LANDFILL Cell B
DESIGN SITEWORKS

City of Yellowknife
Contract Documents and
Technical Specifications
February 12, 2016

Submitted to:

City of Yellowknife
Department of Public Works and
Engineering, City Hall
4807 – 52 St.
Yellowknife, NT
X1A 2N4
Attention: Mike Auge

Submitted by:

Dillon Consulting Limited
4920 47th Street
Unit 303
Yellowknife, NT
X1A 2P1

February 12, 2016

RE: 16-004 Landfill Cell B Design – Siteworks, Yellowknife, NT

Thank you for picking up the tender package for the Landfill Cell B Design Project for the City of Yellowknife. Tenders will be received until 1:30pm, Thursday, March 24, 2016 at City Hall, Yellowknife. City Hall is located at the following address:

City of Yellowknife
Department of Public Works and Engineering
City Hall
4807 – 52 St.
Yellowknife, NT
X1A 2N4

This tender is to be bid at a unit price contract as based on the design requirements in the tender package. This project involves, but is not limited to, the following:

- Siteworks and Liner Installation for the new cell at the Yellowknife Landfill

Questions regarding the project should be directed to Gary Strong, P.Eng, (Dillon) by phone 867.920.4555 x4111, by fax 867.873.3328 or via email at GStrong@dillon.ca.

We wish you luck with your bid preparation!

Yours truly,
DILLON CONSULTING LIMITED

Gary Strong
Project Manager
Our file: 14-9696

DILLON CONSULTING

Suite 303
4920 47th Street
Yellowknife
Northwest Territories
Canada
X1A 2P1
Telephone
(867) 920-4555
Fax
(876) 873-3328

Dillon Consulting Limited

THE CITY OF YELLOWKNIFE
CONSTRUCTION CONTRACT

GENERAL CONDITIONS

Revision Date:
November 28, 2008

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1. GENERAL PROVISIONS

1.1. Definitions

The following terms, whenever used in the Contract Documents, shall mean:

(a) "**Adjustment**": a change in either the Contract Price or the Contract Time, or both, in accordance with the applicable provisions of the Contract Documents;

(b) "**Arbitrator**": the person appointed under GC 8.3 (a);

(c) "**Articles of Agreement**": the executed Articles of Agreement;

(d) "**Change Order**": a written instrument prepared by the Engineer and signed by the City and the Contractor stating their agreement upon:

(i) a change in the Work, and

(ii) the method and/or the amount of Adjustment, if any;

(e) "**City**", "**Contractor**", "**Engineer**": the parties identified in the Articles of Agreement, as designated in writing to each of the other parties. Such parties are referred to throughout the Contract Documents as if singular in number and masculine in gender;

(f) "**Claim**":

(i) a demand or assertion by the City or the Contractor seeking an interpretation of Contract terms, an Adjustment, or other relief with respect to the terms of the Contract;

(ii) other disputes and matters in question between the City and the Contractor arising out of or relating to the Contract, and/or

(iii) allegations by the City or the Contractor of errors or omissions on the part of the Engineer;

(g) "**Completion Date**": the date of Substantial Completion of the Work, as certified by the Engineer;

(h) "**Contract**": the undertaking by the parties to perform their respective duties and discharge their obligations as set out in the Contract Documents which represents the entire agreement between the parties;

(i) "**Contract Documents**": the documents referred to in the Articles of Agreement;

(j) "**Contract Price**": the sum stated in the Articles of Agreement and as may be amended during the progress of the Work;

(k) "**Contract Time**": the time stated in the Articles of Agreement, and as may be amended during the progress of the Work, elapsing from the date of commencement of the Work until the date of Substantial Completion of the Work, as certified by the Engineer;

(l) "**day**": a calendar day;

(m) "**Final Completion**": when the Work has been performed in accordance with the Contract Documents, as certified by the Engineer;

(n) "**GC**": a reference to a clause in these general conditions of the Contract for construction.

(o) "**Holdback Payment Certificate**": a certificate issued in accordance with GC 5.6;

(p) "**Laws and Regulations**": any and all applicable laws, rules, regulations, by-laws, codes and orders of any and all government bodies, agencies, authorities and courts;

(q) "**Project**": the total construction of which the Work to be performed under the Contract may be the whole or a part;

(r) "**Referee**": the person appointed under GC 8.2 (a);

(s) "**Site**": the land or actual place designated in the Contract Documents for the performance of the Work;

(t) "**Subcontractor**": a party having a contract with the Contractor for the performance of any part of the Work;

(u) "**Substantial Completion**": when the Work has progressed to the point where, in the opinion of the Engineer as evidenced by the certificate of Substantial Completion, it is sufficiently complete, in accordance with the Contract Documents, so that the Work can be utilized for the intended purpose;

(v) "**Work**": all or any part of the construction and services required by the Contract Documents, including all labour, materials, equipment and services provided or to be provided by the Contractor to fulfill his obligations under the Contract.

1.2. Documents

(a) It is the intent of the Contract Documents to include all labour, materials, equipment and services necessary to perform the Work in accordance with the Contract Documents. Any work, materials or equipment that may be reasonably inferred from the Contract Documents or from prevailing custom or

trade usage as being required to produce the intended result, will be furnished and performed by the Contractor, whether or not specifically called for. The Contract Documents are complementary; what is required by one document shall be as binding as if required by all.

(b) The Contract represents the entire agreement between the City and the Contractor and supersedes prior negotiations, representations or agreements, either written or oral.

(c) When words or phrases which have a well-known technical or construction industry or trade meaning are used in the Contract Documents, they shall be interpreted in accordance with that meaning.

(d) The Contract Documents shall not be construed to create a contractual relationship of any kind between:

(i) the Engineer and the Contractor;

(ii) the City and a Subcontractor or sub-subcontractor, or

between any persons or entities other than the City and the Contractor. The Engineer shall however, be entitled to demand performance and enforce the obligations of the parties under the Contract, to facilitate performance of the Engineer's duties.

(e) Clarifications and interpretations of the Contract Documents shall be issued by the Engineer as provided in GC 4.1.

(f) In the event of conflicts between the Contract Documents, the following shall apply:

(i) documents of later date shall govern over earlier documents of the same classification;

(ii) figured dimensions shown on drawings shall govern over scaled dimensions;

(iii) drawings of larger scale shall govern over those of smaller scale;

(iv) specifications shall govern over drawings;

(v) the general conditions shall govern over the specifications;

(v) supplementary general conditions shall govern over the general conditions, and

(vi) the Articles of Agreement shall govern over all documents.

(g) The City shall provide the Contractor with as many sets of Contract Documents as is reasonably required for the performance of the Work.

(h) The Contractor shall maintain a set of drawings on the Site and record accurately and legibly all deviations caused by Site conditions and changes ordered by the Engineer. The Contractor shall keep one copy of all current Contract Documents and shop drawings on the Site, in good condition. These documents shall be available to the Engineer throughout the duration of the Work.

(i) All Contract Documents, including copies, and all models furnished by or to the Contractor are and shall remain the property of the City and are not to be used on other Work. The Contract Documents are not to be copied or revised in any manner without the City's written consent.

1.3. Notices

(a) Where a notice is required by the Contract Documents to be given in writing to the Contractor, it may be delivered personally to the Contractor or his site superintendent, or delivered or sent by mail or facsimile transmission to the Contractor's address set out in the Articles of Agreement or to his office at or near the Site.

(b) Where a notice is required by the Contract Documents to be given in writing to the Engineer, it may be delivered personally, or delivered or sent by mail or facsimile transmission to the Engineer's address set out in the Articles of Agreement, or to the office of the Engineer at or near the Site.

(c) Notwithstanding the above, each party shall use the most expeditious method of giving the written notice or communication.

(d) A written notice or communication sent by mail shall be deemed to have been received ten days from the date of posting. Whenever a notice or communication is sent by facsimile transmission, acknowledgement from the receiving party must be given to the other party that the notice or communication has in fact been received, for it to effective; this acknowledgement may be made verbally in person or by telephone. If no such acknowledgement is given, it shall be deemed to have been received ten days from the date of posting of the original document.

1.4. Rights and Remedies

(a) No obligations or responsibilities of any kind by or on behalf of the City shall be implied into the Contract Documents if in the opinion of the Engineer, it is not reasonable under the circumstances to imply that such obligations or responsibilities form part of the Contract Documents.

(b) Any failure by the City or the Engineer to enforce or to require the strict performance of any of the provisions of the Contract shall not, in any way, constitute a waiver of those provisions and affect or impair those provisions or any right the City has at any time to avail itself of any remedies the City may have for any breach of these provisions or to require the Work to be performed in accordance with the Contract Documents.

1.5. Assignment

The Contract, or any part of it, or any benefit or interest in it, shall not be assigned by either party without the prior written consent of the other party.

1.6. Applicable Law

This Contract shall be deemed to have been made in the Northwest Territories and shall be governed by and interpreted in accordance with the laws of the Northwest Territories.

2. CITY'S OBLIGATIONS

2.1. Payment

Subject to any other provision in the Contract Documents, the City shall make payments to the Contractor at the times and in the manner set out in GC 5.0.

2.2. Site Availability

(a) The City shall furnish, as indicated in the Contract Documents, the lands upon which the Work is to be performed, rights-of-way and easements for access to the Site and any other lands designated for the use of the Contractor. The Contractor shall provide for any additional lands and access the Contractor may require, in accordance with GC 3.10(a).

(b) Except for permits and fees which are the responsibility of the Contractor under GC 3.13, the City shall obtain and pay for necessary approvals, easements and charges required for the development of the Site and for the use or occupancy of permanent structures or for permanent changes in existing facilities.

2.3. Engineer as Representative

(a) Unless otherwise provided in the Contract Documents, the City shall communicate with the Contractor through the Engineer, and the Contractor shall communicate with the City through the Engineer.

(b) If the employment of the Engineer is terminated, the City shall promptly appoint a replacement.

2.4. Reference Points

The City shall establish reference points for construction which are, in the opinion of the Engineer, necessary to enable the Contractor to proceed with the Work. The Contractor shall safeguard such reference points in accordance with GC 3.11(b).

2.5. Materials Supplied by the City

Any materials, instructions, information or services required to be supplied by the City under the Contract, shall be furnished with reasonable promptness to avoid delay in the orderly progress of the Work.

2.6. Control of the Work

Neither the City nor the Engineer shall supervise or have control or authority over, nor be responsible for, the Contractor's means, methods, techniques or procedures of construction. Neither the City nor the Engineer will be responsible for the Contractor's failure to perform the Work in accordance with the Contract Documents, nor for its failure to comply with applicable Laws and Regulations.

2.7. Breach by the City

In the event that the City breaches its obligations under the Contract, it shall not be liable to the Contractor, its Subcontractors or any other parties acting on their behalf, for consequential loss, loss of profit or loss of business opportunity.

3. CONTRACTOR'S OBLIGATIONS

3.1. General Obligation

Notwithstanding any omissions from the Contractor's tender, the Contractor is required to perform all of the Work required by the Contract Documents and which can be reasonably inferred from them as being necessary to produce the intended result. The Contractor is to perform the Work within the Contract Time, in accordance with the schedule referred to in GC 3.6. The Contractor shall execute the Articles of Agreement, in the form set out in the Contract Documents.

3.2. Independent Contractor

The Contractor is an independent contractor and shall have complete control of the Work. The Contractor shall effectively direct and supervise the Work to ensure conformance with the Contract Documents. The Contractor shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all parts of the Work, except as may be otherwise specified in the Contract Documents.

3.3. Review of Contract Documents

The Contractor shall study and compare the Contract Documents with each other and shall verify the dimensions, quantities and details described in them. The Contractor shall notify the Engineer of all errors, omissions, conflicts and discrepancies found. Failure to discover or correct errors, omissions, conflicts or discrepancies which ought to have been discovered by such a study, shall not relieve the Contractor from full responsibility for unsatisfactory Work, faulty construction or improper operations resulting therefrom, nor from rectifying such conditions at the Contractor's expense.

3.4. Site Conditions

(a) By executing the Contract, the Contractor represents that the Contractor is familiar with the conditions under which the Work is to be performed. The Contractor further represents that the Contractor understands the requirements of the Contract Documents and what effects the Site conditions will have on the Work. The Contractor's failure to visit the Site will not excuse the Contractor from the responsibility which otherwise would have been assumed, had the Contractor visited the Site.

(b) Following the start of the Work, if the sub-surface conditions are substantially different from what could reasonably have been expected, based on a reasonable and proper examination of the site by the Contractor and the information provided in the tender documents, if any, the Contractor must promptly notify the Engineer in writing prior to these conditions being disturbed. The Contractor may make a claim for changed site conditions in accordance with GC 8.1.

3.5. Temporary Structures

The Contractor shall have the sole responsibility for the design, erection, operation, maintenance and removal of temporary structures and other temporary facilities and the design and execution of construction methods required in their use. The Contractor shall engage and pay for professional engineering personnel, registered to practice in the Northwest Territories, skilled in the appropriate discipline, to perform these functions where required by law or by the Contract Documents and in all cases where such temporary facilities and their method of construction are of such a nature that professional engineering skill is required to produce safe and satisfactory results.

3.6. Schedule

(a) Within fourteen days of executing the Articles of Agreement, the Contractor shall submit to the Engineer for review, a proposed schedule showing the anticipated time of commencement and completion of each of the various operations to be performed. This schedule shall include the sequence and coordination of the various operations and the estimated time required for the Work and shall provide sufficient detail to permit the Engineer to monitor the

progress of the Work. The Contractor shall revise the proposed schedule as requested by the Engineer and after approval, the Contractor shall strictly adhere to the revised schedule unless it is changed in accordance with the terms of the Contract.

(b) If at any time it should appear to the Engineer that the actual progress of the Work does not conform to the schedule referred to above, the Contractor shall produce at the Engineer's request, a revised schedule showing the modifications necessary to ensure completion of the Work in accordance with the previously approved schedule and shall promptly adopt acceptable additional means and methods of construction, at no cost to the City, which will make up for the time lost and will ensure completion in accordance with the approved schedule referred to in GC 3.6 (a).

(c) The Engineer's consent to such schedules shall not relieve the Contractor of any of the Contractor's obligations under the Contract.

3.7. Superintendent

(a) The Contractor shall assign a competent superintendent and necessary assistants, one or more of whom shall be in attendance at the Site at all times during the progress of the Work. The superintendent and necessary assistants, if any, shall be designated in writing to the Engineer and shall act as the Contractor's authorized representative at the Site. All written or oral communications to the superintendent shall be deemed to have been given to the Contractor. The superintendent shall only be replaced after the Contractor has received written approval from the City.

(b) The City may order the removal from the Work of any superintendent, supervisor, foreman or other employee who is in the opinion of the City, unfit for the work or unskilled in the work assigned to him. Any person so removed shall not be re-employed on the Work by the Contractor or by a Subcontractor.

3.8. Subcontractors

(a) The Contractor shall not employ any Subcontractor without the approval of the City. Once the names of the proposed Subcontractors have been submitted, the Contractor shall not change these Subcontractors without the advance written consent of the City. If any changes are made without consent, the Contract may be terminated at the City's option, in accordance with GC 9.3.

(b) The Contractor shall be fully responsible to the City for the acts and omissions of Subcontractors, their agents, employees, and all parties engaged by the Contractor or its Subcontractors for the provision of work or the supply of materials.

(c) The Contractor agrees to incorporate the terms of the Contract Documents into all the Contractor's subcontract agreements.

3.9. Other Contractors

(a) Where, in the opinion of the City, it is necessary that other contractors or workers with or without plant and material be sent onto the Site, the Contractor shall, to the satisfaction of the City, allow them access and cooperate with them in the carrying out of their duties and obligations.

(b) If the sending of workers or other contractors onto the Site results in a delay in the performance of the Work, which could not have been reasonably foreseen or anticipated by the Contractor when executing the Articles of Agreement, the Contractor may make a claim therefore in accordance with GC 6.2 and 8.1.

3.10. Use of the Site

(a) The Contractor shall make every effort to confine the Contractor's equipment and plant, storage of materials and operations, to limits indicated by the Contract Documents, by a specific direction of the Engineer or by Laws and Regulations, and shall not unreasonably encumber the Site. Where the Contractor requires additional land for the erection of temporary facilities and storage of materials, including access to them, the Contractor shall arrange for such and assume all costs and liabilities arising therefrom.

(b) The Contractor shall not load or permit to be loaded on any part of the Work, a weight or load or force that will endanger its safety or exceed the design loads.

(c) The Contractor shall not interfere in any way with the work or scheduling of any other contractor or employee of the City. In order to avoid or minimize such interference, the City may in its absolute discretion, establish schedules or methods and shall notify the Contractor accordingly.

3.11. Survey

(a) The Contractor shall provide the Engineer with assistance, as required, to make any surveys and measurements, and to establish or check lines and grades.

(b) The Contractor shall safeguard all points, stakes, grade marks and bench marks made or established on the Work. The Contractor shall bear the expense of re-establishing them and for rectifying Work improperly installed due to the Contractor's failure to safeguard such points, stakes and marks. Additional surveys and staking required by the Contractor to perform the Work, shall be provided by the Contractor at its expense.

3.12. Protection of the Work, Property and Public

(a) The Contractor shall be responsible for protecting the Work, the City's property at the Site including the Contract Documents and any plant and material, including plant and material supplied by the City to the Contractor, against loss

or damage from any cause but subject to GC 3.14(c). In particular, the Contractor shall take necessary precautions, at the Contractor's expense, to ensure that:

i) no person, adjacent property, right, easement or privilege is injured, damaged or infringed by reason of the Contractor's activities in performing the Work;

ii) pedestrian and other traffic on any public or private road or waterway is not unduly impeded, interrupted or endangered by the performance or existence of the Work;

iii) fire hazards in or about the Work or the Site are minimized;

iv) adequate medical services are available to all persons employed on the Work at all times during the performance of the Work;

v) adequate sanitation measures are taken in respect of the Work, and

vi) all facilities necessary for the purpose of maintaining security are provided, and the Contractor shall assist any person authorized by the City to inspect or to take security measures on the Site.

(b) The Engineer may order the Contractor to do such things and to perform such additional Work as the Engineer considers reasonable and necessary to ensure compliance with or to remedy a breach of GC 3.12 (a) and the Contractor shall comply with the directions of the Engineer, at the Contractor's expense.

3.13. Permits

The Contractor shall procure and post at the Site all permits, certificates and licences required for the construction of the Work. The Contractor shall comply with all Laws and Regulations affecting the execution of the Work, including all applicable Federal, Territorial and local laws and regulations pertaining to socio-economic and environmental matters.

3.14. Material and Plants Supplied by the City

(a) The Contractor is liable for any loss or damage to material, plant or real property that is supplied or placed by the City in the care, custody and control of the Contractor for use in connection with the Work, whether or not that loss or damage is attributable to causes beyond the Contractor's control.

(b) The Contractor shall not use any material, plant or real property placed in the Contractor's care, custody and control, except for the purpose of performing the Work.

(c) The Contractor is not liable to the City for any loss or damage to material, plant or real property if that loss or damage results from and is directly attributable to reasonable wear and tear.

