

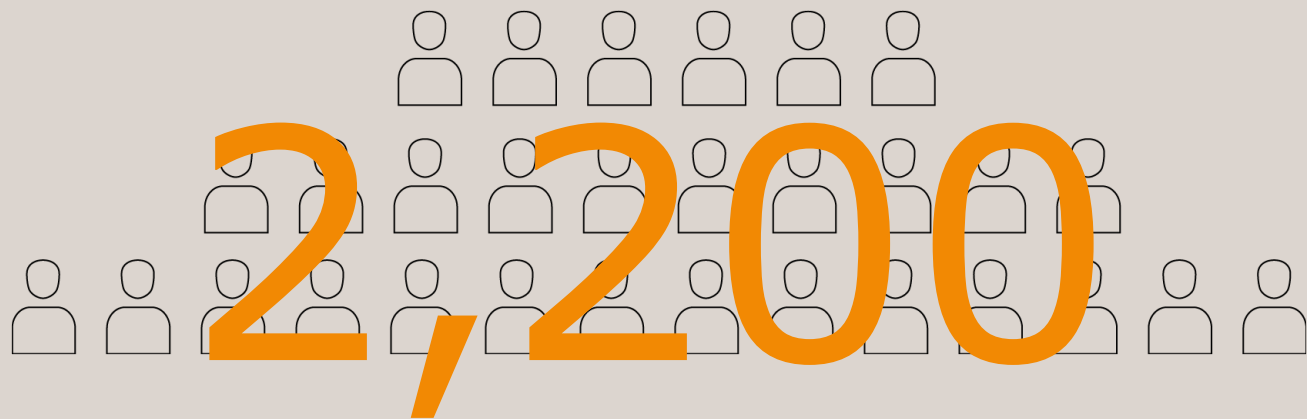
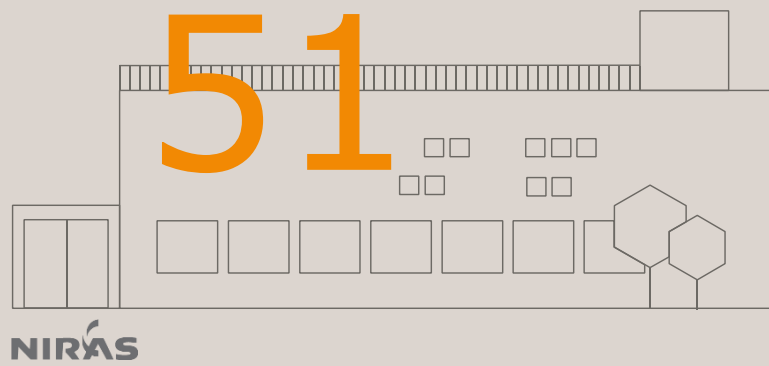
The new and stronger NIRAS

