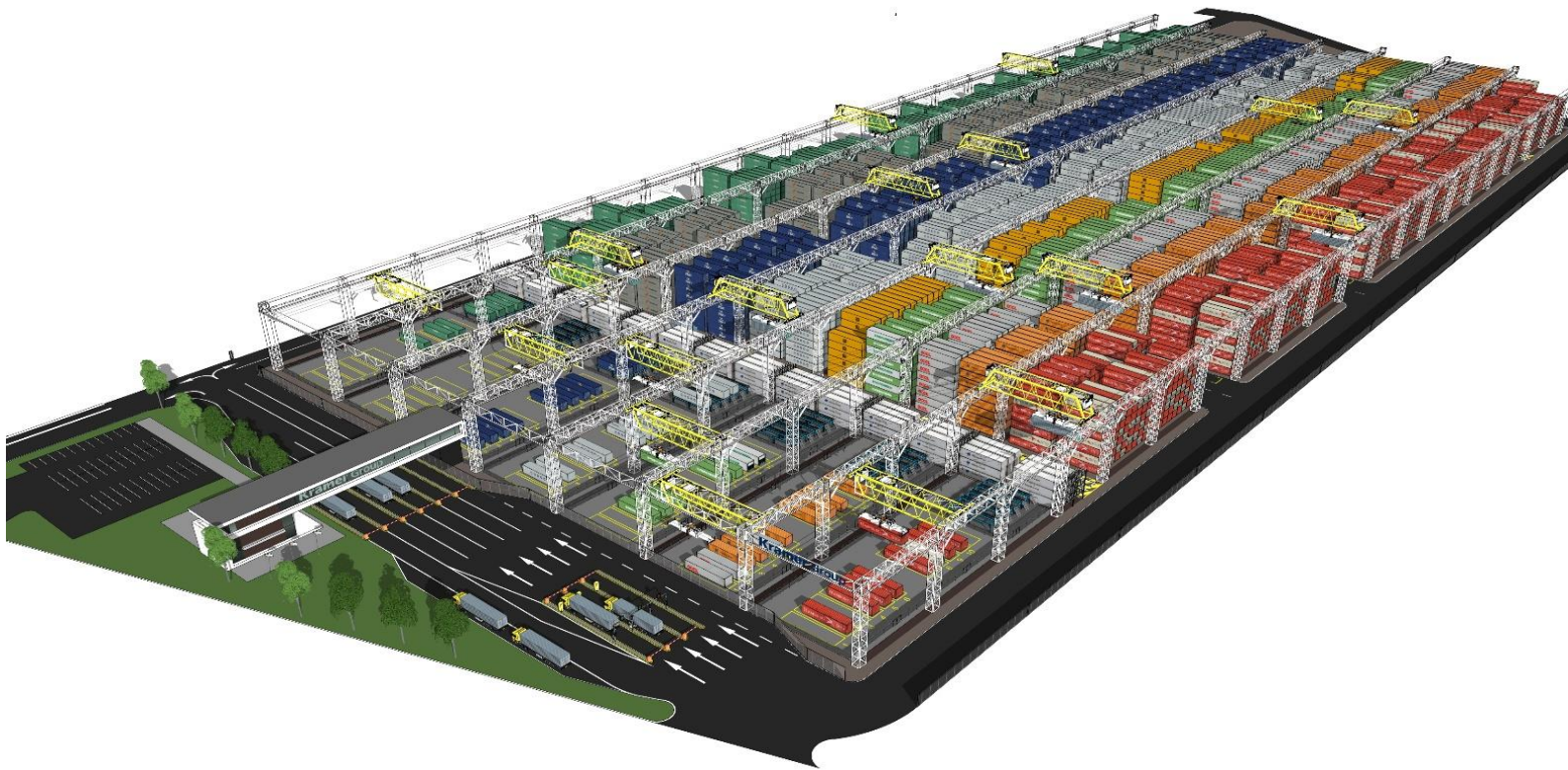# NG-RED Container Depot
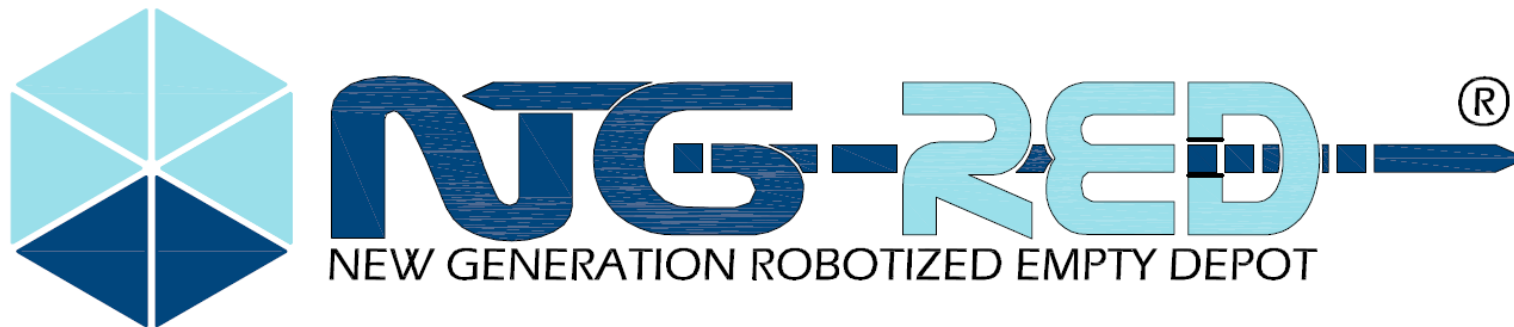

