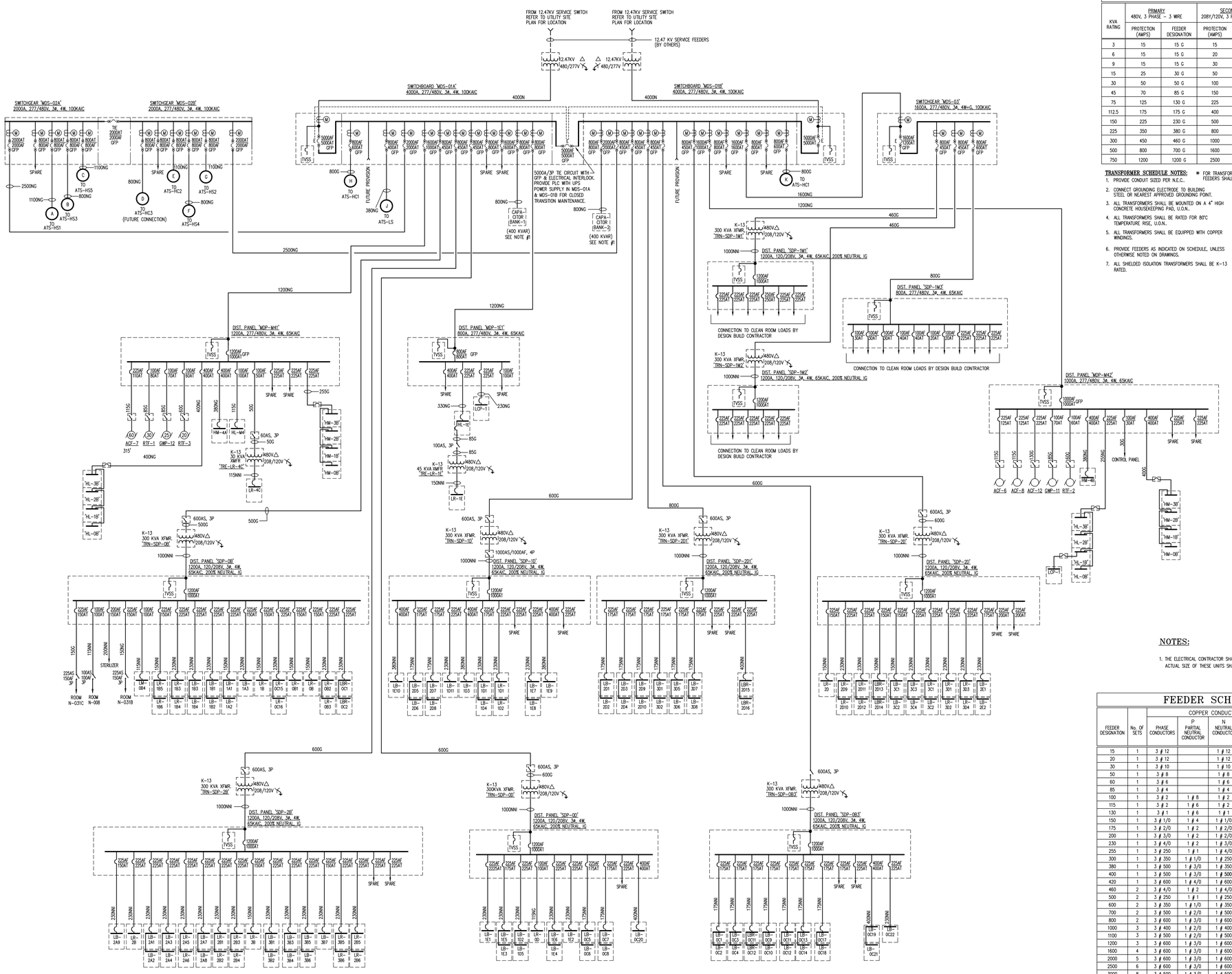



## DRY TYPE TRANSFORMER SCHEDULE

| KVA RATING | PRIMARY 480V, 3 PHASE – 3 WIRE | | SECONDARY 208Y/120V, 3 PHASE – 4 WIRE | | GROUNDING ELECTRODE |
|---|---|---|---|---|---|
| | PROTECTION (AMPS) | FEEDER DESIGNATION | PROTECTION (AMPS) | FEEDER * DESIGNATION | |
| 3 | 15 | 15 G | 15 | 15 NG | 1 # 8 |
| 6 | 15 | 15 G | 20 | 20 NG | 1 # 8 |
| 9 | 15 | 15 G | 30 | 30 NG | 1 # 8 |
| 15 | 25 | 30 G | 50 | 50 NG | 1 # 8 |
| 30 | 50 | 50 G | 100 | 115NG | 1 # 6 |
| 45 | 70 | 85 G | 150 | 150 NG | 1 # 6 |
| 75 | 125 | 130 G | 225 | 230 NG | 1 # 2 |
| 112.5 | 175 | 175 G | 400 | 380 NG | 1 # 1/0 |
| 150 | 225 | 230 G | 500 | 500 NG | 1 # 1/0 |
| 225 | 350 | 380 G | 800 | 800 NG | 1 # 2/0 |
| 300 | 450 | 460 G | 1000 | 1000 NG | 1 # 3/0 |
| 500 | 800 | 700 G | 1600 | 1600 NG | 1 # 3/0 |
