

AGREEMENT FOR PROFESSIONAL SERVICES

Moleaer, Inc.

Water Treatment Equipment Service, Lake Bottom Hardness Mapping, and Water Testing

This Agreement for Professional Services (the "Agreement") is made and entered into as of August __, 2023, by and between the City of Lake Elsinore, a municipal corporation ("City") and Moleaer, Inc., a Water Treatment Firm ("Consultant").

RECITALS

A. The City has determined that it requires the following professional services:

Equipment Service, Lake Bottom Hardness Mapping and Water Testing

B. Consultant has submitted to City a proposal, dated August 15, 2023, attached hereto as Exhibit A ("Consultant's Proposal") and incorporated herein, to provide professional services to City pursuant to the terms of this Agreement.

C. Consultant possesses the skill, experience, ability, background, certification and knowledge to perform the services described in this Agreement on the terms and conditions described herein.

D. City desires to retain Consultant to perform the services as provided herein and Consultant desires to provide such professional services as set forth in this Agreement.

AGREEMENT

1. Scope of Services. Consultant shall perform the services described in Consultant's Proposal (Exhibit A). Consultant shall provide such services at the time, place, and in the manner specified in Consultant's Proposal, subject to the direction of the City through its staff that it may provide from time to time.

2. Time of Performance.

a. Time of Essence. Time is of the essence in the performance of this Agreement. The time for completion of the professional services to be performed by Consultant is an essential condition of this Agreement. Consultant shall prosecute regularly and diligently the professional services contemplated pursuant to this Agreement according to the agreed upon performance schedule in Consultant's Proposal (Exhibit A).

b. Performance Schedule. Consultant shall commence the services pursuant to this Agreement upon receipt of a written notice to proceed and shall perform all services within the time period(s) established in the Consultant's Proposal (Exhibit A). When requested by Consultant, extensions to the time period(s) specified may be approved in writing by the City Manager.

c. Term. The term of this Agreement shall commence upon execution of this Agreement and shall continue until the services and related work are completed in accordance with the Consultant's Proposal (Exhibit A).

3. Compensation. Compensation to be paid to Consultant shall be in accordance with the fees set forth in Consultants' Proposal (Exhibit A), which is attached hereto and incorporated herein by reference. In no event shall Consultant's compensation exceed Two Hundred and Twenty Nine Thousand and Eight Hundred and Ninety Nine dollars (229,899) without additional written authorization from the City. Notwithstanding any provision of Consultant's Proposal to the contrary, out of pocket expenses set forth in Exhibit A shall be reimbursed at cost without an inflator or administrative charge. Payment by City under this Agreement shall not be deemed a waiver of defects, even if such defects were known to the City at the time of payment.

4. Method of Payment. Consultant shall promptly submit billings to the City describing the services and related work performed during the preceding month to the extent that such services and related work were performed. Consultant's bills shall be segregated by project task, if applicable, such that the City receives a separate accounting for work done on each individual task for which Consultant provides services. Consultant's bills shall include a brief description of the services performed, the date the services were performed, the number of hours spent and by whom, and a description of any reimbursable expenditures. City shall pay Consultant no later than forty-five (45) days after receipt of the monthly invoice by City staff.

5. Background Checks. At any time during the term of this Agreement, the City reserves the right to make an independent investigation into the background of Consultant's personnel who perform work required by this Agreement, including but not limited to their references, character, address history, past employment, education, social security number validation, and criminal or police records, for the purpose of confirming that such personnel are lawfully employed, qualified to provide the subject service or pose a risk to the safety of persons or property in and around the vicinity of where the services will be rendered or City Hall. If the City makes a reasonable determination that any of Consultant's prospective or then current personnel is deemed objectionable, then the City may notify Consultant of the same. Consultant shall not use that personnel to perform work required by this Agreement, and if necessary, shall replace him or her with a suitable worker.

6. Suspension or Termination.

a. The City may at any time, for any reason, with or without cause, suspend or terminate this Agreement, or any portion hereof, by serving upon the Consultant at least ten (10) days prior written notice. Upon receipt of such notice, the Consultant shall immediately cease all work under this Agreement, unless the notice provides otherwise. If the City suspends or terminates a portion of this Agreement such suspension or termination shall not make void or invalidate the remainder of this Agreement.

b. In the event this Agreement is terminated pursuant to this Section, the City shall pay to Consultant the actual value of the work performed up to the time of termination, provided that the work performed is of value to the City. Upon termination of the Agreement pursuant to this Section, the Consultant will submit an invoice to the City, pursuant to Section entitled "Method of Payment" herein.

7. Plans, Studies, Documents.

a. Ownership of Documents. All plans, studies, documents and other writings prepared by and for Consultant, its officers, employees and agents and subcontractors in the course of implementing this Agreement, except working notepad internal documents, shall become the property of the City upon payment to Consultant for such work, and the City shall have the sole right to use such materials in its discretion without further compensation to Consultant or to any other party. Consultant shall, at Consultant's expense, provide such reports, plans, studies, documents and other writings to City upon written request. City shall have sole determination of the public's rights to documents under the Public Records Act, and any third-party requests of Consultant shall be immediately referred to City, without any other actions by Consultant.

b. Licensing of Intellectual Property. This Agreement creates a nonexclusive and perpetual license for City to copy, use, modify, reuse, or sublicense any and all copyrights, designs, and other intellectual property embodied in plans, specifications, studies, drawings, estimates, and other documents or works of authorship fixed in any tangible medium of expression, including but not limited to, physical drawings or data magnetically or otherwise recorded on computer diskettes, which are prepared or caused to be prepared by Consultant under this Agreement ("Documents & Data"). Consultant shall require that all subcontractors agree in writing that City is granted a nonexclusive and perpetual license for any Documents & Data the subcontractor prepares under this Agreement. Consultant represents and warrants that Consultant has the legal right to license any and all Documents & Data. Consultant makes no such representation and warranty in regard to Documents & Data which were prepared by design professionals other than Consultant or provided to Consultant by the City. City shall not be limited in any way in its use of the Documents & Data at any time, provided that any such use not within the purposes intended by this Agreement shall be at City's sole risk.

c. Confidentiality. All ideas, memoranda, specifications, plans, procedures, drawings, descriptions, computer program data, input record data, written information, and other Documents & Data either created by or provided to Consultant in connection with the performance of this Agreement shall be held confidential by Consultant. Such materials shall not, without the prior written consent of City, be used by Consultant for any purposes other than the performance of the services under this Agreement. Nor shall such materials be disclosed to any person or entity not connected with the performance of the services under this Agreement. Nothing furnished to Consultant which is otherwise known to Consultant or is generally known, or has become known, to the related industry shall be deemed confidential. Consultant shall not use City's name or insignia, photographs relating to project for which Consultant's services are rendered, or any publicity pertaining to the Consultant's services under this Agreement in any magazine, trade paper, newspaper, television or radio production or other similar medium without the prior written consent of City.

