Registration Application for the Establishment of a Fish Meal Plant at Harbour Breton, Newfoundland and Labrador to serve the Aquaculture Industry

Submitted by

The Barry Group

December 13, 2016

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BARRY GROUP Inc.

Harbour Breton Salmon By-Product Rendering Operation Proposal

Harbour Breton, Newfoundland

PROPONENT: 54417 Newfoundland and Labrador Inc

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Principal Contact Dave Moores, 415 Griffin Dr, CB, NL, A2H 3E9, (709) 640-0808

THE UNDERTAKING: Hr Breton Salmon By-Product Rendering Operation

The current Atlantic salmon harvest is 20,000 tons and it is anticipated that the harvest will increase to more than 30,000 tons within 3-5 years. Thus, there is a requirement for a practical and value added solution to the > 6,000 tons of salmon by-products and morts. Land filling this volume is not a solution and would create environmental issues. Ensiling is not an end solution – certainly not for this volume. The only solution is a fish meal and oil rendering plant. We propose to build a modern rendering plant right on top of the foundation where the old ground fish rendering plant was located.

DESCRIPTION OF UNDERTAKING: **Location** – The rendering plant will be located adjacent to the processing plant , as was the case when Harbour Breton had a large ground fish operation, complete with a fish meal plant to accommodate the waste from its ground fish filleting operation. This is the ideal location as we can feed the rendering plant with a smooth and continuous flow of fresh product. This even flow will permit us to right size the equipment vs over sizing. The processing of right off the line by-products also makes it easier to handle the malodors as the product is not left around to become rancid. The picture below shows the ideal past and present rendering plant location. It also indicates the location and proximity to the ocean. The closest residential building is the Barry Group Company House.

Design – The Barry Group currently own and operate a fishmeal processing operation in Burgeo, Newfoundland. With recent upgrades at this location we have learned who the experts are with respect to designing and building innovative solutions for fishmeal operations. We have spoken with three suppliers / manufactures and we know from our experiences in Burgeo that processing salmon guts is different as this material, doe to the lack of bone material, is difficult to process using conventional methods. Soft unstructured by-product requires an innovative and more specialized design. To the best of our knowledge, this equipment is not utilized elsewhere in Canada.. Anco Eaglin designed such a system to meet our volume predictions and are the only company that we discussed this project with that has actually designed and built an operation strictly for salmon gut production. They have only built one operation like this so we are on new ground here. Our proposal is for an operation that will be suited to process these guts in an energy efficient way and surpass the environmental requirementsof the Province of Newfoundland and Labrador.

Malodors – Our design will "seal" up the rendering plant as much as sensibly possible and all air leaving the building will either be incenerated or chemically scrubbed. A major contributor to malodors is rancid fish sitting around. We plan to process the product as it comes off the line and any product that is waiting to be processed will be stored inside in sealed fish tubs.

Stick Water – Newfoundland and Labrador has very strict effluent discharge requirements. We located Redox Water Technologies, a company in the Netherlands that has experience and a track record of being able to meet the Province's guidelines. They can do this without adding chemicals, which we prefer not to have around. The water will be discharged into the flushing zone of the harbour through a HDPE pipe after being treated.. (See appendix 1) Appendix 3 shows that our discharge water is far away from even the closest fish farm.

Physical Features / Construction – the plan is to use an existing 170ft x 104ft building on the Barry Group property that is currently being occupied by Northern Harvest. This is the location of the former fishmeal plant with a modern steel building on top of it (Refer to Appendix 2). A new concrete floor would be poured with perimeter drains flowing to the water treatment system.All equipment would be elevated for ease of cleaning. The existing building would be "sealed up". This building is approximately 400ft away from the closest residence. With the exception of a 50ft diameter water treatment holding tank, which would be constructed between this building and the wharf,no other land will be affected. Existing roads, water lines, vegetation, habitat, etc will not be affected. Refer to Topographical Maps in Appendix 1. Construction on the building would start in April 2017 and be ready to install equipment in the fall of 2017.

Operation – the plan is to operate 10 hours per day at current harvest volumes, with a 2 hour clean-up after each shift. We will increase the operating hours to match harvest volumes.

Occupations – during the construction of this operation we anticipate to require 8 to 10 people and then a shift power engineer and 2 to 3 people to operate the facitity.

Schedule - project approval - January 2017

-Equipment ordering January 2017

-Building Renovations and Water Treatment Tank Construction April 2017

-Installing equipment Oct 2017

-First Production Feb 2018

-Funding , undetermined . Application will be made to ACOA and possibly to the administrator of CETA funding, for up to 50% of project cost.

Appendix 1 Proposed Location

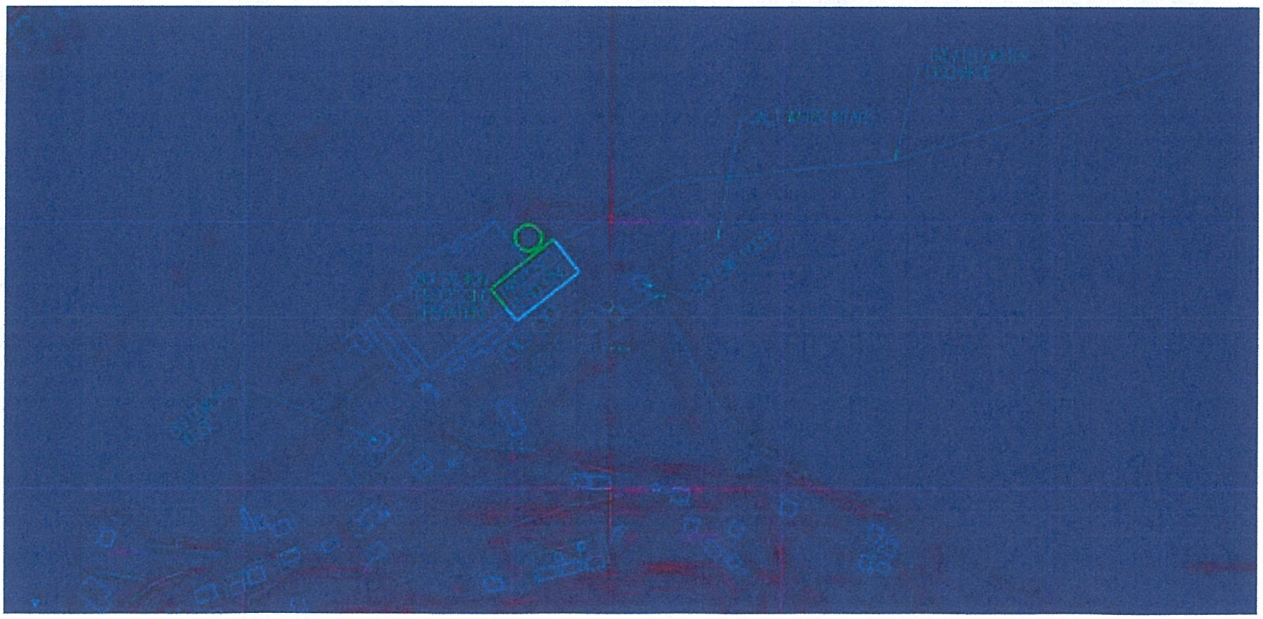
Appendix 2 Former Location Of Hr Breton Fishmeal Operation and Location Of New Proposed Operation.

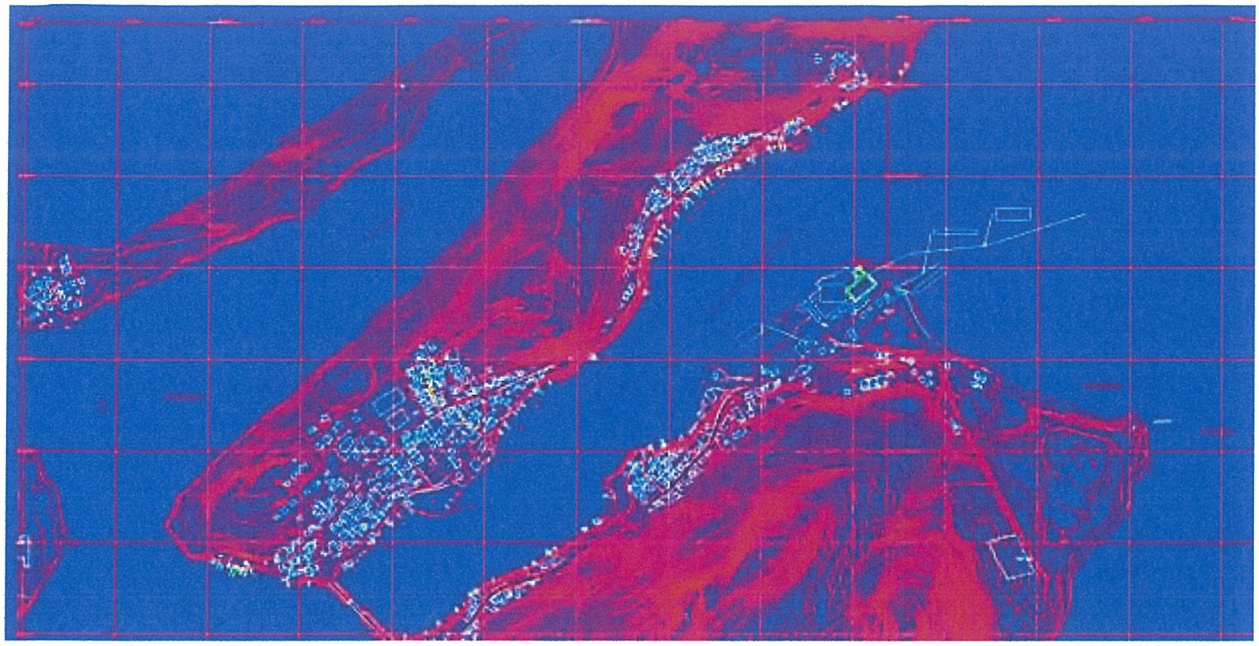
Appendix 3 Locations Of Fish Farms In Relation To Operation

- First Production Feb 2018

Funding - 50% Barry Group of Companies / 50% ACOA

Appendix 1 Proposed Location





Appendix 2 Former Location Of Hr Breton Fishmeal Operation and Location Of New Proposed Operation.

Appendix 3 Locations Of Fish Farms In Relation To Operation

Area	Bay Mgt #	Site Code	Site Name	AQ #	Latitude [° ′]	Longtitude [° ′]	Distance to Plant (km)
SALMON							
Mal Bay	1	HOB	The Hobby	1086	47 38.6	55 09.0	66.0
	1	FOS	Foshie Cove	1085	47 39.7	55 08.2	68.0
	1	BEN	Benny's Cove	1084	47 40.7	55 07.8	
Rencontre East	2	DWP	Deep Water Point	1080	47 39.2	55 14.2	63.0
	2	RIS	Rencontre Island	1081	47 37.9	55 13.0	63.0
	2	LBC	Little Burdock Cove	1083	47 38.3	55 14.0	63.0
Fortune Bay West	3	SPY	Spyglass Cove	881	47 37.5	55 28 .3	67.0
	3	CIC	Cinq Island Cove	883	47 38.0	55 27.8	67.0
	3	TPT	Tilt Point	976	47 38.5	55 27.1	67.0
	3	SPO	Spoon Cove	882	47 42.1	55 26.4	69.0
	3	STH	Steamer Head	1050	47 41.5	55 25.9	68.0
	3	HPT	Hickman's Point	1002	47 42.9	55 23.7	69.0
	3	MGS	McGrath's Cove South	885	47 39.5	55 22.1	64.0
	3	MGN	McGrath's Cove North	886	47 39.8	55 22.8	64.0
	3	OWC	Old Woman's Cove	1082	47 40.4	55 19.8	63.0
	3	ISK	Ironskull Point	865	47 34.1	55 24.2	60.0
Great Bay de l'Eau	4	DOG	Dog Cove	1049	47 32.2	55 37.5	22.5
	4	SAL	Salmonier Cove	1048	47 30.9	55 36.0	21.0
	4	MUR	Murphy Point	1088	47 30.0	55 42.2	16.0
Harbour Breton Bay	5	BRC	Broad Cove	1045	47 30.6	55 46.2	3.5
	5	HHN	Harvey Hill North	993	47 33.6	55 44.9	10.0
	5	HHE	Harvey Hill East	991	47 32.3	55 45.2	7.0
	5	HHS	Harvey Hill South	1121	47 31.7	55 46.6	5.5
TROUT							
Bay d'Espoir-other		LOU	Lou Cove	155	47 52.2	55 48.8	99.0

ANCO Rendering Plant PROPOSAL

Prepared for: Barry Group
Prepared by: Rick Eaglin
Date: September 21, 2016
Proposal #: 16-0903

Barry Group

(HEREINAFTER CALLED BUYER)

ATTENTION: David Moores Email: dmoores@barrygroupinc.com

ANCO-EAGLIN, Inc. (HEREINAFTER CALLED SELLER) PROPOSES TO FURNISH TO BUYER THE EQUIPMENT AND SERVICES DESCRIBED BELOW AND IN ANY ATTACHED SPECIFICATIONS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH BELOW, AND IN ATTACHMENTS HERETO.