Next generation engineering consultancy to the dairy industry

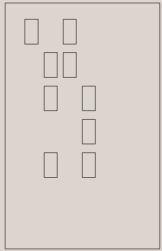
JULY 2018



NIRAS



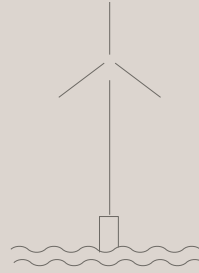
Our knowledge covers widely



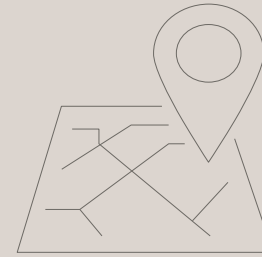
Building



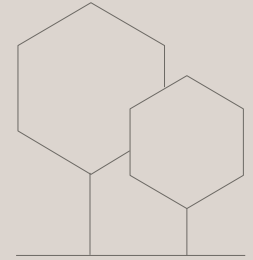
Process Industry



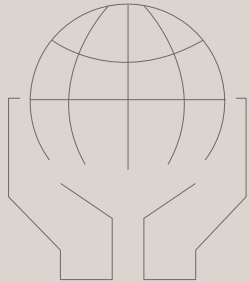
Energy



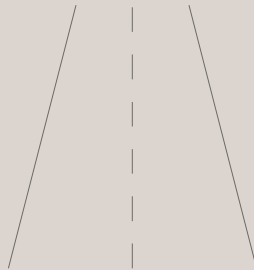
GIS, Geodata & Automation



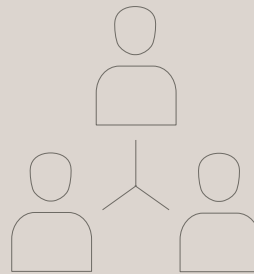
Environment & Nature



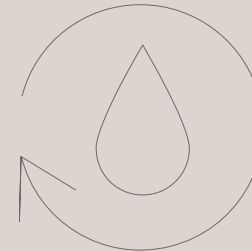
Development Consulting



Infrastructure



Working Environment
Consulting



Water & Utilities



Analysis & Planning

Dairy Business Unit

More than 700 dairy projects executed

- The Dairy Business Unit is based on the acquisition of MA Project from the Danish Dairy Board in 2007 and of VM Engineering in 2017
- MA Project was founded in 1946 as an architect office and evolved to be the a leading consultancy and engineering company to the dairy industry.
- NIRAS has references world-wide related to processing facilities for dairy products, pharmaceutical plants and general food & beverage processing



Food & Beverage

A long range of proven services to the industry

Project Management

- Project Management
- Tendering and engineering follow-up
- Contract Management

Business Consulting

- Business Cases
- Financial Analyses
- Optimisation of production costs (OPEX)
- Supply Chain optimisation
- Technical Due Diligence

Logistics

- Supply Chain Management
- Warehouse layout, optimization and automation
- Optimization, visualization, simulation of flow and processes

Analysis of Production facilities

- Benchmarking (ABBC)
- Supply chain Audit
- Technical Service Agreement
- Condition evaluation
- Production Structure Analysis
- Dynamic Masterplanning

Design of Production Facilities

- Masterplanning
- Conceptual Design
- Simulation of Design Integrity
- Basic Design
- Area specific Process Design
- Detail Design

Establishment of Production facilities (CAPEX)

- Greenfield, establishment of new facilities
- Brownfield, upgrade of existing facilities
- Migration of production – transition planning
- EPCM Services

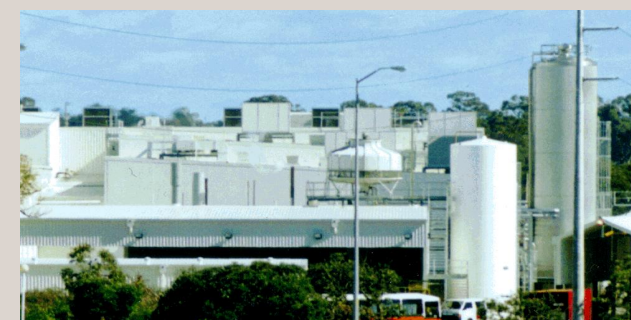
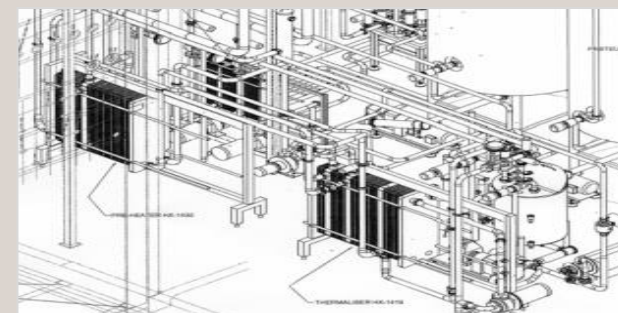
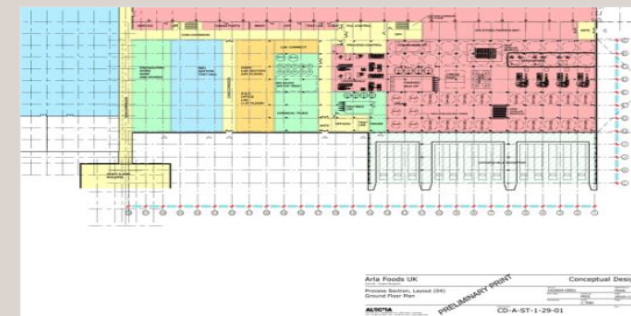
Quality Assurance / Food Safety

- Hygiene and Food Safety
- Test, measurement and calibration
- QA and validation – pharma
- Sensory Analysis Panel

Food & Beverage

- Dairy, Beverage, Beer, Distilling, Meat, Poultry & Fish
- Industrial Architecture
- Packaging & Warehousing
- Laboratory Design
- Automation
- Process and Industrial Ventilation
- Industrial Utilities HVAC
- Water and Waste Water

