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EO 11652

PETROLEUM FACILITIES OF THE NETHERLANDS

[redacted]

ARMY SERVICE FORCES
OFFICE OF THE COMMANDING GENERAL
WASHINGTON 25, D. C.

10 NOV 1944

Lt. General Carl Spaatz, Commanding General
U. S. Strategic Air Forces of Europe
APO 633, c/o Postmaster
New York, New York

Dear Spaatz:

Enclosed is the latest number of the petroleum facilities reports entitled, "Petroleum Facilities of The Netherlands".

Sincerely,

Bill

BREHON SOMERVELL
Lieutenant General
Commanding

1 Incl.
Pet. Fac. Rpt.
Cpy #81

THE FOREIGN SERVICE
OF THE
UNITED STATES OF AMERICA

AMERICAN EMBASSY
MISSION FOR ECONOMIC AFFAIRS,
1 Grosvenor Square,
London, W. 1.

CONFIDENTIAL

November 8, 1944.

Office of the Director of Intelligence,
hq 8th Air Force,
U.S.S.T.A.F., APO 635.

Attention: Colonel R. D. Hughes

Dear Sir:

.... Enclosed for your information is a copy (No. 11) of the Washington Enemy Oil Committee report covering the PETROLEUM FACILITIES OF THE NETHERLANDS.

Very truly yours,

D. L. Wright,
Petroleum Attache.

THE PETROLEUM FACILITIES OF

THE NETHERLANDS

Prepared by

The Enemy Oil Committee

For the

Fuels and Lubricants Division
Office of The Quartermaster General

July, 1944

CONFIDENTIAL

Copy No. 11

PLACE NAMES

The names of cities, towns, and other geographical features used in this report are those currently shown on official maps published in The Netherlands. The following names employed in this report have different English designations:

Dutch	English
Gemeentelijk	Municipal
's-Gravenhage or Den Haag	The Hague
Haven	Harbor
Het Ij	The Y
Kanaal	Canal
Nieuwe Maas	New Maas
Nieuws Waterweg	New Waterway
Noordzee Kanaal	North Sea Canal
Straat	Street
Vlissingen	Flushing

To aid in locating places referred to in this report they are listed below, alphabetically, with their latitudes and longitudes (a).

Place	Lat. N	Long. E	Place	Lat. N	Long. E
Alkmaar	52.38	4.46	Gorinchem	51.50	4.58
Almelo	52.22	6.40	Gouda	54.1	4.42
Amersfoort	52.10	5.24	's-Gravenhage (The Hague)	52.5	4.18
Amsterdam	52.23	4.55			
Apeldoorn	52.13	5.59	Groningen	53.13	6.34
Arnhem	51.58	5.55	Haarlem	52.23	4.39
Bergen-op-Zoom	51.30	4.17	Hansweert	51.27	4.1
Breda	51.35	4.47	Heerenveen	52.58	5.55
Coevorden	52.40	6.45	Heerlen	50.53	5.58
Delfzijl	53.21	6.55	Hengelo	52.17	6.48
Den Helder	52.58	4.45	's-Hertogenbosch	51.42	5.18
Deventer	52.16	6.10	Hilversum	52.14	5.11
Doetinchem	51.58	6.17	Hoogeveen	52.44	6.28
Dokkum	53.20	6.00	Hoorn	52.39	5.4
Dordrecht	51.48	4.39	Ijmuiden	52.28	4.36
Eindhoven	51.26	5.28	Krimpen aan den Ijssel	51.55*	4.36
Enschede	52.18	6.53			
Goes	51.31	3.53	Leeuwarden	53.13	5.48

(a) All latitudes and longitudes taken from Index-Gazetteer to "The Times" Survey Atlas of the World, London, 1922; edited by John Bartholomew, The Edinburgh Geographical Institute, except those marked * which were taken from maps furnished by Army Map Service.

PLACE NAMES (Continued) (a)

Place	Lat. N	Long. E	Place	Lat. N	Long. E
Leiden	52.10	4.31	Terneuzen	51.19	3.49
Maassluis	51.55*	4.16	Texel (island	53.5	4.50
Maastricht	50.51	5.41	Tholen	51.32	4.13
Meppel	52.42	6.11	Tiel	51.53	5.26
Middelburg	51.29	3.36	Tilburg	51.33	5.4
Middelharnis	51.46	4.10	Uithoorn	52.14*	4.49
Nieuw Beijerland	51.48*	4.21	Urk	52.41	5.36
Nijmegen	51.50	5.52	Utrecht	52.7	5.8
Oss	51.46	5.32	Venlo	51.22	6.9
Oud Beijerland	51.49*	4.25	Vlaardingen	51.54*	4.21
Oud Schoonebeeck	52.40*	6.53	Vlissingen	51.24	3.32
Pernis	51.53*	4.23	Vreeswijk	52.1	5.5
Roermond	51.12	5.59	Winschoten	53.9	7.2
Roosendaal	51.32	4.28	Winterswijk	51.58	6.43
Rotterdam	51.55	4.28	Woensdrecht	51.26	4.18
Schiedam	51.55*	4.24	Workum	52.59	5.27
Sliedrecht	51.49	4.47	Zaandam	52.27	4.51
Sneek	53.2	5.40	Zierikzee	51.39	3.56
Sommelsdijk	51.46*	4.10	Zuidwolde	52.41	6.26
Stadskanaal	53.1	6.56	Zwijndrecht	51.49*	4.39
			Zwolle	52.31	6.7

(a) All latitudes and longitudes taken from Index-Gazetteer to "The Times" Survey Atlas of the World, London, 1922; edited by John Bartholomew, The Edinburgh Geographical Institute, except those marked * which were taken from maps furnished by Army Map Service.

R E V I S I O N

Arrangements for the preparation and distribution of supplementary information pertinent to this report are contemplated. Request is made that advices concerning corrections and useful addenda for the report be sent to:

Director, Fuels and Lubricants Division
Office of The Quartermaster General
Washington, D. C.

C O N T E N T S

LIST OF ILLUSTRATIONS

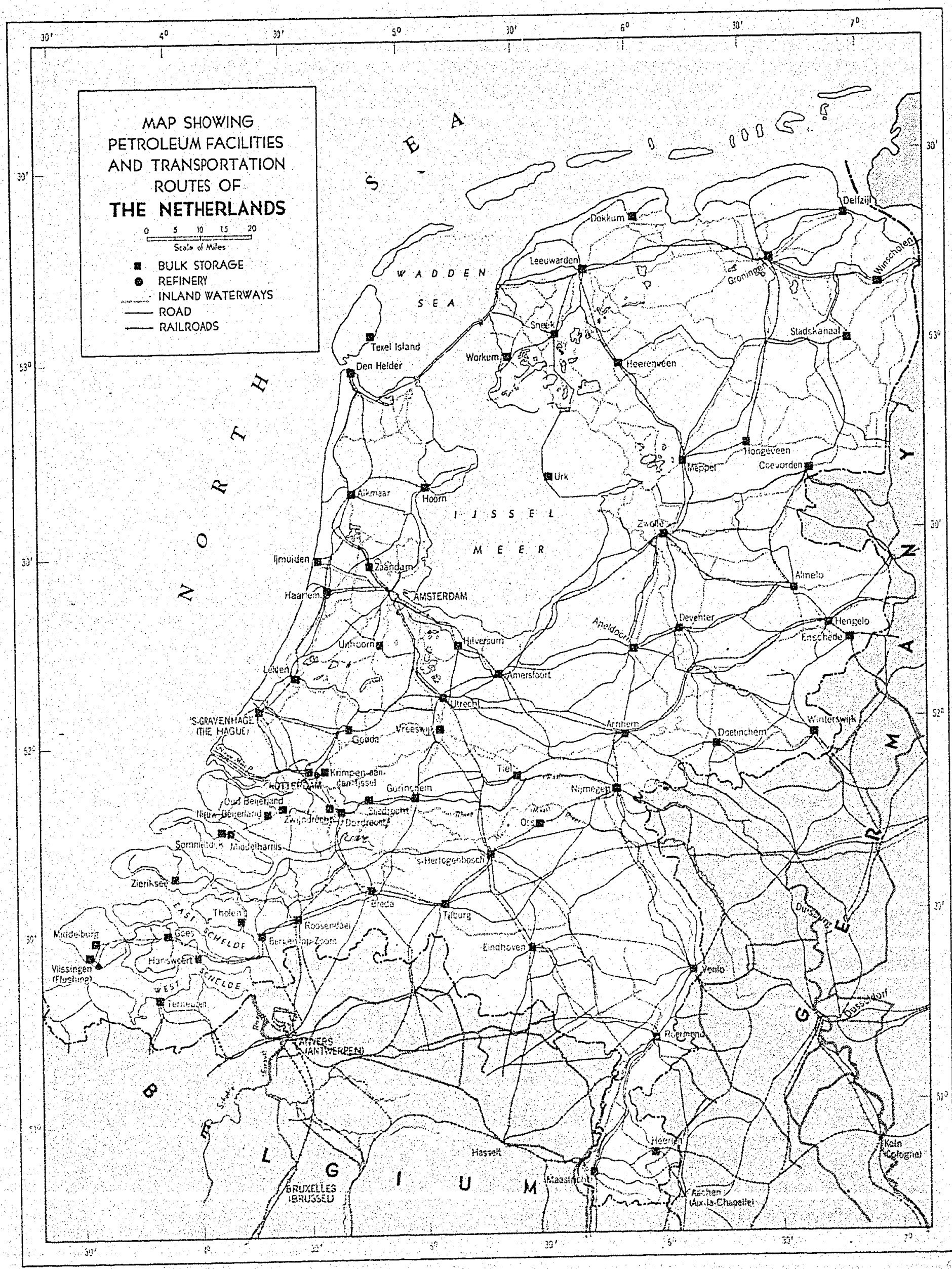
Maps and Figures

Maps and Figures (continued)

Tables and Graphs

Photographs

8 - INTRODUCTION
Facilities map



1.0 INTRODUCTION

1.1 GENERAL

Scope.- The purpose of this report is to describe briefly all of the significant aspects of the petroleum economy of The Netherlands and of the petroleum installations in that country. The brevity of the report is due to the relative unimportance of the producing and refining elements of the industry within The Netherlands.

Production.- Prior to the war there was no production of petroleum in The Netherlands, though some exploration and test drilling had been carried on. Recent air reconnaissance has disclosed that several wells have now been drilled in the northeastern part of the country and it is believed that some small production has been obtained. A resumé of the geology of The Netherlands with reference to potential petroleum resources is presented in the "Producing" section of this report.

Refining.- There are only two refineries in The Netherlands and of these only one, that of the N.V. de Bataafsche Petroleum Mij., a subsidiary of the Shell group, is of importance. This refinery, with a crude throughput capacity of 1,100,000 metric tons per year, is located near Rotterdam, and formerly operated on crude oil imported from Venezuela. The only other refinery was a small independent asphalt plant at Vlissingen (Flushing). Both are now idle. Descriptions of these plants will be found in the "Refining" section of this report.

Supplies.- All supplies, either in the form of finished products or as crude oil to be refined locally, were imported. The major portions of these imports came from the United States, Mexico and the Caribbean area. Considerable quantities of both crude and finished products, over and above the domestic requirements of The Netherlands, were imported in bond and transshipped to other European countries, and particularly to Germany. This movement of oil in transit was especially pronounced in the prewar years, during which Germany was actively engaged in building up reserve stocks of petroleum and other vital commodities. Also, an important portion of Switzerland's requirements was normally supplied through The Netherlands. Tables of statistics on imports and exports appear on pages 43 to 45, inclusive.

Consumption.- The normal peacetime consumption of liquid fuels and lubricants within The Netherlands was approximately 12,000,000 barrels (a) per year. The allocations of civilian supplies, which presently come from Germany, have been progressively reduced by the German authorities to the point of now being almost nil. Most of the absolutely essential civilian requirements are being supplied by substitutes including some benzol produced from the carbonization of coal and the distillation of coal tars.

Storage and distribution.- Extensive ocean terminals existed at Amsterdam and Rotterdam and limited terminal facilities also exist at Vlissingen (Flushing). While some of these terminals have been damaged, the majority are reported to be still essentially intact.

Inland bulk plants for the distribution of petroleum products are numerous and a majority of them are located on the inland waterways so that they may be supplied by barge. No evidence of extensive demolition or dismantling has come to light, nor is it thought probable that important material additions have been made.

Prewar service stations and pump outlets for supplying the retail gasoline trade were numerous and modern, but under present conditions are probably considerably reduced.

(a) The term "barrels" as used throughout this report refers to a unit of 42 U. S. gallons.

10 - INTRODUCTION
Operating companies

Operating companies.- A list of the principal oil companies operating in The Netherlands at the time of the German invasion is given on page 12. The companies listed are those that were engaged in refining, storing or marketing petroleum products. Not included are a number of holding companies and companies operating in the colonial possessions of The Netherlands that maintained their legal headquarters in The Netherlands but actually operated no facilities there (a).

A detailed identification of the American and British companies actually operating in The Netherlands, including names of key personnel (b), follows:

N.V. de Bataafsche Petroleum Maatschappij

Office address: Carel Van Bylandtlaan 30, The Hague (Scheveningen)
Ownership: The Royal Dutch Shell group
Prewar operations: Refining and ocean terminals
Key prewar personnel: Requested of Shell but not furnished.

N.V. Bataafsche Import Maatschappij

Office address: Gevers Deynootweg 59, The Hague (Scheveningen)
Ownership: The Royal Dutch Shell group
Prewar operations: Marketing of petroleum products
Key prewar personnel: Requested of Shell but not furnished.

Entrepôt der Standard Amerikaansche Petroleum Compagnie N.V. (c)

Office address: Petroleumweg 25, Rotterdam (Pernis)
Ownership: Jointly by Standard Oil Company (New Jersey) and Standard Amerikaansche Petroleum Compagnie N.V.
Prewar operations: Storage of petroleum products
Key prewar personnel: (1) J. A. Beukers, Director; (2) J.J. Blok, Director; (3) J. C. Meiger, Administrative Manager; (4) E. A. Van Buiren, Plant Manager; (5) W. van Elden, Director.

Standard Amerikaansche Petroleum Compagnie N.V. (d)

Office address: Petrolea Building, Benoordenhoutscheweg 7, The Hague
Ownership: Standard Oil Company (New Jersey) has controlling interest.
Prewar operations: Marketing of petroleum and its products in The Netherlands
Key prewar personnel: (1) B. Klaare, Director, Netherlander; (2) H. D. McFadden, Director, 30 Rockefeller Plaza, New York, American; (3) C. R. Smit, General Sales Manager; (4) A. J. Kuselbas, General Sales Manager; (5) J. A. Beukers, Technical Manager; (6) J. J. Blok, Comptroller.

Nederlandsche Gulf Olie Maatschappij N.V.

Office address: 79 Coolsingel, Rotterdam
Ownership: Gulf Oil Corporation
Prewar operations: Wholesale lubricants, gas oil and fuel oil. Owns no bulk facilities.
Key prewar personnel: P. Wolff, Manager in charge. It is unknown whether or not he is still in The Netherlands.

(a) Particularly true of a large number of subsidiaries of the Shell group.
(b) In listing the individuals who have been associated with various oil companies, it should be understood that, while these individuals may be looked to for information of possible value in their respective fields, insofar as non-Americans are concerned no implications should be drawn as to their political sympathies or affiliations.
(c) Formerly N.V. Rotterdamsch Petroleum Entrepôt. Name changed September 1, 1935 to Entrepôt der American Petroleum Company N.V., and on March 15, 1939 to present name.
(d) Formerly N.V. American Petroleum Company. Name changed October 26, 1938.

N.V. Petroleum Handel Maatschappij

Office address: 125, De Ruyterkade, Amsterdam - C
Ownership: Anglo-Iranian Oil Company, Ltd.
Prewar operations: Distribution of petroleum products in Holland
Key prewar personnel: The former Manager of this company died last year and the present Acting-Manager is Mr. Van Eldert (Dutch). His address should be regarded as at 125, De Ruyterkade, Amsterdam, as his private address is unknown.

N.V. The Texas Company

Office address: 2 de Adelheidstraat 300, The Hague
Ownership: The Texas Company
Prewar operations: Marketing of petroleum products imported from The Texas Company, U.S.A., through dealers, agents, and direct to consumer.
Key prewar personnel: (1) A. C. Long, Manager, The Texas Company, McCormick Bldg., Chicago, Illinois, American; (2) A. Van Den Berg, Assistant Manager, address unknown, Dutch; (3) J. A. M. Foudraine, Chief Accountant, address unknown, Dutch.

Vacuum Olie Maatschappij N.V.

Office address: 70 Willem Buytewechtstraat, Rotterdam
Ownership: Socony-Vacuum Oil Company, Inc.
Prewar operations: Distribution and marketing of high grade lubricating products. A small bulk lube oil storage and barrel reconditioning plant and warehouse (constructed in 1936-1937) was located at Rotterdam.
Key prewar personnel: (1) W. Knol, General Executive; (2) E. G. van der Bent, Asst. Manager; (3) C. J. Mulder, Chief Engineer and Technical Manager; (4) A. V. Rowe, Office Manager. All of the above personnel are of Dutch nationality and are believed to be in The Netherlands, but present addresses are unknown.

IDENTIFICATION OF PRINCIPAL COMPANIES OPERATING IN THE NETHERLANDS

COMPANY		AFFILIATIONS OF COMPANY	
Name of Company	Address of Head Office of Company	Names of Owner Firms Majority Interests or Control	Address of Owner Firms
N.V. Amsterdamsche Maatschappij tot Exploitatie Van Opslagterreinen(a)(b)	89-91 Cruquiusweg, Amsterdam	Nieuwe Matex N.V.	Rotterdam
N.V. Bataafsche Import Maatschappij(c)	Gevers Deynootweg 59, The Hague (Scheveningen)	The Shell group	London
N.V. de Bataafsche Petroleum Maatschappij	Carel Van Bylandtlaan 30, The Hague	The Shell group	London
N.V. Deluxol Olie Maatschappij	Galiliestraat 41-45, Rotterdam	Sun Oil Company	Philadelphia
Entrepôt der Standard Amerikaansche Petroleum Compagnie N.V.	Petroleumweg 25, Rotterdam (Pernis)	Standard Oil Company (New Jersey)	New York
N.V. Fanto Petroleum Maatschappij	Spuistraat 198, Amsterdam	Mij. Voor Beheer van Effecten (Fanto group holding company)	Amsterdam
N.V. Industrieele Producten Compagnie	1 Hoofdstraat, Rotterdam (Schiedam)	Independent	Rotterdam
Internationale Petroleum Producten Maatschappij N.V.	13 Korte Voorhout, The Hague	Independent	
Naphta Industrie und Tankanlagen A.G. "Nitag"	Berlin	Wintershall A.G.	Kessel, Germany
Nederlandsche Gulf Olie Maatschappij N.V.	79b Coolsingel, Rotterdam	Gulf Oil Corporation	Pittsburgh, Pa.
Nederlandsche Olie Producten Import Maatschappij		Independent	
N.V. Nederlandsche Sun Olie Maatschappij	Coolsingel 31c, Rotterdam	Sun Oil Company	Philadelphia
Nieuwe Matex N.V.	Rotterdam	Independent	
N.V. Olie Handelsvereeniging	Pieter de Hoochweg 110, Rotterdam	Gulf Oil Corporation (minority interest) and others	
Olie Raffinaderij "Witol" N.V.	Rotterdam	Independent	
Pakhuismeesteren	Leuvehaven 72, Rotterdam	Pakhuismeesteren	Rotterdam
N.V. Petroleum Associatie	Rotterdam	Independent	
N.V. Petroleum Handel Maatschappij	125 De Ruyterkade, Amsterdam	Anglo-Iranian Oil Company	London
Smeerolie & Teer Industrie TWENTOL N.V.	Zutphenscheweg 3, Deventer	Gulf Oil Corporation	Pittsburgh, Pa.
Standard Amerikaansche Petroleum Compagnie N.V.	Petrolia Building, Benoordenhoutscheweg 7, The Hague	Standard Oil Company (New Jersey)	New York
Steenkolen Handels Vereeniging	Vlissingen	Independent	
N.V. The Texas Company	2 de Adelheidstraat 300, The Hague	The Texas Company	New York
Vacuum Olie Maatschappij N.V.	70 Willem Buytewechstraat, Rotterdam	Socony-Vacuum Oil Company, Inc.	New York
Vereenigde Petroleum Maatschappijen Purfina-Sinclair "Sinfina" N.V.	Hofweg 7, The Hague	Sinclair Petroleum Company, S.A.(d) and Compagnie Financiere Belge des Petroles S.A. "Petrofina"	Brussels Antwerp
N.V. Vlissingsche Mineraalolie en Asphalt Raffinaderij	Vlissingen	Independent	

(a) N.V. is the commonly used abbreviation for Naamlooze Vennootschap, meaning the equivalent of the British term "Limited."
(b) This concern is commonly known as Amatex.
(c) Maatchappij is commonly abbreviated to Mij., and means "Company."
(d) Controlled by the Anglo-Iranian Oil Company, Ltd. The Sinclair Refining Company, New York, has a minority interest in the Vereenigde Petroleum Maatschappijen Purfina-Sinclair "Sinfina" N.V.

2.0 PRODUCING

2.1 INTRODUCTION

The only oil discovered so far in The Netherlands comes from a small field which the Germans have developed near Coevorden (latitude 52° 40' N, longitude 6° 45' E) since their occupation. Just before the outbreak of the war, the N.V. de Bataafsche Petroleum Mij., a subsidiary of the Shell group, drilled four tests in the vicinity of Coevorden, and it is possible that the discovery of oil by the Germans was the result of the Shell's preliminary exploratory work. Earlier drilling was chiefly confined to tests put down by The Netherlands Government in the search for coal and salt near the German border south of Coevorden. Despite the limited amount of exploratory drilling which has been undertaken in The Netherlands thus far, the subsurface geology of the western and the northwestern part of the country appears to be sufficiently favorable for the accumulation of oil to warrant a thorough search.

2.2 GEOLOGY

Unconsolidated deposits of sand, clay, graven and peat, chiefly Pleistocene in age, conceal bedrock throughout all of The Netherlands except for small exposures of Tertiary and Mesozoic strata that appear near the German border in the eastern part of the provinces of Overijssel and Gelderland and in the southern end of the Limburg panhandle. See accompanying geological map (Fig. 1) on page 14. This cover of unconsolidated sediments increases in thickness to the northwest and is over 300 meters thick in central and western Holland. Few wells have been drilled through it except near the German border. Our knowledge, therefore, of the pre-Pleistocene geology of the greater part of The Netherlands is largely conjectural. - A study, however, of the data obtained in the wells drilled in eastern border areas gives a fair idea of its geology. This information combined with what is known about bordering geological provinces makes it possible to draw tentative conclusions about the geology and oil prospects of central and western Holland.

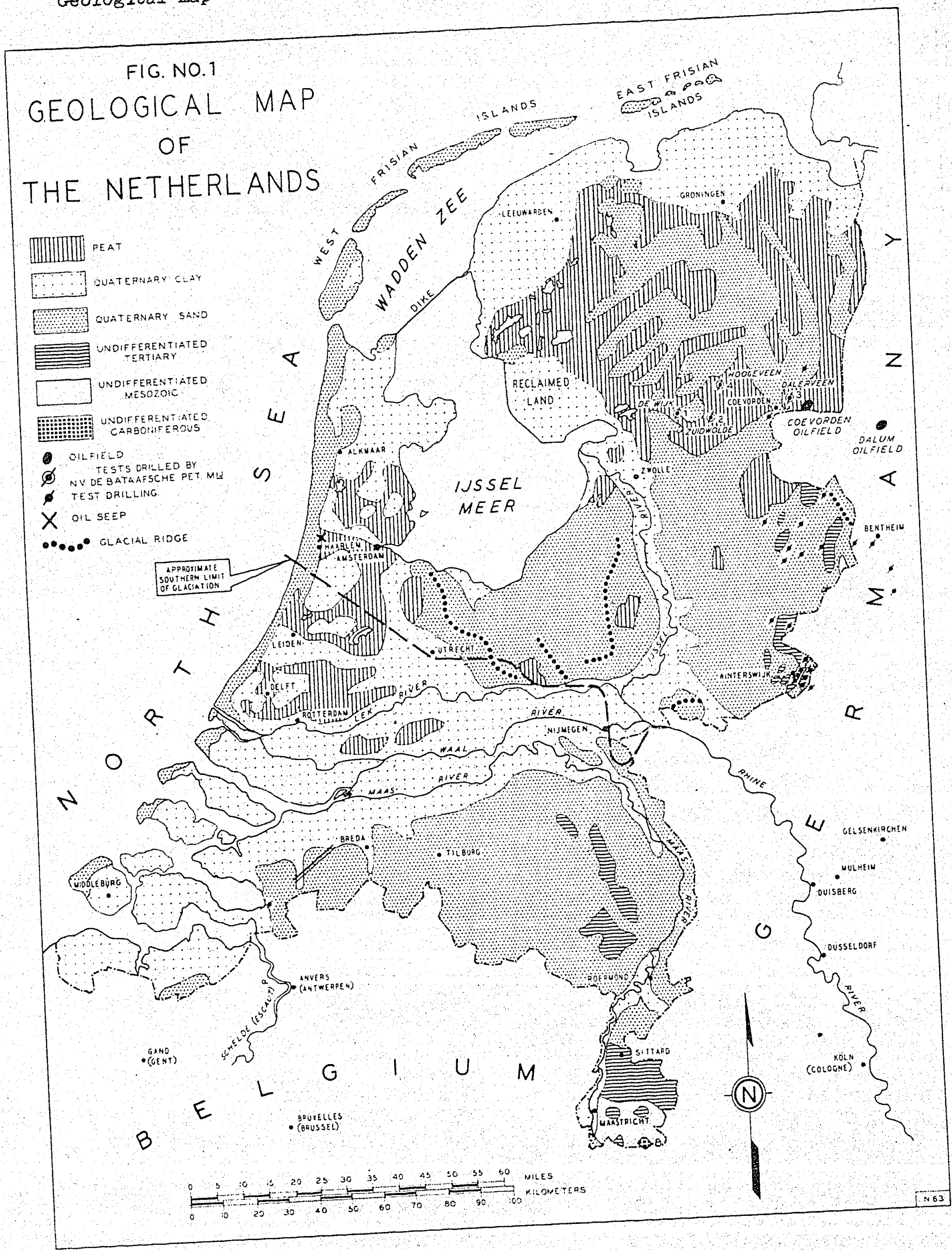
Stratigraphy.- The pre-Pleistocene geology of the border area as revealed by wells is as follows: In the provinces of Drenthe, Overijssel and Gelderland, Tertiary formations ranging from Miocene to Eocene are encountered at shallow depths. Between Coevorden and Winterswijk, Eocene formations underlie the Pleistocene and have a thickness of 100-250 meters. See Fig. 3, on page 16. Further westward and southward the Oligocene and Miocene are also present. Bores in northeastern North Brabant and northern Limburg provinces encountered nearly 600 meters of Tertiary sediments. At Molenbeersel, near the Belgian border, the Tertiary is over 1,000 meters thick. Further westward it is nearly 600 meters thick at Vlimmern and 174 meters thick at Ostend. See Fig. 2 on page 15.

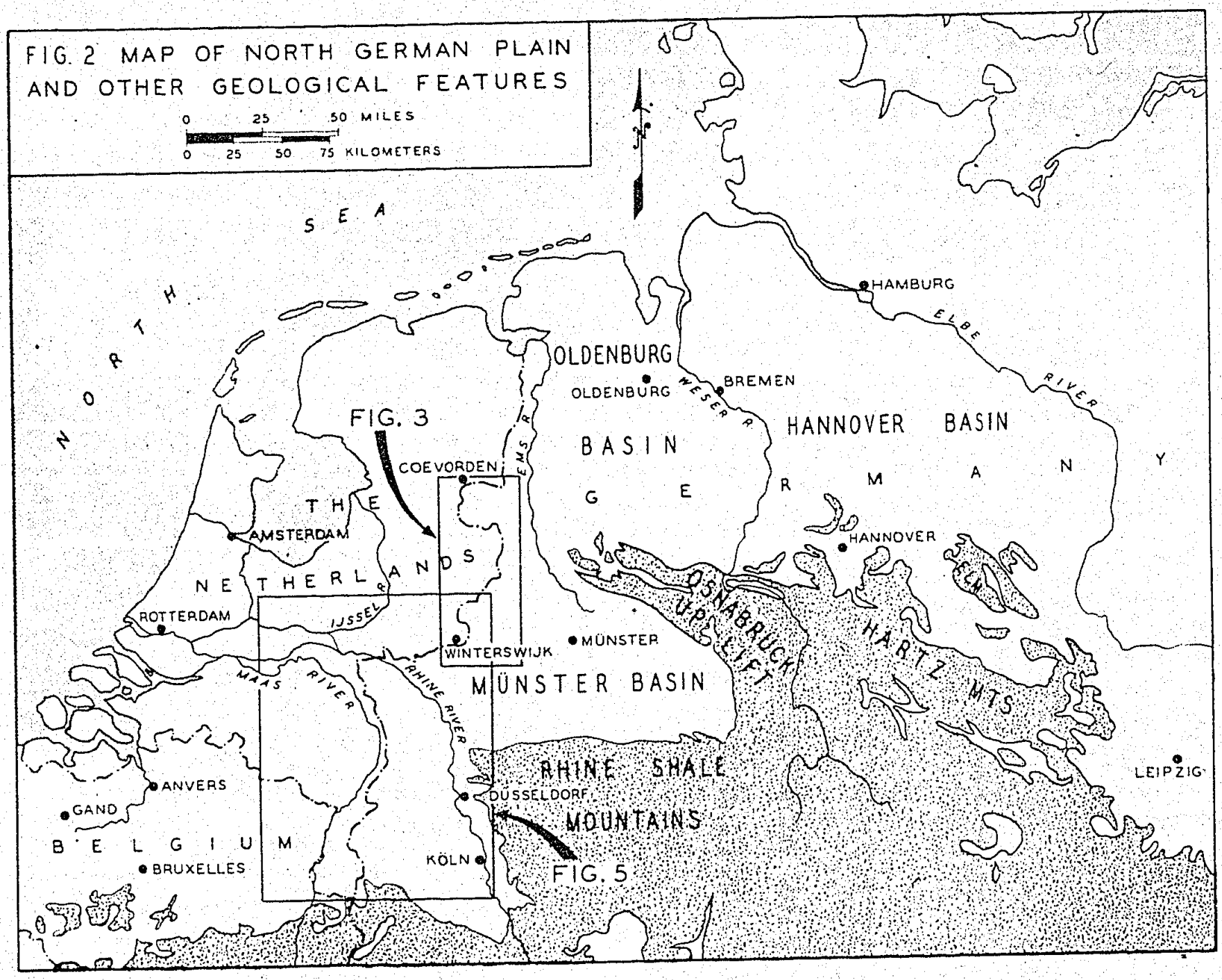
Between Winterswijk and Vreden, the Tertiary rests unconformably on Lower Cretaceous and older Mesozoic formations, the Upper Cretaceous being absent either because of non-deposition or pre-Tertiary uplift and erosion. Further northward the Upper Cretaceous was penetrated in a bore at Zuid-Barge near Coevorden. It also occurs as a thick series of chalks and shales slightly east of the border near Ahaus and Vreden. Southwest of Winterswijk, the Tertiary overlies a thin section of the Upper Cretaceous which commonly rests unconformably on the Triassic. See Fig. 5 on page 17. Further westward the Upper Cretaceous transgresses Paleozoic formations and overlies Cambrian schists near Ostend.

The Lower Cretaceous to the north of Winterswijk is around 100 meters thick and is represented only by basal members such as the Wealden and Valendis, other members being removed by erosion. In the Münster Basin, 3 miles east of the border near Alstätte, the entire sequence of the Lower Cretaceous is present and attains a total thickness of 900 meters. At Bentheim a similar section is known.

(a) For convenience the popular name of the country, Holland, is used interchangeably with the official name, The Netherlands, in this section of the report.

14 - PRODUCING
Geological map





Except for a few meters of Lias the Jurassic is not encountered in the area southwest of Winterswijk. To the northeast it is represented usually by less than 100 meters of Lias although the bore at Ootmarsum is reported to have encountered 118 meters of Upper Jurassic without reaching lower formations. In the Munster basin, near Alstätte, only 30 meters of the Jurassic is recognized. But a thick section of lagoonal deposits containing salt beds was penetrated in a bore at Bentheim.

The Triassic is encountered in most deep bores along the eastern border. The Keuper (Upper Triassic) is usually absent and the Muschelkalk is represented by only 40-50 meters of marly limestone. The Buntsandstein (Lower Triassic) is around 800-900 meters thick. The Röt member of the upper Buntsandstein here contains rock salt.

To the north of Winterswijk, the Zechstein has a thickness of around 300 meters with 100 meters of rock salt. Further to the southwest it has been reported in only two wells 9 miles west of Venlo, where it is around 70 meters thick.

Coal measures of the Carboniferous have been encountered at several localities in the eastern border provinces and no doubt underlie most of The Netherlands.

Structure.- The subsurface structure in the eastern border area is complex and is not known in detail. The Carboniferous formations are sharply folded and faulted. This is especially true of the Carboniferous in the southern part of Limburg which lies in the belt of closely folded coal measures of Westfalia. The axes of the Carboniferous folds in general trend northeast-southwest with overthrusting to the northwest. The deformation decreases rapidly northwestward and probably dies out

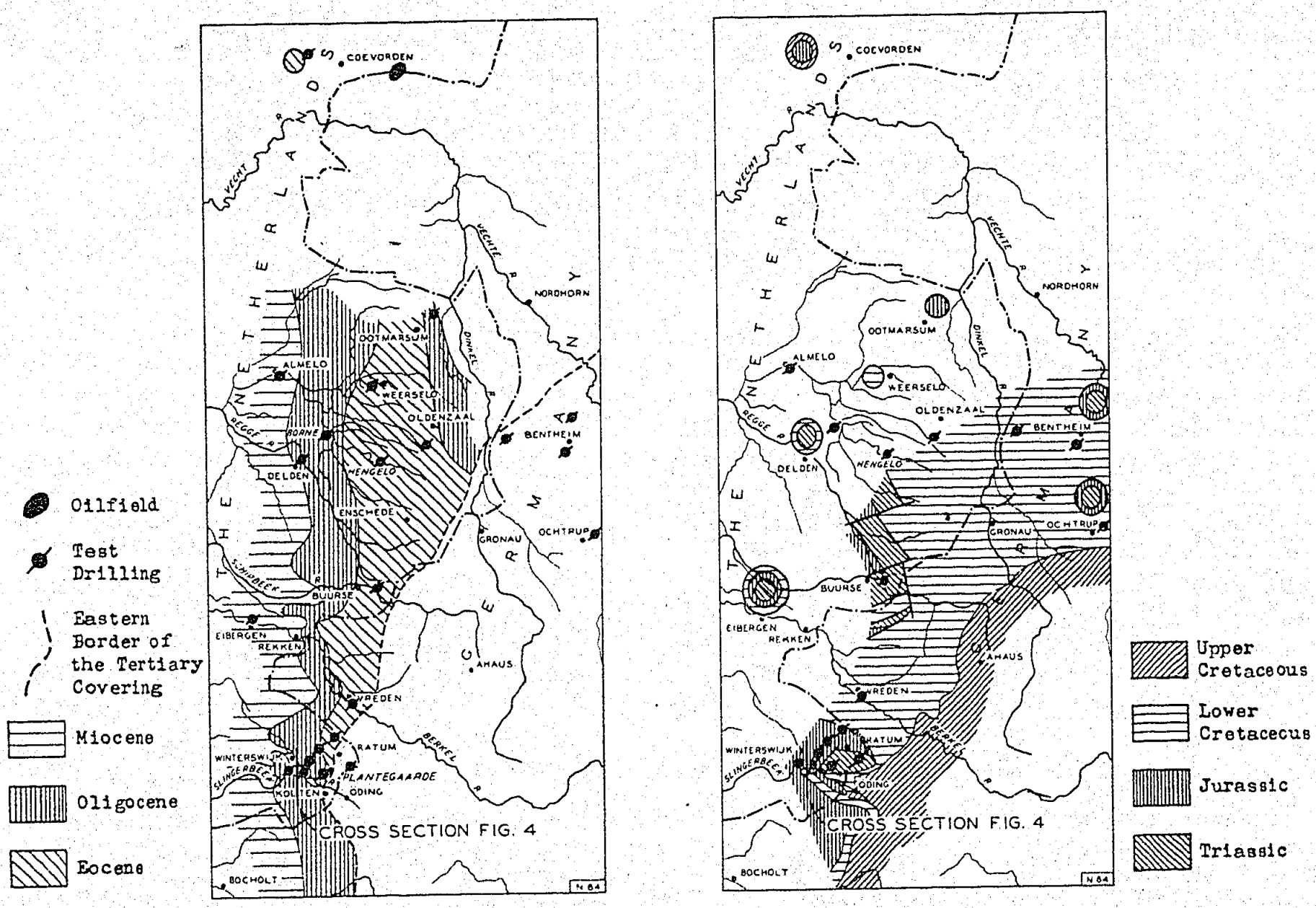


FIG. 3. EXPLORATIONS AND SUBSURFACE GEOLOGY ALONG THE WESTERN BORDER OF THE MÜNSTER BASIN

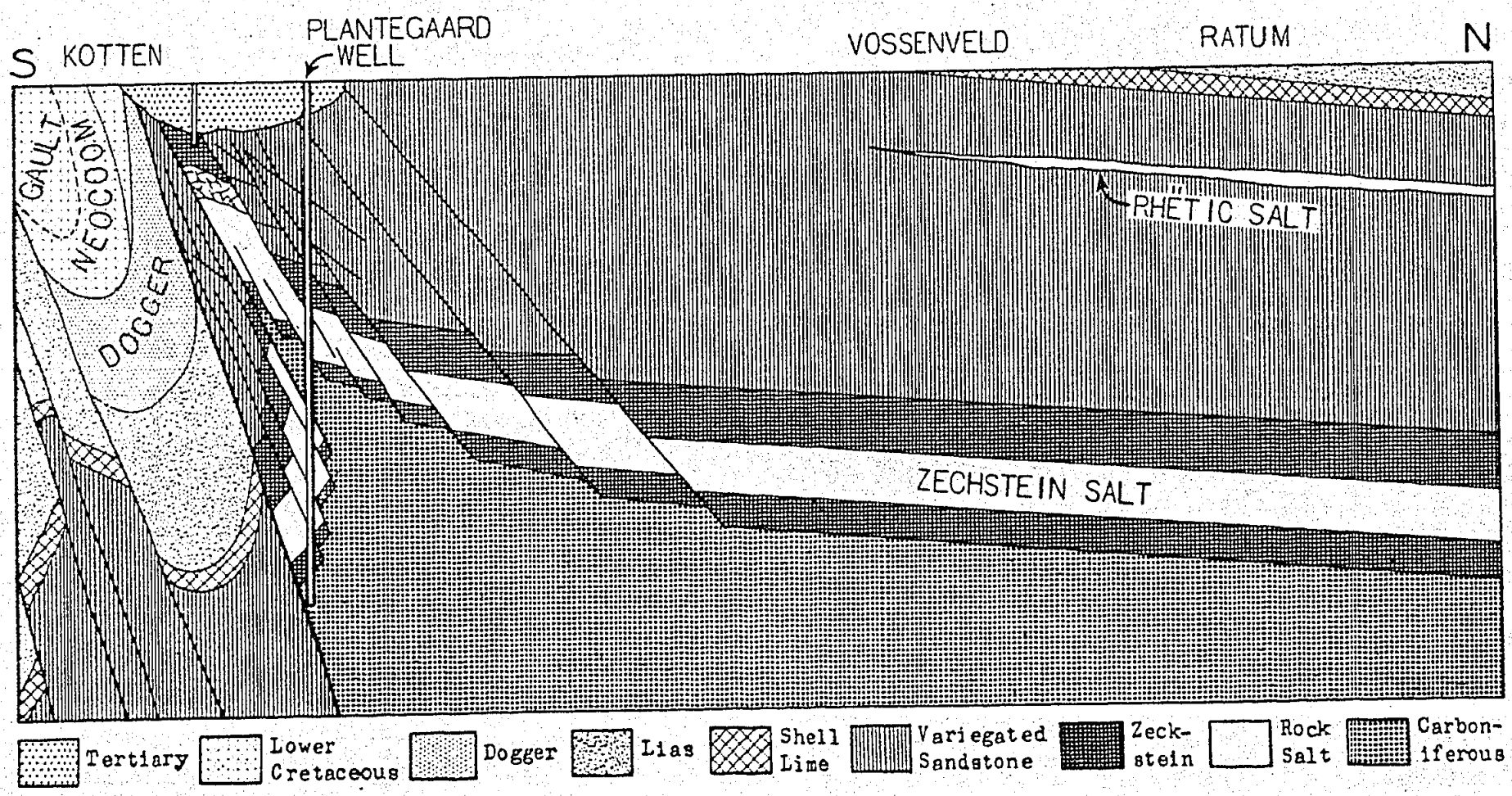
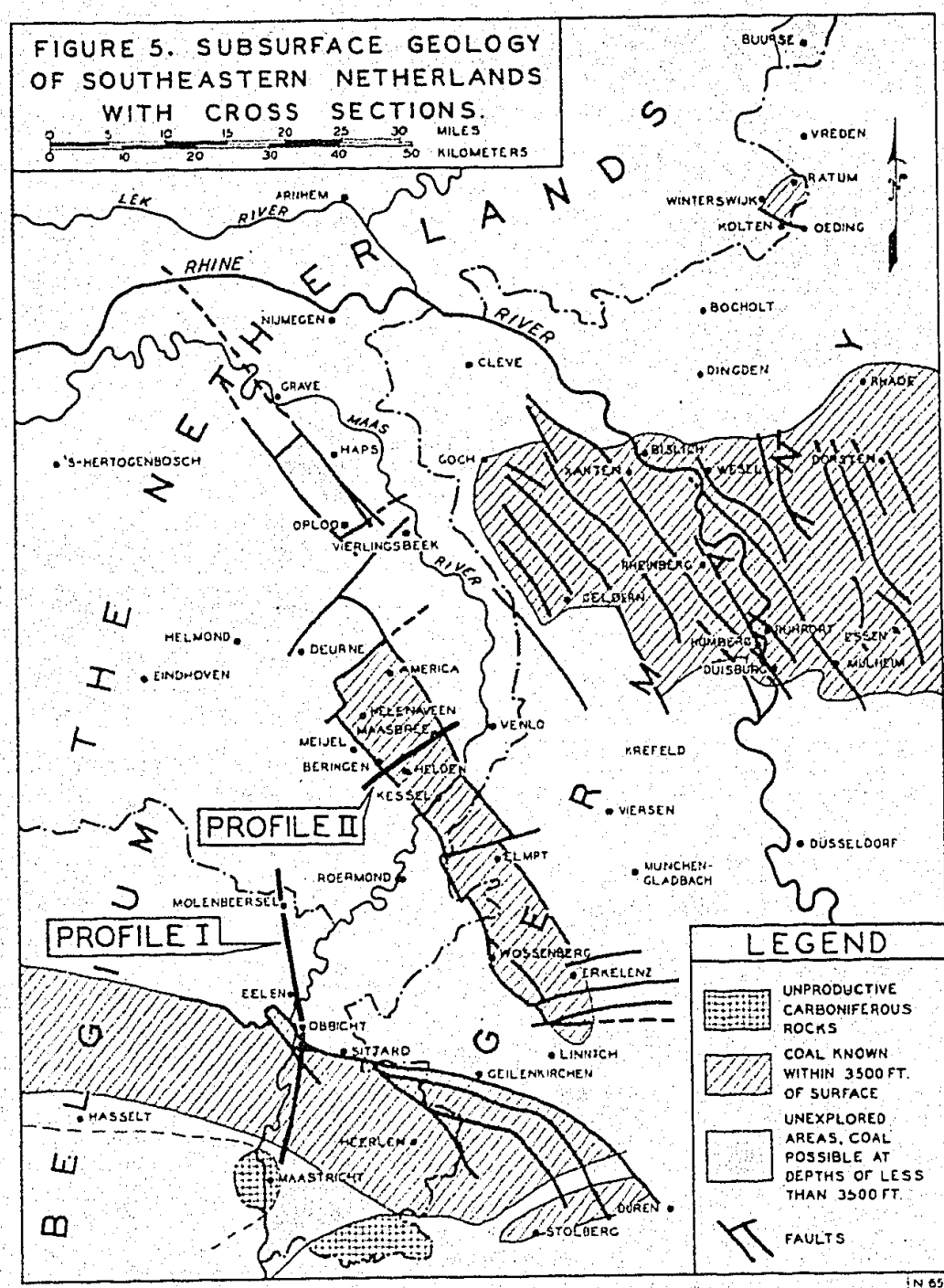
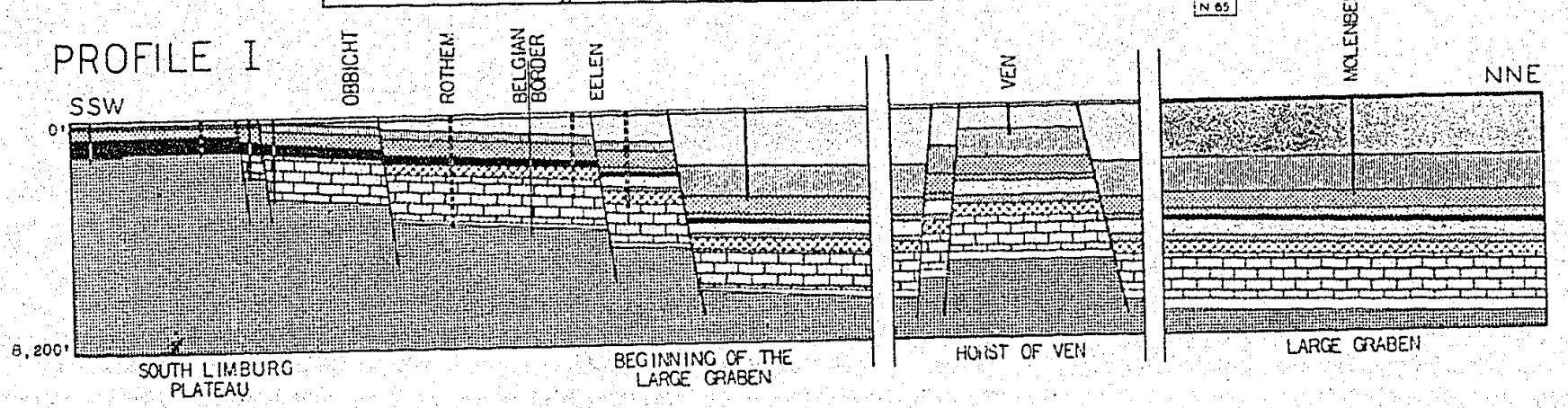
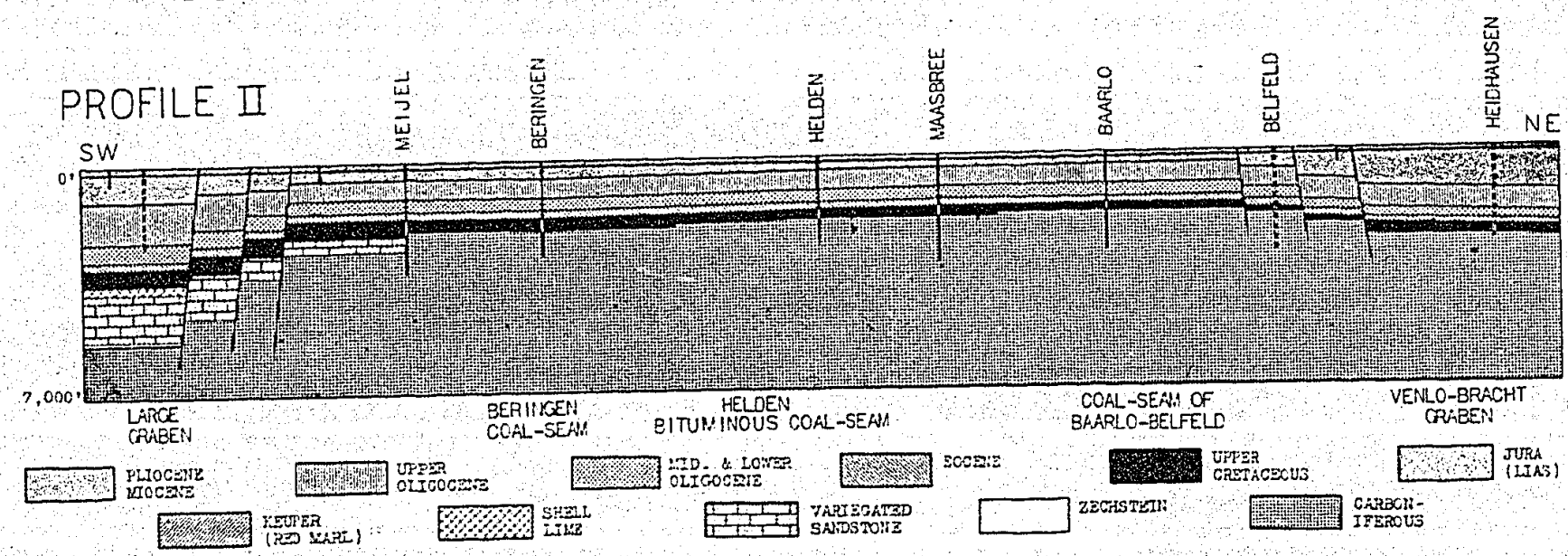


FIG. 4. CROSS SECTION THROUGH THE WINTERSWIJK SALT HORST

FIGURE 5. SUBSURFACE GEOLOGY OF SOUTHEASTERN NETHERLANDS WITH CROSS SECTIONS.







in minor folds in southern Holland. The Upper Cretaceous formations which transgress the Carboniferous are not affected by this Hercynian (Permo-Carboniferous) deformation. See Figure below.

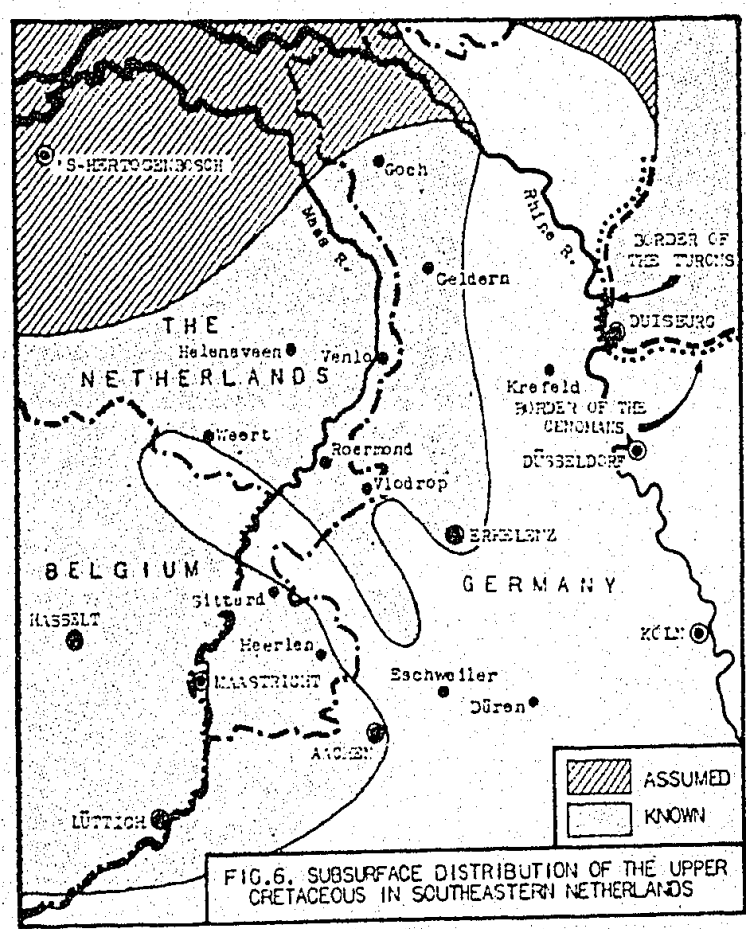


FIG.6. SUBSURFACE DISTRIBUTION OF THE UPPER CRETACEOUS IN SOUTHEASTERN NETHERLANDS

Normal faulting transverse to the Hercynian folds is widespread in the provinces of Limburg and North Brabant and has produced a series of step faults bordering a deep basin which lies between northwesterly plunging horsts. This faulting probably originated in the Mid-Permian and is reported to have persisted into the Pleistocene. The displacement along the faults increases with depth and formations that attain a considerable thickness in the intervening basin are much thinner over the horsts or entirely absent. See cross sections in Figure 5 on page 17. This type of structure has not been recognized outside of the above-named provinces but may persist further northwestward under the cover of Pleistocene and recent sediments.

The following three structural features are recognized near the eastern border of the provinces of Overijssel and Gelderland: (1) A broad Pre-Tertiary uplift surfaced by the basal members of the Lower Cretaceous and in places by horsts of Triassic and Jurassic strata, (2) the Bentheim fold, and (3) the Octrup and Winterswijk salt horsts. Actually the information in regard to these features, being on a few bores, is very sketchy and insufficient to outline their extent and character. For example, nothing is known about the western boundary of feature 1. Its eastern boundary is formed by faults in the vicinity of Vreden and Alstätte. According to Van der Gracht, the Bentheim fold is reported to belong to the Teutoburger Wald type of fold where a nearly complete section of the Mesozoic is involved in Post-Cretaceous anticlinal folding along the southern border of the Osnabrück uplift. It has been linked genetically with the Cleveland Hills folds in Yorkshire, England. The Octrup and Winterswijk structures are reported to be due to Pre-Upper Cretaceous deformation. Both are commonly spoken of as salt horsts but it is doubtful whether the latter can be so designated. The cross section shown in Fig.4 gives no indication that the Zechstein salt beds have intruded overlying formations.

2.3 EXPLORATION AND PRODUCTION

Shows of oil.- Information as to the extent that shows of oil were encountered in the recently drilled tests in eastern Holland is not available except in the case of the small production obtained by the Germans near Coevorden and described below. In earlier drilling the following shows were reported: (1) Middle Oligocene clays were impregnated with oil in North Brabant province. (2) The Corle bore, near Winterswijk, encountered oil impregnated zones in Zechstein anhydrite and dolomite and Carboniferous sandstones. (3) A test at Ratum, near Winterswijk, also penetrated Carboniferous sandstones impregnated with oil. (4) Jurassic strata with a strong petroliferous odor were reported in a well drilled at Woensdrecht near the mouth of the Scheldt. (5) The two bores at Bentheim, Germany, encountered oil impregnated clays and limestones in the Wealden and Upper Jurassic formations. The only surface seep in The Netherlands is one near Haarlem, 18 km. west of Amsterdam, which has been known since the Middle Ages.

Exploration.- The N.V. de Bataafsche Petroleum Mij. (Shell group), during 1937-1939, drilled four wells in Drenthe Province near Coevorden chiefly for the purpose of testing out new equipment. See Fig. 1 on page 14. The following information is given as to the location, etc., of these wells.

Well No. 1, located at De Wijk, 30 kilometers west of Coevorden, was abandoned at 598 meters. The second test was put down 10 kilometers further east at Zuidwolde and drilled to a depth of around 600 meters. A third well was drilled in 1939 at Dalerveen, 6 kilometers northeast of Coevorden, and the rig was later moved for a test at Nieuwlande near Hoogeveen, 20 kilometers northwest of Coevorden. The depth reached in the latter two wells is not reported, neither is there any information available as to possible shows or the formation penetrated in any of the wells. However, it is known that a well drilled at De Scheere, 5 kilometers southwest of Coevorden, about 40 years ago, encountered Jurassic strata under the Eocene at a depth of 311 meters. A second early test located at Zuid-Barge, 16 kilometers northeast of Coevorden, penetrated Upper Cretaceous chalks beneath the Eocene at a depth of 422 meters.

Coevorden Oil Field.- Since their occupation of The Netherlands, the Germans have developed a small oil field at Oud Schoonebeeck, about 10 kilometers east of Coevorden. Data concerning this field, gathered from the analysis of aerial photographs obtained in the early part of 1944, is summarized as follows:

In this area eight locations have been recognized. Four lie 1/4 to 1-1/2 miles north of Oud Schoonebeeck, spaced at intervals of 1/2 to 1 mile, and four more lie close together one mile south of the village near a farm named Hombert. The interval between these is about 800 feet. Of the northerly locations, two appear well established and have derricks, one apparently has erection just beginning, and the fourth is represented by an incomplete mud bund. At the southern group of locations two have derricks, one appears to be completed and the fourth is at an early stage of preparation. The completed location and both of those with derricks have black material in the mud bunds and may well have obtained production. It can be seen that the rigs have steel derricks and are using the rotary system, but photographic quality prevents detection of other details.

It appears probable that two or three wells have obtained production, two south of Oud Schoonebeeck and possibly one to the north. A pipe line may have been laid from the well to the north, but it is not possible to be certain. Oil storage tanks have not been detected, but if these have been erected near houses without disturbance of the ground they may well have escaped detection. At this stage it is unlikely that any large production has been reached, but the considerable amount of activity (at least two and possibly four drilling rigs, with three locations in preparation) indicate that the prospects are rated somewhat high.

It may be noted that the new field is located 15 miles WNW of the small field at Lingen/Dalum across the border in Germany, and is a further discovery on the line of the Osnabrück uplift. Exploration in the intervening area is also in progress, the same cover shows a location 2 miles NW of Hesepe, 3-1/2 miles N of Dalum (52° 38' 15" N, 07° 11' 30" E) which has a derrick with full drilling equipment. Two large bunds are full of mud, but no sign of oil production is observed.

Present production from the Coevorden field is not known but it is thought to be small. Estimates range from 1 to 20 tons per well per day and it is not clear how many wells are actually producing. It has been reported that small quantities of oil have been shipped from there to Germany for use in the manufacture of lubricants.

Dalum Oil Field.- The Dalum field mentioned above is situated in Hannover Province of Germany about 25 kilometers east of the Coevorden field. It was discovered in 1942 and is reported to have from 5 to 10 producing wells. The oil is obtained from a Lower Cretaceous sandstone (Wealden?) at depths of 1,500 to 3,000 feet. As at Coevorden there are no bedrock exposures in this locality and presumably the field was discovered as the result of geophysical exploration.

FORMATIONS PENETRATED IN BORES IN EASTERN HOLLAND

With remarks as to their possible distribution and thickness in central and western Holland (a)

Recent-Pliocene, 10-100 meters unconsolidated sand, gravel, clay, etc. Conceals older formations throughout all of Holland, except for small areas along its southeastern border, where it is seldom more than 50 meters thick. At Utrecht the base of these sediments lies at a depth of over 300 meters.

Miocene, 0-150 meters. Clays, silts, glauconitic sands, lignites, etc., chiefly of fluviatile origin but with local marine facies. Not reached by bores in central or western Holland.

Oligocene, 0-300 meters. Marine and fluviatile sandy clays with glauconite and shell beds. Some horizons are strongly impregnated with oil. Probably present throughout most of Holland but thickness unpredictable.

Eocene, 100-350 meters. Gray to greenish clay, sandy clay, marl, sandstone, etc., glauconitic and fossiliferous; chiefly marine in origin. Known along the entire southern border and as far north as Coevorden in eastern Holland. Like all Tertiary formations, the Eocene thickens appreciably to the northwest and it may attain a thickness of over 500 meters in central and western Holland.

Upper Cretaceous, 0-300+ meters. Chalk and glauconitic limestones, marls and greensands--Senonian to Cenomanian in age. Present in Limburg and North Brabant and also in Drenthe. Not encountered in intervening provinces, probably as the result of erosion from uplifts. Well developed in southwestern Holland where it unconformably overlies highly folded Paleozoic rocks. Probably attains a thickness of 600-800 meters in central and western Holland.

Lower Cretaceous, 0-100+ meters. Shallow marine beds of sandstone, clay, and conglomerates. Section confined chiefly to Valendis and Wealden formations. Known only along the German border from Coevorden to Winterswijk. May be several hundred meters thick in central and western Holland. Contains promising oil horizons.

Jurassic, 0-300+ meters. Marine beds of clay, marl and oolitic limestones belonging to the Dogger and Lias in age are encountered in bores along the German border between Coevorden and Winterswijk, and are there overlain discordantly by Lower Cretaceous. Jurassic formations were not deposited in the southern part of Holland. The Upper Jurassic was also removed by erosion over wide areas. Where present, it probably contains lagoonal beds and bituminous zones as at Bentheim. The Jurassic, no doubt, is several hundred meters thick in northern Holland and may have a considerable thickness throughout central and western Holland.

Triassic, Upper Triassic (Keuper), 10-20 meters. Not definitely recognized except possibly in Limburg province.

Middle Triassic, (Muschelkalk) 40-160 meters. Gray to red marl, dolomite, and thin beds of anhydrite and gypsum appear in wells drilled between Bentheim and Winterswijk.

Lower Triassic (Buntsandstein), 0-700 meters. Variegated sandy clays and fine-grained sandstones with anhydrite beds and lenses of rock salt in upper horizons and coarse-grained sandstones and conglomerates in the lower division. Encountered in bores between Bentheim and Winterswijk, where it is around 700 meters thick. Eroded from uplifts in Limburg province. All three sub-divisions of the Triassic probably extensively developed throughout most of Holland.

Permian (Zechstein), 0-300 meters. Variegated clay shales with interbedded anhydrite, gypsum, and rock salt. Bituminous dolomites reported in a well drilled near Winterswijk. Absent over horsts and other uplifts in Limburg province. Probably present throughout all except southern part of Holland.

Carboniferous. Upper Coal Measures absent due to erosion. May be present in central and western Holland.

Middle and Lower coal Measures, 2,000± consists of shales, thick sandstones and conglomerates with some coal beds. Contain both marine and fresh water beds. Probably underlies all parts of Holland, except where removed by erosion in southern Holland.

Lower Carboniferous, Kulm limestone (Kohlenkalk) marine shales and limestones. Not penetrated in Holland but probably underlies the entire country except its southwest corner.

(a) Compiled chiefly from reports by Van der Gracht and Molengraff (Government Institute for the geological exploration of The Netherlands, Memoir 2, 1909, Handbuch der Regionalen Geologie, Vol. 1, pt. 3, 1913).

2.4 SUMMARY

The following is a summary of the geological data that have a bearing on oil possibilities in The Netherlands:

(1) A great thickness of Tertiary, Mesozoic, and Paleozoic sedimentary formations, largely of marine origin, probably underlies the cover of Quaternary sediments throughout most of The Netherlands.

(2) The lithology of the sediments suggests that source material and reservoir rocks are likely to be found at several horizons throughout the geological section, the most promising being the Valendis, Wealden and formations of the Lower Cretaceous.

(3) The position of The Netherlands in relation to regional tectonic provinces, as well as structural details along its eastern border, indicates that the Pre-Quaternary formations have been fairly widely disturbed and that different types of structure exist. This promise of adequate structure taken in conjunction with transgressive overlaps and other lithologic features presents a reasonable probability that adequate traps for the accumulation and retention of oil exist over wide areas in Holland. These may be summarized as follows:

1. Salt domes can be looked for in northern Holland (Friesland and Groningen Provinces) and may occur also in central and western Holland. Where these are present, oil may have accumulated at several horizons in the Mesozoic and possibly the Tertiary.

