CENTRAL INTELLIGENCE AGENCY

INFORMATION REPORT

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SECURITY INFORMATION

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THE SOURCE EVALUATIONS IN THIS REPORT ARE DEFINITIVE.
THE APPRAISAL OF CONTENT IS TENTATIVE.
(FOR KEY SEE REVERSE)

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1. The Soviets requested [redacted] a report which they wished to use in determining the feasibility of constructing a Navy port on the Grosser Jasmunder Bodden on Ruegen Island -- a project which had once been envisioned by the German Navy. [redacted] report, prepared in May-June 1952, "sold" the Soviets on the idea of constructing such a port which was to be part of the over-all Ruegen Harbor Project.

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2. [redacted]

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NAVY Review Completed

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STATE	ARMY	NAVY	AIR	FBI		AEC					

25 YEAR RE-REVIEW By [redacted] By [redacted]

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ANNEX A

Feasibility of

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Constructing Naval Installations on Ruegen Island

GENERAL

1. During the rearmament period by the Nazis the former German Navy also received definite assignments and goals. A great shipbuilding program was announced for the building of large ships (aircraft carriers and battleships). The ships Gneisenau and Scharnhorst (about 27,000 tons) were the fulfillment of the first part of this program. The keels of the ships Bismarck and Tirpitz (about 39,000 tons) were layed down as the next type. They were completed and saw action in the first years of World War II. The shipbuilding construction offices of the Navy, in about 1935, undertook the design of a more advanced and larger type battleship. One spoke of ships of about 50,000 tons. It was readily seen that launching of these larger ships, especially in Hamburg, could not have been accomplished on the available slips. Therefore, the "Marine-Hafenbau" (Naval Harbor Construction Office) received the order to start work on the necessary facilities at once. The new shipyards should be capable of building ships to about 60,000 tons. For several reasons, especially strategical reasons, the new shipyards should be on the North and Baltic Seas. Because the shipyard Blohm and Voss in Hamburg was by far the most efficient German shipyard, it was ordered that a shipbuilding dock of the required dimensions should be constructed at this site in spite of the great difficulties (narrow space - Elbe-tunnel). This dock was completed before World War II. However, today it is partially bombed and not ready for operations. The construction of the battleship already in progress was stopped by the events of war and the bombing of the dock.

2. The ship's hull is heavily stressed due to bending while slipping off the ways and must be reinforced for that operation. Since launching is dangerous and shipbuilding in slips also has its special difficulties (inclination of ways about 1:16 to 1:20), the decision was made to build a graving dock in the Baltic Sea area. After lengthy examination and investigation (Kiel, Wismar and Stettin), the "Grosse Jasmunder Bodden" on "Ruegen" was selected for the installation of a new repair and shipbuilding yard. The large scale project plans were finished about the end of 1938 so that in the spring of 1939 the "Marinebaudirektion Ruegen" in Bergen was established.

3. The new port installation was to have the name "Ruegenhafen". A considerable amount of material (rubble, sheet pilings, etc.) was transported for the building of the mole at Glowe. Dredging of the canal was also started. Construction was stopped about the end of 1939. The reason was that the German Naval Command at that time acquired a modern port in the middle Baltic Sea area, the former Polish port, Gdynia. Data concerning decision to build on Ruegen are listed below.

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ANNEX A 25X1
ENCLOSURE (A)

ADVANTAGES OF CONSTRUCTION OF NAVAL INSTALLATIONS ON RUEGEN ISLAND

4. Construction of an efficient Navy yard and a naval base on Ruegen presents the following advantages:

a. Strategic position of the Island in the Baltic Sea area.

b. Shorter approach to the open sea.

c. Concentrated defense against air attacks.

d. Reasonably easy defense against foreign observation and espionage.

e. Protected position of the approaches.

f. Relatively free of ice.

g. The Bodden may be called a first class anchorage.

h. Chains of hills may be used as natural bomb shelters.

i. No valuable agricultural territory will be lost.

j. Existence of railroad and water connections.

k. The different construction sites are dispersed.

l. Good soil conditions for construction.

m. The site allows the excavation of a second canal.

A serious disadvantage of this site is that the transportation of all supplies must be made via the "Ruegen dam" (bridge).

Strategic Position of the Island

5. The distance to Tralleborg (Sweden) is about 55 sea miles; the distance to Copenhagen about 75 sea miles. Ruegen could thus have a similar function as Malta performs in the Mediterranean Sea. The exit to the Sund could be closed very quickly by naval forces from Ruegen. The distance between Kiel and the Island is about 140 sea miles. If heavy units stationed at Ruegen were urgently needed in the North Sea, Kiel-Holtenau could be reached within a few hours. (Kiel-Holtenau is the entrance to the North-Baltic Sea canal.)