GENERAL DESCRIPTION:

Anco® Salmon Rendering System Designed for 7 tons or 7,000 kilo grams per hour raw infeed. The blend will be heads, guts and salmon parts with free water removed. For the process requirements the following values will be used.

Raw Material kg/hr.		
Ds	17.0%	1190
F	21.0%	1470
W	62.0%	4340
T	100.0%	7000

AE Continuous Dryer

The system scope of responsibility by ANCO-EAGLIN with start at a surge tank with the infeed method by others. The stick water from the process will be transport back to the ocean by others. Cooling water for the condensing will be of sufficient supply and temperature to properly condense vapors from the Anco® AE300 Finished Meal Dryer. All utilities such as air, steam and electrical will be supplied by the customer, with the exception of the PLC. ANCO-EAGLIN will assist in recommendation for utilities and suggested layouts. Start-up service is not including in the pricing but will be provided at the prevailing rates.

Detailed brochures can be downloaded at www.ancoeaglin.com

DRAWINGS, INSTRUCTIONS AND FIELD SERVICE: SELLER WILL FURNISH EQUIPMENT DRAWINGS AND OPERATION AND MAINTENANCE INSTRUCTIONS IN DUPLICATE. IF REQUESTED BY BUYER, SELLER WILL PROVIDE FIELD SERVICE IN CONNECTION WITH INSTALLATION AND/OR START UP OF THE EQUIPMENT IN ACCORDANCE WITH SELLER'S TERMS AND CONDITIONS AND THEN CURRENT CHARGE FOR FIELD SERVICE.

SHIPMENT: SHIPMENT: THE EQUIPMENT DESCRIBED HEREIN WILL BE SHIPPED WITHIN AND ESTIMATED 28-30 WEEKS AFTER RECEIPT OF BUYER'S PURCHASE ORDER, DOWNPAYMENT, SIGNED ACCEPTANCE OF THIS PROPOSAL, APPROVAL OF ANY DRAWINGS AS MAY BE REQUESTED BY EITHER SELLER OR BUYER, AND RECEIPT BY SELLER OF ANY INFORMATION REQUIRED FROM BUYER FOR FABRICATION OF THE EQUIPMENT.

PRICE AND PAYMENT TERMS: PRICE FOR THE EQUIPMENT AND ANY SERVICES PROPOSED HEREIN BY SELLER IS:

1	Surge Tank with solids pump from Screw Hopper to Grinder. Stainless Steel includes inspection door with safety latch.
1	ANCO 866 Fish Grinder, Premium grinder hole plate, durable Class II gearbox with 40 HP motor, 45 kg. Capacity feed, hopper, knife holder, set of 4 blades, automatic feed reduces jam ups, patented screw and barrel design. "Quick Clean" design with tinned feed hopper. Hopper and screw will be tinned plated with galvanized base.
1	Pump Surge hopper Stainless steel construction 120 cubic foot capacity.
1	Boldt™ Fish meter pump. All wetted part constructed of stainless steel, VFD duty drive motor (VFD by others). Pumps will be mounted on a rigged galvanized frame, Class II 7.5 HP drive.
1	ANCO Model 1212 Fish Cooker with all wetted parts constructed of stainless steel. Cooker features a self-clean auger design with steam controls and product temperature regulator.
1	Tri-canter Separator . The solid-wall bowl (6) has a cylindrical section for efficient clarification of the liquid and a conical section for drying the solids. The product enters the decanter through the feed (11) and passes through the distributor (16) into the separation chamber (9). The liquid level in the bowl is adjustable via regulating ring (10). Due to the centrifugal forces, the solids particles are flung onto the bowl wall and are transported by the scroll (7) to the solids discharge (17). The clarified liquid leaves the centrifugation space via regulating ring (10). On decanter type CB 305-00-. the clarified liquid is dis-charged freely into a catcher and flows off under gravity. Wetted parts will be 304 stainless steel.
1	Stick water transfer pump, progressive cavity type. Pumps will be mounted on a rigged galvanized frame, Class II 2HP drive.

1	Fat Tri-canter Pump, Centrifuge type stainless steel. Direct coupled with 2 HP TEFC motor.
1	Fat Transfer Tank 500 gallon, with agitator and level control. All wetted parts including the agitator constructed of 304 stainless steel.
1	Stick Water Pump, Centrifuge type stainless steel. Direct coupled with 2 HP TEFC motor.
1	Solids transfer pump, progressive cavity type. Pump will be mounted on a rigged galvanized frame, Class II 2HP drive.
1	CIP System two tanks, pump and heater, for Tri-Canter wash.
1	Vapor Discharge Fan SS and Scrubber see Exhibit
1	ANCO AE-300 Dryer • Stainless Steel dome, stator and end plates. Rotor will be built to ASME specification of 516-70-pressure steel and carry the Canadian CNR for 125 PSI. Shaft mounted drive Class II Service.
1	AE-300 Drier vapor tank with ductwork, heavy-walled stainless steel with inter-connecting ductwork. Assembly will be required at site because of its size.
1	Vapor Condenser for the AE-300 Dryer with 5 HP non-condenser fan. Stainless product side. Jacket built to ASME specification of 516-70-pressure steel and carries the Canadian CNR. Structure of tube steel is included. *Condensate pump may be required depending on available room height.*
1	ANCO Model 1320; 20,000 CFM Room Air Pac Bed Scrubber for treatment of obnoxious odor emissions associated with the salmon rendering process. This is one the BAT (Best Available Technologies) for odor control. This unit reduces the odors from the process and the room air, it cleans the air so it can be released to the atmosphere, the unit is also constructed out of S.S.
1	Hammer mill with base and 50 HP drive.
1	ANCO 1018 Conveyor Package per AE dwg 16-0903-1000
1	Meal Screen, Standard carbon steel base and lower table (both painted), ten (10) spring assemblies and a 2.5 horsepower, 380 volt, 50 cycle, 3 phase, 1500 RPM, TENV motion generator with upper and lower eccentric weight assemblies. Drive table is of new conically design without external gussets. This design encloses both upper and lower weights completely, preventing reach-in injuries and meeting all OSHA and CE guarding requirements for industrial equipment. Spring covers are also supplied to eliminate spring pinch points. The canted spring design stabilizes the machine during startup and stopping
1	Super Sack scale and bagging system, Bagging Scale System, digital scale system, for load super sacks. Bagger will include main support structure, super sacks hooks, and weigh interlocks. Customer can select bag type and capacity range from 1,000 pounds to 2,000 pounds.
1	ANCO (Low Voltage - 24 Volt) will use a state of the art touch screen display with PLC interface; the Allen-Bradley PLC Controls can be easily increased for future plant upgrades. This is a state of the art PLC that provides complete plant automation, connection will be either through the 24 Volt or Data Cable connect incorporated into the ANCO control logic; Allen Bradley.

Unit price .....$2,751,000 US Dollars

Payment Terms: 20% with order, 25% at approval drawing, 25% at 12 weeks from approval drawing 20% at shipping notification. Balance at start-up but no later then 90 days from shipping.

Freight.....F.O.B. High Point,

All prices stated are based on NET payment into the ANCO-EAGLIN account, any wire fees, LC fees, guarantees, etc., are provided by the customer.

THE SALE OF ANY GOODS COVERED BY THIS PROPOSAL OR OTHERWISE PURCHASE FROM ANCO-EAGLIN, INC. IS EXPRESSLY CONDITIONED UPON THE TERMS CONTAINED HEREIN (INCLUDING THE TERMS AND CONDITIONS ON THE ATTACHED). BUYER'S ASSENT TO THE TERMS CONTAINED HEREIN (INCLUDING THE TERMS AND CONDITIONS REFERENCED ABOVE) SHALL BE CONCLUSIVELY PRESUMED FROM BUYER'S SIGNATURE ON THIS PROPOSAL OR ACCEPTANCE OF ANY SHIPMENT COVERED BY THIS PROPOSAL.

UNLESS OTHERWISE STATED ABOVE, PRICES ARE EXWORKS OR F.O.B. FACTORY, SUBJECT TO APPROVAL OF SELLERS CREDIT DEPARTMENT. THE PRICE IS INCLUSIVE OF ALL ITEMS OF EQUIPMENT AND SERVICES DESCRIBED HEREIN EXCEPT THOSE PRICED SEPARATELY. IF TERMS OF PAYMENT ARE NOT SPECIFIED ABOVE, TERMS ARE NET 15 DAYS AFTER SHIPMENT. FREIGHT COST OR CONTAINER QUANTITIES ARE ESTIMATES AND ARE SUBJECT TO CHANGE WITHOUT NOTICE IF SHIP OCCURS BEYOND THIRTY DAYS AFTER PROPOSAL DATE.

LETTER OF CREDIT TERMS WILL BE CHARGED AT 2% OF CONTRACT AMOUNT WITH A MINIMUM OF $800. USD. IF PAYMENT BY WIRE TRANSFER, BUYER ASSUMES ALL BANK CHARGES, BOTH USA AND FOREIGN. DELAYED SHIPMENTS PER CUSTOMER REQUEST WILL BE CHARGED AT $250 PER WEEK FOR STORAGE UNTIL SHIP. NOTE PROVISIONS HEREIN DISCLAIMING ALL EXCEPT EXPRESS WARRANTIES AND LIMITING SELLER'S LIABILITY FOR BREACH OF WARRANTY. THIS PROPOSAL IS SUBJECT TO CHANGE OR WITHDRAWAL WITHOUT NOTICE AT ANY TIME PRIOR TO THE RECEIPT OF ACCEPTANCE BY SELLER AT ITS HOME OFFICE, AND SHALL TERMINATE UNLESS ACCEPTANCE IS RECEIVED WITHIN 30 DAYS FROM DATE. ALL PROPOSALS ARE SUBJECT TO A FREIGHT AND RAW MATERIAL SURCHARGE AFTER 30 DAYS OF ISSUING DATE.

ACCEPTED BY:_____
COMPANY

PROPOSED BY: ANCO-EAGLIN, Inc.

_____ _____
NAME DATE

BY:_____
Rick Eaglin, President

Company Background:

ANCO-EAGLIN, Inc. Highpoint, NC, U.S.A.
Is a manufacture of complete rendering facilities and equipment designed to specific Criteria based on customer specifications.

ANCO's family of companies, ANCO, BOSS, Boldt Fabrication, and KSI.

ANCO has built and installed rendering equipment throughout the world for more than 105 years. ***ANCO Has more units in operation than any other manufacturer***, which means no one, has more experience protein recycling plants of beef, fish, pork, and poultry than any other manufacturer.

ANCO builds its equipment to ASME, which is the highest standard for pressure vessels in the world, or units are built to Lloyd's, TÜV, or accordance with pressure vessel regulations in the country in which it is operated. These standards meet, or exceed all countries standards for pressure vessels.

This worldwide experience and high quality standards makes ANCO the world leader in rendering equipment manufacturing.

Equipment HP ratings are estimates and subject to change after consideration for plant elevation, Equipment placement or other engineering considerations.

EXHIBIT D, PROJECT SERVICES & SCOPE OF SUPPLY

ANCO-EAGLIN WILL SUPPLY THE FOLLOWING SERVICES:
A.) Design and drafting related to the attached drawing list.
B.) Project management for the equipment design and layout.
C.) Equipment procurement.
D.) CD with operation and maintenance manuals.
E.) Electrical equipment specifications for equipment supplied by ANCO.
F.) General drawing package to include one or more of the following drawings:
* Electrical Layout, Power Wiring, Control Panel and Control Wiring.
* Elevations, Roof and Wall Openings.
* Process Flow Analysis for ANCO supplied equipment only.
* Sections & Details as required.
* Foundation layouts; suggested placement of ANCO supplied equipment.

ANCO-EAGLIN INC.'s PRICE DOES NOT INCLUDE:
A.) Start up services for supplied equipment unless specified in the proposal.
B.) Turnkey operation services.

C.) General building construction, modification and remodeling of any kind.
D.) Building and/or equipment demolition and removal.
E.) Any work outside the general boundaries of the plant.
F.) Spare parts not specified in the proposal.
G.) Required Letter of Credit that is not specified in the proposal.
H.) Temporary facilities: office, lavatory, telephone expenses, etc.
I.) Any plumbing, process piping, fluid control devices, instrument indicators, etc., unless specified in the initial proposal. Insulation for process piping & duct, pressure vessels, tanks, etc. unless specified in proposal.
J.) Sewer system and related plant cleaning piping.
K.) HVAC (Heating, Ventilating and Air Conditioning).
L.) Material and construction of rendering equipment foundations: anchor bolts, embedded steel and equipment support pads, fasteners & welding supplies. Steel support structures for elevating equipment or operator access unless specified in the scope of supply. The design of steel supporting structures. Transition chutes necessary for joining material handling components.
M.) Utilities: tap water, pneumatics, hydraulics, lighting, electrical power, electrical wiring, steam, cooling water, etc. related to construction and/or plant operation not specified in detailed plant layout proposal. Special motors other than 9-lead type unless specified in proposal.
N.) Performance and material payment bond if required.
O.) Wastewater treatment and any related systems and facilities.
P.) Clean up services.
Q.) Lubricants, Chemicals, Hydraulic coils, gases and other miscellaneous material required for plant operation.
R.) State, Country and local sales taxes. Permits and fees required by customer.
S.) Freight delivery services unless specified in the proposal.
T.) Importing and Exporting duties.
U.) Builders Risk Insurance. Cost associated with air quality permits.
V.) Extra costs caused by events that cannot reasonably be anticipated or controlled: strikes, weather, fire, holiday, accidents, acts of God, etc.

