM OF THREE CONDUCTORS MAY BE COMBINED WITH A COMMON NEUTRAL. IF COMBINED NEUTRAL ARE USED, PROVIDE MINIMUM #10 NEUTRAL CONDUCTOR.
14. ALL CONDUCTORS SHALL BE IDENTIFIED.
15. WHERE NEW WIRING AND DEVICES ARE TO BE INSTALLED IN EXISTING WALLS, CONTRACTOR SHALL CUT, PATCH AND PAINT EXISTING WALLS AS NEEDED. PATCHING SHALL RESTORE THE WALL ITS ORIGINAL CONDITION.
16. ALL POWER OUTAGES OR OTHER WORK AFFECTING EXISTING BUILDING OPERATIONS SHALL BE COORDINATED WITH SITE FACILITIES. ALL OUTAGES SHALL BE REQUESTED IN WRITING WITH A MINIMUM TWO WEEKS NOTICE. ALL WORK ASSOCIATED WITH OUTAGES SHALL BE ASSUMED TO BE ON WEEKENDS AND EVENINGS.
17. RUN ALL FIRE ALARM WIRING IN DEDICATED CONDUITS, MINIMUM 1" CONDUIT SIZE.
18. CONTROL AND POWER WIRING SHALL BE SEPARATED. DO NOT COMBINE CONTROL AND POWER WIRING IN THE SAME CONDUITS, PATHWAYS, WIREWAYS, PULLBOXES, ETC.
19. ALL PENETRATIONS THROUGH FIRE RATED CONSTRUCTION SHALL BE FIRESTOPPED USING LISTED AND APPROVED FIRESTOP ASSEMBLIES.
20. PROVIDE DISCONNECT SWITCHES AND THERMAL MANUAL MOTOR STARTER SWITCHES AS SHOWN ON DRAWINGS OR WHERE REQUIRED BY CODE. SWITCHES SHALL BE SIZED AS REQUIRED OR INDICATED. SWITCHES SHALL BE HEAVY DUTY TYPE APPLICATIONS, AND IN NEMA 1 OR NEMA 3R ENCLOSURES AS REQUIRED. PROVIDE FUSE TYPE AND SIZE AS INDICATED OR AS REQUIRED BY THE EQUIPMENT MANUFACTURER.
21. LIGHTING FIXTURE LOCATIONS ARE DIAGRAMMATIC - EXACT LIGHTING FIXTURE LOCATIONS SHALL BE OBTAINED FROM THE ARCHITECTURAL REFLECTED CEILIGN PLANS. COORDINATE MOUNTING HEIGHTS OF LIGHT FIXTURES WITH ARCH. PLANS.
22. OUTLET LOCATIONS INDICATED ARE DIAGRAMMATIC AND SHOULD NOT BE SCALED. EXACT OUTLET LOCATIONS SHALL BE COORDINATED WITH THE LOADS THEY SERVE.
23. CONTRACTOR SHALL SEAL ALL NEW CONDUIT PENETRATIONS THROUGH THE EXISTING WALLS. CONTRACTOR SHALL PATCH AND PAINT EXISTING WALLS AS NEEDED. PATCHING SHALL RESTORE THE WALL TO ITS ORIGINAL CONDITION.

NOT FOR CONSTRUCTION

08/01/2011
ISSUED FOR
PRE-PURCHASE PACKAGE

REVISIONS

SYMBOL	DESCRIPTION	DATE	APPROVED
3	PRE-PURCHASE SUBMISSION	8/01/11	
2	65% DESIGN DOCUMENTS SUBMISSION	5/16/11	
1	30% SCHEMATIC DESIGN SUBMISSION	4/11/11	

RTKL

SUBMITTED BY RTKL	TITLE	DATE 08/01/2011
DRAWN BY: AJS	ENGINEER	DATE 08/01/2011
APPROVED BY: LG/ RB	ENGINEER	DATE 08/01/2011