3.15. Material and Plants Supplied by the City

(a) Unless otherwise specified in the Contract Documents, the Contractor shall furnish and assume full responsibility for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities and all other facilities and incidentals necessary for the performance, testing, finishing, start-up and completion of the Work. All materials, equipment, facilities, etc., furnished by the Contractor shall be maintained in a clean and sanitary manner.

(b) All equipment, plant and material owned by the Contractor, from the time of initial delivery to the Site, shall be deemed to be the property of the City; provided always that the vesting of such property shall not prejudice the right of the Contractor to the sole use of the said equipment, plant and material for the purpose of performing the Work nor shall it affect the Contractor's responsibility to operate and maintain the same in accordance with the Contract Documents. The City shall not at any time be liable for the loss of or damage to any of the Contractor's equipment, plant or materials.

3.16. Local and Northern Involvement

The Contractor shall use local and northern labour and material in the performance of the Work to the full extent to which they are procurable, consistent with proper economy and the expeditious carrying out of the Work.

3.17. Worker's Compensation Act

(a) The Contractor shall comply with, and ensure compliance by all Subcontractors, with the requirements of the Workers' Compensation Act, R.S.N.W.T., Ch. W-6. The Contractor and its Subcontractors shall maintain accounts in good standing with the Workers' Compensation Board. The Contractor shall provide verification from the Workers' Compensation Board that the Contractor's account is in good standing prior to the release of holdbacks, at the end of the warranty period and as requested by the Engineer. The City may refuse to make a payment to the Contractor unless the Contractor furnishes evidence from the Workers' Compensation Board that the Contractor's account is in good standing.

(b) If the City receives a notice from the Workers' Compensation Board that the Contractor's accounts, or any Subcontractors' accounts are not in good standing, or if a demand for payment is received, the City may suspend payments due to the Contractor until a letter of clearance is obtained or the City has paid the amount on behalf of the Contractor.

(c) If the City is required to pay any amount to the Workers' Compensation Board on behalf of the Contractor, or any Subcontractor, the City may deduct the amount from any amount owing to the Contractor under this or any other contract, or may demand a reimbursement by the Contractor to the City for the amount paid by the City.

3.18. Occupational Health and Safety

In any case where, pursuant to the provisions of the Safety Act, R.S.N.W.T., Ch. 5-1, the Director of Inspections or a Safety Officer orders the Contractor or any Subcontractor performing the Work, to cease work because of failure to install or adopt safety devices directed by the regulations made under the said Act, or required by it, or because the Director of Inspections or a Safety Officer is of the opinion that conditions of immediate danger exist that would likely result in injury to any person, the City may terminate the Contract or suspend the Work immediately, in accordance with GC 9.0, until the default or failure is corrected.

3.19. Cutting and Patching

(a) The Contractor shall do all cutting, fitting or patching of the Work that may be required to tie in properly with the Work of other contractors shown in, or reasonably inferable from the Contract Documents.

(b) The Contractor shall not endanger any existing Work by cutting, patching or otherwise, and shall not cut or alter the Work of any other contractor save with the consent of the Engineer and then only to the extent permitted by the Engineer.

(c) The Contractor shall not unreasonably withhold from the City or a separate contractor the Contractor's consent to cutting or otherwise altering the Work in accordance with any direction given by the Engineer.

3.20. Defective Work

(a) Defective work whether the result of poor workmanship, use of defective products or damage through carelessness or other act or omission of the Contractor or any Subcontractor, and whether incorporated in the Work or not, which has been rejected by the Engineer as failing to conform to the Contract Documents, shall be removed promptly from the Work and replaced or re-executed by the Contractor in accordance with the Contract Documents, at the Contractor's expense.

(b) Where any part of the Work is damaged by such removals, replacements or re-execution, it shall be made good, promptly, at the Contractor's expense.

(c) Where the Contractor fails to correct defective or rejected work within the time limits specified by the Engineer, the City may correct defective or rejected work and deduct the cost of same from the Contract Price, or may terminate the Contract in accordance with GC 9.3.

(d) In cases of emergency, the City may take whatever action it deems necessary to correct defective or rejected work and deduct the cost of same from the Contract Price.

(e) If, in the opinion of the Engineer, it is not expedient to correct defective work or work not done in accordance with the Contract Documents, the City may deduct from the Contract Price the difference in value between the work as done and that required by the Contract, as determined and certified by the Engineer.

3.21. Testing and Inspection

(a) Unless otherwise specified in the Contract Documents, the Contractor shall not rely on the City's testing program for the Contractor's own quality control, but shall perform such testing as may be required to ensure that the Work complies in all respects with the Contract Documents.

(b) The Engineer may conduct quality control testing regarding the acceptability of materials used in the Work and the Contractor shall furnish for the Engineer's approval such samples as the Engineer may reasonably require, at the Contractor's expense.

(c) The Engineer may order retesting of questioned work. If such retesting shows the work to comply with the provisions of the Contract, the City shall pay the cost of retesting. If the retesting shows that through the fault of the Contractor the work does not so comply, the Contractor shall pay all associated costs. Testing which is paid for by the City shall not be subject to direction or control by the Contractor.

(d) The Engineer shall at all times have access to the Work and the Contractor shall provide proper facilities for such access and for inspection. If any work should be covered without the approval or consent of the Engineer, it must, if required by the Engineer, be uncovered for examination and subsequently recovered, both at the Contractor's expense.

(e) Any inspection of the Work by the Engineer or the failure of the Engineer to make any inspection, or:

i) the thoroughness or lack of thoroughness of any inspection made by the Engineer;

ii) the failure of the Engineer to observe defective workmanship or materials either by the Contractor or a Subcontractor;

iii) the failure to direct the attention of the Contractor or Subcontractor, or of any other person, to the inadequacy of the manner in which the Contract is being performed, or

iv) the inadequacy or insufficiency of any equipment or material used in the performance of or incorporated in the Work,

shall not relieve the Contractor from the responsibility for any failure to supply materials and complete the Work strictly in accordance with the Contract Documents.

3.22. Site Cleanliness

(a) The Contractor shall maintain the Site in a tidy condition and free from the accumulation of waste material and debris, to the satisfaction of the Engineer.

(b) Before the issuance of a certificate of Substantial Completion, the Contractor shall remove all the Contractor's plant and material not required for the remaining Work, and all waste material and other debris, and shall ensure that the Work and the Site are clean and suitable for occupancy or use by the City, unless otherwise directed by the Engineer.

(c) Before the issuance of a certificate of Final Completion, the Contractor shall remove from the Site all the Contractor's plant and material and any waste material and other debris, to the satisfaction of the Engineer.

(d) The Contractor's obligations described above do not extend to waste material and other debris caused by the City's agents or other contractors.

3.23. Claims Against and Obligations of the Contractor

(a) The Contractor shall discharge all its lawful obligations and shall satisfy all lawful claims against it arising out of the performance of the Work at least as often as the Contract requires the City to pay the Contractor.

(b) The Contractor shall, in accordance with the Contract Documents and whenever requested to do so by the Engineer, make a statutory declaration regarding the existence and condition of any obligations and claims. Where the statutory declaration is sworn outside the Northwest Territories, it shall be notarized. Upon request by the City, the Contractor shall provide letters from his Subcontractors and major suppliers regarding the status of any accounts with the Contractor and the details of any claims, if any.

(c) The City may, in its absolute discretion, and at any time prior to the final release of holdbacks, in order to discharge lawful obligations of and satisfy lawful claims against the Contractor, Subcontractor or any subsubcontractors, arising out of the performance of the Work, pay any amount that is due and payable to the Contractor pursuant to the Contract, directly to the obligees of and the

claimants against, the Contractor, Subcontractor or subsubcontractor. When the parties involved in the claim are in agreement on the validity and amount of the claim, the City may treat this as a lawful claim.

(d) Where no agreement is reached between the parties as referred to above, the City may withhold payment, without any obligation to pay interest, until the validity and amount of the Claim is established by legal proceeding. The City may, in its absolute discretion, bring the matter before the Supreme Court of the Northwest Territories by way of Interpleader, and shall dispose of the funds withheld in accordance with the direction of the Court.

(e) A payment made pursuant to this provision is, to the extent of the payment, a discharge of the City's liability to the Contractor under the Contract and may be deducted from an amount payable to the Contractor under the Contract.

3.24. Patent Rights

The Contractor shall indemnify the City from and against all claims and proceedings for or on account of infringement of any patent rights, design trademark or name or other protected rights in respect of the Contractor's equipment, materials or plant used for or in connection with, or for incorporation into the Work, and from and against all damages, costs, charges and expenses whatsoever relating thereto, except where such infringement results from compliance with the design or specifications provided by the City.

3.25. Royalties

Except where otherwise stated, the Contractor shall pay all tonnage and other royalties, rent and other payments or compensation, if any, for obtaining building materials required for the Work.

3.26. Records to be Kept by Contractor

(a) The Contractor shall maintain complete records of the Contractor's estimated and actual costs of the Work together with all tender calls, quotations, contracts, correspondence, invoices and receipts. In accordance with the terms of the Contract, these documents shall be available for audit and inspection by the City or by persons acting on behalf of the City when requested. The Contractor shall furnish any such person with any information he may require from time to time in connection with these records.

(b) Records maintained by the Contractor shall be kept intact for six years following the end of the warranty period or such other period of time as directed by the Engineer.

(c) The Contractor shall ensure that all its Subcontractors comply with the above requirements.

3.27. Public Ceremonies and Signs

(a) The Contractor shall not permit any public ceremony in connection with the Work without the prior written consent of the City.

(b) The Contractor shall not erect or permit the erection of any sign or advertising on the Site without the prior written consent of the City.

3.28. Non-compliance by Contractor

(a) If the Contractor fails to comply, within a reasonable time, with any decision or direction given by the Engineer, the City may employ such methods as the City deems advisable to do that which the Contractor failed to do.

(b) The Contractor shall pay the City the total of all costs, expenses and damages incurred or sustained by the City by reason of the Contractor's failure to comply with any decision or direction referred to above, including the cost of any method employed by the City. Where the amounts owing to the Contractor under the Contract are insufficient to cover such costs, the Contractor shall pay the balance to the City immediately.

4. ADMINISTRATION BY THE ENGINEER

4.1. Engineer's Duties and Authority

(a) The Engineer will administer the Contract as provided in the Contract Documents.

(b) The Engineer will be the City's representative until the Work has been completed in accordance with the Contract Documents.

(c) Except as expressly stated in the Contract Documents, the Engineer shall have no authority to relieve the Contractor of any of the Contractor's obligations under the Contract.

(d) The Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work performed and shall deal with Claims as they arise, in accordance with GC 8.1.

(e) During the progress of the Work, the Engineer shall have authority to issue written additional instructions regarding the Work which may, in the opinion of the Engineer, be necessary to supplement or clarify the Contract Documents. Such additional instructions shall be consistent with the intent of the Contract Documents, shall not entitle the Contractor to an Adjustment and shall be binding upon and be carried out promptly by the Contractor.

(f) Wherever, under the Contract, the Engineer is required to exercise discretion by:

i) rendering a decision, opinion or consent;

ii) expressing satisfaction or approval;

iii) determining value, or

iv) otherwise taking action which may affect the rights and obligations of the City or the Contractor,

the Engineer shall do so impartially, consistent with the terms of the Contract and having regard to all of the circumstances. Any such decision, opinion, consent, expression of satisfaction or approval, determination of value or action, may be opened up, reviewed or revised as provided in GC 8.0.

4.2. Observing the Work

The Engineer will visit the Site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the completed Work and to determine in general if the Work is being performed in a manner indicating that the Work, when completed, will be in accordance with the Contract Documents. However, the Engineer will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. On the basis of such on-site observations, the Engineer will keep the City informed of the progress of the Work, and will endeavor to guard the City against defects and deficiencies in the Work.

4.3. Engineer's Decision

Except as provided in GC 4.1(f), neither the Engineer's authority or responsibilities under GC 4.0 or under any other provision of the Contract Documents nor any decision made by the Engineer in good faith either to exercise or not exercise such authority or responsibility, shall create, impose or give rise to any duty owed by the Engineer to the Contractor, any Subcontractor, or to any surety for or employee or agent of any of them.

5. PAYMENT AND COMPLETION

5.1. Progress Payments

(a) At the end of each calendar month, or such other period as is agreed to between the Engineer and the Contractor, the Contractor shall deliver to the Engineer a written progress claim that describes the Work that has been completed and any material that was delivered to the Site but not yet incorporated into the Work since the last progress claim.

(b) The Engineer shall, within fourteen days' receipt of the Contractor's progress claim, review the claim and prepare a certificate for payment which may take the form of an endorsement on the progress claim. If the Engineer amends the progress claim, he will promptly notify the Contractor in writing, giving reasons for the amendment.

(c) Where the Contractor does not submit a progress claim or where the Engineer does not endorse the Contractor's progress claim, the Engineer may calculate the progress payment and prepare a certificate for payment by the City. Where unit prices apply, payment will be calculated on the basis of the unit prices specified in the Contract Documents and the units of Work completed as determined by the Engineer. Where a lump sum price applies, payment will be calculated on the basis of the Engineer's estimate of the percentage of the Work completed.

(d) The progress certificate will show, to the end of the period covered by the progress claim, the estimated value of all labor and materials incorporated into the Work, GST monies paid, all materials stored at the site and all Change Orders certified by the Engineer. The certificate shall also show the aggregate of previous payments and the amounts withheld. The gross amount shown on such certificate, less the aggregate of all payments to date and sums withheld, shall become due and be payable by the City to the Contractor within thirty days following receipt by the City of the progress certificate.

(e) The estimates referred to above shall not bind the City or the Engineer in any manner in the preparation of the final estimate of the Work done, but shall be held to be approximate only and shall in no case be taken as an acceptance of the Work or as a release of the Contractor from the Contractor's responsibilities under the Contract.

5.2. Contract Holdbacks

(a) The City will retain Contract holdbacks in accordance with the following:

(i) ten percent from each progress payment made prior to the issuance of the first Holdback Payment Certificate by the Engineer, and

(ii) five percent from any payments made to the Contractor following the issuance of the first Holdback Payment Certificate, other than holdback payments.

5.3. Substantial Completion

(a) When the Contractor considers the Work ready to be utilized for its intended purpose, the Contractor may apply in writing to the Engineer to issue a certificate of Substantial Completion. The Contractor shall prepare and submit with its application a comprehensive list of items to be completed or corrected and a statutory declaration as per GC 3.23 (b). The Contractor shall proceed

promptly to complete and correct the items on the list. Failure to include an item on this list does not alter the Contractor's responsibility to complete the Work in accordance with the Contract Documents.

(b) Following the receipt of an application from the Contractor for a certificate of Substantial Completion, the Engineer shall, with reasonable promptness, make an inspection and assessment of the Work. Within seven days of the inspection, the Engineer shall notify the Contractor of his approval, or reasons for disapproval of the application. If the Engineer determines that the Work is substantially completed, he shall issue a certificate of Substantial Completion to the City and the Contractor. A list of items to be completed or rectified shall accompany the certificate. If the Engineer does not consider the Work to be substantially completed, he shall notify the Contractor in writing of the reasons why and list the items to be completed or rectified, of which the Engineer is aware.

(c) The City may deduct from the Contract Price, or any amounts due to the Contractor, the costs associated with the Engineer being called upon to perform more than one inspection for the purpose of determining Substantial Completion, when in the opinion of the Engineer, the Work was clearly not yet substantially complete.

(d) The certificate of Substantial Completion shall establish the date of Substantial Completion and shall fix the time within which the Contractor shall complete or correct all items on the list accompanying the certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion, unless otherwise provided in the certificate of Substantial Completion.

(e) Similarly, in accordance with the procedure set out above, the Contractor may request and the Engineer may in its absolute discretion, issue a certificate of Substantial Completion in respect of any part of the Work which has been both completed to the satisfaction of the Engineer and which the City has elected to occupy or use prior to completion.

5.4. Final Completion

(a) Following Final Completion of the Work, including any testing, the Contractor shall provide the Engineer with the following:

i) a declaration that the Work has been completed in accordance with the Contract Documents;

ii) a declaration that no claims exist or the particulars of any claims relating to personal injury or death or property loss or damage arising out of the Work, and any alleged infringement by the Contractor of a patent or other property right in performing the Contract, and

iii) particulars of, or a waiver of, all outstanding claims against the City, arising out of the Work.

(b) Following receipt of the above documents, the Engineer shall, with reasonable promptness, conduct an inspection and assessment of the Work to verify that the Work has been completed in accordance with the Contract Documents. Within fourteen days of receipt of the above documents, the Engineer shall either issue a certificate of Final Completion to the City and the Contractor or a list of items to be completed or rectified, of which the Engineer is aware. The City may deduct from monies owed to the Contractor the costs associated with the Engineer being called upon to perform more than one inspection.

(c) Receipt by the Contractor of the certificate of Final Completion shall entitle the Contractor to payment in accordance with GC 5.5.

5.5. Final Progress Payment

(a) The final progress payment certificate will be prepared following the issuance of the certificate of Final Completion. The final progress payment certificate will show the total amount payable to the Contractor, less any amounts retained.

(b) The final progress payment amount shall be paid by the City to the Contractor within thirty days following receipt by the City of the final progress payment certificate.

5.6. Holdback Release

(a) Forty-five days following the date of the issuance of the certificate of Substantial Completion by the Engineer, the Contractor may apply to the City for release of fifty percent of the Contract holdback. The Engineer shall, within fourteen days' receipt of the Contractor's application, issue a Holdback Payment Certificate or a list of items to be rectified prior to payment.

(b) Following release of the holdback referred to in GC 5.6(a), the Contractor may apply in writing for release of the remainder of the holdback funds retained by the City, provided an irrevocable letter of credit for the same amount (including GST) is presented for the City's consideration. The City may, in its absolute discretion, accept or reject the Contractor's irrevocable letter of credit in place of holdback funds.

(c) The irrevocable letter of credit referred to in this provision must be for the same amount as the holdback funds (including GST) and must remain in place until expiry of the warranty period referred to in GC 10.4. Should the Contractor's irrevocable letter of credit be scheduled to expire prior to the end of such warranty period, the City will, one week prior to the expiry date, cash the irrevocable letter of credit, unless the Contractor presents a renewal thereof.

(d) One year following the date of the issuance of the Certificate of Substantial Completion by the Engineer, the Contractor may apply to the City for release of the remainder of all Contract holdbacks or the return of irrevocable letters of credit, if any. The Engineer shall, within fourteen days' receipt of the Contractor's application, issue a Holdback Payment Certificate or a list of items to be rectified prior to payment.

(e) The City may withhold from monies owing to the Contractor, an amount equal to the Engineer's estimate of the value of all outstanding deficiencies.

(f) Subject to any applicable lien legislation requirements, holdback payments shall become payable or irrevocable letters of credit shall be returned by the City to the Contractor, within thirty days following receipt by the City of the Holdback Payment Certificate.

5.7. Delay in Making Payment

(a) Delay by the City in making payments when they are due pursuant to this provision shall not be a breach of the Contract by the City.

