



**REQUEST FOR PROPOSAL
No. JD 183606P**

**TANK FARM, CELLAR
AND AUTOMATED PILOT BREWERY**

PROPOSAL DUE DATE AND TIME
September 1st, 2016 (3:00 pm, PT)

SUBMITTAL LOCATION

Oregon State University
Procurement, Contracts and Materials Management
644 SW 13th Avenue
Corvallis, Oregon 97333

OSU Procurement, Contracts and Materials Management Offices are open Monday through Friday 8:00 am-12:00 noon and 1:00 pm-5:00 pm.
Offices are closed during the 12:00 noon-1:00 pm lunch hour.

ELECTRONIC SUBMITTAL ADDRESS

bids@oregonstate.edu

1.0 GENERAL

1.01 SCHEDULE OF EVENTS

- Issue Date..... July 26th, 2016
- Deadline for Requests for Clarification or Change..... August 25th, 2016 (3:00 pm, PT)
- Proposal Due Date and Time..... September 1st, 2016 (3:00 pm, PT)

This Schedule of Events is subject to change. Any changes will be made through the issuance of Written Addenda.

1.02 PRE-PROPOSAL CONFERENCE

A Pre-Proposal Conference will not be held.

1.03 ISSUING OFFICE

The Procurement, Contracts and Materials Management (PCMM) department of Oregon State University ("OSU") is the issuing office and is the sole point of contact for this Request for Proposal. Address all concerns or questions regarding this Request for Proposal to the Administrative Contact identified below.

1.04 ADMINISTRATIVE CONTACT

Name: Joshua Dodson
Title: Procurement Contract Officer
Telephone: 541-737-3572
Fax: 541-737-2170
E-Mail: Joshua.dodson@oregonstate.edu

1.05 DEFINITIONS

As used in this Request for Proposal, the terms set forth below are defined as follows:

- a. "Addenda" means an addition to, deletion from, a material change in, or general interest explanation of the Request for Proposal.
- b. "Exhibits" means those documents which are attached to and incorporated as part of the Request for Proposal.
- c. "Proposal" means an offer, binding on the Proposer and submitted in response to a Request for Proposal.
- d. "Proposer" means an entity that submits a Proposal in response to a Request for Proposal.
- e. "Proposal Due Date and Time" means the date and time specified in the Request for Proposal as the deadline for submitting Proposals.
- f. "Request for Proposal" (RFP) means a Solicitation Document to obtain Written, competitive Proposals to be used as a basis for making an acquisition or entering into a Contract when price will not necessarily be the predominant award criteria.
- g. "Responsible" means an entity that demonstrates their ability to perform satisfactorily under a Contract by meeting the applicable standards of responsibility outlined in OSU Standard 580-061-0130.
- h. "Responsive" means a Proposal that has substantially complied in all material respects with the criteria outlined in the Request for Proposal.
- i. "Written or Writing" means letters, characters, and symbols that are intended to represent or convey particular ideas or meanings and are made in electronic form or inscribed on paper by hand, print, type, or other method of impression.

2.0 INTRODUCTION AND BACKGROUND

2.01 INTRODUCTION

Procurement, Contracts and Materials Management is seeking Responsive Responsible Proposers to submit Proposals for a Tank Farm, Cellar and Automated Pilot Brewery. **Proposers are allowed to provide individual Proposals for the Tank Farm & Cellar portion of the RFP as well as the Automated Pilot Brewery portion of this RFP. Proposers are also welcome to provide Proposals for both systems.**

2.02 BACKGROUND

The Department of Food Science and Technology at Oregon State University is one of the nation's oldest established programs. With world-class faculty, research and facilities, we prepare students to be industry leaders. The Fermentation Science program, one of just a handful in the nation, is a "hands-on" applied science addressing the use of microorganisms as processing agents in the production of wine and beer, as well as a variety of other fermented foods such as cheese, yogurt, soy sauce, pickles, breads and fermented vegetables. The equipment supplied from this solicitation will provide new opportunities utilizing the latest technologies for OSU students in the brewing industry.

2.03 OREGON STATE UNIVERSITY

Founded in 1868, Oregon State University is a comprehensive, research-extensive, public university located in Corvallis. OSU is one of only two American universities to hold the Land Grant, Sea Grant, Space Grant and Sun Grant designations. OSU is also the only Oregon institution to hold the Carnegie Foundation's top ranking for research universities, a recognition of the depth and quality of OSU's graduate education and research programs.

Through its centers, institutes, Extension offices and Experiment Stations, OSU has a presence in almost every one of Oregon's 36 counties, including its main campus in Corvallis, the Hatfield Marine Sciences Center in Newport and OSU-Cascades Campus in Bend. OSU offers undergraduate, masters and doctoral degrees through 12 academic colleges enrolling more than 26,000 students from every county in Oregon, every state in the country and more than 90 nations.

3.0 SAMPLE CONTRACT / DESIRED SYSTEM SPECIFICATIONS

3.01 SAMPLE CONTRACT

A sample contract containing the contractual terms and conditions is included at Exhibit A.

3.02 DESIRED SYSTEM SPECIFICATIONS-TANK FARM AND CELLAR

Tank Farm/Cellar: Brewing industry standard controllers and solenoid valves shall be used for tank farm that will communicate with control software and data acquisition

The cellar shall be composed of:

- (15) 1.5 hl usable volume CCV (Cylindroconical Vessel) tanks.
- (6) 3 hl usable volume tanks.
- (4) 6 hl usable volume tanks.
- (1) 3 hl usable volume pressure rated (\Rightarrow 25psi) tank
- (1) 6 hl usable volume pressure rated (\Rightarrow 25psi) tank

- The tanks may be mounted on skids for ease of shipment and cost savings.
- The tank dimensions shall be specified by the Original Equipment Manufacturer (OEM) based on requirements.
- 1.5 hl and 3 hl tanks shall have cooling jackets on the cone and sidewall.
- 6 hl tanks shall have two side wall jackets as well as a cone jacket to support capacity for one or two brews.
- The fermentors shall be equipped with precise temperature control with a range of -2°C to 25°C .
- The tanks will have manways for accessing interior, preferably at the top.
- The fermentors will be equipped with spray balls, piping, and valves and shall be fully integrated into the overall Clean-In-Place (CIP) system within the cellar.
- The OEM shall supply a movable, centrifugal beer pump to transfer product. The OEM shall specify an appropriately sized pump for this application.
- Construction of fermentors shall be FOOD GRADE 304. The OEM shall specify gauge adequate for this application.
- Fermentors shall be jacketed with appropriate insulation, for brewery application covering the tank wall and protected by stainless steel cladding.

Mechanical Equipment:

- FOOD GRADE 304 SS Food and beverage grade
- Dimple jackets on two cooling zones for glycol, one on cone, one on sidewall for the 6 hl only.
- Dimple jackets on cooling zones for glycol, one on cone, two zonal sidewall jackets to facilitate 3 and 6 hl ferments (individual cooling zones for each). Temperature transmitter well number and location to be determined by the OEM to ensure maintenance of accurate cooling temperature.
- The fermentors shall have 55 - 60-degree cone angle
- Non-pressure rated tanks at 14.9 PSI
- Pressure rated tanks at 25 PSI
- The fermentors shall be double walled and insulated
- Adjustable feet for leveling or on multiple tanks on a leveling skid
- Rotating racking arm/valve
- Sample valve – Perlick style
- Drain elbow/valve
- Port for inserting carbonation stone
- Temperature well (dimensions of well to be determined by supplier)
- Clamps and gaskets for valves/accessories
- Lift and ladder hooks for 6 bbl(barrel of beer) tank (TBD by supplier) if necessary
- Manway– top manway preferred (with “D” ring for hop bag)
- 4” TC (Tri-clamp)Top port with stainless steel “D” ring for hop bag if top manway is not employed
- Sight glass
- Light(s) fitting(s)
- Service valves for cooling jackets from glycol
- Cleaning/air valve combination with non-return valve, safety valve, and vacuum valve
- Adjustable bunging apparatus
- CIP incorporated, spray ball, piping, and valves
- Movable centrifugal beer pump for the cellar

Electrical Equipment:

- Light(s) fitting(s)
- Temperature transmitters
- Temperature control
- Temperature control panel for cellar

Control for Fermentor:

Item	Device or Property	Measured unit	Minimum/Maximum
Temperature Control	Temperature transmitter/control	°C	OEM Specified

ASME, Control Enclosures, and Electrical Components:

- All mechanical components will be calculated and engineered in accordance with American Society of mechanical Engineers (ASME) regulation.
- Control enclosures and all electrical equipment for controlling the tank farm shall be Underwriters Laboratory (UL) listed and stamped.
- Control enclosures shall be National Electrical Manufacturers Association (NEMA) 4-X rated enclosures or equivalent.
- All electrical components will be engineered in accordance with UL and National Electric Code (NEC) regulations and acceptable for us in the United States.

3.03 DESIRED SYSTEM SPECIFICATIONS-BREWERY

The Desired System Specifications for the Automated Pilot Brewery are included as Exhibit G.

4.0 PROPOSER QUALIFICATIONS

4.01 MINIMUM QUALIFICATIONS FOR ALL PROPOSALS

In order to qualify as a Responsive Proposer, the Proposer needs to meet the minimum qualifications below.

- a. Proposer must have a minimum of eight (8) years' experience providing similar brewery equipment.

4.02 MINIMUM QUALIFICATIONS – BREWERY

In order to qualify as a Responsive Proposer, the Proposer needs to meet the minimum qualifications below.

- a. Must have supplied a 1-10bbl, fully automated research brewery to a known entity within the brewing industry in North America or Europe.

4.02 PREFERRED QUALIFICATIONS

OSU will award additional points for Proposers able to meet the preferred qualifications below.

- a. Proposer has a proven history providing similar brewery equipment to educational institutions.
- b. Proposer has demonstrated experience implementing hardware for control and automation in the brewery

5.0 REQUIRED SUBMITTALS

5.01 QUANTITY OF PROPOSALS

Submit one (1) electronic or hard copy via any of the methods detailed in the section below titled SUBMISSION. If submitting via hard copy, include one (1) electronic copy (PDF format) of Proposal on CD/DVD/flash drive. Proposals should contain original signatures on any pages where a signature is required (in the case of electronic submissions, either electronic signatures or scans of hand-signed pages should be included). Proposals should contain the submittals listed in this section below.

5.02 REQUIRED SUBMITTALS

It is the Proposer's sole responsibility to submit information in fulfillment of the requirements of this Request for Proposal. If submittals are not substantially compliant in all material respects with the criteria outlined in the RFP, it will cause the Proposal to be deemed non-Responsive. **Proposers may submit an individual Proposal for the Tank Farm and Cellar, the Automated Pilot Brewery or for both systems. If a Proposer is submitting a Proposal for both systems that MUST be indicated in their submittal documentation.**

Proposers must submit the following documentation:

REQUIRED FOR TANK FARM AND CELLAR PROPOSAL

- At a minimum, The Proposer should provide:
 - Detailed information demonstrating the proposed solution meets the desired specifications listed in Section 3.02.
 - Provide literature and drawings detailing the proposed equipment. Information must be sufficient to allow OSU the ability to clearly understand proposed solution.
 - Provide delivery timeline, installation requirements and, if applicable, assumed responsibilities that OSU must provide.
- Detailed information about how the Proposer meets the minimum and preferred qualifications described in section 4. At a minimum, the Proposer should provide:
 - Brief company history showing a minimum of 8 years' experience in providing tank farm and cellar equipment.
 - Provide list of Proposer's customers in North America or Europe.
 - If applicable, provide list of brewery equipment provided to educational institutions.