ANCO-EAGLIN, INC TERMS AND CONDITIONS OF SALE

These terms and conditions apply to all quotations, orders, and contracts for ANCO-EAGLIN, Inc. ("A-E") products. **DEFINITIONS:** As used in these Terms and Conditions of Sale, the term (a) "Equipment" shall include all hardware, components, software and options including, but not limited to, the items contained in the "Description" portion of the invoice; and (b) "User" shall mean the company, entity or person named on the invoice (the original purchaser).

SALE AND DELIVERY: Unless indicated otherwise on the invoice, the sale and delivery terms are F.O.B. Greensboro, North Carolina or EX Works. User to pay all freight and insurance charges from F.O.B. or EXW point. All payments shall be made without deduction, deferment set-off, lien, or counterclaim of any nature. Unless otherwise provided in the invoice, all invoices shall be due and payable in full within thirty (30) days after date of invoice. All amounts not paid within 30 days after the date such amounts are due and payable shall bear interest at the lesser of 1.5 percent per month or the maximum rate of interest allowed by law. A-E reserves the right at any time to suspend credit or to change credit terms provided herein, when, in A-E's sole opinion, User's financial condition so warrants. Failure to pay invoices when such invoices are due and payable at A-E's election shall make all subsequent invoices immediately due and payable irrespective of terms and A-E may withhold all subsequent deliveries until the full account is settled. A-E shall not in such event be liable for delay of performance or nonperformance of contract in whole or in part subsequent to such event. User's delivery of a deposit constitutes acceptance of all terms listed on A-E's invoice and proposal which supersede all prior agreements, representations, discussions or negotiations, whether written or oral, with respect hereto. All additional or different terms or conditions set forth in User's documents (including purchase orders or other communications) are rejected and shall not be binding upon A-E unless specifically agreed to in writing signed by the President of A-E. A-E will furnish only the quantities and Equipment specifically listed on the face hereof or the pages attached .

CANCELLATIONS AND CHANGES: Orders which have been accepted by A-E are not subject to cancellation or changes in specification except upon prior written agreement by A-E and upon the condition that User shall indemnify A-E against all losses resulting from or arising out of such cancellation or change in specifications. In the absence of such indemnification A-E shall be entitled to recover all damages and costs of whatever nature permitted by the Uniform Commercial Code.

TAXES: Any taxes which A-E may be required to pay or collect under existing or future law upon or with respect to the sale, purchase, delivery, transportation, storage, processing, use or consumption of any of the products or services covered hereby, including all taxes upon or measured by receipts from sales or services, but excluding taxes based on income, shall be for the account of User, and User shall promptly pay the amount thereof to A-E upon demand or at any time in the future or User shall provide A-E with a tax exemption certificate acceptable to the appropriate taxing authorities.

WARRANTY: A-E warrants equipment of its own manufacture to be free from defects in materials and workmanship for a period of twelve (12) months from shipment. THIS WARRANTY EXTENDS ONLY TO USER, AND IN NO EVENT SHALL A-E BE LIABLE FOR PROPERTY DAMAGE SUSTAINED BY A PERSON DESIGNATED BY THE LAW OF ANY JURISDICTION AS A THIRD PARTY BENEFICIARY OF THIS WARRANTY OR ANY OTHER WARRANTY HELD TO SURVIVE A-E'S DISCLAIMER. Replacement parts provided under the terms of this warranty are warranted for the remainder of the warranty period applicable to the equipment, as if such parts were original components of the equipment. With respect to materials, parts and accessories manufactured by others, A-E will undertake to obtain for User the full benefits of the manufacturer's warranties. HOWEVER, A-E SHALL HAVE NO LIABILITY, WHETHER IN CONTRACT, INDEMNITY, WARRANTY, TORT, NEGLIGENCE, OR OTHERWISE, TO USER OR ANY OTHER PARTY WITH RESPECT TO NON-A-E MANUFACTURED PRODUCTS. A defect in a part shall not condemn all the equipment. EXCEPT AS SET FORTH IN THIS PARAGRAPH, THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER WRITTEN OR ORAL, IMPLIED OR STATUTORY. NO IMPLIED WARRANTY OF MERCHANABILITY OR FITNESS FOR A PARTICULAR PURPOSE SHALL APPLY. A-E DOES NOT WARRANT ANY PRODUCTS OR SERVICES OF OTHERS. The warranties and remedies set forth herein are conditioned upon (i) proper storage, installation, operation, use and maintenance, and conformance with all applicable instructions, manuals or recommendations of A-E; and (ii) user promptly notifying A-E of any defects, if required, promptly making the product available for correction.

LIMITATION OF LIABILITY: IN NO EVENT SHALL A-E BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, OR INDIRECT DAMAGES NOR SHALL A-E BE LIABLE FOR ANY LOSS OF PROFIT, LOSS BY REASON OF PLANT SHUTDOWN, NON-OPERATION OR INCREASED EXPENSE OF OPERATION, LOSS OF PRODUCT OR MATERIALS, WITH RESPECT TO THIS SALE OR ANYTHING DONE IN CONNECTION THEREWITH, WHETHER BASED UPON CONTRACT, INDEMNITY, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE AND USER SHALL INDEMNIFY A-E, ITS SUPPLIERS AND EMPLOYEES AGAINST ANY SUCH CLAIMS FROM USER'S CUSTOMERS. THE EQUIPMENT MAY CAUSE INJURY IF NOT OPERATED PROPERLY AND FOR THIS REASON ALL OPERATORS SHOULD BECOME THOROUGHLY FAMILIAR WITH THE OPERATING INSTRUCTIONS BEFORE OPERATING THE EQUIPMENT. A-E'S LIABILITY ON ALL CLAIMS OF ANY KIND, WHETHER BASED ON CONTRACT, INDEMNITY, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY OR OTHERWISE, FOR ALL LOSSES OR DAMAGES ARISING OUT OF, CONNECTED WITH, OR RESULTING FROM THE EQUIPMENT, OR THESE TERMS AND CONDITIONS, OR FROM ANY PRODUCTS OR SERVICES COVERED BY OR FURNISHED UNDER THE INVOICE OR ANY EXTENSION OR EXPANSION THEREOF (INCLUDING REMEDIAL WARRANTY EFFORTS), SHALL IN NO CASE EXCEED THE CONTRACT PRICE OF THIS INVOICE. EXCEPT AS TO TITLE TO ANY PRODUCTS FURNISHED, ALL SUCH LIABILITY SHALL TERMINATE UPON THE EXPIRATION OF THE WARRANTY PERIOD SPECIFIED IN THE 'WARRANTY" SECTION ABOVE.

SHIPMENT: Shipment dates are not guaranteed. A-E shall not be liable for delayed delivery or non-delivery for any reason. Where shipment is deferred at User's request for more than 30 days beyond originally scheduled date of shipment, the order will be subject to invoicing, payment and storage charges from scheduled date of shipment, or in lieu thereof, interest on any unpaid balance at 1-1/2% per month. In no event shall A-E be liable for any damages or penalties whatsoever, or however designated resulting from our failure to perform or delay in performing for any reason.

SECURITY INTEREST: User represents that the equipment is to be used for business, and shall remain personality. User grants A-E a security interest in the equipment to secure the payment of the purchase price and authorizes A-E to file UCC Financing Statements as A-E deems appropriate to perfect such security interest. User will not sell, lease, transfer or encumber the equipment and will keep it free from any and all liens and security interests until A-E has been paid in full. Upon default, A-E shall have all the remedies available to it under the Uniform Commercial Code and other applicable laws of the state in which the equipment is located and shall be entitled to all legal costs, reasonable attorney's fees, and all other reasonable expenses and costs permitted by law which are incurred by A-E in enforcing its remedies. In addition to its other remedies, A-E may require User to make the Equipment available at a place designated by A-E, which is reasonably convenient to both parties.

PATENTS: A-E agrees to indemnify and hold harmless User from any and all costs, expenses and damages resulting from any claim of infringement of a United States patent by reason of its use of the Equipment designed by A-E (but only if such Equipment is of A-E's own designs and in the condition supplied and manner contemplated by A-E) or from any suit resulting from any such claim, provided the User promptly notifies A-E of any such claim or the institution of any such suit. User shall offer A-E full and exclusive right of defense in any such suit relating to the Equipment, or to remove it and refund to User the purchased price thereof less fifteen percent (15%) for each full year from the date of shipment of the Equipment. NOTWITHSTANDING THE FOREGOING, A-E'S CUMULATIVE LIABILITY FOR INDEMNIFICATION UNDER THIS PROVISION SHALL NOT EXCEED THE PURCHASE PRICE OF THE EQUIPMENT. This paragraph shall not apply to (a) any foreign patents, (b) apparatus designs modified by User or at its request, any process in which the Equipment is used, (d) any product made by User, or (e) any claims or suits involving solely materials, parts or accessories manufactured by others. The foregoing states the entire liability of A-E for patent infringement.

GOVERNING LAW AND CONSENT TO JURISDICTION: The contract for the sale of the goods and services provided in the invoice (the "Agreement") shall be governed by and interpreted in accordance with the laws of the State of North Carolina. This Agreement shall inure to the benefit of and be binding upon User's permissible heirs, personal representatives, successors and assigns. User hereby submits to the personal jurisdiction and venue of the state and federal courts in Guilford County, North Carolina, with respect to any lawsuit related to this Agreement, the Equipment, or any services provided by A-E. The parties hereto agree to waive to the fullest extent permitted by law, the defense of an inconvenient forum.

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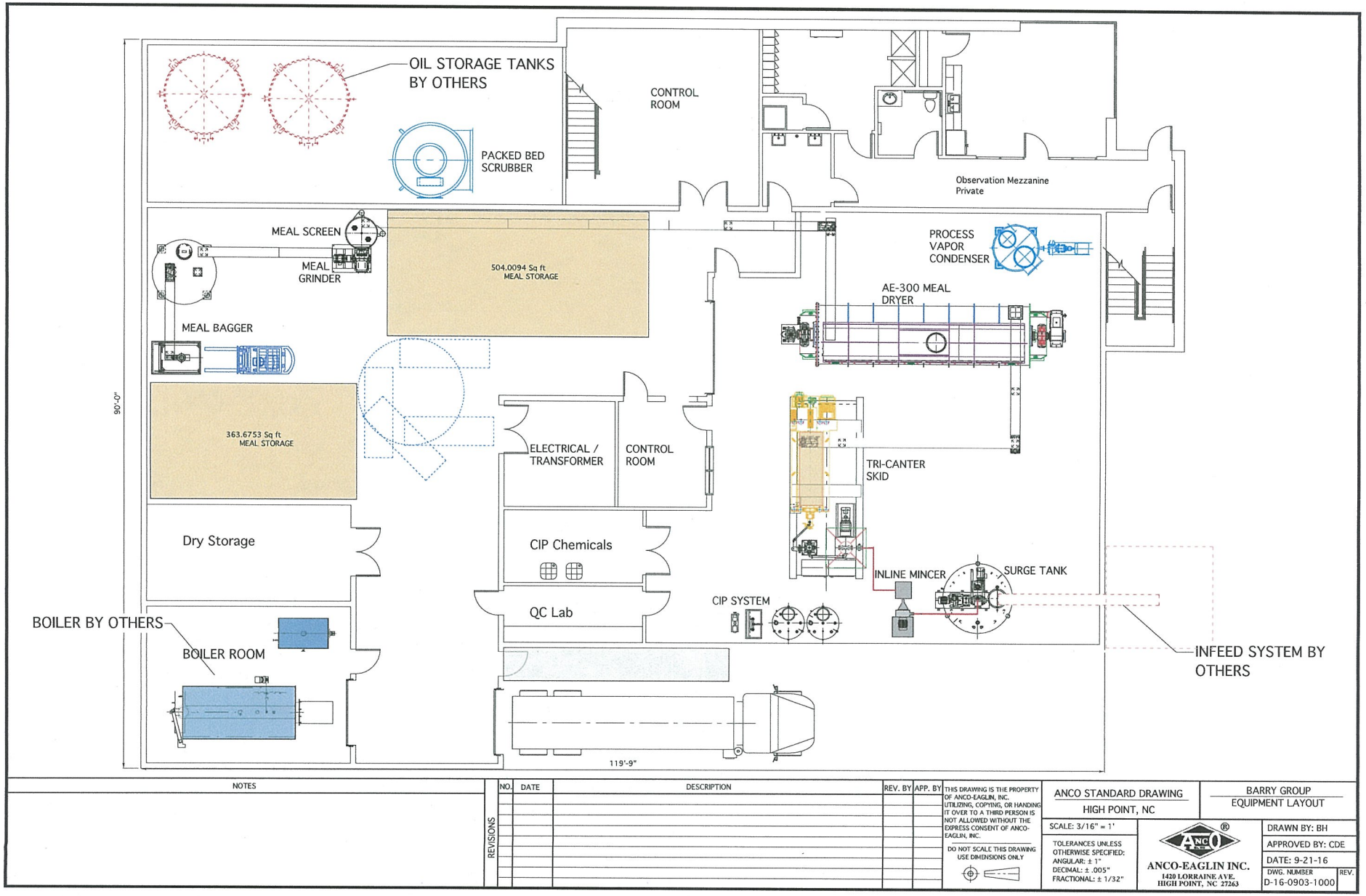

