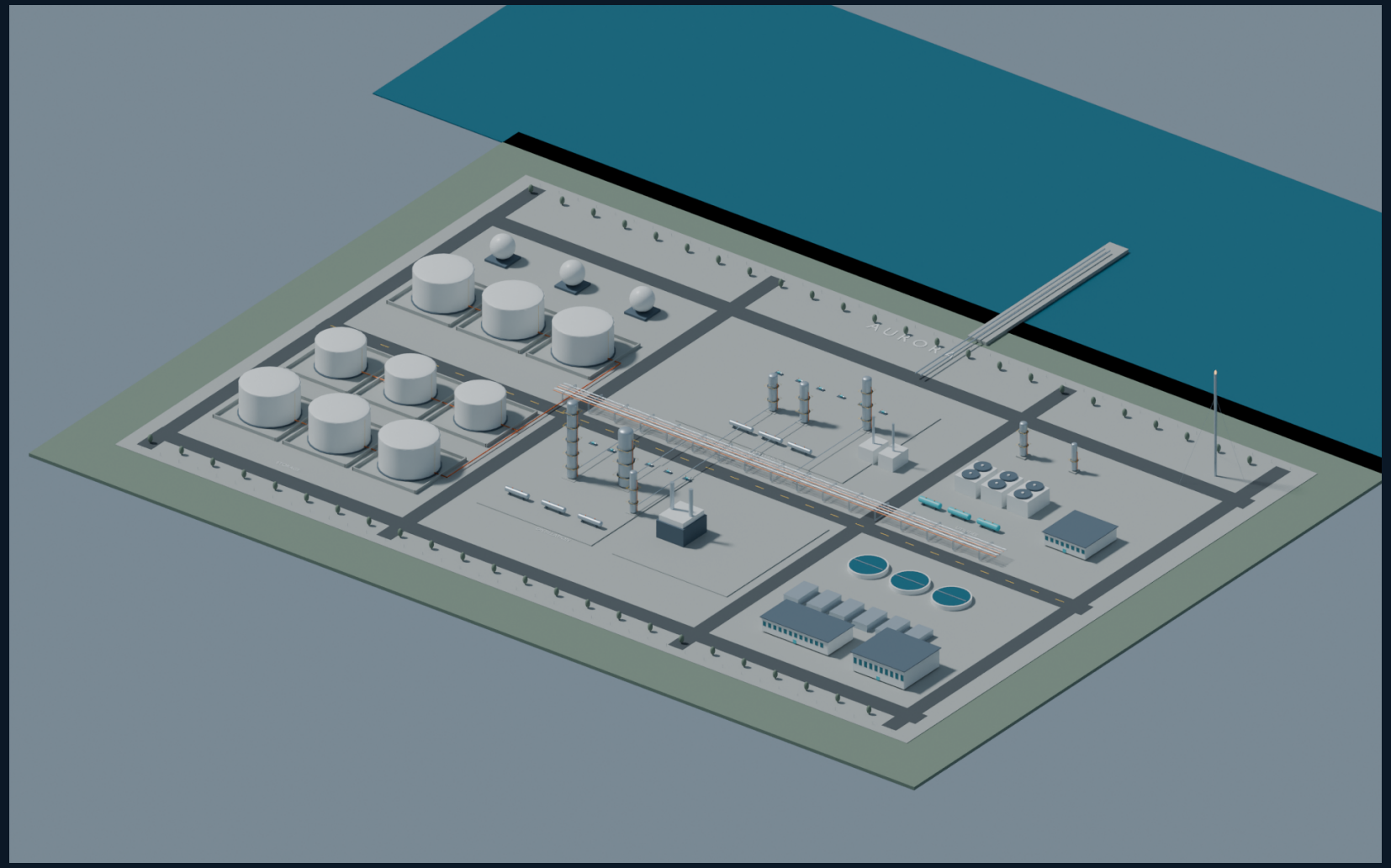
AURORA

Integrated coastal refinery

3D model and technical narrative



CONCEPT STUDY / SYNTHETIC DATA / 18 NOVEMBER 2026

AURORA design basis

760 x 520 m

Nominal site footprint

100,000

bbl/day of crude, assumption

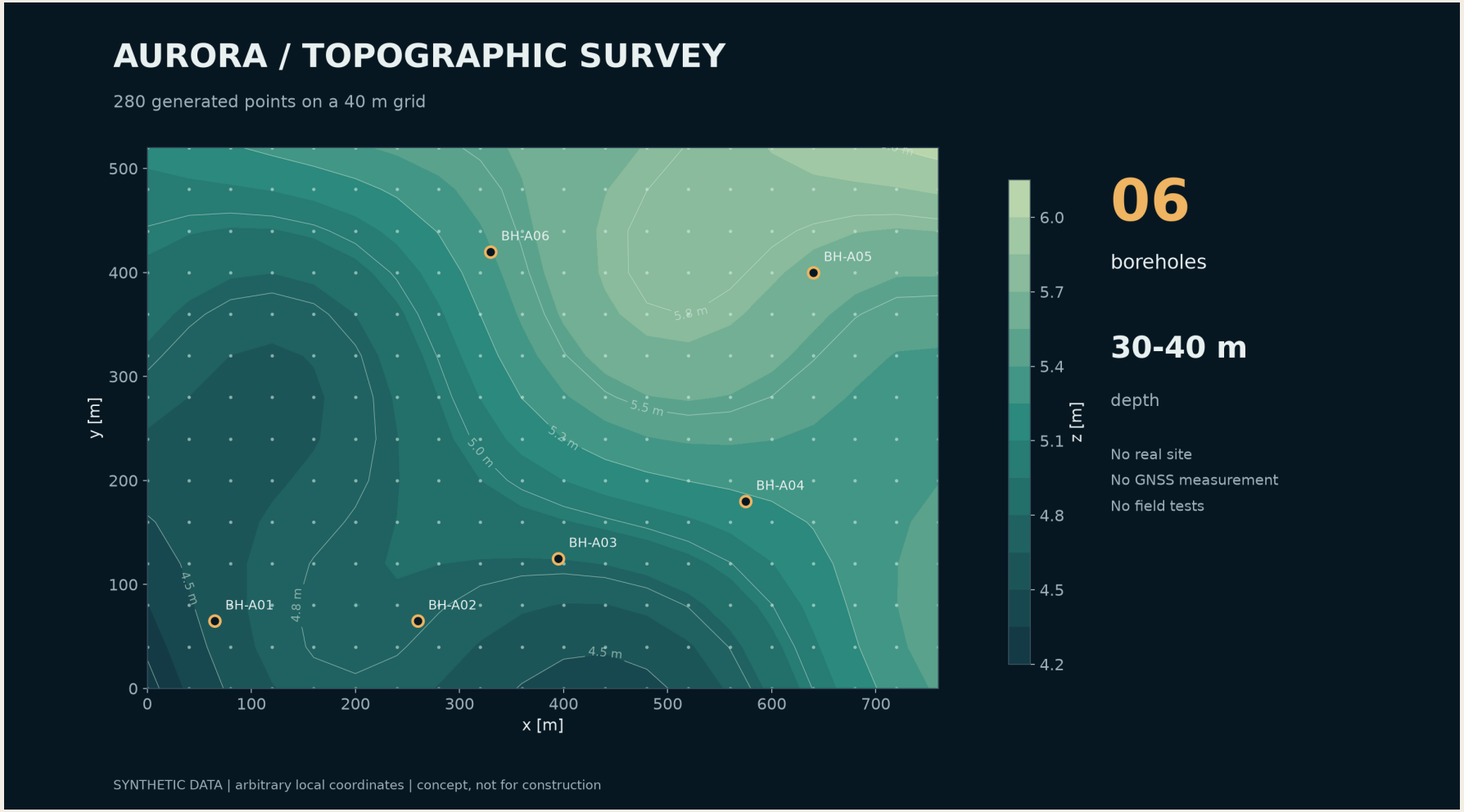
Local / XYZ

Synthetic coordinates in metres

A fictional coastal scenario brings together storage, distillation, treatment and utilities. The model explains the spatial relationship between the plant and its machinery.

Assigned case capacity without process simulation. No real site.