- Exhibit D: Document Checklist for Tank Farm and Cellar, Fully Completed

REQUIRED FOR AUTOMATED PILOT BREWERY PROPOSAL

- At a minimum, The Proposer should provide:
 - Detailed information demonstrating how the proposed solution meets the desired specifications listed in Exhibit G 'Document Checklist for Automated Pilot Brewery'.
 - Provide literature and drawings detailing the proposed equipment. Information must be sufficient to allow OSU the ability to clearly understand proposed solution.
 - Provide delivery timeline, installation requirements and, if applicable, assumed responsibilities that OSU must provide.
- Detailed information about how the Proposer meets the minimum and preferred qualifications described in section 4. At a minimum, the Proposer should provide:
 - Brief company history showing a minimum of 8 years' experience in providing automated brewery equipment.
 - Provide list of Proposer's customers in North America.
 - If applicable, provide list of brewery equipment provided to educational institutions.
 - Provide detailed experience utilizing Siemens or other automation control hardware and software
- Exhibit E: Document Checklist for Automated Pilot Brewery, Fully Completed

REQUIRED FOR BOTH PROPOSALS

- Exhibit B: Certifications, fully completed and signed.
- Exhibit C: References
- Exhibit F: Pricing. If necessary, provide additional itemized explanations and support for pricing provided.

6.0 EVALUATION

6.01 EVALUATION

The stages of review and evaluation are as follows:

- a. Determination of Responsiveness:
OSU will first review all Proposals to determine Responsiveness. Proposals that do not comply with the instructions, that are materially incomplete, that do not meet the minimum requirements, or that are submitted by Proposers who does not meet minimum qualifications may be deemed non-Responsive. Written notice will be sent to Proposers whose Proposal is deemed non-Responsive identifying the reason. A Proposer has the right to appeal the decision pursuant to OSU Standard 580-061-130(5).
- b. First Stage Evaluation:
Those Proposals determined to be Responsive will be evaluated using the required submittals. Proposals will be scored based on the evaluation criteria listed below. Scores will be used to determine Proposers within a competitive range. The competitive range will be made of Proposers whose individual scores, when viewed together, form a group of the highest ranked Proposers above a natural break in the scores.

OSU reserves the right to ask follow-up questions of Proposers during first stage evaluations. The questions will be for the purpose of clarification of information already contained in submittals and not be an opportunity to submit additional documentation or change existing documentation.

OSU may award after the first stage evaluation to the highest ranked Proposer without moving on to the second stage evaluation. If this option is selected, Written notice of intent to award the Contract to the

highest ranked Proposer will be provided to all Responsive Proposers, or an award may be made directly without notice of intent in those instances of a single Responsive Proposer.

c. Second Stage Evaluation:

If award is not made after the first stage evaluation, OSU may choose any of the following methods in which to proceed:

- i. Issue a Written invitation to Proposers within the competitive range requesting an interview, presentation, site visit or any other evaluative method that is relevant to the goods or services solicited in the Request for Proposal. Written invitations will contain the evaluation criteria and scoring that will be used by the evaluation committee.
- ii. Engage in oral or Written discussions with and receive best and final Proposals from all Proposers in the Competitive Range or all Proposers submitting Responsive Proposals. Discussions may be conducted for the following purposes:
 - Informing Proposers of deficiencies in their initial Proposals;
 - Notifying Proposers of parts of their Proposals for which OSU would like additional information; or
 - Otherwise allowing Proposers to develop revised Proposals that will allow OSU to obtain the best Proposal based on the requirements set forth in this Request for Proposal.

The conditions, terms, or price of the Proposal may be altered or otherwise changed during the course of the discussions provided the changes are within the scope of the Request for Proposal. Best and final Proposals will be scored based on the evaluation criteria listed below.

Points awarded in the first stage evaluation will not be carried to the second stage evaluation. If a second stage evaluation of all Proposers does not produce an award that is in OSU's best interest, OSU may return to the first stage evaluation to advance additional Proposers to a second stage evaluation.

d. Additional Stages of Evaluation:

If after completion of the second stage of evaluation, an award is not made, OSU may add another stage of evaluation using any of the methods outlined in the second stage evaluation above.

6.02 EVALUATION CRITERIA

Points will be given in each criteria and a total score will be determined. The maximum points available for each criterion are identified below.

<u>Evaluation Criteria for Tank Farm and Cellar</u>	<u>Points</u>
Proposal relative to Exhibit A and the Desired Specifications in Section 3.02	60
Proposer's qualifications relative to the preferred qualifications	10
Price of the goods or services	30
Total	100

<u>Evaluation Criteria for Brewery</u>	<u>Points</u>
Proposal relative to Exhibit A and the Desired Specifications in Exhibit G	60
Proposer's qualifications relative to the preferred qualifications	10
Price of the goods or services	30
Total	100

6.03 NEGOTIATIONS

OSU may commence serial negotiations with the highest ranked Proposer or commence simultaneous negotiations with all Responsive Proposers within the competitive range. OSU may negotiate:

- a. The statement of Work;
- b. The Contract price as it is affected by negotiating the statement of Work; and

- c. Any other terms and conditions as determined by OSU.

6.04 INVESTIGATION OF REFERENCES

OSU reserves the right to investigate and to consider the references and the past performance of any Proposer with respect to such things as its performance or provision of similar goods or services, compliance with specifications and contractual obligations, and its lawful payment of suppliers, subcontractors, and workers. OSU may postpone the award or execution of the Contract after the announcement of the notice of intent to award in order to complete its investigation.

6.05 CONTRACT AWARD

Contract will be awarded to the Proposer who, in OSU's opinion, meets the requirements and qualifications of the RFP and whose Proposal is in the best interest of OSU. If a successful Contract cannot be completed after award, OSU may conclude contract negotiations, rescind its award to that Proposer, and return to the most recent RFP evaluation stage to negotiate with another Proposer(s) for award.

7.0 INSTRUCTIONS TO PROPOSERS

7.01 APPLICABLE STATUTES AND RULES

This Request for Proposal is subject to the applicable provisions and requirements of the Oregon Revised Statutes, Oregon Administrative Rules, and OSU Policies and Procedures.

7.02 COMMUNICATIONS DURING RFP PROCESS

In order to ensure a fair and competitive environment, direct communication between OSU employees other than the Administrative Contact or other PCMM representative and any party in a position to create an unfair advantage to Proposer or disadvantage to other Proposers with respect to the RFP process or the award of a Contract is strictly prohibited. This restricted period of communication begins on the issue date of the solicitation and for Proposer(s) not selected for award ends with the conclusion of the protest period identified in OSU Standard 580-061-0145(3) and for Proposers(s) selected for award ends with the contract execution. This restriction does not apply to communications to other OSU employees during a Pre-Proposal conference or other situation where the Administrative Contact has expressly authorized direct communications with other staff. A Proposer who intentionally violates this requirement of the RFP process or otherwise deliberately or unintentionally benefits from such a violation by another party may have its Proposal rejected due to failing to comply with all prescribed solicitation procedures. The rules governing rejection of individual solicitation responses and potential appeals of such rejections are at OSU Standard 580-061-0130.

7.03 MANUFACTURER'S NAMES AND APPROVED EQUIVALENTS

Unless qualified by the provision "NO SUBSTITUTE" any manufacturers' names, trade name, brand names, information and/or catalogue numbers listed in a specification are for information and not intended to limit competition. Proposers may offer any brand for which they are an authorized representative, which meets or exceeds the specification for any item(s). If Proposals are based on equivalent products, indicate in the Proposal form the manufacturers' name and number. Proposers shall submit with their Proposal, sketches, and descriptive literature, and/or complete specifications. Reference to literature submitted with a previous Proposal will not satisfy this provision. Proposers shall also explain in detail the reason(s) why the proposed equivalent will meet the specifications and not be considered an exception thereto. Proposals that do not comply with these requirements are subject to rejection. Proposals lacking any written indication of intent to provide an alternate brand will be received and considered in complete compliance with the specification as listed in the RFP.

7.04 REQUESTS FOR CLARIFICATION OR CHANGE

Requests for clarification or change of the Request for Proposal must be in Writing and received by the Administrative Contact no later than the Deadline for Request for Clarification or Change as specified in the Schedule of Events. Such requests for clarification or change must include the reason for the Proposer's request. OSU will consider all timely requests and, if acceptable to OSU, amend the Request for Proposal by issuing an Addendum. Envelopes, e-mails or faxes containing requests must be clearly marked as a Request for Clarification or Change and include the RFP Number and Title.

7.05 ADDENDA

Only documents issued as Written Addenda by PCMM serve to change the Request for Proposal in any way. No other direction received by the Proposer, written or verbal, serves to change the Request for Proposal. Addenda will be publicized on the OSU procurement website. Proposers are advised to consult the OSU procurement website prior to submitting a Proposal in order to ensure that all relevant Addenda have been incorporated into the Proposal. Proposers are not required to submit Addenda with their Proposal. However, Proposers are responsible for obtaining and incorporating any changes made by Addenda into their Proposal. Failure to do so may make the Proposal non-Responsive, which in turn may cause the Proposal to be rejected.

7.06 PREPARATION AND SIGNATURE

All Required Submittals must be Written or prepared in ink and signed in ink by an authorized representative with authority to bind the Proposer. Signature certifies that the Proposer has read, fully understands, and agrees to be bound by the Request for Proposal and all Exhibits and Addenda to the Request for Proposal.

7.07 PUBLIC RECORD

Upon completion of the Request for Proposal process, information in all Proposals will become subject records under the Oregon Public Records Law. Only those items considered a "trade secret" under ORS 192.501(2), may be exempt from disclosure. If a Proposal contains what the Proposer considers a "trade secret" the Proposer must mark each sheet of information as such. Only bona fide trade secrets may be exempt and only if public interest does not require disclosure.

7.08 SUBMISSION

Proposals must be received in the PCMM office no later than the Proposal Due Date and Time; it is the Proposer's responsibility to ensure that the Proposal is received prior to the Proposal Due Date and Time indicated in this RFP, regardless of the method used to submit the Proposal. Proposals may be submitted via the following method(s):

- 1) Electronic copy in PDF format included as attachment(s) in an e-mail sent to bids@oregonstate.edu. The e-mail subject line should contain the RFP No. and RFP title. Only those Proposals received at this e-mail address by the Due Date and Time will be considered Responsive; do not e-mail a copy of the Proposal to any other e-mail address. Proposals submitted directly to the Administrative Contact e-mail address will NOT be considered Responsive. It is highly recommended that the Proposer confirms receipt of the email with the Administrative Contact noted above or by calling 541-737-4261. The Administrative Contact may open the e-mail to confirm receipt but will NOT verify the integrity of the attachment(s), answer questions related to the content of the Proposal, or address the overall Responsiveness of the Proposal.
- 2) Hard copy in a sealed package or envelope dropped off in person or delivered to the submittal location listed on the Request for Proposal cover sheet. The package or envelope should be addressed to the Administrative Contact. It is highly recommended that the Proposer confirms receipt of the Proposal with the Administrative Contact prior to the Proposal Due Date and Time.

All Proposals, including those submitted through electronic methods (if allowed), must contain Written signatures indicating intent to be bound by the offer. If the Proposer submits multiple versions of the Proposal via different methods and does not explicitly direct OSU as to which version to use, OSU will determine which version of the Proposal will be used for evaluation.

7.09 MODIFICATION

Prior to submittal, Proposers should initial modifications or erasures in ink by the person signing the Proposal. After submittal but prior to the Proposal Due Date and Time, Proposals may be modified by submitting a Written notice indicating the modifications and a statement that the modification amends and supersedes the prior Proposal. After the Proposal Due Date and Time, Proposers may not modify their Proposal.

