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TRANSLATION

Number 68

2 May 1947

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Prepared By

Documents Branch
CENTRAL INTELLIGENCE GROUP
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D O C U M E N T S B R A N C H

T R A N S L A T I O N

Number 68 2 May 1947

MILITARY TOPOGRAPHICAL STUDY OF THE LOWER REACHES OF THE AMUR RIVER

Prepared by

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SUMMARY OF CONTENTS

Military Topographical Study of the Lower Reaches of the Amur River
(Doc No 256731)

This is a complete translation of text, graphs, charts and maps comprising a detailed intelligence report covering a large area around the lower reaches of the Amur River, including Yakutsk, Khabarovsk and the Northern Maritime Krai.

This document is more of a geographical than topographical study of the area, since it includes information on the industries, inhabitants, communities, climate and natural resources. These elements of the compilation are consistently dealt with from a strategical rather than statistical point of view. The emphasis is not on the mere existence of a situation, but how an existing situation is apt to effect a potential military strategy. The issuing authority and date of compilation are unknown, but in view of certain dates appearing in the text it would seem that the document was completed about the middle of 1944.

Pages 1 through 128

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COMPLETE TRANSLATION

Doc No 256731

MILITARY TOPOGRAPHICAL STUDY OF THE LOWER REACHES OF THE AMUR RIVER

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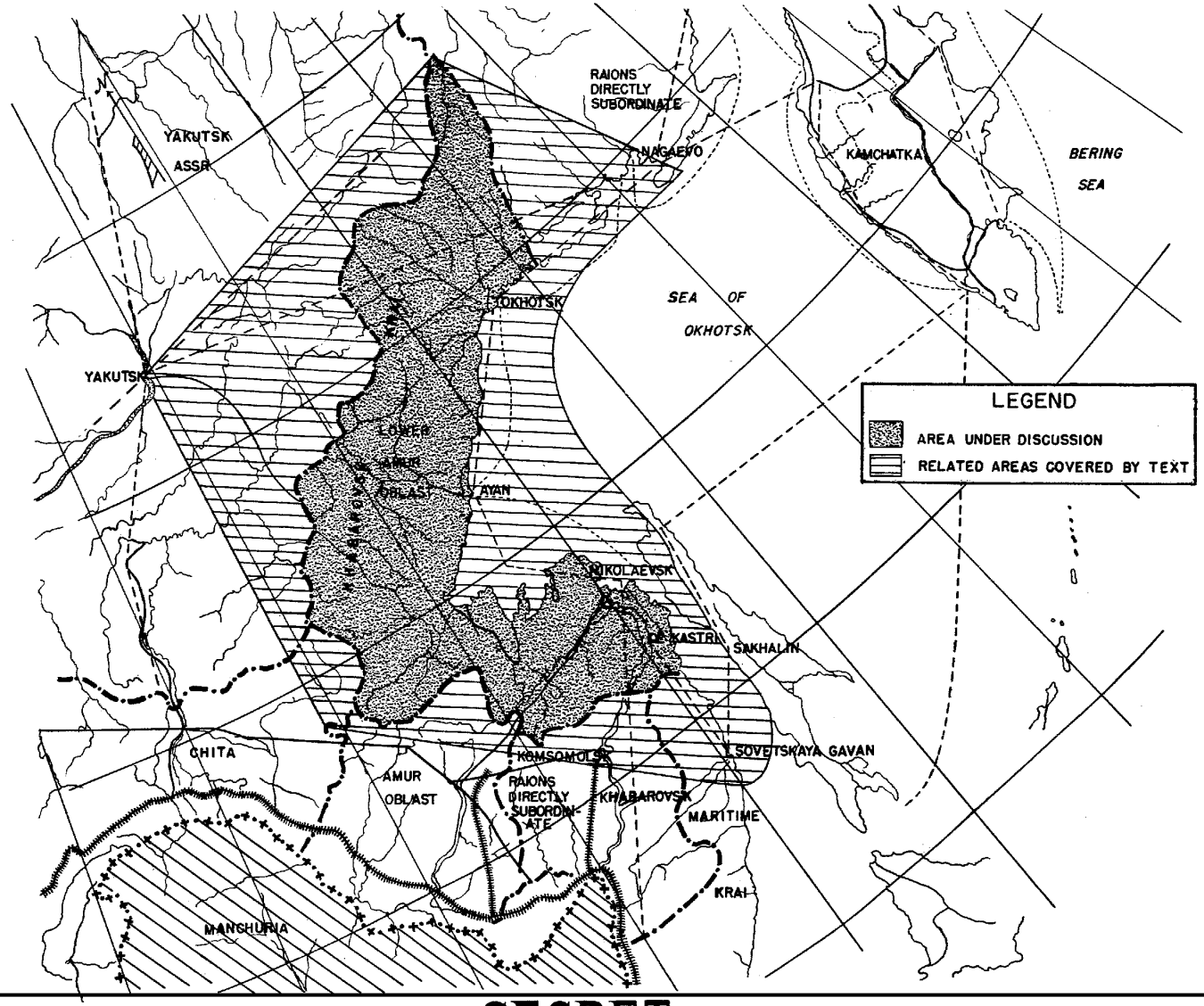
MAP OF THE AREAS INCLUDED IN THE MILITARY TOPOGRAPHICAL STUDY OF THE LOWER AMUR OBLAST



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INTRODUCTORY REMARKS

1. The aim of this book is to record military topographical data (principally operational geography) of the Lower Amur Oblast (Nizhne Amur) including the Maritime Krai north of Sovetskaya Gavan and the surrounding territories of Komsomolsk. It is offered mainly for use in operational preparations by the higher headquarters, as well as for use as an operational guide.

2. To use this book effectively it is advisable to refer to the following publications and maps:

Chart of Reference Books and Maps

Classification	Title	Classification For Handling	Date of Preparation	Authority in Charge of Compilation
Book	Overall Military Topography of Eastern USSR and Outer Mongolia (Part 2--Operational Geography)	Military Secret	May 1942	General Staff Headquarters
Book	Research Data of the Baikal-Amur Railway	Military Secret	Jan 1940	General Staff Headquarters
Book	Military Topography of the Regions of the Districts of the Old Ussuri Province and Khabarovsk (Ilan) Vol III	Military Secret	Distribution expected in near future	
Book	Military Topography of Sakhalin Region	Military Secret	Jan 1941	General Staff Headquarters
Book	Military Topography of Kamchatka Region	Military Secret	Aug 1943	General Staff Headquarters
Book	Military Health Record for Far Eastern USSR	Restricted	Nov 1941	War Ministry
Book	The Influence of Weather on Operations (military) in Far Eastern USSR and the Principal Surrounding Areas	Secret	Jul 1941	General Staff Headquarters
Book	Notes on Winter Operations	Confidential	Oct 1937	Kwan-Tung Army Headquarters
Book	Eastern Coastal Water Routes of Siberia (Vol I, III)	Routine (ordinary)	Jul 1930	Hydrographic Office
Map	1 / 100,000 ------- Military Topographical Map	Military Secret		General Staff Headquarters

Map	1 Geographical and Topo-500,000 graphical Map	Military Confidential		General Staff Headquarters
Map	Military Map of the Far Eastern Regions of the Soviet Union	Military Secret	Aug 1940	Military General Staff

Appendix:

1. There is room for further polishing and revision in the contents of this document and much future investigation must be anticipated.

2. The matters relating to human geography have been taken from "Political, Economic, and Military Topography of the Far Eastern USSR and Outer Mongolia" which is being currently prepared.

Part 1. GENERAL REMARKS

The Lower Amur Oblast, which is a province of Khabarovsk Krai, is a long, narrow region embracing the west coast of the Sea of Okhotsk. Its area is about 579,600 square kilometers (roughly equal to the Japanese mainland excluding Hokkaido and Kyushu). Its population is about 86,000 (in 1939), and barely exceeds 0.15 persons per square kilometer. (Manchuria has over 30 persons per square kilometer).

Almost the whole area is a region of forest-covered mountain peaks, except for the low-lying ground, interlaced with rivers, streams, lakes and ponds, which is to be seen in the Amur River Basin. Communications are on the whole undeveloped, and are known to depend mainly on water transport in the Amur River, and on sea transport. The coastline is regular, and in winter it is ice-bound. Good harbors are scarce; there are a few such as Dekastri, Nikolaevsk, Okhtsk, and Ayan, whose value has been increasing in recent years because of the connections between America and Russia. This has been particularly true of the various ports in the lower part of the Amur River Basin.

In former times this region, ill-favored as it is with a severe climate and located in a remote corner of the globe, had very few permanent inhabitants apart from a small number of aborigines, and there were no industries. Although various industries gradually developed after the first Five Year Plan (1928-1932), their economic value is still not large, except for marine products, forestry and gold-mining.

However, Komsomolsk, which is adjacent to this area has recently been undergoing an extremely rapid development as an industrial city.

Since this area is an important land, sea, and air connection between the central pivotal area of Eastern USSR (the Khabarovsk Krai, Kamchatka and America; and since it forms the outer zone of fortification for the defense of important strategic areas such as Komsomolsk, Khabarovsk, and so on) the Soviet Union has been zealously increasing its defense efficiency since the Manchurian Incident, by fortifying the vital maritime areas and increasing the construction of airfields.

Part 2. STRATEGIC OBSERVATIONS

In this part, various geographic conditions of the Lower Amur Oblast area have been correlated, and observations made concerning matters requiring special attention or careful consideration from the standpoint of strategy. Conclusions have been briefly explained, and since this kind of observation is comprehensive in scope, it is to considered carefully from every aspect, and although this is a mere introduction basing its expositions on a simple tactical and geographic point of view, it is extremely important not to err when using it.

I. SUMMARY

A. Strategic Significance of Lower Amur Oblast Area

As the Lower Amur Oblast is sparsely populated, communications are poor except in the Amur River basin and in the important coastal areas. It has developed cities, and no industries except marine products and forestry.

Though its general economic value is extremely small, the region of the lower reaches of the Amur River has the following important military significance:

1. It is situated in an important position from the point of view of the land, sea, and air communication between Sakhalin, Kamchatka and the American zone.

The region of the lower reaches of the Amur River forms an important base for communication and supply by land, sea, and air with Kamchatka, the coast of the Sea of Okhotsk and the distant American occupied zone of the North Pacific. Further, each of the regions mentioned above, and this region, together encircle our northern flank, comprising a front on which America and Russia could plan strategical cooperation. Accordingly, possession of this area, would make it possible to cut their communications and supply routes and to complicate strategic cooperation on the part of America and Russia by isolating Kamchatka and the coastal region of the Sea of Okhotsk.

2. Komsomolsk and Khabarovsk form a base for offensive operation. They would form a base of operations for an offensive from the Manchurian area, or for sailing up the Amur River from Sakhalin or the Sea of Japan area, or for crossing the Sikhotealin mountain range and striking against its flank and rear.

3. It has naval bases, and its value for operations at sea would be great, particularly after the loss of the Vladivostok area.

Nikolaevsk, De Kastri, and Sovetskaya Gavan are at present used as bases for all kinds of warships and their value would increase particularly after the loss of the Vladivostok area, and should have weightly significance in naval operations.

4. It forms a part of important bases for air attacks against Japan and Manchuria.

Airfields such as those at Nikolaevsk and Sofiskoe have great value as outer fortifications of the Komsomolsk group of airfields, as a base for air attacks on Japan and Manchuria.

(Note): Komsomolsk has great military and economic value as a prominent air base for Eastern Russia, and also as the largest zone of heavy industry in Eastern Russia, since it is adjacent to the Lower Amur Oblast.

Because of its position, the coastal region of the Sea of Okhotsk is important for neutralizing air operations on the northern air route between America and Russia.

B. Strategic Observations on the Topography of the Lower Amur Oblast Region

Since the Lower Amur Oblast region is in general very mountainous and thickly forested and land communications are poor, the principal area for the conduct of operations, even taking into account the strategic significance of this region as explained above, can be limited largely to the Amur River basin, which contains Nikolaevsk, De Kastri, and Sovetskaya Gavan, and to strategic points on the west coast of the Sea of Okhotsk. Moreover, these areas are militarily and economically the pivotal part of this region, and if they were occupied, it would be possible to have a hold on this region.

An operation against the Amur River Basin area could be achieved if the Army Group were to land in strategic points on the coast and then, after rapidly consolidating its hold on that area, proceed upstream along the bank of the Amur River.

Moreover, in view of the special characteristics of the topography, air operations will be valuable, and should prove the deciding factor of the entire operation.

1. Landing Operations

Climatic conditions, such as the freezing or thawing, fog, the condition of the sea, etc., will have a great influence on the period during which landing operations may be conducted. Considering these factors, the most favorable period is August to October; next to this is March to July, while the period from November to February is quite unsuitable.

The landing points will have to be limited to the principal harbors, or the vicinity of the mouths of rivers and so on, because of maneuvers after landing, and the nature of the coast (in this area, in particular, there are often cliffs from 10 to 100 meters high and there are many places where it would be difficult for vessels to land). Basing our observations on these factors, it is clear that Nikolaevsk and its environs, De Kastri, Sovetskaya Gavan, and other areas on the lower reaches of the Amur River are suitable as landing grounds for the main force. Moreover, since there is a fortified zone in each area, as explained above, and since in addition, ships are disposed about the coast (patrol vessels belonging to the North Pacific Detachment and to the Coast Guard Border Patrol), it is necessary to consider these points carefully in advance.

Further, in order to neutralize the northern air route between America and Russia and to achieve supremacy in the Sea of Okhotsk, it would be profitable if Okhotsk, Ayan, and other places were secured.

2. Operations up the Amur River from the coastal region

The route of advance up the Amur River bank from the coastal area (De Kastri to Sovetskaya Gavan) would be the route crossing the northern part of the Sikhote-Alin Mountain Range. There are four principal motor roads: the Chome-Kukla (opposite Nikolaevsk) road; the De Kastri-Chome-Bogorodskoe road; the De Kastri-Sofiskoe road; and the Sovetskaya-Gavan-Komsomolsk road. In winter, it would also be possible to make use of the many sled routes.

Note: In places on the coast of the Sea of Okhotsk, there are no real motor roads, for they amount to no more than small paths suitable only for pack-horses.

3. Operations up the Amur River from the neighborhood of Nikolaevsk toward the region of Komsomolsk

It is possible for ocean-going vessels of 2,000 tons and less to navigate the Amur River from its mouth to the neighborhood of Sofiskoe (to Khabarovsk in the high water period), and the river will accomodate vessels of approximately 400 tons throughout the area in the low water period (middle of June to end of July, and in September and October).

The channel has many branches, and it is difficult to cut them off, except in the vicinity of Sofiskoe where it would be comparatively easy, and it would be advantageous to capture vessels on the river if possible, and use them for supplying the operation.

Although details are unknown concerning the nature of the Amur River bank route (right bank route), it can carry motor vehicles between Kukla (on the coast opposite Nikolaevsk) and Mariinskoye, and in part, between Mariinskoye and Komsomolsk. However, the greater part of it is considered a provision-wagon route, and as there are many areas of damp ground, lakes, ponds, and so on, considerable construction work would be necessary to enable it to carry motor vehicles. Moreover, it is necessary that special care be taken in the operation as there is the small Amur River Fleet on the Amur River, and it is extremely important for this operation to neutralize it.

4. Air operations

The Sofiskoe airfields and those in the environs of Nikolaevsk form the outer defenses of the Komsomolsk groups of airfields and have great value for air operations. (The leading air bases of Eastern USSR are very valuable for joint American-Soviet operations. However they are comparatively distant from our sphere of influence, and it would be difficult to mount an offensive operation against them by a joint fighter and bomber force. In addition the land communications are scanty and much time and difficulty would be involved in attacking them by a land operation.) It is increasingly true that the success or failure of air operations in this area will have great significance in deciding the trend of the entire operation.