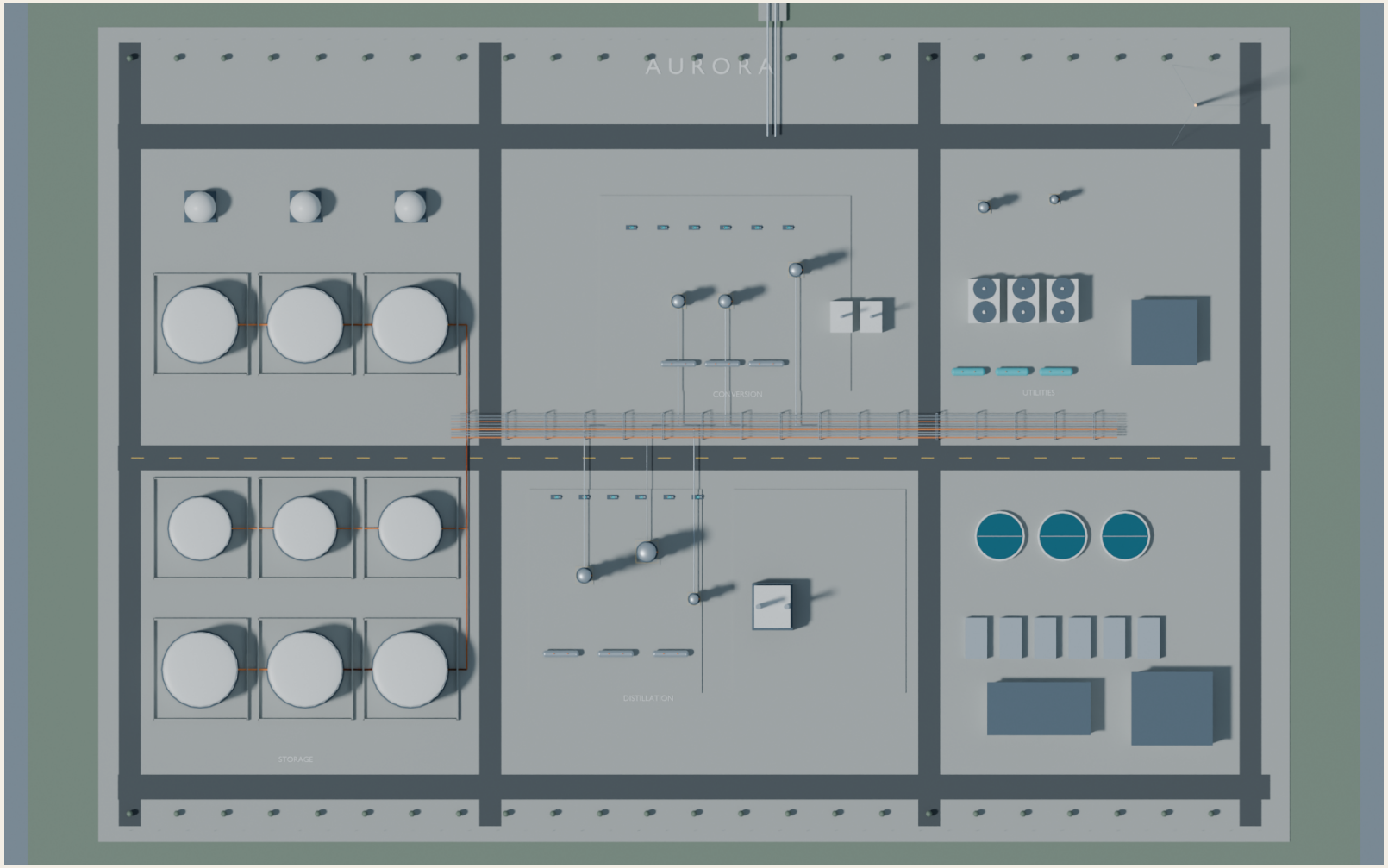
Synthetic topographic survey



No GNSS measurement or field test has been performed.

General plot plan

Storage, process areas and utilities read as systems linked by roads and pipe racks.



Orthographic model view. Safety distances have not been verified.

The crude-oil route

Stage	Equipment	Role
01 Receiving	Terminal and tanks	Feed storage
02 Preparation	Desalter, exchangers and furnace	Feed conditioning
03 Separation	CDU / VDU	Atmospheric and vacuum fractionation
04 Treatment	Hydrotreater / reformer	Fraction treatment
05 Dispatch	Blending, tanks and loading	Products to markets

Simplified functional sequence. Context: EIA and EPA [S01, S03].

