GOVERNMENT OF NUNAVUT
Request for Tenders (RFT)

Minor Construction or Services

Project Number: 16420-00340

Project Name: Men's Healing Centre Electrical Upgrades

Project Location: Kugulktuk, Nunavut

Reference Number: CT2016-23

Contract Number: 16420-00340-02

RFT Issue Date: August 5th, 2016

RFT Closing Date: August 16th, 2016

DEFINITIONS: For the purposes of this Request for Tenders process

i) **"Bid"** or **"Offer"** means a Signed offer by a Bidder, to provide the services requested by the GN in this Request for Tenders (RFT) at the prices and with the equipment, facilities and qualified labour as submitted by the Bidder on the Bid Forms provided herein, which will be subject to evaluation and acceptance by the Buyer under the terms and conditions in these Instructions to Bidders.

ii) **"Bidder"** means any legal entity in the business of supplying construction related or general contractor services who may submit, or has submitted, a bid in response to this RFT;

iii) **"Buyer"** means the representative, authorized by the Contracting Authority, to request Tenders and issue a contract on behalf of the GN;

iv) **"Contract"** or **"Agreement"** means the Signed agreement between the GN and the successful Bidder for the work set out in the Technical Specifications which may result from this RFT. It will include the accepted Bid, the Tender Forms and Contract documents listed on the Bid Form, any addenda issued prior to closing, and any other limited modifications or clarifications as may be mutually agreed to between the GN and the Bidder as a result of this RFT, and shall only take effect once Signed by the Owner and issued to the successful Bidder (Contractor) with a formal contract award notice.

v) **"Contracting Authority"** means the Minister of the Department of Community and Government Services within the Government of Nunavut (GN);

vi) **"Contractor"**, in relation to the Contract, means the legal entity Bidder who is Responsible, and who has submitted the bid that is Responsive (compliant), and after application of the NNI Policy is lower than that of any other Responsible and Responsive Bidder, and has been formally awarded the Signed Contract with the Owner as a result of its Bid having been accepted.

vii) **"GN"** or **"Owner"** in the case of this RFT means the Government of Nunavut as represented by the Contracting Authority; and in the case of the Contract means the Government of Nunavut as represented by the Minister of the Department of Community and Government Services.

viii) **"Responsible"** means, in relation to a Bidder, the capability in all respects to perform fully the Contract requirements and the integrity and reliability to assure performance of the Contract obligations;

ix) **"Responsive"** means, in relation to a Bidder, that the Bidder has submitted a Bid which conforms in all material respects to the RFT, and is also referred to as "compliant" or "compliance";

x) **"Signed"** means a signature that has been physically hand written on the Bid Form by the person authorized to sign contracts on behalf of the Bidder. The signature on the bid can be scanned and uploaded via the Nunavut Tenders Bid Box, faxed or hand delivered. For the purposes of the Nunavut Tenders Bid Box, the signature cannot be a stamp or a digital signature or any form of signature such as one created in Adobe for signing Adobe files. **Failure to comply with this requirement will result in the bid being disqualified.**

BID SUBMISSION

1. **Bids received after the date and time established as the deadline for the receipt of bids will be considered late and will be rejected.**

2. **Incomplete, improperly signed, or misdirected Bids will not be accepted.**

3. **Bids submissions will only be received by hand delivery, fax transmission, or via the Nunavut Tenders "Bid Box".**

4. **If submitting by hand, deliver the bid to the office location and Procurement Officer identified on the Bid Form**.

5. **If submitting by fax, fax the bid to the fax number shown on the Bid Form. Faxed bids shall also comply with the following conditions:**
   a) Transmissions must be sent only to the fax number identified in the Bid Form.
   b) Transmissions must be received in their entirety on or before the exact time and date fixed for the receipt of quotes. For greater clarity, 'received in its entirety' means that all pages of the tender submission must be fully printed by the receiving fax machine on or before the stated closing date and time, and such tender submissions will not be considered received until all pages of the fax transmission are completely printed.
   c) It is the Bidder's sole responsibility to confirm with the Buyer that the transmission has been received in its entirety on or before the closing time.
   d) While the GN will undertake to handle fax submissions in a secure and confidential manner, it is impossible to guarantee the confidentiality of information contained therein; therefore, by faxing their bid, the Bidder waives any legal claim of confidentiality against the GN.

e) The GN shall not be held liable for any claim, demand or other actions for any reason should a facsimile transmission be illegible, garbled, incomplete, interrupted, not received in its entirety, received after stated closing time and date, received by any fax machine other than the one stated herein, or for any other reasons or risks associated with faxing tenders.

6. **If submitting online via the Nunavut Tenders "Bid Box" site (http://www.nunavuttenders.ca), online submission of bids is subject to the terms and conditions of the Nunavut Tenders website in addition to the conditions provided herein.** By using the Bid Box, Bidders are agreeing to the Terms of Use, which are linked to the Nunavut Tenders webpage.

   a) The GN shall not be held liable for any claim, demand or other actions for any reason should an online submission be illegible, garbled, incomplete, interrupted, not received in its entirety, uploaded after stated closing time and date, uploaded to a Reference Number other than the one indicated herein, or for any other reasons or risks associated with online tenders.

   b) For greater clarity, bids submitted online must be properly Signed. Failure to comply with the correct signature requirements will render the bid non-compliant.

7. **Due to limited bandwidth, file size restrictions and connectivity interruptions, Bids submitted by e-mail will not be accepted under any circumstances, and will be rejected as misdirected Tenders.**

8. ***If you wish to receive bid adjustments permitted by the NNI Policy, complete and submit Appendix B (the NNI Adjustments Bid Form) as part of your Bid.*** Use actual bid pricing on this form. This will include goods, services and labour provided by the bidder ("own forces"), goods and services including labour provided by any other sub-contractor, and goods provided by suppliers. The GN will calculate the bid adjustments in accordance with the evaluation and award provisions below. **For greater certainty, if you do not submit Appendix B, your bid will be evaluated, but you will not receive any bid adjustments. If the total price bid on Appendix B differs from the price submitted in the Bid Form, of if the pricing on Appendix B contains mathematical errors, your bid will be evaluated, but you will not receive any bid adjustments.**

9. **Failure to submit an NNI Incentives Bid Form will not alleviate the successful Bidder's obligation to provide Inuit Labour. For greater clarity, the Inuit Labour Requirement set out in Appendix C will remain a contractual obligation.**

10. The Contracting Authority cannot guarantee the accuracy of, nor is it liable for any information provided by the NNI Policy Secretariat on the NNI Business Search website, or Nunavut Tunngavik Inc. on the Inuit Firm Registry; however, Bidders may rely on the websites on the date of preparing their Bid, and the evaluation may rely on the accuracy of the websites on the closing date for the purposes of applying the NNI Policy in evaluating Bids. Accordingly, for the purposes of ensuring the correct bid adjustments are applied, Bidders should indicate the NNI and, or, NTI Registration Numbers on all Bid Forms along with the company names.

ASKING QUESTIONS ABOUT THE TENDER AND CONTRACT DOCUMENTS

11. THE BUYER IDENTIFIED ON THE BID FORM IS THE ONLY PERSON AUTHORIZED TO ANSWER QUESTIONS ABOUT THIS RFT.

12. Questions regarding this RFT should be in writing and received by the Buyer at least 5 working days before the Bid submission deadline (closing date and time). A response to any question received after this cut-off deadline can be guaranteed.

13. No site visit will be organized or permitted within 3 days before the Bid submission deadline.

14. Questions regarding modifications to the Contract terms and conditions shall be in writing and submitted at least 5 working days prior to the Bid submission deadline, and the GN may respond by way of addendum. Subject to any provision governing amendments to the Contract, modifications to the Contract terms and conditions will not be entertained post award.

15. Verbal responses to any question, whether by the Buyer or any other person, shall not be relied upon by the Bidder and shall not be binding on the Buyer or GN. Verbal communications are discouraged, cannot be relied upon, and are not binding on either party. Verbal responses to any inquiry or communication made by the contact person identified herein, or any other person, are not binding on either party and cannot be relied upon or construed to be an implied term of this RFT or any ensuing contract. The GN will accept no liability for any losses, damages or claims by an unsuccessful proponent who has relied on verbal information or communication from any other party, including our client.

GN CHANGES TO THE TENDER AND CONTRACT DOCUMENTS (ADDENDA)

16. The GN reserves the right to make any change amendment or clarification to this RFT at any time prior to the closing date and time, including amending the specifications and the closing date and time.

17. In the event of changes to the RFT, the Buyer will formally amend the RFT documents by way of an addendum, or other reasonable means, as soon as practically possible and at least no later than one (1) working day prior to the tender closing date and time. Notwithstanding the foregoing, in the event of inclement weather, the GN may extend the tender closing date on the day of closing.

18. If an addendum is issued, it will be posted on the Nunavut Tenders website (http://www.nunavuttenders.ca). Bidders who are registered and obtained the RFT document from the Nunavut Tenders website will receive an automatic e-mail notification from "no-reply@nunavuttenders.ca that an addendum has been posted. Such Bidders will be required to go to the website and download the addendum. Bidders not registered to the Nunavut Tenders website assume all risks of not receiving addenda.

19. Bidders not included in the Bidders List on the Nunavut Tenders website will not receive addenda directly from the Buyer or Contract Authority.

20. Bidder shall acknowledge receipt of addenda on the Tender Form.

21. **BIDDERS SHALL NOT MODIFY TENDER FORMS. CHANGES TO BID AND TENDER FORMS WILL RESULT IN DISQUALIFICATION OF THE BID.**

BIDDER CHANGES TO A SUBMITTED BID (AMENDMENT)

22. Bidders may amend or withdraw their tender submission at any time before the stated closing date and time but not after.

23. Bid amendments should indicate the bidder's name, address, tender reference number and the increase or reduction amount of the tender; or other applicable changes in such a manner that the total estimated Bid price is not revealed.

24. Bid amendments shall be Signed by the person authorized to sign the Tender on behalf of the Bidder.

25. Amendments may be hand delivered, submitted by fax or submitted online in accordance with the provisions of the submission rules above.

26. If amending a bid online, the Bidder may upload a Bid amendment identified as a Bid amendment, or the Bidder may upload a new Bid identified as a Revised Bid. The submission last uploaded by the Bidder will be deemed the official Bid.

BID EVALUATION – RESPONSIVE AND RESPONSIBLE

27. Bids shall remain valid, irrevocable and open for acceptance by the GN for a period of 90 days.

28. Bids shall be opened as soon as practicable after the stated closing date and time. Bids may be opened at a public opening in which only the Bidder's name and price, amendments, and where applicable, bid security will be announced. Thereafter, Bids will be evaluated based upon the price, the responsiveness of the tender, the responsibility of the Bidder, and application of the GN's NNI Policy.

29. Bid Security is not required with Tenders under $250,000.00. However, if a Bid in excess of $250,000 is acceptable, the successful Bidder may be required to furnish contract security in a form and amount prescribed by the Owner as a condition of contract award.

30. The lowest or any tender may not necessarily be accepted. If a Contract is to be awarded as a result of this RFT, it will be awarded to a Responsive Bidder who is Responsible, and has submitted a bid that after application of price adjustments permitted by the NNI Policy, is lower than that of any other Bidder. 'Responsive' means compliant in all material respects. 'Responsible' means the capability in all respects to perform fully the contract requirements and the integrity and reliability to assure performance of the contract obligations.

31. The GN reserves the right to accept or waive any minor informality or minor non-compliance with these Instructions to Bidders or other requirements; however, a substantial or material non-compliance shall not be waived. A substantial requirement is indicated by "shall" or "must". A minor requirement is indicated by "should" or "may".

32. The GN reserves the option of requesting complete details of the Bidder's qualifications and service capabilities. Failure to provide information sufficient to satisfy the requirements of this RFT may result in the Bidder bid being deemed 'Not Responsible' and disqualified from further consideration.

33. A Bidder found to be lacking the responsibility or capability to assure proper performance of the Contract, or delivery of the services, may be deemed 'Not Responsible' by the Contracting Authority for the purposes of this RFT. A Bidder who has defaulted on a contract for similar services within the last twelve (12) months may also be deemed Not Responsible by the Contracting Authority and prohibited from future RFTs until such time as the Bidder can satisfy the GN that it has corrected

all documented deficiencies and grievances against it. For greater clarity, if successful on future tenders, such a Bidder may be required to furnish bid security with future tenders and contract on resulting contracts until the GN is satisfied that the Bidder is fully Responsible.

BID EVALUATION – NNI BID ADJUSTMENTS

34. One of the priorities of the GN is to ensure that Nunavut, Inuit and Local materials, equipment and labour are used in GN contracts; therefore, the NNI Policy applies to this RFT.

35. The NNI Policy permits Nunavut, Inuit and Local adjustments to the bid amounts of companies listed in the GN's NNI Registry (www.nni.gov.nu.ca/search) or in the NTI Inuit Firm Database (http://inuitfirm.tunngavik.com/search-the-registry/). The maximum adjustment for cost inputs is 21%.

36. ONLY A RESPONSIVE AND RESPONSIBLE BIDDER SHALL BE ENTITLED TO NNI ADJUSTMENTS, provided that Appendix B has been completed and submitted with the Bid. For greater clarity, if Appendix B has not been submitted, or if the total price bid on Appendix B differs from the price bid on the Tender Form, or if the pricing on Appendix B contains mathematical errors, bid adjustments will be denied.

37. The GN reserves the right to request clarification or additional information of the amounts claimed below and failure to provide such information may result in the Bidder not receiving the adjustment.

38. The GN reserves the right to make adjustments to a Bid after closing in accordance with the NNI Policy by taking into account any information that will assist it in doing so, including by taking into account information obtained from the NNI Nunavut Business Registry maintained by the NNI Secretariat and the Inuit Firms Registry maintained by the NTI. For greater certainty, if the GN determines that a bidder should, or should not, receive a bid adjustment pursuant to the NNI Policy, it can adjust the evaluation of the bid accordingly.

CONTRACT AWARD

39. It is a condition of this RFT that any resulting contract award hereunder is subject to section 46 of the Financial Administration Act, as amended, which provides as follows:

> *"It is a condition of every Contract made by or on behalf of the government requiring an expenditure, that an expenditure pursuant to the Contract will be incurred only if there is a sufficient uncommitted balance in the appropriated item for the fiscal year in which the expenditure is required under the Contract.*"

40. If a Contract ensues form this RFT, it will be issued to the successful Bidder upon provision of satisfactory insurance coverage in accordance with Appendix A and following for signature by the GN's contracting authority. The successful Bidder and the GN shall not acquire any legal or equitable rights or privileges under any ensuing Contract until it is signed by both parties and formally awarded.

41. If a contract is awarded as a result of this RFT, it will be governed by the laws of Nunavut; therefore, the successful Bidder shall be required to comply with all applicable laws, orders, rules and regulations; and, without limiting the generality of the foregoing, shall at its sole expense comply with all unemployment insurance, Worker's Safety and Compensation, Labour Standards including requirements of the Labour Standards Board, income tax, Nunavut Payroll Tax, Canada Pension Plan, occupational health and safety and environmental protection legislation.

    a) If the Bidder is a new business in Nunavut, it will be required to register its business with the Workers Safety and Compensation Commission (WSCC) prior to undertaking any work or services in Nunavut. For greater clarity, Nunavut does not have any reciprocity agreements with other provincial and territorial workers safety and compensation commissions. The GN may check with the WSCC prior to awarding a contract to ensure that the successful Bidder is in compliance with the *Workers Compensation Act*. For more information, please call Employer Services at (867) 979-8500 or toll free at 1 877 404 4407, or visit the website's (http://www.wscc.nt.ca/Pages/default.aspx) *Registering A Business* page.

    b) If the Bidder is a new business in Nunavut, it will be required to comply with the *Business Corporations Act* and other applicable legislation governing the conducting of business in Nunavut. The GN will check with its Corporate Registries branch in the Department of Justice, prior to the awarding of a contract, to ensure that the successful Bidder is in compliance with the legislation. It will be a condition of contract award, that the successful Bidder register its business with the GN's Department of Justice's Legal Registries Division prior to a formal contract award or undertaking any work or services in Nunavut. For more information, call (867) 975 – 6590; e-mail ; or visit the Corporate Registries website at: http://nunavutlegalregistries.ca/cr_index_en.shtml.

c) Nunavut imposes payroll taxes on gross remuneration of all employees who work in Nunavut. For more information on Nunavut's unique Payroll Tax, e-mail the Department of Finance Taxation Division at payrolltax@gov.nu.ca, or visit the website: http://www.finance.gov.nu.ca/apps/authoring/dspPage.aspx?page=tax_payroll.

d) If the successful bidder has defaulted on a previous contract, but has not been deemed Not Responsible, the Owner **may** require contract security as a condition of contract award.

GENERAL

42. The GN reserves the right to cancel this RFT at any time during this process, and to revise and re-issue new or similar requirements thereafter, for any reason whatsoever, without incurring any liability; and no Bidder will have any claim against the GN as a consequence.

43. The GN's *Access to Information and Protection of Privacy Act* (Nunavut) S.N.W.T. 1994, c. 20 (the Act) will define the GN's responsibilities with respect to any information received by it pursuant to this RFT process. Subject to the Act and any applicable law, tenders and all related information shall be treated as confidential and shall not be disclosed to any person except with the consent of the Bidder and to the extent disclosure is required to fulfill obligations under this RFT or pursuant to any applicable law. Notwithstanding the foregoing, the GN's contracting activities are undertaken with public funds, and are therefore subject to public reporting requirements. Annually, the GN releases a detailed Procurement Activity Report (PAR) which identifies the winning Bidder, the contract award method and contract award amount along with other pertinent information.

44. The GN is not liable for any costs of preparation or presentation of any Bids. All Bids and accompanying documentation received by the GN in response to this RFT shall become the property of the GN and will not be returned.

45. The GN is not liable for any costs of preparation or presentation of any Bids. All Bids and accompanying documentation received by the GN in response to this RFT, including bids that were received after the bid submission deadline and deemed late, shall become the property of the GN and will not be returned.

46. Notwithstanding any other provision, a Bidder who submits a Bid in response to this RFT agrees that the GN's liability for any claim for damages or compensation of any kind related directly or indirectly to a breach of contract or other cause of action arising from this RFT process, shall be limited to the Bidder's actual Bid preparation cost. Bid preparation cost is the actual cost borne by a Bidder to prepare and submit its response to this RFT. By submitting a Bid to this RFT a Bidder acknowledges and accepts this limitation.

47. This procurement document can be made available, upon request, in any of the 4 official languages (Inuktitut, Inuinnaqtun, English, French), of Nunavut. ᐅᓇ ᓂᐅᕕᖅᑕᖃᑦᑕᓐᓂᖕᒧᑦ ᑎᑎᖅᑲᖅ ᐊᑐᐃᓐᓇᐅᔪᓐᓇᖅᑐᖅ, ᑐᒃᓯᕋᖅᑕᐅᓗᓂ, ᓇᓕᐊᖕᓂᑐᐃᓐᓇᖅ ᐃᓕᓴᕆᔭᐅᓯᒪᔪᑎᒍᑦ ᑎᓴᒪᑎᒍᑦ ᐅᖃᐅᓯᖅᑎᒍᑦ (ᐃᓄᒃᑎᑐᑦ, ᐃᓄᐃᓐᓇᖅᑐᓐ, ᖃᑉᓗᓈᑎᑐᑦ, ᐅᐃᕖᑐᑦ), ᓄᓇᕗᒻᒥᑦ Una havaamut pidjutaut titiraq taiguarumagukni, apiriguvit, kitunik hitamauyut ilitariyauyut uqauhiinik (Inuktitut, Inuinnaqtun, Qablunatut, Uiviititut), Nunavunmit Ce document d'approvisionnement est disponible, sur demande, dans les quatre langues officielles (inuktitut, inuinnaqtun, anglais, français) du Nunavut.

Bid Form/Contract Signature Page

Reference Number 16420-00340-02

(Please refer to this number when making inquiries)

Issue Date: August 5th, 2016 Closing Date & Time: August 16th, 2016 16:00hrs Iqaluit Local Time

A Public Opening will be held at 10:00 AM the following business day.

Government of Nunavut
Community & Government Services
Purchasing, Logistics & Contract Support
3rd Floor W. G. Brown Building
Iqaluit, NU X0A 0H0
Fax Number: (867) 975-5450
In Care Of:
Buyer: Bonnie Osborne, Contracts Advisor

Phone: 867 – 975 – 5415

E-mail: bosborne@gov.nu.ca

Bidder's Name and Address (FILL IN OR STAMP):

NNI Registration # _____ NTI Registration # _____

Bidder's Authorized Representative (Print):
Name and Title: _____
Phone Number: _____
E-mail: _____

Men's Healing Centre Electrical Upgrades, Kugluktuk, Nunavut

Work under this contract consists of, but is not necessarily limited to the replacement of selected electrical distribution panels and providing underground and overhead power to outside buildings at the Ivalut Men's Healing Centre as set out in the drawings and specifications. The Tender and Contract documents form the general intent of the work, and consist of the following:

1. Instructions to Bidders – 5 pages
2. Bid Form/Contract Signature Page – 2 pages
3. Bid Submission Form – 1 page
4. Appendix A – Contract Terms and Conditions – 4 pages
5. Appendix B – NNI Adjustments Form – 1 page
6. Appendix C – Contractor's Obligation to Provide Inuit Content – 2 pages
7. Appendix D – Employment Report – 1 page
8. Technical Specifications – 64 pages
9. Drawings G-000, E-100, E-101, E-600, E-700 – 5 pages

Continued Next Page…

BIDDER'S OFFER AND ACKNOWLEDGEMENTS

The Bidder hereby covenants and agrees to execute and complete the work described herein, on or before the **5th day of November, 2016** in a professional and competent manner, in accordance with the terms and conditions outlined in the Contract, for the total bid price (in numbers only) of: **$** _____

1. **The Bidder acknowledges receipt of Addenda # ____ to # ____** issued with this RFT, and agrees they will be incorporated into the resulting Contract if this Tender is accepted.
2. Prices are in Canadian funds and do not include GST.
3. The bid price includes all wages, allowances, supervision, workers safety and compensation insurance, comprehensive general liability and other necessary insurance, and all statutory charges, profit, overhead, office materials, supplies and equipment, local and non-local transportation, and any charges associated with providing the service after normal business hours, and where applicable, and the Bidder's contingency allowance.
4. Should the Bidder be found to be lacking the responsibility or capability to assure proper performance of the Work, it may be deemed 'Not Responsible' by a GN Contracting Authority for the purposes of this RFT, and this bid may be rejected.
5. If awarded the ensuing Contract, should the Contractor default on the delivery of the Work prior to the deadline established for completion of the Work, the Contractor may be deemed 'Not Responsible' by the Contracting Authority and prohibited from bidding on future RFTs for similar works until such time as the Contractor can satisfy the GN that it has corrected all documented deficiencies and grievances against it.
6. **The Bidder warrants that this bid is submitted without collusion between itself and any other Bidder.**
7. **I/WE HAVE READ AND UNDERSTAND THE TENDER AND CONTRACT DOCUMENTS AND HEREBY ACKNOWLEDGE AND AGREE THAT BY SUBMITTING A BID, WE ARE AGREEING TO ALL TERMS OF THE TENDER AND CONTRACT DOCUMENTS, AND WILL SIGN AND ABIDE BY THE TERMS AND CONDITIONS OF THE CONTRACT SHOULD OUR BID BE SUCCESSFUL.**

_____

Bidder's Authorized Representative (Signature MUST BE SIGNED BY HAND and NOT by digital, electronic or stamp).

GOVERNMENT OF NUNAVUT (OWNER) ACCEPTANCE

Government of Nunavut Authorized Signature	Title	Date

Issue Date: August 5th, 2016 Closing Date & Time: August 16th, 2016 16:00hrs Iqaluit Local Time

A Public Opening will be held at 10:00 AM the following business day.

Bid Form Continued…

SUPPLEMENTARY INSTRUCTIONS TO BIDDERS

Instructions to Bidders and Bid Forms
Carefully read and follow the Instructions to Bidders and the instructions on all Appendices. Failure to follow instructions may result in the tender being rejected. For greater clarity, "shall" indicates a mandatory requirement which owner does not have discretion to waive; strict compliance is required. "Should" indicates owner has discretion to waive a minor irregularity or non-compliance.

Bidder's Offer and Acknowledgements
Carefully read the entire RFT and Contract documents. Fill out the Bidder's Offer section with the total contract amount and sign the Bidder's Acknowledgements section (Bidder's Authorized Representative). Refer to the Instructions to Bidders for instructions regarding the specific requirements for signatures on Bids. All work provided for in the Contract Documents must be completed on or before the deadline for completion, and within the cost of the contract set out in the Bid Form/Contract Signature Page. Failure to complete contracts on time and on budget may result in a poor performance rating on future tenders.

