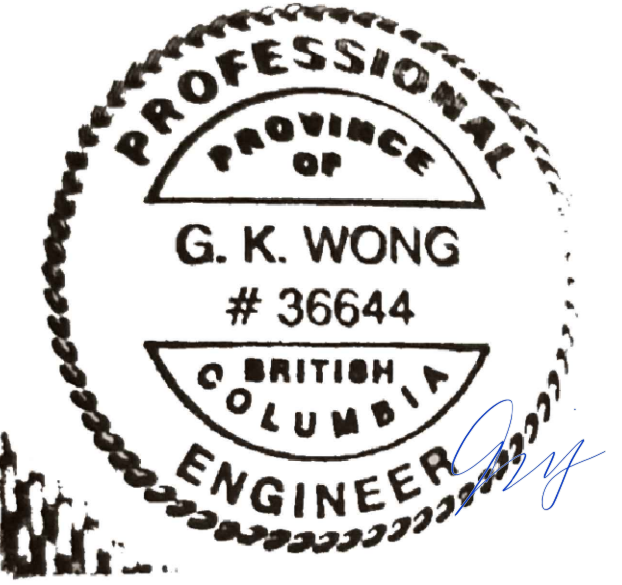




Mangat Environmental Solution Inc.



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1	ISSUED FOR TENDER	20/09/08
0	ISSUED FOR 75% REVIEW	19/08/19

Revision/Revision	Description/Description	Date/Date
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Client/client
FISHERIES AND OCEANS

Project title/Titre du projet

**INSTITUTE OF OCEAN SCIENCES (IOS)
MARINE FACILITY WATER
WATER UPGRADE**

Consultant Signature Only

Designed by/Conçue par
GUAN WONG / SEPT 06, 2020

Drawn by/Dessiné par
GUAN WONG / SEPT 06, 2020

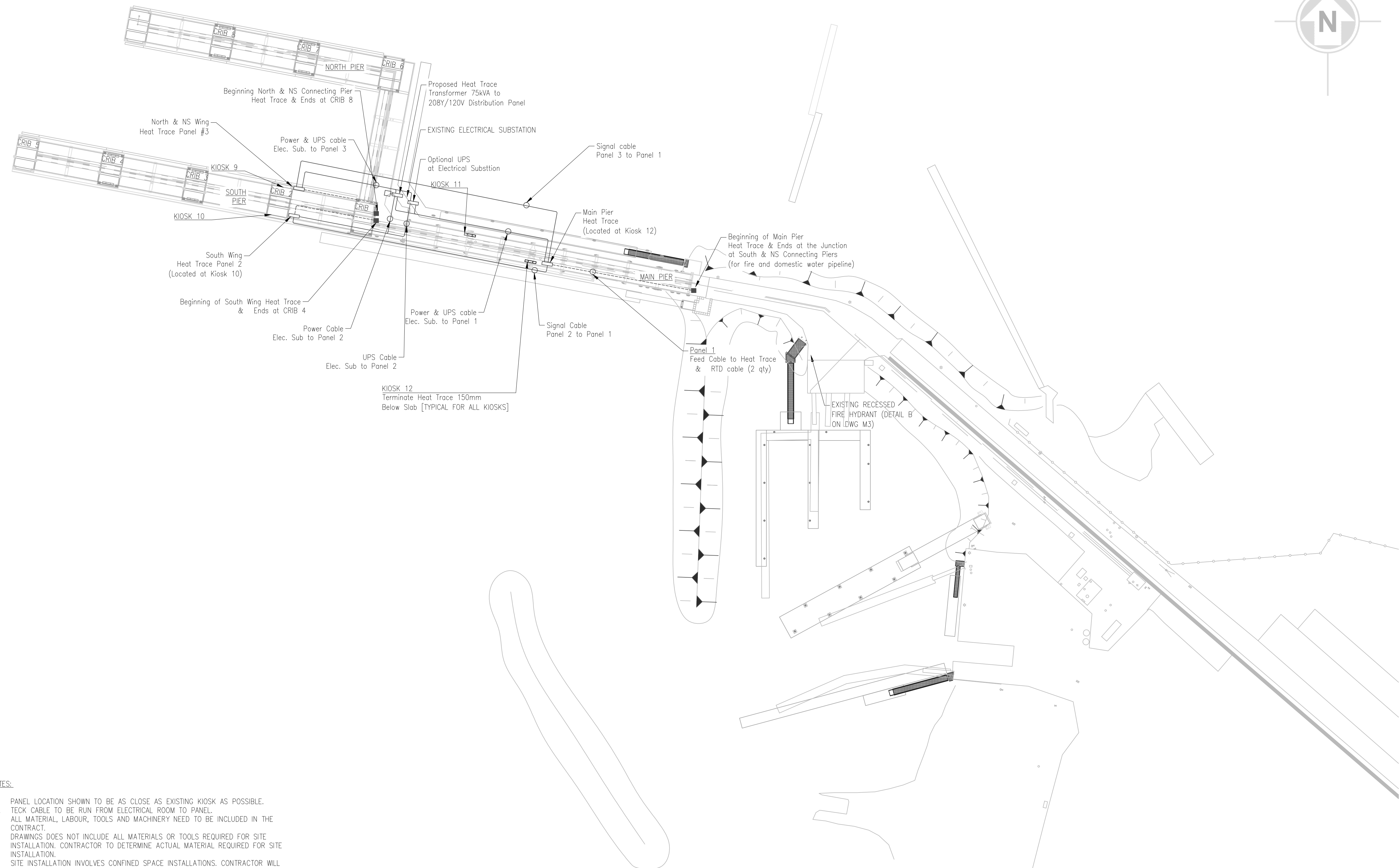
DFO Project Manager/Administrateur de Projets TPSGC
MICHAEL LIANG

Regional Manager, Architectural and Engineering Services
Gestionnaire régionale, Services d'architecture et de génie, TPSGC

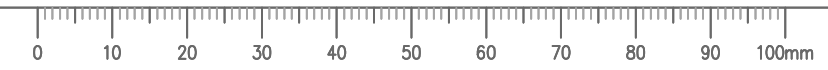
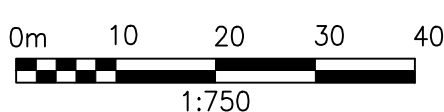
Drawing title/Titre du dessin

**SITE PLAN
PROPOSED HEAT TRACE PANEL
LOCATION**

Project No./No. du projet DFO: F1700 - 195255	Sheet/Fauille E-001 01 OF 01	Revision no./La Révision no. 1
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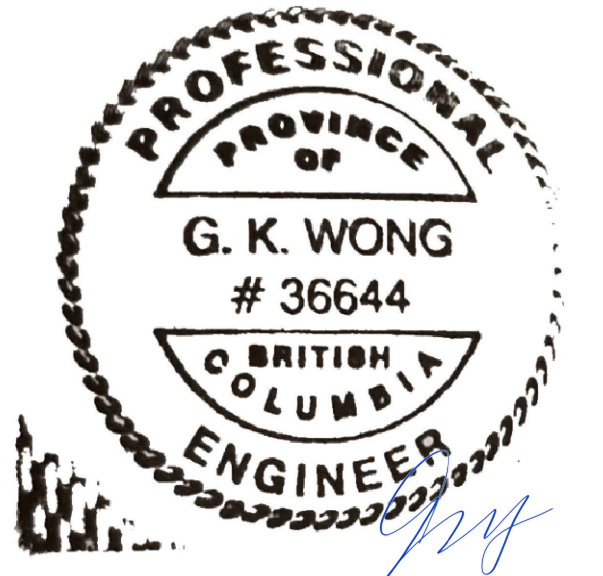
- NOTES:**
- PANEL LOCATION SHOWN TO BE AS CLOSE AS EXISTING KIOSK AS POSSIBLE.
 - TECK CABLE TO BE RUN FROM ELECTRICAL ROOM TO PANEL.
 - ALL MATERIAL, LABOUR, TOOLS AND MACHINERY NEED TO BE INCLUDED IN THE CONTRACT.
 - DRAWINGS DOES NOT INCLUDE ALL MATERIALS OR TOOLS REQUIRED FOR SITE INSTALLATION. CONTRACTOR TO DETERMINE ACTUAL MATERIAL REQUIRED FOR SITE INSTALLATION.
 - SITE INSTALLATION INVOLVES CONFINED SPACE INSTALLATIONS. CONTRACTOR WILL PERFORM WORK ACCORDING TO RESPECTIVE CANADIAN REGULATION AND STANDARDS. CONTRACTOR IS RESPONSIBLE FOR PERMIT FOR THE ELECTRICAL INSTALLATION FOR COMPLETION.
 - HEAT TRACE NEEDS TO BE INSTALLED IN A COPPER TUBE TO ALLOW EASY OF REPLACEMENT WHEN NEEDED.
 - DRAWINGS ONLY SHOWS POWER AND SENSOR RUN BUT DOES NOT HEAT TRACE RUN.
 - HEAT TRACE NEEDS TO BE TERMINATED IN THE APPROVED MANUFACTURER TERMINATION JUNCTION BOX MEANT FOR SPLICING CABLE TO HEAT TRACE.
 - ALL WORK DONE HAS TO BE COMPLIANCE TO CSA22.1 AND LOCAL JURISDICTIONS.
 - CONTRACTOR NEEDS TO ALLOCATE TIME FOR SITE TESTING AFTER INSTALLATION.
 - HEAT TRACE PART NUMBER TO BE FP9-2 OR APPROVED EQUAL.
 - HEAT TRACE LENGTH TO BE AS FOLLOWS: -
A. MAIN PIER HEAT TRACE = 120M APPROXIMATELY
B. SOUTH WING HEAT TRACE = 125M APPROXIMATELY
C. NORTH & NORTH SOUTH CONNECTING HEAT TRACE = 170M APPROXIMATELY



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0	ISSUED FOR 75% REVIEW	19/08/19
Revision/Revision	Description/Description	Date/Date