(b) Unless otherwise stated in the Contract, when the City delays in making a payment that is due pursuant to this clause, the Contractor shall be entitled to receive simple interest on the amount that is overdue, at the prime lending rate of the main banker of the City.

5.8. Right of Set-off

Without limiting any right of set-off or deduction given or implied by law or elsewhere in the Contract Documents, the City may set-off any amount payable to the City by the Contractor against any amount payable to the Contractor under this Contract.

6. TIME AND DELAYS

6.1. Time of the Essence

The dates and time limits stated in the Contract Documents are of the essence of the Contract. By executing the Contract, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

6.2. Delays

(a) Where a delay occurs in the progress of the Work and:

(i) the delay is attributable to or within the control of the Contractor or its Subcontractors, or was reasonably foreseeable by them at the time the Contract was entered into, the Completion Date will not be adjusted. The Contractor will be liable to the City for all costs and expenses

incurred by the City, as well as for any losses resulting from the City's inability to utilize the Work for its intended purpose resulting from the delay, and the City may deduct such costs from payments owing to the Contractor under the Contract;

(ii) the delay is due to an act or neglect by the City, the Engineer, or other contractor, or of an employee of any of them, then the Contractor may make a Claim therefor, in accordance with GC 8.1, or

(iii) the cause for the delay does not fall within the circumstances described in (i) or (ii) above, the Contractor may make a Claim for an Adjustment in the Contract Time, in accordance with GC 8.1. This shall be the Contractor's sole and exclusive remedy for such delays.

(b) In no event will adverse weather be considered to be a cause of delay beyond the Contractor's or his Subcontractors' control or not reasonably foreseeable by them at the time the Contract was entered into.

7. CHANGE ORDERS

7.1. Changes of the Work

(a) Without invalidating the Contract, the City may, through the Engineer, direct the Contractor to make changes in the Work by adding to, deleting from or revising the Work.

(b) Changes in the Work directed by the City shall not be initiated without the prior written authorization of the City through the Engineer, provided that if for any reason the Engineer considers it necessary to give such direction orally, the Contractor shall comply with such direction. If the Engineer does not confirm the direction in writing, before or after the Contractor carries out the instruction, the Contractor may confirm the direction in writing, and if no response is received from the Engineer within seven days thereafter, the oral direction shall be deemed to be a written direction of the Engineer.

(c) Upon receipt of a Change Order, or an oral instruction from the Engineer, the Contractor shall promptly proceed with the Work involved under the applicable provisions of the Contract Documents, except as specifically provided in the Change Order.

(d) When no Change Order has been issued by the Engineer, and the Contractor claims that any of the Work being performed or proposed constitutes a change in the work, entitling the Contractor to an Adjustment, the Contractor may make a Claim therefore in accordance with GC 8.1.

(e) If notice of any change in the Work is required by the provisions of any bond to be given to a surety, the Contractor will be responsible for giving such notice,

and the amount of each applicable bond shall be adjusted accordingly. For the purposes of this provision, the Contractor will be considered to be the surety's agent.

7.2. Valuation of Changes

(a) When a change results in a decrease in the Work, the Contract Price may be decreased by an amount to be determined by the Engineer.

(b) When a change causes an increase in the Work, the Contract Price may be increased in accordance with this provision.

(c) If the Contract specifies unit prices for changes to the Work, and the Engineer concurs in their use on a particular change or portion thereof, then the Contractor shall be paid for such change or portion, a sum determined by applying the unit prices to the actual quantum, as measured by the Engineer, determined after completion of the Change.

(d) Where the Contract specifies force account rates for labour, equipment and materials, and the Engineer concurs in their use on a particular change or portion thereof, then the Contractor shall be paid for such change or portion, a sum determined by applying the force account rates to the number of hours of labour and equipment expended and quantities of materials utilized. The Contractor shall present records of the work done to the Engineer for approval, at the times and in the manner specified by the Engineer.

(e) If there are changes, or portions of changes, for which unit prices or force account rates are not applicable or specified, then the Contractor shall propose to the Engineer a fixed price for such changes or portions. Upon agreement by the City on the amount thereof, the proposed fixed price shall become the sum the Contractor shall be paid for such change or portion.

(f) If the Contractor and the City are unable to agree on a fixed price, then the Contractor shall be reimbursed his costs, consistent with the following:

(i) wages, salaries and traveling expenses of the Contractor's employees while actually engaged on the Work, excluding any and all expenses of head office personnel;

(ii) worker’s compensation assessments, unemployment insurance premiums, pension plan payments and paid holidays;

(ii) rental cost of machinery and equipment that is used in the performance of the Work, or an allowance for depreciation if owned by the Contractor;

(iv) operation and maintenance costs for machinery and equipment used in the performance of the Work, other than costs of repairs arising out of defects existing before it was brought on to the Site;

(v) cost of materials necessary for and incorporated into the Work or consumed in the performance of the Work;

(vi) cost of premiums for all bonds and insurance;

(vii) other expenses incurred by the Contractor as approved in advance by the Engineer for the proper performance of the Work;

(viii)

(viii) Subcontractor costs calculated in accordance with GC 7.2 (f) (i to vii) above, and

(ix) an allowance for profit and all other expenditures or costs, including overhead, general administration costs, financing and interest charges, and every other cost, charge and expense, in an amount that is equal to twenty percent of the expenses referred to in GC 7.2 (f) (i to viii) above.

(g) Whenever the cost of any Work is to be determined in accordance with GC 7.2(f), the Contractor will establish and maintain records in accordance with GC 3.26.

(h) Pending final determination of cost, amounts not in dispute shall be included in progress payments.

(i) If the method of valuation of any increase cannot be promptly agreed upon, the Engineer shall determine the method of valuation and issue a written authorization for the change setting out the method of valuation.

7.3. Contingency Allowance

(a) The Contract Price includes the contingency allowance, if any, stated in the Contract Documents.

(b) Expenditures under the contingency allowance shall be authorized in accordance with GC 7.1, and the value shall be determined in accordance with GC 7.2.

(c) The unexpended portion of the contingency allowance shall be credited to the City upon completion of the Work.

8. DISPUTE RESOLUTION

8.1. Engineer's Decision

(a) Where a Claim arises out of, or in connection with the Contract or the performance of the Work, whether during the performance of the Work or after its completion and whether before or after termination of the Contract, the Claim shall, in the first place, be referred in writing to the Engineer in accordance with this provision.

(b) A written notice stating the general nature of the Claim shall be delivered by the party making the Claim to the other party and to the Engineer promptly, and in no event later than seven days after the occurrence of the event giving rise to the Claim. Any work, for which a claim has been made, shall be kept readily accessible and shall not be covered up without the express permission of the Engineer.

(c) Notice of the extent of the Claim with supporting data shall be delivered within fourteen days after such occurrence. The Contractor shall keep contemporary records as may reasonably be necessary to support the Contractor's Claim, which may be inspected by the Engineer, as he deems necessary.

(d) The Engineer shall review the information submitted, consult with the parties and make reasonable efforts to obtain agreement between the City and the Contractor regarding the Claim. The parties agree that, both during and after the performance of the Work, each of them shall use their best efforts to resolve any disputes arising between them by amicable negotiations, and shall provide frank, candid and timely disclosure of all relevant facts, information and documents to facilitate those negotiations. The Engineer may request the parties to refer the matter to more senior levels of management within their organizations, in an effort to resolve the Claim.

(e) Where the City and the Contractor reach an agreement on the Claim, the Engineer will, where appropriate, prepare a Change Order for the City's approval, which shall be sufficient to effect a change in the Contract, in accordance with the terms of the Change Order and the Contract Documents.

(f) If the City and the Contractor cannot reach an agreement regarding the Claim, the Engineer shall decide the matter and notify the parties in writing of his decision, within 14 days of the last submission, and in no event later than thirty days following the date of the occurrence giving rise to the Claim. Valuation of Adjustments in the Contract Price shall be determined by the Engineer in accordance with GC 7.2.

(g) Unless the Contract has already been terminated, the Contractor shall, in every case, proceed with the Work with all due diligence and the City and the Contractor shall give effect forthwith to every such decision of the Engineer unless and until the same shall be revised, as hereinafter provided.

(h) Where either party disputes the decision of the Engineer or where the Engineer fails to notify the parties of his decision in accordance with GC 8.1 (f) then either party may, within fourteen days, notify the other party of its intention to refer the matter to the Referee in accordance with GC 8.2. No referral may be made unless such notice is given. Notices shall be copied to the Engineer for information.

(i) If the Engineer has given notice of his decision as to a matter in dispute to the parties and no notice of intention to refer the matter to the Referee has been given by either the City or the Contractor within thirty days, the Engineer's decision shall become final and binding upon the parties.

(j) No act by the claimant shall be construed as a renunciation or waiver of any of its rights or recourses provided the claimant has given the required notices and carried out the instructions specified. The presentation of a Claim shall not be grounds for delay or interruption of the Work.

8.2. Appointment of Referee

(a) Within thirty days of the parties signing the Contract, the City and the Contractor shall name a Referee who may be called upon during the performance of, or after the completion of the Work, to settle any Claims or disputes arising under the Contract. Where the Referee appointed in accordance with this provision refuses to act, is incapable of acting or dies, the parties shall name a new Referee at the earliest opportunity. Should the parties be unable to agree on a Referee within the time specified, the matter shall be decided by the Engineer whose decision shall be final.

(b) Where either party has disputed a decision of the Engineer in accordance with GC 8.1(h), the Referee shall review the decision of the Engineer and may, if he deems it appropriate, require the parties to supply him with further information or documentation, giving each party an opportunity to respond. The Referee may inspect the Work after giving reasonable notice to each party of the time he intends to do so.

(c) Not later than thirty days after receipt of the last documentary submission, where the matter has not been resolved in accordance with GC 8.2 (b), the Referee shall issue his written decision with reasons, to the parties.

(d) The costs of retaining the Referee shall be shared equally between the City and the Contractor, unless the Referee directs otherwise. The City may deduct such costs assessed against the Contractor by the Referee, from any amount due and payable by the City to the Contractor under the Contract.

8.3. Appointment of Arbitrator

(a) Within thirty days after the Referee has rendered his decision, either party may, by written notice to the other party and to the Engineer for information, refer

the decision of the Referee to a single Arbitrator, in accordance with the Arbitration Act of the Northwest Territories, subject to the following provisions:

(i) the Arbitrator shall have the authority to call upon the Referee to give evidence during the arbitration proceedings, including all documentation prepared by the Referee or reviewed by him;

(ii) the decision of the Arbitrator shall be final and binding upon the parties who covenant that their disputes shall be so decided by arbitration alone and not by recourse to any court by way of action at law;

(iii) arbitration proceedings may be commenced prior to or after completion of the Work, provided that the obligations of the City, the Engineer and the Contractor shall not be altered by reason of the arbitration being conducted during the progress of the Work;

(iv) before the arbitration proceeds on the substantive issues, a budget for the proceedings shall be established by the Arbitrator and each party shall deposit, as security for costs, a sum equal to half of such budget with the Arbitrator, who shall thereupon deposit such funds in an interest bearing trust account with a chartered bank. Subject to the award and payment of costs as hereinafter provided, the balance of the security deposits and interests shall be properly returned to the respective parties, and

(v) the cost of arbitration may be awarded against the parties hereto or against any one of them as the Arbitrator may decide.

(b) If a Claim involves the Work of a Subcontractor, either the City or the Contractor may join such Subcontractor as a party to the arbitration between the City and the Contractor. The Contractor shall include in all its subcontracts a specific provision whereby its Subcontractors consent to being joined in arbitration between the City and the Contractor involving the Work of such Subcontractors. Nothing in this provision nor in the provision of such subcontracts consenting to joinder shall create any claim, right or cause of action in favour of the Subcontractors as against the City or the Engineer, that does not otherwise exist.

(c) If no notice is received within the limits set out in GC 8.3 (a), the decision of the Referee shall be final and binding on the parties.

(d) The Contractor agrees that it shall join other arbitration proceedings with respect to the Project, as requested in writing by the City.

(e) The procedure and sequences outlined in GC 8.1 to 8.3 for the resolution of disputes shall be strictly adhered to by both parties.

9. WITHDRAWAL, SUSPENSION AND TERMINATION

9.1. Withdrawal of the Work

(a) After giving the Contractor seven days written notice within which the Contractor may remedy any delay or default specified, the City may, through the Engineer, withdraw the Work from the Contractor where it is not diligently performing the Work to the satisfaction of the Engineer or has not completed the Work within the time specified in the Contract.

(b) On withdrawal of the Work, the City may:

(i) take possession of all plant, equipment and materials on the Site and ordered by the Contractor for the Work but not yet delivered to the Site, and

(ii) complete the Work withdrawn from the Contractor.

(c) Withdrawal of the Work by the City does not terminate the Contract and does not relieve the Contractor of its obligation to complete the remainder of the Work.

(d) The Contract Price will be reduced by the value of the Work withdrawn, as determined by the Engineer. The Contractor shall be liable to the City for all extra costs incurred by the City to complete the Work withdrawn from the Contractor and the City may deduct such costs from payments owing to the Contractor under the Contract.

9.2. Suspension of the Work

(a) The City may through the Engineer suspend the progress of the Work at any time by giving the Contractor a written notice, which shall include the reason for the suspension.

(b) Where such a suspension results in a delay in the progress of the Work, the rights of the parties shall be determined in accordance with GC 6.2(a)(i), (ii) or (iii), and shall be based on the reason for the suspension.

(c) During the period of suspension, the Contractor shall protect, preserve and maintain the Work in a manner satisfactory to the City and shall not remove any part of the plant, equipment and materials from the Site without the prior written consent of the City.

(d) Following the suspension, the schedule shall be revised by the Contractor, for approval by the City, and the Work shall be completed as provided in the revised schedule.

(e) Where the Work or any part thereof is suspended on the written instructions of the City and if permission to resume Work is not given by the City within a period of thirty days from the date of suspension, the Contractor may request permission from the City to proceed with the Work. If the City does not grant permission within 14 days' receipt of the Contractor's written request, the Contractor may elect to treat the suspension, where it affects only part of the Work, as an omission of such Work by giving a further notice to the City to that effect or, where it affects the whole of the Work, treat the Contract as having been cancelled by the City, in accordance with GC 9.4.

9.3. Termination by the City

(a) Without limitation, the following actions by or circumstances relating to the Contractor shall constitute default on the part of the Contractor:

(i) committing any act of insolvency or bankruptcy, voluntary or otherwise;

(ii) having a receiver appointed on account of insolvency or in respect of any property;

(iii) making a general assignment for the benefit of creditors;

(iv) failing to comply with or persistently disregarding statutes, regulations, by-laws or directives of competent authorities relating to the Work;

(v) failing to comply with any requests, instruction or direction of the Engineer;

(vi) failing to pay accounts relating to the Work as they come due;

(vii) failing to prosecute the Work with skill and diligence;

(viii) assigning or subletting the Contract or any portion thereof without the required consent;

(ix) failing or refusing to correct defective or deficient Work, and

(x) being otherwise in default in carrying out any of its obligations under the Contract, whether such default is similar or dissimilar in nature to the causes listed previously.

(b) Notice that the Contractor is in default may be given verbally by the City if the default relates to the GC 9.3(a) (i) to (x) above. Ten days' written notice shall be given in the event of other defaults.

(c) If the Contractor is in default under the Contract, the City shall be entitled to:

(i) take possession of all Work in progress, materials and construction equipment at the Site, at no additional charge for the retention or use of the construction equipment;

(ii) eject and exclude from the Project Site all personnel of the Contractor and any Subcontractor;

(iii) terminate the City's utilization of the Contractor to perform the Work;

(iv) finish the Work by whatever means the City may deem appropriate under the circumstances, and

(v) withhold any further payments to the Contractor until the Contractor's liability to the City is ascertained.

(d) The Contractor shall be liable to the City for:

(i) the extra expense of finishing the Work, including compensation to the City for additional engineering, managerial and administrative services;

(ii) the cost of correcting deficiencies in that portion of the Work performed by the Contractor;

(iii) all other loss, damage and expense occasioned to the City by reason of the Contractor's default, and

the City may deduct such expenses and damages from payments owing to the Contractor under the Contract.

(e) Any action by the City under this clause shall be without prejudice to the City's other rights or remedies under any security held by the City for performance of the Contract by the Contractor.

9.4. Contract Cancellation

(a) The City shall have the right, which may be exercised from time to time, to cancel any uncompleted or unperformed portion of the Work. In the event of such cancellation, the Contractor shall be entitled to the following:

(i) reimbursement at the Contract rate for all items completed and delivered;

(ii) reimbursement for the costs to the Contractor for Work in progress and expenses incurred in the course of the Work, plus a reasonable return on such costs and expenses, and

(iii) reimbursement for costs and expenses directly caused by the cancellation.

(b) Title to all Work for which reimbursement is made shall vest in the City.

(c) The City shall not be liable to the Contractor for consequential loss, loss of business opportunity or loss of anticipated profit on the cancelled portion or portions of the Work.

(d) This section shall not apply to situations in which the City is entitled to terminate the Contract by reason of default by the Contractor.

9.5. Termination by Contractor

Where the City is in substantial breach of the terms of the Contract, the Contractor may, without prejudice to any other rights or remedies it has, terminate the Contract by giving the City ten days' written notice, during which time the City may remedy the breach.

10. BONDS AND WARRANTY

10.1. Obligations to Provide Contract Surety

(a) The Contractor shall promptly provide to the City the surety bonds called for in the Contract Documents, not later than ten days following receipt by the Contractor of the letter of acceptance.

(b) Such bonds shall be issued by a duly licensed surety company authorized to transact the business of suretyship in the Northwest Territories and shall be maintained in good standing until the fulfillment of the Contract.

(c) Prior to or at the time of making a Claim under such bonds, the City shall send written notification to the Contractor, stating the nature of the default for which a Claim is being made.

10.2. Prescription of Acceptable Contract Surety

(a) The Contractor shall deliver to the City:

(i) a performance bond and a labour and material payment bond each in an amount that is equal to and not less than fifty percent of the Contract Price referred to in the Articles of Agreement, or

(ii) a security deposit in an amount that is equal to ten percent of the Contract Price referred to in the Articles of Agreement.

(b) The performance bond and the labour and material payment bond referred to in GC 10.2(a)(i) shall be in a form as approved by the Federal Treasury Board (Federal Contracts).

(c) A security deposit referred to in GC 10.2(a)(ii) shall be in a form of:

(i) "a letter of irrevocable guarantee" in a form authorized by the City payable to the City;

(ii) a certified cheque or bank draft from a bank acceptable to the City and made payable to the City.

(d) The "letter of irrevocable guarantee" referred to in GC 10.2(c)(i) shall be held uncashed until fourteen days prior to its expiry date, unless the expiry date is extended for a further term, beyond the Contract Completion Date stated in the Articles of Agreement.

10.3. Return of Security Deposit

(a) Following issuance of the certificate of Substantial Completion, the City may, in its absolute discretion, release all or part of the security deposit referred to herein.

(b) Following issuance of the certificate of Final Completion, the Contractor shall, subject to the terms of the Contract, be entitled to the remainder of any security deposit.

(c) Interest shall not be paid on security deposits.

