

CONTROL NARRATIVE - PLC	
<b>CLIENT / JOB INFORMATION:</b>	
WSP JOB #	151-07180-00
CLIENT NAME	PWGSC & PARKS CANADA
SITE (LOCATION)	BLACK RAPIDS LOCK #13
SCOPE	HYDRAULIC SYSTEM REPLACEMENT - DETAILED DESIGN (PHASE II)
AUTHOR / DATE / REVISION	H.CHANT / 2015-07-22 / ISSUE FOR TENDER (Preliminary - Not for Construction)
<b>SPECIFICATION</b>	
<b>CONDITION</b>	<b>ACTION</b>
(Upper Keyswitch OR Lower Keyswitch) AND NOT Low-Low Level AND NOT Oil Temperature High	Pump ON
[[Upper Sluice Valve East Closed AND Upper Sluice Valve West Closed AND Upper Gates Mitered] OR Override] AND Lower Keyswitch AND NOT Upper Lock Control Enabled	<b>Lower Lock Control Enabled</b>
Override AND Lower Keyswitch	Lower Override Indicator Light
Lower Lock Control Enabled AND NOT Fault	Lower Lock Ready Indicator Light
Close Lower Gate East AND NOT Lower Gate East Closed AND Lower Lock Control Enabled	Close Lower Gate East Solenoid
Close Lower Gate West AND NOT Lower Gate West Closed AND Lower Lock Control Enabled	Close Lower Gate West Solenoid
Open Lower Gate East AND NOT Lower Gate East Opened AND Lower Lock Control Enabled	Open Lower Gate East Solenoid
Open Lower Gate West AND NOT Lower Gate West Opened AND Lower Lock Control Enabled	Open Lower Gate West Solenoid
Open Lower Sluice Valve East AND NOT Lower Sluice Valve East Opened AND Lower Lock Control Enabled	Open Lower Sluice Valve East Solenoid
Open Lower Sluice Valve West AND NOT Lower Sluice Valve West Opened AND Lower Lock Control Enabled	Open Lower Sluice Valve West Solenoid
Close Lower Sluice Valve East AND NOT Lower Sluice Valve East Closed AND Lower Lock Control Enabled	Close Lower Sluice Valve East Solenoid
Close Lower Sluice Valve West AND NOT Lower Sluice Valve West Closed AND Lower Lock Control Enabled	Close Lower Sluice Valve West Solenoid
[[Lower Sluice Valve East Closed AND Lower Sluice Valve West Closed AND Lower Gates Mitered] OR Override] AND Upper Keyswitch AND NOT Lower Lock Control Enabled	<b>Upper Lock Control Enabled</b>
Override AND Upper Keyswitch	Upper Override Indicator Light
Upper Lock Control Enabled AND NOT Fault	Upper Lock Ready Indicator Light
Close Upper Gate East AND NOT Upper Gate East Closed AND Upper Lock Control Enabled	Close Upper Gate East Solenoid
Close Upper Gate West AND NOT Upper Gate West Closed AND Upper Lock Control Enabled	Close Upper Gate West Solenoid
Open Upper Gate East AND NOT Upper Gate East Opened AND Upper Lock Control Enabled	Open Upper Gate East Solenoid
Open Upper Gate West AND NOT Upper Gate West Opened AND Upper Lock Control Enabled	Open Upper Gate West Solenoid
Open Upper Sluice Valve East AND NOT Upper Sluice Valve East Opened AND Upper Lock Control Enabled	Open Upper Sluice Valve East Solenoid
Open Upper Sluice Valve West AND NOT Upper Sluice Valve West Opened AND Upper Lock Control Enabled	Open Upper Sluice Valve West Solenoid
Close Upper Sluice Valve East AND NOT Upper Sluice Valve East Closed AND Upper Lock Control Enabled	Close Upper Sluice Valve East Solenoid
Close Upper Sluice Valve West AND NOT Upper Sluice Valve West Closed AND Upper Lock Control Enabled	Close Upper Sluice Valve West Solenoid
[Close Lower Gate East Solenoid OR Close Lower Gate West Solenoid OR Open Lower Gate East Solenoid OR Open Lower Gate West Solenoid OR Open Lower Sluice Valve East Solenoid OR Close Lower Sluice Valve East Solenoid OR Close Lower Sluice Valve West Solenoid OR Close Upper Gate East Solenoid OR Close Upper Gate West Solenoid OR Open Upper Gate East Solenoid OR Open Upper Gate West Solenoid OR Open Upper Sluice Valve East Solenoid OR Open Upper Sluice Valve West Solenoid OR Close Upper Sluice Valve East Solenoid OR Close Upper Sluice Valve West Solenoid]	Unload Valve

This control narrative is intended to be used by the contractor (with schematics, and other applicable documentation) to create the control (ladder) programming. The contractor is required to ensure that the function of the final system meets all requirements of this narrative. Additionally, the ladder program must contain embedded comments to facilitate future trouble-shooting and/or functionality changes. Embedded comments must include (at a minimum):  
 1. descriptions for all I/O points and internal addresses (which must match descriptions on drawings).  
 2. Functional control description for each rung.  
 3. Embedded comments to be in English language.

The intent of the operation key is to ensure that only trained personnel can operate the hydraulics system. In the case that the operator must leave a control panel unattended while it is operating, the key must be left at the panel. (This statement is included to meet requirements of "Rideau Canal Operating Directive")



SEAL AND SIGNATURE MUST BE PRESENT TO USE DRAWING FOR OFFICIAL PURPOSES. TYPED INITIALS IN TITLE BLOCK AND REVISION BLOCK ARE FOR RECORD KEEPING PURPOSES ONLY.

No.	Description	Drawn By / Des. Par	Date
1	ISSUE FOR TENDER	DP	JULY 2015

Revision / Révision

A	A Detail number No. du détail
B	B Location dwg. no. No. sur dessin

Project title / Titre du projet  
**RIDEAU CANAL  
BLACK RAPIDS LOCK 13  
UPGRADES 2015**

Drawing title / Titre du dessin  
**ELECTRICAL  
PLC CONTROL NARRATIVE**

Drawn by / Dessiné par <b>ALEX BAILEY</b>	Designed by / Conçu par <b>HUGH CHANT</b>
Approved by / Approuvé par <b>HUGH CHANT</b>	Drawing Date / Date du dessin <b>JUNE 2015</b>

Project No. / Numéro du projet <b>R.078218.001</b>	Drawing No. / Dessiné No. <b>E106</b> Sheet / Feuille 1 of 1
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