Client/client
FISHERIES AND OCEANS

Project title/Titre du projet

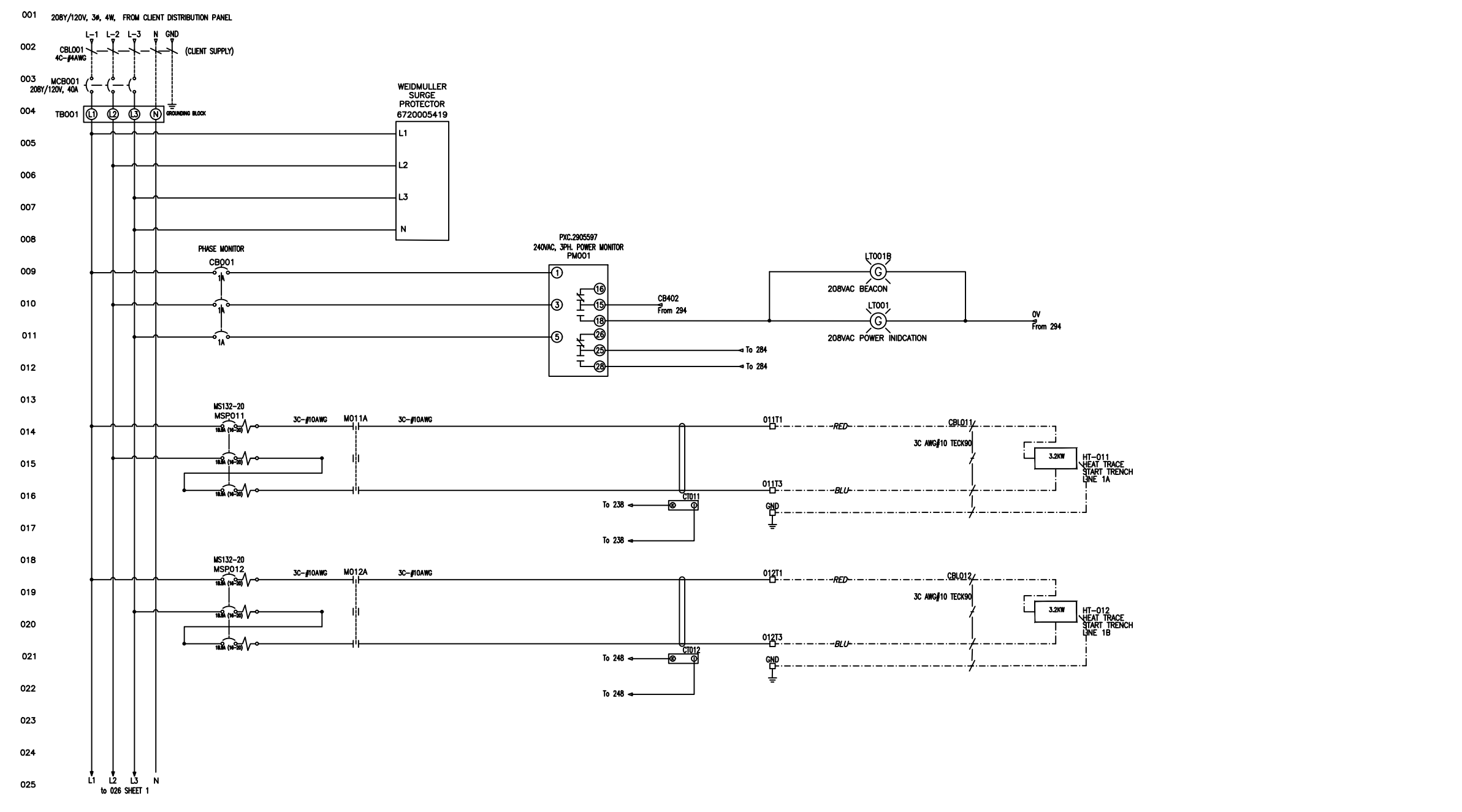
**INSTITUTE OF OCEAN SCIENCES (IOS)
MARINE FACILITY WATER
HEAT TRACE PANEL #01
PHASE 2**

Consultant Signature Only
-
Designed by/Concept par
GUAN WONG / SEPT 06, 2020
Drawn by/Dessiné par
GUAN WONG / SEPT 06, 2020
DFO Project Manager/Administrateur de Projets TPSCG
MICHAEL LIANG

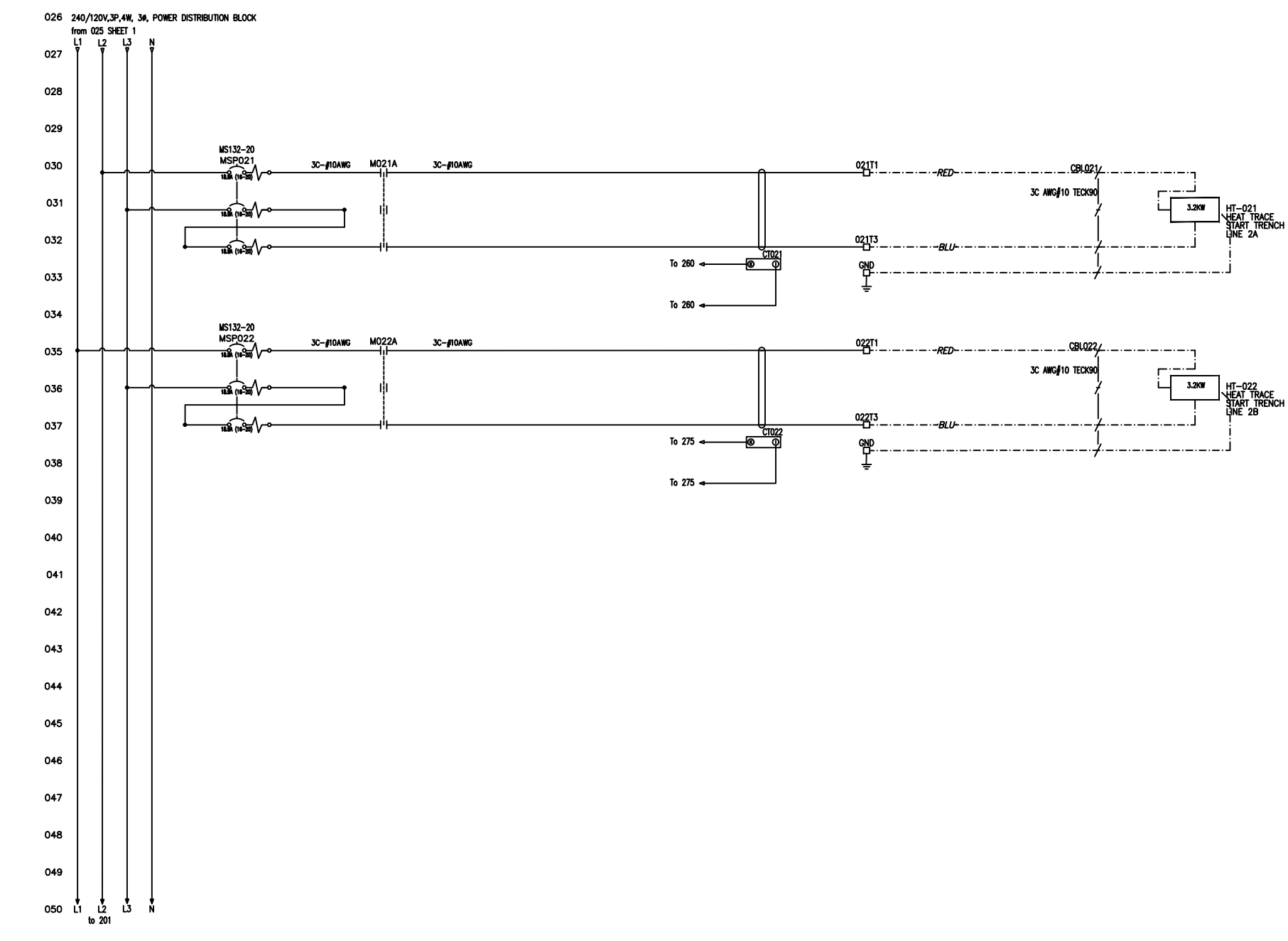
Regional Manager, Architectural and Engineering Services
Gestionnaire régionale, Services d'architectural et de génie, TPSCG

Drawing title/Titre du dessin
**MAIN PIER HEAT TRACE SCHEMATICS
PROPOSED UPGRADES**

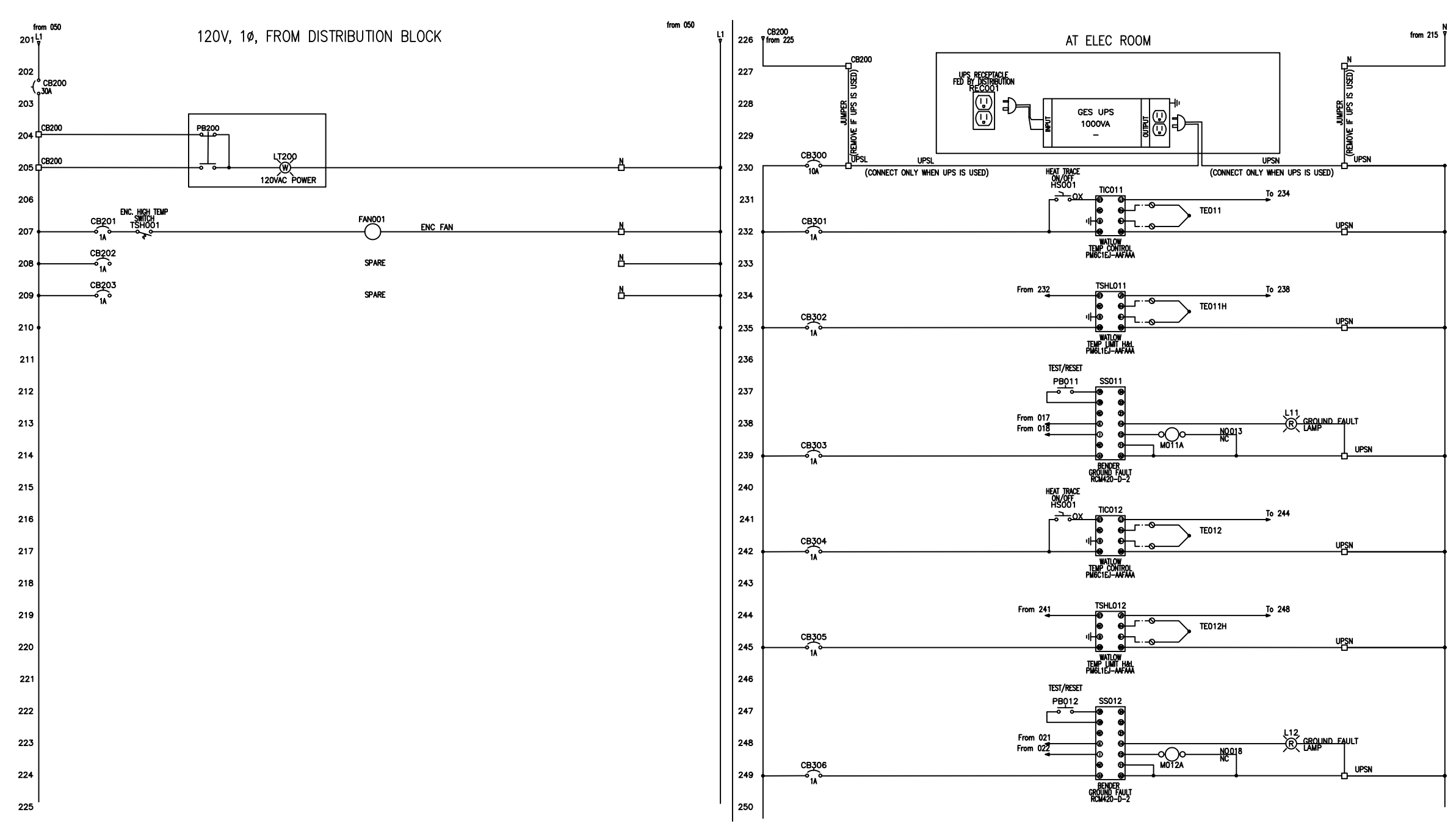
Project No./No. du projet DFO: F1700 - 195247	Sheet/Fauille E-002 02 OF 02	Revision no./La Révision no. 1
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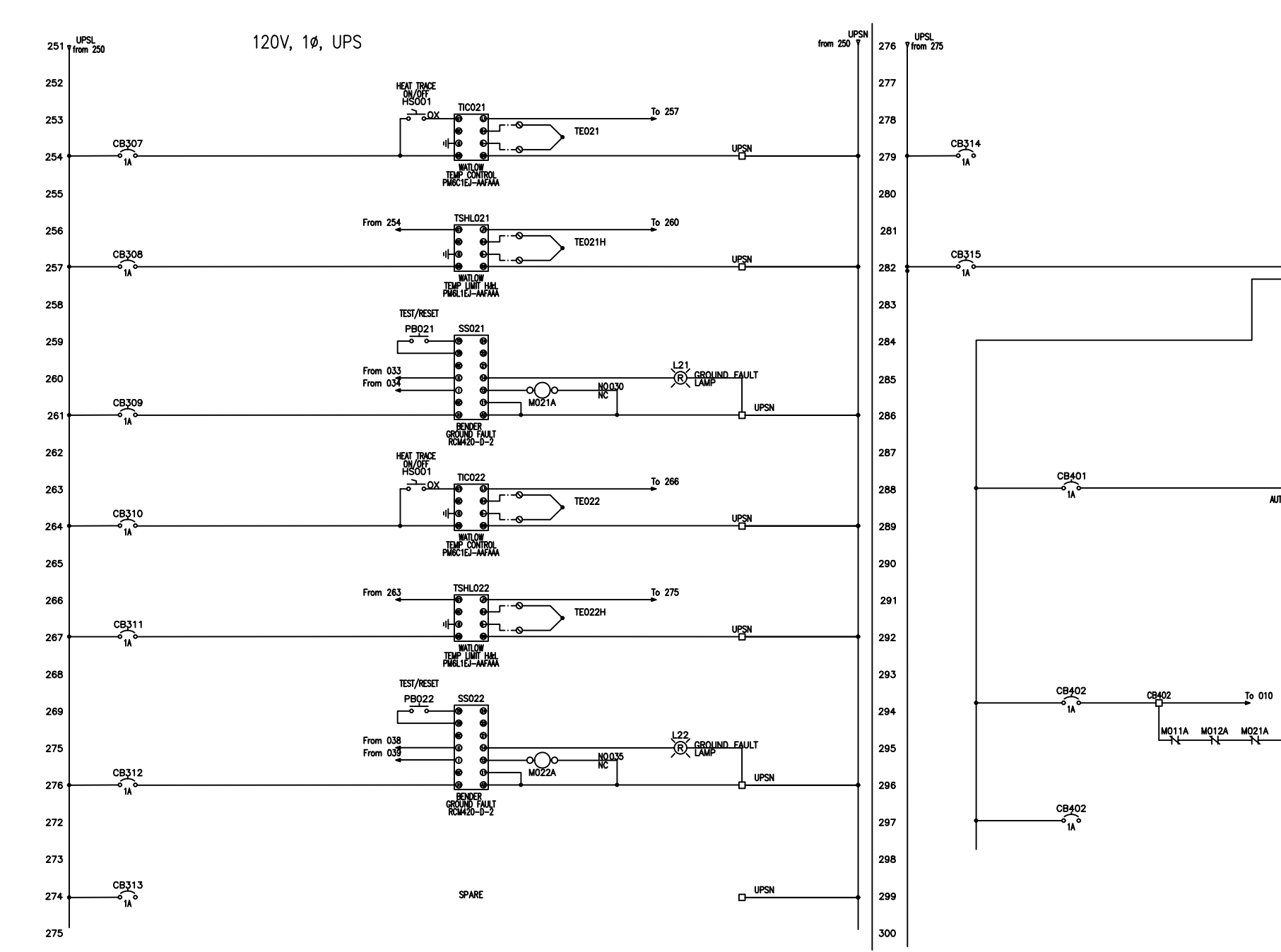
DETAIL 1 208Y/120V POWER