2. Post-Cretaceous anticlinal folds probably exist in Drenthe and the northern part of Overijssel. The Dalum and Coevorden fields may occupy this type of structure.

3. Sharp folds or domes of the Winterswijk type in which the Upper Cretaceous transgresses older Mesozoic beds may be found west of Winterswijk in Gelderland.

4. Horsts and grabens of the type outlined by bores in Limburg and North Brabant provinces may extend northwest across North Brabant, Utrecht and South Holland provinces. The tilting and offsetting of strata along the faults that border these horsts afford prospects for oil accumulation.

5. The transgression of the Wealden and Upper Cretaceous over older and more highly disturbed strata affords additional possiblities for accumulation in Lower Cretaceous and Jurassic sandstones that may underlie the Tertiary beds on the west side of the Ootmarsum-Vreden saddle and also in folded Carboniferous formations in southern Holland.

STATISTICAL SUMMARY OF DATA ON REFINERIES IN THE NETHERLANDS

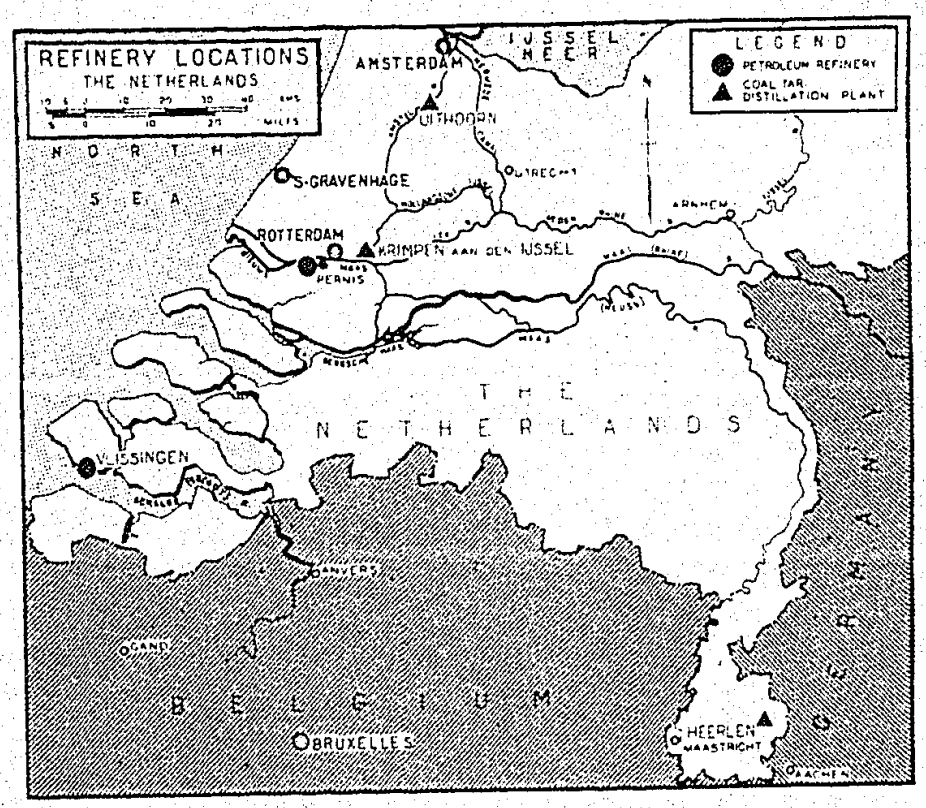
For the Year 1939

* = Approximate
x = Data unknown
\- = Not applicable

1. Common name of Refinery		Bataafsche - Pernis		Vlismar Asphalt Raffinaderij	
2. Location of Refinery (a) Place		Pernis, Rotterdam		Vlissingen (Flushing)	
(b) Index Map Coordinates	Lat.(a)	51°55'N		51°24'N	
	Long.	4°28'E		3°32'E	
3. Refinery Capacity:	MT/yr	1,100,000		40,000	
	Bbls/day				
4. Normal throughput:	MT/yr	900,00			
	Bbls/day				
5. Crude for which designed		Venezuelan crude 61% Venezuelan residue 39%		x	
6. Crude used currently		-		-	
7. Products made, normal operation		% of Total	Metric Tons A Year	% of Total	Metric Tons A Year
Gasoline		22	197,000		
Kerosine Gas oil & Diesel oil)		15	131,000		
Lubes					
Fuel oil		19	174,000		
Asphalt and coke		31	278,000		
Refinery Fuel & loss, and Misc.		13	120,000		
Totals		100	900,000		40,000
8. Refining Units (a) Crude distillation facilities		Pipe stills, atmospheric and vaccum		Shell Stills	
(b) Cracking facilities		Dubbs units		none	
(c) White products finishing		Yes			
(d) Lube facilities		No			
(e) Hydrogenation, Alkylation, etc.		Hydrogenation Plant		No	
(f) Asphalt facilities		Yes		Yes	
(g) Gas Plant		Gas recovery plant			
(h) Specialties		Iso-Octane facilities			
(i) Boiler Plant		Two boiler houses 4 boilers of 670 sq. m.H.S. 2 boilers of 340 sq. m.H.S.		Yes	
(j) Power Plant		Three transformer stations			
9. Tankage Capacity: Black:	M^3	196,350		x	
	Bbls.	1,237,000		x	
White:	M^3	369,207		x	
	Bbls.	2,326,000		x	
Total:	M^3	565,557		35,000	
	Bbls.	3,563,000		220,500	
10. Construction: (a) When built		1936		x	
(b) Built by what concern		Shell group		x	
(c) Flow plans and working drawings in possession of whom		Shell group, London		x	
11. Name of Company		N.V. de Bataafsche Petroleum Maatschappij		N.V. Vlissingsche Minerraalolie en Asphalt Raffinaderij	
12. Address of Company		The Hague		Vlissingen (Flushing)	
13. Affiliations of Company (a) Name(s) of owner firms		The Shell group		Independent	
(b) Addresses of owner firms		London			

3.0 REFINING

3.1 INTRODUCTION



General.- The Netherlands, having practically no indigenous production, depends upon imports to supply her requirements of petroleum products. In prewar days, however, the lack of local production was more than counterbalanced by the large production fields and refining activities located in her colonial possessions. Because of this, and the fact that a large tanker fleet participating in world trade operated under Netherlands registry, the oil companies operating in The Netherlands were not put under the same compulsion to build refineries there as they were in many European countries. Since, in the absence of discriminatory tariffs, it was as a rule more economical to import finished products, there was no incentive for refinery construction.

Of the two refineries existing in The Netherlands only that of the N. V. de Bataafsche Petroleum Maatschappij, a subsidiary of the Shell group, is of importance. This refinery, located at Pernis, a suburb of Rotterdam, operated on Venezuelan crude and residue supplied from the Caribbean area by other affiliates of the Shell group. Its normal yearly output capacity of gasoline and kerosine, 328,000 metric tons, was sufficient to supply approximately 50 per cent of the peacetime requirements of The Netherlands for those products. At the same time it also had a normal output of 174,000 tons of fuel oil and 278,000 tons of asphalt and coke, for which important markets existed in The Netherlands. However, except as a unit in a world-wide organization such as that of the Shell group, the economic justification of carrying on refining operations in The Netherlands appears to be slight.

The only other petroleum refinery in The Netherlands is a small independent asphalt refinery at Vlissingen (Flushing), with an annual throughput capacity of approximately 40,000 metric tons.

There are a number of coal tar distillation plants in The Netherlands, the most important of which are in connection with the Government coal mines near Heerlen. Though not actually petroleum refineries, it seems proper to include them in this section of the report. Available data on equipment and bulk storage capacity at the known plants are given following those on the petroleum refineries.

Present situation.- Early in the war both of The Netherlands refineries were bombed and damaged to some degree. Though the damage apparently was not extensive, no refining activity at all has been reported at Vlissingen and the only activity reported at the Pernis refinery is the reconditioning of used lubricating oils of a volume estimated to amount to some 400 metric tons per month. It is suggested that following the bombing of Misburg and other refineries in Germany small quantities of crude from the new field at Coevorden were shipped to Pernis. Confirmation is lacking, however, and in any event the quantities involved are minute.

3.2 STRATEGIC CONSIDERATIONS

Value to the enemy.- The current value to the enemy of refining facilities in The Netherlands is extremely limited. This is primarily due to their location and to the great distances which separates them from important European crude pro-

duction areas. Conversely, even if adequate crude supplies were readily available their relative proximity to Allied air bases in England would render these refineries extremely vulnerable should they resume refining operations. Their greatest present value is as a source of equipment that might be dismantled and removed for use elsewhere. The extent to which this may have already been done is unknown.

Possible value to the Allies.- Due to the lack of readily accessible sources of crude The Netherlands refineries, except as storage terminals, would present little value to the Allies, even if captured intact. Though it is reported that some small local production is now being obtained in the northeastern portion of The Netherlands, the development of this into an adequate source of supply, at least in any immediate future, seems improbable.

The desirability of bombing or sabotaging these refineries appears questionable since they are of little use to the Germans and, if captured intact, could be utilized by the Allies as terminal storage points for gasoline and other fuels.

3.3 N.V. DE BATAAFSCHE PETROLEUM MIJ. REFINERY, PERNIS

Location.- At the petroleum harbor of Pernis, a suburb of Rotterdam. The refinery is situated on the Nieuwe Maas River, about 7 miles south-southwest of the center of Rotterdam and is accessible to ocean tankers of up to 32-foot draught. Its location is shown on the map on page 70.

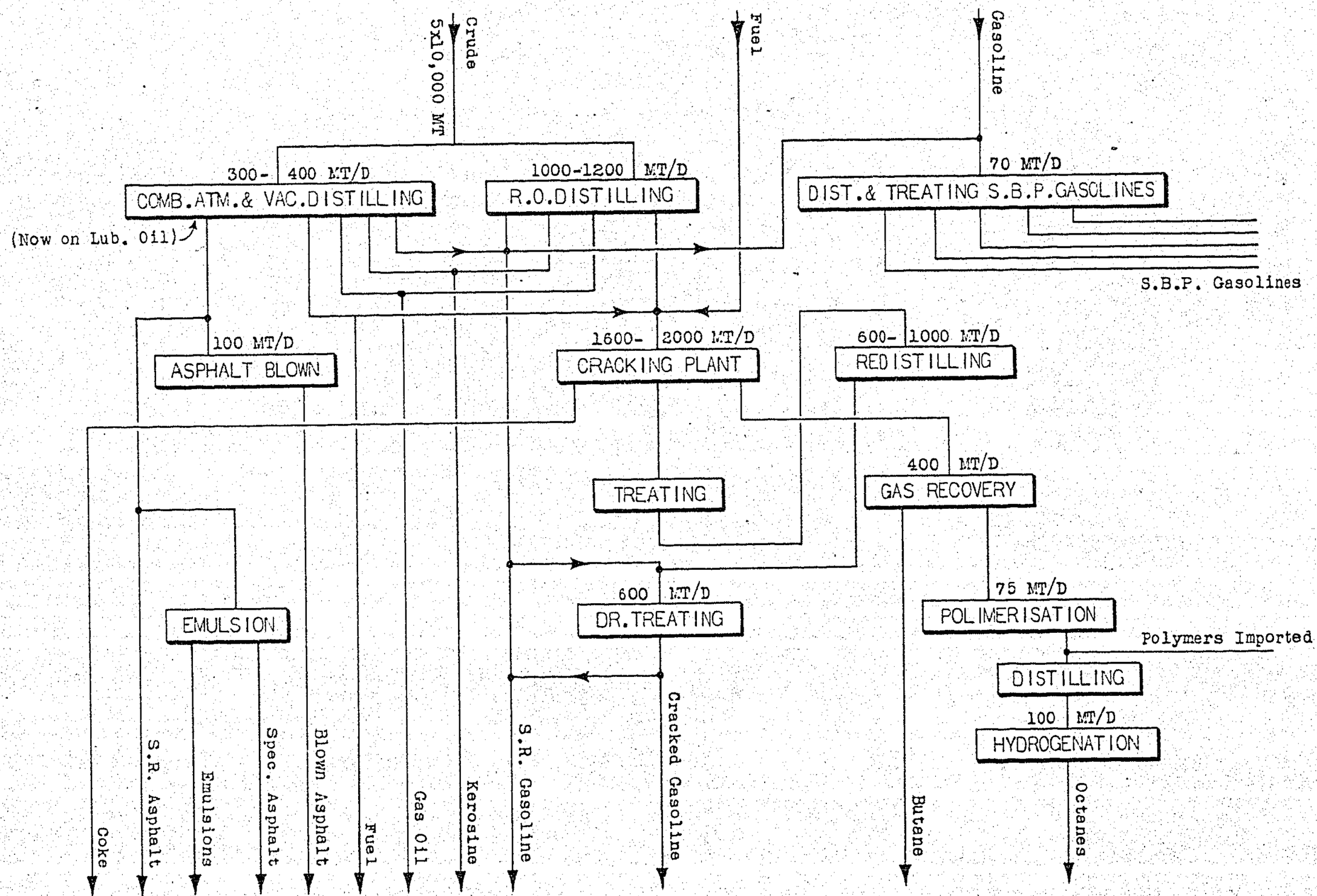
Plates and tables.- Illustrative plates and tables pertaining to this refinery are as follows:

Title	Page No.	Title	Page No.
Location map	72	Photograph (Partial)	73
Layout plan	26-27	Summary of refining data	22
Flow chart	25	Summary of port data	92

Description.- This refinery is owned by the N.V. de Bataafsche Petroleum Maatschappij, a Dutch subsidiary of the Shell group. It was built in 1936, and was designed to operate on Venezuelan crude. The maximum refinery throughput capacity was 1,100,000 metric tons per year, and, under normal operations of the total crude oils processed, approximately 61% was Venezuelan crude and 39% was Venezuelan residue. Besides gasoline, kerosine and fuel oil, large quantities of asphalt were produced. A normal yearly (1939) output was gasoline 197,000 metric tons, kerosine and gas oil 131,000 metric tons, fuel oil 174,000 metric tons, asphaltic bitumen 90,000 metric tons, coke 188,000 metric tons, based on a throughput of 900,000 metric tons, of crude and residue. A layout plan appears on page 27 and a flow diagram on page 25. The principal refinery units are listed below.

Refinery Equipment	Intake capacity
Combination atmospheric and vacuum distillation unit for crude oil distillation capacity	400 tons per day
Atmospheric crude oil distillation unit	1,200 tons per day
Two selective cracking units with separate coking unit	1,600 tons per day
Three special boiling-point stills including treating plant (three centrifuges)	70 tons per day
Redistillation plant	1,000 tons per day

FLOW CHART: REFINERY OF N.V. DE BATAAFSCHE PETROLEUM MIJ. PERNIS, ROTTERDAM THE NETHERLANDS



REFINERY OF

N.V. DE BATAAFSCHE PETROLEUM MIJ

PETROLEUM HAVEN

PERNIS, ROTTERDAM

THE NETHERLANDS

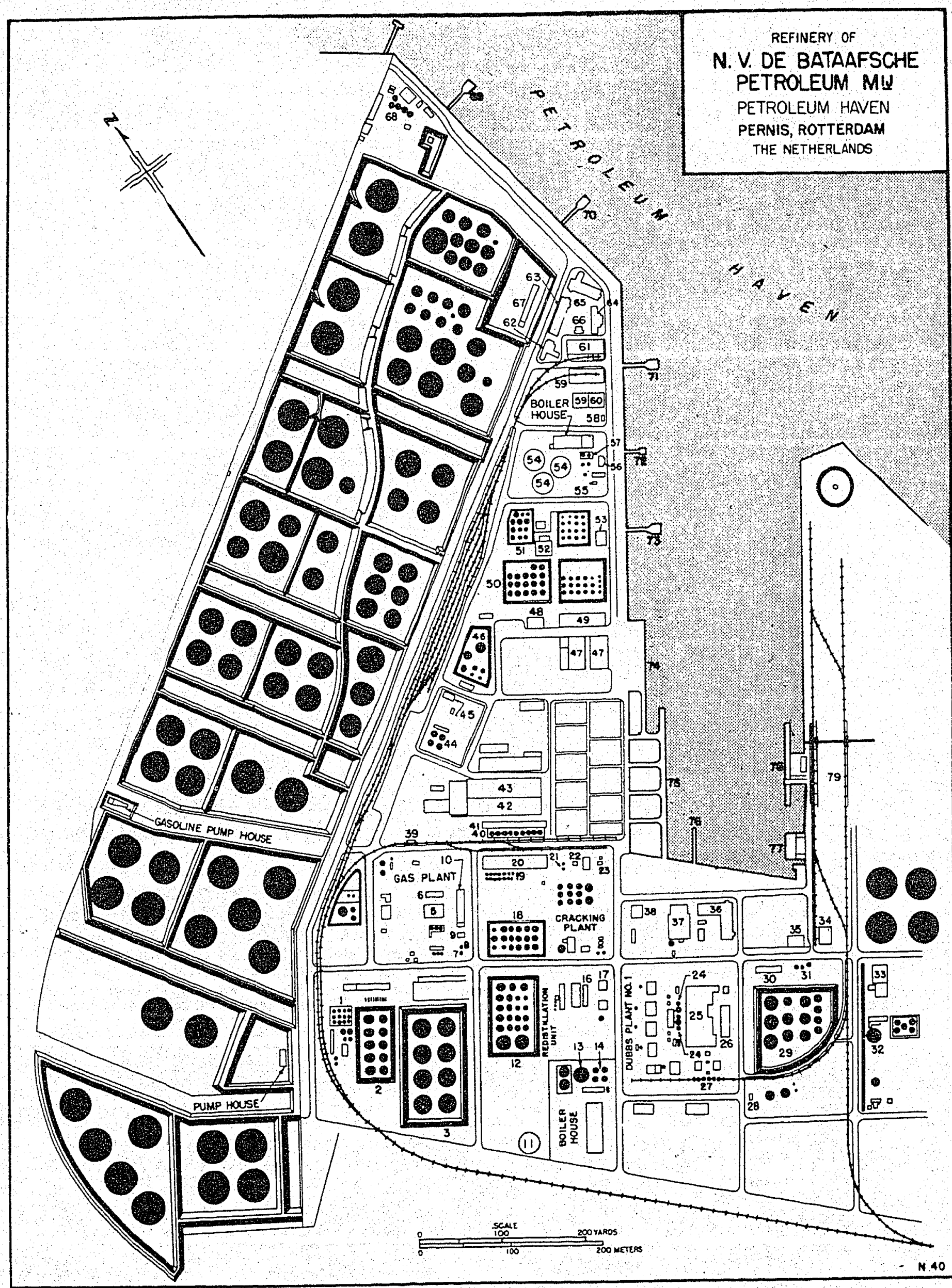
L E G E N D

1. TREATING TANKS
2. REFINING TANKS
3. STORAGE TANKS
5. PUMPHOUSE
6. ABSORBER INSTALLATION
7. FUEL OIL
8. RAW GAS
9. LIME STORAGE AND LIME SOLUTION PREPARATION
10. GAS COMPRESSOR
11. WATER TANK
12. OVERFLOW TANKS
13. WATER TANK
14. FOAMITE TANKS
16. PUMPHOUSE
17. CRUDE PIPE STILL
18. ASPHALT PLANT
19. SPECIAL PRODUCTS TANKS
20. SPECIAL PRODUCTS WAREHOUSE
21. CONCENTRATE PUMP
22. CONDENSER
23. PIPE STILLS
24. FRACTIONATING COLUMNS
25. RECEIVER HOUSE
26. CONDENSERS
27. DUBBS COKING UNIT
28. PUMPHOUSE
29. RUNDOWN TANKS (DUBBS)
30. PUMPHOUSE
31. FUEL TANKS
32. HYDROGEN GAS-HOLDER
33. ENGINE ROOM
34. WAREHOUSE
35. WAREHOUSE
36. LUNCHROOM
37. OIL SEPARATOR
38. TRANSFORMER
39. TRACK SCALES
40. ASPHALT TANKS
41. ASPHALT FILLING SHED
42. BARREL WORKS
43. BARREL WAREHOUSE
44. BUTANE TANKS
45. BUTANE PUMPHOUSE
46. ETHYL BLENDING TANKS
47. WAREHOUSE
48. WAREHOUSE FOR OIL BUTANE & KEROSINE
49. FILLING ROOM
50. FILLING TANKS
51. OVERFLOW TANKS
52. PUMPHOUSE
53. DISTILLATE
54. WATER TANKS
55. LIME STORAGE
56. TRANSFORMER
57. FUEL OIL TANKS
58. SAILORS' KITCHENS
59. WORKSHOP
60. GASOLINE WAREHOUSE
61. WAREHOUSE
62. TECHNICAL SERVICE BUILDING
63. LUNCHROOM
64. LABORATORY
65. OFFICE
66. FIRST AID
67. PUMPHOUSE
68. FOAMITE TANKS
69. JETTY NO. 1
70. JETTY NO. 2
71. JETTY NO. 3
72. JETTY FOR SUCTION PIPING
73. JETTY NO. 4
74. JETTY (UTILITY)
75. ASPHALT JETTY
76. JETTY FOR "SHELL" LIGHTERS
77. WATER PUMPHOUSE
78. COKE CRUSHING INSTALLATION
79. COKE STORAGE

D E T A I L S O F T A N K A G E

(Tanks Not Individually Identified On Plan)

Tank No.	Product	M^3	Barrels
P. 2	Aviation gasoline	10,174	64,100
P. 3	" "	10,222	64,400
P. 4	" "	10,222	64,400
P.11	" "	9,730	61,300
P.12	" "	5,191	32,700
P.13	" "	5,143	32,400
P.14	" "	9,730	61,300
P.15	" "	5,191	32,700
P.16	" "	5,191	32,700
P.45	Special products	10,079	63,500
P.80	" "	5,143	32,400
P.81	" "	5,143	32,400
P.84	" "	698	4,400
P.85	" "	3,746	23,600
P. 1	Gasoline	10,222	64,400
P.17	"	5,191	32,700
P.18	"	5,191	32,700
P.19	"	5,191	32,700
P.20	"	5,143	32,400
P.21	"	5,143	32,400
P.22	"	5,143	32,400
P.23	"	5,143	32,400
P.24	"	5,143	32,400
P.26	"	7,984	50,300
P.27	"	7,984	50,300
P.28	"	7,984	50,300
P.29	"	7,889	49,700
P.30	"	10,079	63,500
P.31	"	10,127	63,800
P.32	"	10,032	63,200
P.35	"	10,079	63,500
P.47	"	8,380	52,800
P.49	"	10,032	63,200
P.50	"	9,778	61,600
P.51	"	10,286	64,800
P.52	"	9,984	62,900
P.53	"	9,984	62,900
P.54	"	9,984	62,900
P.55	"	9,984	62,900
P.56	"	9,984	62,900
P.57	"	9,984	62,900
P.70	"	937	5,900
P.71	"	937	5,900
P.72	"	698	4,400
P.73	"	698	4,400
P.74	"	937	5,900
P.75	"	937	5,900
P. 76	Gasoline	1,492	9,400
P. 77	"	698	4,400
P. 78	"	5,143	32,400
P. 90	"	2,492	15,700
P. 91	"	2,492	15,700
P. 92	"	2,492	15,700
P. 95	"	2,492	15,700
P. 96	"	5,984	37,700
P. 97	"	4,984	31,400
P. 98	"	4,984	31,400
P. 79	Benzol	5,191	32,700
P. 61	Kerosine	1,492	9,400
P. 62	"	1,492	9,400
P. 93	"	2,492	15,700
P. 94	"	2,492	15,700
	Total White Products	369,207	2,326,000
P. 8	Gas oil and fuel oil	9,778	61,600
P. 9	" " " " "	9,778	61,600
P. 10	" " " " "	2,492	15,700
P. 33	" " " " "	10,238	64,500
P. 34	" " " " "	10,032	63,200
P. 63	" " " " "	5,142	32,400
P. 64	" " " " "	937	5,900
P. 65	" " " " "	937	5,900
P. 66	" " " " "	937	5,900
P. 67	" " " " "	937	5,900
P. 68	" " " " "	937	5,900
P. 82	" " " " "	2,634	16,600
P. 83	" " " " "	2,587	16,300
P. 86	" " " " "	5,142	32,400
P. 87	" " " " "	4,333	27,300
P. 88	" " " " "	4,286	27,000
P. 89	" " " " "	5,190	32,700
P. 6	" " " " "	9,778	61,600
P. 7	" " " " "	9,778	61,600
P. 69	" " " " "	937	5,900
P.507	Straight run fuel oil	9,984	62,900
P.508	" " " "	9,984	62,900
P.509	" " " "	9,984	62,900
P.510	" " " "	9,984	62,900
P.515	" " " "	9,984	62,900
P. 36	Crude oil	9,873	62,200
P. 37	" "	9,921	62,500
P. 38	" "	9,921	62,500
P. 39	" "	9,984	62,900
P. 40	" "	9,921	62,500
	Total Black Products	196,350	1,237,000
	Grand Total	565,557	3,563,000


REFINERY OF
N. V. DE BATAAFSCHE
PETROLEUM MIJ
PETROLEUM HAVEN
PERNIS, ROTTERDAM
THE NETHERLANDS
PETROLEUM HAVEN
N
GASOLINE PUMP HOUSE
PUMP HOUSE
GAS PLANT
CRACKING PLANT
REDISTILLATION UNIT
DUBBS PLANT NO. 1
BOILER HOUSE
BOILER HOUSE
SCALE
0 100 200 YARDS
0 100 200 METERS
N 40

Refinery Equipment	Intake Capacity (continued)
Asphalt blowing plant	100 tons per day
Acid and soda P. D. treating plant	600 tons per day
Doctor treating plant	600 tons per day
Gas recovery plant	400 tons per day
BB polymerization plant	75 tons per day
Octylene hydrogenation plant	100 tons per day
	Output
Hydrogen plant	30,000 M^3 per day
Sulphur plant	5,400 tons per year
Hydrogen sulphide recovery plant(a)	6,000 tons per year

There are also an ethyl blending plant, an asphalt drum filling installation, a water pumping unit, three transformer stations, work shops, and a laboratory.

Storage tankage was allocated between products approximately as follows:

	Capacity	
	M^3	Barrels
Storage of crude oil	50,000	315,000
Storage of intermediate products	50,000	315,000
Storage of finished products	465,000	2,929,500
Total	565,000	3,559,500

Damage.- This plant was bombed early in the war and, though not destroyed, sustained considerable damage. Many of the intermediate products and working tanks were destroyed and air reconnaissance does not disclose that they have been rebuilt. It is apparent that the refinery could not be effectively operated in its present condition, and the only activity reported is the use of a portion of the equipment for regenerating used lubricating oils at a rate of about 400 tons per month.

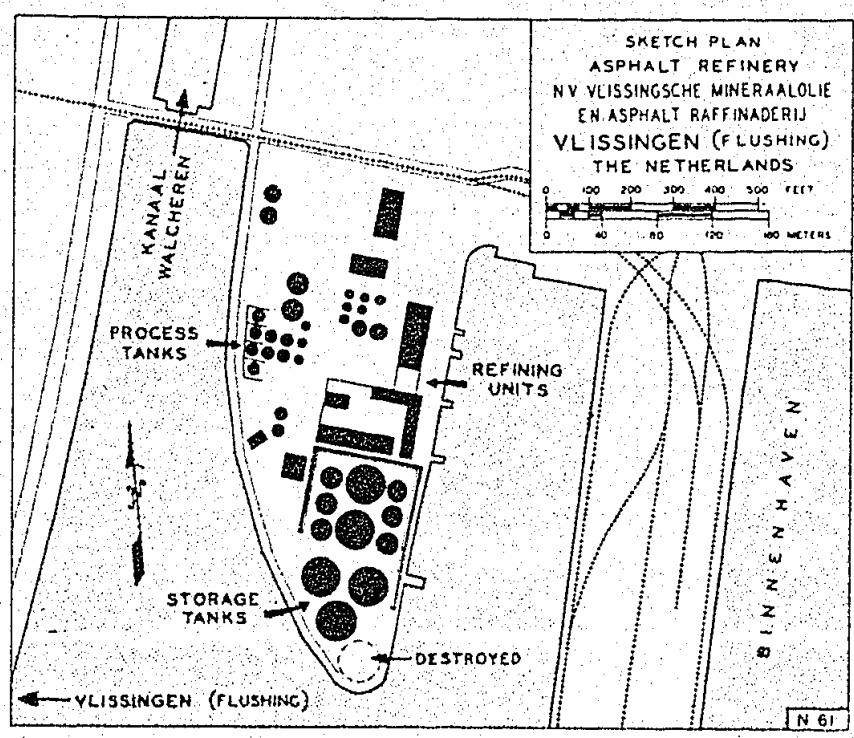
Most of the storage tankage is still intact, however, though little oil is thought now to be stored there.

3.4 "VLISMAR" ASPHALT REFINERY, VLISSINGEN (FLUSHING)

Location.- On the inner harbor at Vlissingen (Flushing) in the extreme southwest of The Netherlands. Port data is summarized in the table on page 94.

Description.- This small refinery is owned by the N.V. Vlissingsche Mineraalolie en Asphalt Raffinaderij, an independent Dutch company. Very little descriptive data are available, but a location sketch from air cover is given on page 83 in the section on Ocean Terminals. The refining capacity of this unit amounted to only some 40,000 metric tons per year and was devoted to the production of black oils and asphalt. Refining was carried on in shell stills. There were no cracking nor other specialized units. In addition to the working tanks there were twelve storage tanks with a total capacity of approximately 35,000 M^3. One of these tanks has been destroyed.

(a) Under construction at the time of the invasion.



Damage.- This plant was bombed early in the war but aerial reconnaissance reveals little damage except to one storage tank. The refinery, though apparently intact, is shut down, but it is suggested that the tankage has been used for oil storage.

3.5 COAL TAR DISTILLING

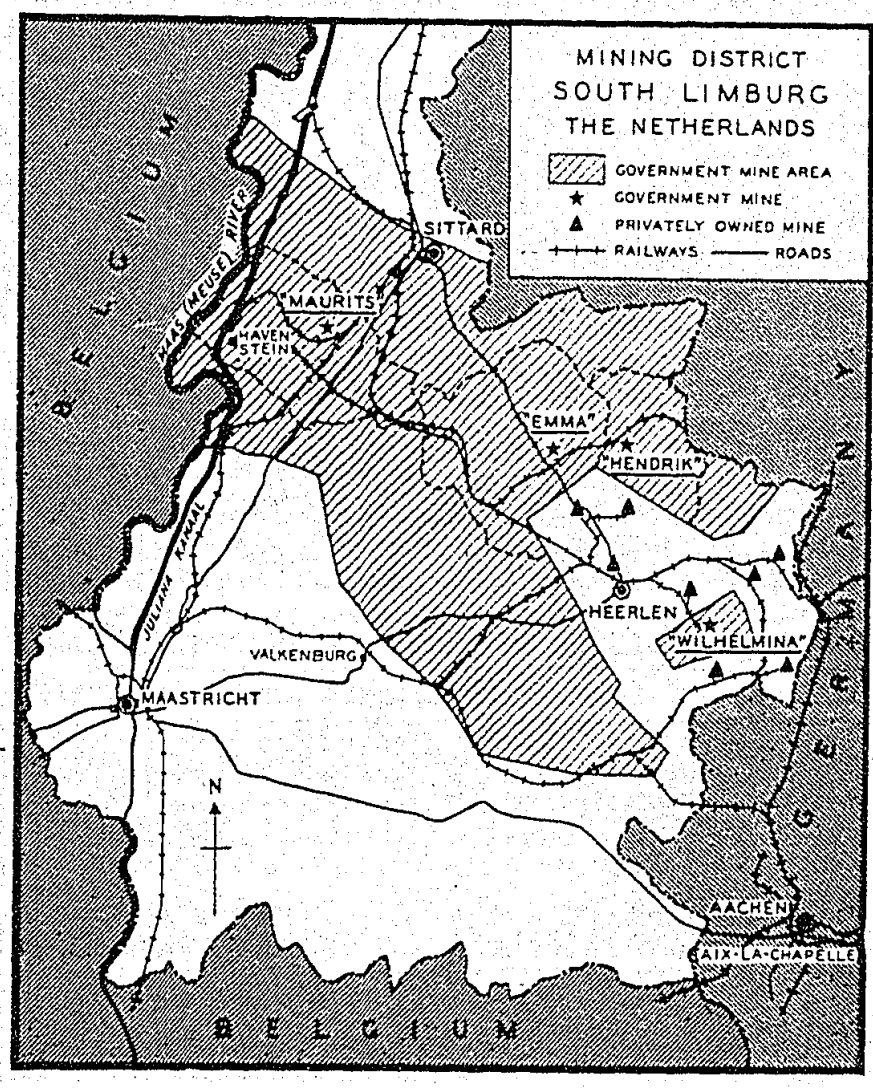
There are a number of plants in The Netherlands engaged in the distilling of benzol,(a) toluol, naphtha, creosote, road tar and other by-products from coal and coal tar. The most important plants of this nature are operated in conjunction with the Government coal mines.

3.5.1 Government (Coal) Mines, (Staatsmijnen)

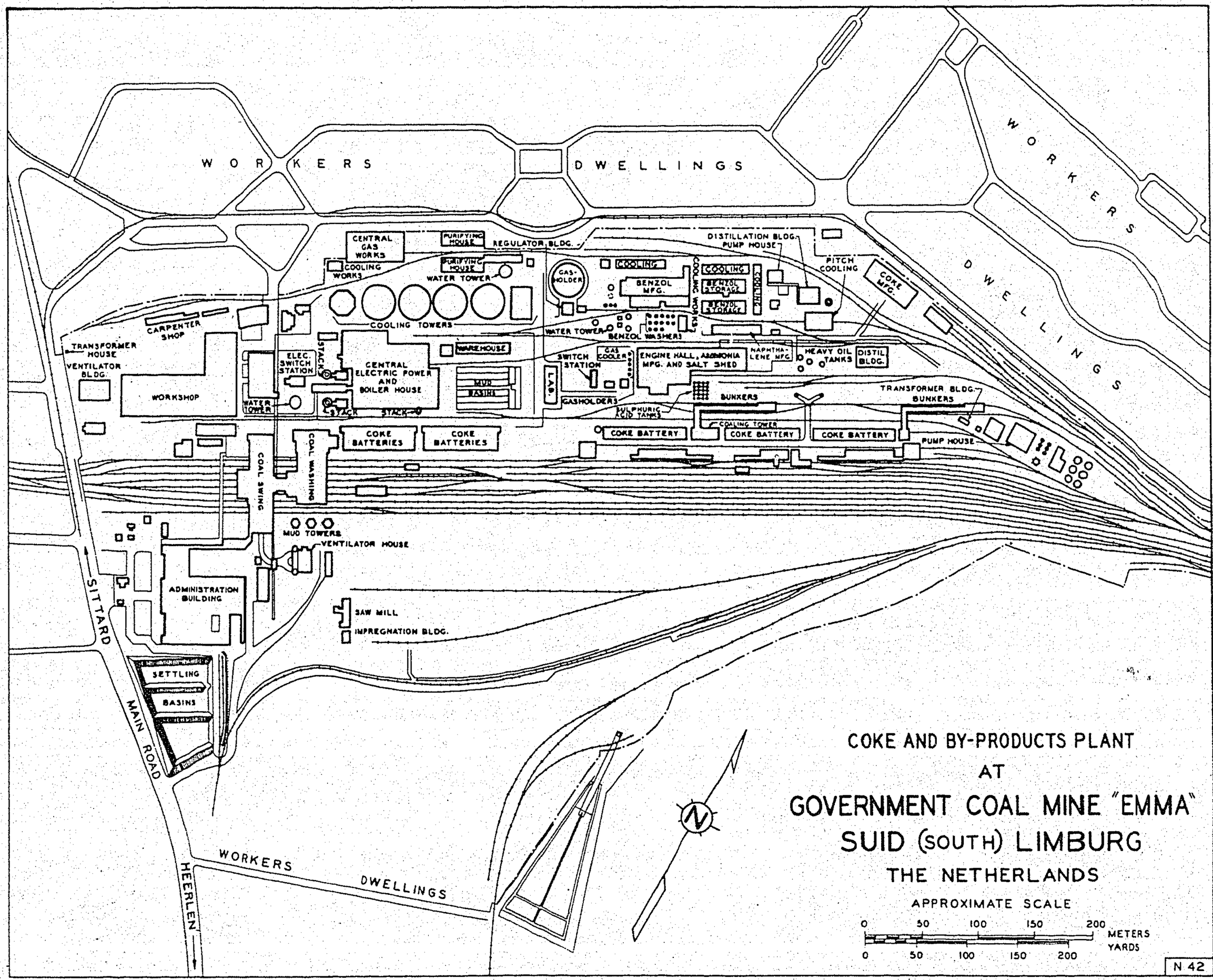
Location.- The coal mining region of The Netherlands is in the extreme southeastern tip of the country known as Zuid (south) Limburg,and broadly speaking may be said to center on the town of Heerlen. While there are seven or more small privately-owned mines in the area, the most important developments are the four Government-owned mines known as the "Emma", "Hendrik", "Maurits", and "Wilhelmina."(b) Locations are shown on the accompanying sketch.

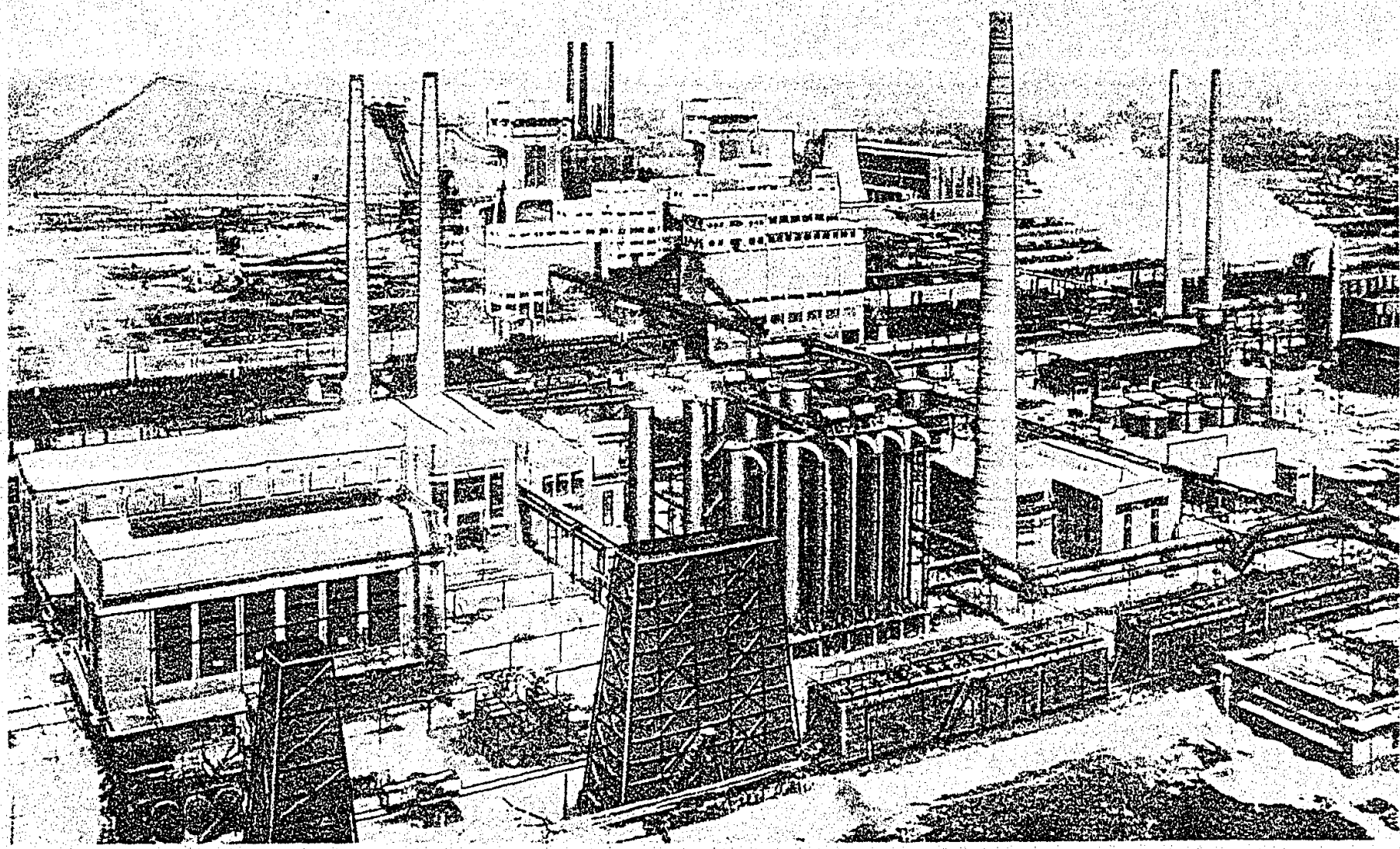
Description.- Extensive coke works are operated in conjunction with the Government coal mines. By-products of the manufacture of coke are ammonia, benzol, carbohydrate, and coal tar. Naphthalene, fuel oil, creosote oil, pitch, and wood-impregnating oil are produced by distillation of the coal tar.

Available data on these installations and their output is limited, but photographs of the plants at each of the mines are shown on pages 31, 33 and 35, and a layout plan of the plant at the "Emma" mine appears on page 30.

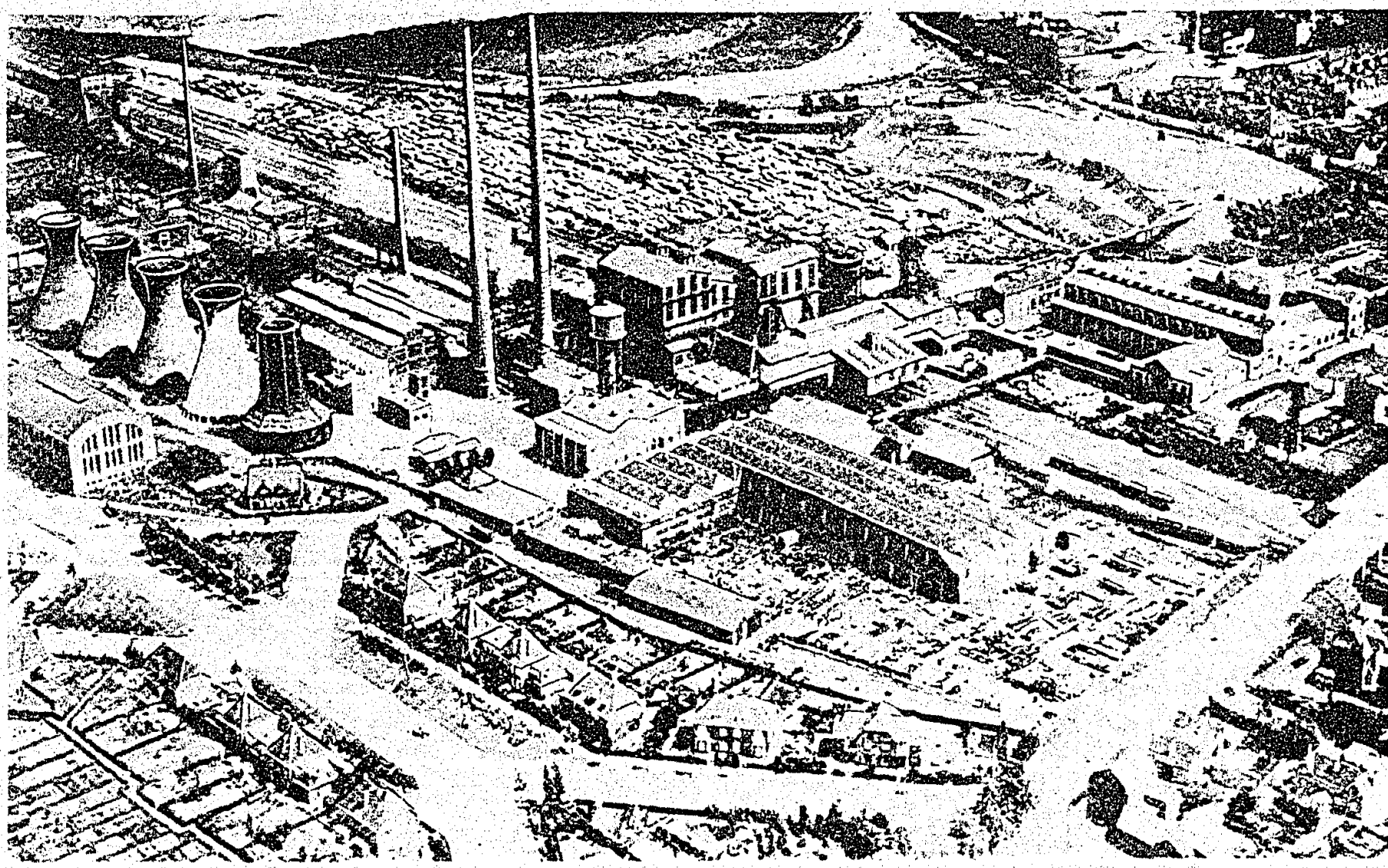


(a) Benzol was mixed with gasoline for use as motor fuel in The Netherlands.
(b) Coal production in 1936: Private mines, 4,798,496 tons; Government mines, 8,004,043 tons.

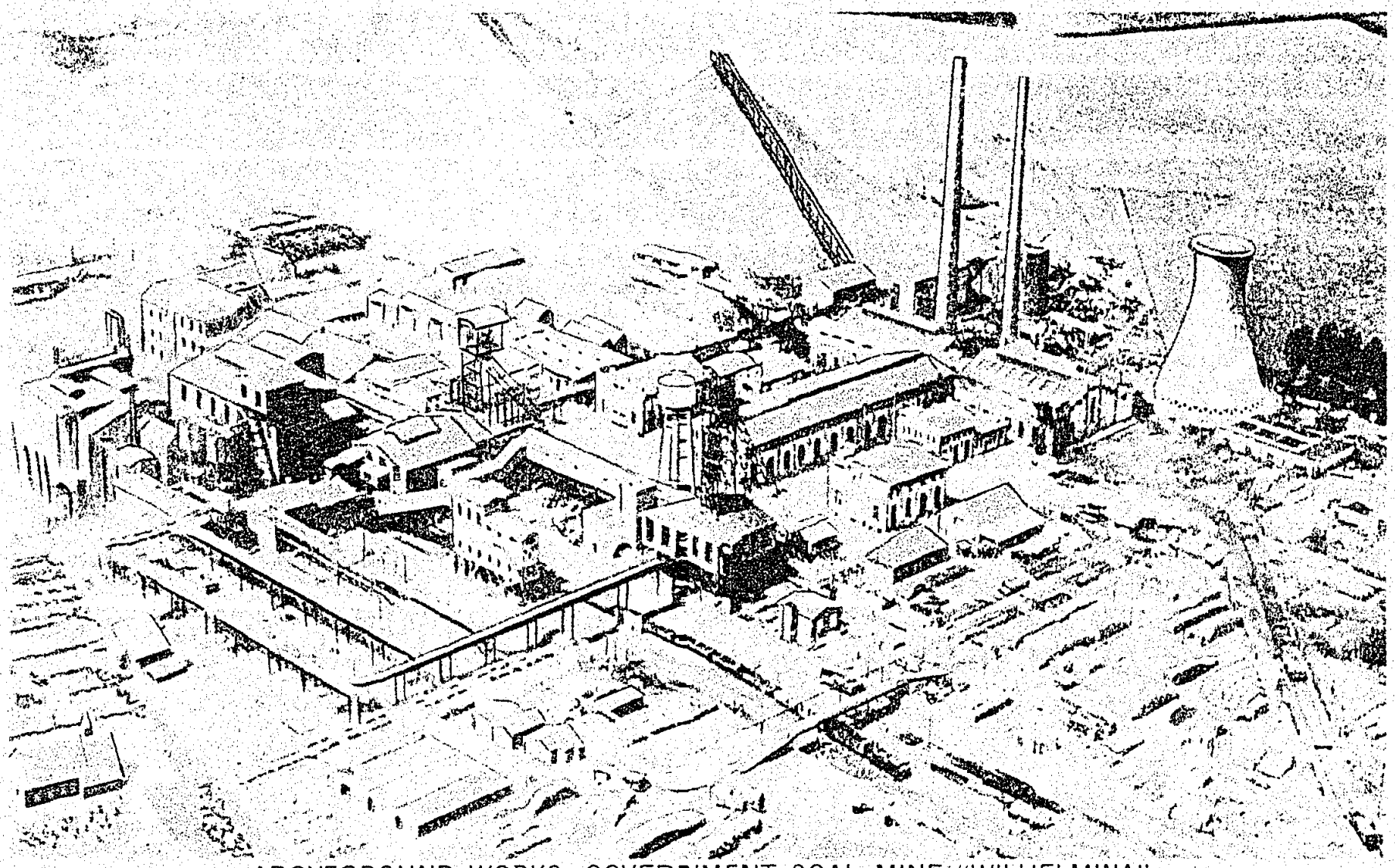

WORKERS DWELLINGS
WORKERS DWELLINGS
CENTRAL GAS WORKS
PURIFYING HOUSE
REGULATOR BLDG.
COOLING WORKS
PURIFYING HOUSE
WATER TOWER
GAS-HOLDER
COOLING
BENZOL MFG.
COOLING
BENZOL STORAGE
BENZOL STORAGE
COOLING WORKS
DISTILLATION BLDG.
PUMP HOUSE
PITCH COOLING
COKE MFG.
CARPENTER SHOP
COOLING TOWERS
WATER TOWER
BENZOL WASHERS
TRANSFORMER HOUSE
VENTILATOR BLDG.
WAREHOUSE
SWITCH STATION
GAS COOLER
ENGINE HALL, AMMONIA MFG. AND SALT SHED
NAPHTHA-LENE MFG.
HEAVY OIL TANKS
DISTIL. BLDG.
ELEC. SWITCH STATION
STACK
CENTRAL ELECTRIC POWER AND BOILER HOUSE
MUD BASINS
LAB.
WORKSHOP
WATER TOWER
STACK
STACK
GASHOLDERS
SULPHURIC ACID TANKS
BUNKERS
TRANSFORMER BLDG.
BUNKERS
COOLING TOWER
COKE BATTERIES
COKE BATTERIES
COKE BATTERY
COKE BATTERY
COKE BATTERY
PUMP HOUSE
COAL SWING
COAL WASHING
MUD TOWERS
VENTILATOR HOUSE
ADMINISTRATION BUILDING
SAW MILL
IMPREGNATION BLDG.
SITTARD
SETTLING BASINS
MAIN ROAD
WORKERS DWELLINGS
HEERLEN
N
COKE AND BY-PRODUCTS PLANT
AT
GOVERNMENT COAL MINE "EMMA"
SUID (SOUTH) LIMBURG
THE NETHERLANDS
APPROXIMATE SCALE
0 50 100 150 200 METERS
0 50 100 150 200 YARDS
N 42



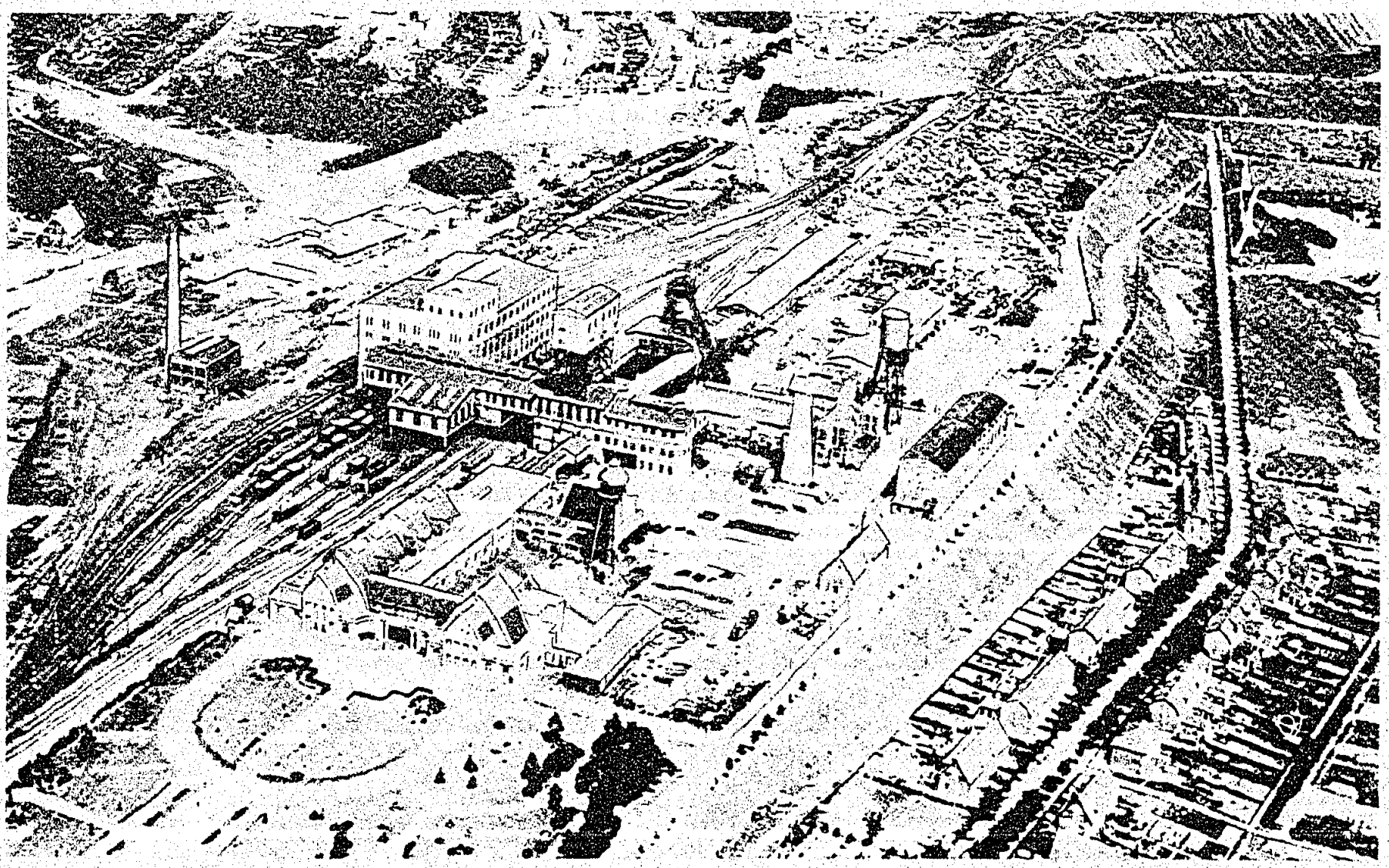
COKE AND BY-PRODUCTS PLANT, GOVERNMENT COAL MINE "MAURITS",
SOUTH LIMBURG AREA, THE NETHERLANDS



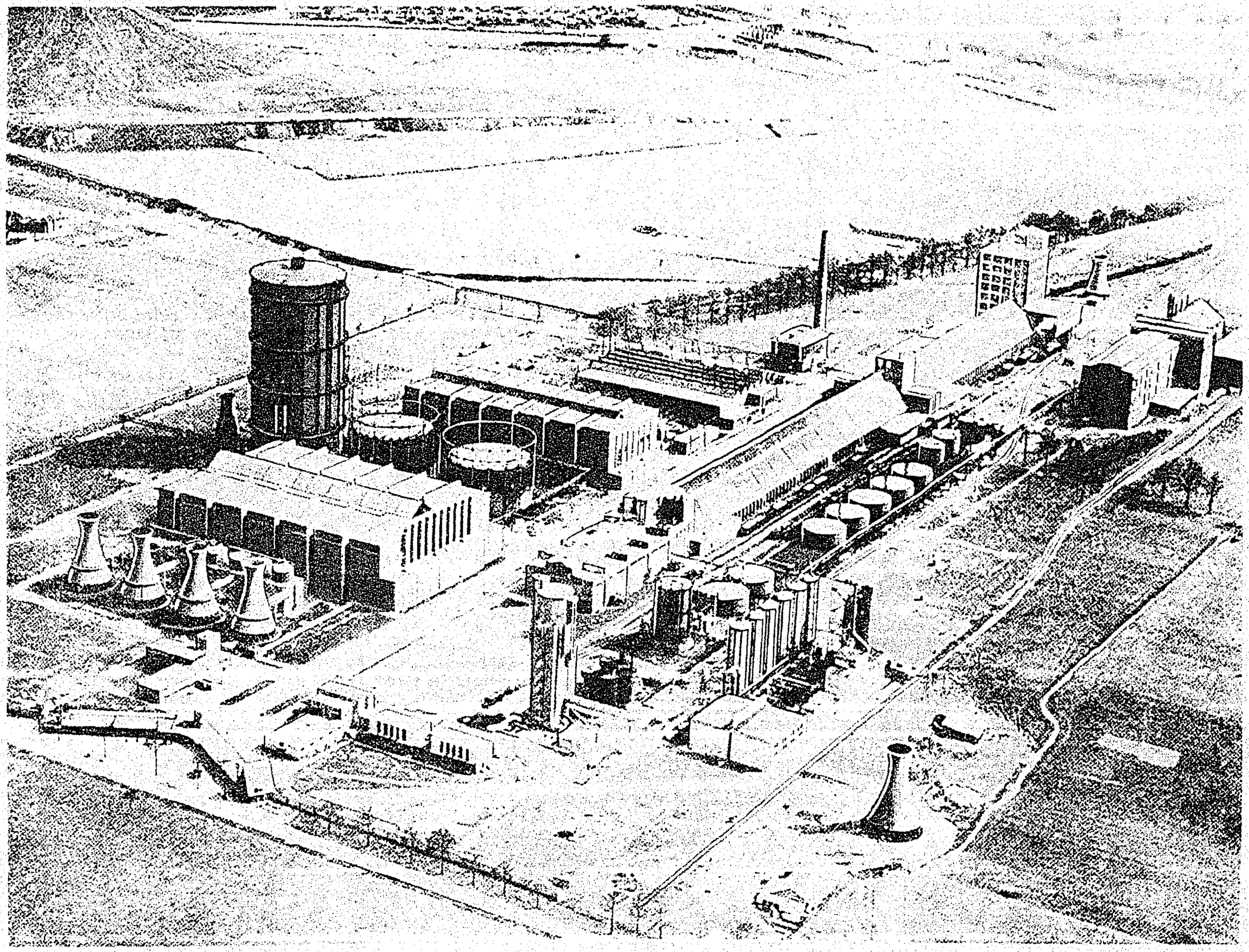
COKE AND BY-PRODUCTS PLANT, GOVERNMENT COAL MINE "EMMA",
SOUTH LIMBURG AREA, THE NETHERLANDS



ABOVEGROUND WORKS, GOVERNMENT COAL MINE "WILHELMINA",
SOUTH LIMBURG AREA, THE NETHERLANDS



ABOVEGROUND WORKS, GOVERNMENT COAL MINE "HENDRIK",
SOUTH LIMBURG AREA, THE NETHERLANDS



HYDROGEN PLANT, GOVERNMENT COAL MINES, SOUTH LIMBURG AREA, THE NETHERLANDS

Prewar coke production amounted to some two million tons per year and the principal coking plants are centered at the "Emma" and "Maurits" mines. Prewar production figures are given below.

Coke and By-Product Production at "Emma" and "Maurits" Mines (a)

Production per day in metric tons or cubic meters	By-Products Produced (Quantities Unknown)
7,000 tons coke	90% purified commercial benzol
3,000 M^3 gas	Motor benzol or benzoline
150 tons hydrosulphate of ammonia	Benzol for trucks
70 tons benzol	Purified toluol
240 tons tar	Purified solvent naphtha
125 tons pitch	Purified zylol
85 tons crude oil	

The mines are well served by railways and also by canal. Extensive coke and coal shipping facilities existed at Stein Haven on the Juliana Kanaal.

3.5.2 N.V. Utrechtsche Asphaltfabriek

Location.- This plant is located on the Ijssel River near the village of Krimpen aan den Ijssel which lies about five miles east of Rotterdam.

Description.- It is a coal tar distillation plant and products produced include benzol, toluol, naphthalene, anthracene, creosote and road tar. In normal times a staff of approximately 100 persons was employed.

The raw material, coal tar, is obtained from gas works and is transported to the works by ship. There is considerable bulk storage tankage at the plant. A layout sketch appears on page 38.

3.5.3. N.V. Teerbedryf "Uithoorn"

Location.- These works are located on the Amstel River a short distance from the village of Uithoorn, approximately 12 miles south of Amsterdam.

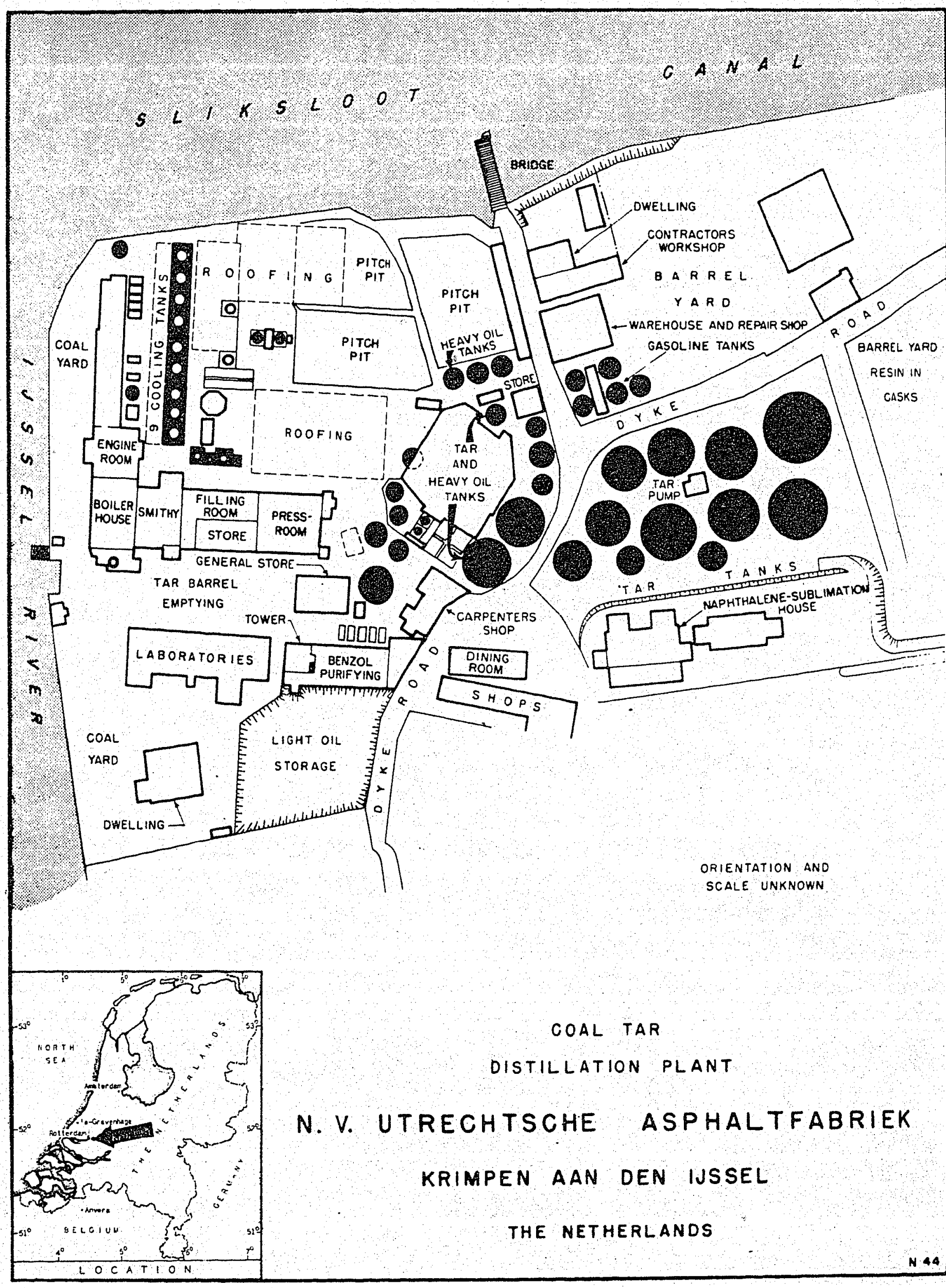
Description.- This is a plant built for the distillation of coal tar obtained from the gas works. Among the products produced are anthracene, naphthalene, benzol and asphalt emulsions. In normal times approximately 70 workmen were employed at the plant. A layout sketch appears on page 39.

