

~~4.18.2 Recommendations~~

~~The existing exterior service entrance is new and in good condition and serves the needs of the station.~~

~~Refurbishing (Option1) or replacing (Option 2) the existing ITE breakers does not resolve the lack of adequate clearance in front of the electrical equipment. Accordingly we recommend that the existing three ITE breakers and the remaining distribution be removed and that a new 600 Amp CDP type panel be installed in the location shown on Figure 17-3. The single line diagram of the refurbished station is shown on Figure 17-2.~~

~~4.18.3 Capital Cost Estimate~~

~~The various cost estimate options for this station is summarized in Table 1 with a detailed breakdown shown in Tables 18-1 to 18-3. The recommended option to upgrade this station would be Option #3 with a new voltage monitoring unit at a cost of \$44,200.~~

4.19 ROLAND FLOOD PUMP STATION

4.19.1 General

Roland flood pump station consists of two pumps at 150HP each. The electrical installation with the exception of the service entrance equipment is original, dating from the 1950's.

This station contains an old Winnipeg Hydro service vault located in the southwest corner of the building. 5kV Manitoba Hydro service feeders entering into the old Winnipeg Hydro vault and terminates to a bank of floor mounted transformers. This vault contains three 2400V to 600V, 150kVA single phase transformers connected in a wye/delta configuration. The secondary side of the transformers terminate to a 600V delta bus. The delta bus provides individual 600V, 3 ph, 3-wire services to each of the two flood pump feeder breakers. (Refer to Photographs 18-3 to 18-7).

The two flood pump feeder breakers are mounted on the stations west interior wall. There are no ITE feeder breakers in this station. The two resistance type reduced voltage starters (RVS) are also original and are floor mounted up against the west wall next to their corresponding feeder breaker. (Refer to Photograph 18-5).

In addition, this station contains a 120/240V Manitoba Hydro service. This service is overhead and enters the building on the northeast corner and connects to a 200A, 40 circuit, 120/240V distribution panel c/w a 200A main breaker. There is insufficient clearance in front of the panel to meet CEC requirements for 1m clear working space in front of the equipment. (Refer to Photograph 18-11).

This distribution contains voltage-monitoring equipment. The power monitoring equipment consists of an ABB model SSAC-WVM011AL relay.

4.19.2 Recommendations

The existing interior service entrance equipment configuration has been phased out from a number of other stations. This station is one of a select few that still contains this type of installation. We recommend that the existing service equipment be removing and replaced with an exterior Hydro owned pad mounted transformer.

For the 600V distribution equipment, refurbishing (Option1) or replacing (Option 2) the existing ITE breakers would involve retaining the 600V delta bus. Accordingly we recommend that the existing three feeder breakers be removed and that a new 600 Amp CDP type panel c/w a main breaker and Hydro CT cabinet sections. Due to the complexity of upgrading the Hydro service and the stations 600V distribution equipment, we have provided two options. Figures 18-3a and 18-3b show the different installation location options for all the equipment. The corresponding single line diagram options of the refurbished station are shown on Figure 18-2a to 18-2c.

This station currently has a second additional service. We recommend that at this time the second 120/240V service be removed and relocated the loads to the new 600V service via a new 15kVA transformer.

4.19.3 Capital Cost Estimate

The various cost estimate options for this station is summarized in Table 1 with a detailed breakdown shown in Tables 19-1 to 19-3. The recommended option to upgrade this station would be Option #3 with a new voltage monitoring unit at a cost of **\$126,200.00**.

~~4.20 SELKIRK FLOOD PUMP STATION~~

~~4.20.1 General~~

~~Selkirk flood pump station consists of four pumps with varying capacities. The motor sizes are two (2) at 75HP and two (2) at 175HP each. The electrical installation with the exception of the service entrance equipment is original, dating from the 1950's.~~