The process core

Columns, reactors, exchangers and machinery packages form the treatment area.



Envelope geometry. Connections and internals have not been sized.

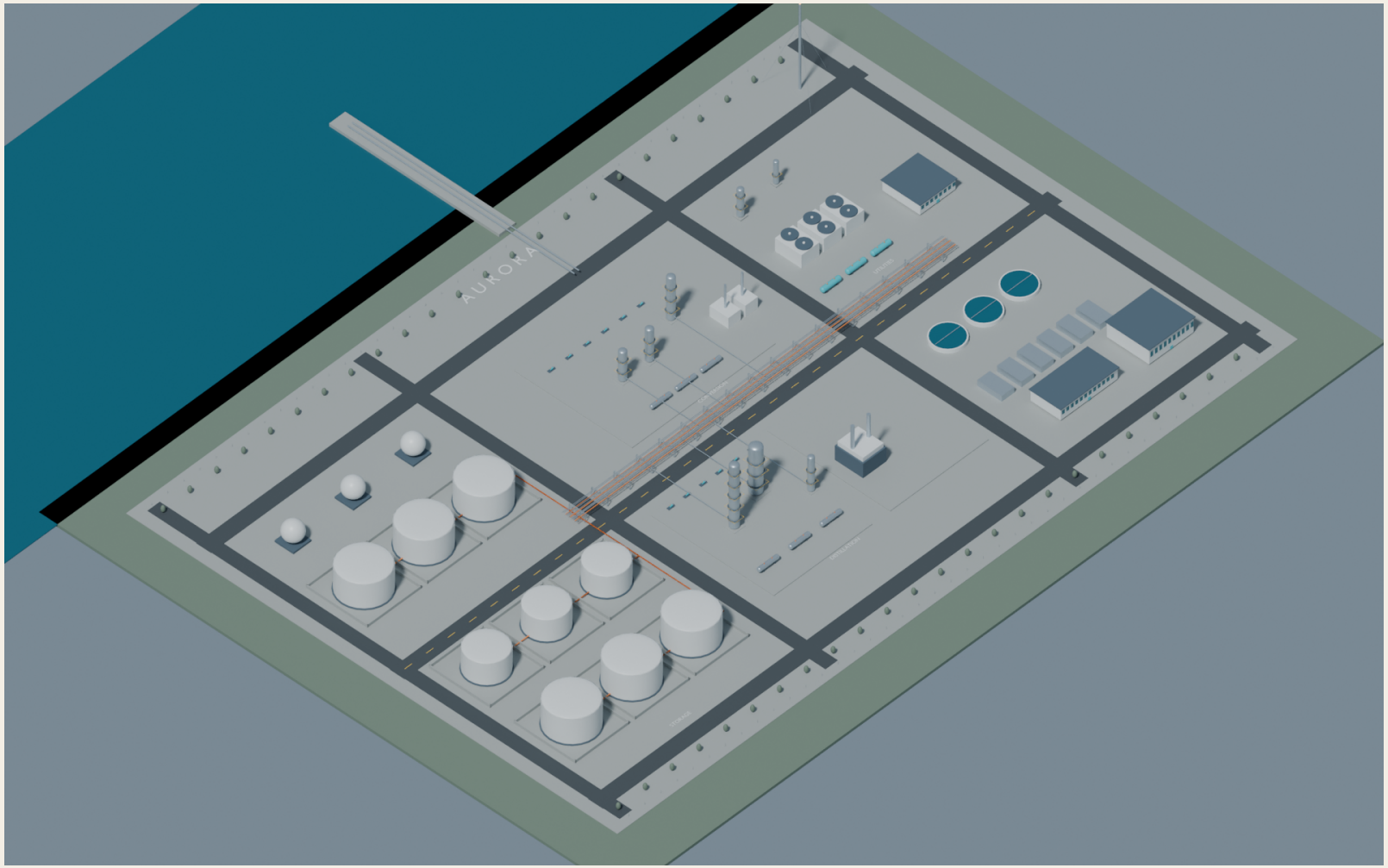
Machinery and equipment

TAG	Description	Functional family
TK-101	Crude tank	10_STORAGE
C-201	Distillation column	20_DISTILLATION
C-202	Vacuum column (assumed)	20_DISTILLATION
H-201-FURNACE	Furnace	20_DISTILLATION
E-295	Heat exchanger	20_DISTILLATION
P-201	Pump	20_DISTILLATION
R-301	Conversion reactor	30_CONVERSION
CT-501	Cooling tower	50_UTILITIES

Tags present in the model. Conceptual functions without procurement specifications.