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ANCO STANDARD DRAWING
HIGH POINT, NC

BARRY GROUP
EQUIPMENT LAYOUT

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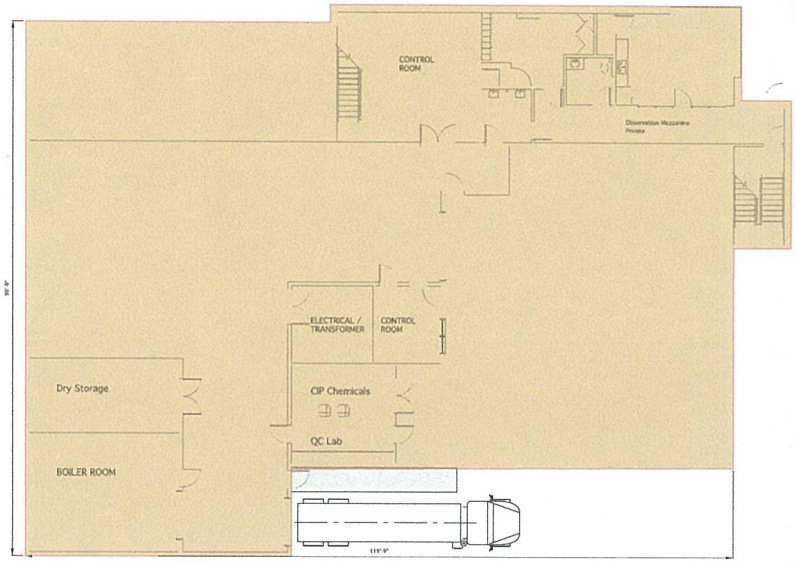
APPROVED BY: CDE
DATE: 9-21-16
DWG. NUMBER: D-16-0903-1000
REV.



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APPROVED BY: CDE
DATE: 9-21-16
DWG. NUMBER D-16-0903-1000
REV.

On Oct 18, 2016, at 9:53 AM, John Luppens <j.luppens@redox.nl> wrote:

Hi David,

I forgot to stress the water temperature design challenge in my last email.

You may get the wrong impression from your neighbor.
Corner Brook Pulp & Paper features three very large open tanks, which do not freeze in winter..
However that doesn't mean that this isn't that much of a problem in your case...
Their effluent is much warmer than yours, making it much more resistant against freezing over in the winter.

And even their plant features a water heating aeration system (fine bubble depth aeration).

The aeration system is the second most expensive part of the wastewater treatment we offer (after not using chemicals in pre-treatment).
Offering a cheaper system is easy, but not when it has to remain operational during winter and if you want flush as little of your profit as possible down the drain because of your effluent treatment system.
However should your emphasis be on initial investment rather than running costs, we would gladly offer a different system.

Best regards,

John Luppens
REDOX Water Technology
From: David Moores [mailto:dmoores@barrygroupinc.com]
Sent: Tuesday, October 18, 2016 12:33 PM
To: John Luppens
Cc: rick@ancoeaglin.com
Subject: Re: Barry Group: Wastewater treatment

Thank you Sir.

Will look at shortly and get back to shortly.

Sent from my iPhone

On Oct 18, 2016, at 7:46 AM, John Luppens <j.luppens@redox.nl> wrote:

Hi David,

I had some confusion with Rick Eaglin yesterday about where to send our quotation.
He asked me to forward it directly to you.

Attached you will find our quotation fonr a wastewater treatment plant.
We used typical wastewater composition data for the salmon processing industry (please check if our assumptions are correct).
We have a lot of experience in the fish processing industry, just east of you in Iceland we have over a dozen fish references, not bad of an Island with half the population of Newfoundland.

For your plant in Corner Brook, we looked very hard to find a system that merges low operating costs with low investment, but unfortunately our choices were severely restricted by the effluent demands, the

relatively low effluent temperature of salmon processing plants, Canada's low electricity prices and Canada's climate.

Canada's cold winters prevented us from offering a relatively inexpensive surface aeration system.
Surface aeration cools water which would mandate the construction of an indoor wastewater treatment (as is customary in Alberta, Saskatchewan, Manitoba, etc.) which would result in a far higher initial investment (it's not just our equipment that you need to purchase to make this system work...)
This to prevent the transformation of the contents of the aeration basin into a giant ice cube in winter.
Instead we offer a depth aeration system, that is not only far more energy efficient, it also heats the water rather than cooling it.

The effluent demands for nitrate, ammonia, chlorine and phosphate mandated the application of extra equipment.
And the combination of low electricity prices (Newfoundland's electric energy is one of the cheapest in North America) and relatively high chemical costs, made the application of a cheap chemical pre-treatment unattractive (which would have over Can$ 100,000 higher annual operating cost...)

The combination of these forced choices drove up the investment cost but at the same time it drove down the operating cost.
Hence no doubt that this system is expensive to buy, but at the same time it is the system that will cost you the least amount of money over a 2 to 3 year period.
In the end it is the wastewater treatment with the lowest impact on your profit margin.

The quote is full of pictures, drawings and explanations of how the process works, why equipment is required, its features and specs.
All with the intention to help you understand how this system works and why it is a good investment of your money.
However if you have any questions, please feel free to contact us, we are pleased to be of assistance to you.

Best regards,

John Luppens
Area Manager

<image001.jpg>

T: + 31 (0)543 53 10 30
W: www.redox-wt.nl
C.o.C.: 08038650

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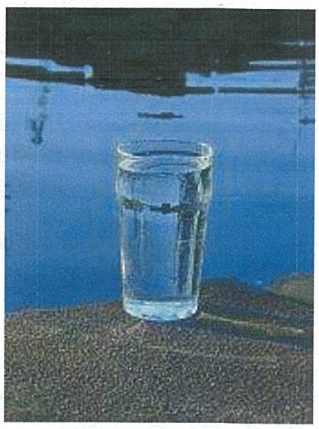
Internet : www.redox.nl

BARRY GROUP INC.

Corner Brook, Newfoundland, Canada

Proposal number	160278
Project description	Wastewater treatment with lowest effect on your profit margin: Aerobic biological treatment system type SBR with non-chemical pre-treatment



AFFORDABLE CLEAN WATER

TABLE OF CONTENTS

1. PROCESS DESIGN

1.1. DESIGN PARAMETERS

Waste water source			
Type of industry	Salmon processing		
Wastewater relevant processes	Eviscerating, filletting, deboning, cooking, canning & rendering		
Flow data[1]			
Daily flow	53,000 US-GPD	200 m^3/day	
Average flow	36.7 US-GPM	8.3 m^3/h	
Peak flow	66 US-GPM	15 m^3/h	
Peak flow duration	2	hours/day	
Parameter[1]	Concentration [mg/l]	Load [lbs/day]	Load [kg/day]
COD	3,600	1,587	720
BOD_5^{20}	2,000	882	400
FOG	650	287	130
TSS	1,500	661	300
TKN [2]	225	99	45
TP	100	44	20
Chlorides	<400	176	<80
	Average	Range	
pH	6.7	6.0 < pH < 9.0	
Water temperature	15 °C	10 < t < 21 °C	
	60 °F	50 < t < 70 °F	
Utility data			
Electricity	Main power supply: 480 V, 60 Hz, 3 phases + "0" + PE (protective earth) Control voltage panel: 110 V AC Control voltage field components 24 V AC		
Environmental data			
Ambient temperature [3]	-10 < t < 30	°C	
	15 < t < 85	°F	
Elevation Corner Brook, Newfoundland (Lat: 48°57'37"N, Long: 57°59'57"W)	<6	m above sea level	
	<20	ft above sea level	

Note:
Please have a representative composite daily sample of your wastewater analyzed for the parameters listed in the table above. The system as quoted will only work when the water quality is at or below the values listed in the table. At present the system is designed for the values listed in the table, which are assumed by us as we were not given these data of the actual wastewater.

---

1 The stated design data in paragraph 1.1 and 1.3 are based on your information and form the basis of our design. Corrections could result in technical and/or commercial modifications.

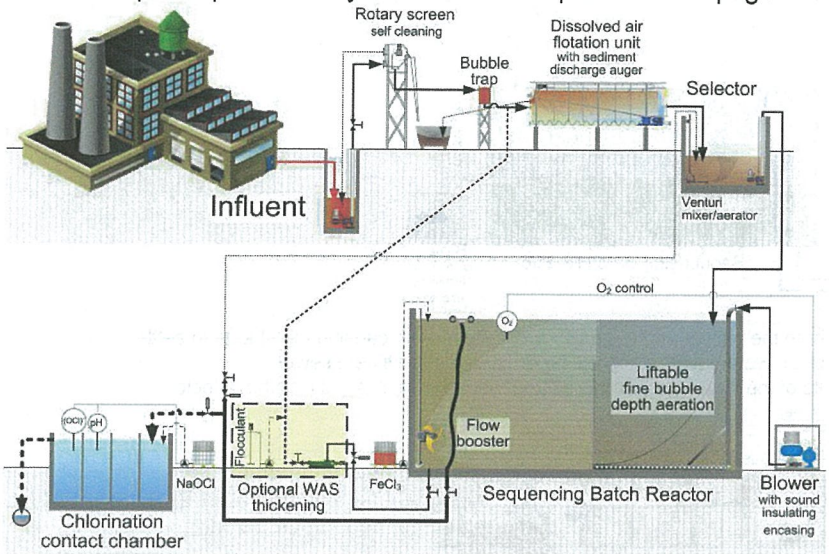
2 Total Kjeldahl Nitrogen is equal to the sum of organicly bound nitrogen (contained e.g. in proteins and urea) and ammonia nitrogen.

3 To shield the equipment from frost damage, the system has to be installed in a frost free building.

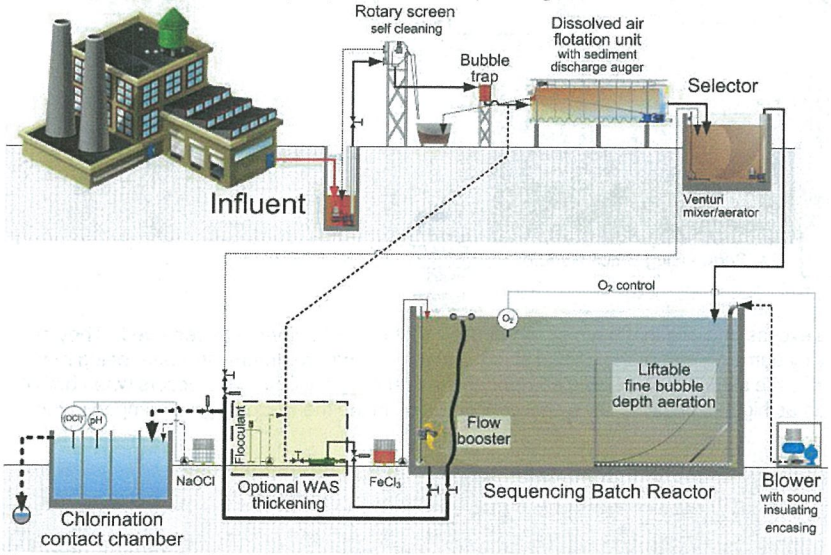
1.2. FLOW DIAGRAM

REDOX has many different processes available that could be applied.
In cases where:
- Low operating costs are desired.
- Best return on investment is desired.