Bid Submission Form
This form is not a mandatory requirement; however, Bidders should fill it out and submit it to identify their legal capacity to carry on business in Nunavut. Refer to the Contract Award provisions in the Instructions to Bidders.

Appendix A – Contract Terms & Conditions
These are the general terms and conditions of the contract resulting from this RFT. These terms and conditions govern the relationship between the GN and the successful bidder during the performance of the work. Questions regarding the contract terms and conditions must be received in writing prior to the RFT closing date. Refer to the Instructions to Bidders for deadlines. The successful Bidder will be required to become familiar with Appendix A. Note additional terms and conditions of the contract are included in the project specifications.

Appendix B - Nunavut Naminiqaqtunik Ikajuti (NNI Policy) Incentives Form (for Bid Adjustments)
In order to receive any bid adjustments permitted by the NNI Policy, complete and submit Appendix B with your tender. Carefully follow the instructions when filling out the form. If you have any questions, contact the Buyer identified on the Bid Form/Contract Signature Page. Refer to the Instructions to Bidders for more information. If this form is not filled out and submitted, the bid adjustments won't be applied.

Appendix C - Contractor's Obligation to provide Inuit Content
In order to receive an Inuit Labour Bonus payment permitted by the NNI Policy, the successful Bidder will be required to exceed the minimum mandatory requirement for Inuit Labour set out in Appendix C. Concerns about the percent requirement for Inuit Labour should be brought up to the attention of the Buyer before the closing date and time. If the percentage level of Inuit Labour identified on Appendix B is lower than the minimum requirement, or if the Appendix B form is not submitted, the lowest responsive and responsible bidder eligible for a contract award will be required to agree in writing to meet the minimum Inuit Labour requirement in the performance of the contract.

Appendix D - Employment Report
This from is not required with the Bid. This form must be submitted by the Contractor with invoice(s) for the work. The GN uses this form to monitor the Contractor's Inuit Labour achievements and will use this data in assessing whether the Contractor is entitled to receive an Inuit Labour Bonus on completion of the work. The contractor will have to list all employees who do work under this contract including their Inuit or Non-Inuit status. Failure to submit this information will result in a potential Inuit Labour Bonus being denied.

Technical Specifications and Drawings
This Appendix sets out what the work involves. Bidders should read this section carefully and bring any questions to the attention of the Iqaluit Facilities Manager. If any changes or clarifications are required, they should be requested before the Tender closing date and time.

REQUEST FOR TENDERS
Bid Submission Form

Reference Number 16420-00340-02

(Please refer to this number when making inquiries)

The following information should be provided by Bidders wishing to have their Bid evaluated. If the successful Bidder is not legally registered with the Government of Nunavut's Department of Justice, Legal Registries Division, in order to legally do business in Nunavut, then the successful Bidder will be required to register with Nunavut Legal Registries prior to a contract being awarded.

COMPANY NAME: _____

ADDRESS: _____

_____

Please indicate yes or no if the entity submitting the Bid is an Incorporated Company: _____

Is the company registered to do business in Nunavut? (Y/N) _____

The company registered in (indicate province/territory): _____

Is the company extra-territorially registered in Nunavut? (Y/N) _____

Registration Number(s): _____

AUTHORIZED PERSON(S) – (PLEASE PRINT NAME(S) & TITLE(S):

_____

_____

AUTHORIZED SIGNATURE(S): _____

_____

AUTHORIZED CONTACT PERSON: _____

AUTHORIZED PROJECT MANAGER: _____

AUTHORIZED SITE SUPERINTENDENT: _____

PHONE NUMBER: _____ **FAX NUMBER:** _____

E-MAIL ADDRESS: _____ **DATE:** _____

NUNAVUMMI NANGMINIQAQTUNIK IKAJUUTI (NNI POLICY)

The Bidder is a Nunavut Business as defined in the NNI Policy and is registered with the NNI Secretariat and listed in the NNI Registry with the following Registration Number: _____

The Bidder is an Inuit Firm as defined in the NNI Policy and is registered with NTI and included in the Inuit Firms Registry with the following IFR Registration Number: _____

OTHER:

- ☐ **NUNAVUT WORKERS SAFETY & COMPENSATION COVERAGE**
- ☐ **INSURANCE AS PER CONTRACT CONDITIONS**
- ☐ **REGISTERED FOR NUNAVUT PAYROLL TAX**
- ☐ **LOCAL BUSINESS LICENSE**

1. GENERAL

a. No Bid or Contract security is required for this Contract.

b. Time is of the essence of this Contract.

c. This Contract will be interpreted and governed in accordance with the laws of Nunavut and the laws of Canada as they apply in Nunavut.

d. The Contractor waives all rights of recourse against the Owner for damages to the Contractor's property or property of others for which the Contractor is responsible and the Contractor's Insurers of such property shall have no right of subrogation against the Owner.

e. The Contract comprises the entire agreement between the parties and supersedes all communications, negotiations and agreements relating to the work, either written or oral, that were made prior to the date of the Contract.

f. No implied terms or obligations of any kind by or on behalf of the Owner shall arise from anything in the Contract and the express covenants and agreements therein contained and made by the Owner are the only covenants and agreements upon which any rights against the Owner are to be founded.

g. This Contract shall enure to the benefit of and be binding on the respective administrators, successors and assigns of each of the parties hereto.

h. It is a condition of this Agreement that payment hereunder is subject to Section 46 of the *Financial Administration Act* (Nunavut) as amended or reenacted in successor legislation during the term of this Contract. Section 46 currently provides as follows: "It is a condition of every Contract made by or on behalf of the government requiring an expenditure, that an expenditure pursuant to the Contract will be incurred only if there is a sufficient uncommitted balance in the appropriated item for the fiscal year in which the expenditure is required under the Contract."

i. It is intended that all provisions of this Contract shall be fully binding and effective between the parties, but in the event that any particular provision or provisions or a part of one is found to be void, voidable, or unenforceable for any reason whatever, then the particular provision or provisions shall be deemed severed from the remainder of this Contract and all other provisions remain in full force.

j. The Contractor is an independent Contractor with the Owner and nothing in this Contract shall be construed or deemed to create the relationship of employee and employer or of principal and agent between the Owner and the Contractor.

k. Should an event giving rise to such a conflict of interest occur after a contract is awarded, the Contractor shall immediately notify the GN, in writing, and present a plan whereby the conflict may be managed or avoided. Upon receipt of such notice, the GN may, in its sole discretion, elect to terminate the contract, or continue under the contract subject to the Contractor’s satisfactory compliance with a conflict management plan.

l. Whenever travelling outside of the Contractor’s home location for work under this contract, the Contractor shall use, and require all non-resident sub-contractors to use, a licensed hotel or bed and breakfast facility for accommodations in the community where the work is to be carried out.

m. Smoking is not permitted. The Government of Nunavut recognizes the health hazards associated with tobacco smoke in the work place, both to smokers and non-smokers alike. Accordingly, the Government of Nunavut will not permit the smoking of tobacco, in any form, on Government premises. The Contractor and all its employees shall adhere to this policy.

n. The GN’s offices and premises are to be scent free. The Government of Nunavut recognizes the health hazards associated with perfumes and scents in the workplace, to all employees and persons on GN premises. Accordingly, the Government of Nunavut does not permit the use of colognes, perfumes or deodorants to be used by any staff, contractors and cleaning personnel. The Contractor and all its employees shall adhere to this directive.

o. The Contractor will respect the privacy and property of the GN, and the personal and private property of GN employees.

p. The Government of Nunavut will not be responsible for any start-up, materials, supplies or equipment costs.

2. CONTRACTOR'S OBLIGATIONS

a. be familiar with the Contract documents and make allowance in their Tender for all existing conditions that will affect the execution of the work.

b. furnish all tools, equipment, labour, supervision, materials and other supplies and services necessary for and incidental to the execution and completion of the Work unless specified to the contrary.

c. not assign this Contract or subcontract the work, without the prior written consent of the Owner. If, with the Owner's consent, the Work or any part of the Work is done by a subcontractor, the contractor shall be fully responsible to the Owner for the acts and omissions of the subcontractor and all its servants, agents and employees. Where the Contractor is not already using Inuit or Nunavut or Local firms as subcontractors and wishes to subcontract the work, the Contractor shall invite only Nunavut, Inuit or Local firms to bid on the subcontract. Local is defined in the NNI Policy and includes Inuit firms as well as Nunavut firms.

d. bind any subcontractor to the terms of this Contract.

e. comply with all codes, laws and regulations in effect at the place of work and the Contractor shall arrange and pay for all permits, licenses and fees required in connection with the Work.

f. where specified, provide shop drawings acceptable to the Owner, and, at the completion of the Work, provide as-built drawings.

g. maintain one copy of all Contract documents at the site.

h. provide the Owner with all color and materials samples required by the specifications for approval.

i. provide a work schedule when requested by the Owner; conform to the schedule; and provide sufficient labour and material to conform to that schedule.

j. permit the Owner full and free access to the site and work at all times and provide full information concerning the Work upon request.

k. promptly replace faulty materials and rectify faulty workmanship at the Contractor’s expense.

l. keep proper books of account with respect to the Work and produce them for examination of the Owner upon request within a three-year period from Substantial Completion.

m. provide written cost quotation for any changes to the Work specified by the Owner and undertake such changes upon request.

n. submit any progress claims, accompanied by all necessary supporting documentation for Owner consideration. Any accepted progress claim shall be subject to a holdback of ten percent of the value of the progress claim.

o. upon completion of the Work, furnish an invoice for the Work accompanied by a Statutory Declaration that all obligations have been met, and by the Employment Report and other related documents which confirm the total amount of Inuit, Local and Nunavut content is used in the Work.

p. guarantee and warrant the Work for a period of twelve months from the date of Substantial Completion of the Work or for such longer period as might otherwise stated in the Contract.

q. The Contractor will indemnify and save harmless the GN, its employees and agents from and against all claims, demands, losses, damages, causes of action, costs and expenses made against or incurred, suffered or sustained by the GN at any time either before or after the expiration or termination of this agreement, where the same or any of them are based upon, arise out of or occur, directly or indirectly, by reason of any act or omission of the Contractor or of any agent, employee, officer, director or subcontractor of the Contractor pursuant to this agreement, excepting always liability arising out of the independent negligent acts of the GN.

r. maintain the following Insurance coverage for the duration of the Contract:

- Commercial General Liability insurance with limits of not less than two million dollars ($2,000,000) inclusive per occurrence for bodily injury, death and damage to or loss of use of property. Such insurance shall include but shall not be limited to the following terms and conditions:
  - Products and Completed Operations
  - Owners & Contractors Protective
  - Contractual Liability;
  - Broad Form Property Damage;
  - Personal Injury
  - Cross Liability and Severability of Interest;
  - Medical Payments
  - Non-Owned Automobile Liability including contractual liability
  - Underground Property Damage; (in respect to any work involving ground disturbance.)
  - Contingent Employers Liability
  - Employees as Additional Insureds.
- Professional Liability Insurance with limits of not less than two million dollars ($2,000,000) per claim, to cover claims arising out of the rendering of or failure to render any professional service under the Agreement.
- All motor vehicles, watercraft or snowcraft used by the Contractor in the performance of the agreement , regardless of ownership, shall be insured by Standard Liability Insurance in an amount not less than two million dollars ($2,000,000) per occurrence for bodily injury, death and damage to property;
- Environmental Impairment Liability Insurance with limits of not less than 2 million dollars ($2 million) to cover claims that the Contractor has to pay as a result of any claims caused by Pollution (including clean-up costs). This policy must cover damages sustained by the GN itself and any third parties. This policy must also cover claims arising out of the rendering or failure to render any professional service under this agreement (in relation with pollution claims).
- Course of Construction insurance on an " All Risks" basis for physical loss or damage to materials, equipment, machinery, structures, property, fittings, fixtures and supplies that will form part of the finished Work. The Contractor shall be responsible for the deductible to a maximum of $50,000.
- The amount of deductible on any insurance provided by the Contractor shall be borne by the Contractor in its entirety. All required insurance shall be endorsed to provide the Owner with thirty (30) day advance written notice of material change, cancellation or termination. The Contractor shall complete and submit the "Contractor's Certificate of Insurance" form available from the Owner prior to execution of the Contract.
- The Contractor shall name the GN as an additional insured only with respect to the terms of this Agreement and shall extend to cover the employees of the insureds thereunder.

s. pay and be solely responsible for payments of all statutory deductions or contributions including, but not limited to, pension plans, unemployment insurance, income tax, Worker's Compensation and the Nunavut payroll tax.

t. immediately notify the Owner in writing should he consider a decision by the Owner to be in error and/or at variance with this contract. Such notification however, shall not relieve the Contractor from confirming with the instructions of the Owner, or completing the Work.

3. GOVERNMENT OF NUNAVUT'S RIGHTS AND OBLIGATIONS

a. If the work is not being properly done, or if the Contractor fails to comply with a written request from the Owner within 24 hours, the Owner may:
- suspend progress of the Work at any time;
- correct the defective Work itself;

- deduct the difference in cost between the Work completed and the work required by the Contract;
- deduct the cost to rectify the deficiency from any amount owing to the Contractor, on this or any other Contract;
- hold back, in whole or in part, any amount due to the Contractor until the deficiency has been rectified to the Owner's satisfaction.

b. Terminate the contract at any time, without penalty or damages, upon giving written notice to this effect to the Contractor, if in the opinion of the GN:
   - the contractor is unable to deliver the service required;
   - the Contractor's performance of the work is faulty;
   - the Contractor becomes insolvent or commits an act of bankruptcy;
   - the Contractor defaults or fails to observe the terms and conditions of the contract in any material respect;
   - any actual or potential labour dispute delays or threatens to delay timely performance of the contract;
   - and the Contract shall terminate on the date stated in the written notice. The contractor shall then invoice the GN for work performed to the date of termination.

c. make written changes in the Work by adding to, or deleting from or revising the Work so long as the changes do not fundamentally alter the contract.

d. make payment to the Contractor within thirty (30) days after receipt of invoices, except that the Owner shall pay Nunavut Contractors within twenty (20) days of receipt of invoice.

e. upon completion and acceptance of Work pay the Contractor the agreed Contract sum less any assessments made under the Contract.

Appendix B

Reference Number 16420-00340-02

(Please refer to this number when making inquiries)

Nunavummi Nangminiqaqtunik Ikajuuti – Bid Adjustments Form

The following information MUST be provided by proponents wishing to receive any pricing adjustments permitted under the NNI Policy. If the information is not provided or is incomplete, bid adjustments will NOT be granted. Include all applicable activities for the Bidder and all subs and suppliers. List the full business name of the company providing the goods or services, as shown in the NTI Inuit Firm or NNI Secretariat Nunavut Business directory, in the "Company Name" column. NNI or IFR Registration Numbers can also be provided. Put the dollar amount associated with each component in the "$ Amount for Component" column. Company status will be verified by the GN and bid adjustments will be applied in accordance with the business's status as an Inuit Firm or Nunavut Business. Location in the work site community will also be considered.

Name of Bidder	
A separate form is attached for each Sub-Contractor (circle applicable)	*Yes or N/A if no sub(s)*

COST ELEMENTS BREAKDOWN *(Give a breakdown of your total bid by applicable cost components).*

Notes: Nunavut Businesses are those approved by the GN NNI Secretariat for the NNI Registry of Nunavut Businesses. Inuit Firms are those on the NTI Inuit Firms Registry. Registered Nunavut Businesses and Inuit Firms are "Local" if they are registered for the community where the work will be carried out. Company status will be verified by the GN and bid adjustments will be in accordance with the business's status.

List as "own forces" or if the Bidder (as the General Contractor) is providing the component). If not own forces, then list the full business name of the company providing the component.			**Check the appropriate column(s) below for each named company. Company status will be verified by the GN and prices adjusted based on actual registered status where a box is checked. If a box is not checked, an adjustment can be denied.**				
Cost Component	**Company Name**	**$ Amount for Cost Component**	**Nunavut Business** 7%	**Inuit Firm** 7%	**Local Business** 7%	**Other Business** 0%	**Total %**
General Contractor's Payroll Use the Payroll Breakdown table below for bid adjustments. Submit sub-contractor amounts on separate Appendix B forms).		**$**					
Material Supplier 1		**$**	☐	☐	☐	☐	
Material Supplier 2		**$**	☐	☐	☐	☐	
Equipment		**$**	☐	☐	☐	☐	
Accommodation		**$**	☐	☐	☐	☐	
Transportation		**$**	☐	☐	☐	☐	
Subcontractor 1		**$**	☐	☐	☐	☐	
Subcontractor 2		**$**	☐	☐	☐	☐	
Subcontractor 3		**$**	☐	☐	☐	☐	
General Contractor's Expenses (may include profit & overhead). Sub-contractor Expenses to be provided on separate Appendix B forms.		**$**	☐	☐	☐	☐	
TOTAL BID (Total of all Appendix B forms)		**$**	**Total Adjustments**			**Adjusted Price**	

Payroll Breakdown: Indicate the General Contractor's Inuit, Nunavut and Other Labour payroll amounts. Sub-contractors must break out their own total payroll on a separate form. The Total of all Inuit Labour amounts compared to the Total of all Payroll Amounts should meet the prescribed minimum Inuit Labour Requirement specified in Appendix C. The Total Inuit Labour amount is the sum of the amounts for Local Inuit Residents and Non-Local Inuit Residents. If the minimum requirement is not met, the low Bidder will be required to commit to the minimum requirement if a contract is to be awarded.

Total Payroll from table above	Other Labour	Nunavut Labour (Local)	Nunavut Labour (Not Local)	Inuit Labour (Local)	Inuit Labour (Not Local)	Total Inuit Labour
$	$	$	$	$	$	$
Adjustments given will be:		*(14%)*	*(7%)*	*(21%)*	*(7%)*	

Contractor's Obligation to Provide Inuit Content

1. DEFINITIONS

1.1. "Inuit (singular Inuk)" means a person described in Article 1.1.1 of the Nunavut Land Claims Agreement (NLCA) and who has enrolled himself or herself on the Inuit Enrolment List under Article 35 of the NLCA.

1.2. "Inuit firm" means an entity which complies with the legal requirements to carry on business in the Nunavut Settlement Area, and that is, prior to tender closing, included on Nunavut Tunngavik Inc. (NTI)'s Inuit Firms Registry.

1.3. "Labour" means the total Labour used on the job in any capacity and including, for example, tradespeople, administrative staff and professional staff whether in a head office or in a site office and attributable to this project. "Inuit Labour" refers to the status of employees and may be directly provided by the general contractor or indirectly through a sub-contractor, and not necessarily through an Inuit Firm.

1.4. "Goods and Work" means the entire dollar value of the Work including Labour. For further clarification "Inuit Goods and Work" includes all labour of Inuit Firms attributable to and paid from the Contract.

1.5. "Inuit Content" is defined as the dollar value of the goods and work required by the Contract supplied by any Inuit Firm or Inuit sole proprietorship and Inuit Labour. Inuit Content may include:

i. goods and work supplied by an Inuit Firm or Inuit supplier acting as the General Contractor. These are referred to as "own forces";

ii. goods and work supplied by an Inuit Firm or Inuit supplier so long as these goods and work are required for the completion of the Contract and are paid for by the Contract.

iii. Inuit Labour by an Inuit Firm or a non-Inuit Firm.

2. GENERAL REQUIREMENTS

2.1. The NNI Policy applies to this contract. This contract contains provisions regarding a required Minimum Level of Inuit Labour that must be met or exceeded in the performance of the Contract. The requirements set out in this Appendix, to meet the required Minimum Level of Inuit Labour, is a fundamental term of the contract. The minimum prescribed level of Inuit Labour shall be complied with.

2.2. The levels of Inuit Content tendered on Appendix B shall also form a fundamental contractual obligation.

2.2.i. Inuit Labour is the dollar value of Inuit Labour provided by Inuit and Non-Inuit firms for this contract.

2.2.ii. Inuit Content is the dollar value of Goods and Works provided by Inuit firms.

2.3. For an Inuit Labour level achieved which differs from the level prescribed, a bonus or penalty will be assessed in accordance with the NNI Policy. A bonus would be for exceeding the minimum prescribed Inuit Labour level, and a penalty would be for not meeting the minimum prescribed Inuit Labour level.

2.4. In the performance of the work, the Contractor shall maximize the value of Inuit Labour and Inuit Goods and Work, and shall meet or exceed the Minimum Inuit Labour requirement identified in this Appendix.

2.5. The Contractor shall submit reports at the completion of the work, or as specified, that indicate the amount of Inuit Labour and Inuit Goods and Work used. No payment shall be due or payable to the Contractor if the Contractor fails to supply these reports to the Owner.

3. REQUIRED MINIMUM LEVEL OF INUIT LABOUR

3.1. **For the purpose of this contract, the required Minimum Level of Inuit Labour to be provided by Inuit workers shall be 10% (expressed as a percentage by dollar value) of the total labour value expended on the contract.**

4. FAILURE TO ACHIEVE INUIT CONTENT REQUIREMENTS

4.1. In addition to the bonus or penalty prescribed by the Nunavummi Nangminiqaqtunik Ikajuuti (NNI Policy) for exceeding or not meeting the required Minimum Level of Inuit Labour set out in section 3 of this Appendix, the following damages may apply for failure to achieve the Inuit Labour and Goods and Work tendered on Appendix B:

i. For failure to meet the levels of Inuit Labour and Inuit Goods and Services tendered by the Contractor on Appendix B of the tender, the contractor will be in breach of contract and general conditions concerning contract breach may apply.

ii. The Owner may terminate this contract prior to completion if the Contractor has not demonstrated compliance with the requirement to attain the prescribed minimum levels of Inuit Labour set out in this Appendix.

iii. Additionally, if the Contractor fails to meet the prescribed minimum Inuit Labour set out in this Appendix, then for future tenders where there are similar prescribed minimum levels for Inuit Labour, the Owner may deem the Contractor to be "not responsible" (as defined in the Government Contract Regulations).

5. INDEMNIFICATION

5.1. The Contractor shall indemnify the Owner against any claim brought by any person because of any failure by the Contractor to achieve the prescribed levels of Inuit Labour prescribed by this contract.

6. WAIVER OF INUIT CONTENT REQUIREMENTS

6.1. The required Minimum Level of Inuit Labour shall only be reduced when sufficient Inuit Labour is not available and the Contractor has requested and received prior approval by the Owner in writing to reduce the prescribed levels.

APPENDIX D
EMPLOYMENT REPORT

Project No.:	Contract No.:

Project Name:		
Project Location:		
General Contractor:	Project Officer:	
Report Submitted By (General/Subcontractor):	Reporting Period: From:	To:

This Employment Report is submitted with: *(CHECK ONE)*

_____ Progress Claim Date: _____

_____ Certificate of Substantial Completion Date: _____

Final Certificate of Completion Date: _____

Employee's Name	**Inuit		Employee's Address	First Day on Project Site	Last Day on Project Site	Hours of Work This Period	Hours of Work to Date	Gross Income this Period	Gross Income to Date	*Class
	Yes	No								

Contractor's/Subcontractor's Name and Title *(PRINT)*	Contractor's/Subcontractor's Signature	Date

* Class

1. Superintendent 2. Carpenter 3. Carpenter Apprentice 4. Labourer 5. Mechanical 6. Mechanical Apprentice 7. Electrician
8. Electrical Apprentice 9. Drywaller/Painter 10. Drywaller/Painter Apprentice 11. Other (Specify)

** Beneficiary of the Nunavut Land Claims Agreement

TABLE OF CONTENTS

Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work of this Contract comprises of:

.1 Replacement of selected electrical distribution panels and providing power to out buildings at the Ilavut Men's Healing Centre in Kugluktuk, NU. This will include replacement of two (2) existing electrical panels, provision of two (2) new distribution panels in two of the out buildings and provision of underground feeders. Refer to drawings for complete details.

.2 Replacement of existing emergency lighting and exit signs in the Ilavut Men's Healing Center to match latest requirement of National Building Code of Canada 2010

.3 Provide trench between Ilavut Men's Healing Center and out building as indicated on the drawings and other documents. Trenching to meet requirements as indicated in latest Canadian Electrical Code 2015.

.4 All other work as outlined and detailed in the drawings and specifications.

1.2 CONTRACT METHOD

.1 Construct Work under single stipulated price contract.

1.3 WORK SEQUENCE

.1 Construct Work in stages to accommodate Owner's continued use of premises during construction.

.2 It is the responsibility of the contractor to maintain a safe site for all occupants and users of the affected buildings during construction.

.3 Maintain fire access/control to existing buildings.

1.4 CONTRACTOR USE OF PREMISES

.1 Given the use of the building as a rehabilitation centre, contractor to coordinate use of site with on-site staff. Contractor to have unrestricted use of site; with exception of restricted areas of the healing centre as determined by on-site staff.

.2 Obtain and pay for use of additional storage or work areas needed for operations under this Contract.

.3 Remove or alter existing work to prevent injury or damage to portions of existing work which remain.

.4 Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as directed by Engineer.

.5 At completion of operations condition of existing work: equal to or better than that which existed before new work started.