10.4. Warranty

(a) The Contractor warrants and guarantees that the Work is free from all defects or deficiencies arising from faulty materials or workmanship in any part of the Work for the period of one year from the date of Substantial Completion of the Work, as certified by the Engineer, or such longer period as may be specified for certain products or Work.

(b) The Contractor shall promptly correct, at his own expense, defects or deficiencies in the Work which appear prior to and during the warranty described in GC 10.4(a). The Contractor shall correct or pay for all damages resulting from corrections made under this provision.

(c) Work performed to correct defects or deficiencies shall be warranted for a period of one year from the day said work was completed.

(d) The City or the Engineer shall promptly give the Contractor written notice of observed defects and deficiencies.

(e) If any defects or deficiencies in the Work appear at any time prior to the end of the warranty period, the Engineer may instruct the Contractor to search for the cause thereof. If such defect or deficiency is one for which the Contractor is liable, the cost of the Work carried out in searching shall be at the Contractor's

expense, and he shall in such case remedy such defect or deficiency at his own cost, otherwise it shall be at the City's expense.

(f) In an emergency or if the Contractor neglects for any reason to correct defects or deficiencies within a reasonable time, the City may perform the Work or direct another party, on the City's behalf, to do the Work. All costs associated with the correction of such defects or deficiencies shall be paid for by the Contractor and the City may deduct such costs from amounts owing to the Contractor.

11. INDEMNIFICATION AND INSURANCE

11.1. Indemnification

(a) The Contractor shall defend, indemnify and save harmless the City and the Engineer, their agents and employees from and against all claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of or attributable to the Contractor's performance of the Work, or by reason of any matter or thing done, permitted or omitted to be done, by the Contractor, his Subcontractors, or their agents or employees, whether occasioned by negligence or otherwise. Such indemnity shall survive completion or termination of the Contract.

(b) Nothing contained in the Contract Documents or any approval, express or implied, of the Engineer or City shall relieve the Contractor of any liability for latent defects or any liability which may be imposed by law.

11.2. Policies of Insurance

Without restricting the generality of GC 11.1, the Contractor shall provide, maintain and pay for the insurance coverages listed in this provision. Unless otherwise stipulated, the duration of each insurance policy shall be from the date of commencement of the Work until the date of issuance of the certificate of Final Completion. Prior to commencement of the Work, the Contractor shall provide the City with confirmation of coverage in the format attached as appendix A to these General Conditions, and, if required, a certified true copy of the policies certified by an authorized representative of the Insurer. The insurance coverages required are as follows:

a) **General Liability Insurance**
Contractor's comprehensive general or commercial general liability insurance shall have limits of not less than two million dollars per occurrence with a property damage deductible not exceeding two thousand five hundred dollars. The insurance provided shall be no less broad than the insurance provided by IBC Form 2100 or its equivalent replacement and shall include a standard non-owned automobile policy including a blanket contractual liability endorsement. To achieve the required limit, umbrella or excess liability insurance may be used. All liability coverage shall be maintained for completed operations

hazards from the date of Final Completion of the Work, as set out in the certificate of Final Completion, on an ongoing basis for a period of not less than six years from the date of such certificate. The policy shall be endorsed to provide the City with not less than thirty days' written notice in advance of any cancellation, change or amendment restricting coverage.

(b) **Automobile Liability Insurance**

Automobile liability insurance in respect of licensed vehicles shall have limits of not less than two million dollars inclusive per occurrence for bodily injury, death, and damage to property and covering all licensed vehicles owned or leased by the Contractor, endorsed to provide the City with not less than fifteen days' written notice in advance of any cancellation, change or amendment restricting coverage.

(c) **Property and Boiler and Machinery Insurance**

(i) "All risks" property insurance shall be in the joint names of the Contractor, the City and the Engineer, insuring not less than the sum of the amount of the Contract Price and the full value of all labour, plant, equipment and materials that are to be provided by the City for incorporation into the Work, with a deductible not exceeding two thousand five hundred dollars. The insurance provided shall be no less broad than the insurance provided by IBC Form 4042 or its equivalent replacement. The policy will contain a waiver of rights of subrogation against all those insured by the policy. Such coverage shall be maintained continuously until the date the certificate of Final Completion is issued or an earlier date specified by the City;

(ii) the policy will allow for partial or total use or occupancy of the Work. If because of such use or occupancy the Contractor is unable to provide coverage, the Contractor shall notify the City in writing prior to such use or occupancy. In this eventuality the City shall provide, maintain and pay for property and, if necessary, boiler insurance insuring the full value of the Work as in (i) above, including coverage for such use or occupancy and shall provide the Contractor with proof of such insurance. The Contractor shall refund to the City the unearned premium applicable to the Contractor's policy upon termination of coverage;

(iii) where, due to the nature of the Work, the full insurable value of the Work is substantially less than the Contract Price, the City may, at its sole discretion, reduce the amount of insurance required or waive the course of construction insurance requirement;

(iv) where such risks exist, the Contractor shall provide boiler and machinery insurance insuring not less than the replacement value of boilers, pressure vessels and other objects insurable under a boiler & machinery policy and forming part of the Work;

(v) the policies shall provide that, in the event of a loss or damage, payment shall be made to the City and the Contractor as their respective interests may appear. The Contractor shall act on behalf of the City for the purpose of claiming the amount of loss or damage from the Insurers. When the extent of the loss or damage is determined, the Contractor shall proceed to restore the Work. Loss or damage shall not affect the rights and obligations of either party under the Contract except that the Contractor shall be entitled to such reasonable extension of Contract Time relative to the extent of the loss or damage in accordance with the terms of the Contract, and

(vi) the Contractor shall be responsible for deductible amounts under the policies except where such amounts may be excluded from the Contractor's responsibility in accordance with the Contract documents.

(d) **Aircraft and Watercraft Liability Insurance**

Where such risks exist, the Contractor shall obtain aircraft and watercraft liability insurance with respect to owned or non-owned aircraft and watercraft if used directly or indirectly in the performance of the Work, including use of additional premises, and shall have limits of not less than two million dollars inclusive per occurrence for bodily injury, death and damage to property including loss of use thereof, and limits of not less than two million dollars for aircraft passenger hazard. Such insurance shall be in a form acceptable to the City. The policies shall be endorsed to provide the City with not less than fifteen days' written notice in advance of any cancellation, change or amendment restricting coverage.

(e) **Contractor's Equipment Insurance**

The Contractor shall give proof of insurance in a form acceptable to the City of "all risks" Contractor's equipment insurance covering construction machinery and equipment used by the Contractor for the performance of the Work, including boiler insurance on temporary boilers and pressure vessels. The insurance shall be in a form acceptable to the City and shall not allow subrogation claims by the insurer against the City. The policies shall be endorsed to provide the City with not less than fifteen days' written notice in advance of cancellation, change or amendment restricting coverage.

(f) **Other Insurance**

The Contractor shall provide, maintain and pay for any additional insurance required to be provided by law, or which the Contractor considers necessary to cover risks not otherwise covered by insurance specified in the Contract Documents.

11.3. Insurance – General

(a) All required insurance policies shall be with insurers licensed to underwrite insurance in the Northwest Territories and signed by representatives licensed to do so for insurance in the Northwest Territories. (

b) The Contractor shall require and ensure that his Subcontractors maintain liability insurance comparable to that required above.

(c) If the Contractor fails to provide or maintain insurance as required by this General Condition or elsewhere in the Contract Documents, then the City shall have the right to provide and maintain such insurance and give evidence to the Contractor and the Engineer. The Contractor shall pay the cost thereof to the City on demand or the City may deduct the costs from monies which are due or may become due to the Contractor.

(d) Where an insurer fails or refuses to pay any claims under an insurance policy covering the activities of the Contractor or a Subcontractor relating to or arising out of the Work, the Contractor shall not be released from any liability arising under the Contract.

SPECIFICATIONS

00

Part 1 General

1.1 INVITATION

.1 Bid Call

.1 Sealed offers signed under seal, executed, and dated will be received by the City Administrator, City of Yellowknife at:

City of Yellowknife
Department of Public Works and Engineering
City Hall
4807-52 St.
Yellowknife, NT
X1A 2N4

Before 1:30 pm local time on Thursday 24th day of March, 2016

Offers submitted after above time will be returned to bidder unopened.

.2 Submit Supplementary Bid Information Form within 48 hours of request following bid closing time.

.3 Offers will be opened privately immediately after the time for receipt of Bids.

.4 Amendments to submitted offer will be permitted if received in writing prior to bid closing and if endorsed by same party or parties who signed and sealed offer.

1.2 INTENT

.1 Intent of this Bid call is to obtain an offer to perform work to complete the construction of a second generation landfill in Yellowknife, NT, including, but not limited to, all clearing, excavation, rock blasting and removal, site work, road and drainage works, liner installation and leachate collection system work for a Unit Price contract, in accordance with the Contract Documents.

.2 Perform Work within time stated in Section 01 11 00 - Summary of Work

1.3 CONTRACT DOCUMENTS IDENTIFICATION

.1 Contract Documents are identified as Dillon Project #14-9696 as prepared by Dillon Consulting Limited, and listed in Table of Contents

1.4 CONTRACT/BID DOCUMENTS

.1 Construction Contract, prepared by City of Yellowknife (City of Yellowknife Standard construction contract – available for review upon request)

.1 Bid Documents: Contract Documents supplemented with Instructions to Bidders, Bid Form, and Bid Supplementary Forms identified herein.

.2 Bid, Offer, or Bidding: Act of submitting an offer under seal.

.3 Bid Price: Monetary sum identified in Bid Form as an offer to perform work.

□

.2 Availability

.1 As of January 2010, the City of Yellowknife's Public Works and Engineering Department will not be producing paper copies of project drawings and specifications for pickup. Contractors are expected to visit the City's Bidding Opportunities webpage (https://bids.yellowknife.ca/Module/Tenders/ .) and register as a user. This will allow Contractors to be able to download PDF versions of project drawings and specifications. Additionally, Contractors will be expected to register a valid email address so that any addendums issued during the tender or construction period will automatically be sent using the City's upgraded website. Once drawings and specifications are downloaded, they can be easily reproduced into paper copies. Thank you for helping the city strive towards our reduction of paper waste.

.3 Examination

.1 Upon receipt of Bid Documents verify that documents are complete.

.2 Immediately notify Consultant upon finding discrepancies or omissions in Bid Documents.

.4 Queries/Addenda

.1 Direct questions to:

Mr. Gary Strong, P.Eng
Project Manager
Dillon Consulting Limited
PO Box 1409
Suite #303 4920 47th Street
Yellowknife, NT
Ph: (867) 920-4555 ext. 28
Fax: (867) 873-3328.
Email: gstrong@dillon.ca

Or

Mr. Mike Auge
Manager, Department of Public Works and Engineering
City of Yellowknife
4807-52 St.
Yellowknife, NT
X1A 2N4
Ph: (867) 920-5639
Fax: (867) 920-5668
Email: mauge@yellowknife.ca

.2 Addenda may be issued during bidding period. All addenda become part of Contract Documents. Include costs in Bid Price.

.3 Addenda are issued via the City website.

.4 Clarifications requested by bidders must be in writing not less than five working days before date set for receipt of Bids. Reply will be in form of an addendum, a copy of which will be forwarded to known bidders no later than three (3) working days before receipt of Bids.

□

.5 Product Options

.1 Where Bid Documents stipulate a particular product, substitutions will be considered by Consultant up to 7 working days before receipt of Bids.

.2 When a request to substitute a product is made, Consultant may approve substitution and will issue an Addendum to known bidders.

.3 In submission of substitutions to products specified, Bidders shall include in their Bid, any changes required in work to accommodate such substitutions. A later claim by Bidder for an addition to contract price because of changes in work necessitated by use of substitutions shall not be considered.

.4 Substituted products will be considered if submitted as an attachment to Bid Form.

.5 Submission shall provide sufficient information to enable Consultant to determine acceptability of such products.

.6 Provide complete information on required revisions to other work to accommodate each substitution, dollar amount of additions to or reductions from Bid Price, including revisions to other work.

.7 Unless substitutions are submitted in this manner and subsequently accepted, provide products as specified.

.8 Approval to submit substitutions prior to submission of Bids is not required.

1.5 QUALIFICATIONS

.1 Prequalification

.1 General contractors and sub-contractors with minimum 5 years experience in successfully completing Northern Projects of a similar nature and meeting all bid and bonding requirements for this project may submit a bid.

.2 No substitutions of sub-contractors or suppliers identified on the bid form or supplementary submissions are permitted following submission of bid.

.2 Subcontractors

.1 Owner reserves right to reject a proposed subcontractor for reasonable cause.

.2 Refer to GC3.8 - Subcontractors of General Conditions.

1.6 BID SUBMISSION

.1 Bid Ineligibility

.1 Bids that are unsigned, improperly signed or sealed, conditional, illegible, obscure, contain arithmetical errors, erasures, alterations, or irregularities of any kind, shall at discretion of Owner, be declared informal.

.2 Bids with Bid Forms and enclosures which are improperly prepared shall at discretion of Owner, be declared informal.

.3 Bids that fail to include security deposit, bonding or insurance requirements shall at discretion of Owner, be declared informal.

□

.2 Submissions

.1 Bidders shall be solely responsible for delivery of their Bids in manner and time prescribed.

.2 Submit one copy of executed offer on Bid Forms provided, signed and with corporate seal together with required security and requested Bid Bond in a sealed opaque envelope, clearly identified on the outside of the envelope with:

.1 Bidder's name;

.2 Project Name;

.3 Contract Number;

.4 Date; and,

.5 Owner's Name.

.3 Improperly completed information, irregularities in bid bond, shall be cause not to open Bid envelope and declare Bid informal.

1.7 BID ENCLOSURES/REQUIREMENTS

.1 Contract Security Deposit

.1 Bids shall be accompanied by security deposit as follows:

.1 A security deposit in amount of not less than 10 % of Bid price; or certified cheque payable to the City of Yellowknife, or

.2 Accepted Bidder, on award of contract, must provide a 50% Performance and 50% Labour and Materials Payment Bond as described in the General Conditions

.2 Submit required bonding and surety as per the requirements and standards in Section 10.2 – Prescription of Acceptable Contract Security in the General Conditions.

.3 Include cost of bonds in Bid Price.

.4 If no contract is awarded, all security deposits will be returned.

.2 Consent of Surety Agreement to Bond.

.1 Submit with Bid Form and Bid Bond, a Consent of Surety Agreement to Bond, stating that surety providing Bid Bond is willing to supply Performance and Labour and Materials Payment Bond specified.

.2 Include cost of bonds in Bid Price.

.3 Insurance

.1 Provide signed "Undertaking of Insurance" on standard form provided by the insurance company stating intention to provide insurance to Bidder in accordance with insurance requirements of Contract Documents.

.4 Bid Form Requirements.

.1 Bidder , in submitting an offer, agrees to complete work by date indicated in Contract Documents , but may propose a revision to contract time with an adjustment to Bid price.

□

.2 Refer to Supplementary Conditions for inclusion of taxes and procedures for tax rebate claims by Owner.

.5 Fees for Changes in Work

.1 Unless otherwise indicated on Bid Form, the percentage mark-ups for overhead and profit applicable for changes in work, whether additions to or deductions from work on which Bid price is based, will be 5% of the sub-contractor's net or own forces amount, exclusive of taxes.

.2 General Contractor shall apply 5 % mark-ups as noted, to sub-contractor's gross (net plus mark-ups) costs on additional work.

.6 Bid Signing

.1 Bid form shall be signed under seal by Bidder.

.2 Sole Proprietorship: Signature of sole proprietor in presence of witness who will also sign. Insert words "Sole Proprietor" under signature. Affix seal.

.3 Partnership: Signature of all partners in presence of witness who will also sign. Insert word Partner under each signature. Affix seal to each signature.

.4 Limited Company: Signature of duly authorized signing officer(s) in normal signatures. Insert officer's capacity in which signing officer acts, under each signature. Affix corporate seal. If Bid is signed by officials other than President and Secretary of company, or President-Secretary-Treasurer of company, copy of by-law resolution of Board of Directors authorizing them to do so must also be submitted with Bid in Bid envelope.

.5 Joint Venture: Each party of joint venture must execute Bid under respective seals in manner appropriate to such party as described above, similar to requirements of Partnership.

.7 Appendices to Bid Form

.1 Appendix 2.0 – Bidders Proposed Alternatives: This is an opportunity for bidder to propose alternate materials or methods to those specified or to propose an alternative construction schedule. Bidders must provide full description or supplementary materials with bid to allow a thorough evaluation of any proposed alternative, and indicate, for each alternative, the impact on cost and schedule should the alternative be accepted, at the sole discretion of the Owner.

.2 Appendix 3.0 - Subcontractors: Include names of all Subcontractors and portions of work Bidder will perform.

.8 Supplementary Bid Information

.1 Lowest Bidder or lowest two Bidders may be requested to complete Supplementary Bid Information within 48 hours of written request from Owner following bid closing.

1.8 OFFER ACCEPTANCE/ REJECTION

.1 Duration of Offer

.1 Bids shall remain open to acceptance and irrevocable for a period of sixty (60) days after the Bid closing date.

.2 Acceptance of Tender

.1 The Owner reserves right to accept the Tender which is deemed most advantageous. The lowest or any Tender will not necessarily be accepted.

.2 The Owner, should they accept a tender, reserves the right to accept or reject each individual provisional part of the tender.

.3 After acceptance by the Owner, the Owner, will issue to the successful Tenderer, a written Notice of Award.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

□

TO: **City of Yellowknife**
Department of Public Works and Engineering
Yellowknife, NT

FROM: .....
(Name of Contractor)
.....
(Street Address or P. O. Box No.)
.....
(City, Province or Territory, Postal Code)
.....
(Telephone No.) (Fax No.)
.....
(Email address)

Having carefully examined all the Bid and Contract Documents listed with the Bid Proposal for the:

PROJECT NAME: Landfill Cell B Design – Siteworks

PROJECT ADDRESS: Yellowknife, NT

TENDER PACKAGE NO: 16-004

including the drawings, specifications, schedules, general conditions, supplementary conditions, instruction to bidders, and including:

Addendum No. ..... dated.....
Addendum No. ..... dated.....

and having visited and examined the site and examined all the conditions affecting the work, we do hereby offer to furnish all labour, materials, accessories, hoisting, tools, plant, equipment, transportation and services necessary, including all applicable taxes, duties and levies in force', permits, licenses, etc. for the proper execution and completion of the works referred to herein within both the completion date for the work of this contract and the project completion date, for the stipulated price of:

.....

.....DOLLARS, and

.....CENTS ($.....)

PLUS GST in the amount of $.....

FOR A TOTAL UNIT PRICE OF:.....

. .....

....DOLLARS,

and .....CENTS ($.....)

IN LAWFUL MONEY OF CANADA,

The undersigned Tenderer, having carefully examined the Contract Documents and the locality of the proposed work, and having full knowledge of the work required and of the materials, to be furnished and used, hereby agrees to provide all necessary materials, supervision, labour, and equipment and perform and complete all work and fulfill everything as set forth and in the prices stated in the Tender Form, Unit Price Contract, Schedule of Quantities and Unit Price Table.