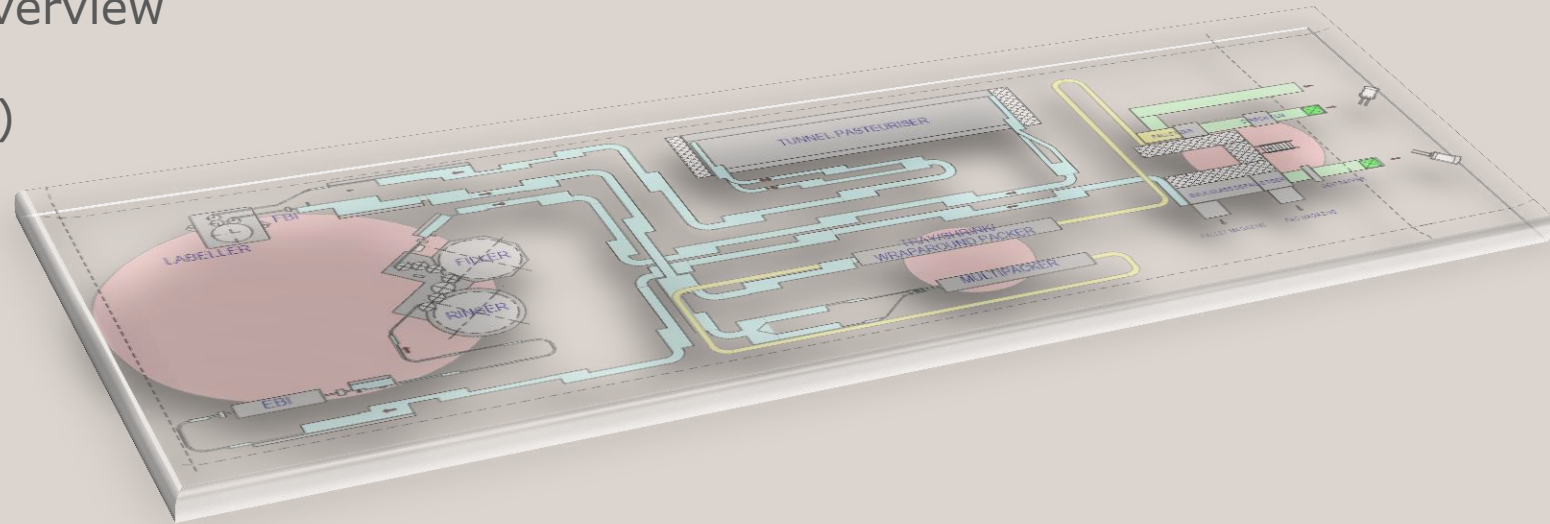
World Class Experience in design of dairy facilities



Layout is Paramount

Optimal layout ensures:

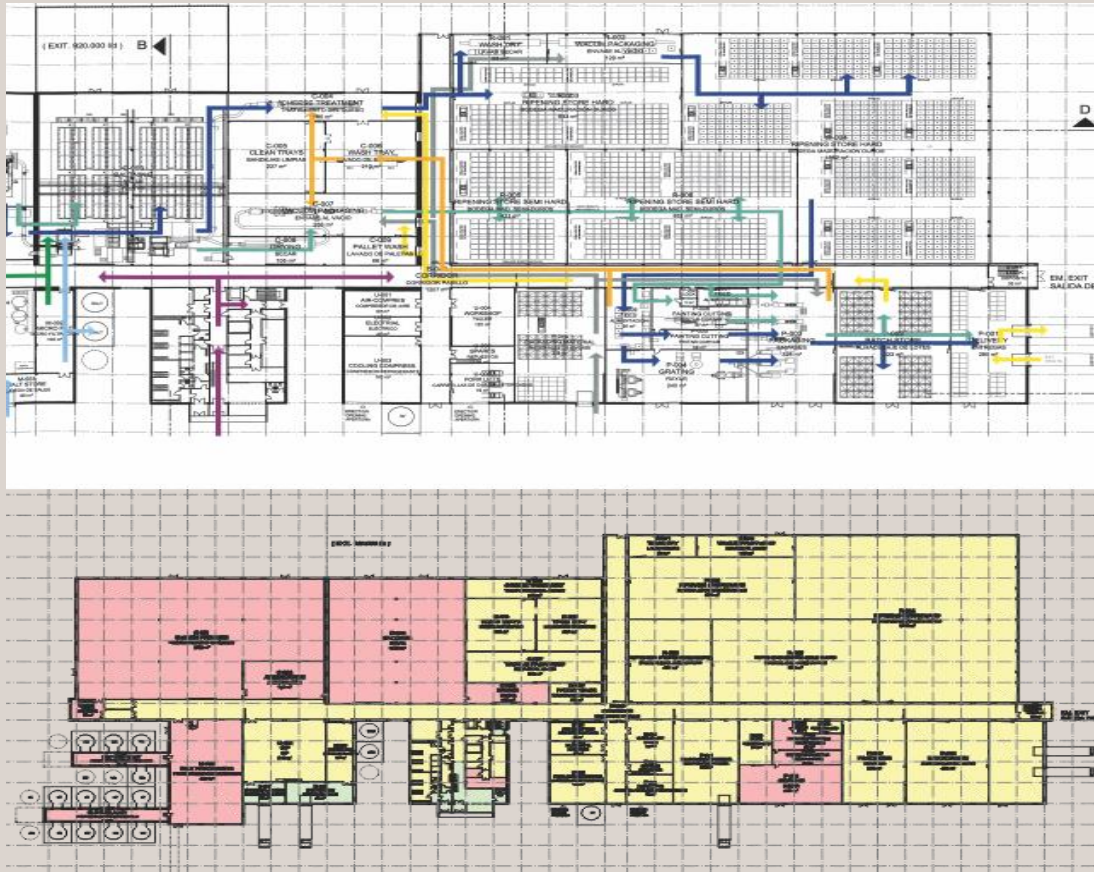
- Correct space requirements
- Easy access (Materials, Operators, Cleaning and Maintenance)
- Higher efficiency due to better overview
- Minimum no. of operators (FTE's)



The layout defines the OPEX for the next 15 – 20 years

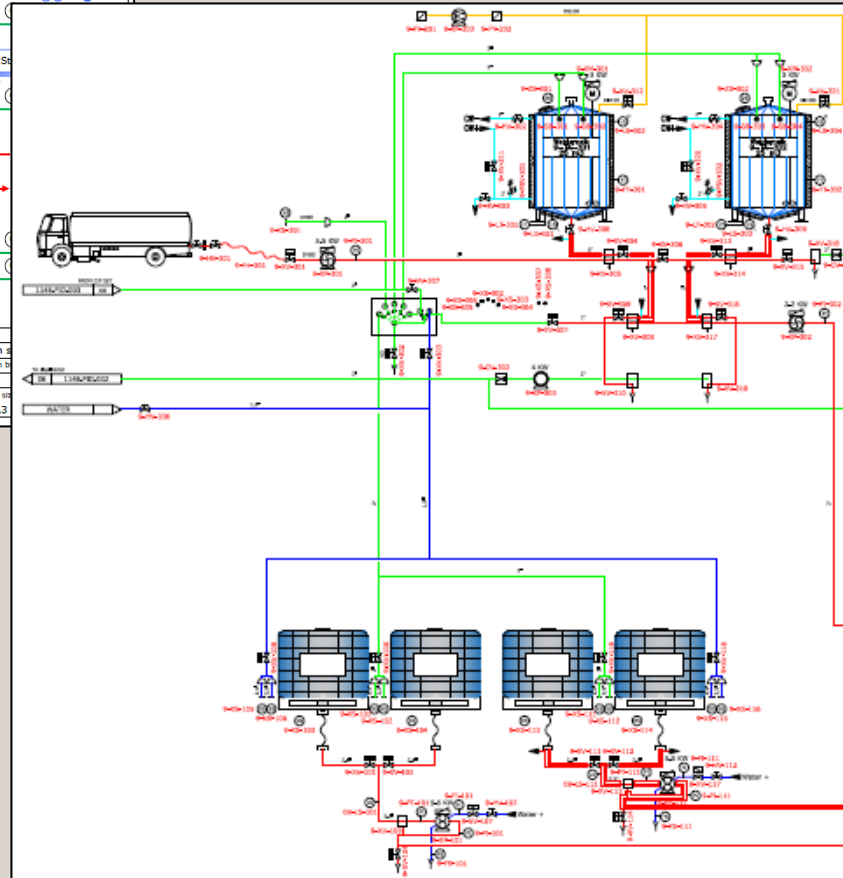
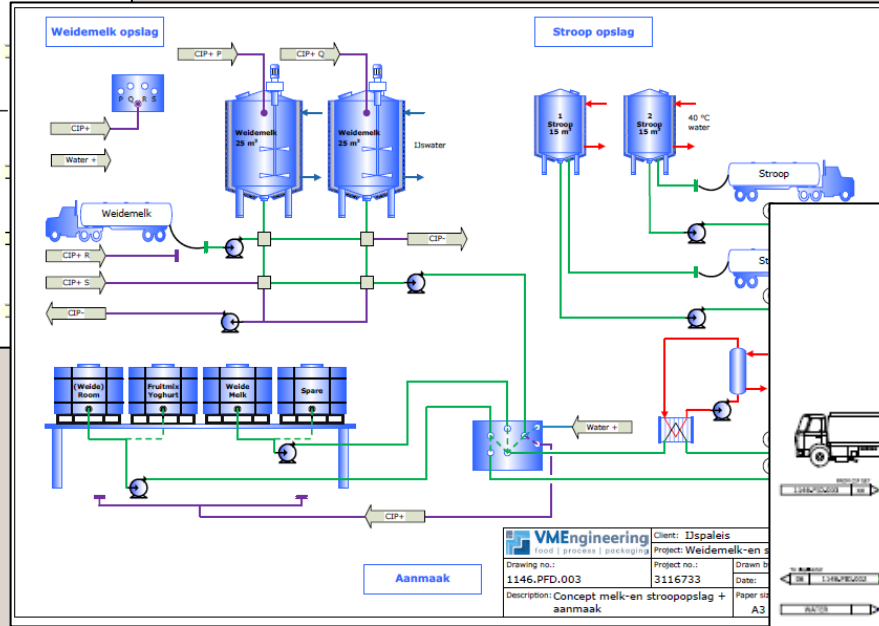
- Better get it right from the start!