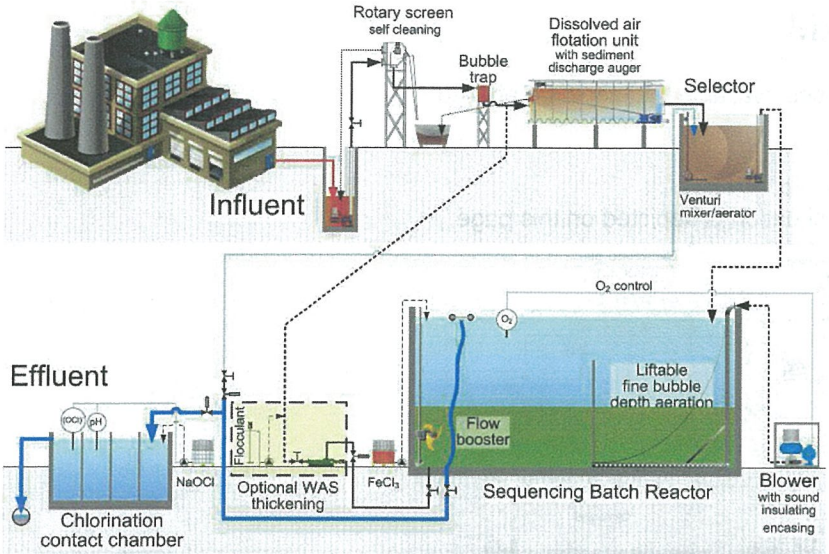
The most optimal process for your situation is depicted on this page:



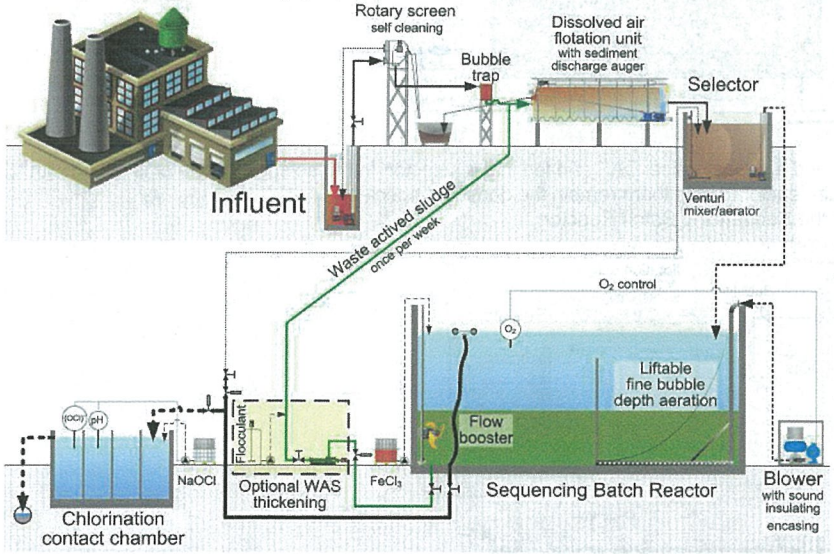
The waste water is pre-treated by a screen and a non-chemical DAF and fed into a selector. In the selector the water is mixed with good settling bacteria returned from the main reactor to help them remain the dominant species.
From the selector the water is pumped into the Sequencing Batch Reactor.



To remove nitrate, the blower that provides oxygen to the Sequencing Batch Reactor is periodically switched-off. This enables the bacteria to use nitrate instead of oxygen to break down pollution by converting nitrate into nitrogen gas that will subsequently be released to the atmosphere.
To ensure proper contact between the pollution and the bacteria during denitrification, the mixer remains switched-on.
To obtain a low ammonia and nitrate concentration, there will be several denitrification periods, for nitrate will form during aeration periods while ammonia that enters during dentrification periods is not broken down during denitrification.
To obtain a low total phosphorus concentration, ferric chloride, a phosphorus precipitation agent, is dosed in the reactor in the last denitrification period prior to the decanting and effluent drain periods, removing phosphorus from the water.
The pre-treatment operates independent of the biological treatment system and will continue as long as waste water is discharged in the factory.



After treatment in the reactor is completed, both the blower and the mixer are switched-off, causing the sludge to settle.
When sludge has settled long enough, the clean water layer on top will be drained to the effluent sewer.
Before starting effluent drainage, the contents of the floating drain and effluent hose will be flushed into the selector.



To keep the system functioning properly, the excess bacteria that have grown throughout the week, have to be removed. They are removed once a week on a non-working day by pumping part of the settled sludge layer to the pre-treatment DAF after being made into large strong flocks by adding a flocculant to the sludge that is being pumped to the pretreatment DAF. This occurs when both the blower and mixer are switched off to obtain an as high as possible dry solids concentration in the the sludge that is pumped to the pretreatment DAF.

1.2.1. Advantages of this process

- **The wastewater treatment process with lowest impact on your profit margin**
  This wastewater treatment system has the lowest operating costs possible, under 2.75 Can$ per 1000 US-gallon (<0.75 Can$/m³), by working without chemicals in the pre-treatment system and applying some of the most energy efficient equipment on the market. This in contrary to low-investment systems that typically operate with a chemical pre-treatment system, that will have an operating cost of over 11 Can$/1000 gallon (>3 Can$/m³), which results in over Can$ 100,000 higher annual operating costs.
  REDOX is an original equipment manufacturer of almost all possible wastewater processes and -equipment. As such REDOX can offer any other system as well. In this case we decided to offer a process that applies a non-chemical pre-treatment as we figure that the aim of your factory is to make you rich rather than your chemical supplier.
- **No foul odour, no bad smells**
  The DAF, selector and sequencing batch reactor are equipped with aeration, which prevent foul odors from forming. Leaving only a few parts of the process that allow water and/or solids to become anaerobic which could result in the release of odors (influent sewer, pump station and receiving bins for screenings and sludge.
- **Maintains operational at low ambient temperatures**
  We choose to apply expensive depth aeration system that heats the water somewhat allowing the system to maintain operational at much lower ambient temperatures than possible with cheaper surface aeration system. The much cheaper surface aeration systems cool the water down by evaporative cooling, quickly turning the contents of the aeration basin into an ice cube in Canada's infamously cold winter climate.

1.3. EXPECTED EFFLUENT QUALITY[1]

Parameter	Concentration [mg/l]
BOD	<20
FOG, Oils (ether extract)	<15
Suspended solids	<30
Dissolved solids	<1,000 increase
NH_3-N	<2
NO_3	<10
Phosphates (total as P_2O_5)	<1
Chlorine $(ClO)^-$	<1
Faecal Coliforms	<1,000 MPN/100 ml
Total Coliforms	<5,000 MPN/100 ml
	Range
pH	6.0 < pH < 9.0

1.4. EXPECTED SLUDGE PRODUCTION[2]

Sludge	Flow		dry solids in sludge	
	[m³/d]	[GPD]	[kg/day]	[lbs/day]
- Pre-treatment DAF	~1½ to ~2½	~400 to ~650	~400 to ~500	~175 to ~225
- Waste activated sludge	~4 to ~6½	~1000 to ~1700	~350 to ~450	~150 to ~200

[1] The expected effluent quality is an indication based on the influent data, absence of toxic or inhibiting matter, a water temperature above 10°C/50°F in the SBR reactor, correct operation of the system in accordance with the operation manual and adequate maintenance in accordance with the maintenance manual.

[2] The expected sludge production is an indication based on the influent data.

1.5. EXPECTED CONSUMPTION FIGURES[1]

Chemicals for water treatment		
- Coagulant	0	kg/day e.g. 40% ferric chloride
- Neutralizer	0	kg/day e.g. 50% caustic soda
- Flocculant	0	kg/day poly acryl amide
Chemicals for phosphorus removal		
- P-precipitation agent	~125 ~275	kg/day e.g. 40% ferric chloride lbs/day e.g. 40% ferric chloride
Chemicals for sludge dewatering		
Flocculant	~1½ to ~2¼	kg/**week** poly acryl amide
Electricity		
- Installed power	~75 ~55	HP kW
- Consumed power	~575	kWh/day
Tap water (connection, the actual consumption is far less)	~250 ~1	gallon/hour at 30 PSI m^3/h at 2 bar

1.5.1. Electric energy consumption calculation[2]

Location	Item	Number	Flow GPM	Installed power per motor HP	Consumed power kW	Running hrs per motor	Consumed power kWh	Installed power HP
Lift station	Submersible pump	1	66	3.35	2.0	13.3	26.7	3.4
Rotary screen	Drum drive	1	66	0.50	0.3	3.9	1.2	0.5
Selector	Venturi mixer/aerator	1		2.68	1.7	24.0	40.8	2.7
	Submersible pump	1	100	3.35	2.1	12.3	26.2	3.4
	Neutralizing agent dosing pump	1		3.35	2.1	0.0	0.0	3.4
Aeration basin	Blower; main motor	1		30.00	16.0	18.0	288	30.0
	Blower; cooling fan	1		0.50	0.3	18.0	5.7	0.5
	Flow booster	1		3.08	2.0	21.0	41.1	3.1
	Formic acid dosing pump	1		0.08	0.1	0.0	0.0	0.1
	P-precipitant dosing pump	1		0.08	0.1	2.0	0.1	0.1
WAS dewatering	Excess bio-sludge pump	1		2.00	1.3	2.0	2.5	2.0
	Flocculant make-up unit	1		1.00	0.6	1.0	0.6	1.0
	Flocculant dosing pump	1		0.50	0.3	2.0	0.6	0.5
Dewatering drum	Drum drive	1		0.74	0.5	2.0	0.9	0.7
Effluent disinfection	NaOCl dosing pump	1		0.12	0.1	2.0	0.2	0.1
Control panel		1		0.50	0.2	24.0	3.8	0.5
Total consumed power in kWh/day							564	
Total installed power in HP								70

[1] The expected consumption figures are indications based on the influent data. Actual consumption data can be estimated by performing jar tests on flow proportional composite wastewater samples taken on a representative production day.

[2] The consumption data is based on the equipment and influent data mentioned in this document.
Actual motor size may be changed if local conditions change from the ones used to design the system.

1.6. REQUIRED CIVIL WORKS

Tanks[1]	Contents net	l x w x h or d x h	Bottom level in relation to ground level
Pump station	~3 m³ ~800 US-gallon	~d=1.25 m (~4'), h=2m (~6'6") below bottom sewer	2 m (~6'6") below sewer level
Selector	~50 m³ ~13,200 US-gallon	~4 x ~4 x ~4 ~13'2 x ~13'2" x 13'2"	-2.5 m (~8'2')
Sequencing Batch Reactor	~1,050 m³ ~277,500 US-gallon	d= 14 m (46') h= 7 m (~23')	-2.5 m (~8'2')
Chlorination contact chamber	~50 m³ ~13,200 US-gallon	~4 x ~4 x ~4 ~13'2 x ~13'2" x 13'2"	-2.5 m (~8'2')

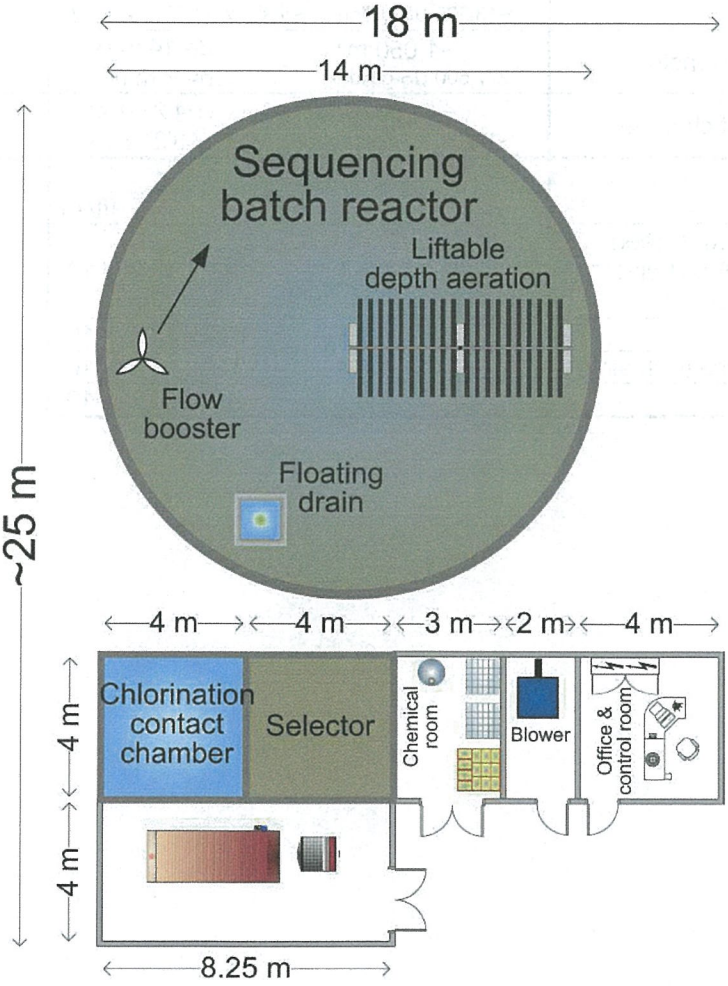
Building[2]	l x w x h	
	[m]	[ft/in]
- Equipment room (for screen, pre-treatment DAF unit and dewatering screen).	8¼ x 4 x 4	27' x 13'2" x 13'
- Blower room	2 x 4 x 3	6'6" x 13'2" x 10'
- Control room / office (with airco)	4 x 4 x 3	13'2" x 13'2" x 10'
- Chemical room	3 x 4 x 3	10' x 13'2" x 10'

[1] Different shapes of the tanks/basins are possible. Since the shape of the tanks/basins can have a big impact on the civil works cost, the shapes of the basins will be an important topic in our discussions with you.

