HYRUM CITY
REQUEST FOR PROPOSALS

Hyrum City Water Reclamation Facility Master Plan

Date of Issuance: May 11, 2026
Response delivered electronically no later than May 29, 2026, to Angela Pritchett, Water Reclamation Manager, angela.pritchett@hyrumcity.gov and Todd Perkins, Financial Administrator todd.perkins@hyrumcity.gov

Part 1. Background
Hyrum City (HC) owns and operates a Water Reclamation Facility (WRF) that treats wastewater from both Hyrum and Millville at an annual average daily flow (AADF) of about 1.5 million gallons per day (MGD).

The WRF was built in the mid 1970's and began operating in 1978. In 2005, Hyrum City replaced the original oxidation ditch with Membrane Bioreactor (MBR) technology to treat wastewater. The WRF 2005 design flow was 1.5 MGD with capacity to expand to 2 MGD. In 2021, the WRF expanded to a design capacity of 2 MGD by replacing all of the membranes and adding an additional membrane basin.

The facility's liquid treatment process consists of a headworks, coarse and fine screening, grit removal, membrane reactors and UV disinfection. Solids are dewatered using a belt press, after which the sludge is composted and the resulting biosolids are land-applied.

The WRF operates under Utah Pollutant Discharge Elimination System (UPDES) permit UT0023205 to discharge to Spring Creek and includes provisions for Type 1 Reuse, Pretreatment and Biosolids.

HC is experiencing rapid growth that exceeds previous projections, in addition to treating Millville's wastewater as November 2025, the WRF is approaching capacity as a result and time is of the essence to complete the WRF MP in a timely manner so it can be utilized to plan responsibly.

The Utah Division of Water Quality (DWQ) is requiring Hyrum City to evaluate the Total Suspended Solid (TSS) and Biochemical Oxygen Demand (BOD) loading capacity of the WRF and prepare an updated Engineering Report (ER). There are discrepancies in the original 2005 design criteria and the 2020 Engineering Report as determined by the DWQ.

Due to this discrepancy, DWQ is requiring Hyrum City to update the Engineering Report to determine the BOD and TSS loading capacity of the existing WRF.

Part 2. Project Understanding/Scope of Work
Hyrum City is seeking professional engineering services to prepare a comprehensive Engineering Report Update and Water Reclamation Facility (WRF) Master Plan.

The Scope of Services below will result in an Engineering Report Update and Master Plan that accomplishes the following objectives:

1. <u>Engineering Report Update:</u>
    a. Determine the amount of TSS and BOD that the WRF can treat. Evaluations should be based on the requirements outlined in UAC R317-3-7.2. The ER must be delivered within **one month** of signing the contract and should update the attached 2020 ER. Deliverable time is **non-negotiable** to meet UDWQ requirements.
2. <u>Master Plan:</u> This Master Plan Must be completed within 7 months of signing the contract
    a. Evaluate the condition and capacity, current and projected, of the existing treatment processes and support systems and determine the remaining treatment capacity within the existing facility footprint and infrastructure. Identify feasible strategies for increasing the capacity and addressing condition issues.
    b. Establish current and projected flows and loads for a 20-year planning period using population estimates and growth rates provided by Hyrum, for both Hyrum and Millville.
    c. Document current permit requirements and identifying potential long-term regulatory issues that may affect future operations. Identify relevant UAC regulatory parameters governing the WRF.

d. Assess the performance and capacity of existing unit processes under current and projected conditions and potential areas of plant optimization.
e. Develop recommended improvements to maintain a proper level of service and ensure compliance with current and anticipated discharge limits. Include cost estimates for the project improvements to address capacity, condition, performance, optimization and regulatory issues.
f. Prepare a 20-Year capital improvement plan (CIP). Include the schedule and costs associated with implementing the improvement projects.
g. Prepare an Impact Fee Facility Plan (IFFP) and provide additional supporting information as needed for an upcoming WRF impact fee and user rate study- Impact Fee analysis that will examine and accommodate growth

3. Project Management Minimum Requirements:
    a. Project Administration- Updated project schedule and memo summarizing project status will be emailed monthly to the WRF Manager
    b. Key Meetings/Workshops-Site Kick Off Meeting, Flows and Loads Workshop, Existing Conditions and Strategies for Increasing Capacity Workshop, Recommendations and CIP Workshop, Review of Final Draft Master Plan Meeting, City Council Presentation (Draft Master Plan Presentation)

Part 3. Schedule

Schedule:

Preproposal meeting and site walk through*	May 18, 2026, at 2 P.M.
Deadline for submittal of questions	May 22, 2026, at 2 P.M.
Deadline for submittal of proposal	May 29, 2026, at 2 P.M.
Selection review process	June 1, 2026
Selection of consultant (approval by City Council)	June 4, 2026
Begin project	One week after City Council Approval
Completion of updated Engineering Report	1 month after signing contract
Completion of project	7 months after signing contract

*Location: Hyrum City Water Reclamation Facility, 1900 West 4400 South, Hyrum UT

Part 4. Proposal Content

The proposal shall not exceed **10** one-sided letter-size pages, excluding the Cover Letter (maximum of two pages) and proposed project team resumes. Proposals must follow the structure below:

1. Firm's Experience and Project Team's Past Performance on Similar Local Projects
    a. Provide a brief history of the firm. Provide a list of similar projects completed within the last ten (10) years specifically by the proposed team members. Indicate the responsibilities of the proposed team members on these similar projects.
2. Proposed Project Team
    a. List proposed team members, their roles, experience, and responsibilities. Include sub-consultants as applicable. Résumés will be included in an appendix and do not count toward the page limit. The Project Manager must remain assigned for the duration of the project unless approved by the CITY.
3. References
    a. Provide three references for similar or related projects. Include contact information and project relevance.
4. Project Understanding and Approach

    a. Provide a narrative describing the Consultant's project understanding and approach.
5. Proposed Scope of Work and Deliverables including Optional Items
    a. Provide a detailed task list for completing the scope of work, including any additional tasks necessary to meet project objectives. Include a project schedule with key milestones and deliverables. These would include but not be limited to work items necessary to achieve the objectives of the project.
6. Schedule and availability
    a. Describe the availability of the proposed project team and demonstrate the firm's ability to meet the project schedule.
    b. Detailed project timeline
    c. Provide a project schedule outlining the deliverables and key milestones required to deliver the project.

Part 5. Fee Proposal (Submitted Separately)
A separate email titled **"Fee for the Preparation for the Hyrum City Water Reclamation Master Plan"** shall include:

1. Fee:
    a. Itemized fee schedule
    b. Not to exceed total cost
    c. Anticipated Work effort by personnel
    d. Sub consultant Fees (if applicable)
    e. Reimbursable Expenses

Part 6. Selection Process
A selection committee will review proposals in a timely manner based on the following minimum criteria:

1. Firm's experience and project team's past performance on similar projects (20%)
2. Team (10%)
3. References (15%)
4. Project understanding and approach (25%)
5. Proposed Scope of Work and deliverables (10%)
6. Schedule and availability (15%)
7. Fee/Price (5%)

The CITY will be the sole judge of proposal quality and compliance. The CITY reserves the right to award the contract in any manner it deems to be in the best interest of CITY and make the selection based on its sole discretion, including negotiating with one or more of the proposers for the same services.

Part 7. Questions
Questions must be received by the deadline identified in the Schedule Section to Angela Pritchett- angela.pritchett@hyrumcity.gov

If you would like to receive the compiled responses to all submitted questions, you must email your contact information to Angela Pritchett- angela.pritchett@hyrumcity.gov no later than the question submittal deadline.

Part 8. Submittal Procedures
Submittals shall comply with all conditions, requirements and specifications contained herein, with any departure constituting sufficient cause for rejection of the proposal at CITY's sole discretion. Any and all

costs incurred in the preparation and presentation of this submittal shall be borne solely by the respondent. All submittals received shall become the property of CITY and will not be returned.

Proposals must be submitted electronically to:
Angela Pritchett at: angela.pritchett@hyrumcity.gov and Todd Perkins at: todd.perkins@hyrumcity.gov

Part 9. Review of Agreement for Professional Services
The CITY Agreement for Professional Services is attached for review and comments. Please indicate if the proposed agreement is acceptable to your firm and, if not, what specifically is not acceptable with your firm's proposed changes.