7.10 WITHDRAWALS

A Proposer may withdraw their Proposal by submitting a Written notice to the Administrative Contact identified in this Request for Proposal prior to the Proposal Due Date and Time. The Written notice must be on the

Proposer's letterhead and signed by an authorized representative of the Proposer. The Proposer, or authorized representative of the Proposer, may also withdraw their Proposal in person prior to the Proposal Due Date and Time, upon presentation of appropriate identification and evidence of authority to withdraw the Proposal satisfactory to OSU.

7.11 LATE SUBMITTALS

Proposals and Written notices of modification or withdrawal must be received no later than the Proposal Due Date and Time (in the case of electronic submissions, the time/date stamp of the email received at the PCMM office must be no later than the Proposal Due Date and Time). OSU may not accept or consider late Proposals, modifications, or withdrawals except as permitted in OSU Standard 580-061-0120. Sole responsibility rests with the Proposer to ensure OSU's receipt of its Proposal prior to the Proposal Due Date and Time. OSU shall not be responsible for any delays or misdeliveries caused by common carriers or by transmission errors, malfunctions, or electronic delays. Any risks associated with physical delivery or electronic transmission of the Proposal are borne by the Proposer.

7.12 PROPOSAL OPENING

Proposals will be opened immediately following the Proposal Due Date and Time at the Submittal Location. Proposer may attend the Proposal opening. Only the names of the Proposers submitting Proposals will be announced. No other information regarding the content of the Proposals will be available.

7.13 PROPOSALS ARE OFFERS

The Proposal is the Proposer's offer to enter into a Contract pursuant to the terms and conditions specified in the Request for Proposal, its Exhibits, and Addenda. The offer is binding on the Proposer for one hundred twenty (120) days. OSU's award of the Contract constitutes acceptance of the offer and binds the Proposer. The Proposal must be a complete offer and fully Responsive to the Request for Proposal.

7.14 CONTINGENT PROPOSALS

Proposer shall not make its Proposal contingent upon OSU's acceptance of specifications or contract terms that conflict with or are in addition to those in the Request for Proposal, its Exhibits, or Addenda.

7.15 RIGHT TO REJECT

OSU may reject, in whole or in part, any Proposal not in compliance with the Request for Proposal, Exhibits, or Addenda, if upon OSU's Written finding that it is in the public interest to do so. OSU may reject all Proposals for good cause, if upon OSU's Written finding that it is in the public interest to do so. Notification of rejection of all Proposals, along with the good cause justification and finding of public interest, will be sent to all who submitted a Proposal.

7.16 AWARDS

OSU reserves the right to make award(s) by individual item, group of items, all or none, or any combination thereof. OSU reserves the right to delete any item from the award when deemed to be in the best interest of OSU.

7.17 LEGAL REVIEW

Prior to execution of any Contract resulting from this Request for Proposal, the Contract may be reviewed by a qualified attorney for OSU pursuant to the applicable Oregon State University Standards, Oregon Revised Statutes and Oregon Administrative Rules. Legal review may result in changes to the terms and conditions specified in the Request for Proposal, Exhibits, and Addenda.

7.18 PROPOSAL RESULTS

A Written notice of intent to award will be issued to all Proposers. The Proposal file will be available for Proposer's review during the protest period at the PCMM Department. Proposers must make an appointment with the Administrative Contact to view the Proposal file. After the protest period, the file will be available by making a Public Records Request to OSU Office of General Counsel.

7.19 PROPOSAL PREPARATION COST

OSU is not liable for costs incurred by the Proposer during the Request for Proposal process.

7.20 PROPOSAL CANCELLATION

If a Request for Proposal is cancelled prior to the Proposal Due Date and Time, all Proposals that may have already been received will be returned to the Proposers. If a Request for Proposal is cancelled after the Proposal Due Date and Time or all Proposals are rejected, the Proposals received will be retained and become part of OSU's permanent Proposal file.

7.21 PROTEST OF CONTRACTOR SELECTION, CONTRACT AWARD

Any Proposer who feels adversely affected or aggrieved may submit a protest within three (3) business days after OSU issues a notice of intent to award a Contract. The protest must be clearly identified as a protest, identify the type and nature of the protest, and include the Request for Proposal number and title. The rules governing protests are at OSU Standard 580-061-0145.

**EXHIBIT A
SAMPLE CONTRACT**

This Contract is between Oregon State University for its College of Agricultural Sciences, Food Science and Technology Department ("OSU"), and [Contractor's name] ("Contractor").

WHEREAS, OSU competitively solicited for the goods outlined in this Contract under Request for Proposal JD183606P entitled Tank Farm, Cellar and Automated Pilot Brewery and Contractor was selected as the Proposer best able to provide these goods; and

WHEREAS, Contractor understands the requirements for the goods outlined in this Contract, and is willing and able to provide, in accordance with the terms of this Contract, the goods;

NOW, THEREFORE, OSU and Contractor agree as follows:

1. CONTRACT TERM AND TERMINATION:

A. CONTRACT TERM.

This Contract is effective on the date of last signature and expires after all material and services have been provided by the Contractor and accepted by OSU.

B. TERMINATION.

This Contract may be terminated at any time by mutual consent of both parties or by OSU upon thirty (30) days' written notice. In addition, OSU may terminate this Contract at any time by written notice to Contractor if (a) Federal or state statutes, regulations or guidelines are modified or interpreted in such a way that the services are no longer allowable or appropriate for purchase under this Contract; (b) any license or certificate required by law or regulation to be held by the Contractor to provide the services required by this Contract is for any reason denied, revoked, or not renewed; or (c) OSU fails to receive funding, appropriations, allocations or other expenditure authority as contemplated by OSU's budget and OSU determines, in its assessment and ranking of the policy objectives explicit or implicit in OSU's budget, that it is necessary to terminate the Contract, or (d) if the OSU program for which this Contract was executed is abolished.

OSU may also terminate this Contract at any time by written notice for default (including breach of contract) if (a) Contractor fails to timely provide services or materials called for by this Contract; or (b) Contractor fails to perform any of the other provisions of this Contract, or so fails to pursue the work as to endanger performance of this Contract in accordance with its terms and conditions, and after receipt of written notice from OSU, fails to correct such failures within ten (10) days. Termination of this Contract under this Section or any other section is without prejudice to OSU's other rights and remedies.

C. REMEDIES FOR CONTRACTOR'S DEFAULT.

In the event Contractor is in default (which includes without limitation, incomplete services), OSU may, at its option, pursue any or all of the remedies available to it under this Contract and at law or in equity, including, but not limited to: (a) rejection of the services, (b) requiring Contractor to correct any defects without charge, (c) negotiation with Contractor to sell the services to OSU at a reduced price, (d) termination of the Contract, (e) withholding all moneys due for the services Contractor has failed to deliver within any scheduled completion dates or has performed inadequately or defectively, (f) initiation of an action or proceedings for damages, specific performance, or declaratory or injunctive relief, or (g) exercise of its right of set off. These remedies are cumulative to the extent the remedies are not inconsistent, and OSU may pursue any remedy or remedies singly, collectively, successively, or in any order whatsoever.

2. REQUIRED GOODS, SERVICES, PRICING AND DELIVERY SCHEDULE.

Contractor shall deliver to OSU the following goods for the prices specified in this section.

A. GOODS.

<insert equipment list for Tank Farm, Cellar and or Automated Pilot Brewery Equipment as applicable>

B. SERVICES INCIDENTAL TO GOODS.

- a. TRAINING: Contractor shall provide training through a qualified authorized service representative of the manufacturer. Contractor shall train to OSU's satisfaction the individuals identified by OSU in the operation, adjustment, repair and maintenance of goods delivered under this Contract.
- b. PRICING: Contractor shall perform services at no additional cost to OSU.

C. DELIVERY.

Contractor shall deliver goods F.O.B. Destination, Prepaid and Allowed. Responsibility and liability for loss or damage remain with the Contractor until final inspection and acceptance, when responsibility passes to OSU except as to latent defects, fraud and Contractor's warranty obligations.

- a. Contractor shall deliver goods to OSU and shall perform services, if any, (*OPTION 1:*) at the following address:

3051 SW Campus Way
Department of Food Science and Technology
Oregon State University
Corvallis, OR 97331

D. NECESSARY COMPONENTS.

Unless specified otherwise, Contractor shall include all components, hardware and parts necessary for complete and proper assembly, installation and operation of goods.

E. NEW AND UNUSED GOODS.

Unless specified otherwise, Contractor shall deliver goods that are new, unused and produced from current production inventory. Contractor shall provide goods manufactured from only those components that the manufacturer offers in the manufacturer's current parts catalog for goods and carry full manufacturer warranties.

F. WARRANTIES.

Contractor warrants all goods delivered to be free from defects in labor, material, and manufacture and to be in compliance with specifications in the Solicitation Document. All implied or expressed warranty provisions of the Uniform Commercial Code, at ORS Chapter 72, are incorporated into this Contract. All warranties run to OSU.

G. NON-COMPLIANCE.

If any goods or component parts are recalled by a regulatory body or the manufacturer, or discovered by Contractor not to comply with applicable regulatory standards or the Specifications, Contractor shall immediately notify OSU of the recall or non-compliance, and shall provide copies of the recall notice or notice of non-compliance, as applicable, and all other supporting documentation for the recall or non-compliance determination. OSU may elect to (a) reject goods in whole or in part, or (b) revoke its acceptance of goods in whole or in part. If OSU rejects goods or revokes its acceptance of goods, Contractor shall remove the particular goods from OSU's possession at no cost to OSU and shall reimburse OSU for all payments made for those goods.

3. COMPENSATION:

A. INVOICES AND PAYMENT TO CONTRACTOR.

Contractor shall send invoices to OSU for goods and services delivered and accepted by OSU. Contractor shall include in each invoice:

- a. The Contract number or Purchase Order number;
- b. The quantity of goods ordered, the quantity of goods delivered, the date goods were delivered, and the price per unit;
- c. A description of services performed, the dates services were performed, all deliverables delivered during the period of the invoices, the rate(s) for services performed, and the total cost of services;
- d. The total amount due and the payment remittance address.

Contractor shall send all invoices to OSU's Department Administrator or to the Department to which the services were provided if a Department Administrator is not specified.

OSU shall pay Contractor for services performed at the prices and rates specified herein. Contractor shall look solely to OSU for payment of all amounts OSU owes to Contractor. Payment of OSU contracts is normally made within 30-45 days following the date the invoice is received. After 45 days, Contractor may assess overdue account charges up to a maximum of two-thirds of one percent (2/3 of 1%) per month or eight percent (8%) per annum on the outstanding balance pursuant to ORS 293.462.

4. INSURANCE:

A. GENERAL LIABILITY INSURANCE.

Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this Contract, Commercial General Liability Insurance, including Products and Completed Operations coverage, with minimum limits of \$2 Million per occurrence and \$4 Million aggregate. Such insurance policy is to be issued by an insurance company authorized to do business in the State of Oregon with an A.M. Best rating of at least A-VII, or such other insurance carrier approved in writing, in advance, by OSU. OSU and its officers, board members, employees, and agents shall be included as additional insured in said insurance policy.

B. PROFESSIONAL LIABILITY INSURANCE.

Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this contract, Professional Liability Insurance. Coverage limits shall not be less than \$2,000,000 per occurrence.

C. AUTOMOBILE LIABILITY INSURANCE.

Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this contract, Automobile Liability Insurance. This coverage can be provided by combining the Automobile Liability Insurance with the General Liability Insurance. Coverage limits shall not be less than \$2,000,000 combined single limit per occurrence.

D. PROPERTY INSURANCE.

The Contractor must maintain Property Insurance during the term of the Contract that covers all property used for Contract work and all Contractor-owned property that is stored at OSU.