The undersigned also agrees:

1. that the City is in no way obligated to accept this tender;

2. that the City may elect at its sole discretion to accept any Tender or part thereof or waive any defect, irregularity, mistake or insufficiency and accept any Tender or alternative proposal, in whole or in part, which is deemed by the City to be most favourable to its interest;

3. that all applicable taxes and duties are included in the tender price;

4. that the estimate of quantities shown in the Tender Form serves only to provide a basis for comparing tenders and that no representations have been made by either the City or the Engineer that the actual quantities will even approximately correspond therewith, and further, that the City has the right to increase or decrease the quantities in any or all items and to eliminate items entirely from the work;

5. that this tender is made without knowledge of the tender prices to be submitted for this work by any other company, firm or person;

6. that this tender is made without connection or arrangement with any company, firm or person submitting a tender for this work;

7. that this tender is made without any undisclosed connection or arrangement with any other company, firm or person having an interest in this tender or in the proposed contract;

8. that this tender is irrevocable for a period of sixty (60) days after the closing date for receipt of tenders and that the City may at any time within such a period accept this tender whether any other tender has previously been awarded or not and whether acceptance of another tender has been given or not;

9. to execute the Articles of Agreement and to present to the City the required contract security within the time specified;

10. that payment for the work done will be made on the basis of the quantities measured by the Engineer and at the tender prices shown in the Tender Form which shall be compensation in full for the work done under the terms of the Contract;

11. that payment of the Contingency Allowance or portion thereof will only be made in the event that the Engineer authorizes work, in which case the amount of payment will be determined as specified in the General Conditions. Any unused portion thereof will be retained by the City.

12. to commence and proceed actively with the Work by **May 30, 2016** and to complete all work under the contract by **September 15, 2016**, subject to the provisions of Section 6.0 of the General Conditions for extension of contract time;

13. that should he fail to complete the work in the time specified above, he shall compensate the City in accordance with Section 6.0 of the General Conditions;

14. that to the extent a Tender call contains provisional items as part of the Scope of Work, the City, in its sole discretion, reserves the right, prior to the award of a Contract, to include or exclude any provisional item or items in its evaluation of the acceptability of a Tender. Following acceptance of a Tender and award of the Contract, the City may, in its sole discretion, include or exclude in the Contract the same or different provisional items and the unsuccessful bidders shall have no recourse against the City for any resulting revisions to the total scope of the Work or the Contract price. It shall be open to the City to call for new Tenders for provisional items so excluded and the successful Tenderer for the project may submit a Tender if he so chooses.

15. The undersigned submits that immediately upon notification of intent to award a Contract, or upon notification of an award of a Contract, he shall apply himself to the work with all diligence, place all orders for labour and products in such time that delays will not occur.

The undersigned agrees that this Bid shall remain open for acceptance by the City of Yellowknife and shall be irrevocable for a period of sixty (60) days from the day of closing tenders.

We agree to complete the project by

The undersigned agrees that the Owner has the right to reject any or all bids without explanation.

Submitted with: (as attachments)

- Bid Bond
- Agreement to bond for 50% Labour and Materials Payment and 50% Performance bonds
- Proof of Insurance

Signed, Sealed and Submitted on behalf of:

COMPANY: .....
(Name)

.....
(Street Address or P. O. Box No.)

.....
(City, Province, Postal Code)

.....
(Telephone No.) (Fax No.)

SIGNATURE: .....
(Apply Seal Above)
.....
(Type or Print Name)
.....
(Type or Print Title)

WITNESS: .....
(Signature)
.....
(Type or Print Name and Title)

DATED AT: .....this.....day of.....20……

APPENDDIX A: BIDDERS PROPOSED ALTERNATIVES

The following is a list of Bidders Proposed Alternative Prices to be added to or deducted from the base Tender Price at the discretion of the Owner.
Prices to include all applicable taxes, duties and levies in force (excluding Goods and Services Tax).
Indicate any impact on construction schedule that is associated with the proposed alternative.

APPENDIX B: CONSENT OF SURETY

Herewith is the Consent of Surety of the Tender submitted:

By

…….
.

…….
.

To the City of Yellowknife

Dated …… ……., 20…… and which is an integral part of the Tender

CONSENT OF SURETY COMPANY

Should they be required, the undersigned Surety Company hereby consents and agrees with the City to become bound as Surety in all Performance Assurance Bonds required by the Contract Documents, all for the fulfillment of the Contract for the Work covered by the annexed Tender, which may be awarded to:

……..
.
(Name of Company)

……..
.
(Address)

……..

At prices set forth in the attached Tender. The said company is legally entitled to do business in the Northwest Territories.

.....
Name of Company

.....
Address

.....

Per: .....
(Executed under Seal)

Per:

.....

APPENDIX C: LABOUR AND EQUIPMENT HOURLY RATES

Item	Hourly Rate	Make	Year

*Operator to be included in rates

APPENDIX D: EQUIPMENT LIST

Equipment	Size	Model	Make	Year

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

APPENDIX E: PRODUCT SUPPLIERS

Herewith is the list of Product Suppliers from whom the appropriate products or materials will be purchased for the execution of the work. No Product Supplier will be changed without written approval from the City.

Product	Product Supplier and Source

_____ _____

_____ _____

APPENDIX F: LIST OF SUB-CONTRACTORS

The following is a list of Sub-Contractors and/or major suppliers who will be engaged by the General Contractor for this project if awarded.

If the work will be performed by the General Contractors' own forces, write in "OWN FORCES" in the space provided.

SCOPE	NAME
Liner Installation	_____
Blasting	_____
Excavation	_____
Road and DrainageWorks	_____
Cleaning	_____
Other	_____
Other	_____
Other	_____

Proposed GC Site Superintendent _____

APPENDIX G: UNIT PRICE TENDER FORM

City of Yellowknife Contract # 16-004

a) If space for listing items is insufficient, the Tenderer shall annex a list and make reference to it on this form

b) Type or print tendered values clearly. An illegible submission may be disqualified at the sole discretion of the Owner.

Item	Description	Specification #	Estimated Quantity	Unit	Unit Price ($/unit)	Extension ($)
	NEW CELL CONSTRUCTION					
1	Excavating and Grading (Fill)	311411	4700	m^3		
2	Supply and Install Geotextile (Waste Area)	313221	74800	m^2		
3	Install Geomembrane (HDPE Liner)	313222	18700	m^2		
4	Install Geomembrane (GCL)	313222	18700	m^2		
5	Supply, haul, place and compact (Type I) 50 mm minus granular	310517	31500	m^3		
6	Supply, haul, place and compact (Type II) 20 mm minus granular	310517	3250	m^3		
7	Rock blasting and removal (Cut)	311411	500	m^3		
8	Supply and Install Culverts (600mm dia.)	334213	20	m		
9	Supply and install leachate collection system (150mm perforated pipe)	334617	1000	m		
10	Supply and Install leachate collection system (200mm solid wall cleanout pipe)	334617	220	m		
11	Supply and install leachate collection system manhole	334617	1	ea.		
	SUB-TOTAL					
					TOTAL	

END OF SECTION

01

Part 1 General

1.1 WORK COVERED BY CONTRACT DOCUMENTS

.1 Work of this Contract comprises general construction, located at Yellowknife, Northwest Territories; and further identified as:

- .1 Site Clearing, Excavation, Trenching, Backfilling and Blasting
- .2 Drainage Works
- .3 Culvert installation
- .4 Geosynthetic Clay Liner (GCL) supply and installation
- .5 HDPE Liner supply and installation
- .6 Geotextile supply and installation
- .7 Leachate collection system supply and installation

1.2 CONTRACT METHOD

.1 Construct the Work under a unit based price contract as per the tender bid table units.

.2 All other associated project costs will be covered under items in the bid table.

.3 Payment will only be made for actual work completed and on materials complete and delivered to site in Yellowknife, NT.

.4 Work to be completed prior to September 15, 2016.

1.3 WORK BY OTHERS

.1 Co-operate with other Contractors in carrying out their respective works and carry out instructions from Engineer.

.2 Co-ordinate work with that of other Contractors. If any part of work under this Contract depends for its proper execution or result upon work of another Contractor, report promptly to Engineer, in writing, any defects which may interfere with proper execution of Work.

1.4 CONTRACTOR USE OF PREMISES

.1 Unrestricted use of site until Substantial Completion.

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

1.5 EXISTING SERVICES

.1 Notify Engineer and utility companies of intended interruption of services and obtain required permission.

.2 Where Work involves breaking into or connecting to existing services, give the Engineer five (5) days notice for necessary interruption of mechanical or electrical service throughout course of work.

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

.4 Protect, relocate or maintain existing active services. When inactive services are encountered, cap off in manner approved by authorities having jurisdiction.

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

.6 Construct barriers in accordance with Section 01 56 00 - Temporary Barriers and Enclosures.

1.6 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 List of Outstanding Shop Drawings.
.6 Change Orders.
.7 Other Modifications to Contract.
.8 Field Test Reports.
.9 Copy of Approved Work Schedule.
.10 Health and Safety Plan and Other Safety Related Documents. Other documents as specified.

Part 2 Products

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 SPECIFIED ELSEWHERE

.1 Particular requirements for inspection and testing to be carried out by testing laboratory designated by Engineer are specified under various sections.

1.2 APPOINTMENT AND PAYMENT

.1 Owner will appoint and pay for services of testing laboratory except as follows:

.1 Inspection and testing required by laws, ordinances, rules, regulations or orders of public authorities.

.2 Inspection and testing performed exclusively for Contractor's convenience.

.3 Testing, adjustment and balancing of conveying systems, mechanical and electrical equipment and systems.

.4 Mill tests and certificates of compliance.

.5 Tests specified to be carried out by Contractor under the supervision of Engineer.

.2 Where tests or inspections by designated testing laboratory reveal Work not in accordance with contract requirements, pay costs for additional tests or inspections as required by Engineer to verify acceptability of corrected work.

1.3 CONTRACTOR'S RESPONSIBILITIES

.1 Provide labour, equipment and facilities to:

.1 Provide access to Work for inspection and testing.

.2 Facilitate inspections and tests.

.3 Make good Work disturbed by inspection and test.

.2 Notify Engineer five (5) days in advance of operations to allow for assignment of laboratory personnel and scheduling of test.

.3 Where materials are specified to be tested, deliver representative samples in required quantity to testing laboratory.

.4 Pay costs for uncovering and making good Work that is covered before required inspection or testing is completed and approved by Engineer.

Part 2 Products

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 DEFINITIONS

.1 Activity: An element of Work performed during course of Project. An activity normally has an expected duration, and expected cost and expected resource requirements. Activities can be subdivided into tasks.

.2 Bar Chart (GANTT Chart): A graphic display of schedule-related information. In typical bar chart, activities or other Project elements are listed down left side of chart, dates are shown across top, and activity durations are shown as date-placed horizontal bars. Generally Bar Chart should be derived from commercially available computerized project management system.

.3 Baseline: Original approved plan (for Project, work package, or activity), plus or minus approved scope changes.

.4 Construction Work Week: Monday to Friday, inclusive, will provide five (5) day work week and define schedule calendar working days as part of Bar (GANTT) Chart submission.

.5 Duration: Number of work periods (not including holidays or other nonworking periods) required to complete an activity or other Project element, usually expressed as workdays or workweeks.

.6 Master Plan: A summary-level schedule that identifies major activities and key milestones.

.7 Milestone: A significant event in Project, usually completion of major deliverable.

.8 Project Schedule: The planned dates for performing activities and the planned dates for meeting milestones. A dynamic, detailed record of tasks or activities that must be accomplished to satisfy Project objectives. Monitoring and control process involves using Project Schedule in executing and controlling activities and is used as basis for decision making throughout project life cycle.

.8 Project Planning, Monitoring and Control System: Overall system operated by Engineer to enable monitoring of project work in relation to established milestones.

1.2 REQUIREMENTS

.1 Ensure Master Plan and Detail Schedules are practical and remain within specified Contract duration.

.2 Plan to complete Work in accordance with prescribed milestones and time frame.

.3 Limit activity durations to maximum of approximately ten (10) working days, to allow for progress reporting.

.4 Ensure that it is understood that Award of Contract or time of beginning, rate of progress, Interim Certificate and Final Certificate as defined times of completion are of essence of this contract.

1.3 SUBMITTALS

.1 Submit to Engineer within seven (7) working days of Award of Contract Bar (GANTT) Chart as Master Plan for planning, monitoring and reporting of project progress.

.2 Submit Project Schedule to Engineer within five (5) working days of receipt of acceptance of Master Plan.

1.4 PROJECT MILESTONES

.1 Project milestones form interim targets for Project Schedule.

.1 Site works to be completed by September 15, 2016

.2 Interim Certificate (Substantial Completion) by September 15, 2016.

1.5 MASTER PLAN

.1 Structure schedule to allow orderly planning, organizing and execution of Work as Bar Chart (GANTT).

.2 Engineer will review and return revised schedules within five (5) working days.

.3 Revise impractical schedule and resubmit within five (5) working days.

.4 Accepted revised schedule will become Master Plan and be used as baseline for updates.

1.6 PROJECT SCHEDULE

.1 Develop detailed Project Schedule derived from Master Plan.

.2 Ensure detailed Project Schedule includes as minimum milestone and activity types as follows:

.1 Award.

.2 Shop Drawings, Samples.

.3 Permits.

.4 Mobilization.

.5 Road works.

.6 Blasting.

.7 Liner Installation.

.8 Leachate Collection System.

.9 Backfilling.

.10 Final Completion.

1.7 PROJECT SCHEDULE REPORTING

.1 Update Project Schedule on monthly basis reflecting activity changes and completions, as well as activities in progress.

.2 Include as part of Project Schedule, narrative report identifying Work status to date, comparing current progress to baseline, presenting current forecasts, defining problem areas, anticipated delays and impact with possible mitigation.

1.8 PROJECT MEETINGS

.1 Discuss Project Schedule at regular site meetings, identify activities that are behind schedule and provide measures to regain slippage. Activities considered behind schedule are those with projected start or completion dates later than current approved dates shown on baseline schedule.

.2 Weather related delays with their remedial measures will be discussed.

Part 2 Products

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 Administrative.

.2 Shop drawings, product data, samples and mock-ups.

.3 Progress Photographs.

.4 Certificates and transcripts.

1.2 Related Sections

.1 Section 01 32 18 - Construction Progress Schedules

.2 Section 01 45 00 - Quality Control.

.3 Section 01 78 00 - Closeout Submittals.

1.3 Administrative

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

.2 Work affected by submittal shall not proceed 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 converted values are acceptable.

.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 coordinated 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 shall be 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 coordinated.

.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.

1.4 Shop Drawings

.1 The term "Shop Drawings" shall mean any of the following:

.1 Original drawings or modified standard drawing prepared by Contractor or any of subcontractors or equipment suppliers.

.2 Manufacturer's catalogue sheets, brochures, literature, performance charts and diagrams and similar documentation used to illustrate manufactured products.

.2 Shop drawings shall clearly indicate details of construction of Work, including:

.1 Layout showing dimensions including identified field dimensions and clearances;

.2 Setting or erection details;

.3 Capacities, and;

.4 Performance characteristics.

.3 Accompany submission(s) with transmittal letter containing:

.1 Date;

.2 Project title and number;

.3 Contractor's name and address, and subcontractor (if applicable);

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

.5 Name, address and telephone number(s) of supplier and manufacturer, and;

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

.4 Submit a minimum of three (3) copies of all shop drawings. After review, Engineer will distribute:

.1 Two (2) copies to Engineer's files.

.2 One (1) copy to Owner's files.

1.5 Progress Photographs

.1 Provide a digital copy of photos.

.1 Viewpoints: viewpoints determined by Engineer.

.2 Frequency: Monthly with progress statement.

1.6 Certificates and Transcripts

.1 Immediately after award of Contract, submit Workers' Compensation Board status.

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

PART 2 PRODUCTS

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 SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 41 00 - Regulatory Requirements.

1.2 REFERENCES

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

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

.1 Material Safety Data Sheets (MSDS).

.3 Northwest Territories

.1 Safety Act, R.S.N.W.T. [1988].

1.3 SUBMITTALS

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

.2 Submit site-specific Health and Safety Plan: Within seven (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 copies of reports or directions issued by Federal, Provincial and Territorial health and safety inspectors.

.4 Submit copies of incident and accident reports.

.5 Engineer will review Contractor's site-specific Health and Safety Plan and provide comments to Contractor within five (5) working days after receipt of plan. Revise plan as appropriate and resubmit plan to Engineer within five (5) working days after receipt of comments from Engineer.

.6 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.

.7 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.

1.4 FILING OF NOTICE

.1 File Notice of Project with Territorial authorities prior to beginning of Work.

1.5 SAFETY ASSESSMENT

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

1.6 MEETINGS

.1 Schedule and administer Health and Safety meeting with Engineer prior to commencement of Work.

1.7 REGULATORY REQUIREMENTS

.1 Do Work in accordance with Section 01 41 00 - Regulatory Requirements.

1.8 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.

1.9 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.

1.10 COMPLIANCE REQUIREMENTS

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

.2 Comply with Canada Labour Code, Canada Occupational Safety and Health Regulations.

1.11 UNFORSEEN HAZARDS

.1 When unforeseen or peculiar safety-related factor, hazard, or condition occur during performance of Work, follow procedures in place for Employee's Right to Refuse Work in accordance with Acts and Regulations of Territory of the Northwest Territories having jurisdiction and advise Engineer verbally and in writing.

1.12 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 of the Northwest Territories having jurisdiction, and in consultation with Engineer.

1.13 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.

1.14 BLASTING

.1 Blasting or other use of explosives is not permitted without prior receipt of written instruction by Engineer.

.2 Do blasting operations in accordance with Section 31 14 11 – Earthworks.

1.15 POWDER ACTUATED DEVICES

.1 Use powder actuated devices only after receipt of written permission from Engineer.

1.16 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 Products

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 DEFINITIONS

.1 Environmental Pollution and Damage: Presence of chemical, physical, biological elements or agents which adversely affect human health and welfare; unfavourably alter ecological balances of importance to human life; affect other species of importance to humankind; or degrade environment aesthetically, culturally and/or historically.

.2 Environmental Protection: Prevention/control of pollution and habitat or environment disruption during construction. Control of environmental pollution and damage requires consideration of land, water, and air; biological and cultural resources; and includes management of visual aesthetics; noise; solid, chemical, gaseous, and liquid waste; radiant energy and radioactive material as well as other pollutants.

1.2 SUBMITTALS

.1 Submittals: In accordance with Section 01 33 00 - Submittal Procedures.

.2 Prior to commencing construction activities or delivery of materials to site, submit Environmental Protection Plan for review and approval by Engineer. Environmental Protection Plan is to present comprehensive overview of known or potential environmental issues which must be addressed during construction.

.3 Address topics at level of detail commensurate with environmental issue and required construction task(s).

.4 Environmental protection plan: include:

.1 Name(s) of person(s) responsible for ensuring adherence to Environmental Protection Plan.

.2 Name(s) and qualifications of person(s) responsible for training site personnel.

.3 Descriptions of environmental protection personnel training program.