[2] Recommended dimensions and building layout. Different dimensions and building layouts are possible.

1.7. LAYOUT

The proposed system can be built with many different basin shapes and construction materials.
The smallest foot print possible, using a concrete cylindrical main reactor, is depicted below.
Please note that this is just an example of the many configurations that are possible that we only present as a service, to give an impression of the required space.
In case different basin shapes are desired (for instance a plastic lined lagoon or a square/rectangular tank), this is possible with the proposed process, although changes to the civil works may require modifications to the scope of supply.



1.8. PROCESS DESCRIPTION

1.8.1. Non-chemical pre-treatment

The waste water treatment starts by passing the water over a fine screen to remove particles that could block pipes or damage delicate equipment in the rest of the system.
The required screen should preferably be in/near the rendering building where the recovered solids are processed as this will greatly reduce the logistics involved in transporting the screeings to the cooker.

After passing the fine screen the water is led into a dissolved air flotation unit (DAF unit).
In the DAF unit small micro bubbles are formed on or adhere to suspended solids, increasing their buoyancy, making them float to the surface of the DAF unit where they will be removed by a scraper mechanism.
The micro air bubbles are created by reducing the pressure of recycled effluent that has been saturated with air at a higher pressure and subsequently exposing this water to the proper conditions.

Any sediment present in the wastewater will settle to the base of the DAF unit, where it accumulates in a sediment gutter that stretches the full length of the DAF unit.
The sediment gutter is equipped with a shaftless auger that periodically transports sediment forward into the sediment cone of the DAF unit, where the sediment is subsequently removed by opening a valve.

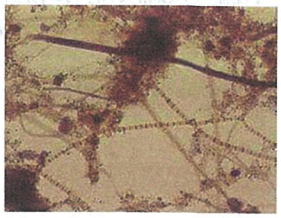
The treated water leaves the DAF unit over an overflow weir and flows by gravity into the selector of the biological treatment system.

1.8.2. SBR biological treatment

In the biological treatment the pollution is decomposed by aerobic biological bacteria that live in flock-like colonies called activated sludge.
This activated sludge process consists of 4 separate process steps:

Selection	:	Ensures that most bacteria continue to grow in flock like colonies
Denitrification	:	Removes nitrogen by converting nitrate into nitrogen gas.
Nitrification / aeration	:	The activated sludge converts: organically bound nitrogen and ammonia into nitrate carbon based organic pollution into water and carbon dioxide
Activated sludge separation & effluent discharge	:	Separates the activated sludge from the treated water.

1.8.2.1. Selection



After pre-treatment the waste water will flow into the selector where it will be mixed with a certain amount of activated sludge. In the selector the proper conditions exist for the activated sludge to absorb most of the dissolved pollution. This will leave too little dissolved pollution behind for filamentous bacteria to flourish in the aeration basin, hence preventing problems caused by excessive concentrations of filamentous bacteria such as foam, reduced oxygen transfer, decreased settling properties of the activated sludge, excessive suspended solids in the effluent, etc.
In a SBR process the selector has a second function. It has to retain water during the settling and effluent discharge periods in the SBR reactor.

1.8.2.2. Aeration / nitrification / denitrification

In the aeration basin the pollution is decomposed by aerobic bacteria that live mostly in flock like colonies, called activated sludge.
In the presence of oxygen bacteria will decompose the pollution into carbon dioxide, water, nitrate and a host of other substances.
The required oxygen is supplied by a depth aeration system by passing air through small openings in membrane tube diffusers. The small openings ensure the formation of tiny air bubbles that have a large combined surface area through which a large fraction of the oxygen will diffuse into the water.

Some of these substances, like nitrate are also undesirable and has to be removed by a subsequent process called denitrification.

During denitrification the activated sludge use nitrate as an oxygen substitute to break down pollution during which the nitrate is converted into nitrogen gas. This process only happens in the absence of oxygen, which requires stopping the oxygen supply, aka stopping the blower.
During denitrification the activated sludge is kept in suspension by a mixer.

1.8.2.3. SBR activated sludge separation

The activated sludge receives a certain period to decompose the pollution, after which the activated sludge is separated from the treated water by stopping both the mixing- and aeration systems.
With the mixing and aeration system stopped, there no longer will be sufficient movement in the water to keep the activated sludge flocks in suspension, which will subsequently start to settle, forming an ever thicker clarified water layer on top of the thus formed settled sludge layer. After a certain period has elapsed, a part of the supernatant water layer is drained from the basin and discharged.

1.8.3. Effluent disinfection

To kill or inactivate micro organisms, bacteria and viruses present in the effluent, hypochlorite also called chlorine, is dosed in the water. Hypochlorite takes some time to react.
To create sufficient time for these reactions to proceed, the effluent is guided through a chlorination contact chamber. After passing the chlorination contact chamber, the water passes over a cascade to re-aerate the water prior to final discharge.
Due to the stict effluent discharge limit for chlorine, a sophisticated chlorine monitoring system is installed the ensures proper disinfection without surpassing the discharge limit.

1.8.4. Biological excess sludge dewatering

Activated sludge bacteria multiply. When their population increases it will be increasingly difficult to separate the activated sludge from the treated water.
To prevent separation problems, the excess activated sludge has to be removed.
This is achieved by pumping a small part of the settled sludge in the sequencing batch reactor to the pre-treatment DAF, which will remove most of the water from this sludge, reducing its volume.

A flocculant is added to the sludge to create more stable sludge flocks that enable water to drain faster from the sludge in the DAF.

2. SCOPE OF SUPPLY

2.1. NON-CHEMICAL PRE-TREATMENT EQUIPMENT

2.1.1. Pump station equipment

Lifts the water from the pump station to the screen.

Fast and easy access.
Mounting assembly with guide tubes and coupling allows exceptionally fast removal/replacement of the pump for maintenance purposes.

Avoids float and sediment problems.
The pump size is selected to allow for the application of an as small a pump station as possible; big enough to prevent too frequent on-off switching of the pump yet small enough to allow the pump to remove any floating layers or sediment.

Capacity can be changed.
Interchangeable impeller enables adjustment of the pump's capacity.

High resistance against clogging and abrasive wear.
Retracted impeller and big free passage.

Brand	:	Landustrie
Capacity	:	66 GPM (~15 m^3/h)
Head	:	~25 ft (~8 mwc)
Free passage	:	≥2½" (≥65 mm)
Installed power	:	~3.3 HP (~2.5 kW)
Material pump house	:	Coated cast iron
Including	:	2 stainless steel guide tubes, 1 coupling pedestal, 6 m stainless steel lifting chain and 30 ft (~10 m) electrical cable 1 Maximum flow adjustment gate valve

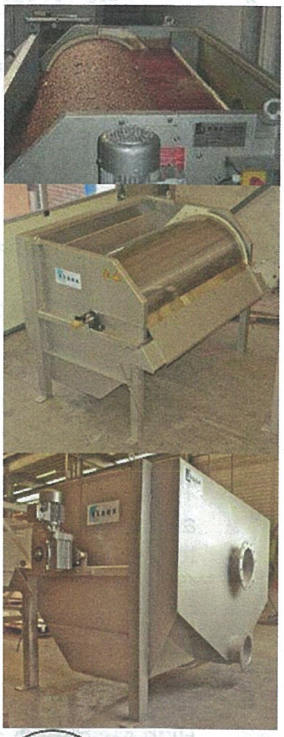
2.1.2. Hydrostatic level sensor with mounting equipment

Reliable
Electronic level measurement that is not influenced by clogging or presence of crusts or layers floating on the water.

User friendly
Don't worry about getting dirty when changing the level sensors' set points.
You won't: The setpoints can be changed remotely from the electrical control panel.

Brand : Endress+Hauser

2.2. EXTERNALLY FED ROTARY SCREEN

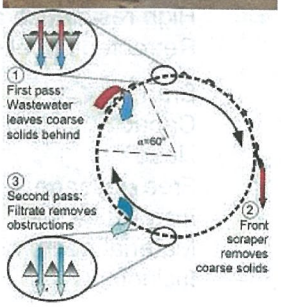


Removes particles that could damage or block down stream equipment.

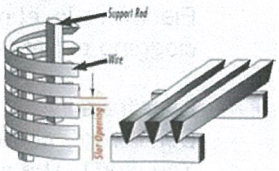
Mostly self cleaning
Wedge wire drum: Wedge is widest on the inside, making blockage of the slots more difficult.
Filtered water cleans the screen: The waste water passes the screen twice, first pass it leaves solids behind on the drum, in the second pass blockages are flushed.
Integrated spray cleaning system to assist the self cleaning action when processing extremely fouling waste water (like guts cleaning water).

Adjustable capacity and adjustable performance
The rotation of the filter drum supplies clean open filtration area in the filtration zone: Once inside the filtration zone, material will deposit on the drum and block part of the mazes of the screen, which will make it possible to trap particles that are even smaller than the mazes of the screen.

Relatively dry screenings, adjustable moisture content of the screenings
As soon as the drum surface rotates out of the water, moisture will start to seep from the screenings. The slower the screen rotates the longer water will seep from the screenings and the dryer the screenings will become.



Model	:	REDOX **RRF**
Capacity	:	66 GPM (~15 m^3/h)
Drum diameter	:	2' (~0.6 m)
Drum length	:	1'6" (~0.45 m)
Slot width	:	~0.02" (~0.5 mm)
Approx. dimensions	:	l x w x h : ~3'3"x 4'x 4'3" (~1.0 x ~1.2 x ~1.3 m)
Installed power	:	~1.0 HP (~0.75 kW)
Material	:	Stainless steel AISI304
Including	:	- **Frequency controlled drive** for rotation speed control. Make Yaskawa - Internal spray cleaning system with electronic valve - Overflow protection by internal overflow weir



2.2.1. Chute

Hygienic
Guides screenings during their fall into the deposit.

Height	:	max. 3'3" (~1 m)
Material	:	Stainless steel AISI304

2.2.2. Support

Creates sufficient height to place a container below the screen.

Height	:	max. 6'6" (~2 m)
Material	:	Stainless steel AISI304

2.3. BUBBLE TRAP

Water that passes a screen, will splash in the effluent compartment of the screen, resulting in creation of big air bubbles in the water that flows to the DAF. These big air bubbles will float quickly to the surface in the DAF, reducing its efficiency by creating turbulence and disturbing the sludge layer, resulting in wetter sludge.
To prevent this, the big air bubbles have to be removed prior to the DAF unit.

Brand	:	REDOX
Design capacity	:	66 GPM (~15 m^3/h)
Material bubble trap	:	Stainless steel AISI304
Including	:	Stainless steel support structure

2.3.1. Dissolved air flotation unit

Removes fat, oils, grease, suspended solids and sediment.

Exceptional efficiency.
The plate packs substantially increase the separation area of the DAF unit.
Laminar flow inside plate packs significantly improves efficiency.
Fine air bubbles by controlled micro air bubble formation.
Even distribution of the influent over the entire width of the DAF unit.

Multi point micro bubble formation inside the DAF unit to limit coalescence of micro air bubbles to an absolute minimum.

Fully automatic, almost maintenance free.
Automatic cleaning system for micro air bubble expansion injectors.
Automatic sediment discharge system with shaftless auger installed in a gutter located in the bottom of the DAF unit that runs along its entire length. All sediment will end up in this gutter.
The auger ensures complete removal of the sediment.

Relatively dry sludge.
Static thickener and low speed scraper drive allow effective water drainage from the sludge.

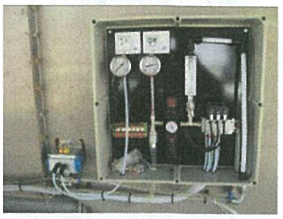
Brand	:	REDOX
Capacity	:	66 GPM (~15 m^3/h)
Installed power	:	Sediment auger : ~0.75 HP (~0.55 kW) Scraper drive : ~0.5 HP (~0.37 kW)
Material	:	Stainless steel AISI304
Including	:	Floated sludge discharge chute Sediment discharge auger. **Frequency controller** for scraper speed adjustment. Pneumatic control panel to control the air dosing of the air-in-water saturation system.

Recirculation pump

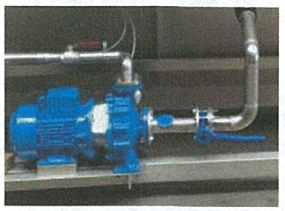
Make	:	Johnson Pumps
Recirculation/saturation flow	:	~30 GPM @85 PSI (~7 m^3/h @6 bar)
Installed power	:	~5½ HP (~4 kW)
Including	:	2 Manual valves to enable removal of the pump for maintenance.