E. PRIMARY COVERAGE.

Insurance carried by Contractor under this Contract shall be the primary coverage and OSU's insurance is excess and solely for damages or losses for which OSU is responsible.

F. WORKERS' COMPENSATION.

The Contractor, its subcontractors, if any, and all employers providing work, labor or materials under this Contract are subject employers under the Oregon Workers' Compensation law and shall comply with ORS 656.017, which requires them to provide workers' compensation coverage that satisfies Oregon law for all their subject workers, unless such employees are exempt under ORS 656.126.

G. CERTIFICATES OF INSURANCE.

As evidence of the insurance coverages required by this Contract, the Contractor shall furnish Certificate(s) of Insurance to the OSU Contract Administrator, upon request. The Certificate(s) will specify all of the parties who are Additional Insureds (or Loss Payees). Insurance coverages required under this Contract shall be obtained from acceptable insurance companies or entities. Contractor shall be financially responsible for all deductibles, self-insured retentions and/or self-insurance included hereunder.

H. NOTICE OF CANCELLATION OR CHANGE.

Each insurance policy required by the insurance provisions of this Contract shall provide the required coverage and shall not be suspended, voided or canceled except after thirty (30) days prior written notice has been given to OSU, except when cancellation is for non-payment of premium, then ten (10) days prior notice may be given. Such notice shall be sent directly to OSU. If any insurance company refuses to provide the required notice, the Contractor or its insurance broker shall notify OSU of any cancellation, suspension, non-renewal of any insurance within seven (7) days of receipt of insurers' notification to that effect.

5. INDEMNIFICATION:

A. INDEMNITY.

- a. Contractor shall indemnify and hold harmless OSU and its officers, board members, employees, agents and other representatives against claims, expenses, or losses: (i) that result from Contractor's negligence, wrongful acts or willful misconduct, or (ii) alleging Contractor's services, information or materials supplied by Contractor to OSU under this Contract, or OSU's use of any of the foregoing infringes on any patent, copyright, trade secret, trademark, or other proprietary right of a third party.
- b. OSU's right to receive indemnification under this Section is conditioned upon OSU giving reasonably prompt notice and assistance of any claim; provided however, that OSU's failure to provide notice and assistance does not limit OSU's right to indemnification except to the extent such failure or assistance materially affects Contractor's ability to defend the claim.
- c. Contractor's indemnification obligation under this Section includes but is not limited to all of OSU's expenses of litigation, court costs and reasonable attorney fees.

B. DEFENSE.

- a. Contractor shall have control of the defense with counsel reasonably acceptable to OSU, except that: (i) OSU may join the defense with its own counsel and at its own expense if OSU determines there is a conflict of interest or there is an important government principle at issue, and (ii) OSU'S consent is required for any settlement that requires OSU to pay any money, does not release OSU from all liability from the claim, or adversely affects OSU's interest.

6. LAWS AND POLICIES:

A. APPLICABLE LAW; JURISDICTION AND VENUE.

- a. The laws of the State of Oregon (without giving effect to its conflict of laws principles or laws) govern all matters arising out of or relating to the Contract, including, without limitation, its validity, interpretation, construction, performance or enforcement. Any party bringing a legal action or proceeding against the other party arising out of or relating to this Contract shall bring the legal action or proceeding in the Circuit Court of Oregon for Benton County.
- b. Notwithstanding paragraph (a), if a legal action or proceeding must be brought in a federal forum, the party shall bring the legal action or proceeding in the United States District Court for the District of Oregon. This paragraph does not authorize Contractor to bring a legal action or proceeding against OSU in a federal forum except to the extent Congress has validly abrogated OSU's sovereign immunity. This paragraph is also not a waiver by OSU of any

form of immunity, including without limitation sovereign immunity and immunity based on the Eleventh Amendment to the United States Constitution.

- c. Except as set forth in paragraph (b), the parties consent to in personam jurisdiction in the above courts and waive any objection to venue and any objection that the forum is inconvenient.

B. COMPLIANCE WITH APPLICABLE LAWS AND POLICIES.

- a. The parties shall at all times comply with all applicable federal, state and local laws, regulations, executive orders and ordinances pertaining to their respective businesses, products or services, employment obligations, and the subject matter of this Contract. The parties shall at all times comply with all applicable standards and policies of OSU, including without limitation any such laws or regulations regarding employment discrimination. If this Contract is being funded with federal funds, Contractor agrees to comply with all applicable federal contracting statutes, regulations and policies.
- b. Without limiting the generality of the foregoing, Contractor expressly agrees to comply with the following laws, regulations and executive orders to the extent they are applicable to the Contract: (i) Titles VI and VII of the Civil Rights Act of 1964, as amended; (ii) Paragraphs 503 and 504 of the Rehabilitation Act of 1973, as amended; (iii) the Americans with Disabilities Act of 1990, as amended; (iv) Executive Order 11246, as amended; (v) the Health Insurance Portability and Accountability Act of 1996; (vi) the Age Discrimination in Employment Act of 1967, as amended, and the Age Discrimination Act of 1975, as amended; (vii) the Vietnam Era Veterans' Readjustment Assistance Act of 1974, as amended; (viii) ORS Chapter 659, as amended; (ix) the Family Educational Rights and Privacy Act of 1974, 20 U.S.C. § 1232g; (x) the Health Insurance Portability and Accountability Act requirements noted in OAR 125-055-0115; (xi) the Oregon Consumer Identity Theft Protection Act, ORS 646A.600-646A.628; (xii) all regulations and administrative rules established pursuant to the foregoing laws; and (xiii) all other applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations. These laws, regulations and executive orders are incorporated by reference herein to the extent that they are applicable to the Contract and required by law to be so incorporated.

C. FEDERALLY REQUIRED PROVISIONS.

- a. Equal Employment Opportunity – Contractor shall comply with E.O. 11246, "Equal Employment Opportunity," as amended by E.O. 11375, "Amending Executive Order 11246 Relating to Equal Employment Opportunity," and as supplemented by regulations at 41 CFR part 60, "Office of Federal Contract Compliance Programs, Equal Employment Opportunity, Department of Labor."
- b. Rights to Inventions Made Under a Contract or Agreement – If this Contract is for the performance of experimental, developmental, or research work, the Federal Government and OSU have rights in any resulting invention in accordance with 37 CFR part 401, "Rights to Inventions Made by Nonprofit Organizations and Small Business Firms Under Government Grants, Contracts and Cooperative Agreements," and any implementing regulations issued by the awarding agency.
- c. Clean Air Act (42 U.S.C. 7401 et seq.) and the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.), as amended – If this Contract provides for payments in excess of \$100,000, Contractor shall comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401 et seq.) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251 et seq.). Violations shall be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).
- d. Byrd Anti-Lobbying Amendment (31 U.S.C. 1352) – Contractors who apply or bid for a contract of more than \$100,000 shall file a certification that it will not and has not used Federally appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, officer or employee of Congress, or an employee of a Member of Congress in connection with obtaining any Federal contract, grant

or any other award covered by 31 U.S.C. 1352. Contractor shall require any subcontractor who applies or bids for subcontract in excess of \$100,000 to provide a similar certification to the next higher tier (Contractor or subcontractor as applicable). Each tier shall also disclose any lobbying with non-Federal funds in connection with obtaining any Federal award. Contractor or subcontractor must forward any disclosures from tier to tier up to OSU.

- e. Debarment and Suspension (E.O.s 12549 and 12689) - No contract shall be made to parties listed on the General Services Administration's List of Parties Excluded from Federal Procurement or Nonprocurement Programs in accordance with E.O.s 12549 and 12689, "Debarment and Suspension." This list contains the names of parties debarred, suspended, or otherwise excluded by agencies, and contractors declared ineligible under statutory or regulatory authority other than E.O. 12549. If this Contract is in excess of the small purchase threshold, Contractor hereby certifies they are not listed on the General Services Administration's List of Parties Excluded from Federal Procurement or Nonprocurement Programs.

D. PUBLIC RECORDS LAW NOTICE.

OSU advises Contractor that information OSU receives may be subject to public inspection under Oregon Public Records Law (ORS 192.410-192.505).

E. SAFETY AND HEALTH REQUIREMENTS/HAZARD COMMUNICATION.

Services supplied under this Contract shall comply with all federal Occupational Safety and Health Administration (OSHA) requirements and with all Oregon safety and health requirements, including those of the State of Oregon Workers' Compensation Division. Contractor shall notify OSU prior to using products containing hazardous chemicals to which OSU employees may be exposed. Products containing hazardous chemicals are those products defined by Oregon Administrative Rules, Chapter 437. Upon OSU's request, Contractor shall immediately provide Material Safety Data Sheets, as required by OAR ch. 437, for the products subject to this provision.

F. FIREARMS POLICY.

OSU has a policy that prohibits Contractor and Contractor's employees, agents, and subcontractors from possessing firearms on OSU property.

G. PARKING.

Contractors doing business on the OSU campus may be required to have a permit to park if utilizing restricted street parking or parking lots. Contractor parking permits may be obtained through OSU's Office of Transit & Parking Services.

H. SEXUAL HARASSMENT POLICY.

OSU has policies that prohibit sexual harassment of members of the OSU community and in keeping with those policies Contractor and Contractor's employees, agents, and subcontractors are prohibited from engaging in sexual harassment of members of the OSU community.

I. SMOKING POLICY.

OSU has a policy that prohibits Contractor and Contractor's employees, agents, subcontractors from smoking on the OSU campus or other OSU owned property. The smoking prohibition includes all indoor and outdoor spaces.

J. WEBSITE ACCESSIBILITY.

If Contractor is designing or developing web page(s) for OSU under this Contract, Contractor shall design and develop (as applicable) the web page(s) in conformance with OSU's Policy on Information Technology Accessibility available at <http://oregonstate.edu/accessibility/ITpolicy>.

7. GENERAL TERMS AND CONDITIONS:

A. ORDER OF PRECEDENCE.

In the event of a conflict, all the terms and conditions of this Contract, its exhibits, and any

amendments thereto supersede all terms and conditions on any forms used by the Contractor.

B. NO THIRD PARTY BENEFICIARY.

OSU and Contractor are the only parties to this Contract and are the only parties entitled to enforce its terms. Nothing in this Contract gives, is intended to give, or shall be construed to give or provide any benefit or right, whether directly, indirectly, or otherwise, to third parties

C. ASSIGNMENT/SUBCONTRACT/DELEGATION.

Contractor shall not assign, subcontract, delegate or otherwise transfer any of its rights or obligations under this Contract, without the prior written approval of OSU. Any assignment of rights or delegation of duties is prohibited under this Section, whether by merger, consolidation, dissolution, operation of law or any other manner. Any purported assignment of rights or delegation of duties in violation of this Section is void. OSU's consent to delegation does not relieve Contractor of any of its performance obligations.

D. WAIVER.

No waiver of an obligation under this Contract is effective unless it is in writing and signed by the party granting the waiver. No failure or delay in exercising any right or remedy, or in requiring the satisfaction of any condition under this Contract operates as a waiver or estoppel of any right, remedy or condition.

E. ACCESS TO RECORDS AND AUDIT.

Contractor shall maintain accurate books, records, documents, and other evidence (collectively, "Records") following accounting procedures and practices sufficient to reflect properly all costs of whatever nature claimed to have been incurred and anticipated to be incurred in the performance of this Contract. Contractor shall permit OSU and the federal government and their respective duly authorized representatives to have access to the Records that are directly pertinent to this Contract for the purpose of conducting an audit, or other examination, or for creating excerpts or transcripts. Contractor shall maintain Records for OSU's review for at least six years beyond the term of the Contract. Contractor shall promptly remedy any discrepancies involving deviation from the terms of this Contract and shall promptly reimburse OSU for any commitments or expenditures found by OSU to have been in excess of amounts authorized by OSU under this Contract.