| 750 | 1200 | 1200 G | 2500 | 2500 NG | 1 # 3/0 |

**TRANSFORMER SCHEDULE NOTES:**

1. PROVIDE CONDUIT SIZED PER N.E.C..
2. CONNECT GROUNDING ELECTRODE TO BUILDING STEEL OR NEAREST APPROVED GROUNDING POINT.
3. ALL TRANSFORMERS SHALL BE MOUNTED ON A 4" HIGH CONCRETE HOUSEKEEPING PAD, U.O.N..
4. ALL TRANSFORMERS SHALL BE RATED FOR 80°C TEMPERATURE RISE, U.O.N..
5. ALL TRANSFORMERS SHALL BE EQUIPPED WITH COPPER WINDINGS.
6. PROVIDE FEEDERS AS INDICATED ON SCHEDULE, UNLESS OTHERWISE NOTED ON DRAWINGS.
7. ALL SHIELDED ISOLATION TRANSFORMERS SHALL BE K-13 RATED.

* FOR TRANSFORMERS SERVING ISOLATED GROUND PANELS FEEDERS SHALL BE TYPE ___ NNI IN LIEU OF TYPE ___ NG

## NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE DYNAMIC PF CORRECTION BANK AS AN ALTERNATE. ACTUAL SIZE OF THESE UNITS SHALL BE DETERMINED WITHIN 6 MONTHS AFTER BUILDING OCCUPANCY.