Part 10. General Administrative Information

1. Each respondent understands and agrees that the CITY, its departments, their officers, employees or agents shall not be liable for:
    a. Any costs incurred by a respondent in the preparation, delivery or presentation of a proposal.
    b. Any costs incurred by a respondent in meeting the criteria as a result of making or submitting a proposal or subsequently in entering into a formal agreement with CITY; and
    c. Any errors, inaccuracies or misstatements related to the information or data supplied to any consultant by CITY. The use of such information or data provided by CITY, its officers, employees or agents is intended to be used at the sole discretion and risk of the firm in the preparation of a proposal pursuant to this RFP only.
2. The selected firm shall comply with any and all applicable Federal and State laws pertaining to employment.
3. CITY reserves the right to accept, reject, modify or cancel in whole or in part, this RFP.
4. CITY reserves the right to accept or reject any or all proposals, negotiate modifications to proposals that it deems acceptable, to request and consider additional information from any proposer, and to waive minor irregularities and technical defects in this proposal process. CITY reserves the right to seek new proposals when it determines that it is in the best interest to do so.

Part 11. Authority to Withdraw
CITY reserves the right to withdraw this RFP without prior notice. CITY makes no representation that any agreement will be awarded to any firm as a result of having responded to this request. CITY expressly reserves the right to reject any and all proposals in response to this RFP without indicating a reason for such rejection. All costs incurred in the preparation of the proposal, submission of information and/or selection of a proposal prior to the award and/or execution of a signed contract shall be borne by respondent. All proposals submitted to CITY in response to this RFP shall become the property of CITY, shall be considered public information, and will not be returned.

Part 12, Award of Contract
The CITY intends to award a single contract based on negotiated rates of compensation

ATTACHMENTS:

1. Hyrum City Contract for Engineering Services February 2024
2. 2020 Engineering Report WRF MBR Upgrade

Attachment 1 - Hyrum City Contract for Engineering Services February 2024

CONTRACT

for

ENGINEERING SERVICES

BETWEEN

HYRUM CITY

AND

CONSULTANT

TABLE OF CONTENTS

MASTER CONTRACT
FOR
ENGINEERING AND TECHNICAL SERVICES

This contract dated the ____ day of _____ 20___, is entered into by and between **Hyrum City** ("Owner") and **Consultant** ("Engineer").

RECITAL

A. Owner and Engineer desire to identify certain services to be performed by Engineer pursuant to the terms of this Contract and to reach certain understandings with respect to such services.

ARTICLES

It is therefore agreed as follows:

ARTICLE 1. DESCRIPTION OF WORK

Engineer agrees to perform needs assessments, feasibility studies, design services, construction management, technical studies, engineering services, and other services as may be mutually agreed to from time to time by Owner and Engineer and as more specifically described in Scope of Work and Compensation Document (the "Work"). Engineer agrees to, except as provided otherwise in this contract, furnish supervision, labor and materials, and obtain licenses and permits required for performance of the Work.

ARTICLE 2. TERM OF CONTRACT AND SCHEDULE

The term of this contract shall be from the effective date of the contract through Completion Date. Term of work and schedule of work shall be stipulated in each Scope of Work and Compensation Document

ARTICLE 3. CONSIDERATION AND PAYMENT

3.1 For satisfactory performance of the Work, Owner will pay Engineer consideration determined in accordance with Scope of Work and Compensation Document executed by the Owner and the Engineer.

3.2 Compensation for engineering services shall be made in accordance with one of the following methods: Compensation will be either 1) a negotiated lump sum, or 2) a cost reimbursement basis from actual time and expenses charged at the hourly rates indicated in the Scope of Work and Compensation Document.

The specific method for compensation and associated engineering services to be rendered for such compensation shall be as outlined in each Scope of Work and Compensation Document .

3.3 All invoices submitted to Owner for work performed shall contain references to the Contract issued for said work. Engineer will retain receipts for reimbursable expenses in general accordance with Internal Revenue Service rules pertaining to the support of expenditures for income tax purposes. Receipts will be available for inspection by Owner's auditors upon request. Payment shall be made as outlined in each Work Release to this contract. Invoices shall include services and tasks performed for the invoicing period. Time and expense invoices shall include the reimbursable out-of-pocket expenses incurred and the shall indicate the number of hours worked, the persons responsible for performing the Work, the rate of compensation at which such services and tasks were performed, the subtotal for each task and service performed and a grand total for all services performed.

4. Engineer will submit monthly invoices for services rendered and Owner will make prompt payments in response to Engineer's invoices. Owner recognizes that late payment of invoices results in extra expenses for Engineer. Engineer retains the right to assess Owner interest at the rate one and five-tenths percent (1.5%) per month, but not to exceed the maximum rate allowed by law, on invoices which are not paid within forty-five (45) days from the date of the invoice. In the event undisputed portions of Engineer's invoices are not paid when due, Engineer also reserves the right, after seven (7) days prior written notice, to suspend the performance of its services under this Agreement until all past due amounts have been paid in full.

5. If Owner disputes any items in Engineer's invoice for any reason, including the lack of supporting documentation, Owner may temporarily delete the disputed item and pay the remaining amount of the invoice. Owner will promptly notify Engineer of the dispute and request clarification and/or correction. After any dispute has been settled, Engineer will include the disputed item on a subsequent, regularly scheduled invoice, or on a special invoice for the disputed item only.

ARTICLE 4. SERVICES AND INFORMATION

Owner will provide all criteria and information pertaining to Owner's requirements for the project, including design objectives and constraints, space, capacity and performance requirements, flexibility and expandability, and any budgetary limitations. Owner will also provide copies of any Owner-furnished Standard Details, Standard Specifications, or Standard Bidding Documents which are to be incorporated into the project. Owner will furnish the services of soils/geotechnical engineers or other consultants that include reports and appropriate professional recommendations when such services are deemed necessary by Engineer. The Owner agrees to bear full responsibility for the technical accuracy and content of Owner-furnished documents and services.

In performing professional engineering and related services hereunder, it is understood by Owner that Engineer is not engaged in rendering any type of legal, insurance or accounting services, opinions or advice. Further, it is the Owner’s sole responsibility to obtain the advice of an attorney, insurance counselor or accountant to protect the Owner’s legal and financial interests. To that end, the Owner agrees that Owner or the Owner’s representative will examine all studies, reports, sketches, drawings, specifications, proposals and other documents, opinions or advice prepared or provided by Engineer, and will obtain the advice of an attorney, insurance counselor or other

consultant as the Owner deems necessary to protect the Owner's interests before Owner takes action or forebears to take action based upon or relying upon the services provided by Engineer.

ARTICLE 5. NON-EXCLUSIVE RIGHTS
Nothing in the contract is to be construed as granting to Engineer exclusive rights to perform any or all of Owner's requirements of the type contemplated hereunder.

ARTICLE 6. CHANGES
The parties agree that no change or modification to this Agreement, or any attachments hereto, shall have any force or effect unless the change is reduced to writing, dated, and made part of this Agreement. The execution of the change shall be authorized and signed in the same manner as this Agreement. Adjustments in the period of services and in compensation shall be in accordance with applicable paragraphs and sections of this Agreement. For those projects involving conceptual or process development services, activities often are not fully definable in the initial planning as outlined in the Scope of Work and Compensation Document. In any event, as the project progresses, the facts developed may dictate a change in the services to be performed, which may alter the scope. Engineer will inform Owner of such situations so that changes in scope and adjustments to the time of performance and compensation can be made as required. If such change, additional services, or suspension of services results in an increase or decrease in the cost of or time required for performance of the services, an equitable adjustment shall be made, and the Agreement modified accordingly.

ARTICLE 7. INDEMNIFICATION
The Engineer agrees, to the fullest extent permitted by law, to indemnify and hold harmless the Owner, its officers, and employees (collectively, Owner) against all damages, liabilities or costs, including reasonable attorneys' fees and defense costs, to the extent caused by the Engineer's negligent performance of professional services under this Agreement and that of its subconsultants or anyone for whom the Engineer is legally liable. The Owner agrees, to the fullest extent permitted by law, to indemnify and hold harmless the Engineer, its officers, directors, employees and subconsultants (collectively, Engineer) against all damages, liabilities or costs including reasonable attorneys' fees and defense costs, to the extent caused by the Owner's negligent acts in connection with the Project and the acts of its contractors, subcontractors or consultants or anyone for whom the Owner is legally liable.

Neither the Owner nor the Engineer shall be obligated to indemnify the other party in any manner whatsoever for the other party's own negligence.

ARTICLE 8. EQUAL EMPLOYMENT AND NONDISCRIMINATION
In connection with the services under this Agreement, Engineer agrees to comply with the applicable provisions of federal and state Equal Employment Opportunity, and other employment, statutes and regulations.

ARTICLE 9. INSURANCE
Engineer agrees to procure and maintain, at its expense, Workers' Compensation insurance as required by statute; Automobile Liability insurance of $1,000,000 combined single limit for bodily injury and property damage covering all vehicles, including hired vehicles, owned and non-owned

vehicles; Commercial General Liability insurance of $1,000,000 combined single limit for personal injury and property damage; and Professional Liability insurance of $1,000,000 per claim for protection against claims arising out of the performance of services under this Agreement caused by negligent acts, errors, or omissions for which Engineer is legally liable. Upon request, Owner shall be made an additional insured on Commercial General and Automobile Liability insurance policies and certificates of insurance will be furnished to the Owner. Engineer agrees to indemnify Owner for the claims covered by Engineer's insurance.