Storage and logistics

Crude storage, product storage, access routes and loading areas complete the general arrangement.



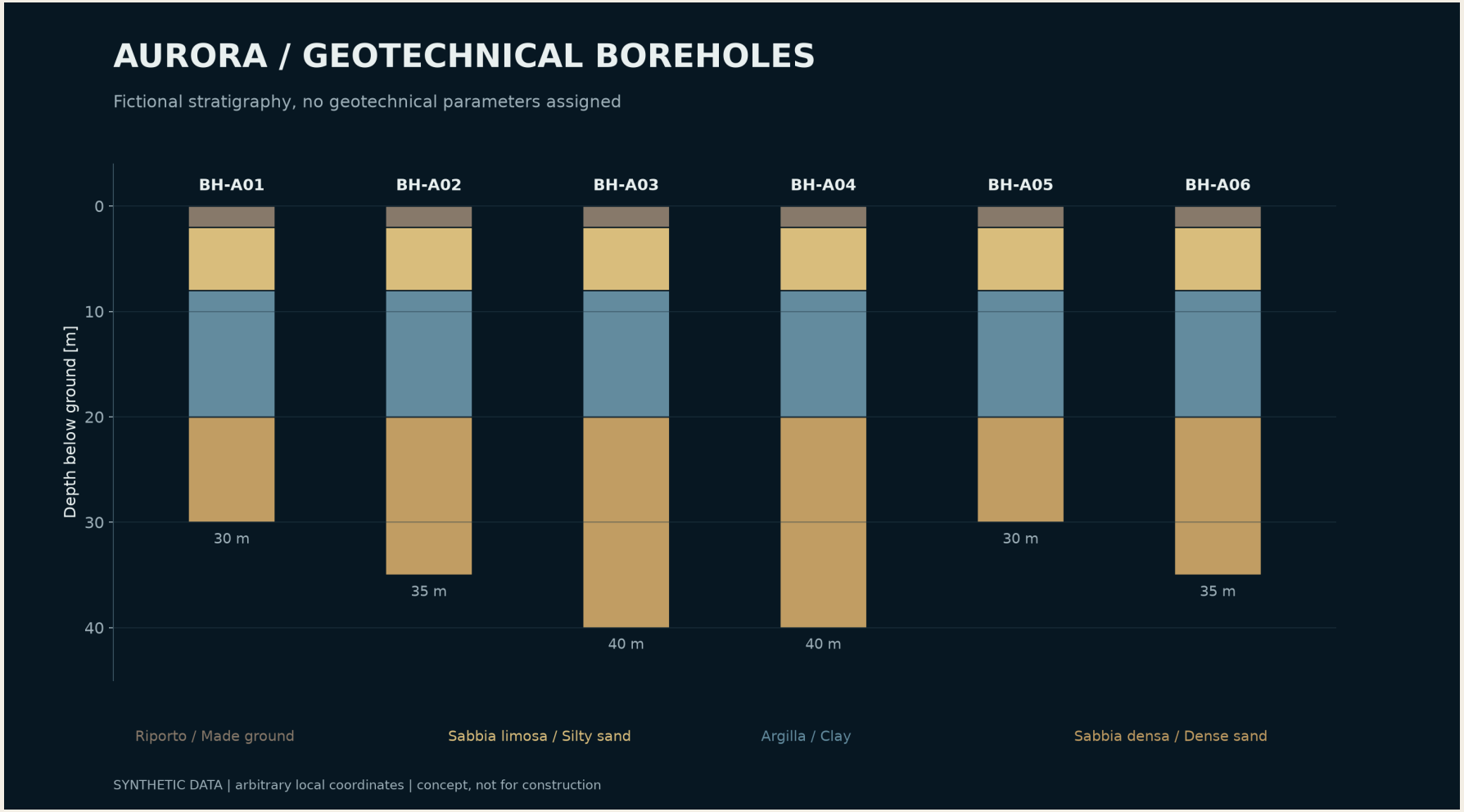
Bunds and separations are visual representations without compliance verification.