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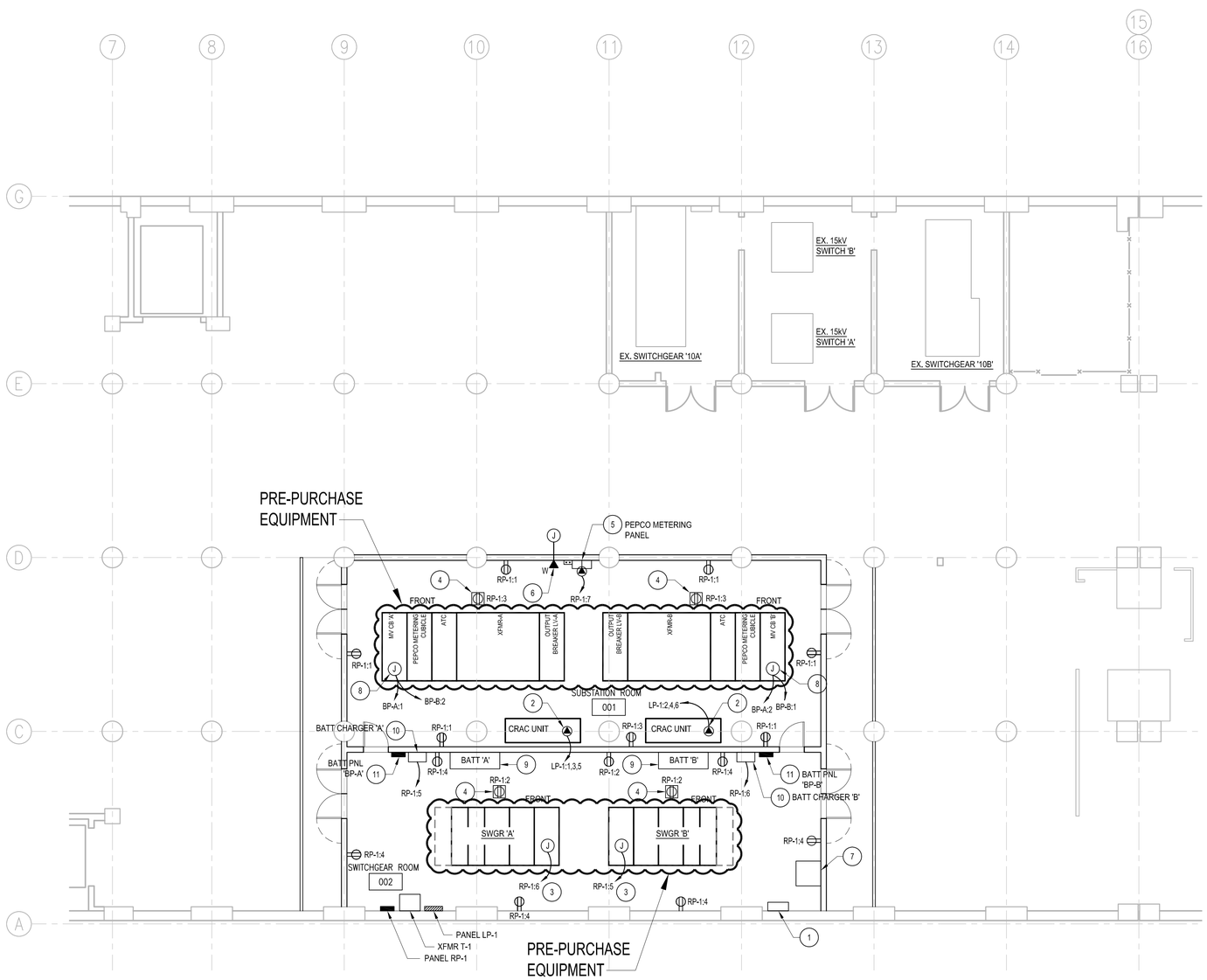
RTKL ASSOCIATES INC.
901 S. BOND ST.,
BALTIMORE, MD 21231

PROJECT NO: 00-11015.00

SEAL AREA

BUILDING D - SWITCHGEAR PROJECT

DRAWING SIZE: D (22" X 34")
DRAWING NO:
E-001
DRAWING TITLE:
LEGEND, SYMBOLS AND ABBREVIATIONS



1 ELECTRICAL POWER PLAN - BASEMENT LEVEL

SCALE: 1/8" = 1'-0"

0 2' 4' 8' 16'

SCALE: 1/8" = 1'-0"

NOT FOR CONSTRUCTION

GENERAL NOTES:

1. PROVIDE BRACING IN MEDIUM VOLTAGE SWITCHGEAR TO ALLOW FOR TILTING & LAYING OF SWITCHGEAR FROM RIGGING AND DELIVERY THROUGH RESTRICTED SPACES IN THE BUILDING. PROVIDE ONSITE ASSEMBLY OF TRANSFORMERS AS REQUIRED AND RE-LIST THE EQUIPMENT WITH UL AFTER ASSEMBLY. ALL SHIPPING SPLITS SHALL BE ABLE TO BE DELIVERED THROUGH THE BUILDING CORRIDORS AND LOADING DOCK WITH A MAXIMUM AREA OF 68" W X 81" H X 90" L. ONSITE ASSEMBLY OF EQUIPMENT SHALL BE PROVIDED BY MANUFACTURER AS REQUIRED.
2. CONTRACTOR SHALL COORDINATE EXACT MOUNTING AND FINAL LOCATION OF ELECTRICAL DEVICES WITH ALL TRADES PRIOR TO ROUGH-IN AND INSTALLATION.
3. CONTRACTOR SHALL PROVIDE COORDINATED INSTALLATION DRAWINGS AND ELEVATIONS OF EQUIPMENT FOR APPROVAL PRIOR TO INSTALLATION.
4. REFER TO FLOOR PLANS AND SINGLE LINE DIAGRAMS FOR FEEDER INFORMATION AND ASSOCIATED ELECTRICAL WORK.
5. ALL PENETRATIONS AND CUTOUTS MADE BY CONDUITS, RECEPTACLES, FIRE ALARM DEVICES, PIPING, DUCTS, ETC. IN THE CEILING, WALLS AND FLOORS SHALL BE FIRESTOPPED, SEALED AND PATCHED BY THE CONTRACTOR.
6. CONTRACTOR SHALL PROVIDE 4" HIGH CONCRETE PADS FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT. COORDINATE WITH ARCHITECTURAL DRAWINGS FOR DETAILS.
7. CONTRACTOR SHALL NOT RUN POWER AND LOW VOLTAGE CONDUCTORS IN THE SAME RACEWAY.

DRAWING NOTES:

1. PROVIDE A SPARE FUSE CABINET.
2. PROVIDE CONDUIT AND WIRING FOR POWER CONNECTION TO CRAC UNITS. COORDINATE EXACT REQUIREMENTS WITH MANUFACTURER AND SHOP DRAWINGS.
3. PROVIDE HARDWIRE 120V POWER CONNECTION FOR CONTROLS. COORDINATE EXACT REQUIREMENTS WITH THE MANUFACTURER AND APPROVED SHOP DRAWINGS.
4. PROVIDE NEMA L5-20R SURFACE MOUNTED RECEPTACLE ABOVE SWITCHGEAR, FOR DROP AND CORD REEL. REFER TO DETAIL 2 ON SHEET E-502.
5. PEPCO METERING CABINET. CONTRACTOR SHALL INSTALL METERING PANEL/ CABINET PROVIDED BY PEPCO. CONTRACTOR SHALL PROVIDE A 1-1/2" C. FROM METER CUBICLE PULL BOX IN EACH PEPCO METERING CUBICLE TO METER CABINET FOR SECONDARY METER LEADS FROM THE CURRENT AND VOLTAGE TRANSFORMERS TO THE METERING INSTRUMENTS. REFER TO PEPCO GUIDE SPECIFICATION SEGS051.
6. WALL MOUNTED TELEPHONE OUTLET 54" AFF. CONTRACTOR SHALL PROVIDE A FLUSH MOUTNED BACK BOX IN CMU WALL AND PROVIDE A 1" CONDUIT IN THE WALL TO A CEILING MOUNTED JUNCTION BOX OUTSIDE SWITCHGEAR ROOM.
7. PROVIDE A FLOOR MOUNTED CABINET FOR STORAGE OF GPT DEVICE AS REQUIRED PER PEPCO GUIDE SPECIFICATION SEGS-051.
8. PROVIDE 2#12AWG IN 3/4"C. FROM BATTERY DIST. PNL 'A' TO MV CB 'A' AND MV CB 'B' AND BATTERY DIST. PNL 'B' TO MV CB 'A' AND MV CB 'B' FOR CONTROL POWER. COORDINATE EXACT REQUIREMENTS WITH THE MANUFACTURER AND APPROVED SHOP DRAWINGS.
9. NICAD BATTERY FOR MV CB 15KV VACUUM CIRCUIT BREAKER DC CONTROL POWER.
10. 125VDC, 15A BATTERY CHARGER FOR 15kV CIRCUIT BREAKER CONTROL POWER BATTERY STRING.
11. 125VDC, 60A FUSED DISTRIBUTION PANELBOARD.