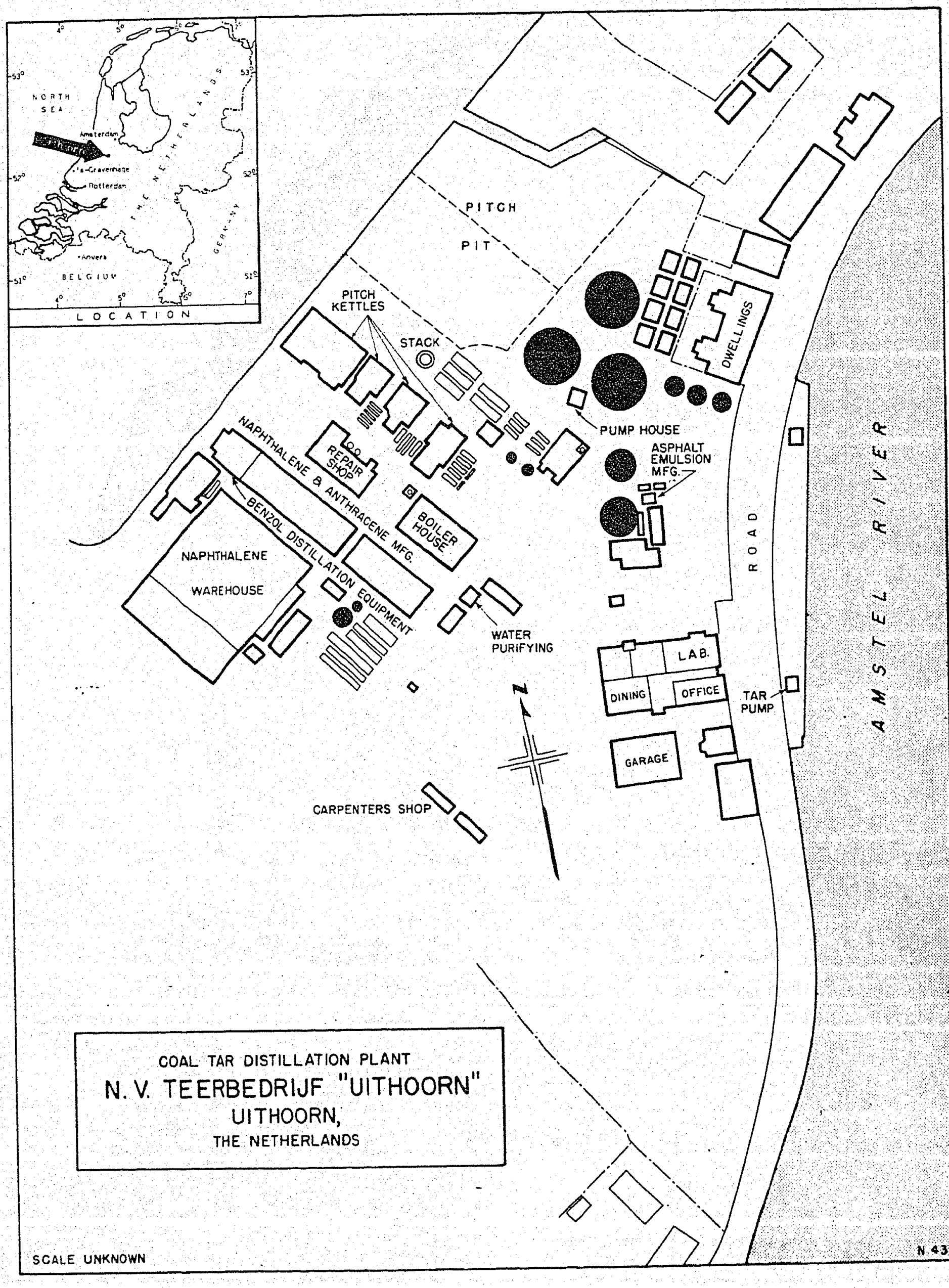
3.6 OLIE RAFFINADERIJ "WITOL", N.V.

Location.- At Maassluis, on the New Waterway, west of Rotterdam. The exact location of this small plant is not known.

Description.- This is a small treating plant for the regeneration of lubricating oils, and is not actually a refinery. Its yearly treating capacity is given as 20,000 tons. No other data are available.

(a) There is also a nitrogen plant in connection with these mines which produces 78,582 tons hydro-sulphide and 126,794 tons potassium and ammonium nitrate.


SLIKSLOOT
CANAL
BRIDGE
DWELLING
CONTRACTORS WORKSHOP
BARREL YARD
WAREHOUSE AND REPAIR SHOP
GASOLINE TANKS
ROAD
BARREL YARD
RESIN IN CASKS
DYKE
ROOFING
PITCH PIT
PITCH PIT
PITCH PIT
HEAVY OIL TANKS
STORE
9 COOLING TANKS
COAL YARD
ENGINE ROOM
ROOFING
TAR AND HEAVY OIL TANKS
BOILER HOUSE
SMITHY
FILLING ROOM
STORE
PRESS-ROOM
GENERAL STORE
TAR BARREL EMPTYING
TOWER
TAR PUMP
TAR TANKS
NAPHTHALENE-SUBLIMATION HOUSE
CARPENTERS SHOP
LABORATORIES
BENZOL PURIFYING
DINING ROOM
SHOPS
ROAD
DYKE
COAL YARD
LIGHT OIL STORAGE
DWELLING
RIVER IJSSEL
ORIENTATION AND SCALE UNKNOWN
NORTH SEA
Amsterdam
's-Gravenhage
Rotterdam
THE NETHERLANDS
GERMANY
Anvers
BELGIUM
LOCATION
COAL TAR
DISTILLATION PLANT
N. V. UTRECHTSCHE ASPHALTFABRIEK
KRIMPEN AAN DEN IJSSEL
THE NETHERLANDS
N 44


NORTH SEA
Amsterdam
Uithoorn
's-Gravenhage
Rotterdam
THE NETHERLANDS
GERMANY
Anvers
BELGIUM
LOCATION
PITCH PIT
PITCH KETTLES
STACK
DWELLINGS
PUMP HOUSE
ASPHALT EMULSION MFG.
REPAIR SHOP
NAPHTHALENE & ANTHRACENE MFG.
BENZOL DISTILLATION EQUIPMENT
BOILER HOUSE
NAPHTHALENE WAREHOUSE
WATER PURIFYING
LAB.
DINING
OFFICE
TAR PUMP
GARAGE
CARPENTERS SHOP
ROAD
AMSTEL RIVER
COAL TAR DISTILLATION PLANT
N. V. TEERBEDRIJF "UITHOORN"
UITHOORN,
THE NETHERLANDS
SCALE UNKNOWN
N 43

MARKETING STATISTICS OF THE PRINCIPAL COMPANIES REPRESENTED IN THE NETHERLANDS, 1939

Products	Standard Amerikaansche Pet. Co. N.V.(a)		Shell Group(h)		N.V. The Texas Company		Gulf Oil Corp. Affiliates(b)		N.V. Petroleum Handel Mij.		Atlantic Refining Company		Cities Service Oil Company		Vacuum Olie Mij. N. V.		N.V. Nederlandsche Sun Olie Mij.		R. F. Cruickshank Corp.		Others(g)		Total	
	Barrels	%	Barrels	%	Barrels	%	Barrels	%	Barrels	%	Barrels	%	Barrels	%	Barrels	%	Barrels	%	Barrels	%	Barrels	%	Barrels	%
Gasoline--Motor & Aviation	1,009,859	29.5	1,761,300	51.3	548,261	15.9	8,523	0.2	12,200	0.3	52,519(c)	1.5	44,066	1.3	-	-	-	-	-	-	-	-	3,436,728	100.0
Kerosine	1,249,608	67.6	216,200	11.7	249,391	13.5	-	-	71,400	3.8	17	0.0	62,150	3.4	-	-	-	-	-	-	-	-	1,848,766	100.0
Lubricating Oils	55,394(f)	13.6	75,100	18.5	40,079	9.9	114,569	28.2	-	-	26,249(f)	6.5	10,760	2.6	39,365(f)	9.7	26,301	6.5	13,255	3.3	5,280	1.2	406,352	100.0
Diesel & Gas Oil	748,603	23.3	1,159,700	36.3	426,462	13.3	229,182	7.2	265,700(d)	8.3	372,471	11.6	-	-	-	-	-	-	-	-	-	-	3,202,118	100.0
Fuel Oil	84,281	3.6	2,204,700(d)	93.5	-	-	45,856	1.9	24,000(d)	1.0	-	-	-	-	-	-	-	-	-	-	-	-	2,358,837	100.0
Other Products	-	-	-	-	-	-	5,208	11.4	-	-	-	-	34,459	75.0	5,414(d)	11.8	-	-	-	-	842	1.8	45,923	100.0
Total	3,147,745	27.9	5,417,000	47.9	1,264,193	11.2	403,338	3.6	373,300	3.4	451,256	4.0	151,435	1.4	44,779	0.3	26,301	-	13,255	0.1	6,122	0.0	11,298,724	100.0

	Tons(i)	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%	Tons	%
Petrolatum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	54	100.0	54	100.0
Grease	-	-	520	26.4	383	19.4	985(e)	50.1	-	-	-	-	-	-	-	-	79	3.5	-	-	5	0.0	1,972	100.0
Asphalt	5,195	88.3	-	-	688	11.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5,883	100.0
Coke	-	-	242,500	100.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	242,550	100.0
Wax	1,758	32.4	2,688	49.7	1	0.0	-	-	-	-	979	17.9	-	-	-	-	-	-	-	-	-	-	5,426	100.0
Total	6,953	2.8	245,758	96.1	1,072	0.4	985	0.4	-	-	979	0.3	-	-	-	-	79	0.0	-	-	59	0.0	255,885	100.0

(a) Includes sales F.O.B. ex Western Hemisphere

(b) Not including the N.V. Olie Handelsvereeniging

(c) Naphthas

(d) Includes bunkers

(e) Includes wax

(f) Includes grease

(g) Incomplete. Statistics on "Sinfina" and various small independent marketers not available.

(h) N.V. de Bataafsche Mij and N.V. Bataafsche Import Mij.

(i) Tons of 2,000 lbs.

4.0 DISTRIBUTING

4.1 INTRODUCTION

This section of the report deals with the methods and facilities for the distribution of petroleum products in The Netherlands. Consumption statistics and estimates on the use of substitute fuels are included. All available data on the bulk storage facilities at ocean terminals, refineries and inland bulk plants are presented. A summary of these data is given in the tables on pages 86 to 90, and a map showing the locations of all known petroleum installations and storage plants in The Netherlands appears on page 8.

Plant layout plans, location sketches and photographs, if available, are presented along with a description of the refineries and terminals. Layouts of a large number of inland bulk plants appear following the table summarizing data on storage facilities. It is of course understood that layout plans and tankage allocation statements reflect the conditions that existed prior to the war and which may have undergone some subsequent modification. There are, however, no indications that new facilities of any importance have been erected since the beginning of the war. Although some damage to existing plants has been reported, the major portion of the storage facilities is believed to be still serviceable.

4.2 STRATEGIC CONSIDERATIONS

Petroleum storage facilities are of course essential to the enemy's military and civil operations. Bulk storage at major transshipping and distributing centers is particularly important and, if destroyed, the supplying of vital areas is greatly hampered. However, oil storage has not proven an exceptionally good target for aerial bombardment since, at least in the case of isolated attacks, it is seldom that any one plant is destroyed in its entirety and much of the damage is of a type which makes repair or replacement comparatively easy.

Owing to the inflammable nature of the contents, oil storage is susceptible to sabotage, though not to the extent that is commonly supposed. It is usually necessary to let the contents of a tank run to waste in the open before they can be fired. Larger tanks usually have a water seal which has to be drawn off first, thus increasing the difficulties. With the possible exception of operating refinery units, extensive results from sabotage can hardly be expected. Acids or abrasives, properly introduced, are effective to a limited extent.

It is believed that upon occasion some petroleum supplies for the German forces along the French coast have been shipped from Rotterdam by vessels that slip down the English channel at night, putting into protected harbors during the daytime. Except for this, the Netherlands is an end point of German supply lines and contains no production units nor important assembling and transshipping points where facilities and large reserve stocks vital to the enemy are likely to exist. Nor is it probable that the Germans would, under any circumstances, maintain important stocks in aboveground storage at Amsterdam, Rotterdam, and other points of such close proximity to the Allied air bases in England. Conversely, terminal facilities at major ports will be of considerable value to the Allied forces upon their occupation of the country.

In view of these considerations the utility of extensively bombing the storage facilities in The Netherlands is not apparent, except in instances where specific intelligence might indicate the desirability for tactical reasons.

Transport, particularly in The Netherlands which depends upon supplies from outside the country, is the most important link in the oil economy of the country. Transport, however, is both a difficult and highly dispersed target and successful

operations do not generally result in permanent stoppage. This is particularly true in a country such as The Netherlands where numerous alternate routes, by both rail and inland waterway, exist. Even temporary results, if recurring sufficiently frequently, can have a serious effect on the enemy's operations.

As the enemy is forced to quit any area, it is to be expected that he will seriously damage or destroy all important petroleum facilities and remove all railway rolling stock, automotive equipment, and marine and river transport units. Ocean terminals, if captured intact, will of course be of immediate value to the Allies for the receiving and distributing of the petroleum supplies necessary to both the armed forces and the civil administration.

4.3 CONSUMPTION

4.3.1 General

Under normal conditions the per capita consumption of petroleum products in The Netherlands was relatively high. Total civilian consumption amounted to approximately 1,500,000 tons per annum. Automobiles and motorcycles were numerous. Kerosine was widely used for domestic lighting, heating and cooking. Besides purely domestic and industrial consumption considerable quantities of bunker and diesel fuels were supplied to ocean-going vessels and to the canal, coastal and fishing vessels. As can be seen, however, from the tables of imports and exports in bond on pages 43,44 and 45, considerable quantities of petroleum products were imported into The Netherlands in transit and were not consumed there but were transshipped to other areas, particularly into Germany. This was especially true during the years just prior to the war when Germany was building up reserve stocks. Tables of estimated industrial and civilian consumption of liquid fuels and lubricants in The Netherlands for the years 1938 and 1943 appear on page 47.

4.3.2 Industrial and Civilian Consumption of Petroleum Products During 1943

Overall consumption.- In the first four months of 1943 about 4,500 tons of gasoline, 5,000 tons of gas oil, and 3,200 tons of kerosine were made available for Dutch consumption. The quantities allocated to industrial and civilian uses have been declining continuously, however, and in each of the first four months consumption exceeded imports, so that withdrawals from the meager stocks were necessary. Consumption for the whole of 1943 was, therefore, probably well below three times the figure given above. Requirements in 1943 have been estimated at 10,000 tons of gasoline, 8,000 tons of kerosine, and 20,000 tons of gas oil (including some domestic tar oils). Lubricating oil consumption corresponded to about 25 percent of pre-war demand,or to some 15,000 tons. Some fuel oil was most likely obtained from the domestic production of tar oil; its consumption is estimated at 5,000 tons. Total estimated Dutch requirements in 1943 amount to about 58,000 tons.

Road transportation.- On the basis of actual allocations during the early months of 1943 it has been estimated that about 6,000 tons of light motor fuel were used in road transportation. Allocations to Dutch uses were seriously curtailed and practically no supplies were made available even for doctors, food distribution, and other vital services. The number of motor vehicles in use early in 1943 as compared to 1938 is shown in the table on page 46.

IMPORTS, THE NETHERLANDS, 1938(a)

Figures in Barrels

Country	Crude Oil(b)	Gasoline	Kerosine	Gas Oil	Fuel Oil	Lubricating Oil	Mineral Waxes	Petrolatum	Asphalt	Petrolatum Residues	Grease	Total	% of Total
Netherlands West Indies	-	743,000	997,000	596,000	2,709,000	-	-	-	-	5,000	-	5,050,000	40.2
Mexico	126,000	-	-	-	-	-	-	-	19,000	-	-	145,000	1.2
United States	-	1,044,000	513,000	981,000	104,000	122,000	19,000	8,000	1,000	-	3,000	2,795,000	22.2
Peru	-	-	-	6,000	-	-	-	-	-	-	-	6,000	-
Belgium & Luxembourg	-	82,000	22,000	213,000	15,000	159,000	3,000	-	23,000	2,000	8,000	527,000	4.2
France	-	-	178,000	228,000	12,000	3,000	-	-	-	-	-	421,000	3.3
Germany	-	-	-	-	-	74,000	1,000	-	21,000	-	3,000	99,000	0.8
Rumania	-	63,000	15,000	-	-	-	-	-	-	-	-	78,000	0.6
U. S. S. R.	-	-	21,000	-	-	-	-	-	-	-	-	21,000	0.2
United Kingdom	-	-	1,000	-	-	17,000	2,000	-	-	-	1,000	21,000	0.2
Arabia	-	37,000	-	-	-	-	-	-	-	-	-	37,000	0.3
Burma	-	-	-	-	-	-	5,000	-	-	-	-	5,000	-
Iran (Persia)	-	13,000	202,000	101,000	-	-	-	-	-	-	-	316,000	2.5
Netherlands East Indies	-	76,000	12,000	10,000	-	-	1,000	-	-	1,000	-	100,000	0.8
Other	2,906,000	11,000	1,000	-	4,000	1,000	3,000	1,000	18,000	1,000	1,000	2,947,000	23.5
Total Barrels	3,032,000	2,069,000	1,962,000	2,135,000	2,844,000	376,000	34,000	9,000	82,000	9,000	16,000	12,568,000	100.0
Metric Tons	-	-	-	-	-	-	4,280	1,172	13,336	-	2,051	-	-

(a) Compiled by Petroleum Economics Division, U. S. Bureau of Mines
(b) Converted by varying factors, according to the average specific gravity of the crude of each country of origin.

Entries and exports

ENTRIES INTO BOND, THE NETHERLANDS, 1938 (a)

Figures in Barrels

Country	Crude Oil(b)	Gasoline	Kerosine	Gas Oil(c)	Fuel Oil(c)	Lubricating Oil	Paraffin Wax	Petroleum Residues	Total
Netherlands West Indies	62,000	2,545,000	1,155,000	2,052,000	1,050,000	7,000	-	622,000	7,493,000
Mexico	97,000	73,000	-	-	-	-	-	-	170,000
United States	-	2,364,000	727,000	2,499,000	788,000	73,000	-	-	6,451,000
Peru	-	96,000	-	128,000	-	-	-	-	224,000
Venezuela	301,000	-	-	-	-	-	-	-	301,000
Belgium & Luxemburg	-	15,000	17,000	25,000	50,000	-	-	-	107,000
France	-	-	179,000	203,000	17,000	-	-	-	399,000
Germany	-	10,000	-	-	24,000	-	-	-	34,000
Rumania	-	996,000	10,000	126,000	-	-	12,000	-	1,144,000
U. S. S. R.	-	-	43,000	-	14,000	-	-	-	57,000
United Kingdom	-	43,000	-	-	-	-	-	-	43,000
Arabia	-	28,000	-	-	-	-	-	-	28,000
British Malaya	-	101,000	-	-	-	-	-	-	101,000
Burma	-	-	-	-	-	-	37,000	-	37,000
India, British	-	-	-	-	-	-	2,000	-	2,000
Iran (Persia)	-	266,000	369,000	404,000	13,000	-	-	-	1,052,000
Netherlands East Indies	-	1,126,000	-	80,000	-	-	10,000	-	1,216,000
Egypt	-	67,000	-	-	-	-	-	-	67,000
Other	79,000	-	-	-	14,000	-	1,000	-	94,000
Total Barrels	539,000	7,730,000	2,500,000	5,517,000	1,970,000	80,000	62,000	622,000	19,020,000
Metric Tons	-	-	-	-	-	-	7,834	-	-

(a) Compiled by Petroleum Economics Division, U. S. Bureau of Mines
(b) Converted by varying factors, according to the average specific gravity of the crude of each country of origin.
(c) Excluding bunkers.

EXPORTS FROM BONDED WAREHOUSES, THE NETHERLANDS, 1938 (a)

Figures in Barrels

Country	Crude Oil(b)	Gasoline	Kerosine	Gas Oil(c)	Fuel Oil(c)	Lubricating Oil	Paraffin Wax	Petroleum Residues	Total
United States	-	47,000	-	-	1,000	-	-	-	48,000
Costa Rica	-	-	-	-	-	-	2,000	-	2,000
Peru	-	-	-	-	-	-	10,000	-	10,000
Venezuela	-	-	-	-	-	-	8,000	-	8,000
Austria	-	2,000	-	-	-	-	-	-	2,000
Belgium & Luxemburg	-	185,000	1,000	138,000	132,000	-	-	-	456,000
Denmark	-	151,000	23,000	-	-	-	2,000	-	176,000
Estonia	-	-	11,000	-	-	-	-	-	11,000
Finland	-	105,000	124,000	2,000	-	-	1,000	-	232,000
France	-	36,000	-	-	7,000	-	-	-	43,000
Germany	484,000	3,213,000	71,000	1,964,000	-	58,000	14,000	559,000	6,363,000
Iceland	-	4,000	-	-	-	-	-	-	4,000
Italy	-	11,000	-	-	-	-	-	-	11,000
Latvia	-	29,000	28,000	-	-	-	2,000	-	59,000
Lithuania	-	-	-	-	-	-	2,000	-	2,000
Norway	-	209,000	72,000	-	-	-	1,000	-	282,000
Portugal	-	3,000	-	-	-	-	1,000	-	4,000
Sweden	-	325,000	125,000	33,000	-	-	3,000	-	486,000
Switzerland	-	991,000	45,000	650,000	-	-	1,000	-	1,687,000
United Kingdom	-	357,000	-	-	-	-	-	-	357,000
Arabia	-	-	23,000	-	-	-	-	-	23,000
India, British	-	2,000	3,000	-	-	-	-	-	5,000
Gibraltar	-	2,000	-	-	-	-	-	-	2,000
Rhodesia	-	9,000	1,000	-	-	-	-	-	10,000
Other	-	-	10,000	2,000	-	1,000	3,000	-	16,000
Total Barrels	484,000	5,681,000	537,000	2,789,000	140,000	59,000	50,000	559,000	10,299,000
Metric Tons	-	-	-	-	-	-	6,384	-	-

(a) Compiled by Petroleum Economics Division, U. S. Bureau of Mines.
(b) Converted by varying factors, according to the average specific gravity of the crude of each country of origin.
(c) Excluding bunkers.

WITHDRAWALS FROM BOND FOR DOMESTIC CONSUMPTION, THE NETHERLANDS, 1938 (a)

Figures in Barrels

Country	Gasoline	Kerosine	Gas Oil(b)	Fuel Oil(b)	Lubricating Oil	Paraffin Wax	Petroleum Residues	Total
Netherlands West Indies	743,000	997,000	350,000	232,000	-	-	49,000	2,371,000
United States	962,000	510,000	814,000	93,000	44,000	-	-	2,423,000
Peru	-	-	6,000	-	-	-	-	6,000
Belgium & Luxemburg	16,000	16,000	15,000	8,000	-	-	-	55,000
France	-	171,000	160,000	12,000	-	-	-	343,000
Poland & Danzig	-	-	-	-	-	1,000	-	1,000
Rumania	49,000	15,000	-	-	-	-	-	64,000
U. S. S. R.	-	17,000	-	-	-	-	-	17,000
Arabia	27,000	-	-	-	-	-	-	27,000
Asia, British	6,000	-	-	-	-	-	-	6,000
Burma	-	-	-	-	-	3,000	-	3,000
Iran (Persia)	11,000	202,000	100,000	2,000	-	-	-	315,000
Netherlands East Indies	76,000	12,000	10,000	-	-	1,000	-	99,000
Other	6,000	2,000	1,000	-	-	-	-	9,000
Total Barrels	1,896,000	1,942,000	1,456,000	347,000	44,000	5,000	49,000	5,739,000
Metric Tons	-	-	-	-	-	614	-	-

(a) Compiled by Petroleum Economics Division, U. S. Bureau of Mines
(b) Excluding bunkers.

EXPORTS, THE NETHERLANDS, 1938 (a)

Figures in Barrels

Country	Motor Gasoline	Kerosine	Gas Oil	Residual Fuel Oil	Lubricating Oil	Other Mineral Oils	Mineral Waxes	Petrolatum	Asphalt	Grease	Total
Uruguay	-	-	-	-	-	-	-	-	68,000	-	68,000
Belgium & Luxemburg	-	-	68,000	-	4,000	-	-	-	77,000	-	149,000
Estonia	-	-	-	20,000	-	-	-	-	-	-	20,000
Finland	-	-	-	-	-	-	-	-	49,000	-	49,000
Germany	-	-	6,000	-	1,000	-	-	-	9,000	-	16,000
Latvia	-	-	25,000	-	-	-	-	-	-	-	25,000
Norway	-	-	-	-	-	-	-	-	15,000	-	15,000
Sweden	-	-	-	-	-	-	-	-	39,000	-	39,000
Switzerland	-	-	12,000	23,000	1,000	-	-	-	56,000	-	92,000
United Kingdom	14,000	8,000	2,000	-	-	-	-	-	17,000	-	41,000
Netherlands East Indies	-	-	-	-	-	-	-	-	7,000	-	7,000
Supplies of vessels	-	-	691,000	170,000	-	-	-	-	-	-	861,000
Other	-	-	-	2,000	1,000	3,000	2,000	6,000	70,000	(b)	84,000
Total Barrels	14,000	8,000	804,000	215,000	7,000	3,000	2,000	6,000	407,000	(b)	1,466,000
Metric Tons	-	-	-	-	-	-	288	719	66,465	9	-

(a) Compiled by Petroleum Economics Division, U. S. Bureau of Mines.
(b) Less than 500 barrels.

Number of Motor Vehicles in Use in The Netherlands

	1943 - Running on:		Total 1943	Total 1938
	Liquid Fuel	Substitutes		
Motorcycles	3,000	-	3,000	60,000
Private Cars	8,000	8,000	16,000	94,000
Buses	Unknown	Unknown	1,800	4,100
Trucks	4,000	12,000	16,000	51,000
Total	15,000	20,000	36,800	209,100

Railways.- No change is suggested in the estimate of lubricating oil requirements as compared with 1942, i.e.--1,000 metric tons.

Inland and coastal shipping and fishing.-It is reported that consumption of petroleum by inland shipping amounted to only a fraction of the peacetime requirements. Because of the scarcity of petroleum fuels motor-barges were frequently used as dumb barges behind tugs.

Rations for the fishing fleet were still granted in 1943. Some reports state, however, that the rations were just sufficient for three days at sea per month.

On the whole, consumption for inland and coastal shipping and fishing has been reduced by 50 percent as compared with the 1942 figures.

Agriculture.- It was reported in July 1943(a) that no liquid fuel rations could be expected for the threshing of the crop and that substitute sources of power would have to be used. Lubricating oil supplies were also very scarce(b). Estimated 1943 requirements have been reduced by about 30 percent as compared with 1942.

Industry and household.- Lubricating oil supplies were reported down to 25 percent of normal demand.

Kerosine consumption for cooking was reported to have been cut to 10 percent of pre-war demand and for lighting to 3.7 percent.

(a) "De Standaard,"July 15, 1943
(b) "Nieuwe Rotterdamsche Courant,"August 27, 1943

Estimated Industrial and Civilian Consumption of Liquid Fuels and Lubricants in The Netherlands, 1943

Figures in Metric Tons

	Light Motor Fuel	Kerosine	Lubricants	Gas Oil	Fuel Oil	Total
Road Transport	6,000	-	3,000	2,000	-	11,000
Railways	-	-	1,000	2,000	-	3,000
Inland Shipping and Fishing	3,000	-	2,000	14,000	3,000	22,000
Bunkers	-	-	-	-	-	-
Commercial Aviation	-	-	-	-	-	-
Agriculture	1,000	1,000	1,000	1,000	-	4,000
Industry	-	-	8,000	1,000	2,000	11,000
Household	-	7,000	-	-	-	7,000
Total Metric Tons	10,000	8,000	15,000	20,000	5,000	58,000
Total Barrels	85,000	63,200	105,000	144,000	32,500	429,700

Estimated Industrial and Civilian Consumption of Liquid Fuels and Lubricants in The Netherlands, 1938

Figures in Metric Tons

	Light Motor Fuel(a)	Kerosine	Lubricants	Gas Oil	Fuel Oil	Total
Motorcycles	14,000	-	1,000	-	-	15,000
Private Cars	95,000	-	3,000	-	-	98,000
Buses	55,000	-	3,000	13,000	-	71,000
Trucks	220,000	-	8,000	8,000	-	236,000
Total Road Transport	384,000	-	15,000	21,000	-	420,000
Railways	4,000	-	3,000	10,000	-	17,000
Inland Shipping	2,000	5,000	5,000	96,000	-	108,000
Bunkers	-	-	3,000	196,000	250,000	449,000
Commercial Aviation	14,000	-	1,000	-	-	15,000
Agriculture	3,000	15,000	3,000	3,000	-	24,000
Industry	8,000	10,000	27,000	170,000	21,000	236,000
Household	-	225,000	-	-	-	225,000
Total Metric Tons	415,000	255,000	57,000	496,000	271,000	1,494,000
Total Barrels	3,527,500	2,014,500	399,000	3,571,200	1761,500	11,273,700

(a) Includes benzol.

4.4 SUBSTITUTE FUELS

4.4.1 The Use of Substitute Fuels in The Netherlands During 1943

Road transportation.- The number of motor vehicles being driven by substitute fuels as of March 1943 was reported in the press to be 15,000, or about double the number of converted vehicles in use in the autumn of 1941. Anthracite was used by 10,000 of these vehicles and peat by nearly 4,000. Only a relatively small number of trucks were using wood. Buses and taxis were frequently converted to the use of city gas.(a) Some methane gas was produced; and the supplies were controlled by the State Office for Mineral Oil Products.(b)

By the middle of 1943 the number of substitute-using vehicles had probably increased to 18,000. Since that time new restrictions have been imposed on the use of liquid fuels. In August 1943 the gasoline rations for vehicles employed in food distribution were withdrawn. In September it was decreed that all small trucks and private cars had to be converted to substitute fuels, mainly peat.(c) About 87 percent of the total number of large private cars had already been converted, but 6,000 small private cars were immobilized because of lack of liquid fuel.(d) With most of the liquid-fuel-using vehicles immobilized, substitute-fueled vehicles will probably account for three-quarters of total 1943 road transportation.

Railways.- No intelligence is available on the conversion of rail cars to the use of substitute fuels, but obviously some conversion must have taken place. It has tentatively been estimated that 20 percent of the pre-war petroleum requirements of the Dutch railways were replaced by substitutes in 1943.

Inland shipping.- One of the most important liquid fuel consumers was inland shipping. Before the war 11,000 engines, aggregating 250,000 H. P. (excluding motor tugs), were installed on inland barges.(e) In June 1942 it was reported that 300 motor ships had been converted. Early in 1943 it was stated that a large number of Dutch barges were operating on producer gas and that the shortage of diesel oil could thus partly be overcome. Other reports indicate, however, that motor barges were frequently drawn by steam tugs and that only a few vessels had been converted to the "diesel cum gas" system. In November 1943 it was stated that ships were being converted on a large scale. Probably not more than one-quarter of the 1943 fuel requirements for inland shipping will be satisfied by substitutes.

Some fishing and coastal vessels have also been converted to generator fuel, but the progress up to the middle of 1943 was not impressive. In this connection it is interesting to note that in the middle of 1943 the German Commissar for The Netherlands requested the owners of sea-going vessels to furnish him with details necessary to enable him to obtain gas-generators for their use. Vessels with engines of less than 50 or more than 1,000 H. P. were excepted.

Agriculture.- Early in 1943 farmers were warned that no allotment of liquid fuel for the threshing of the next crop would be available and that either electric power or producer gas engines would have to be used for this purpose. Some 1,500 tractors, out of a total of 3,000, had already been converted to substitute fuel. Because of the lower utilization of substitute-fuelled tractors, it is tentatively estimated that one-quarter of the 1938 agricultural liquid fuel requirements have been replaced by substitute fuels in 1943.

(a) British Enemy Oil Intelligence Committee, August 9, 1943.
(b) "Nederlandsche Staatscourant", August 25, 1942.
(c) "Deutsche Bergwerks Zeitung", October 8, 1943.
(d) "Deutsche Bergwerks Zeitung", November 17, 1943.
(e) "Oel und Kohle", December 15, 1942.

4.4.2 Benzol

Prior to the war a considerable quantity of benzol was produced in The Netherlands from coal and coal tar distillation. Customarily the major portion of this production was purchased by the oil companies and mixed with motor gasoline for local consumption. This admixture of benzol usually amounted to between 4 and 5 percent. Some 216,000 barrels of benzol were so used in 1938.(a) This practice was not the result nor the object of any law nor governmental regulation but was the result of purely voluntary agreements between the gasoline marketers and the benzol producers.

4.4.3 Alcohol

Although, prior to the war, some industrial alcohol was produced locally from beets and potatoes, it was not employed as motor fuel. Contrary to the practice in many European countries, The Netherlands did not oblige the oil companies to mix alcohol with their motor gasoline. This was influenced by the fact that the colonial possessions of The Netherlands were large producers of petroleum,as well as by the fact that the country did not produce large agricultural surpluses.

4.5 TRANSPORTATION

In normal times petroleum products entered The Netherlands through the ports of Amsterdam and Rotterdam and were transported over the extensive rail and canal systems throughout the country and into Germany as well. Under present conditions the flow of petroleum products is reversed. Available supplies are shipped from Germany into The Netherlands and certain quantities for the supply of points along the French coast are believed to have been carried from Rotterdam by coastal tankers sailing down the English Channel at night,putting into protected harbors during the days.

Canals and rivers form an important component in the transportation systems of Europe and this is particularly true of The Netherlands where the numerous inland waterways are highly developed and extensively utilized. The most important artery in the area under consideration is the Maas-Rhine river system with its tributary canals extending throughout The Netherlands into Belgium, Germany and beyond. The map on page 8 shows the principal water and rail lines in The Netherlands and their continuations in contiguous territories. Rhine river barges with carrying capacity up to 3,600 tons can operate from Rotterdam into Germany, but on many tributary canals barges of 500 tons cargo capacity are the largest that can be accomodated.

Generally speaking the canals are navigable all year round. During cold weather of unusual severity,which may occur in the months of January and February, the canals sometimes freeze over. These periods of freezing rarely exceed two or three weeks, though floating ice may be encountered for longer periods. During freezing weather it was the practice to send powerful tug boats through the canals in order to keep them open for navigation.

The railway system in The Netherlands is highly developed and there are a number of fast multiple-tracked lines connecting Germany and The Netherlands. One of the most direct is the route via Rotterdam, Utrecht, Arnheim and Dortmund.

Large quantities of petroleum, as well as other freight, are moved by both rail and inland waterways. These two elements of The Netherlands transportation

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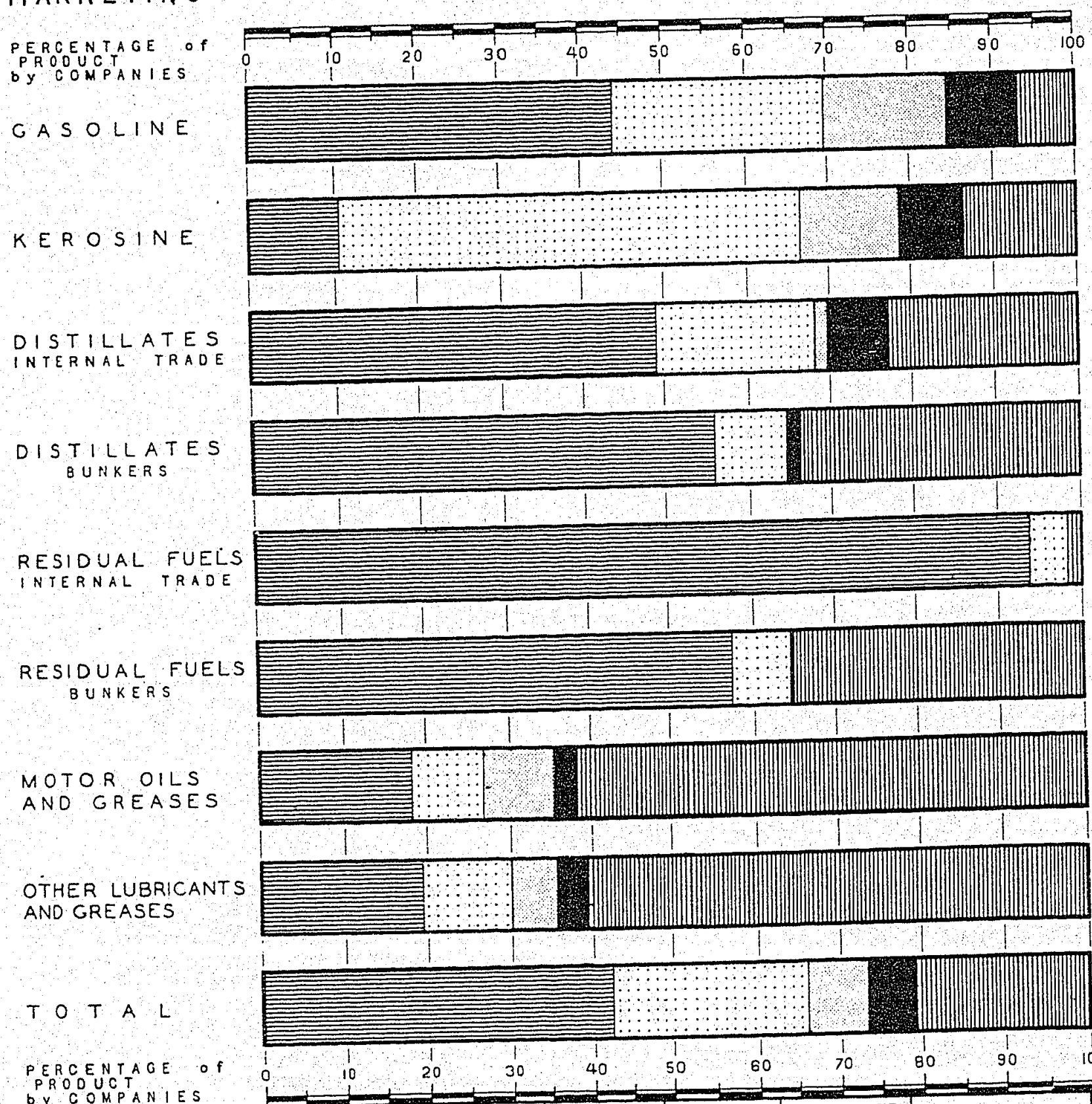
(a) Statistics supplied by Standard Oil Company (N.J.)

PRINCIPAL DISTRIBUTING COMPANIES, THE NETHERLANDS, MARKETING STATISTICS — 1938



COMPANIES	N.V. Batavasche Import Mij.		Standard Amerikaansche		N.V. The Texas Company		Sinfina		Others		Total Market	
Product	Barrels	%	Barrels	%	Barrels	%	Barrels	%	Barrels	%	Barrels	%
Gasoline	1,557,728	43.94	911,097	25.70	523,615	14.77	309,134	8.72	243,552	6.87	3,545,126	100.00
Kerosine	207,314	10.46	1,107,922	55.90	241,603	12.19	148,252	7.48	276,882	13.97	1,981,973	100.00
Distillates--Internal Trade	1,072,520	48.95	425,064	19.40	26,292	1.20	172,655	7.88	494,521	22.57	2,191,052	100.00
Distillates--Bunkers	847,754	55.96	135,284	8.93	-	-	26,814	1.77	505,077	33.34	1,514,929	100.00
Residual Fuels--Internal Trade	133,486	93.94	6,366	4.48	-	-	-	-	2,245	1.58	142,097	100.00
Residual Fuels--Bunkers	918,949	57.56	110,798	6.94	-	-	4,471	.28	562,289	35.22	1,596,507	100.00
Motor Oils & Greases	12,349	18.11	5,742	8.42	5,919	8.68	1,657	2.43	42,525	62.36	68,192	100.00
Other Lubricants & Greases	72,650	19.17	38,656	10.20	25,695	6.78	13,871	3.66	228,108	60.19	378,980	100.00
Totals	4,822,750	42.23	2,740,929	24.00	823,124	7.20	676,854	5.93	2,355,199	20.64	11,418,856	100.00

system are interdependent and obstruction of one would result in corresponding congestion of the other. Should the enemy carry out extensive demolition of dikes and drainage pumps resulting in the flooding of large areas transportation of all kinds, by road, railroad, and canal would be seriously hampered.

4.6 DISTRIBUTING COMPANIES

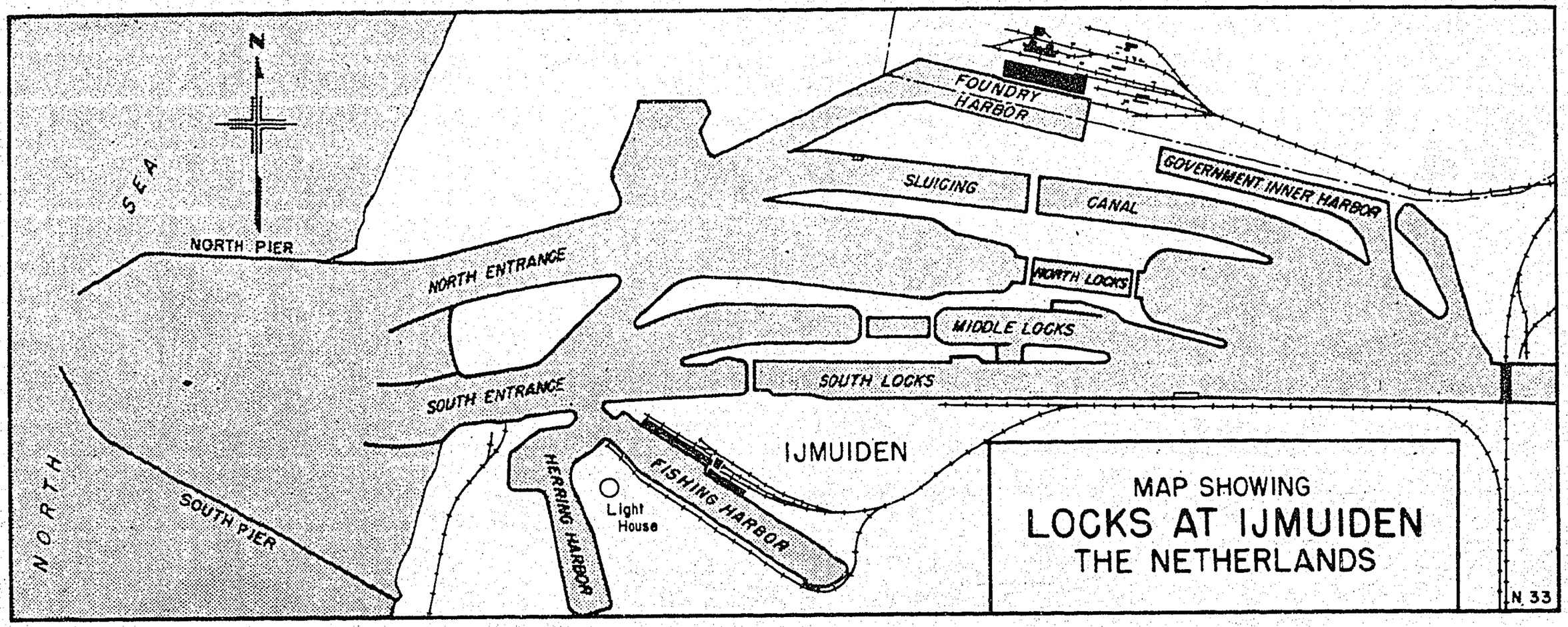
The principal companies distributing petroleum products through their own facilities throughout The Netherlands were:

Principal Distributing Companies

Company	Common Name or Symbol	Address--Head Office of Co.	Name and Address of Owner Firm
N.V. de Bataafsche Petroleum Mij.(a)	Shell	Carel Van Bylandtlaan 30, The Hague	Royal Dutch Shell group, London
N.V. Bataafsche Import Mij.(a)	Shell	Gevers Deynootweg 59, The Hague	Royal Dutch Shell group, London
Entrepôt der Standard Amerikaansche Petroleum Compagnie N.V.(b)	Standard	Petroleumweg 25, Rotterdam (Pernis)	Standard Oil Co. (N.J.)
Standard Amerikaansche Petroleum Compagnie N.V.(b)	Standard	Benoordenhoutschweg 7, The Hague	Standard Oil Co. (N.J.)
N.V. The Texas Company	Texaco	2 de Adelheidstraat 300 The Hague	The Texas Company New York
Vereenigde Petroleum Maatschappijen Purfina-Sinclair "Sinfina"N.V.(c)	Sinfina	Hoftweg 7, The Hague	Cie. Financière Belge des Pétroles S.A., Antwerp, and Sinclair Petroleum Co. S.A., Brussels

The above list is not intended to include companies maintaining only localized or specialized facilities, such as bunkering terminals or lubricating oil warehouses. Marketing statistics for 1938 for the principal distributing companies are given on page 50. Certain other companies maintaining no facilities of their own in The Netherlands marketed petroleum products there through sales representatives or local agents. Marketing statistics for 1939 for the various companies, with the exception of "Sinfina", represented in The Netherlands are given in the table on page 40. This tabulation has been compiled from sales figures supplied by the individual companies.

(a) The N.V. de Bataafsche Petroleum Mij. operated refinery and terminal facilities while the N.V. Bataafsche Import Mij. operated the domestic marketing and distribution organization. Together they formed an integrated unit for carrying on the business of the Shell group within The Netherlands.
(b) The Entrepôt der Standard Amerikaansche Petroleum Compagnie N.V. operated the ocean terminals, while the Standard Amerikaansche Petroleum Compagnie N.V. carried on the domestic marketing for the Standard Oil Company (New Jersey).
(c) The Sinclair Refining Company, New York, has a minority interest in this firm.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MAP SHOWING
LOCKS AT IJMUIDEN
THE NETHERLANDS
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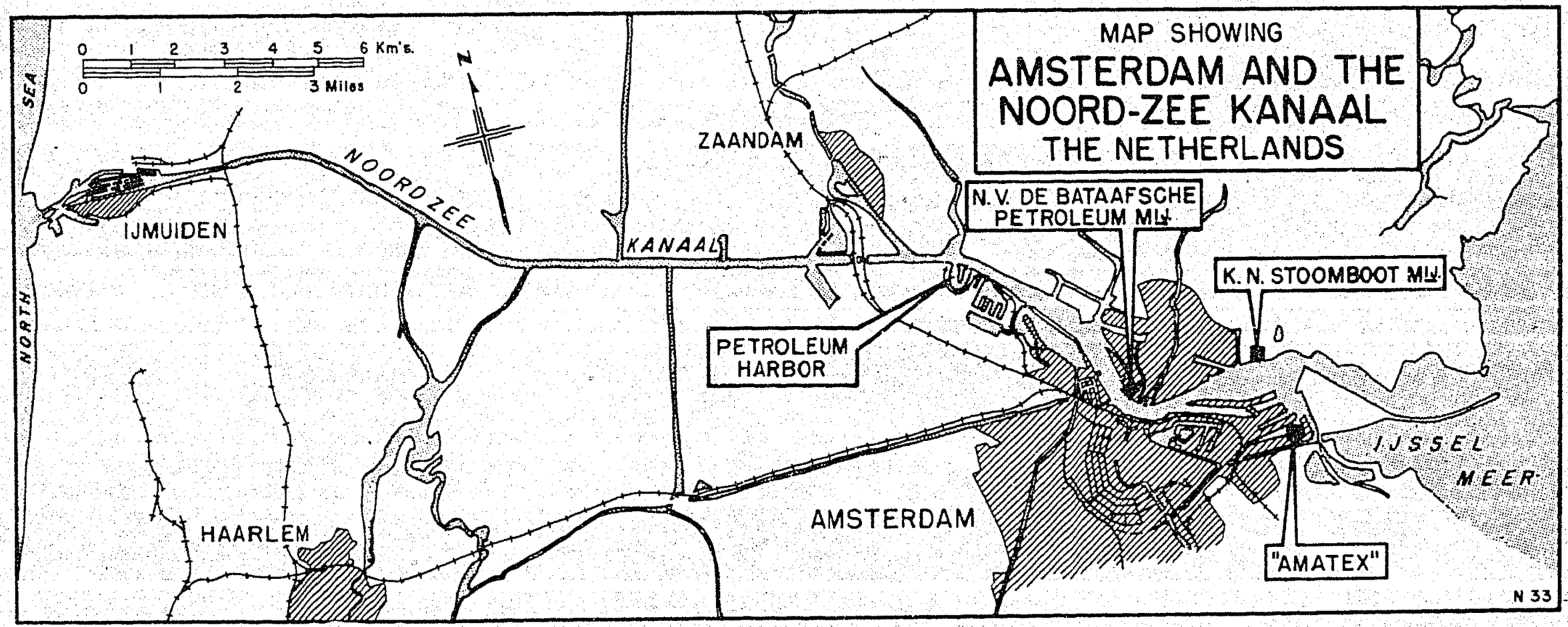
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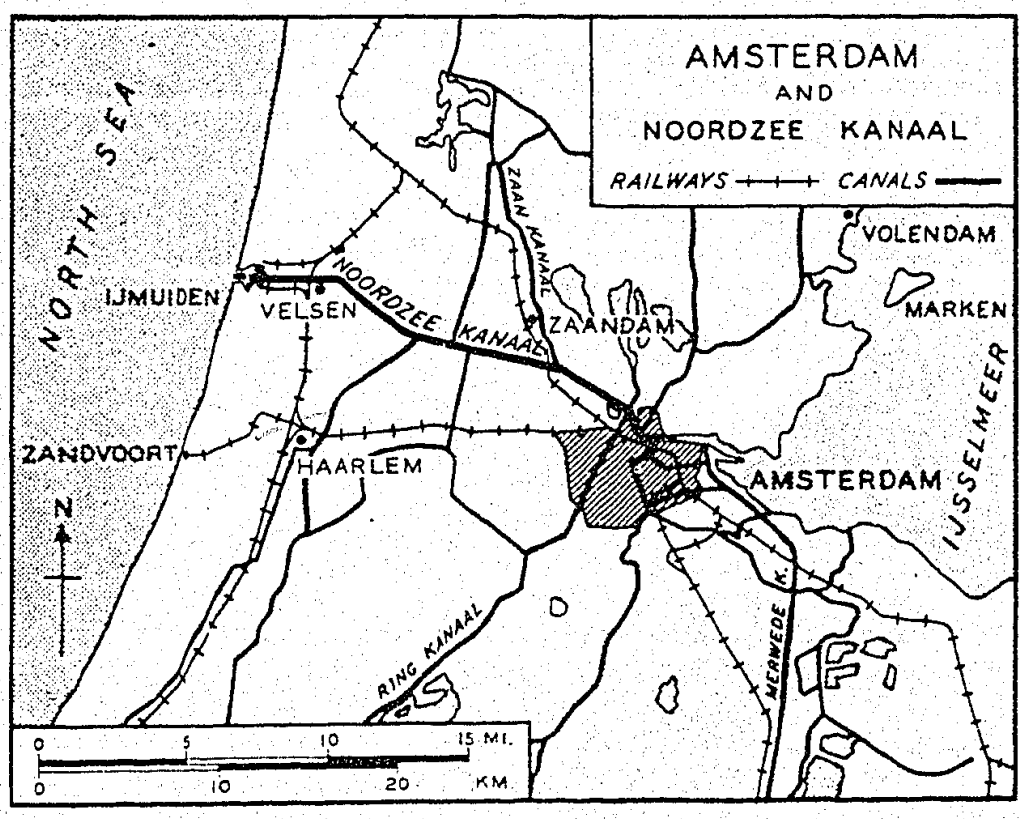
THE NETHERLANDS
N.V. DE BATAAFSCHE PETROLEUM MIJ.
K. N. STOOMBOOT MIJ.
PETROLEUM HARBOR
IJSSEL MEER
AMSTERDAM
HAARLEM
"AMATEX"
N 33

4.7 OCEAN TERMINALS

Ample and well designed terminal facilities were located at Amsterdam and Rotterdam, the two principal ports of The Netherlands, and limited terminal storage exists at Vlissingen (Flushing). Besides the facilities at these three deep-sea ports small bulk plants for the supplying of local consumption and for fueling the fishing fleet and other small craft are located at other coastal points. Such bulk plants, however, are not ocean terminals in any sense of the word and are properly classified as interior bulk plants. Data concerning them are listed in the summary on pages 86 to 90.

4.7.1 Amsterdam



The Port.- The city and port of Amsterdam (latitude 52°23'N, longitude 4°55'E) are situated on the western shores of the shallow Ijsselmeer.(a) Ocean-going vessels entering and leaving the port of Amsterdam do so by the Noordzee Kanaal (North Sea Canal) which connects the port with the North Sea. The canal has a depth of 33 feet, a width of 164 feet at the bottom, and of 393 feet at water level, and is some 16 nautical miles long.

Vessels entering the canal from the North Sea pass through locks at Ijmuiden. Besides the sluiceway for water control there are four locks, so that four vessels can be handled simultaneously. Lock dimensions are as follows:

North Sea Locks

	North Lock	Middle Lock	South Central Lock	South Small Lock
Length of lock chamber	1,312 ft.	738 ft.	390 ft.	193 ft.
Width of passage	164 ft.	82 ft.	62 ft.	39 ft.
Depth of sill	49 ft.	33 ft.	26 ft.	17 ft.
Number of pairs of flood gates	--	3	3	3
Number of pairs of ebb gates	--	3	2	2

By means of the central flood and ebb gates the lock chamber of the middle lock can be divided into two chambers about 492 feet and 246 feet long; the lock chamber of the south central lock can be divided by the central flood gates into two chambers about 226 feet and 160 feet long. The sluice is provided with a rolling-slide, in addition to the gates. A map of the canal showing the details of the locks appears on page 52.

(a) Formerly known as the Zuiderzee. A long-range program provides for the filling in of large areas in the Zuiderzee, a part of which was accomplished prior to the war. The areas that are to remain as permanent waterways were officially renamed the Ijsselmeer. In common parlance, however, both Zuiderzee and Ijsselmeer are used more or less indiscriminately.

Between Ijmuiden and Amsterdam the Noordzee Kanaal (North Sea Canal) is crossed by two railway bridges, one at Velsen, approximately one mile east of the locks, and one known as the Hembridge, near Zaandam and approximately 1½ miles west of the Municipal Petroleum Haven. These bridges are opened to permit the passage of large vessels. The height above water level of the Velsen bridge, when closed, is 19 feet and that of the Hembridge is 35 feet when closed.

In normal times the entire canal was electrically lighted and ships could enter and leave at all hours. During the winter it is occasionally necessary to employ ice breakers to keep the canal open.

The main portion of the harbor of Amsterdam is known as Het Ij (The Y). Being separated from the North Sea by the locks at Ijmuiden and from the Ijsselmeer by the Orange Locks at Amsterdam it is unaffected by tides and its depth is constant. The principal channels and berths have a depth of 33 feet. Docks and berths are extensive and, prior to the German occupation, harbor equipment was elaborate (a).

In addition to excellent railway facilities Amsterdam has inland waterway connections for barge traffic with practically all of The Netherlands via the Zuiderzee and the numerous canals. By means of the Merwede canal connecting with the lower Rhine River direct barge traffic with Germany is possible.

The port is well equipped with bulk terminal facilities, the more important of which are located at the Municipal Petroleum Haven. Terminal locations are shown on the map on page 55. Port data is summarized on the table on page 91.

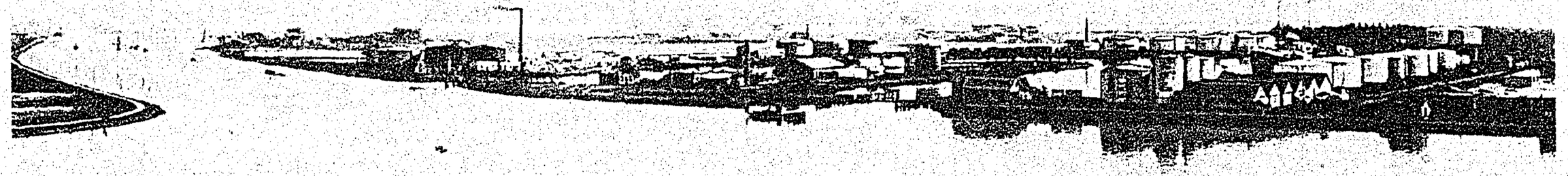
Summary of Terminal Tankage at Amsterdam(b)

Terminal	Location	No. of Tanks	Capacity	
			M^3	Bbls.
Municipal Petroleum Haven (Harbor)	Noordzee Kanaal West of Rotterdam	80	178,231	1,122,853
N.V. de Bataafsche Petroleum Mij.	Het Ij (The Y)	14	42,891	270,200(c)
Koninklyke Nederlandsche Stoomboot Mij.	Het Ij (The Y)	3	21,600	136,080
Amatex	Municipal Entrepôt Docks	12	23,639	148,926
	Total	109	266,361	1,678,059

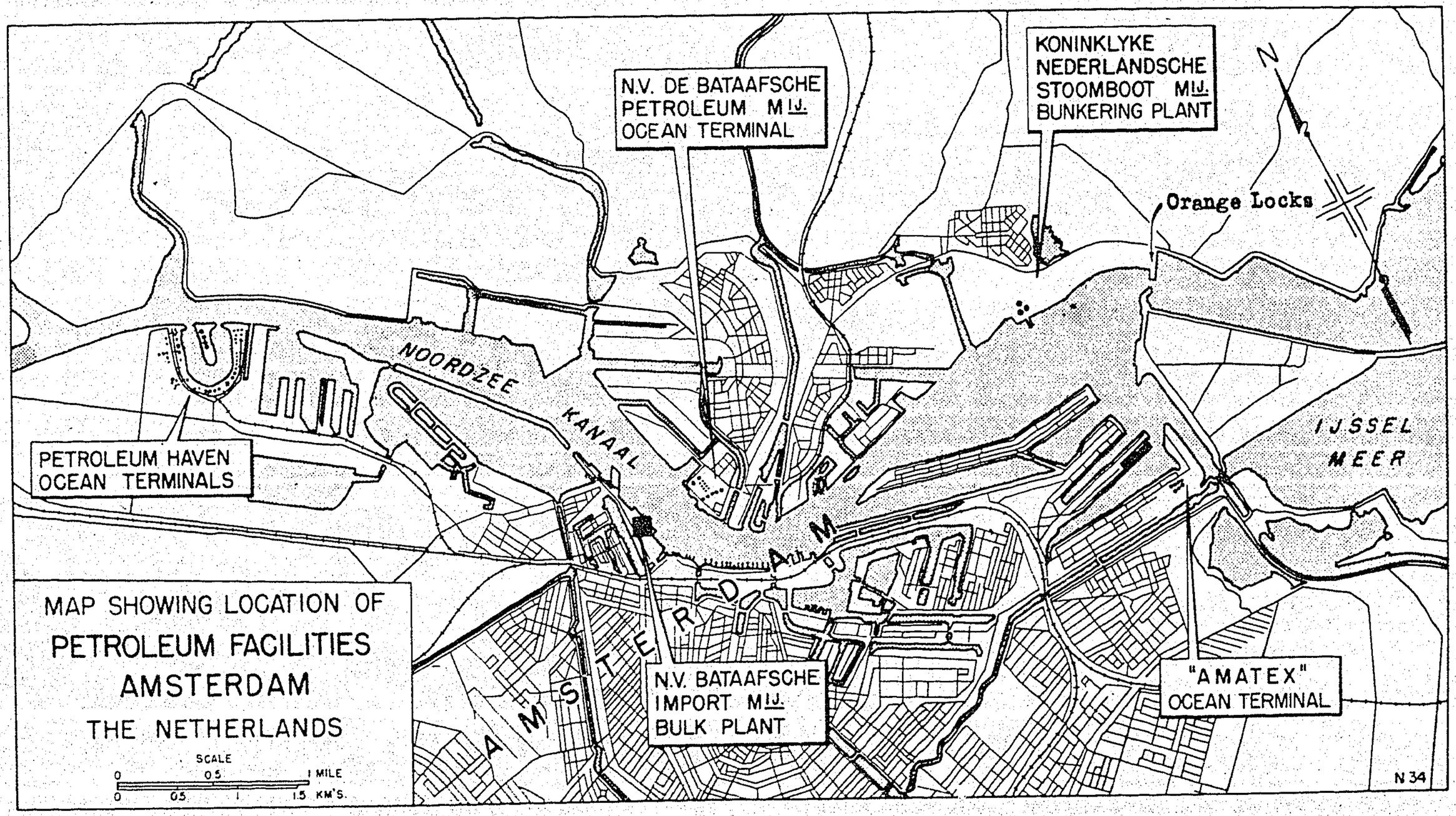
Municipal Petroleum Haven

This harbor, devoted exclusively to the handling of petroleum products, is located on the south side of the Noordzee Kanaal (North Sea Canal) to the west of the city. The harbor can accommodate four ocean-going tankers simultaneously and has a depth of over 31 feet. Vessels enter the harbor through gates, and tugs are required in docking and undocking, as the entrance is narrow and at right angles to the channel of the Noordzee Kanaal.

(a) In any consideration of the use of the harbor of Amsterdam in war time sight must not be lost of the fact that denial operations or successful aerial bombing of the locks would render the port useless.
(b) Ocean terminals only and excluding small city bulk plants which are listed under "Inland Bulk Plants" in the summary on page 86..
(c) Badly damaged. Remaining capacity estimated approximately 65,000 bbls.