ARTICLE 10. STANDARD OF PERFORMANCE

The standard of care for all professional engineering, consulting and related services performed or furnished by Engineer and its employees under this Agreement will be the care and skill ordinarily used by members of Engineer's profession.

ARTICLE 11. SUSPENSION OF WORK

Owner may, by written notice, direct Engineer to suspend performance of any or all of the Work for a specified period of time. If such suspension is not occasioned by the fault or negligence of Engineer, the notice may be modified to compensate Engineer for extra costs incurred due to said suspension, provided that any claim for adjustment is supported by appropriate cost documentation and asserted within twenty (20) calendar days after the date Owner issues an order for resumption of the Work. Upon receipt of such notice, Engineer shall a) discontinue Work, b) place no further orders or subcontracts, c) suspend all orders and subcontracts, d) protect and maintain the Work, and e) otherwise mitigate Owner's costs and liabilities for those areas of work suspended.

ARTICLE 12. TERMINATION OF AGREEMENT

Owner or Engineer may terminate the Agreement, in whole or in part, by giving seven (7) days written notice, if the other party substantially fails to fulfill its obligations under the Agreement through no fault of the terminating party. Where the method of payment is "lump sum," or cost reimbursement, the final invoice will include all services and expenses associated with the project up to the effective date of termination.

ARTICLE 13. OWNERSHIP AND REUSE OF DESIGNS AND DRAWINGS

All documents, including all reports, drawings, specifications, computer software or other items prepared or furnished by Engineer pursuant to this Agreement, are instruments of service with respect to the project. Engineer retains ownership of all such documents. Owner may retain copies and digital CAD files of the documents for its information and reference in connection with the project; however, none of the documents are intended or represented to be suitable for reuse by Owner or others on extensions of the project or on any other project. Any reuse without written verification or adaptation by Engineer for the specific purpose intended will be at Owner's sole risk and without liability or legal exposure to Engineer, and Owner will defend, indemnify and hold harmless Engineer from all claims, damages, losses and expenses, including attorney's fees, arising or resulting therefrom. Any such verification or adaptation will entitle Engineer to further compensation at rates to be agreed upon by Owner and Engineer.

ARTICLE 14. NONDISCLOSURE

Engineer will not divulge to third parties without the prior consent of Owner any information obtained from or through Owner in connection with the performance of this contract. Unless

waived by Owner, Engineer shall require its employees and subcontractors of any tier to adhere to these nondisclosure terms.

ARTICLE 15. LAWS AND REGULATIONS

Engineer shall at all times comply with applicable laws, statutes, rules, regulations, and ordinances, including those governing wages, hours, desegregation, employment discrimination, and safety. In connection with the services under this Agreement, Engineer agrees to comply with the applicable provisions of federal and state Equal Employment Opportunity, and other employment, statutes and regulations.

ARTICLE 16. PATENT AND COPYRIGHT

16.1 Indemnity. Engineer shall indemnify, defend, and hold harmless the Owner against and from all claims, losses, costs, suits, judgments, damages, and expenses, including attorneys' fees, of any kind of nature whatsoever on account of infringement of any patent, copyrighted work, secret process, trade secret, unpatented invention, section, or otherwise, including claims thereof pertaining to, or arising from Engineer's performance under this contract.

16.2 Should Engineer's employees, officers, agents, subcontractors of any tier, or anyone of a like nature in the performance of the Work or as a result of performing the Work, develop any trade secret, prepare any copyrighted material, make any improvement, originate any invention, develop any process or otherwise, such trade secret, copyright, improvement, invention, or process shall be the property of Engineer, but Engineer shall grant or cause to be granted to Owner the right and/or license to permanently use, or cause to be used for the benefit of Owner any such trade secret, copyright, improvement, design, invention, or process in any manner for so long as Owner desires to use same for Owner's own internal use.

ARTICLE 17. NOT USED

ARTICLE 18. OPINIONS OF PROBABLE COST

Any opinions of probable project cost or probable construction cost provided by Engineer are made on the basis of information available to Engineer and on the basis of Engineer's experience and qualifications and represents its judgment as an experienced and qualified professional engineer. However, since Engineer has no control over the cost of labor, materials, equipment or services furnished by others, or over the contractor(s') methods of determining prices, or over competitive bidding or market conditions, Engineer does not guarantee that proposals, bids or actual project or construction cost will not vary from opinions of probable cost Engineer prepares.

ARTICLE 19. INDEPENDENT CONTRACTOR

Engineer shall perform the Work as an independent contractor, and all persons employed by Engineer in connection herewith shall be employees of Engineer, and not employees of Owner in any respect.

ARTICLE 20. SUCCESSORS AND ASSIGNMENT

Owner and Engineer, respectively, bind themselves, their partners, successors, assigns, and legal representatives to the covenants of this Agreement. Neither Owner nor Engineer will assign, sublet, or transfer any interest in this Agreement or claims arising therefrom without the written consent of the other.

ARTICLE 21. RIGHT TO RETAIN SUBCONSULTANTS

The Engineer may use the services of subconsultants when, in the Engineer's sole opinion, it is appropriate and customary to do so. Such persons and entities include but are not limited to, surveyors, specialized consultants and testing laboratories. The Engineer's use of other consultants for additional services shall not be unreasonably restricted by the Owner provided the Engineer notifies the Owner in advance.

ARTICLE 22. NOTICES

Any notice by either party to the other hereunder shall be served if delivered in person, to the office of the representative authorized and designated in writing to act for the respective party, or; if deposited in the mail, properly stamped with the required postage and addressed to the office of such representative. Either party may change its representative or address by giving the other party written notice of such change. Unless otherwise notified, notices shall be given as follows:

Owner	Engineer
Hyrum City	_____
60 West Main	_____
Hyrum, Utah 84319	_____

ARTICLE 23. DISPUTES

Unless otherwise provided in this Contract, all claims, counter-claims, disputes, and other matters in question between Owner and Engineer arising out of or relating to this Contract or the breach of it will be decided by arbitration if the parties mutually agree, or in the First Judicial District Court in and for Cache Count, State of Utah.. The prevailing party in any dispute relating to the Agreement shall be awarded its attorneys' fees, costs, and other litigation fees incurred to the fullest extent allowed by applicable law.

ARTICLE 24. ACCOUNTING AND AUDITING

Engineer shall keep accurate and complete records in support of all remuneration paid hereunder in accordance with generally recognized accounting principles and practices. Owner, or its audit representative, shall have the right at any reasonable time to examine, audit, and reproduce all records pertaining to costs, including but not limited to payrolls, employees' time sheets, invoices, and all other evidence of expenditures for the Work. Such records shall be available for one (1) year after completion of the Work or as otherwise required by law.

ARTICLE 25. NONWAIVER

The failure of Owner to insist upon or enforce strict performance by Engineer of any of the terms of this contract or to exercise any rights herein shall not be construed as a waiver or relinquishment to any extent of its right to assert or rely upon such terms or rights on any future occasion.

ARTICLE 26. SEVERABILITY
If any provision of this agreement is held invalid or unenforceable, the remaining provisions shall be valid and binding upon the Terms & Conditions for Professional Services. One or more waivers by either party of any provision, term or condition shall not be construed by the other party as a waiver of any subsequent breach of the same provision, term or condition.

ARTICLE 27. CONSTRUCTION PROCEDURES
Engineer's observation or monitoring portions of the Work performed under construction contracts shall not relieve the contractor from its responsibility for performing work in accordance with applicable contract documents. Engineer shall not control or have charge of, and shall not be responsible for, construction means, methods, techniques, sequences, procedures of construction, health or safety programs or precautions connected with the Work and shall not manage, supervise, control or have charge of construction. Engineer shall not be responsible for the acts or omissions of the contractor or other parties on the project. Engineer shall be entitled to review all construction contract documents and to require that no provisions extend the duties or liabilities of Engineer beyond those set forth in this Agreement.

ARTICLE 28. HAZARDOUS MATERIALS
Owner shall provide notice to Engineer, to the best of its knowledge, if hazardous materials may be present on any project site.