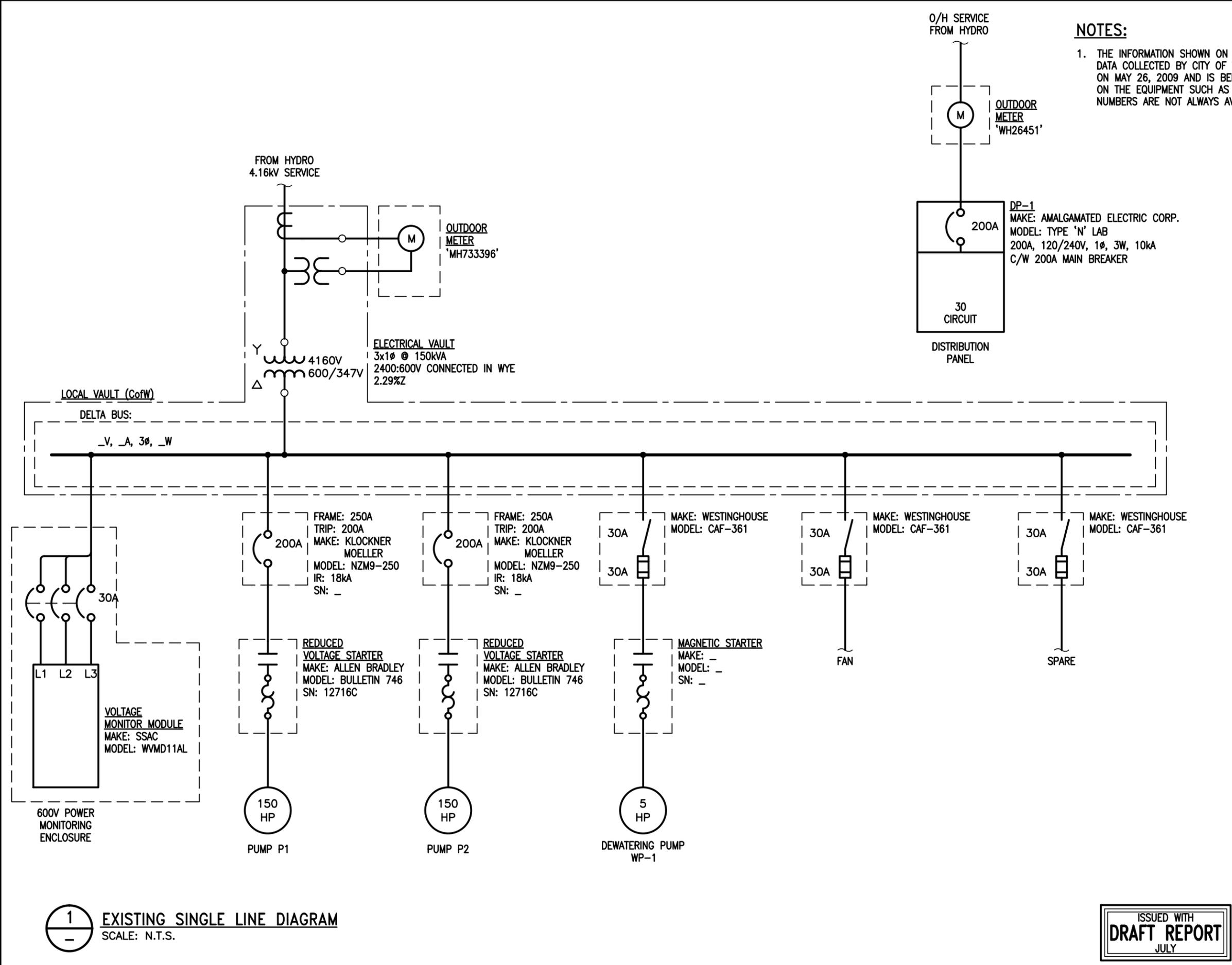
~~A Manitoba Hydro owned, 500 KVA pad mount transformer with a 600 V, 3 ph 4 wire service, serves the building. There are no 347 V single phase loads so the neutral is only brought into the service entrance equipment.~~

~~The service entrance equipment is mounted outdoors on the exterior of the east wall and consists of an 800 Amp ABB main breaker. From the main breaker two runs of 3 conductors extend into the building and terminate on an 800A splitter. (Refer to Photograph 19-5).~~

~~From the splitter individual feeders feed the four original ITE breakers located on the interior east wall. The undervoltage trip mechanism of the ITE circuit breakers has been defeated. ITE feeder breaker for pump P-16 was refurbished by ABB in April of 2008. This station contains voltage monitoring equipment consisting of an ABB model SSAC WVM011AL relay. This relay has been installed to replace the undervoltage trip mechanism.~~

~~The four resistance type reduced voltage starters (RVS) are also original with two of the units floor mounted in the middle of the station and the other two walls mounted below their corresponding ITE feeder breaker. Even though it could be said that the working clearance in~~

File Name: P:\Projects\2009\09-0107-01\Draw\Elec\09-0107-01_F18.dwg - Tab: 1 X SLD Plotted By: B0ige 06/24/2013 [Mon 3:27pm]
 24x36 - PLOT SCALE: 1:1 11x17 - PLOT SCALE: 1:2



NOTES:

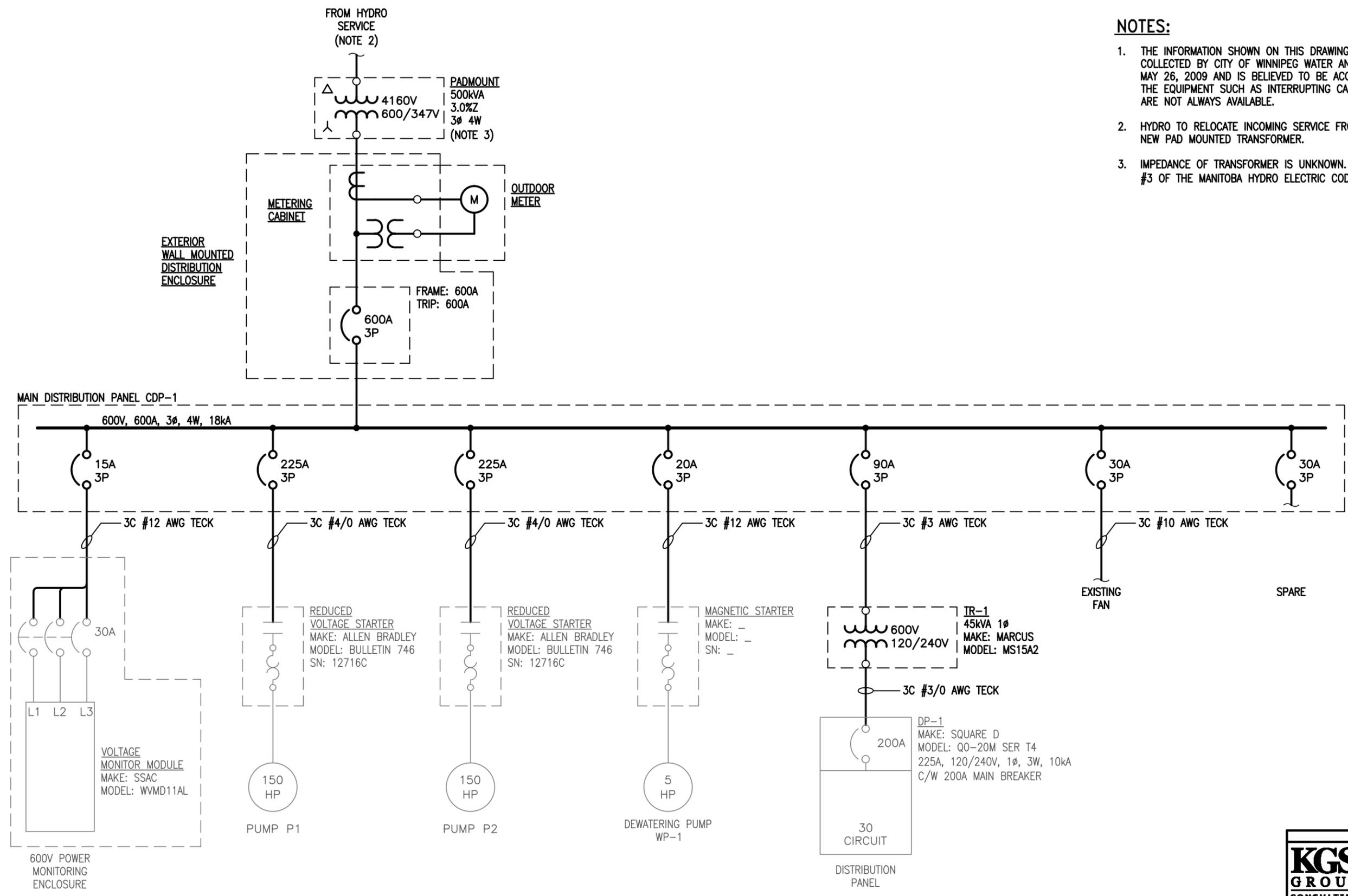
1. THE INFORMATION SHOWN ON THIS DRAWING HAS BEEN OBTAINED FROM DATA COLLECTED BY CITY OF WINNIPEG WATER AND WASTE AND KGS GROUP ON MAY 26, 2009 AND IS BELIEVED TO BE ACCURATE. SOME INFORMATION ON THE EQUIPMENT SUCH AS INTERRUPTING CAPABILITIES AND MODEL NUMBERS ARE NOT ALWAYS AVAILABLE.

1
EXISTING SINGLE LINE DIAGRAM
 SCALE: N.T.S.

ISSUED WITH
DRAFT REPORT
 JULY

KGS GROUP CONSULTING ENGINEERS	THE CITY OF WINNIPEG WATER & WASTE DEPARTMENT
	ROLAND FLOOD PUMP STATION
ELECTRICAL EXISTING SINGLE LINE DIAGRAM	
JUNE/2010	FIGURE 18-1

File Name: P:\Projects\2009\09-0107-01\09-0107-01_F18.dwg - Tab: 2A P SLD Plotted By: B0ige 06/24/2013 [Mon 3:27pm]
 24x36 - PLOT SCALE: 1:1 11x17 - PLOT SCALE: 1:2



NOTES:

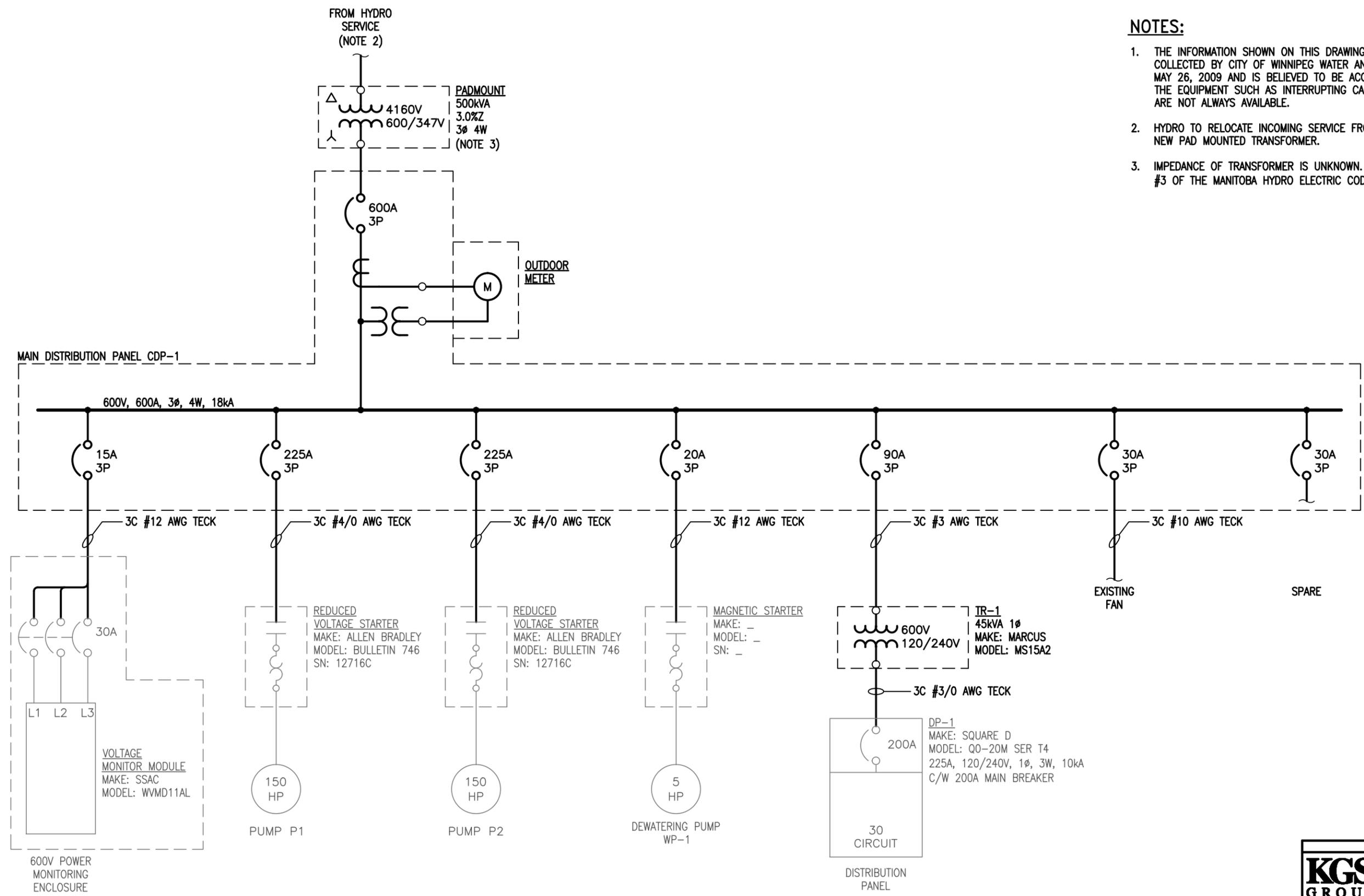
1. THE INFORMATION SHOWN ON THIS DRAWING HAS BEEN OBTAINED FROM DATA COLLECTED BY CITY OF WINNIPEG WATER AND WASTE AND KGS GROUP ON MAY 26, 2009 AND IS BELIEVED TO BE ACCURATE. SOME INFORMATION ON THE EQUIPMENT SUCH AS INTERRUPTING CAPABILITIES AND MODEL NUMBERS ARE NOT ALWAYS AVAILABLE.
2. HYDRO TO RELOCATE INCOMING SERVICE FROM THE EXISTING VAULT TO A NEW PAD MOUNTED TRANSFORMER.
3. IMPEDANCE OF TRANSFORMER IS UNKNOWN. VALUE SHOWN IS FROM TABLE #3 OF THE MANITOBA HYDRO ELECTRIC CODE 10th EDITION, JUNE 2009.

1
PROPOSED SINGLE LINE DIAGRAM - OPTION 'A'
 SCALE: N.T.S.

ISSUED WITH
DRAFT REPORT
 JULY

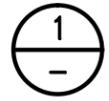
KGS GROUP CONSULTING ENGINEERS	 THE CITY OF WINNIPEG WATER & WASTE DEPARTMENT
ROLAND FLOOD PUMP STATION	
ELECTRICAL PROPOSED SINGLE LINE DIAGRAM - OPTION 'A'	
JULY/2010	FIGURE 18-2A

File Name: P:\Projects\2009\09-0107-01\09-0107-01-F18.dwg - Tab: 2B P SLD Plotted By: B0ige 06/24/2013 [Mon 3:27pm]
 24x36 - PLOT SCALE: 1:1 11x17 - PLOT SCALE: 1:2



NOTES:

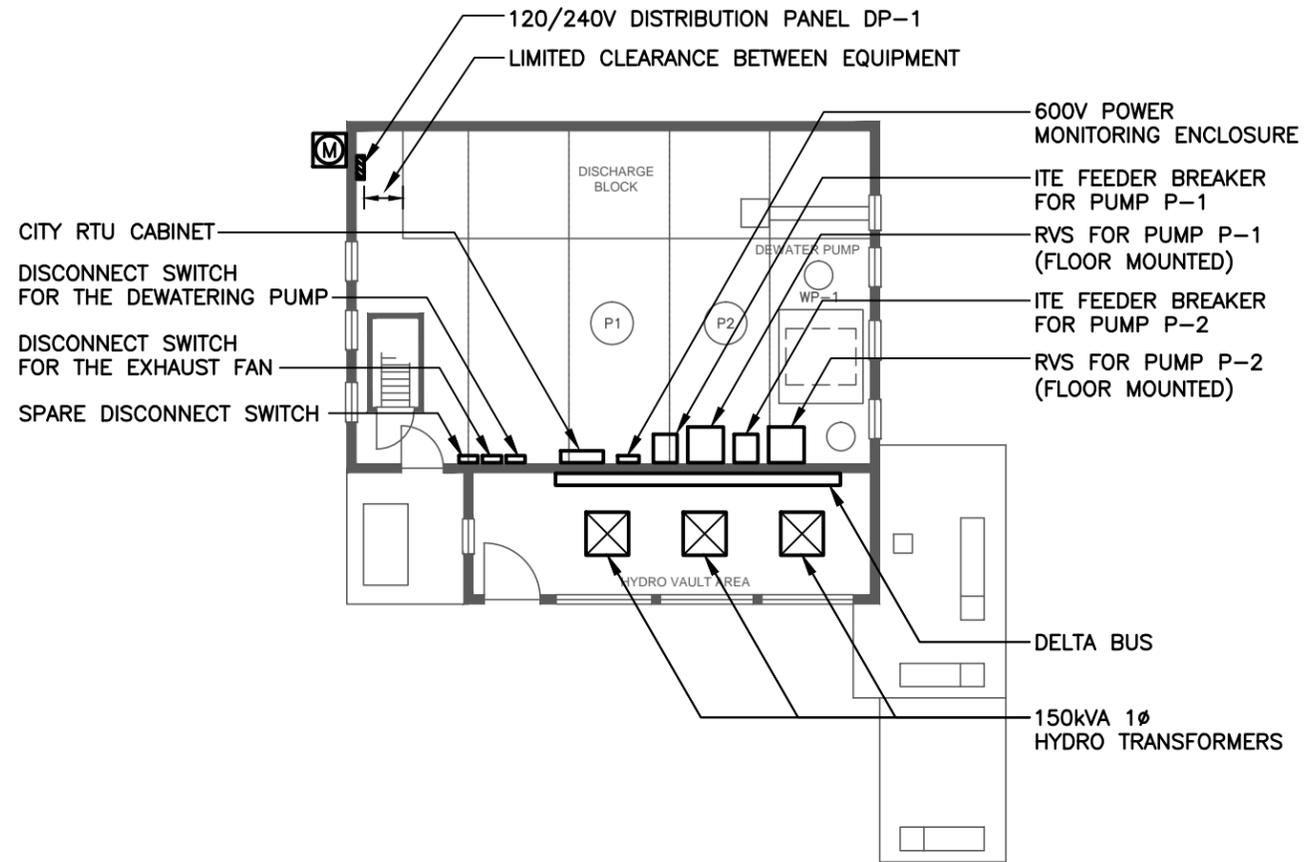
1. THE INFORMATION SHOWN ON THIS DRAWING HAS BEEN OBTAINED FROM DATA COLLECTED BY CITY OF WINNIPEG WATER AND WASTE AND KGS GROUP ON MAY 26, 2009 AND IS BELIEVED TO BE ACCURATE. SOME INFORMATION ON THE EQUIPMENT SUCH AS INTERRUPTING CAPABILITIES AND MODEL NUMBERS ARE NOT ALWAYS AVAILABLE.
2. HYDRO TO RELOCATE INCOMING SERVICE FROM THE EXISTING VAULT TO A NEW PAD MOUNTED TRANSFORMER.
3. IMPEDANCE OF TRANSFORMER IS UNKNOWN. VALUE SHOWN IS FROM TABLE #3 OF THE MANITOBA HYDRO ELECTRIC CODE 10th EDITION, JUNE 2009.


PROPOSED SINGLE LINE DIAGRAM - OPTION 'B'
 SCALE: N.T.S.