DETAIL 2 208Y/120V POWER

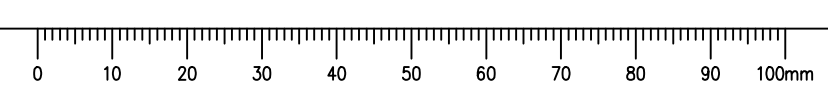
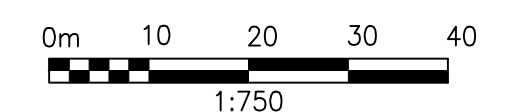


DETAIL 3 120V CONTROL



DETAIL 4 120V & 24V CONTROL

- NOTES:
- ALL PANEL NEEDS TO BE CERTIFIED TO CSA22.2 OR SPE1000.
 - ALL PANEL NEEDS TO BE FUNCTIONAL TEST AND SET UP PRIOR TO SHIPPING.
 - ALL WIRE AND TERMINALS MUST BE CLEARLY LABEL AND FERRULE CRIMPED.
 - COORDINATE WITH OWNER FOR ALL WORK REQUIRED PRIOR TO SHIPPING TO SITE.
 - ALL WORKS TO BE COMPLETED PER CAPITAL REGIONAL DISTRICT STANDARDS UNLESS NOTED OTHERWISE.
 - ALL DIMENSIONS ARE FOR REFERENCE ONLY. CONTRACTOR TO VERIFY DIMENSIONS IN THE FIELD.
 - SITE WORK PERFORMED NEEDS TO SPE1000 CERTIFIED AND CONFORMED TO CSA22.1.
 - QUOTATION FOR SITE WORK NEEDS TO INCLUDE ALL MATERIAL, MACHINERY, TOOLS, PERMIT AND LABOUR COST.



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0	ISSUED FOR 75% REVIEW	19/08/19
Revision/	Description/Description	Date/Date
Revision		

Client/client

FISHERIES AND OCEANS

Project title/Titre du projet

**INSTITUTE OF OCEAN SCIENCES (IOS)
MARINE FACILITY WATER
HEAT TRACE PANEL #01
PHASE 2**

Consultant Signature Only

Designed by/Concept par
GUAN WONG / SEPT 06, 2020

Drawn by/Dessiné par
GUAN WONG / SEPT 06, 2020

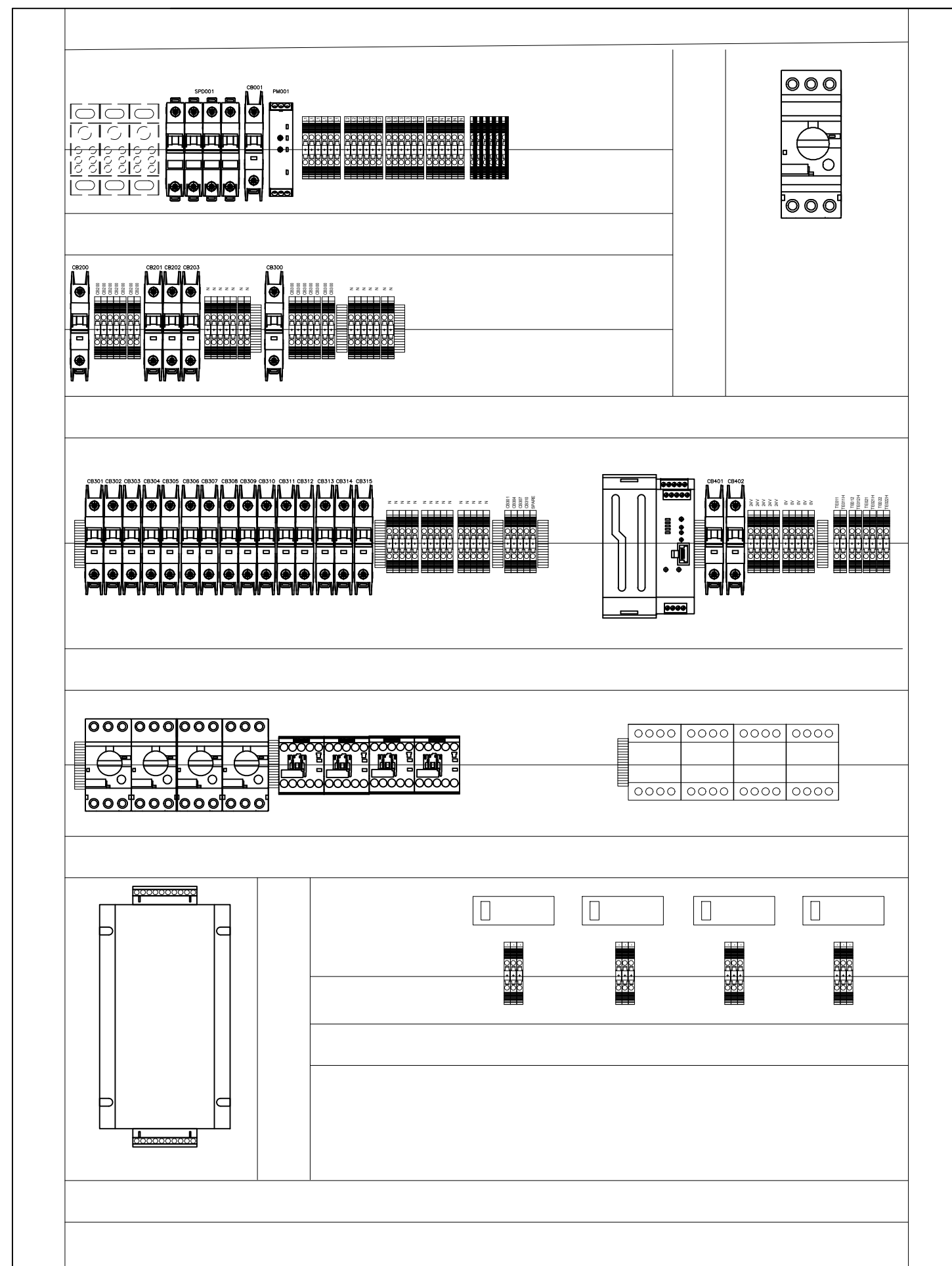
DFO Project Manager/Administrateur de Projets TPSCG
MICHAEL LIANG

Regional Manager, Architectural and Engineering Services
Gestionnaire régionale, Services d'architecture et de génie, TPSCG

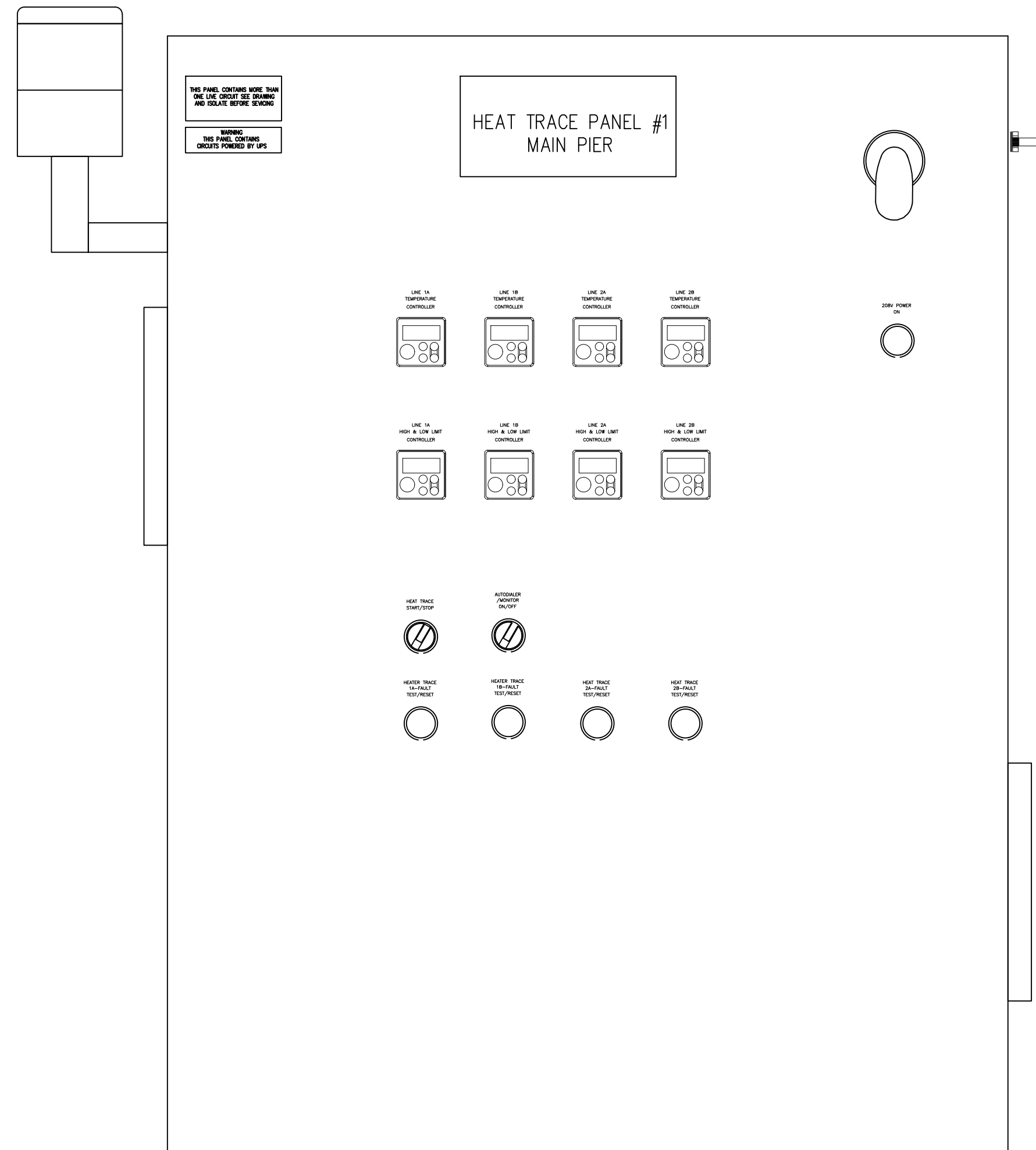
Drawing title/Titre du dessin

**MAIN PIER PANEL LAYOUT
PROPOSED UPGRADES**

Project No./No. du projet	Sheet/Feuille	Revision no./ La Révision no.
DFO: F1700 - 195247	E-002 01 OF 02	1