Shorter Approach to the Open Sea

6. Almost all larger German ports are on the mouth of rivers and therefore, some distance from the open sea. Departing naval ships must navigate difficult channels at reduced speed, so many hours pass until they reach the open sea. Distances to the open sea for the ports indicated are as follows:

Ports	Approximate Sea Miles
Emden	40
Wilhelmshaven	30 (not counting the locks)
Bremen	70
Bremerhaven	30
Hamburg	70
Cuxhaven	12

Distances to the open sea for the indicated ports on the Baltic Sea are as follows:

Ports	Approximate Sea Miles
Kiel	9
Luebeck	11 1/2
Wismar	13 1/2
Rostock	6 1/2
Stralsund	7 1/2
Stettin	37
Koenigsberg (Kaliningrad)	17 1/2
Danzig (Gdansk) - out of the question because of political conditions there	

7. As regards Ruegen, the larger ships would have to travel about three sea miles from the mole (latitude of Sagard) to the open sea, those from the roads would have to travel about four sea miles and the smaller units from the southern port of the installation would have to travel about six sea miles to reach the open sea through the north canal. The channel conditions could be extensively dredged to allow for a rapid departure of naval units. Strong units could reach the open sea in a short time using both canals in the event of emergencies (heavy air attacks) and disperse.

Concentrated Defense Against Air Attacks

8. The Grosser Jasmunder Bodden is surrounded by a line of hills (40.00 to 50.00 m. high) in the east, south and southwest. The bay is open only from the north to the southwest. The chain of hills offers the best possibility for the installation of antiaircraft artillery units. In contrast to the ports listed above in para. 6, all the AA units on Ruegen could be concentrated directly over the island for the maximum effect. It was also planned to build several airfields on Ruegen for protection of the harbor. Seaplanes were to be stationed in the northwest part near the already existing airfield at Bug on the Breeger Bodden and in the southeastern part on the Kleiner Jasmunder Bodden. The airfied for fighter planes was planned south of Neuenkirchen. The Tetzitz Lake could be filled with dredged material from the excavations to extend the airfield. Air raid bunkers could be built (as tunnels) into the hills. Finally, the air warning net on Ruegen could be organized very effectively because of the special position of the Island.

Defense Against Foreign Observation and Espionage

9. The favorable geographical position allows satisfactory control of the shore line of the Bodden. It would not be necessary to move a great number of civilians. Only the places on the north coast from Glowe eastward would have to be evacuated as the construction progressed to the particular sections. A control of the fishermen (espionage) could not be avoided. Control of all incoming persons to Ruegen could be effected on the Ruegen dam bridge; it is not known how far the bathing traffic should be stopped.

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ANNEX A 25X1

Protected Position of the Approaches

10. A peninsula which ends in a steep 45-meter high cliff at Kap Arkona extends to the northwest of the planned outer harbor. This affords a natural protection against winds from northwest to east (via south). Only winds blowing from the sea, especially a north wind, will cause surf inside of the moles. The Baltic Sea Manual, Southern Part, 1944, on page 129, gives the average frequency of wind direction of all observations for Swinemuende (now Swinoupoie) as follows (in percent).

Observation time 1881 until 1925

	N	NE	E	SE	S	SW	W	NW	Calm	%
December-February	6	5X	8	15	16	19XX	19	9	3	100
March-May	13	18XX	8X	12	10	12	13	10	4	100
June-August	15	14	4X	7	7	14	20XX	14	5	100
September-November	6	7	8	15	15	19XX	17	8	5	100

X Infrequent wind direction
XX The most frequent wind directions in each season

11. Although a strong sand migration exists on the south coast of the Baltic Sea in a west-east direction which causes heavy sand drifts at all harbor entrances, this would not occur at the proposed port entrance. Very expensive continuous dredging would not be necessary. The migrating sand would be collected by the island of Hiddensee, which is located on the western side of Ruegen. The sand would be deflected into the Barhoeffer and Vierendehl channel (channel to Stralsund) by the Gellen stream. A considerable portion would be deposited on the island of Book. Costly wet dredging is necessary every year to keep the channel to Stralsund open. The migratory sand to the north around Hiddensee will be collected on Libben or will be deposited in the Tromper Wiek, south of Arkona. Almost no sand beach exists in Glowe as may be seen in the depth contours. Directly east of there in the latitude of Nardewitz, the 20.00 meter depth contour runs parallel with the steep coast only about 1,000 meters offshore. With the building of the moles, even better conditions would be created because the west winds would then carry the sand around the moles into deep water.

Relatively Free of Ice

12. Experience has shown that even in very cold winters Sassnitz is seldom affected by ice. In any case it is open longer than any port in the middle Baltic Sea. Thus it may be assumed that even better conditions will exist in the proposed port. The floating ice which endangers the harbor of Sassnitz would surely be led around the entrance by the east wind. Ice movements would hardly occur. In unusually severe winters the east mole may cause a great deal of pack ice and would have to be built very strongly to resist the ice pressure. The channel would be kept open with an ice breaker in severe winters. The North Baltic Sea Canal, as described in the Baltic Sea Manual, page 221, shows that in very severe winters

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no ice appears in the Kieler Forde before the middle of December, nor in the canal before Christmas and usually it forms only in early or mid-January. Disappearance of the ice often takes place at the end of January, in medium winters during the first-third of February, while in severe winters the ice may remain until March or even the end of March (1923-1924 until March 24th, 1928-1929 until March 29th). In 11 winters (1916-1917——1940-1941) the Kieler Forde and the canal remained free of ice. A medium winter might cause a hinderance to navigation lasting 1-3 weeks but in only 3 of the last 25 winters was shipping temporarily stopped; 42 days was the longest in 1939-1940. The locks (in the North-Baltic Sea Canal) tend to encourage the formation of ice. It is hardly possible to break the ice with ice breakers. The proposed excavation in Glowe would not have locks. It is not known what effect severe winters would have on the Bodden (except for the margin-ice formation). Probably only in the severest winters would ice be a hindrance. Finally it may be said that the proposed port on Ruegen could be one of the best installations in the Baltic Sea territory in respect to winter weather. In any case much better than any other German ports available at the time of construction.

