



REQUEST FOR TENDERS No. 20-067

Sludge Storage Cell 3 Supply

ISSUED: November 20, 2020

CLOSING DATE AND TIME:

Tenders must be received on or before:
3:00 PM (15:00 hrs) Pacific Time on December 18, 2020

Regional District of Nanaimo Contact for Questions:

Scot Merriam, SRM Projects Ltd.

250-758-5352

smerriam@srmprojects.ca

Questions, or requested revisions to the form of contract, should be received at least ten (10) business days before the closing date.

Proponent's Information Meeting:

None



Instructions to Bidders

ARTICLE 1. Closing Date/Time/Location and Submission Requirements

Bidders must submit their TENDER on or before 3:00 PM (15:00 hrs), Pacific Time, December 18, 2020.

Submission Requirements:

Bidders must, at minimum, submit a completed Tender Form along with supporting information (reference lists and/or other materials) to facilitate Regional District of Nanaimo (RDN) tender evaluation, with reference to Article 11 "Award" below.

Tenders will be accepted by Email only: In PDF format with "Sludge Storage Cell 3 Supply" as the subject line to this electronic address:

smerriam@srmprojects.ca

The RDN will not be held responsible for any technological delays.

Tenders received by any other manner will not be accepted. Tenders will not be opened in public.

ARTICLE 2. Scope of Work

Tenders are invited from qualified and experienced firms to supply and deliver a fiberglass reinforced plastic (FRP) storage tank for the Sludge Storage Cell 3 Replacement project located at the French Creek Pollution Control Centre 957 Lee Road, Parksville, BC V9P 1Z4

Delivery of the Goods is expected to be required sometime between May 1, 2021 and June 30, 2021.

ARTICLE 3. Tender Documents

The Tender Documents referred to in this tender package include the following:

- (1) Request for Tenders, including the Supply Contractor's "Tender Form";
- (2) Standard Form Supply Contract Supply Agreement;
- (3) Standard Form Supply Contract General Conditions*

* Includes the specifications, the drawings, and the standards.

The Tenderer must carefully examine the Tender Documents. Should a Tenderer find discrepancies in, or omissions from the Tender Documents, or should they be in doubt as to their meaning, they should, prior to submitting their tender, notify the RDN contact person in writing. The Tenderer may not claim, after the submission of a tender, that there was any misunderstanding with respect to the conditions imposed by the documents.

No verbal agreement or conversation made or had at any time with any officer, agency or employee of the RDN shall affect or modify any of the terms or obligations herein stated or deemed to be any representation of warranty.

ARTICLE 4. Addenda

If the RDN determines that an amendment is required to this TENDER, the RDN will post an addendum on the RDN (www.rdn.bc.ca) and BC Bid websites (www.bcbid.gov.bc.ca). Each addendum will be incorporated into and become part of the TENDER. No amendment of any kind to the TENDER is effective unless it is contained in a written addendum issued by the RDN. It is the sole responsibility of the Proponent to check and ensure all addendums are included prior to submitting their final Tender submission.

ARTICLE 5. Tender Price

All pricing is to be in Canadian Dollars and is to include all transportation costs to the delivery point. Prices shall be filled in where indicated on the Tender Form. In the event of a price extension discrepancy when calculating the total contract value, the RDN reserves the right to correct the totals.

ARTICLE 6. Federal and Provincial Sales Taxes

GST and PST shall be shown separately on the Tender Form based on the total contract value.

ARTICLE 7. Tender Signing

The TENDER must be executed by an authorized signatory in a position to legally bind their Company to the information contained in the Tender Form.

ARTICLE 8. Revisions to Tenders

Any revision to the tender by the Tenderer must be in writing properly executed and received on or before the posted closing date and time as per the submission instructions outlined in Article 1.

ARTICLE 9. Tender Withdrawal

A Tenderer may, without prejudice to themselves, withdraw their TENDER on written request received on or before the posted closing date and time as per the submission instructions outlined in Article 1.

ARTICLE 10. Tender Rejection

- .1 The RDN reserves the right to reject any or all tenders or accept other than the lowest tender and to accept the tender which it deems most advantageous.
- .2 The RDN may reject a tender if:
 - a) After investigation and consideration, the RDN concludes that the Tenderer is not qualified to do the work and/or cannot do the work and perform the Contract in a manner satisfactory to the RDN.
 - b) A tender contains qualifying conditions or otherwise fails to conform to these Instructions to Tenderers.
 - c) A tender is incomplete, is considered incomplete in the Instructions to Tenderers, is obscure or irregular, which has erasures or corrections in the Tender Form or in which prices are omitted.
 - d) The RDN may, in its absolute discretion, reject a Tender submitted by Tenderer if the Tenderer, or any officer or director of the Tenderer is or has been engaged either directly or indirectly



through another corporation in a legal action against the RDN, its elected or appointed officers and employees in relation to:

- any other contract for works or services; or
- any matter arising from the RDN's exercise of its powers, duties, or functions under the Local Government Act or another enactment within five years of the date of this Call for Tenders.

In determining whether to reject a tender under this clause, the RDN will consider whether the litigation is likely to affect the Tenderer's ability to work with the RDN, its consultants and representatives and whether the RDN's experience with the Tenderer indicates that the RDN is likely to incur increased staff and legal costs in the administration of this contract if it is awarded to the Tenderer.

- .3 The RDN may reject all tenders if for any reason the RDN considers to be in its best interest to do so, including without limitation for any of the following reasons;
 - a) the lowest tender that the RDN considers otherwise acceptable is higher than the funds budgeted or otherwise available for the project;
 - b) the RDN decides not to proceed with the project or to defer the project;
 - c) if only one bid is received, then the tender may be reissued unless a financial analysis indicates that the sole bid represents a good value for the taxpayers ; or
 - d) the RDN is delayed in obtaining, or is unable to obtain, all approvals or consents it considers necessary, whether required by law or otherwise.
- .4 The RDN reserves the right to consider and to reject any tender or all tenders without notice to a Tenderer or Tenderers and without permitting a Tenderer to provide additional information.
- .5 In no event will the RDN be responsible for a Tenderer's costs of preparing or submitting a tender.

ARTICLE 11. Award

Awards shall be made on tenders that will give the greatest value to the RDN based on price, quality, warranty, and delivery time. The RDN shall be free to assess these criteria based solely on the information provided with tenders. The lowest, or any tender may not necessarily be accepted. The RDN will, following receipt of an acceptable tender, issue in writing a Notice of Intent to award to the successful Tenderer. Award is anticipated to be made within 30 days of tender closing.

ARTICLE 12. Form of Supply Contract

The Supply Agreement and General Conditions of the Contract are enclosed at the end of this document. Tenderers should carefully review this form of Contract. Tenderers may (but are not required to) request that RDN consider revisions to the form of Contract, including the scope of supply. Tenderers should submit such requests to the RDN well before the Closing Date and Time. If the RDN agrees to a request received prior to the Time, then RDN will issue an Addendum to modify the Supply Contract. Failure to do so by the Tenderer means acceptance of the RDN form of Contract as presented.

ARTICLE 13. No Claim for Compensation



Except as expressly and specifically permitted in these Instructions to Tenderers, no Tenderer shall have any claim for any compensation of any kind whatsoever, as a result of participating in the tender, and by submitting a bid each Tenderer shall be deemed to have agreed that it has no claim.

ARTICLE 14. Solicitation of Board Members

“If a member of the Board, or a person who was a member of the Board in the previous six months has a direct or indirect interest in the contract, then the Tenderer shall report this to the RDN in accordance with Section 107 of the *Community Charter* upon being notified of the award of the contract.

The Tenderer warrants and represents that it has not received any information or a record from any Board member or former Board member contrary to Section 108 of the *Community Charter*.” The successful Tenderer will be required to direct all communications related to their contract through the staff members responsible for the project.

ARTICLE 15. Freedom of Information and Protection of Privacy Act

All documents submitted to the RDN will be held in confidence by the RDN, subject to the provisions of the Province of British Columbia’s *Freedom of Information and Protection of Privacy Act*. All tenders become the property of the RDN. The successful vendor and value of the award is routinely released.

ARTICLE 16. Conflict Of Interest

The Tenderer declares that it has no financial interest, directly or indirectly in the business of any third party that would be or be seen to be a conflict of interest in carrying out the services. It warrants that neither it nor any of its officers or directors, or any employee with authority to bind the Tenderer, has any financial or personal relationship or affiliation with any elected official or employee of the RDN or their immediate families which might in any way be seen to create a conflict.

ARTICLE 17. Collusion

The Tenderer shall not engage in collusion of any sort and shall ensure that no person or other legal entity, other than the Tenderer has an interest in the TENDER. Tenderers shall prepare their TENDER without any knowledge of, comparison of figures with, or arrangement with any other person or firm preparing a tender for the same work.



TENDER FORM
20-067 Sludge Storage Cell 3 Supply
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Date: _____

Company Name: _____

Address: _____

Telephone: _____ Email: _____

To: Regional District of Nanaimo
 C/O Scot Merriam, SRM Projects Ltd.
 smerriam@srmprojects.ca

Having examined the Tender Documents, including any addenda, and having reviewed and complied with the Instructions to Bidders, we hereby offer to supply the Goods set forth in the aforesaid documents for the Stipulated Contract Price. Prices include the Supply Contractor's labour, material, equipment, material costs, transportation costs, overhead and profit and shall represent the cost to the Regional District of Nanaimo (RDN) of such charges excluding taxes which shall be shown separately.

Lump Sum Total \$ _____

PST (7%) \$ _____

GST (5%) \$ _____

Total Stipulated Contract Price \$ _____

WARRANTY DESCRIPTION

DELIVERY (DDP Delivery Point) weeks from receipt of order



UNLOADING MASS (kg, not including shipping saddles or cradles)

Tank only

Ladder, handrailing, support brackets and other loose items

ACCEPTANCE

- .1 The tender is open to acceptance for a period of sixty (60) calendar days from the date of bid closing.
- .2 We understand that the lowest or any Bid will not necessarily be accepted. The Owner may also elect not to proceed with the Project.
- .3 The RDN reserves the right to waive minor defects or irregularities in tenders.

Company: _____

Signature: _____
(Authorized Officer)

Printed: _____
(Authorized Officer)

BETWEEN: _____ (the "Supply Contractor")

AND: Regional District of Nanaimo (the "Corporation")

THIS AGREEMENT WITNESSES that the Supply Contractor and the Corporation agree as follows:

1. The Supply Contractor shall provide all labour, Supply Contractor's Plant and Equipment and materials required to supply the Goods within the required time, as required by the Contract Documents further defined in the Standard Form Supply Contract General Conditions.
2. The Corporation shall pay the Supply Contractor the Contract Price, as required by the Contract Documents.
3. The Contract Price shall be the sum in Canadian Dollars of the following:
 - (a) \$ _____, and
 - (b) any payments made on account of changes, as may be required by the Contract Documents.

The Contract Price shall be the entire compensation owing to the Supply Contractor by the Corporation for the Goods and shall cover and include necessary costs including but not limited to all supervision, labour, materials, Supply Contractor's Plant and Equipment, overhead, profit, financing costs, duty, shipping charges, fabrication and finishing, conveyance and delivery, packing, crating, freight, cartage, off-loading, drafting charges, tariffs, warranty and all other costs and expenses whatsoever incurred in supplying the Goods.

Except for the amounts which the RDN in good faith is disputing and except for any set off which the RDN may claim and except for invoices (or portions of invoices) in respect of which the RDN has requested and not received supporting evidence, the RDN shall pay invoices submitted to it for the Goods, within 30 days' receipt thereof.

4. Payment terms for the Goods shall be as follows:
 - (a) ___% of the Contract Price upon completion of certified shop drawings;
 - (b) ___% of the Contract Price upon receipt of all materials required for fabrication;
 - (c) ___% of the Contract Price upon shipping;
 - (d) 10% of the Contract Price upon delivery and acceptance to the Delivery Point.

5. The Supply Contractor shall supply all Goods to the Delivery Point on the date requested and confirmed by the Corporation, with one week notice. For scheduling purposes, this date will be XX weeks (*TBC depending on quoted delivery time*) from the date of the Supply Contract, plus or minus two weeks.
6. The Contract Documents shall form a part of this Agreement as though recited in full.
7. The Contract supersedes all prior negotiations, representations, or agreements, whether written or oral and is the entire agreement between the Corporation and the Supply Contractor with respect to the subject matter of this Agreement.
8. The Supply Contractor shall not assign the Contract, or any portion of the Contract, or any payments due or to become due under the Contract, without the express written consent of the Corporation which will not be unreasonably withheld.
9. No action or failure to act by the Corporation or an authorized representative of the Corporation shall constitute a waiver of any right or duty afforded any of them under the Contract or constitute an approval or acquiescence in any breach thereunder, except as may be specifically agreed in writing.
10. This Agreement shall enure to the benefit of and be binding upon the Corporation and the Supply Contractor and their respective heirs, executors, legal representatives, successors and permitted assigns. In the event of more than one person being the Supply Contractor, the grants, covenants, provisos and claims, rights, powers, privileges, and liabilities shall be construed and held to be several as well as joint.
11. Time shall be of the essence of this Agreement.
12. This Agreement may be executed in any number of counterparts, each of which will be deemed to be an original and all of which taken together will be deemed to constitute one and the same instrument. Delivery by electronic transmission in portable document format (PDF) of an executed counterpart of this Agreement is as effective as delivery of an originally executed counterpart of this Agreement.

IN WITNESS WHEREOF the parties hereto have executed this Agreement as follows:

REGIONAL DISTRICT OF NANAIMO

by its authorized signatory on _____ day of _____, 20__ (the date of Agreement):

SIGNED on behalf of the Corporation by:

Signature: _____

Name: _____

Title: _____

Signature: _____

Name: _____

Title: _____

[SUPPLY CONTRACTOR'S NAME]

by its authorized signatory on _____ day of _____, 20__ :

SIGNED on behalf of the Supply Contractor by:

Signature: _____

Name: _____

Title: _____

Signature: _____

Name: _____

Title: _____

GENERAL

1.1 DEFINITIONS

The following words and terms, unless the context otherwise requires, in all Contract Documents, shall have the meanings set out below. Words importing the male gender include the female gender and either includes the neuter and vice versa and words importing the singular number includes the plural number and vice versa.