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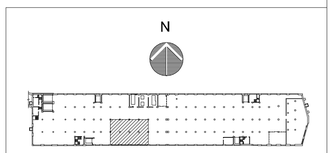

BLDG. D - BASEMENT KEY PLAN

REVISIONS		
DESCRIPTION	DATE	APPROVED
PRE-PURCHASE SUBMISSION	8/01/11	
65% DESIGN DOCUMENTS SUBMISSION	5/16/11	
30% SCHEMATIC DESIGN SUBMISSION	4/11/11	

SYMBOL	DATE
3	
2	
1	

RTKL

	TITLE	DATE
SUBMITTED BY: RTKL		08/01/2011
DRAWN BY: AJS	ENGINEER	DATE 08/01/2011
APPROVED BY: LSS (SB)	ENGINEER	DATE 08/01/2011

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SEAL AREA

BUILDING D - SWITCHGEAR PROJECT

DRAWING SIZE: D (22" X 34")

DRAWING NO:

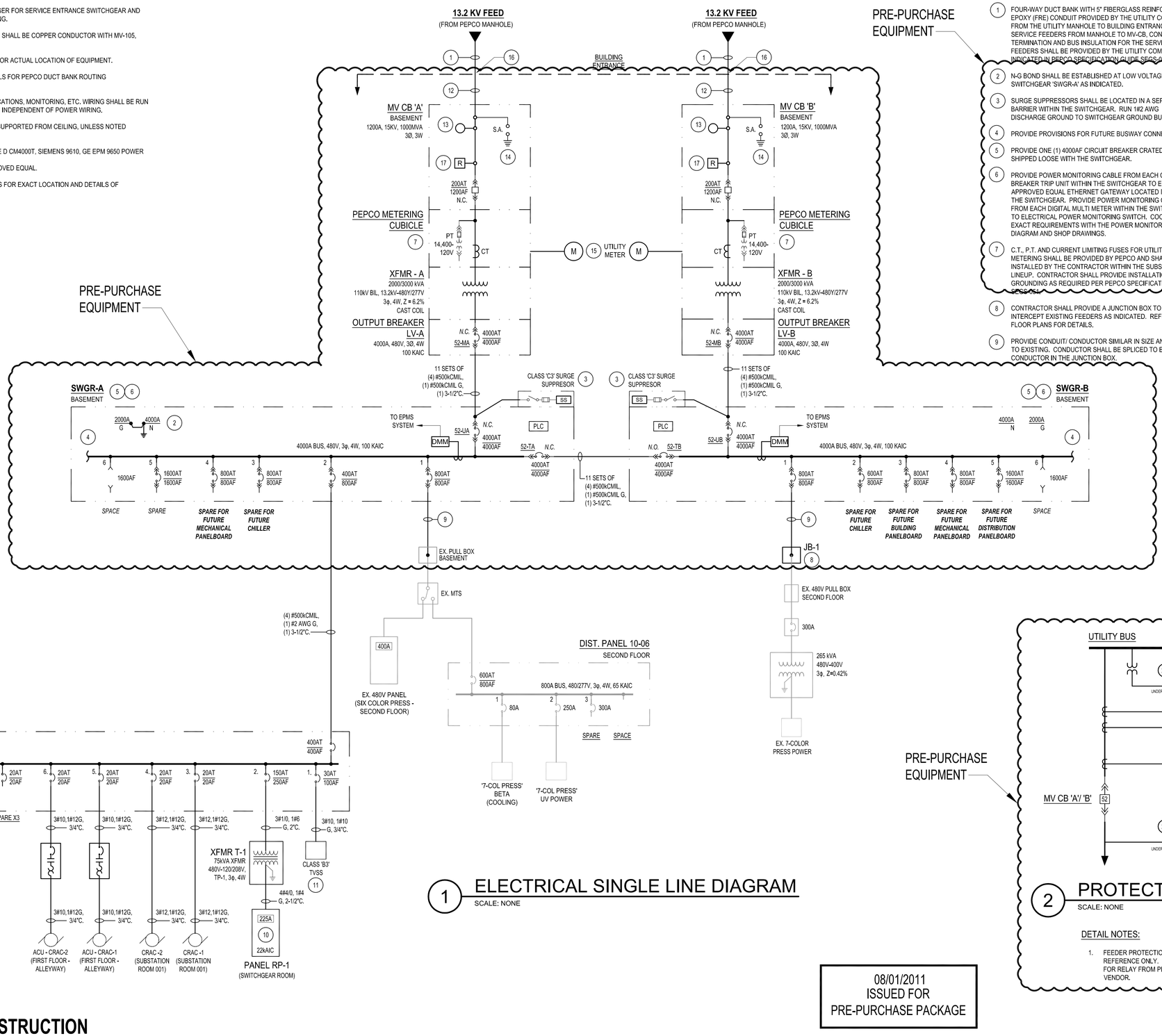
E-110

DRAWING TITLE:

ELECTRICAL POWER PLAN - BASEMENT

GENERAL NOTES:

1. REFER TO GROUNDING RISER FOR SERVICE ENTRANCE SWITCHGEAR AND TRANSFORMER GROUNDING.
2. MEDIUM VOLTAGE CABLES SHALL BE COPPER CONDUCTOR WITH MV-105, 133% EPR INSULATION.
3. REFER TO FLOOR PLANS FOR ACTUAL LOCATION OF EQUIPMENT.
4. SEE SITE PLAN AND DETAILS FOR PEPCO DUCT BANK ROUTING CONSTRUCTION DETAILS.
5. ANY CONTROL, COMMUNICATIONS, MONITORING, ETC. WIRING SHALL BE RUN IN DEDICATED RACEWAYS, INDEPENDENT OF POWER WIRING.
6. ALL CONDUITS SHALL BE SUPPORTED FROM CEILING, UNLESS NOTED OTHERWISE.
7. DMM INDICATES SQUARE D CM4000T, SIEMENS 9610, GE EPM 9650 POWER QUALITY METER OR APPROVED EQUAL.
8. REFER TO CIVIL DRAWINGS FOR EXACT LOCATION AND DETAILS OF ELECTRICAL DUCTBANK.

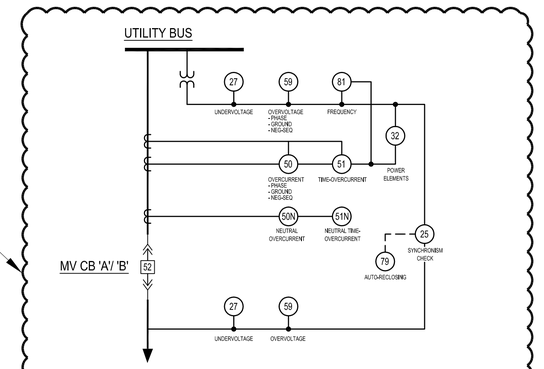


1 ELECTRICAL SINGLE LINE DIAGRAM

SCALE: NONE

DRAWING NOTES:

1. FOUR-WAY DUCT BANK WITH 5" FIBERGLASS REINFORCED EPOXY (FRE) CONDUIT PROVIDED BY THE UTILITY COMPANY FROM THE UTILITY MANHOLE TO BUILDING ENTRANCE. SERVICE FEEDERS FROM MANHOLE TO MV-CB, CONDUCTOR TERMINATION AND BUS INSULATION FOR THE SERVICE FEEDERS SHALL BE PROVIDED BY THE UTILITY COMPANY AS INDICATED IN PEPCO SPECIFICATION GUIDE SEGS-051.
2. N-G BOND SHALL BE ESTABLISHED AT LOW VOLTAGE SWITCHGEAR 'SWGR-A' AS INDICATED.
3. SURGE SUPPRESSORS SHALL BE LOCATED IN A SEPARATE BARRIER WITHIN THE SWITCHGEAR. RUN 1#2 AWG DISCHARGE GROUND TO SWITCHGEAR GROUND BUS.
4. PROVIDE PROVISIONS FOR FUTURE BUSWAY CONNECTIONS.
5. PROVIDE ONE (1) 4000AF CIRCUIT BREAKER CRATED AND SHIPPED LOOSE WITH THE SWITCHGEAR.
6. PROVIDE POWER MONITORING CABLE FROM EACH CIRCUIT BREAKER TRIP UNIT WITHIN THE SWITCHGEAR TO EGX-100 OR APPROVED EQUAL ETHERNET GATEWAY LOCATED IN WITHIN THE SWITCHGEAR. PROVIDE POWER MONITORING CABLE FROM EACH DIGITAL MULTI METER WITHIN THE SWITCHGEAR TO ELECTRICAL POWER MONITORING SWITCH. COORDINATE EXACT REQUIREMENTS WITH THE POWER MONITORING RISER DIAGRAM AND SHOP DRAWINGS.
7. C.T., P.T. AND CURRENT LIMITING FUSES FOR UTILITY METERING SHALL BE PROVIDED BY PEPCO AND SHALL BE INSTALLED BY THE CONTRACTOR WITHIN THE SUBSTATION LINEUP. CONTRACTOR SHALL PROVIDE INSTALLATION AND GROUNDING AS REQUIRED PER PEPCO SPECIFICATION GUIDE SEGS-051.
8. CONTRACTOR SHALL PROVIDE A JUNCTION BOX TO INTERCEPT EXISTING FEEDERS AS INDICATED. REFER TO FLOOR PLANS FOR DETAILS.
9. PROVIDE CONDUIT/ CONDUCTOR SIMILAR IN SIZE AND TYPE TO EXISTING. CONDUCTOR SHALL BE SPLICED TO EXISTING CONDUCTOR IN THE JUNCTION BOX.
10. PROVIDE CLASS 'A3' TVSS NEXT TO PANELBOARD. REFER TO INSTALLATION DETAIL #2 ON DRAWING E-505.
11. REFER TO INSTALLATION DETAIL #2 ON DRAWING E-505.
12. UTILITY SERVICE FEEDER ON CABLE TRAY. REFER TO ELECTRICAL FLOOR PLAN FOR CABLE TRAY ROUTING INFORMATION. SERVICE FEEDERS FROM MANHOLE TO MV-CB, CONDUCTOR TERMINATION AND BUS INSULATION FOR THE SERVICE FEEDERS SHALL BE PROVIDED BY THE UTILITY COMPANY AS INDICATED IN PEPCO SPECIFICATION GUIDE SEGS-051.
13. PROVIDE GLOW TUBES, TYPE R OR RS ON THE LINE SIDE OF EACH PHASE OF THE INCOMING FEEDER. MANUFACTURER SHALL PROVIDE VIEWING GLASS ON THE CUBICLE DOOR. COORDINATE EXACT REQUIREMENTS WITH PEPCO GUIDE SPECIFICATION SEGS051.
14. PROVIDE THREE SINGLE POLE SURGE ARRESTERS RATED FOR 15kV, 3Ø, 3W SERVICE AS REQUIRED PER PEPCO GUIDE SPECIFICATION SEGS051.
15. CONTRACTOR SHALL PROVIDE ONE (1) 1-1/2" RIGID METAL CONDUIT FROM PULL-BOX IN PEPCO METERING CUBICLE TO REMOTE MOUNTED PEPCO METERING CABINET INSTALLED ON SWITCHGEAR ROOM WALL AS REQUIRED PER PEPCO GUIDE SPECIFICATION SEGS051.
16. CONTRACTOR SHALL PROVIDED CONNECTION BETWEEN CONTRACTOR PROVIDED SLEEVES IN GPO BUILDING D WALL AND CONDUITS IN THE DUCT BANK PROVIDED BY THE UTILITY COMPANY. COORDINATE REQUIREMENTS WITH THE UTILITY COMPANY, ARCHITECTURAL AND STRUCTURAL DRAWINGS.
17. SEL-751A MULTI-FUNCTION RELAY. REFER TO DETAIL 2 ON THIS SHEET FOR ADDITIONAL INFORMATION.



2 PROTECTION WIRING DIAGRAM

SCALE: NONE

DETAIL NOTES:

1. FEEDER PROTECTION RELAY WIRING DIAGRAM IS PROVIDED FOR REFERENCE ONLY. SWITCHGEAR MANUFACTURER SHALL GET APPROVAL FOR RELAY FROM PEPCO AND COORDINATE EXACT REQUIREMENT WITH THE VENDOR.

08/01/2011
ISSUED FOR
PRE-PURCHASE PACKAGE

NOT FOR CONSTRUCTION

REVISIONS		
SYMBOL	DESCRIPTION	DATE / APPROVED
3	PRE-PURCHASE SUBMISSION	8/01/11
2	65% DESIGN DOCUMENTS SUBMISSION	5/16/11
1	30% SCHEMATIC DESIGN SUBMISSION	4/11/11

RTKL

SUBMITTED BY: RTKL	TITLE	DATE 08/01/2011
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SEAL AREA

BUILDING D - SWITCHGEAR PROJECT

DRAWING SIZE: D (22" X 34")

DRAWING NO:
E-602

DRAWING TITLE:
ELECTRICAL SINGLE LINE DIAGRAM