

Development of Specialized Terminals in Ports of Gdansk in Perspective 2020

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ABSTRACT: Port of Gdansk located in never iced southern part of Baltic Sea is actually developed and very soon will take position no.2 on Baltic Sea. Universality of cargo operations non limits to one or two types of goods, brave investing decisions and far-reaching visions of managers – these are the most important factors of Port of Gdansk success.

1 INTRODUCTION

Strategical plans for developing Southern Baltic Area we can find in several EU official documents and in plans prepared by Polish Ministry of Maritime Affairs as well as Regional Pomeranian Authorities.

There are several EU documents:

- 1 Strategy Europe 2020
- 2 UE Strategy for Baltic Sea
- 3 Strategy of network TEU – T up to 2030

Ministry of Transport and Maritime Affairs prepared a document: Programme of developing of Polish sea ports till year 2020 (with perspective till 2030).

The most important Regional documents:

- Strategy for Western Pomeranian Region up to 2020,
- Strategy for Pomeranian Region up to 2020,
- Strategy of developing Port of Gdansk till 2027,
- Strategy of developing of Port of Gdansk till 2030.

This paper was written in 2016 and specially prepared for presentation on TransNav 2017.

2 PORT OF GDANSK

There is many different project in plans of develop of Port of Gdansk, but in authors opinion below are presented 5 the most spectacular and important ideas in which Gdynia Maritime University is involved as an expert and advisor (Fig. 1).

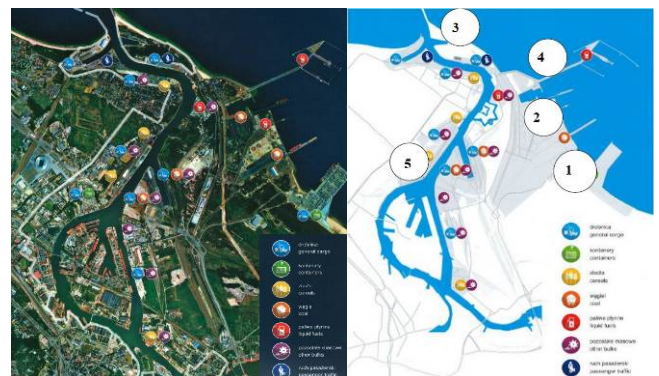


Figure 1. Satellite photo of Port of Gdansk (left) and selected Port of Gdansk areas listed and presented in this paper.
1. Deep Water Container Terminal with second pier 650 m tr long with Pomeranian Logistic Center with a target warehouse area of 500,000 sqm. (Fig. 2);

2. Construction of an oil terminal – the PERN base with a total target capacity of 700 thousand cu.mtr.;
3. The planned situation area for the construction of Central Port. (Fig. 3);
4. New Northern Berth in North Port (Fig. 4 & 5);
5. Inner Gdansk Port – New concept of modernized Szczecinskie and Wislane quays (Fig. 6).



Figure 2. Deep Water Container Terminal with second pier 650 m tr long with Pomeranian Logistic Center with a target warehouse area of 500,000 sqm. (left) and Construction of an oil terminal – the PERN base with a total target capacity of 700 thousand cu.mt. (right)



Figure 3. The biggest project of construction of the Central Port till 2030



Figure 4. Actual construction of Oil Terminal in Northern Port of Gdansk [1]

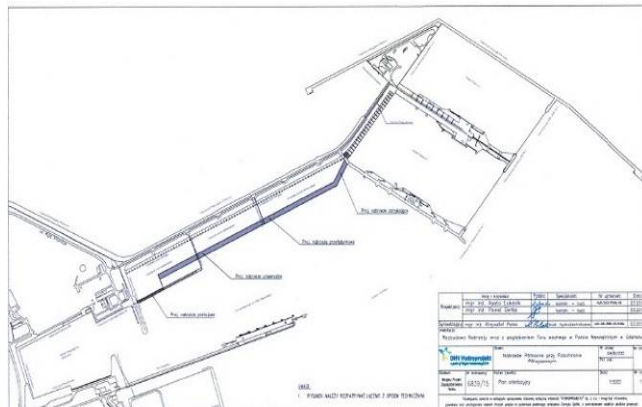


Figure 5. Planned new concrete construction over 1000 m long located near pipelines of Northern Port of Gdansk

In year 2016 Authority of Port of Gdansk asked Gdynia Maritime University for preparing conceptional developing project of practical usage, reasonable planning and legitimacy of building new pier located nearby the Oil Terminal (Fig. 4 and Fig. 5)

Final decision of authors from Gdynia Maritime University is YES.

New Northern Berth as a new construction should be accepted by all neighbour companies acting in North Port. 3 steps of building consist of 108 m + 478 m + 416 m new berth. According to local regulations minimal distance from oil pipelines should be 20 m. No any infrastructure on new berth except system of routes / ways will be done. New pier will be dedicated for big passenger vessels. Actually Gdańsk offer places for 240 m long cruisers and with draft up to 8 m in expertise was analysed distribution of reflected waves inside port and their influence for other mooring vessels.

NNW wind directions (80% per year) will not complicate mooring operations. Apart of cruisers new place can be offered for layed-up vessels, short period repair position, occasionally for operation Sail Tall ship races, place for Polish offshore vessels and many others. Analyze of cargo operations possibilities and elimination of dangerous situation in such close distance to oil terminal there is a part research. System of security, monitoring and safety guarding should be established.



Figure 6. Szczecinskie and Wislane quays – place of the concept of the new Oil Terminal in Inner Port of Gdansk

Gdynia Maritime University, apart of Szczecin Maritime University, was asked to prepare an expertise of navigational approach and future functionality modernized Szczecinskie and Wislane quays in Inner Gdansk Port (Fig. 6).