18 April 2018
Port & Terminal Technology Conference
Charleston, South Carolina, USA

Joost Achterkamp
CEO Solid Port Solutions

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1. Lower handling cost
2. Less space needed
3. Fewer accidents and damages
4. Quicker process time with less handlings
5. Containers faster available for the next client
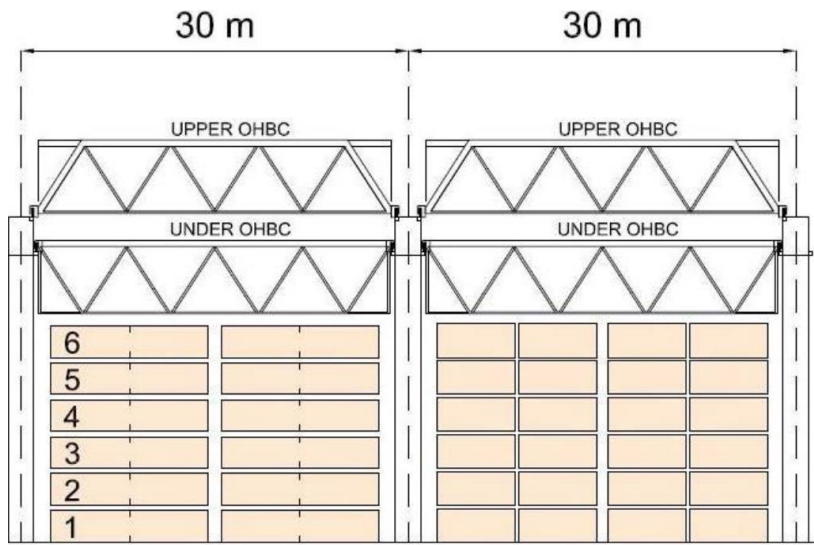6. Improved quality of the depot process
7. Electric equipment only

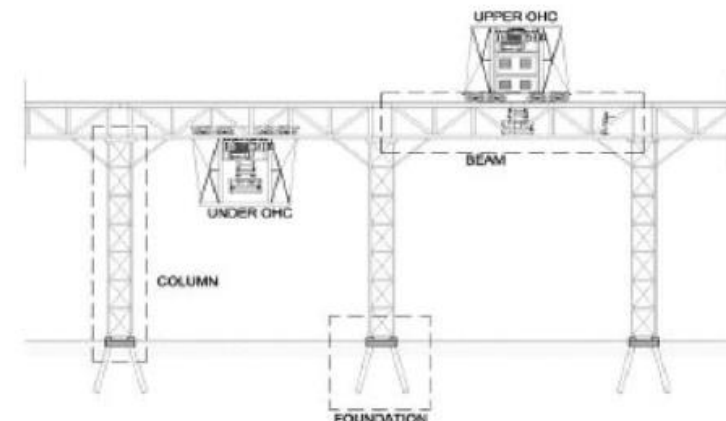1. KRAMER Group depot Maasvlakte 2
2. 38 acres
3. Connected to:
   - 5 Deepsea terminals with in total 16 M TEU capacity
   - Rail
   - Road
   - Barge/Feeder