8. Consultant's Books and Records.

a. Consultant shall maintain any and all ledgers, books of account, invoices, vouchers, canceled checks, and other records or documents evidencing or relating to charges for services, or expenditures and disbursements charged to City for a minimum period of three (3) years, or for any longer period required by law, from the date of final payment to Consultant to this Agreement.

b. Consultant shall maintain all documents and records which demonstrate performance under this Agreement for a minimum period of three (3) years, or for any longer period required by law, from the date of termination or completion of this Agreement.

c. Any records or documents required to be maintained pursuant to this Agreement shall be made available for inspection or audit, at any time during regular business hours, upon written request by the City Manager, City Attorney, City Auditor or a designated representative of these officers. Copies of such documents shall be provided to the City for inspection at City Hall when it is practical to do so. Otherwise, unless an alternative is mutually agreed upon, the records shall be available at Consultant's address indicated for receipt of notices in this Agreement.

d. Where City has reason to believe that such records or documents may be lost or discarded due to dissolution, disbandment or termination of Consultant's business, City may, by written request by any of the above-named officers, require that custody of the records be given to the City and that the records and documents be maintained in City Hall. Access to such records and documents shall be granted to any party authorized by Consultant, Consultant's representatives, or Consultant's successor-in-interest.

9. Independent Contractor.

a. Consultant is and shall at all times remain as to the City a wholly independent contractor pursuant to California Labor Code Section 3353. The personnel performing the services under this Agreement on behalf of Consultant shall at all times be under Consultant's exclusive direction and control. Neither City nor any of its officers, employees, or agents shall have control over the conduct of Consultant or any of Consultant's officers, employees, or agents, except as set forth in this Agreement. Consultant shall not at any time or in any manner represent that it or any of its officers, employees, or agents are in any manner officers, employees, or agents of the City. Consultant shall not incur or have the power to incur any debt, obligation, or liability whatsoever against City, or bind City in any manner.

b. Notwithstanding any other federal, state and local laws, codes, ordinances and regulations to the contrary and except for the fees paid to Consultant as provided in the Agreement, Consultant and any of its employees, agents, and subcontractors providing service under this Agreement shall not qualify for or become entitled to, and hereby agree to waive any claims to, any compensation, benefit, or any incident of employment by City, including but not limited to eligibility to enroll in PERS as an employee of City and entitlement to any contribution to be paid by City for employer contribution and/or employee contributions for PERS benefits.

10. PERS Eligibility Indemnification. In the event that Consultant or any employee, agent, or subcontractor of Consultant providing services under this Agreement claims or is determined by a court of competent jurisdiction or the California Public Employees Retirement System (PERS) to be eligible for enrollment in PERS as an employee of the City, Consultant shall indemnify, defend, and hold harmless City for the payment of any employee and/or employer contributions for PERS benefits on behalf of Consultant or its employees, agents, or subcontractors, as well as for the payment of any penalties and interest on such contributions, which would otherwise be the responsibility of City.

11. Interests of Consultant. Consultant (including principals, associates and professional employees) covenants and represents that it does not now have any investment or interest in real property and shall not acquire any interest, direct or indirect, in the area covered

by this Agreement or any other source of income, interest in real property or investment which would be affected in any manner or degree by the performance of Consultant's services hereunder. Consultant further covenants and represents that in the performance of its duties hereunder no person having any such interest shall perform any services under this Agreement.

Consultant is not a designated employee within the meaning of the Political Reform Act because Consultant:

a. will conduct research and arrive at conclusions with respect to his/her rendition of information, advice, recommendation or counsel independent of the control and direction of the City or of any City official, other than normal agreement monitoring; and

b. possesses no authority with respect to any City decision beyond rendition of information, advice, recommendation or counsel. (FPPC Reg. 18700(a)(2).)

12. Professional Ability of Consultant. City has relied upon the professional training and ability of Consultant to perform the services hereunder as a material inducement to enter into this Agreement. Consultant shall therefore provide properly skilled professional and technical personnel to perform all services under this Agreement. All work performed by Consultant under this Agreement shall be in accordance with applicable legal requirements and shall meet the standard of quality ordinarily to be expected of competent professionals in Consultant's field of expertise.

13. Compliance with Laws.

a. Consultant shall comply with all local, state and federal laws and regulations applicable to the services required hereunder, including any rule, regulation or bylaw governing the conduct or performance of Consultant and/or its employees, officers, or board members.

b. Consultant represents that it has obtained and will maintain at all times during the term of this Agreement all professional and/or business licenses, certifications and/or permits necessary for performing the services described in this Agreement, including a City business license.

14. Licenses. Consultant represents and warrants to City that it has the licenses, permits, qualifications, insurance and approvals of whatsoever nature which are legally required of Consultant to practice its profession. Consultant represents and warrants to City that Consultant shall, at its sole cost and expense, keep in effect or obtain at all times during the term of this Agreement, any licenses, permits, insurance and approvals which are legally required of Consultant to practice its profession. Consultant shall maintain a City of Lake Elsinore business license.

15. Indemnity. Consultant shall indemnify, defend, and hold harmless the City and its officials, officers, employees, agents, and volunteers from and against any and all losses, liability, claims, suits, actions, damages, and causes of action arising out of any personal injury, bodily injury, loss of life, or damage to property, or any violation of any federal, state, or municipal law or ordinance, to the extent caused, in whole or in part, by the willful misconduct or negligent acts or omissions of Consultant or its employees, subcontractors, or agents, by acts for which they could be held strictly liable, or by the quality or character of their work. The foregoing obligation of Consultant shall not apply when (1) the injury, loss of life, damage to property, or violation of

law arises from the sole negligence or willful misconduct of the City or its officers, employees, agents, or volunteers and (2) the actions of Consultant or its employees, subcontractor, or agents have contributed in no part to the injury, loss of life, damage to property, or violation of law. It is understood that the duty of Consultant to indemnify and hold harmless includes the duty to defend as set forth in Section 2778 of the California Civil Code. Acceptance by City of insurance certificates and endorsements required under this Agreement does not relieve Consultant from liability under this indemnification and hold harmless clause. This indemnification and hold harmless clause shall apply to any damages or claims for damages whether or not such insurance policies shall have been determined to apply. By execution of this Agreement, Consultant acknowledges and agrees to the provisions of this Section and that it is a material element of consideration.