The effect of weather on the time of operations is comparatively slight, and, on the whole, they are possible throughout the year; but the most suitable period would be from August to October.

From the point of view of topography there is a lack of suitable ground for airfields. Low-lying areas are usually, swamp, tundra, and posses other obstacles, and in all cases a good deal of work would be necessary for their establishment.

It would be possible to use the Amur River and the lakes, ponds, etc., in the vicinity as seaplane bases.

5. Winter operations

a. Since the minimum mean temperature (surface) in this region is 20 to 25 degrees below zero, winter operations would be hindered considerably, but if equipment were perfected, the execution of operations should be possible.

b. Since the coastal waters are usually ice-bound for a distance of about 45 to 75 kilometers offshore except between Sakhalin and the mainland, operations over the coastal ice should be possible.

The gulf of Sakhalin and the Tartary Straits, lying between Sakhalin and the continent, are ice-bound in winter (December to April), and from January to March in particular the ice is in good condition. If Sakhalin were secured, an operation over the ice from there to the continent would be possible.

c. On the land, the period of freezing depends on the locality, but is generally from December to April. During this period, rivers, lakes, ponds, damp ground, tundra, and so on, are all frozen and transit is possible. Clumps of vegetation which are found throughout the marshes, tundra, etc., would constitute the principal obstacle to movement.

II. LANDING OPERATIONS

A. Time

1. The most advantageous time will depend on sea and weather conditions. The best weather is from August to October, and the next best is from March to July. The period from November to February is quite unsuitable.

2. Natural obstacles to landing

a. Freezing and thawing

Though irregular depending upon the locality, the following list gives the general periods of freeze and thaw:

Location	Freezing	Thawing
Sovetskaya Gavan	End of November	Middle of April
De Kastri	Beginning of November	End of April

Nikolaevsk	Middle of November	End of May
Okhotsk	Beginning of November	April

Note: See Supplement No. 1, "Basic Study of Landing on Icebound Coasts."

b. Fog

GENERAL	REGIONAL DIVISIONS	
	Tartary Gulf Region	Sea of Okhotsk Region
Much fog from March to August, especially in June, when there are more than 10 days.	1. Much fog from May to July because of the easterly wind. 2. Rarely covers the whole area. Most fog appears at the confluences of rivers. 3. Particularly frequent during first few hours after sunrise.	1. Much dense fog in May and June. 2. Forms during night and at sunrise, disappears two to four hours after sunrise.

c. Storms

Coastal region of the Gulf of Tartary	Coastal Region of the Sea of Okhotsk
Many southeasterly winds. From September on, even though there are strong northwest winds, severe inland storms are unusual.	Throughout the year the wind is light. Wind speed is 4-6 meters per second in winter and 3-4 meters per second in summer.

B. Landing points

1. The Gulf of Amur is shallow with scattered sand bars, and there are few obstacles in the channels leading to the landing points. The minimum depth being 4 or 5 meters, ships up to 2,000 tons can be accomodated.

2. The following data on coastal conditions and principal routes of advance after landing will be of primary interest in considering landing points. It will also be necessary to pay attention beforehand to the possible existence of fortified zones and warships.

Location	Existence of Routes for Advance	Conditions of the Coast	Military Forces and Installations which must be considered
Sovetskaya Gavan	There is a motor vehicle road to Komsomolsk.	Zapadnaya Bay has sandy beaches suitable for landing.	Fortified area. North Pacific Detachment Base. Bases for land and seaplanes.
De Kastri	There is a motor vehicle road to Sofiskoe and a motor vehicle road to Bogorodskoe via Chome.	Cliffs surrounding the bay are 20-80 meters high. There is suitable landing place of 500-600 meters midway between Spaseniya Point and Ores Point.	Fortified area. Submarine and motor torpedo boat bases. Bases for land and seaplanes.
Vicinity of Nikolaevsk	Provision wagon road between Vlasyevo and Nikolaevsk.	Low sandy ground with dense growth of shrubs and grass. Easy for boats to land.	Fortified area. Submarine and motor torpedo boat bases. Bases for land and seaplanes.
	There is a motor vehicle road between Lva Tolstogo and Nikolaevsk.	In the vicinity of Lva Tolstogo are many cliffs, but there are suitable landing places to the east and west.	
	Motor vehicle road between Pronge and Mukla on the coast opposite Nikolaevsk.	Much sandy beach near Pronge Point, except at the cape, landing easy.	
Ayan	A pack-horse road leads to Yakutsk.	Sandy beaches in the bay. Suitable for landing but there are cliffs on the north and east facing the sea of Okhotsk.	Seaplane base.
Okhotsk	A pack-horse road leads to Yakutsk and Nyaevo.	The greater part of the roadstead is sandy beach. Easy to land everywhere.	Seaplane base.

Notes:

1. There are Guard Unit boats at important coastal points (they belong to the Coastal Border Guard Unit.)

2. Also in this area is one part of the Pacific Fleet (the North Pacific detachment) and one part of the North Army Group (HFIDAN). (For details see "Tables of Disposition of Soviet Troops in Eastern Russia,")

Note: See Suplement No 1, "Basic Study of Landing on Ice-bound Coasts"

III. STRATEGY OF ADVANCE FROM THE COAST TO THE BANKS OF THE AMUR RIVER

A. Conditions of the Routes of Advance from the Landing Points to the Banks of the Amur River

The nature of the routes of advance in this area is not clear but since most of the motor vehicle roads traverse mountains and swampy ground, they require considerable repair.

The roads run through a mountainous region of dense forests. Movement off the roads is difficult without special equipment.

1. Roads crossing the northern part of the Sikhote Alin mountain range:

Route	Type of Road	Influence of Weather	Amount of Military Force
Sovetskaya Gavan-Komosomlsk	Motor Vehicle	Apparently can be used all year as a motor road (accuracy B)	1 Strong Group (HFIDAN)
De Kastri-Sofiskoe	Motor Vehicle	Can be used all year as a motor road from De Kastri to Kizi. West of Kizi the ground is swampy. Repair materials can be found in the forests on both sides of the road.	1 Group (HFIDAN)
De Kastri-Chome-Bogorodskoe	Motor Vehicle	The condition of the road is not clear but apparently it is passable by motor vehicles.	1 Detachment
Chome-Kukla (Coast Opposite Nikolaevsk)	Motor Vehicle	Generally appears good for motor vehicles.	1 Group (HFIDAN)

2. Route of Advance to Nikolaevsk

Route	Evaluation	Change of Weather	Amount of Military Strength it can sustain
Pronge-Nikolaevsk	Motor Vehicle	Appears generally good for motor vehicles.	1 Detachment
Lva Tolstogo-Nikolaevsk	Motor Vehicle	Military road	1 force (BUTAI)
Vlas Yevo-Nikolaevsk	Transport Vehicles	Good sled road in winter	1 force (BUTAI)

B. Facts to be Considered in Regard to Organization and Equipment

1. It is necessary that the organization of units be made up according to the conditions of the roads and topography, and the best possible use be made of pack-horse units. Engineer and signal communications organization should be increased and strengthened. The numbers of automatic weapons and mortars should also be increased.

2. From October through May it is best to carry equipment against the extreme cold and even during the rest of the year a winter overcoat is advisable. Since there are few towns and villages, cold-proof tents are necessary. Anti-mosquito equipment is necessary in summer, because of numerous noxious insects. Moreover it is well for units to carry a number of entrenching and forest tools.

3. It is extremely difficult to anticipate supply from the land itself since local production is slight, particularly in grains; hence supply facilities will have to be increased as much as possible, and since the bad roads will create many difficulties, it will be necessary to supplement supplies by air.

a. Though local forests will furnish fuel, it will be necessary to have fuel-gathering squads.

b. It would be difficult to obtain vegetables and staples locally, but since there are many kinds of fish in river and coastal waters, some secondary food could be self-supplied if fish nets and gear are carried.

C. Facts Which Must be Considered in Relation to Operations Movements

1. Because the forests in the greater part of this area, especially the silver firs, are readily subject to forest fires before they bud (in March and April), precautions must be taken against enemy bombings and artillery fire. Fire appears to spread at a speed of about 6 kilometers per hour.

2. Movement is difficult except on the principal roads, especially in the area where they cross the northern part of the Sikhote Alin Mountain Range. Many parts of the roads being long and narrow, it is very likely that resistance from enemy infantry will be encountered.

3. The variation between night and day is great. From June through August daylight is very long, lasting 17 to 19 hours. From the end of May to the middle of July there is twilight all night (the so-called "perpetual twilight" which can be utilized for operations is generally about one-third of this). In winter, on the other hand, daylight is not over 5 to 7 hours.

Accordingly, a force operating in this area must give careful consideration to selecting time of night movements, dawn attacks, etc.

IV. OPERATION UP THE AMUR FROM THE NEIGHBORHOOD OF NIKOLAEVSK TO THE KOMSOMOLSK REGION

A. The Condition of the Amur channel (principally between Nikolaevsk and Khabarovsk. For details See Annex No 5).

1. High-water Season: mid-May to early June, and late July to early September.

2. Low-water Season: mid-June to late July, also September and October.

3. Minimum depth: 2 meters.

4. Velocity: 1.5-3.0 kilometers per hour.

5. There are lighted beacons in all districts and channel facilities are complete.

Ocean-going ships up to 2000 tons can navigate the channel between Nikolaevsk and Sofiskoe (from Sofiskoe to Khabarovsk navigation is possible only during the high-water season.)

6. Obstacles: The periods of freeze and thaw and the heavy fog which occurs from early dawn to daybreak in September and October usually hinder navigation. In violent winds large waves also hinder navigation.

7. The freeze-up during the winter season (December to March) permits passage on the ice.

B. Cutting the Amur

The Amur is very wide with numerous sand bars and many forks. When the course markers are destroyed, navigation becomes difficult. It is considered that the vicinity of Sofiskoe where there are few branches to the channel, is the most suitable point for cutting the Amur.

C. Operational Routes along the Amur Channel

Although details are unknown as to the nature of the road along the right bank of the Amur, between Kukla (opposite Nikolaevsk) and Mariinskoye, it is considered to be a motor road. A part of the road between Mariinskoye and Komsomolsk will carry automobiles and transport vehicles can traverse most of it. Many marshes, lakes and ponds occur in the area so that considerable work would be necessary to make it passable for automobiles.

Note: It has been reported by the intelligence that part of the road between Nikolaevsk and Komsomolsk has a completed railway roadbed. If this is true, this road will serve as an operational route.

D. Tributaries of the Amur

On the Amgun River, upstream navigation is possible for small craft as far as Kerbi (Poliny Osipenko) and together with the transport vehicle road, which runs along the bank, this serves as an operational road in advancing toward the Ust-Umalta regions.

E. The Small Amur Fleet

The base at Kirov (north of Khabarovsk) maintains about 90 vessels: gunboats (HŌKAN), light gunboats (HŌTEI), high-speed torpedo boats, etc. The neutralization of this is very important in an operation.

Note: Organization of the small Amur fleet (bases on "Table of Disposition of the Soviet Army in the Faster USSR").

Gunboats (HŌKAN)	900-ton	7
	500-ton	1
	400-ton	6
	300-ton	5
	200-ton	2
Gunboats (HŌTEI)		about 40
High speed torpedo boats		about 20
Mine-layers and mine-sweepers		6 or 7
Total personnel approximately		4,000 or 5,000 Men

V. AIR OPERATIONS

A. The airfields in the vicinity of Sofiskoe and Nikolaevsk form the outer defenses of the Komsomolsk airfield group and they are very valuable for air operations.

Note: Value of Komsololsk Airfield Group

1. It is an important base for combined air operations by America and Russia, with an air route leading from America to the eastern Soviet territory via the Aleutians and Kamchtka.

2. It also is a base for air attacks against Japan and Manchuria, making possible the use of long-range bombers against Manchuria, southern Sakhalin and Hokkaido. Approximate distance from Komsomolsk to:

Ha-erh-pin (Harbin)	900 km
Ch'i-ch'i-ha-erh (Isitsihar)	1,070 km
Southern Sakhalin (Shikuka)	480 km
Mu-tan-chiang	850 km
Sapporo	930 km

3. It is comparatively distant from our (Japanese) zone of operations, so that offensive operations by combined units of fighters and bombers will be rather difficult, except from bases in the southern Sakhalin region. The distance between Chia-mu-ssu and Komsomolsk is approximately 650 km, while that from Shikuka to Komsomolsk is approximately 480 km.

4. Because this is deficient in overland communication routes, offensive land operations are time-consuming and difficult.

5. There are aircraft factories, munitions factories, oil refineries, etc.

B. Effect of Weather on Air Operations

1. The greatest climatic hindrances to air operations are freezing and thawing, clouds and mists which accompany low atmospheric pressure in winter, and icing conditions.

a. Freezing and thaw

(1) During the periods of freezing and thaw most of the airfields which are not surfaced will be temporarily non-operational. This is a period of about one month from the time snowfall starts (varies from place to place, but usually occurs in late October) until the snow is frozen hard (mid-December at the latest). The thaws vary from place to place, but usually occur during April or May.

Note: In the above periods, the use of these airfields would be impossible even if planes were equipped with skis.

(2) Since seaplane-landing areas are frozen from December through April, it is advisable to change seaplane floats to skis, but their use is hazardous if the ice is not sufficiently thick.

b. Clouds and mists which accompany the winter lows (November to April).

In low-pressure areas, in the neighborhood of fronts (cloud strata rise to more than 5,000 meters) and in the narrows of the Tartary Strait the cloud strata are thick (exceeding 5,000 meters); and it is often difficult either to rise above or to cross them.

c. Icing conditions

Although flying through lower-stratum clouds in winter is accompanied by a danger of icing, when the temperature is 30° below zero (centigrade) usually there is very little danger of icing as long as there is no marked reversal of temperature.

2. August through October is considered most suitable, March through July is next to this and November through February is least suitable.

C. Considerations upon Establishing Airports

Excluding the Amur basin, this area is lacking in extensive plains. Furthermore since tundra or marsh predominate in the level land of the various river basins, there is very little land suitable for airfields. (On the high and dry ground of the river basins a few areas suitable for airfields are found.) To establish airfields on tundra or swampy ground considerable work is necessary, especially for the use of large-type planes.

It is advisable to pave the greater part of the runway because these regions become muddy in periods of rain or thaw. (July through September, April through May.) Except in winter, landing areas for small or medium seaplanes could be established easily in the Amur river system, and in harbors and lakes such as the Udyl and Kizi.

VI. WINTER OPERATIONS

A. The average minimum temperature in this area is about 20° to 25° below zero on the ground (the lowest temperature, 40° below zero, is reached in February). Although this may constitute some hindrance to winter operations, operations will be possible if thorough preparations are made. However, transporting cold-weather provisions and other supplies from rear areas will limit operations greatly.

B. It is common for coastal areas to freeze 45 - 75 km offshore (excl ding the area between northern Sakhalin and the continent) this operational movements on ice are possible at this time.

C. Securing a Position on Northern Sakhalin and Advancing to the Continent over the Frozen Sea

1. The whole sea area south of the southern part of the Gulf of Sakhalin, and north of the Tartary Strait freezes, and the inhabitants communicate by sleds on this ice during January and February. Generally the surface of the ice is rough toward Sakhalin but from the central part to the western area the surface of the ice is smooth. The thickness of the ice varies according to temperature, wind, current and tide but generally it is around 1.0 to 1.5 meters, and passage of trucks is usually possible.

2. During bad weather, especially in the northern region, operations become dangerous because of frequent loss of land marks.

3. Suitable landing areas: Mi Pronge, Cape Petkh, and Langr.

4. In advancing on ice, the organization of ski and sled units would be advantageous, particularly if motor sleds were used. Because of the irregular ice surface, it is advisable to carry necessary tools such as ice axes to trim down rough parts.