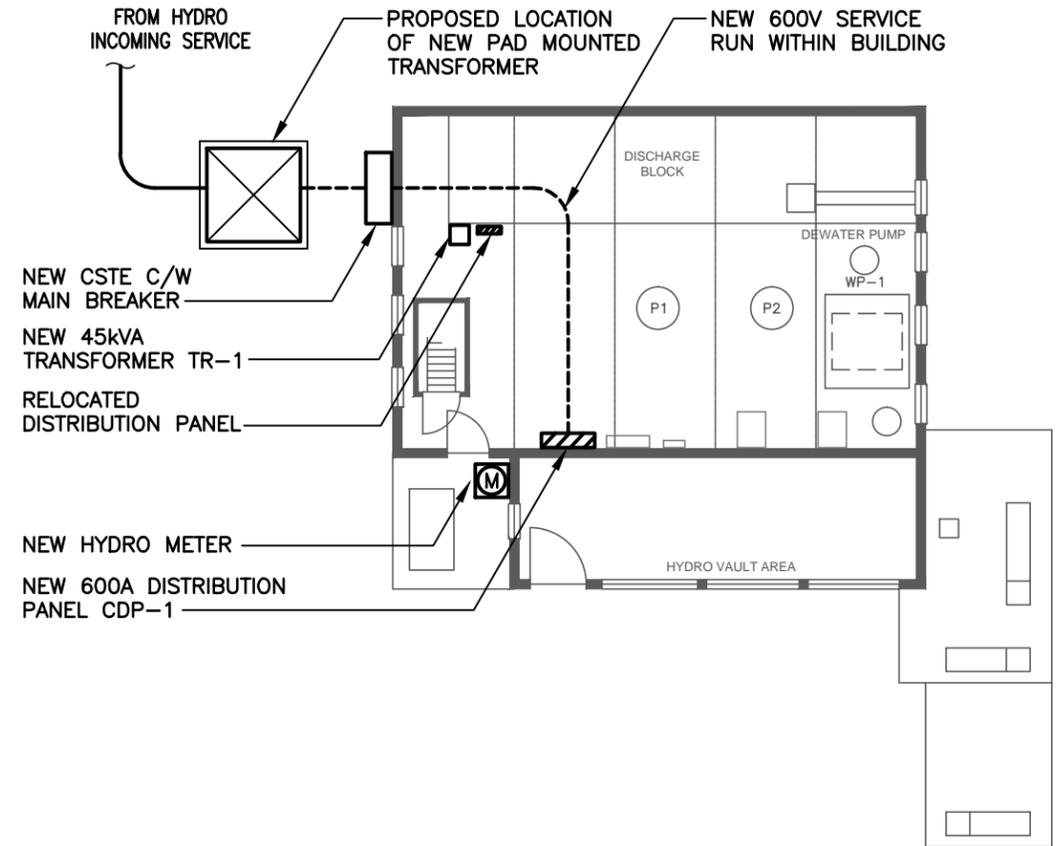
ISSUED WITH
DRAFT REPORT
 JULY

	
	ROLAND FLOOD PUMP STATION
ELECTRICAL PROPOSED SINGLE LINE DIAGRAM - OPTION 'B'	
JULY/2010	FIGURE 18-2B

File Name: P:\Projects\2009\09-0107-01\09-0107-01_Elec\09-0107-01_F18.dwg - Tab: 3A PLANS Plotted By: B0ige 06/24/2013 [Mon 3:27pm]
 24x36 - PLOT SCALE: 1:117X17 - PLOT SCALE: 1:2



1
 EXISTING PLAN
 1 0 1 2 3 4 5m
 Scale: 1:150 Metric



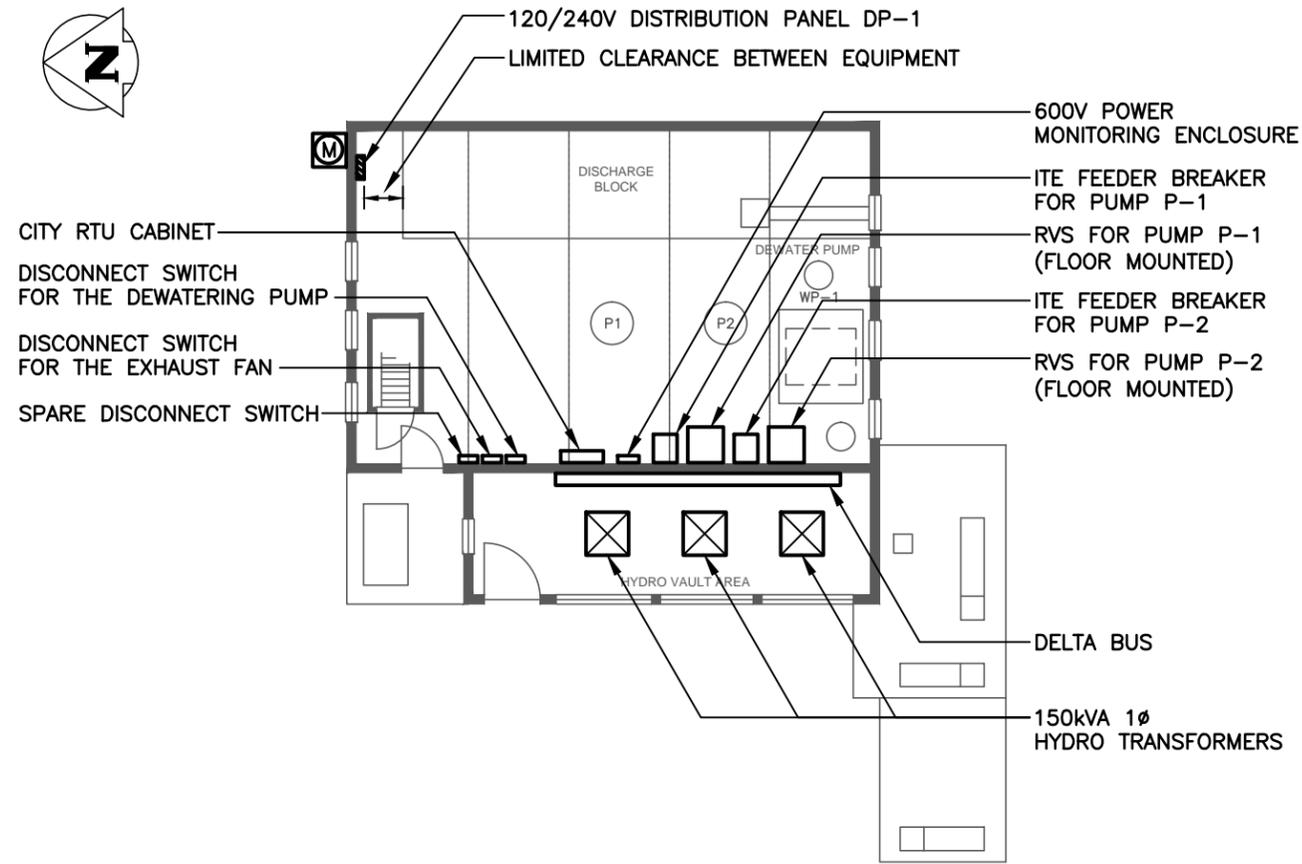
2
 PROPOSED PLAN - OPTION 'A'
 1 0 1 2 3 4 5m
 Scale: 1:150 Metric