16. Insurance Requirements.

a. Insurance. Consultant, at Consultant's own cost and expense, shall procure and maintain, for the duration of the contract, unless modified by the City's Risk Manager, the following insurance policies.

i. Workers' Compensation Coverage. Consultant shall maintain Workers' Compensation Insurance and Employer's Liability Insurance for his/her employees in accordance with the laws of the State of California. In addition, Consultant shall require each subcontractor to similarly maintain Workers' Compensation Insurance and Employer's Liability Insurance in accordance with the laws of the State of California for all of the subcontractor's employees. Any notice of cancellation or non-renewal of all Workers' Compensation policies must be received by the City at least thirty (30) days prior to such change. The insurer shall agree to waive all rights of subrogation against City, its officers, agents, employees and volunteers for losses arising from work performed by Consultant for City. In the event that Consultant is exempt from Worker's Compensation Insurance and Employer's Liability Insurance for his/her employees in accordance with the laws of the State of California, Consultant shall submit to the City a Certificate of Exemption from Workers Compensation Insurance in a form approved by the City Attorney.

ii. General Liability Coverage. Consultant shall maintain commercial general liability insurance in an amount not less than one million dollars (\$1,000,000) per occurrence for bodily injury, personal injury and property damage. If a commercial general liability insurance form or other form with a general aggregate limit is used, either the general aggregate limit shall apply separately to the work to be performed under this Agreement or the general aggregate limit shall be at least twice the required occurrence limit. Required commercial general liability coverage shall be at least as broad as Insurance Services Office Commercial General Liability occurrence form CG 0001 (ed. 11/88) or Insurance Services Office form number GL 0002 (ed. 1/73) covering comprehensive General Liability and Insurance Services Office form number GL 0404 covering Broad Form Comprehensive General Liability. No endorsement may be attached limiting the coverage.

iii. Automobile Liability Coverage. Consultant shall maintain automobile liability insurance covering bodily injury and property damage for all activities of the Consultant arising out of or in connection with the work to be performed under this Agreement, including coverage for owned, hired and non-owned vehicles, in an amount of not less than one million dollars (\$1,000,000) combined single limit for each occurrence. Automobile liability coverage must be at least as broad as Insurance Services Office Automobile Liability form CA 0001 (ed. 12/90) Code 1 ("any auto"). No endorsement may be attached limiting the coverage.

iv. Professional Liability Coverage. Consultant shall maintain professional errors and omissions liability insurance appropriate for Consultant's profession for protection against claims alleging negligent acts, errors or omissions which may arise from Consultant's services under this Agreement, whether such services are provided by the Consultant or by its employees, subcontractors, or sub consultants. The amount of this insurance shall not be less than one million dollars (\$1,000,000) on a claims-made annual aggregate basis, or a combined single limit per occurrence basis.

b. Endorsements. Each general liability and automobile liability insurance policy shall be with insurers possessing a Best's rating of no less than A:VII and shall be endorsed with the following specific language:

i. Notwithstanding any inconsistent statement in any required insurance policies or any subsequent endorsements attached thereto, the protection offered by all policies, except for Workers' Compensation, shall bear an endorsement whereby it is provided that, the City and its officers, employees, servants, volunteers and agents and independent contractors, including without limitation, the City Manager and City Attorney, are named as additional insureds. Additional insureds shall be entitled to the full benefit of all insurance policies in the same manner and to the same extent as any other insureds and there shall be no limitation to the benefits conferred upon them other than policy limits to coverages.

ii. This policy shall be considered primary insurance as respects the City, its elected or appointed officers, officials, employees, agents and volunteers. Any insurance maintained by the City, including any self-insured retention the City may have, shall be considered excess insurance only and shall not contribute with it.

iii. This insurance shall act for each insured and additional insured as though a separate policy had been written for each, except with respect to the limits of liability of the insuring company.

iv. The insurer waives all rights of subrogation against the City, its elected or appointed officers, officials, employees or agents.

v. Any failure to comply with reporting provisions of the policies shall not affect coverage provided to the City, its elected or appointed officers, officials, employees, agents or volunteers.

vi. The insurance provided by this Policy shall not be suspended, voided, canceled, or reduced in coverage or in limits except after thirty (30) days written notice has been received by the City.

c. Deductibles and Self-Insured Retentions. Any deductibles or self-insured retentions must be declared to and approved by the City. At the City's option, Consultant shall demonstrate financial capability for payment of such deductibles or self-insured retentions.

d. Certificates of Insurance. Consultant shall provide certificates of insurance with original endorsements to City as evidence of the insurance coverage required herein. Certificates of such insurance shall be filed with the City on or before commencement of performance of this Agreement. Current certification of insurance shall be kept on file with the City at all times during the term of this Agreement.

17. Notices. Any notice required to be given under this Agreement shall be in writing and either served personally or sent prepaid, first class mail. Any such notice shall be addressed to the other party at the address set forth below. Notice shall be deemed communicated within 48 hours from the time of mailing if mailed as provided in this section.

If to City: City of Lake Elsinore
 Attn: City Manager
 130 South Main Street
 Lake Elsinore, CA 92530

With a copy to: City of Lake Elsinore
 Attn: City Clerk
 130 South Main Street
 Lake Elsinore, CA 92530

If to Consultant: Moleaer, Inc.
 Attn: Chris Stephan
 3232 W El Segundo Blvd
 Hawthorne, CA 90250

18. Assignment and Subcontracting. The parties recognize that a substantial inducement to City for entering into this Agreement is the professional reputation, experience and competence of Consultant and the subcontractors listed in Exhibit B. Consultant shall be fully responsible to City for all acts or omissions of any subcontractors. Assignments of any or all rights, duties or obligations of the Consultant under this Agreement will be permitted only with the express consent of the City. Consultant shall not subcontract any portion of the work to be performed under this Agreement except as provided in Exhibit B without the written authorization of the City. If City consents to such subcontract, Consultant shall be fully responsible to City for all acts or omissions of those subcontractors. Nothing in this Agreement shall create any contractual relationship between City and any subcontractor nor shall it create any obligation on the part of the City to pay or to see to the payment of any monies due to any such subcontractor other than as otherwise is required by law.

19. Waiver. Waiver of a breach or default under this Agreement shall not constitute a continuing waiver of a subsequent breach of the same or any other provision under this Agreement.

20. Litigation Expenses and Attorneys' Fees. If either party to this Agreement commences any legal action against the other party arising out of this Agreement, the prevailing party shall be entitled to recover its reasonable litigation expenses, including court costs, expert witness fees, discovery expenses, and attorneys' fees.

21. Mediation. The parties agree to make a good faith attempt to resolve any disputes arising out of this Agreement through mediation prior to commencing litigation. The parties shall mutually agree upon the mediator and share the costs of mediation equally. If the parties are unable to agree upon a mediator, the dispute shall be submitted to JAMS or its successor in interest. JAMS shall provide the parties with the names of five qualified mediators. Each party shall have the option to strike two of the five mediators selected by JAMS and thereafter the mediator remaining shall hear the dispute. If the dispute remains unresolved after mediation, either party may commence litigation.