1.5 OWNER OCCUPANCY

.1 Owner will occupy premises during entire construction period for execution of normal operations.

.2 Co-operate with Owner in scheduling operations to minimize conflict and to facilitate Owner usage.

1.6 EXISTING SERVICES

.1 Notify Engineer and utility companies of intended interruption of services and obtain required permission prior to commencement of work.

.2 Provide alternative routes for personnel and vehicular traffic.

.3 Establish location and extent of service lines in area of work before starting Work. Notify Engineer of findings.

.4 Provide adequate bridging over trenches which cross pedestrian walkways or roads to permit normal traffic as required.

.5 Where unknown services are encountered, immediately advise Engineer and confirm findings in writing.

.6 Record locations of maintained, re-routed and abandoned service lines.

1.7 DOCUMENTS REQUIRED

.1 Maintain at job site, one copy each document as follows:

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Reviewed Shop Drawings.

.5 Change Orders.

.6 Other Modifications to Contract.

.7 Copy of Approved Work Schedule.

.8 Health and Safety Plan and Other Safety Related Documents.

.9 Other documents as specified.

Part 2 Product

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 **General**

1.1 **ACCESS AND EGRESS**

.1 Design, construct and maintain temporary "access to" and "egress from" work areas, including stairs, runways, ramps or ladders and scaffolding, independent of finished surfaces and in accordance with relevant municipal, territorial and other regulations.

1.2 **USE OF SITE AND FACILITIES**

.1 Execute work with least possible interference or disturbance to normal use of premises. Make arrangements with Owner to facilitate work as stated.

.2 Maintain existing services to building and provide for personnel and vehicle access.

.3 Owner will assign sanitary facilities for use by Contractor's personnel. Keep facilities clean.

.4 Closures: protect work temporarily until permanent enclosures are completed.

1.3 **EXISTING SERVICES**

.1 Where Work involves breaking into or connecting to existing services, give minimum 48 hours of notice for necessary interruption of mechanical or electrical service throughout course of work. Keep duration of interruptions minimum. Carry out interruptions after normal working hours of occupants, preferably on weekends.

.2 Provide for personnel and vehicular traffic.

1.4 **BUILDING SMOKING ENVIRONMENT**

.1 Comply with smoking restrictions. Smoking is not allowed on site, only in designated smoking areas.

Part 2 **Product**

2.1 **NOT USED**

.1 Not Used.

Part 3 **Execution**

3.1 **NOT USED**

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section Section 01 45 00 Quality Control.

1.2 ADMINISTRATIVE

.1 Submit to Engineer submittals listed for review. Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

.2 Do not proceed with Work affected by submittal until review is complete.

.3 Present shop drawings, product data, samples and mock-ups in SI Metric units.

.4 Where items or information is not produced in SI Metric units , submittals will be returned and required to be resubmitted..

.5 Review submittals prior to submission to Engineer. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

.6 Notify Engineer, in writing at time of submission, identifying deviations from requirements of Contract Documents stating reasons for deviations.

.7 Verify field measurements and affected adjacent Work are co-ordinated.

.8 Contractor's responsibility for errors and omissions in submission is not relieved by Engineer's review of submittals.

.9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Engineer review.

.10 Keep one reviewed copy of each submission on site.

1.3 SHOP DRAWINGS AND PRODUCT DATA

.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

.2 Indicate materials, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of Work. Where articles or equipment attach or connect to other articles or equipment, indicate that such items have been co-ordinated, regardless of Section under which adjacent items will be supplied and installed. Indicate cross references to design drawings and specifications.

.3 Allow 10 working days for Engineer's review of each submission.

.4 Adjustments made on shop drawings by Engineer are not intended to change Contract Price. If adjustments affect value of Work, state such in writing to Engineer prior to proceeding with Work.

.5 Make changes in shop drawings as Engineer may require, consistent with Contract Documents. When resubmitting, notify Engineer in writing of revisions other than those requested.

.6 Accompany submissions with transmittal letter, containing:

.1 Date.

.2 Project title and number.

.3 Contractor's name and address.

.4 Identification and quantity of each shop drawing, product data and sample.

.5 Other pertinent data.

.7 Submissions include:

.1 Date and revision dates.

.2 Project title and number.

.3 Name and address of:

.1 Subcontractor.

.2 Supplier.

.3 Manufacturer.

.4 Contractor's stamp, signed by Contractor's authorized representative certifying approval of submissions, verification of field measurements and compliance with Contract Documents.

.5 Details of appropriate portions of Work as applicable:

.1 Fabrication.

.2 Layout, showing dimensions, including identified field dimensions, and clearances.

.3 Setting or erection details.

.4 Capacities.

.5 Performance characteristics.

.6 Standards.

.7 Operating weight.

.8 Wiring diagrams.

.9 Single line and schematic diagrams.

.10 Relationship to adjacent work.

.8 After Engineer's review, distribute copies.

.9 Submit electronic copy of shop drawings for each requirement requested in specification Sections and as Engineer may reasonably request.

.10 Submit electronic copies of product data sheets or brochures for requirements requested in specification Sections and as requested by Engineer where shop drawings will not be prepared due to standardized manufacture of product.

.11 Submit electronic copies of test reports for requirements requested in specification Sections and as requested by Engineer.

.1 Report signed by authorized official of testing laboratory that material, product or system identical to material, product or system to be provided has been tested in accord with specified requirements.

.2 Testing must have been within 3 years of date of contract award for project.

.12 Submit electronic copies of certificates for requirements requested in specification Sections and as requested by Engineer.

.1 Statements printed on manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements.

.2 Certificates must be dated after award of project contract complete with project name.

.13 Submit electronic copies of manufacturers instructions for requirements requested in specification Sections and as requested by Engineer.

.1 Pre-printed material describing installation of product, system or material, including special notices and Material Safety Data Sheets concerning impedances, hazards and safety precautions.

.14 Supplement standard information to provide details applicable to project.

.15 If upon review by Engineer, no errors or omissions are discovered or if only minor corrections are made, copies will be returned and fabrication and installation of Work may proceed. If shop drawings are rejected, noted copy will be returned and resubmission of corrected shop drawings, through same procedure indicated above, must be performed before fabrication and installation of Work may proceed.

.16 The review of shop drawings by Engineer is for sole purpose of ascertaining conformance with general concept.

.1 This review shall not mean that Engineer approves detail design inherent in shop drawings, responsibility for which shall remain with Contractor submitting same, and such review shall not relieve Contractor of responsibility for errors or omissions in shop drawings or of responsibility for meeting requirements of construction and Contract Documents.

.2 Without restricting generality of foregoing, Contractor is responsible for dimensions to be confirmed and correlated at job site, for information that pertains solely to fabrication processes or to techniques of construction and installation and for co-ordination of Work of sub-trades.

1.4 CERTIFICATES AND TRANSCRIPTS

.1 Immediately after award of Contract, submit Workers' Safety and Compensation Commission certificate.

.2 Submit transcription of insurance immediately after award of Contract.

Part 2 Product

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canada Labour Code, Part 2, Canada Occupational Safety and Health Regulations

.2 Northwest Territories and Nunavut

.1 Safety Act, R.S.N.W.T. - Updated 2012.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit site-specific Health and Safety Plan: Within 7 days after date of Notice to Proceed and prior to commencement of Work. Health and Safety Plan must include:

.1 Results of site specific safety hazard assessment.

.2 Results of safety and health risk or hazard analysis for site tasks and operation found in work plan.

.3 Submit 1 copie of Contractor's authorized representative's work site health and safety inspection reports to Engineer.

.4 Submit copies of reports or directions issued by Territorial health and safety inspectors.

.5 Submit copies of incident and accident reports.

.6 Submit WHMIS MSDS - Material Safety Data Sheets.

.7 Engineer will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within 7 days after receipt of plan. Revise plan as appropriate and resubmit plan to Engineer within 7 days after receipt of comments from Engineer.

.8 Engineer's review of Contractor's final Health and Safety plan should not be construed as approval and does not reduce the Contractor's overall responsibility for construction Health and Safety.

.9 Medical Surveillance: where prescribed by legislation, regulation or safety program, submit certification of medical surveillance for site personnel prior to commencement of Work, and submit additional certifications for any new site personnel to Engineer.

.10 On-site Contingency and Emergency Response Plan: address standard operating procedures to be implemented during emergency situations.

1.3 SAFETY ASSESSMENT

.1 Perform site specific safety hazard assessment related to project.

1.4 GENERAL REQUIREMENTS

.1 Develop written site-specific Health and Safety Plan based on hazard assessment prior to beginning site Work and continue to implement, maintain, and enforce plan until final demobilization from site. Health and Safety Plan must address project specifications.

.2 Engineer may respond in writing, where deficiencies or concerns are noted and may request re-submission with correction of deficiencies or concerns.

1.5 RESPONSIBILITY

.1 Be responsible for health and safety of persons on site, safety of property on site and for protection of persons adjacent to site and environment to extent that they may be affected by conduct of Work.

.2 Comply with and enforce compliance by employees with safety requirements of Contract Documents, applicable federal, provincial, territorial and local statutes, regulations, and

ordinances, and with site-specific Health and Safety Plan.

1.6 COMPLIANCE REQUIREMENTS

.1 Comply with Safety Act, General Safety Regulations, R.R.N.W.T. 2012.

1.7 HEALTH AND SAFETY CO-ORDINATOR

.1 Employ and assign to Work, competent and authorized representative as Health and Safety Co-ordinator. Health and Safety Co-ordinator must:

.1 Have site-related working experience specific to activities.

.2 Have working knowledge of occupational safety and health regulations.

.3 Be responsible for completing Contractor's Health and Safety Training Sessions and ensuring that personnel not successfully completing required training are not permitted to enter site to perform Work.

.4 Be responsible for implementing, enforcing daily and monitoring site-specific Contractor's Health and Safety Plan.

1.8 POSTING OF DOCUMENTS

.1 Ensure applicable items, articles, notices and orders are posted in conspicuous location on site in accordance with Acts and Regulations of Territory having jurisdiction, and in consultation with Engineer.

1.9 CORRECTION OF NON-COMPLIANCE

.1 Immediately address health and safety non-compliance issues identified by authority having jurisdiction or by Engineer.

.2 Provide Engineer with written report of action taken to correct non-compliance of health and safety issues identified.

.3 Engineer may stop Work if non-compliance of health and safety regulations is not corrected.

1.10 WORK STOPPAGE

.1 Give precedence to safety and health of public and site personnel and protection of environment over cost and schedule considerations for Work.

Part 2 Product

2.1 NOT USED

.1 Not used.

Part 3 Execution

3.1 NOT USED

.1 Not used.

END OF SECTION

Part 1 **General**

1.1 **RELATED REQUIREMENTS**

.1 Section Section 01 33 00 - Submittal Procedures.

1.2 **INSPECTION**

.1 Allow Engineer access to Work. If part of Work is in preparation at locations other than Place of Work, allow access to such Work whenever it is in progress.

.2 Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Engineer instructions, or law of Place of Work.

.3 If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

1.3 **REJECTED WORK**

.1 Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by Engineer as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

.2 If in opinion of Engineer it is not expedient to correct defective Work or Work not performed in accordance with Contract Documents, Owner will deduct from Contract Price difference in value between Work performed and that called for by Contract Documents, amount of which will be determined by Engineer.

1.4 **REPORTS**

.1 Submit copies of inspection and test reports to Engineer.

.2 Provide copies to subcontractor of work being inspected or tested.

1.5 **EQUIPMENT AND SYSTEMS**

.1 Submit testing and verification reports for electrical systems.

.2 Refer to Section 26 for definitive requirements.

Part 2 **Product**

2.1 **NOT USED**

.1 Not Used.

Part 3 **Execution**

3.1 **NOT USED**

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 45 00 Quality Control.

1.2 REFERENCES

.1 Within text of each specifications section, reference may be made to reference standards.

.2 Conform to these reference standards, in whole or in part as specifically requested in specifications.

1.3 QUALITY

.1 Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

.2 Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection.

.3 Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

.4 Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.4 AVAILABILITY

.1 Immediately upon signing Contract, review product delivery requirements and anticipate foreseeable supply delays for items. If delays in supply of products are foreseeable, notify Engineer of such, in order that substitutions or other remedial action may be authorized in ample time to prevent delay in performance of Work.

.2 In event of failure to notify Engineer at commencement of Work and should it subsequently appear that Work may be delayed for such reason, Engineer reserves right to substitute more readily available products of similar character, at no increase in Contract Price or Contract Time.

1.5 STORAGE, HANDLING AND PROTECTION

.1 Handle and store products in manner to prevent damage, adulteration, deterioration and soiling and in accordance with manufacturer's instructions when applicable.

.2 Store packaged or bundled products in original and undamaged condition with manufacturer's seal and labels intact. Do not remove from packaging or bundling until required in Work.

.3 Store products subject to damage from weather in weatherproof enclosures.

.4 Remove and replace damaged products at own expense and to satisfaction of Engineer.

.5 Touch-up damaged factory finished surfaces to Engineer's satisfaction. Use touch-up materials to match original. Do not paint over name plates.

1.6 TRANSPORTATION

.1 Pay costs of transportation of products required in performance of Work.

1.7 MANUFACTURER'S INSTRUCTIONS

.1 Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain

written instructions directly from manufacturers.

.2 Notify Engineer in writing, of conflicts between specifications and manufacturer's instructions, so that Engineer will establish course of action.

.3 Improper installation or erection of products, due to failure in complying with these requirements, authorizes Engineer to require removal and re-installation at no increase in Contract Price or Contract Time.

1.8 QUALITY OF WORK

.1 Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify Engineer if required Work is such as to make it impractical to produce required results.

.2 Do not employ anyone unskilled in their required duties. Engineer reserves right to require dismissal from site, workers deemed incompetent or careless.

.3 Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with Engineer, whose decision is final.

1.9 CO-ORDINATION

.1 Ensure co-operation of workers in laying out Work. Maintain efficient and continuous supervision.

.2 Be responsible for coordination and placement of openings, sleeves and accessories.

1.10 CONCEALMENT

.1 In finished areas conceal pipes, ducts and wiring in floors, walls and ceilings, except where indicated otherwise.

.2 Before installation inform Engineer if there is interference. Install as directed by Engineer.

1.11 REMEDIAL WORK

.1 Perform remedial work required to repair or replace parts or portions of Work identified as defective or unacceptable. Co-ordinate adjacent affected Work as required.

.2 Perform remedial work by specialists familiar with materials affected. Perform in a manner to neither damage nor put at risk any portion of Work.

1.12 FASTENINGS

.1 Provide metal fastenings and accessories in same texture, colour and finish as adjacent materials, unless indicated otherwise.

.2 Prevent electrolytic action between dissimilar metals and materials.

.3 Use non-corrosive hot dip galvanized steel fasteners and anchors for securing exterior work, unless stainless steel or other material is specifically requested in affected specification Section.

.4 Space anchors within individual load limit or shear capacity and ensure they provide positive permanent anchorage. Wood, or any other organic material plugs are not acceptable.

.5 Keep exposed fastenings to a minimum, space evenly and install neatly.

.6 Fastenings which cause spalling or cracking of material to which anchorage is made are not acceptable.

1.13 FASTENINGS - EQUIPMENT

.1 Use fastenings of standard commercial sizes and patterns with material and finish suitable for service.

.2 Use heavy hexagon heads, semi-finished unless otherwise specified. Use No. 304 stainless steel

for exterior areas.

.3 Bolts may not project more than one diameter beyond nuts.

.4 Use plain type washers on equipment, sheet metal and soft gasket lock type washers where vibrations occur. Use resilient washers with stainless steel.

1.14 PROTECTION OF WORK IN PROGRESS

.1 Prevent overloading of parts of building. Do not cut, drill or sleeve load bearing structural member, unless specifically indicated without written approval of Engineer.

1.15 EXISTING UTILITIES

.1 When breaking into or connecting to existing services or utilities, execute Work at times directed by local governing authorities, with minimum of disturbance to Work, and/or building occupants.

.2 Protect, relocate or maintain existing active services. When services are encountered, cap off in manner approved by authority having jurisdiction. Stake and record location of capped service.

Part 2 Product

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 78 00 - Closeout Submittals.

1.2 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris, other than that caused by Owner or other Contractors.

.2 Remove waste materials from site at daily regularly scheduled times or dispose of as directed by Engineer. Do not burn waste materials on site.

.3 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.4 Provide on-site containers for collection of waste materials and debris.

.5 Provide and use marked separate bins for recycling.

.6 Dispose of waste materials and debris off site.

.7 Clean interior areas prior to start of finishing work, and maintain areas free of dust and other contaminants during finishing operations.

.8 Store volatile waste in covered metal containers, and remove from premises at end of each working day.

.9 Provide adequate ventilation during use of volatile or noxious substances. Use of building ventilation systems is not permitted for this purpose.

.10 Use only cleaning materials recommended by manufacturer of surface to be cleaned, and as recommended by cleaning material manufacturer.

.11 Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces nor contaminate building systems.

1.3 FINAL CLEANING

.1 When Work is Substantially Performed remove surplus products, tools, construction machinery and equipment not required for performance of remaining Work.

.2 Remove waste products and debris other than that caused by others, and leave Work clean and suitable for occupancy.

.3 Prior to final review remove surplus products, tools, construction machinery and equipment.

.4 Remove waste products and debris other than that caused by Owner or other Contractors.

.5 Remove waste materials from site at regularly scheduled times or dispose of as directed by Engineer. Do not burn waste materials on site.

.6 Make arrangements with and obtain permits from authorities having jurisdiction for disposal of waste and debris.

.7 Remove stains, spots, marks and dirt from decorative work, electrical and mechanical fixtures, furniture fitments, walls, floors .

.8 Inspect finishes, fitments and equipment and ensure specified workmanship and operation.

.9 Remove dirt and other disfiguration from exterior surfaces.

.10 Remove debris and surplus materials from crawl areas and other accessible concealed spaces.

Part 2 Product

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Section 01 33 00 - Submittal Procedures .

1.2 ADMINISTRATIVE REQUIREMENTS

.1 Acceptance of Work Procedures:

.1 Contractor's Inspection: Contractor: conduct inspection of Work, identify deficiencies and defects, and repair as required to conform to Contract Documents.

.1 Notify Engineer in writing of satisfactory completion of Contractor's inspection and submit verification that corrections have been made.

.2 Request Engineer inspection.

.2 Engineer's Inspection:

.1 Engineer and Contractor to inspect Work and identify defects and deficiencies.

.2 Contractor to correct Work as directed.

.3 Completion Tasks: submit written certificates in English that tasks have been performed as follows:

.1 Work: completed and inspected for compliance with Contract Documents.

.2 Defects: corrected and deficiencies completed.

.3 Equipment and systems: tested, adjusted and fully operational.

.4 Certificates required by GN and Electrical Inspector: submitted.

.5 Operation of systems: demonstrated to Owner's personnel.

.6 Work: complete and ready for final inspection.

.4 Final Inspection:

.1 When completion tasks are done, request final inspection of Work by Engineer and Contractor.

.2 When Work incomplete according to Engineer, complete outstanding items and request re-inspection.

.5 Declaration of Substantial Performance: when Engineer considers deficiencies and defects corrected and requirements of Contract substantially performed, make application for Certificate of Substantial Performance.

.6 Commencement of Lien and Warranty Periods: date of Owner's acceptance of submitted declaration of Substantial Performance to be date for commencement for warranty period and commencement of lien period unless required otherwise by lien statute of Place of Work.

.7 Final Payment:

.1 When Engineer considers final deficiencies and defects corrected and requirements of Contract met, make application for final payment.

.2 When work deemed incomplete by Engineer, complete outstanding items and request re-inspection.

1.3 FINAL CLEANING

.1 Clean in accordance with Section 01 74 11 - Cleaning.

.1 Remove surplus materials, excess materials, rubbish, tools and equipment.

Part 2 Product

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 As-Built drawings and specifications.

.2 Equipment and systems.

.3 Product data, materials and finishes, and related information.

.4 Operation and maintenance data.

.5 Special tools and maintenance materials.

.6 Warranties.

1.2 RELATED REQUIREMENTS

.1 Section 01 11 00 - Summary Of Work.

.2 Section 01 33 00 - Submittal Procedures.

.3 Section 01 45 00 - Quality Control.

.4 Section 01 77 00 - Closeout Procedures.

1.3 ADMINISTRATIVE REQUIREMENTS

.1 Pre-warranty Meeting:

.1 Convene meeting one week prior to contract completion and prior to commencement of warranty period with Owner to:

.1 Verify Project requirements.

.2 Review warranty requirements.

.2 Owner to establish communication procedures for:

.1 Notifying construction warranty defects.

.2 Determine priorities for type of defects.

.3 Determine reasonable response time.

.3 Contact information for bonded and licensed company for warranty work action: provide name, telephone number and address of company authorized for construction warranty work action.

.4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.

.3 Copy will be returned after final inspection, with owners comments.

.4 Revise content of documents as required prior to final submittal.

.5 Two weeks prior to Substantial Performance of the Work, submit to the owner, three final copies of operating and maintenance information in English.

.6 If requested, furnish evidence as to type, source and quality of products provided.

.7 Ensure maintenance materials and special tools provided are new, undamaged or defective, and of same quality and manufacture as products provided in Work.

.8 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.

.9 Pay costs of transportation.

1.5 FORMAT

.1 Organize new data into existing O&M manual.

.2 Text: manufacturer's printed data, or typewritten data.

.3 Drawings: provide with reinforced punched binder tab.

.1 Bind in with text; fold larger drawings to size of text pages.

1.6 CONTENTS - PROJECT RECORD DOCUMENTS

.1 Provide updated Table of Contents pages.

.2 For each new or modified product or system:

.1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.

.3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.

.4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems.

.5 Typewritten Text: as required to supplement product data.

.1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.

1.7 AS -BUILT DOCUMENTS

.1 Maintain, in addition to requirements in General Conditions, one record copy of:

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Change Orders and other modifications to Contract.

.5 Reviewed shop drawings, product data, and samples.

.6 Field test records.

.7 Inspection certificates.

.8 Manufacturer's certificates.

.2 Store record documents and samples in field office.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this specification.

.1 Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition.

.1 Do not use record documents for construction purposes.

.5 Keep record documents and samples available for inspection by Engineer.

1.8 RECORDING INFORMATION ON PROJECT RECORD DOCUMENTS

.1 Record information on set of black line opaque drawings.

.2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.

.3 Record information concurrently with construction progress.

.1 Do not conceal Work until required information is recorded.

.4 Contract Drawings and shop drawings: mark each item to record actual construction, including:

.1 Field changes of dimension and detail.

.2 Changes made by change orders.

.3 Details not on original Contract Drawings.

.4 References to related shop drawings and modifications.

.5 Specifications: mark each item to record actual construction, including:

.1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.

.2 Changes made by Addenda and change orders.

.6 Other Documents: maintain manufacturer's certifications, required by individual specifications sections.

1.9 EQUIPMENT AND SYSTEMS

.1 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

.2 Include manufacturer's printed operation and maintenance instructions.

.3 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

.4 Additional requirements: as specified in individual specification sections.

1.10 MATERIALS AND FINISHES

.1 As specified in individual specifications sections.

1.11 WARRANTIES AND BONDS

.1 Except for items put into use with Owner's permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.

.2 Respond in timely manner to oral or written notification of required construction warranty repair work.

1.12 O&M MANUALS

.1 Provide operation and maintenance data for incorporation into the existing O&M Manual.

.2 Operation and maintenance material to be approved by, and final copies deposited with Engineer, c/w soft copies.

.3 Operation data to include:

.1 Operation instruction for each renovated system and each component.

.2 Description of actions to be taken in event of equipment failure.

.4 Maintenance data shall include:

.1 Servicing, maintenance, operation and trouble-shooting instructions for each item of new equipment.

.2 Data to include schedules of tasks, frequency, tools required and task time.

.5 Performance data to include:

.1 Equipment manufacturer's performance data sheets with point of operation as left after commissioning is complete.

.2 Equipment performance test results.

.6 Record Drawings:

.1 Provide reduced photocopy of as built drawings. Drawings to be reduced to approx 279mmx432mm and to be reduced scale. Blueline copies are not acceptable.

1.13 RECORD DRAWINGS

.1 Site records - General and as follows:

.1 Engineer will provide drawings. Provide sets of white prints as required for each phase of the work. Mark thereon all changes as work progresses and as changes occur.

.2 Use different colour waterproof ink for each service.

.3 Make available for reference purposes and inspection at all times.

Part 2 Product

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Procedures for demonstration and instruction of equipment and systems to Owner's personnel.

1.2 RELATED REQUIREMENTS

.1 Section 01 78 00 - Closeout Submittals.

1.3 DESCRIPTION

.1 Demonstrate scheduled operation and maintenance of equipment and systems to Owner's personnel two weeks prior to date of substantial performance.

.2 Owner will provide list of personnel to receive instructions, and will coordinate their attendance at agreed-upon times.