"Addenda" means the supplemental written conditions issued prior to execution of the Agreement which modify or interpret the Contract Documents by addition, deletion, clarification, or corrections;

"Agreement" means the Standard Form Supply Contract Form of Agreement;

"Contract" means the agreement formed by the Corporation's acceptance of the Proposal for the supply and delivery of the Goods as set out in the Contract Documents;

"Contract Documents" means the following documents:

- (1) the executed Supply Agreement
- (2) the General Conditions
- (3) any Addenda (attached Schedule 1)
- (4) the Supply Contractor Tender Form (attached Schedule 2)
- (5) the original Supply Contractor Supporting Information, if any (attached Schedule 3)
- (6) the Specifications (attached Schedule 4)
- (7) the Drawings (attached Schedule 5)
- (8) the Standards (attached Schedule 6)
- (9) other relevant documents such as but not limited to letters of clarification and any reports or the like included by reference;

"Contract Price" has the meaning set out in the supply form of agreement;

"Corporation" means the Regional District of Nanaimo;

"Day" means calendar day;

"Delivery Date" has the meaning set out in the supply form of agreement;

"Delivery Point" means the French Creek Pollution Control Centre at 957 Lee Road, Parksville, BC, Canada V9P 1Z4;

"Goods" means all material and non-material things to be provided by the Supply Contractor under the terms of the Contract;

"Person" includes an individual, corporation, partnership, and joint venture;

"Specifications" means that part of the Contract Documents consisting of general requirements and written descriptions of the technical features of materials, equipment, construction systems, standards and workmanship;

"Supply Contractor" means the person who or which execute the Agreement;

"Supply Contractor's Plant and Equipment" means the equipment, material, supplies and all other items (except labour) brought onto the Delivery Point by the Supply Contractor, but not to be incorporated in the Goods;

CONTRACT REQUIREMENTS

1.1.1 Successors' Obligations

The Contract shall enure to the benefit of and is binding upon not only the parties hereto but also their respective successors and permitted assigns.

1.1.2 Assignment of Contract

The Supply Contractor shall not assign the Contract in whole or in part, nor any payments due or to become due under the Contract without the prior written consent of the Corporation. No assignment of the Contract shall relieve the Supply Contractor from any obligation under the Contract or impose any liability on the Corporation. Involuntary assignment of the Contract as a result of, inter alia, bankruptcy, assignment of the Contract for the benefit of creditors or appointment of a receiver, or insolvency shall be deemed default under the Contract entitling the Corporation to terminate the Contract as hereinafter provided.

1.1.3 Waiver of Rights

Except as herein provided, no act or failure to act by the Supply Contractor or the Corporation at any time with respect to the exercise of any right or remedies conferred upon them under this Contract shall be deemed to be a waiver on the part of the Supply Contractor or the Corporation, as the case may be, of any of their rights or remedies. No waiver shall be effective except in writing. No waiver of one right or remedy shall act as a waiver of any other right or remedy or as a subsequent waiver of the same right or remedy.

1.1.4 Amendment of Contract Documents

The Contract Documents shall not be amended except as specifically agreed in writing signed by both the Corporation and the Supply Contractor.

1.2 LAWS, REGULATIONS AND PERMITS

1.2.1 The Contract shall be construed under and according to the laws of the Province of British Columbia and subject to an agreement to refer a dispute to mediation as per clause 2.3 Dispute Resolution. The parties agree to irrevocably attorn to the jurisdiction of the Courts of the Province of British Columbia.

1.2.2 The Supply Contractor shall give all notices required by law and shall comply with all laws, acts, ordinances, rules and regulations relating to or affecting the Goods. If any permits, authorizations, approvals or licences from any government or governmental agencies are necessary or desirable for the prosecution of the work they shall be obtained by the Supply Contractor at its expense, provided that the Supply Contractor shall not make application for any such permit, authorization, approval or licence without first obtaining the written consent of the Corporation.

1.2.3 **Patents, Royalties and Copyright**
The Supply Contractor shall pay all fees, royalties or claims for any patented invention, article, process or method that may be used upon or in a manner connected with the Goods or with the use of the Goods by the Corporation. Before final payment is made on the account of this Contract, the Supply Contractor shall, if requested by the Corporation, furnish acceptable proof of a proper release from all such fees or claims.

1.2.4 All references to money in the Contract Documents shall be interpreted as meaning lawful currency of Canada.

PART 2 CORPORATION-SUPPLY CONTRACTOR RELATIONS

2.1 AUTHORITY OF CORPORATION

2.1.1 Acceptability of Goods

The Corporation shall make the final determination of the acceptability of the Goods.

2.1.2 Appointment and Authority of Inspector

2.1.2.1 The Corporation may appoint an Inspector for the Goods at any time before or after award of the Contract. If the Corporation appoints an Inspector, the Inspector shall represent the Corporation, at any time during the supply process, up to and including the Delivery Point. The Inspector shall have the authority set out in the Contract Documents and such other authority as may be delegated in writing by the Corporation including but not limited to the following:

- (a) to make decisions regarding the Goods;
- (b) to make decisions regarding the manner of performance of the Goods;
- (c) to make determinations regarding deficiencies;

2.2 RESPONSIBILITIES OF THE SUPPLY CONTRACTOR

2.2.1 Attention to the Goods

The Supply Contractor shall diligently attend to the supply of the Goods so that they are delivered faithfully, expeditiously and in accordance with the Contract Documents.

2.2.2 Authorized Representative

The Supply Contractor shall advise the Corporation in writing of the name of the Supply Contractor's authorized representative.

2.2.3 Off-loading of Goods

The Supply Contractor shall provide all necessary instructions to ensure satisfactory off-loading of the Goods.

2.2.4 Shipment

The Supply Contractor shall properly package all Goods for safe shipment to the Delivery Point and a Notice of Shipment shall be sent by the Supply Contractor to the Corporation in advance of final delivery. The Notice of Shipment shall state the delivery date, the Purchase Order number, description of the goods, the Supply Contractor's name, and the carrier by which the shipment is being made. Clear title to the Equipment, free of all charges, liens and encumbrances shall pass to RDN when the Equipment(s) is received, inspected, deficiencies rectified, and accepted by the RDN at the

delivery point. Until such time as title of Equipment(s) is accepted by the RDN, the Supply Contractor shall be responsible for insurance claims related to the Equipment(s) and the RDN shall not be considered to have breached any Contract if there is a fire, damage or other cause which entitles an insurance company to seize or take possession of the Equipment or part thereof.

The passing of title to the RDN shall not affect any of the Dealer's obligations.

2.2.5 Errors and Omissions

If the Supply Contractor discovers that there are any errors or omissions in the Contract Documents, it shall immediately notify the Corporation in writing. The Corporation will review the matter and if it concludes that there is an error or omission, it shall determine the corrective actions to be taken and will advise the Supply Contractor accordingly. If the corrective work associated with an error or omission increases or decreases the amount of work called for in the Contract, the Corporation shall issue an appropriate change order. After discovery by the Supply Contractor of an error or omission in the Contract Documents any work thereafter performed by the Supply Contractor shall be done at its risk unless otherwise agreed by the Corporation.

2.3 DISPUTE RESOLUTION

2.3.1 Disputes

A dispute occurs between the Corporation and the Supply Contractor where there is a difference between the parties as to the interpretation, application, or administration of the Contract.

2.3.2 Dispute/Claim Resolution

- (1) All matters in dispute under this Agreement which is not first resolved between the parties acting reasonably may, with the concurrence of both the Regional District and the Supply Contractor be submitted to mediation to a single mediator appointed jointly by them.
- (2) No one shall be nominated to act as a mediator who is in any way financially interested in the business affairs of either the Regional District or the Supply Contractor.
- (3) If the parties cannot agree on the choice of a mediator, each party shall select a nominee and the nominees shall jointly appoint a mediator.

- (4) The mediation shall take place in Nanaimo, British Columbia, unless agreed otherwise. Parties will be responsible for their own costs.

PART 3 MATERIAL, EQUIPMENT AND WORKMANSHIP

3.1 GENERAL

The Goods shall be of the quality specified or better. All work related to the Contract Documents shall be done with equipment and workmanship of the best quality and description and by employment of properly skilled workers and in strict conformity with and as required by the Contract Documents. Materials and equipment shall be the product of suppliers or manufacturers of established good reputation, regularly engaged in the supply or manufacture of such materials or equipment.

3.2 DEMONSTRATION OF COMPLIANCE WITH CONTRACT REQUIREMENTS

3.2.1 Inspection

Inspections and testing shall not in any way relieve the Supply Contractor from any of its obligations or responsibilities under the Contract Documents, and shall not in any way prejudice or constitute a waiver of any rights or remedies of the Corporation or any guarantees, warranties or covenants in favour of the Corporation, and the Corporation shall be entitled to rely on the expertise and obligations of the Supply Contractor and its subcontractors and their consultants and engineers to the same extent as if such inspections and testing by the Corporation or any inspector or agent had not taken place.

If the Contract Documents, laws, ordinances, or any public regulatory authority requires parts of the Goods to be specially inspected, tested or approved, the Supply Contractor agrees that the Goods shall comply.

The Goods are subject to inspection and acceptance by the RDN within a reasonable time after receipt. The RDN will notify the Supply Contractor in writing of the rejection of any of the Goods which are not in accordance with the Contract Documents, and the Goods will be held subject to disposition by the Supply Contractor at the Supply Contractor's risk and subject to all charges accruing as a result of such rejection.

Notwithstanding any prior payment therefor, all Goods are subject to inspection and testing by the Corporation, at any time during the supply process, up to and including the Delivery Point.

3.2.2 Certification

The equipment must be certified by the Supply Contractor in accordance with the local authorities with jurisdiction. Where compliance of Goods, materials or equipment with the Contract Documents is not readily determinable through inspection and tests, the RDN may require that the Supply Contractor provide, at the Supply Contractor's expense, properly authenticated documents, certificates, or other satisfactory proof of compliance. These documents, certificates or other proof shall include performance characteristics, materials of construction and the physical or chemical characteristics of materials.

3.2.3 Electrical

Electrical products that plug into an electrical outlet must meet Canadian national safety standards and be certified by an accredited certification body such as CSA, cUL or cETL.

3.3 DEFECTIVE OR IMPROPER GOODS

3.3.1 Correction of Defective Goods

If upon inspection, testing or otherwise the Goods or any portion thereof are found to be non-conforming, unsatisfactory, defective, or inferior quality or workmanship, or fail to meet any guarantee of operating or other specifications contained herein, or any other requirements of the Contract Documents, then without prejudice to any other rights or remedies, the RDN may give notice of its dissatisfaction to the Supply Contractor in writing and the Supply Contractor shall immediately upon receipt of such notice do all things that are required to satisfy the RDN. If the Supply Contractor refuses or neglects to do all things that are required to satisfy the RDN within one week from the receipt of notice, the Corporation may employ some other person to do so and all expenses and costs consequent thereon or incidental thereto shall be charged to the Supply Contractor. The employment of such other person or the doing of the said work by the Corporation itself shall not affect the Supply Contractor's duties and liabilities hereunder or relieve the Supply Contractor from the performance and fulfilment of any or all of the Supply Contractor's warranties, covenants, undertakings, obligations and duties under the Contract.

3.3.2 If upon inspection, testing or otherwise the Goods or any portion thereof are found to be non-conforming, unsatisfactory, defective, or inferior quality or workmanship, or fail to meet any guarantee of operating or other specifications contained herein, or any other requirements of the Contract Documents, then without prejudice to any other rights or remedies, the

Corporation may return the Goods or any part thereof to the Supply Contractor at the Supply Contractor's sole cost and all amounts theretofore paid by the Corporation to the Supply Contractor on account of the Contract Price of such returned Goods, shall be repaid to the Corporation by the Supply Contractor. The Supply Contractor shall advise the Corporation in writing, where to return the Goods, and failing such advice from the Supply Contractor, the Supply Contractor agrees to accept the returned Goods at the Supply Contractor's registered office. Neither the inspection nor failure to make inspection, nor acceptance of Goods shall release the Supply Contractor from any warranties or other provisions of this Contract nor impair the Corporation's right to reject non-conforming Goods. The Corporation reserves the right even after it has paid for and accepted Goods to make a claim against the Supply Contractor on account of any Goods which do not prove to be satisfactory or are defective irrespective of the Corporation's failure to notify the Supply Contractor of a rejection of non-conforming Goods or revocation of acceptance thereof, or to specify with particularity any defect in non-conforming Goods after rejection or acceptance thereof.

3.3.3 Retention of Defective Goods

If in the opinion of the Corporation any portion of the Goods supplied under the Contract is defective or not in accordance with the Contract Documents and if the defect or imperfection in the same is not of sufficient magnitude or importance to make the Goods dangerous or undesirable, or if the removal of such Goods is impracticable, or will create conditions which are dangerous or undesirable, the Corporation shall have the right and authority to retain such Goods instead of requiring the defective or imperfect Goods to be removed and reconstructed, but the Corporation shall be entitled to make such deductions from the payments due or to become due to the Supply Contractor as are just and reasonable.

3.3.4 No Implied Approval

The fact that the Corporation has not disapproved of or rejected any part of the Goods shall not be deemed or be construed to be an acceptance of any such part of the Goods or any such materials.

3.4 WARRANTY AND GUARANTEE

3.4.1 The Supply Contractor agrees that the Goods manufacturer's standard warranty as outlined in the Supply Contractor's Proposal and is to the benefit of the Corporation and that the Goods are free from all defects arising from

faulty construction, manufacturing, materials, equipment or workmanship for the period of the Goods manufacturer's standard warranty period.