OSU shall have the right to an independent third-party audit of the Contractor's records associated with or related to the goods or services provided for under this Contract. OSU may request an independent third-party audit no more than one time per calendar year. OSU will determine the time-period that will be the subject of the audit. However, the entire term of the Contract, including the original term and any subsequent renewals or extensions, may be the subject of the independent third-party audit at any time. Contractor shall bear the full cost of such independent third-party audit.

F. GOVERNMENT EMPLOYMENT STATUS.

Contractor certifies that either (a) it is not currently employed by OSU or the federal government; or (b) if Contractor is so employed, Contractor has fully disclosed to OSU in writing such employment status, is in full compliance with any statutes, regulation, and OSU or the federal government policies regarding employee contracting, and agrees to indemnify and hold harmless OSU for any failure by Contractor to comply with such statutes, regulations, or policies.

G. INDEPENDENT CONTRACTOR STATUS.

The services to be rendered under this Contract are those of an independent contractor. OSU reserves the right (a) to determine and modify the delivery schedule for the services and (b) to evaluate the quality of the services; however, OSU may not and will not control the means or manner of Contractor's performance. Contractor is responsible for determining the appropriate means and manner of performing the services. Contractor is not an officer, employee or agent of OSU as those terms are used in ORS 30.265. Contractor has no authority to act on behalf of OSU and shall not purport to make any representation, contract, or commitment on behalf of OSU.

H. NOTICE.

- a. A party giving or making any notice, request, demand or other communication (each a "Notice") pursuant to this Contract shall give the Notice in writing and use one of the following methods of delivery: personal delivery, United States Postal Service Registered or Certified Mail (return receipt requested and postage prepaid), overnight courier (with all fees prepaid), facsimile or e-mail to the other party's address as listed on the signature page of this Contract. Notice to OSU is to be delivered to the Contract Administrator and Departmental Administrator except where this Contract expressly directs or permits delivery of Notice to a different Department.
- b. Notice is effective: (i) if given by facsimile, upon receipt by the sending party of an appropriate facsimile confirmation; (ii) if given by e-mail, by confirmation of receipt by return e-mail, which is not satisfied by an automatically-generated message that the recipient is out of the office or otherwise unavailable; or (iii) if given by any other means, when delivered at the address specified in this Section.

OSU Contract Administrator
OSU PCMM
ATTN: JD183606 Contract Administrator
644 SW 13th Street
Corvallis, OR 97333
Telephone: (541) 737-4261
Fax: (541) 737-2170
E-mail: pacs@oregonstate.edu

and: OSU Departmental Administrator
[Name]
[Title]
[Address]
[City, State, Zip]
Telephone: [Phone Number]
Fax: [Fax Number]
E-mail: [E-Mail Address]

CONTRACTOR Contract Administrator
[Name]
[Title]
[Address]
[City, State, Zip]
Telephone: [Phone Number]
Fax: [Fax Number]
E-mail: [E-Mail Address]

I. OSU NAME AND TRADEMARK.

Contractor shall not identify this Contract, nor use OSU's names, trademarks, service marks, or other proprietary marks in any of Contractor's marketing material, advertising, press releases, publicity matters or other promotional materials without the prior written consent of OSU, which consent may be withheld in OSU's sole discretion.

J. RECYCLED PRODUCTS.

Contractors will use recycled products, as defined in ORS 279A.010(1)(ii), to the maximum extent economically feasible in the performance of the Contract.

K. SALES AND USE TAXES.

OSU shall pay all applicable sales, excise, or use taxes in connection with this Contract. Invoices shall separately identify all such taxes and shall include either Contractor's sales tax or use tax permit number. Contractor shall be responsible for all other taxes, including taxes based upon Contractor's income. Contractor shall indemnify, defend, and hold harmless OSU from and against any interest, penalties, or other charges resulting from the non-payment or late payment of taxes or other charges for which Contractor failed to invoice OSU or which Contractor otherwise failed to pay in a timely manner.

L. FORCE MAJEURE.

Neither party is responsible for delay caused by an act or event that prevents the party from performing its obligations under this Contract where such cause is beyond the party's reasonable control and the nonperforming party has been unable to avoid or overcome the act or event by the

exercise of due diligence. Such acts or events include without limitation fire, riot, acts of nature, terrorist acts, or other acts of political sabotage or war. Contractor shall make all reasonable efforts to remove or eliminate such a cause of delay and shall, upon cessation of the cause, diligently pursue performance of its obligations under this Contract. However, if delay due to a force majeure event continues for an unreasonable time, as determined by OSU, then OSU is entitled to terminate the Contract.

M. EXECUTION AND COUNTERPARTS.

This Contract may be executed by facsimile or PDF and in two or more counterparts, each of which shall be deemed an original and all of which together shall constitute one instrument.

N. SURVIVAL.

The terms and conditions of this Contract that by their sense and context are intended to survive termination or expiration hereof shall so survive.

O. SEVERABILITY.

If any provision of this Contract is determined to be invalid, illegal or unenforceable, the remaining provisions of this Contract remain in full force and effect if the essential terms and conditions of this Contract for both parties remain valid, legal and enforceable.

P. MERGER.

This Contract, including all documents referred to herein and attached hereto, constitutes the entire agreement between the parties and supersedes all prior representations, understanding and agreements between the parties. It is the complete and exclusive expression of the parties' agreement on the matters contained in this Contract. No amendment, consent, or waiver of terms of this Contract shall bind either party unless it is in writing and signed by authorized representatives of each of the parties. Any such amendment, consent, or waiver is effective only in the specific instance and for the specific purpose given.

8. CERTIFICATIONS AND SIGNATURES:

This Contract must be signed in ink by an authorized representative of Contractor. The undersigned certifies under penalty of perjury both individually and on behalf of Contractor that:

- A. The undersigned is a duly authorized representative of Contractor, has been authorized by Contractor to make all representations, attestations, and certifications contained in this Contract and to execute this Contract on behalf of Contractor and that this Contract, when executed and delivered, shall be a valid and binding obligation of Contractor enforceable in accordance with its terms;
- B. Contractor is not a contributing member of the Public Employees' Retirement System and will be responsible for any federal or state taxes applicable to payment under this Contract. Contractor will not, by virtue of this Contract, be eligible for federal Social Security, employment insurance, workers' compensation or the Public Employees' Retirement System, except as a self-employed individual.
- C. Pursuant to OSU Standard 580-061-0030, Contractor has not discriminated against Minority, Women or Emerging Small Business Enterprises in obtaining any required subcontracts;

Each of the parties has caused its duly authorized representative to execute this Contract on the date set forth in its respective signature block below.

CONTRACTOR:

Signature: _____

Date: _____

By: _____

Title: _____

OSU:

Signature: _____

Date: _____

By: _____

Title: _____

[Remainder of this page left intentionally blank]

**EXHIBIT B
CERTIFICATIONS**

By signature on this certification the undersigned certifies that they are authorized to act on behalf of the Proposer and that under penalty of perjury the undersigned will comply with the following:

SECTION I. OREGON TAX LAWS

The undersigned hereby certifies under penalty of perjury that the Proposer, to the best of the undersigned's knowledge, is not in violation of any tax laws described in ORS 305.380(4).

SECTION II. AFFIRMATIVE ACTION

The undersigned hereby certifies that they have not discriminated against Minority, Women or Emerging Small Business Enterprises in obtaining any required subcontracts, pursuant to OSU Standard 580-061-0030 (3).

SECTION III. COMPLIANCE WITH SOLICITATION

The undersigned agrees and certifies that they:

1. Have read, fully understands and agrees to be bound by the Request for Proposal and all Exhibits and Addenda to the Request for Proposal; and
2. Are an authorized representative of the Proposer, that the information provided is true and accurate, and that providing incorrect or incomplete information may be cause for rejection of the Proposal or Contract termination; and
3. Will furnish the designated item(s) and/or service(s) in accordance with the Request for Proposal and the Contract; and
4. Has provided a correct Federal Employer Identification Number or Social Security Number with the Proposal.

SECTION IV. PERMISSIVE COOPERATIVE PROCUREMENTS

If Proposer is awarded a contract from this Request for Proposal, Proposer hereby (check one)

- agrees
- disagrees

to offer the resulting contractual terms and prices to other public institutions.

Authorized Signature: _____ Date: _____

Name (Type or Print): _____ Telephone: (____) _____

Title: _____ Fax: (____) _____

FEIN ID# or SSN# (required): _____ Email: _____

Company: _____

Address, City, State, Zip: _____

Construction Contractors Board (CCB) License Number (if applicable): _____

Business Designation (check one):

- Corporation
- Partnership
- LLC
- Sole Proprietorship
- Non-Profit

**EXHIBIT C
REFERENCES**

REFERENCE 1

COMPANY: _____ CONTACT NAME: _____
ADDRESS: _____ PHONE NUMBER: _____
CITY, STATE ZIP: _____ FAX NUMBER: _____
WEBSITE: _____ E-MAIL: _____
GOODS OR SERVICES PROVIDED: _____

REFERENCE 2

COMPANY: _____ CONTACT NAME: _____
ADDRESS: _____ PHONE NUMBER: _____
CITY, STATE ZIP: _____ FAX NUMBER: _____
WEBSITE: _____ E-MAIL: _____
GOODS OR SERVICES PROVIDED: _____

REFERENCE 3

COMPANY: _____ CONTACT NAME: _____
ADDRESS: _____ PHONE NUMBER: _____
CITY, STATE ZIP: _____ FAX NUMBER: _____
WEBSITE: _____ E-MAIL: _____
GOODS OR SERVICES PROVIDED: _____

EXHIBIT D
DOCUMENT CHECKLIST FOR TANK FARM AND CELLAR

C = Will comply with requirement as specified

X = Take exception to requirement as specified

A = Proposed alternative method or solution to requirement as specified. Attach additional pages with a detailed explanation to support consideration

C	X	A	Item
			1. Cellar
			1.1. Mechanical Equipment - Cellar
			1.2. Electrical Equipment - Cellar
			1.3. Control - Cellar
			1.4. Control Enclosures and Electrical Components

EXHIBIT E
DOCUMENT CHECKLIST FOR AUTOMATED PILOT BREWERY

C = Will comply with requirement as specified

X = Take exception to requirement as specified

A = Proposed alternative method or solution to requirement as specified. Attach additional pages with a detailed explanation to support consideration

C	X	A	Item
			2. Malt Handling, Milling, and Grist Handling
			2.1. Malt Handling System
			2.2. Four Roll Malt Mill
			2.3. Grist Handling System
			2.4. Controls for Malt Handling, Milling, and Grist Handling
			3. Brewhouse
			3.1. Mash Tuns/Cookers
			3.1.1. Size - Mash Tuns
			3.1.2. Mechanical Equipment - Mash Tuns
			3.1.3 Electrical Equipment - Mash Tuns
			3.1.4 Control – Mash Tuns
			3.2. Lauter Tun
			3.2.1. Size - Lauter Tun
			3.2.2. Mechanical Equipment - Lauter Tun
			3.2.3 Electrical Equipment - Lauter Tun
			3.2.4 Control – Lauter Tun
			3.3. Kettle
			3.3.1. Size - Kettle
			3.3.2. Mechanical Equipment - Kettle
			3.3.3 Electrical Equipment - Kettle
			3.3.4 Control – Kettle
			3.4. Whirlpool
			3.4.1. Size - Whirlpool
			3.4.2. Mechanical Equipment - Whirlpool
			3.4.3 Electrical Equipment - Whirlpool
			3.4.4 Control – Whirlpool
			3.5. Hop Back
			3.6. Heat Exchanger and Wort Aeration
			3.6.1. Size – Heat Exchanger/Aeration System
			3.6.2. Mechanical Equipment – Heat Exchanger/Aeration System
			3.6.3 Electrical Equipment – Heat Exchanger/Aeration System
			3.6.4 Control – Heat Exchanger/Aeration System
			3.7. Brewhouse Skid and Deck
			3.8. Brewhouse Vapor Removal