1.4 SUBMITTALS

.1 Submit schedule of time and date for demonstration of each item of equipment and each system two weeks prior to designated dates, for Engineer's approval.

.2 Submit reports within one week after completion of demonstration, that demonstration and instructions have been satisfactorily completed.

.3 Give time and date of each demonstration, with list of persons present.

1.5 CONDITIONS FOR DEMONSTRATIONS

.1 Equipment has been inspected and put into operation in accordance with Section 01 78 00 Closeout Submittals.

.2 Provide copies of revised operation and maintenance manuals for use in demonstrations and instructions.

1.6 PREPARATION

.1 Verify that conditions for demonstration and instructions comply with requirements.

.2 Verify that designated personnel are present.

1.7 DEMONSTRATION AND INSTRUCTIONS

.1 Demonstrate operation, control and maintenance of each item of equipment at scheduled times, at the equipment location.

.2 Instruct personnel in all phases of operation and maintenance using operation and maintenance manuals as the basis of instruction.

.3 Review contents of manual in detail to explain all aspects of operation and maintenance.

.4 Prepare and insert additional data in operations and maintenance manuals when the need for additional data becomes apparent during instructions.

1.8 TIME ALLOCATED FOR INSTRUCTIONS

.1 Ensure amount of time required for instruction of each item of equipment or system as follows:

.1 2 hours General System Operation and Maintenance

Part 2 Product

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

Part 1 General

1.1 RELATED REQUIREMENTS

.1 Fire stopping and smoke seals within electrical assemblies are specified in Electrical Divisions.

1.2 REFERENCES

.1 Health Canada/Workplace Hazardous Materials Information System (WHMIS)

.1 Material Safety Data Sheets (MSDS).

.2 Underwriter's Laboratories of Canada (ULC)

.1 ULC-S115-1995, Fire Tests of Fire stop Systems.

1.3 DEFINITIONS

.1 Fire Stop Material: device intended to close off opening or penetration during fire or materials that fill openings in wall or floor assembly where penetration is by cables, cable trays, conduits, ducts and pipes and poke-through termination devices, including electrical outlet boxes along with their means of support through wall or floor openings.

.2 Single Component Fire Stop System: fire stop material that has Listed Systems Design and is used individually without use of high temperature insulation or other materials to create fire stop system.

.3 Multiple Component Fire Stop System: exact group of fire stop materials that are identified within Listed Systems Design to create on site fire stop system.

.4 Tightly Fitted; (ref: NBC Part 3.1.9.1.1 and 9.10.9.6.1): penetrating items that are cast in place in buildings of noncombustible construction or have "0" annular space in buildings of combustible construction.

.1 Words "tightly fitted" should ensure that integrity of fire separation is such that it prevents passage of smoke and hot gases to unexposed side of fire separation.

1.4 ACTION AND INFORMATIONAL SUBMITTALS

.1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's printed product literature, specifications and datasheet and include product characteristics, performance criteria, physical size, finish and limitations.

.3 Shop Drawings:

.1 Submit shop drawings to show location, proposed material, reinforcement, anchorage, fastenings and method of installation.

.2 Construction details should accurately reflect actual job conditions.

.4 Quality assurance submittals: submit following in accordance with Section 01 45 00 - Quality Control.

.1 Test reports: in accordance with CAN-ULC-S101 for fire endurance and CAN-ULC-S102 for surface burning characteristics.

.1 Submit certified test reports from approved independent testing laboratories, indicating compliance of applied fire stopping with specifications for specified performance characteristics and physical properties.

.2 Certificates: submit certificates signed by manufacturer certifying that materials comply with specified performance characteristics and physical properties.

.3 Manufacturer's Instructions: submit manufacturer's installation instructions and special handling criteria, installation sequence, cleaning procedures.

1.5 DELIVERY, STORAGE AND HANDLING

.1 Packing, shipping, handling and unloading:

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Deliver, store and handle materials in accordance with manufacturer's written instructions.

.3 Deliver materials to the site in undamaged condition and in original unopened containers, marked to indicate brand name, manufacturer, ULC markings.

.2 Storage and Protection:

.1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Replace defective or damaged materials with new.

Part 2 Product

2.1 MATERIALS

.1 Fire stopping and smoke seal systems: in accordance with CAN-ULC-S115.

.2 Service penetration assemblies: systems tested to CAN-ULC-S115.

.3 Service penetration fire stop components: certified by test laboratory to CAN-ULC-S115.

.4 Fire-resistance rating of installed fire stopping assembly in accordance with NBC.

.5 Fire stopping and smoke seals at openings intended for ease of re-entry such as cables: elastomeric seal.

.6 Primers: to manufacturer's recommendation for specific material, substrate, and end use.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 PREPARATION

.1 Examine sizes and conditions of voids to be filled to establish correct thicknesses and installation of materials.

.1 Ensure that substrates and surfaces are clean, dry and frost free.

.2 Prepare surfaces in contact with fire stopping materials and smoke seals to manufacturer's instructions.

.3 Mask where necessary to avoid spillage and over coating onto adjoining surfaces; remove stains on adjacent surfaces.

3.3 INSTALLATION

.1 Install fire stopping and smoke seal material and components in accordance with manufacturer's certified tested system listing.

.2 Seal holes or voids made by through penetrations, poke-through termination devices, and unpenetrated openings or joints to ensure continuity and integrity of fire separation are

maintained.

.3 Provide temporary forming as required and remove forming only after materials have gained sufficient strength and after initial curing.

.4 Tool or trowel exposed surfaces to neat finish.

.5 Remove excess compound promptly as work progresses and upon completion.

3.4 FIELD QUALITY CONTROL

.1 Inspections: notify Engineer when ready for inspection and prior to concealing or enclosing fire stopping materials and service penetration assemblies.

3.5 CLEANING

.1 Proceed in accordance with Section 01 74 11 - Cleaning.

.2 On completion and verification of performance of installation, remove surplus materials, excess materials, rubbish, tools and equipment.

.3 Remove temporary dams after initial set of fire stopping and smoke seal materials.

3.6 SCHEDULE

.1 Fire stop and smoke seal at:

.1 Penetrations through fire-resistance rated masonry, concrete, and gypsum board partitions and walls.

.2 Edge of floor slabs at curtain wall and precast concrete panels.

.3 Top of fire-resistance rated masonry and gypsum board partitions.

.4 Intersection of fire-resistance rated masonry and gypsum board partitions.

.5 Control and sway joints in fire-resistance rated masonry and gypsum board partitions and walls.

.6 Penetrations through fire-resistance rated floor slabs, ceilings and roofs.

.7 Openings and sleeves installed for future use through fire separations.

.8 Around electrical assemblies penetrating fire separations.

END OF SECTION

Part 1 General

1.1 GENERAL

.1 This section supplements requirements of Division 1.

.2 For the proper execution of work, cooperate with other trades and contracts as needed.

.3 To avoid installation conflicts, thoroughly examine the complete set of contract documents. Resolve conflicts with Engineer prior to installation.

.4 Prior to installation of feeders to equipment requiring electrical connections, examine the manufacturer's shop drawings, wiring diagrams, product data and installation instructions. Verify that the electrical characteristics detailed in the contract documents are consistent with the electrical characteristics of the actual equipment being installed. When inconsistencies occur request clarification from Engineer.

.5 Examine the entire set of contract documents to avoid conflicts with other systems. Determine exact route and installation of electrical wiring and equipment with conditions of construction.

.6 Should the electrical documents indicate a condition conflicting with the governing codes or regulations, refrain from installing that portion of the work until clarified by Engineer.

.7 Definitions:

.1 Provide - To furnish and install complete and ready for intended use.

.2 Furnish - Supply and deliver to project site, ready for unpacking, assembly and installation.

.3 Install - Includes unloading, unpacking, assembling, erecting, installation, applying, finishing, protecting, cleaning and similar operation at the project site to complete items of work furnished.

.8 All correspondence and documents shall be submitted in English.

.9 Sufficiency of drawings and specifications:

.1 Hold the Drawings and Specifications to determine the general character and general arrangement of the Work.

.2 Drawings and Specifications indicate the general scope of the Project in terms of the dimensions of the Work and the type of systems. The Drawings and Specifications do not necessarily indicate or describe all Work required for the full performance and completion of the requirements of the Contract Documents. On the basis of the general scope indicated, stated, described or implied, furnish all items required for the proper execution and completion of the Work.

.3 The Contract Documents are issued to facilitate construction by expressing the design intent. The Drawings and Specifications do not necessarily contain all of the details required to construct the project, and contractor supplied detail in the form of detailed construction documents (referred to in the Contract Documents as the Contractors supplied shop drawings, submittals, and field coordination drawings) is required for construction of the Work; all of which set out the specific and final details required for placing and constructing the finished Work. By contrast, the Drawings and Specifications are provided to reflect the finished design of the Work. The Drawings and Specifications are not intended to be used as a set of detailed instructions on how to construct the Work. Construction means, methods, techniques, sequences, procedures, and site safety precautions are the responsibility of the Contractor.

.4 Examine the Drawings and Specifications to satisfy yourself regarding the design intent and the extent of the proposed Work, and by personal examination of the site and surroundings make your own estimate of the facilities condition and difficulties

attending the performance and completion of the Work.

.10 For the sake of clarity, electrical symbols are typically shown larger than they would be at the actual scale of the drawing. Therefore, do not scale electrical drawings.

.11 The general contractor who has contractual relationship with the Owner shall be responsible for providing complete and workable systems as outlined on drawings and in specifications. The Engineer will not recognize any sub-contractor as such, but will consider all persons engaged on the work to be under the control of General Contractor. The Engineer will not under any circumstances, enter into discussions concerning the responsibility of subtrades or the apportionment of work. No claim based on the division of work between specification sections or subtrades will be considered.

1.2 CODES AND STANDARDS

.1 Unless otherwise indicated, all references to standards and codes throughout this specification is to the latest applicable edition at the time of bid closing.

.2 Do complete installation in accordance with CSA C22.1, Canadian Electrical Code, Part 1. In case of a conflict between the code requirements and the contract documents, request clarification prior to proceeding with the work.

.3 Do overhead and underground systems in accordance with CSA C22.3 No.1 except where specified otherwise.

.4 Definitions:

.1 Abbreviations for electrical terms: to CSA Z85 - Abbreviations for Scientific and Engineering Terms.

.5 Provide plenum rated equipment and devices and plenum rated raceway, wiring and installation methods in all plenum spaces.

.6 Material and installations shall comply with the requirements of the following codes and standards, codes and standards mentioned in other sections of this specification, as well as other applicable codes and standards to the satisfaction of the Authorities Having Jurisdiction (AHJ):

.1 Canadian Electrical Code (CEC).

.2 National Building Code of Canada (NBCC).

.3 National Fire Code of Canada (NFCC).

.4 Canadian Standards Association (CSA).

.5 Underwriters Laboratories of Canada (ULC).

.6 Government of Nunavut's Good Building Practices Guidelines.

.7 Provide the site office with a current copy of the following documents, codes and standards. These documents shall remain on site throughout the duration of construction for electricians and others reference and use. The maintenance of these codes on site may be checked at each site visit. Absence of one or more such documents will be indicated on the field review report as deficiency and non-compliance with contract requirements.

.1 Project's electrical specifications and drawings.

.2 Project's up to date electrical RFIs and responses, SIs and CCNs.

.3 Canadian Electrical Code (CEC).

1.3 QUALITY ASSURANCE

.1 Conform to the requirements of CEC with amendments by local Authorities Having Jurisdiction (AHJ).

.2 Conform to the requirements of the NBC with amendments by local AHJ.

.3 Obtain and pay for the electrical permits, plan review and inspection from local AHJ.

1.4 CARE, OPERATION AND START-UP

.1 Instruct operating personnel in the operation, care and maintenance of systems, system equipment and components.

.2 Provide these services for such period, and for as many visits as necessary to put equipment in operation, and ensure that operating personnel are conversant with all aspects of its care and operation.

.3 Upon completion of instruction process, obtain written confirmation from the Owner that the above-indicated service has been provided satisfactorily. Submit a copy to Engineer and include the original and copies in the existing Operation & Maintenance manuals.

1.5 PERMITS, FEES AND INSPECTION

.1 Submit to Electrical Inspection Department and Supply Authority necessary number of drawings and specifications for examination and approval prior to commencement of work.

.2 Pay associated fees.

.3 Engineer will provide drawings and specifications required by Electrical Inspection Department at no cost.

.4 Notify Engineer of changes required by Electrical Inspection Department or Supply Authority prior to making such changes.

.5 Furnish Certificates of Acceptance from Authorities Having Jurisdiction on completion of work to Engineer.

1.6 SHOP DRAWINGS AND PRODUCT DATA

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Submit to the Engineer for review, shop drawings, product data and samples called for by the contract documents and for such other items as the Engineer may request. Do not proceed with work until related submission has been reviewed by the Engineer.

.3 Product Data:

.1 Product data means standard printed information describing materials, products, equipment and systems, not specially prepared for work of this contract, other than the designation of selections.

.2 Product data consisting of manufacturers' standard schematic drawings, catalogue sheets, diagrams, schedules, performance charts, illustrations and descriptive data will be accepted in lieu of shop drawings provided that:

.1 Information not applicable to the work of this contract is deleted, or the applicable information is clearly marked.

.2 Standard information is supplemented with information specifically applicable to work of this contract.

.3 Submit manufacturer's instructions, printed product literature and data sheets and include product characteristics, performance criteria, physical size, finish and limitations.

.4 Shop drawings:

.1 Shop drawings means technical data specially prepared for work of this contract including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements and similar information not in standard printed form.

.2 Submit shop drawings presented in a clear and thorough manner to appropriately illustrate the work.

.3 Identify shop drawings by appropriate references to sheet, detail, schedule or room number. Maximum allowable drawing size 11" x 17". Provide a clear area of 100mm x 75mm (4" x 3") on each shop drawing for Engineer's review stamp.

.5 General:

.1 Review, stamp with approval and sign shop drawings before submission to Engineer. Stamping and signing the transmittal only, is not acceptable. By approving and submitting shop drawings, Contractor represents that field measurements, field construction criteria, material, catalogue numbers and similar data have been verified and that shop drawings have been checked and coordinated with requirements of the work and contract documents regardless of what the stamp disclaims.

.2 At the time of submission, inform Engineer in writing of any deviations in shop drawings from requirements of Contract Documents.

.3 Engineer will review shop drawings for the sole purpose of ascertaining conformance with general design concept of the project and with information given in Contract Documents. Engineer's review of a separate item shall not indicate acceptance of an assembly in which the item functions. This review by Engineer shall not mean that Engineer approved the detail design inherent in the shop drawings, responsibility for which shall remain with the Contractor submitting same, and such review shall not relieve the Contractor of his responsibility for errors or omissions in the shop drawings or his responsibility for meeting all requirements of the Contract documents as well as applicable federal and provincial/territorial laws, regulations and acts.

.4 Make corrections which Engineer may require, consistent with Contract Documents, and resubmit modified shop drawings until reviewed.

.5 Direct specific attention in writing on re-submitted shop drawings to revisions requested by Engineer on previous submissions.

.6 Be responsible for dimensions to be confirmed and correlated at job site for information that pertains solely to fabrication processes or to techniques of construction and installation and for coordination of the work of all Sections.

.7 Shop drawings submitted in Imperial will be returned to the contractor not reviewed until they are submitted in Metric Units (SI).

.8 Shop drawings which require the approval of a legally constituted authority having jurisdiction shall be submitted by Contractor to such authority for approval. Such shop drawings shall receive final approval of authority having jurisdiction before receiving Engineer's final review.

.9 Boiler plate copies of manuals or drawings shall not be accepted. Shop drawings to only contain information relevant and applicable to the system as covered in these documents. It is the responsibility of the contractor or his suppliers under the contractor's supervision to filter out the boiler plate documents, select the relevant pages, mark suggested products and submit such information only. Price this effort in the bid and deliver accordingly. Non-compliant suggestions will be rejected and the consequential delay shall be caught up with by the Contractor.

.10 No work requiring a shop drawing submission shall commence until the submission has received Engineer's final review. All such work shall be in accordance with reviewed shop drawings.

.11 Provide submittals for review for all electrical material and equipment.

.6 Substitution requests shall be complete with proper support documents to clearly identify the equality of the specifications of the suggested product on an item by item basis compared to the

specifications listed for the specified product. Requests not meeting this requirement, will be returned as insufficient information for review.

.7 No substitution of items specifically called for on the drawings, such as feeders, etc., with other products even the ones listed in specifications, is allowed without timely and proper request and approval.

1.7 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for incorporation into existing manual.

.1 Provide for each system and principal item of equipment as specified in technical sections for use by operation and maintenance personnel.

.2 Include in Operation and Maintenance Data:

.1 Component function and maintenance requirements, to permit effective start-up, operation, maintenance, repair, modification, extension and expansion of any portion or feature of installation.

.2 Wiring and schematic diagrams indicating all connections, terminals and wire numbers.

.3 Names and address of all suppliers for items must be included in the Maintenance Manuals.

.4 All manufacturer's operating and maintenance information prepared for any installed equipment.

.5 Reviewed shop drawings & product data of all installed equipment.

.6 Results of all tests performed.

.7 All studies, test reports, testing certificates and Inspection Department acceptances.

.8 One set of full size prints of record drawings.

.9 One copy of all updated and new panel directories.

.3 Neatly type lists and notes. Use clear drawings diagrams or manufacturers' literature.

.4 Submit operation and maintenance information before or with request for final field review.

.3 Record Drawings:

.1 Provide 1 set of marked up electrical site record drawings. Provide sets of white prints of the construction drawings and use for record drawings. Mark thereon all changes as work progresses and as changes occur. This shall include changes to all electrical systems as constructed, including any revisions from addenda or change orders. Ensure that items marked correspond to the drawing title.

.2 Use different colour waterproof ink for each service on a per drawing basis.

.3 Make mark-ups available for reference purposes and inspection at all times.

.4 Present finalized record drawings to Engineer at time of substantial completion site review.

.5 Pay for the costs of the above-indicated items.

1.8 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product

Requirements.

.2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.3 Storage and Handling Requirements:

.1 Store materials indoors and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect equipment from nicks, scratches, and blemishes.

.3 Replace defective or damaged materials with new.

Part 2 Product

2.1 VOLTAGE RATINGS

.1 Operating voltages: to CAN3-C235 Preferred Voltage Levels for AC Systems 0 to 50kV.

.2 Motors, electric heating, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by the above indicated standard. Equipment to operate in extreme operating conditions established in above-indicated standard without damage to equipment.

2.2 MATERIALS AND EQUIPMENT

.1 Equipment and material to be certified by a SCC (Standard Council of Canada) accredited Certification body. Where there is no alternative to supplying equipment, which is not certified as indicated, obtain special approval from Electrical Inspection Department.

.2 Equipment and material to be in compliance with the current applicable federal and local Territorial laws, regulations and acts.

.3 Provide material and equipment that is acceptable to AHJ as suitable for the use indicated. For example provide wet label equipment in wet locations.

.4 Include special features, finishes, accessories and other requirements as described in the contract documents regardless of the items listed catalog number.

.5 Provide incidentals not specifically mentioned herein or noted on drawings, but needed to complete the system, in a safe and satisfactory working condition.

.6 Install electrical equipment complete and per manufacturer's instructions. Obtain installation instructions from manufacturer and thoroughly examine the instructions prior to rough in. When instructions conflict with contract documents, request clarification from Engineer prior to proceeding with the installation.

2.3 WIRING TERMINATIONS

.1 Ensure lugs, terminals, screws used for termination of wiring are suitable for either copper or aluminum conductors.

2.4 MANUFACTURERS AND SCC LABELS

.1 Visible and legible, after equipment is installed.

2.5 PROTECTION

.1 Protect exposed live equipment during construction for personal safety.

.2 Shield and mark live parts "LIVE 120 VOLTS", or with appropriate voltage setting.

2.6 FIRE STOPPING

.1 Provide fire stopping per NBC Section 3 and other applicable codes and standards.

.2 For additional requirements see Fire Stopping in Division 7. In case of inconsistency between the requirements of this article and the requirements of Division 7, the more stringent requirements apply.

.3 Requirements:

.1 Conform to the following requirements to maintain the continuity of fire separations whether or not shown on the drawings.

.2 Fire separations may not be pierced by electrical or similar services except in accordance with the local building code.

.3 Where a fire separation is required to be of non-combustible construction and terminates at the exterior wall, the underside of floor, ceiling or roof structure, and at floors, the opening shall be fire stopped with non-combustible material as required by applicable codes.

.4 Combustible members, fasteners and similar items shall not be used to anchor fixtures to fire separations.

.5 Openings for non-combustible pipes and ducts through a fire separation shall be fire stopped around the pipe and duct with ULC labeled and approved fire stopping sealant, insulation or other material approved by local authorities having jurisdiction to maintain the integrity of fire separation.

.6 Maintain existing fire separations as such, and seal penetrations to retain the separation's integrity.

.7 Refer to technical sections for specific requirements for sealing penetrations and joints of smoke and fire separations.

.4 Fire Test Response Characteristics:

.1 For assemblies or materials having fire resistance rating, provide material and construction identical to those tested in assembly indicated according to CAN/ULC-S101 as verified by an independent testing and inspecting agency acceptable to authorities having jurisdiction for fire resistance ratings of specific assemblies.

.2 Fire resistance rated assemblies and materials shall bear a label and proof of acceptance as indicated by design designations from ULC list of equipment and materials or Warnock Hersey/Intertek directory of listed products. Where no design designation is provided, use only time assigned to materials listed in Appendix D of the Building Code.

.3 Fire resistance rated assemblies and materials bearing an Underwriters Laboratories Inc. (UL) or Warnock Hersey/Intertek (WHI) label will be acceptable for use on this project provided that the label indicates acceptance under Underwriters Laboratories of Canada (ULC) and having either a cUL, cULus, cWHI or cWHIus marking.

.4 Materials that only have a UL, ULus, WHI or WHIus marking are not acceptable.

.5 Tests of Fire Stop Systems". For use around conduit and other penetrations to prevent passage of smoke, fire, toxic gas or water; To maintain seal before, during and after fire; In and around conduit for thermal break at penetration of barrier between heated and unheated spaces. To be Chase Technology Corp., Fire Foam, Thomas & Betts or approved.

.6 Mechanical Fire Stop Systems:

.1 Arrayed within a frame type fire stop assembly;

.2 Listed and approved for the application per CAN/ULC-S115 "Fire Tests of Fire Stop Systems".

.7 Notwithstanding other requirements of this specifications, seal around optical fiber

cables, electrical wires and cables, electrical raceways, electrical boxes and other similar building electrical services that penetrate fire separation or a membrane forming part of an assembly required to have a fire-resistant rating, with moldable fire stop putty pads or other listed and approved to CAN/ULC-S115 rated to maintain the fire resistance rating of the fire separation or assembly.

.1 Outlet boxes that penetrate opposite sides of a wall assembly shall be offset where necessary to maintain the integrity of the fire separation.

.2 Fire stop putty to be of fast installation type applied by hand, non-curing with no volatile solvents and no asbestos fibers.

.3 Standard of acceptance: HILTI CP617 series or equal.

.8 Provide shop drawings for all fire stop material for review per Section 26 05 00 - Common Work Results For Electrical.

2.7 EQUIPMENT IDENTIFICATION

.1 Identify electrical equipment with nameplates as follows:

.1 Nameplates: lamicoid 3 mm thick plastic engraving sheet, black face, white core, mechanically attached with self tapping screws.

.2 Sizes as follows:

NAMEPLATE SIZES			
Size 1	10 x 50 mm	1 line	3 mm high letters
Size 2	12 x 70 mm	1 line	6 mm high letters
Size 3	12 x 70 mm	2 lines	3 mm high letters
Size 4	20 x 90 mm	1 line	9.5 mm high letters
Size 5	20 x 90 mm	2 lines	5 mm high letters
Size 6	25 x 100 mm	1 line	12 mm high letters
Size 7	25 x 100 mm	2 lines	5 mm high letters

.2 Labels: embossed plastic labels with 6 mm high letters unless specified otherwise.

.3 Wording on nameplates to be approved by Engineer prior to manufacture.

.4 Allow for minimum of twenty-five (25) letters per label and nameplate.

.5 Identification to be English.

.6 Panelboard label to include:

.1 The word "PANELBOARD" followed by the panelboard identification (ID) as shown on drawings;

.2 Voltage, phase and number of wires; and

.3 The words "FED FROM" followed by the source ID, and circuit number where applicable.

.7 Splitters label to include:

.1 The word "SPLITTER" followed by the splitter ID as shown on drawings;

.2 Voltage, phase and number of wires; and

.3 The words "FED FROM" followed by the source ID, and circuit number where applicable.

.8 Identifications shall match what is shown on drawings as to the letters, numbers, sequence, indentation and other formatting attributes.

2.8 WIRING IDENTIFICATION

.1 Identify wiring with permanent indelible identifying markings on both ends of phase conductors of feeders and branch circuit wiring.