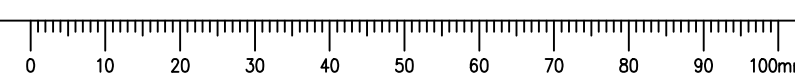
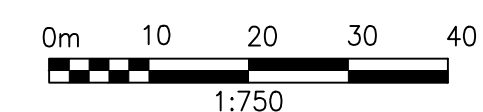
HEAT TRACE PANEL#1 (INTERNAL)
(36X48X16) SS



HEAT TRACE PANEL#1 (FRONT)
(36X48X16) SS

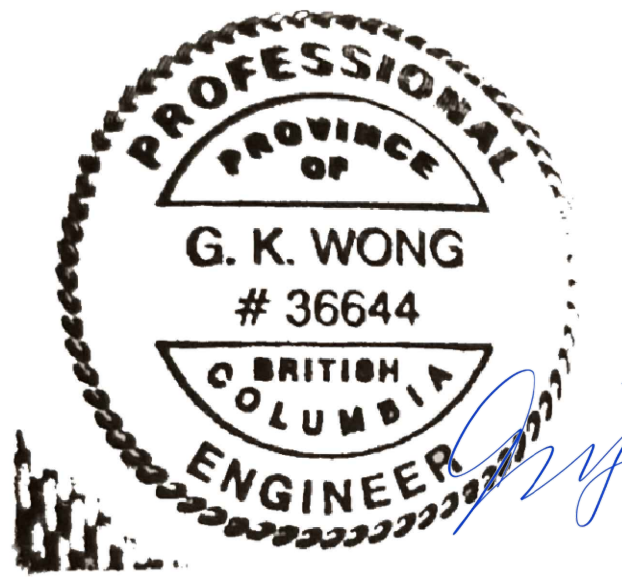
NOTES:

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6. ALL DIMENSIONS ARE FOR REFERENCE ONLY. CONTRACTOR TO VERIFY DIMENSIONS IN THE FIELD.
7. SITE WORK PERFORMED NEEDS TO SPE1000 CERTIFIED AND CONFORMED TO CSA22.1.
8. QUOTATION FOR SITE WORK NEEDS TO INCLUDE ALL MATERIAL, MACHINERY, TOOLS, PERMIT AND LABOUR COST.





Mangat Environmental Solution Inc.
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Revision/Revision	Description/Description	Date/Date
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1	ISSUED FOR TENDER	20/09/08
0	ISSUED FOR 75% REVIEW	19/08/19

Client/client

FISHERIES AND OCEANS

Project title/Titre du projet

**INSTITUTE OF OCEAN SCIENCES (IOS)
MARINE FACILITY WATER
HEAT TRACE PANEL #02
PHASE 2**

Consultant Signature Only

Designed by/Concept par
GUAN WONG / SEPT 06, 2020

Drawn by/Dessiné par
GUAN WONG / SEPT 06, 2020

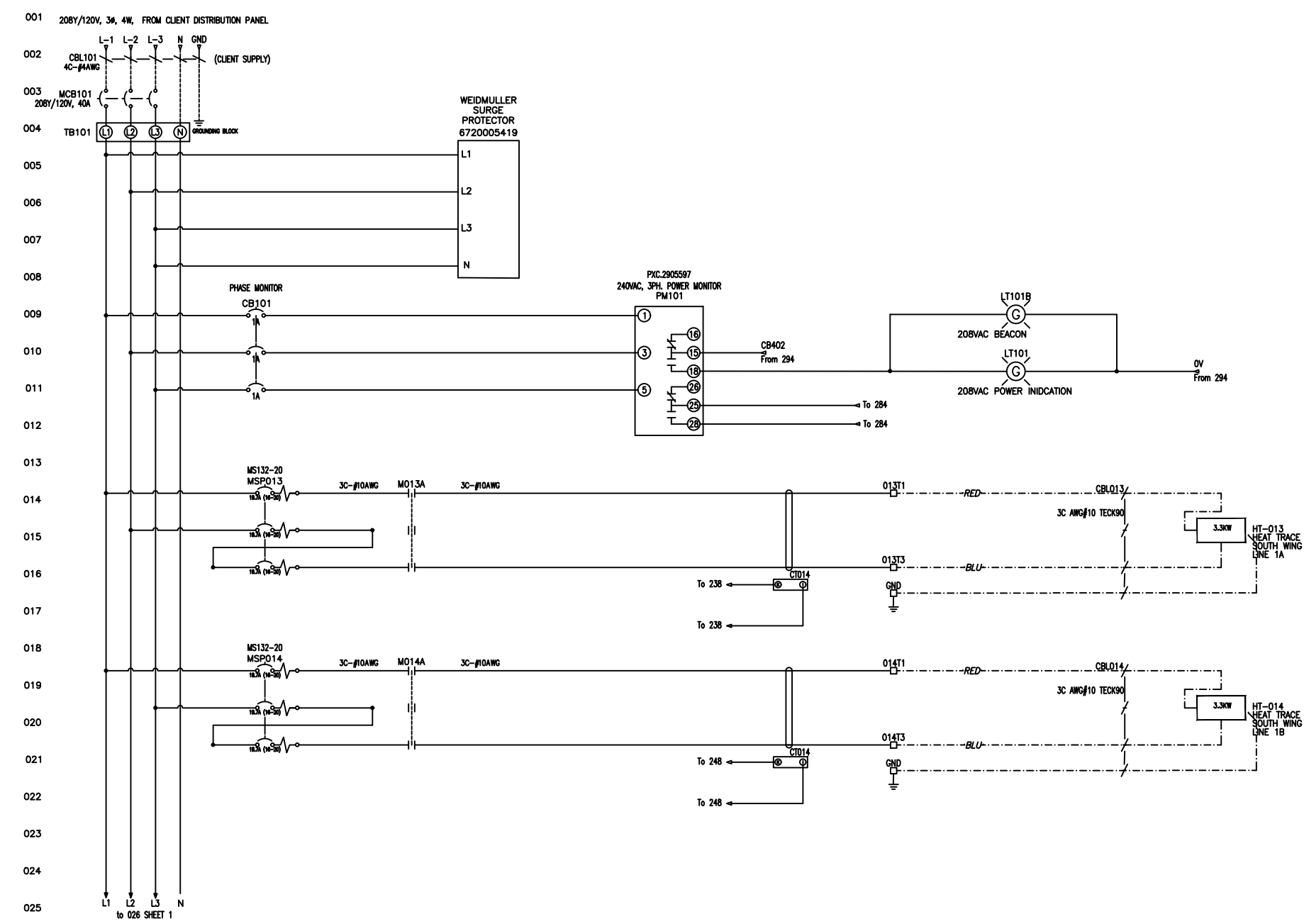
DFO Project Manager/Administrateur de Projets TPSPC
MICHAEL LIANG

Regional Manager, Architectural and Engineering Services
Gestionnaire régionale, Services d'architectural et de génie, TPSPC