NOTES:
 1. -

ISSUED WITH
DRAFT REPORT
 JULY

KGS GROUP CONSULTING ENGINEERS	
ROLAND FLOOD PUMP STATION	
ELECTRICAL EXISTING AND PROPOSED OPTION 'A' PLANS	
JULY/2010	FIGURE 18-3A

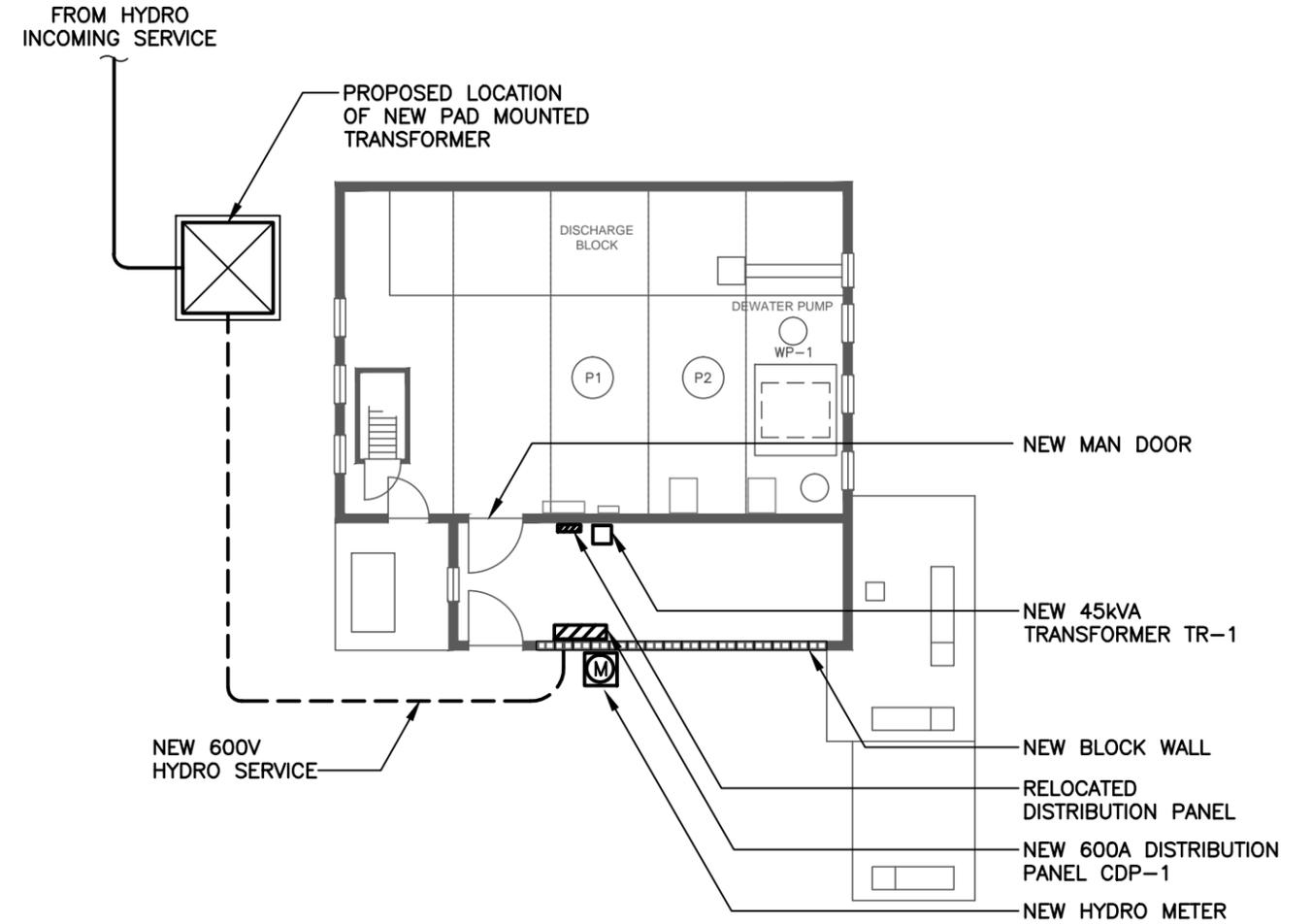
File Name: P:\Projects\2009\09-0107-01\Draw\Elec\09-0107-01_F18.dwg - Tab: 3B PLANS Plotted By: B01ge 06/24/2013 [Mon 3:28pm]
 24x36 - PLOT SCALE: 1:1 11x17 - PLOT SCALE: 1:2