			3.9. Brewhouse Piping, Valves, Wiring, and Pneumatics
C	X	A	Item
			4. Water Handling System
			4.1. Hot Liquor Tank
			4.1.1. Mechanical Equipment - HLT
			4.1.2. Electrical Equipment - HLT
			4.1.3. Control - HLT
			4.2. Cold Liquor Tank
			4.2.1. Mechanical Equipment - CLT
			4.2.2. Electrical Equipment - CLT
			4.2.3. Control - CLT
			4.3. Mixing Station
			4.3.1. Mechanical Equipment – Mixing Station
			4.3.2. Electrical Equipment – Mixing Station
			4.3.3. Control – Mixing Station
			4.4. Water Treatment – OEM Supplied High Flow Carbon Filter for Sweet Water
			6. CIP System
			6.1. Mechanical Equipment - CIP
			6.2. Electrical Equipment – CIP
			6.3. Control - CIP
			7. Glycol Unit – OEM Specifications, Customer Supplied
			8. Condensate Return
			9. Dust Handling System
			10. Design, Automation, and Control
			11. Data Acquisition
			12. ASME, Control Enclosures, and Electrical Components
			13. Pumps
			14. Customer Supplied Services
			15. Commissioning and Training shall be provided by Awarded Proposer

EXHIBIT G
DESIRED SPECIFICATIONS FOR AUTOMATED PILOT BREWERY

Specification begins on the next page

Table of Contents

- 1. Overview:** 4
 - 1.2. Performance Requirements:..... 4
 - 1.3. Scope of Work:..... 4
 - 1.4. Instructions to Bidder: 4
- 2. Malt Handling, Milling, and Grist Handling:**..... 4
 - 2.1. Malt Handling:**..... 4
 - 2.2. Mill:**..... 4
 - 2.3. Grist:** 5
 - 2.4. Controls for Malt Handling, Milling, and Grist Handling:** 6
- 3. Brewhouse:**..... 7
 - 3.1. Mash Tuns/Cookers:** 7
 - 3.1.1. Size:**..... 8
 - 3.1.2. Mechanical Equipment:** 8
 - 3.1.3. Electrical Equipment:** 8
 - 3.1.4. Control for each Mash Cooker:**..... 9
 - 3.2. Lauter Tun:**..... 10
 - 3.2.1. Size:**..... 11
 - 3.2.2. Mechanical Equipment:** 11
 - 3.2.3. Electrical Equipment:** 12
 - 3.2.4. Control for Lauter Tun:**..... 12
 - 3.3. Kettle:** 13
 - 3.3.1. Size:**..... 13
 - 3.3.2. Mechanical Equipment:** 13
 - 3.3.3. Electrical Equipment:** 14
 - 3.3.4. Control for Kettle:** 15
 - 3.4. Whirlpool:**..... 16
 - 3.4.1. Size:**..... 16

3.4.2. Mechanical Equipment:	16
3.4.3. Electrical Equipment:	17
3.4.4. Control for Whirlpool:.....	17
3.5. Hop Back:.....	18
3.6. Heat Exchanger and Aeration:	19
3.6.1. Size:.....	19
3.6.2. Mechanical Equipment:	19
3.6.3. Electrical Equipment:	19
3.6.4. Control for heat exchanger:.....	20
3.7. Brewhouse Skid and Deck:.....	21
3.8. Brewhouse Vapor Removal:	21
3.9. Brewhouse piping, valves, wiring, and pneumatics:.....	21
4. Water Handling System:	22
4.1. Hot Liquor Tank (HLT):	22
4.1.1. Mechanical Equipment:	22
4.1.2. Electrical Equipment:	22
4.1.3. Control for HLT:	22
4.2. Cold Liquor Tank:.....	23
4.2.1. Mechanical Equipment:	23
4.2.2. Electrical Equipment:	23
4.2.3. Control for CLT:	23
4.3. Mixing Station:	23-23
4.3.1. Mechanical Equipment:	24
4.3.2. Electrical Equipment:	24
4.3.3. Control for Mixing Station:	24
4.4. Water Treatment:	24
5. CIP System:	25

5.1. Mechanical Equipment:	25
5.2. Electrical Equipment:	25
5.3. Control for CIP System:	25
6. Glycol Unit:	26
7. Condensate Return:	26
8. Dust Handling:	26
9. Design, Automation, and Control:	27-28
10. Data Acquisition:	29
11. ASME, Control Enclosures, and Electrical Components:	29
12. Pumps:	30
13. Customer Supplied Services and Equipment:	31
14. Commissioning and Training shall be provided by Awarded Proposer	31

1. Overview:

1.1. Performance Requirements:

The targeted brew-length for this traditional 5 vessel system is 2.5hl at 15P but the expectation is to produce 1.5 to 3 hl at 8 to 22 °Plato. Included in this request is a complete hot side brewhouse, hard-pipe fence and gate from the brewhouse to the tank farm/cellar, CIP equipment, malt milling/handling, hot and cold water tanks, and system automation for process integration. The brewery must be flexible with the ability to easily incorporate, communicate with, and control future equipment acquisitions (mash filter, hammer mill, centrifuge).

1.2. Scope of Work:

The following sections define the scope of work planned for this project. The specifications stated here serve as minimum requirements and are not intended to limit alternatives or revisions that will result in an improved system. Cost engineering options will be entertained.

Each section defines the deliverables associated with each functional area of the brewing system.

1.3. Instructions to Bidder:

For the purpose of these Desired Specifications, the bidder is hereafter referred to as the “original equipment manufacturer” or “OEM”. The Oregon State University Brewing Science Laboratory is hereafter referred to as the “Customer”.

2. Malt Handling, Milling, and Grist Handling:

2.1. Malt Handling:

The OEM shall provide a Malt Loading Bin (>50kg capacity). The Malt Loading Bin may be located on ground the level with a chain conveyor or equivalent to transport malt to mezzanine level (approximately 5 m height) for milling.

OPTION: The Malt Loading Bin may be located on the mezzanine level (location of mills) with proper conveyance to the mill to reduce or eliminate conveyor system for cost savings.

2.2. Mill:

Provide a properly sized, adjustable gap, 4 roll Mill.

The Mill shall have a capacity of 100-500kg/hour to supply brewing industry standard grist. (Buhler LEFA –V3 or equivalent)

The Mill shall include foreign material magnets installed at the intake to protect the mills.

2.3. Grist:

Grist from Mill shall be delivered via chain conveyor or equivalent to a Grist Hopper (capacity ≥ 80 kg grist) then diverted to either of two Mash Cookers.

Properly sized, solenoid operated, pneumatic actuated, butterfly/gate valves shall be provided to control flow of grist or malt.

The Grist Hopper shall be equipped with load cells integrated into the process control system to monitor and control grist weight.

Level sensors shall be provided to detect empty or overfilled bins/hoppers. This shall signal the controller to stop conveying or milling when bin/hopper is empty or overfilled.

Construction material of bins and hoppers shall be specified by OEM with consideration given to durability (durable paint on steel sheet is acceptable).

OPTION: The Grist Hopper may be eliminated if mill is sized for direct mashing-in (<15 minutes for 150kg grist). Load cells would then be placed on Malt Loading Bin.

2.4. Controls for Malt Handling, Milling, and Grist Handling:

Item	Device	Measured Unit	Size
Malt Loading Bin Empty Detection	Level Switch		OEM specified
Malt Bin Overfill Detection	Level Switch		OEM specified
Conveyor to Mill Divert Valves for Malt	Proximity	Open/Closed	4" or DN100
Conveyor to Mash Divert Valves for Grist	Proximity	Open/Closed	
Grist Hopper	Load cells	Kg	=/>80kg
Grist Bin Overfill Detection	Level Switch		OEM specified
Conveyor Empty	TBD		OEM specified
Roller Mill	Motor		
Malt Conveyor	Motor		
Grist Conveyor	Motor		

3. Brewhouse:

3.1. Mash Tuns/Cookers:

Mash cookers shall be sized to handle a varying grist load of 10-100 kg each.

Mash cookers shall have steam jackets on the bottom and on lower side wall of the vessel.

Each Steam jacket shall be individually controlled so a small amount of grist can be mashed using only the bottom jacket.

Each mash cooker shall be fully enclosed (upper hoods or tops) with manway access for maintenance, lighting, sight-glass (if manway is not clear), and vent stack.

Each mash cooker shall have a pre-masher/grist hydrator located on the top of the vessel, properly sized for hydration of grist.

Each mash cooker shall be agitated (driven from the top or bottom of vessel) with a frequency drive controlled motor. The agitators shall have stainless steel mixing blades. The peripheral speed of the agitator blades shall not exceed 3 m/s.

Heating of the mash shall be tightly controlled within 1°C of set temperature using ≤ 14.9 psi steam. A heating rate of 1°C/minute is the target for a typical mash.

Two temperature transmitters shall be installed in each vessel, one in the lower section for adjunct cooking (10kg grain/adjunct coverage) and the other placed for full brew size.

The bottom of Mash Cookers shall be designed to ensure quick and efficient draining.

Each Mash Cooker shall have an appropriately sized outlet towards the lower bottom for quick and efficient transfer of mash/cereal out of and into vessel.

A properly sized, variable frequency drive controlled product pump (progressive cavity or positive displacement is preferred) shall be located between the two Mash Cookers so mash or adjunct can be pumped between vessels to facilitate decoction mashing or American double mash.

The same pump shall be suitable for transferring mash to the Lauter Tun.

The OEM shall supply level transmitters to monitor vessel volumes and monitor volumes pumped into or out of vessel.

Both Mash Cookers shall be equipped with spray balls, piping, and valves and shall be fully integrated into the overall CIP system within the brewery.

Construction of vessels shall be Food Grade 304. The OEM Shall specify gauge adequate for application. The vessels shall be adequately insulated, for brewery application, covering the steam jacketing, protected by external cladding.

For each Mash Cooker:

3.1.1. Size:

Grist load per cooker: 10-100 kg

Minimum size 2.5 hl

Maximum size 5 hl

3.1.2. Mechanical Equipment:

Manway

Sight glass

Light(s) fitting(s)

Pre-masher/grist hydrator for grist hydration installed in top of vessel

Variable frequency drive controlled agitator

Variable frequency drive controlled mash pump

Inlet in upper bottom of vessel for pumping mash in

Outlet in lower bottom of vessel for pumping mash out

Vent stack

CIP incorporated, spray ball, piping, and valves

3.1.3. Electrical Equipment:

Light(s)

Two temperature transmitters – lower for adjunct, middle for full brew

Modulating control for steam valves on two steam jackets on bottom and side-walls

Level transmitters

Flow meter for mash transfer between mash cookers or to lauter

Variable frequency drive control for mash pump

Variable frequency drive control for agitator

Discrete control of inlet and outlet valves on vessel

3.1.4. Control for each Mash Cooker:

Item	Device or Property	Measured unit	Minimum/Maximum
Agitator	VFD Speed of rotation	Meters/second or RPM	<3 m/s at peripheral end of blade
Mash heating/cooking Control	Temperature Control	Degrees C	= 1°C/minute low limit = 5°C/minute high limit
Mash Temperature	Temperature Transmitter	Degrees C	One at 7-liter volume level One at 50-liter volume level
Mash Volume	Level Transmitter	Liters	10-liter low limit 300-liter high limit
Mash Flow	Flow Meter	Liters/minute	>=15 l/minute
Mash pump – cookers to lauter	VFD	Meters/second or RPM	
Drain valve	State	Open/closed	
Inlet valve	State	Open/closed	

3.2. Lauter Tun:

The OEM shall supply a Lauter Tun appropriately sized to handle a 1.5hl 22°P through 3hl 8.0°P brew length with a load range of 120-220kg/m².