- 3.4.2 During the warranty period, the Supply Contractor, upon the receipt of notice in writing from the Corporation, shall promptly make all repairs arising out of the defects. The Corporation shall be entitled to make such repairs, if 10 Days after the giving of such notice to the Supply Contractor, the Supply Contractor has failed to make or undertake with due diligence the repairs. In case of an emergency, where, in the opinion of the Corporation, delay could cause serious loss or damage, or inconvenience to the public, repairs may be made without notice being sent to the Supply Contractor, only after all reasonable attempts have been made to contact the Supply Contractor. The costs of any repair made by the Corporation in connection with this clause shall be charged to the Supply Contractor and the Supply Contractor shall reimburse the Corporation for such costs. All covenants and agreements shall continue to be binding on the Supply Contractor until they have been fulfilled.
- 3.4.3 The Corporation is relying on Supply Contractor's skill and judgment in selecting and providing the proper Goods and any applicable services for the Corporation's particular use. The Supply Contractor warrants to the Corporation and its successors in interest that the Goods and any services covered hereby will correspond with the description of the same in the Contract Documents, will conform to all applicable Specifications, will be of the best quality and, unless otherwise specified, will be fit for the purpose for which they are to be used and will conform in all aspects, both in the manufacture and use thereof, with all applicable safety orders or regulations of the Province of British Columbia. The Supply Contractor also warrants that the Goods are free and clear of all liens and encumbrances whatsoever and that the Supply Contractor has a good and marketable title to the same.
- 3.4.4 The Supply Contractor warrants and guarantees that the Goods are free from all defects arising at any time from faulty design in any part of the Goods.
- 3.4.5 The Supply Contractor represents that it has read the contract terms and the Specifications and has satisfied itself that the Goods can be supplied in accordance with the Specifications free of defects and fit for the purpose for which they are to be used.
- 3.4.6 The warranty period shall commence once the RDN accepts clear title of the Equipment.
- 3.4.7 The warranty should be made out to the Regional District of Nanaimo, 6300 Hammond Bay Road, Nanaimo, B.C. V9T 6N2

PART 4 INDEMNIFICATION AND INSURANCE**4.1 INDEMNIFICATION AND RELEASE**

- 4.1.1 The Supply Contractor shall save harmless and indemnify the Corporation and its directors, officers, servants, employees and agents (the “Indemnified Parties”) from and against all actions, claims, demands, proceedings, suits, losses, damages, costs and expenses of whatsoever kind or nature (including but not limiting the generality of the foregoing, in respect of death, injury, loss or damage to any person or property) arising in any way out of or connected with the Goods or the supply, off-loading or delivery of the Goods by the Supply Contractor under this agreement, except to the proportionate extent that such actions, claims, demands, proceedings, suits, losses, damages, costs and expenses were caused by the Indemnified Parties or any of them.
- 4.1.2 Unless otherwise specified in the Contract, the Supply Contractor shall save harmless and indemnify the Indemnified Parties from and against all actions, claims, demands, proceedings, suits, losses, damages, costs and expenses of whatsoever kind or nature arising in any way from liability of any nature or kind for or on account of any copyrighted or uncopyrighted composition, secret or other process, patented or unpatented invention, articles or appliances manufactured, supplied or used in the Goods, and/or used or to be used by the Corporation before or after supply of the Goods as a result of work performed by the Supply Contractor, and if the Supply Contractor shall fail to save harmless and indemnify in manner aforesaid, any money collected from the Indemnified Parties shall be charged to the Supply Contractor.
- 4.1.3 The Supply Contractor shall release and discharge the Corporation and its directors, officers, servants, employees and agents (the “Released Parties”) from and against all actions, claims, demands, proceedings, suits, losses, damages, costs and expenses of whatsoever kind or nature (including but not limiting the generality of the foregoing, in respect of death, injury, loss or damage to any person or property) which the Supply Contractor or its servants or employees might have in any manner arising in any way out of or connected with the Goods or the supply, off-loading or delivery of the Goods by the Supply Contractor under this agreement except to the proportionate extent that such actions, claims, demands, proceedings, suits, losses, damages, costs and expenses were caused by the Released Parties or any of them.

- 4.1.4 The indemnity provided in this clause by the Supply Contractor to the Indemnified Parties shall not in any way be limited or restricted by any insurance or by limitations on the amount or type of damages, compensation or benefits payable under the Workers' Compensation Act or any other similar statute.

4.2 INSURANCE

4.2.1 General

The Supply Contractor and subcontractors shall provide at their own cost any insurance which they are required by law to provide or which they consider necessary to protect their own interests.

4.2.2 Indemnity Not Restricted by Insurance

The provisions for insurance shown above shall not in any way limit the indemnity granted by the Supply Contractor to the Indemnified Parties elsewhere in this section.

4.3 PATENT, TRADEMARK OR COPYRIGHT

- 4.3.1 The Supply Contractor represents that it has fully investigated all Specifications, including any furnished by the Corporation, in connection with the Goods and based on such investigation and its past experience and superior knowledge with respect to such Goods has determined that the production and supply thereof will not infringe any patent, trademark or copyright.

PART 5 SHIPMENT OF GOODS/DAMAGE TO GOODS

5.1 SHIPMENT OF GOODS

5.1.1 Delivery of Goods

The Supply Contractor must deliver the Goods to the Delivery Point. Delivery of the Goods to a carrier for transmission to the Delivery Site does not constitute delivery of the Goods to the Corporation. Any such carrier is deemed to be the Supply Contractor's agent and not the Corporation's agent.

5.1.2 Delivery Costs

The Supply Contractor is responsible for all costs and expenses whatsoever in relation to the supply and delivery of the Goods to the Delivery Point,

including without limitations, all shipping, carrier, transportation, freight, insurance, storage, handling and off-loading costs, as well as any customs or excise charges or duties.

5.1.3 Supply Contractor to Bear Risk

The Supply Contractor shall bear all risks and shall assume all responsibility for the Goods, including, without limitation, any loss or damage to the Goods from any cause whatsoever, up to and including the delivery at the Delivery Point.

5.1.4 Loss or Damage

If loss or damage to the Goods occurs for which the Supply Contractor is responsible, the Supply Contractor shall immediately effect repairs or replace any property as necessary to make good any such loss or damage. If the Supply Contractor refuses or neglects to do so, the Corporation may make good any such loss or damage, either by itself or by employing some other person, and the expense of doing so shall be charged to the Supply Contractor. If any repair or replacement of property is performed on the Goods as a result of loss or damage to the Goods for which the Supply Contractor is responsible the Supply Contractor represents and warrants that the warranty provided shall not be affected or changed to any manner or respect whatsoever.

5.1.5 Acceptance of Delivery of Goods by Corporation

Notwithstanding any other provision in the Contract Documents, the Corporation is not deemed to have accepted the Goods until the Goods have been delivered to and off-loaded at the Delivery Point and the Corporation has had a reasonable opportunity of examining them for the purpose of ascertaining whether they are in conformity with the Contract. The Corporation's acceptance or deemed acceptance of the Goods shall not prejudice any rights or remedies the Corporation may have hereunder relating to Goods that are found to be non-conforming, unsatisfactory, defective, of inferior quality or workmanship, or which fail to meet any specifications or requirements of the Contract Documents.

PART 6 PROGRESS AND COMPLETION**6.1 CONTRACT TIME****6.1.1 Prosecution of the Goods**

Time shall be strictly of the essence. The Supply Contractor shall supply the Goods in accordance with the Contract Documents. The Supply Contractor acknowledges that the schedule for supply of the Goods as set out in the Contract Documents is reasonable.

6.1.2 Schedule

The Supply Contractor shall provide a schedule and periodic updates co-ordinating the supply of Goods within the prescribed time. Contract time extensions, if any, shall be incorporated into updated schedules. The failure of the Supply Contractor to comply with this requirement may entitle the Corporation to terminate the Supply Contractor's right to continue with the supply of Goods or to delay progress payments.

6.2 TERMINATION

6.2.1 The Corporation may terminate the Contract if the Supply Contractor at any time becomes bankrupt, makes an assignment of his property for the benefit of his creditors, or if a receiver or liquidator should be appointed. Such termination shall be effective upon the Corporation giving notice thereof.

6.2.2 The Corporation may terminate the Contract if at any time the Corporation forms the opinion that the Supply Contractor is in default under this Contract because the Supply Contractor:

- (1) has breached a fundamental term of the Contract or is in substantial breach of the terms of the Contract;
- (2) has failed to supply the Goods, within the time specified in the Contract Documents or extensions mutually agreed between the parties in writing;
- (3) has failed or is failing to furnish or to maintain a detailed schedule;
- (4) has become in any way unable to supply the Goods or any part thereof;
- (5) has repeatedly failed to make prompt payments to subcontractors, suppliers or others for labour, materials or equipment; then the

Corporation may give notice in writing to the Supply Contractor of such opinion and require that such default or defaults be remedied forthwith. If, within five Days of such notice, such default or defaults are not remedied to the satisfaction of the Corporation, the Corporation may terminate the Contract. Such termination shall be effective immediately.

- 6.2.3 The Corporation may terminate the Agreement, without any cost or penalty or consequence whatsoever, if it concludes, acting reasonably on the information available to it, that the Contractor is in material non-compliance with, or has been convicted of a material offence or violation of, health, safety, labour or environmental laws.

6.3 NO CLAIM

Except as herein before provided, the Supply Contractor shall have no claim against the Corporation for any reason whatsoever by reason of the termination of the Contract.

PART 7 PAYMENT

7.1 PAYMENTS TO SUPPLY CONTRACTOR

- 7.1.1 Payments to the Supply Contractor will be made as per the Supply Agreement
- 7.1.2 Notwithstanding Clause 7.1.1 the Corporation may withhold from payment:
- (2) Any deduction the Corporation may be entitled to under the Contract;
 - (3) Such reasonable amount as the Corporation determines appropriate with respect to any part of the goods otherwise not in compliance with the Contract Documents.
- 7.1.3 Payments may be withheld until the relevant operating manuals and all operating and maintenance materials together with all warranties have been delivered to the Corporation.
- 7.1.4 In addition to any other remedy the Corporation may have in the Contract or law, the Corporation may refuse to make payment because of subsequently discovered evidence or test results, and shall be compensated for any payment previously made to the Supply Contractor to such extent as may be necessary to protect the Corporation from loss as a result of:
- (1) Defective or damaged Goods;

- (2) A deductive change order;
- (3) Failure of the Supply Contractor to supply the Goods in accordance with the Contract Documents, including failure to maintain the supply of the Goods in accordance with the schedule;
- (4) Disregard by the Supply Contractor of the authority of the laws of any public body having jurisdiction.

The Corporation may refuse to make payment of the full amount because of claims made against the Corporation on account of the Supply Contractor's performance or supply of Goods. In such case, the Corporation shall give the Supply Contractor prompt written notice stating the reasons for each action.

7.1.5 The Corporation may withhold from payment to the Supply Contractor:

- (1) Any set-off the Corporation may be entitled to under the Contract;
- (2) The amount of any bona fide builder's lien claim asserted against the Corporation or which the Corporation acting reasonably anticipates will be made against the Corporation.

7.1.6 Prior to payment to the Supply Contractor, if requested by the Corporation, the Supply Contractor shall deliver to the Corporation a statutory declaration in form satisfactory to the Corporation declaring that all subcontractors, labour and accounts for material and equipment have been paid and that no persons, firms or corporations have any lien against the lands comprising the Delivery Point or the work together with such other documentation as the Corporation, acting reasonably, determines is necessary or desirable.

SCHEDULE 1 – ADDENDA

SAMPLE

SCHEDULE 2 – SUPPLY CONTRACTOR TENDER FORM

SAMPLE

SCHEDULE 3 – SUPPLY CONTRACTOR SUPPORTING INFORMATION

SAMPLE

SCHEDULE 4 - SPECIFICATIONS

Title	Ref.No.	Date	Rev
Fabrication Specification for FRP Tanks for Atmospheric Pressure Service	SP-0003	15Oct2020	0
Sludge Storage Cell 3 Design Criteria	NA	3Nov2020	1

SAMPLE

 REGIONAL DISTRICT OF NANAIMO	Fabrication Specification for FRP Tanks for Atmospheric Pressure Service	Date: October 15, 2020 Revision: 0 Ref. No: SP-0003
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1. General

- 1.1. This companion specification applies to shop fabrication of fiberglass reinforced plastic (FRP) tanks.
- 1.2. In conjunction with the codes and standards listed below, this specification establishes the minimum general requirements for design, materials, fabrication and testing of FRP tanks used in Regional District of Nanaimo wastewater facilities.
- 1.3. Atmospheric pressure service is defined as atmospheric pressure +/- up to 355.6 mm (14 in.) of water column pressure.
- 1.4. Any exceptions taken to the requirements of this specification must be reported to Regional District of Nanaimo for resolution at, or before, the time of quotation.
- 1.5. Any deviations from any part of this specification must be authorized in writing by Regional District of Nanaimo.
- 1.6. The manufacturer shall submit detail shop drawings to Regional District of Nanaimo for review and approval before commencing tank production work.
- 1.7. Subcontracting of any tank fabrication is not allowed without approval from Regional District of Nanaimo.

2. Codes and Standards

- 2.1. Unless otherwise required by this specification or specific design requirements, the materials, design, fabrication, erection and testing shall be in accordance with the latest edition, including addenda, of the following standards:
 - **ASTM D 3299 “Standard Specification for Filament-Wound Glass-Fiber-Reinforced Thermoset Resin Corrosion-Resistant Tanks”**
 - **British Columbia Building Code**
 - **National Building Code of Canada**
- 2.2. Where the requirements of this fabrication specification are more stringent than the codes and standards listed above, this fabrication specification shall prevail.
- 2.3. Local codes and standards having jurisdiction over any part of the work covered in this specification, but not listed above, shall apply if they are more stringent than the requirements of this specification and the international codes and standards listed above.
- 2.4. All specifications and standards used shall be the latest edition.