The support structure consists out of modular steel columns and girders which make phased extension of terminals possible. Conservation up to 40 years without high maintenance costs is possible.
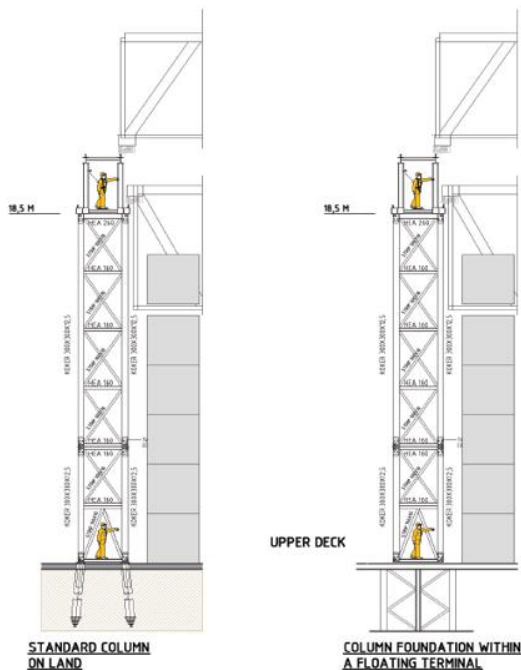
The standard columns on land terminals are founded on 4 special foundation piles to resist all compression and tension forces.
A standard column on a floating terminal can be integrated in the "platform structure".