Anchorage in Bodden

13. After completion of the excavation the Grosser Jasmunder Bodden will be opened as an anchorage. The average channel depth will be seven meters below low tide. This anchorage would be the best on the Baltic Sea due to its sheltered position afforded by the chain of hills. It would be protected from winds and have a short exit to the sea. The bottom consists of an approximately 8.00 meter thick slime layer. The water depth could be comparatively easily, as well as considerably, increased by means of suction dredges. The bottom is not good for anchoring. Buoys would have to be used.

Natural Bomb Shelter

14. An oil port was planned in 1939 on the east mole. Here a fuel depot was to be built in the chalk cliffs adjoining and parallel to the coast, affording a natural bomb shelter. The expansion possibilities here are unlimited. (Fifty meters above low tide is about the average height of the chalk cliffs.) The installation of bombproof bunkers for PT boats and submarines near Gross-Banzelwitz and Lietzow was also planned because the conditions seemed very favorable. In the so-called "Black Hills" to the south, the subterranean bombproof installation of commissary depots, magazines, mine chambers, artillery and ammunition bunkers, torpedo depots, etc., was planned.

Demands on Agricultural Territory

15. It is a notable fact that despite the planning of gigantic construction, the demand on agricultural territory was hardly worth mentioning. Only the eastern edges of the Bodden near Poelchow, would be affected. This loss could be compensated by a qualitative improvement of uncultivated land. The excavated mud and clay could be flushed on the land in great flush beds. These flush beds later produce the best agricultural land.

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Rail and Water Connections

16. All planned construction could be supplied by normal railroad connections and without undue expenditure. Furthermore there is also the possibility of water connection. There is a connection from Stralsund via dredged channels of about 2.50 meter depth through the Schaproder Bodden and from the sea-side through the Libben, further through the Vitter Bodden, Rossow stream, Reetzer Bodden, Breeger Bodden, Lebbiner Bodden to the Grosser Jasmunder Bodden. The loading or unloading of small ships can easily be accomplished in Martin's Port.

Construction Sites

17. Since it was planned to start work on various sections of the entire construction simultaneously, no hindrance in work could have occurred because the individual projects were provided with separate transportation facilities. On the other hand, this decentralization of construction work would naturally cause considerable difficulties in administration: increased administration, increase in construction supervision personnel, more difficult over-all coordination, more labor camps, etc. Upon completion of the entire installation, the situation would be much more favorable. In the case of serious accidents such as explosions, fire or an enemy attack, the decentralization would be of strategic advantage.

Soil Conditions for Construction

18. The planning was only completed after years of research and after conducting countless drillings. It was confirmed that the soil conditions were ideal and unusually good for constructing large buildings. For instance, near Glowe, heavy marl was found upon the chalk layer. The construction of the moles could be faultlessly carried out. On the east side of the Bodden at the same height as Martin's Port, the marl is also very high and would be a good foundation for large constructions, such as dry docks, building docks, slips, etc. Similar conditions exist on the south side where a naval base was planned.

Possibility of a Second Canal

19. In addition to the north passage, an excavation to southeast was also planned. Twelve meters under low tide were planned for the north canal and 8.0 meters under low tide for the second canal. In case of ship damage, enemy attack or other accidents, all units except very heavy ships could leave the port through the second canal. During strong northwinds the exit to the north would be very difficult for smaller units. They could then depart through the wind protected Prorer Wiek. Again, almost no first class agricultural property would be used. In order to reduce the movement of earth, the axis of the canal should extend through the large and small Wosteritz Pond. The construction of two bridges would then be necessary. There was a parallel program to extend the canal through the northern part of the Kl. Jasmunder Bodden to the sea, but this plan was postponed. The exit of the canal into the open sea was planned as far north as possible so that the Jasmund

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ANNEX A

Peninsula could afford wind protection during storms from the north. It was assumed that otherwise smaller units might have difficulty in entering and leaving.

SUPPLY TRANSPORT CONSIDERATIONS

20. All supplies would have to brought by rail via the Ruegen dam. This bridge would naturally be a main target for enemy air attacks. Concentrated antiaircraft batteries and fighter planes would be necessary here. World War II experience showed that the German shipyards remained operative to a large extent in spite of perpetual air attacks by all types of planes and bombs. The shipyards Blohm and Voss in Hamburg, the Deutsche Werft in Finkenwerder, and the Howaldt Werke A.G., built submarines up to the last days of the War, though mostly in yard bunkers, despite the fact that all supplies had to be moved over bridges. The Elbe bridges in Hamburg remained serviceable until the end of the War in spite of countless air attacks. It was found that the great majority of bridges were destroyed by blasting.