22. Prohibited Interests. Consultant maintains and warrants that it has not employed nor retained any company or person, other than a bona fide employee working solely for Consultant, to solicit or secure this Agreement. Further, Consultant warrants that it has not paid nor has it agreed to pay any company or person, other than a bona fide employee working solely for Consultant, any fee, commission, percentage, brokerage fee, gift or other consideration contingent upon or resulting from the award or making of this Agreement. For breach or violation of this warranty, City shall have the right to rescind this Agreement without liability. For the term of this Agreement, no member, officer or employee of City, during the term of his or her service with City, shall have any direct interest in this Agreement, or obtain any present or anticipated material benefit arising therefrom.

23. Equal Opportunity Employment. Consultant represents that it is an equal opportunity employer and it shall not discriminate against any subcontractor, employee or applicant for employment because of race, religion, color, national origin, handicap, ancestry, sex or age. Such non-discrimination shall include, but not be limited to, all activities related to initial employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination.

24. Prevailing Wages. Consultant is aware of the requirements of California Labor Code Section 1720, et seq., and 1770, et seq., as well as California Code of Regulations, Title 8, Section 16000, et seq., ("Prevailing Wage Laws"), which require the payment of prevailing wage rates and the performance of other requirements on "public works" and "maintenance" projects. Consultant agrees to fully comply with all applicable federal and state labor laws (including, without limitation, if applicable, the Prevailing Wage Laws). It is agreed by the parties that, in connection with the Work or Services provided pursuant to this Agreement, Consultant shall bear all risks of payment or non-payment of prevailing wages under California law, and Consultant hereby agrees to defend, indemnify, and hold the City, and its officials, officers, employees, agents, and volunteers, free and harmless from any claim or liability arising out of any failure or alleged failure to comply with the Prevailing Wage Laws. The foregoing indemnity shall survive termination of this Agreement.

25. Severability. If any term or portion of this Agreement is held to be invalid, illegal, or otherwise unenforceable by a court of competent jurisdiction, the remaining provisions of this Agreement shall continue in full force and effect.

26. Controlling Law Venue. This Agreement and all matters relating to it shall be governed by the laws of the State of California and any action brought relating to this Agreement shall be held exclusively in a state court in the County of Riverside.

27. Authority to Enter Agreement. Consultant has all requisite power and authority to conduct its business and to execute, deliver, and perform the Agreement. Each party warrants that the individuals who have signed this Agreement have the legal power, right, and authority to

make this Agreement and to bind each respective party. The City Manager is authorized to enter into an amendment or otherwise take action on behalf of the City to make the following modifications to the Agreement: (a) a name change; (b) grant extensions of time; (c) non-monetary changes in the scope of services; and/or (d) suspend or terminate the Agreement.

28. Counterparts. This Agreement may be executed in several counterparts, each of which shall constitute one and the same instrument and shall become binding upon the parties when at least one copy hereof shall have been signed by both parties hereto. In approving this Agreement, it shall not be necessary to produce or account for more than one such counterpart.

29. Entire Agreement; Incorporation; Conflict. This Agreement contains the entire understanding between the parties relating to the obligations described herein. All prior or contemporaneous understandings, agreements, representations and statements, oral or written, are superseded in total by this Agreement and shall be of no further force or effect. Consultant's Proposal is incorporated only for the description of the scope of services and/or the schedule of performance and no other terms and conditions from such proposal shall apply to this Agreement unless specifically agreed to in writing. In the event of conflict, this Agreement shall take precedence over those contained in the Consultant's Proposal.

30. Amendments. This Agreement may be modified or amended only by a written document executed by both Consultant and City and approved as to form by the City Attorney.

[Signatures on next page]

IN WITNESS WHEREOF, the parties have caused this Agreement to be executed on the date first written above.

“CITY”

CITY OF LAKE ELSINORE, a municipal corporation

“CONSULTANT”

Moleaer, Inc., a Nanobubble Technology Firm

City Manager

By: Click or tap here to enter text.

Its: Click or tap here to enter text.

ATTEST:

City Clerk

APPROVED AS TO FORM:

City Attorney

Assistant City Manager

Attachments: Exhibit A – Consultant’s Proposal
Exhibit B – List of Subcontractors

CONFIDENTIAL



August 2023

www.Moleaer.com

MOLEAER[®]

ADVANCING NANOBUBBLE TECHNOLOGY

Lake Elsinore Nanobubble Treatment



Lake Elsinore, City of Lake Elsinore, CA

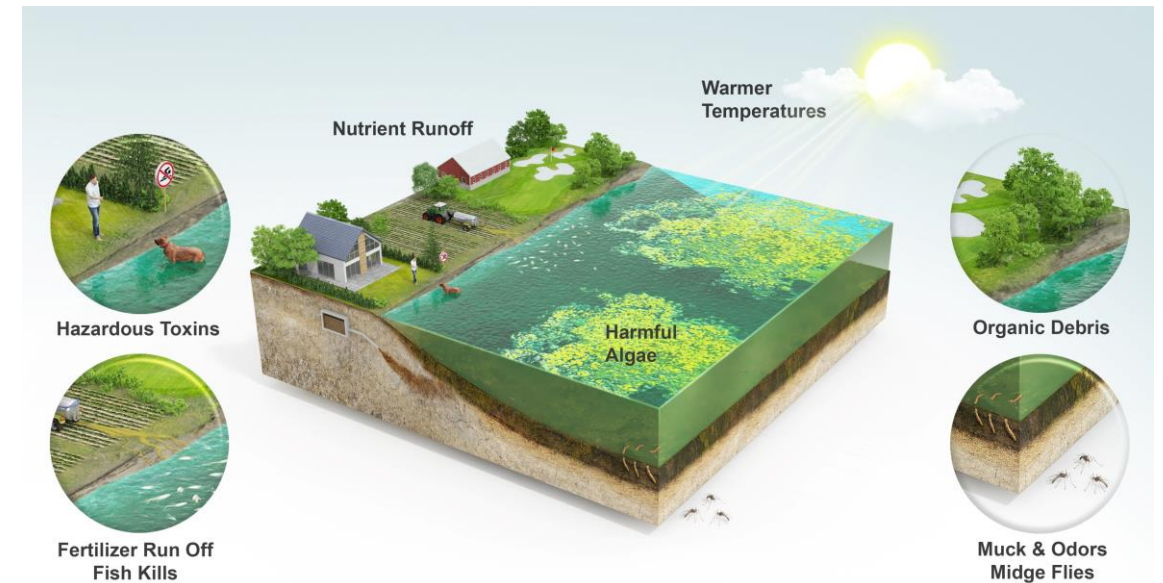


Surface Acres: 3,000

Lake Elsinore NB Treatment Strategy

Problems:

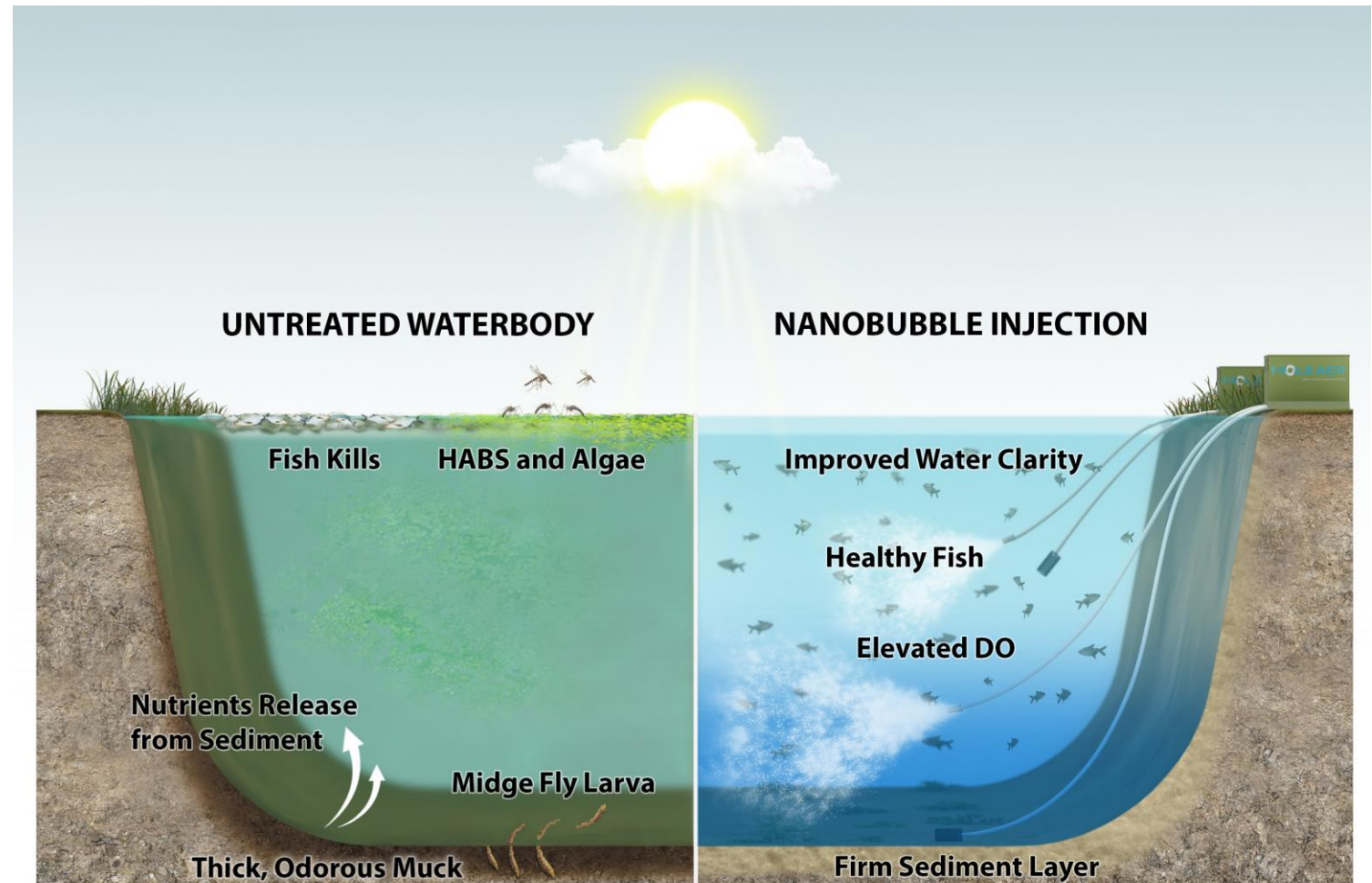
- ❖ Excessive muck and nutrients
- ❖ Internal phosphorus cycling that leads to algae blooms and associated toxins
- ❖ Poor water quality limits or severely diminishes the recreational use and fishing
- ❖ Poor water quality and limitations on lake use negatively impacts property values, tourism and growth potential



Lake Elsinore NB Treatment Strategy

Solution:

- Utilize O₂/O₃ nanobubbles to:
- ✓ Treat root cause of water quality problems
- ✓ Address and mitigate current algae concentrations



Lake Elsinore, City of Lake Elsinore, CA

Strategy Details



Utilize high capacity O2 O3 Nanobubble Generator system to provide restorative treatment and to address current challenges in a localized area.



Establish baseline data, progress monitoring and sampling to gauge effectiveness, based on a robust data set



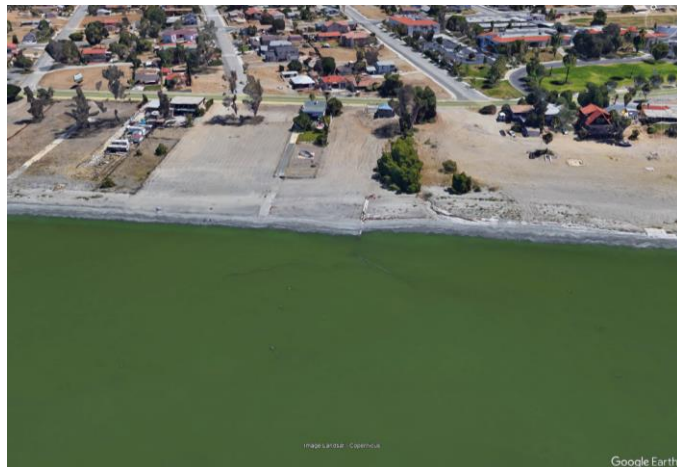
Utilize data to guide decisions for expanded localized and/or whole lake treatment



Improve water quality in the localized area for public benefit

Lake Elsinore, City of Lake Elsinore, CA

Location of Nanobubble Generator system



Lake Elsinore NB Treatment Strategy

2. Containerized Solution Examples:



Lake Elsinore NB Treatment Strategy

2. Containerized Solution Examples:



Lake Elsinore NB Treatment Strategy

1. Measure:

- Establish baseline water quality parameters to allow comparison and quantification of treatment.
- Use in situ water quality monitoring buoys/sondes for 24/7 in water quality parameter monitoring.
 - Monitor EC, pH, DO, ORP, temp, BGA-PC and chlorophyll-A.
 - At least 1 month of baseline data
 - Utilize 5 buoy/sondes to capture water quality in WW effluent pipe or channel, around treatment site and outside treatment area
 - Combine with monitoring and information collected prior to NB deployment
 - Moleaer to provide monthly report