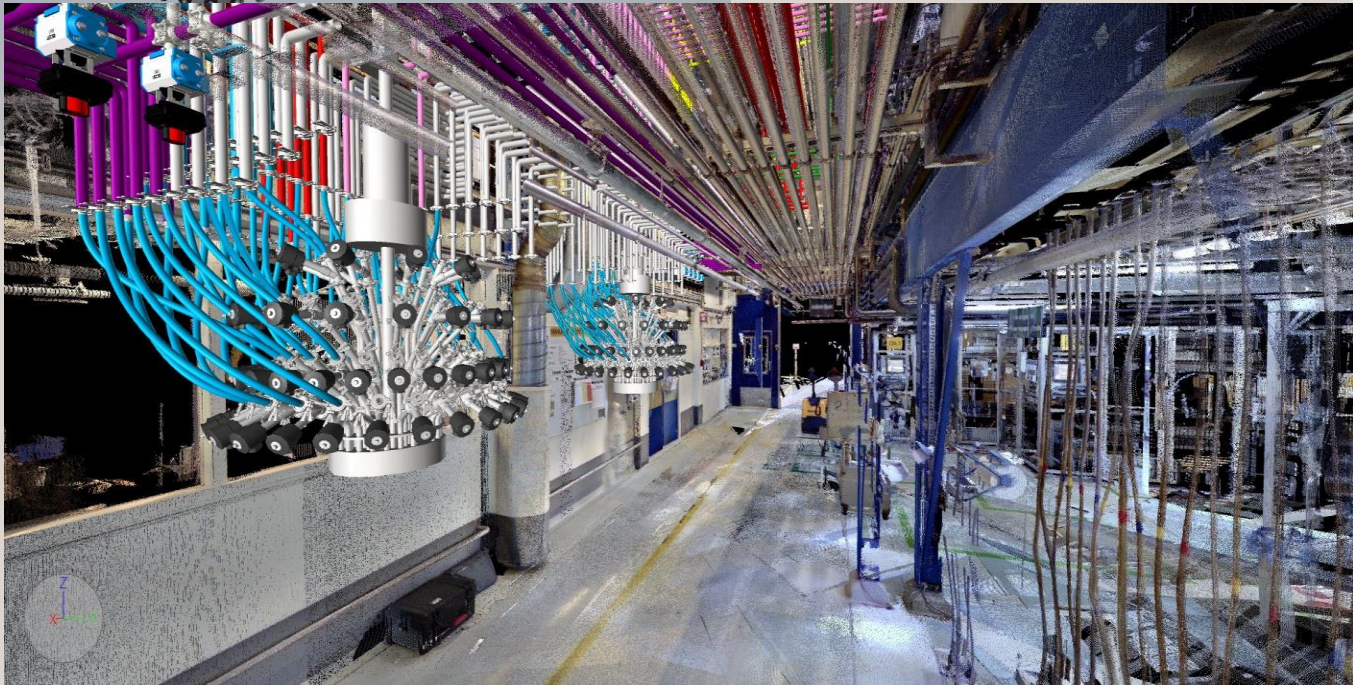
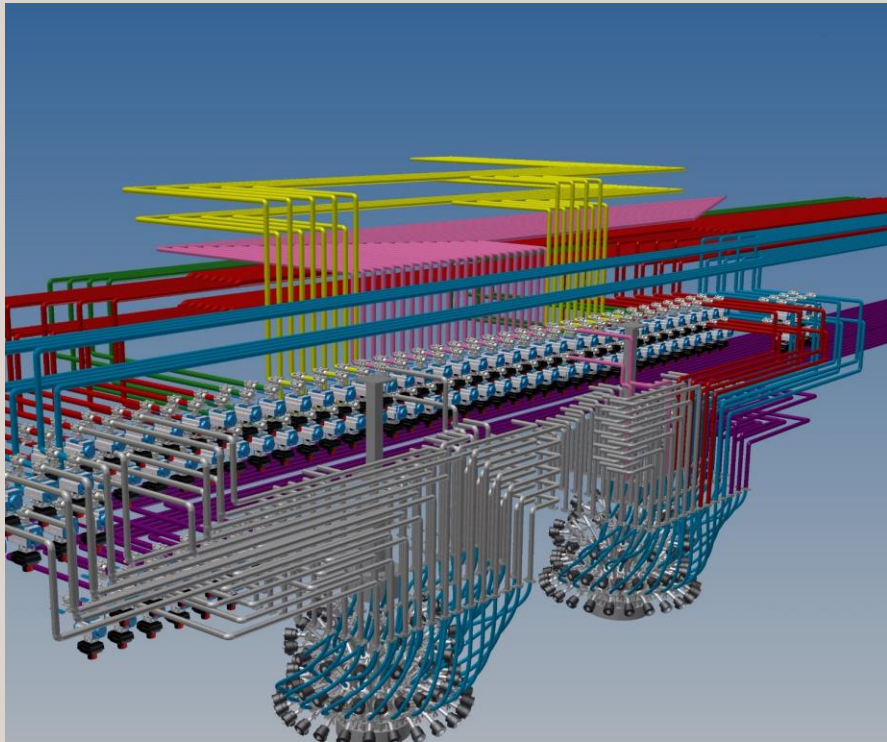
As well as architecture and site logistics