THE PETROLEUM HAVEN, AMSTERDAM

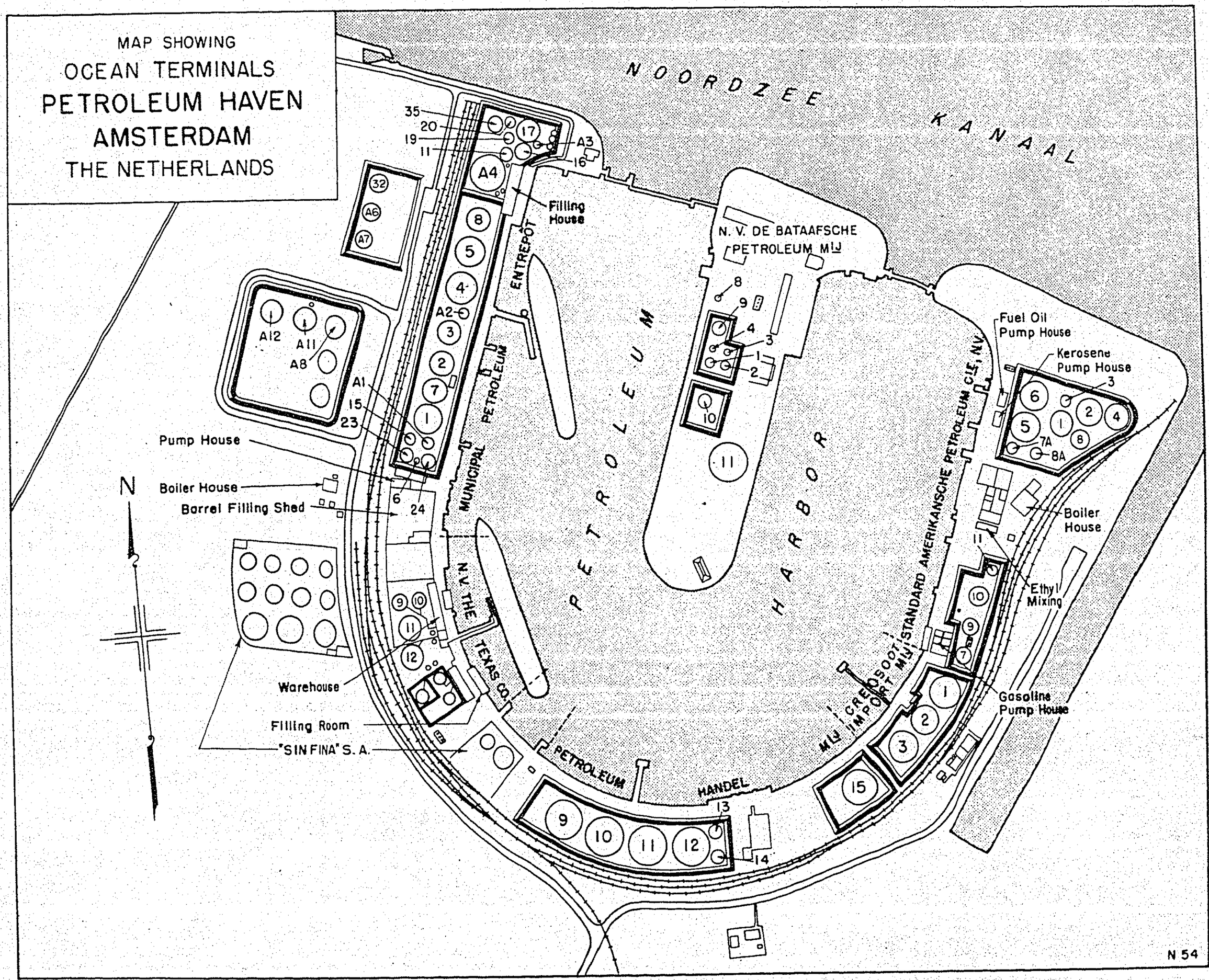


DETAILS OF TANKAGE BY COMPANIES

PETROLEUM HAVEN, AMSTERDAM

Tank No.	Used By	Metric Tons	M³	Barrels
1	Standard Amerikaansche Petroleum Mij.	3,100	3,691	23,250
2	" " " "	3,100	3,691	23,250
3	" " " "	155	185	1,163
4	" " " "	3,100	3,691	23,250
5	" " " "	4,100	4,878	30,750
6	" " " "	4,100	4,878	30,750
7	" " " "	1,400	1,667	10,500
7a	" " " "	200	238	1,500
8	" " " "	2,050	2,440	15,375
8a	" " " "	155	185	1,163
9	" " " "	1,400	1,667	10,500
10	" " " "	1,400	1,667	10,500
11	" " " "	350	417	2,625
	Total	24,610	29,295	184,576
1	Creosoot Import Mij.	5,800	6,905	43,500
2	" " "	5,800	6,905	43,500
3	" " "	5,800	6,905	43,500
	Total	17,400	20,715	130,500
9	Petroleum Handel Mij.	5,000	5,952	37,500
10	" " "	4,600	5,476	34,500
11	" " "	4,200	5,000	31,500
12	" " "	4,200	5,000	31,500
13	" " "	250	298	1,875
14	" " "	250	298	1,875
15	" " "	4,300	5,120	32,250
	Total	22,800	27,144	171,000
	"Sinfina"	1,000	1,190	7,500
	"	2,500	2,976	18,750
	"	2,500	2,976	18,750
	"	2,500	2,976	18,750
	"	2,500	2,976	18,750
	"	1,100	1,310	8,250
	"	1,100	1,310	8,250
	"	1,100	1,310	8,250
	"	1,100	1,310	8,250
	"	1,100	1,310	8,250
	"	1,100	1,310	8,250
	"	1,100	1,310	8,250
	"	1,100	1,310	8,250
	Total	19,800	23,574	148,500

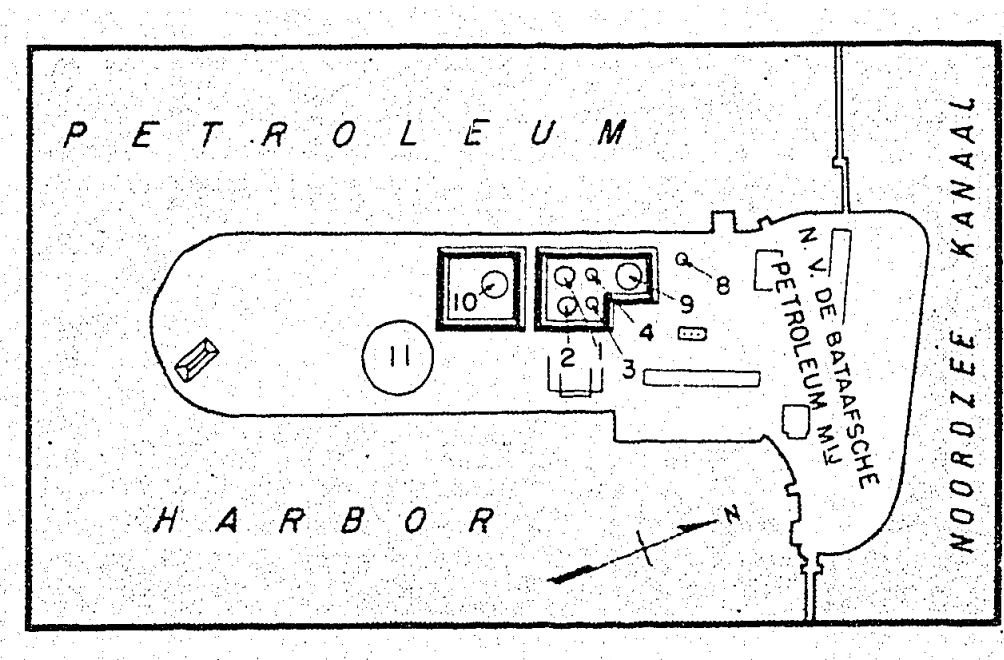
Tank No.	Used By	Metric Tons	M³	Barrels
9	N.V. The Texas Company	1,000	1,190	7,500
10	" " " " "	1,000	1,190	7,500
11	" " " " "	3,000	3,572	22,500
12	" " " " "	3,000	3,572	22,500
25	" " " " "	300	357	2,250
26	" " " " "	500	595	3,750
27	" " " " "	1,000	1,190	7,500
	Total	9,800	11,666	73,500
1	Municipal Entrepôt	3,000	3,571	22,500
2	" "	3,000	3,571	22,500
3	" "	2,250	2,679	16,875
4	" "	3,750	4,448	28,025
5	" "	3,750	4,448	28,025
6	" "	180	214	1,350
7	" "	2,250	2,679	16,875
8	" "	2,250	2,679	16,875
15	" "	120	143	900
16	" "	1,035	1,232	7,763
17	" "	1,500	1,786	11,250
18	" "	495	589	3,713
19	" "	495	589	3,713
20	" "	495	589	3,713
23	" "	300	357	2,250
24	" "	500	595	3,750
32	" "	1,100	1,310	8,250
35	" "	1,000	1,190	7,500
A1	" "	250	298	1,875
A2	" "	250	298	1,875
A3	" "	150	179	1,125
A4	" "	5,000	5,952	37,500
A6	" "	1,100	1,310	8,250
A7	" "	1,100	1,310	8,250
A8	" "	2,500	2,976	18,750
A11	" "	1,500	1,786	11,250
A12	" "	1,500	1,786	11,250
-	" "	1,500	1,786	11,250
-	" "	1,500	1,786	11,250
(Also 7	small filling tanks)			
	Total	43,820	52,136	328,452
1	N.V. de Bataafsche Petroleum Mij.	200	238	1,500
2	" " " " " "	200	238	1,500
3	" " " " " "	80	95	600
4	" " " " " "	80	95	600
8	" " " " " "	60	71	450
9	" " " " " "	90	107	675
10	" " " " " "	800	952	6,000
11	" " " " " "	10,000	11,905	75,000
(Also 3	small filling tanks)			
	Total	11,510	13,701	86,325
	GRAND TOTAL	149,740	178,231	1,122,853


MAP SHOWING
OCEAN TERMINALS
PETROLEUM HAVEN
AMSTERDAM
THE NETHERLANDS
NOORDZEE KANAAL
PETROLEUM HARBOR
Filling House
ENTREPOT
MUNICIPAL PETROLEUM
N.V. DE BATAAFSCHE PETROLEUM MIJ
N.V. THE TEXAS CO.
STANDARD AMERIKANSCHE PETROLEUM CIE, N.V.
MIJ CREOSOOT IMPORT MIJ
PETROLEUM HANDEL
Fuel Oil Pump House
Kerosene Pump House
Boiler House
Ethyl Mixing
Gasoline Pump House
Pump House
Boiler House
Barrel Filling Shed
Warehouse
Filling Room
"SIN FINA" S. A.
N
N 54

The harbor and docks, as well as a portion of the tankage, are owned and administered by the Municipality of Amsterdam. Terminal space and tankage, or space upon which the lessee erected his own tankage, was leased to the various oil companies. Such individual terminal units were staffed and operated by the lessee companies. A portion of the municipally-owned tankage, known as the Municipal Entrepôt, was operated by the Municipality as a public storage terminal. Petroleum products were handled and stored there for the account of operators who did not wish to maintain their own terminal organizations.

The Petroleum Haven, in its ensemble, afforded a total storage capacity of 178,231 M^3 (1,122,853 barrels) and was well equipped to handle all types of petroleum products. It is reported, however, that a portion of the installations was damaged, but details are not available. A layout plan of the tankage at the Petroleum Haven appears on page 57.

Descriptions of the individual units within the Petroleum Haven follows (a):



N.V. de Bataafsche Petroleum Maatschappij.- This installation is located on the island in the middle of the Petroleum harbor. It was used primarily for gasoline storage and distribution, though small quantities of other products were handled. There is one large storage tank and seven smaller ones and three small filling tanks. Storage tanks are steel cylindrical of conventional design and are surrounded by fire walls.

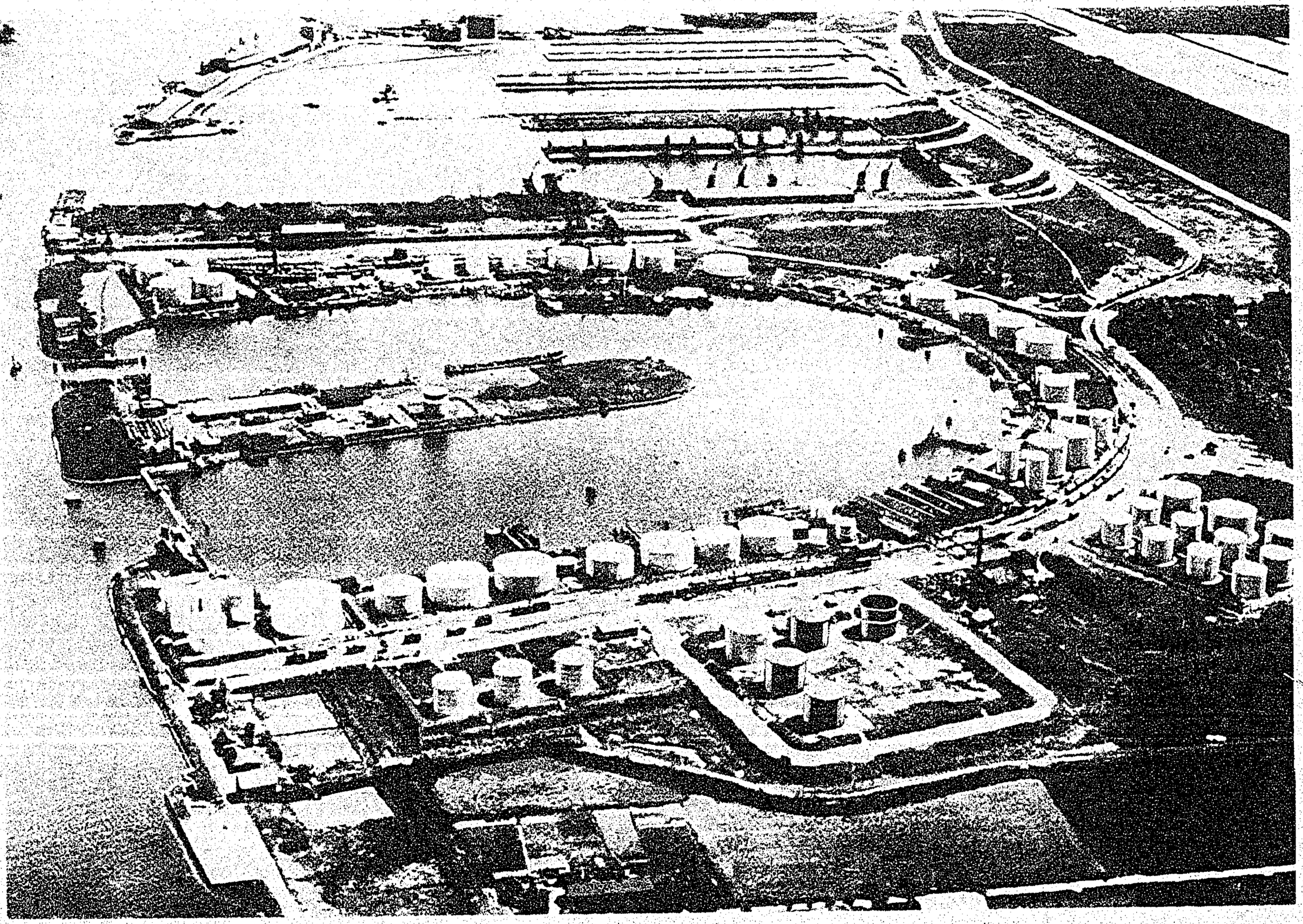
Due to its location this plant has no direct railway connection.

Tankage Capacities, N.V. de Bataafsche Petroleum Maatschappij

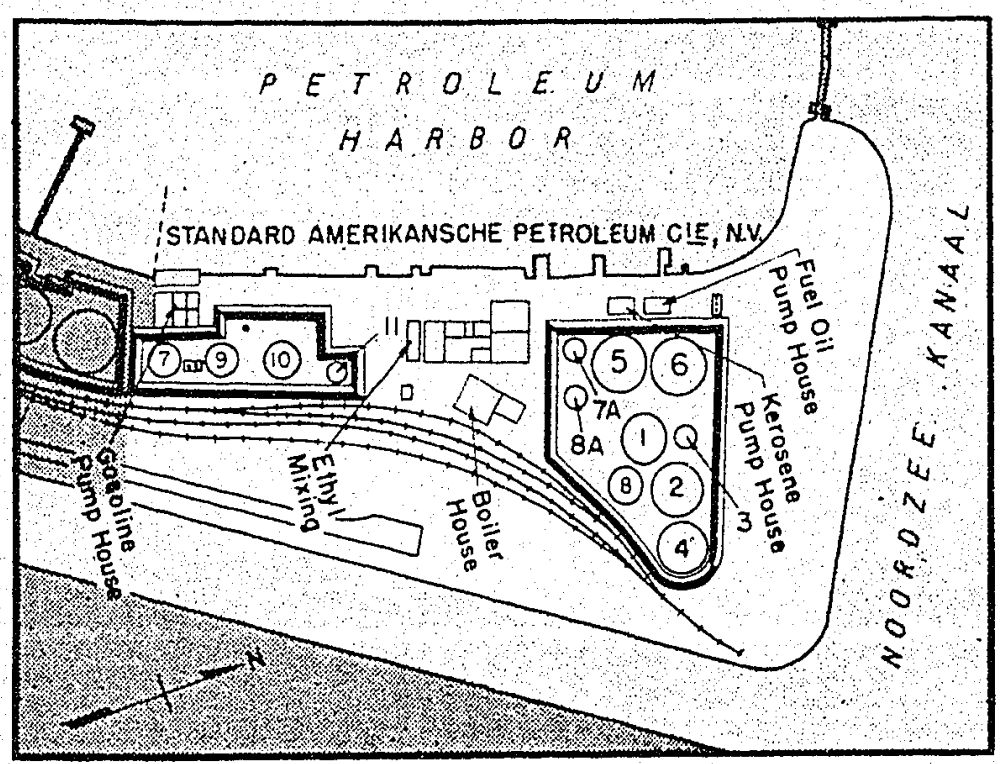
Tank No.	Product	Capacity	
		M^3	Barrels
1	Gasoline	444	2,800
2	Gasoline	444	2,800
3	Kerosine	111	700
4	Kerosine	111	700
8	Fuel Oil	111	700
9	Gas Oil	396	2,500
10	Kerosine	1,301	8,200
11	Gasoline	9,825	61,900
	Total	12,743	80,300

There are also three small filling tanks--numbers 5, 6 and 7, having capacities of approximately 75 barrels each.

(a) Tankage capacities for the N.V. de Bataafsche Petroleum Mij., the Standard Amerikaansche Petroleum Compagnie N.V., the N.V. Petroleum Handel Mij., and N.V. The Texas Company, are taken from company records and, due to variations in methods of calibration, differ slightly from the capacities given in the table with the layout plan on page 56. That table is computed from a master plan of the Petroleum Haven on which all capacities are given in metric tons.



THE PETROLEUM HARBOR, AMSTERDAM



Standard Amerikaansche Petroleum Compagnie N.V.- This is a medium size plant consisting of an office, barrel shop, a can shop, filling rooms, ethyl mixing unit, pumphouses, boilerhouse, workshop, and tankage. The layout is fair. The four gasoline tanks are approximately 3/4 of a tank diameter apart and they are enclosed by a common firewall. The kerosine, diesel and gas oil tanks are quite closely spaced. These nine tanks are also enclosed by a common firewall.

There are 13 tanks, ranging in size from 28 ft. to 75 ft. in diameter, with a total capacity of 30,306 M^3 (190,951 barrels). The tankage is of all-steel construction. Gasoline tanks are gastight, with pressure vacuum vents and flame arrestors. Kerosine and high flash product tankage is non-gastight with mushroom vents. Tank roofs do not have weakened sections.

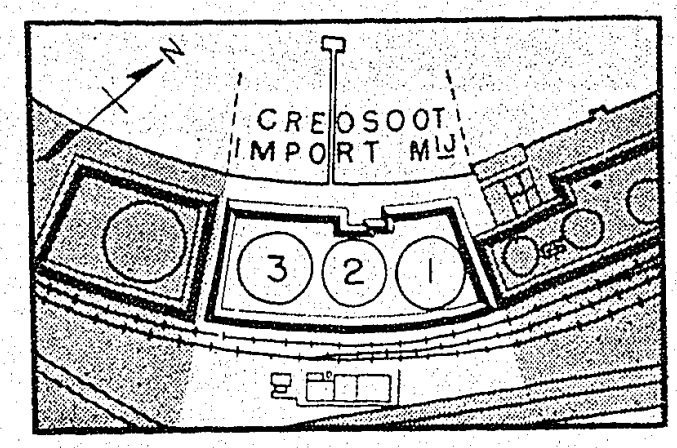
The boilerhouse is equipped with two boilers having a total capacity of 13,000 lbs. of steam per hour. Electric power is supplied by the local municipal plant through a 20 K.W. connection.

Tankage Capacities, Standard Amerikaansche Petroleum Compagnie, N.V.

Tank No.	Product	Capacity	
		M^3	Barrels
1	Diesel Oil	3,690	23,250
2	Gas Oil	3,690	23,250
3	Kerosine-settling	184	1,163
4	Kerosine	3,690	23,250
5	Kerosine	4,881	30,750
6	Kerosine	4,881	30,750
7	Gasoline	1,984	12,500
7A	Diesel Oil	238	1,500
8	Gas Oil	2,440	15,375
8A	Settling tank	184	1,163
9	Gasoline	1,984	12,500
10	Gasoline	1,984	12,500
11	Gasoline	476	3,000
	Total	30,306	190,951

The high pressure water system mains are 6 inches and 8 inches, with 4-inch laterals to tank sprays and outlying hydrants. There is a reciprocating steam pump capable of delivering 1000 gallons per minute at 90 lbs. pressure. This pump takes suction from the harbor. Connections are also installed so that the municipal fire department can connect to the plant lines. There are fire steam connections to all tankage and the gasoline tanks also have a permanently connected dry powder foam system.

Creosoot Import Mij.- This plant consists of three 5,800-ton tanks surrounded by a common firewall, and is used for the storage of creosote.



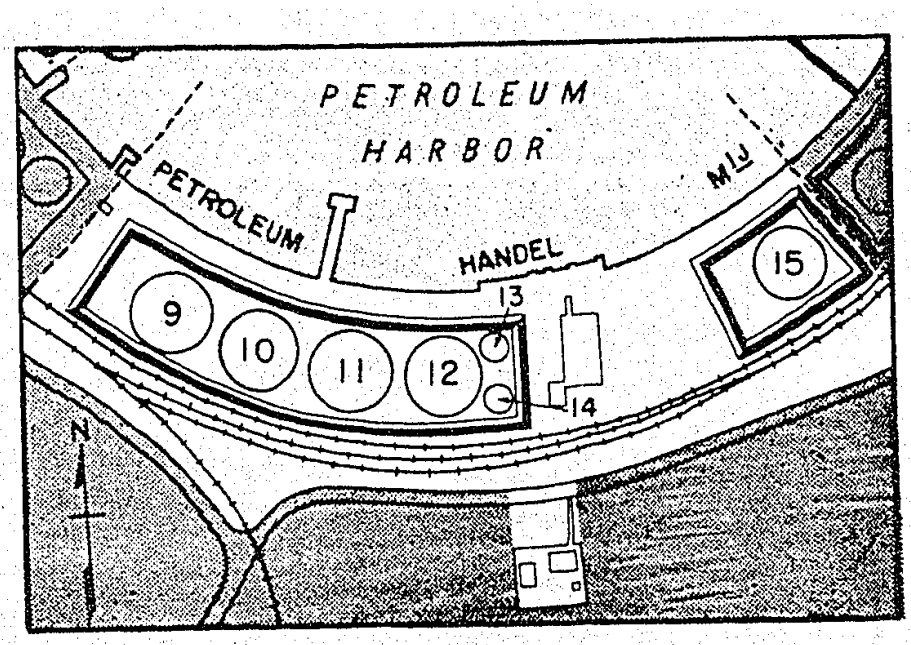
Tankage Capacities, Creosoot Import Mij.

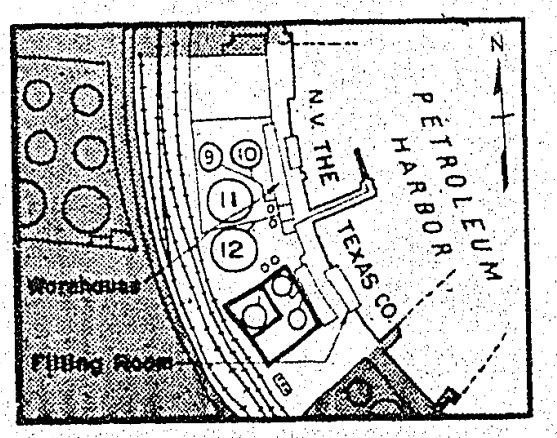
Tank No.	Capacity		
	Metric Tons	M^3	Bbls.
1	5,800	6,905	43,500
2	5,800	6,905	43,500
3	5,800	6,905	43,500
Total	17,400	20,715	130,500

N.V. Petroleum Handel Mij.- This plant consists of five large and two small tanks. Both white and black products could be handled, and its bunker delivery rate was 100 tons per hour.

Tankage Capacities, N.V. Petroleum Handel Mij.

Tank No.	Capacity		
	Metric Tons	M^3	Bbls.
9	5,000	6,300	39,690
10	4,600	5,600	35,280
11	4,200	5,300	33,390
12	4,200	5,300	33,390
13	250	300	1,890
14	250	300	1,890
15	4,300	5,600	35,280
Total	22,800	28,700	180,810

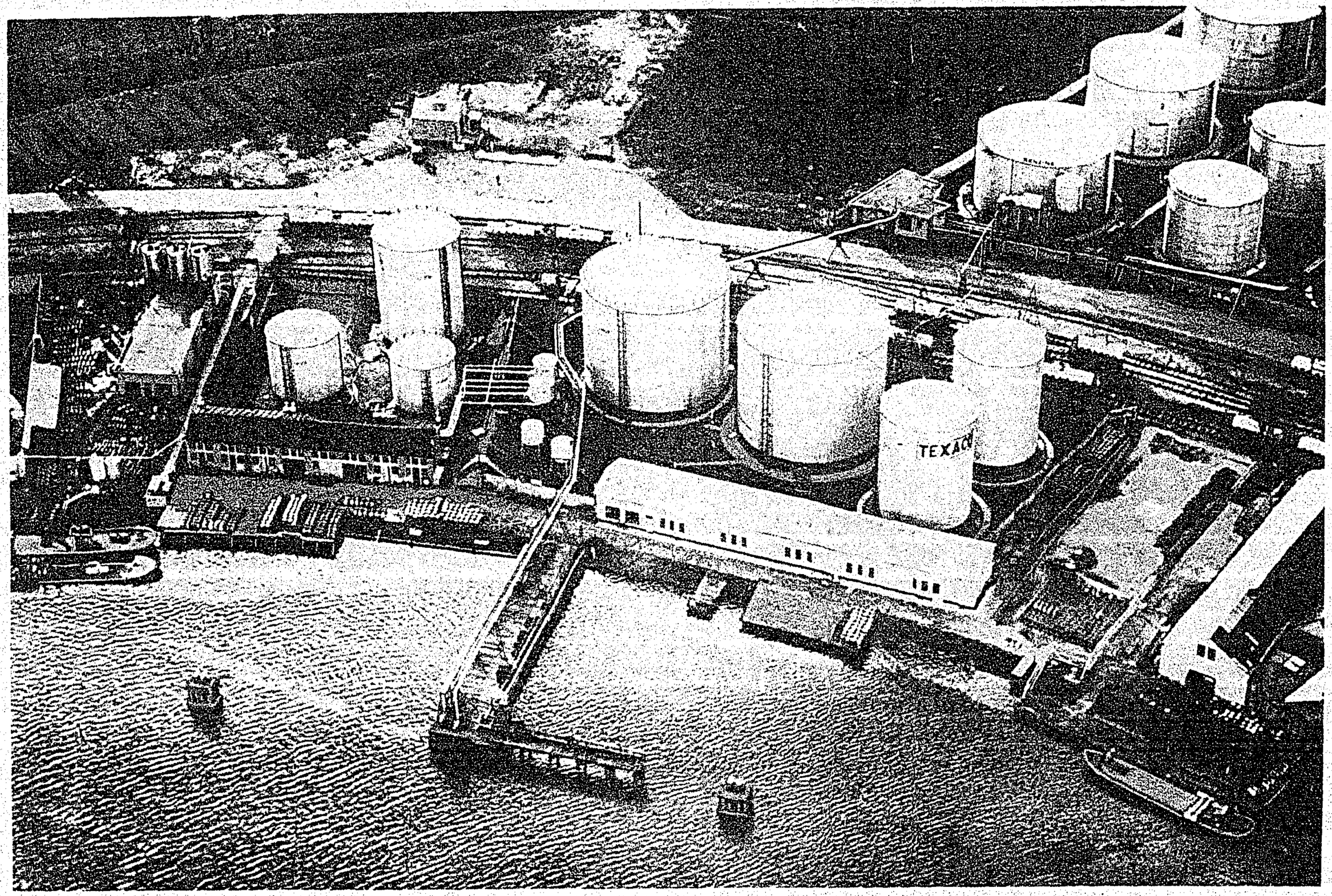




N.V. The Texas Company.- This plant was primarily a white products storage plant. Buildings, equipment and tankage are listed below.

Detailed Description of Plant

Building Size and Construction	Description and Dimensions	Owned or Leased
Brick frame 98'4" x 22'11"	Subdivided into: Tin painting room, 16'5" x 22'11" Filling room (drums and tins) gasoline, kerosine, gas oil, 57'4½" x 22'11" Pumproom, 24'7" x 22'11"	Leased
Steel frame and trusses, galvanized corrugated iron siding and roof 154'1" x 22'11"	Subdivided into: Office and Lunchroom, 26'3" x 22'11" Lubricating oil warehouse, 127'11" x 22'11"	Leased



OCEAN TERMINAL, N.V. THE TEXAS COMPANY, PETROLEUM HAVEN, AMSTERDAM, THE NETHERLANDS

TANKS IN BACKGROUND, UPPER RIGHT, ARE PART OF THE "SINFINA" TERMINAL

Detailed Description of Plant, N.V. The Texas Company (continued)

Building Size and Construction	Description and Dimensions	Owned or Leased
Brick foundation, concrete floor, steel frame and trusses, galvanized corrugated iron siding and roof 20'0" x 21'8"	M.O. filling room on a concrete platform, 20'0" x 32'10" Pump-and-motor-room under platform. 11'6" x 9'10"	Owned
Open Shed, steel frame, galvanized corrugated iron siding and roof	Painting tankcars, 66'0" x 15'1"	Owned
Steel frame, galvanized corrugated iron siding and roof 47'2" x 9'2" high 13'2"	Subdivided into: First Floor: Storage lubricating oils, 23'7" x 9'2" Lockers and bicycles, 23'7" x 9'2" Second Floor: Storehouse, 47'2" x 9'2"	Owned

Pumps

Type	Product	Capacity	Operation	Horse Power
1 Hayward Tyler	Gasoline	80 tons	steam	--
1 Hayward Tyler	Kerosine	80 tons	steam	--
1 Blackmer Rotary	Gasoline	200 G.p.M.	electric	5
1 Blackmer Rotary	Kerosine	100 G.p.M.	electric	3.2

Tankage
(All tanks leased)

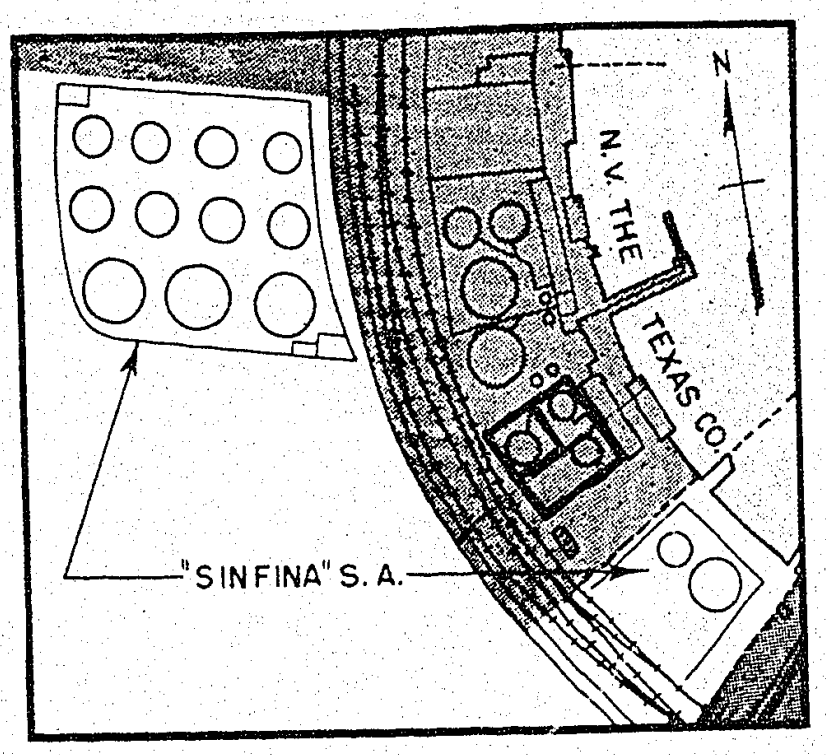
Tank No.	Size		Product	Capacity	
	Diameter	Height		M^3	Bbls.
9	36'0"	52'4"	Kerosine	1,503	9,468
10	36'0"	52'4"	Gasoline	1,500	9,450
11	61'3"	52'4"	Gasoline	4,327	27,260
12	61'3"	52'4"	Gasoline	4,302	27,102
13			Kerosine	12	75
14			Kerosine	12	75
26	26'2"	27'2"	Gasoline	402	2,532
27	29'5"	32'2"	Gasoline	607	3,824
28	36'0"	52'4"	Gas Oil	1,493	9,406
25	26'2"	27'2"	Benzol	403	2,538
			Total	14,561	91,730

Pipe Lines

Product:	Gasoline	Kerosine	Gas Oil
Size:	4" and 6" with 2½" rust line	4" and 6" with 2½" rust line	4" and 6" with 2½" rust line

N.V. The Texas Company upon occasion also rented additional tankage in the Municipal Entrepôt. This may account for the discrepancy between the number of tanks listed above and those shown for The Texas Company on the plan on page 56.

Vereenigde Petroleum Maatschappijen Purfina-Sinclair "Sinfina" N.V.- This installation consisted of two groups of tanks; one group of two tanks directly on the docks and another group of eleven tanks some distance removed.



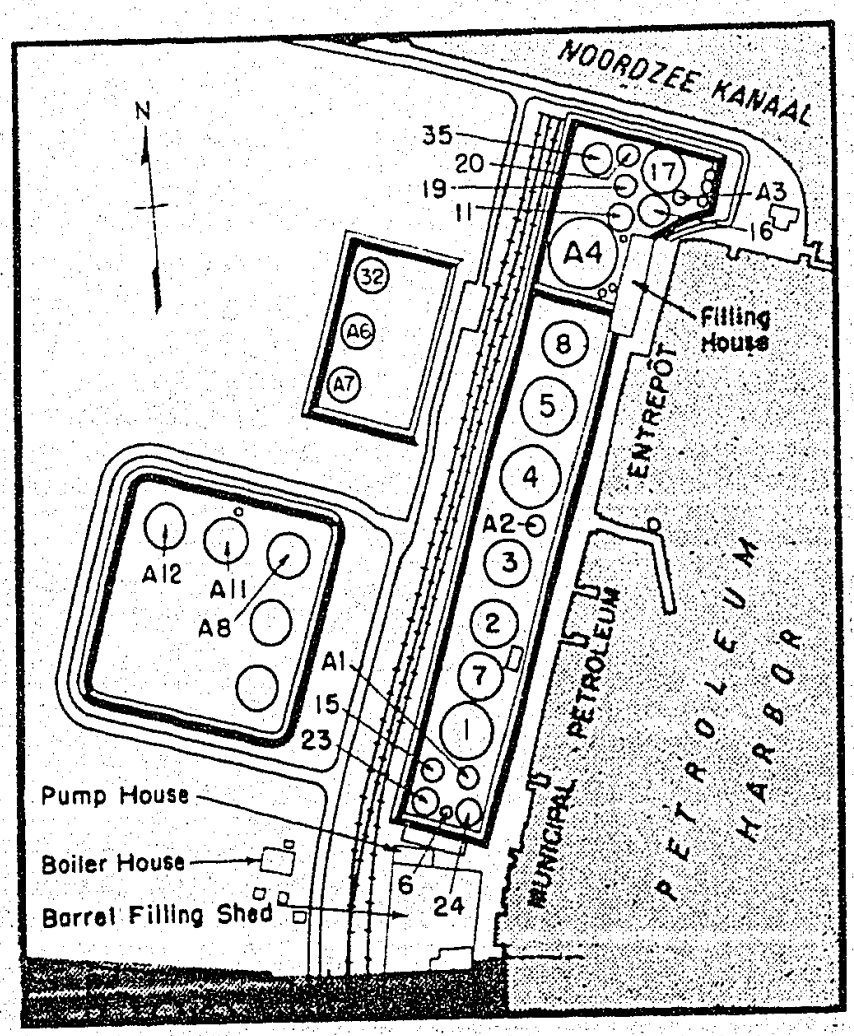
Tankage Capacities, "Purfina-Sinclair"

Tank No.	Capacity Metric Tons	Capacity M^3	Capacity Bbls.
A	1,000	1,190	7,500
B	2,500	2,976	18,750
C	2,500	2,976	18,750
D	2,500	2,976	18,750
E	2,500	2,976	18,750
F	1,100	1,310	8,250
G	1,100	1,310	8,250
H	1,100	1,310	8,250
I	1,100	1,310	8,250
J	1,100	1,310	8,250
K	1,100	1,310	8,250
L	1,100	1,310	8,250
M	1,100	1,310	8,250
Total 13	19,800	23,574	148,500

Municipal Entrepôt.- This installation was operated by the municipality as a public storage terminal, and petroleum products were handled and stored for the account of various companies. The Entrepôt facilities included boilerhouse, pumps and filling racks, but details on this equipment are not available. Among the concerns habitually utilizing tankage in the Entrepôt were: N.V. Fanto Petroleum Maatschappij, Internationale Petroleum Producten Maatschappij, N.V., and Naphta Industrie und Tankanlagen A.G. "Nitag."

Tankage Capacities, Municipal Entrepôt

Tank No.	Capacity Metric Tons	Capacity M^3	Capacity Bbls.
1	3,000	3,571	22,500
2	3,000	3,571	22,500
3	2,250	2,679	16,875
4	3,750	4,448	28,025
5	3,750	4,448	28,025
6	180	214	1,350
7	2,250	2,679	16,875
8	2,250	2,679	16,875
15	120	143	900
16	1,035	1,232	7,763
17	1,500	1,786	11,250
18	495	589	3,713
19	495	589	3,713
20	495	589	3,713
23	300	357	2,250
24	500	595	3,750
32	1,100	1,310	8,250
35	1,000	1,190	7,500
A1	250	298	1,875
A2	250	298	1,875
A3	150	179	1,125
A4	5,000	5,952	37,500



Tankage Capacities, Municipal Entrepôt (continued)

	Tank No.	Capacity		
		Metric Tons	M^3	Bbls.
	A6	1,100	1,310	8,250
	A7	1,100	1,310	8,250
	A8	2,500	2,976	18,750
	A11	1,500	1,786	11,250
	A12	1,500	1,786	11,250
	-	1,500	1,786	11,250
	-	1,500	1,786	11,250
Total	29	43,820	52,136	328,452

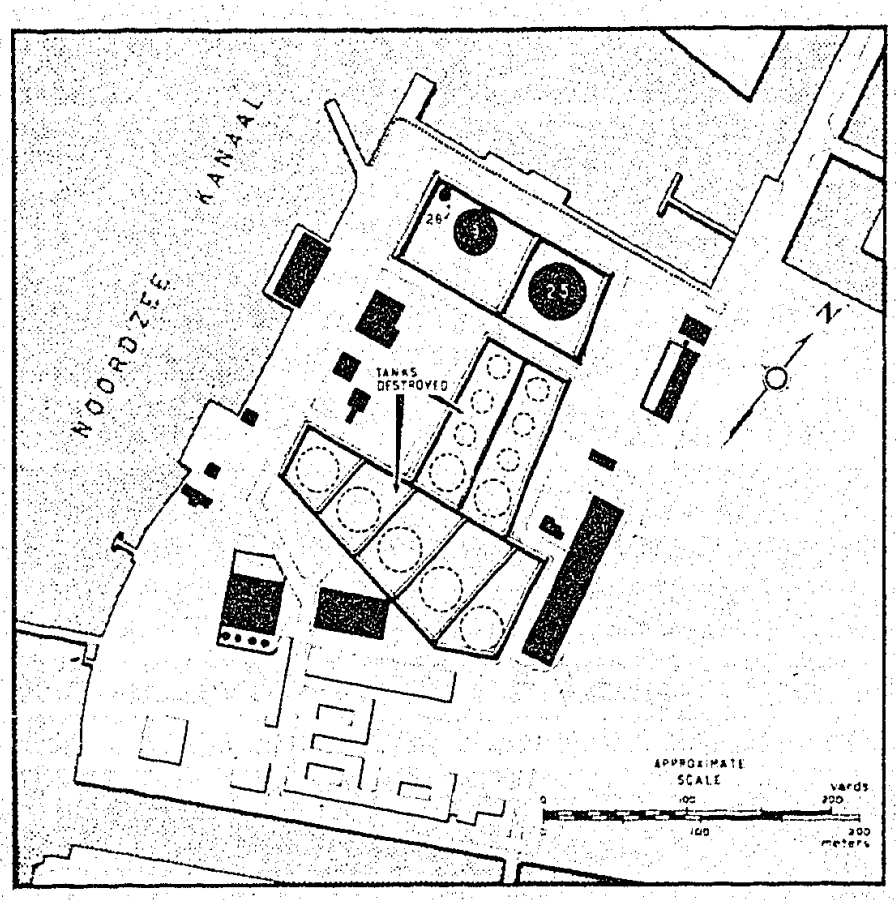
There are also seven small filling tanks, filling houses and racks, railway sidings, boilerhouse and pumphouse.

Terminals Outside the Petroleum Haven

Outside of the Petroleum Haven there are three other petroleum terminals at Amsterdam. These lie along Het Ij (The Y), east of the Petroleum Haven, in the order in which they are listed below.

N.V. de Bataafsche Petroleum Maatschappij.- This plant, located on the north bank of The Y, was used primarily for bunkering purposes.

There were fourteen tanks of the normal steel cylindrical type and of the following capacities:



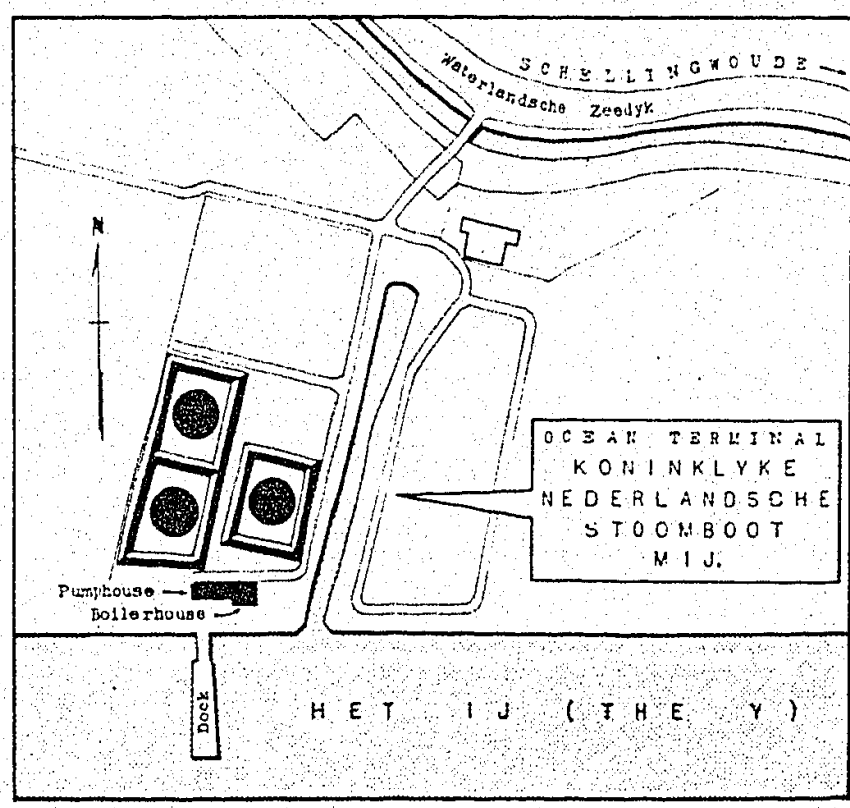
Tankage Capacities, N.V. de Bataafsche Petroleum Mij.

Tank No.	Product	Capacity	
		M^3	Bbls.
1	Fuel oil	5,079	32,000
2	Fuel oil	5,079	32,000
3	Diesel oil	5,079	32,000
4	Gas oil	5,079	32,000
5	Gas oil	5,079	32,000
6	Diesel oil	1,318	8,300
7	Fuel oil	1,318	8,300
8	Diesel oil	1,318	8,300
9	Diesel oil	2,984	18,800
10	Fuel oil	1,318	8,300
11	Gas oil	1,318	8,300
12	Fuel oil	1,318	8,300
25	Diesel oil	6,302	39,700
26	Fuel oil	302	1,900
	Total	42,891	270,200

This plant has been severely damaged and eleven tanks have been entirely removed. From air reconnaissance it appears that only one large tank, one medium tank and one small tank remain.

This plant is available to ocean-going vessels, there being over 28 feet of water at the pier head. The docks are equipped with 6", 8" and 10" pipe lines through which the plant's pumps could deliver bunkers at the rate of 300 tons per hour.

Prior to the war plans were formulated, but not executed, to increase this plant's storage tankage capacity by some 70,000 barrels. The plant also contained a laboratory and a small-scale experimental hydrogenation plant.



Koninklyke Nederlandsche Stoomboot Maatschappij.- This concern, known in English as the Royal Netherlands Steamship Company, owns a small fuel oil storage and bunkering plant of 21,600 M^3 (136,080 barrels) capacity, located on the Waterlandsche Zeedyk on the north side of The Y. The plant consists of three steel tanks of 7,200 M^3 capacity each, a boiler and pumphouse, and a dock.

"Amatex".- This installation is an oil storage terminal belonging to the N.V. Amsterdamsche Maatschappij tot Exploitatie Van Opslagterreinen.(a) It is located at Municipal Entrepôt Docks and the address is listed as 89-91 Cruquiusweg. Vessels reach the plant via the Entrepôt harbor. Its location is shown on the map on page 55, and a layout sketch appears on page 69.

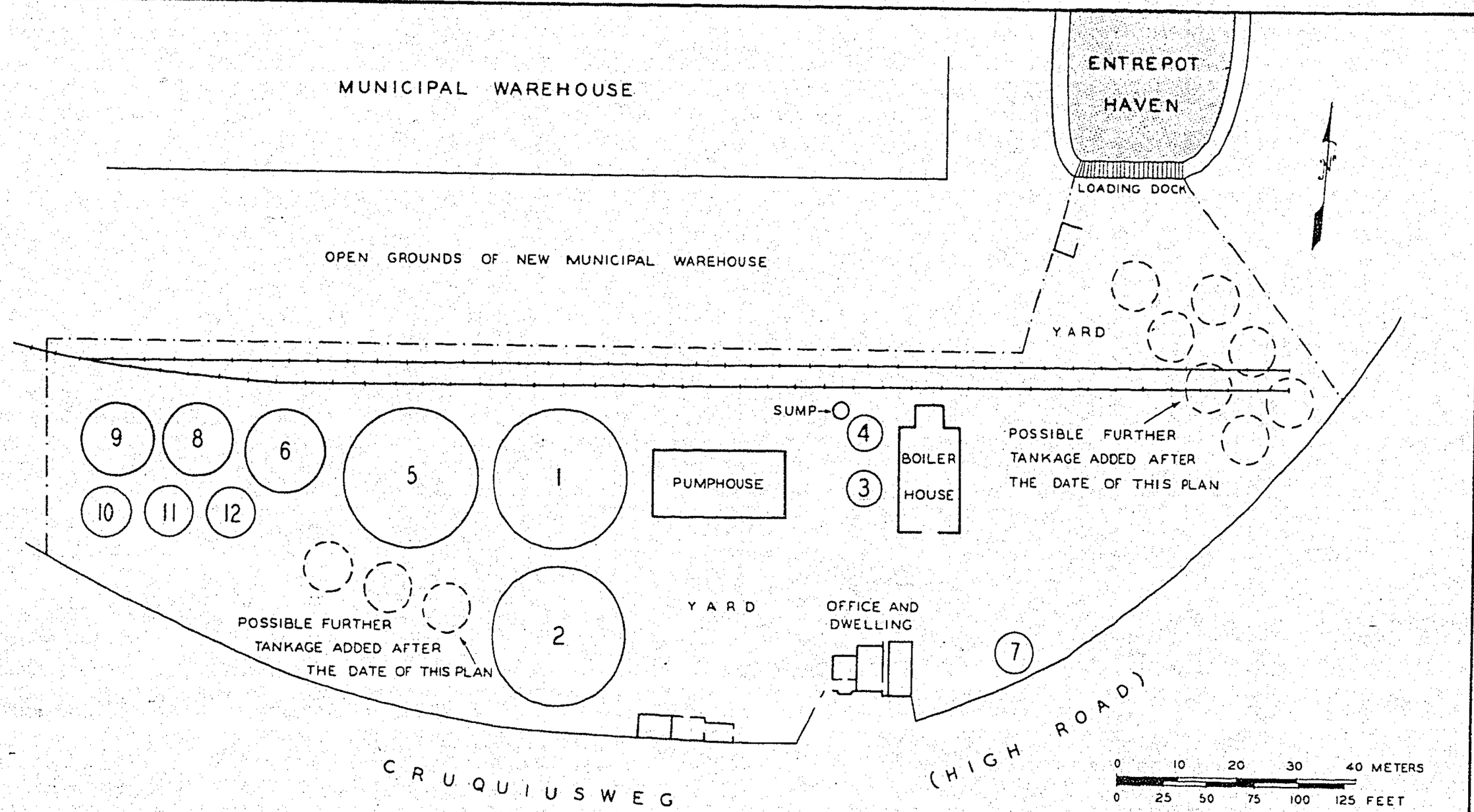
As originally constructed this plant contained 12 tanks of capacities as follows:

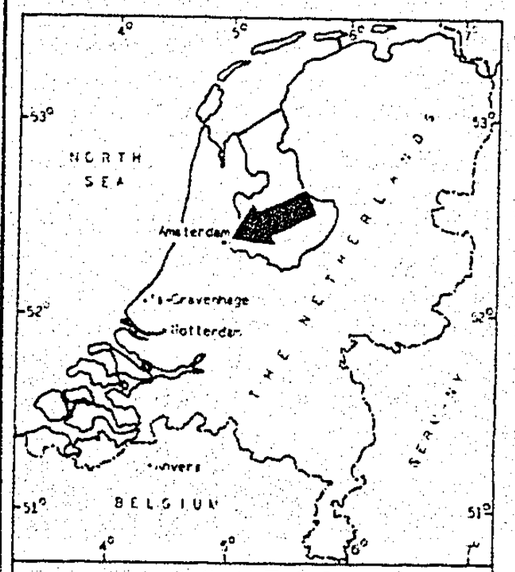
Tankage Capacities, "Amatex"

Tank No.	Capacity M3	Capacity Bbls.
1	5,000	31,500
2	5,000	31,500
3	156	983
4	156	983
5	5,000	31,500
6	1,350	8,505
7	77	485
8	900	5,670
9	1,000	6,300
10	500	3,150
11	500	3,150
12	500	3,150
Total	20,139	126,876

It is understood that several small tanks having an aggregate capacity of about 3,500 M^3 (22,050 barrels) have subsequently been erected. Additional data are lacking.

(a) Affiliated with Nieuwe Matex N.V. of Rotterdam.





OCEAN TERMINAL
N.V. AMSTERDAMSCHE MY., TOT
EXPLOITATIE VAN OPSLAGTERRIENEN
("AMATEX")
SIT. 89-91 CRUQUIUSWEG

AMSTERDAM

THE NETHERLANDS

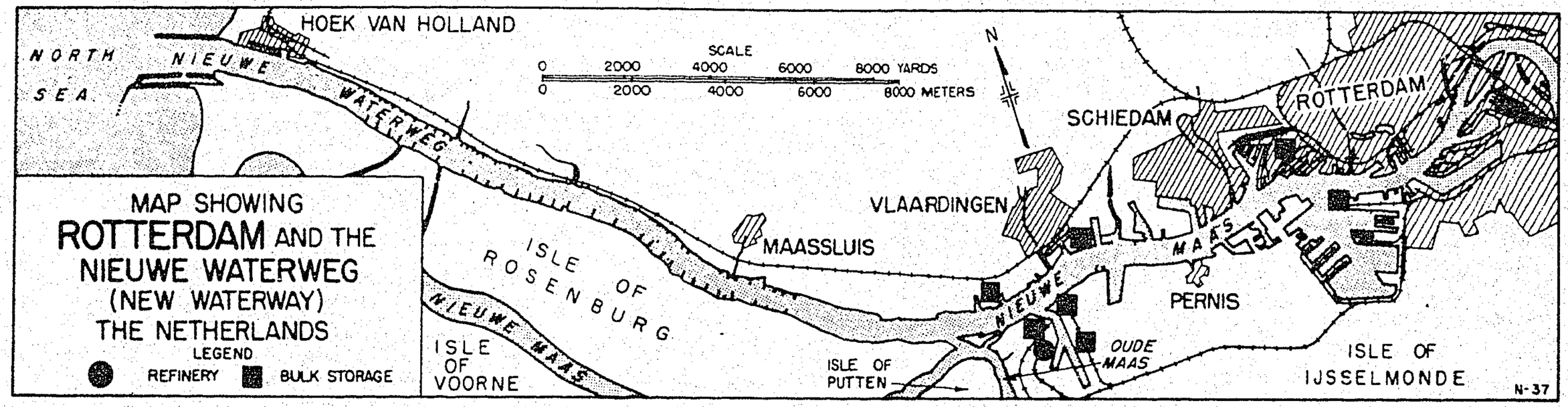
TANKAGE DETAILS

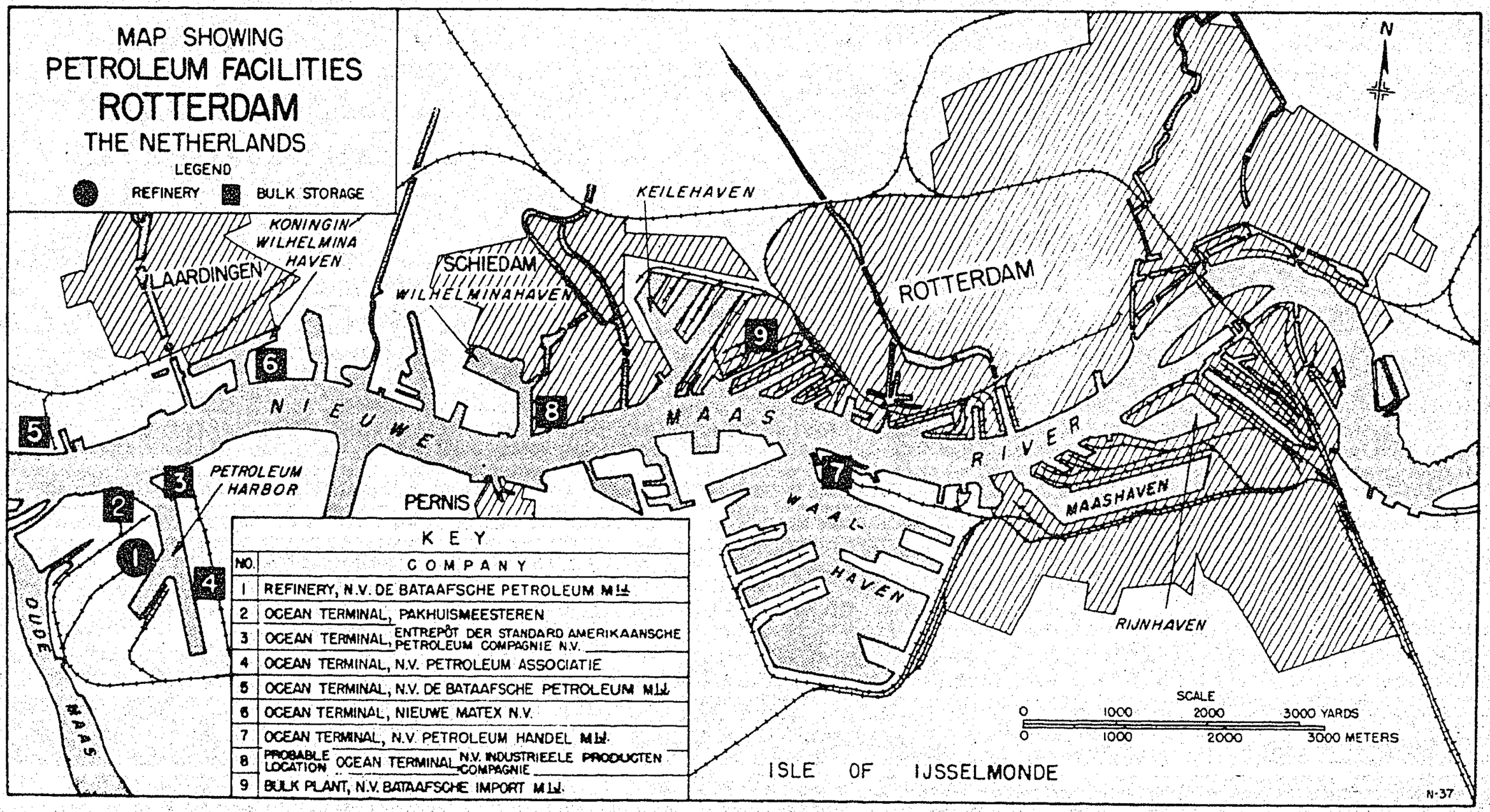
TANK NO.	M^3	BARRELS	TANK NO.	M^3	BARRELS
1	5000	31 500	9	1000	6300
2	5000	31 500	10	500	3150
3	156	983	11	500	3150
4	156	983	12	500	3150
5	5000	31 500	TOTAL	20,139	126,876
6	1350	8505			
7	77	485			
8	900	5670			

— PLAN DATED AUGUST 1927 —

N 55

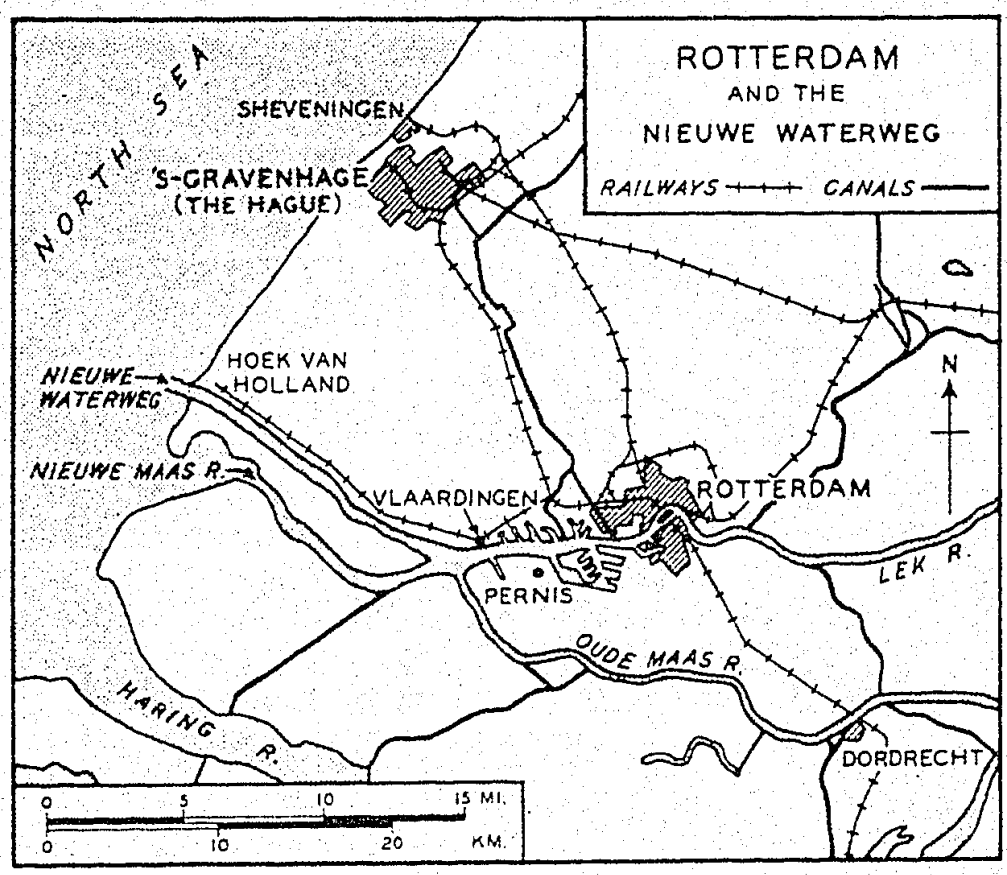
DISTRIBUTING
Amatex terminal





KEY	
NO.	COMPANY
1	REFINERY, N.V. DE BATAAFSCHE PETROLEUM M.I.J.
2	OCEAN TERMINAL, PAKHUISMEESTEREN
3	OCEAN TERMINAL, ENTREPÔT DER STANDARD AMERIKAANSCHE PETROLEUM COMPAGNIE N.V.
4	OCEAN TERMINAL, N.V. PETROLEUM ASSOCIATIE
5	OCEAN TERMINAL, N.V. DE BATAAFSCHE PETROLEUM M.I.J.
6	OCEAN TERMINAL, NIEUWE MATEX N.V.
7	OCEAN TERMINAL, N.V. PETROLEUM HANDEL M.I.J.
8	PROBABLE LOCATION OCEAN TERMINAL, N.V. INDUSTRIEELE PRODUCTEN COMPAGNIE
9	BULK PLANT, N.V. BATAAFSCHE IMPORT M.I.J.

4.7.2 Rotterdam



The Port.- Rotterdam (latitude 51°55'N, longitude 4°28'E) has an extensive and well developed port designed to accomodate the largest vessels. It is entered from the North Sea at Hoek van Holland and vessels proceed up the Nieuwe Waterweg (a) to Rotterdam proper without having to pass through locks. Wharves and docks lie along this waterway, the majority of the petroleum installations being located at Pernis and Vlaardingen. A map of the Nieuwe Maas or New Waterway, as it is commonly called, appears on page 70. The North Sea entrance to the channel has a depth of over 40 feet at high water and the canal at the entrance to the petroleum harbor at Pernis is over 37 feet in depth. The difference between high and low water is given as 4 feet 10 inches.

The port of Rotterdam has water connection, via the Maas River, to the lower reaches of the Rhine River, and barges of up to 3,600 tons cargo capacity can proceed from Rotterdam directly into Germany.