The Lauter Tun shall be equipped with topside manway, light, sight-glass (if manway is not clear), and vent stack.

The Lauter screen shall be milled top and bottom to appropriate size and open surface area to comply with industry standard (0.7 to 1.2 mm gaps and a free flow-through surface of up to 13%)

Screen shall be removable for proper cleaning and inspection

The Lauter Tun shall be equipped with a mash inlet towards the upper bottom above the Lauter screen and be sized to allow mash run-in times of less than 10 minutes and velocity in the inlet opening not greater than 1 m/s.

The Lauter Tun shall be equipped with a properly sized sparging system utilizing tempered brewing liquor – see water mixing station.

The Lauter Tun shall be fitted with a stainless steel raking system with mash knives, driven from the top or bottom of the tank with a variable frequency drive controlled motor. Knives shall be designed to guarantee uniformity of grain bed and prevent channeling. This system shall also serve as a spent grain bar (may be manually lowered for that operation).

Speed of rotation and depth of rakes shall be controlled via pressure differential from a pressure differential transmitter.

A “GEA Varinline” housing shall be placed on the run-off piping for a customer supplied optic meter.

The Lauter Tun shall be fitted with a spent grain opening and chute for simple grain-out to customer supplied grain cart.

A properly sized, variable frequency drive controlled product pump shall be provided for vorlauf and transfer of wort to kettle. A progressive cavity or positive displacement pump is preferred.

A mass flow meter (customer supplied) shall be installed in-line for measuring wort density, flow rate, flow total, and temperature.

The Lauter Tun shall be equipped with an elongated sight glass (heat resistant, Pyrex or equivalent) on the side of the vessel so mash bed striation can be observed.

The Lauter Tun shall be equipped with spray balls, piping, and valves and shall be fully integrated into the overall CIP system within the brewery. This includes spray jets under the Lauter screen.

Construction of vessel shall be FOOD GRADE 304. The OEM shall specify gauge adequate for application. The vessels shall be adequately insulated, for brewery application, covering the steam jacketing, protected by external cladding.

3.2.1. Size:

Lauter Tun total volume: 4-4.5hl.

Usable volume: 3.75-4.2hl.

Height of screen from bottom: 10-20mm.

Screen open surface: 11-13%

3.2.2. Mechanical Equipment:

Manway

Sight glass

Sight glass down the side for viewing of grain bed

Light(s) fitting(s)

Removable, milled lauter screen

Variable frequency drive controlled rake-speed

Automatic Rake height adjustment base on pressure differential

Grain-out apparatus on rake assembly

Inlet in upper bottom of vessel for pumping mash in

Outlet in lower bottom of vessel for pumping wort out

Sparging system

Variable frequency drive controlled wort pump for Lauter to Kettle

Varinline housing from GEA in piping from Lauter Tun outlet

OPTION: Optical sensor for turbidity measurement and rake height control in conjunction with pressure differential

Mass flow meter for wort to Kettle

Spent grain opening and chute

Sample cock for physical evaluation of wort run-off

Vent stack

CIP incorporated, spray ball, piping, and valves

3.2.3. Electrical Equipment:

Light(s) fitting(s)

Temperature transmitter

Pressure transmitter on side wall and under screen

OPTION: Optical sensor for turbidity

Mass flow meter

Variable frequency drive control for wort pump

Control of inlet and outlet valves on vessel

3.2.4. Control for Lauter Tun:

Item	Device or Property	Measured unit	Minimum/Maximum
Mash Inlet Valve	State	Open/closed	
Wort run-off valve	State	Open/closed	
Mash Inlet - run-off	Flow rate/totalized	Minutes	=/< 10 minutes
Mash Inlet - run-off	Flow Velocity	Meters/second	<1 m/s
Mash Differential	Pressure Indicator	mmWS	OEM specified
Wort run-off turbidity	Optical		OEM specified
Mash/bed temperature	Temperature transmitter	°C	
Rake Speed	Speed of rotation	Meters/second or RPM	Stop/slow
Rake Height	Pressure and/or Optical	mmWS and/or Turbidity	OEM specified
Wort pump – Lauter to Kettle	Frequency	m/s or rpm	
Wort run-off to Kettle	Mass, flow rate, totalize	Plato, liters/minute, liters	

3.3. Kettle:

The OEM shall specify the size of Kettle. The Kettle shall be versatile in terms of volume flexibility, heating source, and hop form.

An appropriately sized steam heated external Wort Boiler (<14.9 psi steam) shall also be integrated into the Kettle system, recipe options in control software will select which heating source is applied.

The Kettle shall be fitted with individually controlled steam jackets on the side and bottom for boiling with whole hops at various knockout wort volumes (1.5 – 3 hl).

The external Wort Boiler shall be designed to accommodate pelletized hops or liquid hop products including appropriate valves to prevent inclusion of wort and hops when whole hops are used in the Kettle.

The OEM shall supply a properly sized variable frequency drive controlled pump to circulate wort from the bottom outlet to a wort spreader (through the external boiler if used or bypassed if not).

The Kettle shall be fitted with an over-boil preventer.

The Kettle shall be fitted with a Varinline housing from GEA located in kettle bottom.

The Kettle shall be equipped with a topside manway, light, sight-glass (if manway is not clear), and vent stack appropriately designed to prevent condensate from return to the Kettle.

OPTION: The vent stack may be designed with a vapor condenser heat exchanger to capture energy from Kettle vapors and eliminate need for venting stack vapors from the brewery building. See specification of Brewery Vapor Removal (section 3.9. below).

The Kettle shall be equipped with spray balls, piping, and valves and shall be fully integrated into the overall CIP system within the brewery.

Construction of vessel shall be FOOD GRADE 304. The OEM shall specify gauge adequate for application. The vessels shall be adequately insulated, for brewery application, covering the steam jacketing, protected by external cladding.

3.3.1. Size:

Kettle total volume range: 4 - 7hl.

Usable maximum volume: 3.5 - 6.5hl.

Usable minimum volume: 1.5hl

3.3.2. Mechanical Equipment:

Manway

Sight glass

Light(s) fitting(s)

External boiler - <14.9 psi steam

Steam jacket on bottom of vessel and side walls

Varinline housing from GEA located in kettle bottom

Inlet in bottom of vessel for pumping wort in from lauter

Inlet for pumping from external boiler

Outlet in lower bottom of vessel for pumping wort out

Variable frequency drive controlled wort pump – for circulation with or without external boiler and for transferring casting wort from Kettle to Whirlpool

Wort spreader

Flow meter for measuring flow of wort through external boiler and for cast wort

Vent stack

Vapor condenser (OPTION)

CIP incorporated, spray ball, piping, and valves

3.3.3. Electrical Equipment:

Light(s) fitting(s)

Over-boil sensor – safety shut-off of steam to prevent boiling wort from exiting Kettle

Temperature transmitter

Level transmitter

Modulating control for steam valves on jackets and on external boiler

Variable frequency drive control for wort pump

Discrete control of inlet and outlet valves on vessel

Flow meter between outcast pump and external boiler

3.3.4. Control for Kettle:

Item	Device or Property	Measured unit	Minimum/Maximum
Wort Inlet Valve from Lauter Tun	State	Open/closed	
Wort Volume from Lauter Tun	Flow/total	Liters	
Wort Inlet Valve from External Wort Boiler	State	Open/closed	
Wort Density from Lauter Tun	Mass flow meter	Density or °P	
Wort run-off valve	State	Open/closed	
Flow meter – pump and external boiler	Flow rate	Liters/minute	
Wort pump – Kettle to Whirlpool	Frequency	m/s or rpm	
Temperature Control, cascaded	Wort temperature Steam pressure	°C PSI or Equivalent	</= 14.9 psi

3.4. Whirlpool:

Whirlpool shall be designed for proper separation of hot-break and solids material.

A heat exchanger between Kettle and Whirlpool shall be provided. The heat exchanger shall be sized to lower the temperature of the wort to less than 80°C during transfer from Kettle. The heat exchanger may be the same heat exchanger used for final wort cooling but shall be designed and installed to use the hop back for worts containing whole hops.

The Whirlpool shall be equipped with topside manway, light, sight-glass (if manway is not clear), and vent stack.

The Whirlpool shall be equipped with spray balls, piping, and valves and shall fully integrated into the overall CIP system within the brewery.

Construction of vessel shall be FOOD GRADE 304. The OEM shall specify gauge adequate for application. The vessels shall be adequately insulated, for brewery application, covering the steam jacketing, protected by external cladding.

3.4.1. Size:

Whirlpool total volume: 6– 9hl.

Usable maximum volume: 6 – 9hl.

Usable minimum volume: 1.5hl.

Ratio of diameter to wort height 3:1 @ 2.5hl

3.4.2. Mechanical Equipment:

Manway

Sight glass

Light(s) fitting(s)

Heat exchanger for wort from kettle – tube and shell or plate and frame – OEM specified

Valves for cooling water to heat exchanger

Piping and valves to hop-back pre and post whirlpool

Inlet in bottom of vessel for pumping wort in from the kettle

Outlet in lower bottom of vessel for pumping wort out

Variable frequency drive controlled wort pump to heat exchanger

Flow meter

Vent stack

CIP incorporated, spray ball, piping, and valves

3.4.3. Electrical Equipment:

Light

Temperature transmitter

Level transmitter

Variable frequency drive control for wort pump

Discrete control of inlet and outlet valves on vessel

Discrete control of valves to hop-back

Flow meter between outcast pump and heat exchanger

Temperature control of wort from kettle to whirlpool

3.4.4. Control for Whirlpool:

Item	Device or Property	Measured unit	Minimum/Maximum
Wort Inlet Valve from kettle	State	Open/closed	
Flow meter – wort flow rate and volume from kettle	Flow/total	Liters/minute	
Wort pump – whirlpool to heat exchanger	VFD	m/s or rpm	OEM Specified
Temperature indicator and control – Wort cooling at heat exchanger between kettle and whirlpool	Temperature transmitter	Degrees C	Reduce cast wort from +100°C to </=80°C
Wort outlet valve from whirlpool	State	Open/closed	
Valves to/from hop-back	State	Open/closed	
Flow meter – wort flow rate and volume from whirlpool to heat ex	Flow/total	Liters/minute	OEM Specified

3.5. Hop Back:

The Hop back shall be designed to hold whole hops.

The Hop back shall have the flexibility to run wort from kettle through hop back to whirlpool or whirlpool through hop back to heat exchanger.

The Hop back shall be equipped with spray balls, piping, and valves and shall be fully integrated into the overall CIP system within the brewery.

Construction of vessels shall be FOOD GRADE 304, OEM will specify gauge adequate for application.

3.6. Heat Exchanger and Aeration:

The OEM shall supply a properly sized two-stage heat exchanger that will utilize cooling water from customer's cooling tower or CLT for stage one and glycol from customer's glycol unit for stage two.

The Heat exchanger shall be constructed of suitable materials typical for a brewery heat exchanger.

The OEM shall supply an aeration system for cooled wort from heat exchanger with the ability to accurately deliver sterile air or O₂ as specified by OEM.