D. The Condition of Rivers, Lakes Swamps and Tundra in Winter

Classification	Winter Conditions	Influence on Operational Movements
Rivers	Frozen	Could be used as roads
Lakes	Same as above	Communication possible on ice
Swamps	Freeze approximately ½ month earlier than rivers but are 1-1½ months later than rivers in thawing.	Although the area is passable for troops, clumps of vegetation hinder movements greatly.

E. Organization and equipment factors for winter operations which demand special attention

1. Heavy snowfalls (up to 1 meter in places) generally occur from October to April. During this period it is advisabe to organize ski and skid units, and to keep the weight of firearms down to a minimum by carrying easily-handled automatic pistols, light and heavy machine guns, and trench mortars as main weapons.

2. Preparations against extreme cold must be made.

Since there are very few cities and villages, special attention must be paid to frostbite prevention, the necessity for winterized tents and portable heaters.

3. The winter freezing occurs both above and below ground (the northern part of the Lower Amur Oblast has permanently frozen subsoil), and well-digging, earthworks, etc., are difficult; careful consideration must be given to such matters (it is advisable to use mines as obstacles, and sand bags for movable obstacles or earthwork construction).

4. It is advisable to give careful consideration to equipment (such as sleds) for transporting military weapons over ice and through snowdrifts.

5. Winterized weapons, oil, and motor fuels are necessary.

Note: In regard to organization and equipment factors which demand special consideration in winter operations see "Information for Winter Operations" compiled by Kwantung Army Headquarters.

Part 3 TOPOGRAPHY

I. GEOGRAPHICAL FEATURES
(See Annex No. 1)

The Lower Amur Oblast is a long and narrow tract of land which encompasses the western shore of the Sea of Okhotsk and is about 549,600 sq km in area. (It is about equal in size to Japan excluding Hokkaido and Kyushu.)

Nearly the entire area is covered with mountains; and level ground interlaced with rivers, lakes and ponds is found only in the Amur River basin. The mountainous region is entirely covered, except for a few summits, by primeval, virgin forest, so that the population is sparse and overland communication is markedly impeded. The southern coast line is comparatively well indented, but has numerous cliffs, and the sea near the shore is often shallow, so that there are very few good harbors. In the area north of the Uda River mouth, the shore is extremely regular, and the steep Dzhugdzhur Range comes down to the seashore, forming precipitous cliffs, so that there are almost no good harbors. Due to the nature of the topography, and since the climate and weather are naturally unfavorable, general development in this area has been very slow in the past. However, Soviet Russia has recently recognized that this region has very great value from the standpoint of national defense and as a link between America and Russia, and so strenuous efforts have been made to develop it. This has been particularly true in the south, especially in the Amur River basin. Geographical features outlined region by region are as follows:

A. The right bank of the Amur

This is a semi-mountainous region (highest elevation 880 meters); the steep Sikhote Alin Range runs north and south near the coast, and it is thickly wooded. This renders east-west communication difficult. The coastline, though comparatively rich in indentations, is poor in good harbors, as there are many precipices. Movement in the level land of the river basins is difficult because of the dense growth of scrub and scattered muddy areas, but communication is comparatively easy in the winter if there are few snowdrifts.

B. Lower Amur River Basin

The main feature of this area is a swampy plain of clay, with scattered lakes and ponds throughout the basin. This is particularly true near the confluence of the Amur and Amgun. The winter conditions in this area are the same as in the area described above, but, as clumps of vegetation occur in the marshes even in winter, there are places where all military movements are difficult.

C. Komsomolsk Area

Although comparatively open plains are found in the Amur River basin surrounding Komsomolsk, the greater part of this area is either marshland or grassy plain. Moreover, the tributaries of Amur run in all directions, making movement of men and horses difficult throughout the year except on the main roads. However, communication is comparatively easy during the winter freeze.

During the high water season of the Amur (mid-May to early June, late July to early September) flooding is extremely severe and the area sometimes looks like a sea. This area has increased in military and economic value remarkably as the result of the recent rapid development of Komsomolsk (i.e., the establishment of municipal and collective enterprises, the establishment of airports, etc.). Completion of construction on the Baikal-Amur Railroad to Sovetskaya Gavan will have great significance in respect to communications.

D. Left bank of the Amur and the Amgun River basin area

A continous gently-sloping tableland 500-600 meters above sea levelpredominates in this area. It is interlaced with rivers, lakes, ponds and marshes. Communications in summer are almost impossible except by boats and rafts on the rivers. The river basins are mainly of clay which is easy to work, but the lower sections are generally wet, and earthwork construction involves giving special attention to drainage. Again in winter the work is very difficult because it freezes to a depth of approximately 10 meters. Suitable ground for airfields is very scarce because there is very little cleared land; the scrub is tall on level ground and there are many swamps. Considerable work would be necessary to establish airfields.

E. The Southwestern Coast of the Sea of Okhotsk

The Yam Alin Range (maximum altitude approximately 2200 meters) and the Dzhagdy Range (maximum altitude approximately 1200 meters) run along the Amur Oblast border, forming a watershed for the Sea of Okhotsk and Amur water system. The terrain is ruggedly mountainous, there are many great forests, and passage is difficult. Although the river basins of the Tugur and the Uda form the most extensive plains in this area, military movements are still difficult because of the many swamps. The mountains run close to the sea-shore, forming sheer cliffs in many places, and between them are found small areas of swampy ground which render passage difficult.

F. Southwestern Coast of Okhotsk Seas (North of Uda River and South of the Ulya River)

Approximately in the center is the Dzhugdzhur Range, extending from northeast to southwest. Its southeastern slope is generally very steep, and there are many spurs branching off and running to the coast, forming steep cliffs. Its northwestern slope is moderate, not exceeding 300 meters in comparative height, and extends as far as the Yakut ASSR.

Except for the summits of mountains, it is in general a region of dense, extensive forest, much of it virgin. The coast line is unvarying, with many sheer cliffs, and no good harbors; landing is difficult and overland communication after landing would also be extremely difficult. Ayan is the only harbor in this area.

G. The northern coast of the Sea of Okhotsk (centering about Okhotsk and vicinity)

Various spurs extending from the Dzhugdzhur Range approach the coast tortuously and most of the area is a region of steep mountain peaks, often thickly wooded or swampy, so that movement is difficult. Level ground is to be found only on that part of the coast which in the vicinity of Okhotsk. Further, except for the gravel along the coast, it is almost entirely a tundra region extending as far as the mountains, and overland communication is very difficult. However, when the period of winter freezing arrives, movement everywhere is easy.

II. GEOLOGY AND SOIL
(See Annex No 2)

A. Geology

The geologic composition is very simple, since, for the most part, it consists of Paleozoic and Mesozoic formations of igneous rock. Only a few recent formations are found in the river basins. Since Tertiary formations (which lie between the older and the more recent formations) hardly appear at all, it can be assumed that it is a region which, being definitely ancient as a land formation, has undergone continuous erosive action. Many folds (mountain ranges) developed from northeast to southwest along the coast of the Sea of Okhotsk due to tectonic action (a general term for various actions which cause changes in the land) south of the Uda River. The nature of the rock is assumed to be extremely hard, except for the Jurassic formations.

1. Area south of the Uda River

a. The coastal area facing the Tartary Gulf and the Gulf of Sakhalin is composed mostly of volcanic rocks (such as andesite, basalt and tuff of the Cenozoic Era) except in the vicinity of the river mouths. Andesite and basalt which have an ashy or ash-green color are of very fine grain and exceptionally hard. But those which are red or violet in color are very coarse, and greatly weathered. In the northern part of the Tartary Gulf (region of the mouth of the Amur River), Cretaceous igneous rocks of the Mesozoic Era appear throughout the coast, which juts out into the sea, forming precipices from 40 to 50 (and at times reaching 100) meters in height. Their height tends to decrease toward the northern areas however. Bights and river basins are formed by recent strata which have been weathered and form marshes on a small scale.

b. The area which lies along the southwestern coast of the Sea of Okhotsk consists of marine formations of limestone, sandstone, slate and a conglomerate of the Jurassic and Triassic periods of the Mesozoic Era. Between these formations intruding igneous rocks (granite, andesite and basalt which were forced in as part of the crustal movement of the Mesozoic Era) are found, and at the point of contact of these two, metamorphic rock can be seen. The Jurassic strata in the area southeast of Udskaya Bay are land formations, and usually the rocks seem to be hard.

c. The mountainous districts of the Yam Alin, Dusse Alin and the Dzhagdy Ranges which lie near the border with Amur Oblast are chiefly composed of granite and formations of the Paleozoic Era. To the east of them the Lake Evoron area and the Amur River basin are low, level ground extending over a wide area, and consist either of pebbles or clay which are recent formations. Large areas of marsh are formed here due to the effect of the weather.

d. Because the Uda River flows through a mountainous region, its basin has no marked accumulation of recent strata. Jurassic strata are found throughout most of the basin and only in the lower reaches are Tertiary strata and igneous rocks of the Mesozoic Era found.

2. Area north of Uda River

a. The Pribrezhny Range is composed of Paleozoic strata and its western area is composed of igneous rocks of the Mesozoic Era and of pre-Cambrian strata which run parallel to the coast and are found in zones. Ayan lies over igneous rocks of the Mesozoic Era, and the area to the north is mainly composed of igneous (basalt, granite) and metamorphic rocks of the Mesozoic Era.

b. Okhotsk is situated on the dividing line between recent strata and Paleozoic strata. The northern part is composed of granite, and recent formations are found to the west of the Okhota River.

c. The northwestern corner of the Lower Amur Oblast (the Stanovoy and Dzhugdzhur Ranges) is composed of the oldest formations of rocks: Cambrian, Paleozoic and Triassic. In places, intruded granite is to be seen and metamorphic rocks are to be found.

B. Soil

Country rock and climate are usually the important factors determining the characteristics of the soil, but in this region where the area is very extensive and the distribution of rocks is comparatively simple, climate has been the most influential.

The most widely-distributed soil is the podsol soil which is created under cold and wet climatic conditions. The extensive forests of the Lower Amur Oblast region grow in podsol soil. The soil can be classified as follows:

1. Strong podsol soil, clay podsol soil, and sandy podsol soil: these soils are found over all kinds of country rocks and they extend principally throughout the whole area north of the Amur River.

2. The clay and fertile weak podsol soil: found extensively in the regions to the west of the Dzhugdzhur Range on the coast of the Tartary Gulf and on the right bank of the Amur (excluding the Sikhote Alin Range). There are many dense, mountain forests in these areas.

3. Peat podsol soil and peat swamp soil: found adjacent to the strong podsol soil region of the various mountain ranges (the Sikhote Alin, Yam Alin and Dzhugdzhur) and the coast of the Sea of Okhotsk. They run north and south in long, narrow areas. These soils are found mainly on very rocky mountain slopes.

4. Weak podsol rock soil: often found near the summits of high mountains, appears at intervals in the Sikhote Alin Range, and forms a long, narrow belt in the Yam Alin and Dzhugdzhur Ranges.

5. Steppe soil, swamp soil and alluvial soil: located largely in the flooded areas of rivers. This is found in an extremely narrow belt in the low-lying areas running along the Amur and Amgun rivers, on the banks of Lake Evoron, and the Uda River basin.

6. Peat clay soil: lies adjacent to the soil distribution of the foregoing paragraph and is found in the Uda and Amgun River basins, and in the coastal areas of Ulbanski and Tugurski Bays. The soil covering is extremely light.

7. Sand podsol and sandy soil: found locally on the coasts of Ulbanski and Tugurski Bays. The sandy soil area is mainly covered by pine groves.

Note: Concerning podsol soil

1. Formation

Organic matter, which has disintergrated on the surface of the ground because there are frozen layers in the lower areas, and the acidity of decomposed plants, which have accumulated near the surface of the ground, cause the iron, aluminum and clay in the soil to be washed off downwards, and become soil ashen to white in color which is called podsol. (In Russian podsol means ash-color soil.) Podsol develops in swamp areas, or in other areas of damp ground, and is caused mainly by high rainfall in the summer. The podsol soil in the low-lying land along the Amur River bank and that found in eastern Manchuria and Sakhalin are all of this same type.

2. Special Characteristics

Because of a large quantity of decomposed plants contained in this sandy soil, the surface is black-brown in appearance, and the lower strata lacking the element of bleached clay appears as a layer of peculiar ashen color.

C. The Influence of Geology and Soil on Industry and Strategy

1. Because the greater part of this area is composed of old igneous formations, the rocks are extremely hard. Hence construction and destruction of fortified positions, construction of roads and railroads, excavation of tunnels and well-drilling all involve considerable difficulty. Furthermore the numerous coastal cliffs caused by erosion of sea and wind present a great obstacle to landing operations.

Much consideration must be given to communications and the construction of airfields in the lowlands (particularly in the Amur River basin and on the fringes of lakes and ponds) since, due to the climate damp ground constitutes a serious obstacle (especially during the rainy season).

2. Gold mines, occurring principally where there are veins of quartz in igneous rock, are common in the Okhotsk region and in the region southwest of the Okhotsk Sea. There are extensive deposits of construction materials such as stone, limestone and tuff (the chief element in cement). Podsol soil, particularly suitable for tree growth, has formed an extensive forest belt. The soil is rich because the upper layers contain a large amount of decomposed plants, but it has the defects of being too damp and acidic and has not as yet been used on a large scale as farming land. If these defects can be dealt with, however, its utilization will become possible.

III. RIVERS
(See Annex No 1)

A. Summary

The rivers in this area proceed from their sources in the various mountain chains at the frontiers and flow chiefly toward the east. They empty into the Gulf of Tartary, the Tartary Strait, the Gulf of Amur, the Gulf of Sakhalin and the Sea of Okhotsk.

In general, aside from the Amur River system, there are many comparatively short rivers. They are characteristically shallow and swift of current. During rainfalls these rivers swell rapidly, often overflowing their banks (April, May and July) so that communications are frequently disrupted. In summer, river logging and, in one part, water transport are possible. During the winter freeze, they may be used as sled roads. The rivers are also valuable for the amount of salmon, salmon trout, shallow water fish, etc., which they produce.

In general, river water is suitable for drinking, and can be used as a source for water supply.

Region	Principal River Names	Evaluation
Rivers which flow into the Gulf of Tartary, Tartary Strait, Gulf of Amur and the Gulf of Sakhalin	Bolshaya Khadya Tumnin	Much salmon and salmon-trout are caught.
	Amur River (with the Amgum. Khungari	The majority of the rivers situated in easter Russia facilitate transportation. It is possible for steamships having a total tonnage of 2,000 tons to navigate up to the proximity of Sofiskoe. It constitutes a major line in the Eastern USSR water transport and is situated at a strategic position with respect to connection of the pivotal points of Eastern Russia with Kamchatka, Northern Sakhalin and the American zone. A portion of the American-Russian sea-borne communications can be menaced by blockading these rivers. The Amgun River tributary also facilitates navigation. Besides salmon and salmon-trout, shallow-water fish are caught in great numbers.
Rivers which flow into the Sea of Okhotsk	Uda River	Besides facilitating navigation, it is well-stocked with salmon and salmon-trout.
	Ulya River Okhota River Kikhtui River Inya River	Salmon and salmon-trout are caught.
Rivers which flow into the Lena River	Maya River	Facilitates water transport.

B. Condition of the Various Rivers

1. Rivers which empty into the Gulf of Tartary

a. Bolshaya-Khadya River. Its source is in the Sikhote Alin Mountain Range and it flows into Sovetskaya Gavan. Forty kilometers from the river mouth its width is 40-70 meters, and its depth is 0.6-2.- meters. Although the current is rapid, small boats can ascend it.

b. Tumnin River. Originates in the Sikhote Alin Mountain Range and has a length of approximately 1200 kilometers, flowing into Datta Bay. Acerose trees grow densely in the river basin which is the site of gold-dust deposits. Although the width of the river at the mouth is approximately 300 meters, there are places within 10 kilometers upstream that reach a width of 1.8 kilometers.