## FEEDER SCHEDULE

| FEEDER DESIGNATION | No. OF SETS | COPPER CONDUCTORS (75° C) PER SET | | | | | |
|---|---|---|---|---|---|---|---|
| | | PHASE CONDUCTORS | P PARTIAL NEUTRAL CONDUCTOR | N NEUTRAL CONDUCTOR | NN OVERSIZED NEUTRAL CONDUCTOR | G GROUND CONDUCTOR | I ISOLATED & EQUIPMENT GROUND CONDUCTOR |
| 15 | 1 | 3 # 12 | | 1 # 12 | 1 # 10 | 1 # 12 | 2 # 12 |
| 20 | 1 | 3 # 12 | | 1 # 12 | 1 # 8 | 1 # 12 | 2 # 12 |
| 30 | 1 | 3 # 10 | | 1 # 10 | 1 # 6 | 1 # 10 | 2 # 10 |
| 50 | 1 | 3 # 8 | | 1 # 8 | 1 # 2 | 1 # 10 | 2 # 10 |
| 60 | 1 | 3 # 6 | | 1 # 6 | 1 # 1 | 1 # 10 | 2 # 10 |
| 85 | 1 | 3 # 4 | | 1 # 4 | 1 # 2/0 | 1 # 8 | 2 # 8 |
| 100 | 1 | 3 # 2 | 1 # 8 | 1 # 2 | 1 # 3/0 | 1 # 8 | 2 # 8 |
| 115 | 1 | 3 # 2 | 1 # 6 | 1 # 2 | 1 # 4/0 | 1 # 6 | 2 # 6 |
| 130 | 1 | 3 # 1 | 1 # 6 | 1 # 1 | 1 # 300 | 1 # 6 | 2 # 6 |
| 150 | 1 | 3 # 1/0 | 1 # 4 | 1 # 1/0 | 2 # 1/0 | 1 # 6 | 2 # 6 |
| 175 | 1 | 3 # 2/0 | 1 # 2 | 1 # 2/0 | 2 # 2/0 | 1 # 6 | 2 # 6 |
| 200 | 1 | 3 # 3/0 | 1 # 2 | 1 # 2/0 | 2 # 2/0 | 1 # 6 | 2 # 6 |
| 230 | 1 | 3 # 4/0 | 1 # 2 | 1 # 3/0 | 2 # 3/0 | 1 # 6 | 2 # 6 |
| 255 | 1 | 3 # 250 | 1 # 1 | 1 # 4/0 | 2 # 4/0 | 1 # 4 | 2 # 4 |
| 300 | 1 | 3 # 350 | 1 # 1/0 | 1 # 250 | 2 # 250 | 1 # 4 | 2 # 4 |
| 380 | 1 | 3 # 500 | 1 # 3/0 | 1 # 350 | 2 # 350 | 1 # 4 | 2 # 4 |
| 400 | 1 | 3 # 500 | 1 # 3/0 | 1 # 500 | 2 # 500 | 1 # 2 | 2 # 2 |
| 420 | 1 | 3 # 600 | 1 # 4/0 | 1 # 600 | 2 # 600 | 1 # 1 | 2 # 1 |
| 460 | 2 | 3 # 4/0 | 1 # 2 | 1 # 4/0 | 2 # 4/0 | 1 # 2 | 2 # 2 |
| 500 | 2 | 3 # 250 | 1 # 1 | 1 # 250 | 2 # 250 | 1 # 2 | 2 # 2 |
| 600 | 2 | 3 # 350 | 1 # 1/0 | 1 # 350 | 2 # 350 | 1 # 1 | 2 # 1 |
| 700 | 2 | 3 # 500 | 1 # 2/0 | 1 # 500 | 2 # 500 | 1 # 1/0 | 2 # 1/0 |
| 800 | 2 | 3 # 600 | 1 # 3/0 | 1 # 600 | 2 # 600 | 1 # 1/0 | 2 # 1/0 |
| 1000 | 3 | 3 # 400 | 1 # 2/0 | 1 # 400 | 2 # 400 | 1 # 2/0 | 2 # 2/0 |
| 1100 | 3 | 3 # 500 | 1 # 2/0 | 1 # 500 | 2 # 500 | 1 # 3/0 | 2 # 3/0 |
| 1200 | 3 | 3 # 600 | 1 # 3/0 | 1 # 600 | 2 # 600 | 1 # 3/0 | 2 # 3/0 |
| 1600 | 4 | 3 # 600 | 1 # 3/0 | 1 # 600 | 2 # 600 | 1 # 4/0 | 2 # 4/0 |
| 2000 | 5 | 3 # 600 | 1 # 3/0 | 1 # 600 | 2 # 600 | 1 # 250 | 2 # 250 |
| 2500 | 6 | 3 # 600 | 1 # 3/0 | 1 # 600 | 2 # 600 | 1 # 350 | 2 # 350 |
| 3000 | 8 | 3 # 500 | 1 # 3/0 | 1 # 500 | 2 # 500 | 1 # 400 | 2 # 400 |
| 3500 | 9 | 3 # 600 | 1 # 3/0 | 1 # 600 | 2 # 600 | 1 # 500 | 2 # 500 |
| 4000 | 10 | 3 # 600 | 1 # 3/0 | 1 # 600 | 2 # 600 | 1 # 500 | 2 # 500 |

**FEEDER SCHEDULE NOTES:**

1. PROVIDE CONDUIT SIZED PER N.E.C.
2. PROVIDE AN INDIVIDUAL CONDUIT FOR EACH SET.
3. ALL FEEDERS SHALL BE EQUIPPED WITH A GROUND CONDUCTOR.

EXAMPLES:

300 NNG – INDICATES 5#350kcmil AND 1#4 GROUND CONDUCTOR.
500 NI – INDICATES 2 SETS OF 4#250kcmil AND 2#2 GROUND CONDUCTORS (ONE OF WHICH IS AN ISOLATED GROUND CONDUCTOR) PER SET.
1000 P – INDICATES 3 SETS OF 3#400kcmil AND 1#2/0 PARTIAL NEUTRAL CONDUCTORS PER SET.