21. If necessary the waterway would have to be used until the Ruegen dam bridge was repaired. Traffic between Warnemuende and Sassnitz could be maintained with large ferryboats but these are lacking at the moment. Furthermore, a competent ferry service between Stralsund and Altefaehr could easily be established. In addition there would be many docking possibilities for smaller supply vessels on Ruegen.

PLANNED INDIVIDUAL CONSTRUCTION SITES

Mole Construction and Excavation to the North

22. Years of survey and investigation were conducted to determine the decisive location of the main axis. When the axis was determined as it has been described in the proposed plans, it was discovered that all requirements of a technical, geological and hydraulical nature had been met in an exemplary manner. The three following possibilities for the excavation were examined and included in the considerations:

a. About one sea mile south of the former pier of the Baltic Sea resort Breege-Juliusruh. No suitable ground for building moles could be found here. Further, one would have to reckon with constant sand drifts, thus constant interruptions for dredging. To obtain a depth of 12.00 meters below low tide, the moles would have to be twice as long as in Glowe. The determining factor in rejecting this project was the difficulty in channel construction to the Bodden. Considerable wet dredgings would have been necessary, especially on the Lebbiner Haken. In the case of a damaged battleship, there would have been great difficulties in docking.

As was mentioned above, the Breeger Bodden was planned as an airfield for seaplanes. Thus it was planned to construct a small port where passenger boats, aircraft service boats, and air rescue boats could be accommodated.

b. About two and one-half sea miles to the west of the present canal axis. Here also the 12.00 meter depth contour line

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runs parallel with the coast, but for about double the distance, thus much longer moles would be necessary. Tests on a large model in a hydraulic testing laboratory proved that here also considerable sand deposits can occur, whereas this possibility does not exist farther eastward.

Furthermore, the marl is in deeper layers so the entire canal would have to be wet dredged. This situation is not particularly favorable for building strong embankments.

The approach line to the large dry docks would not give enough straightaway. Large constructions such as moles, large fuel depots, etc. would cause considerable difficulties because the marl, able to support a load, is much deeper than by the coast of Glowe. Also, one would find fine and medium sand with layers of rubble stone.

c. About one-half sea mile east of Glowe. As was already stated, this route was found to be the best solution by the Hydraulic Engineering Experimental Laboratory. A view of a nautical map and the location of the depth contours makes this decision comprehensible. Any accretion along the banks worth mentioning would not be expected to occur.

23. [redacted] 25X1
the geological conditions at this place as follows. The diluvial deposits begin at a height of ten meters above low tide and consist of marl with limited sand deposits, and rise to a height of about 30 meters above low tide. Muconated chalk was found on the bottom; this chalk rises to the north of the shoreline up to four meters below low tide level. No further comment need be made here on whether this is solid rock or a chalk layer. The diluvial marl is firm and stable as all the other marl formations along the coast. The bored chalk may also be considered a good firm foundation for large constructions.

[redacted] this area is predestined for the 25X1
building of large constructions. The sketched mole was proposed by the Hydraulic Engineering Office. Both mole foundations were to be protected against erosion by leading the current smoothly around the moles. The heads of the moles should be especially guarded against erosion and the moles themselves constructed in block method. A parapet to seaward was planned. Guiding lights were to be placed on each molehead. Various antiaircraft units were to be placed on the mole. A small harbor was to be built behind the western mole. The harbor defense flotilla, ice breakers and tugboats, were to be berthed here. Due west of the canal on the mainland, a buoy and target storage place was to be constructed. A channel depth of 6.00 meters below low tide was required in this area. The axis of the canal should end to the south at the molehead of the port installation. The beacons (upper and lower) were to be installed here. The width of navigable passage between the moleheads should be 200.00 meters. A turning basin 500.00 meters to 600.00 meters in diameter should be built in the protection of the moles so that the largest ships could go to the fuel depot without difficulties. A channel depth of 12 meters below low tide was required in the canal and in the turning basin. The width of the bottom of the canal should

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be 50.00 meters so that the width of the water surface would be about 100.00 meters. No passing channels would be necessary since the canal would be only about one sea mile long.

24. A modern fuel depot was to be installed on the inboard side of the east mole. The planned depths of the individual berths would permit the bunking of any eligible ships. The refueling of the fuel depot was to be done by large tankers so the harbor would have to be properly equipped.

Fuel Depot

25. A subterranean fuel depot was to be built parallel to the coast at the root of the east mole. The tanks could be placed in groups of three, one behind the other. The very rigid chalk rock rises to 50.00 meters above low tide at this point. Thus all installations may be constructed in an effective bomb-proof manner and properly camouflaged. The necessary housing and administration buildings would be erected in the vicinity.

Navy Shipyard

26. A modern repair and construction yard was to be built on the east side of the Bodden in a basin with a water depth of up to 3.00 meters. The very firm marl is also high here, thus affording the best foundation for building.

27. The entire installation was to be organized as a repair and construction yard for very large naval vessels. The repair yard would have to be installed on the west side due to the geographical situation. The entire installation was to be bounded on the west by the berths for battleships and aircraft carriers. Therefore, the repair basin was to have a depth of 12.00 meters below low tide. The west side of the basin with the mole extending northwards, was to be developed as berthing places. Special shore installations would not be necessary because the personnel of these units would live aboard during the berthing time. The equipping with food, ammunition, etc., would take place here. All these supplies would be brought here by railroad.