The depth of water is 1.0-1.5 meters in the low water period and 10 meters in the high water period. Steam launches can ascend the river from its mouth to Nongokto, a native village (approximately 10 kilometers upstream from the mouth of the river). It can also be navigated by native canoes and rafts for 200 kilometers upstream.

c. The Amur River is the largest river in the eastern USSR. It is of great importance in respect to communications, economics, and military affairs. Ships of 2,000 tons can ascend it from the mouth to Sofiskoe. There are shoals in places and in the low-water season, in the vicinity of Mariinskoye, the depth is sometimes no more than 1 meter. At times this makes navigation dangerous. Navigation is often hindered by large waves which arise during strong winds over wide areas. Both banks have extensive marshy belts which make communications difficult. The river is frozen over in winter and can be used as a sled-road.

River	River Width (Meters)	River Depth (Meter)	Current Speed (Meter second)	Nature of Bottom	Conditions for fast travel	Freezing (Thawing)	High (and low water)
Amur (main stream)	2,000 at Nikolaevsk	13-15	1.0	Sandy	Difficult	Late Oct-mid-Nov late Apr-mid-May	Mid-May-early Jun Late Jul-mid-Sep- Jun -late Jul, Sep, Oct
Amgun River (lower reaches)	200-500	3-10	1.5-2.0	Muddy earth	Difficult	Late Oct (mid-May)	Jun, Jul, Sep, Oct
Khungari (lower reaches)	200	2-3	1.5	Pebbles	Difficult		

The Amgun River allows the passage of river steamers up to the vicinity of Kerbi (Poliny Osipenko), in the high-water season: and up to the vicinity of Udinskoe, in the low-water season respectively.

2. Rivers which flow into the Sea of Okhotsk

a. Uda River: its source is in the Dzhagdy Range and it flows into Udskaya Bay. Approximately 750 kilometers long, the river reaches a width of 200 meters at the mouth. Its depth at ebb tide is approximately 5 meters and small boats can navigate up to Udskoye (approximately 80 kilometers upstream from the mouth). The tide greatly influences the current, which reaches 4 meters at ebb-tide. The flood tide current (produced when the sea rises due to the tide) is a reverse current which may be stronger than the river current, sometimes reaching a speed of 10 kilometers.

b. Ulya River: its source is in the Dzhugdzhur Range and empties into the Sea of Okhotsk. Its length is approximately 400 kilometers. Although the upper reaches have a swift current, the lower reaches are comparatively sluggish.

c. Okhota River: its origin is in the northern extremity of the Dzhugdzhur Mountain Range and empties into the Sea of Okhotsk. Its length is approximately 180 kilometers and its width at the mouth is approximately 150 meters. For seven kilometers upstream from the river mouth, its depth is 1.2 - 1.8 meters and allows small ships to sail upstream.

d. Kukhtui River: its source is on the high plateau, Oymokon, and it empties into the Okhotsk roadstead. The river basin is a tundra and forest region, while the coastal area is a marshland which has a luxuriant growth of various types of grass and shrubs.

The river mouth is 1.3 - 3.0 meters deep. Ships with a draft of 0.5 meters can sail up to Ivanovka village (approximately 20 kilometers upstream from the river mouth). Moreover at high tide, steamships of about 3-meter draft ascend as far as Okhotsk village (2.7 kilometers upstream from the mouth of the river). Storms and rises in the river usually change the position, depth and channel of the river near the mouth.

e. Inya River: its source is in the Kolymsky Range and it empties into the Sea of Okhotsk. It is approximately 300 kilometers long and small boats can sail 5-6 kilometers up from the mouth of the river.

IV. LAKES AND PONDS
(See Annex No 1)

Most of the lakes and ponds lie sporadically over the low ground of the river basin in the lower reaches of the Amur River. They are linked with the Amur River by water routes and regulate the amount of water in the Amur River. That is to say, when it overflows, the lakes and ponds fill up. In the low-water season, they are the main source of water for the river.

Name of Lake	Size of the Lake	Condition of the Lake Water	Evaluation
Lake Kizi	Length - 48 km Max width 8.5 km Perimeter 133 km Area- Low water-165 sq km High water-246 sq km	1. The depth is 2.7 meters at maximum low water and 8.5 meters at maximum high water. 2. Although the lake has a soft clay bottom, its lower level is sand an pebbles. 3. There are many areas of damp ground on the shore of the lake. 4. The water, fresh and full of plants, is impure and unsuitable for drinking. 5. There are frequent storms on the lake accompanied by large waves, and during spring and fall, navigation is hindered by fogs. 6. Freezes in late Oct. Thaws in late Apr or early May. Navigable from early May to early Nov.	1. Can be used as a water transport route. Fifty-ton class motor vessels ply (approximately 26 km) between Kizi and Pariinskoye. 2. Although the ice is rough, it can be used as a road after it is frozen. The ice often cracks and rises. Note: There is a plan to open a canal between Lake Kizi and De Kastri according to Intelligence reports (1927) but this is extremely doubtful.
Lake Udyl	Length - 49 km Max width-9 km Area - 239 sq km	1. Depth minimum during the low-water season is 1.5 meters. The depth of the river leading to the Amur River is 2.0 meters. 2. Numerous hills on the southern shore, low-lying damp earth on the north-western shore.	
Lake Orel	Length - 33 km Max width - 11 km Area - 276 sq km	1. The maximum depth is 33 meters and the water route which connects with the Amur River is 340-560 meters wide, 2-3 meters deep. 2. The shores are bordered by gentle hills covered with a luxuriant growth of trees.	The channel which connects with the Amur River, and the lower reaches of this channel are suitable as winter anchorage.

(Contd)

Name of Lake	Size of the Lake	Condition of the Lake Water	Evaluation
Lake Chilya	Length - 27 km Max width-9 km Area - 176 sq km	1. The maximum depth is about 3 meters and the width of the river up to Lake Orel is 100 meters. The depth is 1.7 - 3.6 meters. 2. The shores are bordered by gentle hills covered with a luxuriant growth of trees.	A water route connects with Lake Orel and the Amur River. It can be used for water transport.
Lake Evoron	Area - about 590 sq km	1. Because the lakeshore is flat and low, the surface of the lake changes with the rise and fall of the amount of water. 2. Empties into the Evoron, and Gorin Rivers, which are about 200 km long and flow into the Amur River.	

V. SWAMPS AND TUNDRA
(See Annex No 1)

There is much low swampland in the river basins in this region, especially in the lower reaches of the Amur River and the various related rivers of this system, while in the region north of the Uda River, there are vast stretches of tundra. Both of these serve to hamper military movements considerably.

The tundra region has a frozen sub-surface layer all year around. There is a luxuriant growth of moss on the surface of the earth which is damp and soggy enough during the summer for a horse to sink in up to his belly. Occurrences of tundra are sporadic. Level ground is found on the highlands and their slopes, while the wooded areas are rolling country. Passage is difficult, and in order to overcome the tundra, previous preparations of logs, brush and other materials to facilitate transit is required. For passage of vehicles and other heavy supply materials, especially careful preparation is advisable. The swamp and tundra regions freeze about two weeks earlier and thaw four to six weeks later than the rivers. During the winter, they take on a new aspect, for the passage of military forces becomes easy on the frozen ground, though clumps of vegetation greatly hamper movement.

VI. FORESTS
(See Annex No 1)

Largely because communications have been inadequate up to now, there is much virgin timber throughout this area, and beneath the forest there are numerous shrubs and fallen trees. Military movements, especially passage and observation, are greatly hampered, and passage is difficult even for foot-soldiers in many places. However around inhabited areas, where forest fires have occured frequently in the past, the land is comparatively open and there are places where movement is easy. The types of trees differ from place to place, but the principal kind is the larch, with many willows, birch, etc. The situation in the various areas is as follows:

Regional Division	Kind of Tree	Diameter of Tree (Height of Tree)	Forest Conditions & Strategic Influence
Northern Sikhote Alin region	Red Pine Larch Birch White Willow	20-30 centimeters	Many areas are difficult for transit even by individual troops
Vicinity of Nikolaevsk	Mainly larches; many birches in vicinity of Mago	Diameter of trees is not large	Under the forest there are dense shrubs, many areas are difficult even for individual troops to pass
Vicinity of Lake Kizi-De Kastri	Firs, larches and some red pines and white birches	30-40 centimeters (10 meters plus)	It is a region of dense forest with many fallen trees. The range of vision is small. Movement of individual men is possible but movement in battle force would be very difficult.
Amgun River Basin	Pine Birch Forest of mixed acerose and latifoliate trees		Various plants and thorns grow thickly under the trees, serve to block troop movements.
The coastal district on the Sea of Okhotsk	Larches White Birch Willow Zelkova trees Pinus pentaphylla	10-80 cm. Near the coast a maximum of 40 cms. The diameter of the tree increases with the distance from the coast.	There is much dense forest; lower branches are dead; stunted undergrowth beneath the trees (on the coast there is a dwarf pinus pentaphylla which sprawls over 30 sq meters);

(Contd)

Regional Division	Kind of Tree	Diameter of Tree (Height of Tree)	Forest Conditions & Strategic Influence
			there are dead trees standing; many fallen trees, etc.; moss and scrub also grow thickly; both vision and movements of troops are difficult. There are no trees on the upper slopes of the mountains near the coast, and vision is good from the summits.

VII. COASTS AND HARBORS
(See Annex No 3)

A. SUMMARY

The region of the Lower Amur Oblast has in general an unbroken coastline, except for cliffs rising up at the mouths of the rivers. The lack of good harbors is due to the many sand-bars which form where the rivers flow into the bays. Weather and climatic conditions such as drift ice, thick ice, fog, waves, etc., also have a great effect on the sea.

Consequently, large-scale landing operations carried out in this region would be greatly limited by the conditions mentioned above. The landing points must be restricted to the areas around Sovetskaya Gavan, De Kastri, Nikolaevsk, Ayan, and Okhotsk in view of the strategic characteristics of the region, and August-October is the most suitable time of the year. Moreover, in the winter (November-April), south of the southern part of the Gulf of Sakhalin and north of (and including) the Strait of Tartary the water is frozen and communication is possible over the ice, facilitating offensive operations from Northern Sakhalin.

1. Region of the Tartary Strait (South of Gulf of Sakhalin and north of the Tartary Strait)

Condition of Water Route and Weather

Condition of Coast — The coastline is unbroken. Except for Sovetskaya Gavan it is limited to some small bays. Usually, the mountains front directly on the water's edge. Good anchorages are lacking. The Gulf of Amur is extremely shallow and this hinders navigation.

Current — A slight cold current arises and follows along the continental coast to the southwest.

Tide — Gulf of Tartary daily tides are uneven. High water in spring and summer occurs during the day. High water in autumn and winter occurs at night. Gulf of Amur daily tides are uneven. There is one tide per day during most of January.

Condition of Water Routes and Weather

Freezing and Thawing	Freezing period: middle of November to late April. Although the southwest coast is completely sealed off by an ice field, the central parts of the northern section of the Gulf of Sakhalin and the southern portion of the Gulf of Tartary has little or no ice. The ice is 0.3-0.9 meters thick and its surface is uneven. The southern limit of the frozen area is 47°-48° north latitude.
Weather	Oct-Mar: much stormy weather, April-Sep: generally clear.
Wind	Oct-Mar: west and northwest winds, May-Aug: east and southeast winds, Winds are variable in April and September.
Fog	Foggy season: early April-early September. Although the Sakhalin coast produces very little, there is much fog on the continental coast; it is especially marked in the northern part.
Navigable Period	Mid-May to late October.
Navigational Hazards	Dense fogs (autumn), storms and the shoals and tidal current of the Gulf of Amur.
Advantages and disadvantages of the navigable	In the Gulf of Amur, besides the large sand-bars, there are the worst shoals in Eastern USSR. Ships entering the Sea of Okhotsk via this gulf, or entering Nikolaevsk from Sakhalin via Sakhalin Channel: ships of under 3.5-meter draft take the South Channel, ships with 3.5-5.0-meters draft take the Sakhalin and North Channels and wait for the tide at Langr Island. Channel markers are placed in the North, South and Sakhalin Channels, north and east of De Kastri, but since lights have been installed only at Langr Island sandbar, navigation at night in other places is impossible.
Suitable Ships	The Gulf of Tartary is suitable for any class ship. The Gulf of Amur is suitable for ships in the 2000-ton class and below. Medium-sized ships entering Nikolaevsk must load while the tide covers Langr sandbar.

Shipping and Channels

Principal Harbors	Sovetskaya Gavan; De Kastri; Nikolaevsk.
Main Ports and Roadsteads	Datta Wan, Sizimi, Lazareva, Uarki.

2. Region of the Sea of Okhotsk

Condition of the Coast	The southern part is much indented and has Akademii and Udskaya Bays. The northern part has few indentations, and the mountains extend to the coast.

Condition of Water Routes and Weather	Condition of the Coast	It has only small tributaries at the mouths of small rivers and there are no anchorages.
	Current	There is a cold current, which runs counterclockwise, and is called the Okhotsk Sea Current. It sets north along the west coast of Kamchatka and runs westward from about 55° north latitude. It follows the coast of the continent, moving southwest and reaches the eastern shore of Sakhalin via the Gulf of Sakhalin. The daily tides are almost even.
	Freezing and Thawing of Ice	Late October or early November to mid-June. An ice field reaches 45-75 kilometers distance offshore.
	Weather	From mid-May to mid-July, it is exceedingly calm. There is much rain during June, July and August. During September the frost begins, winter gradually following
	Wind	In the spring, there is a calm easterly wind. In March, the wind is variable, with strong winds from the northeast. In summer, there are calm south and southwest winds, but in June there are many strong south winds in the southwest part of the area. From autumn to winter, the westerly winds are fairly strong. In winter there are many strong westerly winds.
	Fog	Frequent fogs in June, July and August.
	Navigable period on the sea	Middle or late May to late October or mid-November.
	Navigational hazards	Strong wind; thick fog; drift ice near shore in spring and summer.
	Advantages and disadvantages of the routes	In all areas of the sea there is much stormy weather, and in late June, when navigation is hampered by spring drift ice, ships moored in poor anchorages should run out to sea. Ships heading for this part of the sea from the Maritime Krai proceed almost offshore of Sakhalin.
Ships and Channels	Suitable ships	Due to rough seas in autumn, navigation is difficult and dangerous for small-type ships, so that ships of over 3000 tons are advisable.
	Principal ports	None worthy of special mention.
	Minor ports and anchorages	Chumikan (Udskaya Bay); Ayan (a port with a land transport communication with Yakutsk ASSR); Ulya, Urak, Okhotsk (relay points to the Yakutsk ASSR, Inya.)

B. Sea Coasts

The coastline of this region has few indentations and is largely regular. This is especially true of the coast of the Sea of Okhotsk north of the Uda River.

The sea is deep, and the mountain chains come down to the coast; the coastline is formed for the most part of precipitous cliffs (reaching a maximum of 100 meters).

There are sand bars at the mouth of the Amur River which greatly hinder navigation.

1. From Sovetskaya Gavan to Cape Lazareva

The coast line is extremely regular. There are precipitous cliffs everywhere and the sea is deep.

Near the various river mouths there are narrow lowlands where it is possible to land, but due to the adjacent mountain ranges, which have an elevation of 200-300 meters above sea level near the coast, communication with the hinterland is very difficult, and with the exception of the Sovetskaya Gavan and De Kastri Bay there are no suitable landing places.

2. From Cape Lazareva to the mouth of the Uda River

From Lazareva Cape to Menshikova Cape there is a belt of highlands reaching 300 to 900 meters above sea level; the coast is steep and thickly forested. Suitable landing places are scarce, and after landing, communication with the hinterland is difficult.

Navigation at the mouth of the Amur River is only possible via narrow channels between the sand bars.

Baydukov Island, Chkalov Island and Cape Petrovski to the north of Cape Menshikova are low sandy areas with dense growths of grasses and shrubs.