It is acknowledged by both parties that Engineer's scope of services do not include services related in any way to hazardous materials. In the event Engineer or any other party encounters undisclosed hazardous materials, Engineer shall have the obligation to notify Owner and, to the extent required by law or regulation, the appropriate governmental officials, and Engineer may, at its option and without liability for delay, consequential or any other damages to Owner, suspend performance of services on that portion of the project affected by hazardous materials until Owner: (i) retains appropriate specialist consultant(s) or contractor(s) to identify and, as appropriate, abate, remediate, or remove the hazardous materials; and (ii) that the project site is in full compliance with all applicable laws and regulations according to the consultant(s) or contractor(s) retained by the Owner. Owner acknowledges that Engineer is performing professional services for Owner and that Engineer is not and shall not be required to become an "arranger," "operator," "generator," or "transporter" of hazardous materials, as defined in the Comprehensive Environmental Response, Compensation, and Liability Act of 1990 (CERCLA), which are or may be encountered at or near the project site in connection with Engineer's services under this Agreement.

If Engineer's services hereunder cannot be performed because of the existence of hazardous materials, Engineer shall be entitled to terminate this Agreement for cause on 30 days written notice.

ARTICLE 29. NOT USED

ARTICLE 30. GOVERNING LAW
This contract shall be interpreted in accordance with the substantive and procedural laws of the State of Utah.

ARTICLE 31. ENTIRE AGREEMENT
This contract and any referenced attachment constitute the complete agreement between the parties.

ARTICLE 32. EXECUTION AND EFFECTIVE DATE
This Agreement, including the exhibits and schedules made part hereof, constitute the entire Agreement between Engineer and Owner, supersedes and controls over all prior written or oral understandings. This Agreement may be amended, supplemented or modified only by a written instrument duly executed by the parties.

ARTICLE 33. APPROVALS
IN WITNESS WHEREOF, the parties hereto have executed or caused to be executed by their duly authorized officials, this contract in duplicate on the respective date indicated below:

CONSULTANT
Engineer

By:_____
Name

Title: _____

Date:_____

CITY
Owner

By:_____
Name, Mayor

Date:_____

ATTEST:

By: _____
Name, City Recorder

Attachment 2 – 2020 Engineering Report WRF MBR Upgrade

HYRUM CITY

WATER RECLAMATION FACILITY MBR UPGRADE

MARCH 2020

REGISTERED PROFESSIONAL ENGINEER
No.362058
JUSTIN RAY LOGAN
03/12/2020
STATE OF UTAH

ENGINEERING REPORT

AQUA ENGINEERING
533 W 2600 S Suite 275, Bountiful, UT 84010
Phone: 801.299.1327 | Fax: 801.299.0153

SECTION 1 UPGRADED PROCESS DESIGN INFORMATION

This report details the biological capacity of the proposed upgrades to the existing Hyrum City Water Reclamation Facility (WRF) membrane bio reactor (MBR) upgrade project. It is primarily focused on influent quantity and quality, process air calculations, existing blower performance, and air pipe routing. The report also addresses the facility's surplus capacity and the potential future connection of Milleville City's proposed sewer collection system.

1.1 Existing Facility Influent Data

Influent flow, biological oxygen demand (BOD), and mixed liquor suspended solid (MLSS) data for January 2016 through May 2018 were analyzed to aide in establishing the design capacity and influent flow characteristics for the proposed WRF upgrades. The pertinent conclusions of this analysis are listed below, followed by Figures 1-1 thru 1-3, illustrating the raw data for these characteristics.

Influent Flow Volume

- The 95th Percentile influent volume is 1.00 ±0.02 MGD
- Annual averages for 2016, 2017, and 2018 are 0.90 MGD, 1.14 MGD, and 0.94 MGD, respectively.

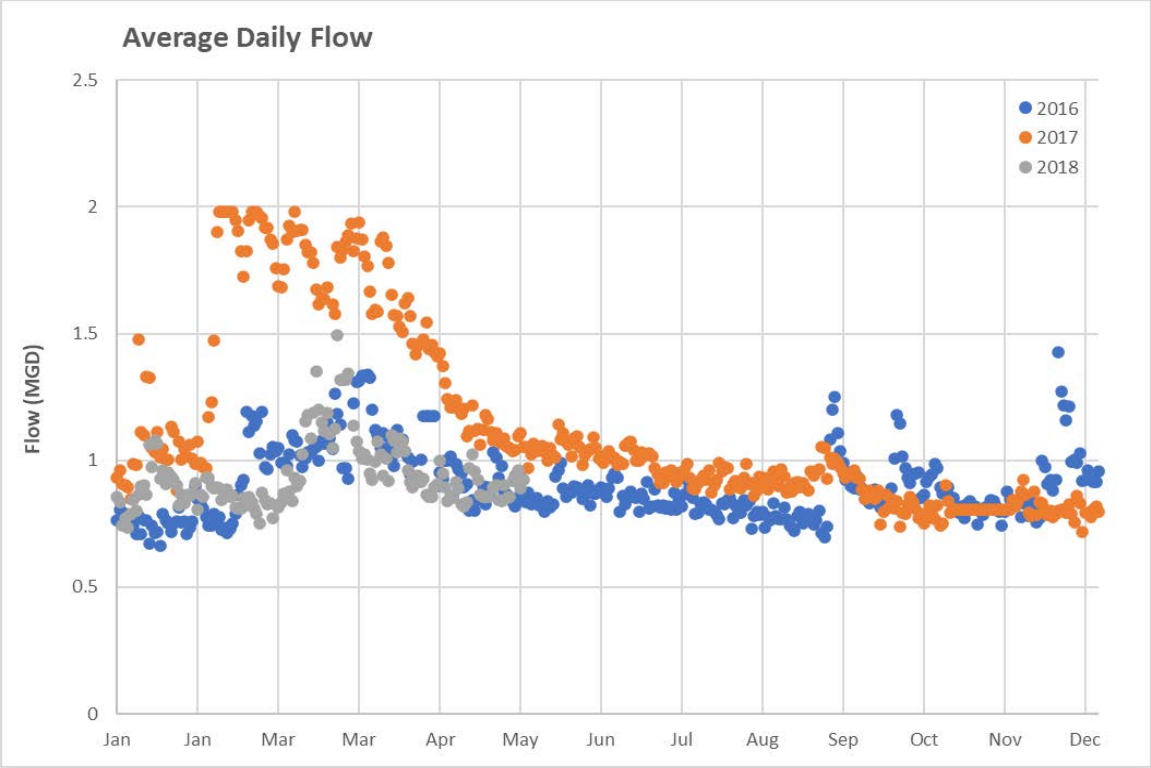


Figure 1-1 Average Daily Flow

- During spring runoff on the year of 2017, the influent measurement was reading over 1.5 MGD for over 71 consecutive days. It was a wet spring and flows were abnormally high, however there is some question regarding the accuracy of this data. Operations was using the existing oxidation ditch to equalize flow during the highest flow periods of the day. This caused higher water surfaces in the junction box below the parshall flume used to measure the influent flow. Thus it is possible that those data points were inaccurate and we suspect the actual annual flows are more typical of what was recorded in 2016 and 2018.
- Average flow per capita is 111 gpd - (1,000,000 gallons per day – 90,000 gallons per day (Westpoint Dairy))/ 8,197 =111 gallons per capita per day
- The original plant design was for 2.0 MGD.
- Projected average daily flow of 1.5 MGD by 2044 with an average annual rate of change of 1.7 %. Thus the existing facility will not reach 75% of the design capacity during the next 20 years, unless growth rates change significantly or other communities connect to the facility.

Influent BOD

- The 95th Percentile BOD concentration is 136 ± 6.7 mg/L with peak concentration of 268 mg/L. This is equivalent to a BOD daily load of 1,134 #BOD/day.

