



Supporting the Food and Agribusiness Sectors from Farm to Fork



Agribusiness refers to any land or water-based business related to farming and farming related commercial activities, namely the inputs to and the production of food.

Stantec provides professional services to support farm-based businesses, both land and water based, all their associated suppliers (seed, fertilizer, and equipment suppliers) as well as enterprises that form the product supply chain. At Stantec, we support the food and agribusiness sectors from “farm to fork”.

The biggest drivers in the agribusiness sector include water scarcity, the rise in controlled environment agriculture (particularly in the aquaculture industry where the farm-based fisheries have eclipsed the live capture market), the need to make supply chains more efficient and robust, and consumer demands for food production with minimal impact upon the environment and the climate. Stantec provides holistic solutions for our agribusiness clients to help them meet the modern challenges of this critical market sector.

Our Services

- Water Resources planning and management.
- Irrigation system planning, design, and optimization.
- Farming operations planning and optimization.
- Linear infrastructure conveyance planning and design.
- Ecosystem restoration design services.
- Management and technology consulting.
- Permitting.
- Renewable energy design services.
- Remote sensing services to assist with land use/management planning.
- eDNA sampling for measuring aquatic biodiversity.
- GHG services (carbon accounting and management including development of natural capital enhancements).
- ESG advisory services.
- Chemical hazard evaluation and risk assessments.
- General building planning and design.
- Controlled Environment Agriculture (CEA) facility design.
- Aquaculture facility design.
- Safety audits and design services.
- Materials handling and storage systems planning and design.
- Ports and Marine terminals planning and design.
- Grain elevator and terminals planning and design.
- Agribusiness related international development services.
- Mine planning and mining engineering for potash operations.
- Feed operations planning and design.
- Fertilizer and chemicals manufacturing facility planning and design.



Our Experience

Enterra Feed Corporation Industrial Insect Protein Production Facility

Enterra, a company focused on delivering sustainable protein for animal feed, wanted to scale up and reconfigure their operations into a 180,000 sf warehouse shell.

Stantec developed the process layout, detailed building design and utility services required for a +40-fold increase in production capacity. The new facility produced insect protein, meal and oil and was eligible to be classified as a food manufacturing facility under CFIA/USDA status.

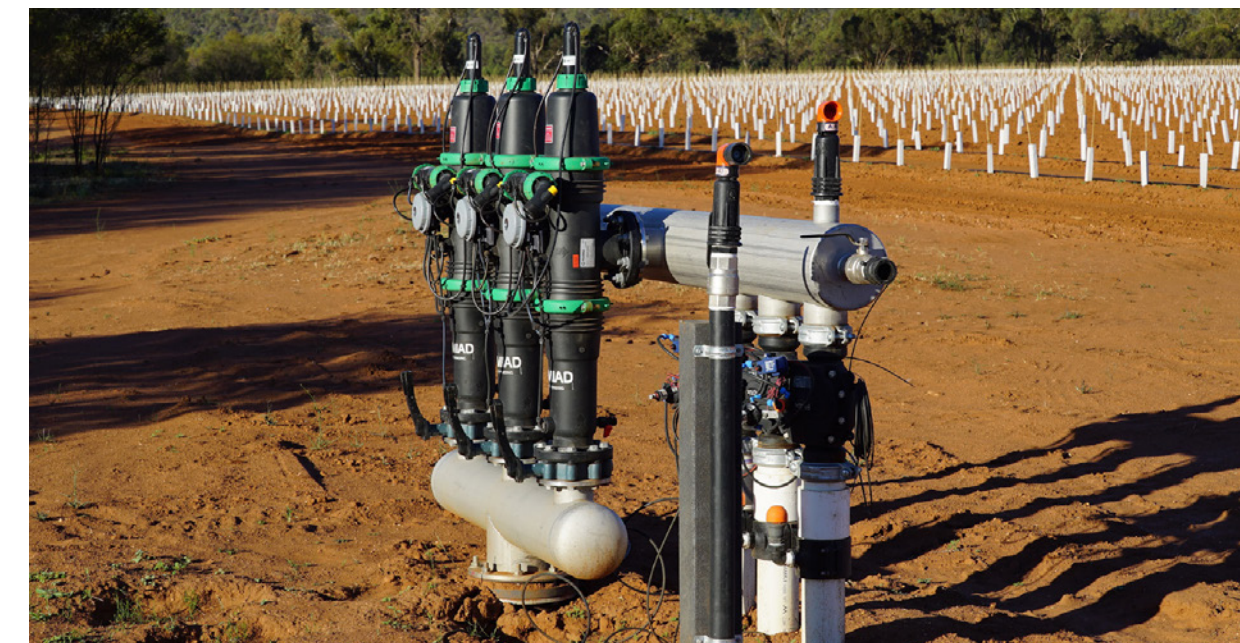
Stantec developed process flow diagrams (PFD), process and instrumentation diagrams (P&ID), and dynamic modelling of the dual overhead materials and product handling systems. Varying room conditions were also required to accommodate different insect incubation, rearing and processing. Blast mitigation measures were incorporated to address classified areas in processing and receiving areas. We also contributed to capital costing exercises to confirm budget compliance and performed construction administration services throughout the project.