The aeration system shall be equipped with an air/gas flow meter and sight glass.

The aeration system shall accurately deliver air/O₂ to achieve a specified dissolved oxygen (DO) level between 6 and 20 ppm O₂.

The OEM shall install a Varinline housing from GEA in piping for future implementation of in-line DO measurements.

The Heat exchanger and aeration system shall be equipped with piping and valves and shall be fully integrated into the overall CIP system within the brewery.

3.6.1. Size:

The OEM shall specify for cooling =/< 3hl wort from 100°C to ~20°C in first stage and 25°C to 8°C in second stage – product capacity of 0.6m³/h – 600 liters per hour.

Aeration system shall deliver dissolved O₂ in wort in a selectable range from 6-20 ppm.

3.6.2. Mechanical Equipment:

Sight glass

Two stage heat exchanger

Valves for cooling water to heat exchanger

Valves for glycol to heat exchanger

CIP incorporated piping and valves for heat exchanger and aeration system

Wort aeration jet

Air/gas meter

Varinline housing from GEA

3.6.3. Electrical Equipment:

Light(s) fitting(s)

Temperature transmitters for wort entering and leaving heat exchanger

Temperature transmitters for cooling water entering and leaving heat exchanger

Temperature transmitters for glycol entering and leaving heat exchanger

Temperature control of wort

3.6.4. Control for heat exchanger:

Item	Device or Property	Measured unit	Minimum/Maximum
Temperature transmitters and control – Wort cooling at heat exchanger	Temperature	Degrees C	Reduce cast wort from +100°C to $\leq 10^\circ\text{C}$

3.7. Brewhouse Skid and Deck:

The equipment listed for the hot side of the brewhouse shall be mounted on a properly sized skid constructed of stainless steel.

The OEM shall supply a brewing deck for ease of access to the hot side vessels.

The deck shall provide sufficient overhead clearance to allow access and observation of piping, valves, and mechanical under the deck.

The top of the deck should be between 121cm(4ft) and 152cm (5ft). Maximum area height for the hot side brewhouse is approximately 365cm (12ft).

The deck shall be made of stainless steel material and take into account safety and ergonomic concerns for operators and observers.

The deck shall have stainless steel railings and stairs on both ends for ease of access. Final measurements and dimensions will be determined after drawings and engineering of the project are completed.

3.8. Brewhouse Vapor Removal:

The brewery location in a historic district prohibits venting of vapors from the side of the building.

The ceiling height is approximately 8.2 meters. A single vent stack penetrating the roof may be acceptable to the Historic District.

OPTION: A vapor-condensing unit for all Brewhouse vessels may be implemented as an alternate to a vent stack.

3.9. Brewhouse piping, valves, wiring, and pneumatics:

All piping and valves shall be stainless steel and shall meet food grade standards. The OEM shall specify the appropriate sizing and construction.

OEM shall supply a hard pipe fence and gate from the brewhouse to the cellar for wort transport and CIP/return. Flexibility needs to be built in so the cellar can be cleaned concurrently during a brew. Hose will be used from the cellar gate to individual CCV tanks for cost savings.

The OEM shall assemble, pipe, wire, fit, and test all systems of the Brewhouse at the manufacturer's site with suitable break points, terminations, labeling and documentation to support final installation at the installation site without the aid of the OEM.

4. Water Handling System:

4.1. Hot Liquor Tank (HLT):

The HLT shall be sized appropriately to supply the Brewhouse with hot water to support two brews in one day.

The unit may be heated with either a steam jacket or internal coil and shall be equipped with temperature control and level control.

The HLT shall be equipped with a pump to transfer hot water to the mixing station.

The HLT shall be equipped with spray balls, piping, and valves and shall be fully integrated into the overall CIP system within the brewery

Construction of vessel shall be FOOD GRADE 316. The OEM shall specify gauge adequate for application. The vessels shall be adequately insulated, for brewery application, covering the steam jacketing, protected by external cladding.

4.1.1. Mechanical Equipment:

Modulating valve for temperature control

Valves

Pump

4.1.2. Electrical Equipment:

Temperature transmitter

Temperature controller

Level transmitter

Tank full level switch

4.1.3. Control for HLT:

Item	Device or Property	Measured unit	Minimum/Maximum
Temperature transmitter and control – Hot water	Temperature	Degrees C	OEM Specified
Content Probe	State	On/off	
Tank Full Level Switch	State	On/off	
Pump	State	On/off	

4.2. Cold Liquor Tank:

The CLT shall be sized appropriately to supply the Brewhouse with cold water for two brews in one day.

The CLT unit shall be equipped with temperature transmitter and level control.

The CLT shall be equipped with spray balls, piping, and valves and shall be fully integrated into the overall CIP system within the brewery.

Construction of vessel shall be FOOD GRADE 304. The OEM shall specify gauge adequate for application. The vessels shall be adequately insulated, for brewery application, covering the wall and bottom and protected by external cladding.

4.2.1. Mechanical Equipment:

Valves

Pump

4.2.2. Electrical Equipment:

Temperature transmitter

Level transmitter

Tank full level switch

4.2.3. Control for CLT:

Item	Device or Property	Measured unit	Minimum/Maximum
Temperature transmitter – cold water	Temperature	Degrees C	
Content probe	State	On/off	
Tank Full Level Switch	State	On/off	
Pump	State	On/off	

4.3. Mixing Station:

A mixing station for water from the HLT and CLT to Brewhouse shall provide water at variable set temperatures to appropriate locations such as strike water, sparge water, and cooling water.

The mixing station shall be automated and connected to the process controller.

The station may also accommodate the CIP skid. This shall be the input location for the CIP access to the brewery in the form of a CIP-water-panel.

4.3.1. Mechanical Equipment:

Modulating valves with positioners, pneumatically actuated for temperature control

CIP water flow connection panel, manual valves and swivel bend to direct CIP to brewhouse process equipment

4.3.2. Electrical Equipment:

Temperature controller

Flow meter for water mixing station

4.3.3. Control for Mixing Station:

Item	Device or Property	Measured unit	Minimum/Maximum
Flow meter – water flow rate and volume from HLC and CLT	Flow/total	Liters/minute	
Temperature transmitter and control - Hot and cold water mixing	Temperature	Degrees C	

4.4. Water Treatment:

Customer supplied

OPTION: High flow, carbon filter for incoming water to HLT and CLT

5. CIP System:

The OEM shall provide a CIP system with a moveable pump for return.

The CIP system shall be integrated in the automation controller application program to perform proper cleaning and to ensure a hygienic state of all process equipment.

OEM shall supply conductivity measurements in-line on the unit to ensure proper chemical concentration.

5.1. Mechanical Equipment:

FOOD GRADE 316 construction

Steam or electric heat

Valves for inlet and outlet

Sight glass

Strainer

CIP supply pump

CIP return pump

5.2. Electrical Equipment:

Temperature transmitter

Temperature Control

Conductivity transmitter

5.3. Control for CIP System:

Item	Device or Property	Measured unit	Minimum/Maximum
Temperature Control	Temperature transmitter/control	°C	OEM Specified
Caustic Concentration	Conductivity transmitter	microSiemen/cm	OEM Specified

6. Glycol Unit:

The OEM shall specify glycol chiller unit capacity to support the second stage of heat exchanger. The customer will supply this unit based on recommended size by OEM and the OEM of the Cellar/Tank Farm.

7. Condensate Return:

All equipment using steam as the heating source shall be connected to a central condensate return line.

A condensate return pump shall be installed in-line to return condensate to the steam plant.

The OEM shall specify the condensate return pump based on over-all design of the brewhouse and condensate to be generated.

8. Dust Handling:

Brewing system and controller application program shall be designed to support dust handling at the grain bin, mills, and grist hopper if required/recommended by OEM.

The OEM shall specify a Dust collection system of appropriate size for safe and efficient dust removal if required or recommended.

OPTION: The Dust collection system may be supplied by customer for cost savings.

9. Design, Automation, and Control:

Automation and control shall be presented in process flow sheets, piping and instrument diagrams (P&ID), process descriptions, equipment selection, and definitions of measuring instruments and automation

These models shall be clearly segregated into these categories:

1. Milling and Malt Handling
2. Brewhouse
3. Cellar, CIP Plant, Hot and Cold Liquor System

The OEM shall supply a fully automated electronic control to support the complete brewery plant including:

- Milling, malt handling, grist handling, and dust control
- Mashing
- Lautering
- Wort boiling
- Hop dosing
- Whirlpool
- Wort cooling
- Brewhouse water handling
- CIP-cycles for the Brewhouse and Cellar
- Vapor removal
- Condensate removal
- Control of temperature in the tank farm/cellar

The control system will work within a commonly used brewing software platform designed for process automation.

Proposers are free to propose an automation system of their choosing. One possible contact for the provision of an automation system is listed below:

Doug Callahan

Account Manager (PAS)

Siemens Industry

503-803-2446 - Cell

503-624-7632 - Office

douglas.callahan@siemens.com

The control system shall be flexible and adjustable in the field by the customer to allow adding new equipment, monitoring and control as needed. The control system application programs shall be open and not protected so customer can make changes and modifications to the process and controls as needed.

The OEM shall grant free license to OSU to use and revise application programs.

OSU and its representatives will not divulge or otherwise share OEM's intellectual property with others without prior consent and signed non-disclosure agreement.

The customer agrees to protect the intellectual property of the OEM.

The control system shall integrate all I/O's, MCC, VFD's, temperature regulation, analogue and digital inputs and outputs, all starter motors, and valve blocks.

The proposal shall include all control enclosures, PLC, computer, licenses, programs, and visualization.

10. Data Acquisition:

All process data from the Brewhouse and other subsequences from the brewing process shall be archived into a file format that can be easily accessed by the staff.

Data shall be stored in such a way as to provide easy access to past brews history. Data should be easily exported to EXCEL, XML, or Dbase files.

11. ASME, Control Enclosures, and Electrical Components:

All mechanical components will be calculated and engineered in accordance with ASME regulation.

Control enclosures and all electrical equipment for controlling the brewery shall be UL listed and stamped.

Control enclosures shall be NEMA 4-X rated enclosures or equivalent.

All electrical components will be engineered in accordance with UL and NEC regulations and acceptable for use in the United States.

12. Pumps:

Pump	Control	Type	Flow Rate Range l/m
Mash Pump between cookers and cast	Variable Frequency	Progressive cavity or positive displacement	0-20 l/m
Wort Pump from Lauter Tun to Kettle	Variable Frequency	Progressive cavity, centrifugal, or positive displacement	0-5 l/m
Boiler and cast Wort Pump from Kettle to Whirlpool	Variable Frequency	Centrifugal	0-40 l/m
Cast wort from Whirlpool to heat exchanger	Variable Frequency	Centrifugal	0-10 l/m
Hot Liquor Tank to Mixing Valve	On/off	Centrifugal	
Cold Liquor Tank to Mixing Valve	On/off	Centrifugal	
CIP Supply	On/off	Centrifugal	
CIP Return	On/off	Centrifugal	

Centrifugal pumps shall be from one manufacturer with parts lead time of less than one week. Progressive cavity or positive displacement pumps shall be from one manufacturer with parts lead time of less than one week.

Option: The number of pumps may be reduced by serving multiple duties if piping, valving, and automation can accommodate.

13. Customer Supplied Services and Equipment:

Power: 110V 100amp, 208V 100amp, 480V 60amp

Steam: 70 psi, food grade boiler chemicals, condensate return to steam plant

Compressed air: 100 psi dry air

Water: 60 psi potable and industrial water

Cooling water: 22°C cooling water from tower, capacity TBD based on demand

14. Commissioning and Training shall be provided by Awarded Proposer

Proposers should include a training plan within their proposal.