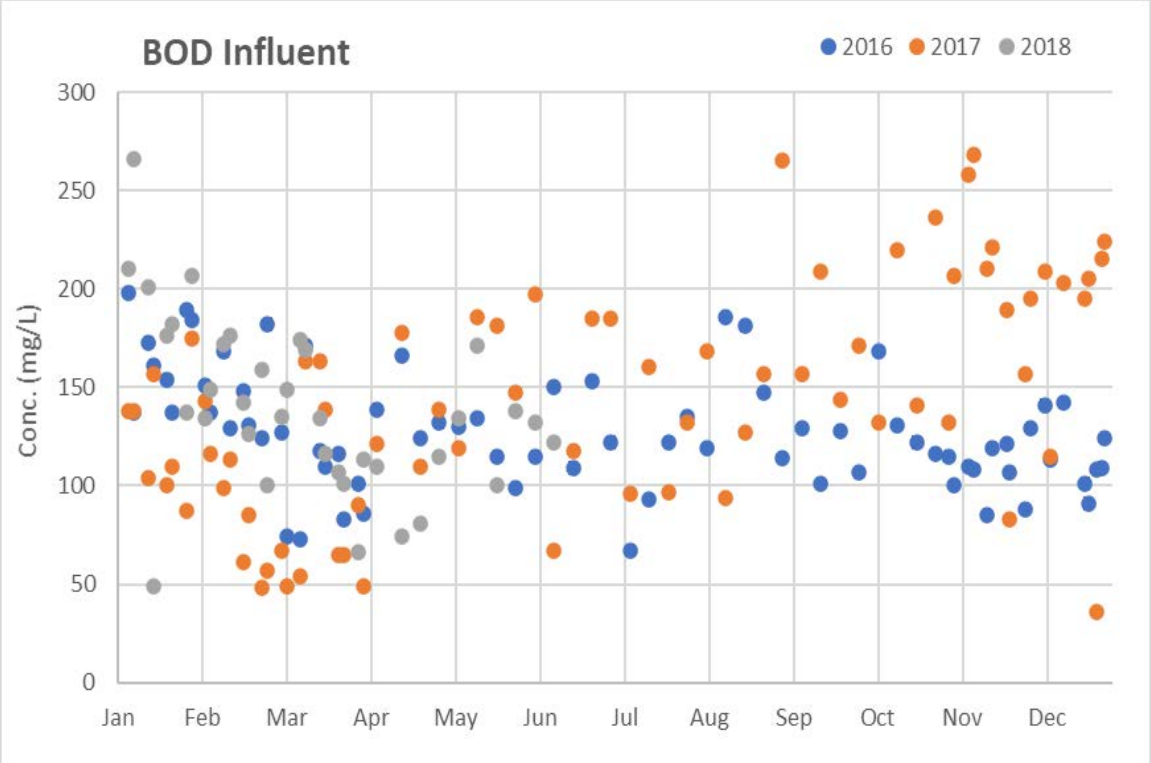


Figure 1-2 Average Daily Flow

- Average BOD per capita is 0.13 lbs/day

  (1,134 lbs/day – 65 lbs/day (Westpoint Dairy))/ 8,197 =0.13 lbs per capita per day

- The original plant design was for 2.0 MGD with a BOD concentration of 220 mg/l, or 3,670 #BOD/day. Based on the current influent BOD concentration, the BOD load at 2.0 MGD will be 2,268 #BOD/day, leaving roughly 1,400 lbs of BOD loading capacity in reserve.

MLSS Concentration

- The 95th Percentile MLSS concentration is 11,000 ±140 mg/L
- Design operating MLSS :10,000 mg/L (same as original plant design)
- The SRT at 10,000 mg/L and 2.0 MGD is approximately 25 days and at 11,000 mg/L it is about 28 days.

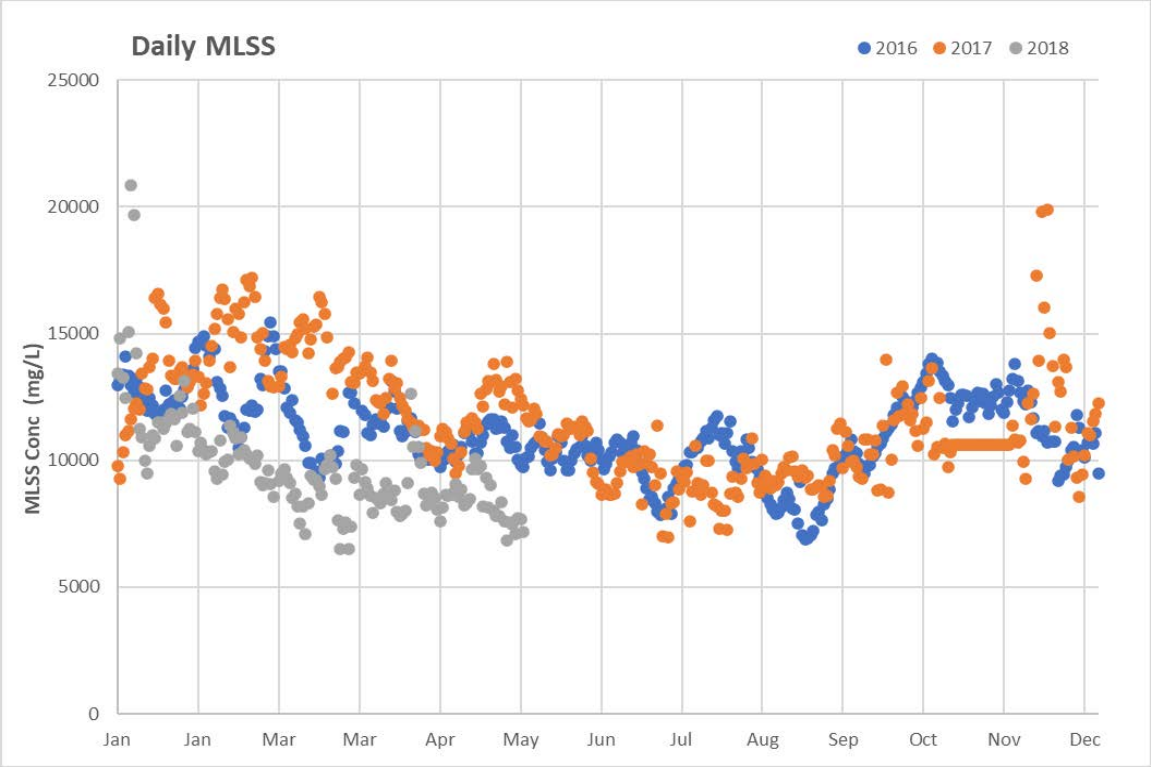


Figure 1-3 MLSS Concentration

1.2 Membrane Bio Reactor

The facility's four existing MBR basins are 17 ft- 6 in. deep from the bottom of basin to the top of grate, with an operating water depth of 15 ft. Three basins are currently equipped with 12 Kubota EK 400 flatsheet panel membrane cassettes. Each cassette provides 3,444 sqft. of membrane surface area for a total membrane surface area of 41,328 sqft. per basin. The combined surface area for the 3 equipped MBR basins is 123,984 sqft. The design average flow rate of the system (3 basin system) is 1.5 MGD when applying the manufacturer's suggested flux rate of 12 gallons per square feet per day (GFD). However, experience with these membranes indicates flux rates vary between 8 and 10 GFD during winter and spring months when influent temperatures approach 7°C to 8°C. These flux rates effectively limit the existing system hydraulic capacity to approximately 1 MGD with an average annualized flux rate of 8 GFD.

Installation of the Kubota SP 600 cassettes in all 4 basins will increase the total membrane surface area to 310,000 sqft., a 150% increase over the current EK 400 system. At a design flow of 2 MGD, operating depth will be 15 ft- 8 in and the flux rate is a manageable and conservative 6.45 GFD. Taking a basin offline for maintenance still allows for a flux rate of 8.60 GFD.

1.3 Mass Balance Calculation

Table1-1 summarizes influent and effluent design criteria for the facility. Conservative assumptions of 0 mg/L for BOD and TSS effluent concentrations were applied (Note: The TMDL allows up to 25mg/L) to demonstrate the maximum oxygen requirements for the proposed process.

Table 1-1 Influent & Effluent Design Criteria

Average Flow	2.0	MGD
Peak Hourly Flow	4.0	MGD
BOD Influent	150	mg/L
	2,502	lbs/day
TSS Influent	150	mg/L
	2,502	lbs/day
TKN Influent	40.0	mg/L
	667	lbs/day
BOD Effluent	0	mg/L
	0	lbs/day
TSS Effluent	0	mg/L
	0	lbs/day
Ammonia Effluent	4	mg/L
	67	lbs/day

Table 1-2 summarizes calculated mass balance data for the facility. As previously indicated, the MLSS was determined from actual data. To calculate the maximum air requirement, a denitrification oxygen credit was not applied in the calculations. The mass balance is summarized on sheet G-6, volume III of the Contract Documents.