28. The installation of two repair dock groups was planned to the south of this harbor basin. Two enormous dry docks should be able to take care of the largest ships, two medium docks should take care of the other ships. The entire layout would result in the following advantages:

a. The construction of the four docks could be accomplished in a single large excavation at a construction site, layed out on a large scale.

b. The combining of two docks would result in great structural savings. Two combined docks would need only one middle wall which would result also in considerable savings in floor strength, since then it would be possible to create more favorable static assumptions. Further, one crane installation and one flood and drainage installation each could be eliminated.

c. A common repair yard installation (shipfitting shop, wood workshop, mechanical and motor shops, etc.) could serve all docks.

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29. The east side of the repair basin was to serve as the repair quay and would have to be equipped accordingly, as for instance, halls and workshops. The floating docks were planned in front of the spit of land between the repair port and the outfitting port to the east. Because a floating dock has many advantages compared to a massive dry dock (mobility, lower cost and short construction time) it should definitely be included. The necessary depths could be dredged. The singular advantage of this entire repair dock installation is that incoming and docking ships may take the shortest way without change of course into the prepared dock because the dock installations would be facing north. The outfitting port should have a lesser depth (8.00 meters below low tide was planned). Large ships were to receive their final equipment in the so-called repair port. The western quays of the outfitting port were to be reserved as an ordnance department of the shipyard, as, for instance, torpedo, mine, and artillery workshops. The other operations, such as navigation, radio, woodworking shops, etc., were planned logically on the east side.

30. The adjoining construction port to the west was to have a depth of only 6.00 meters to 7.00 meters below low tide. Here the large construction docks and buildingways were planned. Behind these installations, to the south, all halls and other facilities necessary to initiate operations, were to be built.

31. The coast to the north would remain as an extension territory for the yard complex - about two sea miles of water front. this navy yard was to have a staff of about 10,000 workmen and employees. The necessary housing with social and cultural facilities for a new shipyard town was to be erected near Sagard. 25X1

Destroyer Berths

32. Two destroyer flotillas were to be accommodated on the southern part of the built-up yard-peninsula. A mole-like seawall was planned to protect the destroyer berths against west winds. On the land side of this mole two berths for the flotilla leaders were to be erected, and to the east ten wooden finger-piers, each for two destroyers, were to be built. The extensive land installations required for two destroyer flotillas would have been erected parallel to the berths.

Second Excavation

33. This canal was declared necessary and included in the plans, for reasons already stated. The required channel depth was 8.00 meters below low tide. The width at the bottom should be 40.00 meters and the corresponding width of the surface about 90 meters.

34. Two jetties were planned toward the Bodden, which should flank the entry and each have a guiding light at the tip. This excavation also would have to be closed off on the sea side by moles, in this case to the east in the Prorer Wiek. These moles would have to be especially massive, so they could resist the pack ice brought in by strong east winds. The exact

position of the moles had not yet been determined by the model tests. The necessary installations and a turn around basin could be built in the protection of the moles.

Naval Base

35. The construction of a naval base was planned on the south side of the Bodden. The berths for light and heavy cruisers were planned in the eastern harbor. The most eastern harbor was to be reserved for smaller special boats. Various schools were to be installed on this base, such as artillery, torpedo practice, and helmsmen schools. Furthermore, a cadet school with all equipment was planned. The so-called "Black Hills" were to be used as a recreation center. Various schools and casernes could be constructed in this very scenic area. Hospitals and administration buildings were also included. Thus, the port area could be kept free from all these buildings. The vessels of the naval base could take on supplies and equipment in the western basin and the supplying of warships with artillery, ammunition, torpedos, mines, depth charges, etc. could be accomplished at a special pier in the western part of the entire installation. Large tunnels for the various depots could be built in the Buch Hill (up to 51 meters high) and in the western part of the "Black Hills" (up to 57 meters high). Natural possibilities for camouflage and bomb protection were thus extensively utilized. All quays were to be built with a depth of 8.00 meters below low tide.

Breakwater

36. The construction of a breakwater was planned in order to protect the berths of the naval base against the surf during strong north-west winds occurring on the Bodden. This construction was to be made with stones and/or concrete blocks, piled on top of each other.

PT-Boat and Submarine Bunkers

37. When the project for submarine bunkers on Helgoland was started in 1939, the possibilities of building similar installations on Ruegen were examined. Assuming the construction of the mole installation and the canal, the following installations were examined in a preliminary design:

a. A smaller installation for accommodating PT-boats and small submarines was planned near Grossbanzelvitz. Only berths were planned; no repair dock was to be installed there.

b. The construction of a submarine bunker installation for submarines, including the largest of the German Navy, was planned north of Lietzow. The necessary installation was planned to permit docking of several boats at the same time. All necessary workshops were planned. This installation was also to be built into the hills. When the construction of this excavation was postponed at the end of 1939, the projects were no longer mentioned.

c. In 1941-42 the possibility of constructing a submarine bunker on Ruegen was again discussed in the project office of the naval construction bureau. The territory around

Lohme was considered but no satisfactory technical solution was ever found. Entering and leaving a bunker in this location would have been very difficult during north-west to north-east winds. Navigation of delicate submarines would have been impossible during storms. The realization of this project was never seriously planned.