- Connection between hygiene zones, flow and plant layout in relation to the production process
- Flow of material and persons
- Hygiene zones
 - division and classification

From Blochart => PFD => P&ID's





INTERNATIONAL DAIRY GROUP

Detail dairy engineering services

- Design/ Specifications
- 2D/3D drawings
- 3D scanning
- Clash detection
- Functional descriptions
- Document management
- Standards methodology / maintenance
- Operator/material flow analyse

Installation Design

Optimal process installation ensures:

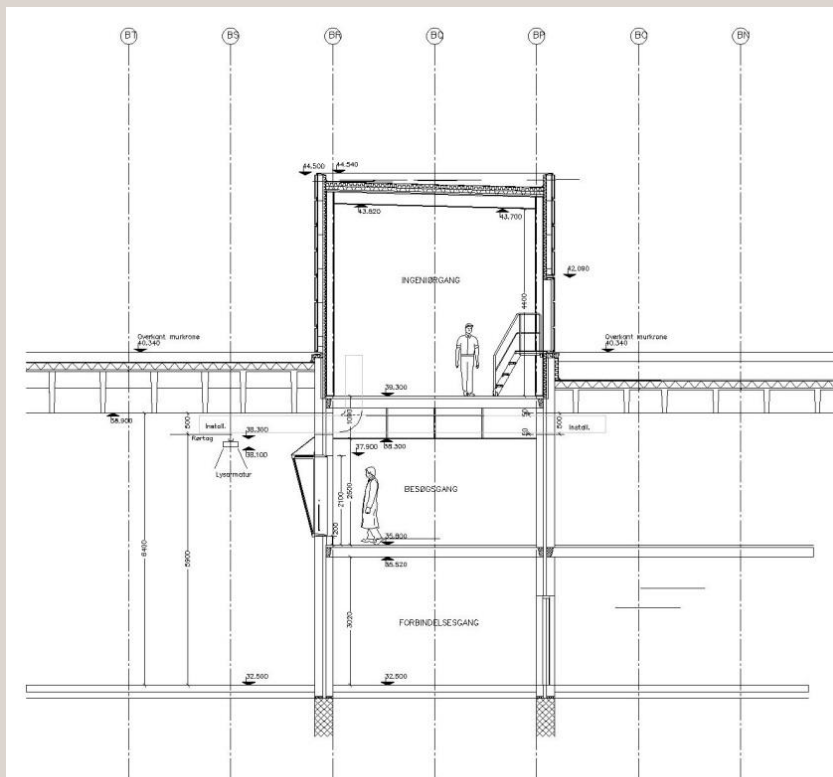
- Minimum consumption of water and other utilities
- Reassures minimum no. of operators
- Higher efficiency due to better overview
- Reduce risk of contamination
 - High level of automation
 - Dry floors during production
 - Positive Air flow and Air pressure
 - No cross contamination from media or product
 - No unauthorized access