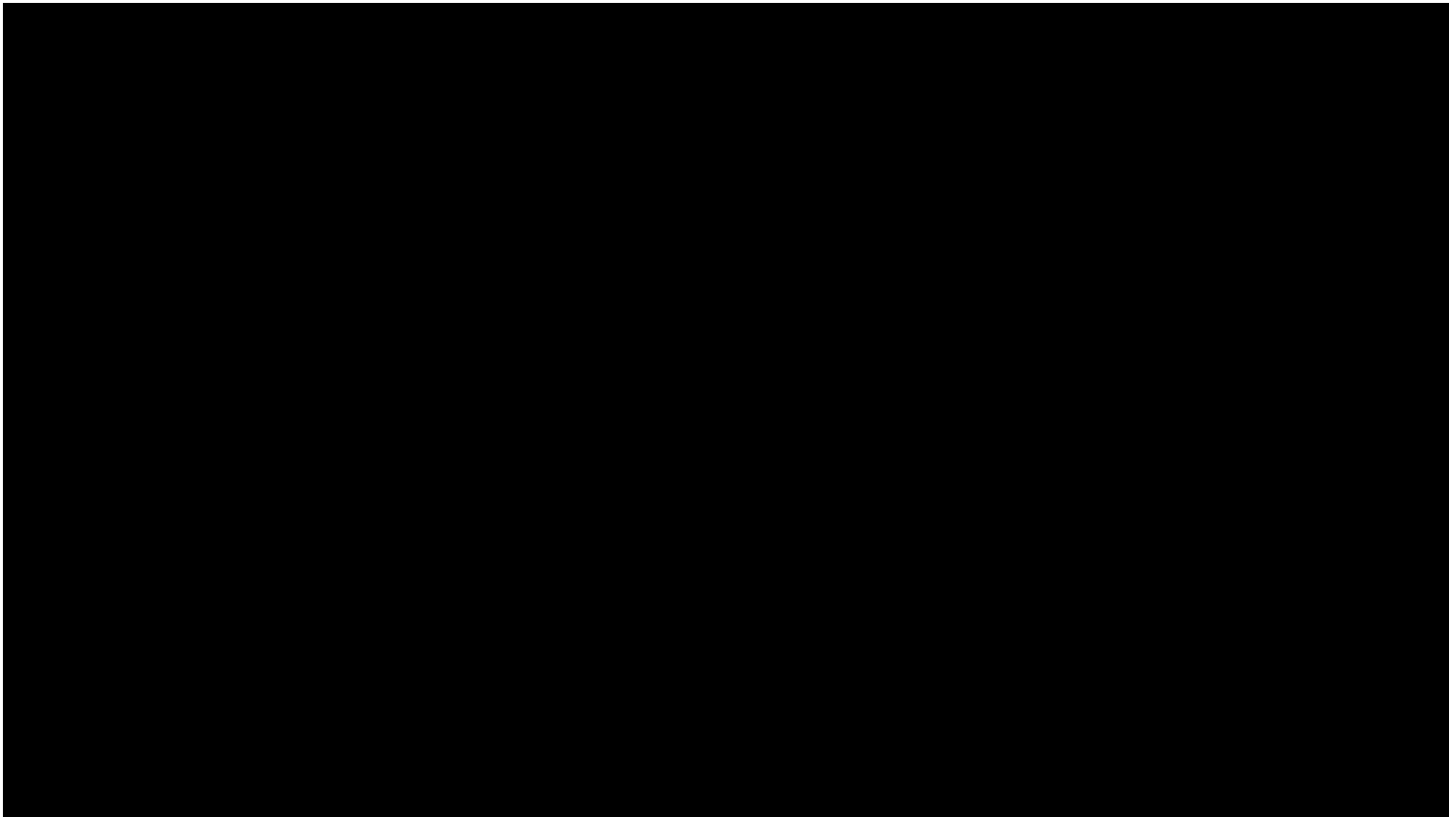
MASTERPLAN
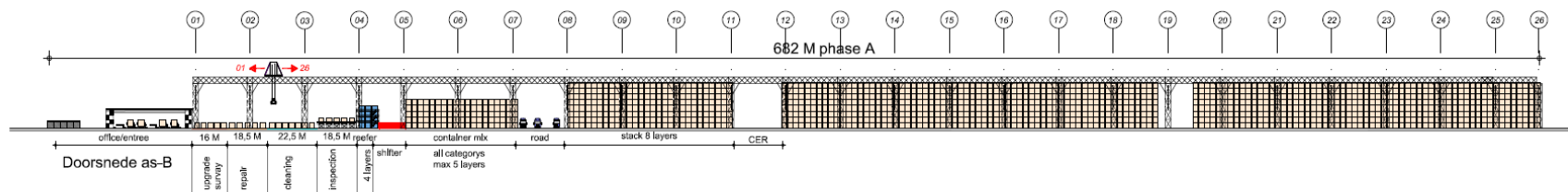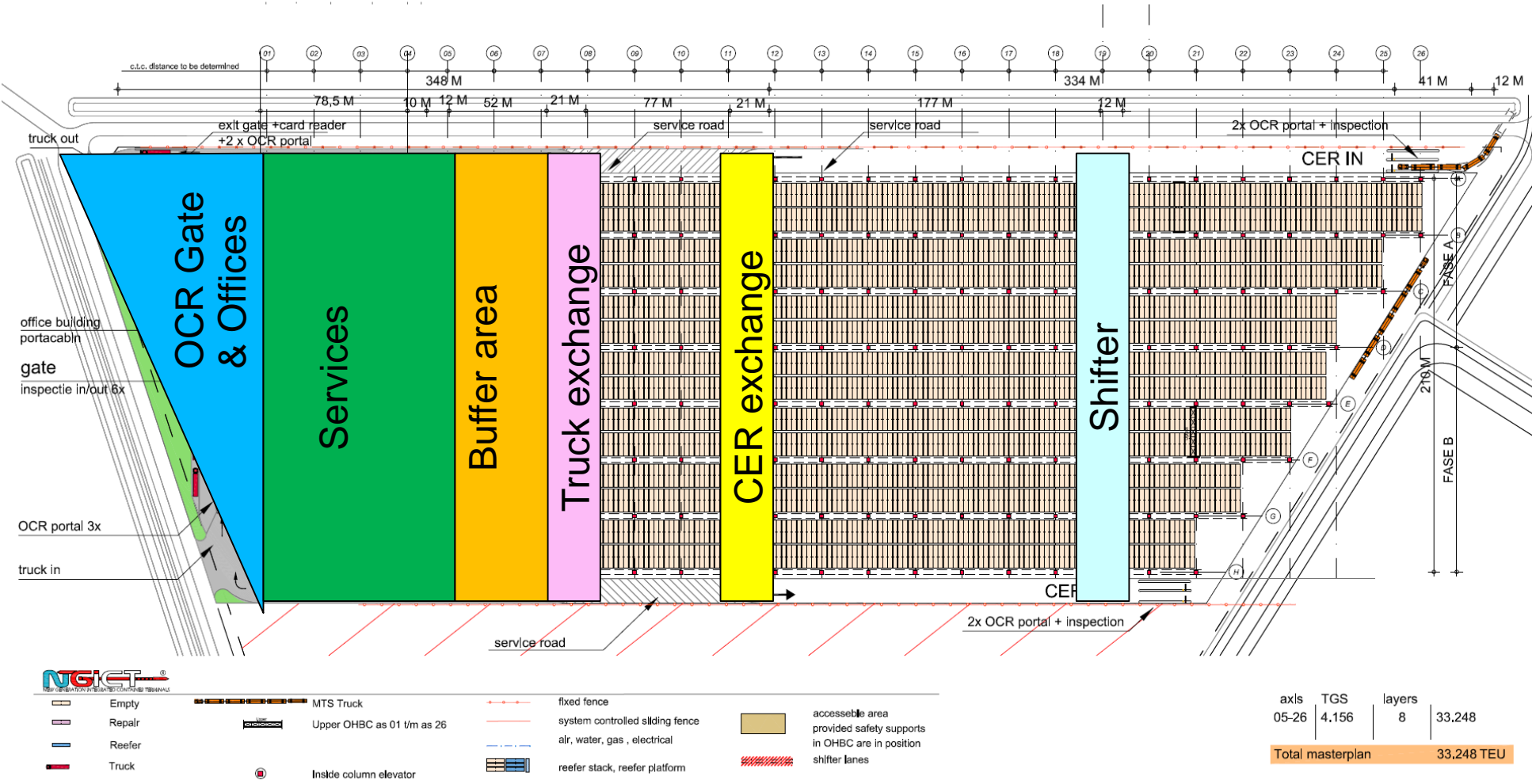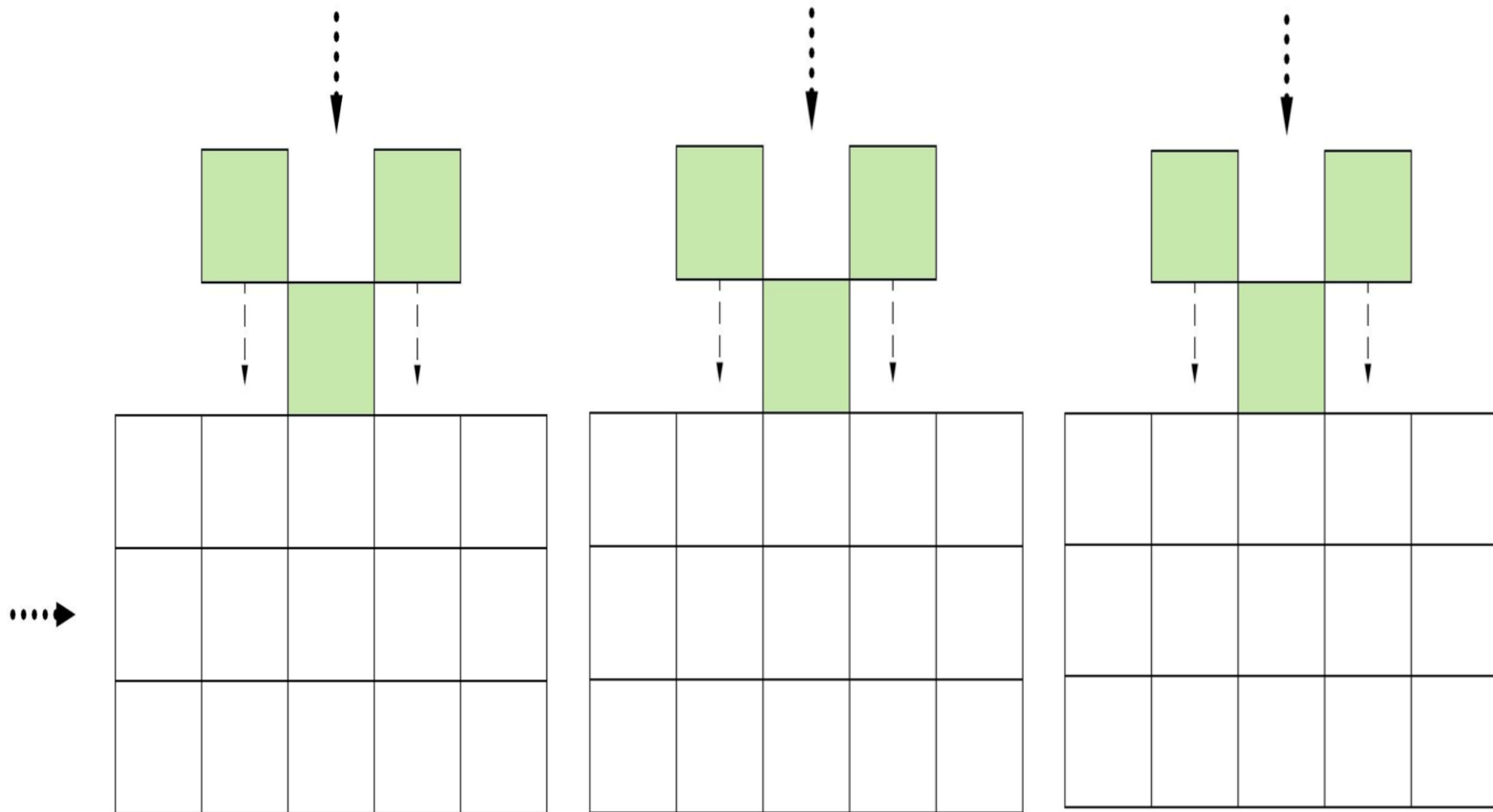
Available Yard:
- Blocks of same containers, with no space between them
- Same category: type size, client, condition
- Blocks not too wide (5 – 7) to allow for the FIFO principle
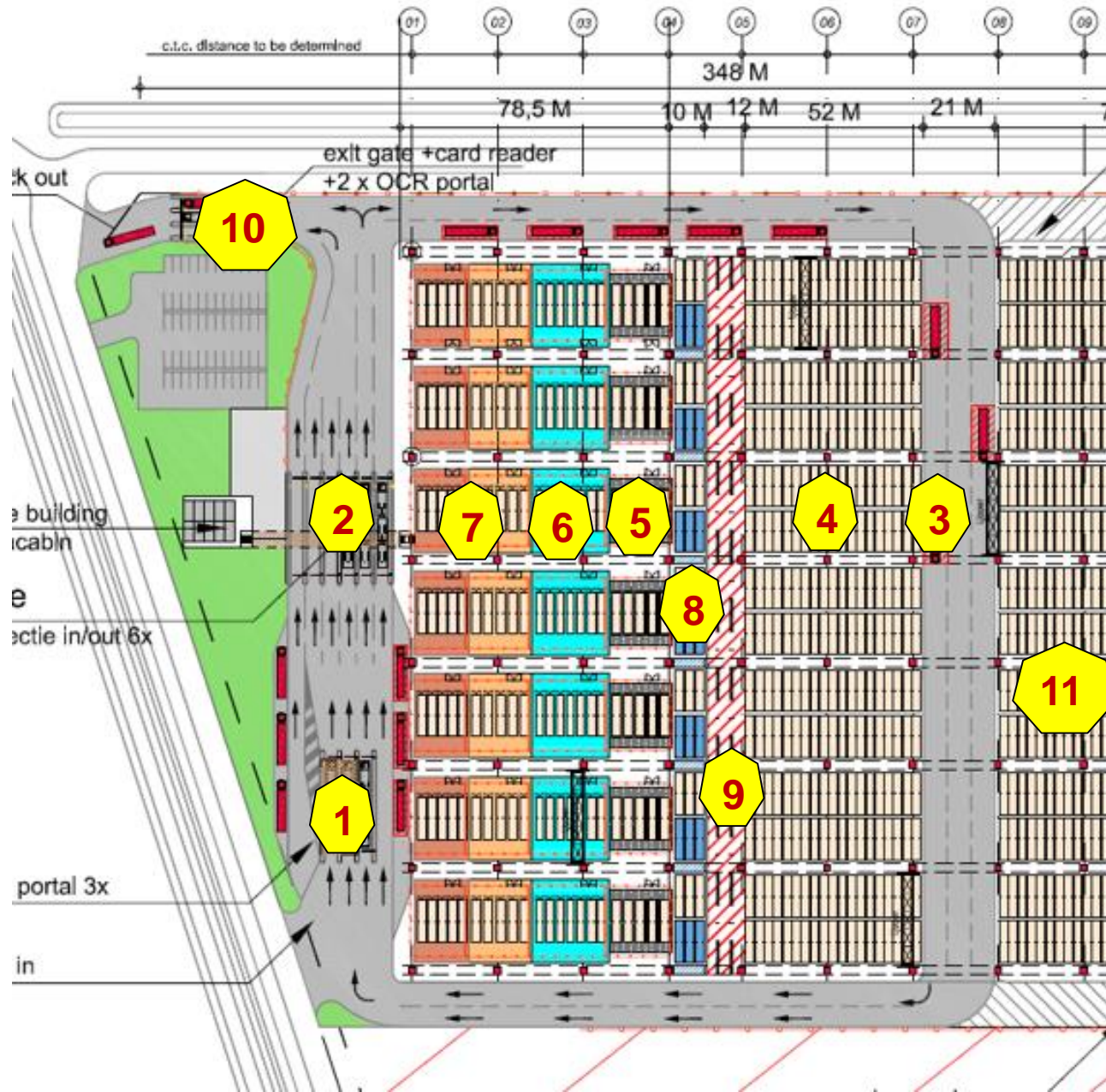
1. OCR IN/OUT
2. GATE
3. TRUCK HANDLING