Cape Petrovski to Cape Mukhtelya is a hilly region and the greater part of the coastal islands are precipitous. Generally the water is very deep and it becomes deeper toward the north.

Cape Mukhtelya stands in an isolated position and appears like a pillar of rock. The region from here to the mouth of the Uda River has a much indented coast with a precipitously steep mountain chain reaching 600 meters above sea level and forming cliffs about 150 meters high. There are also many reefs, some 30 kilometers in length, and there are very few suitable harbors.

3. North of the Uda River Mouth

The Dzhugdzur Range runs along the coast and many subsidiary ranges branch off from it. There are a number of promontaries jutting out from the coast, but there are a few large bays and many rocks. It is steep and with the exception of the vicinity of Okhotsk, level land is rare.

The shore is generally steep and has few islands. Navigation in fog is comparatively easy (because the depth of the water is generally regular). Suitable places for landing in this region would be in the vicinities of Okhotsk and Ayan.

C. Harbors

1. Sovetskaya Gavan

The entrance to the harbor is about 2 kilometers wide. Four rivers empty into it; it affords shelter from wind and waves and is the best harbor between Vladivostok and Nikolaevsk.

The freezing period is disadvantageous however, since this area is frozen over with ice for half of the year (from late November to mid-April).

The water depth is from 10 to 25 meters and the sea bottom of mud and sand makes it suitable as an anchorage for ships of the 10,000-ton class. In this bay all types of military installations are hurriedly being strengthened for its use as a base for the North Pacific Detachment which is a part of the North Pacific Fleet and consists of 1 destroyer, about 19 submarines, mine sweepers, guard ships, high-speed motor torpedo boats, etc. In addition to the various kinds of ship repair and supply equipment in existence at present, there is also a seaplane base.

Details are vague as to the shipyard and dock installations.

As the eastern terminal of the projected Baikal-Amur railroad line, this will come to be very important both economically and militarily, and as a part of communications by sea and land when the project nears completion.

a. Yugozapadnaya Bay

The area around the mouth of the bay, though affected by the waves from the open sea, is suitable as an anchorage for large ships. Small boats can ascend the Bolshaya Khadya River for one or two kilometers.

b. Zapadnaya Bay

The harbor area, while affording a safe and good anchorage, is rather narrow. It is unsuitable as an anchorage for large ships. It is a base of operations for the North Pacific Fleet Detachment.

c. Severnaya Bay

There is a seaplane landing area. It is exposed to south winds and is not suitable for ships to anchor.

2. De Kastri Bay (See Annex 6)

This bay is one of the very important harbors in the region of the Gulf of Tartary, the Tartary Strait and the Gulf of the Amur River. It is essential to the land communication routes which lead to the banks of the Amur River, and since there are places suitable for coastal landings it is of great military value.

The bay, now being used as a submarine and high-speed torpedo boat base, is equipped with small repair and defense installations. There are three islands in the bay, which is roughly divided into an outer and inner anchorage. The outer anchorage is suitable for anchoring large vessels, and the inner for small ships.

Freezing extends from early November until late April; it is usual for storms to arise between late August and late September. Alexandrovsk anchorage is in the harbor of De Kastri, and contains wharf installations.

The coast best suited to debarkation and unloading is the 500 to 600 meter stretch between Spasskiya Point and Cape Ores; other places are precipitous and unsuitable.

3. Nikolaevsk (See Annex 7)

This harbor is located west of Cape Kuegda on the left bank about 56 kilometers upstream from the mouth of the Amur River; and as a harbor connecting the waters of the Amur with the open sea, it occupies an important position from the point of view of military activity and communications. But it is difficult for large ships to enter and leave as the channel of the river mouth and the Tartary Strait are shallow; its development as a port of trade has been retarded.

In the Nikolaevsk Incident of 1920, the entire city was nearly reduced to ashes and the various harbor installations for the most part were destroyed. After that, since the establishment of the present government in power in 1922, the growth of Nikolaevsk as a commercial port has been fostered, and the harbor installations are in the process of being expanded.

The highest record of freight handling in 1935 was 188,573 metric tons.

The port may be used at any time as a base for submarines, high speed torpedo boats and seaplanes, as there are installations for supply, repair, etc. At present, there are also about 20 highspeed torpedo boats; surface defenses have been installed in the vicinity of the Amur River mouth; it has shipbuilding yards, ship construction and repair works are active.

The inner harbor is defined by sand bars, reclaimed land and Kuegda Point, and the depth of the water does not exceed 2-5.5 meters.

There are seven piers, large and small, for the use of river-going steamers, and on the western side of Kuegda is one pier for the use of sea-going ships.

Since the outer harbor is shallow, ships with a draft of more than 5.5 meters cannot enter the port. The main stream of the Amur River fronting on the outer harbor is about 1,000 meters in width, and from 9 to 18 meters in depth, so that navigation is possible for sea-going ships of 4,000 tons.

Below is a chart giving a general idea of the periods of freezing and thawing and of the opening of navigational routes in the harbor.

Entirely frozen	middle of November
Beginning of thaw	middle of May
Drift of ice floes after thaw	late May
Navigation lanes open	late May

4. Port of Ayan (See Annex 8)

This is one of the best harbors along the coast of the Sea of Okhotsk; it is exposed to southerly winds and, though strong waves drive in, it affords a good anchorage.

The freeze-up begins the latter part of September and continues until May of the following year; drift ice from the north appears in June. The Okhota River has a depth of from 1.2 to 1.8 meters as far as 7 kilometers upstream.

5. Other Harbors

Bay	Protection from wind	Value as an anchorage or roadstead (Name of roadstead)	Condition of seacoast	Weather
Vanina	Good except for easterly winds	Valuable as a shelter for cargo ships	Rather a suitable place for landing upstream from the river mouth	
Datta Bay	Almost complete exposure	Poor (Datta)	Suitable landing place on eastern side of Datta village	Heavy fog from May to July. Frozen from late Nov early April
Starka Bay	Protected against the south	Suitable for anchoring large vessels, but installations are lacking	Sand bars at the mouth of the river	
Nosolova Bay	Exposed to southeast winds	Can be useful as a point of debarkation for the Bay of De Kastri	Landing is possible in the vicinity of the Nosolova river	

Taba	Exposed to south winds	Can be used as a temporary anchorage during offshore wind	Although very precipitous, there are possible landing places within the bay	
Suscheva	Good	Many shoals in the bay. Can accomodate about 10 ships of 3-meter draft.	Low level banks. Valuable as a landing point at the back of Nikolaevsk	
Nikolaya	Good except for bay entrance which is exposed to northwest winds	Suitable anchorage	The low sea coast would afford landing for small boats	Frozen from late Oct until early June
Tugurski Bay	Good	Suitable anchorage for large and small vessels		Many storms, fogs, and drift ice
Yakshina Bay	Sheltered from northerly winds	Suitable anchorage for large-type vessels	Vicinity of coast dotted with rocks so care must be taken in handling boats	
Levyazhya Bay	Sheltered from northerly winds	Suitable anchorage for large-type vessels	Far-reaching shallows make landings impossible except in small boats	
Lyutsun Bay	Exposed only to northerly winds. Squalls often strike from the valleys to the south	Of value as temporary anchorage		
Udskaya Bay		Ships anchor 11 km out from coast (Chumikan)	Ships with a draft under 2.7 meters can proceed up UDA River	Frozen from Nov to May
Loshadinaya Bay		Anchorage for small-type ships	No villages in the vicinity	
Eirineiskaya Roadstead	Exposed only to southwest winds	A safe anchorage; can accomodate a large naval fleet	Falls and streams at head of bay. Fresh water fishing is possible	
Amur River: Mage Anchorage		There are piers suitable for anchoring ocean going vessels. The present coastal defense is located here		The freezing and thawing effect of drift ice is slight
Amur River: Komsomolsk		Fully Equipped with wharf installations		

Note:

River mouths and capes, not found in the above table, which are roadstead are listed below.

Sizimi (Gulf of Tartary), Lazareva, Uarki Tartary Strait, Ulya, Urak, Inya (Sea of Okhotsk).

D. Islands

There are no islands except for the Shantarskie Islands which lie in the southwest corner of the Sea of Okhotsk. These are uninhabited and numerous precipices along their coasts make it generally difficult to land. Those which can be used as anchorages are Bolshoi Shantar Island, Malyy Shantar Island, and Feklistov Islands, all in the Shantarskie Group.

These islands have some economic value in that they are inhabited by fur-bearing animals: seals (Phoca and Callotaria Ursina), foxes, etc. It is also believed that airfields have been established recently.

Region	Name of Island	Summary of Topography	Evaluation
Gulf of Tartary	Chome Islands	They lie 4 kilometers northeast of the mouth of the Chome River. Two islands in line from northwest to southeast; the northern island is about 45 meters high, the southern 65 meters.	Of little military value.
	Khagemif Islands	Eight islands covered by luxuriant growth of accrose trees; Pilyamif, the largest island, is about 85 meters high; on its eastern extremity there is a triangular, wooden coneshaped beacon painted white	Same as above
Sea of Okhotsk	Reineke Island	It forms a dome about 150 meters high. The seacoast is precipitous and steep (1.8 kilometers from the coast, the water is 30-40 meters deep).	Same as above
	Menshikova Island	Approximately 40 kilometers northeast of Cape Nukhtelya; it is 26 kilometers long; many mountains, and the water around the island is deep on all sides (1.8 kilometers offshore the water is approximately 50 meters deep.) Moreover at ebb tide the current is great.	

Sea of Okhotsk (Contd)	Bolishoi Shantar Island	The largest island of the Shantarskie chain; length and width are about 65 km each; 1,450 sq km in area; Mountains all over the island largely covered by forests. The coasts are steep, with many precipices. It is difficult for boats to enter, but it is easy for them to land in Yakshina Bay on the south coast of this island.	It appears that an airfield has recently been established and since Yakshina Bay is suitable for landing it is of military value; it is also of some economic value because of the seals (Phoca Calloteria and Ursina), foxes and other furbearing animals found there.
	Prokofyeva Island	Located in the eastern extremity of the island chain; about 7 kilometers long, and 6 kilometers wide. Many mountains, maximum height of 860 meters. Coasts are precipitous and steep.	Little military value.
	Kuseva Island	About 11 kilometers long, and 6 km wide. The coasts are steep.	Same as above.
	Byelichii Island	The topography is marked by high peaks; the coasts, which are covered by dense forests, are precipitous and steep.	Same as above.
Shantarskie Islands	Maluii Shantar Island	About 20 kilometers long; dome-shaped and thickly forested. On the southern extremity, Abrek Bay forms a good harbor.	Abrek Bay is suitable as an anchorage.
	Feklistov Island	It runs east-west, its maximum width is 26 kilometers and north-south it is 22 kilometers; mountains are numerous and are covered in their interiors by dense forest. The coasts are steep but on the southern extremity there is Lebyazhiya Bay which forms a good anchorage. It is a narrow island about 15 kilometers long. Trees grow luxuriantly, and there are anchorages on the southwest side.	Lebyazhiya Bay is suitable as an anchorage.

PART 4 ROADS, TRANSPORTATION, COMMUNICATION, AVIATION

I. ROADS
(See Annex 4)

There are the natural paths used by the natives, and the modern roads built for military purposes and to facilitate the exploitation of natural resources. There are still many details about these new roads which remain obscure.

Off the roads, there are forests and many marshes; in some areas movement is difficult even for individual soldiers. Moreover, when ice (snow) is melting or when snowdrifts are freezing, there are many places where even the roads become extremely difficult to traverse.

In the southern section of the lower reaches of the Amur Oblast, the most important roads are as follows:

1. Amur River Coast Road (on the right bank)
2. De Kastri - Sofiskoe Road
3. De Kastri - Nikolaevsk Road (coast road)
4. Sovetskaya Gavan - Komsomolsk

In the region which fronts on the Sea of Okhotsk, rivers, swamps and mountains are sometimes intermingled. In the past, roads were limited merely to some natural paths which passes through the native villages. There is little information regarding the present condition of those roads.

A. Region South of the Uda River

Recent new construction and repair of roads on the right bank of the Amur River north of Sovetskaya Gavan-Komsomolsk has been of considerable military and economic importance as well as providing a link between America and Russia. Furthermore the Sofiskoe-De Kastri-Cape Lazareva road has been improved for vehicular traffic.

Note: According to an intelligence report there is an oil pipeline from Sofiskoe-De Kastri-Cape Lazareva that reaches to the Okha oil field in Sakhalin via Pogibi on the coast opposite the Tartary Strait (Accuracy B). If true, it is important because of transportation of the crude oil from Okha.

Principal roads

1. Sovetskaya Gavan-Komsomolsk road. From Sovetskaya Gavan on the Sea of Japan it crosses the Sikhote Alin mountain range. Economically and militarily it is an important road leading to Komsomolsk on the banks of the Amur. It was only a pack horse trail formerly, but recently, accompanying the progress of the construction of the Baikal-Amur Railroad, it has apparently been improved to a motor vehicle road (Accuracy B). However, it has definitely been improved into a motor vehicle road for about 90 kilometers east of Komsomolsk.

2. Sovetskaya Gavan-De Kastri road. A military road following the coast. Its condition is not clear but it must be a pack-horse road.

3. De Kastri-Sofiskoe-Komsomolsk road. Between De Kastri and Kizi (on the Shore of Lake Kizi) the road is 7 meters wide. It has a drainage ditch and is a good road for passage of field transport vehicles and motor vehicles. It appears that in general it will be able to carry motor vehicles between Lake Kizi and Sofiskoe.

The nature of the road on the right bank of the Amur between Sofiskoe and Komsomolsk is not clear, but it is of the light vehicular type. It will need some construction to be a standard motor vehicle road.

There is a report of a pipeline between De Kastri and Sofiskoe (Accuracy B).

4. De Kastri-Mariinskoye-Kukla road (on the coast opposite Nikolaevsk).

There is a report of a road which carries motor vehicles between De Kastri and Mariinskoye, but its truth is doubtful (Accuracy B-C).

It appears that the road following the Amur between Mariisnkoye and Kukla will generally carry motor vehicles but the details are obscure.

5. De Kastri-Cape Lazareva-Cape Pronge-Kukla road (on the coast opposite Nikolaevsk).

The De Kastri-Cape Lazareva-Cape Pronge road has been a pack horse road until now, but it appears to have been improved to a road for motor vehicles recently, but its nature is generally good (Accuracy A-B).

There is a report of a pipeline between De Kastri and Cape Lazareva (Accuracy B).

The road between Cape Pronge and Kukla is a good motor vehicle road.

6. Cape Lazareva-Bogorodske road.

Crossing the Sikhote Alin Mountain Range, it comes out on the banks of the Amur. Formerly, only a pack-horse road, there is a report that is has been improved recently to a motor vehicle road (Accuracy A-B).

7. Nikolaevsk-Mago-Korbi-Ust Umalta-Ekimchan Road.

Between Nikolaevsk and Mago it was a pack-horse road until 1937, but it has been improved since then. In good weather motor vehicles, and at other times light vehicles, can use it. West of Mago it appears to be generally passable for light vehicles except in periods of rain or thaw.

Note: It is reported that when the Japanese Army dispatched troops to Siberia and occupied Nikolaevsk in 1918, a major part of the defending revolutionary army and inhabitants escaped westward by this road.

8. Nikolaevsk-Vereshyevo road.

This road follows the coast of Sakhalin. Up to now only a light vehicle road, very recently it appears to have been improved but details are obscure (Accuracy B). In winter it is a good sled road.

9. Nikolaevsk-Lva Tolstoge road.

A road for military use which leads to the mouth of the Amur carrying motor vehicles.

10. Winter roads (sled roads).

a. De Kastri-Sofiskoe road
b. Kizi-Mariinskoye road
c. Cape Lazareva-Lake Kizi-Mariinskoye road
d. Amur River road.