.4 Drawings showing locations of proposed temporary material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials including methods to control runoff and to contain materials on site.

.5 Work area plan showing proposed activity in each portion of area and identifying areas of limited use or non-use. Plan to include measures for marking limits of use areas including methods for protection of features to be preserved within authorized work areas.

.6 Spill Control Plan: Including procedures, instructions, and reports to be used in event of unforeseen spill of regulated substance.

.7 Non-Hazardous solid waste disposal plan identifying methods and locations for solid waste disposal including clearing debris.

.8 Contaminant prevention plan that: Identifies potentially hazardous substances to be used on job site; identifies intended actions to prevent introduction of such materials into air, water, or ground; and details provisions for compliance with Federal, territorial, and Municipal laws and regulations for storage and handling of these materials.

.9 Waste water management plan that identifies methods and procedures for management and/or discharge of waste waters which are directly derived from construction activities.

1.3 FIRES

.1 Fires and burning of rubbish on site is not permitted.

1.4 DISPOSAL OF WASTES

.1 Do not bury rubbish and waste materials on site unless approved by Engineer.

.2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways, storm or sanitary sewers.

1.5 DRAINAGE

.1 Provide erosion and sediment control plan that identifies type and location of erosion and sediment controls to be provided. Plan: Include monitoring and reporting requirements to assure that control measures are in compliance with erosion and sediment control plan, Federal, Provincial, and Municipal laws and regulations.

.2 Do not pump water containing suspended materials into waterways.

.3 Control disposal or runoff of water containing suspended materials or other harmful substances in accordance with local authority requirements and DFO.

1.6 POLLUTION CONTROL

.1 Maintain temporary erosion and pollution control features installed under this contract.

.2 Control emissions from equipment and plant to local authorities' emission requirements.

1.7 NOTIFICATION

.1 Engineer will notify Contractor in writing of observed non-compliance with Federal, Territorial or Municipal environmental laws or regulations, permits, and other elements of Contractor's Environmental Protection plan. Contractor: after receipt of such notice, inform Engineer of proposed corrective action and take such action for approval by Engineer.

.2 Engineer will issue stop order of work until satisfactory corrective action has been taken.

.3 No time extensions granted or equitable adjustments allowed to Contractor for such suspensions.

Part 2 Products

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 PERMITS/INSPECTIONS

.1 The Contractor shall obtain and pay for all permits, licenses, certificates and governmental inspections required for the performance of the Work in force at the Tender closing date.

.2 Should a utility company require an inspector (or the utility company personnel) to be present during any part of parts of construction, the Contractor shall pay for the inspector's time and any related expenses.

.3 Give all required notices and comply with all local, territorial and federal laws, ordinances, rules, regulations, codes and orders relating to the Work, which are or become in force during the performance of the Work.

1.2 APPLICABLE CODES/STANDARDS

.1 Where specified codes/standards are not dated, conform to latest issue of specified codes/standards as amended and revised to the Tender closing date.

.2 Confine apparatus, the storage of Products and the operations of workers to limits indicated by laws, ordinances, permits and by directions of the Engineer. Do not unreasonably encumber the premises with products.

1.3 SAFETY

.1 Observe and enforce all construction safety measures required by code, Workers' Compensation Board, The Northwest Territories Safety Act, General Safety Regulations and all applicable statutes.

.2 Appoint a suitably qualified employee who has sole responsibility on site on behalf of the Contractor, for compliance with the requirements and in doing so advise the Owner in writing with a copy to the Engineer.

.3 In the event of a discrepancy between such provisions, the most stringent provision shall apply.

.4 Employ a qualified specialty Engineer for the design of all shoring and false work for the temporary supports of all structural elements, earth banks, roads, etc.

.5 Make available four (4) "Visitor safety helmets" for authorized visitors.

.6 The burning of refuse is strictly forbidden.

.7 If "NO SMOKING" regulations are in effect in the areas of the Work, ensure that all workers comply with the regulations.

.8 Ensure that all workers comply with the Owner's safety regulations where such regulations are in effect.

.9 Do not load or permit to be loaded any part of the Work with a weight, load or force that will exceed the design load and/or endanger its safety.

.10 Provide dedicated flagmen when working in residential areas, commercial areas and school zones to guide equipment and pedestrian traffic.

.11 Provide and display sufficient warning signs and other temporary traffic control devices as required during the work.

1.4 CLEANING OF THE STREETS

.1 Conform to local ordinances and by-laws relating to littering of streets.

.2 Take precautions to prevent depositing mud or debris on public or private roadways adjacent to the Work. Clean up immediately, otherwise the Engineer will direct necessary cleanup with all costs back charged to the Contractor.

1.5 WORKING LIMITS/TEMPORARY EASEMENTS

.1 Confine all operations within the Owner's property limits.

.2 Arrange for encroachment on areas beyond property lines separately with the affected property owners.

.3 Obtain consent of adjoining property owners regarding need for any temporary owners regarding need for any temporary easements or any other encroachments. Upon completion of Contract, make good any damage to the adjacent property. The cost of this work is incidental to the contract.

1.6 EXISTING UTILITIES

.1 Conform to Territorial, Municipal and any other applicable regulations during construction in proximity to utility structures

.2 Notify appropriate utility companies and municipal departments in writing a minimum of one (1) week in advance of commencing suck work:

.1 For surface water lines, the City of Yellowknife

.2 For telephone and cable, Northwestel

.3 For electrical power and street lighting, Northland Utilities Ltd.

.3 Make arrangements with utility companies and municipal departments for protection of pipelines, conduits, drainlines, guywires, wiring and other structures, whether underground, on the surface or overhead, and satisfy the company or department that the methods or operations are effective. Pay any inspections if inspection of work is deemed necessary by utility company.

.4 Indemnify and save harmless the Owners of these existing utilities from any loss or damage which may be suffered by reason of the operations of the Contractor in the performance of this Contract.

1.7 NOISE BYLAW

.1 Adhere to the requirements of the City of Yellowknife's Noise Control Bylaw

1.8 MEASUREMENT FOR PAYMENT

.1 There will be no separate measurement for payment under this section. It is incidental to completion of the work

Part 2 Products

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 SECTIONS

.1 Section 01 33 00 – Submittal Procedures.

1.2 MEASUREMENT FOR PAYMENT

.1 There will be no separate measurement for payment under this section. It is incidental to completion of the work.

1.3 INSPECTION

.1 Allow Engineer access to Work.

.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.

.4 Engineer will order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with Contract Documents, Owner shall pay cost of examination and replacement.

1.4 INDEPENDENT INSPECTION AGENCIES

.1 The Contractor is responsible for all Quality Control (QC) testing to ensure that the work is completed according to the Contract requirements. The Contractor must utilize a materials testing firm approved by the City of Yellowknife

.2 For Quality Assurance (QA) purposes only, Independent Inspection/Testing Agencies will be engaged by the Engineer for purpose of inspecting and/or testing portions of Work. The Cost of such services will be borne by the Engineer.

.3 Provide equipment required for executing inspection and testing by appointed agencies.

.4 Employment of Quality Assurance inspection/testing agencies by the Owner does not relax responsibility to perform Work in accordance with Contract Documents.

.5 If defects are revealed during a QC or QA inspection and/or testing, the appointed agency will request additional inspection and/or testing to ascertain full degree of defect. Correct defect and irregularities as advised by the Engineer at no cost to the Owner. The Contractor shall pay costs for re-testing and re-inspection.

1.5 ACCESS TO WORK

.1 Allow inspection/testing agencies access to Work.

.2 Co-operate to provide reasonable facilities for such access.

1.6 PROCEDURES

.1 Notify appropriate agency and Engineer in advance of requirement for tests, in order that attendance arrangements can be made..

.2 Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in an orderly sequence so as not to cause delay in Work.

.3 Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

.4 If defects are revealed during inspection and/or testing the Engineer may issue instructions for removal or correcting defective work and irregularities. The Contractor shall notify the Engineer within two (2) working days if such instructions are in error or at variance with the Contract Documents.

1.7 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 Make good other Contractor's work damaged by such removals or replacements promptly.

.3 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.

1.8 PENALTY FOR NON-COMPLIANCE

.1 If the Contractor does not meet the requirements of the Quality Control they will be subjected to a 50% penalty towards each contract item in which they do not meet the Quality Control reporting requirements.

1.9 REPORTS

.1 Submit two copies of inspection and test reports to the Engineer with each monthly progress claim.

.2 Sketches in addition to written descriptions of test locations are required. Illegible reports will not be accepted.

.3 Provide copies to the Subcontractor of work being inspected or tested.

.4 Submission of a complete QC summary report will be required upon completion of the work.

1.10 MILL TESTS

.1 Submit mill test certificates as required of specification Sections.

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 TESTING FREQUENCY

.1 Aggregate Materials: See Section 31 05 17

END OF SECTION

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 52 00 – Construction Facilities.

.2 Section 01 56 00 – Temporary Barriers and Enclosures.

1.2 INSTALLATION AND REMOVAL

.1 Provide temporary utilities controls in order to execute work expeditiously.

.2 Remove from site all such work after use.

1.3 DEWATERING

.1 Provide temporary drainage to keep excavations and site free from standing water.

1.4 SANITARY FACILITIES

.1 Provide sufficient sanitary facilities for workers in accordance with local health authorities.

.2 Maintain in clean condition.

1.5 TEMPORARY HEATING

.1 Provide temporary heating required during construction period, including attendants, maintenance and fuel.

.2 Be responsible for damage to work due to failure in providing adequate heat and protection during construction.

.3 Provide exhaust vents to the exterior for all temporary heaters.

.4 Pay for all costs in maintaining and providing temporary heat.

1.6 TEMPORARY POWER AND LIGHT

.1 Provide and pay for temporary power during construction for temporary lighting and operating of power tools.

.2 Arrange for connection with appropriate utility company. Pay costs for installation, maintenance and removal.

.3 Provide and maintain temporary lighting throughout project as necessary.

1.7 FIRE PROTECTION

.1 Provide and maintain temporary fire protection equipment during performance of Work required by governing codes, regulations and bylaws.

.2 Burning rubbish and construction waste materials is not permitted on site.

.3 Provide minimum one fire extinguisher in each equipment and tool shed, vehicle, temporary office, material storage shed and workshop.

.4 Where subjected to low temperatures, extinguishers are to be anti-freeze type. In proximity to gas, oil, grease or paint storage locations they are to be #10 – carbon dioxide type. Extinguishers for all other locations are to be soda-acid type. All extinguishers are to be minimum 10 liter capacity and be ULC labelled and within the required valid inspection period.

.5 Handle gasoline and like combustible materials with good, safe practice

.6 Remove all combustible debris from site daily.

Part 2 Products

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 SECTIONS

.1 Section 01 51 00 – Temporary Utilities.

.2 Section 01 56 00 – Temporary Barriers and Enclosures.

1.2 REFERENCES

.1 Canadian Standards Association (CSA International)

.1 CAN/CSA-Z321-96 (R2001), Signs and Symbols for the Occupational Environment.

1.3 INSTALLATION AND REMOVAL

.1 Identify areas which have to be gravelled to prevent tracking of mud.

.2 Provide construction facilities in order to execute work expeditiously.

.3 Remove from site all such work after use.

1.4 LADDERS AND STAIRS

.1 Provide and maintain adequate temporary ladders and stairs required for construction and for safe access to deep excavations.

.2 Ladders and stairs are to comply with all requirements of the NWT Safety Division and the Workers' Compensation Board.

1.5 TEMPORARY RETAINING WALLS

.1 Provide temporary sheeting, piling or shoring as required to protect excavations, and trenches from damage caused by rainwater, groundwater and other soil and weather conditions. Erect in a manner which will not encumber the performance of the work.

1.6 SITE STORAGE/LOADING

.1 Confine work and operations of employees by Contract Documents. Do not unreasonably encumber premises with products.

.2 Do not load or permit to load any part of Work with weight or force that will endanger Work.

1.7 CONSTRUCTION PARKING

.1 Parking will be permitted on site provided it does not disrupt the performance of work.

.2 Do not allow parking on streets or roads if it is disruptive to public traffic flow or access to the site.

1.8 SECURITY

.1 Provide and pay for responsible security personnel to guard site and contents of site after working hours, on weekends, and during holidays. Allow security personnel access to sanitary facilities, telephone and warm weatherproof shelter.

1.9 EQUIPMENT, TOOL AND MATERIALS STORAGE

.1 Provide and maintain, in clean and orderly condition, lockable weatherproof sheds for storage of tools, equipment and materials.

.2 Locate materials not required to be stored in weatherproof sheds on site in manner to cause least interference with work activities.

1.10 SANITARY FACILITIES

.1 Provide sanitary facilities for work force in accordance with governing regulations and ordinances.

.2 Post notices and take precautions as required by local health authorities. Keep area and premises in sanitary condition.

1.11 CONSTRUCTION SIGNAGE

.1 Provide and erect a Project sign in a location designated by the Engineer.

.2 The city will provide the contractor with an ".ai" template file for use in printing the sign.

.3 Provide adequate supporting framework for the sign.

.4 Text information: as per Engineer's instructions and City standards.

.5 Sign layout, construction and lettering to current City of Yellowknife signage standards.

.6 Maintain sign in good condition for the duration of the Work. Clean periodically.

.7 Erect sign within three (3) weeks of award of Contract.

.8 Dismantle sign with care and deliver to Owner at completion of project.

.9 No other signs or advertisements other than warning signs are to be erected on site.

1.12 PROTECTION OF OFF-SITE AND PUBLIC PROPERTY

.1 Protect adjacent private and public property from damage during the performance of the Work.

.2 During excavation, provide sheeting, piling or shoring as required to protect adjacent building foundations and streets from movement.

.3 Be responsible for all damages incurred due to improper protection.

1.13 PROTECTION OF ADJACENT PROPERTY

.1 Provide adequate protection of adjacent property and equipment during the performance of the Work. Provide necessary screen, covers, hoardings, etc. as required. Be responsible for all damages incurred due to improper of lack of protection.

1.14 CLEAN-UP

.1 Remove construction debris, waste materials, packaging material from work site daily.

.2 Clean dirt or mud tracked onto paved or surfaced roadways.

.3 Store materials resulting from demolition activities that are salvageable.

.4 Stack stored new or salvaged material not in construction facilities.

Part 2 Products

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 SECTIONS

.1 Section 01 51 00 – Temporary Utilities.

.2 Section 01 52 00 – Construction Facilities.

1.2 REFERENCES

.1 Canadian Standards Association (CSA International)

1.3 INSTALLATION AND REMOVAL

.1 Provide temporary controls in order to execute Work expeditiously.

.2 Remove from site all such work after use.

1.4 GUARD RAILS AND BARRICADES

.1 Provide secure, rigid guard rails and barricades around deep excavations.

1.5 ACCESS TO SITE

.1 Provide and maintain access roads as may be required for access to Work.

1.6 PROTECTION FOR OFF-SITE AND PUBLIC PROPERTY

.1 Protect surrounding private and public property from damage during performance of Work.

.2 Be responsible for damage incurred.

Part 2 Products

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

.2 If there is question as to whether products or systems are in conformance with applicable standards, Engineer reserves right to have such products or systems tested to prove or disprove conformance.

.3 Cost for such testing will be born by Owner in event of conformance with Contract Documents or by Contractor in event of non-conformance.

1.2 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. Should disputes arise as to quality or fitness of products, decision rests strictly with Engineer based upon requirements of Contract Documents.

1.3 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.

1.4 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 oily rags and other combustible debris from site daily. Take every precaution necessary to prevent spontaneous combustion.

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

1.5 TRANSPORTATION

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

1.6 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.

.4 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.

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

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

1.7 CO-ORDINATION

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

1.8 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.

Part 2 Products

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 Field engineering survey services to measure and stake site.

.2 Survey services to establish and confirm inverts for Work.

.3 Recording of subsurface conditions found.

1.2 RELATED SECTIONS

.1 Section 01 32 18 - Construction Progress Schedules

1.3 REFERENCES

.1 Owner's identification of existing survey control points and property limits.

1.4 QUALIFICATIONS OF SURVEYOR

.1 Qualified surveyor must be acceptable to Engineer.

1.5 SURVEY REFERENCE POINTS

.1 Existing base horizontal and vertical control points are designated on drawings.

.2 Locate, confirm and protect control points prior to starting site work. Preserve permanent reference points during construction.

.3 Make no changes or relocations without prior written notice to Engineer.

.4 Report to Engineer when reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

.5 Require surveyor to replace control points in accordance with original survey control.

1.6 SURVEY REQUIREMENTS

.1 Establish lines and levels, locate and lay out, by instrumentation.

.2 Stake for grading, and fill placement.

.3 Stake slopes.

.4 Establish culvert invert elevations.

.5 Establish liner and drainage collection system elevations.

1.7 RECORDS

.1 Maintain a complete, accurate log of control and survey work as it progresses.

.2 On completion of major site improvements, prepare a certified survey showing dimensions, locations, angles and elevations of Work.

.3 Record locations of buried infrastructure.

1.8 SUBMITTALS

.1 Submit name and address of Surveyor to Engineer.

.2 On request of Engineer, submit documentation to verify accuracy of field engineering work.

.3 Submit certificate signed by surveyor certifying and noting those elevations and locations of completed Work that conform and do not conform with Contract Documents.

1.9 SUBSURFACE CONDITIONS

.1 Promptly notify Consultant in writing if subsurface conditions at Place of Work differ materially from those indicated in Contract Documents, or a reasonable assumption of probable conditions based thereon.

.2 After prompt investigation, should Consultant determine that conditions do differ materially; instructions will be issued for changes in Work as provided in Changes and Change Orders.

Part 2 Products

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 SUBMITTALS

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

.2 Submit written request in advance of alteration which affects:

- .1 Structural integrity of elements of project.
- .2 Integrity of weather-exposed or moisture-resistant elements.
- .3 Visual qualities of sight-exposed elements.

.3 Include in request:

- .1 Identification of project.
- .2 Location and description of affected Work.
- .3 Statement on necessity for alteration.
- .4 Description of proposed Work, and products to be used.
- .5 Alternatives to cutting and patching.
- .6 Effect on Work of Owner or separate contractor.
- .7 Written permission of affected separate contractor.
- .8 Date and time work will be executed.

1.2 MATERIALS

.1 Required for original installation.

.2 Change in Materials: Submit request for substitution in accordance with Section 01 33 00 - Submittal Procedures.

1.3 PREPARATION

.1 Inspect existing conditions, including elements subject to damage or movement during cutting and patching.

.2 After uncovering, inspect conditions affecting performance of Work.

.3 Beginning of cutting or patching means acceptance of existing conditions.

.4 Provide supports to assure structural integrity of surroundings; provide devices and methods to protect other portions of project from damage.

.5 Provide protection from elements for areas which are to be exposed by uncovering work; maintain excavations free of water.

1.4 EXECUTION

.1 Execute cutting, fitting, and patching including excavation and fill, to complete Work.

.2 Uncover Work to install ill-timed Work.

.3 Remove and replace defective and non-conforming Work.

.4 Execute Work by methods to avoid damage to other Work, and which will provide proper surfaces to receive patching and finishing.