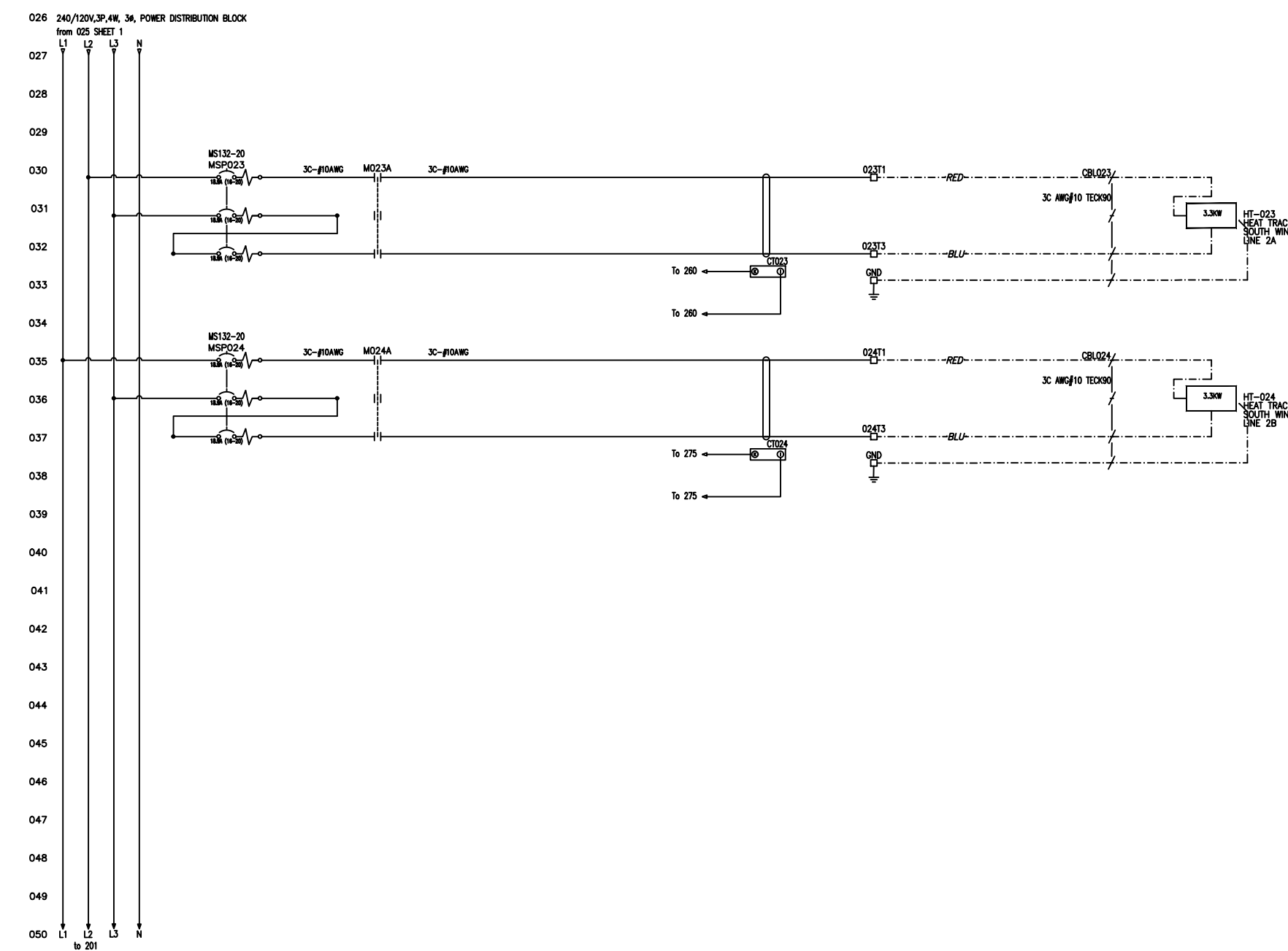
Drawing title/Titre du dessin

**SOUTH WING HEAT TRACE SCHEMATICS
PROPOSED UPGRADES**

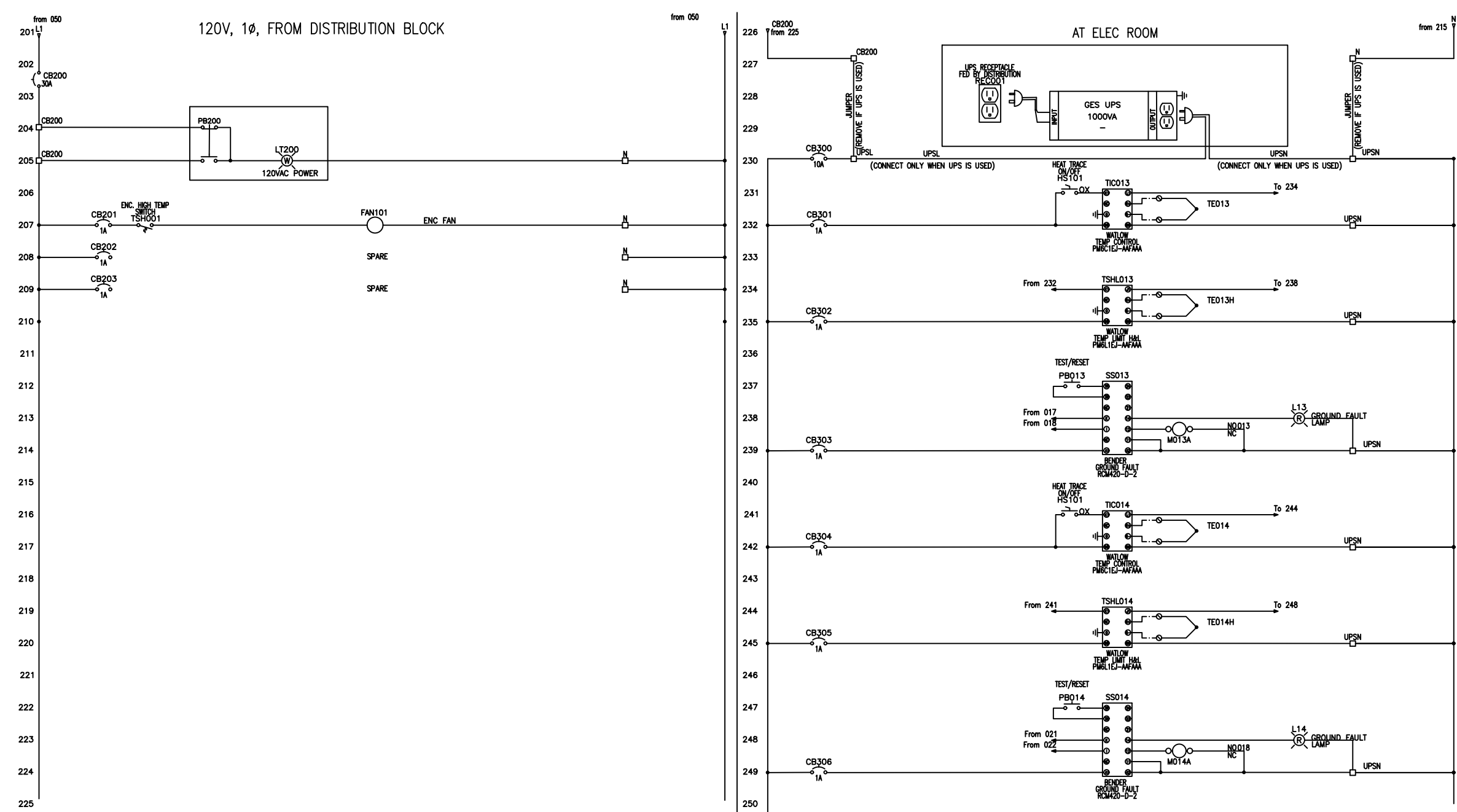
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DFO: F1700 - 195247	E-003 02 OF 02	1



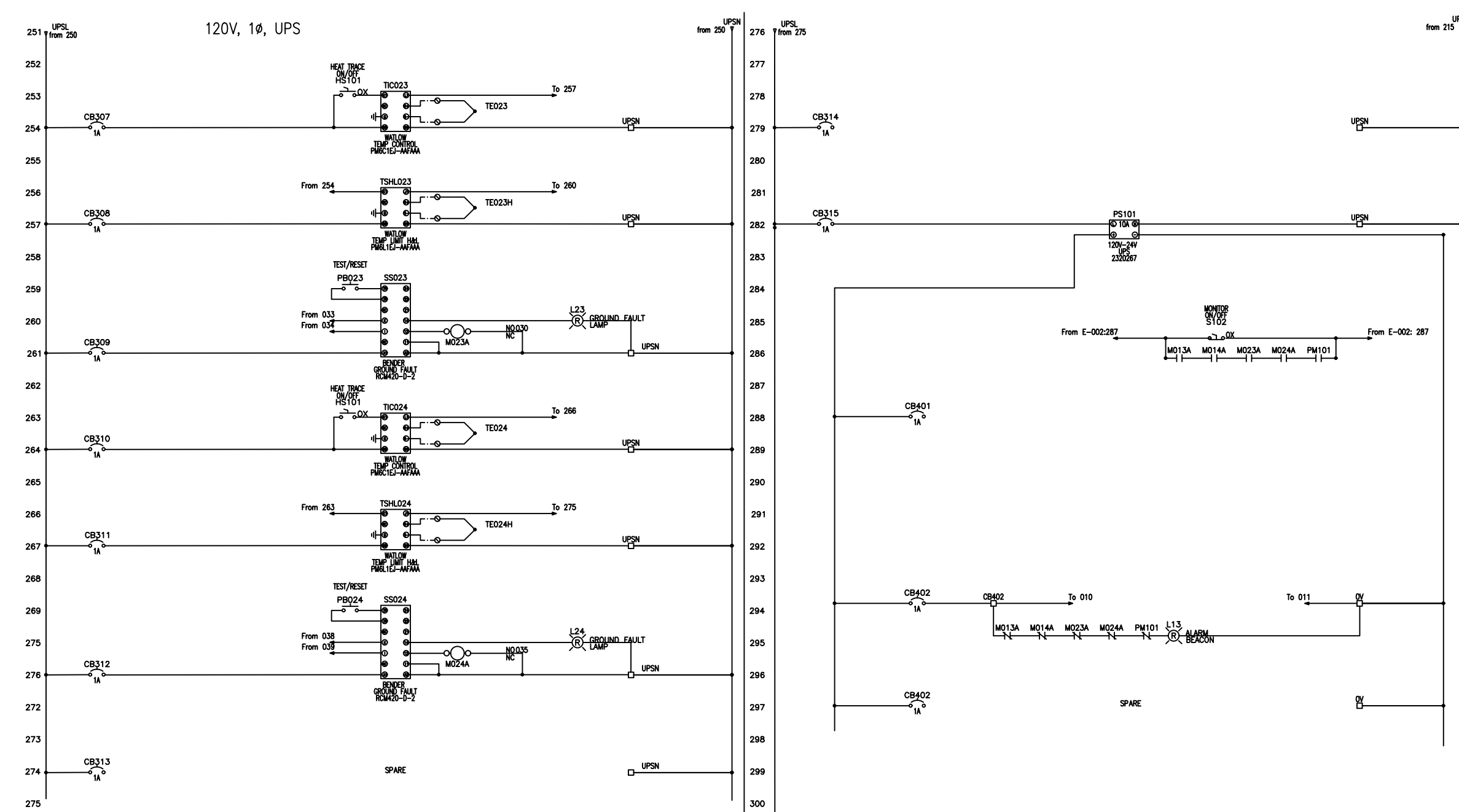
DETAIL 1 208Y/120V POWER



DETAIL 2 208Y/120V POWER



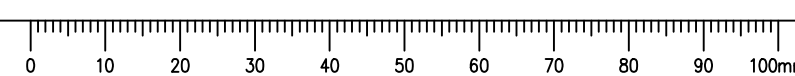
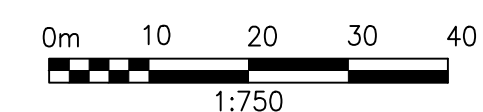
DETAIL 3 120V CONTROL



DETAIL 4 120V & 24V CONTROL

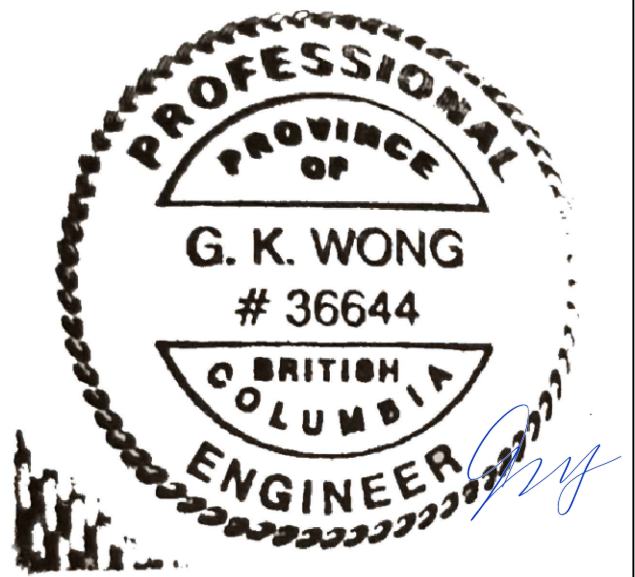
NOTES:

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- SITE WORK PERFORMED NEEDS TO SPE1000 CERTIFIED AND CONFORMED TO CSA22.1.
- QUOTATION FOR SITE WORK NEEDS TO INCLUDE ALL MATERIAL, MACHINERY, TOOLS, PERMIT AND LABOUR COST.





Mangat Environmental Solution Inc.
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Revision/Revisión	Description/Description	Date/Date