B. Region north of Uda River

Up to now, there has been almost nothing in the area which could be called a road. There are only natural paths linking each village and they lack bridges. There are a great many obstacles such as rivers and marshes. Off the roads passage is difficult.

Recently, from the standpoint of military affairs and development of resources, there has apparently been local construction, but details are obscure.

The roads are very useful as sled roads in winter.

The following are the principal roads:

1. Ayan-Nelkan road.

It leads to Yakutsk and connects with the water route of the Maya River (Aldan River at Nelkan). It appears to be a pack-horse trail but no details are clear.

2. Okhotsk-Yakutsk road.

It connects with the Aldan River water route. Its nature is unknown but one part appears to be a motor vehicle road.

3. Okhotsk-Magadan road.

It is a pack-horse trail which follows the coast. One part seems to carry light vehicles but details are not known.

C. Winter-road linking Sakhalin and the Continent

It freezes in winter (late November-late April) south of the southern part of the Gulf of Sakhalin and north of (and including) the Gulf of Tartary. In the center of the Gulf of Tartary it either does not freeze or the ice is so thin that travel over the ice is dangerous. The ice is about 1 meter thick on the water route and reaches 1.50 meters in the shallows. The surface of the ice near Sakhalin is very uneven and movement is difficult, but on the coast of the continent the surface is flat and movement appears to be easy.

Except in bad weather, the inhabitants generally travel by sled over the ice from January on (when the surface of the ice is rough it is trimmed down and road markers are set up). The principal sled roads are as follows:

1. My-Pobibi (Cape Uargis) (horse-sled road)
2. Pronge-Byrka (Tengi) (dog-sled road)
3. Cape Petkh-Langari (dog-sled road)
4. Langr-Tamleyo (Kimkh) (dog-sled road)

Note: Judging from the thickness of the ice, truck passage appears possible over the bulk of the Tartary Strait and the Gulf of Amur. The most suitable time for passage over the ice is January-March.

D. Influence of Winter on the Roads

The cold weather in this area is intense. In winter (November-April) most of the damp ground, rivers, lakes, ponds and gulfs freeze. Generally, conditions are such that passage is possible. Localities vary, but the inhabitants rely on sleds as the principal transportation in winter when there is enough snow (horse, dog and reindeer sleds).

However, apart from the roads, it is principally the rivers (the Amur has the greatest utility) and the coast (chiefly Cape Lazareva-Pronge-Nikolaevsk-Lva Tolstogo-Langr) which can be used as sled routes.

II. TRANSPORTATION

A. Railroads

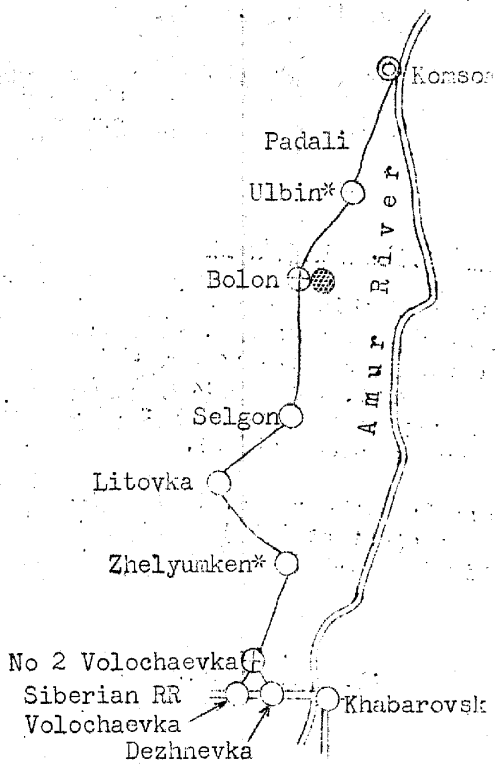
Except for the line to Komsomolsk which branches off from Volochayevka and Dezhnevka on the Siberian Railroad, there are no other railroads, but from Sovetskaya Gavan-Komsomolsk, which is one part of the projected Baikal-Amur line, construction at present is continuing as in the past. It appears that the roadbed will be completed about the fall of 1943, except around the central mountain passes (bridges not yet completed).

1. Komsomolsk Branch Line

Militarily and economically it is an important line, branching off the Siberian railroad at Volochayevka and Deshnevka Stations, running to Komsomolsk. It was completed in November 1936 and its overall length is 355 kilometers.

The rolling stock and fixed installations are the same as the Siberian Railroad, but because the line passes over wide swampy zones, the roadbed has some poor sections. At the present time, ordinarily, two or three trains run per day. However, the maximum number of trains moving at a speed of 35 kilometers per hour in winter is supposedly 18, and at other times 19. Recently, owing to the demands of the American-Soviet coalition and the economic and military development of the Komsomolsk area there is ground for the suspicion that this railroad is being gradually strengthened.

Plan of the Komsomolsk Line



LEGEND:
- Station where there are regular engine sheds
- Stations where there are switch engine sheds
- Watering stations
- Stations where there are freight sheds

* Approximation of Russian place name on basis of Japanese Kana.

2. Baikal-Amur Railroad (Projected Line)

Because of the impact of the Russo-German War in 1942, construction of the Baikal-Amur railroad has been suspended for the most part, but because of military demands and the need for a link between America and Russia, the construction and survey in the area around Komsomolsk is being continued as before. In the fall of 1943 the roadbed between Komsomolsk and Sovetskaya Gavan was completed, except for one part around the central mountain passes (bridges are not yet complete).

Note: The projected Baikal-Amur line will be a winding railroad running for 4400 kilometers. It will branch eastward from Taishet as a supplementary main line of the Siberian railroad and will run to Sovetskaya Gavan via Ust Kut and Komsomolsk. Its object from the standpoint of anti-Japanese strategy is to strengthen the line between the Eastern USSR and the European USSR and to increase the depth of Eastern USSR defenses.

From before the Russo-German War, tremendous construction efforts were being made. Work was carried out on a plan first to construct a branch line running out from the Siberian railroad, and then, with its railhead as a base of operations, extend it and establish contact with points to either side. At a time when construction had been delayed due to the effects of weather, climate, topography and so on, the Russo-German war broke out (1941); then manpower and material shortages made construction doubly difficult. Finally in the winter of 1942 the major part of the project was temporarily suspended. For the present, it is judged that chances are slight of opening traffic on the whole line.

Note: There is also the following report on railroad construction: (Reliability C)

a. Komsomolsk-Kharan-Nikolaevsk line
b. Kharan-De Kastri

B. SEA TRANSPORTATION

1. Harbors

a. South of the Amur River mouth

In this area are the bays of Sovetskaya, De Kastri, Nikolaevsk, etc. These can scarcely be called first-class as they are shallow and located in an area where navigation is difficult, but they are very valuable as substitutes in case the ports in the southern Maritime Krai cannot be used.

1. Sovetskaya Gavan

Though the natural conditions are not good in this area, it can be called a good port. As a port connected with the proposed Baikal-Amur rail line, various installations and construction can be effected, hence its potentialities must be considered.

At present it appears that a railroad will be built to go along with the motor vehicle road to Komsomolsk. With its completion, the value of the port will be further increased.

2. De Kastri

The natural conditions and location of the port are poor. Large ships have difficulty navigating in the Tartary Strait. But disregarding these factors, it is an important port of the lower reaches of the Amur River region, because it is connected to Komsomolsk and Nikolaevsk by motor vehicle road.

3. Nikolaevsk

Though it is of prime value as a seaport of the Amur River network, its natural conditions as a bay are poor. The fact that large ships cannot enter the harbor (depth 4-5 meters), added to the difficulty of navigation in the Gulf of Tartary, the Tartary Strait and the Gulf of Amur, has delayed development of this port considerably. It appears that various port installations have been strengthened recently. In view of the importance of its location, and the information about the railroad between Nikolaevsk and Komsomolsk, it warrants attention.

4. Okhotsk Sea area

Ayan and Okhotsk

Though both ports have been utilized from olden times as ports linking the Yakutsk area, they are in poor condition. Because both the Ayan-Yakutsk road (with the Lena River network) and the Okhotsk-Yakutsk road are poor, the value of the ports from the point of view of self-support is small, but with the development of economic exploitation to the northeast, their value can be expected to advance steadily.

2. Summary Table of Port Installations

	Name of Port	Frozen	Thawed (Navigable)	Quays and Piers	Ship Capacity		Freight Handling		Food Storage
					Quays and Piers	Anchorages	Cranes	Others	
Amur Ports	Sovetskaya Gavan	Mid-November to late April	Mid-May to late November	one 300-meter quay over 10 varied piers	two 3000-ton class one 10,000-ton class	five 4,000-ton class	Unknown		
	De Kastri	Mid-November to late April	Late June to early November	one 1,000-meter wharf four varied piers		Several	Unknown		
	Nikolaevsk	Early November to mid-May	Mid-June to mid-November	Seven piers for river boats one for sea-going ships	four 3,000-ton class	Many	Some		33,130 sq meters
Sea of Okhotsk	Ayan	Early November to late June	Late June to mid-November	None		Only small ships	Unknown		
	Okhotsk	Late November to mid-June	Early June early December	None	None	3,000-ton class	Unknown		

Approved For Release 1999/08/25 : CIA-RDP78-03109A000500010021-1

3. Loading Capacity of Important Harbors

	Name of Port	Yearly loading capacity (10,000 metric tons) Total	Adjacent to Wharf	Overside	Actual Results (yearly)
Amur Ports	Sovetskaya Gavan	78	50	28	
	De Kastri	9	9	--	
	Nikolaevsk	82	66	16	18.9 (1935)
Sea of Okhotsk Ports	Ayan	3	--	3	
	Okhotsk	8	--	8	

4. Routes of navigation

Not only is there a lack of reliable data about these routes of navigation, but also, successful development of them is difficult. For information the following table shows those important things as collected and evaluated from fragmentary information between about January and the first part of October, 1943. (Accuracy B)

Navigation Routes	Principal Ports of Call (Amur Region only)
Vladivostok-Nikolaevsk-Okhotsk	Sovetskaya Gavan, De Kastri, Nikolaevsk
Vladivostok-Aleksandrovsk-Magadevo	De Kastri, Okhotsk
Vladivostok-Various ports along the Maritime Krai Okhotsk Sea	
Coastal ports to Petropavlosk	
Vladivostok-Aleksandrovsk	Sovetskaya Gavan
Vladivostok-Nikolaevsk	Sovetskaya Gavan
Vladivostok-Nikolaevsk-Khabarovsk	Between Nikolaevsk and Khabarovsk; one ship ran aground in Aug, one in Sep.
Vladivostok-Sovetskaya Gavan	

E. Summary of shipbuilding yards (1943 survey, Reliability B)

Name of Factory	Location	Products	Installations
Shipbuilding Yard	Nikolaevsk	River and fishing craft	2 large-type shipways 4 small-type shipways
Fleet shipbuilding yard	Nikolaevsk	Warships	
Amur shipbuilding yard	Komsomolsk	Small-type cruisers, river-boats, assembly, repairs	Slips - 3 Docks - 3 Repairs and construction of 4000-ton class ships possible
Ship repair yard	Sovetskaya Gavan--Mago		

C. WATER TRANSPORT

The economic and military value of water transport in this area is exceedingly great in both war and peace. It is especially important as a route for American resources and supplies to Russia.

1. River Transport

a. Amur River

Ocean-going ships of 2000 tons and below can operate between Nikolaevsk and Sofiskoe (to Khabarovsk during high water). Almost 2,200,000 metric tons of goods were transported in 1943.

Note: The Amur River, strategically speaking, is extremely valuable as a supplementary traffic artery of the Siberian railroad and as a national boundary it is very useful in wartime as a supply route and route of advance. The river basin is the most highly developed region in Eastern Russia, and it contains the Bureya coal field, the Zeya gold-mining district, and the Amur Oblast wheat-storage district. With the construction of the important Komsomolsk industrial district and the increase in transport of American resources to Russia, the Amur River is becoming increasingly valuable.

(1) Condition of the Water Route

Section	Speed of Current (km per hr)	Width (km)	Depth (m)	Nature of Bottom
Nikolaevsk-Mago	1.5	3.0		Sandy
Mago-Mariinskoye	1.8	2.8	More than 4.1	Sandy
Mariinskoye-Komsomolsk	3.0	2.3		Sandy
Komsomolsk-Khabarovsk	3.0	1.5	More than 4.1	Sandy

Note: Downstream from Khabarovsk:

Minimum river width	-	800 meters
Minimum depth	-	2 meters (low water period: mid-June to mid-July, September and October)
Maximum Velocity	-	5 km per hour (high water period: late May to early July, late July to early September)

There are lighted buoys in all sections, and navigation aids are almost complete.

(2) Navigable distances

In September and October from early dawn to daybreak a dense fog rises. Ordinary navigation ceases and where there are strong winds, the waves become violent.

Between	Distance (km)
Nikolaevsk-Komsomolsk	580
Komsomolsk-Khabarovsk	365
Nikolaevsk-Khabarovsk	945

(3) Navigable Period

Late April (or mid-May) to late October (average 165-170 days).

Note: Nikolaevsk vicinity 166 days
Khabarovsk vicinity 184 days

(4) Speed of Navigation (per hour) (estimate for 1940, reliability B-C)

Upstream and Downstream		Towing (km)	Passenger Steamer (km)
Upstream	Loaded	2.50	7.80
	Empty	1.25	8.54
Downstream	Loaded	11.00	16.75
	Empty	12.50	17.50

Note: 1. A unit usually consists of three lighters under tow.
2. These figures were obtained by adding the actual results of 1935 and by taking into consideration the capability and the conditions of the use of ships on this river and the speed of the current, and by further calculating the average speed between Nikolaevsk and Nerchinsk, using experiences on the Sungari River as a basis. Speed may be increased in the lower reaches of the river.

(5) Present conditions of the ships (survey at the end of 1941 Accuracy B). The following shows the vessels belonging to the Lower Amur Shipping Office:

Passenger Vessels	10	
Tugs	79	
Freight lighters	203	(Total 111,650 metric tons)
Oil lighters	43	(Total 107,500 metric tons)

(6) Condition of the wharves

(a) Nikolaevsk Harbor

In the harbor there are about seven piers for the use of river steamers and one for the use of ocean-going vessels between the unclaimed land and Kuegda and one large-type land crane. There are five warehouses on the left of the entrance to the river harbor.

(b) Mago Harbor

There are two wooden piers to which five 2,000-ton class ships can tie up simultaneously.

(c) Mariinskoye

Four 1,000-ton class ships can tie up at the pier at the same time.

(d) Sofiskoe roadstead

There is a wooden wharf where eight 70-meter ships can anchor.

(e) Komsomolsk Harbor

There is a wharf about 500 meters long and 5 meters wide.

(7) Ship building and repair facilities (see section 2).

(8) Conditions of transport

(a) Detailed conditions of service are obscure as data is lacking.

Note: Conditions according to a 1936 Amur Shipping Office table are as follows:

Section	Distance (km)	No of days for round trip (24 hours)	Number of times serviced each day
Nikolaevsk-Khabarovsk	945	6	3
Nikolaevsk-Blagoveschensk	1,948	15	4
Khabarovsk-Nikolaevsk	945	10	6
Khabarovsk-Komsomolsk	365	5	6
Nikolaevsk-Kerbi (Amgun River)	840	7	8

(b) The 1943 amount of transported goods is generally as follows: (Reliability B-C)

Name of River	Shipping Office	Amount Transport (10,000 metric tons)	Goods Transported (10,000 metric tons)	
Amur	Upper Amur Shipping Office		Lumber 80	Fish 6
		220	Petroleum 60	Feed Supply 5
	Lower Amur Shipping Office		Coal 20	Salt 4
			Grain 20	Other 25

b. Amgun River

This river is used chiefly in collection, distribution and transportation of goods and development of gold-mining in the Amgun River basin, but there are several areas of navigation hazards such as hidden rocks and rapids.