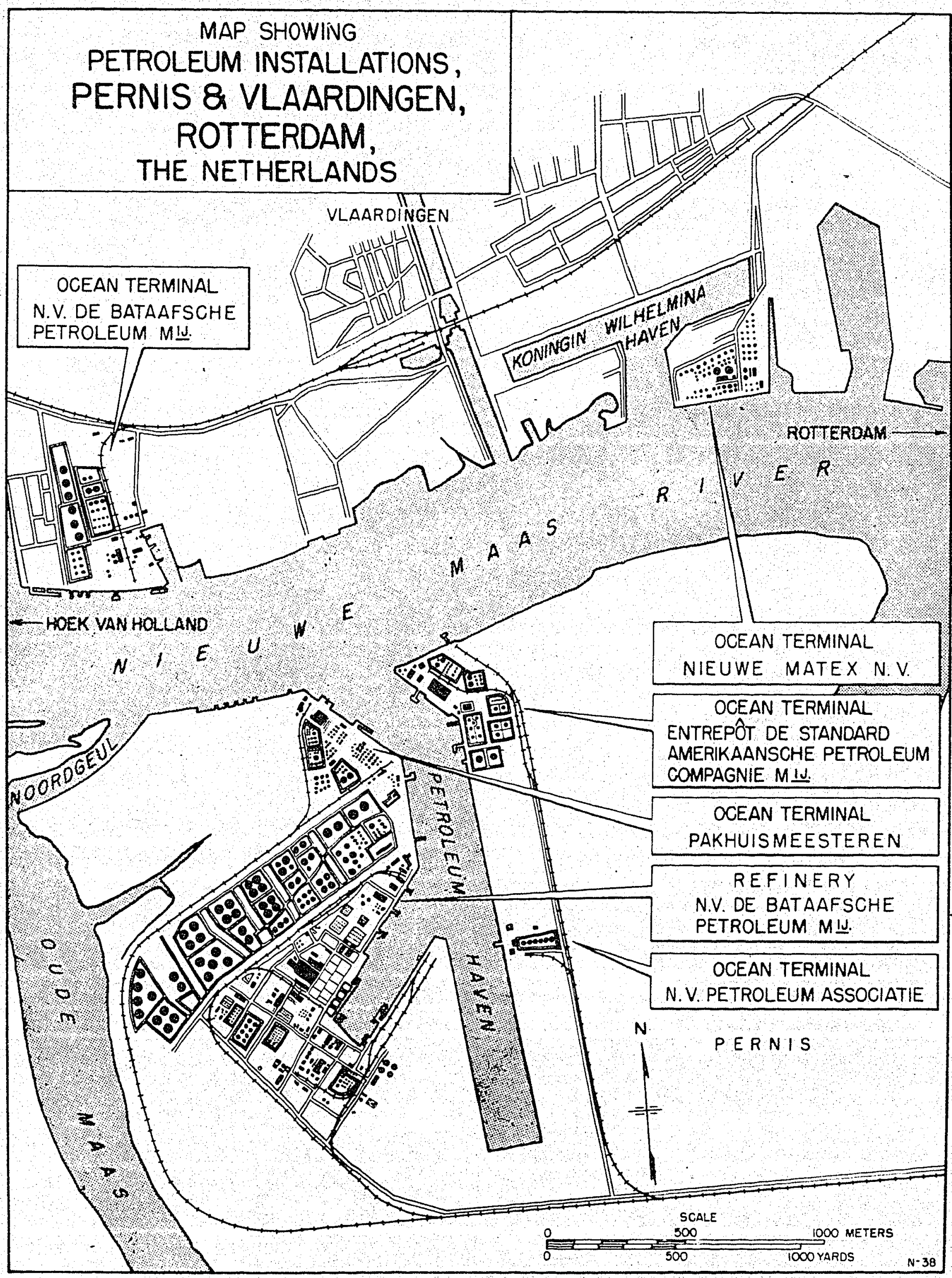
In the decade prior to the invasion of The Netherlands an extensive program of harbor expansion was carried out in Rotterdam. In conjunction therewith the petroleum installations were removed from their former locations just north of the Waalhaven, near the center of the city, and most of them were re-established at the new Petroleum Haven at Pernis. The only important refinery in The Netherlands, that of the N.V. de Bataafsche Petroleum Maatschappij (Shell) was built at Pernis. The N.V. de Bataafsche Petroleum Maatschappij also took over and enlarged the "Matex" terminal at Vlaardingen opposite Pernis on the New Waterway, while the "Matex" established a new and larger terminal for both petroleum and vegetable oils at the Koningin Wilhelmina Haven. Locations are shown on the map on page 70.

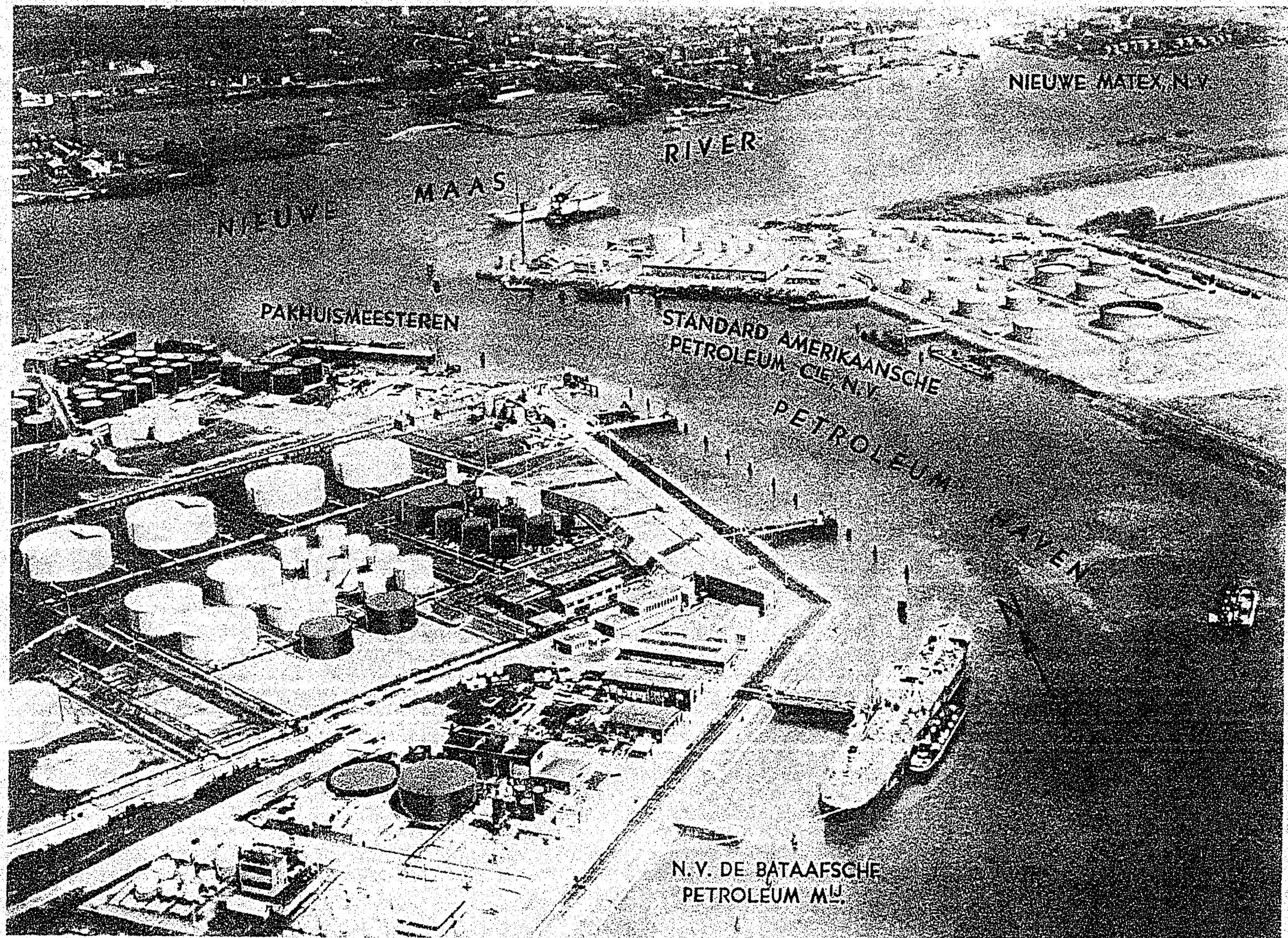
Summary of Terminal Tankage at Rotterdam(b)

Terminal	Location	Capacity	
		M^3	Bbls.
N.V. de Bataafsche Petroleum Mij.	Pernis Petroleum Haven	565,557	3,563,000
Pakhuismeesteren	Pernis Petroleum Haven	115,600	728,280
Entrepot der Standard Amerikaansche Petroleum Compagnie N.V.	Pernis Petroleum Haven	90,670	571,221
N.V. Petroleum Associatie	Pernis Petroleum Haven	17,270	108,800
N.V. de Bataafsche Petroleum Mij.	Vlaardingen	130,222	820,400
Nieuwe Matex N.V.	Vlaardingen	158,730	1,000,000
N.V. Petroleum Handel Mij.	Waalhaven	17,060	107,478
N.V. Industrieele Producten Compagnie	Schiedam	4,238	26,700
	Total	1,099,347	6,925,879

(a) The channel of the Nieuwe Waterweg (New Waterway) joins the Nieuwe Maas River, (a result of improvements to the old river channel), and forms the harbor of Rotterdam.

(b) Ocean terminals only, and excluding small city bulk plants which are listed under "Inland Bulk Plants" in the summary on pages 86-90.


MAP SHOWING
PETROLEUM INSTALLATIONS,
PERNIS & VLAARDINGEN,
ROTTERDAM,
THE NETHERLANDS
VLAARDINGEN
OCEAN TERMINAL
N.V. DE BATAAFSCHE
PETROLEUM MIJ.
KONINGIN WILHELMINA
HAVEN
ROTTERDAM
MAAS RIVER
NIEUWE
HOEK VAN HOLLAND
OCEAN TERMINAL
NIEUWE MATEX N.V.
OCEAN TERMINAL
ENTREPÔT DE STANDARD
AMERIKAANSCHE PETROLEUM
COMPAGNIE MIJ.
NOORDGEUL
OCEAN TERMINAL
PAKHUISMEESTEREN
PETROLEUM
REFINERY
N.V. DE BATAAFSCHE
PETROLEUM MIJ.
HAVEN
OCEAN TERMINAL
N.V. PETROLEUM ASSOCIATIE
OUDE MAAS
N
PERNIS
SCALE
0 500 1000 METERS
0 500 1000 YARDS
N-38



PETROLEUM HAVEN, PERNIS, ROTTERDAM, THE NETHERLANDS

Data on the individual plants are given below. Port data is summarized in the tables on pages 92 and 93.

N.V. de Bataafsche Petroleum Maatschappij, Pernis.- This is both a refinery and bulk terminal. A layout plan and description of the refinery appear on pages 24-28 in the Refining section of this report. Storage tankage capacity, a detailed statement of which accompanies the layout plan, is as follows:

Storage Tankage Capacity, N.V. de Bataafsche Maatschappij, Pernis

	No. of Tanks	Product	M^3	Bbls.
	30	Black	196,350	1,237,000
	62	White	369,207	2,326,000
Total	92		565,557	3,563,000

Tanks are surrounded by fire walls. Tankers of up to 32 feet draught could dock at this installation. There are four berths with pipe lines of 6", 10" and 12" diameter for loading and unloading. Steam is furnished from the plant's own powerhouse. There are also numerous jetties for barge loading and the plant has its own railway spurs. This is a modern installation and equipment included fire protection systems, workshops, laboratory, ethyl blending plant, power and transformer stations, warehouses and loading platforms.

Pakhuismeesteren, Pernis.- This is a public storage terminal owned and operated by the Pakhuismeesteren, a Dutch concern. The plant is located at the west side of the entrance to Pernis Petroleum Haven. Total tankage capacity is reported to be 115,600 M^3 (728,280 barrels), but no statement of individual tank capacities is available. A layout sketch appears on page 76 .

Storage and handling service were provided on a fee basis, or terminal space and facilities within the installation could be rented and operated by companies not wishing to own their own terminals (a).

Ocean tankers drawing up to 31 feet can berth at this terminal, and there are also jetties for barges. Pipe lines to the ships' berth are of 6" diameter and barge loading lines are 4 inches. The plant also has its own railway siding.

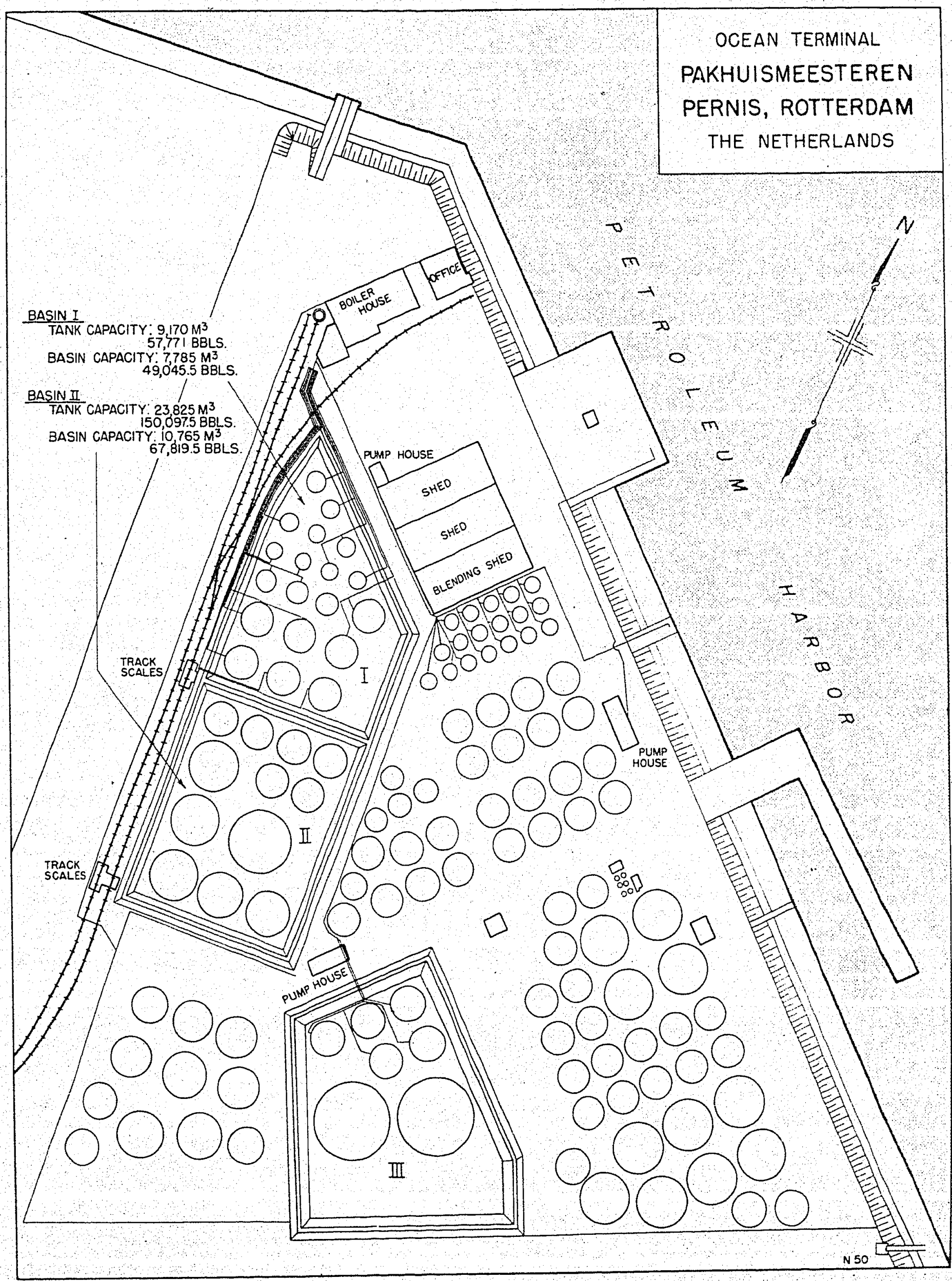
Entrepôt der Standard Amerikaansche Petroleum Compagnie N.V., Pernis.- This is a new bulk terminal, constructed in 1935-1936. The plant is well laid out. However, due to the small ground area, some of the tankage is closely spaced. A layout plan with tankage table appears on page 77.

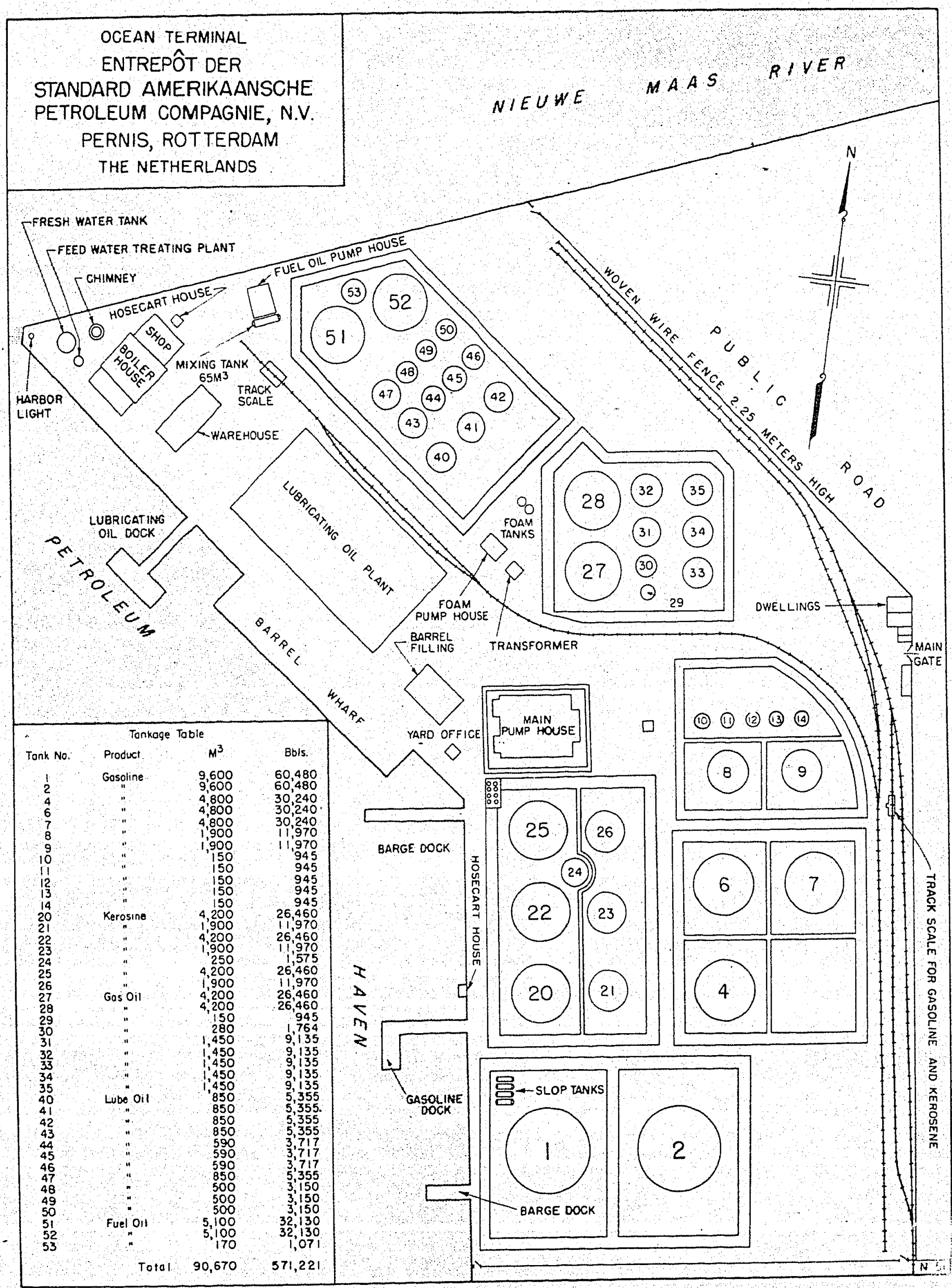
Tankage.- The total storage tank capacity is approximately 570,000 barrels. There are 42 tanks, ranging in size from 20 ft. to 120 ft. in diameter. Of the tanks 14 are gastight, 22 are non-gastight, and 6 are floating roof tanks. Gastight tanks have pressure vacuum vents with flame arrestors. Non-gastight tanks have mushroom vents. Except for some old tanks which were moved from the old Rotterdam bulk plant, tank roofs have weakened seams.

Steam and electric facilities.- There is a boilerhouse with three boilers with a total capacity of 24,000 lbs. of steam per hour. Electric current is purchased from the municipal plant, and normal consumption amounted to some 300 K.W.

High pressure water system.- This system is well designed and the lines are looped and of adequate size. There is a total pumping capacity of 2,150 gallons per minute at 100 lbs. pressure, 1,050 gallons per minute of which is furnished by

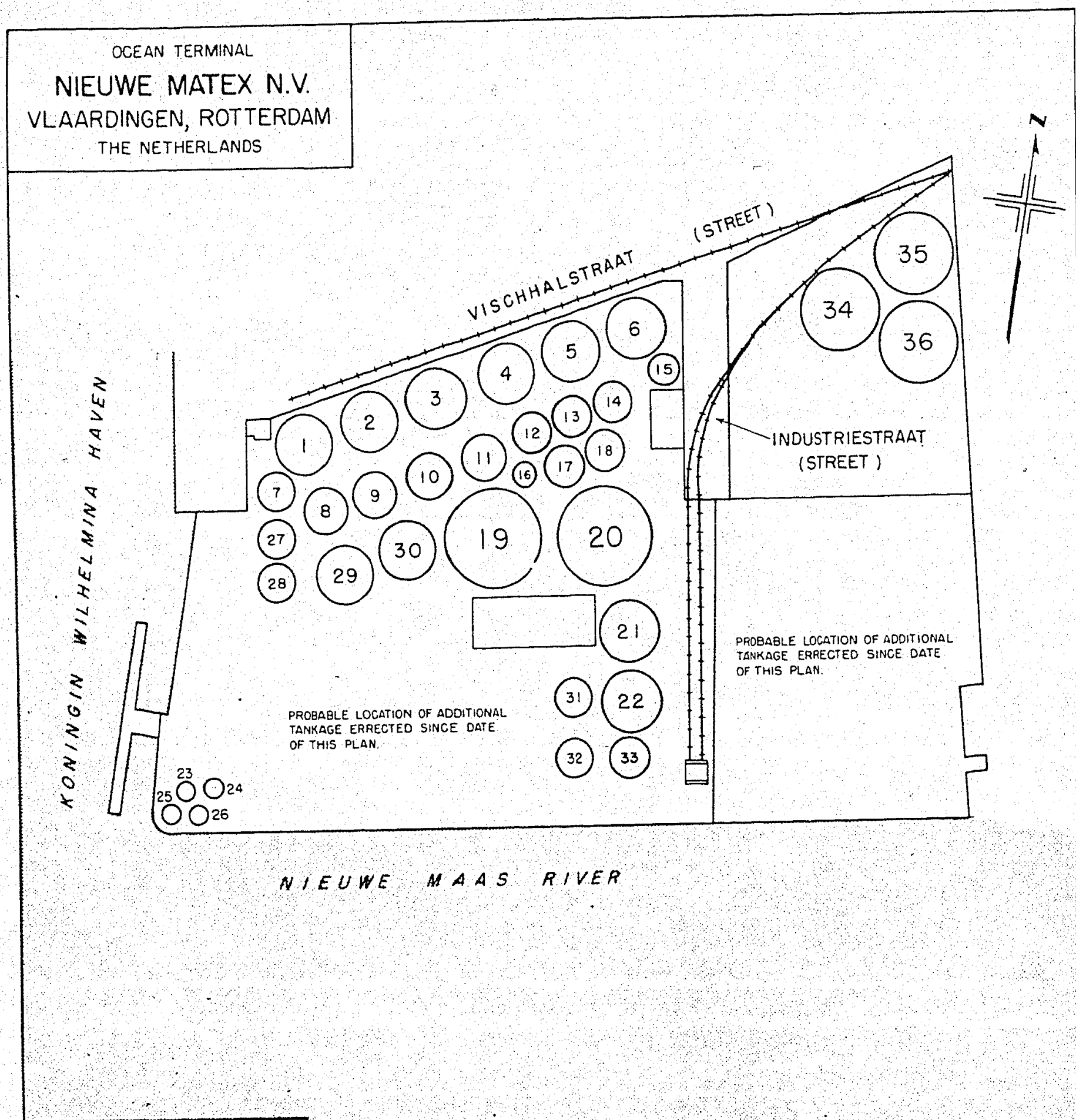
(a) One such company was the N.V. Nederlandsche Sun Olie Mij., a subsidiary of the Sun Oil Company.

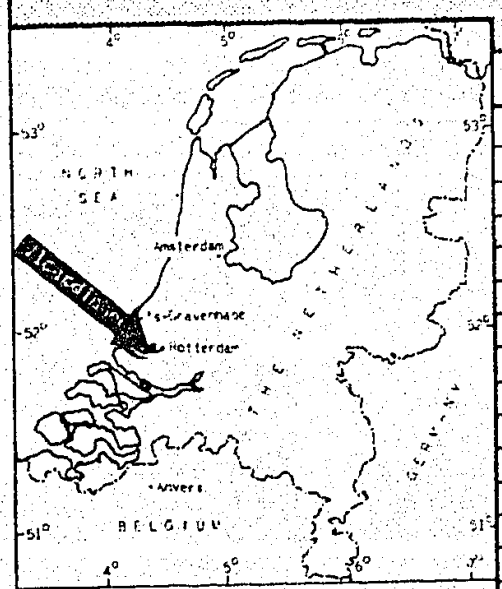

OCEAN TERMINAL
PAKHUISMEESTEREN
PERNIS, ROTTERDAM
THE NETHERLANDS
PETROLEUM HARBOR
N
BOILER HOUSE
OFFICE
BASIN I
TANK CAPACITY: 9,170 M3
57,771 BBLS.
BASIN CAPACITY: 7,785 M3
49,045.5 BBLS.
BASIN II
TANK CAPACITY: 23,825 M3
150,097.5 BBLS.
BASIN CAPACITY: 10,765 M3
67,819.5 BBLS.
PUMP HOUSE
SHED
SHED
SHED
BLENDING SHED
TRACK SCALES
I
II
III
PUMP HOUSE
TRACK SCALES
PUMP HOUSE
N 50



Tankage Table

Tank No.	Product	M³	Bbls.
1	Gasoline	9,600	60,480
2	"	9,600	60,480
4	"	4,800	30,240
6	"	4,800	30,240
7	"	4,800	30,240
8	"	1,900	11,970
9	"	1,900	11,970
10	"	150	945
11	"	150	945
12	"	150	945
13	"	150	945
14	"	150	945
20	Kerosine	4,200	26,460
21	"	1,900	11,970
22	"	4,200	26,460
23	"	1,900	11,970
24	"	250	1,575
25	"	4,200	26,460
26	"	1,900	11,970
27	Gas Oil	4,200	26,460
28	"	4,200	26,460
29	"	150	945
30	"	280	1,764
31	"	1,450	9,135
32	"	1,450	9,135
33	"	1,450	9,135
34	"	1,450	9,135
35	"	1,450	9,135
40	Lube Oil	850	5,355
41	"	850	5,355
42	"	850	5,355
43	"	850	5,355
44	"	590	3,717
45	"	590	3,717
46	"	590	3,717
47	"	850	5,355
48	"	500	3,150
49	"	500	3,150
50	"	500	3,150
51	Fuel Oil	5,100	32,130
52	"	5,100	32,130
53	"	170	1,071
	Total	90,670	571,221





TANKAGE TABLE

NO.	M³	BBLS.	NO.	M³	BBLS.	NO.	M³	BBLS.
1	2, 430	15, 309	15	600	3, 780	29	2, 150	13, 545
2	2, 430	15, 309	16	600	3, 780	30	2, 150	13, 545
3	2, 430	15, 309	17	1, 080	6, 804	31	1, 000	6, 300
4	2, 430	15, 309	18	1, 080	6, 804	32	1, 000	6, 300
5	2, 430	15, 309	19	7, 100	44, 730	33	1, 000	6, 300
6	2, 430	15, 309	20	7, 100	44, 730	34	3, 650	22, 995
7	1, 080	6, 804	21	2, 430	15, 309	35	3, 650	22, 995
8	1, 690	10, 647	22	2, 430	15, 309	36	3, 650	22, 995
9	1, 690	10, 647	23	270	1, 701	TOTAL	69, 410	437, 283
10	1, 690	10, 647	24	270	1, 701			
11	1, 690	10, 647	25	270	1, 701			
12	1, 080	6, 804	26	270	1, 701			
13	1, 080	6, 804	27	1, 000	6, 300			
14	1, 080	6, 804	28	1, 000	6, 300			

DATE OF PLAN - 1930
CONSIDERABLE ADDITIONAL TANKAGE HAS BEEN ERRECTED SINCE THAT DATE.

N 53

a steam-driven reciprocating pump, and 1,100 gallons per minute by two electric-driven centrifugal pumps. Pumps take suction from the harbor. There are also connections on the dock so that fireboats can be connected to the refinery system.

Foam system.- This system is well designed; lines are looped and of adequate size. There are two foam pumps capable of delivering 550 gallons per minute of each solution, one a twin duplex steam pump and the other an electric-driven rotary pump. The solution storage capacity provided is adequate.

N.V. Petroleum Associatie, Pernis.- This small terminal, belonging to an independent Dutch company, is located on the west side of the Pernis Petroleum Haven. Storage capacity is reported to be 17,270 M^3 (108,800 barrels), but no details on this plant are available.

N.V. de Bataafsche Petroleum Maatschappij, Vlaardingen.- This installation, often referred to as the "Matex" Terminal, was originally built by the Matex, a company operating public terminals for the storage of mineral and vegetable oils. This terminal was subsequently purchased by the Maatschappij Tot Exploitate van Handelsterreinen, a subsidiary organized by the Shell group for that purpose. The facilities were enlarged and operated by the N.V. de Bataafsche Petroleum Mij. as a petroleum terminal.(a)

The plant is situated on the north bank of the New Waterway nearly opposite the Petroleum Haven. It is available to ocean vessels, the main berth having a depth of over 25 feet at low water ordinary spring tide. There is a second berth for smaller vessels and bulk barges having a depth of over 19 feet at low water ordinary spring tide. The docks are served by 6", 8" and 10" pipe lines and the plant's pumping station can deliver bunkers direct to a ship alongside at the rate of 225 tons per hour.

The plant is also situated on the railway line from Hoek van Holland to Rotterdam, and has its own siding. It is reached by road via the Parallelweg.

Storage Tankage Capacity, N.V. de Bataafsche Petroleum Mij., Vlaardingen

No. of Tanks	Product	M^3	Bbls.
26	Black	48,429	305,100
14	White	81,793	315,300
Total 40		130,222	820,400

The plant has its own steam power plant, and tanks for heavy oils are equipped with heating coils. A layout sketch and detailed tankage statement appear on pages 80,81. Air reconnaissance reveals damage to three large and three small tanks.

Nieuwe Matex N.V., Koningin Wilhelmina Haven, Vlaardingen.- This terminal, commonly referred to as the Nieuwe Matex, is a bulk storage installation handling all types of oils, vegetable, fish, and petroleum. As originally built it consisted of 36 tanks with a total capacity of 69,410 M (437,283 barrels). A layout plan and tankage statement of the original layout appear on page 78. The plant is reported to have been subsequently enlarged to contain a total of 90 tanks with aggregate capacity of 1,000,000 barrels. There is a berth on the riverside where ocean tankers drawing up to 30 feet are received. Within the Koningin Wilhelmina

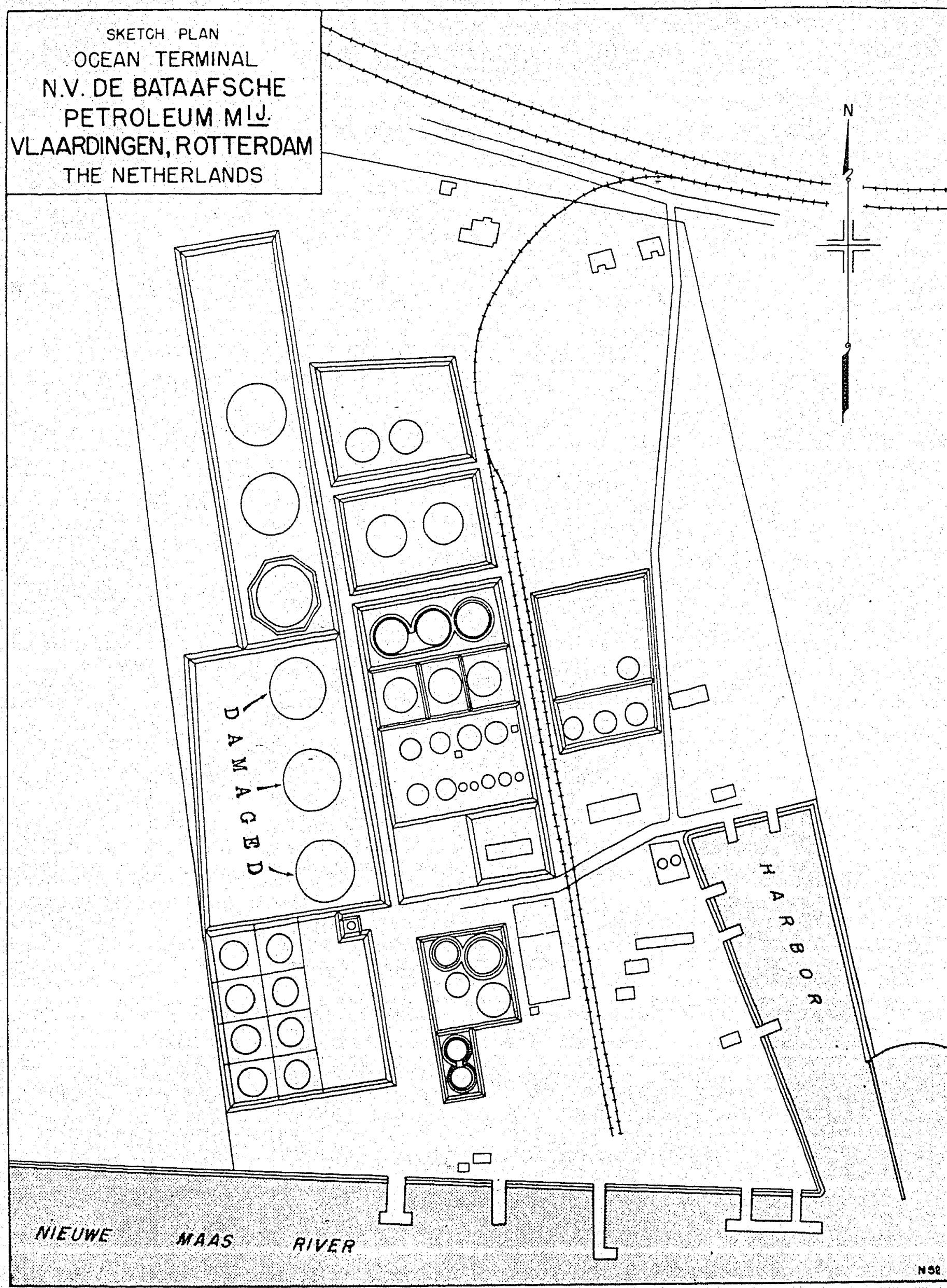
(a) A new terminal was constructed on the Koningin Wilhelmina Haven by the Matex interest to continue their public storage business. This plant is described under the heading Nieuwe Matex N.V.

OCEAN TERMINAL
N. V. DE BATAAFSCHE PETROLEUM MIJ.
VLAARDINGEN, ROTTERDAM

Tankage List

Tank No.	Product	M^3	Barrels
VI 75	Aviation Gasoline	8,635	54,400
VI 77	" "	8,778	55,300
VI 78	" "	8,730	55,000
VI 65	Gasoline	3,587	22,600
VI 66	"	3,587	22,600
VI 76	"	8,730	55,000
VI 8	Kerosine	1,143	7,200
VI 21	"	1,889	11,900
VI 35	"	1,937	12,200
VI 58	"	6,889	43,400
VI 59	"	6,889	43,400
VI 67	"	3,587	22,600
VI 79	"	8,730	55,000
VI 80	"	8,682	54,700
	Total White Products	81,793	515,300
VI 1	Gas Oil and Fuel Oil	1,445	9,100
VI 2	" " " " "	1,397	8,800
VI 13	" " " " "	1,000	6,300
VI 19	" " " " "	1,191	7,500
VI 20	" " " " "	1,191	7,500
VI 32	" " " " "	1,937	12,200
VI 33	" " " " "	1,937	12,200
VI 34	" " " " "	1,937	12,200
VI 36	" " " " "	1,048	6,600
VI 51	" " " " "	1,587	10,000
VI 52	" " " " "	1,587	10,000
VI 53	" " " " "	2,746	17,300
VI 54	" " " " "	2,699	17,000
VI 9	" " " " "	4,635	29,200
VI 10	" " " " "	4,635	29,200
VI 62	" " " " "	1,587	10,000
VI 63	" " " " "	1,587	10,000
VI 64	" " " " "	1,587	10,000
VI 37	Distillate	1,587	10,000
VI 38	"	1,587	10,000
VI 48	"	1,587	10,000
VI 49	"	1,587	10,000
VI 50	"	1,587	10,000
VI 55	"	1,587	10,000
VI 56	"	1,587	10,000
VI 57	"	1,587	10,000
	Total Black Products	48,429	305,100
	Grand Total	130,222	820,400

This prewar tank list was furnished by the Shell group, but no official layout plan was available. Hence, tanks are not individually identifiable with those on the accompanying layout sketch which was reconstructed from aerial photographs.


SKETCH PLAN
OCEAN TERMINAL
N.V. DE BATAAFSCHE
PETROLEUM MIJ.
VLAARDINGEN, ROTTERDAM
THE NETHERLANDS
N
DAMAGED
HARBOR
NIEUWE MAAS RIVER
N 52

Haven are accomodations for small ships and barges, and the depth varies from 12 feet to 19 feet 6 inches at low water.

Other details are lacking, but this terminal is understood to be modern and well equipped.

N.V. Petroleum Handel Maatschappij, Waalhaven.- This terminal was part of the new construction around the enlarged Waalhaven. It had just been completed but had not yet been put into operation when The Netherlands was invaded in 1940. Descriptive data are very limited and no layout plan is available. The terminal consisted of five tanks, as follows:

Tankage Capacities, N.V. Petroleum Handel Maatschappij

No. of Tanks	Capacity M3	Capacity Bbls.
1	10,400	65,520
1	5,300	33,390
1	1,160	7,308
2	200	1,260
Total 5	17,060	107,478

Size of berth: Unlimited
Depth of water: 33 feet
Bunkering rate: 250 tons per hour

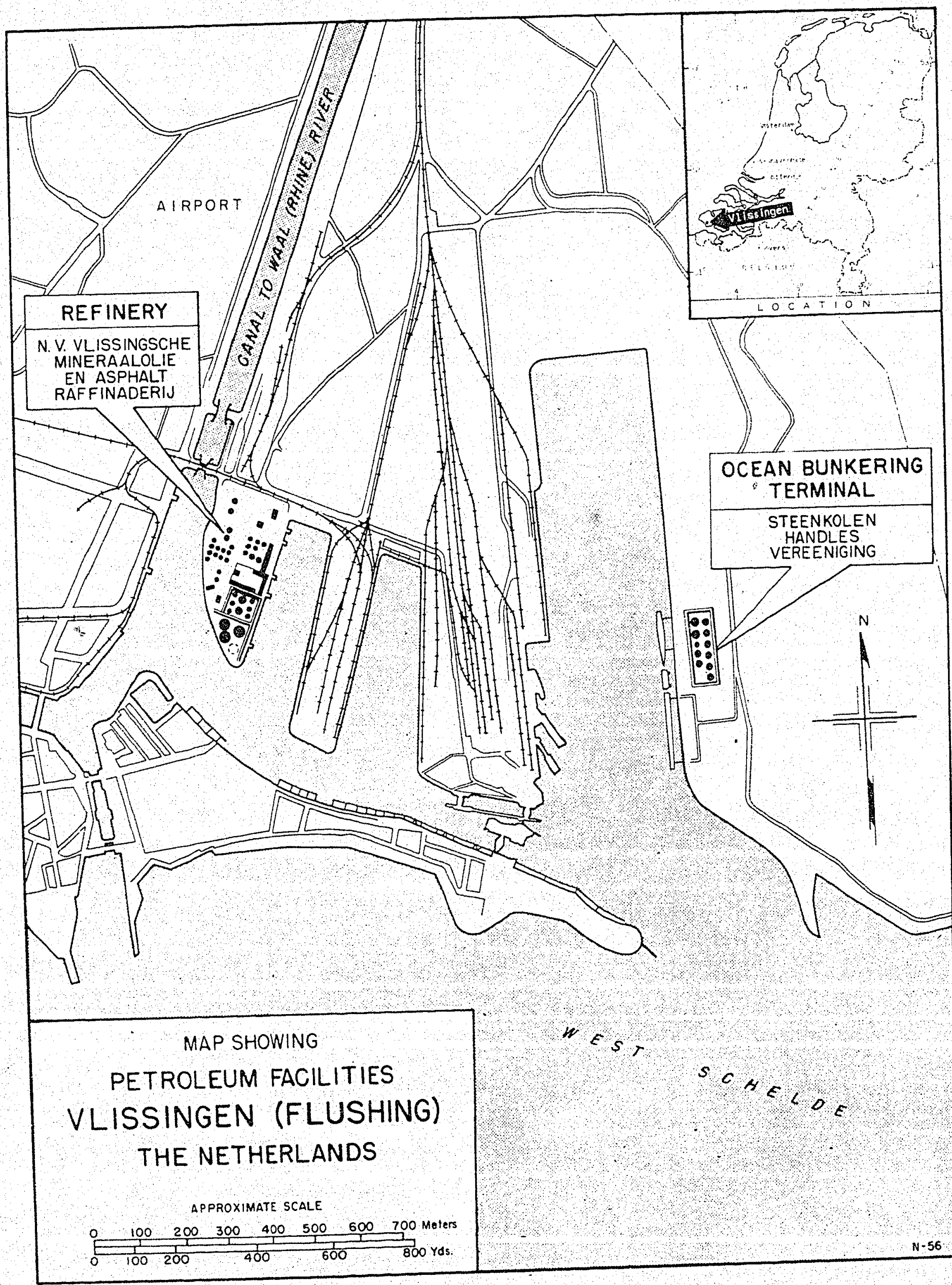
The terminal location is described as being immediately on the east side of the entrance to the Waalhaven. During the German invasion of The Netherlands the Waalhaven area was the scene of very heavy fighting and destruction, and it is thought probable that this tankage was damaged, if not destroyed.

N.V. Industrieele Producten Compagnie, Schiedam.- This concern maintained a small terminal at Rotterdam but it has not been possible to identify the exact location. The office address of the N.V. Industrieele Producten Compagnie is listed as 1 Hoofdstraat, Schiedam (Rotterdam), but it is not known if this is also the location of the plant. Bulk storage capacity amounted to only 26,700 barrels. No other data are available.

4.7.3 Vlissingen (Flushing)

The Port of Vlissingen (latitude 51°24'N, longitude 3°32'E), known in English as Flushing, is situated on a large island at the mouth of the Scheldt River in the extreme southwest of The Netherlands. Vessels bound for the Belgian port of Anvers (Antwerp) must pass Vlissingen to ascend the Scheldt River channel.

The outer harbor at Vlissingen has a depth of 40 feet and may be entered at all times and on any tide. The inner docks are entered through tide gates and are available to vessels drawing up to 24 feet. The inner docks also connect with the sea by the Walcheren canal which traverses the island from Vlissingen to Veere via Middleburg. This canal is approximately seven miles long and has a depth of 24 feet. Two petroleum terminals belonging to Dutch companies are located at Vlissingen, but data concerning them are meager. Layout and location sketches drawn from air cover appear on page 83.


AIRPORT
CANAL TO WAAL (RHINE) RIVER
REFINERY
N. V. VLISSINGSCHE MINERAALOLIE EN ASPHALT RAFFINADERIJ
OCEAN BUNKERING TERMINAL
STEENKOLEN HANDLES VEREENIGING
Vlissingen
LOCATION
N
WEST SCHELDE
MAP SHOWING
PETROLEUM FACILITIES
VLISSINGEN (FLUSHING)
THE NETHERLANDS
APPROXIMATE SCALE
0 100 200 300 400 500 600 700 Meters
0 100 200 400 600 800 Yds.
N-56

"Vlismar" Asphalt Refinery.- This installation is owned by the N.V. Vlissingsche Mineraalolie en Asphalt Raffinaderij.(a) It is a small black oil and asphalt refinery and is located on the inner harbor of Vlissingen. Storage tankage capacity is reported to amount to some 35,000 M^3 (220,500 barrels) of black oils. This plant was bombed early in the war, but damage is reported to have been slight. Air cover shows the storage tankage to consist of six small tanks and six large tanks. One of the large tanks appears to have been destroyed.

Steenkolen Handels Vereeniging.- This is an ocean bunkering terminal with a storage capacity of approximately 44,000 M^3 (277,200 barrels), located on the east side of the outer harbor. The existence of 11 tanks is revealed by air cover. No other details are available.

4.8 INTERIOR BULK PLANTS

Interior bulk plants were maintained throughout The Netherlands by three major companies. The N.V. Bataafsche Import Mij. had plants in forty-eight different localities, the Standard Amerikaansche Petroleum Compagnie N.V. in fifty-one, and the N.V. The Texas Company in fourteen. Data on all of these plants,and also on the few plants owned by various smaller companies and independent operators on which information is available,are summarized in the table on pages 86-90. Localities where known bulk storage plants exist are shown on the map on page 8. . Unquestionably, other locally owned bulk storage facilities,not identifiable through sources now available,also exist. However, it appears reasonably certain that none of any appreciable individual size or importance are omitted from this report.

Unfortunately no capacity figures are available for the plants of Standard Amerikaansche Petroleum Compagnie N.V. The only data the parent organization was able to furnish was a list of places where their bulk plants existed. Layout plans of the majority of the plants of N.V. Bataafsche Import Mij. and of N.V. The Texas Company are included on pages 97-131.

The Vereenigde Petroleum Maatschappijen Purfina-Sinclair "Sinfina" N.V., commonly known as "Sinfina", is understood to have maintained some inland distributing plants,but no information concerning them is available.

Interior bulk plants were designed to serve local trade and varied in capacity from less than 200 barrels to, in two or three cases, over 30,000 barrels. The great majority of the tankage consisted of steel horizontal cylindrical underground tanks with individual capacities of approximately 100 cubic meters. Aboveground tanks found at the larger plants were normal vertical type steel tanks and were surrounded by firewalls.

Photographs of two of the interior bulk plants of N.V. The Texas Company appear on pages 113,127. These are typical of the type of installations encountered in The Netherlands.

A large proportion of the bulk plants are located on the inland waterways and were normally supplied by bulk barges. Many plants can be reached by both barge and rail. Pumps were usually electrically driven from city power lines,(b) though at some of the very small plants only hand pumps were used.

In considering bulk storage facilities,attention is called to the fact that an extensive vegetable oil processing industry existed in The Netherlands and that tankage at vegetable oil plants could be used to store petroleum products if nec-

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(a) This plant is also listed in the Refining section of this report.
(b) The current most commonly supplied for domestic uses was A.C. 220 volts, 3 phase, 50 cycle.

essity demanded. One of the largest of these plants, and the only one upon which data are available, is the Jurgen Oliefabrieken at Zwijndrecht, a suburb of Dordrecht, on the Oud Maas River, southeast of Rotterdam. This plant had a storage capacity of 31,700 M^3 (199,710 barrels). A layout plan is given on page 131. Other and smaller plants of a similar nature exist, but no data are available.

4.9 RETAIL DISTRIBUTION

General.- Retail distribution under normal conditions was effected through agents and dealers supplied through the inland bulk plants. Besides gasoline(a) for automotive fuel, kerosine, gas oil and diesel oil were important products. Kerosine was used extensively in private homes for lighting, heating and cooking. Gas oil and diesel oil were used in quantity both by local industry and as fuel for fishing boats and vessels on the inland waterways.

Gasoline outlets.- In the pre-war era retail marketing was highly developed and The Netherlands was more than abundantly supplied with curbside gasoline outlets. A fair number of drive-in service stations also existed.(b) It is estimated that prior to the war over 15,000 gasoline pumps were in service in The Netherlands. There were also a few pumps in use for delivering light diesel oil to trucks and buses operating on that fuel. As of December 1938 pumps in use by the four principal marketing companies were as follows:

	Gasoline Pumps	Diesel Oil Pumps
N.V. Bataafsche Import Mij.	4,857	50
Standard Amerikaansche Petroleum Co. Mij.	4,381	83
N.V. The Texas Company	2,280	50
"Sinfina"	1,250	25
Total	12,768	208

Curbside outlets and service stations were of modern design. Meter pumps of various European and American makes were employed, two of the most popular being Avery Hardoll and Gilbert and Barker. Underground tanks usually ranged in capacity between 600 and 1,200 gallons. Equipment was calibrated for liters and kilograms, the metric system being the standard of measurement in The Netherlands.

Photographs illustrating the types of service stations and highways to be found in The Netherlands appear on page 95. Figures on motor car registration are given on page 46.

(a) Gasoline for automotive fuel commonly contained approximately 5 per cent benzol. Leaded or ethylized gasoline was not commonly marketed except for aviation purposes.

(b) In 1938 the N.V. Bataafsche Import Mij., which was the largest gasoline distributor, had 35 service stations in operation.

STATISTICAL SUMMARY OF STORAGE FACILITIES, THE NETHERLANDS

x = Data Unknown
- = Not Applicable

IDENTIFICATION OF PLACES					IDENTIFICATION OF PLANTS		SITUATION OF STORAGE TANKS		CAPACITY OF STORAGE TANKS (f)						Normal Method of Supply	Layout Plan Page No.
	Location on Index Map(a)								Black		White		Total Plant			
Places	Lat. N. °	Lat. N. m	Long. E. °	Long. E. m	Owners of Plants	Location of Plants	Above-ground	Under-ground	M³	Barrels	M³	Barrels	M³	Barrels		
OCEAN TERMINALS																
Amsterdam	52	23	4	55	Municipal Petroleum Haven(b)	Petroleum Haven	80		x	x	x	x	178,231	1,122,853	Water	57
					N.V. de Bataafsche Petroleum Mij.	N. bank of The Y, opposite De Ruyter quay	14		42,891	270,200	-	-	42,891	270,200	Water	67
					Amatex	89-91 Cruquiusweg Municipal Entrepôt	12		x	x	x	x	23,639	148,926	Water	69
					Koninklyke Nederlandsche Stoomboot Mij.	N. side of The Y, on the Waterlandsche Zeedyk	3		21,600	136,080	-	-	21,600	136,080	Water	68
Rotterdam	51	55	4	25	N.V. de Bataafsche Petroleum Mij.(c)	Pernis Petroleum Haven	92		196,349	1,237,000	369,206	2,326,000	565,557	3,563,000	Water	27
					Pakhuismeesteren	Pernis Petroleum Haven			x	x	x	x	115,600	728,280	Water	76
					N.V. Petroleum Associatie	Pernis Petroleum Haven			x	x	x	x	17,270	108,800	Water	--
					Entrepôt der Standard Amerikaansche Petroleum Compagnie N.V.	Pernis Petroleum Haven			x	x	x	x	90,670	571,221	Water	77
					N.V. de Bataafsche Petroleum Mij.	Vlaardingen	40		48,428	305,100	81,794	515,300	130,222	820,400	Water	81
					Nieuwe Matex N.V.	Koningin Wilhelmina Haven Vlaardingen	90		x	x	x	x	158,730	1,000,000	Water	78
					N.V. Petroleum Handel Mij.	Waalhaven	5		x	x	x	x	17,060	107,478	Water	--
					N.V. Industrieele Producten Compagnie	1 Hoofdstraat, Schiedam(d)			x	x	x	x	4,238	26,700	Water	--
					Olie Raffinaderij "Witol" N.V.(e)	Maassluis			x	x	x	x	x	x		--
Vlissingen	51	24	3	32	N.V. Vlissingsche Mineraalolie en Asphalt Raffinaderij(c)	Harbor			35,000	220,500	-	-	35,000	220,500	Water	29
					Steenkolen Handels Vereeniging	Harbor			44,000	277,200	-	-	44,000	277,200	Water	--
INLAND BULK PLANTS																
Alkmaar	52	38	4	46	N.V. Bataafsche Import Mij.	on Noord-Hollandsche Kanaal		8-	489	3,019	300	1,887	789	4,906	Water	97
					Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail and water	--
Almelo	52	22	6	40	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
Amersfoort	52	10	5	24	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.	on the river Eem		4	100	629	300	1,887	400	2,516	Water	--
Amsterdam	52	23	4	55	Standard Amerikaansche Petroleum Compagnie N.V.										Water	--
					N.V. Bataafsche Import Mij.	Westerdok		22	400	2,516	1,800	11,322	2,200	13,838	Water	98

(a) Latitudes and longitudes taken from Index-Gazetteer to "The Times" Survey Atlas of the World, London, 1922; edited by John Bartholomew, The Edinburgh Geographical Institute, except those marked ▲ which were taken from maps furnished by Army Map Service.
(b) Used by all companies. Some of the tankage owned by the Municipality and some by individual companies.
(c) Terminal and refinery.
(d) Office address. Terminal may be located elsewhere.
(e) Small lube oil treating plant. Exact location unknown but believed available to ships.
(f) Allocation of tankage by products is on the basis of pre-war operations. Allocations may have subsequently been altered to meet current needs.

IDENTIFICATION OF PLACES					IDENTIFICATION OF PLANTS		SITUATION OF STORAGE TANKS		CAPACITY OF STORAGE TANKS						Normal Method of Supply	Layout Plan Page No.
	Location on Index Map(a)								Black		White		Total Plant			
	Lat. N.		Long. E.													
Places	°	m	°	m	Owners of Plants	Location of Plants	Above-ground	Under-ground	M³	Barrels	M³	Barrels	M³	Barrels		
INLAND BULK PLANTS																
Apeldoorn	52	13	5	59	Standard Amerikaansche Petroleum Compagnie N.V.		x		x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.	On canal from Dieren to Hattem		x	130	817	210	1,321	340	2,138	Water	99
Arnhem	51	58	5	55	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail and water	--
					N.V. Bataafsche Import Mij.	On Westervoortake Dijk adjoining Municipal harbor on the Neder Rijn (Lower Rhine)	6	6	2,398	15,083	2,757	17,342	5,155	32,425	Water	100
					N.V. The Texas Company			2	-	-	55	346	55	346	Rail	101
Bergen-op-Zoom	51	30	4	17	N.V. Bataafsche Import Mij.			5+	300	1,887	400	2,516	700	4,403	Water	102
Breda	51	35	4	47	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.			3	50	315	80	503	130	818	Water	--
Coevorden	52	40	6	45	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
Delfzijl	53	21	6	55	N.V. Bataafsche Import Mij.	On Eems Kanaal		2	120	755	-	-	120	755	Water	--
Den Helder	52	58	4	45	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.	On Noord-Hollandsche Kanaal	1	8+	460	2,893	580	5,961	1,040	6,541	Water	103
Deventer	52	16	6	10	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.	Adjoining Municipal Harbor		9+	200	1,258	610	3,837	810	5,095	Rail and water	104
					N.V. The Texas Company			8	50	315	600	3,780	650	4,095	Rail and water	105
					Smeerolie & Teer Industrie TWENTOL N.V.				x	x	x	x	x	x		--
Doetinchem	51	58	6	17	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.	On River Oude Ijssel		4	60	377	180	1,132	240	1,509	Water	106
Dokkum	53	20	6	00	N.V. Bataafsche Import Mij.			6	50	315	250	1,572	300	1,887	Water	107
Dordrecht	51	48	4	39	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.	On Merwede River		8	400	2,516	400	2,516	800	5,032	Water	108
Eindhoven	51	26	5	28	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.				150	944	360	2,264	510	3,208	Water	--
Enschede	52	18	6	53	N.V. Bataafsche Import Mij.		4	4	724	4,553	1,180	7,421	1,904	11,974	Water	--
Goes	51	31	3	53	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail and water	--
					N.V. Bataafsche Import Mij.	On the island of Zuid Beveland		4	50	314	250	1,572	300	1,886	Water	--
Gorinchem	51	50	4	58	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.			5	200	1,258	300	1,887	500	3,145	Water	--

STATISTICAL SUMMARY OF STORAGE FACILITIES,

THE NETHERLANDS (Continued)

Sheet 3 of 5

IDENTIFICATION OF PLACES					IDENTIFICATION OF PLANTS		SITUATION OF STORAGE TANKS		GAPACITY OF STORAGE TANKS						Normal Method of Supply	Layout Plan Page No.
	Location on Index Map(a)								Black		White		Total Plant			
	Lat. N.		Long. E.													
Places	°	m	°	m	Owners of Plants	Location of Plants	Above-ground	Under-ground	M^3	Barrels	M^3	Barrels	M^3	Barrels		
INLAND BULK PLANTS																
Gouda	52	1	4	42	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail and water	--
					N.V. Bataafsche Import Mij.			4+	100	629	430	2,705	530	3,334	Water	109
's-Gravenhage (The Hague)	52	5	4	18	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Water	--
					N.V. Bataafsche Import Mij.	Petroleum Harbor	2	14	1,818	11,436	1,200	7,548	3,018	18,984	Water	110
					N.V. Bataafsche Import Mij.	Scheveningen, at Sea Harbor		3	30	196	6	38	36	227	Water	--
					N.V. The Texas Company			6	-	-	350	2,205	350	2,205	Water	111
Groningen	53	13	6	34	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail and water	--
					N.V. Bataafsche Import Mij.	On Nieuwe Omsnijdingskanaal			2,661	16,737	4,196	26,393	6,857	43,130	Water	--
					N.V. The Texas Company		2		-	-	200	1,260	200	1,260	Water	112
Haarlem	52	23	4	39	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Water	--
					N.V. Bataafsche Import Mij.	Schoten, on Spaarne River		20	490	3,963	998	6,290	1,630	10,253	Water	115
					N.V. The Texas Company			1	-	-	25	157	25	157	Rail	116
Hansweert	51	27	4	1	N.V. Bataafsche Import Mij.	South entrance to Zuid Beveland Kanaal		1	100	629	-	-	100	629	Water	--
Heerenveen	52	58	5	55	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.			4	50	314	250	1,572	300	1,886	Water	117
Heerlen	50	53	5	58	Government Coal Mines Staatsmijnen	Mines "Emma", "Hendrik", "Maurits" and "Wilhelmina"			x	x	x	x	x	x	Water	30
Hengelo	52	17	6	48	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
's Hertogenbosch	51	42	5	18	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.	Municipal Harbor		7	160	1,006	330	2,076	490	3,082	Water	118
Hilversum	52	14	5	11	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.	Municipal Harbor on canal	5	4	1,892	11,900	1,818	11,434	3,710	23,334	Water	--
Hoogeveen	52	44	6	28	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
Hoorn	52	39	5	4	N.V. Bataafsche Import Mij.			7	50	315	550	3,460	600	3,775		--
Ijmuiden	52	28	4	36	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Water	--
Krimpen aan den IJssel	51	55	4	36	N.V. Utrechtsche Asphalt-fabriek	On the IJssel River			x	x	x	x	x	x		38
Leeuwarden	52	13	5	48	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail and water	--
					N.V. Bataafsche Import Mij.				x	x	x	x	750	4,716	Water	--
					N.V. The Texas Company			3	-	-	250	1,575	250	1,575	Rail and water	119

IDENTIFICATION OF PLACES					IDENTIFICATION OF PLANTS		SITUATION OF STORAGE TANKS		CAPACITY OF STORAGE TANKS						Normal Method of Supply	Layout Plan Page No.
	Location on Index Map(e)								Black		White		Total Plant			
	Lat. N.		Long. E.													
Places	°	m	°	m	Owners of Plants	Location of Plants	Above-ground	Under-ground	M³	Barrels	M³	Barrels	M³	Barrels		
INLAND BULK PLANTS																
Leiden	52	10	4	31	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail and water	--
					N.V. Bataafsche Import Mij.			6	100	629	400	2,516	500	3,145	Water	--
					N.V. The Texas Company			1	-	-	25	157	25	157	Rail	--
Maastricht	50	51	5	41	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Water	--
					N.V. Bataafsche Import Mij.				325	2,044	525	3,300	850	5,344	Water	--
					N.V. The Texas Company			2	-	-	105	660	105	660	Rail	120
Meppel	52	42	6	11	N.V. Bataafsche Import Mij.	On the Drentsche Hoofdvaart		4	60	377	220	1,383	280	1,768	Water	--
Middelburg	51	29	3	36	N.V. Bataafsche Import Mij.			1	-	-	12	75	12	75	Motor Truck	--
					N.V. The Texas Company			1	-	-	25	157	25	156	Rail	121
Middelharnis	51	46	4	10	N.V. Bataafsche Import Mij.	On Island Goerce-Overflakkee		3	100	629	100	629	200	1,258	Water	--
Nieuw Beijerland ▲	51	48	4	21	N.V. Bataafsche Import Mij.	On River Het Speir		3	50	314	100	629	150	943	Water	--
Nijmegen	51	50	5	52	N.V. Bataafsche Import Mij.	In Municipal Harbor			150	943	250	1,573	400	2,516	Water	--
					N.V. The Texas Company			1	-	-	30	188	30	188	Rail	122
Oss	51	46	5	32	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
Oud Beijerland ▲	51	49	4	25	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Water	--
Roermond	51	12	5	59	N.V. Bataafsche Import Mij.				1,379	8,674	1,483	9,328	2,862	18,002	Water	--
Roosendaal	51	32	4	28	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
Rotterdam	51	55	4	28	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.	Keilehaven			2,098	13,195	700	4,403	2,798	17,598	Water	--
					N.V. The Texas Company			6	-	-	400	2,520	400	2,520	Rail and water	123
					N.V. Deluxol Olie Mij.	Galliliestraat 41-45			116	731	31	200	147	931	Tank truck	124
Sliedrecht	51	49	4	47	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
Sneek	53	2	5	40	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.	Oppenhuizerweg			250	1,572	250	1,572	500	3,144	Water	--
Sommelsdijk ▲	51	46	4	10	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Water	--
Stadskanaal	53	1	6	56	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.		1	5	150	943	350	2,201	500	3,144	Water	125
Terneuzen	51	19	3	49	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Water	--
					N.V. Bataafsche Import Mij.	Terneuzen-Ghent canal			150	944	250	1,572	400	2,516	Water	--
Texel(Island)	53	5	4	50	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Water	--

STATISTICAL SUMMARY OF STORAGE FACILITIES,

THE NETHERLANDS (Continued)

Sheet 5 of 5

IDENTIFICATION OF PLACES					IDENTIFICATION OF PLANTS		SITUATION OF STORAGE TANKS		CAPACITY OF STORAGE TANKS						Normal Method of Supply	Layout Plan Page No.
	Location on Index Map(e)								Black		White		Total Plant			
	Lat. N.		Long. E.													
Places	°	m	°	m	Owners of Plants	Location of Plants	Above-ground	Under-ground	M^3	Barrels	M^3	Barrels	M^3	Barrels		
INLAND BULK PLANTS																
Tholen	51	32	4	13	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Water	--
Tiel	51	53	5	26	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.			3	50	314	100	329	150	943	Water	--
Tilburg	51	33	5	4	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.			6+	250	1,572	350	2,201	600	3,773	Water	--
					N.V. The Texas Company			5	-	-	400	2,520	400	2,520	Water	126
Uithoorn ▲	52	14	4	49	N.V. Teerbedryf	On Amstel River			x	x	x	x	x	x		39
Urk	52	41	5	36	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Water	--
Utrecht	52	7	5	8	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail and water	--
					N.V. Bataafsche Import Mij.	Jutfaas on Merwede Kanaal		7	110	692	400	2,516	510	3,208	Water	--
					N.V. The Texas Company		5		-	-	250	1,575	250	1,575	Water	129
Venlo	51	22	6	9	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail and water	--
					N.V. The Texas Company			12	-	-	619	3,900	619	3,900	Rail and water	130
Vlissingen	51	24	3	32	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail and water	--
Vroeswijk	52	1	5	5	N.V. Bataafsche Import Mij.	On the Canal Vaartsche Rijn		2	100	629	-	-	100	629		--
Winschoten	53	9	7	2	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
					N.V. Bataafsche Import Mij.		1	4	160	1,006	180	1,132	340	2,138	Water	--
Winterswijk	51	58	6	43	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
Workum	52	59	5	27	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail	--
Zaandam	52	27	4	51	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail and water	--
					N.V. Bataafsche Import Mij.			5+	100	629	400	2,516	500	3,145	Water	--
					N.V. Petroleum Handel Mij.		1		x	x	x	x	2,800	17,640		--
Zierikzee	51	39	3	56	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Water	--
					N.V. Bataafsche Import Mij.			5	50	314	200	1,258	250	1,572	Water	--
Zwijndrecht ▲	51	49	4	39	Jurgen Oliefabrieken(a)	Suburb of Dordrecht	32		x	x	x	x	31,700	199,710		131
Zwolle	52	31	6	7	Standard Amerikaansche Petroleum Compagnie N.V.				x	x	x	x	x	x	Rail and water	--
					N.V. Bataafsche Import Mij.		1	16	790	4,968	1,100	6,919	1,890	11,880	Water	--

(a) A vegetable oil plant.