3. Materials

- 3.1. The resin(s) used for tank construction shall be those specified on the Regional District of Nanaimo purchase order.
- 3.2. The tank process-side corrosion liner shall be more resilient than the structural laminate, to increase impact resistance and to prevent the occurrence of stress cracks. Unless otherwise agreed in writing by the Regional District of Nanaimo, the corrosion liner resin shall have a minimum elongation of 4% before rupturing, a minimum tensile strength of 62.1 MPa (9,000 psi) and heat distortion temperature lower than 93.3 C (200 F). Agents use for increasing the flexibility of the corrosion liner resin shall be approved by the resin manufacturer and shall not impair the chemical resistance of the resin.

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3.3. Where not specified, the following primer resins shall be used, in order of preference, for attaching polyvinyl chloride (PVC) tank piping connections to FRP tanks:

Manufacturer	Designation
Ineos Composites	AROPOL LB 1170-49 HV
Ineos Composites	Derekane 8084

- 3.4. The resin cure systems (catalyst and promoters) shall be as specified or recommended by the resin manufacturer.
- 3.5. When resin has been supplied by its manufacturer with optimum monomer content for normal use, styrene or other monomer shall not be added, except for minor adjustments of viscosity. Such additions shall not normally be more than 5% by weight, and shall be consistent with the resin manufacturer's recommendations.
- 3.6. The tank resin(s) may contain thixotropic agents as required for viscosity control to a maximum of 3% by weight with prior agreement from the Regional District of Nanaimo.
- 3.7. For weathering resistance, ultraviolet (UV) light absorber agents or pigment shall be added to the tank exterior surface resin(s), or the tank shall be covered with a compatible UV resistant paint coating, as specified on the Regional District of Nanaimo purchase order.
- 3.8. Fire retardant agents, such as 3% - 5% antimony trioxide, shall be added to the tank structural resin(s) as specified on the Regional District of Nanaimo purchase order.
- 3.9. The tank and nozzle process-side corrosion liner reinforcing material (chopped strand mat and C-glass or synthetic Nexus® or other surface veil) shall be as specified on the Regional District of Nanaimo purchase order and if not specified, shall be as described in ASTM D 3299.
- 3.10. Glass reinforcing materials shall be protected from moisture at all times. Material on which moisture can be detected, or which are under suspicion of either being damp or being previously damp, may not be used for FRP fabrication.
- 3.11. Copies of resin barrel and fiberglass package labels (with lot number) are to be submitted to the Regional District of Nanaimo, who will approve all materials before tank production begins. The materials of construction will be later verified by a Regional District of Nanaimo representative, during a fabrication shop visit.
- 3.12. Tank structural attachment appurtenances, such as anchor bolt lugs, lifting lugs, or ladder, platform or hand railing lugs/sockets, shall be made from 304 or 316 stainless steel.
- 3.13. Tank non-structural appurtenances, such as hand railing, shall be made from FRP, hot-dip galvanized carbon steel, or other material as specified on the Regional District of Nanaimo drawings.
- 3.14. Vanstone backup pipe flanges shall be epoxy coated ductile cast iron, matching the piping pressure class of the mating nozzle, unless indicated otherwise on the Regional District of Nanaimo drawings.
- 3.15. All materials shall be new and free of contaminants or foreign material. No material of unidentified origin is to be used, unless approved in writing by Regional District of Nanaimo.
- 3.16. All material substitutions must be approved in writing by Regional District of Nanaimo.

 REGIONAL DISTRICT OF NANAIMO	Fabrication Specification for FRP Tanks for Atmospheric Pressure Service	Date: October 15, 2020 Revision: 0 Ref. No: SP-0003
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4. Design

- 4.1. Design shall be performed by a registered professional engineer (the Engineer) qualified for FRP tank design by education and experience. The Engineer shall be employed by, or engaged by the manufacturer.
- 4.2. The manufacturer and his Engineer shall be responsible for design to the requirements of this specification and those of ASTM D 3299 classification Type I or Type II, and Grade I or Grade II, as appropriate for the service.
- 4.3. The cylindrical tank shell shall be continuous filament wound. Contact molding may only be used for joints, and fabricating heads, nozzles and supports.
- 4.4. The winding angle for filament wound laminates shall be selected by the manufacturer to obtain the required hoop and longitudinal properties. The winding angle shall be between 45 degrees and 70 degrees off the axis of the winding mold. Note that this clause exceeds the requirements of ASTM D 3299.
- 4.5. Atmospheric pressure tanks shall be vented according to ASTM D 3299 classification Type I or Type II, based on the design criteria specified on the Regional District of Nanaimo drawings.
- 4.6. Shell, bottom and roof thicknesses shall be specified on the manufacturer's shop drawings.
- 4.7. The tank and nozzle process-side corrosion liner system (chopped strand mat and C-glass or synthetic Nexus® or other surface veil) and number of layers shall be as specified on the Regional District of Nanaimo purchase order and if not specified, shall be as described in ASTM D 3299.
- 4.8. Unless indicated otherwise on the Regional District of Nanaimo purchase order, the process-side corrosion liner system shall not be considered to be structural for hoop design, as per ASTM D 3299 Severe Service.
- 4.9. Where access platform(s) are not specified, tank roofs that will be, or may be subject to, personnel foot traffic must be coated with a coarse non-skid coating.

5. Tank Nozzles and Other Appurtenances

- 5.1. Tank nozzles and other appurtenances shall be included as shown on the Regional District of Nanaimo tank drawings.
- 5.2. Unless specified otherwise by Regional District of Nanaimo, all tank nozzles shall be installed by the manufacturer. *If specified by Regional District of Nanaimo*, nozzles designed to be connected to existing pumps or other heavy equipment shall be shipped loose with their joint kits for field installation. They shall be 3" longer for field trimming. The same applies to all nozzles shipped loose to avoid exceeding shipping clearances.
- 5.3. Flanges shall be Vanstone with backup ring, unless noted otherwise on the Regional District of Nanaimo drawings.
- 5.4. A minimum of three lifting lugs, designed for the dry tank weight and installer's rigging method, shall be installed unless otherwise specified.
- 5.5. Ladders, hand railing and toe-boards, if specified on the Regional District of Nanaimo drawings, shall conform to the requirements of the building codes referenced in section 2 and the requirements of Worksafe BC.

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- 5.6. Ladders, hand railing and platforms, if specified on the Regional District of Nanaimo drawings, shall be removable. They shall be pre-fitted and removed for shipping, with attachment hardware, for later installation at site.
- 5.7. All loose tank appurtenances shall be identification marked.
- 5.8. A durable label shall be attached to the tank in a location easily visible from the supporting surface. In addition to the information listed in ASTM D 3299 section 12.1, the label shall include the Regional District of Nanaimo tank name and equipment number.

6. Tolerances

- 6.1. The tank floor shall be flat as described in ASTM D 3299 section 6.3.2.4 unless otherwise specified in the drawings.
- 6.2. The tolerance on the inside diameter of an empty tank shall not exceed +/- 1% of the nominal diameter.
- 6.3. Where employed, shell taper shall not exceed ½ degree per side and shall be additive to the inside diameter tolerance, unless specified otherwise by the Regional District of Nanaimo.
- 6.4. The variation in height of a tank shall not exceed +/- ¼% of height shown on drawing or +/- ½", whichever is less.
- 6.5. Tank nozzle location tolerance shall not exceed +/- 1/8".
- 6.6. Maximum out of plumbness shall be less than +/- of 1% of total height.

7. Pre-Job Quality Meeting

- 7.1. It is the responsibility of the manufacturer to arrange a pre-job quality between their production supervisor, a Regional District of Nanaimo representative, and any NDE/NDT personnel involved. The fabrication specification and quality requirements shall be reviewed and clarified. This meeting must be held before any tank production work begins.
- 7.2. The above requirements also apply to any Sub-contractor that has been approved by the Regional District of Nanaimo.

8. Fabrication

- 8.1. For hand lay-up laminates, alternate layers of chopped strand mat and woven roving shall be added until the required number of layers has been applied or the required wall thickness has been obtained. The exterior of all hand lay-up laminates shall consist of a chopped strand mat layer. Mat and woven rovings shall be lapped a minimum of 25 mm (1 in.). All overlaps shall be offset at least 60 mm (2.25 in.) from those in previous layers. Note that this clause exceeds the requirements of ASTM D 3299.
- 8.2. Filament wound structural laminates shall be constructed by saturating continuous rovings in a resin bath and then winding these rovings in a controlled pattern on a suitable mold. The rovings shall be applied at an angle to the axis of the mold as specified on the manufacturer's drawings. The winding angle shall be uniform throughout the entire length and thickness of the structural laminate.
- 8.3. Whenever possible, glass reinforcing materials shall be placed into a layer of liquid resin applied to a mold or to laminate already cured or on a mold. The resin shall then be worked with suitable rollers through the material from below its surface.

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- 8.4. All laminate surfaces not in contact with molds shall be coated with “Air cure” paraffin wax coating to prevent air-inhibition of the exposed resin surfaces. This coating shall be applied during the final stages of laminating work or during the initial cure of the laminate, before the exotherm (heat of curing) develops. If this coating is applied after the underlying laminate exotherms have dissipated, heat shall be applied in a suitable manner to fully cure this thin resin coat.
- 8.5. The cured resin surfaces of FRP parts to be joined shall be cleaned of parting agents, waxes, curing films, oil, grease or other contaminants, using acetone or other compatible solvent, and shall be roughened using 36 or coarser abrasive grit media to expose glass fibers. This roughened area shall extend beyond the joint lay-up areas so that no reinforcement is applied to an unprepared surface.
- 8.6. The smooth surface of all PVC tank piping connections to be embedded or otherwise attached to the tank shall be roughened using 120 – 150 abrasive grit media, washed with acetone and primed with a resin listed in section 3.3 above before application of attachment lay-ups on the cured primer.
- 8.7. The tank process-side corrosion liner shall be cured without being exposed to air. Liners fabricated on molds are preferred.
- 8.8. Where the process-side corrosion liner is fabricated first in an FRP laminate sequence, its initial cure shall be completed and it shall have cooled off to below 37.8 C (100 F) before additional FRP laminates may be applied.
- 8.9. The exposed, cured surface of the process-side corrosion liner shall be free of cracks and crazing and shall have a smooth surface with an average of not more than 21 pits/m², with maximum pit size 3.2 mm (0.125 in.) diameter by 0.8 mm (0.03125 in.) deep.
- 8.10. Cut edges of laminates to be butt-jointed shall be sealed with a brush-coat of plain resin without “air cure” paraffin wax coating.
- 8.11. Butt joints shall be fitted with a maximum gap of ½ the laminate thickness or 6.3 mm (0.25 in.), whichever is less. This gap shall be filled with resin paste, which shall not protrude on either side of the joint, before application of joint lay-ups.
- 8.12. Differences in butt joint laminate thickness shall either be ground down to a 10:1 slope or be built up with chopped strand mat laminate. Resin paste shall not be used for filling low spots when butt joint laminate thickness differs.
- 8.13. Cut edges of laminates not to be butt-jointed shall be sealed with a brush-coat of resin with “air cure” paraffin wax coating.
- 8.14. The degree of cure of FRP laminates shall be such as to exhibit a Barcol hardness on the surface of at least 90% of the resin manufacturer’s minimum specified hardness for the cured resin, as specified in ASTM D 3299.

9. Inspection and Tests

- 9.1. Inspection by Regional District of Nanaimo or their designated inspectors (the Inspector) does not relieve the manufacturer of responsibility for providing materials, components and workmanship in accordance with the requirements of this specification and the applicable codes and standards.
- 9.2. The Inspector shall have free access to the manufacturer’s, and any approved subcontractor’s facilities, at all reasonable times.
- 9.3. The Inspector is at liberty to inspect work at any stage of manufacture and to reject any material or workmanship that does not conform to this specification or applicable codes.

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- 9.4. Barcol hardness of cured FRP laminates will be checked by the Inspector periodically through the fabrication process to ensure proper curing. The degree of curing shall be as specified in ASTM D 3299.
- 9.5. The tank shall be hydrostatically tested. The Inspector, or other Regional District of Nanaimo representative, shall witness the test.
- 9.6. Other tests, as outlined in ASTM D 3299 section 11, may be completed at the discretion of the Inspector.
- 9.7. Costs for the inspection and testing listed above shall be borne by Regional District of Nanaimo except as noted in section 8 below.

10. Nonconformance

- 10.1. All fabrication which does not meet the requirements of this specification shall be repaired by the manufacturer.
- 10.2. Where repairs are not practicable, or where repairs do not meet the requirements of this specification, the manufacturer shall replace the defective part.
- 10.3. Costs for all repairs, replacement and inspection of these, using means described in section 7 above, shall be borne by the manufacturer.

11. Shipping

- 11.1. Tank shipping shall be governed by ASTM D 3299 section 14.