Client/client

FISHERIES AND OCEANS

Project title/Titre du projet

**INSTITUTE OF OCEAN SCIENCES (IOS)
 MARINE FACILITY WATER
 HEAT TRACE PANEL #02
 PHASE 2**

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 GUAN WONG / SEPT 06, 2020

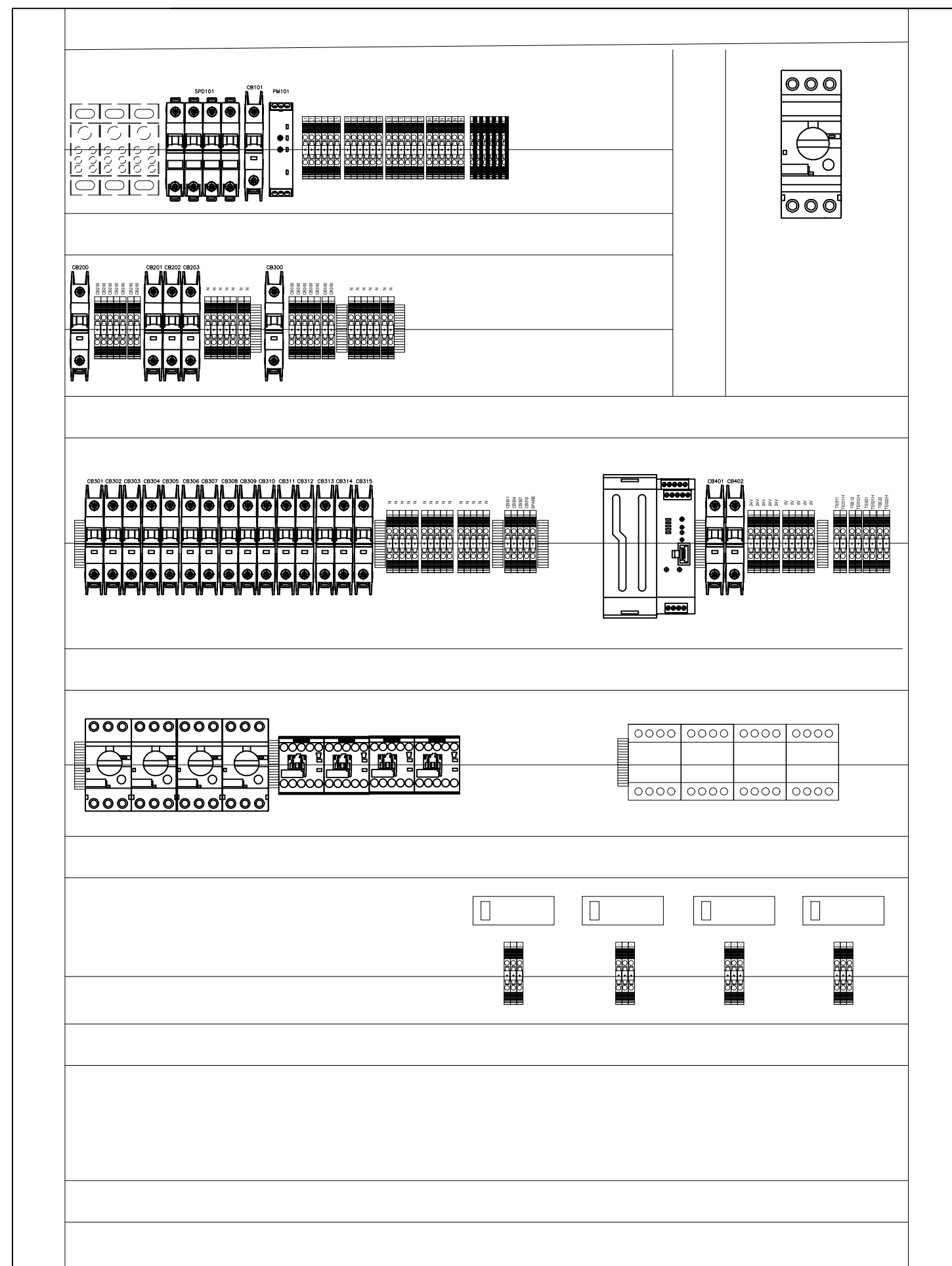
DFO Project Manager/Administrateur de Projets TPSCG
 MICHAEL LIANG

Regional Manager, Architectural and Engineering Services
 Gestionnaire régionale, Services d'architecture et de génie, TPSCG

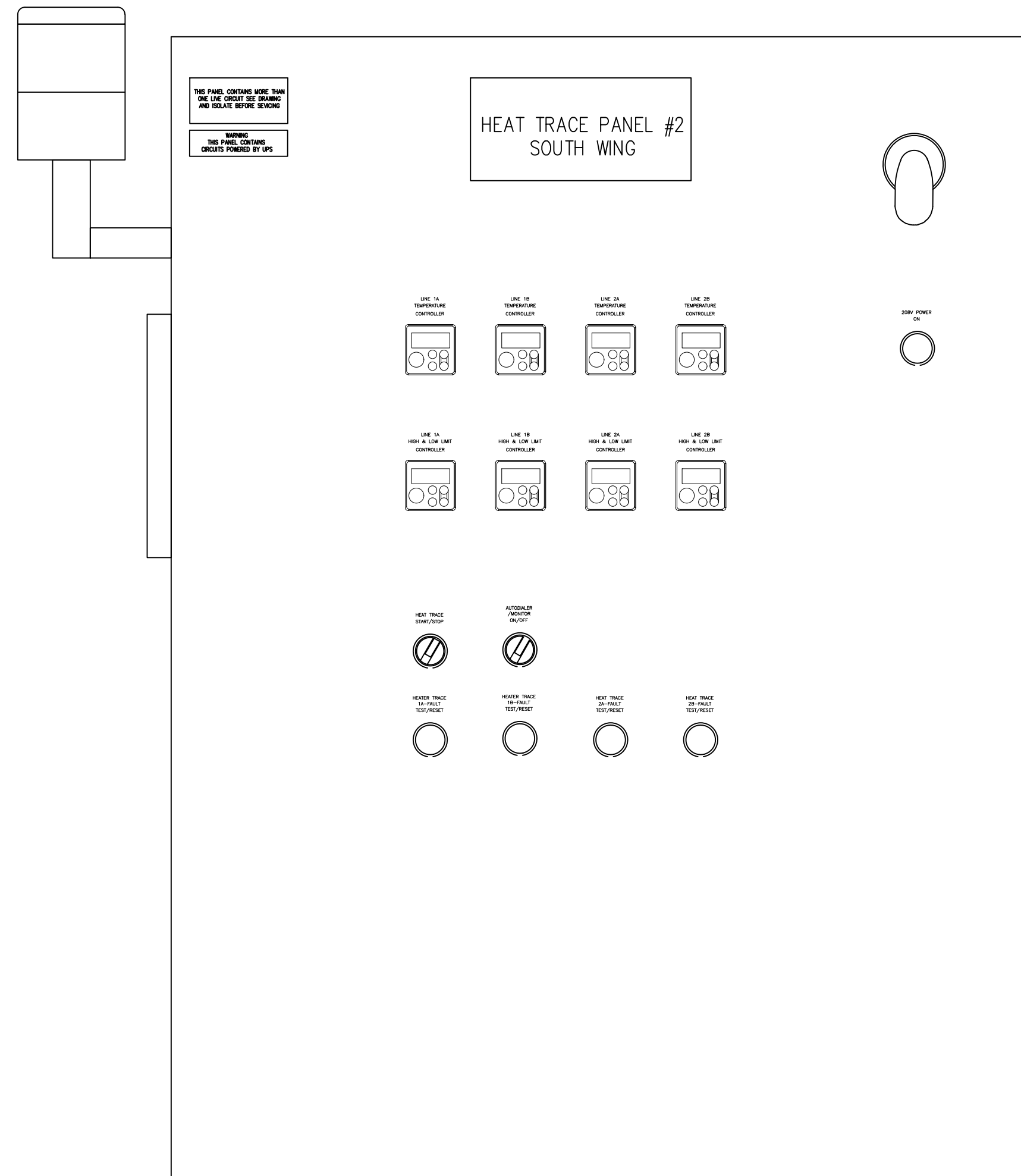
Drawing title/Titre du dessin

**SOUTH WING PANEL LAYOUT
 PROPOSED UPGRADES**

Project No./No. du projet DFO: F1700 - 195247	Sheet/Feuille E-003 01 OF 02	Revision no./La Révision no. 1
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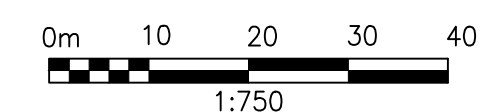
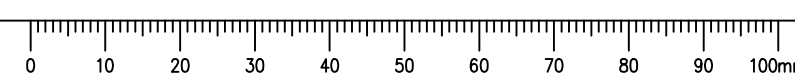
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HEAT TRACE PANEL#2 (FRONT)
 (36X48X16) SS

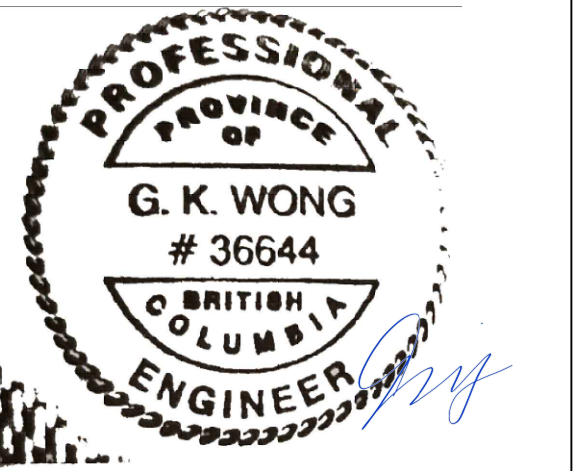
NOTES:

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3. ALL WIRE AND TERMINALS MUST BE CLEARLY LABEL AND FERRULE CRIMPED.
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6. ALL DIMENSIONS ARE FOR REFERENCE ONLY. CONTRACTOR TO VERIFY DIMENSIONS IN THE FIELD.
7. SITE WORK PERFORMED NEEDS TO SPE1000 CERTIFIED AND CONFORMED TO CSA22.1.
8. QUOTATION FOR SITE WORK NEEDS TO INCLUDE ALL MATERIAL, MACHINERY, TOOLS, PERMIT AND LABOUR COST.





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Revision/Revision	Description/Description	Date/Date
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0	ISSUED FOR 75% REVIEW	19/08/19