STATISTICAL SUMMARY OF DATA ON OCEAN AND RIVER TERMINALS

THE NETHERLANDS

x = Data Unknown

- = Not applicable

IDENTIFICATION	IDENTIFICATION OF PLACE AND PLANT — Identification of Place	Place	Amsterdam	Amsterdam	Amsterdam	Amsterdam
		Location: Lat...	52°23' N	52°23' N	52°23' N	52°23' N
		Long..	4°55' E	4°55' E	4°55' E	4°55' E
	Identification of Plant	Name	N.V. de Bataafsche Petroleum Mij.	Petroleum Haven	Amatex	Koninklyke Nederlandsche Stoomboot Mij.
		Location	On north bank of The Y opposite Petroleum Haven	North Sea Canal	Municipal Entrepot 89-91 Cruquiusweg	On the Waterlandsche Zeedyk on the N. side of The Y
		Owner	The Shell group	Amsterdam Municipality	(a)	Independent
		Nature	Bunkering terminal	Ocean terminall--all companies(b)	Oil storage company	Fuel oil storage
STORAGE DATA	SITUATION OF TANKS	Underground	-	-	-	-
		Above-ground ...	Aboveground	Aboveground	Aboveground	Aboveground
	TYPES OF TANKS		Steel, cylindrical	x	x	Steel
	CAPACITY OF STORAGE TANKS — Black	Number ...	14	x	x	3
		M³	42,891	x	x	21,600
		Barrels ..	270,200	x	x	136,080
	White	Number ...	-	x	x	-
		M³	-	x	x	-
		Barrels ..	-	x	x	-
	Total Plant	Number ...	14	80	12 or more	3
		M³	42,891	178,231	23,639	21,600
		Barrels ..	270,200	1,122,853	148,926	136,080
	Total Place	Number ...	-	-	-	-
		M³	-	-	-	-
		Barrels ..	-	-	-	-
	STORAGE FOR CASED GOODS				x	x
	FIRE PROTECTION		Surrounded by fire walls	x	x	x
	CAMOUFLAGE		x	x	x	x
	DAMAGE		11 tanks destroyed	x	x	x
SUPPLY & DISTRIB	DESCRIPTION OF PUMPING EQUIPMENT		x	x	x	x
	LOADING RACKS		x	x	x	x
	CASE & CAN PLANT		No	x	x	x
	SUPPLY		Ocean tanker	Ocean tankers	x	x
	DISTRIBUTION		By lighter or direct from pipe line on dock	Ship, barge or rail	x	x
BERTHS	Common Name of Berth		-	Petroleum Haven	x	x
	Used by		N.V. de Bataafsche Petroleum Mij.	All companies(b)	x	x
	Length of Berth		x		x	x
	Width of Berth		x		x	x
	Fresh water supply at dock?		Yes	Yes	x	x
	Ships Accommodated:					
	Maximum length of vessel in feet ...		670	550	x	x
	Maximum beam of vessel in feet		Unlimited	550	x	x
	Maximum draft of vessel in feet		28	Over 31	x	x
	DWT accommodated		x	18,000	x	x

DISCHARGE DATA — Products:	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel
PIPE LINES — Number of pipe lines				x	x	2-3-1		3-2	1-1-3-1	3-1-1	DATA UNKNOWN					DATA UNKNOWN				
Length of pipe lines: meters				x	x															
feet				x	x															
Diameter of pipe lines: inches ...				8-10	6-8-10	6-8-10		6-8	6-8-10-12	6-8-10										
Pressure allowed in pounds				x	x															
Discharge rate, long tons per hour.				300	300	170 to 500		170-300	170 to 500											
Side or stern discharge	Side					Side					Side					Side				
Steam	Shore					Ships					x					x				

PORT PARTICULARS				
Tugs required docking	x	Two	x	x
Tugs required undocking	x	Two	x	x
Bottom	x	Mud	x	x

REMARKS (a) N.V. Amsterdamsche Maatschappij tot Exploitatie Van Opslagterreinen

(b) In addition to the Municipal Entrepots public storage facilities, the following companies leased permanent storage space here: N.V. de Bataafsche Petroleum Mij., Entrepot der Standard Amerikaansche Petroleum Compagnie N.V., Creosoot Import Mij., N.V. Petroleum Handel Mij., N.V. The Texas Company, Vereenigde Petroleum Maatschappijen Purfina-Sinclair "Sinfina" N.V.

STATISTICAL SUMMARY OF DATA ON OCEAN AND RIVER TERMINALS
THE NETHERLANDS

x = Data Unknown

- = Not applicable

IDENTIFICATION	IDENTIFICATION OF PLACE AND PLANT — Identification of Place	Place	Rotterdam	Rotterdam	Rotterdam	Rotterdam
		Location: Lat...	51°55' N	51°55' N	51°55' N	51°55' N
		Long..	4°28' E	4°28' E	4°28' E	4°28' E
	Identification of Plant	Name	N.V. de Bataafsche Petroleum Mij.	Standard Amerikaansche Petroleum Compagnie N.V.(a)	Pakhuismeesteren	N.V. de Bataafsche Petroleum Mij.
		Location	Pernis Petroleum Haven	Pernis Petroleum Haven	Pernis Petroleum Haven	Vlaardingen
		Owner	Shell group	Standard Oil Co. (N.J.)	Independent	Shell group
		Nature	Refinery and Terminal	Terminal	Public Storage Terminal	Terminal
STORAGE DATA	SITUATION OF TANKS	Underground	-	-	-	-
		Above-ground ...	Aboveground	Aboveground	Aboveground	Aboveground
	TYPES OF TANKS		Steel Cylindrical	Steel Cylindrical	Steel Cylindrical	Steel Cylindrical
	CAPACITY OF STORAGE TANKS	Black — Number ...	30		x	26
		Black — M3	196,350		x	48,429
		Black — Barrels ..	1,237,000		x	305,100
		White — Number ...	62		x	14
		White — M3	369,207		x	81,793
		White — Barrels ..	2,326,000		x	515,300
		Total Plant — Number ...	92	42	x	40
		Total Plant — M3	565,557	90,670	115,600	130,222
		Total Plant — Barrels ..	3,563,000	571,221	728,280	820,400
		Total Place — Number ...	-	-	-	-
		Total Place — M3	-	-	-	-
		Total Place — Barrels ..	-	-	-	-
	STORAGE FOR CASED GOODS		x	x	x	x
	FIRE PROTECTION		x	See text, page	x	x
	CAMOUFLAGE		x	x	x	x
	DAMAGE		Partially	x	x	Partially
SUPPLY & DISTRIB	DESCRIPTION OF PUMPING EQUIPMENT		x	See text, page	x	x
	LOADING RACKS		x	x	x	x
	CASE & CAN PLANT		x	x	x	x
	SUPPLY		Ocean tankers	Ocean tankers	Ocean tankers	Ocean tankers
	DISTRIBUTION		Tankers, barges and railway	Tankers, barges and railway	Tankers, barges and railway	Tankers, barges and railway
BERTHS	Common Name of Berth		Pernis--N.V. de Bataafsche Petroleum Mij.	Pernis--Standard	Pernis--Pakhuismeesteren	Matex--Vlaardingen(b)
	Used by		Bataafsche Petroleum Mij.	Standard Amerikaansche Petroleum Compagnie, N.V.	Various companies	N.V. de Bataafsche Petroleum Mij.
	Length of Berth		4 berths, approx. 550 ft. ea.	2 berths, 541 feet each	x	2 berths, 550 feet each
	Width of Berth		x	x	x	x
	Fresh water supply at dock?		Yes	Yes	x	Yes
	Ships Accommodated:					
	Maximum length of vessel in feet ...		Unlimited	542 feet	x	550
	Maximum beam of vessel in feet		Unlimited	Unlimited		Unlimited
	Maximum draft of vessel in feet		32	31	31	25
	DWT accommodated		x	x	x	x

DISCHARGE DATA — Products:	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel
PIPE LINES — Number of pipe lines	Numerous lines					1	1	11	1	1	22 six inch lines for various products					1	2	1	2	2
Length of pipe lines: meters	6", 10" and 12"															x	x	x	x	x
feet																x	x	x	x	x
Diameter of pipe lines: inches ...	10 kgms. per sq. C. N.					12	12	6	12	10	6 atmospheres					8	8-10	8	6-8	6-8
Pressure allowed in pounds	All products approximately					100	100	100	100	100	500 to 600					60	60	60	60	60
Discharge rate, long tons per hour.	300 tons per hour					800	800	200	800	600						200	200	200	200	200
Side or stern discharge	Side					Side					Side					Side				
Steam	Ship or Shore					Ship or Shore					Ship or Shore					Ship or Shore				
PORT PARTICULARS — Tugs required docking	Yes					Yes--three					Yes					Yes				
Tugs required undocking	Yes					Yes--three					Yes					Yes				
Bottom	Soft mud and sand					Soft mud and sand					Soft mud and sand					Soft				

REMARKS

(a) Entrepôt der Standard Amerikaansche Petroleum Compagnie N.V.

(b) This terminal was originally owned by the Matex organization and is often referred to by that name.

STATISTICAL SUMMARY OF DATA ON OCEAN AND RIVER TERMINALS
THE NETHERLANDS

x = Data Unknown - = Not applicable

IDENTIFICATION	IDENTIFICATION OF PLACE AND PLANT	Identification of Place	Place	Rotterdam	Rotterdam	Rotterdam	Rotterdam
			Location: Lat...	51°55' N	51°55' N	51°55' N	51°55' N
			Long..	4°28' E	4°28' E	4°28' E	4°28' E
		Identification of Plant	Name	N.V. Petroleum Associatie	N.V. Petroleum Handel Mij.	Nieuwe Matex N.V.	N.V. Industriele Producten Compagnie
			Location	Pernis Petroleum Haven	Waalhaven	Koningen Wilhelmina Haven	1 Hoofdstraat, Schiedam(a)
			Owner	Independent	Anglo-Iranian Oil Co., Ltd.	Independent	Independent
			Nature	Terminal	Terminal	Terminal--Vegetable and Mineral Oils	Terminal
STORAGE DATA	SITUATION OF TANKS		Underground	-	-	-	x
			Above-ground ...	Aboveground	Aboveground	Aboveground	x
	TYPES OF TANKS			x	x		x
	CAPACITY OF STORAGE TANKS	Black	Number ...	x	x		x
			M3	x	x		x
			Barrels ..	x	x		x
		White	Number ...	x	x		x
			M3	x	x		x
			Barrels ..	x	x		x
		Total Plant	Number ...	x	5	90	x
			M3	17,270	17,060	158,730	4,238
			Barrels ..	108,600	107,478	1,000,000	26,700
		Total Place	Number ...	-	-	-	-
			M3	-	-	-	-
			Barrels ..	-	-	-	-
	STORAGE FOR CASED GOODS			x	x	x	x
	FIRE PROTECTION			x	x	x	x
	CAMOUFLAGE			x	x	x	x
	DAMAGE			x	Probably damaged	x	x
SUPPLY & DISTRIB	DESCRIPTION OF PUMPING EQUIPMENT			x	x	x	x
	LOADING RACKS			x	x	x	x
	CASE & CAN PLANT			x	x	x	x
	SUPPLY			Ocean Tanker	Ocean Tanker	Ocean Tanker	x
	DISTRIBUTION			x	x		x
BERTHS	Common Name of Berth			Pernis--Petroleum Associatie	x	Nieuwe Matex	x
	Used by			x	x	x	x
	Length of Berth			x	x	x	x
	Width of Berth			x	x	x	x
	Fresh water supply at dock?			x	x	x	x
	Ships Accommodated:						
	Maximum length of vessel in feet ...			x	Unlimited	x	x
	Maximum beam of vessel in feet			x	Unlimited	x	x
	Maximum draft of vessel in feet			x	33	30 feet--on river side	x
	DWT accommodated			x	x	x	x

DISCHARGE DATA — Products:	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel
PIPE LINES: Number of pipe lines	DATA UNKNOWN					DATA UNKNOWN					DATA UNKNOWN					DATA UNKNOWN				
Length of pipe lines: meters																				
feet																				
Diameter of pipe lines: inches ...																				
Pressure allowed in pounds						Bunkering rate 250														
Discharge rate, long tons per hour.																				
Side or stern discharge	x					x					x					x				
Steam	x					x					x					x				
PORT PARTICULARS																				
Tugs required docking	x					x					x					x				
Tugs required undocking	x					x					x					x				
Bottom	x					x					x					x				

REMARKS (a) Office address. Terminal may be located elsewhere. No details available.

STATISTICAL SUMMARY OF DATA ON OCEAN AND RIVER TERMINALS
THE NETHERLANDS

x = Data Unknown — - = Not applicable

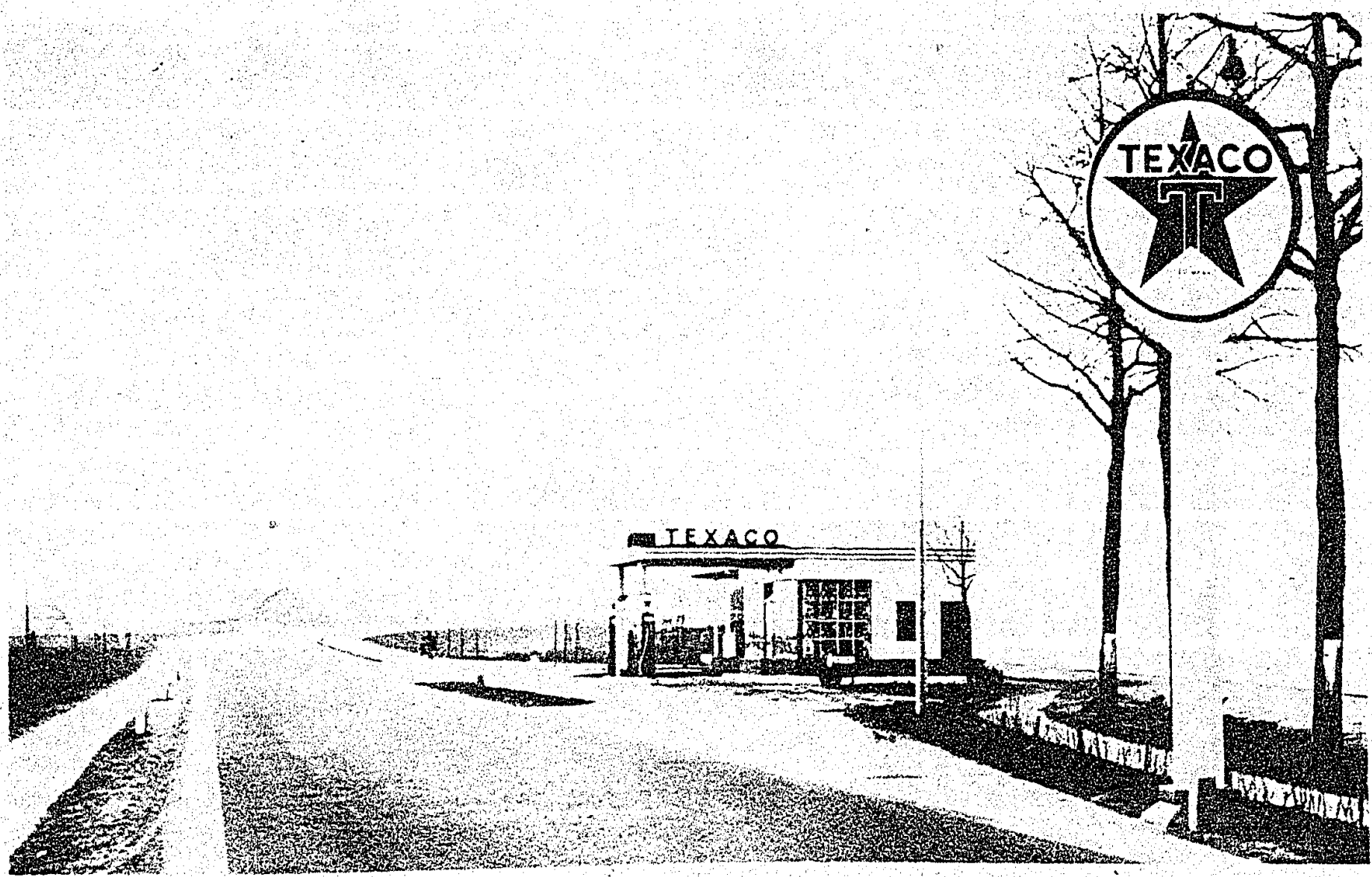
IDENTIFICATION	IDENTIFICATION OF PLACE AND PLANT	Identification of Place	Place	Vlissingen (Flushing)	Vlissingen (Flushing)
			Location: Lat...	51°24' N	51°24' N
			Long..	3°32' E	3°32' E
		Identification of Plant	Name	Steenkolen Handels Vereeniging	"Vlismar" Asphalt Refinery
			Location	E. side of outer harbor (a)	Inner harbor (b)
			Owner		N.V. Vlissingsche Mineraalolie en Asphalt Raffinaderij
			Nature	Bunkering Terminal	Asphalt Refinery
STORAGE DATA	SITUATION OF TANKS		Underground	-	-
			Above-ground ...	Aboveground	Aboveground
	TYPES OF TANKS			x	x
	CAPACITY OF STORAGE TANKS	Black	Number ...	x	12
			M3	x	35,000
			Barrels ..	x	220,500
		White	Number ...	x	-
			M3	x	-
			Barrels ..	x	-
		Total Plant	Number ...	11	12
			M3	44,000	35,000
			Barrels ..	277,200	220,500
		Total Place	Number ...	-	-
			M3	-	-
			Barrels ..	-	-
	STORAGE FOR CASED GOODS			x	x
	FIRE PROTECTION			x	x
	CAMOUFLAGE			x	x
	DAMAGE			Slight	Slight
SUPPLY & DISTRIB	DESCRIPTION OF PUMPING EQUIPMENT			x	x
	LOADING RACKS			x	x
	CASE & CAN PLANT			x	x
	SUPPLY			x	x
	DISTRIBUTION			x	x
BERTHS	Common Name of Berth			x	x
	Used by			x	x
	Length of Berth			x	x
	Width of Berth			x	x
	Fresh water supply at dock?			x	x
	Ships Accommodated:				
	Maximum length of vessel in feet ...			x	x
	Maximum beam of vessel in feet			x	x
	Maximum draft of vessel in feet			34	21
	DWT accommodated			x	x

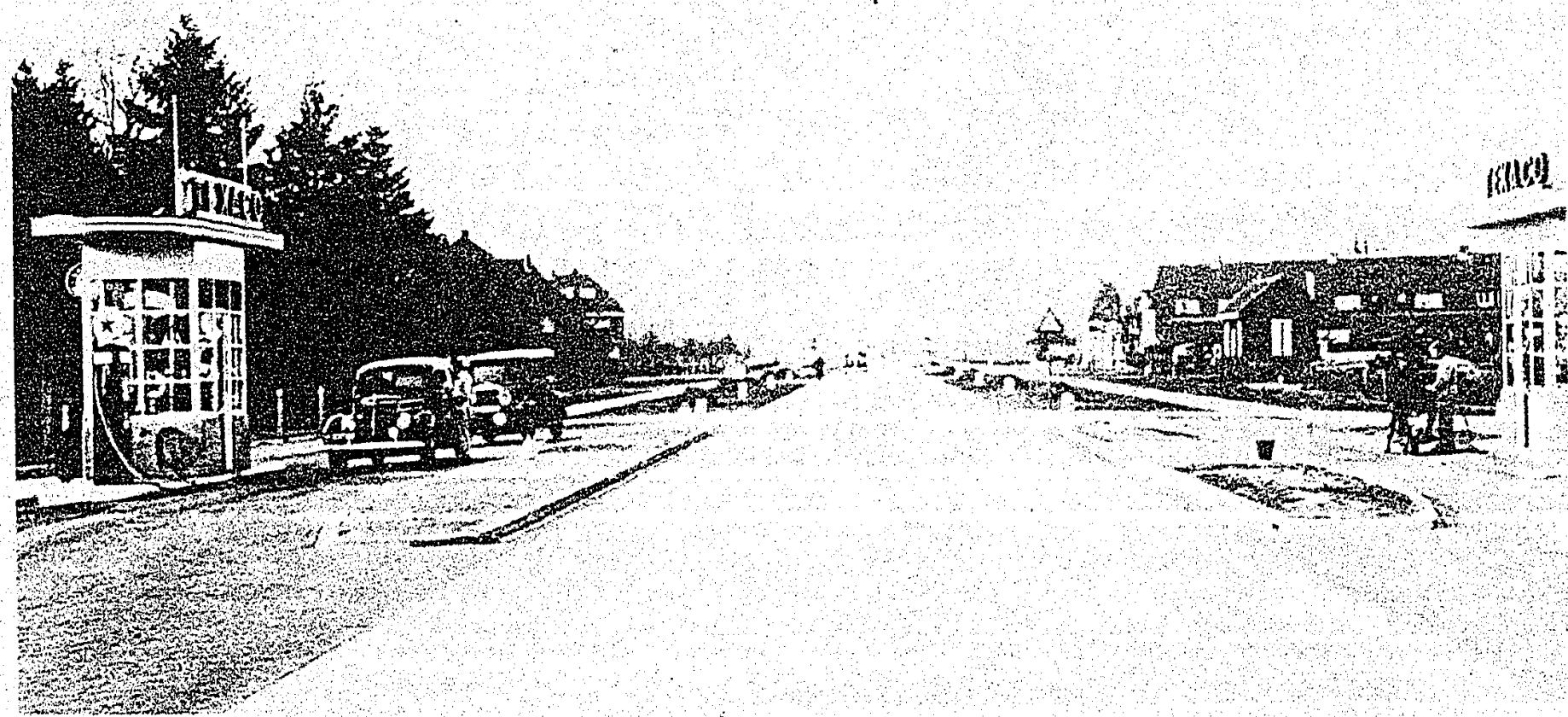
			Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel	Kerosine	Gasoline	Lube Oil	Fuel Oil	Diesel
DISCHARGE DATA	DISCHARGE DATA — Products:											
	PIPE LINES	Number of pipe lines										
		Length of pipe lines: meters		DATA UNKNOWN				DATA UNKNOWN				
		feet										
		Diameter of pipe lines: inches ...										
		Pressure allowed in pounds										
		Discharge rate, long tons per hour.										
	Side or stern discharge		x					x				
	Steam		x					x				
PORT	PORT PARTICULARS											
	Tugs required docking		x					x				
	Tugs required undocking		x					x				
	Bottom		x					x				

REMARKS

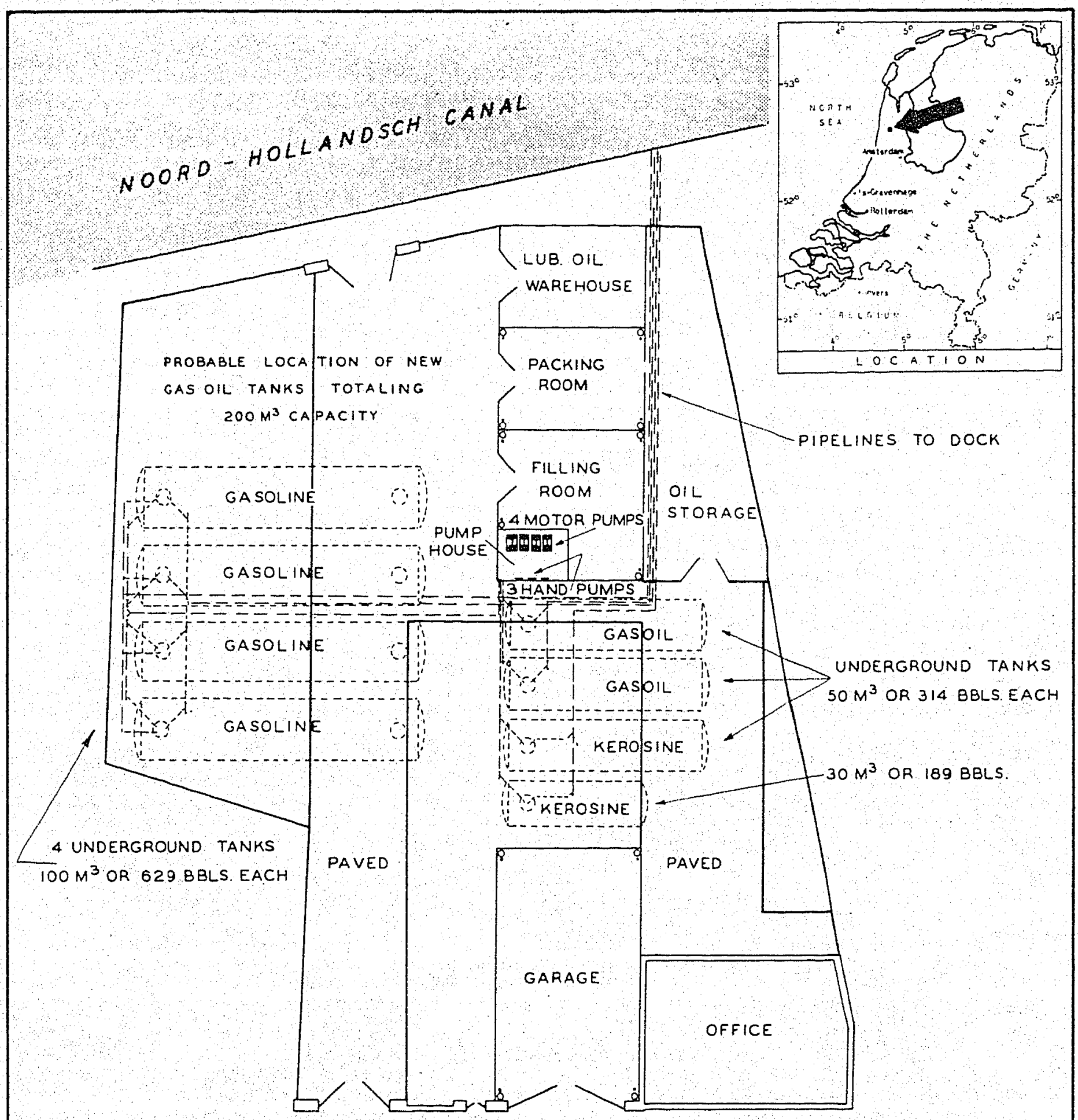
(a) The outer harbor has a depth of 34 feet 4 inches at low tide.

(b) The inner harbor is entered through sluice gates and is available to vessels of 21 feet 3 inches draft.





SERVICE STATIONS OF N. V. THE TEXAS COMPANY, THE NETHERLANDS
ABOVE: NEAR ROERMOND
BELOW: BOXTEL, ON HIGHWAY BETWEEN 'S-HERTOGENBOSCH AND EINDHOVEN



BULK PLANT

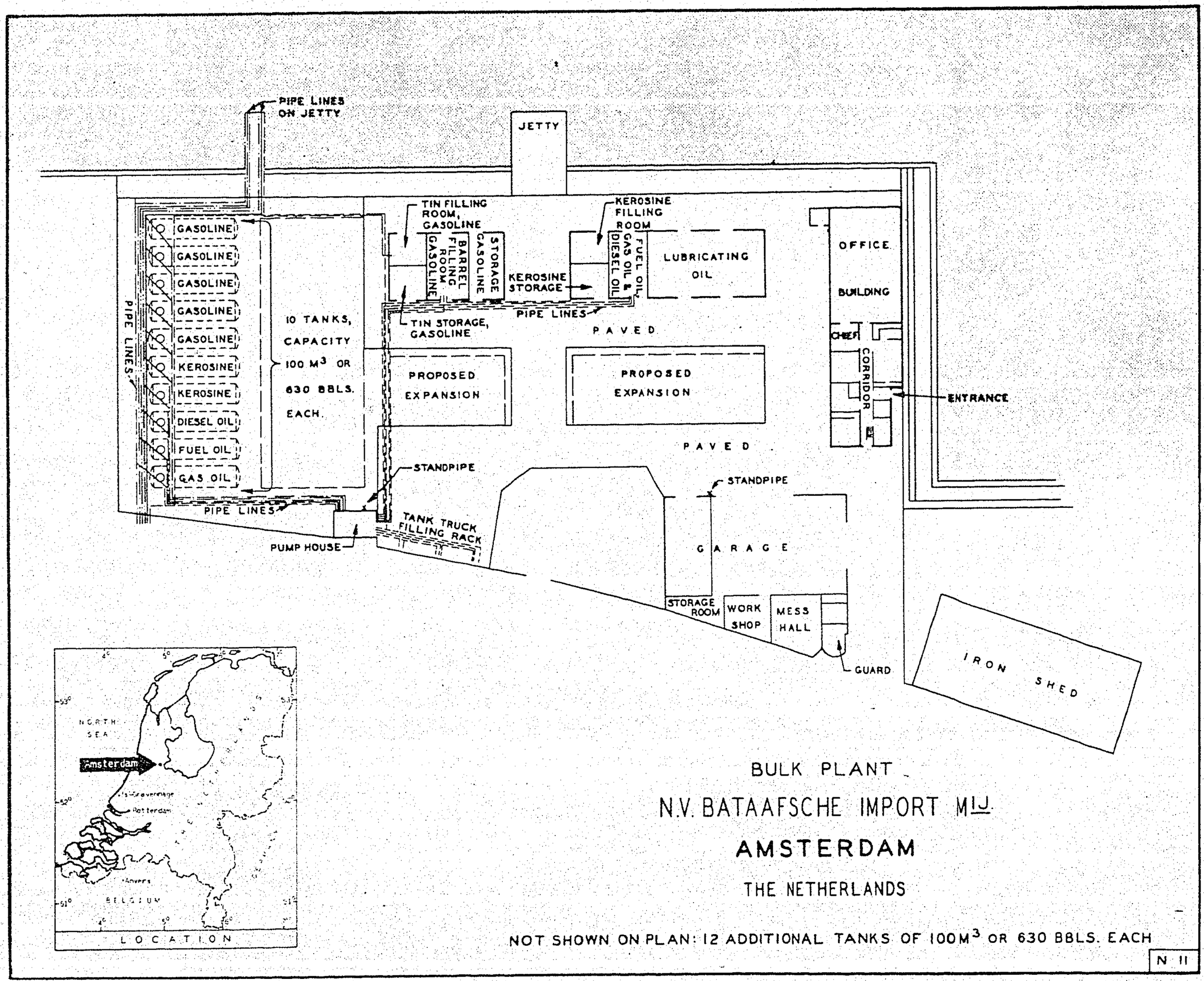
N.V. BATAAFSCHE IMPORT MIJ.

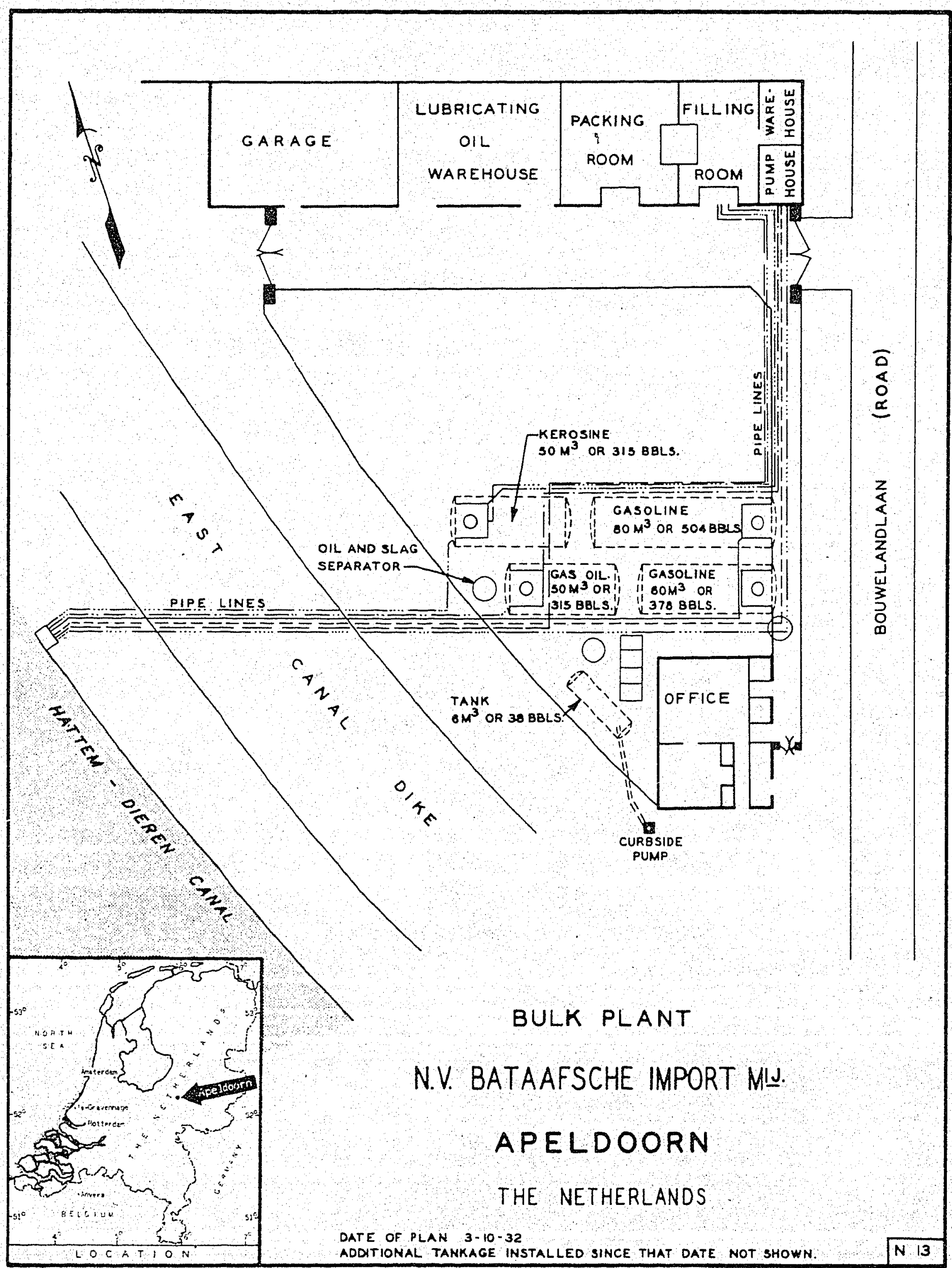
ALKMAAR

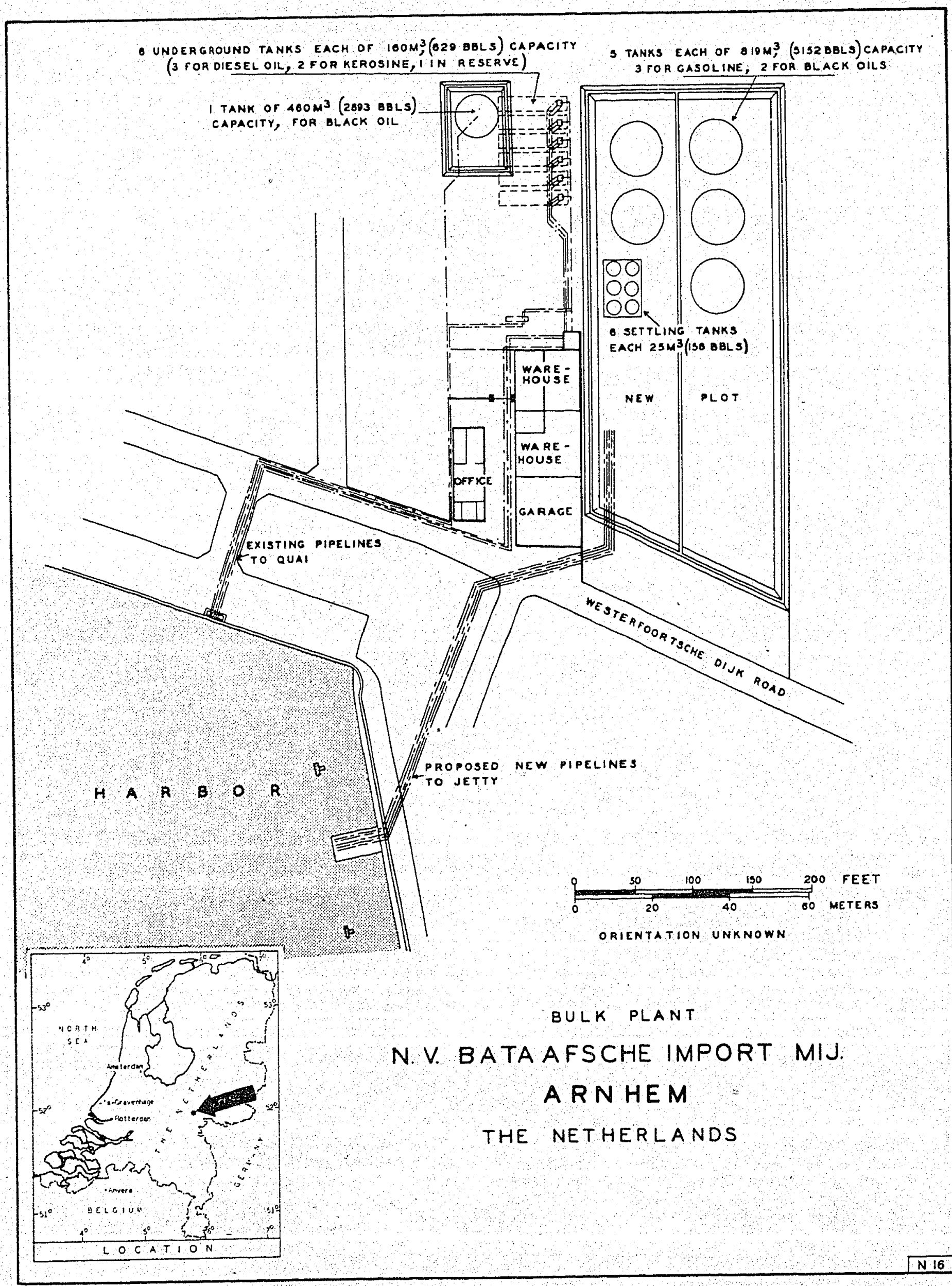
THE NETHERLANDS

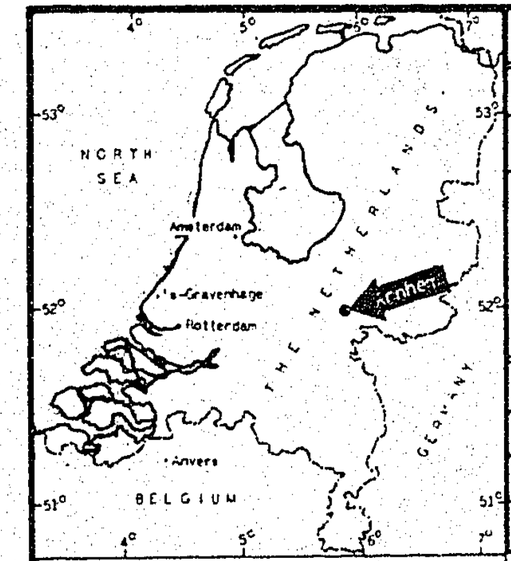
DATE OF PLAN 1929

N 3


PIPE LINES ON JETTY
JETTY
TIN FILLING ROOM, GASOLINE
KEROSINE FILLING ROOM
GASOLINE
GASOLINE
GASOLINE
GASOLINE
GASOLINE
KEROSINE
KEROSINE
DIESEL OIL
FUEL OIL
GAS OIL
PIPE LINES
10 TANKS, CAPACITY 100 M3 OR 630 BBLS. EACH.
GASOLINE
BARREL FILLING ROOM
STORAGE GASOLINE
KEROSINE STORAGE
GAS OIL & DIESEL OIL
FUEL OIL
LUBRICATING OIL
OFFICE BUILDING
TIN STORAGE, GASOLINE
PIPE LINES
PAVED
CHIEF
CORRIDOR
ENTRANCE
PROPOSED EXPANSION
PROPOSED EXPANSION
PAVED
STANDPIPE
STANDPIPE
PIPE LINES
TANK TRUCK FILLING RACK
PUMP HOUSE
GARAGE
STORAGE ROOM
WORK SHOP
MESS HALL
GUARD
IRON SHED
NORTH SEA
Amsterdam
Rotterdam
Anvers
BELGIUM
LOCATION
BULK PLANT
N.V. BATAAFSCHE IMPORT MIJ.
AMSTERDAM
THE NETHERLANDS
NOT SHOWN ON PLAN: 12 ADDITIONAL TANKS OF 100M3 OR 630 BBLS. EACH
N 11


GARAGE
LUBRICATING OIL WAREHOUSE
PACKING ROOM
FILLING ROOM
WARE-HOUSE
PUMP HOUSE
PIPE LINES
KEROSINE 50 M3 OR 315 BBLS.
GASOLINE 80 M3 OR 504 BBLS.
OIL AND SLAG SEPARATOR
GAS OIL 50 M3 OR 315 BBLS.
GASOLINE 60 M3 OR 378 BBLS.
PIPE LINES
TANK 6 M3 OR 38 BBLS.
OFFICE
CURBSIDE PUMP
EAST
CANAL
DIKE
HATTEM - DIEREN CANAL
BOUWELANDLAAN (ROAD)
NORTH SEA
Amsterdam
Apeldoorn
Rotterdam
THE NETHERLANDS
GERMANY
Anvers
BELGIUM
LOCATION
BULK PLANT
N.V. BATAAFSCHE IMPORT MIJ.
APELDOORN
THE NETHERLANDS
DATE OF PLAN 3-10-32
ADDITIONAL TANKAGE INSTALLED SINCE THAT DATE NOT SHOWN.
N 13


8 UNDERGROUND TANKS EACH OF 160M³ (629 BBLS) CAPACITY
(3 FOR DIESEL OIL, 2 FOR KEROSINE, 1 IN RESERVE)
5 TANKS EACH OF 819M³ (5152 BBLS) CAPACITY
3 FOR GASOLINE, 2 FOR BLACK OILS
1 TANK OF 460M³ (2893 BBLS)
CAPACITY, FOR BLACK OIL
6 SETTLING TANKS
EACH 25M³ (158 BBLS)
WARE-
HOUSE
NEW PLOT
WARE-
HOUSE
OFFICE
GARAGE
EXISTING PIPELINES
TO QUAI
WESTERFOORTSCHE DIJK ROAD
PROPOSED NEW PIPELINES
TO JETTY
HARBOR
0 50 100 150 200 FEET
0 20 40 60 METERS
ORIENTATION UNKNOWN
NORTH SEA
Amsterdam
's-Gravenhage
Rotterdam
THE NETHERLANDS
GERMANY
Anvers
BELGIUM
LOCATION
BULK PLANT
N.V. BATAAFSCHE IMPORT MIJ.
ARNHEM
THE NETHERLANDS
N 16



LOCATION

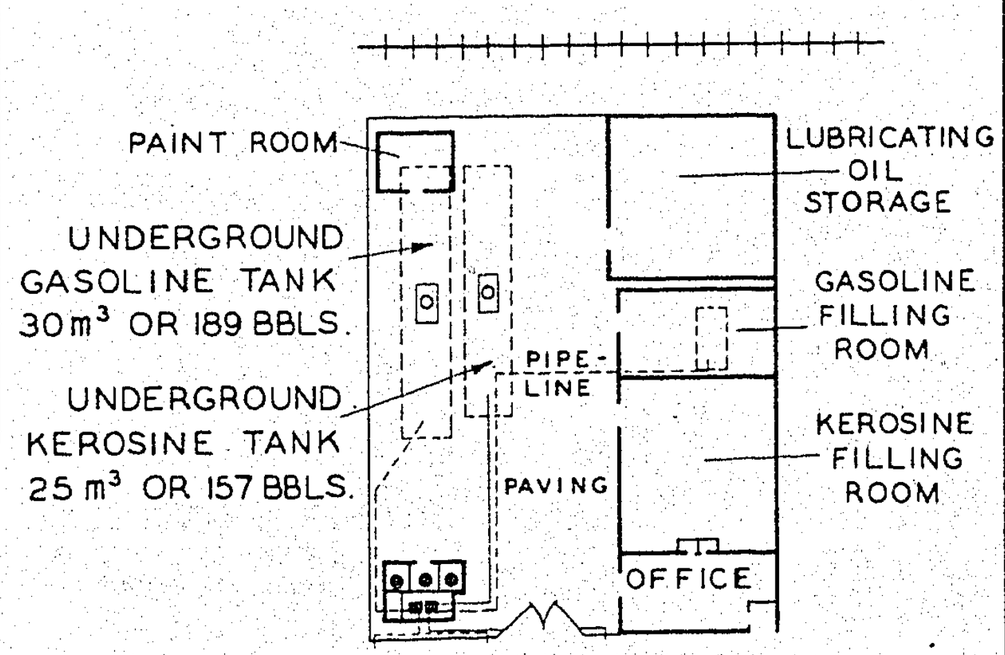
LEGEND

PIPELINES

PRODUCT	SIZE	LENGTH
GASOLINE AND KEROSINE	2½"	177'
	2"	232' 10"
	1¼"	190'
	1"	131' 2"

ELECTRICAL CHARACTERISTICS

USE	A.C.-D.C.	VOLTAGE	PHASE	CYCLE
LIGHTS	A.C.	220	1	50
POWER	A.C.	380/220	3	50



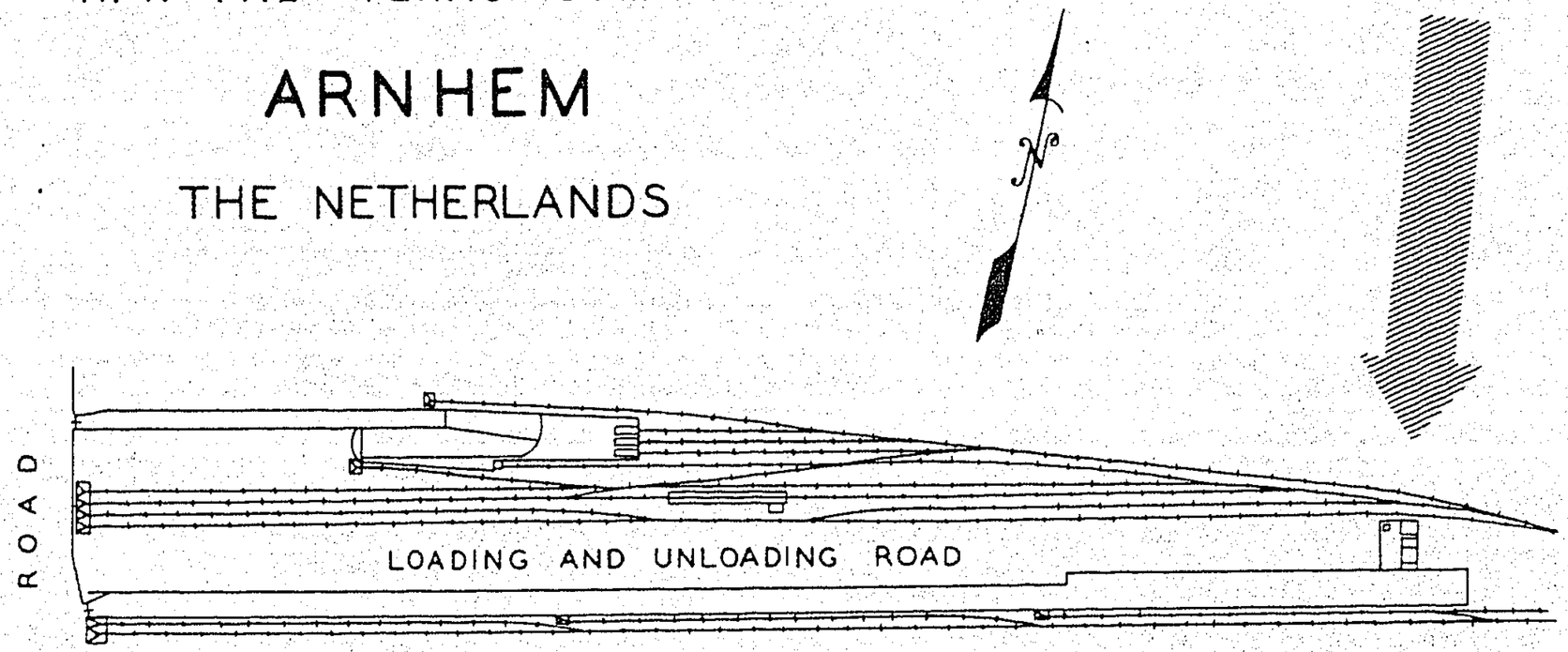
DETAIL OF INSTALLATION

BULK PLANT

N.V. THE TEXAS COMPANY

ARNHEM

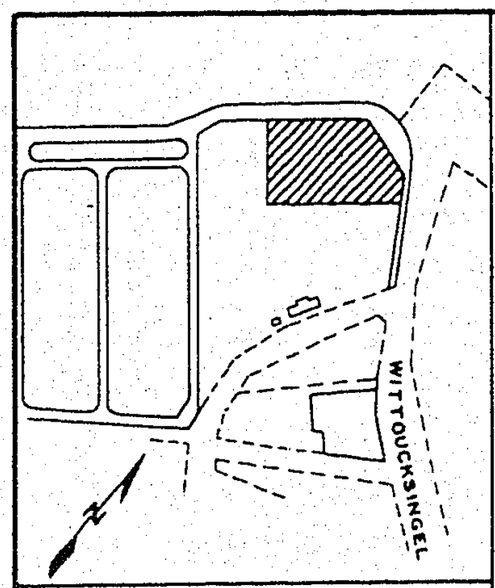
THE NETHERLANDS



SITUATION PLAN

N 30

DISTRIBUTING - 101
Arnhem



SITUATION

BULK PLANT

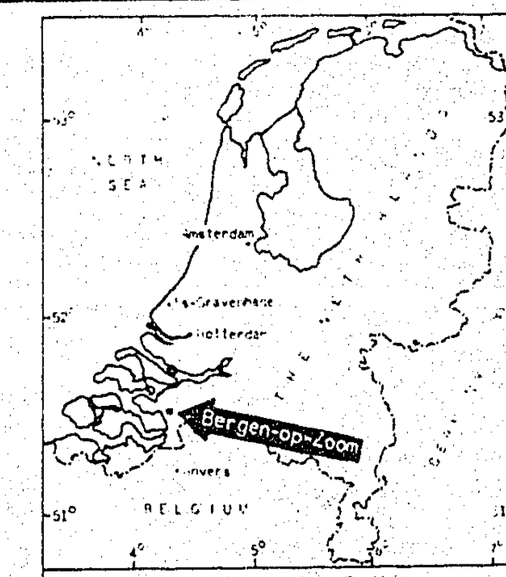
N.V. BATAAFSCHE IMPORT M^IJ.

BERGEN-OP-ZOOM

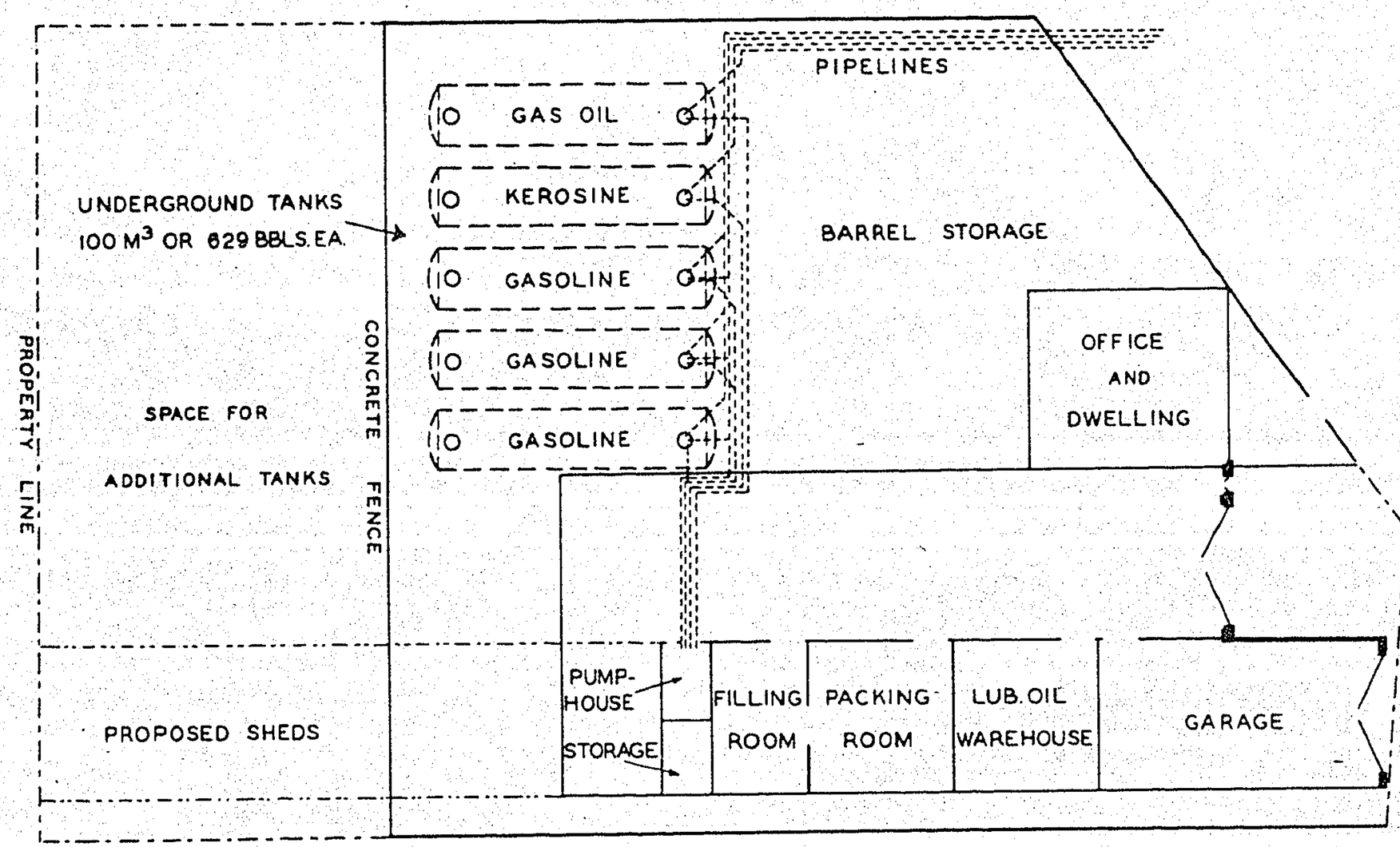
THE NETHERLANDS

DATE OF PLAN: 9/27/30

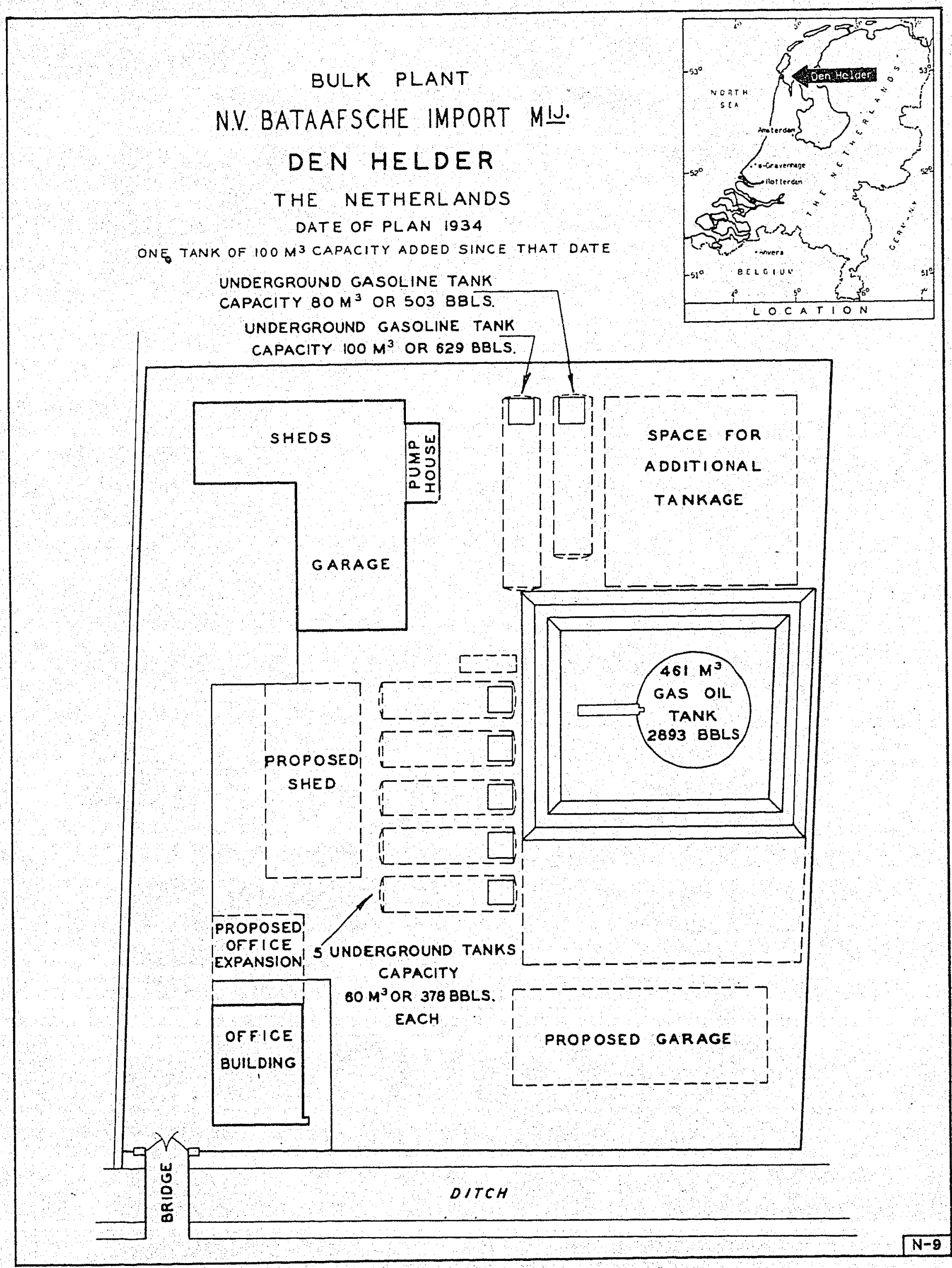
ADDITIONAL TANKAGE, TOTALING 200 M³, INSTALLED SINCE THAT DATE, NOT SHOWN.