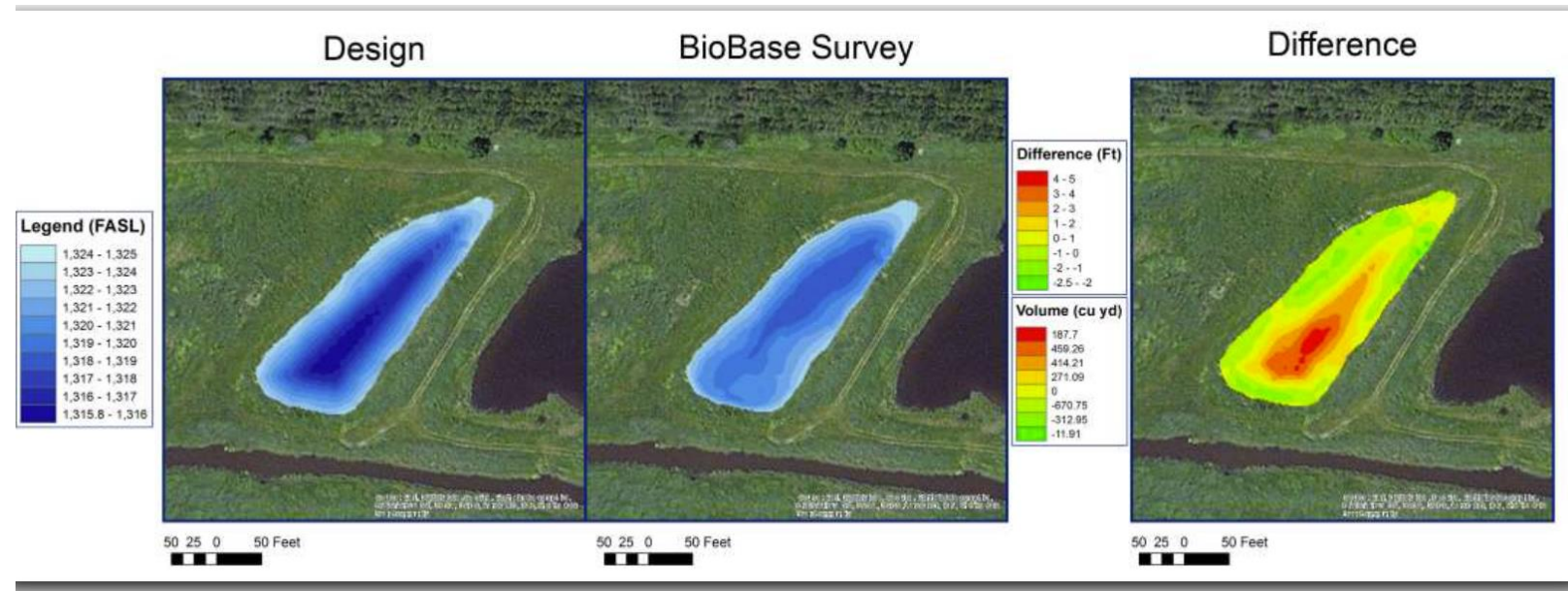
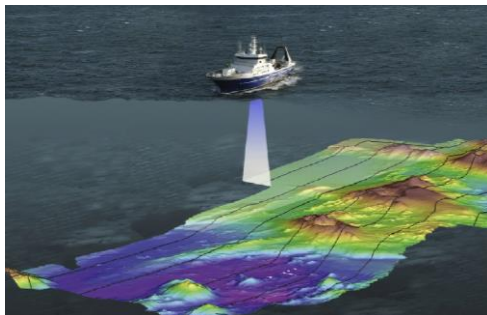
Monitoring Harmful Algal Blooms - HAB
Monitoring Equipment (in-situ.com)



Lake Elsinore NB Treatment Strategy

1. Measure: (Cont'd)

- Sediment hardness map the entire lake
 - Map and understand soft (organic =digestible) vs. hard bottom (inorganic =nondigestible)
 - Repeat mapping to quantify the difference.