Sediment auger and micro bubble disfusers

Automatic micro bubble diffuser cleaning system

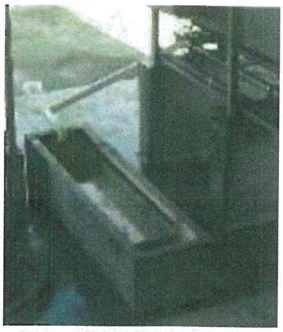


Pneumatic control panel



Recirculation pump detail clearly shows that air injection occurs after the water has passed the pump.

2.3.2. Sediment gutter equipment



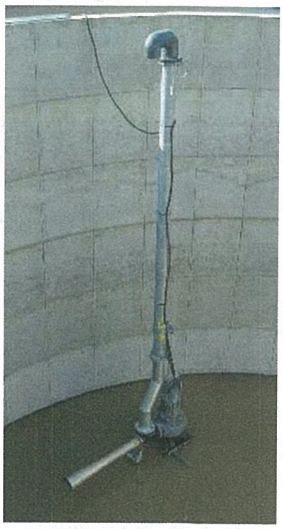
The sediment that accumulates in the DAF unit is periodically removed from the DAF into a sediment gutter.
The sediment gutter is compact, small and shallow allowing easy access for emptying, yet much larger than the DAF's sediment drain pipe, slowing the water down, enabling the sediment to settle once more, accumulating in the sediment gutter, between a baffle plate and over flow weir.
For this concrete sediment gutter (not included) we will supply following equipment:

Baffle plate over flow weir:

Material baffle plate	:	Stainless steel
Material over flow weir	:	Stainless steel
Recommended size	:	l x w x h : ~10' x ~2' x ~2' (~3 x ~0.6 x ~0.6 m)

2.4. SELECTOR EQUIPMENT

2.4.1. Venturi mixer/aerator



Submersible pump with **venturi suction** chamber and air-water dispersion **jet funnel** and mounting equipment.

Keeps sediment layers in check.

Creates a homogeneous mixture.

Provides the oxygen required for the selection process.

Fast and easy access
Mounting assembly allows exceptional fast removal/replacement of the venturi mixer/aerator for maintenance purposes.

Brand	:	Xylem
Material pump & venturi	:	Coated steel
Material jet funnel & air suction tube	:	Galvanized steel
Installed power	:	~2¾ HP (~2 kW)
Including	:	2 stainless steel guide tubes, 1 coupling pedestal, 6 m stainless steel lifting chain and 10 m electrical cable

2.4.2. Aeration basin feed pump

Pumps the water from the selector to the aeration basin.

Submersible pump with mounting equipment.

Fast and easy access.
Mounting assembly with guide tubes and coupling allows exceptionally fast removal/replacement of the pump for maintenance purposes.
Capacity can be changed.
Interchangeable impeller enables adjustment of the pump's capacity.

Brand	:	Xylem or Landustrie
Capacity	:	100 GPM (~22 m^3/h)
Head	:	~25 ft (~8 mwc)
Installed power	:	~3.3 HP (~2.5 kW)
Material pump house	:	Coated cast iron
Including	:	2 stainless steel guide tubes, 1 coupling pedestal, 6 m stainless steel lifting chain and 10 m electrical cable 1 Maximum flow adjustment gate valve

2.4.3. Hydrostatic level sensor with mounting equipment

Reliable
Electronic level measurement that is not influenced by clogging or presence of crusts or layers floating on the water.

User friendly
Don't worry about getting dirty when changing the level sensors' set points.
You won't: The setpoints can be changed remotely from the electrical control panel.

Brand	:	Endress+Hauser

2.5. SEQUENCING BATCH REACTOR EQUIPMENT

2.5.1. Blower with sound insulating encasing

Relatively low noise.
Rotors with three-lobe profile that reduces pressure pulsations, resulting in lower mechnical stress and less noise.
Integrated pulsations dampening system.

Equipped with sound insulating encasing.
Greatly reduces the noise level of the blower.

Type	:	Positive displacement rotary blower
Brand	:	Robuschi
Installed power	:	Main motor : ~30 HP (~22 kW)
		Encasing ventilator : ~0.5 HP (~0.37 kW)
Noise output	:	<80 dB(A) ± 2 dB(A) with sound insulating encasing

2.5.2. Frequency controller

Enable matching of the air supply of the blower to the oxygen demand of the bacteria in the aeration basin.

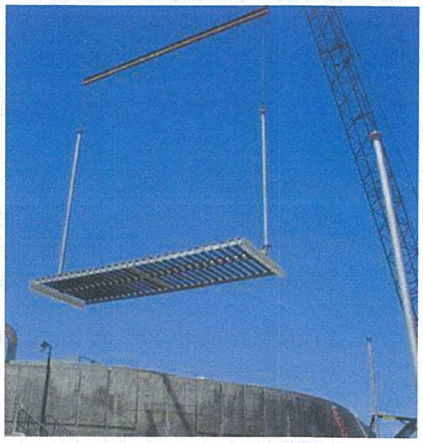
Prolongs operational life of the motor.
Mechanical shocks during start-up and shut down of the motor are avoided.
Significantly reduces the peak current (over 50%).

Reduces electricity cost when electricity prices are based on peak current.
May reduce the investment in for the required electricity transformation or -generation capacity.

Without frequency controller the start-up of the aerator will draw a large current, which maybe more than the plant transformer/generator is able to provide, which would result in a blackout in the plant. The frequency controller may prevent this, since it reduces the start-up current of the aerator over 50%.

Make	:	Danfoss
Controlled power	:	~30 HP (~22 kW)

2.5.3. Liftable fine bubble depth aeration system



Easy access for maintenance.
No divers required nor is it necessary to drain the basin to access the diffusers.
The diffusers are mounted on a individually liftable aeration rack.

Aeration rack

Material	:	Stainless steel AISI304
Including	:	2 stainless steel guide poles to position the rack 4 stainless steel lifting cables 2 stainless steel chains concrete tiles (~10'x~10'x~1¾", ~20lb each) that serve as counter weight to prevent the rack from floating.

Membrane tube diffusers

Number	:	92 Pieces
Material	:	Membrane : EPDM

Counter weight

Required to keep the aeration rack from rising upwards when they are filled with air.

Description	:	Concrete tiles

2.5.4. Formic acid dosing equipment

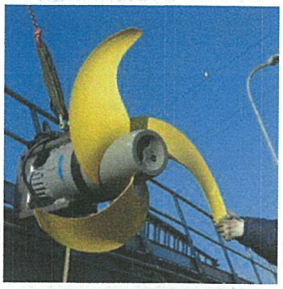
Removes obstructions of the membrane pores.

The pores in the membranes are subject to progressive contamination by minute dust particles in the air and organic and inorganic deposites from the water (such a scaling and biofilms). These will eventually result in pore blocking. When sufficient pores are blocked, the stress on the remaining pores can result in membrane rupture. Periodic removal of pore blockage restores the membrane pores.
This is achieve by dosing of formic acid in the blower outlet, which temperature is close to or exceeds the boiling point of formic acid. The resulting formic acid vapor is carried with the blower air to the membrane diffusers which have a temperature below the boiling point, causing the formic acid vapour to condense on the inside of the membranes. The resulting liquid formic acid will mostly blown away with the air, except near blocked pores. At these sites the liquid formic acid has sufficient retention time to dissolve or react with the (in)organic contamination present in the pores of the membrane, eventually unblocking the pore.

Formic acid dosing system with manual adjustable metering pump

Type	:	Diaphragm metering pump
Brand	:	Grundfos
Installed power	:	~0.1 HP (~0.06 kW)
Including	:	Suction hose for barrels/containers

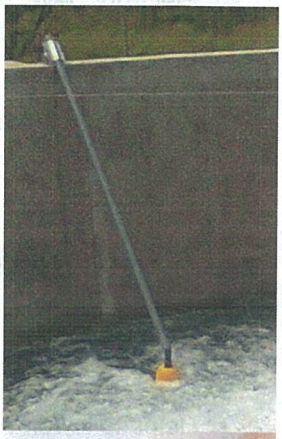
2.5.5. High thrust propulsion unit

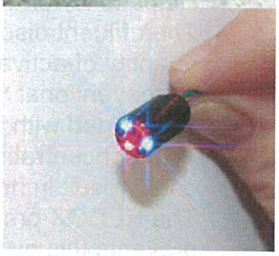


Energy efficient.
Requires less than 40% of the energy required by conventional high speed mixers.
Large propeller blades rotating at low speed propel a large volume of water forward, creating a large thrust at minimal energy consumption.

Brand	:	Xylem
Propeller diameter	:	~3'11" (~1.2 m)
Installed power	:	~3 HP (~2.3 kW)
Including	:	Stainless steel guide tube Stainless steel hoist chain.

2.5.6. Digital, optical (luminescence) dissolved oxygen sensor





Saves electricity.
Prevents the aerator from running unnecessarily by trying to match the oxygen supply of the aeration system to the oxygen consumption of the activated sludge bacteria.

Exceptionally reliable
The optical measuring principle reduces the cleaning frequency and simplifies maintenance compared to amperometric technologies. The sensor does not require electrolyte eliminating the risk of poisoning or the need for replenishment.
Instead oxygen-sensitive molecules (marker) are integrated in an optical active layer (fluorescence layer). The fluorescence layer surface is in contact with the medium. The sensor optics is directed at the back of the fluorescence layer. The sensor optics transmits green light pulses to the fluorescence layer. The markers respond (fluoresce) with red light pulses. The duration and intensity of the response signals depend directly on the oxygen contents or partial pressure.

Easy maintenance.
Design of the float and sensor create a water flow that limits build-up of material on the sensor; limiting cleaning to only 3 to 4 times per year.
Intelligent self-monitoring guarantees reliable measured values and a high degree of long-term stability.

Brand	:	Endress+Hauser
Including	:	Mounting equipment

2.5.7. Phosphorus precipitation agent dosing system

Dosing system with manually adjustable metering pump for 40% ferric chloride solution.

Type	:	Diaphragm metering pump
Brand	:	Grundfos
Installed power	:	~0.15 HP (~0.12 kW)
Including	:	Suction hose for barrels/containers.

2.5.8. Hydrostatic level sensor with mounting equipment

Reliable
Electronic level measurement that is not influenced by clogging or presence of crusts or layers floating on the water.

User friendly
Don't worry about getting dirty when changing the level sensors' set points.
You won't: The setpoints can be changed remotely from the electrical control panel.

Brand	:	Endress+Hauser

2.5.9. Effluent separation equipment with pre-flush system

Ensures a gentle discharge of the clarified water without disturbing the settled sludge layer.

Helps to lower the amount of suspended solids in the effluent.
The effluent discharge system of all SBR systems contains a certain quantity of activated sludge at the start of the effluent discharge period. In conventional SBR systems this activated sludge quantity is discharged with the effluent. Although small, it will increase the average TSS concentration in the effluent of conventional SBR systems, which could result in non-compliance early in the effluent discharge cycle.
The REDOX pre-flush system for the SBR effluent discharge system prevents this by flushing any activated sludge in the effluent discharge pipe to the pre-treatment before commencing with effluent discharge to the receiving water body.

Floating drain

Capacity	:	500 GPM (~115 m^3/h)
Material	:	Stainless steel
Including	:	~30 ft (~10 m) reinforced PVC hose for each floating drain Manual gate valve for maximum flow adjustment. 2 Pneumatic valves for effluent destination selection (to selector for pre-flush and chlorination contact tank for effluent discharge).

2.6. EFFLUENT DISINFECTION WITH AUTOMATIC CHLORINE CONTROL SYSTEM

Required to meet both the low chlorine and total coliform demands. This system ensures that just enough chlorine is dosed to kill the coliforms without surpassing the effluent chlorine demand.

The efectivity of chlorination depends on the pH. To ensure proper disinfection the chlorine dosing is controlled by a pH electrode and a selective HClO electrode, since HClO solutions gradually decompose (rates depends a.o. on temperature and UV light) and the active chlorine concentration in the water is a function of the pH of the effluent.

Accurate measurement.
Direct in-line measurement inside the irrigation water allows for accurate measurement of the pH and HClO concentration.

Easy and hygienic access to pH and HClO electrodes.
pH electrode can be retracted/inserted for calibration/cleaning purposes without spilling or stopping the process.
The HClO electrode is equipped with an easy replacable membrane thans to a pre-fabricated electode cap.

Reliable measurement.
pH electrode with sterilisable, dirt-repellent PTFE ring diaphragm; prevents blocking, assures long-time stability and accuracy. Integrated electrolyte bridge provides better protection against electrode poisons such as S^{2-}, $(CN)^-$
Suitable for pH values from 0 to 14 and temperatures from -15 to +130 °C / 5...266 °F
The HClO electrode does not require zero-point calibration. No complex installation of an activated carbon filter as with conventional open chlorine sensors.

Signal converter with local display
Gel filled combination pH electrode

Including temperature measurement and temperature correction for pH measurement.

Brand	:	Endress + Hauser
Electrode types	:	Memosens.

2.6.1. Desinfectant dosing system

Desinfectant dosing system with automatically adjustable metering pump for 20% sodium hypo chlorite solution.