Similar requirement received parallel Szczecin Maritime University.

Polish Oil Concern, Orlen owned old part of Port (CPN-3) with old tanks and shore equipment and intent to adopt pier to discharging operation of costal tankers up to 20000 DWT (Fig. 7). Research content optimization of vessel accepted for berthing, safety enter to port condition of berthing, shifting and mooring operation (Fig. 8).

All existing mooring equipment will be eliminated, new turning circle with diameter 330 m replace existing 300 m circle. Conditions for piloting, using tugs and berthing operations were prepared. Optimal distribution of pollard berth equipment were calculated.

Orlen is ready to establish anti-pollution system.

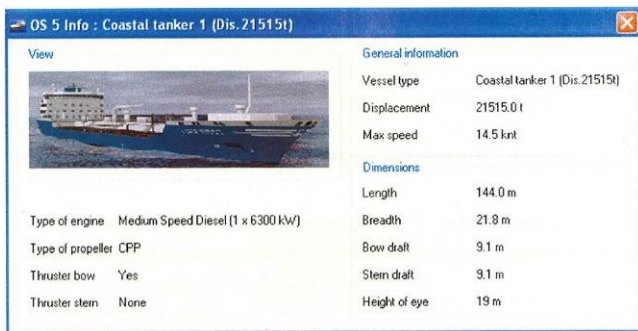


Figure 7. Typical coastal tanker used for simulation of berthing operation



Figure 8. Berthing of analyzed tankers (20000 and 28000 DWT) in New Szczecinskie and Wislane quays [2]

Experiment on Simulator NaviTrainer 5000 cooperating with Simulator NaviSailor 4000 (Transas) helps to pass 42 passages done by me and Capt. Weintrit (Fig. 9). General observation for manoeuvring in different conditions (direction of

wind, waving) were shown. Certainly pilots and safety officers do not like new ideas and concepts, but after the discussion and giving the guarantee of protection of new quay, trained personnel, monitoring from shore and water side, etc. They shortly became more friendly for proposed ideas (Fig.10).

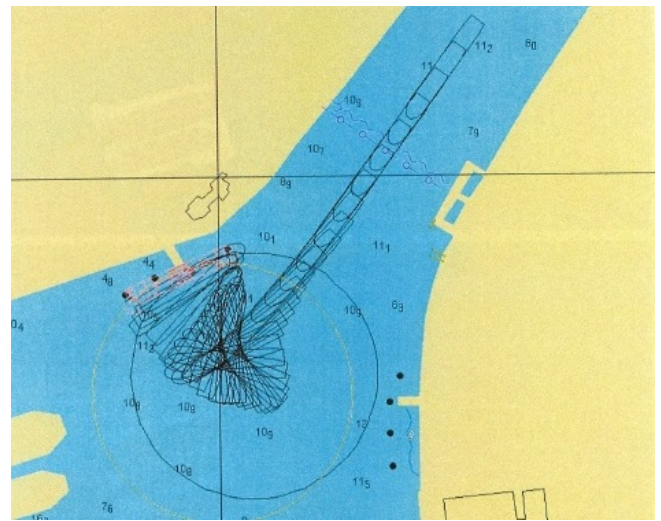


Figure 9. Picture of simulators passage and manoeuvring operations to approach Szczecinskie and Wislane quays [2]

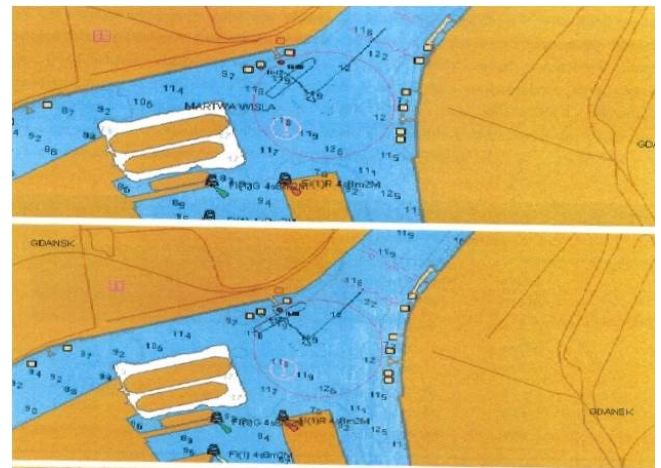


Figure 10. Different situations were analyzed with the help of simulator NaviTrainer 5000 of Transas

3 CONCLUSION

Above paper was prepared in 2016 for TransNav 2017. All presented projects were taken in consideration and finally were adopted by Port of Gdansk authority for further realization. Projects follows existing development documents prepared by national and local authorities.

DCT-2 is practically completed and the biggest container vessels of capacity 21 000 TEU are berthing every week in new DCT pier (project 1).

PERN Oils Strategical Base is under construction in her final stage (project 2).

The most futural project of Outside Port is actually more realistic and closer to initial project work.

Idea of inner small oil terminal for small coastal tankers located on Szczecinskie and Wislane quays seems to be closer to realization , especially after eliminating psychological barrier of some people and institution afraid to locate oil terminal practically in the center of port and ship repairing yard area (project 5).

Concept to locate universal quay alongside pipeline pier of North Port (project 4) press Port Authorities to establish new, modern concept of safety and security system of monitoring and full control of any potential risks.

Few discussions of author with Deputy Head of Port of Gdansk Authority Mr. Jerzy Melaniuk shows big ambitions of Managers of Port of Gdansk and stabil conception to increase cargo operation and make Gdansk more flexible port for different type of vessels and different groups of cargo.

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- [3] Port of Gdansk materials, with permission of use give by Deputy Head of Port of Gdansk Authority Mr. Jerzy Melaniuk