FCPCC Maintenance Job: RAE13 – Sludge Storage Cell 3 Renewal
Sludge Storage Cell 3 Design Criteria – November 3, 2020 – Rev 1

General Criteria	Description		
Fluid stored	Aerobically digested municipal wastewater sludge (water + solids), primary and secondary blend (process nomenclature TWAS or PS)		
Trace elements/compounds:	Numerous – known elements and compounds listed on page 2; with concentration if known. Elements and compounds with unknown concentration are listed in descending order of concentration. <i>Note: FCPCC sludge meets the requirements for Class A biosolids outlined in the BC Organic Matter Recycling Regulation.</i>		
Tank location	Outside, southwest side of existing FCPCC		
Tank appurtenances/nozzles	As shown on ACL tank data sheet		
Tank insulation	None required		
Tank colour	Leaf Green – RAL 6002		
Reference design code	ASTM D3299		
Corrosion protection system	Passive; select tank material and corrosion allowance to resist service conditions for 40 year life		
Tank foundation	Concrete		
Tank anchoring	Seismic/wind to meet BCBC/NBCC		
Tank agitation	Compressed air only, injected in two places at tank bottom		
Tank nameplate	Required		
Dimensional Criteria	Design*	Minimum	Maximum
Storage volume (litres)	64,000	64,000	100,000
Fluid specific gravity	1.01	1.007	1.012
Fluid vapour pressure (kPa)	Not available	Not available	Not available
Tank internal pressure (kPa)	Hydrostatic + atmospheric	Hydrostatic + atmospheric	Hydrostatic + atmospheric
Tank external pressure (kPa)	Atmospheric	Atmospheric	Atmospheric
Fluid temperature (deg. C)	65	60	70
Fluid solids (% by weight)	3.2	1.5	4.5
Fluid % water	See page 2	Not available	Not available
Fluid pH	8.2	Not available	Not available
Chloride content (mg/l)	1,733	1,300	2,000
* Based on current plant averages or current plant dimensions			

Sludge Trace Elements and Compounds

Trace Elements (from 2019 FCPCC Annual Report)

FCPCC Biosolids				
Parameter	Unit	29-Jan	1-Aug	Average
TOTAL SOLIDS	%	31.1	31.9	31.5
VOLATILE SOLIDS	%	71.6	71.4	71.5
MOISTURE	%	69	68	69
TOTAL KJELDAHL NITROGEN	% dry wt.	6.80	6.40	6.60
ARSENIC (T)	µg/g	1.83	4.70	3.27
CADMIUM (T)	µg/g	1.48	2.62	2.05
CHROMIUM (T)	µg/g	27.6	48	37.9
COBALT (T)	µg/g	2.53	2.49	2.51
COPPER (T)	µg/g	648	948	798
IRON (T)	µg/g	39,200	58,400	48,800
LEAD (T)	µg/g	14.5	24.1	19.3
MERCURY (T)	µg/g	0.686	0.909	0.798
MOLYBDENUM (T)	µg/g	4.18	4.93	4.56
NICKEL (T)	µg/g	11.6	16.7	14.2
PHOSPHOROUS (T)	µg/g	21,900	35,300	28,600
POTASSIUM (T)	µg/g	809	1,120	965
SELENIUM (T)	µg/g	3.30	5.01	4.16
ZINC (T)	µg/g	821	1,680	1,250

Trace Compounds

Compound	Concentration
Ferrous Chloride (SDS attached)	0.04 millilitres per litre of influent wastewater, 10 MLD influent wastewater flow yields 120,000 LPD sludge flow
Cationic water-soluble polymer in emulsion – Clearfloc CE 4050 (SDS attached)	0.12 millilitres polymer per litre sludge flow
Dimethylsulfide	Actual concentration not known
Methanethiol	Actual concentration not known
Alpha-Pinene	Actual concentration not known
Hydrogen Sulphide	Actual concentration not known
Benzene	Actual concentration not known
Toluene	Actual concentration not known
Styrene	Actual concentration not known
Ethylbenzene	Actual concentration not known
Dimethylamine	Actual concentration not known
Sesquiterpenes	Actual concentration not known

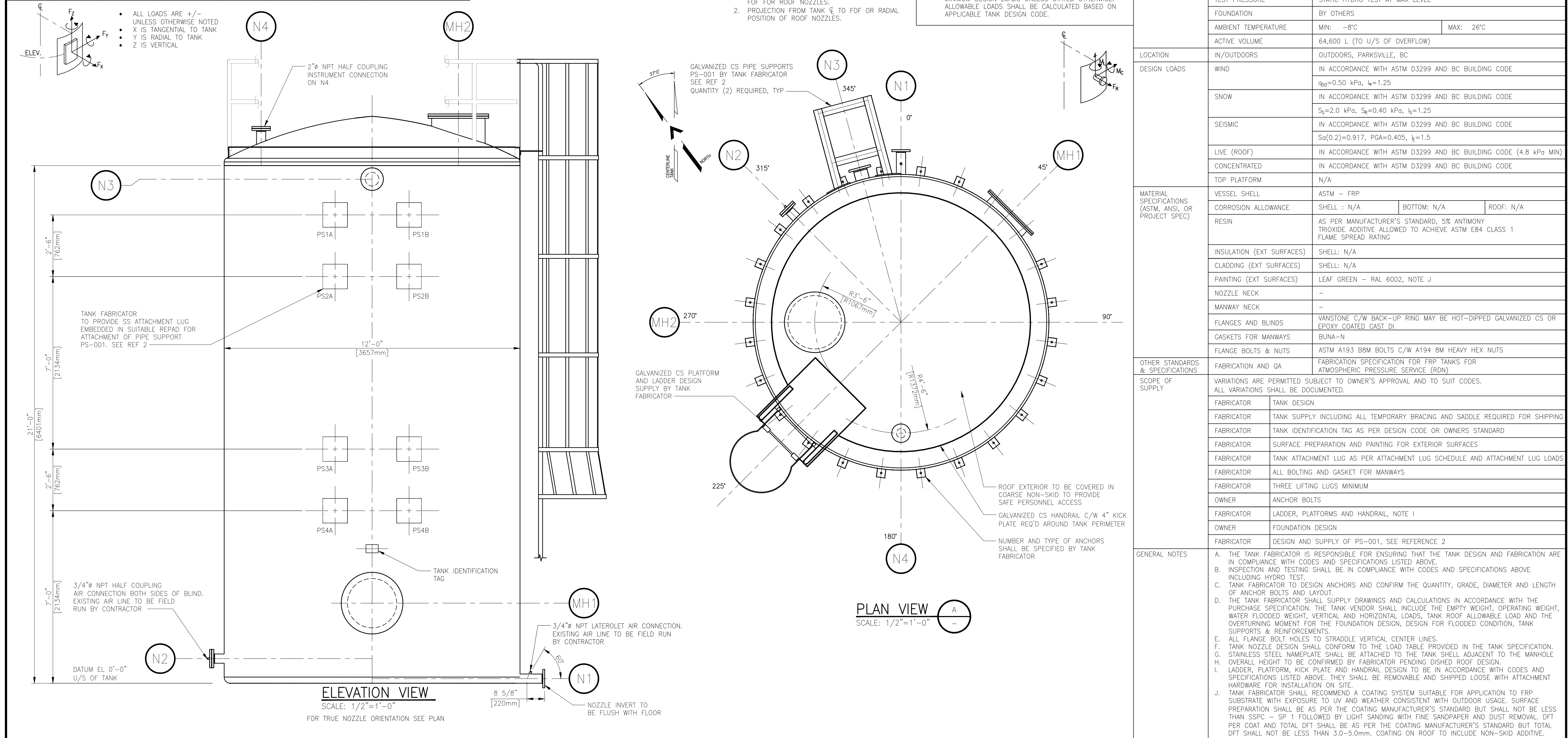
Methyl Octanoate	Actual concentration not known
Trichlorobenzene	Actual concentration not known
Dodecanethiol	Actual concentration not known

SCHEDULE 5 - DRAWINGS

Title	Dwg.No.	Date	Rev
Sludge Storage Cell 3 FRP Replacement Tank Data Sheet	FC-M-312	20Oct2020	B
Sludge Storage Cell 3 Piping Support Details	FC-M-351	20Oct2020	B
Sludge Storage Cell 3 Structural Foundation Details	FC-S-312	30Sep2020	B

SAMPLE

ATTACHMENT LUG SCHEDULE				DESIGN LOADS FOR ATTACHMENT LUG				NOZZLE SCHEDULE							DESIGN LOADS FOR NOZZLES			DESIGN DATA					
REPAD NUMBER	QTY	ORIENTATION	HEIGHT FROM DATUM	$\pm F_x$ [N]	$\pm F_y$ [N]	$\pm F_z$ [N]	NOTES	NOZZLE NO	SIZE	QTY	CLASS	HEIGHT ₁ FROM DATUM	PROJ ₂ FROM TANK ϕ	CONNECTION TYPE	NOZZLE NECK SCHEDULE	DESCRIPTION	NOZZLE SIZE	RADIAL FORCE COMPRESSION/TENSION [N]	CIRCUMFERENTIAL / LONGITUDINAL MOMENT [N-M]	CONTENTS	DESCRIPTION	AEROBICALLY DIGESTED MUNICIPAL WASTEWATER SLUDGE	
PS1A	1	0°	5790	2000	2000	4000	<ul style="list-style-type: none"> ELEVATIONS ARE TO CENTERLINE OF REPAD ORIENTATIONS ARE REFERENCED TO THE CENTERLINE OF REPAD 	N1	100	1	150	57mm	2135mm	FLG RF	-	INLET / DRAIN	50	1300	160	AEROBICALLY DIGESTED MUNICIPAL WASTEWATER SLUDGE pH: 8.2 SPECIFIC GRAVITY: 1.012 OPERATING: 20FT (6,100mm) MAX: 20'-2" (6,150mm) MIN: 355mm H ₂ O (VAC) MAX: 355mm H ₂ O MIN: -8°C MAX: 70°C PRESSURE: ATM TEMPERATURE: 65°C STATIC HYDRO TEST AT MAX LEVEL BY OTHERS MIN: -8°C MAX: 26°C 64,600 L (TO U/S OF OVERFLOW)	PROPERTIES		
PS1B	1	330°	5790	2000	2000	4000		N2	100	1	150	305mm	2015mm	FLG RF	-	AIR PURGE	75	1600	300		CHEMICAL COMPOSITION	SEE CUSTOMER RFQ SPECIFICATIONS	
PS2A	1	0°	5060	2000	2000	4000		N3	150	1	150	6233mm	2015mm	FLG RF	-	OVER FLOW	100	1700	410		LEVEL FROM DATUM		
PS2B	1	330°	5060	2000	2000	4000		N4	100	1	150	6860mm	-	FLG RF	-	INSTRUMENT	150	2500	730		DESIGN CODE	ASTM D3299 (TYPE II, GRADE 2)	
PS3A	1	0°	2895	2000	2000	4000		MH1	750	1	-	1000mm	2015mm	-	-	MAN HOLE	200	4400	1130		DESIGN PRESSURE		
PS3B	1	330°	2895	2000	2000	4000		MH2	750	1	-	7010mm	-	-	-	MAN HOLE	250	5100	1820		PRESSURE/VACUUM RELIEF	N/A	
PS4A	1	0°	2135	2000	2000	4000		NOZZLE SCHEDULE NOTES: 1. HEIGHT FROM DATUM TO ϕ OF NOZZLE OR FOF FOR ROOF NOZZLES. 2. PROJECTION FROM TANK ϕ TO FOF OR RADIAL POSITION OF ROOF NOZZLES.										DESIGN TEMPERATURE					
PS4B	1	330°	2135	2000	2000	4000		* MINIMUM DESIGN LOADS UNLESS STATED OTHERWISE. ALLOWABLE LOADS SHALL BE CALCULATED BASED ON APPLICABLE TANK DESIGN CODE.										OPERATING	PRESSURE: ATM TEMPERATURE: 65°C				



REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
FC-M-311	STORAGE CELL#3 PLAN & ELEVATION	1
FC-M-351	PIPING SUPPORT DETAILS	2
FC-S-312	SLUDGE STORAGE FOUNDATION DETAILS	3

REV	DATE	DESCRIPTION	DRWN	CHKD	APVD
B	20/10/20	ISSUED FOR ESTIMATE	DRM	CDB	CDB
A	20/10/14	ISSUED FOR ESTIMATE	DRM	CDB	CDB
REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD

ISSUED FOR ESTIMATE
Date: 2020/OCT/20

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CLIENT: REGIONAL DISTRICT OF NANAIMO

TITLE: SLUDGE STORAGE CELL#3 FRP REPLACEMENT TANK DATA SHEET

PROJECT: FCPCC - SLUDGE STORAGE CELL#3 REPLACEMENT

DATE: 20/08/21

DATE: 20/08/21

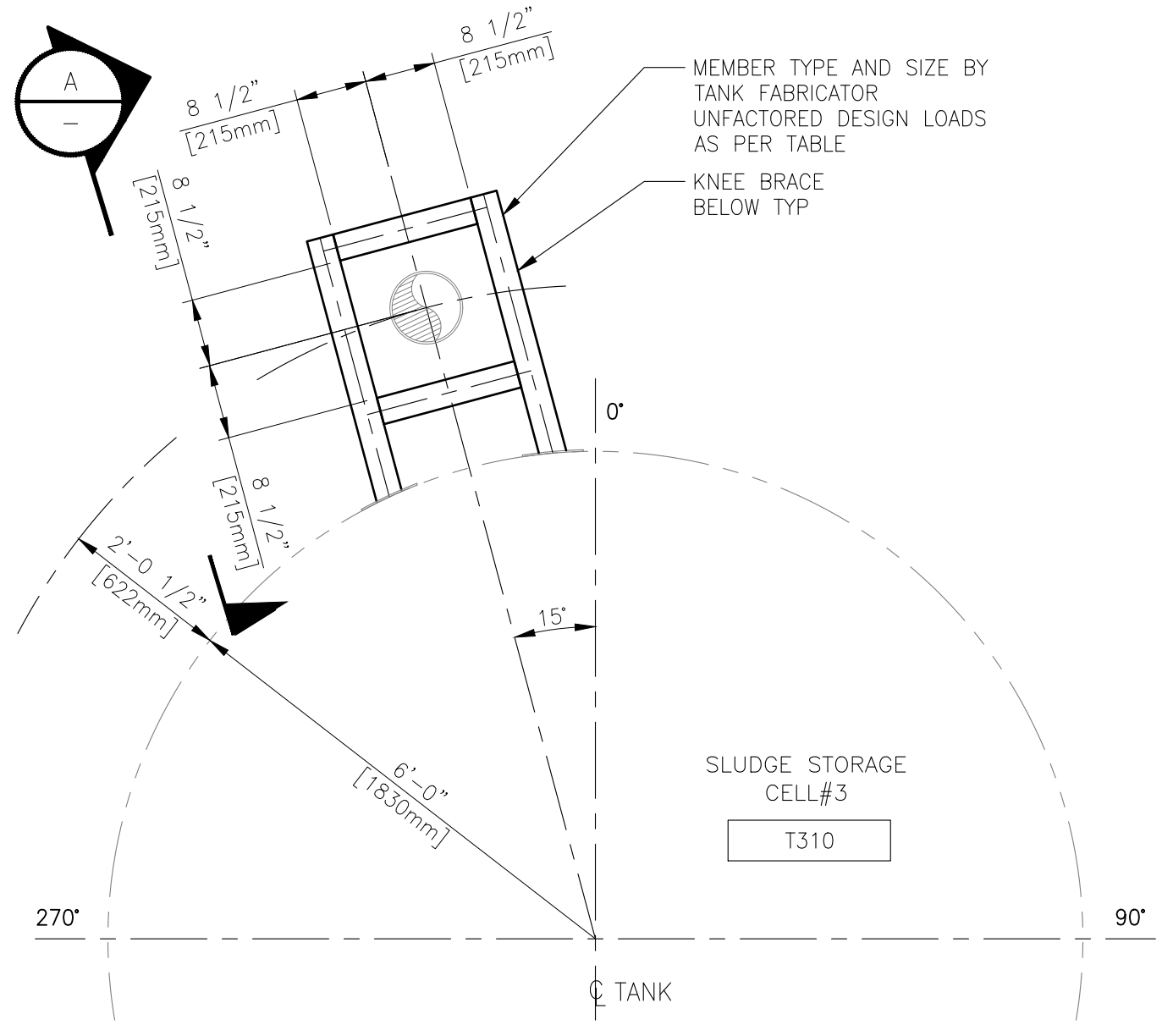
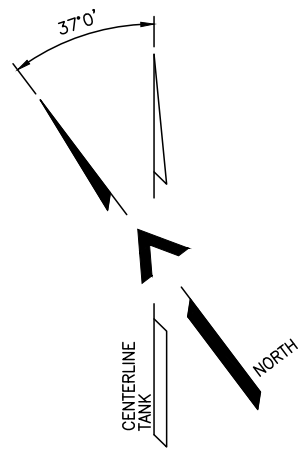
DATE: 20/08/27