Client/client
FISHERIES AND OCEANS

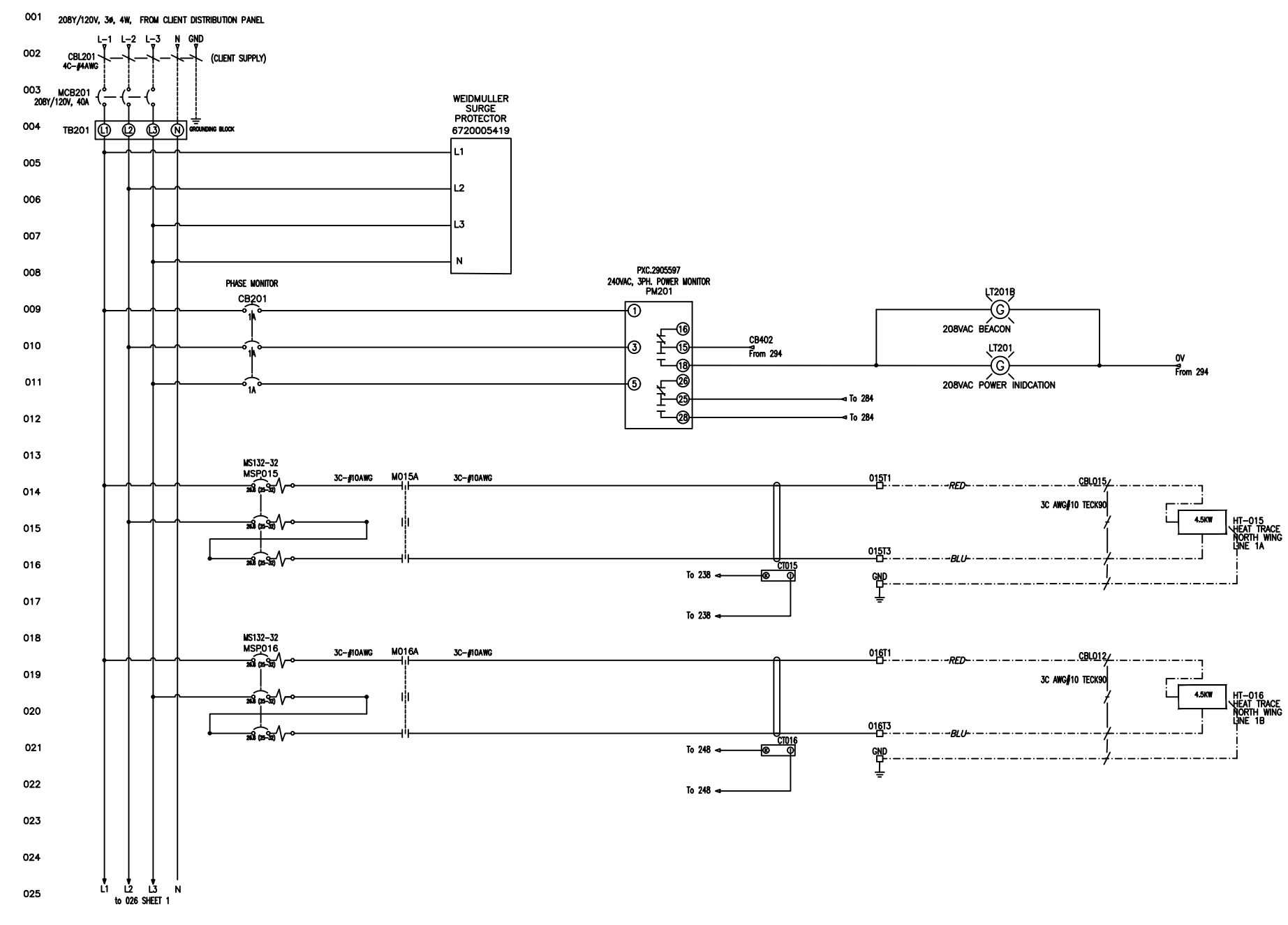
Project title/Titre du projet

**INSTITUTE OF OCEAN SCIENCES (IOS)
MARINE FACILITY WATER
HEAT TRACE PANEL #03
PHASE 2**

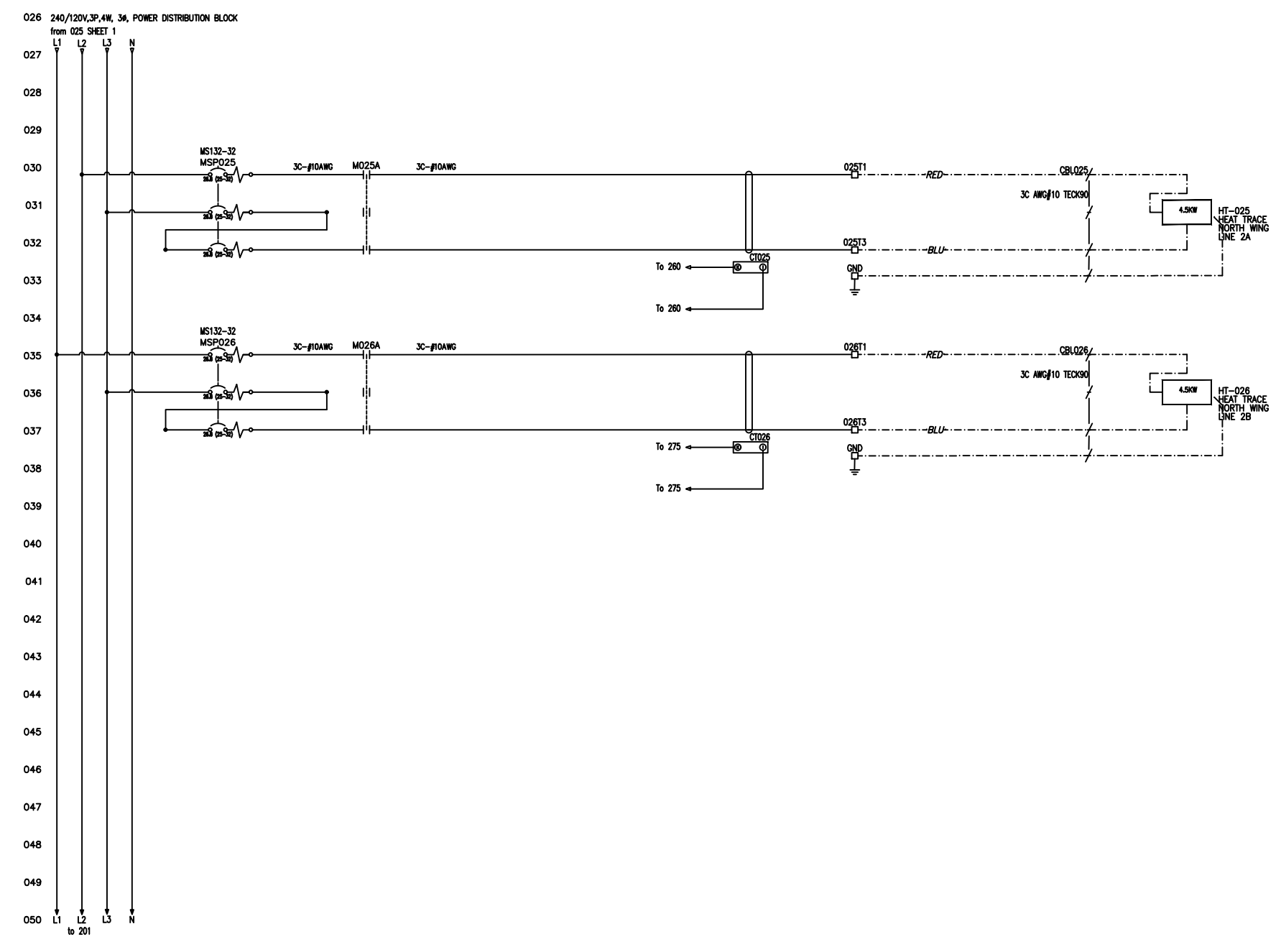
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Designed by/Concept par
GUAN WONG / SEPT 06, 2020
Drawn by/Dessiné par
GUAN WONG / SEPT 06, 2020
DFO Project Manager/Administrateur de Projets TPSCG
MICHAEL LIANG
Regional Manager, Architectural and Engineering Services
Gestionnaire régionale, Services d'architectural et de génie, TPSCG

Drawing title/Titre du dessin
**NORTH & NS HEAT TRACE SCHEMATICS
PROPOSED UPGRADES**

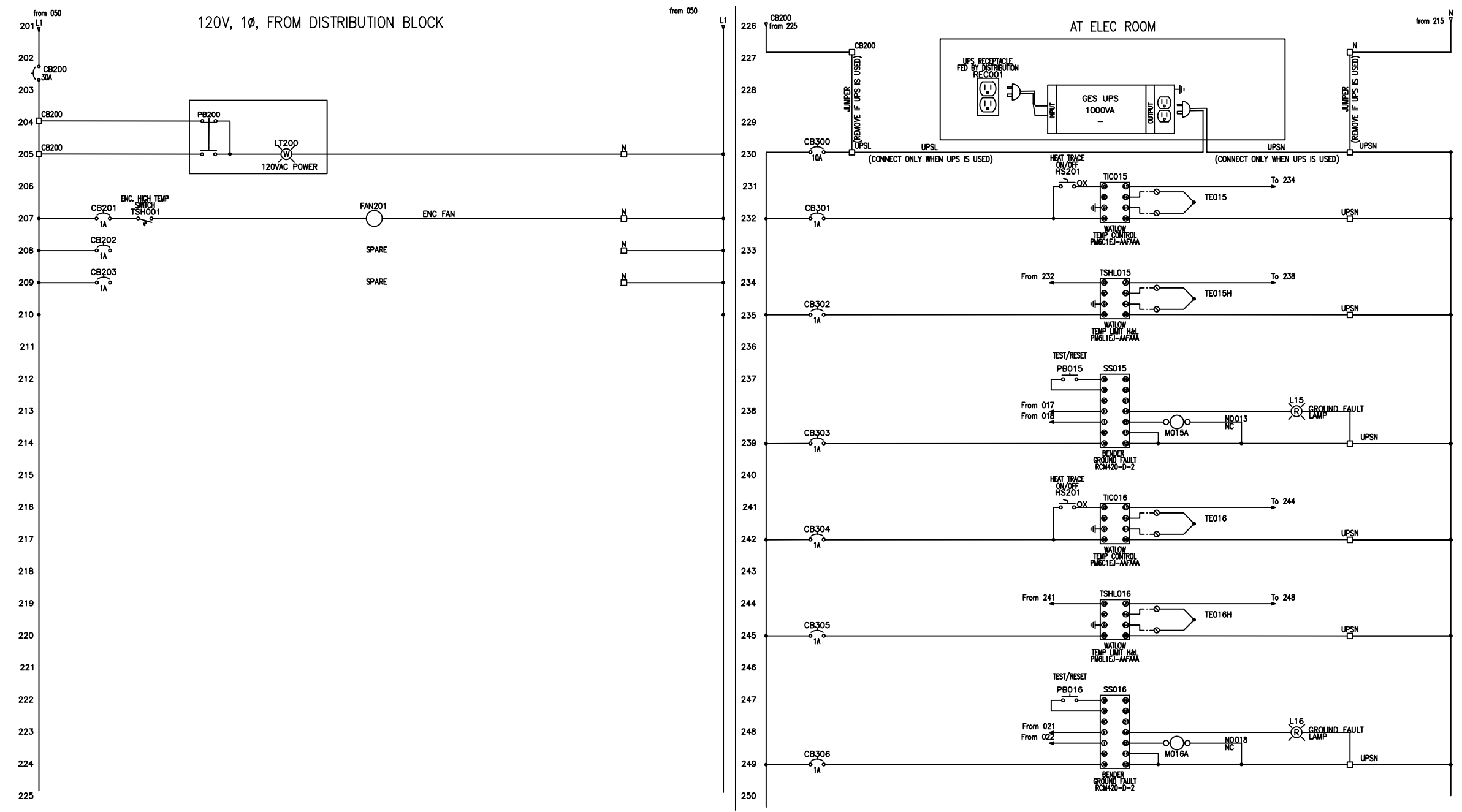
Project No./No. du projet DFO: F1700 - 195247	Sheet/Fauille E-004 02 OF 02	Revision no./La Révision no. 1
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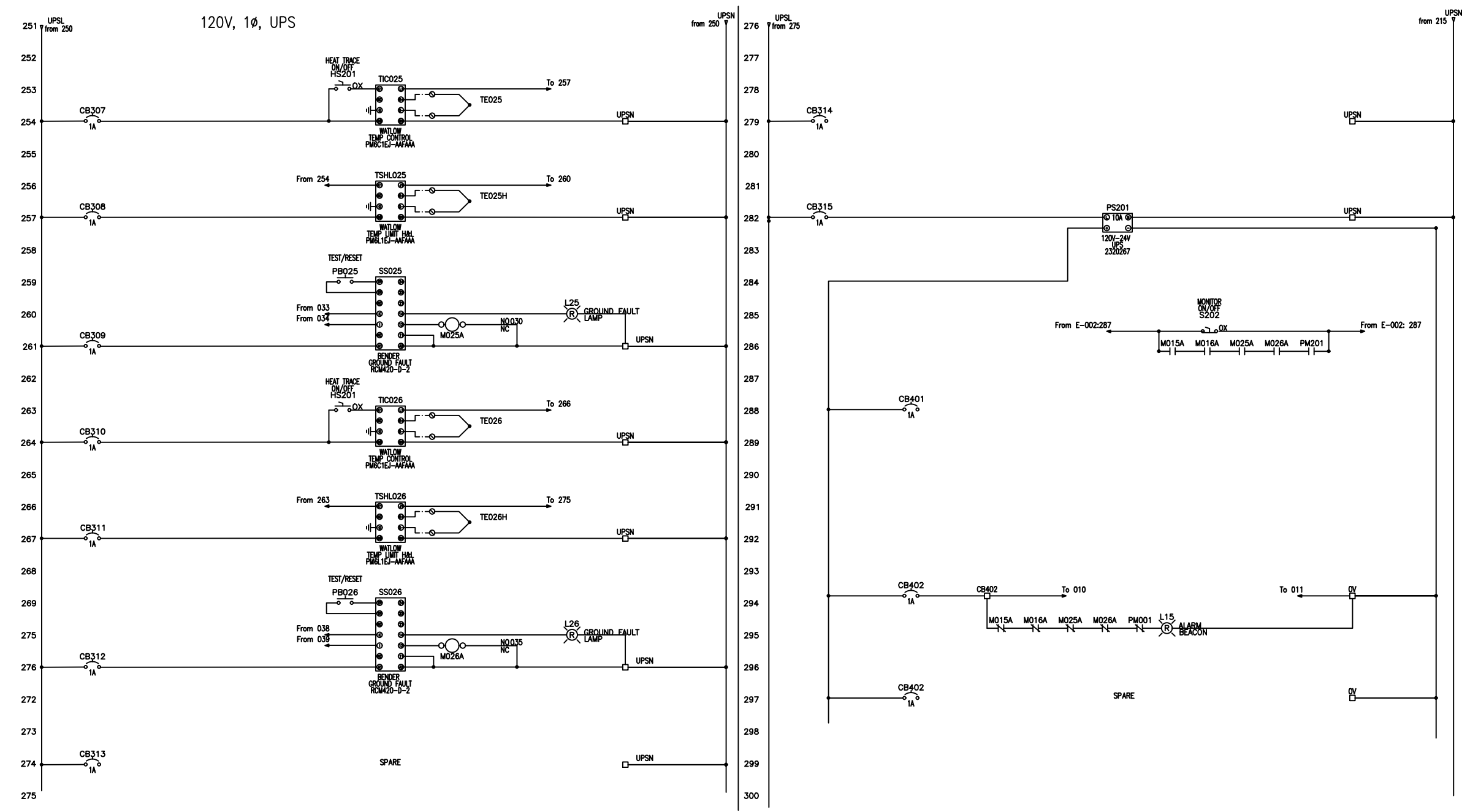
DETAIL 1 208Y/120V POWER