NORMAL POWER RISER DIAGRAM
SCALE : N.T.S.
1

Centennial 2010

The Pennsylvania State University
Millennium Science Complex
University Park, PA 16802

IPD/BIM Thesis Project 2010-2011

BIM*ception*
CM: Thomas Villacampa
L/E: Christopher Russel
Mech: Alexander Stough
Struc: Stephen Pfund

Building Stimulus
CM: Jonathan Brangan
L/E: Michael Lucas
Mech: Sara Pace
Struc: Paul Kuehnel

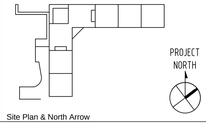
KGB-Maser
CM: David Maser
L/E: Jason Brognano
Mech: Michael Gilroy
Struc: Steven Kijak



ASSIGNMENT
Technical Report 2: L/E - 100%

DATE
October 27, 2010

LOCATION MAP:

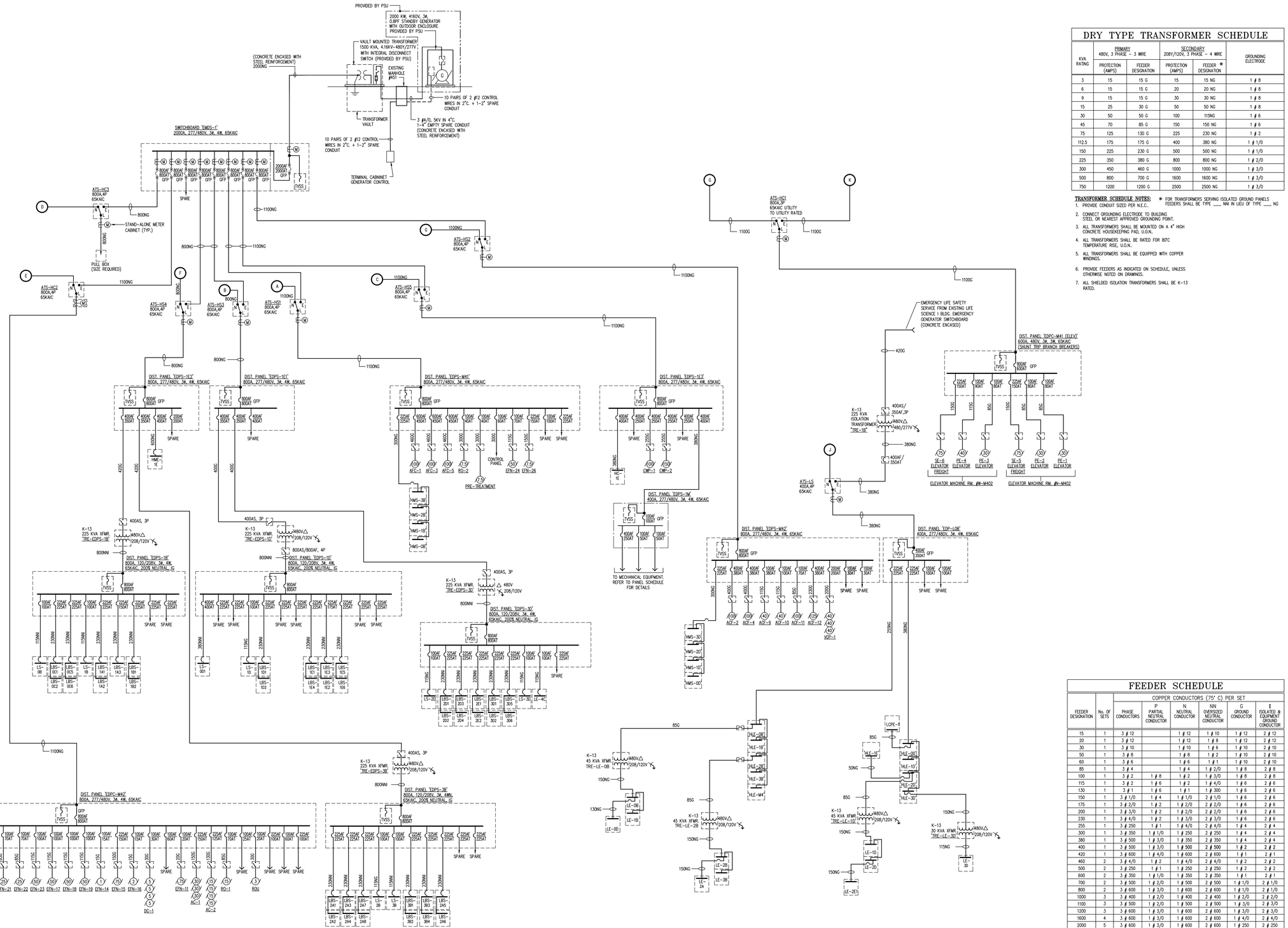



Site Plan & North Arrow

SHEET TITLE
**ELECTRICAL NORMAL POWER ONE LINE DIAGRAM**

DRAWING SCALE
N.T.S

SHEET NUMBER
E5.0A




## DRY TYPE TRANSFORMER SCHEDULE

| KVA RATING | PRIMARY 480V, 3 PHASE - 3 WIRE | | SECONDARY 208Y/120V, 3 PHASE - 4 WIRE | | GROUNDING ELECTRODE |
|---|---|---|---|---|---|
| | PROTECTION (AMPS) | FEEDER DESIGNATION | PROTECTION (AMPS) | FEEDER * DESIGNATION | |
| 3 | 15 | 15 G | 15 | 15 NG | 1 # 8 |
| 6 | 15 | 15 G | 20 | 20 NG | 1 # 8 |