Vineyard Irrigation Project

When an Australian Vineyard wanted to develop 1,000 hectares of greenfield into vineyards, their focus on environmental stewardship and a desire to use solar energy meant the solution needed to incorporate superior design alongside sensitive environmental planning.

Our job was to design the new irrigation system and pump station, with three stages of work serviced from the same dam at different elevations. The system also needed the potential to operate on solar energy, which meant that one of our key design features was the lowest possible operating pressure to minimize energy usage. It also needed to be able to automatically back flush to clear any blockages from the secondary filters.

The team was so pleased with the results of Stage 1 that they engaged us to carry on with future development and planning.



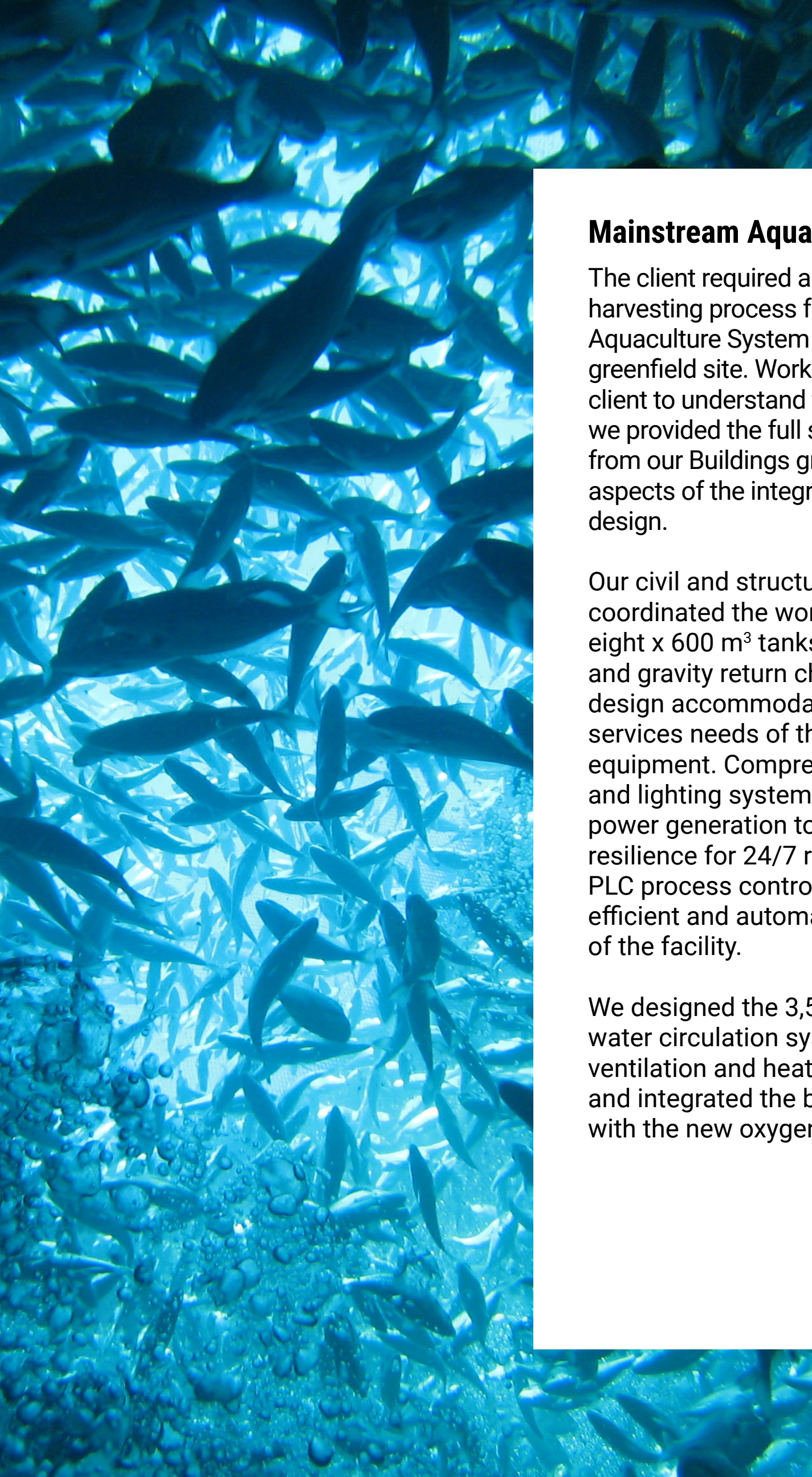
South San Joaquin Irrigation District - Division 9 Irrigation Enhancement Project