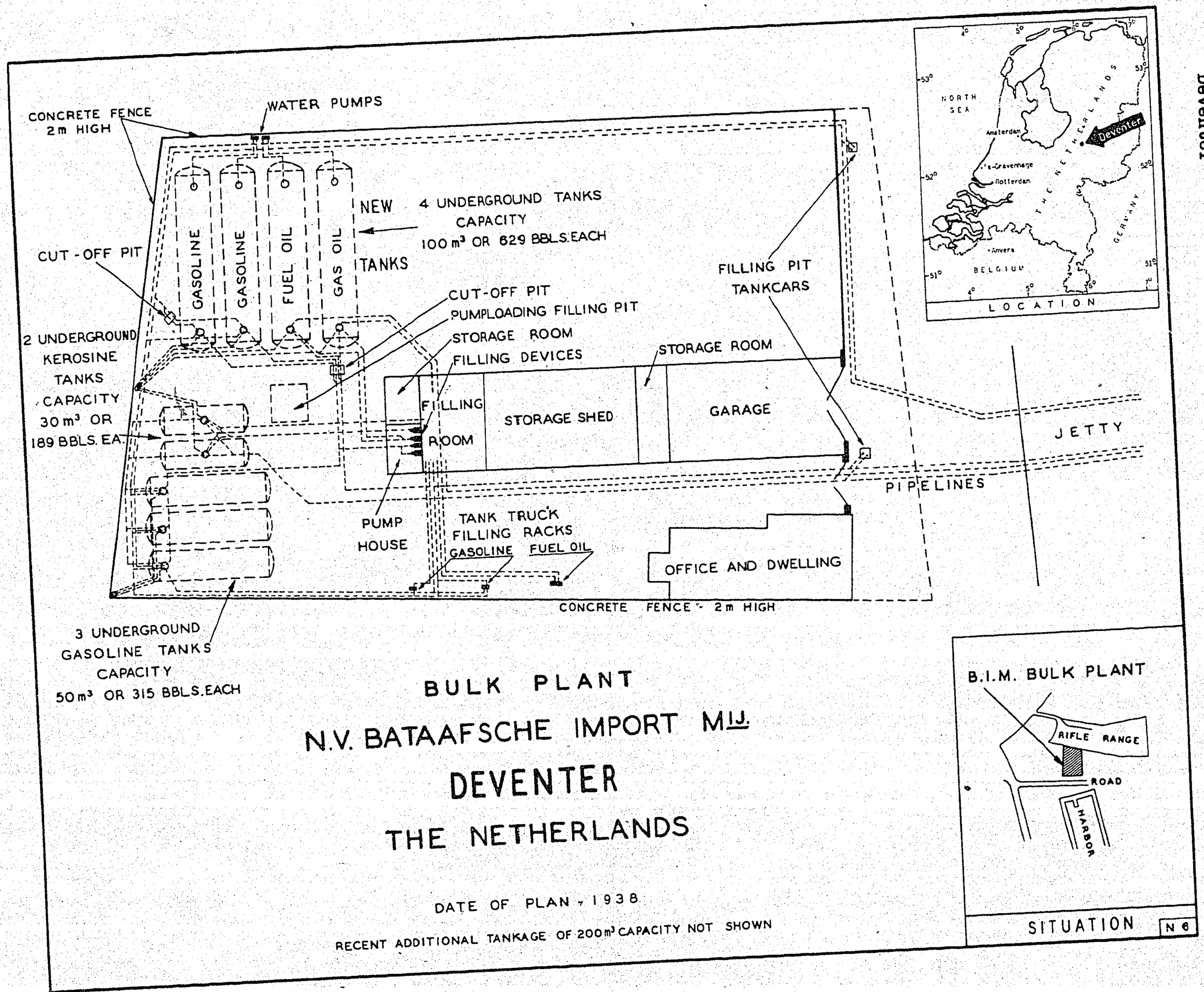


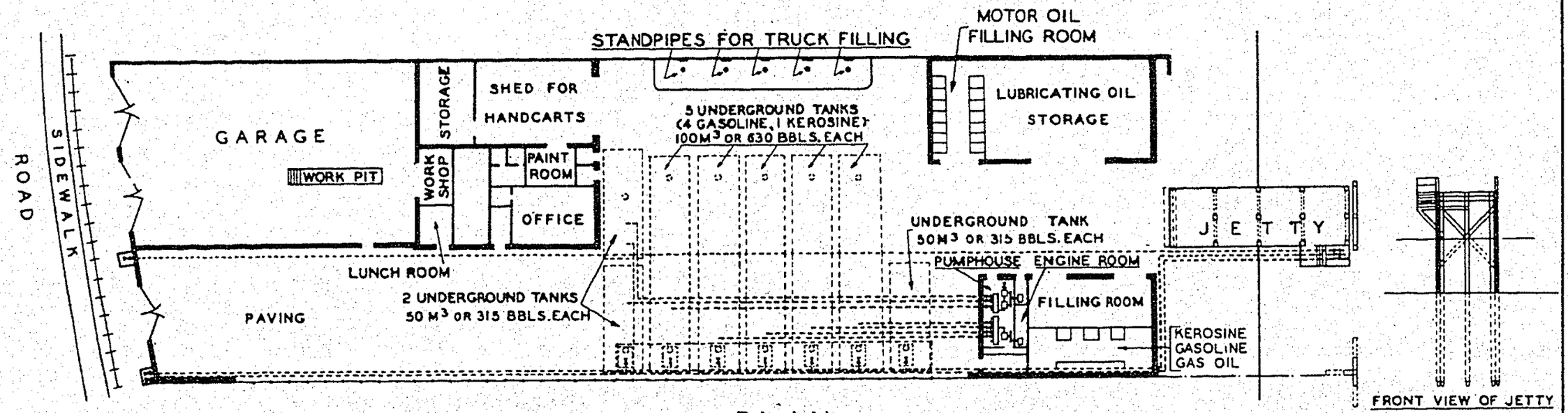
LOCATION



N.5

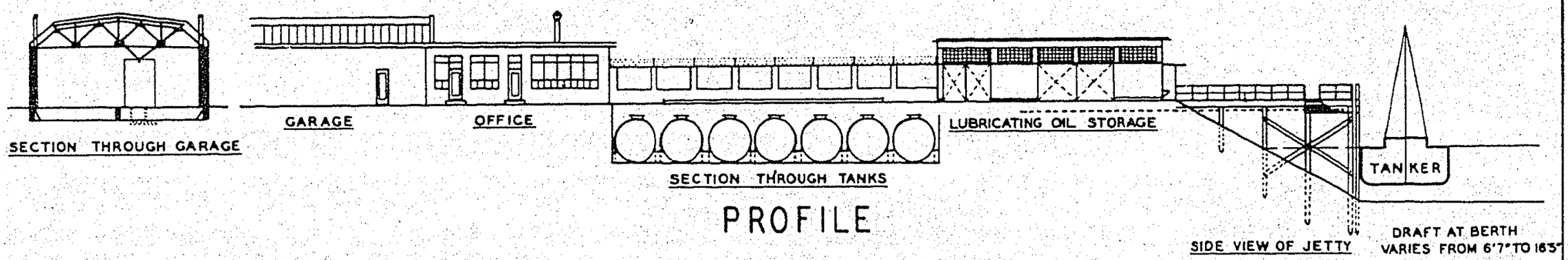

BULK PLANT
N.V. BATAAFSCHE IMPORT MIJ.
DEN HELDER
THE NETHERLANDS
DATE OF PLAN 1934
ONE TANK OF 100 M3 CAPACITY ADDED SINCE THAT DATE
UNDERGROUND GASOLINE TANK
CAPACITY 80 M3 OR 503 BBLS.
UNDERGROUND GASOLINE TANK
CAPACITY 100 M3 OR 629 BBLS.
SHEDS
PUMP HOUSE
GARAGE
SPACE FOR ADDITIONAL TANKAGE
461 M3 GAS OIL TANK 2893 BBLS
PROPOSED SHED
PROPOSED OFFICE EXPANSION
5 UNDERGROUND TANKS CAPACITY 60 M3 OR 378 BBLS. EACH
OFFICE BUILDING
PROPOSED GARAGE
BRIDGE
DITCH
Den Helder
NORTH SEA
Amsterdam
s-Gravenhage
Rotterdam
Anvers
BELGIUM
THE NETHERLANDS
GERMANY
LOCATION
N-9


CONCRETE FENCE
2 m HIGH
WATER PUMPS
NEW
4 UNDERGROUND TANKS
CAPACITY
100 m³ OR 629 BBLS. EACH
TANKS
GASOLINE
GASOLINE
FUEL OIL
GAS OIL
CUT-OFF PIT
2 UNDERGROUND
KEROSINE
TANKS
CAPACITY
30 m³ OR
189 BBLS. EA.
CUT-OFF PIT
PUMPLOADING FILLING PIT
STORAGE ROOM
FILLING DEVICES
FILLING PIT
TANKCARS
STORAGE ROOM
FILLING
ROOM
STORAGE SHED
GARAGE
JETTY
PIPELINES
PUMP
HOUSE
TANK TRUCK
FILLING RACKS
GASOLINE
FUEL OIL
OFFICE AND DWELLING
CONCRETE FENCE - 2 m HIGH
3 UNDERGROUND
GASOLINE TANKS
CAPACITY
50 m³ OR 315 BBLS. EACH
BULK PLANT
N.V. BATAAFSCHE IMPORT MIJ.
DEVENTER
THE NETHERLANDS
DATE OF PLAN - 1938
RECENT ADDITIONAL TANKAGE OF 200 m³ CAPACITY NOT SHOWN
NORTH SEA
Amsterdam
Deventer
's-Gravenhage
Rotterdam
Anvers
BELGIUM
THE NETHERLANDS
GERMANY
LOCATION
B.I.M. BULK PLANT
RIFLE RANGE
ROAD
HARBOR
SITUATION
N 6



PLAN

FRONT VIEW OF JETTY

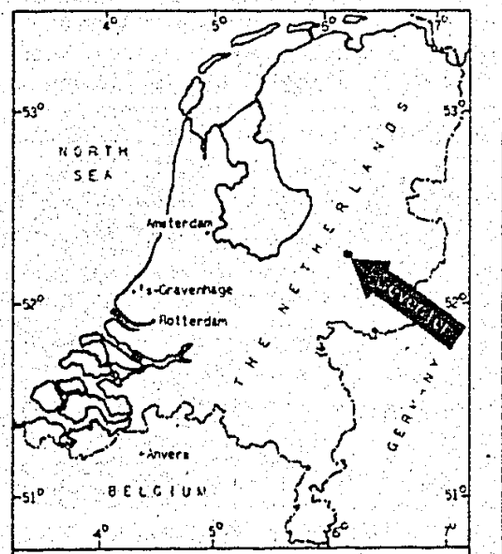


PROFILE

0 20 40 60 80 100 120 FEET

0 10 20 30 40 METERS

ORIENTATION UNKNOWN



LOCATION

N 29

LEGEND

PIPELINES

PRODUCT	SIZE	LENGTH
GASOLINE	1"	98'4"
	1¼"	98'4"
KEROSINE	1½"	491'10"
	2"	1311'6"
AND	2½"	1672'2"
GAS OIL	3"	393'5"
	4"	1377'6"

PUMPS

TYPE	PRODUCT	CAPACITY	OPERATION	H.P.
1 DOUBLE UNIT OF 2 PUMPS (BLACKMER)	KEROSINE	100 G.P.M.	ELECTRIC	5
	GAS OIL	100 G.P.M.	ELECTRIC	5
1 SINGLE UNIT (BLACKMER)	GASOLINE	200 G.P.M.	ELECTRIC	5

ELECTRICAL CHARACTERISTICS

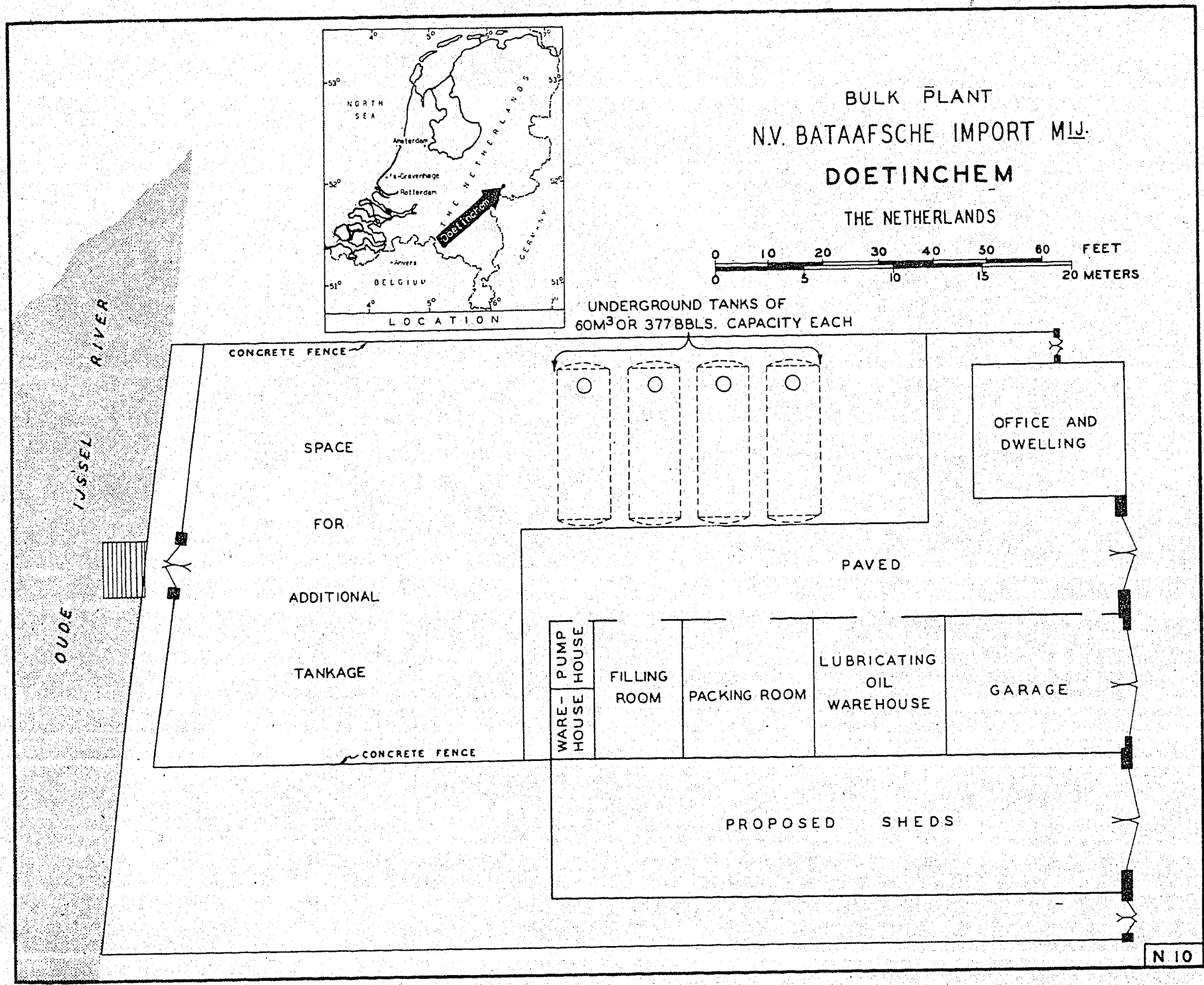
USE	A.C. OR D.C.	VOLTAGE	PHASE	CYCLE
LIGHTS	A.C.	220	1	50
POWER	A.C.	220	3	50

BULK PLANT

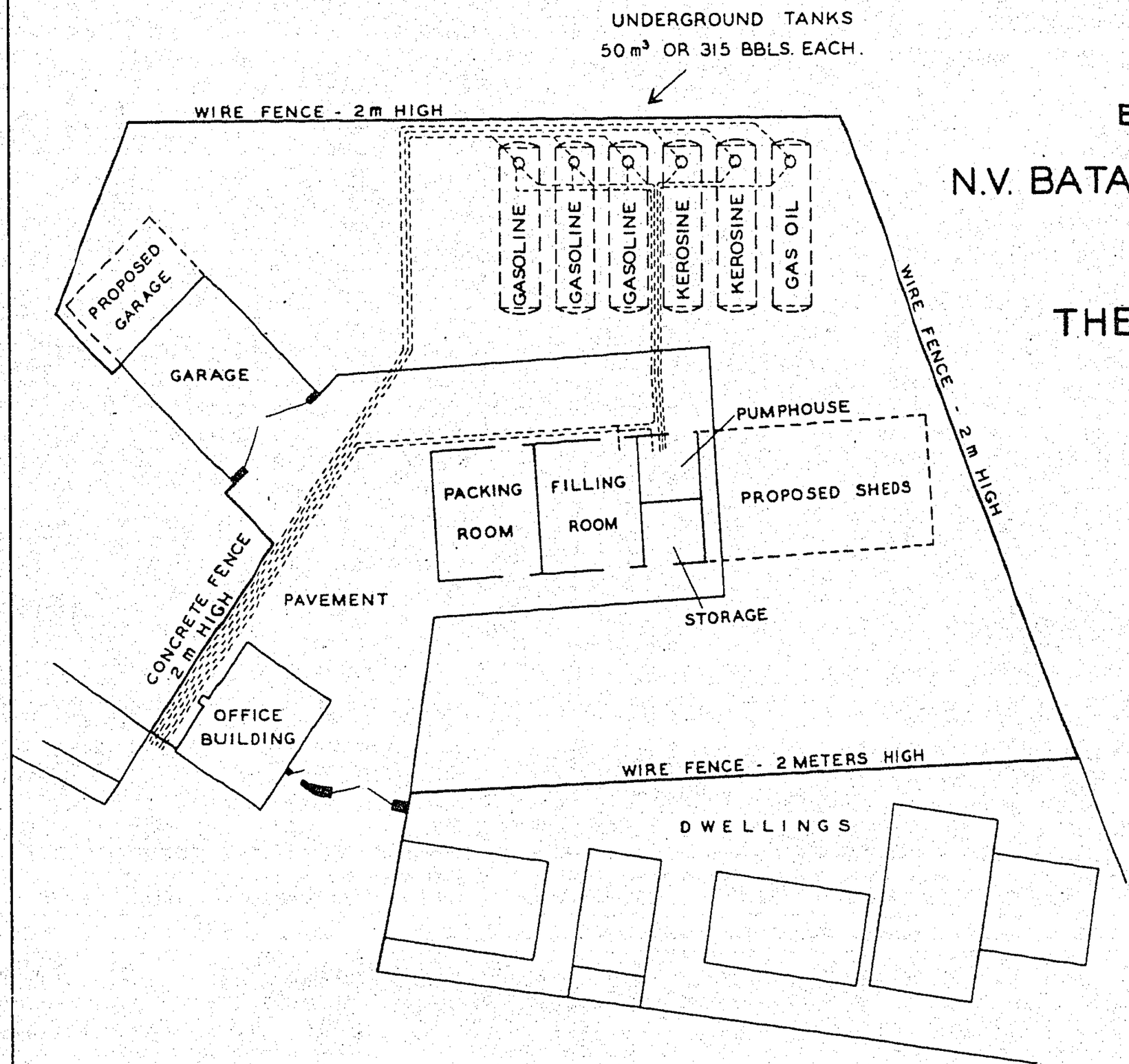
N.V. THE TEXAS COMPANY

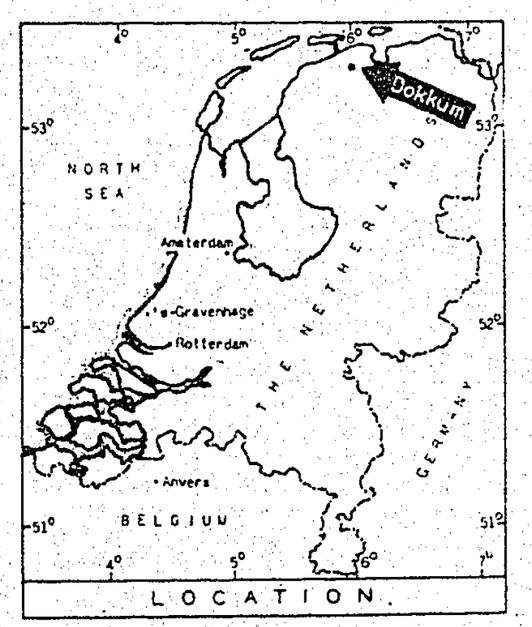
DEVENTER

THE NETHERLANDS


BULK PLANT
N.V. BATAAFSCHE IMPORT MIJ.
DOETINCHEM
THE NETHERLANDS
0 10 20 30 40 50 60 FEET
0 5 10 15 20 METERS
LOCATION
NORTH SEA
Amsterdam
's-Gravenhage
Rotterdam
Anvers
BELGIUM
GERMANY
Doetinchem
UNDERGROUND TANKS OF
60M3 OR 377 BBLS. CAPACITY EACH
CONCRETE FENCE
SPACE
FOR
ADDITIONAL
TANKAGE
OUDE IJSSEL RIVER
OFFICE AND
DWELLING
PAVED
PUMP HOUSE
WARE-HOUSE
FILLING ROOM
PACKING ROOM
LUBRICATING OIL WAREHOUSE
GARAGE
CONCRETE FENCE
PROPOSED SHEDS
N 10

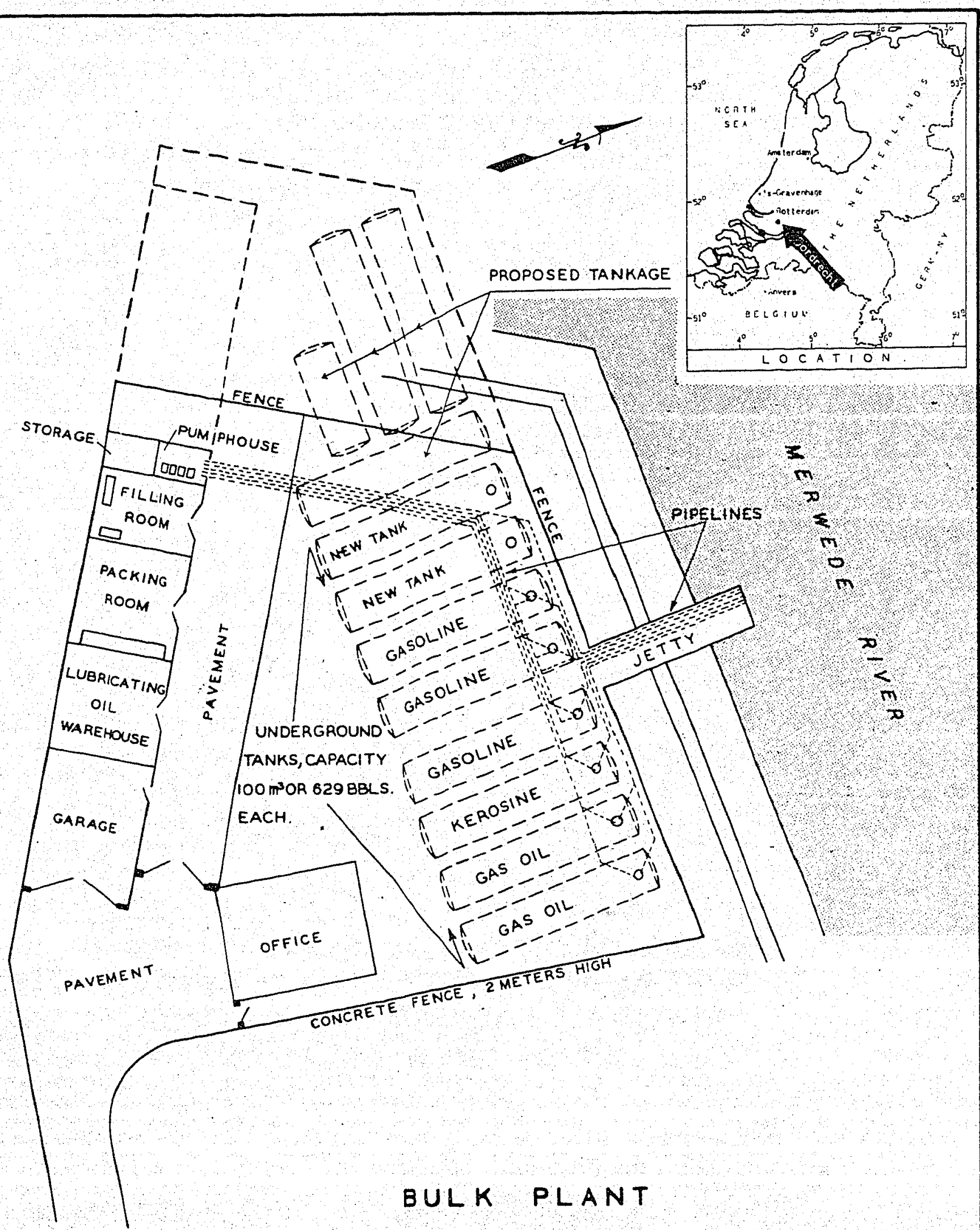
BULK PLANT
N.V. BATAAFSCHE IMPORT MIJ.
DOKKUM
THE NETHERLANDS





LOCATION.

N 7



BULK PLANT

N.V. BATAAFSCHE IMPORT MIJ.

DORDRECHT

THE NETHERLANDS

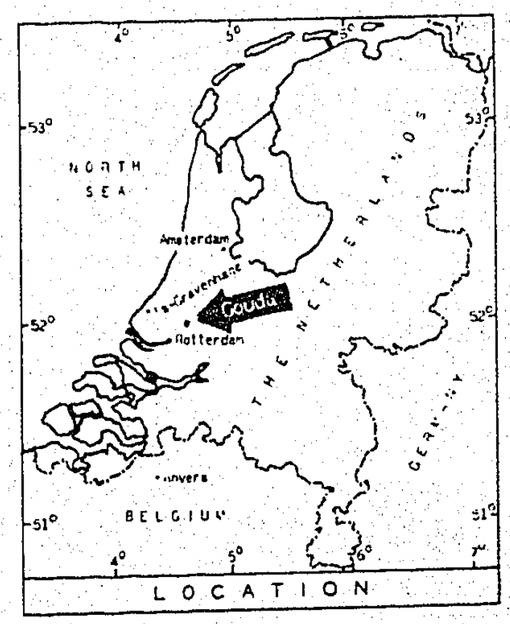
N 2

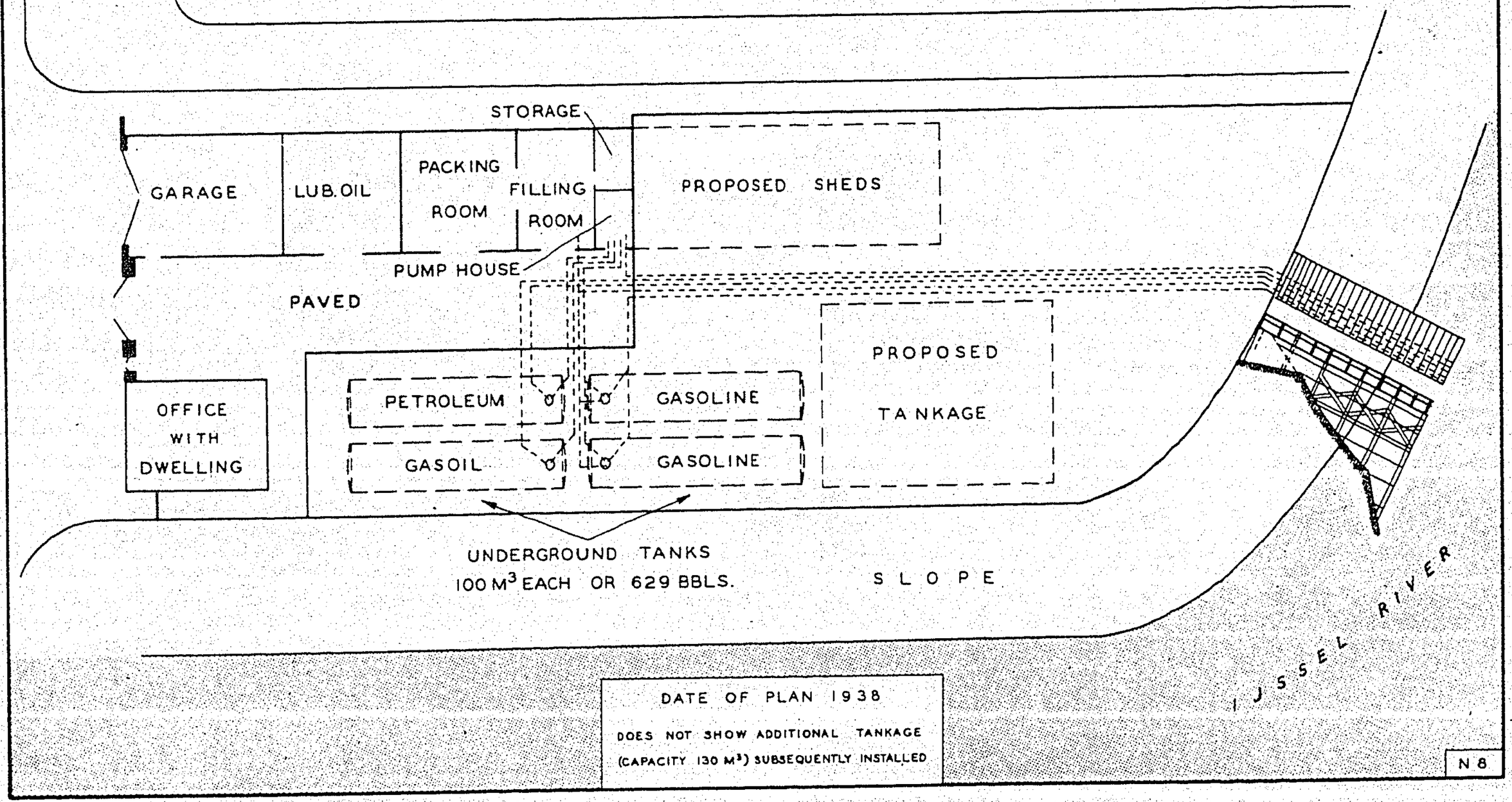
BULK PLANT

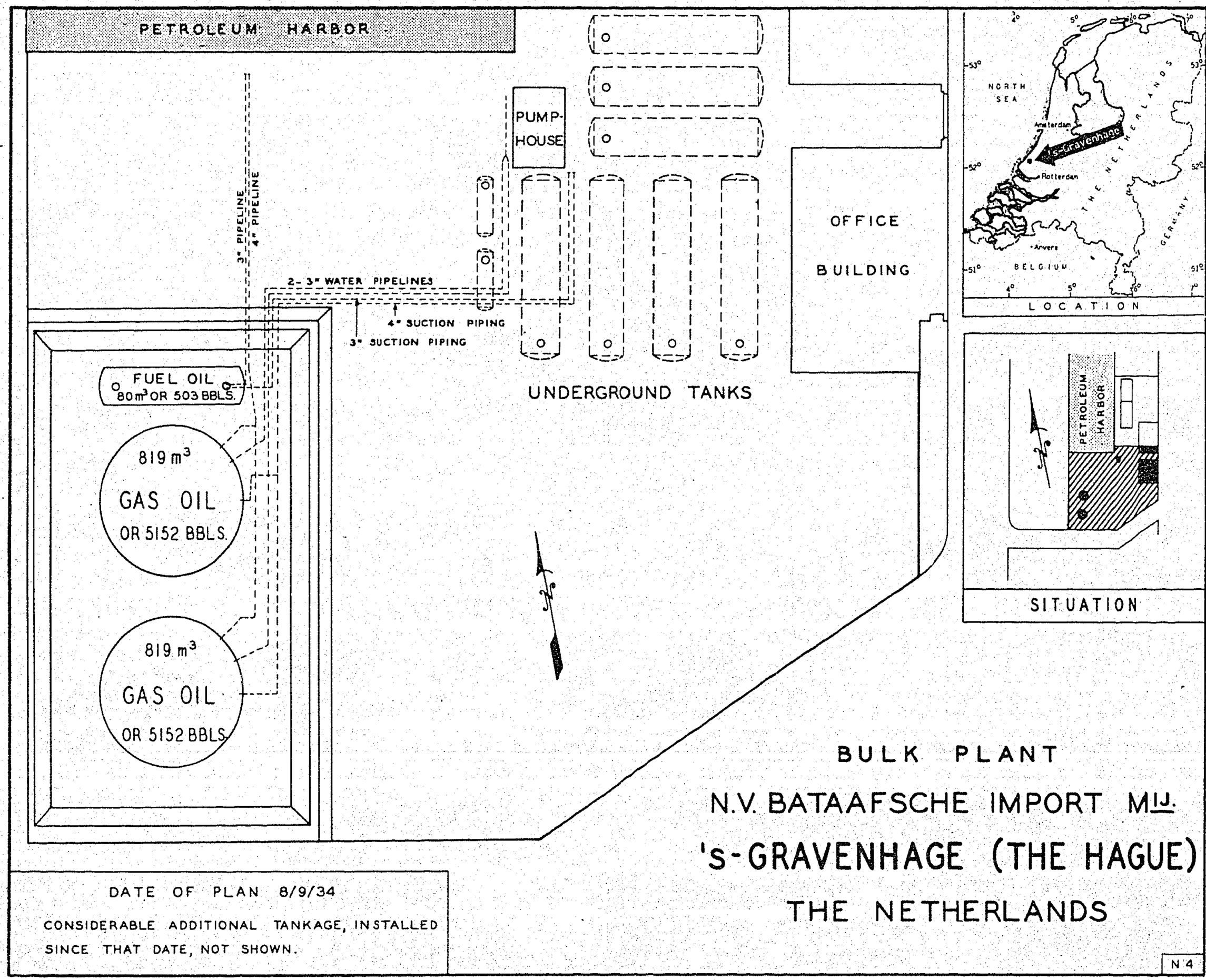
N.V. BATAAFSCHE IMPORT MIJ.

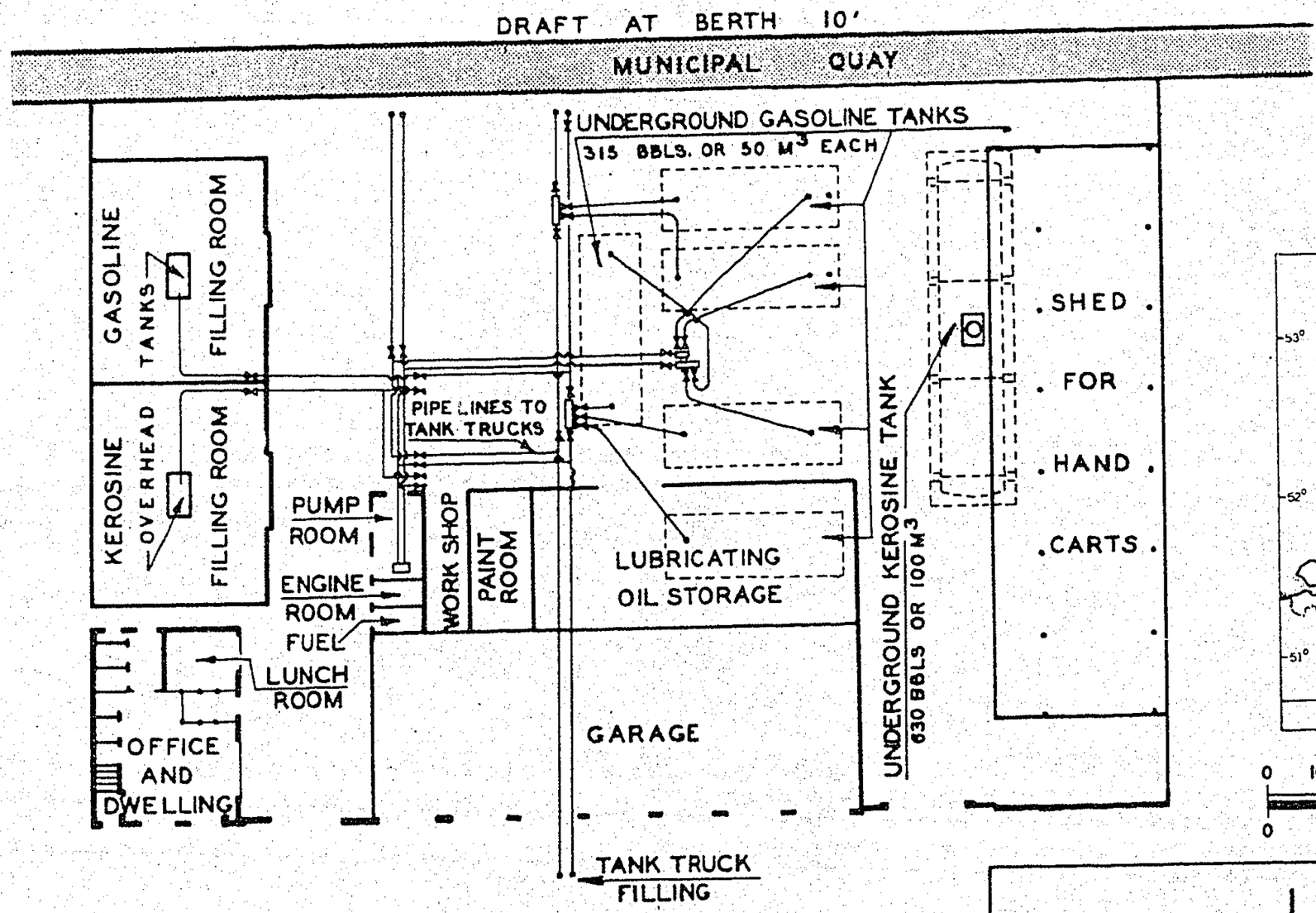
GOUDA

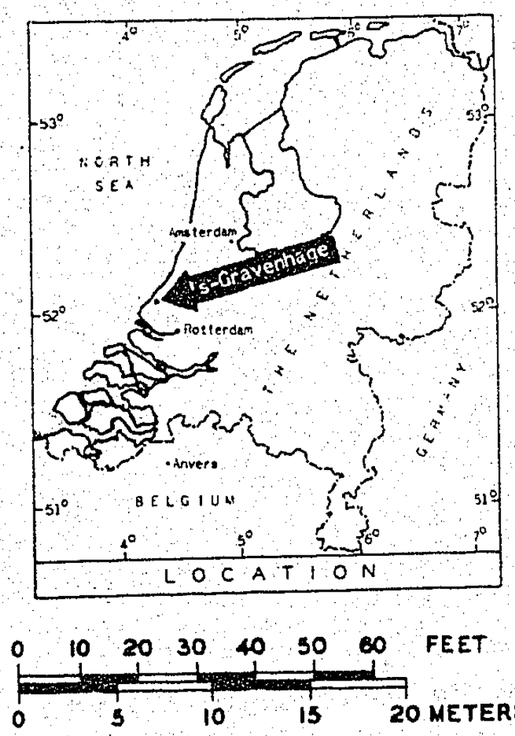
THE NETHERLANDS






PETROLEUM HARBOR
PUMP-HOUSE
OFFICE BUILDING
3" PIPELINE
4" PIPELINE
2- 3" WATER PIPELINES
4" SUCTION PIPING
3" SUCTION PIPING
UNDERGROUND TANKS
FUEL OIL
80 m³ OR 503 BBLS.
819 m³
GAS OIL
OR 5152 BBLS.
819 m³
GAS OIL
OR 5152 BBLS.
NORTH SEA
Amsterdam
's-Gravenhage
Rotterdam
THE NETHERLANDS
GERMANY
Anvers
BELGIUM
LOCATION
PETROLEUM HARBOR
SITUATION
BULK PLANT
N.V. BATAAFSCHE IMPORT MIJ.
's-GRAVENHAGE (THE HAGUE)
THE NETHERLANDS
DATE OF PLAN 8/9/34
CONSIDERABLE ADDITIONAL TANKAGE, INSTALLED SINCE THAT DATE, NOT SHOWN.
N 4





LEGEND

PIPELINES

PRODUCT	SIZE	LENGTH
GASOLINE AND KEROSINE	4"	137' - 8"
	3"	623'
	2"	478' 8"
	1 1/4"	190'
	1"	236' 1"

PUMPS

TYPE	PRODUCT	CAPACITY	OPERATION	H.P.
1 DOUBLE UNIT	GASOLINE	100 G.P.M.	ELECTRIC	5
2 PUMPS (BLACKMER)	KEROSINE	100 G.P.M.	ELECTRIC	5

ELECTRICAL CHARACTERISTICS

USE	A.C. OR D.C.	VOLTAGE	PHASE	CYCLE
LIGHTS	A.C.	127	1	50
POWER	AC	220	3	50

BULK PLANT

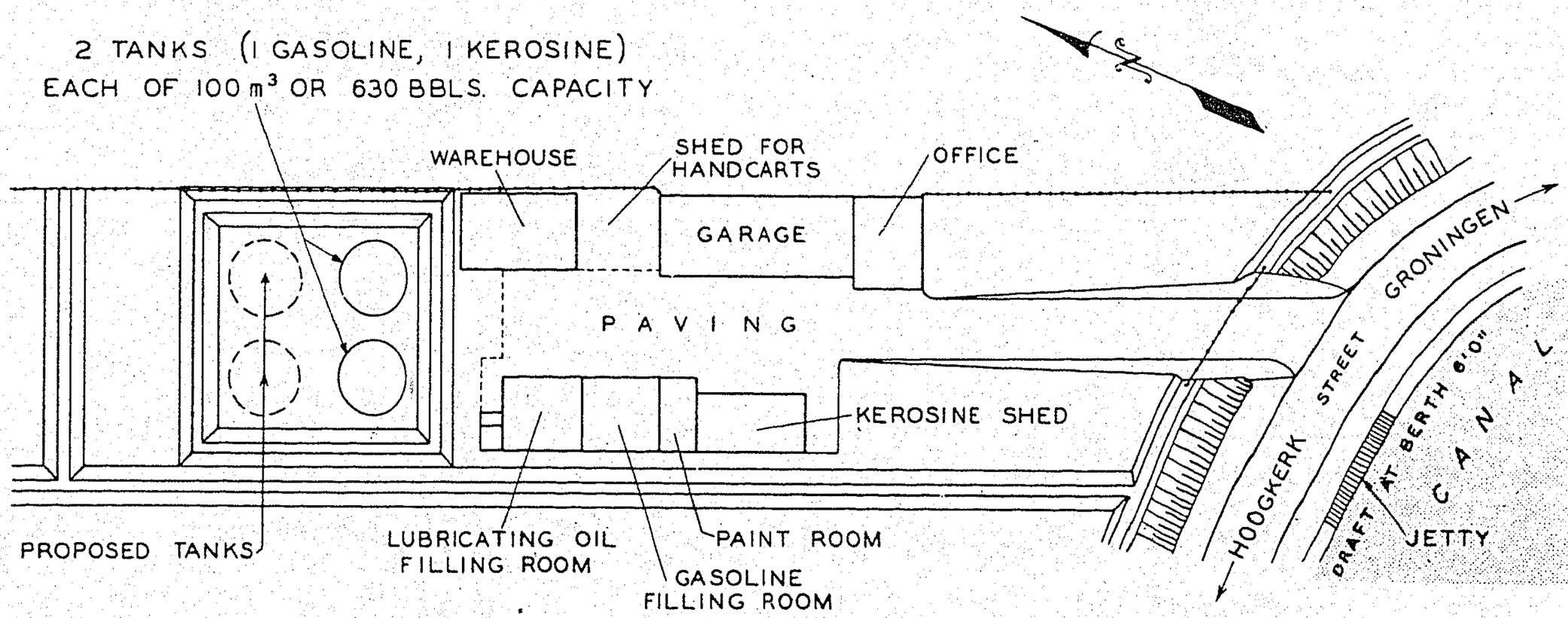
N.V. THE TEXAS COMPANY

'S - GRAVENHAGE

(THE HAGUE)

THE NETHERLANDS

N-27



0 25 50 75 100 125 FEET
0 10 20 30 40 METERS

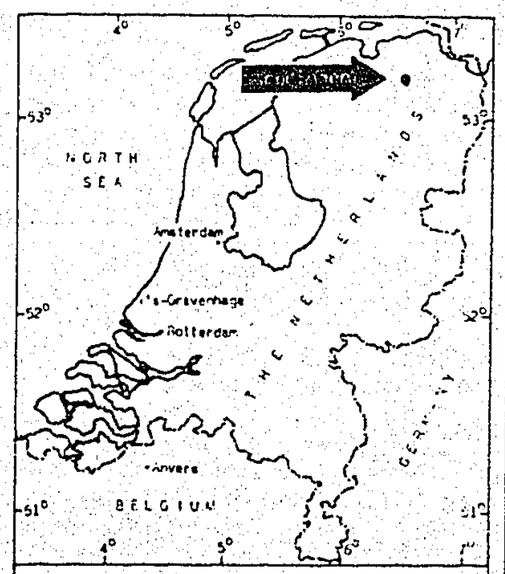
N 28

BULK PLANT

N V THE TEXAS COMPANY

GRONINGEN

THE NETHERLANDS



LEGEND

PIPELINES

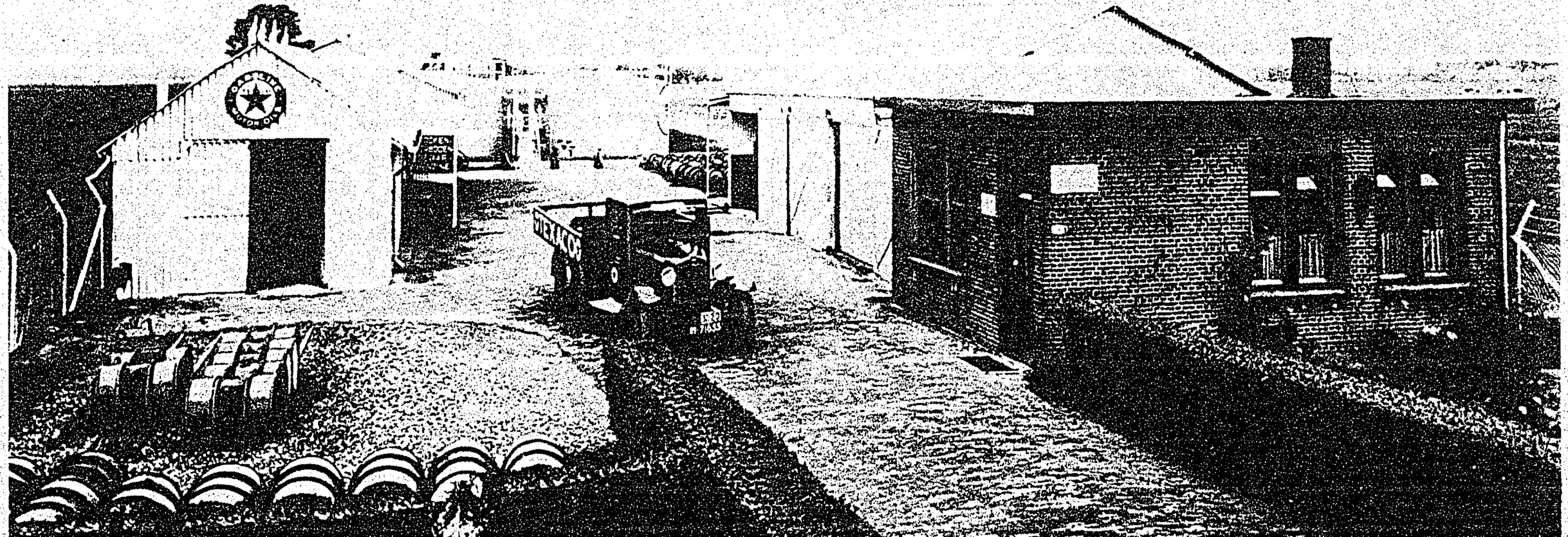
PRODUCT	SIZE	LENGTH
GASOLINE & KEROSINE	3"	655' 9"
	2"	327' 11"

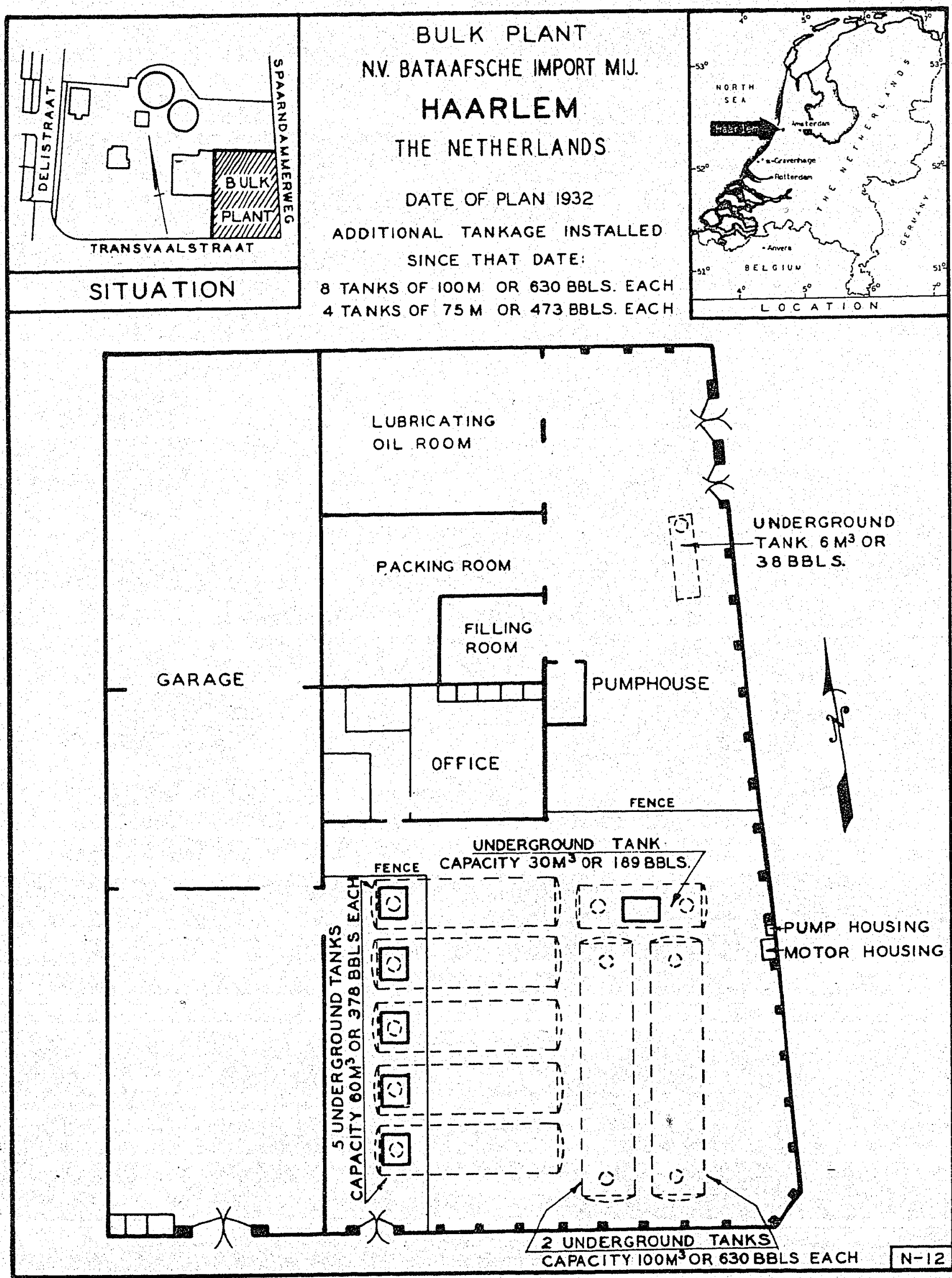
PUMPS

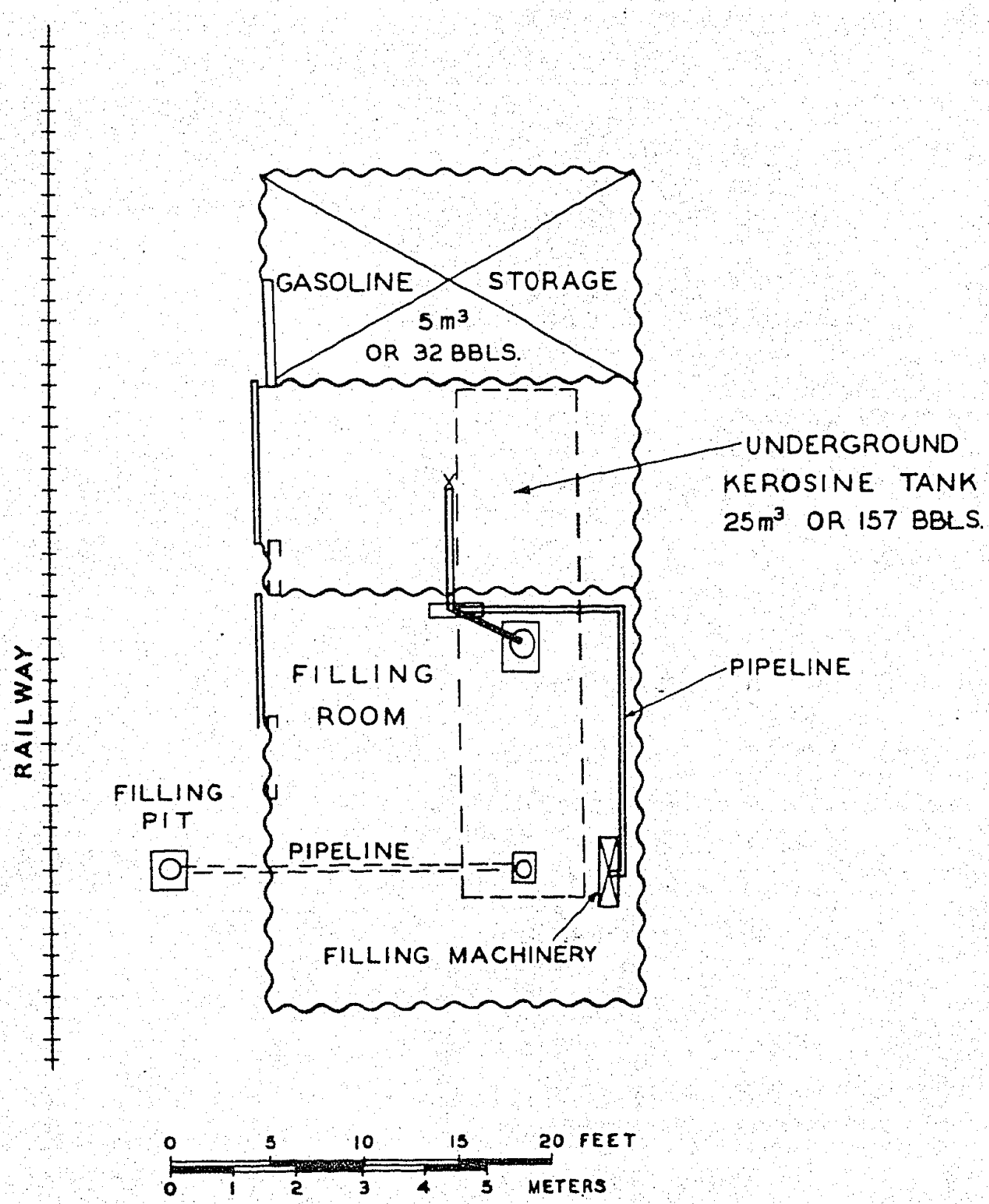
PRODUCT	CAPACITY	OPERATION	H.P.
GASOLINE	100 G.P.M.	ELECTRIC	4
KEROSINE	100 G.P.M.	ELECTRIC	4

ELECTRICAL CHARACTERISTICS

USE	A.C.-D.C.	VOLTAGE	PHASE	CYCLE
LIGHTS	A.C.	220	3	50
POWER	A.C.	220/380	3	50




DELISTRAAT
SPAARNDAMMERWEG
BULK PLANT
TRANSVAALSTRAAT
SITUATION
BULK PLANT
N.V. BATAAFSCHE IMPORT MIJ.
HAARLEM
THE NETHERLANDS
DATE OF PLAN 1932
ADDITIONAL TANKAGE INSTALLED
SINCE THAT DATE:
8 TANKS OF 100M OR 630 BBLS. EACH
4 TANKS OF 75 M OR 473 BBLS. EACH
NORTH SEA
Haarlem
Amsterdam
s-Gravenhage
Rotterdam
Anvers
BELGIUM
GERMANY
THE NETHERLANDS
LOCATION
LUBRICATING OIL ROOM
PACKING ROOM
FILLING ROOM
GARAGE
PUMPHOUSE
OFFICE
FENCE
UNDERGROUND TANK 6 M3 OR 38 BBLS.
UNDERGROUND TANK CAPACITY 30M3 OR 189 BBLS.
FENCE
5 UNDERGROUND TANKS CAPACITY 60M3 OR 378 BBLS EACH
PUMP HOUSING
MOTOR HOUSING
2 UNDERGROUND TANKS CAPACITY 100M3 OR 630 BBLS EACH
N-12

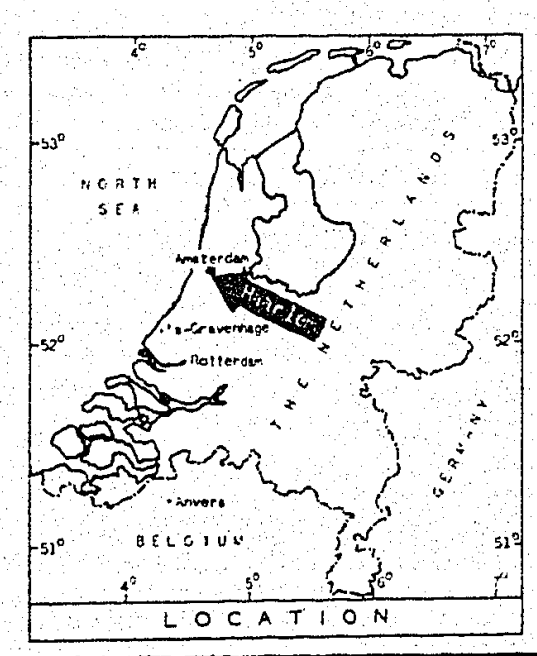


BULK PLANT

N.V. THE TEXAS COMPANY

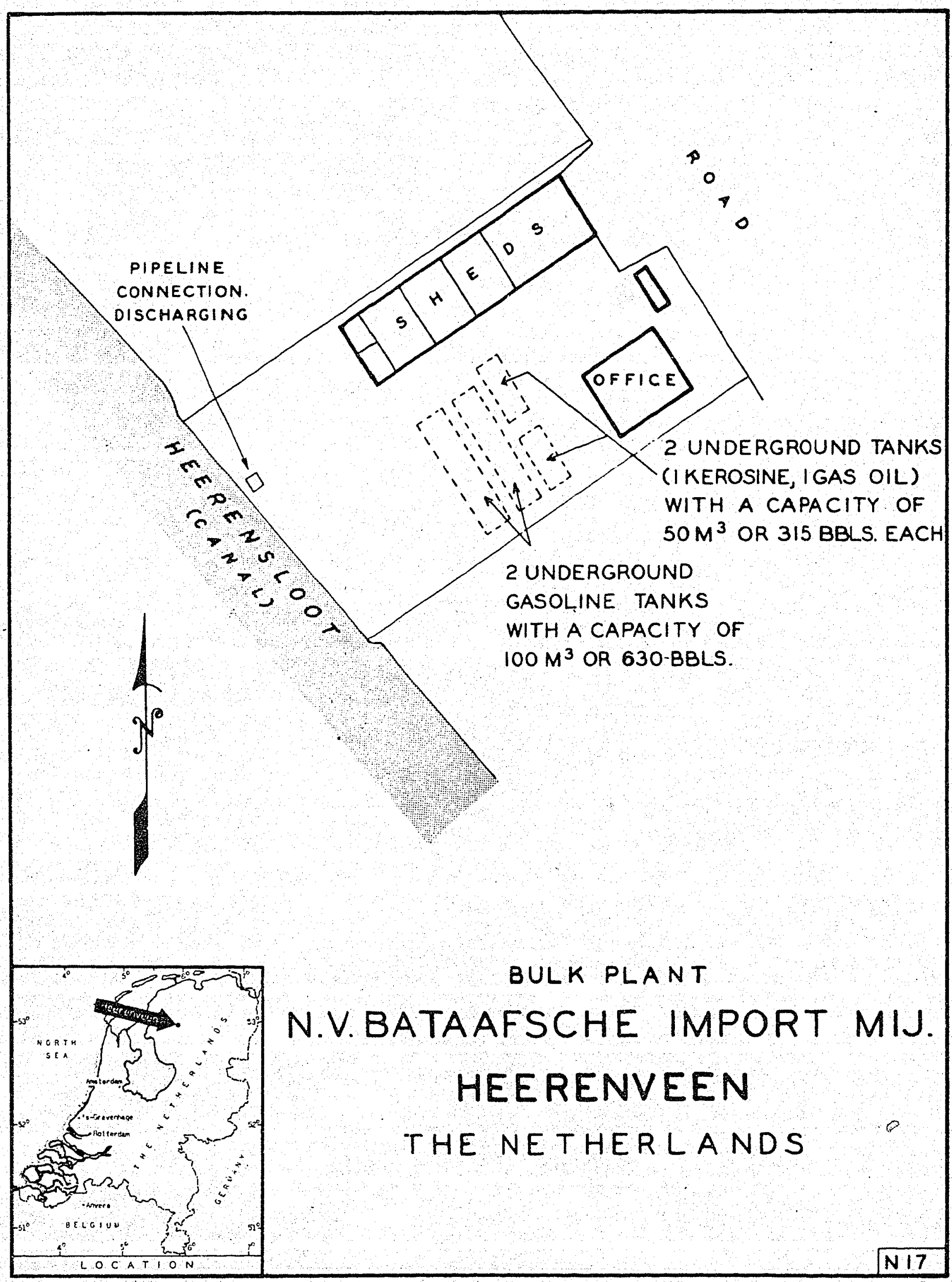
HAARLEM

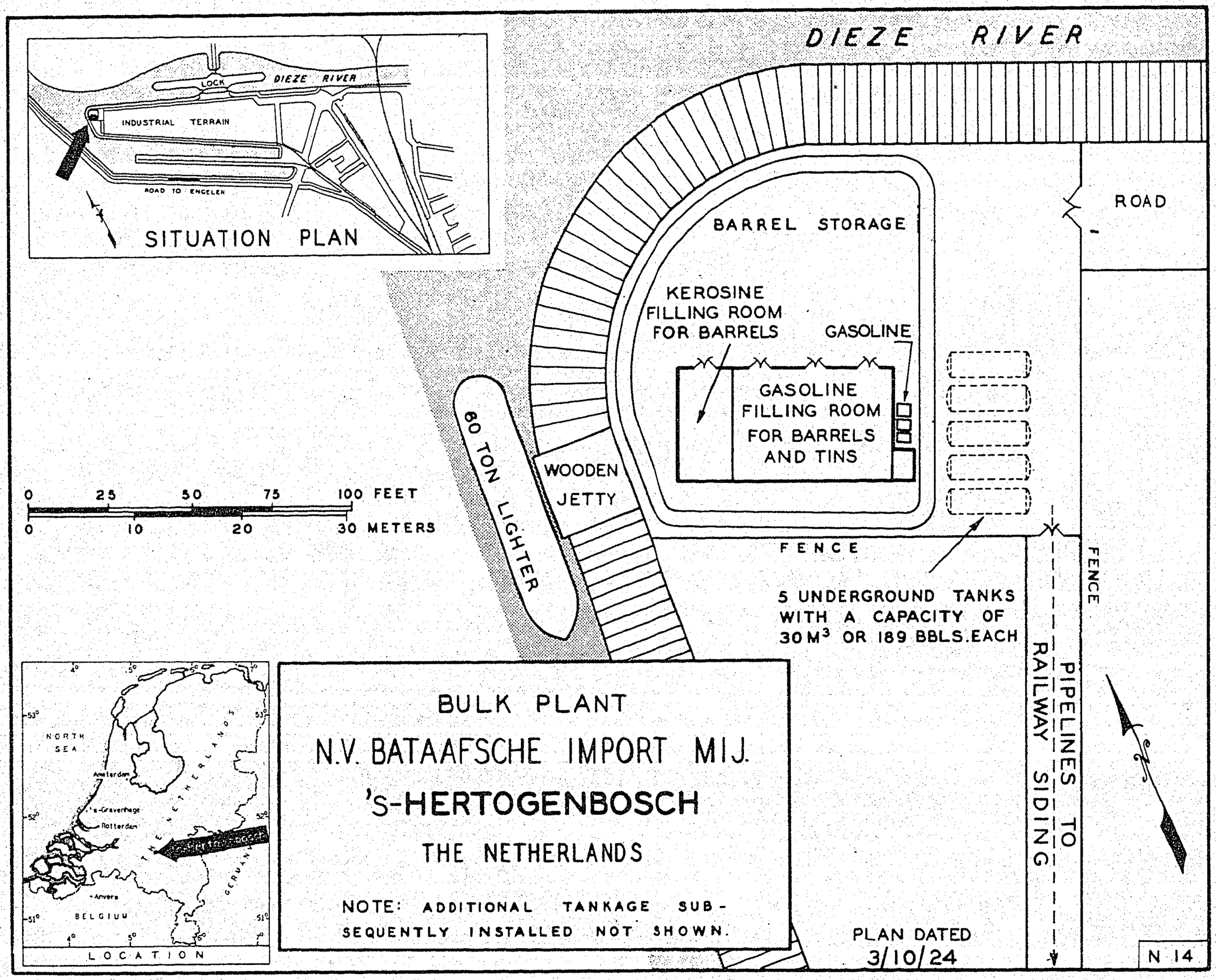
THE NETHERLANDS

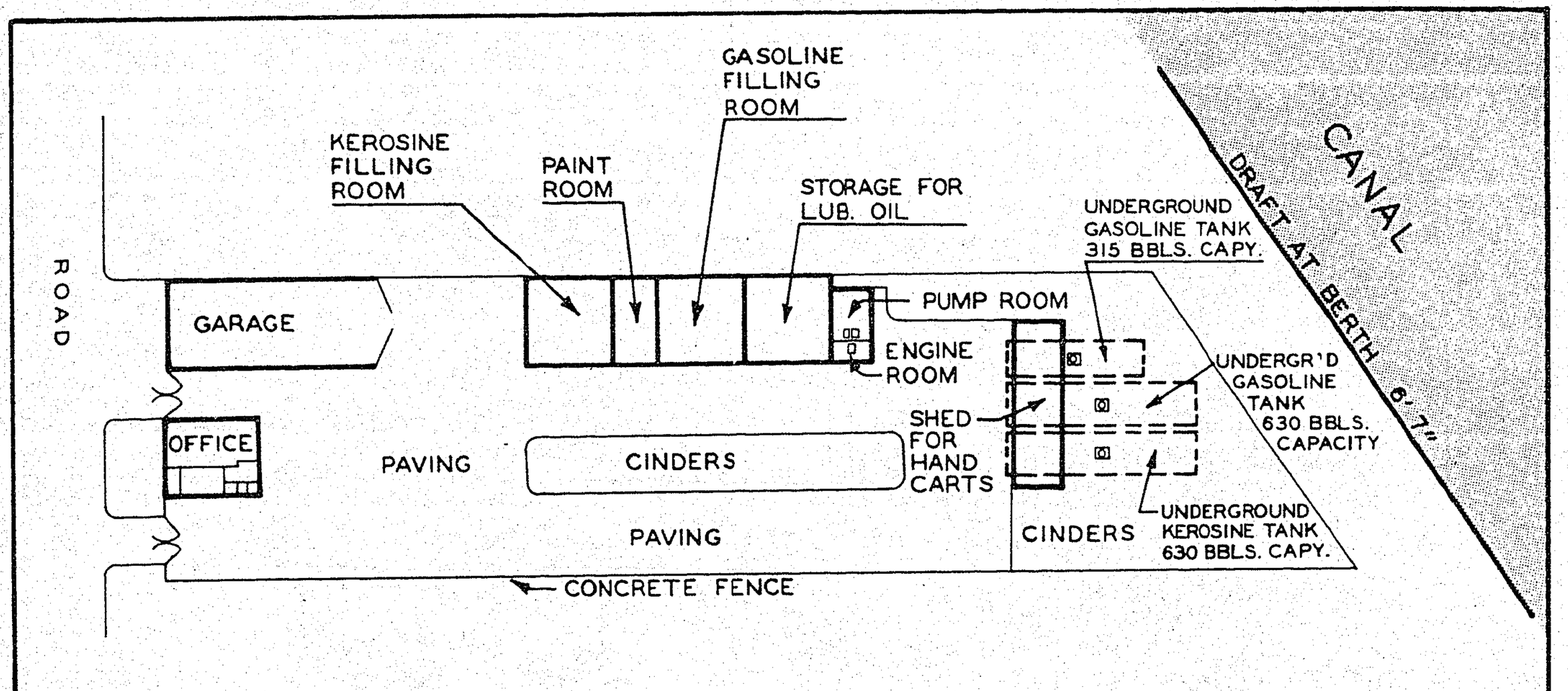


N 26

LEGEND				
PIPELINES				
PRODUCT	SIZE	LENGTH		
KEROSINE	2"	72' 2"		
PUMPS				
1-KEROSINE WINGPUMP, NO.8 HAND OPERATED				
ELECTRICAL CHARACTERISTICS				
USE	A.C. OR D.C.	VOLTAGE	PHASE	CYCLE
LIGHTS	A.C.	220	3	50