(1) Conditions of the water route

Section	Current Speed (km per hr)	Width of River (m)	Depth (m)	Nature of River Bottom
Ust Amgun Udinskoye			Over 1.7	Sandy
Udskoye Guga		350		Sandy or Rocky
Guga-Kerbi (Poliny-Osipenko)	2.0		Over 1.5	Sandy

Note: Downstream from Kerbi:

Minimum river width - 200 meters
Minimum depth - 0.8 meters (low water period: September and October)
Maximum velocity - 8.7 km per hour (high water periods: June and July)

Navigational aids almost complete in all sections. In September and October, thick fog arises from early dawn until daybreak, and navigation is completely halted.

(2) Navigable distances

Between Ust Amgun-Kerbi (Poliny Osipenko) 393 kilometers

(3) Navigable period

From the middle of May to middle of October or to end of October (average 160 days)

(4) Navigable speed (See Amur Section)

(5) Present condition of vessels

Even though they belong to the Amur Shipping office, no details are known.

(6) Transportation conditions

A fixed route has been opened between Nikolaevsk-Kerbi (Poliny Osipenko) (520 kilometers). It is served by river passenger ships, several freighters and mail ships of 500 tons or less. All are of the paddle wheel type. It requires 7 full days for a round trip.

c. Aldan River

An important route linking with the Ayan Region in the Okhotsk Coast, Yakutsk Region and the Siberian Railroad Mainline Scovorodino area. It is used for transporting of goods.

(1) Conditions of Water route

Section	Speed Current (km ph)	Width of River (meters)	Depth of River (meters)	Nature of Bottom
Ust Aldan Ust Maya	5.1	2,500	19.1	Sandy
Ust Maya-Uchur River	5.1		5.0	Sandy
Uchur River-Tommot	6.5	350	5.0	Rocky

Note: Downstream from Tommot

Minimum river width - 350 meters
Minimum depth - 2 meters (low water period)
Maximum velocity - 8.3 meters

There are navigation aids downstream from Ust Maya, but there are many rocks upstream from the confluence of the Uchur River, and navigation is impossible except during high water.

(2) Navigable distance

Confluence of Uchur River - Ust Aldan: 1223 kilometers.
Uchur River Confluence - Tommot: 395 kilometers.

(3) Navigable period

Late May to mid- or late October. (average 135-140 days)

(4) Navigable speed

Considering the 1935 results and the capacities of the ships on this river, their utility, and speed of the river, and further when the experience on the Sungari River is taken as a standard, the navigable speed (per hour) is as follows:

Down and Upstream Classification	Towing (km per hour)	Passenger vessel (km per hour)
Upstream (full)	2.50	11.50
Downstream (empty)	3.50	12.75

(5) Present condition of the ships

The condition of vessels on this river is unknown although they belong to the Lena Shipping Office.

d. Maya River (Tributary of the Aldan)

An important water route linking the Ayan region on the coast of the Sea of Okhotsk and the Yakutsk region, it is used to carry goods.

(1) Condition of the water route

Section	Speed of Current (km per hour)	Width of River (kilometers)	Depth (meters)	Nature of Bottom
Ust Maya-Yudoma River Junction			17.0	Sandy
Yudoma River Junction-Nelkan		140	9.0	Sandy

Note: (a) Downstream from Nelkan:

Minimum river width - 100 meters
Minimum depth - 0.8 meters (low water period)

There are navigation aids, but navigation is possible only during the high water period.

(b) The river is navigable from Ust Maya to Nelkan, a distance of 55 kilometers.

(c) Navigable from mid-May until late October (averaging 140 days per year).

(d) Navigable speed and present condition of ships unknown.

2. Transportation on the Lakes and Ponds of Lake Kizi

It is important as a water or ice route between De Kastri and Mariinskoye.

a. Conditions of the routes

There is a route between Mariinskoye and Kizi with no port of call on the way. It seems to take about 4 hours by a 50-ton class motor craft.

b. Navigable period

Generally it is for the 6 months period from early May until early November. During the frozen period, transportation by motor vehicle is possible. Communications over the ice is carried on between Kizi and Mariinskoye and Sofiskoe.

c. Condition of the wharves

1. Kizi Harbor

A pier of log and stone construction 30 meters long, 8 meters wide and 2 meters high.

2. Mariinskoye Harbor

Ships of 1000-ton class can tie up.

d. Transportation Conditions

Used by very few passengers, it is used mainly for the transport of military goods, with some lumber also being transported by barges and lighters.

Note: There is an intelligence report concerning plans for the construction of a canal from Lake Kizi to De Kastri (1937), but this report is considered quite unreliable.

D. Motor Vehicles and Transportation

1. Vehicles

It appears that before the Russo-German War there were many trucks and tractors, but when the war started, they were sent west to be used on the front lines; fuel distribution became uneven, and because of a shortage of parts and repair facilities most of these vehicles became inoperative. Ordinarily these materials are controlled at the tractor and machinery distribution office (MTC) and are distributed to the Kolkhoz and the Sovkhoz as needed. During an operation, when they can be confiscated, they are of considerable strategic value.

a. Number and types of vehicles in Lower Amur Oblast (1940 survey, Reliability B-C).

(1) Probable number of vehicles (except military)

Trucks	1180
Passenger	110
Buses	5
Special-type vehicle	15

(2) Probable number of each special class vehicle

Industrial	354
Agricultural	118
Industrial and municipal transport	236
Others	472

b. There are supply and repair shops in Komsomolsk.

2. Regional Transportation

Sleds (dog sleds, horse sleds, and reindeer sleds) are the most practical and widely used means of winter transportation for the greater part of the inhabitants.

The following table shows the number of horse carts and sleds:

Type	Number	Date of Survey	Classification	Number	Date of Survey
Horses (non-military)	4,162	January 1939	Horse Carts	2300	1936
Reindeer	48,202	January 1939	Sleds	1940	1936

Note: Standard load capacities of means of transportation

Time Division		Freezing		Non-Freezing	
		Load Capacity (kg)	Days Distance (km)	Load Capacity (kg)	Days Distance (km)
2-wheel horsecart	Type	560	24	450	24
	Drawn by 1 animal				
	Drawn by 2 animals	680	32	600	32
Freight sled	Drawn by 1 animal	450	24		
	Drawn by 2 animals	560	28		
Passenger horse-cart	Drawn by 1 animal	300 (3 or 4 people)	24		24
	Drawn by 2 animals	375 (4 or 5 people)	28		
Passenger sled	Drawn by 1 animal	270	24		
	Drawn by 2 animals	330	32		
Pack horse		60		75	

Note: a. The figures given are for one day's journey when the animals are in continuous use but this can be increased by about 10 kilometers when the animals are used for only a short time each day. In the frozen winter period, it can be increased 20 per cent over the summer period.

b. Slightly superior to Chinese horses, these horses have great powers of endurance and can get by on the same coarse food, but they are inferior as pack horses.

c. The loading capacity includes the driver.

III. COMMUNICATIONS (See Annex 12)

Though wire communication seems to be the principal means of communication, the radio is developing considerably as a secondary type.

Wire communications have made their greatest advancement in the territories along the Amur River concentrated around Nikolaevsk, and they seem to be mostly military lines.

Radio gives top-speed communication, has comparatively great output and good potentialities.

A. Wire Communication

1. Wire telegraphy

There is a central telegraph office in Nikolaevsk, which connects with Okhotsk and Yakutsk, in the north, and it connects with the regions of Komsomolsk (Khabarovsk) and Sovetskaya Gavan in the south, and links with northern Sakhalin by means of an underwater cable passing across the Tartary Straits.

Though there has been no clear distinction between public and military use in the allocation of telegraph lines, it seems to have been prearranged that they can be put to military use if necessity requires.

The principal telegraph instruments in use are the handpowered or automatic teletype machines, and, in local circuits, the "Morse instrument" or sounder.

Pine and Cryptomeria, which are abundant locally, have been used for the telegraph poles, and although the "crank type" are most prevalent they are gradually being replaced by the "tiered, tree-branch type".

The lines are made of 5-millimeter iron wire.

2. Telephones

a. Long distance telephones

There has been considerable telephone development in recent years, and inter-urban communication is possible. The lines have been installed along the principal highways.

The telephone wire for military and garrison use is chiefly of the multiple-wire type, and conversation is practical within distances of 300 to 400 kilometers.

b. Local telephones

In the principal cities municipal telephone installations have for the most part been completed, and conditions in 1942 were as follows:

Classification	City	Number of Subscribers
Universal battery system	Komsomolsk	About 800
	Sovetskaya Gavan	About 500
	Nikolaevsk	About 600

Though there also seems to be exchanges in Kerbi and in the Nikolaevsk port director's office, these are unconfirmed.

3. Administration of the communications network

Type of Service	Jurisdiction	Summary
Public	Peoples' Commissariat of communications	The municipal exchange equipment is for general public use
Railways	Peoples' Commissariat of transportation	Installations have been constructed along railway lines for railway traffic, and equipment is largely complete.
Garrison	Peoples Commissariat for National Defense (NKVD)	Developed for the most part in the territories south of Nikolaevsk and coastal regions

B. Wireless Communications

1. Wireless telegraphy

Owing to the irregular scattering of cities over this broad territory, wireless telegraphy has developed as an important means of communication, both militarily and economically.

There has been an especially remarkable development in a military wireless network. Many of the wireless instruments being used are short-wave quartz (crystal) oscillators.

2. The communication network administration

	Type of Service	Jurisdiction	Summary
	Public	People's Comm't of Commu'n	
Military	Red Army General and Navy Air	Peoples' Comm't of Nat'l Defense	
	Border Guard Unit	NKVD	
	Arctic Ocean Wireless	Bureau of Arctic Ocean Navigation Service office	One office at Okhotsk determined at present
Other	Baikal-Amur Railway Survey Unit	Baikal-Amur planning Dept Far-Eastern Section	Komsomolsk Sovetskaya Gavan
	Fishing Industry "Trusts"	Unknown	
	Mining control offices	Unknown	

c. Broadcasting

In Nikolaevsk, Nerbi, Mago, Bogorodskoe, Chumikan, Ayan, Mariinskoye, Solontsy, Ulya, etc., there are relay stations controlled by a Radio Commissariat of the Lower Amur Oblast, and these listen in by means of private wires, and relay the Khabarovsk broadcasts to the public at large.

IV. AVIATION (See Annex 13)

A. Airfields

The best airbases of Eastern USSR are in the southern part of this area, especially the lower Amur basin. Because it is valuable as a link between America and Russia, there has been a marked tendency lately to construct new airfields and strengthen old ones. This is especially true in the vicinity of Komsomolsk.

There are no landing areas in the north because of the difficulties of weather, climate and topography, but there are a few rivers and ports that are used as seaplane landings. Though these are scattered and few in number, they must be watched closely because of the inauguration and strengthening of the Soviet-American northern air route and the tendency of this route to move gradually southward.

1. Distribution and Nature

The distribution of airfields (including seaplane landing and take-off areas) which can be used for operations follows the Amur River. They are especially numerous in the neighborhood of Komsomolsk. Airfields of the Lower Amur Oblast area are distributed as shown in the following table (in addition to the Lower Amur Oblast it includes the directly subordinate area north of Sovetskaya Gavan and Komsomolsk).

Area	Landing Fields				Seaplane Landing Areas			Percentage
	Complete	Incomplete	Airstrips	Total	Complete installations	Incomplete installations	Total	
Coasts of Tartary Strait, Gulf of Tartary, Gulf of Amur, Gulf of Sakhalin			2	2	2		2	11
Amur River Basin	2	3	8	13	2	7	9	62
Sea of Okhotsk Coast		1	2	3	1	6	7	27
Total	2	4	12	18	5	13	18	100

2. Suitable Locations

Wide, flat areas suitable for landing fields, are generally lacking except in the Amur River Basin. Because of tundra and swamps, there are very few areas that would be adequate in the other river basins. Considerable construction work will be necessary to establish airfields, especially for large-type planes. Runways will have to be paved because of the mud during the rainy season and the periods of thaw. Landing areas for medium-type seaplanes and below can be established in the ports and bays of the coast and the Amur River System.

B. Air Routes

1. Civilian aviation

There is traffic on the Amur River and along the coast, but overland transportation is inadequate. The air facilities do not accomodate ordinary passengers, but are rather limited to especially-designated persons in the military and the government, and to postal articles, thus realizing the primary value of flying as an instrument of national policy and a means of communication which is a national necessity. Air service is irregular and at times, owing to the weather and climate, it is no more rapid than railroad transportation.

Though installations on the American-Soviet northern air route are being completely equipped, other installations are not making rapid progress. This area is marked by extensive seaplane landing areas.

Principal air routes are as follows:

a. The Khabarovsk-Nikolaevsk-Ayan-Okhotsk-Petropavlovsk Line--a main air route, valuable as a link with the Kamchatka area.

b. The Khabarovsk-Nikolaevsk-Okha Line

Note: American Soviet northern air route

(1) It has been developing since the summer of 1942 with an old irregular air route between Yakutsk and Velkal as a nucleus. It was used for mass transportation of American-made military planes from 1942 to the beginning of 1943. It is 6,500 kilometers long. At present (October 1947) the number of planes transported reaches 250-300 per month. (At the beginning it was 70-80 per month.)

In wartime it is not merely a Soviet-American supplementary supply route but it is a great rear base from the standpoint of anti-Japanese strategy.

Judging from the establishment and expansion of airfields and the strengthening of installations, attention must be given to the fact that the American-Soviet northern air route has recently tended to move south along the coast of the Sea of Okhotsk, and the lower waters of the Amur River, especially in the Nikolaevsk-Komsomolsk area.

(2) This air route was organized by a civil air unit, and was formed from the American-Soviet Northern Air Route Airplane Ferry Division Number One; it is directly controlled by the Civil Air Unit General Headquarters of the NKVD (now in Moscow).

(3) The transport schedule is divided into the following five sections between Nome and Krasnoyarsk. Ordinarily the planes are ferried one section per day, and the trip takes five days. When the weather is bad it seems to require 8-10 days (there is one case of a 3-day flight in extremely good weather).

Section			Distance (km)
Nome	--	Velkal	660
Velkal	--	Seimijan	1420
Seimijan	--	Yakutsk	1200
Yakutsk	--	Kirensk	1360
Kirensk	--	Krasnoyarsk	980

2. Airfield Installations

It appears that the American-Soviet northern air route has recently been rapidly equipped, and plans are being made for the expansion and strengthening of installations at Okhotsk and Magadan, in the coast area of Okhotsk and the Komsomolsk area of the lower Amur River basin. The above must be noted for the future in connection with the trend toward strengthening routes to the south, arising from the American-Soviet northern air routes.

Part 5. CITIES, INHABITANTS, QUARTERS, SUPPLY

I. SUMMARY

This area is very sparsely populated, having 0.15 people per square kilometers, which is 1/200th the population density of the Empire or Manchuria.

In the area facing on the Sea of Okhotsk, winter lasts for most of the year, and because the cold is severe, it creates many problems which render it unsuitable for habitation, and there is little development of cities or populated areas, and any density of dwellings exists only near the principal harbors. There are also no villages other than the small native villages of the Giliaks and Tungus which are scattered over the whole region. There are occasional brick buildings in Nikolaevsk and Komsomolsk, but wood construction is far more prevalent.

Quartering facilities are adequate for the population, but since Russian houses are small, a large quartering capacity cannot be expected; and barracks should be used in places where troops are stationed.

Industry is not developed in this area and the resources of the populated places are extremely small. Since the density of population is slight, government-owned commodity stores cannot be large. Hence provisions cannot be anticipated from this area, and units operating here must rely on carrying all their supplies with them or having them sent on afterwards.

II. TOWNS, POPULATED PLACES

In general, this area has no large cities, but Komsomolsk and Nikolaevsk are regular towns. Their population is computed in the tens of thousands. Komsomolsk, located at an important point on the Baikal-Amur Railroad, has developed very recently, and it is still developing. De Kastri, Sovetskaya Gavan, Sofiskoe, Ayan and Okhotsk rank next in size with populations computed in the thousands. Details are not clear, but basic resources are lacking.