SUMMARY

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39. In case the construction of a naval port is being considered in connection with the establishment of national defense forces, [redacted] Ruegen would be the right place. 25X1

[redacted] REGARDING THE CONSTRUCTION OF A SHIPYARD AND PORT INSTALLATIONS ON RUEGEN DURING 1952-55

40. [redacted] construction of extensive shipyards and harbor installations was to be undertaken in the coming years. Details of the anticipated construction target are still missing. [redacted] the first construction period was to include two moles and a large fuel depot as well as the completion of the excavation. [redacted] 25X1 25X1 25X1

Mole Installation and Northern Excavation

41. It may be presumed that nothing will be changed in the basic outline of the moles and the canal axis, as far as these were stipulated on the basis of years of planning and research by the former German Navy in 1939. This is the best possible connection between the fuel port and the fuel depot. It may be recommended that the Hydraulic Research Institute in Berlin prove the correctness of the mole locations in a large-scale model test. The question can be reexamined whether a second entrance may be installed in the west mole - in approximately a northwest direction. A considerable reduction in cost would result, but the alluvion (sanding up) will probably prohibit such a solution. The determination of the channel depth is very important. It should be remembered that since 1936, 12.00 meters below low tide was required by the former German Navy for all new installations (Wilhelmshaven, Helgoland, Ruegen and the North-Baltic Canal) in order to accommodate large ships. In constructing a new mole installation, allowances should be made for the next 50 years as far as the technical developments in shipbuilding will permit. In any case it is recommended to build the moles so that it would be

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possible to deepen them to 12.00 meters below low tide at a later time. In this connection it should be pointed out that modern tankers of about 22,000 tons have the following measurements.

Length: 160.00 meters
Width: 21.00 meters
Height: 11.00 meters
Draft: 9.20 meters

The development in this specialized field of ship construction is also progressing rapidly as new tankers are constantly increasing in dimensions.

42. The entrance between the mole heads could be chosen correctly at 200.00 meters. The diameter of the turning basin could be in the magnitude of 400.00 meters. The cut-through may probably be accomplished by dry excavating, in which case it would be advisable to leave the bottom of the canal at 12.00 meters below low tide in view of the comparative short distance of the cut-through (about one sea mile). A later dredging could only be accomplished by wet dredging and would be very difficult because of the heavy marl bottom.

43. The changing water level must be taken into consideration in measuring the channel depth. Regarding the water level, the Baltic Sea Manual, 1944, on page 320, states that the water usually rises in winds from NW to ESE, mostly in NNE and NE storms, when it may increase to 2.00 meters over normal. It drops usually in winds from SE to WNW, mostly in SSW-SW and WSW storms, when it may drop to 1.3 meters below normal. Water levels of 0.5 meters above and 0.5 meters below normal occur several times during the year, especially in the autumn and winter months. The average daily variation in water level is 20 centimeters. The normal level is two centimeters below sea level.

44. For the most practical installation of a fuel depot, it is important to clarify the question as to whether crude oil shall be delivered which would first have to be prepared in a refinery.

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It may be assumed that ready fuel should be stored in the tanks at Ruegen. The measurements of this fuel depot with all the extra installations such as laboratories, administration buildings and housing, social accommodations, etc., should be determined early enough so as to facilitate easy planning.

Yard Installations on the East Side of the Grosser Jasmunder Bodden

45. It may be expected that the very advantageous conditions, constructionally, strategically, and navigationally, near Martins Harbor will lead to the construction of a new yard or repair yard in the near future. Since all groups interested in the coastal area of the Deutsche Demokratische Republik have busied themselves for over a year with the final location

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of the large dry dock, it will be attempted in the following exposition to give a brief on the previous development and the present stage of the project, in order to stimulate a decision soon. When the development goals of the two ship yards in Warnemuende and Wismar became known in the summer of 1950, the measurements for the dry dock in Warnemuende were:

Length : 160.00 meters
Width : 24.00 meters
Depth over sill: 6.80 meters under low tide

and one floating dock with about the same measurements was planned for Wismar.

46. In the course of time the measurements for the dry dock increased, so the following measurements were required in summer 1951:

Length : 230.00 meters
Width : 35.00 meters
Depth over sill: 10.10 meters under low tide

47. The VEB Industrial Planning Office, Rostock, which was commissioned to make the plans for the yard construction, pointed out on several occasions that it was their opinion that it would be technically and industrially wrong to build such a dry dock in the shipyard area in Warnemuende. Since the mole installation in Warnemuende only permits a depth of 8.00 meters under low tide, the construction would not be justifiable.

48. These facts were recognized by the government officials in Berlin and an engineering board was commissioned to examine the dry dock affair and to work out the technical data on which a decision could possibly be made by the ministry. 25X1

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The three harbors on the coast of the DDR - Stralsund, Rostock and Wismar - were examined for the possibility of constructing a large dry dock installation.

49. Stralsund was immediately excluded from being seriously considered because of the extremely poor channel conditions. It was then decided to examine Wismar, Warnemuende, and Rostock and to compare the gross expenditures for construction of the same dry dock installation in both harbors. At the same time rough estimates for completion dates were ascertained.