4. BUFFERZONE
5. INSPECTION
6. CLEANING
7. REPAIR
8. PTI
9. SHIFTER
10. EXIT
11. AVAILABLE YARD
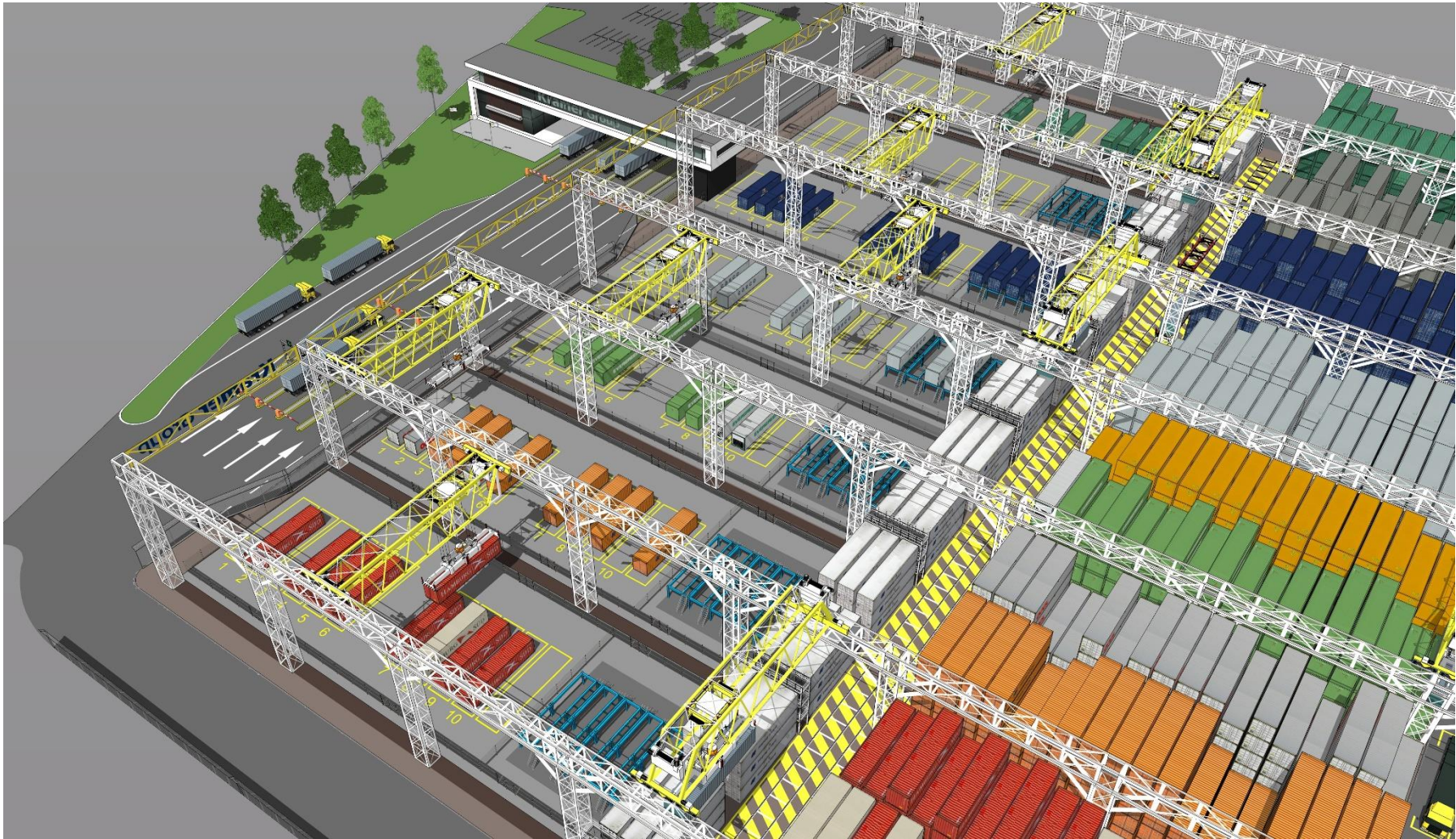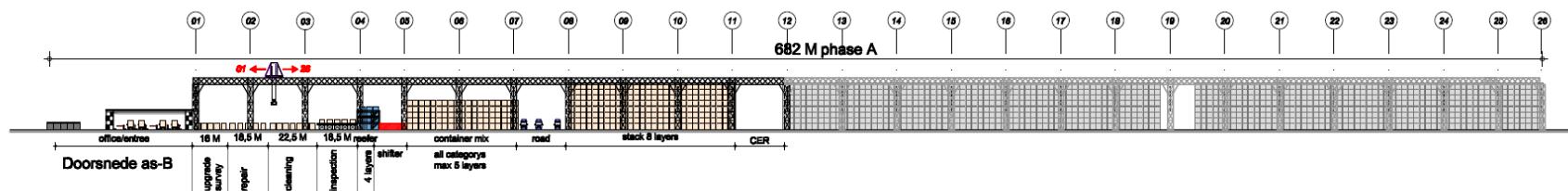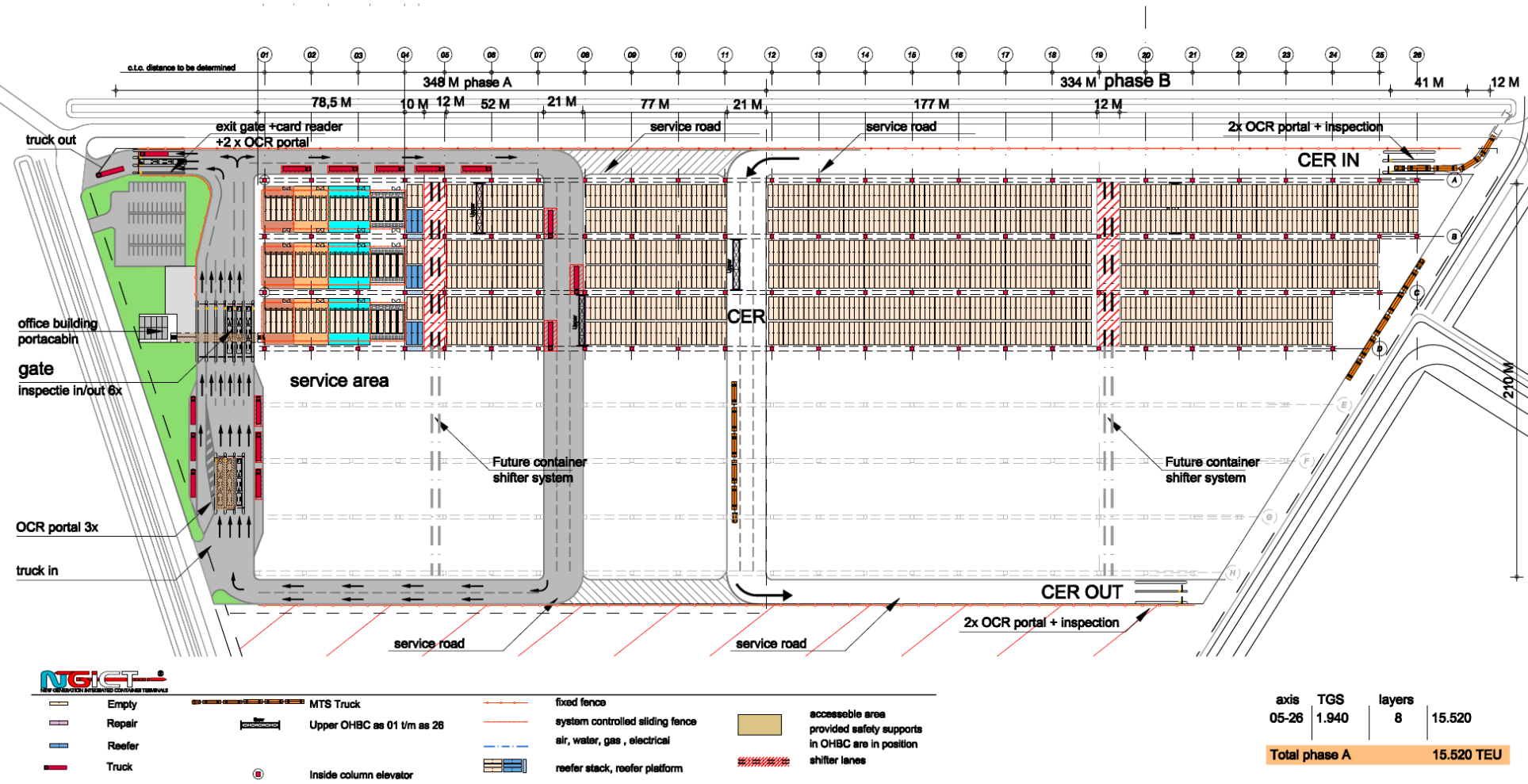
PHASE A