Until 2012, water was delivered to South San Joaquin Irrigation District Division 9 customers through miles of gravity-based canals and pipelines. The district and Stantec partnered to develop a first-of-its-kind program in California that increases delivery efficiency and improves service.

The \$14 million system consists of a 19-mile network of pipelines with flexible pressurization, 56 acre foot water storage basin, a pumping station capable of pumping 23,500 gallons per minute, and 55 solar-powered field telemetry units.

Farmers schedule deliveries, receive forecasts, track water usage, and access historical evapotranspiration rates using an online system, with moisture sensors tracking optimal ordering times. It has virtually eliminated water waste and provides area growers with individualized, automated irrigation access through mobile technology.





Mainstream Aquaculture Facility

The client required a fully automated harvesting process for their Recirculating Aquaculture System for fish farming on a greenfield site. Working closely with the client to understand their specific needs, we provided the full suite of services from our Buildings group to deliver all aspects of the integrated engineering design.

Our civil and structural teams coordinated the works associated with eight x 600 m³ tanks, pumping sumps and gravity return channels, and the design accommodated the spatial and services needs of the client's specific equipment. Comprehensive power and lighting systems included backup power generation to support system resilience for 24/7 reliability, and PLC process control systems enable efficient and automated functionality of the facility.

We designed the 3,500 l/s system water circulation system, process ventilation and heat injection systems, and integrated the bulk oxygen system with the new oxygenation systems.

Carbon Sequestration Potential in Western Australia

Stantec was commissioned to investigate the factors influencing carbon sequestration in the southwest agricultural region (SWAR) of Western Australia to identify areas with the most sequestration potential to inform our client's investment in carbon offset activities through environmental plantings and soil carbon sequestration.

Stantec conducted a comprehensive literature review and meta-analysis of the latest environmental planting and soil carbon studies by soil type and rainfall zone to inform benchmarks for local sequestration projects. Once the optimal parameters of biophysical, chemical, and climatic factors were determined, publicly available spatial information was interrogated through GIS-based analysis to identify local regions with the most carbon sequestration potential for each of the methods approved by the Australian Emissions Reduction Fund.

We identified five regions in the SWAR with the most potential for carbon sequestration and recommended the best soil and climate parameters for field trials.

Fraser Grain Terminal Owner's PM Services

Fraser Grain Terminal Ltd. (FGT Ltd.) completed a new grain export terminal on Vancouver Fraser Port Authority (VFPA) consisting of 25 above-ground storage silos, a three-spout ship loader, rail track with a dumper permitting imported products to move directly to ship, container, and truck loading facilities or storage. Approximately 4.0 million metric tonnes per annum (MTPA) of grain products can be processed at the FGT site, including wheat, barley, oil seeds, pulses, canola, malt, and lentils.

Stantec supported the owner in overseeing the design-build delivery of the construction contract. The project scope included on- and off-site review of construction progress, as delivered by FWS. DB contractor weekly and monthly reports were compared against expected and observed progress, with Stantec providing regular summary reporting for the owner.



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