DATE:

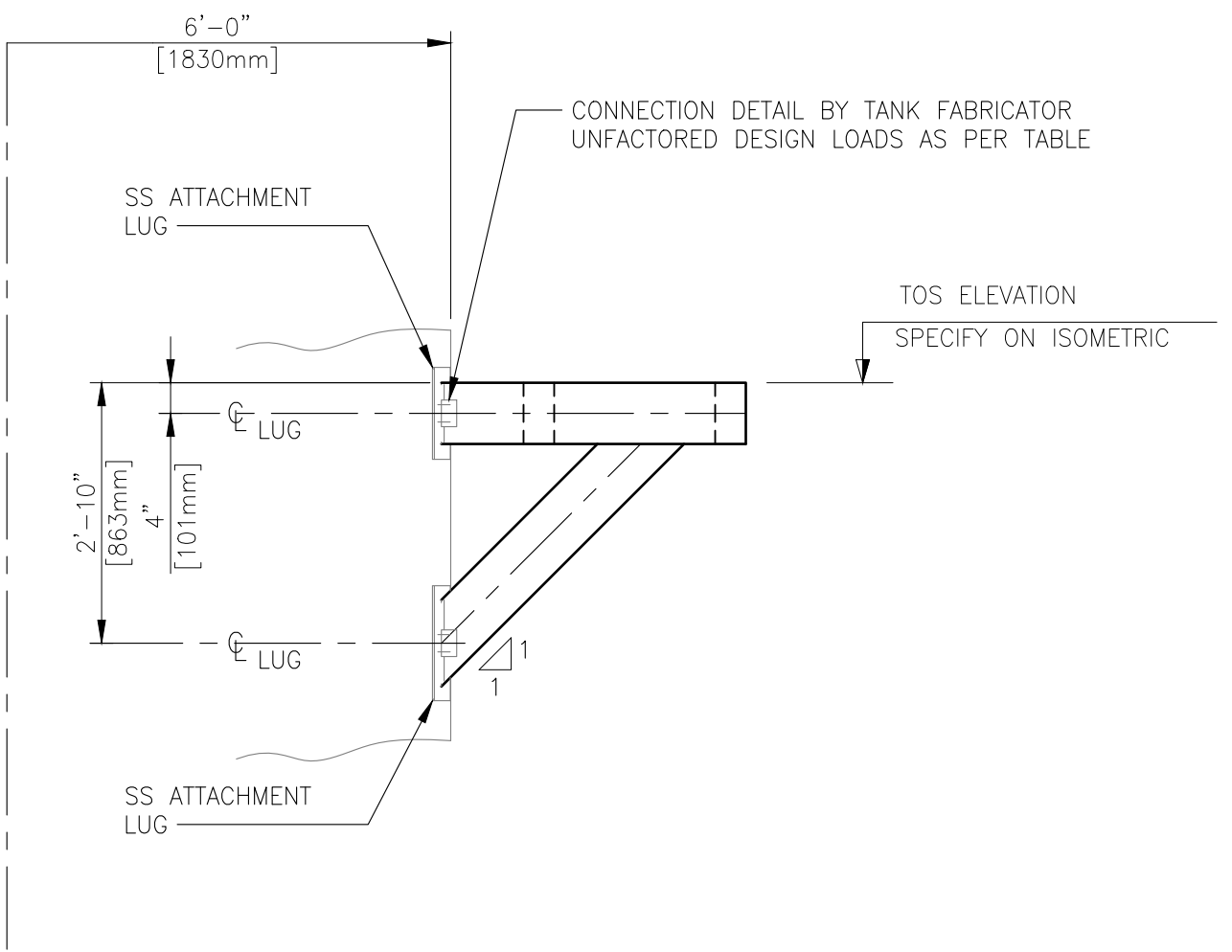
CLIENT NO:	RAE13	DRWN:	DRM	DATE:	20/08/21
PROJECT NO:	2002167	DSGN:	DRM	DATE:	20/08/21
DRAWING SIZE:	ANSI "D"	CHKD:	CDB	DATE:	20/08/27
SCALE:	AS NOTED	APVD:	DATE:		

DWG NO: **FC-M-312** REV: **B**

DESIGN LOADS FOR PS-001			
$\pm F_x$ [N]	$\pm F_y$ [N]	$\pm F_z$ [N]	NOTES
2250	2250	4500	• REFERENCED TO THE CENTERLINE OF PIPE SUPPORT

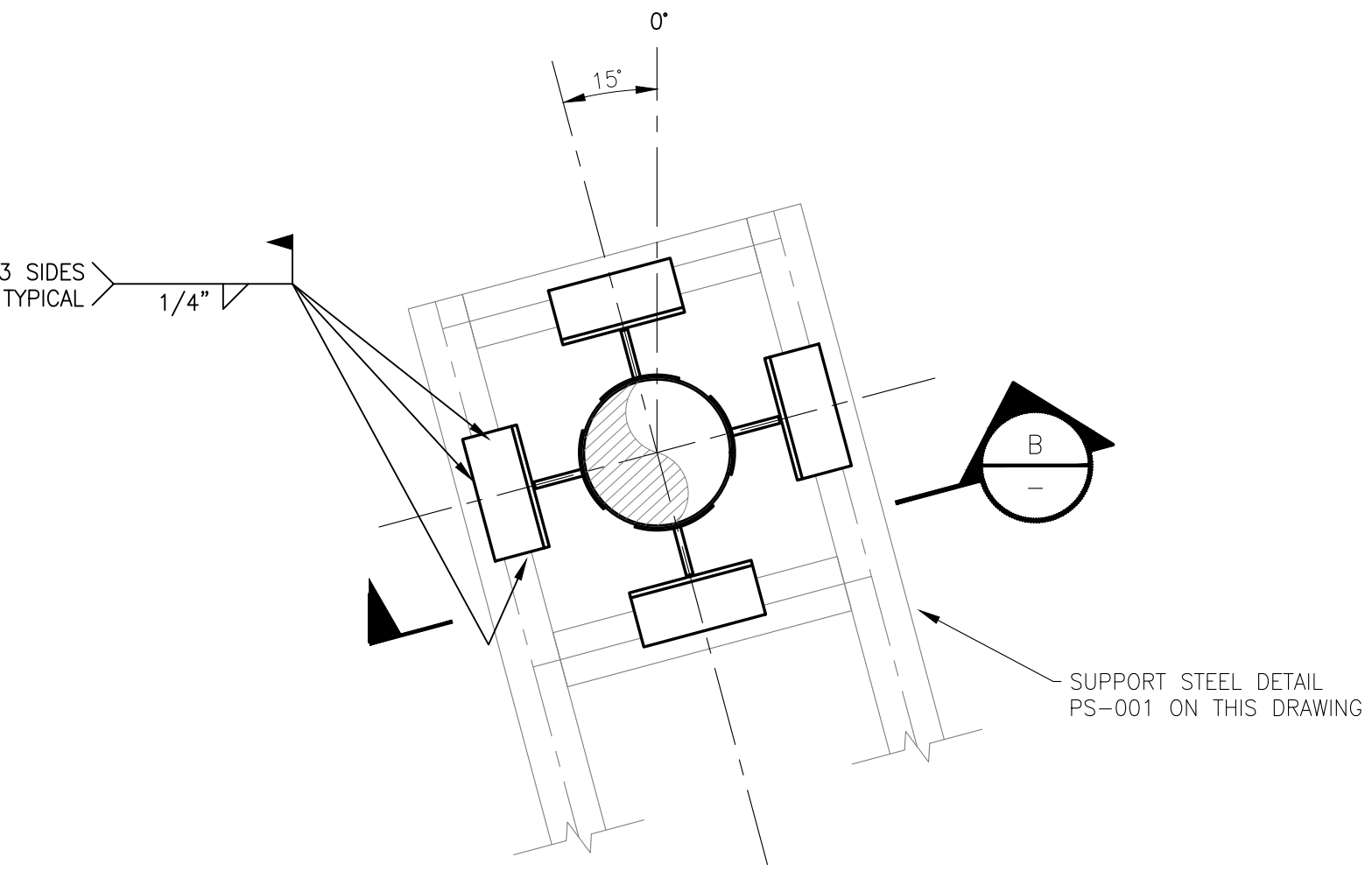
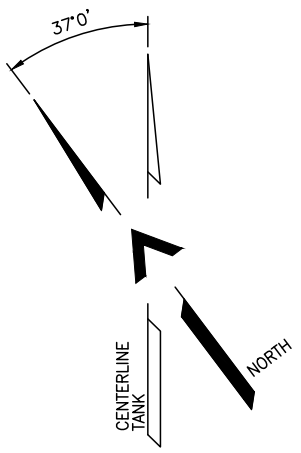
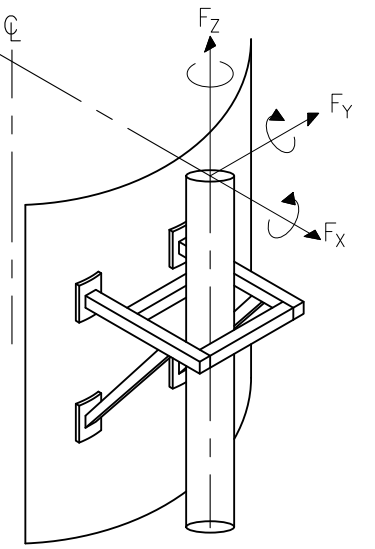


PLAN
SCALE: 1/2"=1'-0"

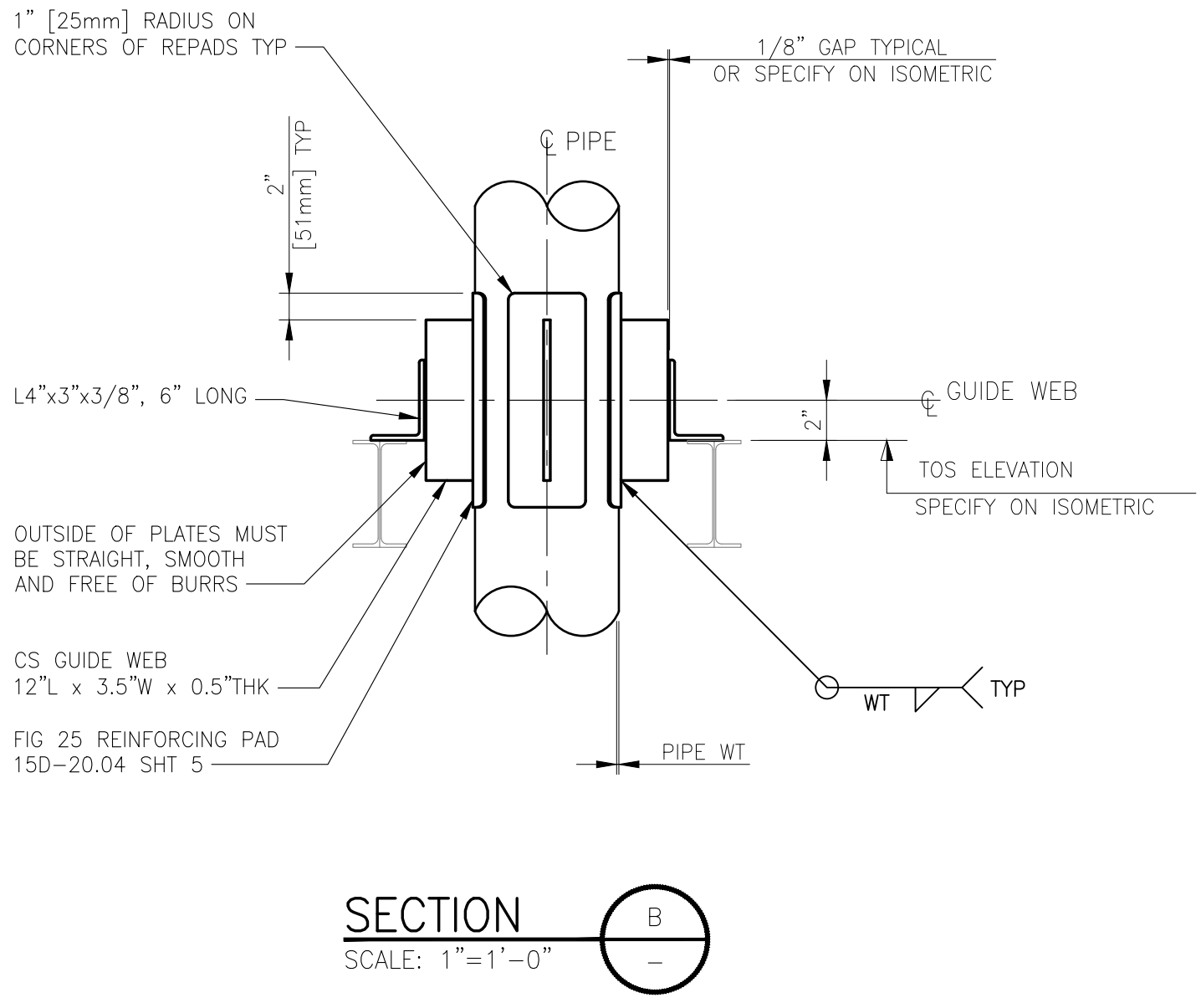


SECTION A
SCALE: 1/2"=1'-0"