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50. The necessay channel depth was calculated at 10.20 meters below low tide plus a water cushion under the keel for maintaining buoyancy of 0.80 meters; thus a total depth of 11.00 meters below low tide is necessary. Additions for water level variations and greater drafts of damaged ships were not considered. A depth of 12.00 meters below low tide would be better. However, the comparison is based on a depth of 11.00 meters below low tide.

[redacted] 25X1

ANNEX A

ENCLOSURE (A) [redacted] 25X1

a. Warnemuende	Expenditure Estimates (Ost Marks)
Dock building	55,000,000
Supplementary costs	
3,400, 000 om^3 marl and sand to be dredged	42,000,000
5 km new moles	175,000,000
new construction, east mole base	17,000,000
demolition (wrecking)work	12,000,000
Total Costs	301,000,000
(additional costs)	(246,000,000)

Even if the dock in Warnemuende is not built, the construction of the yard requires considerable additional costs for dredging, which were calculated for 8.00 meters and/or 7.30 meters depth as follows:

From the turning basin seaward	4,500,000
Construction of the equipment harbor	11,000,000
Restoration of the east mole	8,500,000
Extension of both moles	20,000,000
Total	44,000,000

b. Wismar	
Dock building	65,000,000
Suplementary costs	
Dredging to 11.00 meters below low tide in the Wismar Bay for 13 1/2 sea mile passage	35,000,000
Total	100,000,000

51. [redacted] relocating of the large dry dock to Wismar would result in considerable reduction in costs. Even if one takes into consideration that about 44,000,000 Ost Marks must be expended without building the dock in Warnemuende, the following expenditures would result: 25X1

	Expenditures (Ost Marks)
Warnemuende	301,000,000
	44,000,000
	+ 100,000,000
Wismar	144,000,000

52. The relocating to Wismar would mean a saving of 157,000,000 Ost Marks. Further dredging of the channel to 12.00 meters below low tide would cost about 15,000,000 Ost Marks. It

[redacted] 25X1

ANNEX A

[redacted] 25X1

ENCLOSURE (A)

would take years to accomplish the dredging in Warnemuende because of the heavy marl at the bottom and it would be impossible without constructing various suitable wet-dredging equipment. The middle-type ground in Wismar could be dredged with the existing machines. The entire dredging could be performed in three to four years, and by increasing the amount of equipment, the construction time could be shortened.

53. In December 1951 the order was given to begin the test bores in Wismar immediately. This was to obtain necessary information regarding the ground and no special difficulties of a geological nature were expected in completing this large construction. The intensified boring which began in February 1952 showed surprising results by April 1952. Almost in all boring pits a 3.00 - 4.00 meter water-bearing layer was struck at a depth of about 15 meters below low tide. It consisted of very coarse gravel mixed with a large quantity of large stones. In isolated places another ground water layer was discovered (about 22.00 meters below low tide). This was artesian ground water, which rises to about +5.00 to 6.00 meters above low tide. [redacted] concerned with ascertaining the 25X1
direction of the ground water. It may be expected that the upper ground water stream flows parallel to the surface of the earth from the northwest higher territory to the sea. It must also be determined whether a lowering of the ground water to about 20.00 meters below low tide is possible during construction without drawing the ground water from the surrounding territory. This is a delicate question, since the building time is expected to be about three years. A constant lowering of the ground water may hardly be expected for the above-mentioned reasons. The consequences that must be drawn from this disagreeable information are manifold. Individually they are:

a. The projected work can only be begun at a much later date because there is no clarity yet on the ground water situation (delay in completion).

b. The problem as to whether work may be done with a lowering of the ground water must be examined. If this possibility does not exist, then a shaft must be built in an open excavation to a depth of about 2.50 meters above ground water and then block off the water layer by means of sheet-piling. (Considerable delay in completion and high additional building costs.)

It must also be determined, whether it would be at all possible to ram through the gravel layer that contains so many large stones with reinforced concrete sheet pilings. Since it is very difficult to procure concrete sheet pilings, new difficulties arise.

c. In the design of the body of the dock, 100% buoyancy was calculated from the beginning. Since the actual geological conditions have become known, it is to be expected that considerable additional constructional measures must be included because of the increased buoyancy (tension piles or more concrete), resulting in high additional costs. In recognition of these newly arisen difficulties, the VEB Industry-Design-Rostock is seeking a more favorable location within the Wismar Bay for the dry dock, the difficulties having been clearly recognized. In connection

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ANNEX A

ENCLOSURE (2)

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Although the newest difficulties were not yet known, it was strongly advised to build the large dock on Ruegen. In view of the fact that the mole installation and the excavation could be installed as an isolated project, the investigation of the construction of a dry dock would be only advantageous. The following serious reasons against the building of a dry dock in Wismar were

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(1) Wismar is not strategically well located, only 60 km. from Luebeck. The large dock should doubtlessly be at the disposal of the fleets of the Soviet Union and Poland.

(2) Should warships call at the dock, espionage could not be prevented, since the dock can be completely observed with field glasses from surrounding heights. Construction of effective antiaircraft artillery cannot be as easily carried out as on Ruegen.

(3) The dock was to be built on the north end of the yard, about two and one-half kilometers from the repair section of the yard. The ship repair halls are located on the western side of the so-called west harbor. Building several new work halls in the immediate vicinity of the dock cannot be avoided.