.2 Maintain phase sequence and colour coding throughout.

.3 Colour coding: to CSA C22.1.

2.9 FINISHES

.1 Shop finish metal enclosure surfaces by application of rust resistant primer inside and outside, and at least two coats of finish enamel.

.2 Clean and touch up surfaces of devices and equipment scratched or marred during shipment or installation, to match original paint.

.3 Clean and prime exposed non-galvanized hangers, racks and fastenings to prevent rusting.

.4 All electrical fittings, supports hanger rods, pullboxes, channel frames, conduit racks, outlet boxes, brackets, clamps, etc. to have galvanized finish or enamel paint finish over corrosion-resistant primer.

.5 All panelboards to be factory finished in gloss air dry enamel applied over corrosion-resistant primer. Matte or flat type finish paint not acceptable. Factory finished units that are scratched or marred during installation or shipping to be touched up with matching spray-on air dry lacquer or, if required to provide a satisfactory job, completely refinished.

.6 120/208 volt equipment to be finished to match Grey ANSI 61.

Part 3 Execution

3.1 NAMEPLATES AND LABELS

.1 Ensure manufacturer's nameplates, CSA labels and identification nameplates are visible and legible after equipment is installed.

3.2 MOUNTING HEIGHTS

.1 Mounting height of equipment is from finished floor to centreline of equipment unless specified or indicated otherwise.

.2 If mounting height of equipment is not specified or indicated, verify before proceeding with installation.

.3 Install electrical equipment at following heights unless indicated otherwise.

.1 Local switches: 1200 mm.

.2 Wall receptacles:

.1 General: 350 mm.

.2 In mechanical rooms, other service rooms, shops, unfinished areas and the like: 1200 mm. Request clarification where uncertain.

.3 Emergency battery operated lights: 2500 mm or as indicated on drawings if higher. Confirm elevation with architectural interior elevation details.

3.3 CONDUIT AND CABLE INSTALLATION

.1 If plastic sleeves are used in fire rated walls or floors, remove before conduit installation.

.2 Install cables, conduits and fittings to be embedded or plastered over, neatly and close to building structure so furring can be kept to minimum.

.3 Obtain prior approval from Engineer before installing any equipment or conduit through roofing

membrane. Provide approved pitch pockets or roof jacks where approval is given.

.4 Seal around conduit penetrations through non-rated walls with caulking material matching the wall finish colour.

3.4 CO-ORDINATION OF PROTECTIVE DEVICES

.1 Ensure circuit protective devices such as overcurrent trips, relays and fuses are installed to required values and settings.

3.5 ARC FLASH LABELING

.1 Label to be permanently attached self-adhesive machine-generated plastic.

.2 Label shall be located so that it is clearly visible to persons before examination, adjustment, servicing or maintenance of equipment.

.3 Label to consist of black writing on white background with an orange strip on top containing the word WARNING and the warning standard triangle symbol. Under the orange strip in white background shall read "Arc Flash and Shock Hazard, Appropriate PPE Required".

3.6 FIELD QUALITY CONTROL

.1 All electrical work to be carried out by qualified, licensed electricians or apprentices as per the conditions of the Territorial Act respecting manpower vocational training and qualification. Employees registered in a Territorial apprentices program shall be permitted, under the direct supervision of a qualified licensed electrician, to perform specific tasks - the activities permitted shall be determined based on the level of training attained and the demonstration of ability to perform specific duties.

.2 The work of this division to be carried out by a contractor who holds a valid Electrical contractor license as issued by the Territory that the work is being contracted.

.3 Conduct and pay for all testing unless otherwise indicated.

.4 Furnish manufacturer's certificate or letter confirming that entire installation as it pertains to each system has been installed to manufacturer's instructions.

.5 Insulation resistance testing:

.1 Megger circuits, feeders and equipment up to 300 V with a 500 V instrument.

.2 Check resistance to ground before energizing.

.3 Electronic instruments shall not be subjected to a megger test. Damaged electronic instrument(s) caused by megger test(s) shall be replaced at contractor's expense.

.4 Consider ambient temperature and weather conditions, and apply proper correction factors to the measured insulation resistance values.

.6 When directed to do so, carry out tests in presence of Engineer.

.7 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.

.8 Complete all deficient items noted on reports provided by the local authority having jurisdiction.

.9 Submit test results for Engineer's review.

3.7 DEMONSTRATION AND OPERATING AND MAINTENANCE INSTRUCTIONS

.1 In accordance with Section 01 79 00 – Demonstration and Training.

.2 Supply tools, equipment and personnel to demonstrate and instruct operating and maintenance personnel in operating, controlling, adjusting, trouble-shooting and servicing of all systems and equipment during regular work hours, prior to acceptance.

.3 Use operation and maintenance manual, as-built drawings, audio visual aids, etc. as part of

instruction materials.

.4 Two weeks prior to substantial completion, operating personnel shall be given instruction during regular work hours.

.5 Maintain log of all site visits. Maintenance personnel to log in/out and be witnessed by Contractor. Present log when requested.

3.8 SYSTEM STARTUP

.1 Instruct operating personnel in operation, care and maintenance of systems, system equipment and components.

.2 Provide these services for such period, and for as many visits as necessary to put equipment in operation, and ensure that operating personnel are conversant with aspects of its care and operation.

3.9 CLEANING

.1 Thoroughly clean the interior and the exterior of new and affected panelboards, splitters, boxes and the like in accordance with manufacturer's instructions.

.2 Vacuum construction dust, dirt and debris out of all electrical equipment and device enclosures including but not limited to the above-mentioned list.

.3 Where enclosure finish is damaged, touch up finish with matching paint in accordance with manufacturer's specifications and installation instructions, and as specified herein.

3.10 CONTRACT BREAKDOWN

.1 Provide separate material and labour breakdown for the total contract as indicated below. This breakdown is to meet the satisfaction of the Engineer and is to be submitted within 14 days of contract award.

.2 The breakdown will be used in computing of progress claims. Progress claims are to be itemized with separate labour and material listing against each item of the contract breakdown. Progress claims will not be reviewed if they are not presented as per the following breakdown:

.1 Mobilization

.2 Trenching/Site works

.3 Service and Distribution

.4 Power Branch Circuitry

.5 Emergency and Exit Lighting

.6 Training, O&M Manuals, Reports and Records.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Materials and installation for wire and box connectors.

1.2 REFERENCES

.1 Canadian Standards Association (CSA International):

.1 CAN/CSA-C22.2 No.18, Outlet Boxes, Conduit Boxes and Fittings.

.2 CAN/CSA-C22.2 No.65, Wire Connectors.

.2 Electrical and Electronic Manufacturers' Association of Canada (EEMAC):

.1 EEMAC 1Y-2, Bushing Stud Connectors and Aluminum Adapters (1200 Ampere Maximum Rating).

.3 National Electrical Manufacturers Association (NEMA)

Part 2 Product

2.1 MATERIALS

.1 Pressure type wire connectors to: CAN/CSA-C22.2 No.65, with current carrying parts of copper sized to fit copper conductors as required.

.2 Fixture type splicing connectors to: CAN/CSA-C22.2 No.65, with current carrying parts of copper sized to fit copper conductors 10 AWG or less.

.3 Bushing stud connectors: to EEMAC 1Y-2 to consist of:

.1 Connector body and stud clamp for stranded or round solid copper conductors as required.

.2 Clamp for stranded or round copper conductors as required.

.3 Clamp for conductors.

.4 Stud clamp bolts.

.5 Bolts for copper conductors bar.

.6 Sized for conductors as indicated.

.4 Clamps or connectors for armoured cable, as required to: CAN/CSA-C22.2 No.18.

Part 3 Execution

3.1 INSTALLATION

.1 Remove insulation carefully from ends of conductors and:

.1 Install mechanical pressure type connectors and tighten screws with appropriate compression tool recommended by manufacturer. Installation shall meet secureness tests in accordance with CAN/CSA-C22.2 No.65.

.2 Install fixture type connectors and tighten to CAN/CSA-C22.2 No.65. Replace insulating cap every time the connection is removed and reinstalled.

.3 Install bushing stud connectors in accordance with EEMAC 1Y-2.

.2 Torque all connections to manufacturer specifications or where available, to code required values.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 CSA C22.2 No. 0.3, Test Methods for Electrical Wires and Cables.

1.2 PRODUCT DATA

.1 Submit product data in accordance with Section 01 33 00 Submittal Procedures and 26 05 00 - Common Work Results For Electrical.

Part 2 Product

2.1 BUILDING WIRES

.1 Conductors: Copper, stranded for 10 AWG and larger. Minimum size: 12 AWG.

.2 Copper conductors: size as indicated, with 600 V insulation of chemically cross-linked thermosetting polyethylene material rated RW90

2.2 ARMOURED CABLES

.1 Conductors: insulated, copper, size as indicated. Minimum size to be #12 AWG.

.2 Type: AC90.

.3 Armour: interlocking type fabricated from aluminum strip.

.4 Connectors: Standard or watertight to suit environment and approved for AC cable.

Part 3 Execution

3.1 INSTALLATION OF BUILDING WIRES

.1 Install wiring as follows:

.1 In conduit systems in accordance with Section 25 05 34 - Conduits, Conduit Fastenings and Conduit Fittings.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American National Standards Institute /Institute of Electrical and Electronics Engineers (ANSI/ IEEE)

.2 Canadian Standards Association, (CSA International)

Part 2 Product

2.1 EQUIPMENT

.1 New bonding and grounding to be connected to existing grounding electrode system.

.2 Grounding connectors: Hydraulic compression tool applied connectors or exothermic welding process connector or listed mechnical type connectors. Manufacturer: Burndy Hyground Compression System, Erico/Cadweld, Amp Ampact Grounding System or approved.

.3 Non-corroding accessories necessary for grounding system, type, size, material as indicated, including but not necessarily limited to:

.1 Grounding and bonding bushings.

.2 Protective type clamps.

.3 Bolted type conductor connectors.

.4 Thermit welded type conductor connectors.

.5 Bonding jumpers, straps.

.6 Pressure wire connectors.

Part 3 Execution

3.1 INSTALLATION GENERAL

.1 Ensure system modifications form complete permanent, continuous grounding and bonding system.

.2 Install connectors in accordance with manufacturer's instructions.

.3 Protect exposed grounding conductors from mechanical injury.

.4 Use bare copper conductor for underground and partially underground, and insulated copper conductor for above ground connections.

.5 Use mechanical connectors for grounding connections to equipment provided with lugs.

.6 Soldered joints not permitted.

.7 Install bonding wire for flexible conduit, connected at one ends to grounding bushing, solderless lug, clamp or cup washer and screw. Neatly cleat bonding wire to exterior of flexible conduit.

3.2 EQUIPMENT GROUNDING

.1 Install grounding connections to typical equipment included in, but not necessarily limited to following list:

.1 Raceway systems;

3.3 FIELD QUALITY CONTROL

.1 Perform tests in accordance with Section 26 05 00 - Common Work Results for Electrical.

.2 Perform ground continuity and resistance tests using method appropriate to site conditions and to

approval of Engineer and local authority having jurisdiction over installation.

.3 Perform tests before energizing electrical system.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Stardards Association, (CSA International)

Part 2 Product

2.1 SUPPORT CHANNELS

.1 U shape, size 41 x 41 mm, 2.5 mm thick, surface mounted and suspended.

Part 3 Execution

3.1 INSTALLATION

.1 Secure equipment to tile and plaster surfaces with nylon shields or lead anchors.

.2 Support equipment, conduit or cables using clips, spring loaded bolts, cable clamps designed as accessories to basic channel members.

.3 Fasten exposed conduit or cables to building construction or support system using straps.

- .1 One-hole malleable iron straps to secure surface conduits and cables 53 mm and smaller.
- .2 Two-hole steel straps for conduits and cables larger than 53 mm.
- .3 Beam clamps to secure conduit to exposed steel work.

.4 Suspended support systems.

- .1 Support individual cable or conduit runs with 6 mm dia threaded rods and spring clips.
- .2 Support 2 or more cables or conduits on channels supported by 6 mm dia threaded rod hangers where direct fastening to building construction is impractical.

.5 For surface mounting of two or more conduits use channels at 1.5 m on centre spacing.

.6 Provide metal brackets, frames, hangers, clamps and related types of support structures where indicated or as required to support conduit and cable runs.

.7 Ensure adequate support for raceways and cables dropped vertically to equipment where there is no wall support.

.8 Do not use wire lashing or perforated strap to support or secure raceways or cables.

.9 Do not use supports or equipment installed for other trades for conduit or cable support except where allowed by applicable codes, with permission of other trade and approval of Engineer.

.10 Install fastenings and supports as required for each type of equipment cables and conduits, and in accordance with manufacturer's installation recommendations.

.11 Where screw fastenings are used on metal decking, screws are to be set in lower flutes only.

END OF SECTION

Part 1 General

1.1 SHOP DRAWINGS AND PRODUCT DATA

.1 Submit shop drawings and product data for cabinets in accordance with Sections 01 33 00 - Submittal Procedures and 26 05 00 - Common Work Results For Electrical.

Part 2 Product

2.1 SPLITTERS

.1 Construction: sheet metal enclosure, welded corners and formed hinged cover suitable for locking in closed position.

.2 Terminations: main and branch lugs to match required size and number of incoming and outgoing conductors as indicated.

.3 Spare Terminals: minimum three spare terminals or lugs on each connection or lug block sized less than 400 A.

2.2 JUNCTION AND PULL BOXES

.1 Code gauge metal construction and/or cast corrosion-resistant type, conforming to Canadian Electrical Code, with screw on or hanged cover.

.2 Construction: Welded steel construction with screw-on flat covers for surface mounting.

.3 Covers: with 25 mm minimum extension all around, for flush-mounted pull and junction boxes.

.1 Screw-on flat covers for surface mounting.

.2 25mm minimum extension all around, for flush-mounted pull and junction boxes.

2.3 ENCLOSURE

.1 Enclosure: Indoor type sprinkler proof.

Part 3 Execution

3.1 SPLITTER INSTALLATION

.1 Install splitters and mount plumb, true and square to the building lines.

.2 Extend splitters full length of equipment arrangement except where indicated otherwise.

3.2 JUNCTION, PULL BOXES AND CABINETS INSTALLATION

.1 Install pull boxes in inconspicuous but accessible locations.

.2 Only main junction and pull boxes are indicated. Install pull boxes so as not to exceed 30 m of conduit run between pull boxes as per the requirements of the Canadian Electrical Code.

3.3 IDENTIFICATION

.1 Provide equipment Identification in accordance with Section 26 05 00 - Common Work Results for Electrical

.2 Install size 2 identification labels indicating system name, voltage and phase.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Standards Association (CSA International)

.1 CSA C22.1, Canadian Electrical Code, Part 1.

Part 2 Product

2.1 OUTLET AND CONDUIT BOXES GENERAL

.1 Size boxes in accordance with CSA C22.1.

.2 102 mm square or larger outlet boxes as required for special devices.

.3 Gang boxes where wiring devices are grouped.

.4 Blank cover plates for boxes without wiring devices.

.5 Combination boxes with barriers where outlets for more than one system are grouped.

2.2 SHEET STEEL OUTLET BOXES

.1 Electro-galvanized steel single gang flush device boxes for flush installation, minimum size 76 x 50 x 38 mm or as indicated. 102 mm square outlet boxes when more than one conduit enters one side with extension and plaster rings as required.

.2 Electro-galvanized steel utility boxes for outlets connected to surface-mounted EMT conduit, minimum size 102 x 54 x 48 mm.

.3 102 mm square or octagonal outlet boxes for luminaire outlets.

.4 102 mm square outlet boxes with extension and plaster rings for flush mounting devices in finished plaster walls.

.5 Sectional boxes are not allowed.

2.3 CONDUIT BOXES

.1 Cast FS boxes with factory-threaded hubs and mounting feet for surface wiring of switches.

2.4 FITTINGS - GENERAL

.1 Bushing and connectors with nylon insulated throats.

.2 Knock-out fillers to prevent entry of debris.

.3 Conduit outlet bodies for conduit up to 35mm and pull boxes for larger conduits.

.4 Double locknuts and insulated bushings on sheet metal boxes.

Part 3 Execution

3.1 INSTALLATION

.1 Support boxes independently of connecting conduits.

.2 Fill boxes with paper, sponges or foam or similar approved material to prevent entry of debris during construction. Remove upon completion of work.

.3 For flush installations mount outlets flush with finished wall using plaster rings to permit wall finish to come within 6 mm of opening.

.4 Provide correct size of openings in boxes for conduit and armoured cable connections. Do not install reducing washers.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Standards Association (CSA International)

.1 CAN/CSA C22.2 No. 18, Outlet Boxes, Conduit Boxes and Fittings and Associated Hardware, A National Standard of Canada.

.2 CSA C22.2 No. 45, Rigid Metal Conduit, galvanized steel threaded and epoxy coated conduit with zinc coating and corrosion resistant epoxy finish inside and outside.

.3 CSA C22.2 No. 83, Electrical Metallic Tubing.

.4 CSA C22.2 No. 211.2, Rigid PVC (Unplasticized) Conduit.

1.2 LOCATION OF CONDUIT

.1 Drawings do not indicate all conduit runs. Those indicated are in diagrammatic form only. Determine best routing for conduit on site, ensuring requirements of this specification are met.

Part 2 Product

2.1 CONDUITS

.1 Rigid galvanized steel threaded conduit.

.2 Electrical metallic tubing (EMT): to CSA C22.2 No. 83, with couplings.

.3 Rigid PVC conduit: to CSA C22.2 No. 211.2.

2.2 CONDUIT FASTENINGS

.1 One hole malleable iron straps to secure surface conduits 53 mm and smaller.

.1 Two hole steel straps for conduits larger than 53 mm.

.2 Beam clamps to secure conduits to exposed steel work.

.3 Channel type supports for two or more conduits at 1.5 m on centre.

.4 Threaded rods, 6 mm diameter, to support suspended channels.

2.3 CONDUIT FITTINGS

.1 Fittings: to CAN/CSA C22.2 No. 18, manufactured for use with conduit specified. Coating: same as conduit.

.2 Ensure factory "ells" where 90 degrees bends for 27 mm and larger conduits.

.3 Set screw where allowed by code and watertight connectors and couplings elsewhere. Do not use set screw fittings where conduit is used as the grounding means.

2.4 EXPANSION FITTINGS FOR RIGID CONDUIT

.1 Weatherproof expansion fittings with internal bonding assembly suitable for 100 mm linear expansion.

2.5 PULL STRING

.1 Minimum 6 mm stranded nylon (polypropylene) pull rope, tensile strength 5 kN. Leave pull rope in conduit after cables have been installed.

2.6 THREAD LUBRICANT

.1 Crouse-Hinds STL lubricant for use on all conduit threads.

Part 3 Execution

3.1 INSTALLATION

.1 Install conduits to conserve headroom in exposed locations and cause minimum interference in spaces through which they pass.

.2 Conceal conduits except in mechanical and electrical service rooms and in unfinished areas.

.3 Use rigid galvanized steel threaded conduit in concrete, underground under the building concrete slab, in corrosive areas and for mechanical protection.

.4 Use electrical metallic tubing (EMT) except in cast concrete and where subject to mechanical injury.

.5 Use rigid PVC conduit underground.

.6 Minimum conduit size for lighting and power circuits: 21 mm.

.7 Bend conduit cold:

.1 Replace conduit if kinked or flattened more than 1/10th of its original diameter.

.8 Mechanically bend steel conduit over 21 mm diameter or as recommended by manufacturer, using approved conduit bending machine or hickey.

.9 Field threads on rigid conduit must be of sufficient length to draw conduits up tight. Make conduit joints up tight with at least five (5) full threads engaged.

.10 Running threads are not permitted.

.11 Treat all male ends with thread lubricant, Crouse-Hinds type STL or approved equal prior to being made up.

.12 Install pull string in empty conduits.

.13 Remove and replace blocked, crushed, deformed or otherwise injured or damaged conduit sections.

.1 Do not use liquids to clean out conduits.

.14 Where cables or conduits pass through floors and fire rated walls, pack space between wiring and sleeve full with fire rated caulking compound if approved, or other approved fire rated fire stop assembly suitable for the application and to the code requirements.

.15 Where cables or conduits pass through non-rated walls, pack space between wiring and sleeve full with caulking compound suitable for the application and paint to match the wall finish.

.16 Dry conduits out before installing wire.

.17 Provide plastic bushing at the end of raceway, per CEC rule 12-906, to protect conductors from abrasion where they issue from raceways. This applies to all raceway and all wiring regardless of voltage or application. EMT connector without insulated throat or bushing installed between the conduit and box meets the 12-906 requirement for conductors smaller than #8 AWG.

3.2 SURFACE CONDUITS

.1 Run parallel or perpendicular to building lines.

.2 Run conduits in flanged portion of structural steel.

.3 Group conduits wherever possible on suspended channels. Channels to have 25% spare capacity.

.4 Do not pass conduits through structural members except as indicated.

.5 Do not locate conduits less than 75 mm parallel to steam or hot water lines with minimum of 25 mm at crossovers.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Standards Association, (CSA International)

.2 Insulated Cable Engineers Association, Inc. (ICEA)

Part 2 Products

2.1 CABLE PROTECTION

.1 38 x 140 mm (thickness x width) planks pressure treated with clear, copper napthenate or 5% pentachlorophenol solution, water repellent preservative.

2.2 MARKERS

.1 Underground marker:

.1 Inert polyethylene plastic ribbon, 150 mm wide by 0.1 mm thick. Safety red for electric power distribution. Imprint over entire length of ribbon in permanent black letters, the system description selected from manufacturer standard legend, which most accurately describes the subgrade system. To be Allen Systems, Panduit Corp., or approved equal.

Part 3 Execution

3.1 DIRECT BURIAL OF CABLES

.1 After sand bed specified is in place, lay cables maintaining 75 mm clearance from each side of trench to nearest cable. Do not pull cable into trench.

.2 Provide offsets for thermal action and minor earth movements. Offset cables 150 mm for each 60 m run, maintaining minimum cable separation and bending radius requirements.

.3 Make termination and splice only as indicated leaving 0.6 m of surplus cable in each direction.

.4 Underground cable splices not acceptable.

.5 Minimum permitted radius at cable bends for rubber, plastic or lead covered cables, 8 times diameter of cable; for metallic armoured cables, 12 times diameter of cables or in accordance with manufacturer's instructions.

.6 Cable separation: Maintain 1 m separation between primary power feeder cables and low tension systems in parallel and perpendicular crossings.

.7 Notwithstanding the typical underground cable and conduit installation detail shown on the drawings, for main feeders, after sand protective cover is in place, install continuous row of overlapping 38 x 140 mm pressure treated planks or concrete blocks as indicated to cover length of run.

.8 Install continuous marker tape for each underground cable.

3.2 MARKERS

.1 Where markers are removed to permit installation of additional cables, reinstall markers.

.2 Install underground marker.

3.3 FIELD QUALITY CONTROL

.1 Perform tests in accordance with Section 26 05 00 - Common Work Results For Electrical.

.2 Perform tests using qualified personnel. Provide necessary instruments and equipment.

.3 Check phase rotation and identify each phase conductor of each feeder.

.4 Check each feeder for continuity, short circuits and grounds. Ensure resistance to ground of circuits is not less than 50 megohms.

.5 Perform test in accordance with manufacturer's instructions.

.6 Remove and replace entire length of cable if cable fails to meet any of test criteria.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Materials and installation for standard and custom breaker type panelboards.

1.2 REFERENCES

.1 Canadian Standards Association (CSA International).

1.3 SHOP DRAWINGS

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures and 26 05 00 - Common Work Results For Electrical.

.2 Drawings to include electrical detail of panel, branch breaker type, quantity, ampacity and enclosure dimension.

1.4 PLANT ASSEMBLY

.1 Install circuit breakers in panelboards before shipment.

1.5 CLOSEOUT SUBMITTALS

.1 Provide operation and maintenance data for panelboards for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

.2 Include data for each panelboard.

.3 Include a copy of typewritten panel directories.

Part 2 Products

2.1 PANELBOARDS

.1 Panelboards: to CSA C22.2 No.29 and product of one manufacturer.

.2 250 V panelboards: bus and breakers rated for the same short circuit interrupting capacity as the existing panels. 120/208 volt, 3 phase, 4 wire, solid neutral design with sequence style bussing and full size neutral of capacity indicated.

.3 Sequence phase bussing with odd numbered breakers on left and even on right, with each breaker identified by permanent number identification as to circuit number and phase.

.4 Panelboards: mains, number of circuits, and number and size of branch circuit breakers as indicated.

.5 Two keys for each panelboard and key panelboards alike.

.6 Copper bus with neutral of same ampere rating as mains.

.7 Suitable for bolt-on breakers.

.8 Trim with concealed front bolts and hinges.

.9 Trim and door finish: air dried grey enamel for indoors and baked grey enamel for outdoors.