Access corridor



2nd. floor: Service corridor



Principal section: Spine corridor



1st. floor: Staff and visitors corridor



Ground floor: Traffic corridor



Basement: Silo tank alley, piping



Selected references





ARLA FOODS, DENMARK

Greenfield cheese factory/subsequent expansion

Original design of Arla Foods yellow cheese factory in Taulov, Denmark, and subsequent 50% expansion of capacity with extra 25,000 MT Cheese per year. 3 years duration of project. Expansion in stages with minimal disturbance to existing production.

Extended Version





Cheese plant in Chile

NIRAS delivered project support for a greenfield Cheese plant with a capacity to process 800 MT milk per day, 28,000 MT Cheese per year.

- Conceptual Design – cheese factory
- Project Implementation plan
- Architectural Design follow-up
- Drainage Design
- HVAC / acclimatization strategy
- Project Management Assistance:
Design Manager, Construction
Manager, Site Manager





MÜLLER TELFORD, UK

Turn-key supply of new CIP-set/ routing

NIRAS designed and supplied a complete new CIPset and connecting pipework.

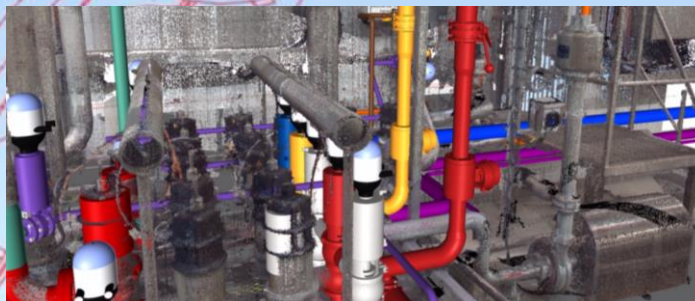
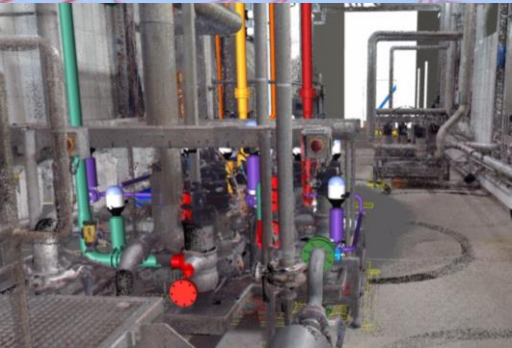
As part of the major expansion program at the Muller yoghurt site at Telford NIRAS designed, installed & commissioned several parts of the installation under turn-key contracts:

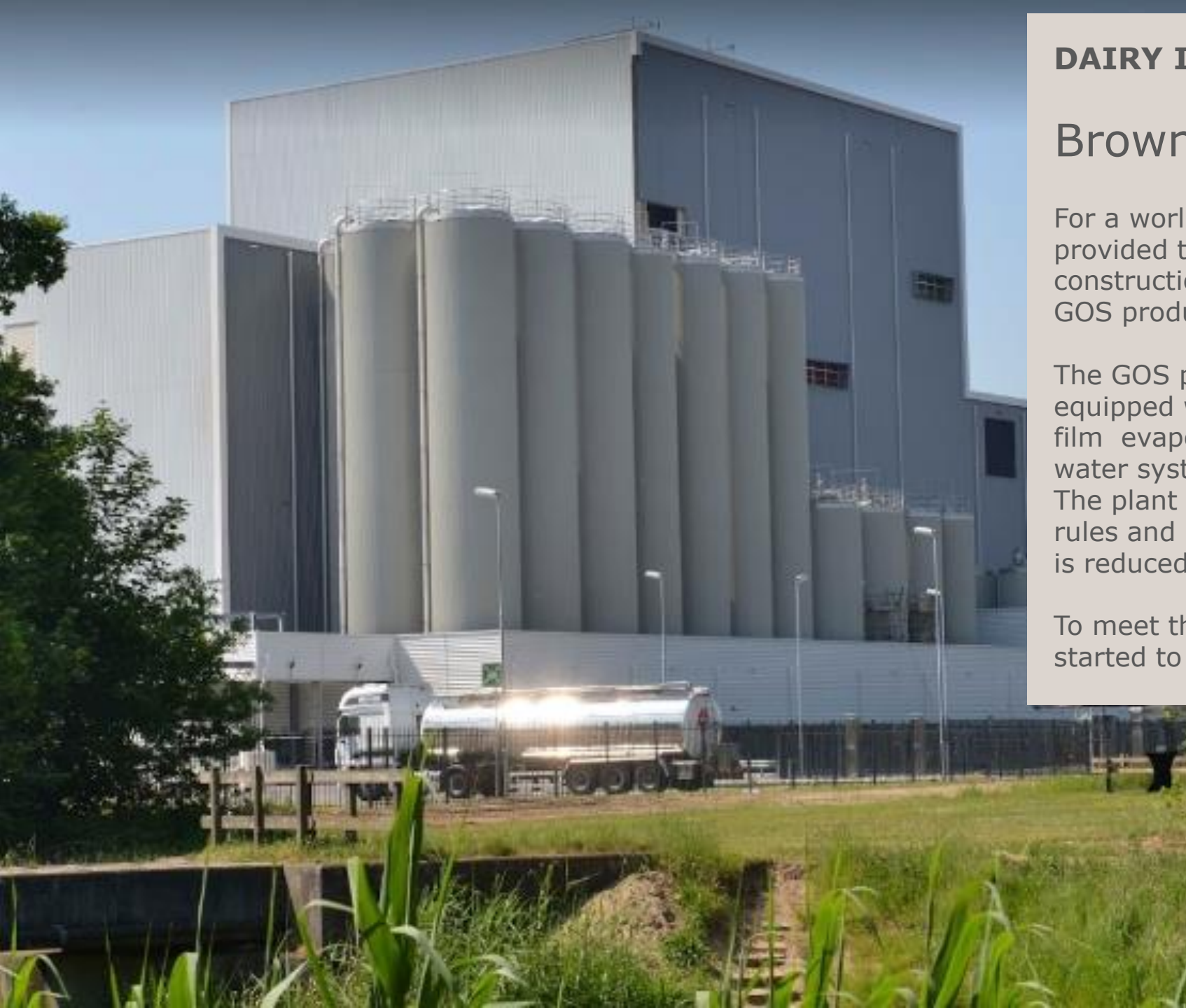
- CIP set
- Buffertanks
- Fruit dosing stations

Beside we also provide engineering & project management support for the upgrade of the filling & packaging lines.

Dutch infant formula plant

Extension and modification of existing processing plant. 3D scanning and modelling.





DAIRY INGREDIENTS

Brownfield project GOS

For a world-leading whey protein manufacturer we provided the pre-, basic and detailed engineering, construction support and commissioning of a new GOS production facility

The GOS process is installed in a new building, equipped with new reactor vessels, MVR falling film evaporators, ion exchange units, recovered water system and all the utilities needed. The plant is designed according the latest EHEDG-rules and is highly automated and manual operation is reduced to a minimum level.

To meet the growing market demand a new project is started to expand the existing GOS EDS line.



ARLA FOODS, VIMMERBY, SWEDEN

Greenfield Milk Powder Plant & Current Cyclone Project

NIRAS involved with

- Site Selection
- Conceptual Design
- Building and Utilities
- Detailed Design
- Construction Mgmt.
- Layout & logistics
- Engineering

In Summary

- NIRAS has a substantial track record in executing large Capex dairy projects
- Substantial dairy industry insight
- Proven, customer project delivery methodology
- The NIRAS project teams are defined according to the task and customer interest
- Strong experience and capabilities in the Danish and Dutch dairy teams
- Opportunity to work with different models that reduce risk for the Customer