.5 Employ original installer to perform cutting and patching for weather-exposed and moisture-resistant elements, and sight-exposed surfaces.

.6 Restore work with new products in accordance with requirements of Contract Documents.

Part 2 Products

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 PROJECT CLEANLINESS

.1 Maintain Work in tidy condition, free from accumulation of waste products and debris.

.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, unless approved by Engineer.

.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 Dispose of waste materials and debris in accordance to the City requirements.

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

1.2 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.

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

.4 Remove waste products and debris.

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

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

Part 2 Products

2.1 NOT USED

.1 Not Used.

Part 3 Execution

3.1 NOT USED

.1 Not Used.

END OF SECTION

PART 1 General

.1 Section describes administrative procedures preceding preliminary and final inspections of Work.

1.1 RELATED SECTIONS

.1 Section 01 78 00 - Closeout Submittals.

1.2 INSPECTION AND DECLARATION

.1 Contractor's Inspection: Contractor and all Subcontractors shall conduct an 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 that corrections have been made.

.2 Request Engineer’s Inspection at least 5 days in advance of inspection.

.2 Substantial Completion Inspection: Engineer and Contractor will perform inspection of Work to identify obvious defects or deficiencies. Contractor shall correct Work accordingly.

.3 Substantial Completion: Submit written certificate that following have been performed:

.1 Work has been completed and inspected for compliance with Contract Documents.

.2 Defects have been corrected and deficiencies have been completed.

.3 Work is complete and ready for Final Inspection.

.4 Final Inspection: When items noted above are completed, request final inspection of Work by Owner, Engineer and Contractor. If Work is deemed incomplete by Owner and Engineer, complete outstanding items and request re-inspection.

.5 Declaration of Final Completion: When Owner and Engineer consider deficiencies and defects have been corrected and it appears requirements of Contract have been substantially performed, make application for certificate of Final Completion.

.6 Commencement of Warranty Periods: Date of Owner’s acceptance of submitted declaration of Substantial Completion shall be date for commencement for warranty period.

.7 Final Payment: When Owner and Engineer agree that final deficiencies and defects have been corrected and it appears requirements of Contract have been totally performed, Contractor shall apply for Final Inspection. If Work is deemed incomplete, complete outstanding items and request re-inspection.

PART 2 Products

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 Record drawings, samples, and specifications.

.2 Product data, materials, and related information.

.3 Warranties and bonds.

.4 Final site survey.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 01 45 00 - Quality Control.

.3 Section 01 77 00 - Closeout Procedures.

1.3 PROJECT COMISSIONING

.1 Expedite and complete deficiencies and defects identified by the Engineer.

.2 Review cash contingency allowances in relation to contract prices, change orders, retainage, hold-backs and other contract price adjustments.

.3 Submit required documentation such as statutory declarations, Workers' Compensation Board Certificates, warranties, certificates of approval or acceptance from regulating bodies.

.4 Review inspection and testing reports to verify conformance to the intent of the documents and that changes, repairs or replacements have been completed.

.5 When partial use of the uncompleted project is required by the Owner, coordinate Owner's uses, requirements, access, with Contractor's requirements to complete the project.

.6 Coordinate Owner's initiating use of system with Contractor's and Subcontractor's cleaning-up and completion activities all to suit Owner's work schedule and not disrupt Owner's productivity.

1.4 SUBMISSION

.1 Collect reviewed submittals (Section 01 33 00) and assemble documents executed by Subcontractors, Suppliers and Manufacturers.

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

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

.4 Submit material prior to final Application for Payment. For equipment put into use with Owner's permission during construction, submit within ten (10) days after start-up. For items of Work delayed materially beyond date of Substantial Performance provide updated submittal within ten (10) days after acceptance, listing date of acceptance as start of warranty period.

.5 Submit a final statement of accounting giving a total adjusted contract sum, previous payments and monies remaining due.

.6 The Engineer will issue a final change order reflecting approved adjustments to contract sum not previously made.

1.5 FORMAT

.1 Binders: vinyl, hard covered, 3-ring, loose leaf with spine and face pockets. Size to fit documents.

.2 Cover: Identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.

.3 Arrange content by product name.

.4 Provide tabbed fly leaf for each separate product, with typed description of product.

.5 Text: Manufacturer's printed data, or typewritten data.

.6 Drawings: (if required) provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

1.6 CONTENTS

.1 Table of Contents: provide title of project;

.1 Date of submission; names

.2 Addresses, and telephone numbers of Consultant and Contractor with name of responsible parties;

.3 Schedule of products, indexed to content of volume.

.2 For each 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 clearly 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, to show control and flow diagrams.

.5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 – Quality Control.

.6 Quality Control Testing Results: submit broken down by the area of work as outlined in the Tender Form.

1.7 RECORD DRAWINGS AND SAMPLES

.1 In addition to requirements in General Conditions, maintain at the site for Engineer and Owner, one record copy of:

.1 Contract Drawings.

.2 Specifications.

.3 Addenda.

.4 Change Orders and other modifications to the 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 apart from documents used for construction. Provide files, racks, and secure storage.

.3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

.4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.

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

1.8 RECORDING ACTUAL SITE CONDITIONS

.1 Record information concurrently with construction progress. Do not conceal Work until required information is recorded and photographed.

.2

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

.1 Measured depths of elements of project

.2 Measured horizontal and vertical locations of underground features

.3 Field changes of dimension and detail.

.4 Changes made by change orders.

.5 Details not on original Contract Drawings.

.6 References to related shop drawings and modifications.

.4 Specifications: Legibly 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.

.5 Other Documents: Maintain manufacturer's certifications, inspection certifications, and field test records required by individual specifications sections.

1.9 WARRANTIES AND BONDS

.1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.

.2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

.3 Obtain warranties and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within ten (10) days after completion of the applicable item of work.

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

.5 Verify that documents are in proper form, contain full information, and are notarized.

.6 Co-execute submittals when required.

.7 Retain warranties and bonds until time specified for submittal.

.8 Execute transition of Performance and Labour and Materials Payment Bond to warranty period requirements.

PART 2 Products

2.1 Not Used

.1 Not Used.

PART 3 Execution

3.1 Not Used

.1 Not Used.

END OF SECTION

31

Part 1 General

1.1 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

1.2 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM D4791-99, Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate.

1.3 GENERAL

.1 Aggregate produced shall comply fully with the specifications and the Contractor shall recognize and satisfy himself as to the type and amount of work that may be necessary to produce the required material.

.2 The aggregate shall meet the requirements for the materials specified.

.3 The Contractor shall adjust and modify aggregates as required in order to meet the specification requirements.

.4 The crushed aggregate shall be composed of sound, hard and durable particles of sand, gravel and rock and shall be free from elongated particles, injurious quantities of flaky particles, soft shale's, organic matter, clay lumps and other foreign matter.

.5 A tolerance of three (3.0) percent in the amount passing the maximum sieve size will be permitted, providing all oversize material passes the next larger standard sieve size.

.6 The Contractor shall be entirely responsible for the quantity and quality of crushed aggregate produced.

1.4 SAMPLES

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

.2 Allow continual sampling by Engineer during production.

.3 Provide Engineer with access to source and processed material for sampling.

.4 Install sampling facilities at discharge end of production conveyor, to allow Engineer to obtain representative samples of items being produced.

.5 Pay cost of sampling and testing of aggregates which fail to meet specified requirements.

1.5 MEASUREMENT FOR PAYMENT

.1 Production of aggregate and crush gravel will not be measured separately for payment.

1.6 QUALITY CONTROL AND QUALITY CONTROL TESTING

.1 General

.1 In all sources, quality control and quality control testing are the responsibility of the Contractor throughout every stage of the Work.

.2 Tests performed by the Engineer will not be considered to be quality control tests.

.3 The Contractor shall provide, pay for and maintain equipment and qualified personnel to carry out all field testing necessary to determine and monitor the characteristics of the materials produced and the final product to be delivered.

.4 The Contractor shall provide safe and convenient means for accurately and representatively sampling each aggregate stream being produced during all screening, splitting and crushing processes.

.5 Prior to commencement of the Work, the Contractor shall provide the Engineer with his program and schedule of testing for quality control and shall demonstrate to the satisfaction of the Engineer that the program and schedule are adequate to provide reliable quality control within the limits specified.

.6 The Contractor shall retain and utilize Professional Engineering Services provided by an Engineering Consulting Firm registered with NAPEG to carry out all quality control and quality control testing and to assess and where necessary, modify the aggregate materials being produced to ensure their end use meets all specification requirements. The firm shall be licensed to operate in the Northwest Territories.

.7 All quality control test and test results shall be calculated, recorded and submitted to the Engineer on industry standard worksheets. The tests and test results shall be certified for correctness by the Engineering Consulting Firm employed by the Contractor to perform the tests and shall be signed by the Contractor's representative. All worksheets shall be reviewed and certified for correctness by a Professional Engineer from the Engineering Consulting Firm employed by the Contractor to perform the tests, on a weekly basis at a minimum.

.2 Test Methods

.1 Unless otherwise specified, the latest edition of the following test methods shall be used to determine material characteristics:

.1 Sampling Aggregates – ASTM D75

.2 Sieve Analysis of Fines & CSA A23.2 Aggregates

.3 Sieve Analysis of Materials – ASTM C117 Finer than 75 Micron sieve by Washing

.4 Mineral Filler – ASTM D546

.3 Quality Control Testing Requirements

.1 The Contractor's quality control and quality control testing program shall include the carrying out of quality control testing using the latest edition of the specified test methods at the minimum specified frequencies.

.1 Sampling

.1 Sampling ASTM D 75 One per 1,000 Aggregate tonnes

(This frequency applied to – each fraction being produced).

.2 Sieve Analysis

.1 Crushed One per 1,000 Aggregate tonnes.

.1 Fine and Course ASTM A23.2-2A Fraction

.2 Materials finer ASTM C117 than 75 micron sieve by washing.

(This frequency applied to each fraction being produced)

.2 Blend Sand ASTM D546 (One per 300 tonnes)

.3 Manufactured ASTM D546 Blend Sand (Mineral Filler) – One per four (4) hours of plant production.

.4 Reporting of Sieve Analysis test Results and Production Quantities

.1 The Contractor shall record all sieve analysis test results on industry standard grain size curve sheets and worksheets which provide all test data, calculations, error checks, test results and any additional information requested by the Engineer. The Contractor shall also determine and record on each sieve analysis worksheet, the time and date of sampling, the total quantity of granular material produced at the time of sampling and, where applicable, the test lot that the sample refers to.

.5 Quality Acceptance

.1 Acceptance of processed aggregates will take place when they are in their final position and have met all the requirements of the Contract. The Engineer may test at any time at the work site and reject material that does not meet the specifications. The Contractor shall promptly remove rejected material from the site.

.2 The Engineer and his representatives reserve the right to sample, test, inspect and monitor the quality of material being produced and incorporated into the work by the Contractor at any time and as often as he deems necessary. The Contractor shall cooperate with the Engineer and his representatives for such sampling, testing, inspecting and monitoring. The Engineer is under no obligation to provide the Contractor with test results and this testing shall in no way relieve the Contractor of his responsibility to produce aggregates that meet the specifications in all respects.

Part 2 Products

2.1 MATERIALS

.1 Aggregate quality: Sound, hard, durable material free from soft, thin, elongated or laminated particles, organic material, clay lumps or minerals, or other substances that would act in deleterious manner for use intended.

.2 Flat and elongated particles of coarse aggregate: to ASTM D4791.

.1 Greatest dimension to exceed five times least dimension.

.3 Fine aggregates satisfying requirements of applicable section to be one, or blend of following:

.1 Natural sand.

.2 Manufactured sand.

.3 Screenings produced in crushing of quarried rock, boulders, gravel or slag.

.4 Coarse aggregates satisfying requirements of applicable section to be one of or blend of following:

.1 Crushed rock.

.2 Gravel composed of naturally formed particles of stone.

.3 Light weight aggregate, including slag and expanded shale.

2.2 SOURCE QUALITY CONTROL

.1 Inform Engineer of proposed source of aggregates and provide access for sampling at least four (4) weeks prior to commencing production.

.2 If, in opinion of Engineer, materials from proposed source do not meet, or cannot reasonably be processed to meet, specified requirements, locate an alternative source or demonstrate that material from source in question can be processed to meet specified requirements.

.3 Advise Engineer four (4) weeks in advance of proposed change of material source.

.4 Acceptance of material at source does not preclude future rejection if it fails to conform to requirements specified, lacks uniformity, or if its field performance is found to be unsatisfactory.

Sieve Size (mm)	Percent Passing by Weight		
	50 mm Minus Road Gravel & Trench Backfill	20 mm Minus Bedding	20 mm Minus Road Base
50	100		
25		100	100
20	65-100	85-100	85-100
12.5	50-100	60-90	60-90
5	35-65	35-65	35-65
1.25	0-40	0-40	15-40
0.315	0-25	0-25	5-25
0.08	0-10	0-10	0-10

2.3 Fine Aggregate

.1 For the purposes of this Contract, the City of Yellowknife may permit, if requested, removal of fine aggregate from the City source known locally as "Sammy's Beach" for use as blend material. No guarantee is made by the City that such material is suitable for blend purposes.

.2 Where the Contractor requests to remove fine aggregate from Sammy's Beach, the following conditions shall apply:

a) The City of Yellowknife will designate removal areas and elevations and the Contractor shall contain his operation to the designated areas.

b) The Contractor shall remove and stockpile organic material and shall provide loading of fine aggregate.

c) All fine aggregate removed shall be used for crushing blend and only for this Contract.

d) All fine aggregate shall be weighed. The Contractor shall arrange for the fine aggregate to be weighed and shall provide documentation, to the satisfaction of the Engineer, indicating the scale is properly calibrated. The Contractor shall supply a minimum of two (2) working days' notice of haul schedule and shall limit the hauling of fine aggregate to the hours of 7:00 am to 4:00 pm, Monday to Friday.

e) The Contractor shall reimburse the City of Yellowknife for the fine aggregate and scaling as follows:

Fine Aggregate **$2.00 per cubic metre**

f) At the time of Substantial Completion, the Engineer will determine the volume of stockpiled fine aggregate and stockpiled crush material containing fine aggregate from Sammy's Beach. Based on these volumes and submitted records of blend fine aggregate percentages, an estimate of fine aggregate on site in excess of Contract requirements will be calculated. The Contractor shall pay the City of Yellowknife the difference between **the current market value** and the rate noted in (e) above for all such excess material.

g) Any violation of these conditions may, at the City of Yellowknife's discretion, result in closure of Sammy's Beach as a fine aggregate source.

Part 3 Execution

3.1 PREPARATION

.1 Aggregate source preparation

.1 Prior to excavating materials for aggregate production, clear and grub area to be worked, and strip unsuitable surface materials. Dispose of cleared, grubbed and unsuitable materials as approved by authority having jurisdiction.

.2 Clear, grub and strip area ahead of quarrying or excavating operation sufficient to prevent contamination of aggregate by deleterious materials.

.3 When excavation is completed dress sides of excavation to nominal 1.5:1 slope, and provide drains or ditches as required to prevent surface standing water.

.4 Trim off and dress slopes of waste material piles and leave site in neat condition.

.2 Processing

.1 Process aggregate uniformly using methods that prevent contamination, segregation and degradation.

.2 Blend aggregates, if required, to obtain gradation requirements, percentage of crushed particles, or particle shapes, as specified. Use methods and equipment approved by Engineer.

.3 Wash aggregates, if required to meet specifications. Use only equipment approved by Engineer.

.4 When operating in stratified deposits use excavation equipment and methods that produce uniform, homogeneous aggregate.

.3 Handling

.1 Handle and transport aggregates to avoid segregation, contamination and degradation.

.4 Stockpiling

.1 Stockpile aggregates on site in locations as indicated unless directed otherwise by Engineer. Do not stockpile on completed pavement surfaces.

.2 Stockpile aggregates in sufficient quantities to meet Project schedules.

.3 Stockpiling sites to be level, well drained, and of adequate bearing capacity and stability to support stockpiled materials and handling equipment.

.4 Do not use intermixed or contaminated materials. Remove and dispose of rejected materials as directed by Engineer within 48 h of rejection.

.5 Uniformly spot-dump aggregates delivered to stockpile in trucks and build up stockpile as specified.

.6 Do not cone piles or spill material over edges of piles.

.7 During winter operations, prevent ice and snow from becoming mixed into stockpile or in material being removed from stockpile.

3.2 CLEANING

.1 Leave aggregate stockpile site in tidy, well drained condition, free of standing surface water.

.2 Leave any unused aggregates in neat compact stockpiles as directed by Engineer.

.3 For temporary or permanent abandonment of aggregate source, restore source to condition meeting requirements of authority having jurisdiction.

END OF SECTION

Part 1 General

1.1 REFERENCES

.1 Canadian Standard Association (CSA)

.2 American Society for Testing and Materials (ASTM)

.1 ASTM D 698-91, Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort 600kN-m/m^3.

1.2 REGULATIONS

.1 Comply with Explosives Act of Canada R.S., c.E-15, s.1. Perform blasting in accordance with Provincial and Municipal regulations. Repair damage to approval of Engineer.

.1 Submit to Engineer and local authorities having jurisdiction for approval, written proposal of operations for removal of rock by blasting, in accordance with Section 01 33 00 - Submittal Procedures.

.2 Indicate proposed method of carrying out work. Include details on protective measures, time of blasting and other pertinent details.

.3 Submit records to Engineer at end of each shift. Maintain complete and accurate record of drilling and blasting operations.

.4 Retain licensed explosives expert to program and supervise blasting work, and to determine precautions, preparation and operations techniques.

.5 Reduce ground vibrations to avoid damage to structures or remaining rock mass.

.6 Engineer will visit property holders of adjacent buildings and structures to determine existing conditions and describe blasting and seismic recording operations.

1.3 TESTS AND INSPECTIONS

.1 Testing of materials and compaction of backfill and fill will be carried out by testing laboratory designated by Engineer.

.2 Do not begin backfilling or filling operations until material has been approved for use by Engineer.

1.4 PROTECTION

.1 Protect excavations from freezing.

.2 Keep excavations clean, free of standing water, and loose soil.

.3 Where soil is subject to significant volume change due to change in moisture content, cover and protect to Engineer's approval.

.4 Protect natural and man-made features required to remain undisturbed. Unless otherwise indicated or located in an area to be occupied by new construction.

Part 2 Products

2.1 MATERIALS

.1 See Section 31 05 17 – Aggregate Material

Part 3 Execution

3.1 CLEARING AND GRUBBING

.1 Remove boulders and debris within areas designated on drawings.

3.2 EXCAVATION

.1 Excavate as required to carry out work, in all materials met. Do not disturb soil or rock below bearing surfaces.

.2 Advise Engineer at least seven (7) days in advance of excavation operations for initial cross sections to be taken.

.3 Excavate to lines, grades, elevations and dimensions as indicated by Engineer.

.4 For trench excavation, unless otherwise authorized by Engineer in writing, do not excavate more than 30 m of trench in advance of installation operations and do not leave open more than 15 m at end of day's operation.

.5 Dispose of surplus and unsuitable excavated material off site at Contractor’s expense.