.10 Provide fully rated circuit breakers throughout the system.

.11 Enclosure: Indoor type sprinkler proof.

.12 Standard of acceptance:

.1 208 Volt: Cutler-Hammer Pow-R-Line 1, Square D type NQOD, Siemens type NLAB.

2.2 BREAKERS

.1 Breakers: to Section 26 28 21 - Moulded Case Circuit Breakers.

.2 Breakers with thermal and magnetic tripping in panelboards except as indicated otherwise.

.3 Main breaker: separately mounted on top or bottom of panel to suit cable entry. When mounted vertically, down position should open breaker.

.4 Lock-on devices for exit signage, fire alarm and emergency lighting circuits.

2.3 EQUIPMENT IDENTIFICATION

.1 Provide equipment identification in accordance with Section 26 05 00 - Common Work Results For Electrical.

.2 Nameplate for each panelboard size 4 engraved as indicated.

.3 Nameplate for each circuit in distribution panelboards size 2 engraved as indicated.

.4 Complete typewritten panel directory showing number and location of each circuit. Provide three (3) typed panel directories, two of which in the plastic pouch attached to the inside of the panelboard door, and one in the existing O&M manuals. Provide updated panel schedules for any existing panels affected by scope of work.

Part 3 Execution

3.1 INSTALLATION

.1 Locate panelboards as indicated and mount securely, plumb, true and square, to adjoining surfaces.

.2 Install surface mounted panelboards on plywood backboards. Where practical, group panelboards on common backboard. Backboard to be painted with fire retardant paint.

.3 Mount panelboards to height specified in Section 26 05 00 - Common Work Results For Electrical or as indicated.

.4 Connect loads to circuits.

.5 Connect neutral conductors to common neutral bus with respective neutral identified.

.6 Mount panelboard vertically with odd numbered breaker on the left and even numbered breakers on the right.

.7 Wherever possible use pull boxes to collect home runs and larger conduits to complete the return to the branch circuits to avoid conduit congestion at the face of walls. Consider the CEC required derating factors and overcurrent protection when using collected homeruns.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Switches, receptacles, wiring devices, cover plates and their installation.

1.2 REFERENCES

.1 CSA International

- .1 CSA C22.2 No.42, General Use Receptacles, Attachment Plugs and Similar Devices.
- .2 CAN/CSA C22.2 No.42.1, Cover Plates for Flush-Mounted Wiring Devices (Bi-national standard, with UL 514D).
- .3 CSA C22.2 No.55, Special Use Switches.

1.3 SHOP DRAWINGS AND PRODUCT DATA

.1 Submit shop drawings and product data in accordance with Section 01 33 00 - Submittal Procedures Section 26 05 00 - Common Work Results For Electrical.

1.4 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 Operation and Maintenance Data: submit operation and maintenance data for wiring devices for incorporation into existing manual.

Part 2 Product

2.1 SWITCHES

.1 20 A, 120 V, single pole, double pole, three-way, four-way switches to: CSA C22.2 No.55.

.2 Manually-operated general purpose AC switches with following features:

- .1 Terminal holes approved for No.10 AWG wire.
- .2 Silver alloy contacts.
- .3 Urea moulding for parts subject to carbon tracking.
- .4 Suitable for side wiring.
- .5 Toggle to be White.

.3 Toggle operated fully rated for tungsten filament and fluorescent lamps, and up to 80% of rated capacity of motor loads.

.4 Switches of one manufacturer throughout project.

.5 All switches to be industrial specification grade. Hubble 1221 or Leviton 1221 or Cooper AH1221 or approved equal.

2.2 DUPLEX RECEPTACLES

.1 Duplex receptacles, CSA type 5-15 R, 125 V, 15 A, U ground, to: CSA C22.2 No.42 with following features:

- .1 Reinforced thermoplastic base and deep nylon body.
- .2 Suitable for No. 10 AWG for back and side wiring.
- .3 Break-off links for use as split receptacles.
- .4 Four side wiring screws.
- .5 Triple wipe contacts and riveted grounding contacts.

.6 Finish: White.

.7 Acceptable materials: Hubbell 5262 series, Leviton 5262 series, Cooper 5262 series, Circle F 5262 series, Bryant 5262 series or approved equal.

.2 Other receptacles with ampacity and voltage as indicated.

.3 Receptacles of one manufacturer throughout project.

.4 All receptacles to be Industrial specification grade.

2.3 COVER PLATES

.1 Cover plates for wiring devices to: CSA C22.2 No.42.1.

.2 Cover plates from the wiring device manufacturer throughout project.

.3 Sheet steel utility box cover for wiring devices installed in surface-mounted utility boxes.

.4 Molded Nylon, finish to be White

.5 Sheet metal cover plates for wiring devices mounted in surface-mounted FS or FD type conduit boxes.

.6 Weatherproof double lift spring-loaded cast aluminum cover plates, complete with gaskets for duplex receptacles as indicated.

2.4 SOURCE QUALITY CONTROL

.1 Cover plates from one manufacturer throughout project.

Part 3 Execution

3.1 INSTALLATION

.1 All wiring devices to be fed from "pigtail" splices. Feed through splices utilizing the devices as a splicing terminal is not acceptable.

.2 Switches:

.1 Install single throw switches with handle in "UP" position when switch closed.

.2 Install switches in gang type outlet box when more than one switch is required in one location.

.3 Mount toggle switches at height in accordance with Section 26 05 00 - Common Work Results for Electrical .

.3 Receptacles:

.1 Install receptacles in gang type outlet box when more than one receptacle is required in one location.

.2 Mount receptacles at height specified in Section 26 05 00 - Common Work Results - Electrical or as indicated..

.3 Mount receptacles with u-ground on the bottom of the receptacle.

.4 Cover plates:

.1 Protect cover plate finish with paper or plastic film until painting and other work is finished.

.2 Install suitable common cover plates where wiring devices are grouped.

.3 Do not use cover plates meant for flush outlet boxes on surface-mounted boxes.

END OF SECTION

Part 1 **General**

1.1 **PRODUCT DATA**

.1 Submit product data in accordance with Section 01 33 00 - Submittal Procedures Section 26 05 00 - Common Work Results For Electrical.

Part 2 **Products**

2.1 **BREAKERS GENERAL**

.1 Bolt-on moulded case circuit breaker: quick- make, quick-break type, for manual and automatic operation with temperature compensation for 40°C ambient.

.2 Common-trip breakers: with single handle for multi-pole applications.

.3 Magnetic instantaneous trip elements in circuit breakers to operate only when value of current reaches setting. Trip settings on breakers with adjustable trips to range from 3-8 times current rating.

.4 New circuit breakers are to have the same short circuit interrupting capacity as existing circuit breakers.

.5 Provide fully rated circuit breakers throughout the system.

2.2 **THERMAL MAGNETIC BREAKERS [DESIGN A]**

.1 Moulded case circuit breakers are to operate automatically by means of thermal and magnetic tripping devices to provide inverse time current tripping and instantaneous tripping for short circuit protection.

.2 Provide ground fault protection where shown on drawings.

2.3 **ENCLOSURE**

.1 As indicated on drawings or specified.

Part 3 **Execution**

3.1 **INSTALLATION**

.1 Install circuit breakers as indicated.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 American National Standards Institute (ANSI)

.2 American National Standards Institute/Institute of Electrical and Electronics Engineers (ANSI/IEEE)

.1 ANSI/IEEE C62.41, Surge Voltages in Low-Voltage AC Power Circuits.

.3 Canadian Standards Association (CSA International)

.4 Underwriters' Laboratories of Canada (ULC)

.5 United States of America, Federal Communications Commission (FCC):

.1 FCC (CFR47) EM and RF Interferences Suppression.

1.2 SHOP DRAWINGS AND PRODUCT DATA

.1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures and 26 05 00 - Common Work Results for Electrical.

.2 Product data to include: total input watts, candlepower summary, candela distribution zonal lumen summary, luminaire efficiency, CIE (International Commission on Illumination) type, coefficient of utilization, lamp type, and lumen rating in accordance with IESNA testing procedures.

Part 2 Product

2.1 LAMPS

.1 Light Emitting Diode (LED) sources: As specified in Luminaire Schedule on drawings.

2.2 BALLASTS

.1 LED drivers: 120V 60 Hz as specified in luminaire schedule and compatible with the LED source used as shown on drawings.

2.3 FINISHES

.1 Baked enamel finish:

.1 Conditioning of metal before painting:

.1 For corrosion resistance conversion coating to CGSB 31-P-103M.

.2 For paint base, conversion coating to CGSB 31-GP-105M, CGSB 31-GP-106a.

.2 Metal surfaces of luminaire housing and reflectors finished with high gloss baked enamel polyester powdercoat alzak aluminum to give smooth, uniform appearance, free from pinholes or defects.

.3 Reflector and other inside surfaces finished as follows:

.1 White, minimum reflection factor 85%.

.2 Colour fastness: yellowness factor not above 0.02 and after 250 h exposure in Atlas fade-ometer not to exceed 0.05.

.3 Film thickness, not less than 0.03 mm average and in no areas less than 0.025 mm.

.4 Gloss not less than 80 units as measured with Gardner 60° gloss meter.

.5 Flexibility: withstand bending over 12 mm mandrel without showing signs of

cracking or flaking under 10 times magnification.

.6 Adhesion: 24 mm square lattice made of 3 mm squares cut through film to metal with sharp razor blade. Adhesive cellulose tape applied over lattice and pulled. Adhesion satisfactory if no coating removed.

2.4 LUMINAIRES

.1 Refer to Luminaire Schedule on drawings.

Part 3 Execution

3.1 INSTALLATION

.1 Locate and install luminaires as indicated.

3.2 WIRING

.1 Connect luminaires to lighting circuits:

.1 Armoured cable (BX) may be used for drops to luminaires in accessible ceiling space.

3.3 LUMINAIRE ALIGNMENT

.1 Align luminaires mounted individually parallel or perpendicular to building grid lines.

.2 Clean paint splatters, dirt, dust, fingerprints and debris from luminaires.

.3 Where finish of luminaire has been damaged, touch up finish per manufacturer instructions.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Materials and installation for emergency lighting systems.

1.2 REFERENCES

.1 Canadian Standards Association (CSA International).

1.3 SUBMITTALS

.1 Submit shop drawings and product data in accordance with Section 01 33 00 - Submittal Procedures Section 26 05 00 - Common Work Results For Electrical.

.2 Data to indicate system components, mounting method, source of power and special attachments as well as battery charge and discharge voltage/time characteristics.

.3 Submit operation and maintenance data in accordance with Section 01 78 00 - Closeout Submittals

Part 2 Products

2.1 EQUIPMENT

.1 Emergency lighting equipment: to CSA C22.2 No.141.

.2 Supply voltage: 120 V AC, 60 Hz.

.3 Output voltage: 12 V DC.

.4 Operating time: 30 minutes, and to produce not less than 87.5% of nominal DC system voltage with AC supply 'off'.

.5 Battery: sealed, long life 10 year maintenance free life expectancy.

.6 Battery Capacity:

.1 Refer to Battery Pack Schedule on drawings.

.7 Charger: solid state, multi-rate, voltage/current regulated, inverse temperature compensated, short circuit protected with regulated output of plus or minus 0.01V for plus or minus 10% input variations.

.8 Solid state transfer circuit.

.9 Automatic self-diagnostic circuitry identifying battery failure, battery disconnected, charger failure, lamp failure, service alarm.

.10 Low voltage disconnect: solid state, modular, operates at 80% battery output voltage.

.11 Signal lights: solid state, for 'AC Power ON' and 'High Charge'.

.12 Lamp heads: integral on unit, 345 degrees horizontal and 180 degrees vertical adjustment. Lamp type: MR16, 5W LED.

.13 Cabinet: suitable for direct or shelf mounting to wall and c/w knockouts for conduit. Removable or hinged front panel for easy access to batteries.

.14 Finish: White.

.15 Auxiliary equipment:

.1 Ammeter.

.2 Voltmeter.

.3 Test switch.

.4 AC input and DC output inside cabinet.

.5 Brownout protector.

.16 Battery Charger:

.1 Automatically maintain battery in fully charged state while main power available. Maintain DC float voltage within plus or minus 1% of setting, no load to full load, during main voltage variations of plus 10% to minus 10% and frequency variations of plus or minus 5%.

.2 Equalize charging rate such that after battery has provided full power output for specified duration, charger returns battery to 95% of fully charged state in 12 h.

.3 Automatic cycle test providing monthly, semi-annual and annual tests with annual test being for 30 minutes.

.17 LED indicators:

.1 Amber LED: unit ready and trouble free and Audible Alarms (flashing); charging mode failure (on); master card failure (off).

.2 Green LED Test in progress: delay TDR; equalize mode.

.3 Red LED: battery low.

.4 Audible alarm: Any failure shall be followed by a pulsating audible alarm on for 3 seconds every two and one half minutes (2 1/2) until the failure is repaired.

2.2 REMOTE HEADS

.1 Remote Heads: surface mount vandal resistant polycarbonate base, clear UV-resistant polycarbonate cover, fully adjustable, double heads. c/w MR16, LED, glare free.

.1 Standard heads: dual 5 Watt;

Part 3 Execution

3.1 INSTALLATION

.1 Identify conductors for polarity and voltage.

.2 Install with conductors sized to maintain current flow with maximum 3% voltage drop.

.3 Install central and remote heads per CEC rule 46-304 and as indicated on drawings and make all required connections to heads.

.4 Direct light heads to suit site condition and check operation.

3.2 WIRING OF REMOTE HEADS

.1 Conductors: Type RW90 XLPE in accordance with Section 26 05 21 - Wires and Cables 0-1000 V, sized to be #10 AWG minimum.

.2 Conduit: type EMT, in accordance with Section 26 05 34 - Conduits, Conduit Fastenings and Conduit Fittings.

3.3 FIELD QUALITY CONTROL

.1 Perform tests in accordance with Section 26 05 01 - Common Work Results - Electrical.

.2 Include: Performance test for 0.5 hours.

.3 Include a copy of the test report in the existing O&M manuals.

.4 Units will be tested during the substantial completion field review by the Engineer. Schedule the work at the outset of the construction so that work schedules are properly coordinated to guarantee this.

.5 Pretest the units prior to request for substantial completion field review and troubleshoot all deficiencies. Submit a copy of successful pretesting along with the request for substantial completion review.

.6 Arrange for facility's maintainer to be present during all tests.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Standards Association (CSA International)

.1 CSA C22.2 No.141-02, Unit Equipment for Emergency Lighting.

1.2 SUBMITTALS

.1 Submit shop drawings and product data in accordance with Section 01 33 00 - Submittals Section 26 05 00 - Common Work Results For Electrical.

.2 Submit product data sheets for exit lights. Include product characteristics, performance criteria, physical size, limitations and finish.

.3 Manufacturer Instructions: Provide to indicate special handling criteria, installation sequence, cleaning procedures, scheduled maintenance.

Part 2 Product

2.1 STANDARD UNITS

.1 Exit lights: to CSA C22.2 No.141 and NRCAN/CSA C860, packaged in accordance with the Canadian Code for Preferred Packaging guidelines.

.2 Housing: cold rolled steel minimum 1.0 mm thick, satin aluminum enamel finish.

.3 Face and back plates: cast aluminum alloy.

.4 Lamps: Light Emitting Diode (LED).

.5 Operation: designed for 25 year life expectancy without relamping.

.6 Exit Symbol: Full height green running man symbol on white door background in anoverall green background with full height directional white arrow in front of therunning man on the same overall green background, in compliance with the buildingcode requirements.

.7 Face plate to remain captive for relamping.

.8 120/347VAC input, field selectable.

.9 To have 5 year warranty.

.10 Ceiling and surface mounting.

.11 Single or Double face as shown on drawings.

.12 Arrow: as required.

Part 3 Execution

3.1 MANUFACTURER'S INSTRUCTIONS

.1 Compliance: comply with manufacturer's written recommendations or specifications, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 INSTALLATION

.1 Install exit lights as indicated, in accordance with NBC requirements.

.2 Connect fixtures to exit light circuits as indicated.

.3 Connect emergency DC power to emergency circuits

.4 Ensure that exit light circuit breaker is locked in on position.

.5 Do not contain any other loads with exit lights on the same AC circuit.

3.3 FIELD QUALITY CONTROL

.1 Perform tests in accordance with Section 26 05 00 - Common Work Results For Electrical.

.2 Units will be tested during the substantial completion field review by the Engineer. Schedule the work at the outset of the construction so that work schedules are properly coordinated to guarantee this.

.3 Pretest the units prior to request for substantial completion field review and troubleshoot all deficiencies. Submit a copy of successful pretesting along with the request for substantial completion review. Failing to do so in whole or in part, pay all engineer's costs whatsoever associated with performing additional site visit to perform successful testing of the units at other times.

.4 Arrange for facility's maintainer to be present during all tests.

END OF SECTION

Stantec

COMMUNITY AND GOVERNMENT SERVICES
GOVERNMENT OF NUNAVUT

ILAVUT MEN'S HEALING CENTRE
ELECTRICAL UPGRADES
KUGLUKTUK, NU

DRAWING LIST:

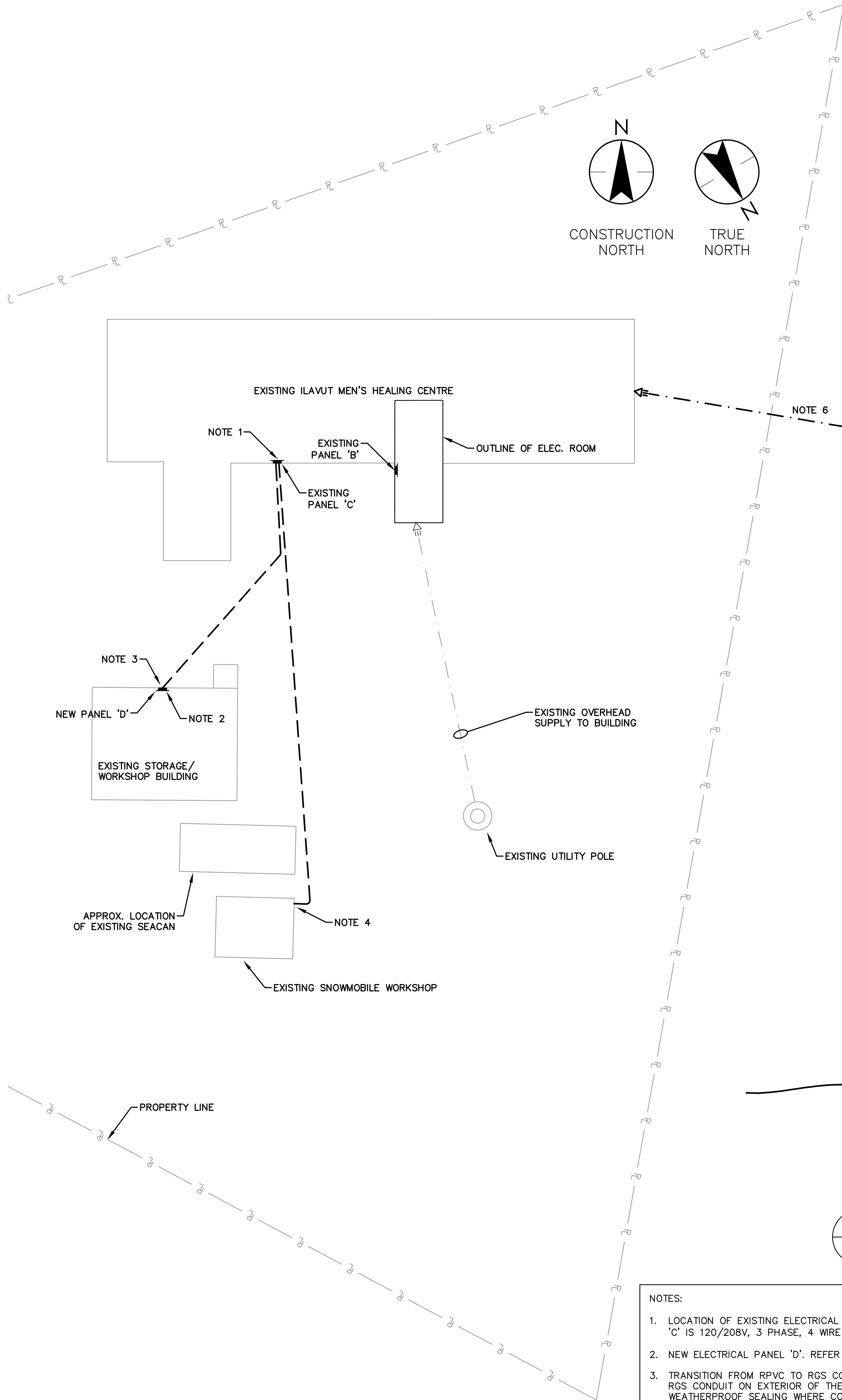
GENERAL
G-000 COVER SHEET

ELECTRICAL
E-100 ELECTRICAL SITE PLAN
E-101 ELECTRICAL FLOOR PLANS
E-600 ELECTRICAL SINGLE LINE DIAGRAM
E-700 ELECTRICAL PANEL SCHEDULES

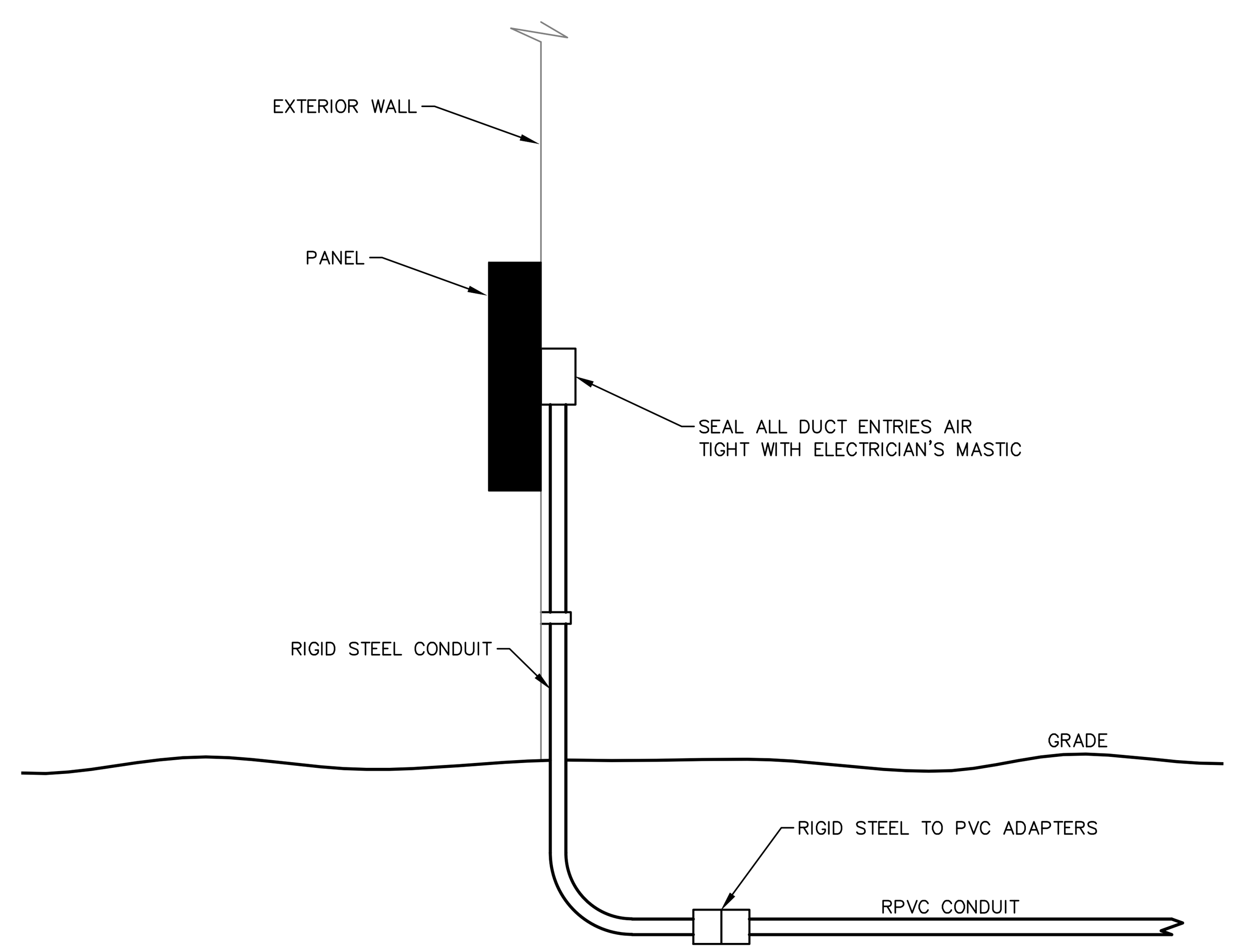
JULY 29, 2016

PROJECT NUMBER: CT16420-00340-01

STANTEC PROJECT NUMBER: 144902332



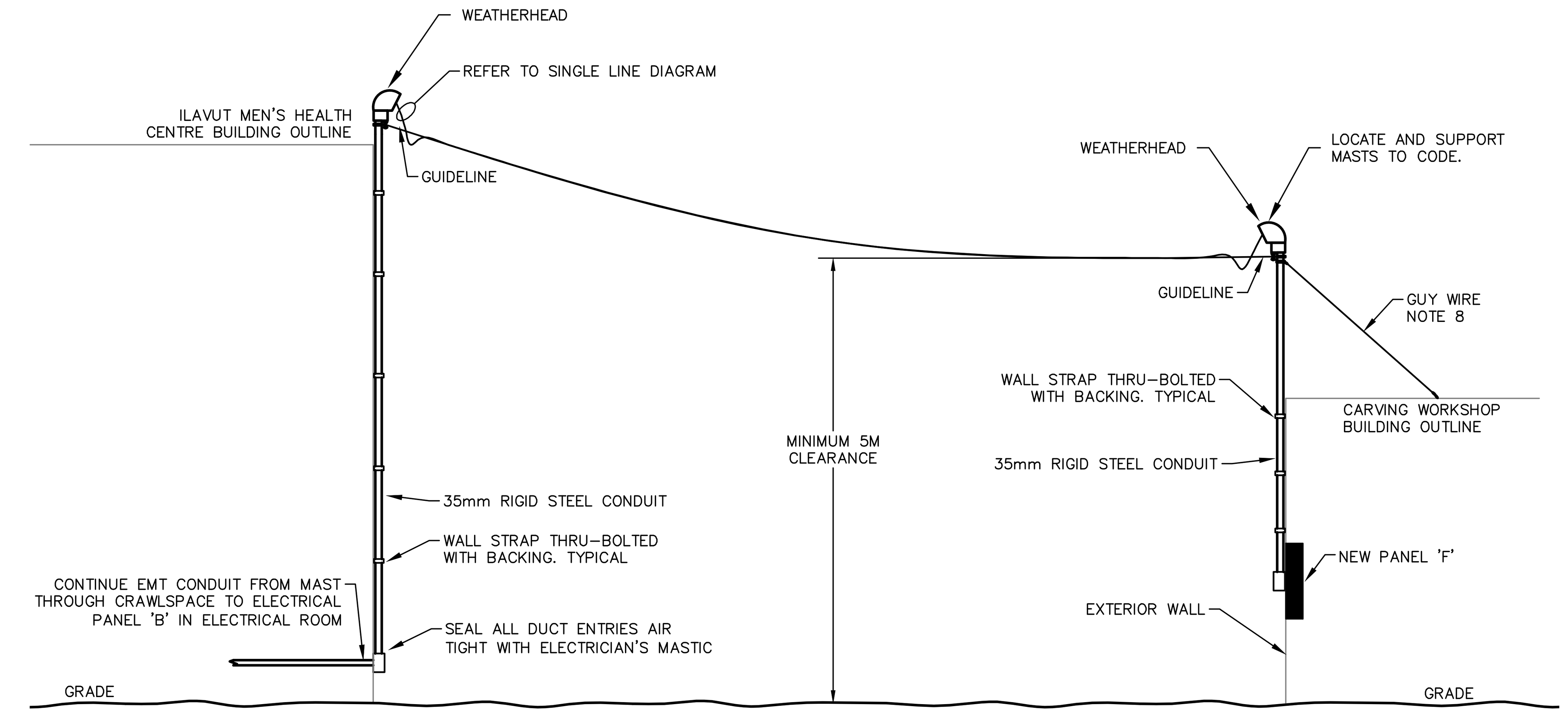
1 E100 ELECTRICAL SITE PLAN
1:200



2 E100 PVC/RIGID STEEL CONDUIT TRANSITION DETAIL
N.T.S.

NOTES:

1. LOCATION OF EXISTING ELECTRICAL PANEL 'C' IN MEN'S HEALING CENTER CRAWLSPACE. PANEL 'C' IS 120/208V, 3 PHASE, 4 WIRE MANUFACTURED BY SIEMENS MODEL: P1.
2. NEW ELECTRICAL PANEL 'D'. REFER TO DETAIL 3/E101.
3. TRANSITION FROM RPVC TO RGS CONDUIT BEFORE ROUTING CONDUIT ABOVE GROUND. RUN RGS CONDUIT ON EXTERIOR OF THE BUILDING BEFORE CONNECTION TO NEW PANEL. PROVIDE WEATHERPROOF SEALING WHERE CONDUIT PENETRATES EXTERIOR WALL. PROVIDE EXPANSION JOINTS AS REQUIRED. REFER TO DETAIL 2/E100.
4. PROVIDE DOUBLE RUN OF WIRING FROM EXISTING ELECTRICAL PANEL 'C' IN CRAWLSPACE TO SNOWMOBILE WORKSHOP. ONE (1) RUN DEDICATED FOR EXTERIOR MOUNTED RECEPTACLE AND ONE (1) TO FEED RECEPTACLES AND LIGHT INSIDE WORKSHOP. REFER TO DETAIL 4/E101.
5. REFER TO SINGLE LINE DIAGRAM DETAIL 2/E600 FOR DETAILED DISTRIBUTION INFORMATION.
6. REFER TO DETAIL 3/E100 FOR OVERHEAD CONDUCTOR INFORMATION.
7. CONTRACTOR TO REMOVE EXISTING WEATHERHEAD, MAST AND ASSOCIATED CONDUCTOR RUN OVERHEAD TO MEN'S HEALING CENTRE. CONTRACTOR TO DISPOSE OF MATERIALS AS PER DIVISION 1 REQUIREMENTS.
8. ATTACH GUY WIRE TO MAST AND SECURE TO ROOF STRUCTURE, ENSURING ATTACHMENT IS SECURED TO A STRUCTURAL ELEMENT AS PER REQUIREMENTS OF C.E.C.

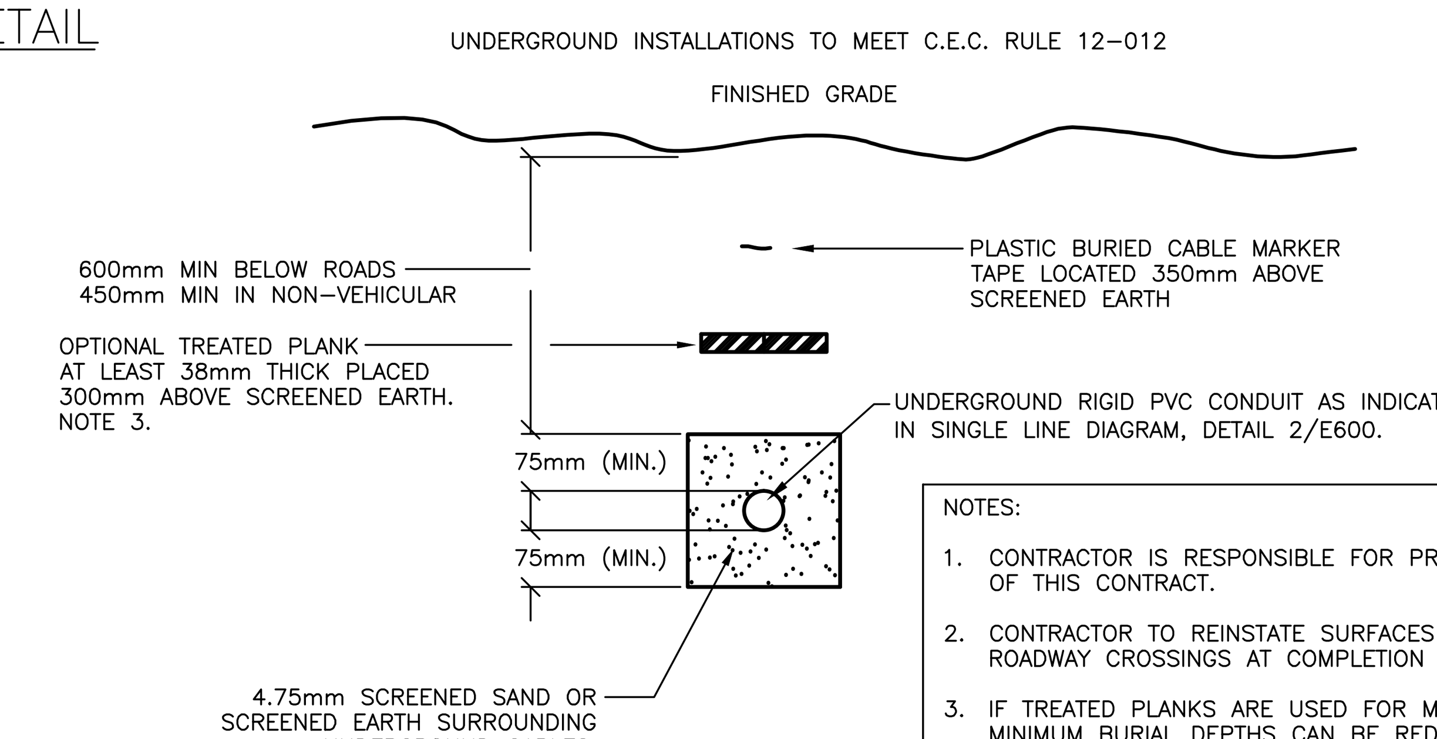


OVERHEAD CONDUCTORS TO BE INSTALLED ACCORDING TO C.E.C. THE POINT OF ATTACHMENT OF THE CONDUCTORS SHALL NOT EXCEED 9M ABOVE GRADE AND THE MINIMUM CLEARANCE, INCLUDING CONDUCTOR DROOP, SHALL NOT BE LESS THAN 5M FOR THE LENGTH OF THE CONDUCTOR FROM BUILDING TO BUILDING.

3 E100 OVERHEAD CONDUCTOR DETAIL
N.T.S.

ELECTRICAL LEGEND	
LIGHTING PLAN SYMBOLS	
	SURFACE MOUNTED LIGHT SOCKET
	SURFACE MOUNTED STRIP LUMINAIRE 1219mm LONG
	SURFACE MOUNTED LUMINAIRE 1219mm LONG
	CEILING MOUNTED EXIT SIGN (TEXT ON SHADED SIDES, ARROWS AS INDICATED)
	LINE VOLTAGE SWITCH (120V)
	EMERG. LTG. BATTERY PACK (2 LAMPS)
	WALL MOUNTED EMERGENCY LIGHTING REMOTE HEAD (1 LAMP)
	WALL MOUNTED EMERGENCY LIGHTING REMOTE HEAD (2 LAMPS)
POWER PLAN SYMBOLS	
	DUPLEX 5-15R RECEPTACLE
	DUPLEX ABOVE COUNTER 5-15R RECEPTACLE
WP	DUPLEX WEATHERPROOF 5-15R RECEPTACLE
J	WALL MOUNTED JUNCTION BOX
	POWER PANELBOARD
	WEATHERHEAD
M	METERING CABINET
	DISCONNECT
SCHEMATIC SYMBOLS	
M	METER
	CIRCUIT BREAKER
	SWITCH

UNDERGROUND INSTALLATIONS TO MEET C.E.C. RULE 12-012



NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRENCHING AS PART OF THIS CONTRACT.
2. CONTRACTOR TO REINSTATE SURFACES TO PRIOR CONDITIONS AT ROADWAY CROSSINGS AT COMPLETION OF WORK.
3. IF TREATED PLANKS ARE USED FOR MECHANICAL PROTECTION, MINIMUM BURIAL DEPTHS CAN BE REDUCED BY 150MM. OTHERWISE, MINIMUM BURIAL DEPTHS ARE 600MM OR 450MM AS INDICATED.

4 E100 TYPICAL CONDUIT BURIAL DETAIL
N.T.S.

GOVERNMENT OF NUNAVUT DEPARTMENT OF COMMUNITY AND GOVERNMENT SERVICES

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Signature
Date July 29, 2016
PERMIT NUMBER: P 800
NT/NU Association of Professional Engineers and Geoscientists
144902332

REGISTERED PROFESSIONAL ENGINEER
K. S. SMITH
N.W.T.

Client/Project
COMMUNITY AND GOVERNMENT SERVICES
GOVERNMENT OF NUNAVUT

ILAVUT MEN'S HEALING CENTRE
ELECTRICAL UPGRADES
KUGLUKTUK, NU

Title
ELECTRICAL SITE PLAN

Stantec Project No. 144902332

Project No.	Scale	
CT16420-00340-01	AS SHOWN	
Drawing No.	Sheet	Revision
E100	1 of 4	0

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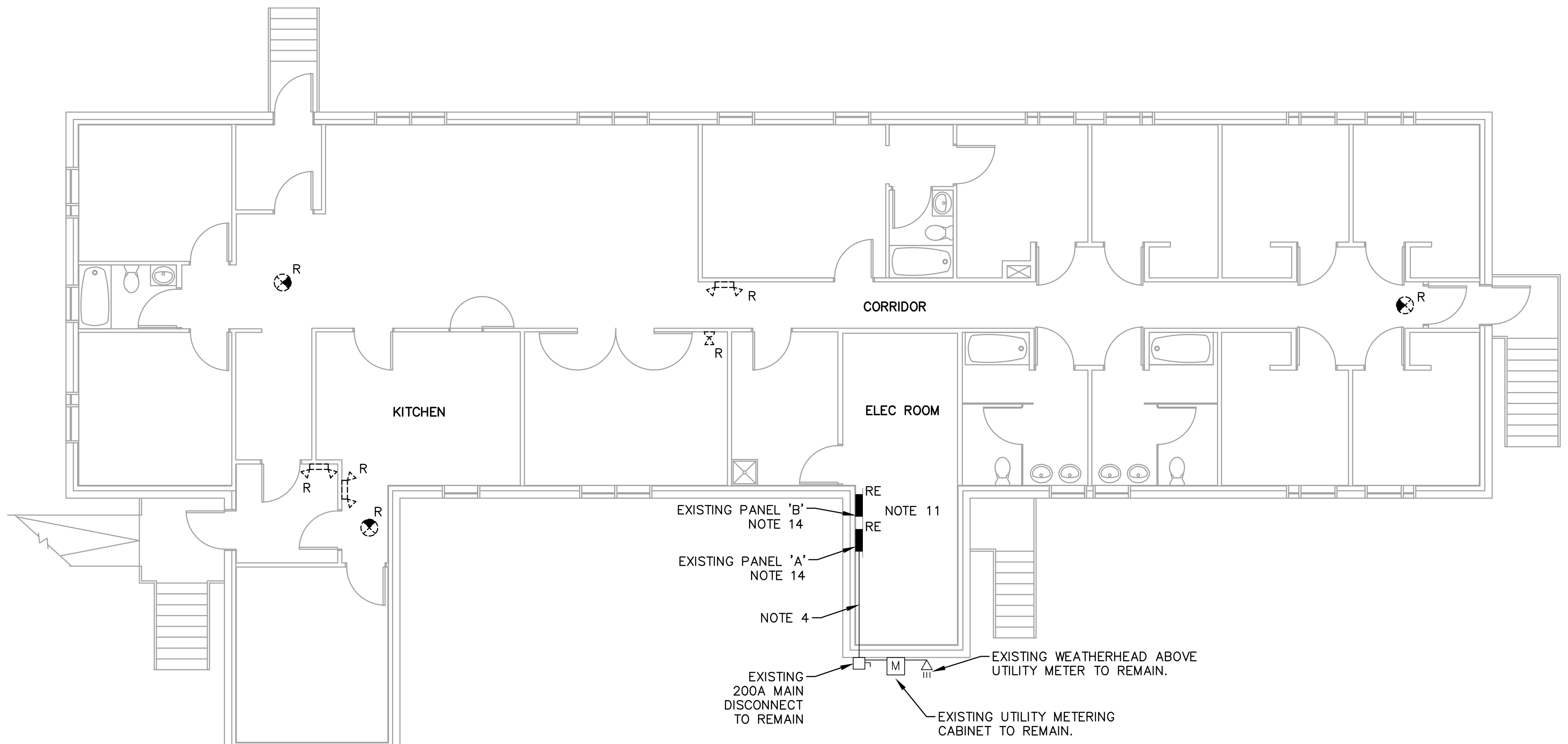
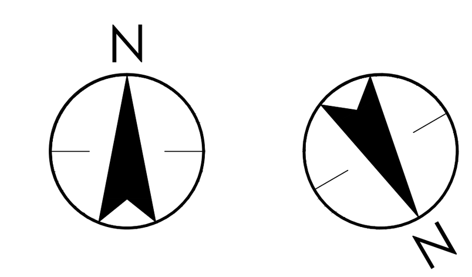


1 E101 HEALING CENTRE: DEMO EMERGENCY LIGHTING PLAN
1:100

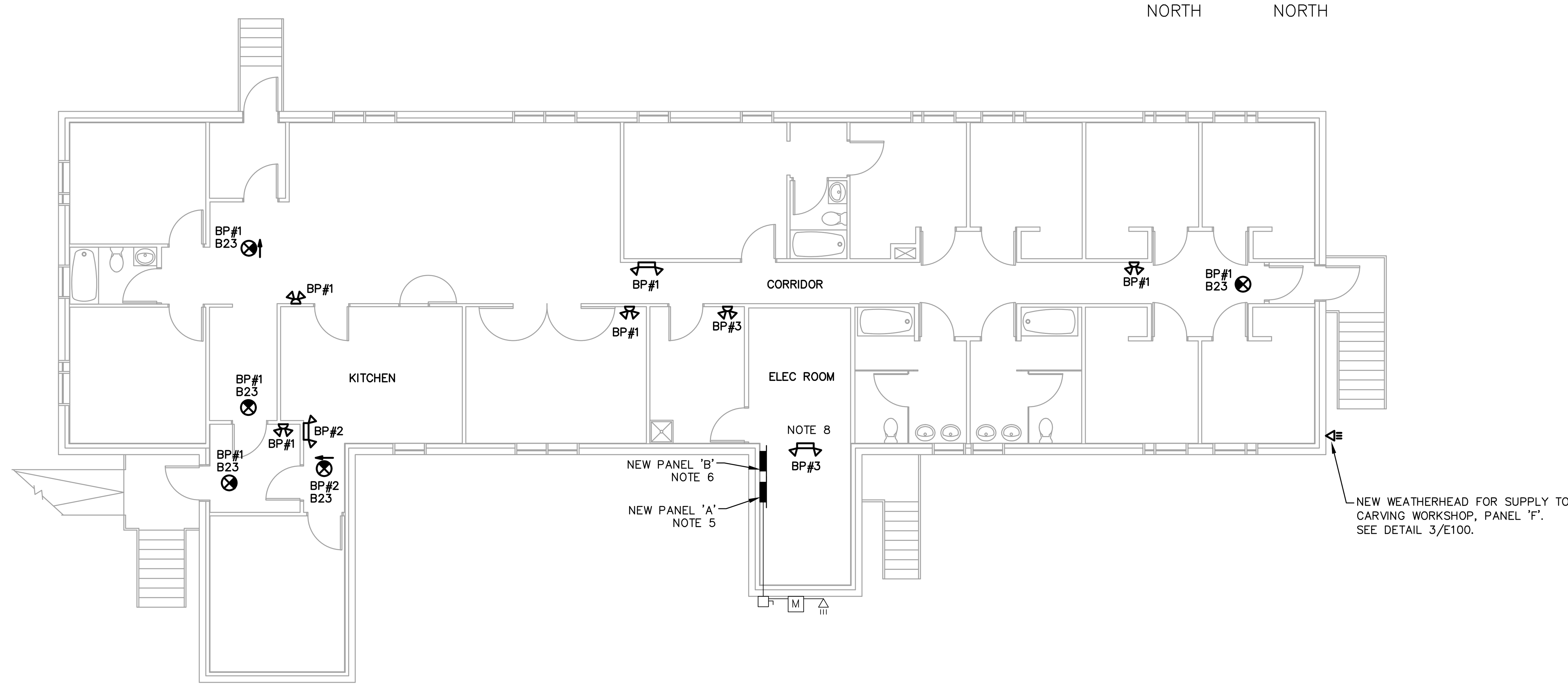


LUMINAIRE SCHEDULE

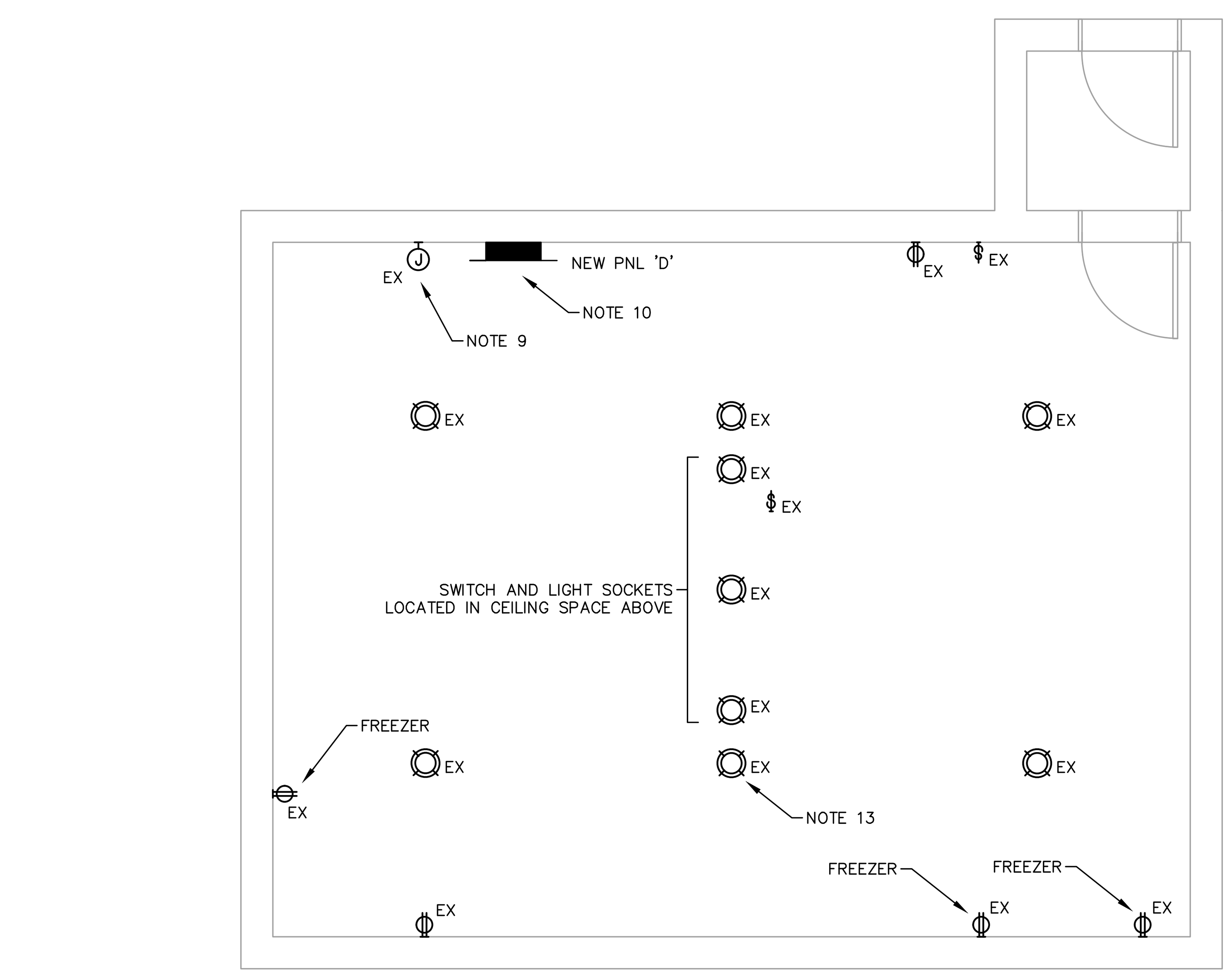
401	1219mm LONG, 2700 LUMEN, 4000K LAMP, SURFACE MOUNTED STRIP LED FIXTURE C/W WIREGUARD, FULLY FROSTED LENS AND STANDARD 120V RATED ELECTRONIC DRIVER. TO BE METALUX 4SNLED-LD4-27SL-LW-UNV-L840-CD1-U AND WG/SNF-4FT OR CFI LF4FR3040UDZT AND LF4WGW OR APPROVED EQUIVALENT.