| 9 | 15 | 15 G | 30 | 30 NG | 1 # 8 |
| 15 | 25 | 30 G | 50 | 50 NG | 1 # 8 |
| 30 | 50 | 50 G | 100 | 115NG | 1 # 6 |
| 45 | 70 | 85 G | 150 | 150 NG | 1 # 6 |
| 75 | 125 | 130 G | 225 | 230 NG | 1 # 2 |
| 112.5 | 175 | 175 G | 400 | 380 NG | 1 # 1/0 |
| 150 | 225 | 230 G | 500 | 500 NG | 1 # 1/0 |
| 225 | 350 | 380 G | 800 | 800 NG | 1 # 2/0 |
| 300 | 450 | 460 G | 1000 | 1000 NG | 1 # 3/0 |
| 500 | 800 | 700 G | 1600 | 1600 NG | 1 # 3/0 |
| 750 | 1200 | 1200 G | 2500 | 2500 NG | 1 # 3/0 |

**TRANSFORMER SCHEDULE NOTES:** * FOR TRANSFORMERS SERVING ISOLATED GROUND PANELS FEEDERS SHALL BE TYPE ___ NNI IN LIEU OF TYPE ___ NG

1. PROVIDE CONDUIT SIZED PER N.E.C..
2. CONNECT GROUNDING ELECTRODE TO BUILDING STEEL OR NEAREST APPROVED GROUNDING POINT.
3. ALL TRANSFORMERS SHALL BE MOUNTED ON A 4" HIGH CONCRETE HOUSEKEEPING PAD, U.O.N..
4. ALL TRANSFORMERS SHALL BE RATED FOR 80?C TEMPERATURE RISE, U.O.N..
5. ALL TRANSFORMERS SHALL BE EQUIPPED WITH COPPER WINDINGS.
6. PROVIDE FEEDERS AS INDICATED ON SCHEDULE, UNLESS OTHERWISE NOTED ON DRAWINGS.
7. ALL SHIELDED ISOLATION TRANSFORMERS SHALL BE K-13 RATED.