DETAIL PS-001
BY TANK FABRICATOR
QUANTITY (2) REQUIRED



PLAN
SCALE: 1"=1'-0"



SECTION B
SCALE: 1"=1'-0"

PIPE GUIDE IN VERTICAL POSITION

DETAIL PS-002
BY INSTALLATION CONTRACTOR

Date: 2020/10/21 9:19 AM | User: Dave McMullen | File: P:\NAV\2020\2002167 RDN Sludge Storage Cell 3 Replacement\1000-Dwg\1014-Mech\01-Production\FC-M-351 | Layout: RevB | Paper Size: 34" x 22"

REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
FC-M-312	SLUDGE STORAGE CELL#3 DATA SHEET	1
FC-S-312	SLUDGE STORAGE FOUNDATION DETAILS	2
FC-M-311	STORAGE CELL#3 PLAN & ELEVATION	3

- NOTES:
- ALL WELDS TO BE CONTINUOUS, STITCH WELDING IS NOT ACCEPTABLE.
 - STRUCTURAL STEEL SHALL CONFORM TO ASTM A992-20.
 - STEEL TO BE HOT DIP GALVANIZED.

ISSUED FOR
ESTIMATE
Date: 2020/OCT/20

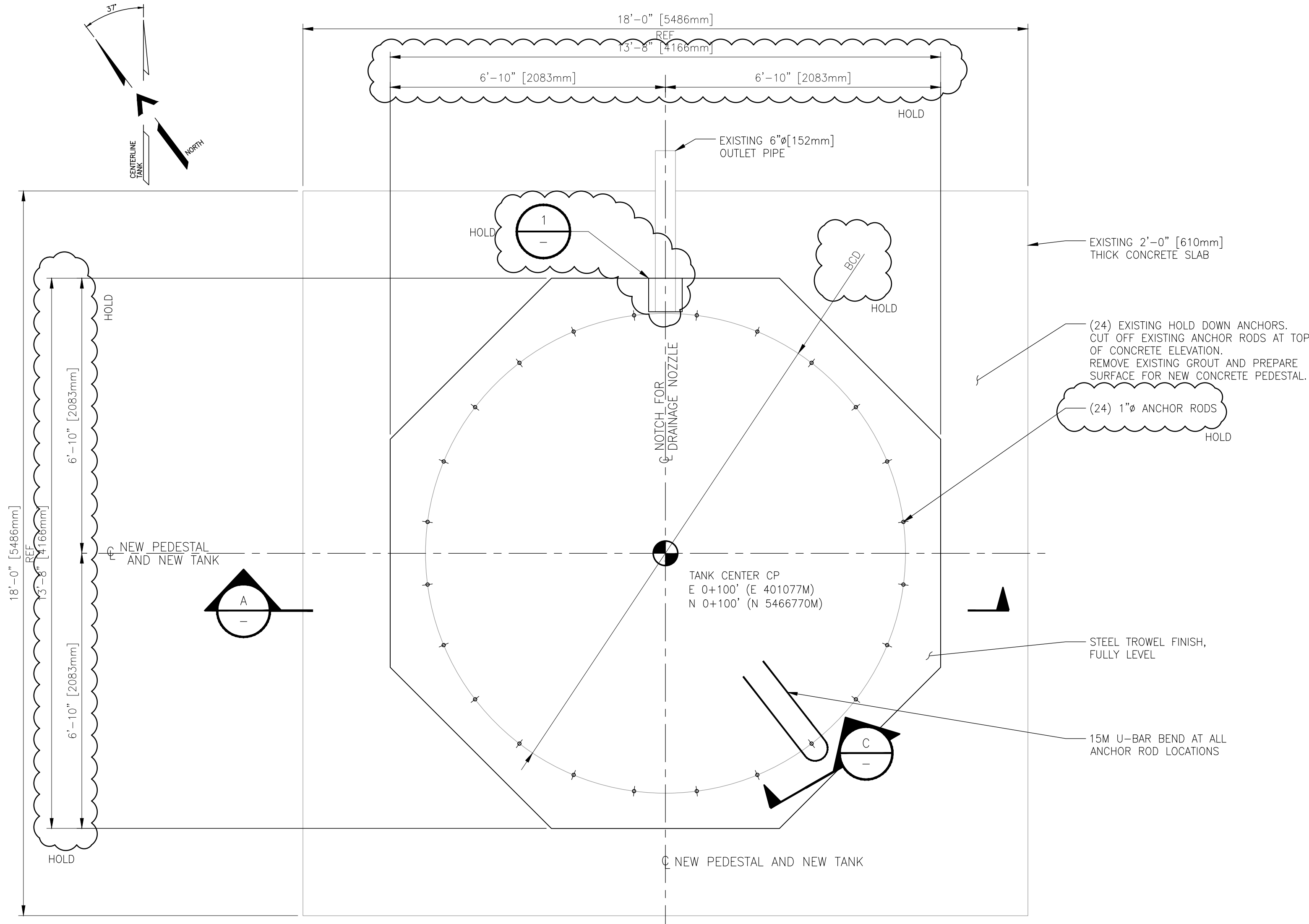
NOT FOR
CONSTRUCTION

REV	DATE	DESCRIPTION	DRWN	CHKD	APVD
B	20/10/20	ISSUED FOR ESTIMATE	DRM	CDB	CDB
A	20/10/13	ISSUED FOR ESTIMATE	DRM	CDB	CDB

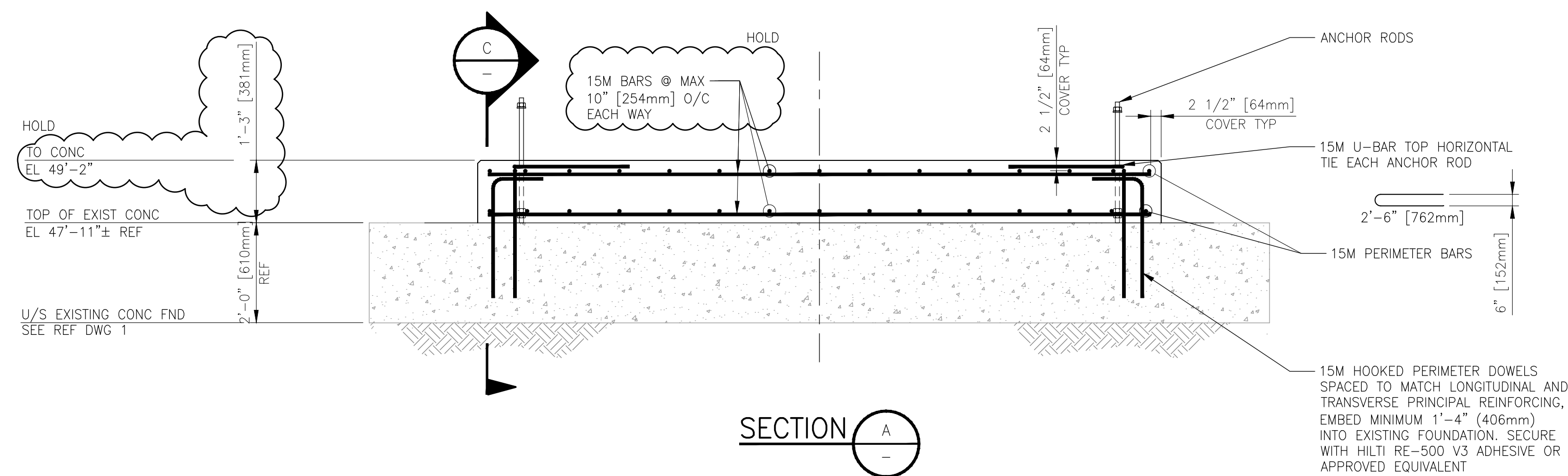
CLIENT:

TITLE: SLUDGE STORAGE CELL#3 PIPING SUPPORT DETAILS			
CLIENT NO:	RAE13	DRWN:	DRM
PROJECT NO:	2002167	DSGN:	DRM
DRAWING SIZE:	ANSI "D"	CHKD:	CDB
SCALE:	AS NOTED	APVD:	DATE:

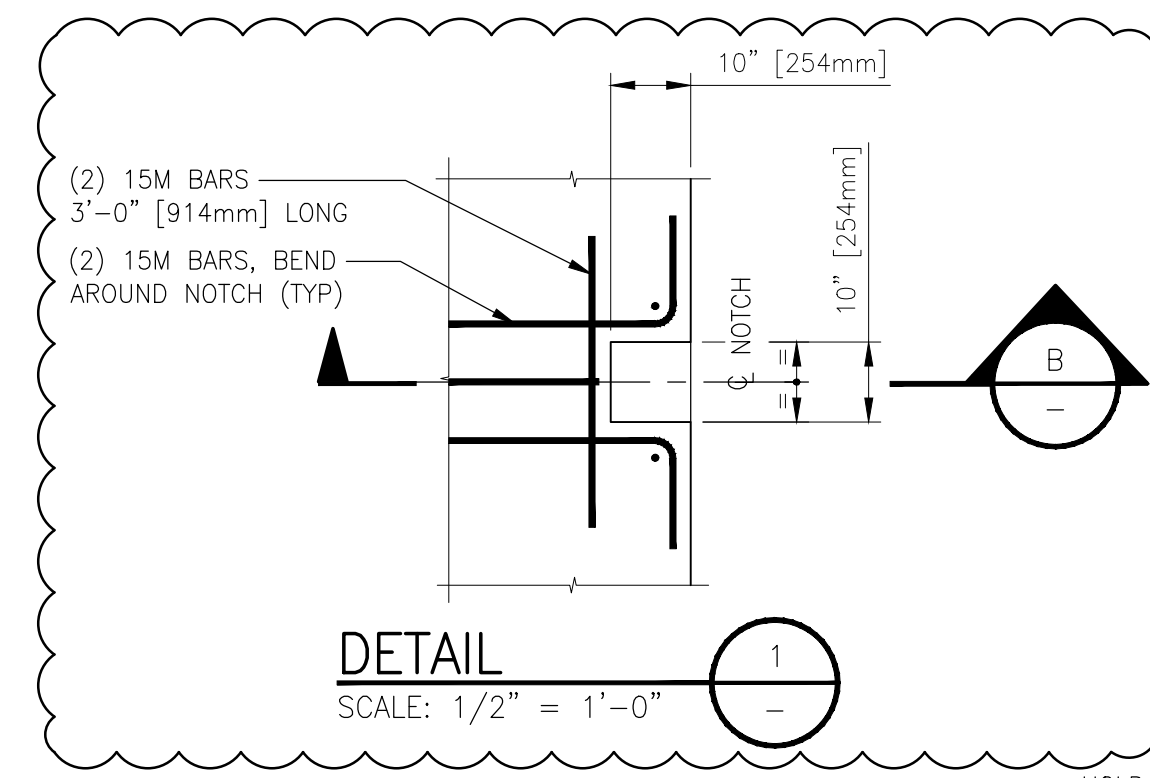
PROJECT: FCPCC - SLUDGE STORAGE CELL#3 REPLACEMENT	
DWG NO:	FC-M-351
REV:	B



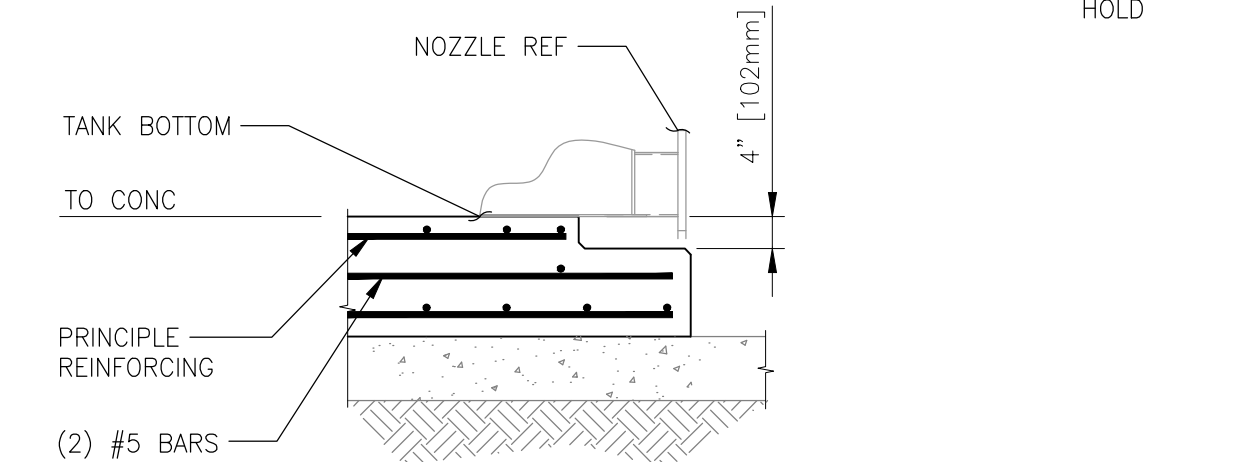
PLAN - NEW PEDESTAL FOR SLUDGE STORAGE CELL 3 TANK