Type	:	Diaphragm metering pump
Brand	:	Grundfos
Installed power	:	~0.08 HP (~0.06 kW)
Including	:	Suction hose for barrels/containers.

2.7. BIO SLUDGE DEWATERING EQUIPMENT

Reduces the bio-sludge volume by over 60% by pumping the settled sludge from the SBR reactor to the pre-treatment DAF.

2.7.1. WAS sludge pump equipment

Pumps the waste activated sludge to the filter belt press.

Dual run-dry safety protection.
The pump is shut down when the running time exceeds a certain period or the level sensor detects the low level.

Variable speed drive allows stepless flow variation.

Type	:	Progressive cavity pump
Brand	:	Mono Pumps
Design range	:	~7 to ~22 GPM (~1½ to ~5 m^3/h)
Head	:	~30 PSI (~2 bar)
Installed power	:	~2 HP (~1.5 kW)
Including	:	**Frequency controller** to adjust the flow rate of the pump 1 Pneumatic valve to start/stop the WAS flow. 1 Manual valve to close pipe close to the reactor wall in order to facilitate maintenance of the pneumatic valve. 1 Manual gate valve to seal off a pipe when the pump has to be removed for maintenance.

2.7.2. Semi-automatic flocculant make-up unit

Consistent high quality flocculant solution.

Clot prevention.
Dosing funnel is equipped with venturi water injector to limit clot formation.

Installed power	:	~1 HP (~0.75 kW)
Net volume	:	~440 gallon (~2 m^3)
Material	:	Poly propylene and stainless steel AISI304.
Including	:	Level sensors.

2.7.3. Flocculant metering pump

Trouble free dosing of high viscous flocculant solutions.

Dual run-dry safety protection.
The pump is shut down the running time exceeds a certain period or the level sensor detects the low level.

Type	:	Progressive cavity dosing pump
Brand	:	Mono pumps or equal
Material worm	:	Stainless steel **AISI316**
Installed power	:	~0.5 HP (~0.37 kW)
Including	:	**Frequency controller** to adjust the flow rate of the pump (can be performed remotely, from the control panel).

2.8. MISCELLANEOUS EQUIPMENT

2.8.1. Electrical control panel

Stand-alone electrical control panel with all necessary components to control the equipment supplied by REDOX. The control panel will be built according to and for conditions that comply with European standard EN IEC 60204-1.

Integrated control panel temperature control. Each cabinet of the control panel is equipped with a cooling fan (~41 W) controlled by a thermostat per cabinet that maintains the internal temperature within a certain range. This will prevent damage due to overheating and condensation in most cases.

The control panel is equipped with a PLC and Human-Machine-Interface type touch panel display.
Navigation in the panel follows the flow diagram as depicted in this document.
After selecting a particular part of the process, the panel zooms in on this part of the process ending up in selection screens for setting times, levels, etc.
Information on the operator panel can be choosen to be displayed in English or French.

Brands	:	REDOX uses all name-brand components (a.o. WEG, Moeller, Rittal, Siemens, Telemecanique, etc.)
Make compact motor starter	:	**SIEMENS**
Make PLC	:	**SIEMENS** IM151-8
Type HMI	:	**SIEMENS** TP1200 Comfort with 12" full color touch panel display
Including	:	E-Won **GSM** teleservice adapter **modem** with Ethernet connection to enable **remote PLC software trouble shooting** and to enable **remote operator assistance**.

2.8.2. Documentation

- Operation, maintenance manuals (1x hard copy and 1x on CD rom, in English and French).
- Spare parts list
- Floor load plan
- Mechanical layout drawing
- Electrical layout drawing
- CE certificate

2.9. SERVICES

2.9.1. Project management and engineering

REDOX will assign a project manager to your project to coordinate the many actions of the different parties involved that need to proceed in-time in the proper sequence to ensure in-time completion of the project.
Within 2 weeks after customer has met the financial obligations of the contract and provided all required details, the project manager will present a project planning and a preliminary layout.
After customer's approval of the layout the delivery time will commence with detailed engineering followed by production of the equipment.

2.9.2. Installation, start-up and training

REDOX will provide a supervisor that will coordinate the work of the local installation crew that will install the equipment supplied by REDOX for a maximum consecutive period of:

15 Days for installation, commissioning and mechanical start-up
3 Days for process start-up and training of the operators

Number of visits : Maximum 2 times.
All travelling, boarding and lodging costs for our supervisor are included.

Start-up of this biological treatment system is performed in 2 stages with an intermediate period of minimal 6 weeks. Process start-up requires the presence of a certain quantity of waste water and activated sludge.
At mechanical start-up there will be insufficient activated sludge to adjust the different process parameters. The activated sludge needs time to multiply to reach a sufficiently high concentration to make process start-up possible. Hence the necessity of a second visit.

Start-up and training require the availability of a certain quantity of water of a specific quality.
The supervisor or project manager will inform you of its specs.
The minimum composition and skills of the local installation crew will be determined by the project manager.
The client is responsible for providing the local installation crew, installation gear and a telephone connection allowing free-of-charge communication with our office.
Once the supervisor has arrived on site, any delays beyond the control of REDOX will be charged in half day segments of € 330 per person.
In case a prolonged delay is to be expected, the supervisor will leave. The project manager will set a new return date, which will take place after we have received payment of all costs related to this unscheduled return.

2.9.3. After sales service on-site check-up visit

After signing the protocol of acceptance our project manager will schedule a visit to check-up on the operation of the plant, assist the operator(s), to be available for advise/training and general support to the operators.
The exact date of the site visit is determined by our project manager after consultation with the client.

Visit duration : 2 days on site.
All travelling, boarding and lodging costs for our service technician are included.

2.9.4. After sales service

After signing the protocol of acceptance the project will be handed over from our project manager to our service department.
Our service department may submit a quotation for one of the following service contracts:

- Full service visits
- Inspection visits
- Additional operational training
- Remote operator assistance by modem
- Spare parts.

2.9.5. Transport

The equipment will be delivered CIF Halifax, Nova Scotia, Canada.
All costs associated with (un)loading costs of the ship(s) and truck(s) in port(s), at border crossing(s) etc. are excluded as well as anything related to custom clearance, (temporary) storage of the equipment etc.

3. COMMERCIAL DETAILS

3.1. PROJECT PRICE

Water treatment equipment, §2.1 to §2.6 & to §2.8	€	236,500
Bio-sludge dewatering equipment, §2.7	€	19,250
Installation, commission & start-up incl. travelling, boarding & lodging costs, §2.9.1 to §2.9.3		included
After sales service including after sales service visit, §2.9.4 to §2.9.5		included
Delivery **CIF Halifax**, §2.9.5	+/+ €	2,200
TOTAL PRICE	**€**	**257,950**

(Two hundred fifty-seven thousand nine hundred fifty Euro)

3.2. DELIVERY TIME

The system/equipment will be released for transport within 16 to 20 working weeks[1] after the following conditions have been met:

- receipt of the down payment
- receipt of an acceptable Letter of Credit.
- receipt of the contract signed for approval and initialled on every page by the client.
- receipt of all technical and other details required to start engineering of the project.
- receipt of technical layout and other drawings submitted by REDOX signed for approval on every page. These drawings will be submitted within 4 to 6 working weeks after receipt of the validated order confirmation.

After the equipment has been reported ready for shipment customer is welcome to check the equipment in REDOX's premises.

3.3. PAYMENT TERMS

40% : down payment at order confirmation

The remainder has to be covered by a confirmed irrevocable Letter of Credit that is acceptable to Redox WaterTechnology B.V. issued by a first class bank and confirmed by Rabobank, Utrecht, The Netherlands. This Letter of Credit has to allow partial- and transshipments. All charges related to the Letter of Credit are for customers account (such as confirmation costs in either your country or any other country).

55% : against presentation of the normal shipping documents.

5% : after signing of the protocol of acceptance or date that the customer starts operating the equipment/system, but in any case no later than 120 days after B/L date.

Bank	:	Rabobank Achterhoek-Oost
Account number	:	37 12 77 515
Swift code	:	RABO NL 2 U
IBAN code	:	NL61 RABO 0371 2775 15

[1] Current delivery time at time of quotation date. The exact delivery time depends on work load in our facility and is subject to change.

3.4. EXCLUSIONS

The following is excluded from our scope of supply unless specifically stated in this document:

- Civil works other than stated in the contract.
- Piping other than the piping that is included in the scope of supply.
- Utility & communication connections up to our delivery boundary as per contract.
- As-build drawings featuring hydraulic profile, process & instrumentation diagrams.
- Emergency generator.
- Connections between the sensors, motors and junction boxes on our equipment, etc. to the applicable (central or satellite) control panel.
- Certification of any equipment other than European CE standards (e.g. UL or CSA).
- Installation gear complying with CE or OSHA standards, such as but not limited to power & hand tools, applicable welding set(s), safety equipment and -provisions, fire extinguishing equipment, material handling equipment, scaffolding, lockable gear storage, lighting, sanitary provisions, office space, on site transportation.
- Time required by our staff to attend mandatory safety instructions. This time will be billed separately according to the rate stated in the supervision or installation section of this document.
- Installation crew of a size, composition and with the skills as indicated by our project manager.
- Translator during project meetings and during installation, start-up, training and service visits when the audience can not communicate in English, German or Dutch.
- Chemicals, chemical storage tanks, storage building/room for chemicals, etc.
- Spare parts.
- Inoculation sludge.
- Replacement parts and/or refurbishment costs for existing equipment.
- All taxes such as but not limited to VAT and import duties.
- Items not specified in this proposal.

3.5. GENERAL TERMS AND CONDITIONS

All tenders and contracts for the performance of deliveries by us outside the Netherlands are governed by the ORGALIME General Conditions for the supply and erection of mechanical, electrical and electronic products (ORGALIME SI 01) of September 2001.
A copy of these conditions is enclosed. Any other conditions are herewith explicitly rejected by us.

3.6. DELIVERY TERMS

Delivery will be governed by the Incoterms 2010 (English version).

3.7. GUARANTEE

Redox Water Technology B.V. guarantees that the supplied equipment complies with the provisions of the contract and any deviations agreed upon in writing by both parties.
During the guarantee period REDOX will sent replacement parts for any defective parts of the equipment that was part of the original REDOX supply as long as the proper operation and maintenance procedures have been observed as described in the operation and maintenance manual.
Exceeding the capacity limit of the equipment or bypassing safety devices or -safety provisions will immediately forfeit all future guarantee claims.

Guarantee period lasts maximum of 1 year.

The guarantee period will start after either the protocol of acceptance is signed for approval by the customer or the customer starts operating the equipment or 180 days after B/L date or 180 days after the date that the equipment was reported ready for shipment, whichever date comes first.

3.8. DISCLAIMER

REDOX Water Technology B.V. reserves the right to apply different equipment brands when that particular supplier changes it name, alters the specs- or, stops manufacturing the respective equipment. Should the necessity arise REDOX will strive to apply an alternative of equal or better quality than the equipment that is mentioned in this document. REDOX Water Technology B.V. reserves the right to change the scope and/or implement technical modifications to the equipment and/or systems with the intention to improve the functioning of said system and/or equipment at any time after the contract has come into effect.
Pictures, sketches and drawings in this document are for reference purposes only. Actual delivery may deviate from the items-process shown.

3.9. LAW

The laws of the Kingdom of The Netherlands govern this document.

3.10. VALIDITY

This quotation is not valid in case Orgalime conditions are not included or do not accompany this quotation.
In all other cases the quotation expires 60 days after the date the document was submitted.
In case this document is translated, the English version will remain the only legal binding version.

Yours faithfully,

REDOX WATER TECHNOLOGY B.V.

Ing. John Luppens
Area Manager

Ir. Maurice Nijrolder
Business Unit Manager

Annex 1 Orgalime delivery conditions

RENDERING PLANT Cost Estimate

ITEM	$	SUPPLIER
Equipment	4,150,000	Anco-Eaglin and Redox
Equipment Shipping, Customs, Brokerage	300,000	Estimate
Installation BGI Labor	60,000	BGI
Installation FIT Labour (Ronnie & Hillary) 8wks	100,000	
Eaglin Installation	40,000	1 Tech 6wks, 1 Tech 3wks, 1 Tech 1wk
New 250hp Boiler	225,000	Bruce Sutherland / H&R Mech
Feed Water Tank, Dosing Pumps, Condensate Return, ...	50,000	
Plant InFeed System	25,000	C&W
250GPM Water Pump For Condensers	8,000	Basil Fearn
Plumbing Supplies / Materials Operation and Condensers	40,000	Crane
4" HDPE Drain Line 1000ft & Anchors	35,000	Water
Steam Piping / Materials	20,000	Crane
Control Panels	0	Included In Equipment
Wiring Supplies and Ligthing Materials	150,000	Conductors, Main Distribution Panel, Feeders, Li
Electrical Installation	120,000	BOIE
Building	600,000	PreFab
Ground Work & Prep	20,000	
Permits, Engineering, Related	15,000	
Contengency	500,000	
Project Management	400,000	
BUDGET TOTAL	**6,858,000**	