Table 1-2 Anoxic Basin/Aeration Basin Mass Balance

Anoxic Basin/Aeration Basin		
Yield	0.7	
Recycle Min	4	MGD
Recycle Max	8	MGD
Raw Flow Into Process	2.0	MGD
BOD In	2,502	lbs/day
TKN In	667	lbs/day
MLSS	11,000	mg/L
Anoxic Volume (per Train)	0.075	MG
Number of Trains	2	each
HRT	1.8	hours
Aerobic Volume (per Train)	0.106	MG
Number of Trains	1	each
HRT	1.3	hours
MBR Basin Volume (per Train)	0.071	MG
Number of Trains	4	each
HRT	3.4	hours
Total HRT	6.4	hours
F/M	0.07	
SRT	28.3	days
Denitrification BOD Credit	0	lbs O2/day
Total O2 Requirement	6,072	lbs O2/day
TSS Out	*1,751*	lbs TSS/day
TSS Concentration	*1%*	
Aerobic Digestion		
Gallons In	21,000	gpd
TSS In	1,751	lbs/day
VSS	77%	
#VSS In	1,349	lbs/day
Volume, each	0.12	MG
Tanks	2	each
HRT	11.0	days
VSS Destruction	0%	%
#VSS Destroyed	0	lbs/day
Solids Remaining	1,751	lbs/day
Dewatering		
# to dewatering/day	1,751	lbs/day
Capture Efficiency	95%	
Solids Concentration Out	16%	
Gallons Out	1,247	gpd
Solids Concentration Drying Bed	75%	
Gallons Out	266	gpd
Wet Pounds	2,218	lbs/day
Dry Cake Solids	1.1	ton/day

1.4 Process Air

1.4.1 Air Calculation

As a part of the mass balance calculation, Actual Oxygen Requirement (AOR) was calculated. Based on the AOR, Standard Oxygen Requirement (SOR) was calculated as shown in Table 1-3. Fine bubble diffusers in the pre-air basin typically provide an oxygen transfer efficiency rate of 1.9% per foot depth based on standard oxygen transfer efficiency in clean water. The membrane cassettes provided by Kubota have membrane diffusers for scour air on the bottom of the cassettes that create fine bubbles. The diffuser transfer efficiency has been derated for the cassettes to 1.5 % per foot depth because of quantity of air going through them and the higher packing density in the basin. This was used to be conservative with the air requirement. Scour air requirement for the basin is minimum of 912 SCFM per train, or a total of 3,648 SCFM with 4 basins in operation. When the facility operates with the 3 basins, a minimum of 2,770 SCFM will be supplied to the process in the membrane trains which is just under the required SCFM to supply enough oxygen to meet the AOR, as shown below (2,816 SCFM). The membrane air can be turned up to 2,816 SCFM as required.

Based on the calculated scour air requirements for the proposed upgrades, it was determined the WRF will not need additional air in the pre-air basins other than for mixing. Air required for complete mixing is approximately 300 SCFM, which was calculated using the pre-air basin volume (14,508 cu.ft.) multiplied by 20 SCFM/1,000 cu.ft. It should also be noted that the plant currently runs no air to the pre-aeration basin and adequately provides enough oxygen for the biological process.

Table 1-3 as follows, provides a summary of the oxygen transfer within the membrane trains during normal operation of three (3) trains. The actual oxygen requirement (AOR) is based on providing 1.2 lbs of O2 per pound of BOD and 4.6 lbs of BOD per pound of ammonia. No denitrification credit was taken. At the reduced transfer efficiency

Table 1-3 Air Calculation

Air Required	AOR	6,072	lb O_2 / day
Site Altitude		4,530	ft
Density of Air	ρ_{AIR}	0.075	lb/ft3
Mass Fraction of Oxygen in Air	C_{O2}	0.232	
Kinetic Correction Factor	α	0.65	
Thermodynamic Correction Factor	β	0.95	
Temperature Correction Factor	θ	1.024	
Oxygen Saturation at Site Barometric Pressure and Wastewater Temp	C_{TP}	7.1	
Oxygen Saturation at Standard Temp and Pressure	C_{20}	9.08	
Residual Oxygen Concentration in basin	C_R	2	
Max Design Operating Temp	T	25	
Oxygen Transfer Efficiency per Foot	$SOTE_{FT}$	1.5%	
Depth		15	ft
Standard Oxygen Transfer Efficiency	SOTE	22.5%	
Standard Oxygen Transfer Rate	SOTR	15,877	lb O_2 / day
Air Required		**2,816**	**SCFM**

1.4.2 Air Pipe Routing

Currently, the existing air pipes are routed from the blowers overhead and penetrate the floor of the blower room with the main distribution header beneath the concrete floor. Operators at the WRF believe the underfloor piping is broken/leaking air. As such, the proposed upgrade includes installing exposed headers to replace the below slab piping. The replacement air piping was sized satisfactorily. This modification does not add significant length to the existing piping; and the air distribution pipe sizes will remain the same.

1.5 Existing Blowers

Currently the WRF is equipped with four (4) centrifugal blowers with VFDs, each capable of delivering up to 2,400 SCFM at 8 psig. Thus operating in a 3 duty and 1 standby configuration, the blowers can provide 7,200 SCFM at 8 psig. Additional information on the existing blowers, including performance curves, can be found at the end of this document.

The air requirement for the plant is 100 SCFM for anoxic zone mixers, 50 SCFM for the grit system, 300 SCFM for the pre-aeration basins, and 3,648 SCFM for the 4 membrane trains. This is a maximum air requirement of 4,100 SCFM. There is significant excess blower capacity with this upgrade.

1.6 Milleville City

The Water Quality Board Feasibility Report was provided by Beth Wondimu on Feb 28th, 2020. Milleville City has been having issues with nitrate in their drinking water. This is believed to be results of agricultural and septic tank discharges to subsurface. The City has applied for an aquifer storage and recovery (ASR) project permit in 2018 but it was denied. Following the denial of ASR permit, the Bear River Health Department put a moratorium on any further septic permitting in the area. With both ASR permit denial and moratorium on septic permits, Milleville has moved to develop plans to sewer the community.

Based on the report, the current population of the City is estimated to be of 2,050 with culinary connections of 630. With the State design allowance of 100 gallons per capita per day (Utah Admin Code R317-3-2), Milleville City would have sewer discharge of 205,000 gallons per day. It is yet to be decided whether Milleville City will connect to the sewer facility in Logan or form regional facility with Hyrum City. It is highly likely that the existing facility design, capability, and possible upgrades will be discussed while Milleville City is making those decisions. However, even if it is decided to form a regional facility with Hyrum City, the facility will have capacity of 2.0 MGD once this upgrade is complete. As it was previously mentioned, current influent to the facility is 1.0 MGD, thus, additional 0.2 MGD can be treated at the facility without any upgrades to the facility at this point. It is anticipated that the existing permit would have to be updated, and an Antidegradation Report would be looked at for the new facility, if and when additional flow is needed at the Hyrum WRF. Based on current growth rates if Milleville joins Hyrum WRF the 2.0 MGD capacity would be reached around 2045. This provides ample time for the Cities to plan for future expansion needs.

Appendix A

Continental Blower, L.L.C.

23 Corporate Circle
E. Syracuse, NY 13057
Phone: (315) 451-5410 Fax: (315) 451-5950
E-Mail: mikem@continentalblower.com
Website: continentalblower.com

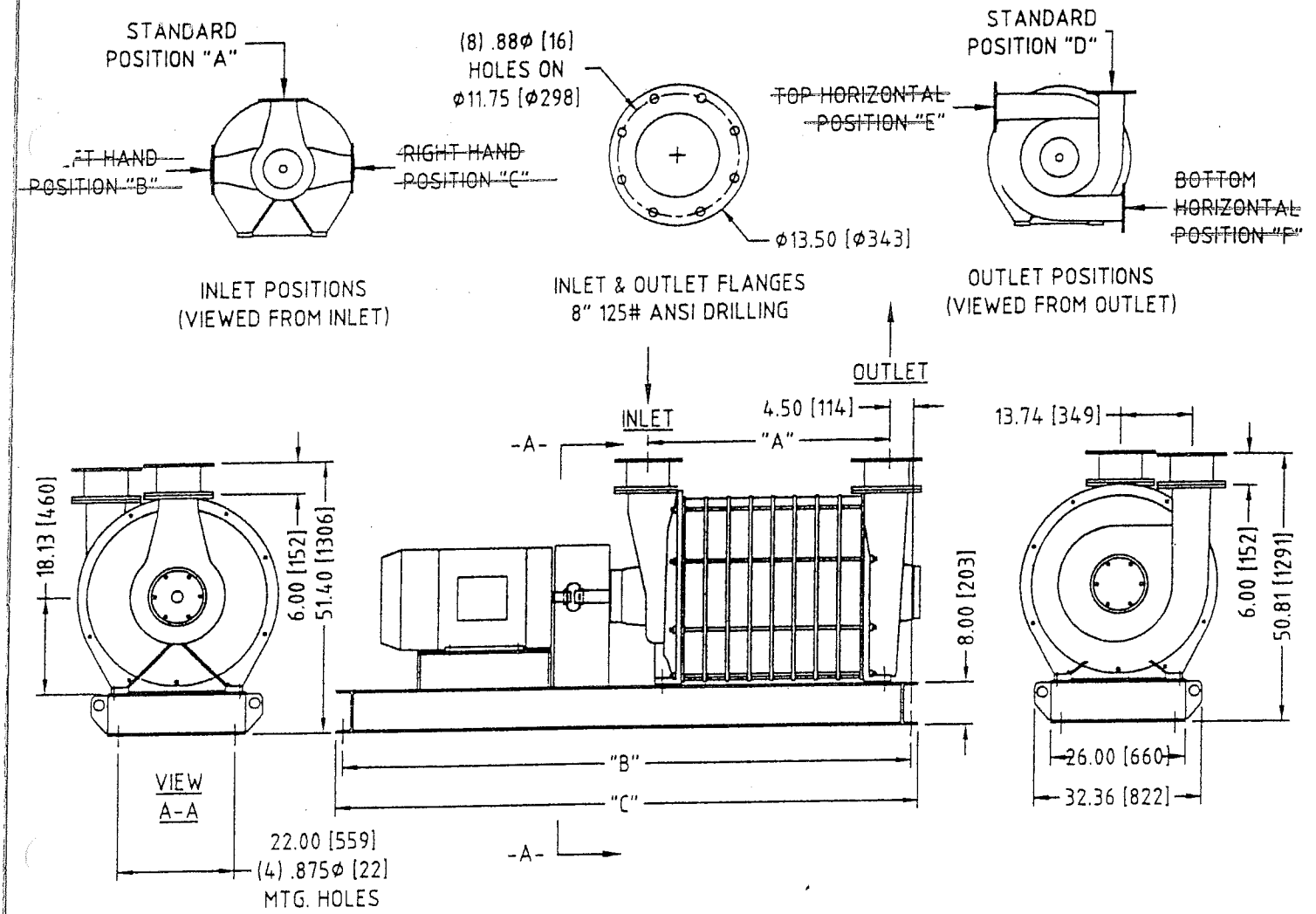
Hyrum City Corporation
83 West Main
Hyrum, Utah 84319