DETAIL 2 208Y/120V POWER

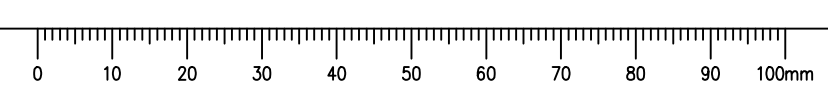
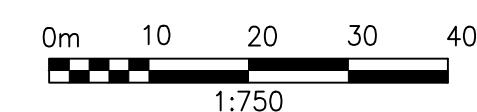


DETAIL 3 120V CONTROL



DETAIL 4 120V & 24V CONTROL

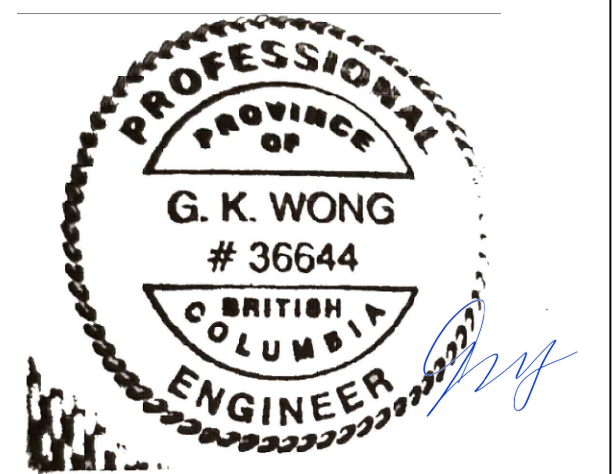
- NOTES:
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 2995, 140 Str. Surrey BC, V4P 2C3



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Revision/	Description/Description	Date/Date

Client/client
FISHERIES AND OCEANS

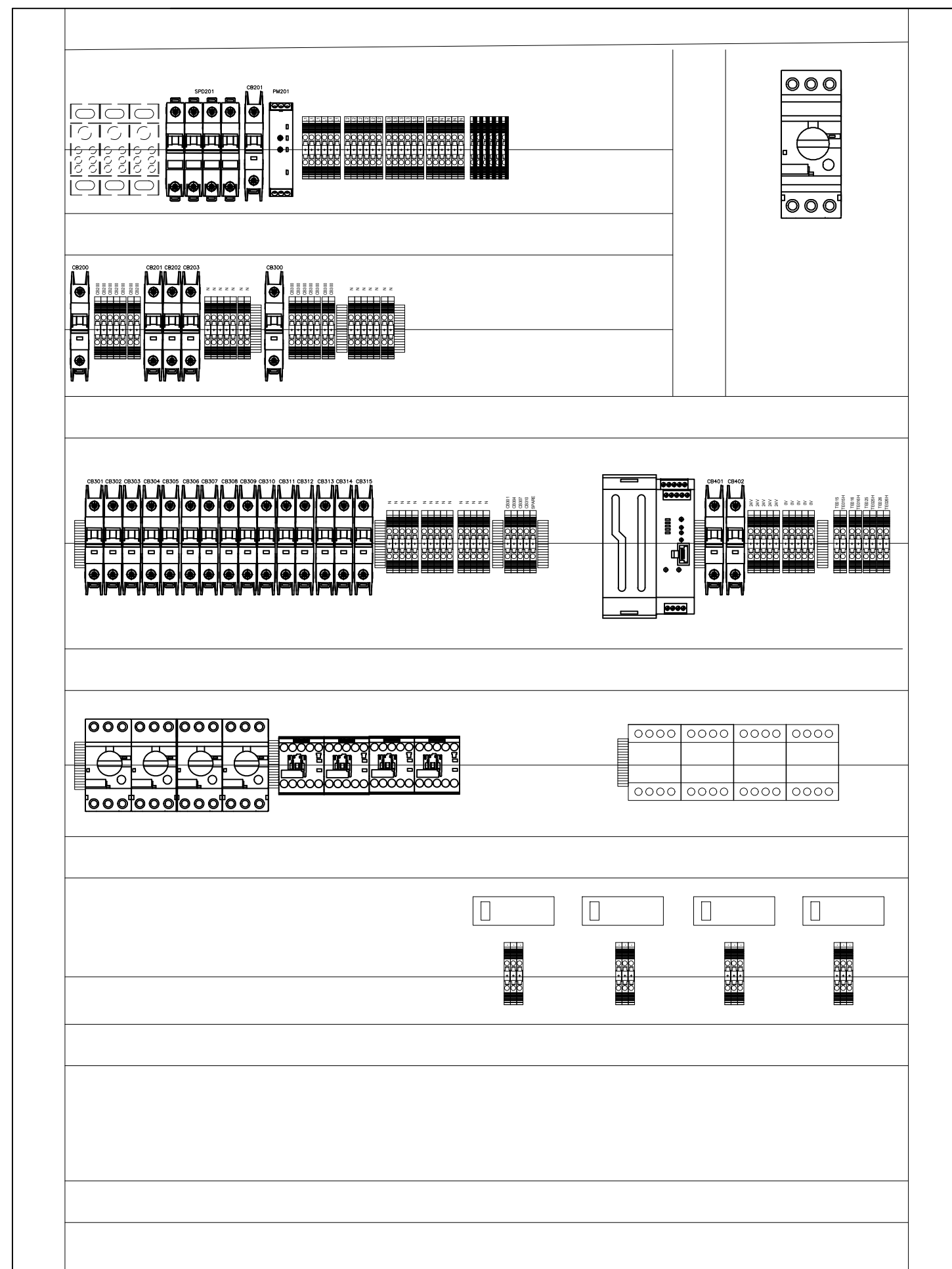
Project title/Titre du projet
**INSTITUTE OF OCEAN SCIENCES (IOS)
 MARINE FACILITY WATER
 HEAT TRACE PANEL #03
 PHASE 2**

Consultant Signature Only
 -
 Designed by/Concept par
 GUAN WONG / SEPT 06, 2020
 Drawn by/Dessiné par
 GUAN WONG / SEPT 06, 2020
 DFO Project Manager/Administrateur de Projets TPSGC
 MICHAEL LIANG

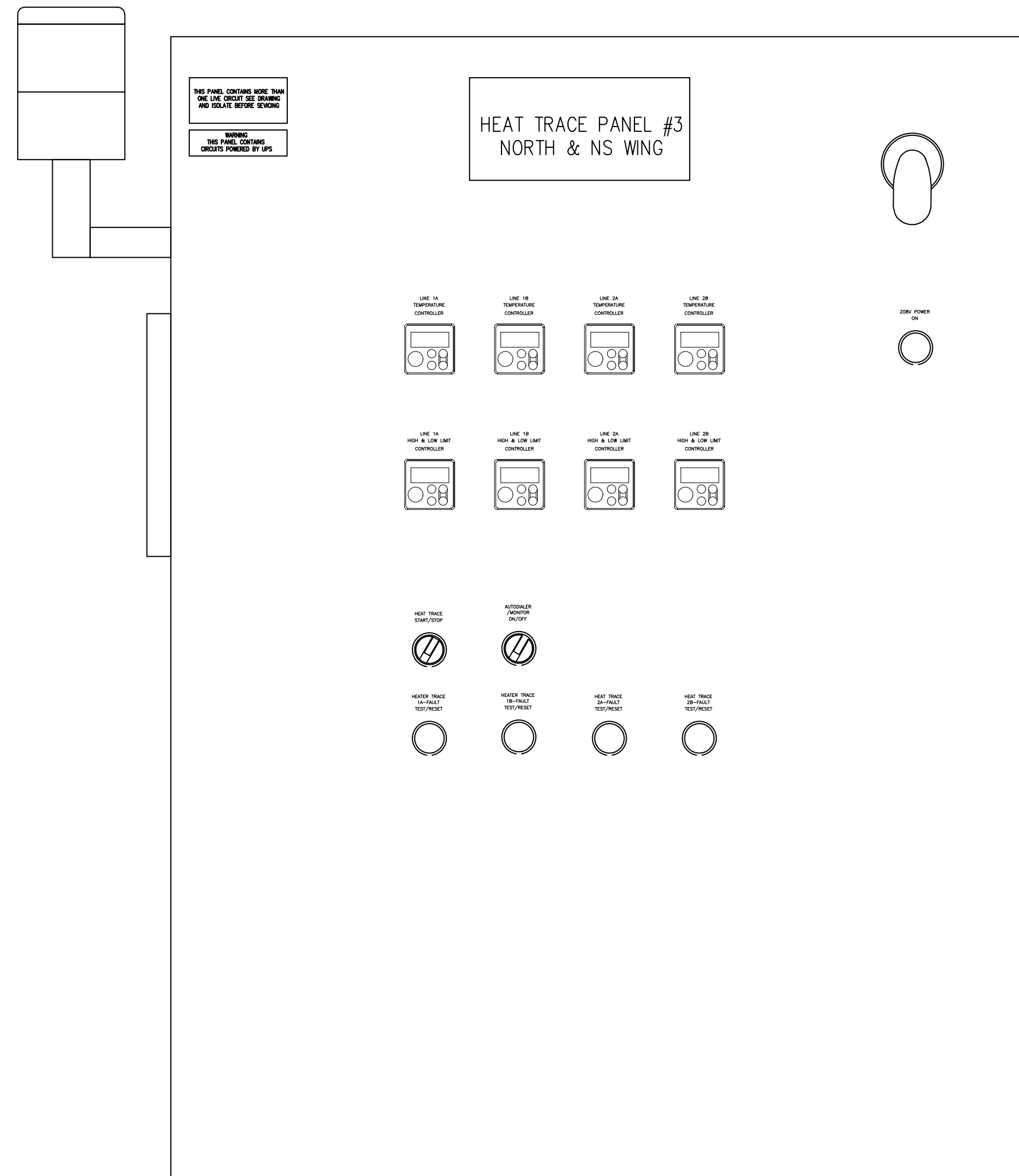
Regional Manager, Architectural and Engineering Services
 Gestionnaire régionale, Services d'architecture et de génie, TPSGC

Drawing title/Titre du dessin
**NORTH & NS PANEL LAYOUT
 PROPOSED UPGRADES**

Project No./No. du projet DFO: F1700 - 195247	Sheet/Feuille E-004 01 OF 02	Revision no./La Révision no. 1
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HEAT TRACE PANEL#3 (INTERNAL)
 (36X48X16) SS



HEAT TRACE PANEL#3 (FRONT)
 (36X48X16) SS

NOTES:

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