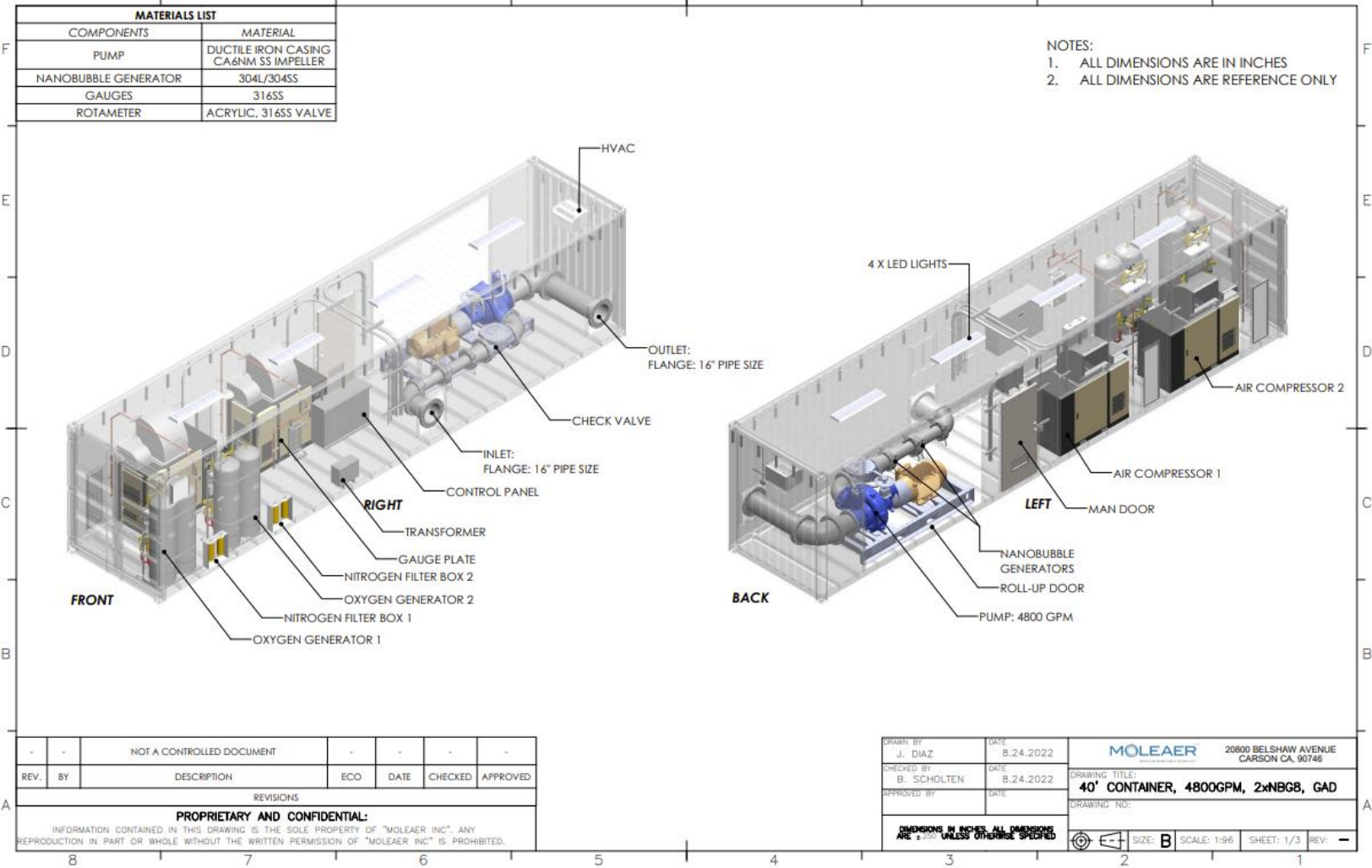
Lake Elsinore NB Treatment Strategy

2. Plan and Prepare:

- Draft and execute agreements/PO/Vendor setup
- General arrangement drawing (GAD) and electrical requirements to be delivered within 1 week of order
- 60 day timeline from agreement to beginning of installation
- Establish working group for project management (Moleaer, CLE, engineers and contractors)
- Upon container delivery, 2 week preliminary timeline for installation
- CLE to contract and/or perform any required site work
- CLE to contract power installation. 3ph 460V 225A (preliminary
- Moleaer to plan and work with associated parties for installation

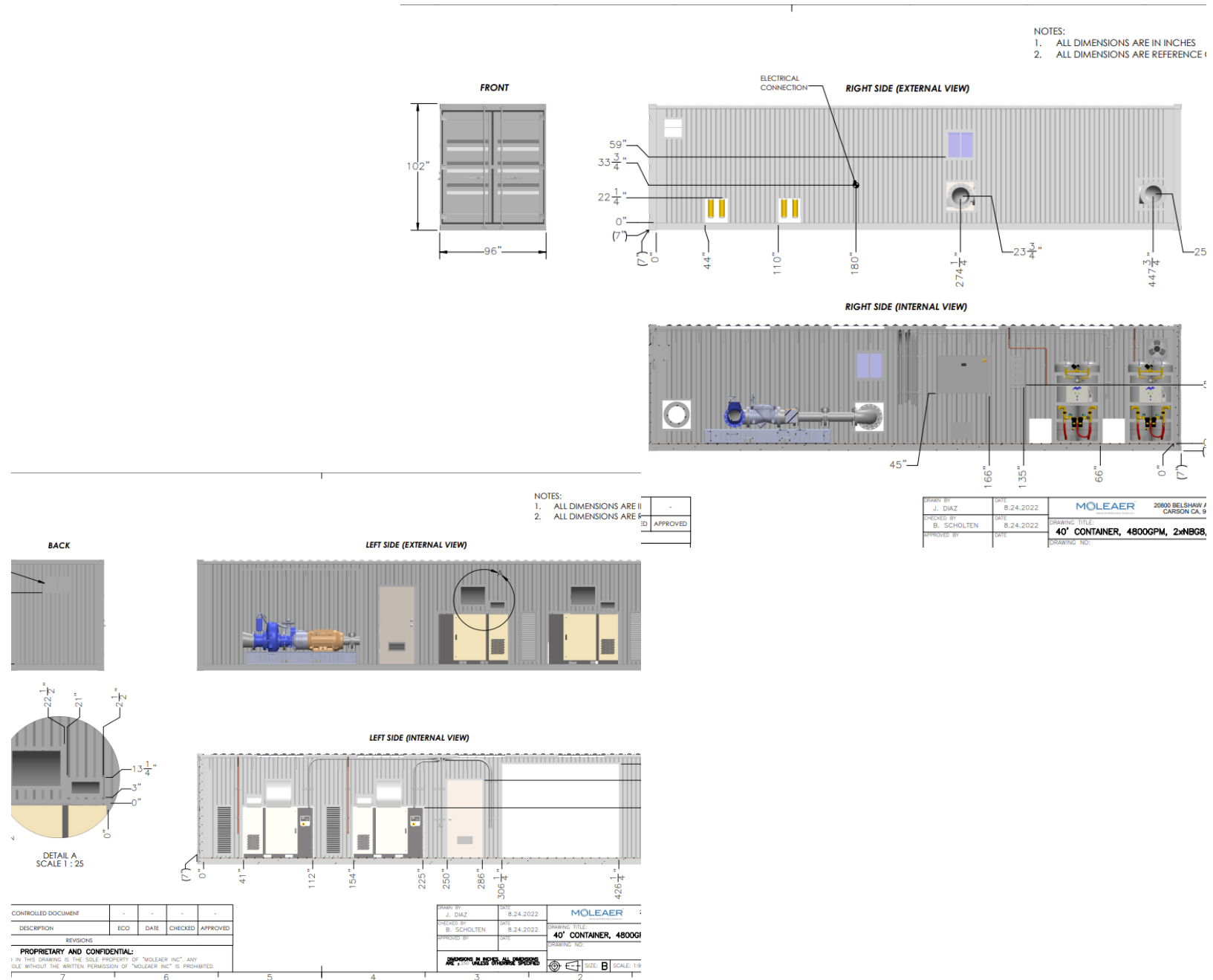
Lake Elsinore NB Treatment Strategy

2. Containerized Solution Examples of Drawings Provided



Lake Elsinore NB Treatment Strategy

2. Containerized Solution Examples of Drawings Provided



Lake Elsinore NB Treatment Strategy

3. Treat:

- Moleaer to provide installation of Containerized NB system and associated piping
- CLE to contract, provide and connect 3ph 460V power at container location
- Localized treatment approach, while contributing to whole lake treatment
- Allow the city to demonstrate success in providing localized, at scale treatment, while using data collection to best guide sizing for whole lake or targeted lake treatment, utilizing all available tools, where appropriate.