We recommended the following phasing:

Phase A : total 83,516 container visits (drop-offs)

- 3 stacking lanes
- 2 OHBC: 1 "upper" OHBC and 1 "lower" OHBC.
- Total length 118 containers = 472 TGS per lane (1416 TGS total)
- 5 high stacking and 38 container rows on 8 high

Phase A + B : total 194,870 container visits (drop-offs)

- 7 stacking lanes
- 2 OHBC: 1 "upper" OHBC and 1 "lower" OHBC.
- Total length 118 containers = 472 TGS per lane (3,304 TGS total)
- 5 high stacking and 38 container rows on 8 high

Phase A + B + C : total 244,851 container visits (drop-offs)

- 7 stacking lanes
- 3 OHBC: 2 "upper" OHBC and 1 "lower" OHBC.
- Total length 118 containers = 472 TGS per lane
- 5 high stacking and 94 container rows on 8 high

The target for the design was to get the best balance between "Storage capacity" and "Handling capacity".

Storage capacity is calculated on the following assumptions:

Dwell time:	15 days (based on historical data without lease)
Max. density:	85%
Peak factor:	1,25
TEU-factor:	1,65

Handling capacity is calculated with using actual crane speeds and travel distances at a peak period. Assumptions were made on the number of housekeeping moves, maximum utilization per OHBC and hindering factor between cranes.

- Administration
- Scheduling
- Stack location control
- Service area control
- Gate control

Control of the container movements

Terminal Operating System (TOS)

- Equipment movements
- Equipment optimization
- Fleet management
- Transferpoint management
- Safety

Equipment Control System (ECS)

- Order execution
- Crane Management

PLC	PLC	PLC
OHBC	OHBC	Shifter

Schedule NG-RED

	2018	2019	2020	2021	2022
	jan feb mar apr may jun jul aug sep oct nov dec	jan feb mar apr may jun jul aug sep oct nov dec	jan feb mar apr may jun jul aug sep oct nov dec	jan feb mar apr may jun jul aug sep oct nov dec	jan feb mar apr may jun jul aug sep oct nov dec
Feasability Study					
Recommendation ready					
Prepare test plan					
Approve budget test site					
Approve test plan					
Check subsidy test site					
Simulation study					
Test site					
Design test site					
Permits test site					
Select contractor test site					
Award contract					
Construction test site					
Commissioning test site					
System testing					
Test report					
Decision to build phase 1					
Financial close phase 1					
NG-RED phase 1					
Design					
Project permits					
Prepare tender docs					
RFP					
Select contractors					
Award contract					
Construction					
Commissioning					
Integration					
Acceptance					
Go-Live					
Commercial opening					
NG-RED phase 2					
Design					
Project permits					
Prepare tender docs					
RFP					
Select contractors					
Award contract					
Construction					
Commissioning					
Integration					
Acceptance					
Go-Live					
Commercial opening					

- **The current design fulfils the design criteria as defined in March 2017**

Design criteria:

1. High density yard
2. Most handlings automated
3. Maximum load under spreader = 7 ton single lift
4. Efficient planning of the operational processes
5. Proven technology
6. Weather proof
7. 24/7 automated operation
8. Highest safety level
9. Capable of handling (automated) CER traffic
10. Reliable
11. Available land according to HBR tekening 2015-327

- **The NG-RED terminal delivers a solid business case and good financial results**