1
 EXISTING PLAN
 1 0 1 2 3 4 5m
 Scale: 1:150 Metric

NOTES:

1. -



3
 PROPOSED PLAN - OPTION 'B'
 1 0 1 2 3 4 5m
 Scale: 1:150 Metric

KGS GROUP CONSULTING ENGINEERS	
	THE CITY OF WINNIPEG WATER & WASTE DEPARTMENT

ROLAND FLOOD PUMP STATION

ELECTRICAL EXISTING AND PROPOSED OPTION 'B' PLANS

ISSUED WITH
DRAFT REPORT
 JULY

JULY/2010 FIGURE 18-3B -



Photograph: 18-1
Description: Northeast elevation of the pumping station
Date: May 26, 2009



Photograph: 18-2
Description: North elevation of the pumping station
Date: May 26, 2009



Photograph: 18-3
Description: West elevation of the pumping station
Date: May 26, 2009



Photograph: 18-4
Description: Southeast elevation of the pumping station
Date: May 26, 2009



Photograph: 18-5
Description: 2400V/600V, 150kVA single phase transformers within the vault.
Date: May 26, 2009



Photograph: 18-6
Description: 2400V/600V, 150kVA single phase transformers connected to the delta bus.
Date: May 26, 2009



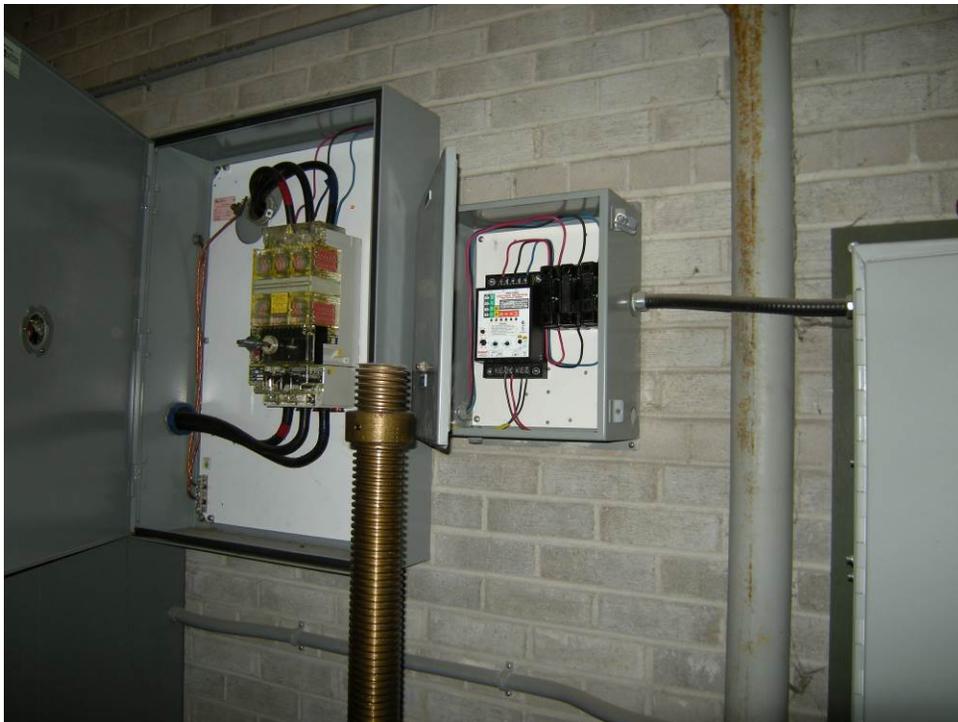
Photograph: 18-7
Description: Pump feeder breaker, RVS and RTU cabinet mounted on the stations west wall
Date: May 26, 2009



Photograph: 18-8
Description: View of the southeast portion of the station
Date: May 26, 2009



Photograph: 18-9
Description: Station's RTU cabinet mounted on the west wall
Date: May 26, 2009



Photograph: 18-10
Description: Pump feeder breaker and 600V power monitoring cabinet mounted on west wall
Date: May 26, 2009



Photograph: 18-11
Description: RVS cabinet mounted on west wall
Date: May 26, 2009



Photograph: 18-12
Description: Pump feeder breaker in the enclosure
Date: May 26, 2009



Photograph: 18-13
Description: 120/240V distribution mounted on the north wall
Date: May 26, 2009



Photograph: 18-14
Description: 120/240V distribution panel
Date: May 26, 2009



Photograph: 18-15
Description: 600V disconnect switches mounted on the west wall
Date: May 26, 2009