Hyrum City Corporation PO # 18651
Continental Order # 030798

Installation, Operation and Maintenance Manuals

(sn-0477A018, 0477A019, 0477A020, 0477A021)

Equipment:	**Continental Model 77.08 Dimensions** **Continental Model 77 Technical Data** **Continental Model 77 Mechanical Specifications** **Performance Data** **Rexnord Coupling** **Baldor Motor** **Base Pads** **Universal Filter Silencers** **PDC Butterfly Valves** **Red Flex Expansion Joints** **Techno Check Valves** **Control Panel**
I, O & M Data	**Continental I, O & M Manual** **Baldor Motors**
Warranty/Spare Parts	**Warranty** **Recommended Spare Parts**
Area Representative	**Goble Sampson** **3500 So. Main Street, Suite 200** **Salt lake City, Utah 84115** **P: 801-268-8790** **F: 801-268-8792**



BLOWER SIZE	MAX. MOTOR FRAME SIZE	"A"	"B"	"C"
7701	284T	11.42 [290]	54.0 [1372]	66.0 [1676]
7702	326TS	15.75 [400]	60.0 [1524]	72.0 [1826]
7703	365TS	20.08 [510]	66.0 [1676]	78.0 [1981]
7704	405TS	24.41 [620]	74.0 [1880]	86.0 [2184]
7705	444TS	28.74 [730]	86.0 [2184]	98.0 [2489]
7706	445TS	33.07 [840]	90.0 [2286]	102.0 [2591]
7707	445TS	37.40 [950]	90.0 [2286]	102.0 [2591]
7708	447TS	41.73 [1060]	102.0 [2591]	114.0 [2896]
7709	449TS	46.06 [1170]	114.0 [2896]	126.0 [3200]

QTY (4)

DIMENSIONS ARE IN INCHES AND [mm]
ACTUAL DIMENSIONS MAY VARY SLIGHTLY TO SUIT APPLICATION

☐ FOR APPROVAL ☒ CERTIFIED

PROJECT: - HYRUM UT.
CUSTOMER: - HYRUM CITY CORP.
P.O. # - 18651
CB # - 030798
DATE: - 1/12/04 BY: GBL

CONTINENTAL BLOWER SIZES 7701 THRU 7709
AIR & GAS INLET DRIVEN (DIRECT DRIVE)

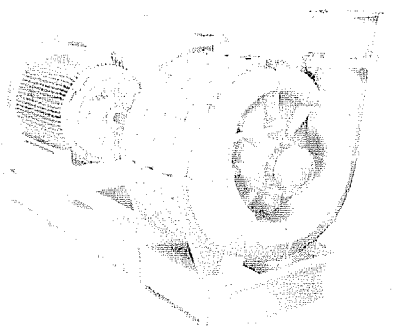
DRAWING NUMBER CB77/FLG | REV. 2 | 4/11/01

Continental Blower, L.L.C.

441 Beechwood Ave
Liverpool, NY 13088
Ph: (315) 451-5410
Fax: (315) 451-5950

TECHNICAL DATA SHEET

"77" SERIES



AIR & GAS

TECHNICAL DATA

Number of stage : 1 thru 8 (cast) - 1 thru 11 (fabricated)

Inlet connection : 8" (202 mm) flange, matches 125# ANSI

Outlet connection : 8" (202 mm) flange, matches 125# ANSI

Operating speed : 3550 rpm in direct drive (60Hz), 4400 with gear box or V-belt

Lubrication : Oil type ~~with constant level (grease optional)~~

Impeller diameter : 24" (611 mm)

Impeller tip speed : 372 f/s (113 m/s)

Drive : Direct drive or gear box or V-belts

Vibration tolerance : 1.25 mils peak-to-peak (4.5 mm /s)

Shaft end : 2" 3/8 (60 mm), inlet end drive standard.

MATERIALS OF CONSTRUCTION

Head, Sections, Bearing housings : Cast iron ASTM A-48 Class 35B

Tie rods : 13/16" (20 mm) diameter cold drawn steel A60

Joint sealing compound : RTV IS502 Silicone

Seals (air) : Two graphit rings each end

~~**Seals (gas) : Four carbon rings each end with inert gas injection**~~

Bearings : Ball bearings 6313 C3 per AFBMA B10 STANDARD

Shaft : AISI 1038 Carbon Steel or equivalent

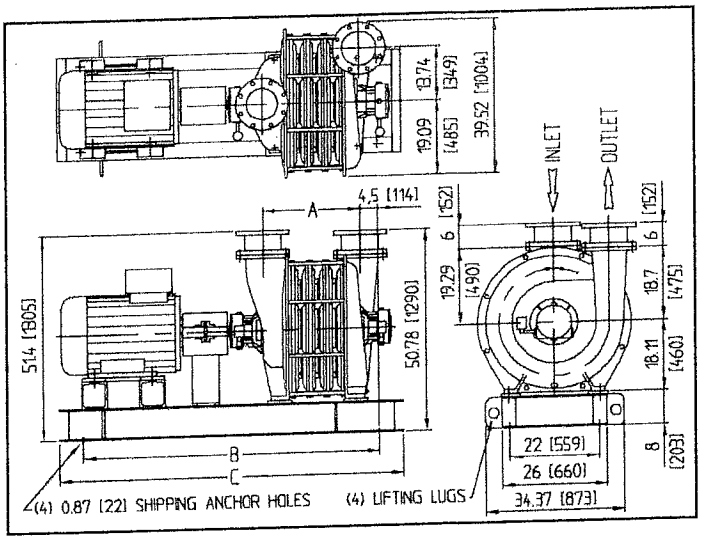
Impellers : Cast aluminium ASTM 360 ; fabricated aluminium ASTM 6061

Baffle rings : Stainless steel

Motor pedestal : Structural steel.

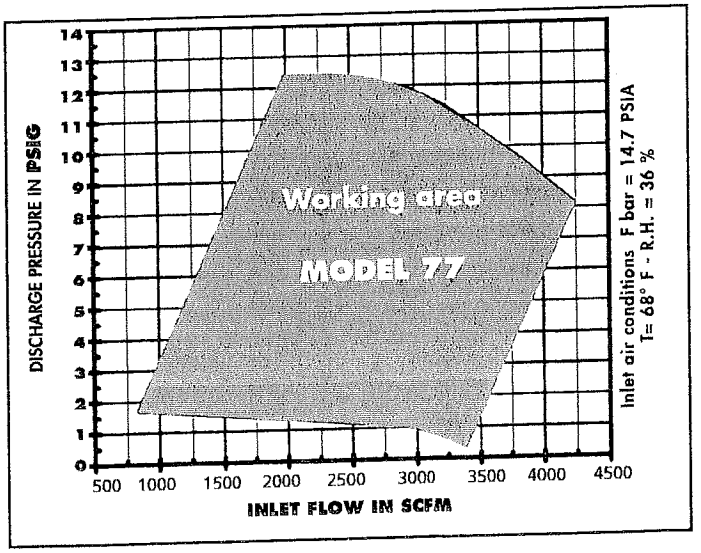
Base pads : Korfund Elasto-rib or equivalent

Noise level : In compliance with OSHA standards when machine is fully, piped (certified tests available).