NOTES:

1. LETTER 'EX' INDICATES EXISTING EQUIPMENT TO REMAIN AS IS.
2. LETTER 'R' INDICATES EXISTING EQUIPMENT TO BE REMOVED.
3. LETTER 'RE' INDICATES EXISTING EQUIPMENT TO BE REPLACED WITH NEW.
4. APPROX. LOCATION OF EXISTING SERVICE ENTRANCE CONDUIT TO REMAIN. CONDUIT RUN FROM 200A MAIN DISCONNECT TO SPLITTER LOCATED UNDERNEATH PANELS 'A' AND 'B'.
5. PROVIDE NEW 42CCT ELECTRICAL PANEL C/W MAIN CIRCUIT BREAKER IN PLACE OF EXISTING PANEL 'A'. RECONNECT ALL BRANCH CIRCUITS & UPDATE PANEL DIRECTORIES TO MATCH NEW INSTALLATION. REFER TO DRAWING E600 & E700 FOR DETAILS.
6. PROVIDE NEW 42CCT ELECTRICAL PANEL C/W MAIN CIRCUIT BREAKER IN PLACE OF EXISTING PANEL 'B'. RECONNECT ALL BRANCH CIRCUITS & UPDATE PANEL DIRECTORIES TO MATCH NEW INSTALLATION. REFER TO DRAWING E600 & E700 FOR DETAILS.
7. TO COMPLY WITH REQUIREMENTS OF THE CANADIAN ELECTRICAL CODE, CONNECT NEW EMERGENCY LIGHTING TO EXISTING LIGHT CIRCUITS IN ASSOCIATED AREAS. IN AREAS SERVED BY EMERGENCY LIGHTING, EMERGENCY LIGHTING SHALL TURN ON UPON FAILURE OF THE POWER SUPPLY TO THE NORMAL LIGHTING AS PER CEC 46-304.4.
8. INSTALL NEW EMERGENCY LIGHTING BATTERY PACK C/W TWO HEADS ON THE EXISTING OVERHEAD BEAM AND WIRE TO SAME CIRCUIT AS EXISTING LIGHTS IN THIS AREA.
9. EXISTING RECESSED JUNCTION BOX WHERE ALL EXISTING POWER AND LIGHTING CIRCUITS INSIDE STORAGE/WORKSHOP BUILDING ARE WIRED BACK TO.
10. PROVIDE NEW SURFACE MOUNTED ELECTRICAL PANEL 'D' BESIDE EXISTING JUNCTION BOX. EXTEND WIRING FROM JUNCTION BOX TO NEW PANEL AND TERMINATE AT CIRCUIT BREAKERS. NEW ELECTRICAL PANEL TO BE FED VIA UNDERGROUND CONDUCTORS ROUTED AS INDICATED ON DETAIL 1/E100.
11. FOR DETAILS REGARDING THE INSTALLATION OF EXISTING PANELS INSIDE ELECTRICAL ROOM REFER TO DETAILS 3/E600, 4/E600, AND 5/E600.
12. COORDINATE LOCATION OF ALL NEW EQUIPMENT IN CARVING WORKSHOP WITH OWNER PRIOR TO ROUGH IN. ALL NEW EQUIPMENT IN CARVING SHOP TO BE SURFACE MOUNTED AND WIRED USING RW90 IN EMT CONDUIT.
13. QUANTITY AND LOCATIONS OF ALL EQUIPMENT IN STORAGE/WORKSHOP SHOWN IN DETAIL 3/E101 ARE BASED ON VISUAL INSPECTION ONLY. CONTRACTOR TO CONFIRM EXISTING QUANTITIES AND CIRCUITRY ON SITE.
14. REMOVE EXISTING DISCONNECTS FOR PANELS 'A' AND 'B'. CONTRACTOR TO DISPOSE OF MATERIALS AS PER DIVISION 1 REQUIREMENTS.
15. POWER TO SNOWMOBILE SHED TO ENTER A JUNCTION BOX FOR DISTRIBUTION TO LIGHTS AND RECEPTACLES.



2 E101 HEALING CENTRE: NEW EMERGENCY LIGHTING PLAN
1:100



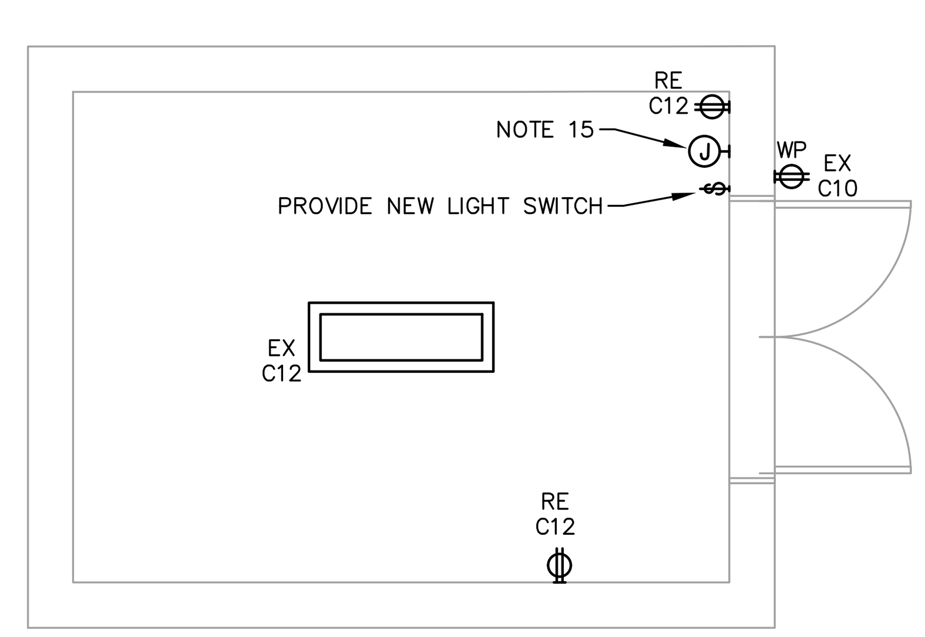
3 E101 STORAGE/WORKSHOP: ELECTRICAL PLAN
APPROX. 1:50

BATTERY PACK SCHEDULE

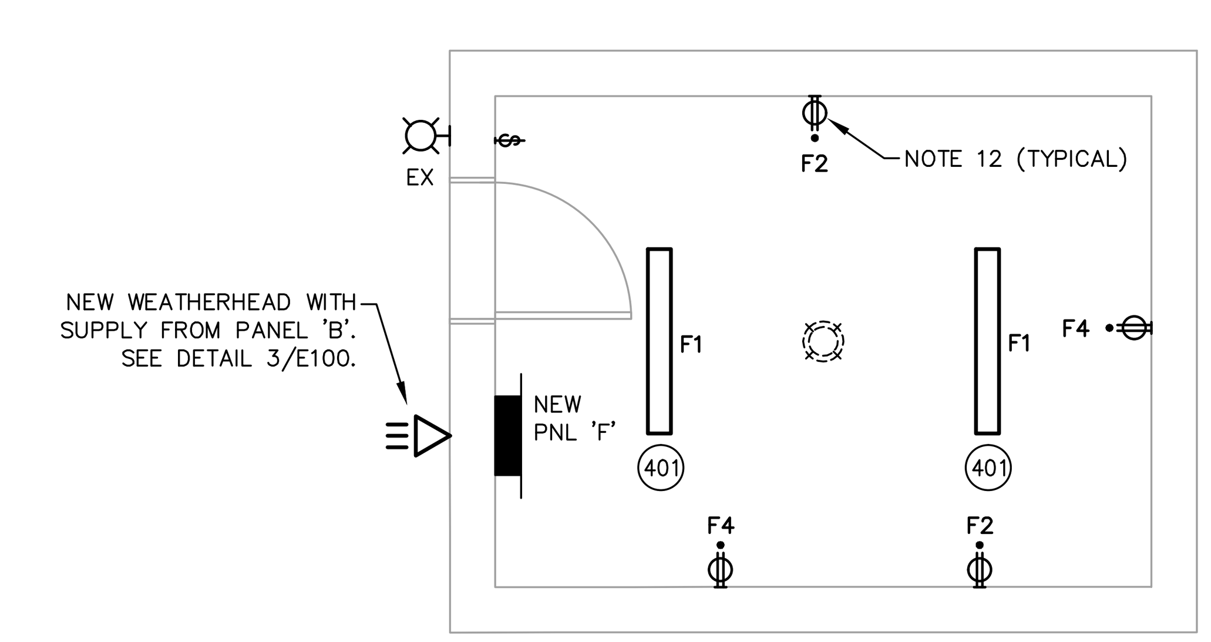
PACK	LOCATION	TIME (MINUTES)	POWER (WATTS)
BP#1	CORRIDOR	30	72
BP#2	KITCHEN	30	36
BP#3	ELEC. ROOM	30	36

NOTES:

1. SIZING IS BASED ON A PARTICULAR MANUFACTURER AT 12V WITH 5 WATT MR16 LED LAMPS AND A 5W ALLOWANCE FOR EACH EXIT LIGHT.
2. BATTERY PACKS INDICATED TO BE MINIMUM ALLOWABLE SIZE.
3. IN ANY AREAS SERVED BY EMERGENCY LIGHTING: EMERGENCY LIGHTING SHALL TURN ON UPON FAILURE OF POWER SUPPLY TO NORMAL LIGHTING AS PER CEC 46-304.4.



4 E101 SNOWMOBILE SHED: ELECTRICAL PLAN
APPROX. 1:50



5 E101 CARVING WORKSHOP: ELECTRICAL PLAN
APPROX. 1:50

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REGISTERED PROFESSIONAL ENGINEER
K. S. SMITH
N.W.T.

Client/Project
COMMUNITY AND GOVERNMENT SERVICES
GOVERNMENT OF NUNAVUT

ILAVUT MEN'S HEALING CENTRE
ELECTRICAL UPGRADES
KUGLUKTUK, NU

Title
ELECTRICAL FLOOR PLANS

Stantec Project No. 144902332

Project No.	Scale	
CT16420-00340-01	AS SHOWN	
Drawing No.	Sheet	Revision
E101	2 of 4	0

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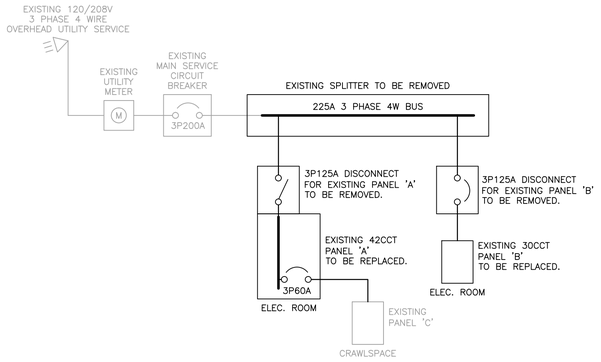
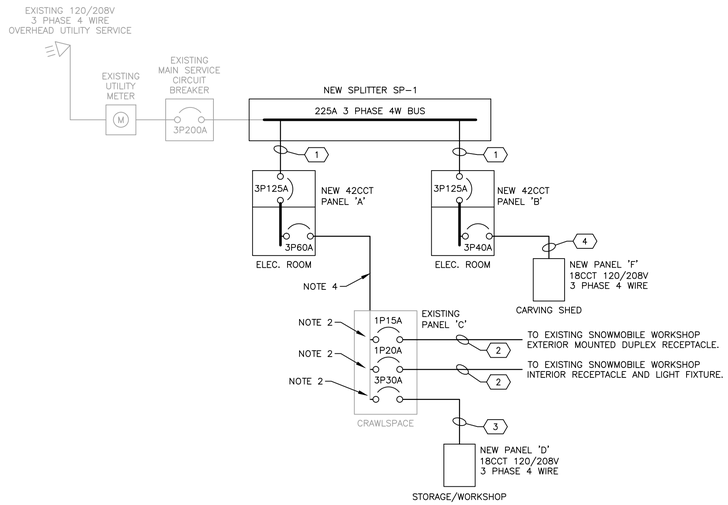


1 / E600 EXISTING SINGLE LINE DIAGRAM
N.T.S.



2 / E600 MODIFIED SINGLE LINE DIAGRAM
N.T.S.

CONDUCTOR SIZE SCHEDULE	
1	SINGLE RUN OF 4 X #1 AWG CU RW90 XLPE + #6 AWG CU BOND IN 53mm EMT CONDUIT.
2	SINGLE RUN OF 2 X #10 AWG CU RW90 XLPE + #10 AWG CU BOND IN 27mm RPVC CONDUIT. REFER TO DETAIL 2/E100.
3	SINGLE RUN OF 4 X #10 AWG CU RW90 XLPE + #10 AWG CU BOND IN 27mm RPVC CONDUIT. REFER TO DETAIL 2/E100.
4	SINGLE RUN OF 4 X #6 AWG CU RW90 XLPE + #8 AWG CU BOND OVERHEAD RUN. REFER TO DETAIL 3/E100.

NOTES:

1. EXISTING ELECTRICAL PANEL 'C' IS MANUFACTURED BY SIEMENS MODEL P1.
2. NEW BREAKERS TO BE COMPATIBLE WITH EXISTING PANELBOARD. PROVIDE NEW BREAKERS AS IDENTIFIED IN PANEL C.
3. PROVIDE TYPESET UPDATED PANEL DIRECTORY ONCE ALL MODIFICATIONS TO EXISTING PANEL ARE COMPLETED.
4. REFER TO PHOTO DETAIL 5/600. THE CONDUIT/CONDUCTOR FEEDING PANEL 'C' FROM PANEL 'A', AS WELL AS A RUN OF TECK CABLE, IS TO BE RELOCATED TO ACCOMMODATE INSTALLATION OF NEW PANEL 'B'. CONTRACTOR TO RE-ROUTE CONDUCTORS AND RECONNECT.
5. EQUIPMENT INDICATED IN GRAY IN DETAIL 2/E600 IS EXISTING AND TO REMAIN IN PLACE UNLESS OTHERWISE INDICATED ON DRAWINGS.

3 / E600 ELEC. ROOM: EXISTING ELECTRICAL EQUIPMENT VIEW 1
N.T.S.

4 / E600 ELEC. ROOM: EXISTING ELECTRICAL EQUIPMENT VIEW 2
N.T.S.

5 / E600 ELEC. ROOM: EXISTING ELECTRICAL EQUIPMENT VIEW 3
N.T.S.

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C. K. S. SMITH
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N.W.T.

Client/Project
COMMUNITY AND GOVERNMENT SERVICES
GOVERNMENT OF NUNAVUT

ILAVUT MEN'S HEALING CENTRE
ELECTRICAL UPGRADES
KUGLUKTUK, NU

Title
ELECTRICAL SINGLE LINE DIAGRAM

Stantec Project No. 144902332

Project No.	Scale	
CT16420-00340-01	N.T.S.	
Drawing No.	Sheet	Revision
E600	3 of 4	0

PANEL 'A'

VOLTS: 120/208V | LOCATION: HEALING CENTRE ELECTRICAL ROOM | BUSS: 225A

PHASE: 3 | FEEDER: REFER TO SINGLE LINE | MOUNTING: SURFACE

WIRE: 4 | MAIN BREAKER: 125A

CIRC	BRKR	WATTS A	WATTS B	WATTS C	DESCRIPTION	DESCRIPTION	WATTS A	WATTS B	WATTS C	BRKR	CIRC
1	1P15	–			CRAWLSPACE UNIT HEATERS	CONTROL POWER ZONE VALVES	–			1P15	2
3	3P30		–		SPARE	HALLWAY LIGHTS		–		1P15	4
5				–		EXTERIOR LIGHTS			–	1P15	6
7		–				CIRCULATION HEATING PUMP #2	–			1P15	8
9	2P30		–		DRYER	CIRCULATION HEATING PUMP #1		–		1P15	10
11				–		WATER PUMP			–	1P20	12
13	1P15	–			EXTERIOR REC.	DHW CIRCULATION PUMP	–			1P15	14
15	1P15		–		SPARE	CRAWLSPACE REC.		–		1P15	16
17	1P15			–	WC 8 & 9 REC. AND LIGHTS	CRAWLSPACE LIGHTS			–	1P15	18
19	1P15	–			EXTERIOR REC.	120V SMOKE DETECTOR	–			1P15	20
21	1P15		–		RM 10 & 11 REC. AND LIGHTS	RM 26 OFFICE REC.		–		1P20	22
23	1P15			–	WC 18 REC. AND LIGHTS	RM 24 OFFICE REC.			–	1P20	24
25	1P15	–			RM 13 & 14 REC. AND LIGHTS	RM 26 OFFICE REC.	–			1P20	26
27	1P15		–		RM 15 & 16 REC. AND LIGHTS	RM 21 LIVING AREA REC.		–		1P20	28
29	1P15			–	CRAWLSPACE UNIT HEATER	DRYER			–	2P30	30
31	1P15	–			FLOOR REC.		–				32
33	1P15		–		AUTODIALER	SPARE		–		1P15	34
35	1P15			–	TELEPHONE REC.	SPARE			–	1P15	36
37	1P20	–			DATA REC.		–				38
39	2P50		–		SPARE	CRAWLSPACE PANEL 'C'		–		3P60	40
41				–					–		42
TOTAL		###	###	###			###	###	###	TOTAL	

PANEL NOTES:

PANEL 'B'

VOLTS: 120/208V | LOCATION: HEALING CENTRE ELECTRICAL ROOM | BUSS: 225A

PHASE: 3 | FEEDER: REFER TO SINGLE LINE | MOUNTING: SURFACE

WIRE: 4 | MAIN BREAKER: 125A

CIRC	BRKR	WATTS A	WATTS B	WATTS C	DESCRIPTION	DESCRIPTION	WATTS A	WATTS B	WATTS C	BRKR	CIRC
1	1P15	–			LAN REC.	DISHWASHER	–			2P50	2
3	1P15		–		WASHING MACHINE			–			4
5	1P15			–	WC 25 REC. AND LIGHTS	STORAGE ROOM REC. AND LIGHTS			–	1P15	6
7	1P15	–			RM 24 & 26 REC. AND LIGHTS	FRIDGE	–			1P15	8
9	1P15		–		ACTIVITY ROOM REC. AND LIGHTS	LIVING ROOM REC. AND LIGHTS		–		1P15	10
11	1P15			–	KICKSPACE HTR. & PORCH HTR.	KITCHEN LIGHTS			–	1P15	12
13	1P15	–			MECH ROOM REC. AND LIGHTS	KITCHEN COUNTER REC.	–			2P15	14
15	1P15		–		BOILER #1			–			16
17	1P15			–	RM 02 REC.	KITCHEN COUNTER REC.			–	2P15	18
19	1P15	–			BOILER #2		–				20
21	1P15		–		CONTROL POWER CRAWLSPACE	KITCHEN COUNTER REC.		–		2P15	22
23	1P15			–	EXITS LIGHTS **				–		24
25	1P15	–			RM 02 REC.	RANGE	–			2P60	26
27	1P15		–		MECH RM CONTROL POWER			–			28
29	1P15				RANGE HOOD	FIRE ALARM PANEL*			–	1P15	30
31	1P15	–			SPARE	SPARE	–			1P15	32
33	1P15		–		SPARE	SPARE		–		1P15	34
35	1P15			–	SPARE	SPARE			–	1P15	36
37		–			SPACE	PANEL 'F'	–			3P40	38
39			–		SPACE			–			40
41				–	SPACE				–		42
TOTAL		###	###	###			###	###	###	TOTAL	

PANEL NOTES:
* LOCKABLE BREAKER TO BE RED IN COLOUR AND TO BE LOCKED IN THE 'ON' POSITION. NOTE 3.
** PROVIDE LOCK–ON DEVICE FOR EXIT LIGHT BREAKER.

EXISTING PANEL 'C'

VOLTS: 120/208V | LOCATION: HEALING CENTRE CRAWLSPACE | BUSS: 225A

PHASE: 3 | FEEDER: REFER TO SINGLE LINE | MOUNTING: SURFACE

WIRE: 4

CIRC	BRKR	WATTS A	WATTS B	WATTS C	DESCRIPTION	DESCRIPTION	WATTS A	WATTS B	WATTS C	BRKR	CIRC
1	1P15	–			EXISTING CIRCUIT	EXISTING CIRCUIT	–			1P15	2
3	1P15		–		EXISTING CIRCUIT	EXISTING CIRCUIT		–		1P15	4
5	1P15			–	EXISTING CIRCUIT	EXISTING CIRCUIT			–	1P15	6
7	1P15	–			EXISTING CIRCUIT	EXISTING CIRCUIT	–			1P15	8
9	2P15		–		EXISTING CIRCUIT	SNOWMOBILE WORKSHOP EXTERIOR REC.*		–		1P15	10
11				–		SNOWMOBILE WORKSHOP INTERIOR REC. AND LIGHTS*			–	1P20	12
13		–					–				14
15	1P15		–		EXISTING CIRCUIT	STORAGE BUILDING PANEL 'D'*		–		3P30	16
17	1P15			–	EXISTING CIRCUIT				–		18
19	1P15	–			EXISTING CIRCUIT	SPACE	–				20
21	1P15		–		EXISTING CIRCUIT	SPACE		–			22
23	1P15			–	EXISTING CIRCUIT	SPACE			–		24
25	1P15	–			EXISTING CIRCUIT	SPACE	–				26
27	2P15		–		EXISTING CIRCUIT	SPACE		–			28
29				–		SPACE					30
TOTAL		###	###	###			###	###	###	TOTAL	

PANEL NOTES:
* NEW BREAKER

NOTES:

1. EXISTING CIRCUIT DESCRIPTIONS ARE BASED ON VISUAL REVIEW OF EXISTING PANEL SCHEDULES ONLY. CONTRACTOR TO ALLOW FOR INVESTIGATION OF EXISTING CIRCUITS AND UPDATING OF PANEL SCHEDULES TO MATCH EXISTING CONDITIONS ON SITE.
2. EXISTING BRANCH WIRING IN STORAGE BUILDING IS UNKNOWN. CONTRACTOR TO INVESTIGATE EXISTING CIRCUITS AND PROVIDE PANEL 'D' SCHEDULE TO REFLECT EXISTING CONDITIONS ON SITE.
3. CONTRACTOR TO REPLACE EXISTING FIRE ALARM BREAKER WITH NEW LOCKABLE RED BREAKER.

NEW PANEL 'D'

VOLTS: 120/208V | LOCATION: STORAGE/WORKSHOP BUILDING | BUSS: 125A

PHASE: 3 | FEEDER: REFER TO SINGLE LINE | MOUNTING: SURFACE

WIRE: 4

CIRC	BRKR	WATTS A	WATTS B	WATTS C	DESCRIPTION	DESCRIPTION	WATTS A	WATTS B	WATTS C	BRKR	CIRC
1	1P15	–			–	–	–			1P15	2
3	1P15		–		–	–		–		1P15	4
5	1P15			–	–	–			–	1P15	6
7	1P15	–			–	–	–			1P15	8
9	1P15		–		–	–		–		1P15	10
11	1P15			–	–	–			–	1P15	12
13		–			SPACE	SPACE	–				14
15			–		SPACE	SPACE		–			16
17				–	SPACE	SPACE			–		18
TOTAL		###	###	###			###	###	###	TOTAL	
PHASE A TOTAL =			###								
PHASE B TOTAL =			###								
PHASE C TOTAL =			###								
PANEL TOTAL =			###		@120/208 VOLTS 3 PHASE		#	AMPS			

NEW PANEL 'F'

VOLTS: 120/208V | LOCATION: CARVING SHED | BUSS: 125A

PHASE: 3 | FEEDER: REFER TO SINGLE LINE | MOUNTING: SURFACE

WIRE: 4

CIRC	BRKR	WATTS A	WATTS B	WATTS C	DESCRIPTION	DESCRIPTION	WATTS A	WATTS B	WATTS C	BRKR	CIRC
1	1P15	44			LIGHTS	ABOVE COUNTER REC	250			1P15	2
3	1P15		–		SPARE	ABOVE COUNTER REC		250		1P15	4
5	1P15			–	SPARE	SPARE			–	1P15	6
7		–			SPACE	SPACE	–				8
9			–		SPACE	SPACE		–			10
11				–	SPACE	SPACE			–		12
13		–			SPACE	SPACE	–				14
15			–		SPACE	SPACE		–			16
17				–	SPACE	SPACE			–		18
TOTAL		44	###	###			250	250	###	TOTAL	
PHASE A TOTAL =			294								
PHASE B TOTAL =			250								
PHASE C TOTAL =			###								
PANEL TOTAL =			544		@120/208 VOLTS 3 PHASE		2	AMPS			

Nunavut
GOVERNMENT OF NUNAVUT, DEPARTMENT OF COMMUNITY AND GOVERNMENT SERVICES

Stantec

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Legend

Notes

Revision	By	Appd.	YY.MM.DD
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PERMIT TO PRACTICE
STANTEC ARCHITECTURE LTD.
Signature
Date July 29, 2016
PERMIT NUMBER: P 800
NT/NU Association of Professional Engineers and Geoscientists

REGISTERED PROFESSIONAL ENGINEER
K. S. SMITH
N.W.T.

Client/Project

COMMUNITY AND GOVERNMENT SERVICES
GOVERNMENT OF NUNAVUT

ILAVUT MEN'S HEALING CENTRE
ELECTRICAL UPGRADES

KUGLUKTUK, NU

Title

ELECTRICAL PANEL SCHEDULES

Stantec Project No. 144902332

Project No.	Scale	
CT16420-00340-01	N.T.S.	
Drawing No.	Sheet	Revision
E700	4 of 4	0