Energy, water and utilities

System	Narrative components	Process interface
Thermal	Boilers and cooling	Steam and heat rejection
Hydrogen	H2 module and compression	Fraction treatment
Environment	Sulfur recovery and wastewater	Residual flows and water
Electrical	Substation and distribution	Supply to consumers
Support	Control, workshop and warehouse	Operation and maintenance

Plant families based on EPA [S03]. No validated energy balance.

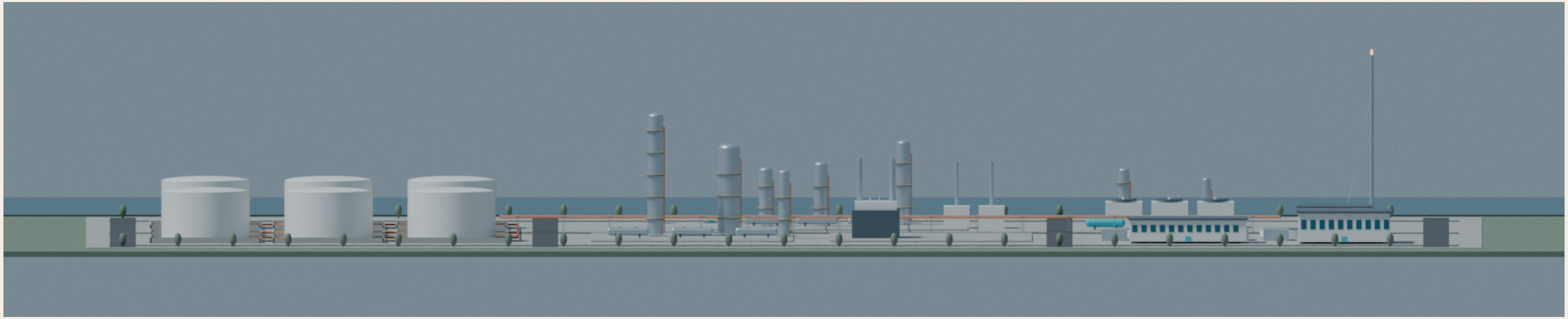
Subsurface boreholes



Assumed strata: made ground, silty sand, clay and dense sand. No geotechnical tests.

Plant elevation

The orthographic view compares process, pipe-rack and utility heights.



Conceptual model elevation. Read dimensions in the geometry file.

The life cycle

	Stage	Content
01	Surveys and investigations	Site data, constraints and characterisation
02	Concept and verification	Layout and specialist studies before detail
03	Fabrication and assembly	Modules, structures and connections
04	Commissioning	Testing, procedures and operational handover
05	Operation and maintenance	Access, inspection and replacement
06	Decommissioning and restoration	End-of-life plan and material management

Narrative sequence. Schedule and costs have not been estimated.

Model scope

Included in the package	Declared level
3D assembly and machinery	Conceptual envelopes and geometry
Plans, elevations and images	Views of the built scenario
Surveys and geotechnical boreholes	Reproducible synthetic data
Schedules and presentations	Concept documentation
Specialist calculations	Not performed in this study

Intended use: presentation and concept development. Not for construction, operation or procurement.

Sources and assumptions

The sources support general technical context. Capacity, site, geometry, surveys and subsurface profiles belong to this synthetic scenario.

S01 **EIA / The refining process**

Separation, conversion and treatment; storage and distribution.

S02 **EIA / Crude distillation and refinery capacity**

Meaning of capacity with reference to crude distillation.

S03 **EPA / Petroleum Refining (AP-42)**

Unit and utility families: hydrogen, sulfur recovery, wastewater.

S04 **OSHA / Petroleum Refining**

Process and equipment descriptions; no project compliance verification.

Accessed: 18 November 2026. No regulatory compliance or performance is implied. Revit: detected trial licence, non-commercial demonstration use.