(4) Wismar is located on the southern tip of the Wismar Bay. The Bay is very flat in the southern part as well as all along the shore, so the early formation of ice is promoted. Flat bays and narrow channels freeze relatively easily. The Baltic Sea Manual, 1944, page 274, states the following about Wismar:

In the flat channel to Wismar which has very little current, ice appears far more frequently than in neighboring ports on the open sea, of the last 30 winters (1911-12 to 1940-41) only five winters were completely free of ice. On the other hand, during the same period shipping was only completely closed three times because of ice, the longest period was 59 days in the winter of 1939-40.

In medium and severe winters usually only temporary traces of ice may appear about the first of December; normally, lasting ice appears only between Christmas and New Year. In moderately severe winters one can count on the ice disappearing in February, in severe winters this process can be delayed until the middle or even the end of March. In addition, the outer channel to Wismar is unprotected from storms from all wind directions. During strong winds damaged ships would have to await a lull on the open sea. The conditions may not be termed favorable in any respect.

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(5) The approach to Wismar - also to the yard - is about 13 1/2 sea miles long. Of this distance the last six sea miles proceed through a channel 50 meters wide at the base and with a depth of 8.00 meters below low tide. The entire channel has several curves, with sharp angles on the outer side. If a damaged ship would have to be brought into the dock with the help of tug boats, it could only be accomplished with utmost difficulties. Maneuvering the tug boats in the narrow channel would entail countless dangers to the damaged ship. In case a hawser should break, or for any other reason (sabotage) the ship should go aground in the channel; it would block the entire harbor traffic of Wismar for a long time. Raising work would be very tedious under such narrow channel conditions. [redacted] the above mentioned explanations are so convincing, that all authoritative offices should be induced to review the entire dock situation. 25X1

54. [redacted] a medium-sized dock is to be planned for the Warnow Yard. Repair installations would also then be necessary in Warnemuende. The expenditure would not be understandable, since in the neighboring [redacted] Neptun Yard there are floating docks which could be used. 25X1

55. It is proposed: To build the large dry dock together with a smaller dock on Ruegen and to plan a slip for ships up to 1,000 tons in the [redacted] Yard. Repair dockings for larger ships would all come to Ruegen, while all units awaiting repairs in all yards would be towed to Ruegen for underwater repairs. Thus far all dockings had to take place in Antwerp. Naturally the necessary halls and workshops would have to be built at this dock group. All disadvantages listed for Wismar would be eliminated for Ruegen and considerable savings could be expected. Experience shows that a repair yard cannot be operated profitably alone, so in time it would be necessary to install a shipyard for new construction of comparable size. The yard workers could be kept busy even if the dry dock is not being completely utilized. If larger ships than 10,000 tons should be built in the course of further economical development of the DDR, Ruegen would offer the possibility of constructing building docks and slips under the best building conditions. Particularly the building of larger naval units was thought of in this connection.

OTHER BUILDING PROJECTS

56. Appropriate construction sites for building PT-boats and submarine bunkers could be found. In this case the sites chosen in 1939-40 would again be considered. The southern part of the Bodden would be the appropriate site for the installation of a naval basin with many berths and accommodating naval schools. The buildings could be located to a large extent in the nearby woods. The mine and torpedo yards, ammunition depots for all calibers would best be situated near the village Ralswiek. Here the various installations could be built bomb-proof in the Buch Hills and the western part of the "Black Hills".

57. At this point the overseas port for freighters over 12,000 tons [redacted] is planned for Wismar [redacted] As may be well known, the three ports Wismar, Rostock and Stralsund cannot become very important as long as the entrance conditions are not improved and connection to [redacted] canal-net cannot be guaranteed. [redacted] imports and exports have to be transported by rail, especially in the case of the first two ports. The overloading of the present railroads already requires new railways and stations. It is most uncertain and problematical whether the German railway is in a position to transport the constantly increasing cargo without too great delay and breakdowns. The only first class waterway is the Oder River. If it were possible to deepen and level the waterways to the harbor of Stralsund at not too great an expense, the problem would already be solved. It is therefore suggested that the overseas port in the Grossen Jasmunder Bodden be built. The possibilities for enlargement in this bay are so far-reaching that an agreement in plans by all interested groups should be possible. Railway connection could be comparatively easily installed. The freight could also be transferred directly from large ships to modern motor freight barges by means of lighters. If the necessary quay sheds were built, a regular pick up and delivery service could be developed. About 60 - 70% of all winds come from the west, so the vessels could go southward through the Bodden and southeast canal in the lee of the island. The way would continue via the Greifswalder Bodden, Peene River, the Kleine Haff into the Oder River. Then the middle-European waterways would be open to various transports. It should not be especially difficult to build flat motor barges in the inland ship yards and equip them properly for the transports.

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SUMMARY

58. The core of the foregoing comments is the description of the "large dry dock". An immediate and final decision on the location of the construction is absolutely necessary in the interest of a timely and successful start of the project.

59. If it should be decided to construct this project on Ruegen, the necessary construction measures could be coordinated with the preparational work for the completion of the mole project (equipping the construction site, boring, construction of housing for workers, etc.).

60. [redacted]

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