## FEEDER SCHEDULE

| FEEDER DESIGNATION | No. OF SETS | COPPER CONDUCTORS (75° C) PER SET | | | | | |
|---|---|---|---|---|---|---|---|
| | | PHASE CONDUCTORS | P PARTIAL NEUTRAL CONDUCTOR | N NEUTRAL CONDUCTOR | NN OVERSIZED NEUTRAL CONDUCTOR | G GROUND CONDUCTOR | I ISOLATED & EQUIPMENT GROUND CONDUCTOR |
| 15 | 1 | 3 # 12 | | 1 # 12 | 1 # 10 | 1 # 12 | 2 # 12 |
| 20 | 1 | 3 # 12 | | 1 # 12 | 1 # 8 | 1 # 12 | 2 # 12 |
| 30 | 1 | 3 # 10 | | 1 # 10 | 1 # 6 | 1 # 10 | 2 # 10 |
| 50 | 1 | 3 # 8 | | 1 # 8 | 1 # 2 | 1 # 10 | 2 # 10 |
| 60 | 1 | 3 # 6 | | 1 # 6 | 1 # 1 | 1 # 10 | 2 # 10 |
| 85 | 1 | 3 # 4 | | 1 # 4 | 1 # 2/0 | 1 # 8 | 2 # 8 |
| 100 | 1 | 3 # 2 | 1 # 8 | 1 # 2 | 1 # 3/0 | 1 # 8 | 2 # 8 |
| 115 | 1 | 3 # 2 | 1 # 6 | 1 # 2 | 1 # 4/0 | 1 # 6 | 2 # 6 |
| 130 | 1 | 3 # 1 | 1 # 6 | 1 # 1 | 1 # 300 | 1 # 6 | 2 # 6 |
| 150 | 1 | 3 # 1/0 | 1 # 4 | 1 # 1/0 | 2 # 1/0 | 1 # 6 | 2 # 6 |
| 175 | 1 | 3 # 2/0 | 1 # 2 | 1 # 2/0 | 2 # 2/0 | 1 # 6 | 2 # 6 |
| 200 | 1 | 3 # 3/0 | 1 # 2 | 1 # 2/0 | 2 # 2/0 | 1 # 6 | 2 # 6 |
| 230 | 1 | 3 # 4/0 | 1 # 2 | 1 # 3/0 | 2 # 3/0 | 1 # 6 | 2 # 6 |
| 255 | 1 | 3 # 250 | 1 # 1 | 1 # 4/0 | 2 # 4/0 | 1 # 4 | 2 # 4 |
| 300 | 1 | 3 # 350 | 1 # 1/0 | 1 # 250 | 2 # 250 | 1 # 4 | 2 # 4 |
| 380 | 1 | 3 # 500 | 1 # 3/0 | 1 # 350 | 2 # 350 | 1 # 4 | 2 # 4 |
| 400 | 1 | 3 # 500 | 1 # 3/0 | 1 # 500 | 2 # 500 | 1 # 2 | 2 # 2 |
| 420 | 1 | 3 # 600 | 1 # 4/0 | 1 # 600 | 2 # 600 | 1 # 1 | 2 # 1 |
| 460 | 2 | 3 # 4/0 | 1 # 2 | 1 # 4/0 | 2 # 4/0 | 1 # 2 | 2 # 2 |
| 500 | 2 | 3 # 250 | 1 # 1 | 1 # 250 | 2 # 250 | 1 # 2 | 2 # 2 |
| 600 | 2 | 3 # 350 | 1 # 1/0 | 1 # 350 | 2 # 350 | 1 # 1 | 2 # 1 |
| 700 | 2 | 3 # 500 | 1 # 2/0 | 1 # 500 | 2 # 500 | 1 # 1/0 | 2 # 1/0 |
| 800 | 2 | 3 # 600 | 1 # 3/0 | 1 # 600 | 2 # 600 | 1 # 1/0 | 2 # 1/0 |
| 1000 | 3 | 3 # 400 | 1 # 2/0 | 1 # 400 | 2 # 400 | 1 # 3/0 | 2 # 2/0 |
| 1100 | 3 | 3 # 500 | 1 # 2/0 | 1 # 500 | 2 # 500 | 1 # 3/0 | 2 # 3/0 |
| 1200 | 3 | 3 # 600 | 1 # 3/0 | 1 # 600 | 2 # 600 | 1 # 3/0 | 2 # 3/0 |
| 1600 | 4 | 3 # 600 | 1 # 3/0 | 1 # 600 | 2 # 600 | 1 # 4/0 | 2 # 4/0 |
| 2000 | 5 | 3 # 600 | 1 # 3/0 | 1 # 600 | 2 # 600 | 1 # 250 | 2 # 250 |
| 2500 | 6 | 3 # 600 | 1 # 3/0 | 1 # 600 | 2 # 600 | 1 # 350 | 2 # 350 |
| 3000 | 8 | 3 # 500 | 1 # 3/0 | 1 # 500 | 2 # 500 | 1 # 400 | 2 # 400 |
| 3500 | 9 | 3 # 600 | 1 # 3/0 | 1 # 600 | 2 # 600 | 1 # 500 | 2 # 500 |
| 4000 | 10 | 3 # 600 | 1 # 3/0 | 1 # 600 | 2 # 600 | 1 # 500 | 2 # 500 |

**FEEDER SCHEDULE NOTES:**

1. PROVIDE CONDUIT SIZED PER N.E.C.
2. PROVIDE AN INDIVIDUAL CONDUIT FOR EACH SET.
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EXAMPLES:

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EMERGENCY POWER RISER DIAGRAM | 1
SCALE : N.T.S.


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BIM*ception*
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Mech: Sara Pace
Struc: Paul Kuehnel

KGB-Maser
CM: David Maser
L/E: Jason Brognano
Mech: Michael Gilroy
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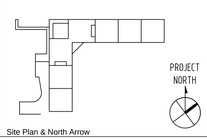
ASSIGNMENT
Technical Report 2: L/E - 100%

DATE
October 27, 2010

LOCATION MAP:




Site Plan & North Arrow

SHEET TITLE

**ELECTRICAL EMERGERNCY POWER ONE LINE DIAGRAM**

DRAWING SCALE
N.T.S

SHEET NUMBER
E5.0B