.6 Do not obstruct flow of surface drainage or natural watercourses.

.7 Earth bottoms of excavations to be undisturbed soil, level, free from loose, soft or organic matter.

.8 Notify Engineer when bottom of excavation is reached.

.9 Obtain Engineer approval of completed excavation.

.10 Remove unsuitable material from trench bottom to extent and depth as directed by Engineer.

.11 Correct unauthorized over-excavation as follows:

.1 Fill under bearing surfaces and footings with fill concrete.

.2 Fill under other areas with Type 2 fill compacted to not less than 95 % of corrected maximum dry density.

.12 Hand trim, make firm and remove loose material and debris from excavations. Where material at bottom of excavation is disturbed, compact foundation soil to density at least equal to undisturbed soil. Clean out rock seams and fill with concrete mortar or grout to approval of Engineer.

3.3 ROCK REMOVAL

.1 Remove rock to alignments, profiles, and cross sections as indicated.

.2 Use rock removal procedures to produce uniform and stable excavation surfaces. Minimize overbreak, and to avoid damage to adjacent structures.

.3 Excavate trenches to lines and grades to minimum of 50 mm below pipe invert indicated. Provide recesses for pipe connections to ensure bearing will occur uniformly along barrel of pipe.

.4 Cut trenches to widths as indicated.

.5 Use blasting techniques approved by Engineer.

.6 Remove boulders and fragments which may slide or roll into excavated areas.

.7 Correct unauthorized rock removal at no extra cost.

3.4 ROCK DISPOSAL

.1 Dispose of surplus removed rock off site.

.2 Do not dispose removed rock into landfill. Material must be sent to appropriate location as approved by the Engineer.

3.5 BACKFILLING

.1 Inspection: Do not commence backfilling until fill material and spaces to be filled have been inspected and approved by Engineer.

.2 Remove snow, ice, construction debris, organic soil and standing water from spaces to be filled.

.3 Lateral support: maintain even levels of backfill around structures as work progresses, to equalize earth pressures.

.4 Placing:

.1 Place backfill, fill and basecourse material in 150 mm lifts. Add water as required to achieve specified density.

.5 Compaction: compact each layer of material to following densities for material to ASTM D 698:

.1 To underside of basecourses: 95%.

.2 Basecourses: 100%.

.3 Elsewhere: 90%.

.6 In trenches:

.1 Up to 300 mm above pipe: sand placed by hand.

.2 Over 300 mm above pipe or conduit: 95 %

3.6 GRADING

.1 Grade so that water will drain away from buildings. Grade to be gradual between finished spot elevations shown on drawings.

3.7 SHORTAGE AND SURPLUS

.1 Supply all necessary fill to meet backfilling and grading requirements and with minimum and maximum rough grade variance.

.2 Dispose of surplus material off site.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Materials and installation of polymeric geotextiles used in drainage structures and roadbeds purpose of which is to:

.1 Separate and prevent mixing of granular materials of different grading.

.2 Act as hydraulic filters permitting passage of water while retaining soil strength of granular structure.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

1.3 MEASUREMENT PROCEDURES

.1 Measure geotextiles in square metres of surface covered by material. No allowance will be made for seams and overlaps.

1.4 REFERENCES

.1 American Society for Testing and Materials (ASTM)

.1 ASTM D 4491-99a, Standard Test Methods for Water Permeability of Geotextiles by Permittivity.

.2 ASTM D 4751- 99a, Standard Test Method for Determining Apparent Opening Size of a Geotextile.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-4.2-M88, Textile Test Methods.

.2 CAN/CGSB-148.1, Methods of Testing Geotextiles and Geomembranes.

.1 No.2-M85, Mass per Unit Area.

.2 No.3-M85, Thickness of Geotextiles.

.3 No.7.3-92, Grab Tensile Test for Geotextiles.

.4 No.6.1-93, Bursting Strength of Geotextiles Under No Compressive Load.

1.5 SUBMITTALS

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

.2 Submit to Engineer 4 copies of mill test data and certificate at least 4 weeks prior to start of Work, and in accordance with Section 01 33 00 - Submittal Procedures.

1.6 DELIVERY, STORAGE AND HANDLING

.1 During delivery and storage, protect geotextiles from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris and rodents.

1.7 WASTE MANAGEMENT AND DISPOSAL

.1 Do not bury rubbish and waste materials on site.

.2 Do not dispose of waste or volatile materials, such as mineral spirits, oil or paint thinner into waterways.

.3 All waste material is to be disposed of at the community landfill site. The Contractor is responsible to obtain all permits.

Part 2 Products

2.1 WASTE AREA MATERIAL

.1 Geotextile: non-woven synthetic fiber fabric, supplied in rolls.

.1 Width: 4.57m minimum.

.2 Length: 91.44 minimum.

.2 Physical properties:

.1 Grab Tensile ASTM D-4632.

.1 Tensile strength: minimum 1,557 N,

.2 Elongation at break: 50%.

.3 Seam strength: equal to or greater than tensile strength of fabric.

.2 Puncture Strength ASTM D-4833

.1 Puncture: 978 N

.3 Mullen Burst ASTM D-3786

.1 Burst: 5171 kPa

.4 Trapezoidal Tear ASTM D-4533

.1 Tear: 578 N

.5 UV Resistance ASTM D-4355

.1 Resistance: 70% at 500 hours

.6 Thickness: 4.45 mm

.3 Hydraulic properties:

.1 Apparent opening size (AOS): to ASTM D-4751, 100 microns.

.2 Permittivity: to ASTM D 4491, 0.06 sec^{-1}.

Standard of Acceptance: AMOCO 4516, Nilex 4516 non-woven or approved similar.

2.2 INSTALLATION

.1 Place geotextile material by unrolling onto graded surface in orientation, manner and locations indicated and retain in position with granular materials free of any sharp edges.

.2 Place geotextile material smooth and free of tension stress, folds, wrinkles and creases.

.3 Place geotextile material on sloping surfaces in one continuous length from toe of slope to upper extent of geotextile.

.4 Overlap each successive strip of geotextile 500 mm over previously laid strip.

.5 Join successive strips of geotextile by overlapping minimum of 0.5m.

.6 Protect installed geotextile material from displacement, damage or deterioration before, during and after placement of material layers.

.7 After installation, cover with overlying layer within 4 h of placement.

.8 Replace damaged or deteriorated geotextile to approval of Engineer.

2.3 CLEANING

.1 Remove construction debris from Project site and dispose of debris in an environmentally responsible and legal manner.

2.4 PROTECTION

.1 Vehicular traffic not permitted directly on geotextile.

END OF SECTION

Approved: 2003-12-31

Part 1 General

1.1 SECTION INCLUDES

.1 Materials and installation of geomembranes for use in landfill and other containment structures as an impermeable membrane.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

1.3 MEASUREMENT PROCEDURES

.1 Geomembranes will be measured as square metres of surface covered by material. No allowance will be made for seams and overlaps.

1.4 REFERENCES

.1 American Society for Testing and Materials International (ASTM)

1.5 SUBMITTALS

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

.2 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures.

1.6 CERTIFICATES

.1 Submit to Engineer copies of manufacturer's mill test data at least 2 weeks prior to start of work.

1.7 DELIVERY

.1 During delivery, protect geo-membranes from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris and rodents.

1.8 STORAGE AND HANDLING

.1 Protect geo-membranes from direct sunlight, ultraviolet rays, excessive heat, mud, dirt, dust, debris and rodents.

1.9 WASTE MANAGEMENT AND DISPOSAL

.1 Collect and separate plastic, paper packaging and corrugated cardboard for appropriate disposal.

Part 2 Products

2.1 MATERIALS

.1 Geomembrane: polyethylene (HDPE 60 mil or equivalent), supplied in rolls.

.1 Composed of high density polyethylene resin.

.2 Physical properties:

.1 Thickness: to ASTM D 5199, minimum 1.50 mm.

.2 Density: to ASTM D 1505, minimum 0.94 g/cm^3

.3 Tensile strength and elongation at yield: to ASTM D 6693, Type IV:

.1 Tensile strength: minimum 22 N/mm.

.2 Elongation: minimum 12 %.

.4 Tensile strength and elongation at break: to ASTM D 6693, Type IV:

.1 Tensile strength: minimum 16 N/mm.

.2 Elongation: minimum 100 %.

.5 Tear resistance: to ASTM D 1004, minimum 187 N.

.6 Puncture resistance: to ASTM D 4833, minimum 400 N.

.7 Carbon black content: to ASTM D 1603/4218, minimum 2%, maximum 3% by mass.

.8 Carbon black dispersion: to ASTM D 5596, 9 of 10 views shall be Category 1 or 2, no more than 1 view from Category 3.

.9 Notched constant tensile load: to ASTM D 5397, Appendix, minimum 300 hr.

.10 Oxidative induction time: to ASTM D 3895, 200°C; O_2, 1 atm, >100 min.

.11 Roll length: minimum 158 m.

.12 Roll width: minimum 6.9 m.

.13 Roll area: minimum 1,000 m^2.

.14 Seam strength (at yield point): to ASTM D 3083, as modified by National Sanitation Foundation, Standard Number 54, Appendix A, 525N/25mm and film tear bond.

.15 Seam peel adhesion: to ASTM D 413 or ASTM D 638, or ASTM D 882, as modified by National Sanitation Standard Number 54, Appendix A; 398N/25mm and film tear bond.

.16 Total content of additives, fillers or extenders: maximum 3% by weight.

.17 Geomembrane: free of striations, roughness, pinholes, bubbles, blisters, undispersed raw materials and any sign of contamination by foreign matter.

.3 Seams: welded in accordance with manufacturer's recommendations. Physical properties for resin used for welding to be same as those for resin used in manufacture of membrane.

.4 Geosynthetic Clay Liner: GCL (BentoFix Thermal Lock “NS Series”or equivalent), supplied in rolls.

.1 Composed of uniform layer of granular sodium bentonite between a woven and a non-woven geotextile.

Part 3 Execution

3.1 GEOMEMBRANE INSTALLATION

.1 Geomembrane is to be installed by a qualified contractor with extensive experience installing HDPE liner and Geosynthetic Clay Liner (GCL). References from Contractor may be required.

.2 Maintain area of installation free of water and snow accumulations.

.3 Repair excessively soft supporting material as directed by Engineer.

.4 Do not proceed with panel placement and seaming when ambient temperatures are below minus 5°C or above 40°C, during any precipitation, in presence of excessive moisture (eg. fog, dew), nor in presence of high winds, unless otherwise approved by the Engineer.

.5 Place and seam panels in accordance with manufacturer's recommendations on graded surface in orientation and locations indicated. Minimize wrinkles, avoid scratches and crimps to geomembranes and avoid damage to supporting material.

.6 Protect installed membrane from displacement, damage or deterioration before, during and after placement of material layers.

.7 Replace damaged, torn or permanently twisted panels to approval of Engineer. Remove rejected damaged panels from site.

.8 Keep field seaming to minimum. Locate field seams up and down slopes, with no horizontal field seam less than 1.5 m beyond toe of slope.

.9 Keep seam area clean and free of moisture, dust, dirt, debris and foreign material.

.10 Make field seam samples in accordance with requirements of paragraph 2.1 on fragment pieces of geo-membrane and test to verify that seaming conditions are adequate.

.11 Test field seams as seaming work progresses by non-destructive methods over their full length. Repair seams which do not pass non-destructive test. Reconstruct seam between failed location and any passed test location, until non-destructive testing is successful.

.12 Repair minor tears and pinholes by patching until non-destructive testing is successful. Patches to be round or oval in shape, made of same geo-membrane material, and extend minimum of 75 mm beyond edge of defect.

3.2 GEOSYNTHETIC CLAY LINER INSTALLATION

.1 Installation as per the manufacturer's specification and directions.

3.3 CLEANING

.1 Remove construction debris from Project site and dispose of debris in an environmentally responsible and legal manner.

3.4 PROTECTION

.1 Do not permit vehicular traffic directly on membrane.

END OF SECTION

33

Part 1 General

1.1 SECTION INCLUDES

.1 Materials and installation for pipe culverts.

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 31 14 11 - Earthworks.

.3 Section 31 05 17 - Aggregate Materials.

1.3 MEASUREMENT PROCEDURES

.1 Measure supply and installation of pipe culvert in metres in place for each size, type and class of pipe.

1.4 REFERENCES

.1 American Society for Testing and Materials International, (ASTM)

.1 ASTM C117-95, Standard Test Method for Material Finer Than 0.075 mm Sieve in Mineral Aggregates by Washing.

.2 ASTM C136-01, Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates.

.3 ASTM D698-[00a], Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3)).

.4 ASTM D1248-[02], Standard Specification for Polyethylene Plastics Extrusion Materials For Wire and Cable.

.5 ASTM F667-[97], Standard Specification for Large Diameter Corrugated Polyethylene Pipe and Fittings.

.2 Canadian General Standards Board (CGSB)

.1 CAN/CGSB-8.1-88, Sieves, Testing, Woven Wire, Inch Series.

.2 CAN/CGSB-8.2-M88, Sieves, Testing, Woven Wire, Metric.

.3 Canadian Standards Association (CSA International)

.1 CSA-G401-01, Corrugated Steel Pipe Products.

1.5 SUBMITTALS

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

.2 Inform Engineer at least 4 weeks prior to beginning Work, of proposed source of bedding materials and provide access for sampling.

.3 Submit manufacturer's test data and certification at least 4 weeks prior to beginning Work.

.4 Certification to be marked on pipe.

1.6 DELIVERY, STORAGE AND HANDLING

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

Part 2 Products

2.1 CORRUGATED STEEL PIPE

.1 Corrugated steel pipe: to CSA-G401.

.2 Water-tight cut-off collars: as indicated.

.3 Prefabricated end sections: as indicated.

2.2 GRANULAR BEDDING AND BACKFILL

.1 Granular bedding and backfill material to Section 31 05 17 - Aggregate Materials and following requirements:

.1 Crushed pit run or screened stone, gravel or sand.

Part 3 Execution

3.1 TRENCHING

.1 Do trenching Work in accordance with Section 31 14 11 - Earthworks.

.2 Obtain Engineer's approval of trench line and depth prior to placing bedding material or pipe.

3.2 BEDDING

.1 Dewater excavation, as necessary, to allow placement of culvert bedding in dry condition.

.2 Place minimum thickness of 200 mm of approved granular material on bottom of excavation and compact to minimum 95% maximum density to ASTM D 698.

.3 Shape bedding to fit lower segment of pipe exterior so that width of at least 50% of pipe diameter is in close contact with bedding and to camber as indicated or as directed by Engineer, free from sags or high points.

.4 Place bedding in unfrozen condition.

3.3 LAYING CORRUGATED STEEL PIPE CULVERTS

.1 Commence pipe placing at downstream end.

.2 Ensure bottom of pipe is in contact with shaped bed or compacted fill throughout its length.

.3 Lay pipe with outside circumferential laps facing upstream and longitudinal laps or seams at side or quarter points.

.4 Lay paved invert or partially lined pipe with longitudinal centre line of paved segment coinciding with flow line.

.5 Do not allow water to flow through pipes during construction except as permitted by Engineer.

3.4 JOINTS: CORRUGATED STEEL CULVERTS

.1 Corrugated steel pipe:

.1 Match corrugations or indentations of coupler with pipe sections before tightening.

.2 Tap couplers firmly as they are being tightened, to take up slack and ensure snug fit.

.3 Insert and tighten bolts.

.4 Repair spots where damage has occurred to spelter coating by applying two coats of asphalt paint approved by Engineer or two coats of zinc rich epoxy paint.

.2 Structural plate:

.1 Erect in final position by connecting plates with bolts at longitudinal and circumferential seams.

.2 Drift pins may be used to facilitate matching of holes.

.3 Place plates in sequence recommended by manufacturer with joints staggered so that not more than three plates come together at any one point.

.4 Draw bolts up tight, without overstress, before beginning backfill.

.5 Repair spots where damage has occurred to spelter coating by applying two coats of asphalt paint or two coats of zinc rich epoxy paint approved by Engineer.

3.5 BACKFILLING

.1 Backfill around and over culverts as indicated or as directed by Engineer.

.2 Place granular backfill material, in 150 mm layers to full width, alternately on each side of culvert, so as not to displace it laterally or vertically.

.3 Compact each layer to 95% maximum density to ASTM D 698 taking special care to obtain required density under haunches.

.4 Protect installed culvert with minimum cover of compacted fill as indicated on the drawings before heavy equipment is permitted to cross. During construction, width of fill, at its top, to be at least twice diameter or span of pipe and with slopes not steeper than 1:2.

.5 Place backfill in unfrozen condition.

END OF SECTION

Part 1 General

1.1 SECTION INCLUDES

.1 Materials and installation for constructing sub-drains (leachate collection system).

1.2 RELATED SECTIONS

.1 Section 01 33 00 - Submittal Procedures.

.2 Section 31 14 11 - Earthworks.

.3 Section 31 05 17 - Aggregate Materials.

1.3 MEASUREMENT PROCEDURES

.1 Supply and installation of pipe sub-drains will be measured in metres of each type and size installed of actual length in place.

1.4 REFERENCES

.1 Canadian Standards Association (CSA International)

.1 CSA B1800-[02], Plastic Non-pressure Pipe Compendium - B1800 Series (Consists of B181.1, B181.2, B181.3, B181.5, B182.1, B182.2, B182.4, B182.6, B182.7, B182.8 and B182.11).

.1 CSA B182.1-02, Plastic Drain and Sewer Pipe and Pipe Fittings.

1.5 SUBMITTALS

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

.2 Inform Engineer of proposed source of bedding and filter materials and provide access for sampling at least 4 weeks prior to commencing work.

.3 Submit manufacturer's test data and certification that drain pipe materials meet requirements of this Section at least 4 weeks prior to beginning Work.

.4 Certification to be marked on pipe.

1.6 WASTE MANAGEMENT AND DISPOSAL

.1 Remove from site and dispose of packaging materials at appropriate recycling facilities.

Part 2 Products

2.1 MATERIALS

.1 Perforated plastic pipe and fittings: to CAN/CSA-B182.1.

.1 Pipe sizes as indicated on tender drawings.

.2 Granular filter material in accordance with Section 31 05 17 - Aggregate Materials

Part 3 Execution

3.1 TRENCHING

.1 Do excavating, trenching and backfilling in accordance with Section 31 14 11 – Earthworks.

.2 Place bedding material after approval of trench by Engineer.

3.2 BEDDING

.1 Place bedding material as indicated and compact to minimum 95% of corrected maximum dry density.

3.3 INSTALLATION OF LEACHATE COLLECTION SYSTEM

.1 Lay pipe drains on prepared bed, true to line and grade with inverts smooth and free of sags or high points.

.1 Ensure barrel of each pipe is in contact with bed throughout full length.

.2 Begin laying at outlet and proceed in upstream direction.

.3 Lay perforated pipes with perforations upwards at 2 o'clock and 10 o'clock positions.

.4 Make joints tight in accordance with manufacturer's instructions.

.5 Surround pipe with bedding gravel and compact as indicated.

.6 Do not place bedding surround and backfill materials in frozen condition.

.7 Protect sub-drains against flotation during installation.

END OF SECTION