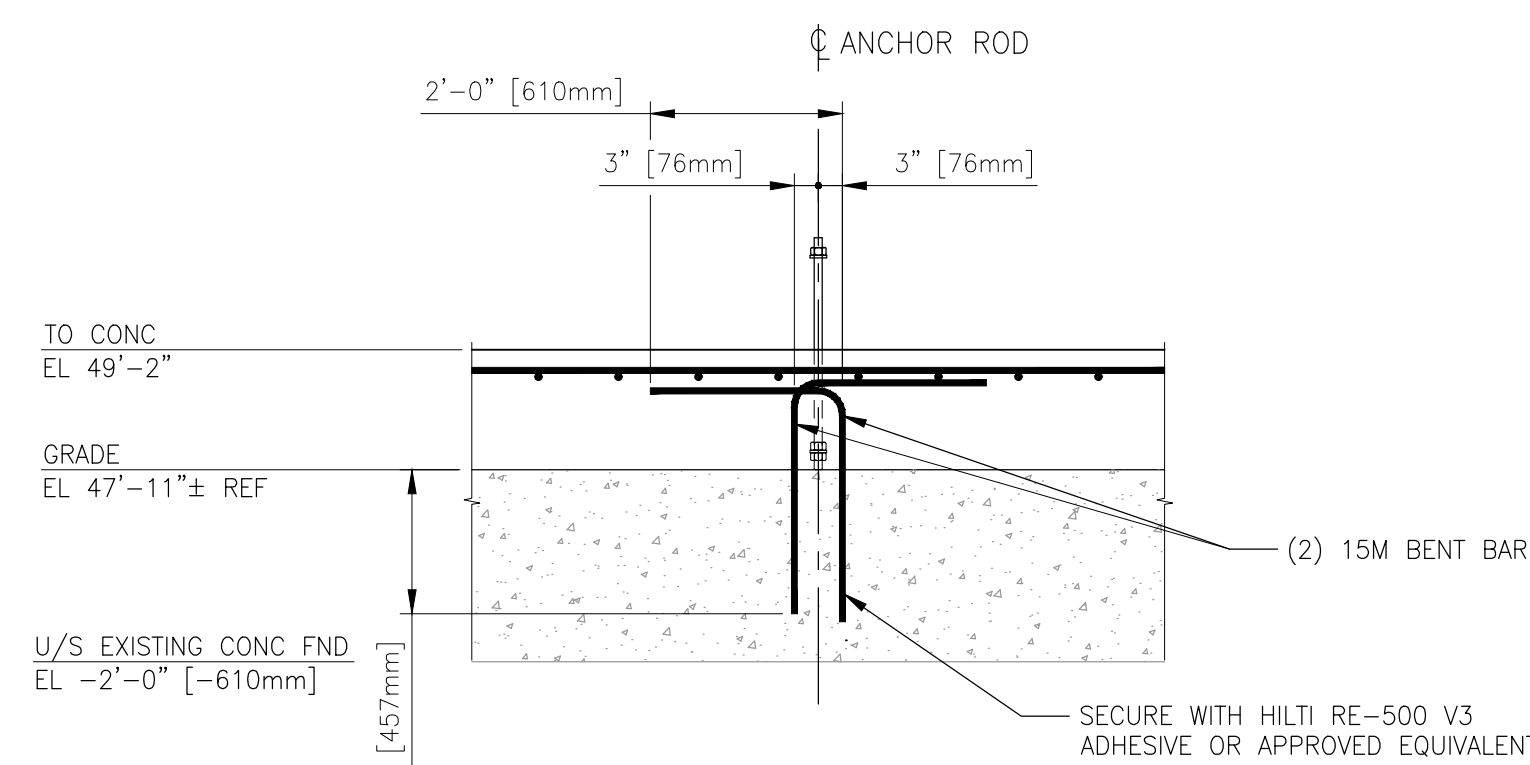
SECTION A-A



DETAIL 1

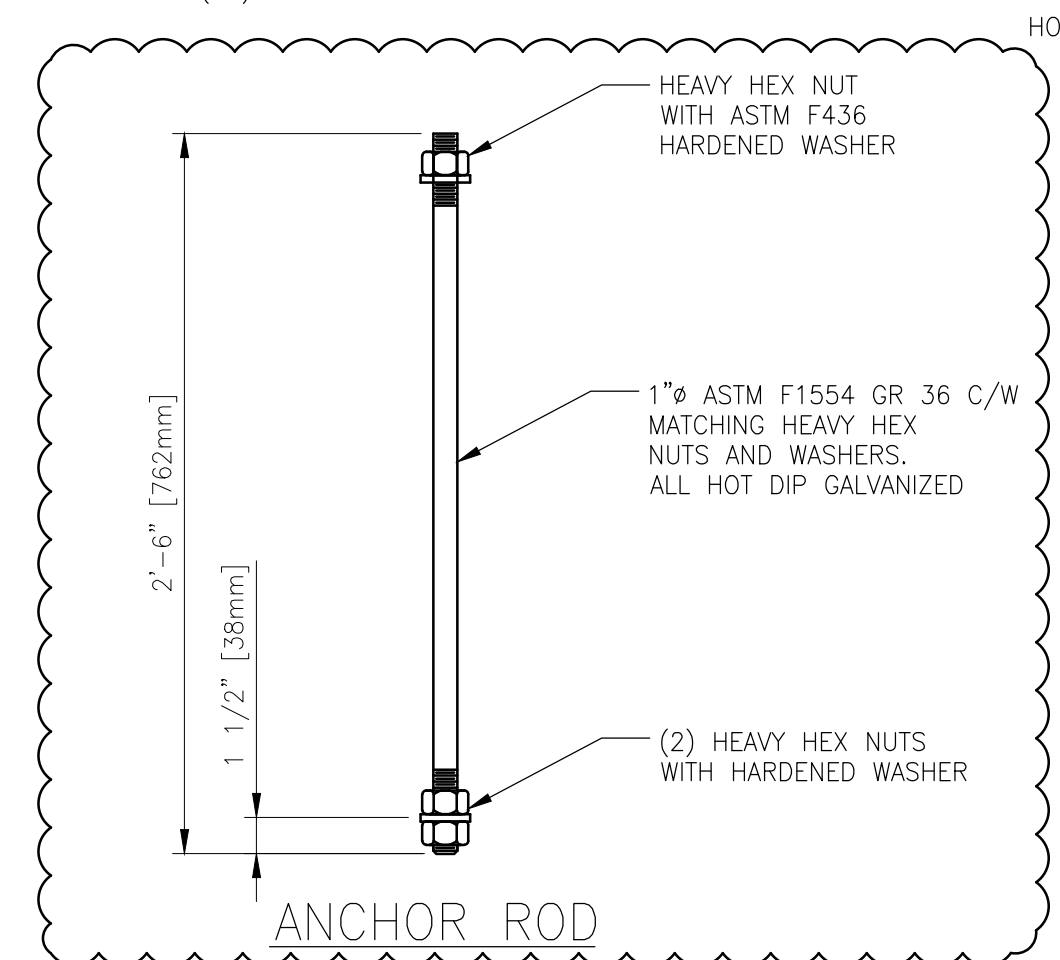


SECTION B-B



SECTION C-C

(24) LOCATIONS TOTAL



ANCHOR ROD

DESIGN

- THE COMPLETED STRUCTURE SHOWN ON THE STRUCTURAL DRAWINGS HAS BEEN DESIGNED IN SUBSTANTIAL ACCORDANCE WITH THE BRITISH COLUMBIA BUILDING CODE 2018 WHICH IS IN COMPLIANCE WITH THE NATIONAL BUILDING CODE OF CANADA 2015.

DESIGN LOADS

- LOCATION : PARKSVILLE B.C.
- CUMMATIC LOADS:
 - GROUND SNOW S_g = 2.0 kPa (42.0 psf)
 - RAIN S_r = 1.25
 - WIND S_w = 0.40 kPa (8.3 psf)
 - $S_{w,10}$ = 0.50 kPa (10.4 psf)
 - $S_{w,15}$ = 1.25
- SEISMIC:
 - $S_{s,0.2}$ (0.2) = 0.917
 - $S_{s,0.5}$ (0.5) = 0.859
 - $S_{s,1.0}$ (1.0) = 0.519
 - $S_{s,2.0}$ (2.0) = 0.322
 - $S_{s,5.0}$ (5.0) = 0.106
 - PGA = 0.405
 - I_e = 1.5

- WALKWAY LOADS:
LIVE LOAD = 4.8 kPa (100 psf)

CONCRETE

- THE GENERAL CONTRACTOR IS RESPONSIBLE FOR WORKING WITH THE CONCRETE SUPPLIER TO ENSURE THAT THE PLASTIC AND HARDENED MIX PROPERTIES MEET SITE REQUIREMENTS FOR PLACING, FINISHING, AND THE OWNERS' SPECIFIED PERFORMANCE REQUIREMENTS. THE GENERAL CONTRACTOR SHALL MEET THE DOCUMENTATION AND QUALITY CONTROL REQUIREMENTS OUTLINED UNDER THE "PERFORMANCE" ALTERNATE OF TABLE 5 OF CAN/CSA-A23.1.
- CONCRETE PROPERTIES:

ELEMENT	NEW STRUCTURES			
	MIN. COMPRESSIVE STRENGTH 28 DAYS U.N.O.	EXPOSURE CLASS	AIR CONTENT CATEGORY	MAX W/C RATIO
TANK PEDESTAL	35	A-2	1	0.45

CEMENT TYPE HIGH EARLY (HE) MAY BE USED TO FACILITATE CONSTRUCTION SCHEDULE.

- GENERAL CONTRACTOR TO PROVIDE CONCRETE TEST RESULTS TO ALLNORTH FOR 7, 21 & 28 DAYS.
- CURING OF CONCRETE TO MEET THE REQUIREMENTS FOR THE EXPOSURE CLASS AS OUTLINED IN CLAUSE 7.4.1 AND 7.4.2 AS WELL AS TABLES 2 AND 20 OF CAN/CSA-A23.1.
- ALL BOTTOM EDGES OF EXPOSED SLABS AND BEAMS, AS WELL AS EDGES OF WALLS AND COLUMNS, TO BE CHAMFERED 3/4" x 3/4" [19mmx19mm].
- GENERAL CONTRACTOR TO PROVIDE TEST RESULTS TO ALLNORTH IF BACKFILL OR FORM STRIPPING IS REQUIRED BEFORE 7 DAYS OF CURING.
- ROUGHEN AND CLEAN ALL COLD JOINT SURFACES PRIOR TO PLACING NEW CONCRETE. PRESOAK EXISTING CONCRETE WITH CLEAN WATER FOR 8 HOURS MINIMUM BEFORE NEW CONCRETE POUR. EXISTING CONCRETE TO BE "SATURATED AND SURFACE DRY" (NO PUDDLES) WHEN NEW CONCRETE PLACED.
- MAXIMUM AGGREGATE SIZE IS 3/4" [19mm].

CONCRETE REINFORCEMENT

- REINFORCEMENT SHALL CONFORM TO THE FOLLOWING STANDARDS:
 - 10M AND LARGER (UNO): CSA G30.18R, GRADE 400W
- UNLESS OTHERWISE NOTED CONCRETE COVER TO REINFORCEMENT SHALL BE:
 - CAST AGAINST EARTH OR GROUND - 3" [76mm]
 - EXPOSED TO WEATHER OR EARTH - 2" [50mm]
 - CONCRETE EXPOSURE CLASS A-2 - 2 1/2" [64mm]
- DO NOT SUBSTITUTE DEFORMED WIRE FOR REINFORCING BARS WITHOUT PRIOR APPROVAL FROM ALLNORTH.
- PROVIDE SUFFICIENT SUPPORTS TO MAINTAIN CONCRETE COVER AS SPECIFIED. ALL SUPPORTS AND BARS MUST BE TIED TOGETHER TO MAINTAIN REINFORCING STEEL SECURELY IN PLACE DURING CONCRETE PLACEMENT.
- LAP SPICE LENGTHS:

REBAR SIZE	CONCRETE STRENGTH
	30MPa & GREATER
10M	20" [508mm]
15M	28" [711mm]
20M	42" [1067mm]
25M	54" [1372mm]
30M	64" [1626mm]

- MINIMUM HOOK LENGTH FOR 25M BAR IS 24" [610mm].

REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
S-1	BIO SOLIDS TANK (BAYVIEW ENG)	1
C-1000	CIVIL OVERALL SITE PLAN	2
FC-M-311	SLUDGE STORAGE CELL #3 PLAN & ELEV.	3
FC-M-312	SLUDGE STORAGE CELL #3 DATA SHEET	4

PRELIMINARY

ISSUED FOR INFORMATION
Date: 2020/SEP/30

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRWN	CHKD	APVD
B	20/09/30	ISSUED FOR INFORMATION	POZ	-	SW
A	20/08/13	ISSUED FOR INFORMATION	POZ	-	SW

CLIENT:

TITLE: SLUDGE STORAGE CELL 3 STRUCTURAL FOUNDATION DETAILS	
CLIENT NO: RAE13	DRWN: POZ DATE: 20/08/11
PROJECT NO: 2002167	DSGN: SW DATE: 20/08/11
DRAWING SIZE: ANSI "D"	CHKD: - DATE: -
SCALE: 1/2" = 1'-0"	APVD: - DATE: -

PROJECT: FCPC-SLUDGE STORAGE CELL 3 REPLACEMENT	
DWG NO: FC-S-312	REV: B

SCHEDULE 6 – STANDARDS

Title	Std.No.	Date	Rev
None	None	None	

SAMPLE