Lake Elsinore NB Treatment Strategy

4. Monitor: Develop robust data set to quantify impact and make decisions for additional NB treatment capacity or complimentary treatments

- Lake: Monitor temperature, EC, pH/ORP, DO, turbidity, chlorophyll-a and Phycocyanin-BGA-PC
 - Monitor and understand diurnal changes and trends.
 - At least 1 month of baseline data
 - Utilize 5 buoy/sondes to capture water quality at effluent/lake discharge, around treatment area and at untreated part of the lake
 - Map and understand soft (organic and digestible) vs. hard bottom (inorganic and nondigestible) to establish baseline.
- Lake: Repeat sediment hardness mapping of treated area every 6 months to quantify the difference. (Initial, 6 mo and 12 month mapping are included)
- System: Moleaer nanobubble system has remote monitoring of pumping, O2 and O3 systems to ensure optimal performance, alert for any system issues.
- Safety: Ambient O3 monitors to ensure public and employee safety

Lake Elsinore NB Treatment Strategy

5. Maintain: Moleaer and associated vendor partners to provide maintenance on NB system components to provide exceptional uptime and treatment capacity

- Daily Monitoring of system performance and water quality reporting
- Monthly site visits by Moleaer to perform CIP (Clean in Place) of equipment, perform required sonde/probe maintenance, service components and clean intake screens, if/as needed.
- Quarterly and annual site visits to perform required maintenance
- 24/7 alerts/alarms to notify of system performance issues

Lake Elsinore NB Treatment: System Details

- (1) 40' High Cube, Open-Side Shipping Container. HVAC, interior and exterior lights, lockable
- (2) NBG6 Nanobubble Generators, 304 SS in series.
- (1) 50 hp Gorman Rupp T10 Self-Priming Pump and Variable Frequency Drive
- (1) 15 hp Ingersoll Rand Compressor with Integrated Air Drier (R11i TAS)
- (1) AirSep AS-G Oxygen Concentrator, 250-320 SCFH of Oxygen at 45-65 psig, up to 95% concentration.
220V, 50/60 Hz
- (1) Pinnacle Summit™ Model P10V-5 Ozone Generator Platform w/step down transformer, 57 ppd
ozone at 9% concentration with 0-100% turn-down capability to achieve lower doses.
- (1) Pinnacle Model: 1370-7400-051, Chiller Assembly
- (2) Ambient ozone safety monitors
- (2) in-line ORP monitors
- (1) Water intrusion system monitoring to aid in mitigating water damage
- (1) Telemetry/Remote monitoring of system performance
- (5) In situ water quality monitoring buoy, 6 parameter
- (2) Self Cleaning high capacity suction screens for intake pipe, T type. Reduced intake velocity and small
screen surface to protect aquatic life and nanobubble generator system

Preliminary estimated weight of container: 30,000#

Lake Elsinore NB Treatment: Scope of Work

Moleaer is to provide:

- **Nanobubble system, as described**
- **In Situ monitoring sondes/buoys, as described**
- **Unloading and setting of container. CLE to provide level, compacted gravel pad for crane**
- **On site commissioning and optimizing of nanobubble system**
- **Operation and daily check training of city staff**
- **Monthly, quarterly and annual maintenance of nanobubble generator system and monitoring buoys for 1 years**
- **Monthly and annual reports from monitoring buoys with analysis**
- **Sediment hardness mapping. 3 mapping events. Initial, 6 and 12 month.**

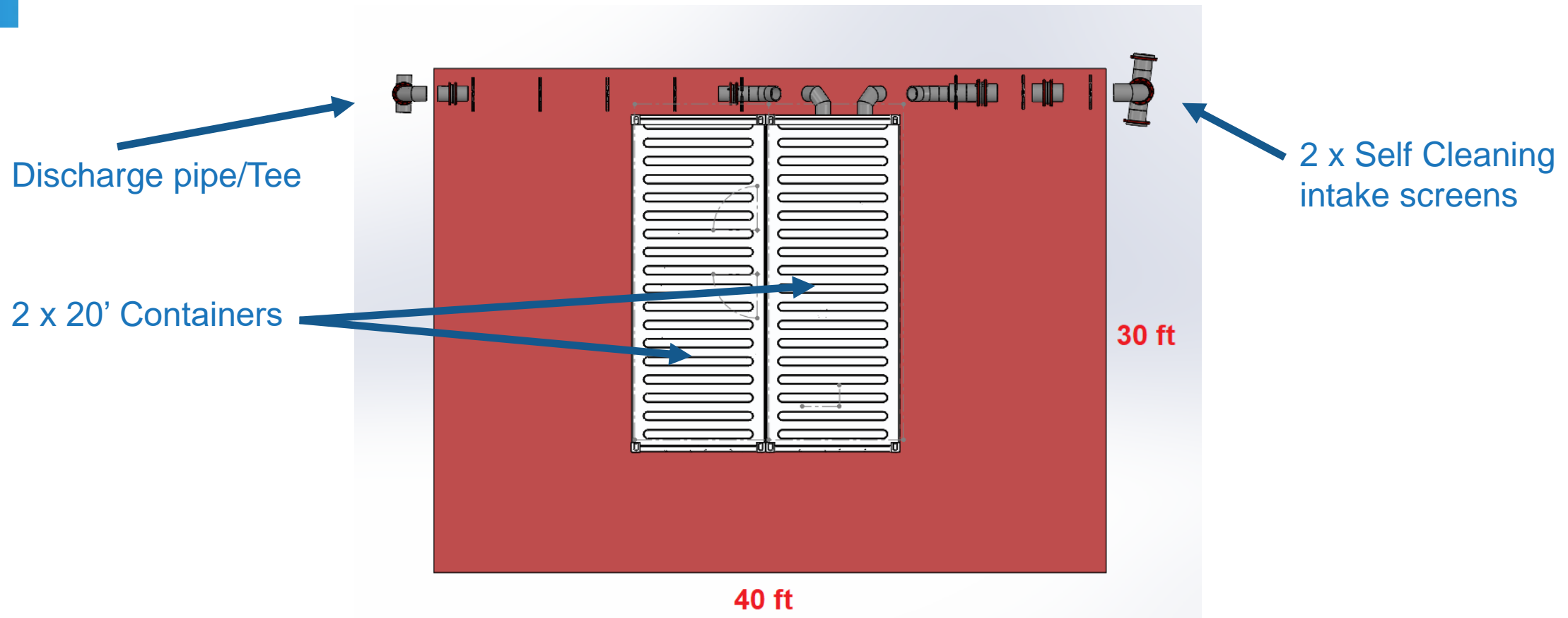
Lake Elsinore NB Treatment: Scope of Work

City of Lake Elsinore is to provide:

- All permissions, permits and access for installation, use and maintenance of the NB system.
- Required site work required to provide a compacted gravel pad suitable for a crane to set a 40' high cube container within 50' of shore.
- Suitable signs, warnings and barriers to restrict access of container, piping, intake and discharge piping
- Supply and connection of 3ph 460V 225A power to container primary power panel.
- Daily visual check on container and piping for damage, vandalism and/or water leaks. Reporting to Moleaer of any issues.
- Cost to repair system due to damage, vandalism or theft

Lake Elsinore NB Treatment:

Proposed Container layout on barge



Lake Elsinore NB Treatment:

Purchase, install, monitoring with 1 yr.
service plan

PRICING SUMMARY			
	First Year	#/yrs	Total
Container-Cap Ex			\$1,139,173
Container-Install			\$310,855
Container- Service	240,769	1	\$240,769
Total + 1 Year Service			\$1,690,797
Year 2 Service + Mapping & Water Testing		1	\$229,899
Total for cap ex, install, and 2 years of service			\$1,920,696

Thank You



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