ROAD
PIPELINE
CONNECTION.
DISCHARGING
SHEDS
OFFICE
HEERENSLOOT
(CANAL)
2 UNDERGROUND TANKS
(1 KEROSINE, 1 GAS OIL)
WITH A CAPACITY OF
50 M³ OR 315 BBLS. EACH
2 UNDERGROUND
GASOLINE TANKS
WITH A CAPACITY OF
100 M³ OR 630-BBLS.
N
Heerenveen
NORTH
SEA
Amsterdam
's-Gravenhage
Rotterdam
THE NETHERLANDS
GERMANY
Anvers
BELGIUM
LOCATION
BULK PLANT
N.V. BATAAFSCHE IMPORT MIJ.
HEERENVEEN
THE NETHERLANDS
N17


SITUATION PLAN
LOCK
DIEZE RIVER
INDUSTRIAL TERRAIN
ROAD TO ENGELEN
DIEZE RIVER
BARREL STORAGE
ROAD
KEROSINE FILLING ROOM FOR BARRELS
GASOLINE
GASOLINE FILLING ROOM FOR BARRELS AND TINS
60 TON LIGHTER
WOODEN JETTY
0 25 50 75 100 FEET
0 10 20 30 METERS
FENCE
FENCE
5 UNDERGROUND TANKS WITH A CAPACITY OF 30 M3 OR 189 BBLS. EACH
PIPELINES TO RAILWAY SIDING
NORTH SEA
Amsterdam
's-Gravenhage
Rotterdam
THE NETHERLANDS
GERMANY
Anvers
BELGIUM
LOCATION
BULK PLANT
N.V. BATAAFSCHE IMPORT MIJ.
'S-HERTOGENBOSCH
THE NETHERLANDS
NOTE: ADDITIONAL TANKAGE SUB-SEQUENTLY INSTALLED NOT SHOWN.
PLAN DATED 3/10/24
N 14



N 25

LEGEND

PIPELINES

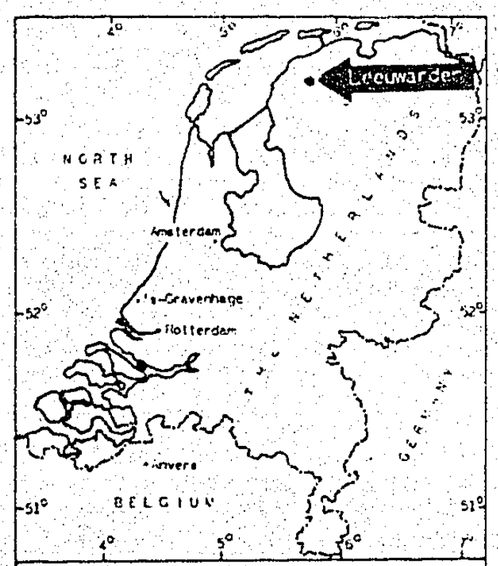
PRODUCT	SIZE	LENGTH
GASOLINE AND KEROSINE	3"	1016' - 5"
	2½"	786' - 11"
	1½"	32' - 10"
	1¼"	491' - 6"
	1 "	737' - 9"

PUMPS

TYPE	PRODUCT	CAPACITY	OPERATION	H. P.
1 DOUBLE UNIT	GASOLINE	100 G. P. M.	ELECTRIC	5
2 PUMPS (BLACKMER)	KEROSINE	100 G. P. M.	ELECTRIC	5

ELECTRICAL CHARACTERISTICS

USE	A.C. OR D.C.	VOLTAGE	PHASE	CYCLE
LIGHTS	A. C.	220	3	50
POWER	A. C.	380/220	3	50

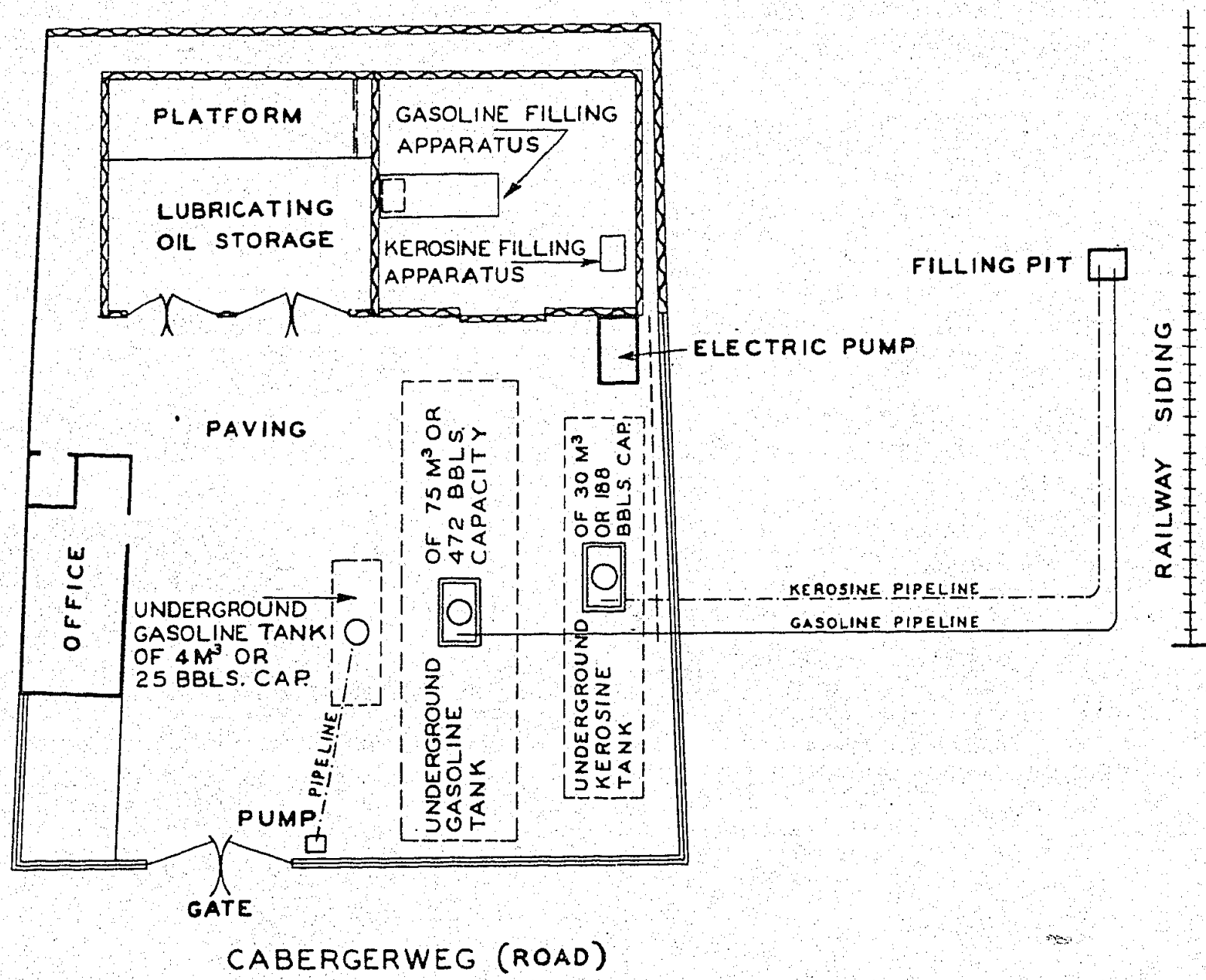


BULK PLANT

N.V. THE TEXAS COMPANY

LEEUWARDEN

THE NETHERLANDS



SCALE

0 5 10 15 20 25 30 FEET

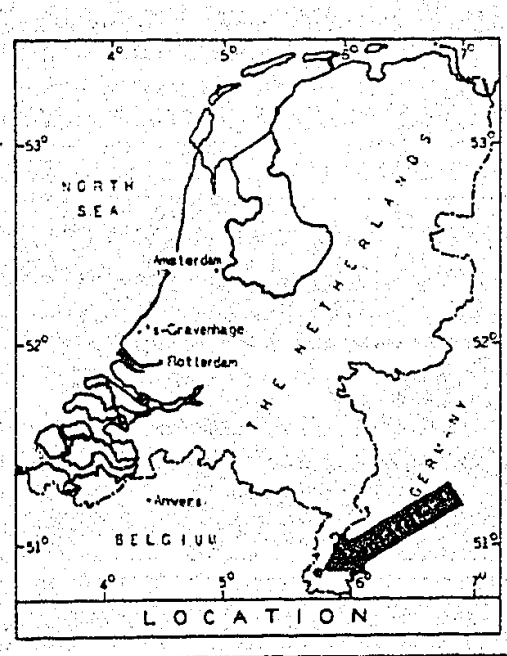
0 2 4 6 8 10 METERS

BULK PLANT

N. V. THE TEXAS COMPANY

MAASTRICHT

THE NETHERLANDS



N-24

LEGEND

PIPELINES

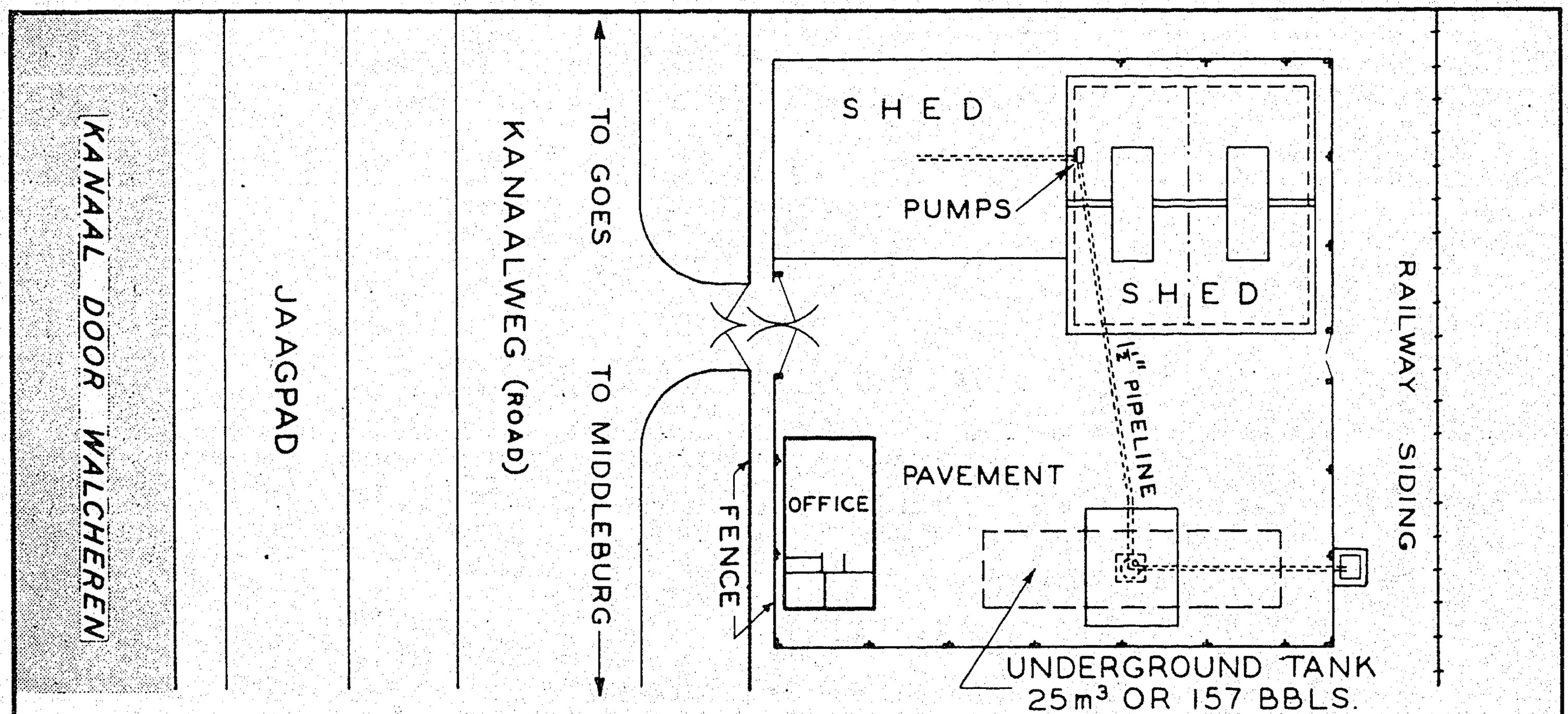
PRODUCT	SIZE	LENGTH
GASOLINE AND KEROSINE	2"	347'-7"
	1¼"	52'-6"
	1"	175'-5"

PUMPS

TYPE	PRODUCT	CAPY.	OPERATION	H.P.
	GASOLINE	50 G.P.M.	ELECTRIC	2
WINGPUMP #8	KEROSINE		HAND	

ELECTRICAL CHARACTERISTICS

USE	A.C.-D.C.	VOLTAGE	PHASE	CYCLE
LIGHTS	A.C.	220	3	50
POWER	A.C.	220	3	50



BULK PLANT

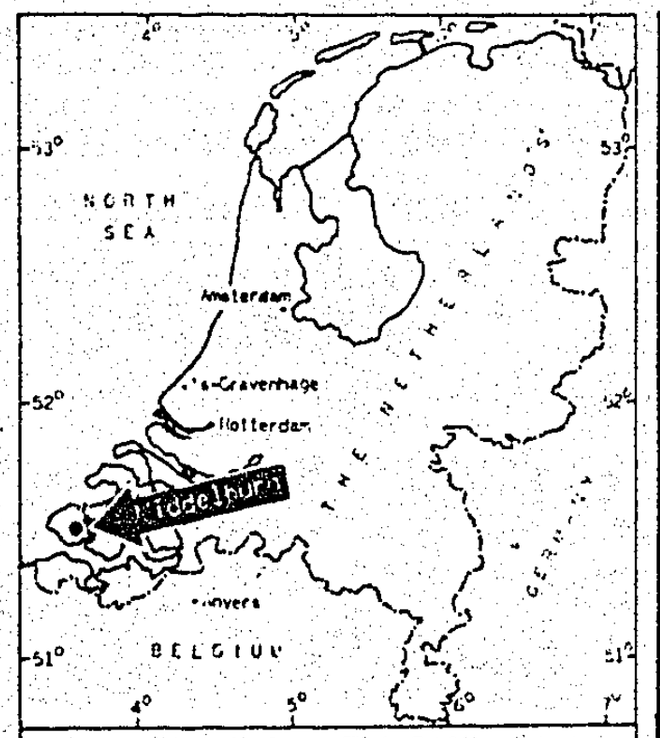
N.V. THE TEXAS COMPANY

MIDDELBURG

THE NETHERLANDS

0 10 20 30 FEET

0 5 10 METERS



N 23

LEGEND

PIPELINES

PRODUCT	SIZE	LENGTH
KEROSINE & GASOLINE	2"	14' 9"
	1½"	65' 7"

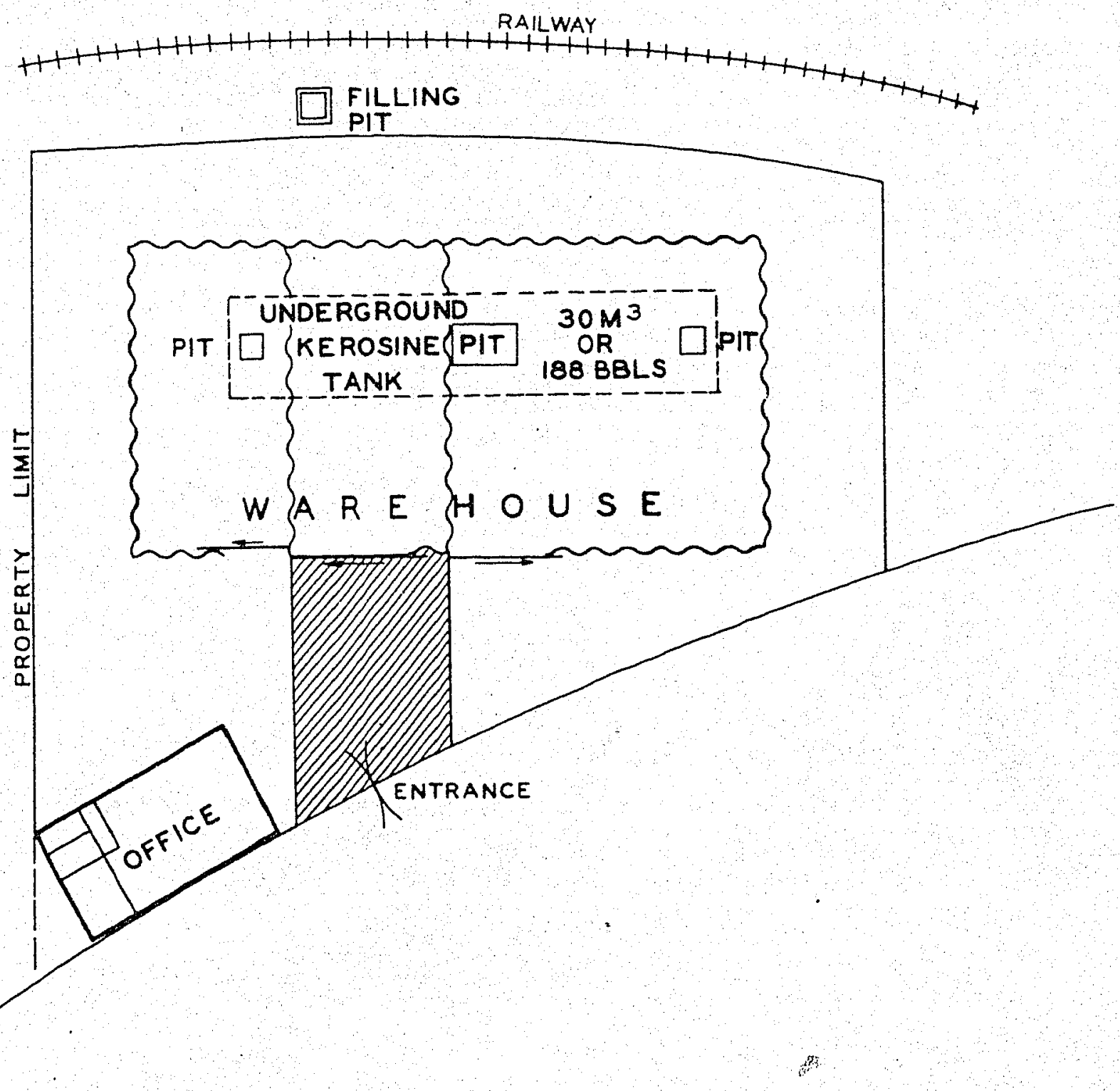
PUMPS

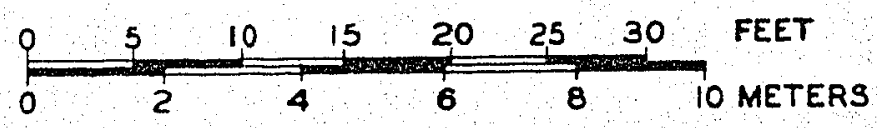
1 - KEROSINE WINGPUMP NO.8 - HAND OPERATED

ELECTRICAL CHARACTERISTICS

USE	A.C. OR D.C.	VOLTAGE	PHASE	CYCLE
LIGHT	A. C.	220	3	50

DISTRIBUTING - 121
Middelburg





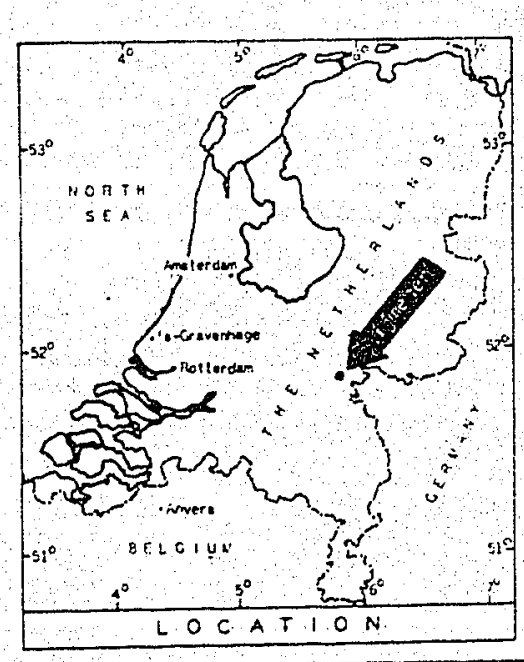
N-22

BULK PLANT

N.V. THE TEXAS COMPANY

NIJMEGEN

THE NETHERLANDS



LEGEND

PIPELINES

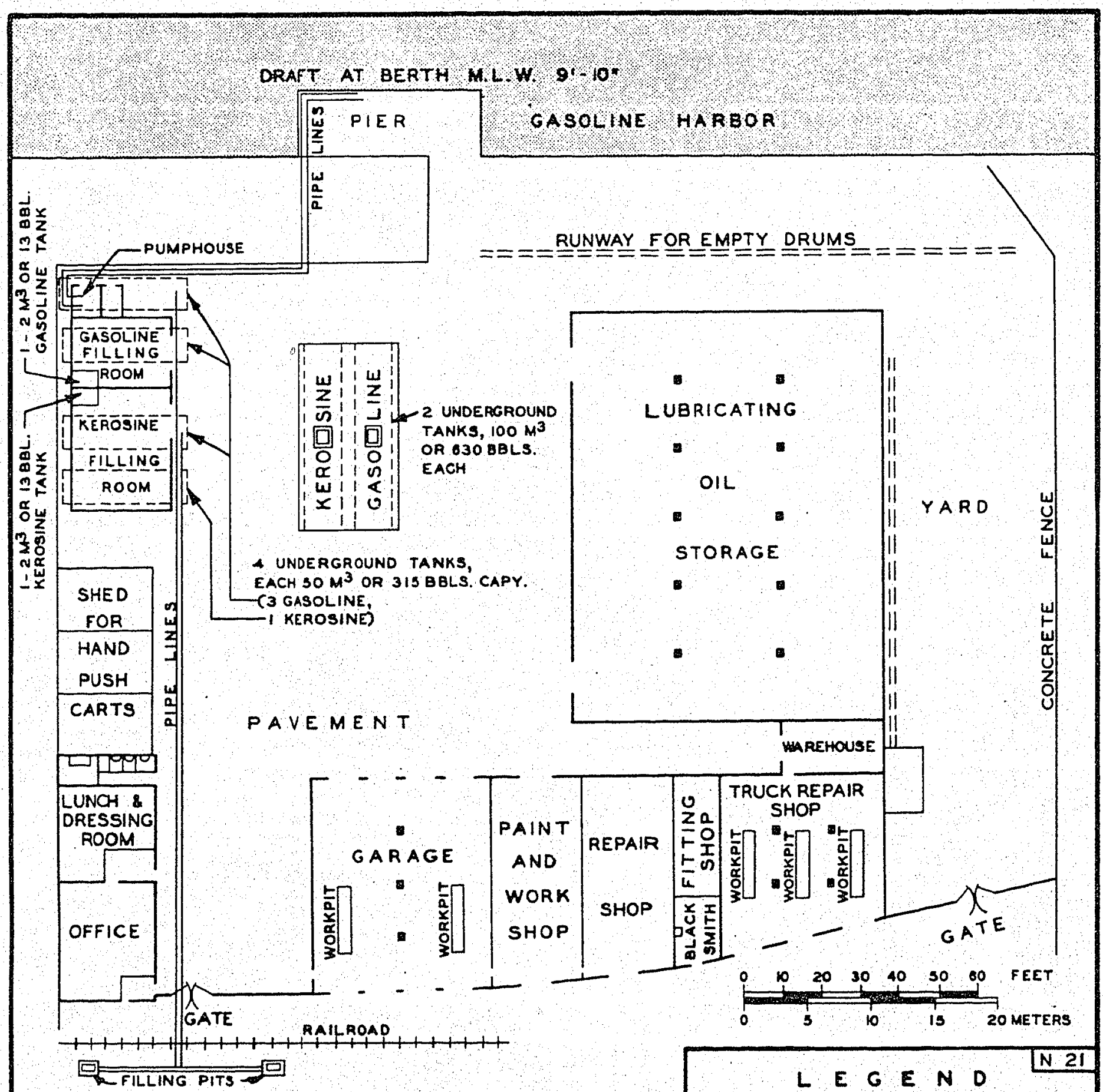
PRODUCT	SIZE	LENGTH
KEROSINE	2"	45'-11"
	1"	16'-5"

PUMPS

1-KEROSINE WING PUMP NO.8, HAND OPERATED

ELECTRICAL CHARACTERISTICS

USE	A.C. OR D.C.	VOLTAGE	PHASE	CYCLE
LIGHTS	A.C.	220	3	50



N 21

LEGEND

PIPELINES

PRODUCT	SIZE	LENGTH
GASOLINE AND KEROSINE	2½"	1278'-8"
	2"	163'-11"
	1½"	262'-4"
	1¼"	65'-7"
	1"	557'-5

PUMPS

TYPE	PRODUCT	CAPACITY	OPERATION	H.P.
1 DOUBLE UNIT OF 2 PUMPS (BLACKMER)	GASOLINE	100 G.P.M.	ELECTRIC	5
	KEROSINE	100 G.P.M.	ELECTRIC	5

ELECTRICAL CHARACTERISTICS

USE	A.C. OR D.C.	VOLTAGE	PHASE	CYCLE
LIGHTS	A.C.	220	3	50
POWER	A.C.	380/660	3	50

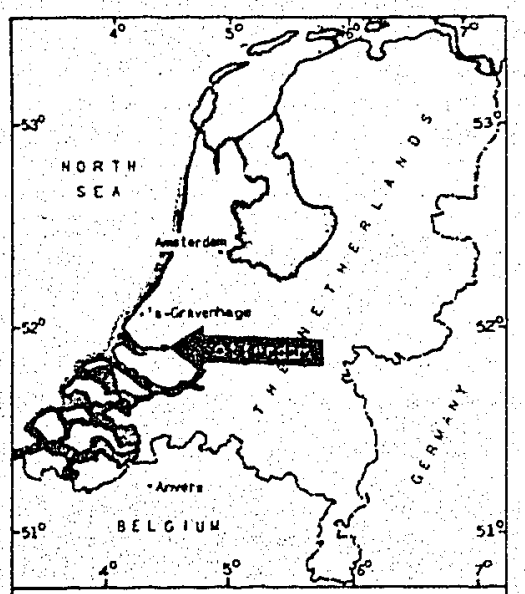
BULK PLANT

N.V. THE TEXAS COMPANY

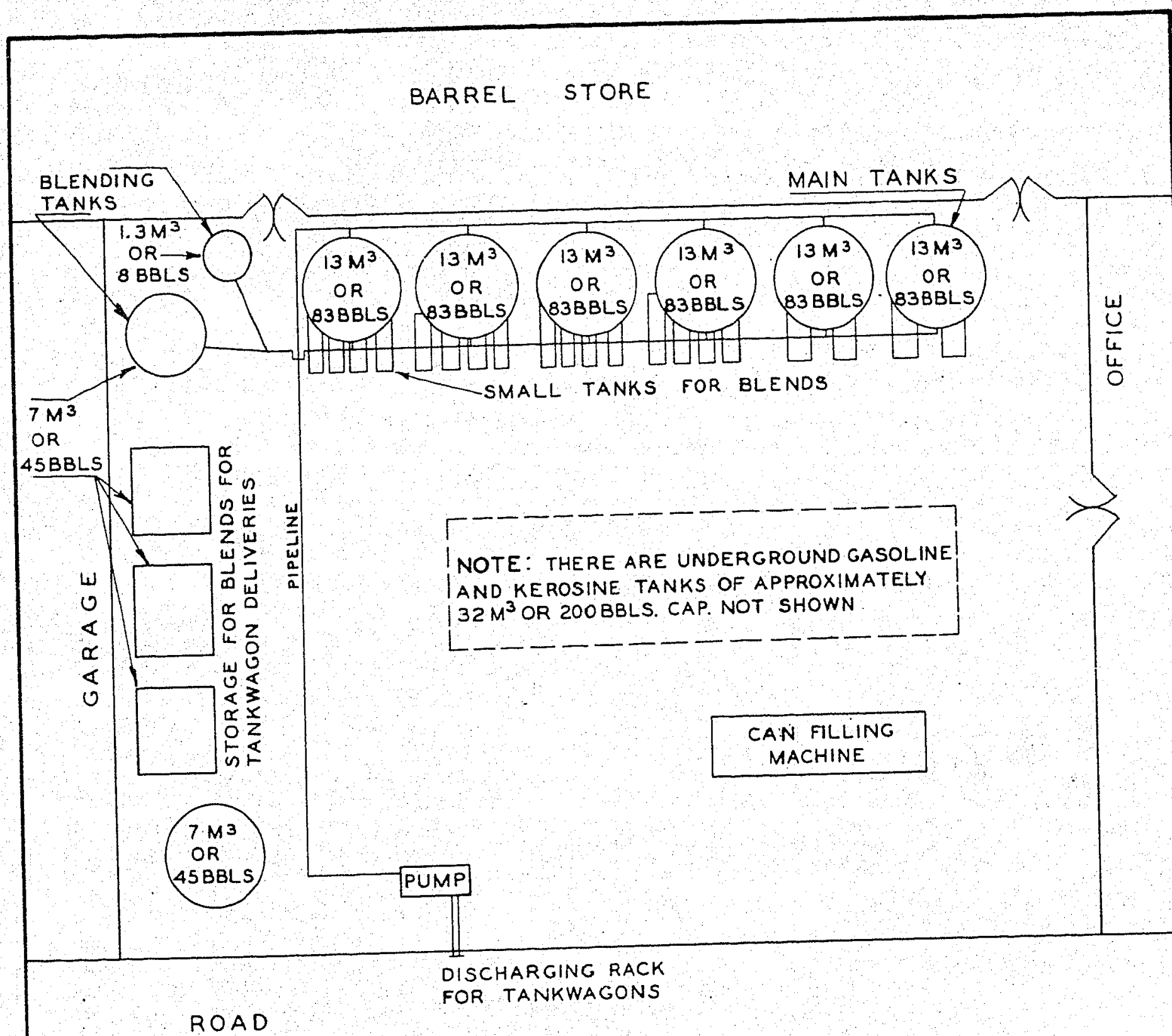
ROTTERDAM

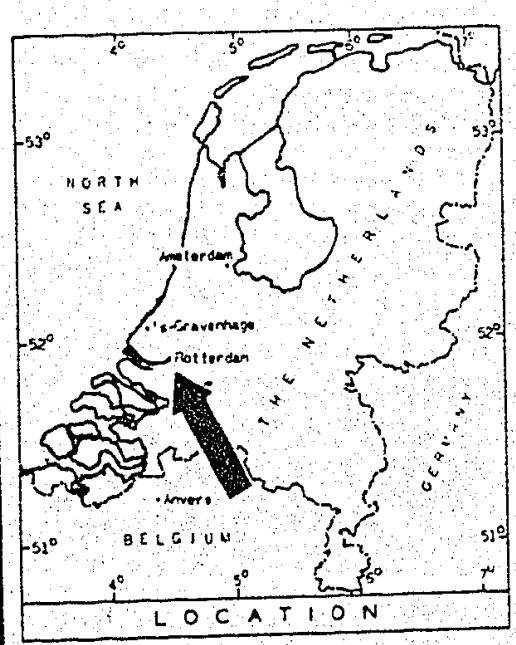
THE NETHERLANDS

ORIENTATION UNKNOWN



LOCATION





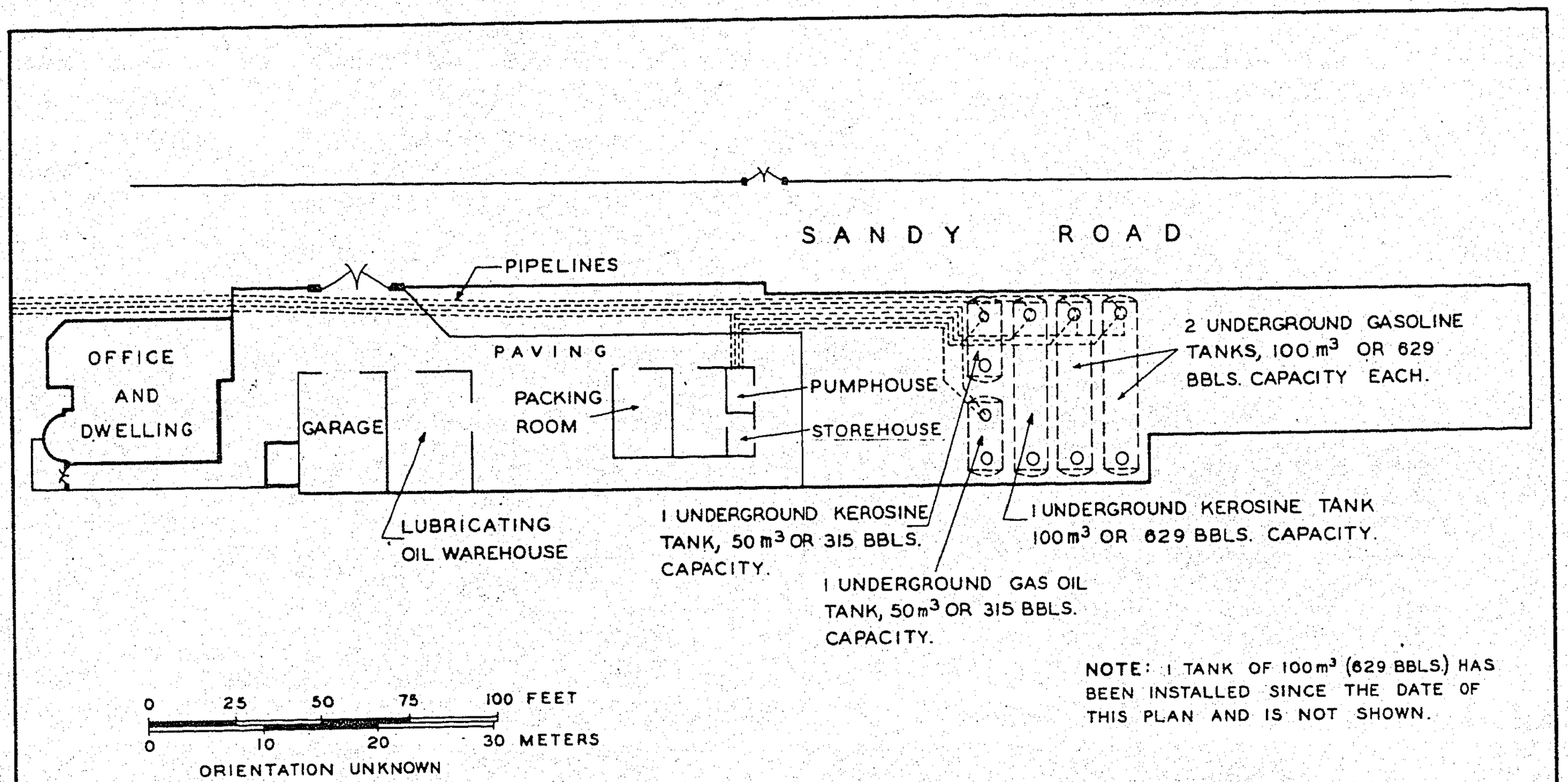
BULK PLANT

N.V. DELUXOL OLIE Mij.

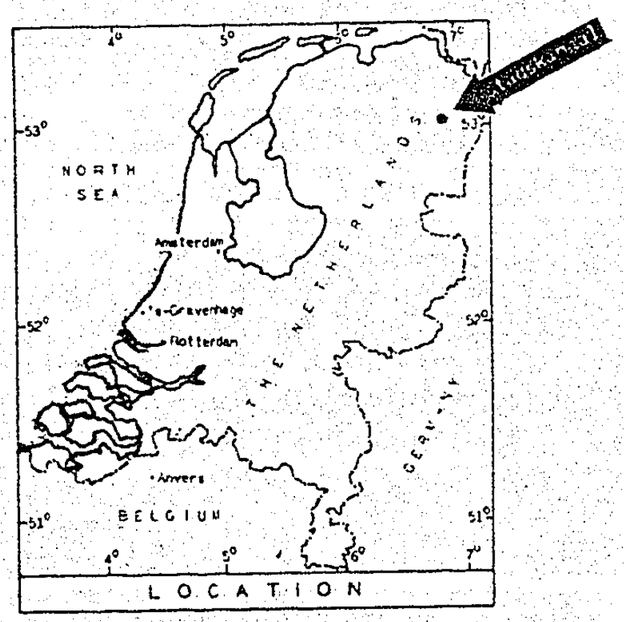
ROTTERDAM

THE NETHERLANDS

N-31



NOTE: 1 TANK OF 100 m³ (629 BBLS.) HAS BEEN INSTALLED SINCE THE DATE OF THIS PLAN AND IS NOT SHOWN.



BULK PLANT

N.V. BATAAFSCHE IMPORT MIJ.

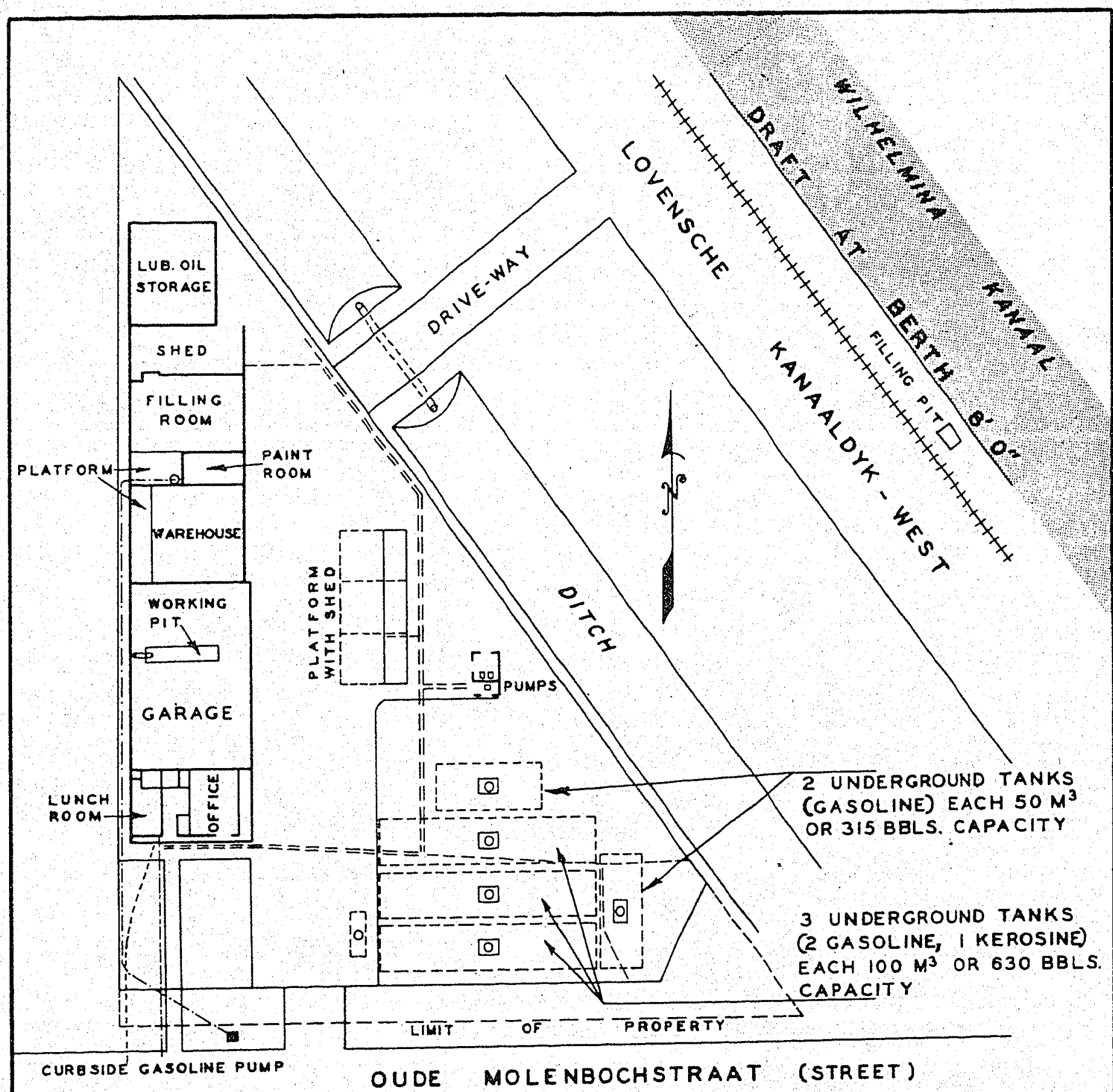
STADSKANAAL

THE NETHERLANDS

PLAN DATED 12/11/29

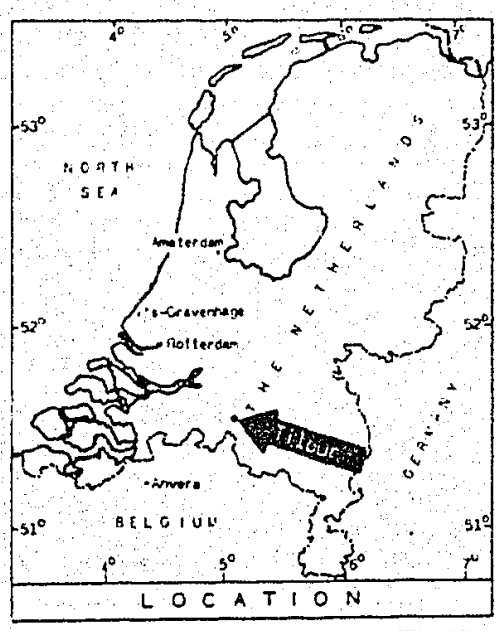
N 15

DISTRIBUTING - 125
Stadskanaal



BULK PLANT
N.V. THE TEXAS COMPANY
TILBURG
THE NETHERLANDS

0 10 20 30 40 50 FEET
0 5 10 15 METERS

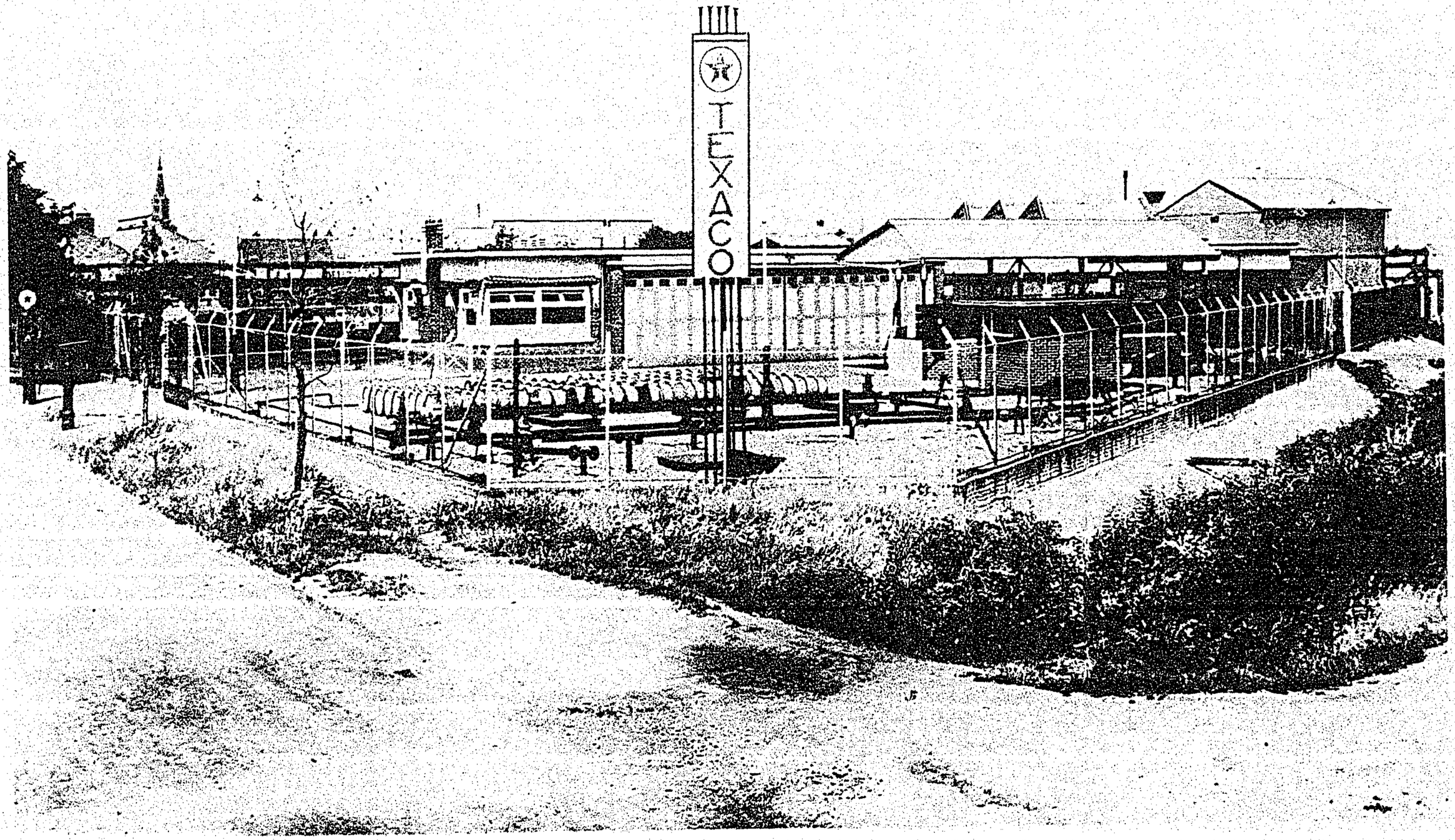


N 20

LEGEND		
PIPELINES		
PRODUCT	SIZE	LENGTH
GASOLINE AND KEROSINE	4"	409' 10"
	3"	590' 2"
	2½"	19' 8"
	2"	65' 7"
	1½"	1039' 4"
	1"	196' 9"

PUMPS				
TYPE	PRODUCT	OPERATION	CAPACITY	H.P.
1 DOUBLE UNIT (BLACKMER)	GASOLINE	ELECTRIC	100 G.P.M.	5
	KEROSINE	ELECTRIC	100 G.P.M.	5

ELECTRICAL CHARACTERISTICS				
USE	A.C. OR D.C.	VOLTAGE	PHASE	CYCLE
LIGHTS	A.C.	220	3	50
POWER	A.C.	380/220	3	50



BULK PLANT (WITH UNDERGROUND TANKAGE), N. V. THE TEXAS COMPANY, TILBURG, THE NETHERLANDS

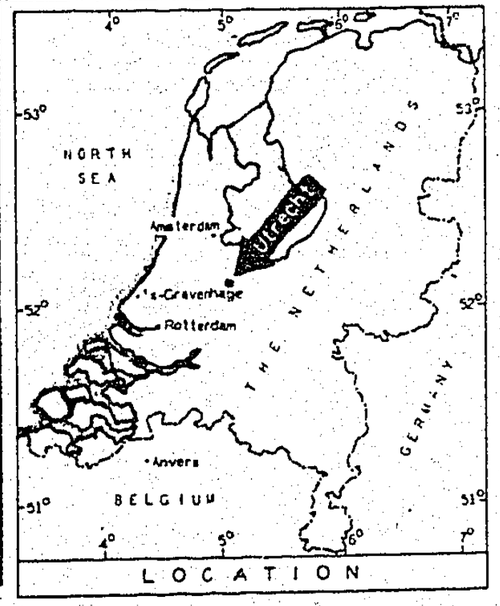
LEGEND

PIPELINES

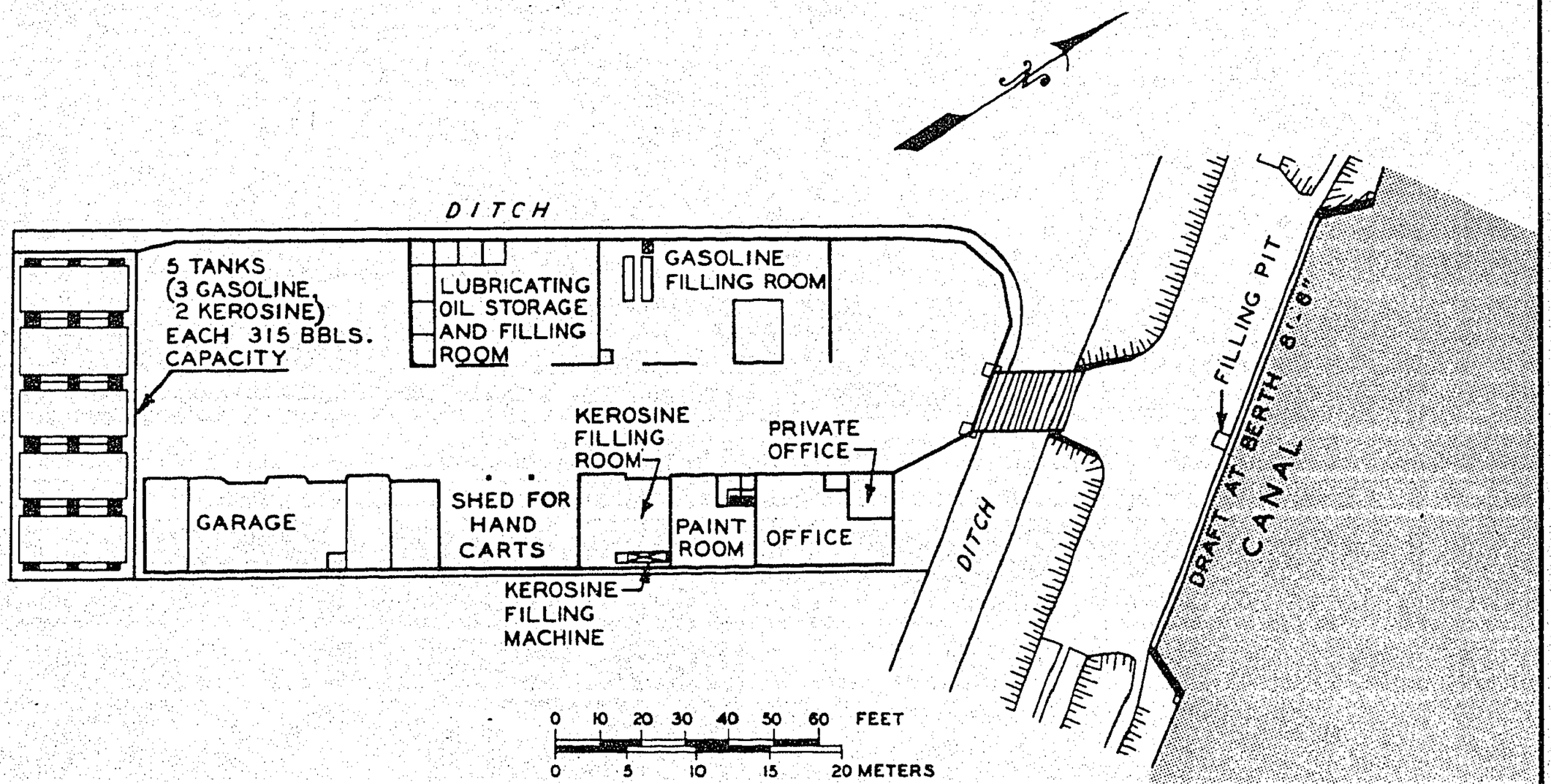
PRODUCT	SIZE	LENGTH	PUMPS
GASOLINE AND KEROSINE	3"	957'-5"	NO PUMPS. GRAVITY FLOW
	2½"	39'-4"	
	2"	134'-5"	
	1"	131'-2"	

ELECTRICAL CHARACTERISTICS

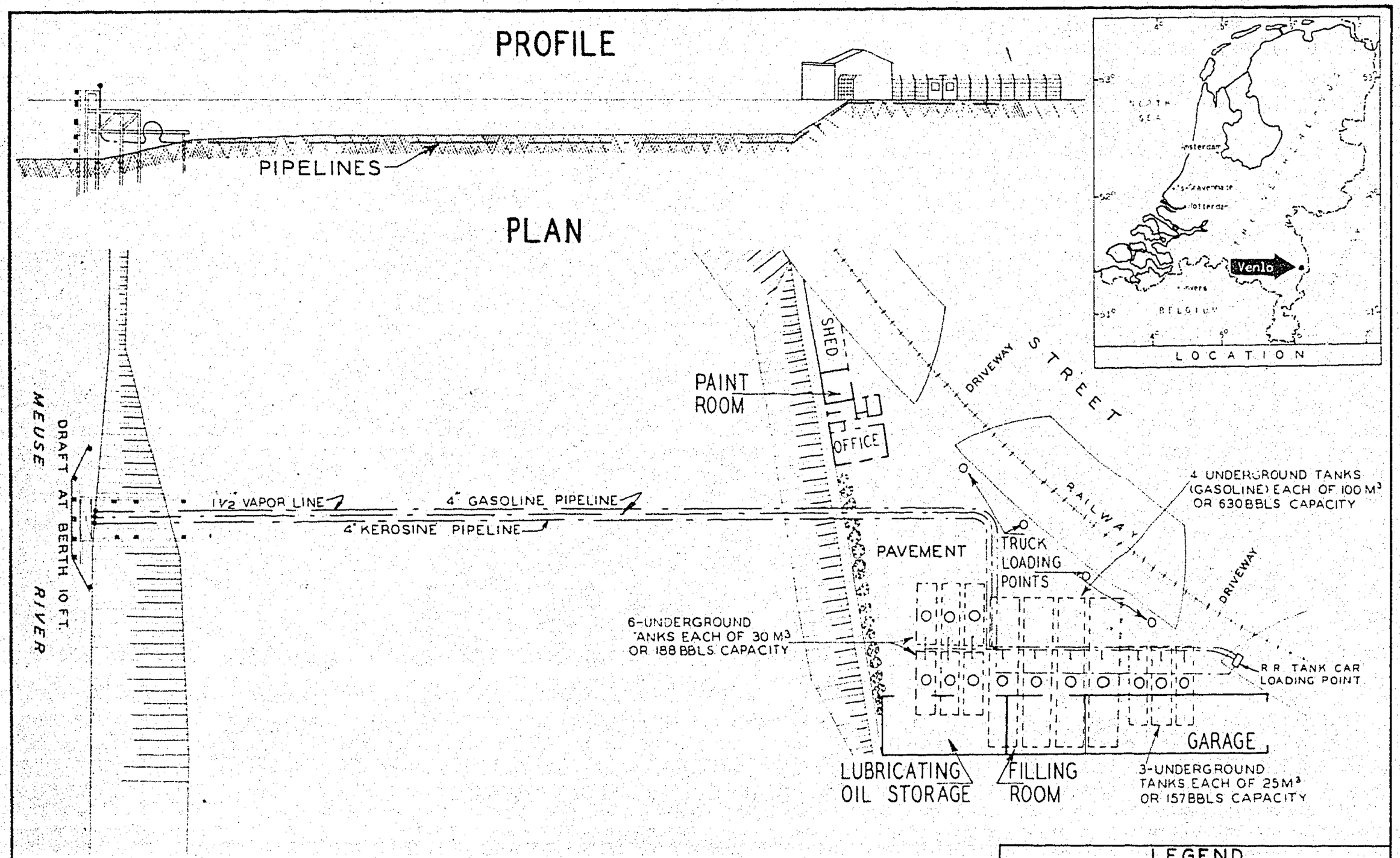
USE	A.C. OR D.C.	VOLTAGE	PHASE	CYCLE
LIGHTS	A. C.	220	3	50



BULK PLANT
N.V. THE TEXAS COMPANY
UTRECHT
THE NETHERLANDS



N-18



BULK PLANT

N.V. THE TEXAS COMPANY

VENLO

THE NETHERLANDS

LEGEND

PIPELINES

PRODUCT	SIZE	LENGTH
GASOLINE AND KEROSINE	4"	1032'-10"
	3"	1557'-5"
	2½"	734'-5"
	2"	819'-8"
	½"	262'-4"
	1"	82'

PUMPS

TYPE	PRODUCT	CAPACITY	OPERATION	H.P.
ONE DOUBLE UNIT 2-PUMPS (BLACKMER)	GASOLINE	100 G.P.M.	ELECTRIC	5
	KEROSINE	100 G.P.M.	ELECTRIC	5

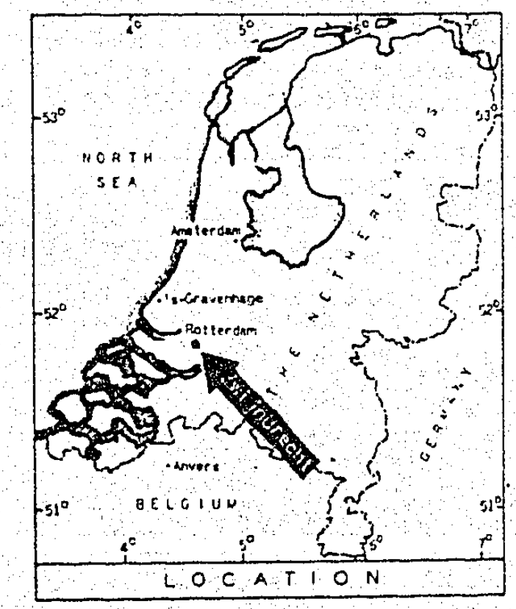
ELECTRICAL CHARACTERISTICS

USE	A.C. OR D.C.	VOLTAGE	PHASE	CYCLE
LIGHTS	A.C.	220	1	50
POWER	A.C.	220	3	50

N-19

OUDE MAAS RIVER

COAL CONVEYOR
BOILER HOUSE
COAL YARD
BOILER HOUSE
OLD REFINERY
ACID PRESSING
ACID WAREHOUSE
STACK
STOREHOUSE
MACHINE SHOP
REFINERY
COKE SILO
GAS WORKS
SEED WAREHOUSE
CONVEYOR BELT
CAKE WAREHOUSE
BARREL YARD
OIL STORAGE
EMPTYING ROOM
PACKING ROOM
PUMP HOUSE
FILLING ROOM
WAREHOUSE
FILLING ROOM
OIL FILLING AND STORAGE
BARREL CONVEYOR
BARREL CLEANING AND REPAIR SHOP
PUMP HOUSE
WATER PUMPHOUSE
WAREHOUSE
PIPELINE BRIDGE
PUMPHOUSES
OFFICE BUILDING
PRESSING DEPT.
SEED BREAKING
CAKE WAREHOUSE
GASHOLDERS
GAS PURIFYING
EXTRACTION BUILDING
11 TANKS OF A TOTAL CAPACITY OF 11,300 TONS
9 TANKS 1200 M³ EACH
12 TANKS 800 M³ EACH
TENNIS COURT



VEGETABLE OIL PLANT
JERGENS' OLIEFABRIEKEN
ZWIJNDRECHT
THE NETHERLANDS

ORIENTATION AND SCALE UNKNOWN

N 32

DISTRIBUTING - 131
Zwijndrecht

APPENDIX 1

CONVERSION FACTORS USED IN THIS REPORT

The conversion factors used in this report are as follows:

Basis.- One metric ton of 1,000 kilograms is divided by the volume of one barrel (159 liters) multiplied by the density of the oil at 60° F. (15.5° C.). This reduces to the factor of 6.3 divided by the density of the oil.

Product	Bbls/Metric Ton
Propane	12.4
Butane	11.0
Natural Gasoline	9.16
Aviation Gasoline	8.5
Motor Gasoline	8.5
Light Aromatics (Benzol, Toluol, and Zylenes)	7.2
Ethyl Alcohol	8.0
Methyl Alcohol	8.0
Kerosine	7.9
Diesel Oil) Gas Oil)	7.2
Lubricants	7.0
Residual Fuel Oil	6.5
Paraffin Wax	7.5
Asphalts	6.0
Synthetics (average)	8.0
All Products (average)	7.5

Conversion factors are of necessity subject to variations from time to time and from place to place. If meticulous accuracy is necessary, conversion factors must be derived from actual specifications.

APPENDIX 2

SOURCES OF PORT AND HARBOR CHARTS FOR THE NETHERLANDS

Navigation charts of the ports and harbors of The Netherlands have not been reproduced in this report inasmuch as qualified persons have ready access to the detailed charts published by the Hydrographic Office, Navy Department, at Washington, and the charts of the British Admiralty. For convenience, references are given here to charts of the principal ports of The Netherlands. In this list H.O. designates Hydrographic Office.

Port	Chart Number	Title
Amsterdam	H.O. 4903	Texel Zeegat
	H.O. 4902	Ijmuiden (Ymuiden) Harbor, Western Entrance of Amsterdam North Sea Ship Canal.
	H.O. 4849	Scheveningen to the Jade River including the West and East Frisian Islands and the Ijssel Meer (Zeider Zee).
Rotterdam	H.O. 4901	River Maas, Hook of Holland, to Rotterdam
Vlissingen (Flushing)	H.O. 4994	West Schelde, Ostend to Westkapelle.

I N D E X