BLOWER SIZE	"A"	"B"	"C"	WEIGHT LBS	WEIGHT KG	ROTOR WK²(lb. ft²) CAST	ROTOR WK²(lb. ft²) FABRIC.
7701	11.42 (290)	54.0 (1372)	66.0 (1676)	1980	900	11.95	3.86
7702	15.75 (400)	60.0 (1524)	72.0 (1829)	2290	1040	23.75	7.66
7703	20.08 (510)	66.0 (1676)	74.0 (1880)	2600	1180	35.55	11.46
7704	24.41 (620)	74.0 (1880)	86.0 (2184)	2930	1330	47.35	15.26
7705	28.74 (730)	86.0 (2184)	98.0 (2489)	3260	1480	59.15	19.06
7706	33.07 (840)	90.0 (2286)	102.0 (2591)	3550	1610	70.95	22.86
7707	37.40 (950)	90.0 (2286)	102.0 (2591)	3810	1730	82.75	26.66
7708	41.73 (1060)	102.0 (2591)	114.0 (2896)	4140	1880	94.55	30.46
7709	46.06 (1170)	114.0 (2896)	132.0 (3200)	4470	2030	106.35	34.26

DIMENSIONS ARE IN INCHES AND (MM)
ACTUAL DIMENSIONS MAY VARY SLIGHTLY TO SUIT APPLICATION



CONTINENTAL

Multistage Centrifugal Blowers and Exhausters

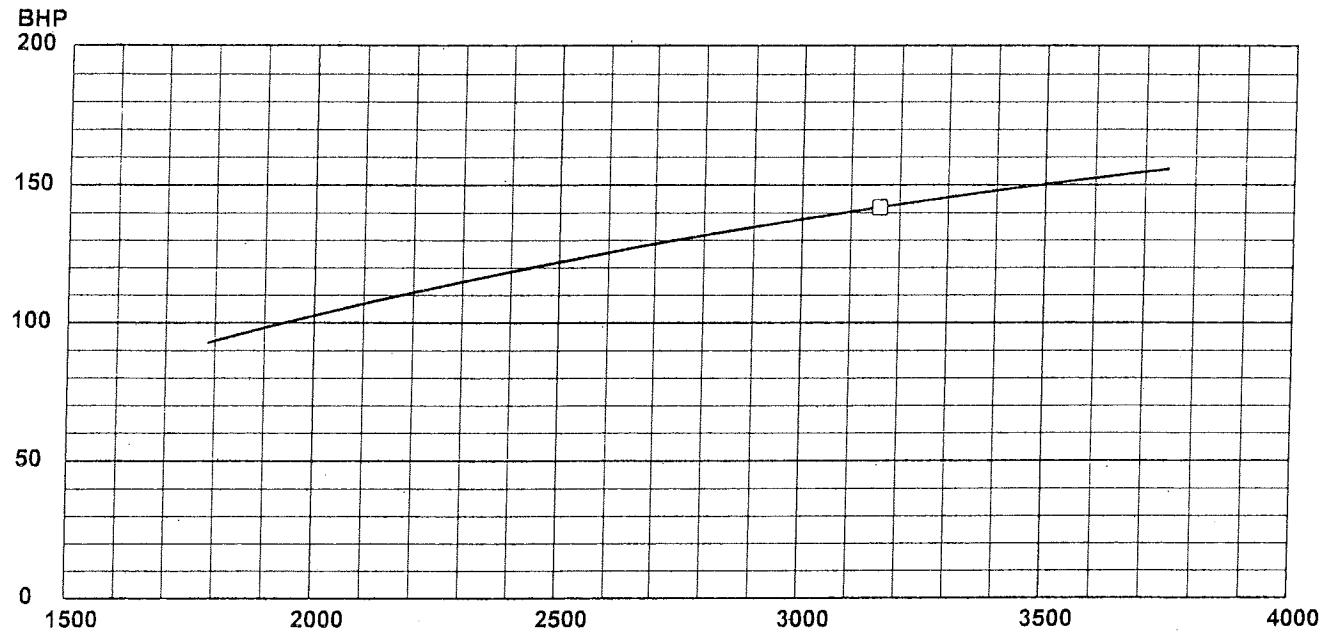
Customer:	Quote/Order #
Project Name: Hyrum	Prepared by: MTM
Project Location:	Date: 31 Jul 2003; 03:41 PM

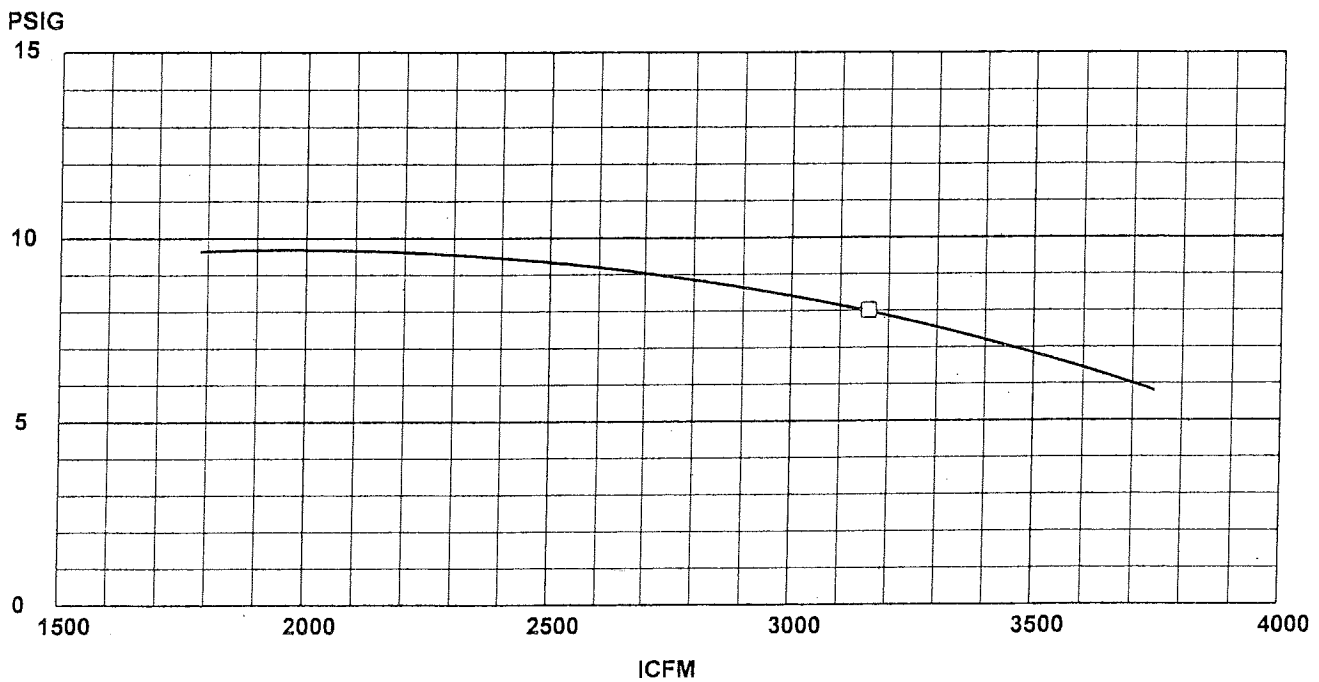
☐ Jobsite Conditions [Air]

Barometer :	12.51 PSIA
Inlet Pressure:	12.31 PSIA
Inlet Temperature:	100.0 F
Relative Humidity:	60.0 %
RPM:	3500

Notes: 2,400 scfm at 8.0 psig

Model	Stages	Impellers
77	8	(8) 5312





Estimated Performance

CONTINENTAL

Multistage Centrifugal Blowers and Exhausters

Customer:	Quote/Order #
Project Name: Hyrum	Prepared by: MTM
Project Location:	Date: 31 Jul 2003; 03:41 PM

Notes: 2,400 scfm at 8.0 psig	Model	Stages	Impellers (8) 5312
	77	8	

Jobsite Conditions	Input Data		English Data		Gas Composition
RPM:	3500				Air
Barometer :	12.51	PSIA	12.51	PSIA	
Inlet Pressure:	12.31	PSIA	12.31	PSIA	
Inlet Temperature:	100.0	deg F	100.0	deg F	
Inlet Flow:	2400	SCFM	3160	ICFM	
Design Disch Press:	8.00	PSIG	8.00	PSIG	
Relative Humidity:	60.0	%	60.0	%	

Jobsite Performance	Plot Units		Gas Properties		
Surge pressure:	9.64	PSIG	MW	28.47	
Surge flow:	1785	ICFM	Cp	0.246	Btu/#-deg R
Press @ design flow:	7.97	PSIG	k	1.395	
Power @ design flow:	141.60	BHP			
Adiabatic Eff. @ design flow :	65.7	%			
Disch Temp @ design flow:	233.4	F	Valve inlet density		
Rise to surge:	1.64	PSIG	0.058 #/cu.ft.		
Turndown:	43.5	%			

EAP =11.05 PSIG EquivStdICFM = 3205 ICFM