Generally speaking, the facilities of the cities are incomplete. Many laborers' houses are of hasty construction so the quartering capacity is extremely poor.

The condition of each important city and village and the population of its environs is shown in the following table.

City or Village	Number of Houses	Population	Summary
Komsomolsk		70,000	
Nikolaevsk	1,500	25,000	Recent report of increase to 15,000 houses and 70,000 persons (Reliability B-c).
Sovetskaya Gavan	500	8,300	Reported recent population of 40,000 (Reliability C)
Sofiskoe	200	5,000	
Ayan		3,000	
Okhotsk	500	3,000	
De Kastri	500	2,500	
Datta	120	2,000	
Mariinskoye	100	1,000	
Bogorodskoe	200	1,000	
Mikhailovskoye	130	600	
Kerbi	100	500	
Mago	100	400	

Note: This table is based on the January 1939 census, published by the Soviet Union, and takes other factors into consideration. It includes compulsory laborers and military units.

Table of Population of Each Section

Section	Area (sq km)	Total Population	Population per sq km
Lower Amur Oblast	29,500	45,300	0.22
Uritsk	33,700	20,000	0.60
Poliny Osipenko (Formerly Kerbi)	36,000	7,500	0.20
Tugur-Chumikan	114,600	3,000	0.03
Ayan Mai	166,600	3,000	0.02
Okhotsk	169,200	7,200	0.04
Total	549,600	86,000	0.15

Note: Estimates of the population are based on the census data announced by the Soviet Union in the January 1939 survey; military units and compulsory laborers are included.

4. Coastal Areas of the Northern Maritime Krai

1. Sovetskaya Gavan

Until 1932 it had been nothing more than a little fishing port with some 30 private houses, and one pier about 30 meters long. It was finally recognized as a good port in 1932 and it was named Sovetskaya Gavan. A growing city, it took a long step forward in development when it became a military port in 1938. Completing its transformation, it evolved as a military, economic and communications center. At present it is the base of the North Pacific Detachment.

Its importance as a communications center will increase as construction of the Baikal-Amur Railroad to Komsomolsk nears completion. In 1939, carrying out the municipal plan, the number of houses was 500 and the population 8,300, but there is a report that the population has now reached 40,000 (Reliability C). The inhabitants, except for the fishermen, are mainly laborers who work in various factories in and out of the city.

The principal government offices, factories and institutions are as follows: city soviet, municipal military commissariat, Communist municipal committee, Raion NKVD, government bank, Guard Sector Unit headquarters, power plant, ship building yards, lumber mill, canning factory, flour mill, various munitions factories, schools, community hospital, post office (telephone-telegraph office) transmission relay station, fishing combine.

2. Datta

About 120 houses (estimated), a population of 2000: inhabitants principally engaged in fishing; it is located near the road from Sovetskaya Gavan to Komsomolsk. Its sandy coast is suitable for landings.

In the town there are a Coastal Border Guard Unit, sea lookouts, a post office, a forestry office, fishing trust enterprises, a customs branch office, a radio station, a grammar school, etc.

B. Area South of the Uda River

1. Nikolaevsk (See Annex 7)

It faces and dominates the Amur River artery of Eastern Soviet territory and forms a strategic point in linking it with Kamchatka and the American continent. It is the most important city militarily, economically and from the standpoint of communications. There are about 1500 houses and a population of about 25,000 (estimate). It is the most important city of the Lower Amur Oblast.

a. Nature of the City

The city faces the Amur River and runs about 4.3 kilometers southeast and about 1 kilometer northwest.

Several streets run east and west, many run north and south; the pattern is regular like the arrangement of a chess board.

b. Number of houses and population

There were about 1300 houses before the Nikolaevsk Incident, when most of them burned down. In 1924 the private houses numbered 450, and at present there are an estimated 1500 homes; the population is said to be 25,000 but the figure is not precise. Very recently there has been a report of 15,000 houses and 70,000 population. (Reliability B-C)

c. Resources

Agricultural products consist of a small quantity of vegetables such as potatoes, Chinese cabbage and radishes, but there is no grain. Various kinds of fish are abundant. A cannery is located on the left bank of the lower reaches of the river at Irunge village. Firewood is plentiful for fuel and is transported from the river bank about 4 kilometers upstream from Nikolaevsk.

d. Communications

Other than a motor vehicle road from the city to Lva Tolstoge and another to Mago, there are nothing but paths or sled roads. Most traffic is transported by water and in winter by sleds over the ice. At present there is a regular ferry from the Vladivostok area. An oil tanker makes round trips to Kosukario in North Sakhalin. The tanker goes directly to the refinery at Khabarovsk but it usually makes transhipments at Nikolaevsk.

In river transportation, an Amur River System steamer connects the Kerbi area on the Amgun River and the Khabarovsk-Blagoveschensk area. There are airfields and landing places for both land and sea planes and it is a hub for air routes.

There are radio and radio relay stations. There is telegraphic connection from Nikolaevsk to the Khabarovsk area via the various villages along the bank of the Amur River.

e. Government offices, factories.

Principal government offices

North Army Group Headquarters, garrison hospital, Coastal Guard Unit Regional Headquarters, oblast executive committee, customs, telephone and telegraph office, post office, radio relay station.

Principal factories

Power plant, ship-building yard, flour mill, alcohol plant, lumber mill, drinking-water-purifying plant, brick factory.

Notes: History

On 1 August 1850 a Russian naval captain, NEVERSKI(*1) steamed up the Amur and 58.7 kilometers from the river's mouth he planted the Russian flag on the left bank. The Tsar at that time was Nicholas I and as a result the town was named Nikolaevsk.

It was designated as capital of the Maritime Province in 1856, and the military port being transferred from Petropavlovsk, it became the military and administrative center. In 1860, by the treaty of Pei-ping, Russia occupied the Ussuri district and the provincial government offices were moved to Khabarovsk and the military port to Vladivostok. Because of this, Nikolaevsk temporarily declines, but in 1893 a battalion of Siberian troops of the line were stationed there, and then materials for the Siberian Railroad were transported from the Amur River, bringing gradual prosperity.

(*1) Japanese transliteration of Russian name.

All this, accompanied by the development of fishing and collection of gold dust, occasioned a remarkable development.

In 1914 as a result of alteration in the administration plans, this area was incorporated in Sakhalin Oblast and the provinicial office was established in this city. Next to Vladivostok it became the busiest port, and a port building project was inaugurated; but its development was checked after 1917 because of the revolution and internal disorder. On top of this in 1920, the whole town was burned down by rioters in the Nikolaevsk Incident and thereafter it fell into complete decay.

Since 1922 it has been under the jurisdiction of the present government. Once again it was brought into the maritime district and was on its way to gradual recovery. In January 1926, as a result of an alteration in administration plans, it became a place where the Nikolaevsk Raion Executive Committee was located, and, in July 1934, together with the newly established Lower Amur Oblast, it became the administrative center of that province.

2. Komsomolsk

A city of rising military industry located in the Amur River basin, and an important transportation point. That is to say, it is a terminal point of the Komsomolsk branch line which runs off the Siberian Railroad trunk line at Volochayevka and Dozhnevka. There is also a report that a railroad has very recently been constructed to Nikolaevsk, notwithstanding the fact that the Baikal-Amur Railroad goes to this point.

a. Important factories

Power plant, Amur shipbuilding yards, airplane factory, tank factory, ordnance factory, ammunition factory, iron foundry, petroleum plant, motor vehicle plant, flour mill, bakery, brickyard, paper factory, lumber mill, cement plant, meat-processing plant.

b. Principal Government Offices

Municipal soviet, Communist municipal committee, Raion military committee, Amur Leger headquarters, savings bureau, post office, civil police station, public prosecutor's office.

c. Communications

(1) Water route

A regular steamer calls at the state-owned shipping office.

(2) Railroads

The Komsomolsk branch line was started in 1936. It has great value in connection with the water routes.

It appears that at present the Baikal-Amur railroad between Komsomolsk and Sovetskaya Gavan is under construction.

(3) Aviation

Its seaplane and air bases make it a strategic point on the air routes.

Notes: History:

It was formerly called Permskoe. In 1880 it was built as a small fishing village by itinerant fishermen. By 1932 there were no more than 50 houses, with a wooden grammar school and church. On 18 May 1932, 800 people of the Young Communist League, Komsomol, after starting preliminary construction of a rising industrial city, changed the name to Komsomolsk. Undergoing a speedy development, it had an estimated population of 70,000 in 1937, and has been growing steadily.

3. De Kastri (See Annex 6)

Located in De Kastri Bay, it is an important transportation point on the shortest and best road from the coast of the Japan Sea to the Sofiskoe area in the Amur basin. It has about 500 houses and a population of about 2,500. Geographically, it is the most suitable landing field anywhere along the coasts of the Gulf of Tartary, Tartary Strait, or the Gulf of Amur. It is valuable as a base for land and sea operation in the event of Japanese attacks on Khabarovsk and Nikolaevsk.

Its military installations include the De Kastri fortified area. There are air and seaplane bases in addition to the fortified area unit headquarters, the coastal border guard sector unit headquarters, the motor torpedo boat base, the radio station, post office, schools, customs, military construction headquarters, hospital, etc. A regular steamer based at Vladivostok touches here.

4. Sofiskoe (See Annex 11)

An important communications and military point on the bank of the Amur River. It has about 200 houses, a population of about 5,000 and also land and seaplane bases.

Ships proceeding up river may stop here. It is possible for ships of the 250-ton class to navigate the Gornaya water route. Because this part of the Amur has few tributary water routes, this is a good place to cut off river communications between Nikolaevsk and Khabarovsk.

5. Mariinskoye (See Annex 10)

It faces the Amur River, has about 100 houses, a population of about 1000. The inhabitants engage chiefly in fishing and agriculture. In addition to schools, post office, telephone office, fishing association, etc., there are barracks for the land and naval forces.

6. Bogorodskoe

A transportation center located on the bank of the Amur about 80 kilometers north of Mariinskoye. Its population numbers about 1000 and there are about 200 houses. As well as being the port of call for ships navigating the Amur River, it has a motor vehicle road to Lazareva which is a point of connection with the Gulf of Tartary and North Sakhalin. The residents engage principally in farming and fishing. The Raion executive committee, a civil police station, post office, telephone office, schools and hospital are here.

7. Volochayevka (See Annex 6)

It is about 15 kilometers north of De Kastri. The houses number about 100. Very recently as a result of the prosperity of De Kastri it has undergone a complete change as a military city. It has eight barracks.

8. Kerbi (Poliny Osipenko)

The largest village in the Amgun River Basin. It has a school, post office and fur factory, and a population of about 500 with about 100 houses.

C. Area North of the Uda River

1. Ayan (See Annex 8)

The population is approximately 3000. It has a seaplane base, a radio station, etc., and electric light facilities in addition to a Coastal Border Guard Sector Unit headquarters, a Raion executive committee, a Raion military committee, a court, post office, meteorological station, bank, Okhotsk Fishing Trust headquarters, a savings bureau, purchasing association, grammar school, and kindergarten.

The water sources are six wells and two springs, which freeze in winter except for one spring and one well, so melted snow is used as drinking water. The people of the vicinity are engaged primarily in fishing and secondarily in raising vegetables and stock.

2. Okhotsk (See Annex 9)

At the mouth of the Kukhtui River, there are about 500 houses and 3,000 people. It has every agency of Raion administration except the executive committee; there are Coastal Border Guard Sector unit headquarters, brick, oil and lumber plants, and a radio station.

There is gold in certain places in the interior, and with the fishing locations on the coast it is the economic center of the Raion administration.

It is an important transportation center and a port of call for regular ships on the Nagaevo and Vladivostok-Petropavlosk sea routes.

III. INHABITANTS (Population)

The population of the Lower Amur Oblast is barely 86,000, and the density of its population does not exceed 0.15 person per square kilometer. The greater part of the population is aboriginal, but some European Russians who have arrived in the country are living in the lower region of the Amur River. The greater part of the aborigines are of Tungusic Stock, and are mostly engaged in a life of hunting. Apart from these, the permanent coastal residents are principally engaged in fishing.

In the region on the right bank of the lower reaches of the Amur River live the Giliaks (NIBUFU*),. In places on the coast of the Sea of Okhotsk live the Kamchadals, who belong to the ancient stock of Asia. They number no more than a few thousands, and they are extremely Russianized. The special characteristics of all the various races are set out in the following table.

Classification	Region Inhabited	Occupation	Special Characteristics
European Russians	Lower Reaches of Amur and Principal Towns and Villages	Agriculture	There are principally the children of the first conquerors of Siberia, and immigrants,. They are unused to hardship and want, patient and progressive but rough in their habits and bearing.
Various peoples of Tungusic Stock	Throughout Lower Amur Oblast	Nomads: Hunting, Fishing	The Tungusic stock has mixed with the various peoples surrounding it and appears to have lost much of its characteristics, but ancient customs have been preserved by the Hunting Tungus who live in the forest, and by the Reindeer Tungus and others. In recent times, under the reforms of the Russians, they have been gradually turning from a wandering to a settled life.
Peoples of Tungusic Stock: Udehe, Nanai, Tungus Proper, Lamut, Negidal, Goldi, Samagir, Orochi, Evenki			

Classification	Region Inhabited	Occupation	
Ancient Asiatics — Stocks of Ancient Asia. Kamchadals Giliaks	Principally the Lower Reaches of the Amur River.	Fishing, Hunting, Nomads.	These races have gradually been decreasing in numbers since the Russian immigration. They make use chiefly of log timbers for their dwellings, and meat is their staple food.

Note:

1. As data is not prepared and there are no details for the total numbers of the aborigines, a future census will be necessary.

2. This table has been taken chiefly from the section on the aborigines in a study on the peoples in Eastern USSR, prepared in the General Staff Office, in March, 1942.

IV. QUARTERS

Since this area is remote, it has an extremely sparse population which hardly exceeds 86,000 in numbers and a density of 0.15 persons per square kilometer. Except in the principal cities, the dwellings are native structures for the most part, and the quartering of large forces would be difficult. This would be particularly true during the extreme cold winter.

It would be advantageous to use the Russian barracks (in cities and at strategic points along the coast), the living quarters belonging to the fisheries (Russo-Japanese Headquarters are about 80 kilometers southwest of Okhotsk on the sea coast of the northeastern part of the Ulya River), warehouses and other buildings; but many things are unknown concerning their construction, location, etc.

A force operating in this region would be more or less compelled to depend on Russian barracks.

It is generally possible to bivouac in summer, but in winter it is vital that preparations be made to protect against the cold, etc.

It is possible to bivouac in temperatures of 30 to 35 degrees below zero, if Type-95 portable tents and Type-95 octagonal bell tents are used. It is also necessary to choose a high, dry place for bivouacking as there are many forests and areas of swampy ground. Measures to ward off the damp are vitally necessary when bivouacking in forests or areas of swampy ground.

Asiatics

Note: For quartering in winter, see Notes on Winter Operations prepared by the Kuan-Tung Army Headquarters.

General Table of Quartering Capacity of Principal Towns and Villages in Lower Amur Oblast.

Regional Classification	Town or Village	Estimated Billeting Capacity	Number of Houses	Population	Existence of Military Quarters
Northern part of the Maritime Krai	Sovetskaya Gavan	16,000	500	8,300	Yes
	Datta	4,000	120	2,000	"
	Nikolaevsk	50,000	1500	25,000	"
Region south of the Uda River	Komsomolsk	140,000		70,000	"
	De Kastri	5,000	500	2,500	"
	Sofiskoe	4,000	200	5,000	"
	Mariinskoe	2,000	100	1,000	"
	Volochaevka	-	100	-	"
	Kerbi (Poliny) Osipenko	1,000	100	500	"
Region north of the Uda River	Ayan	6,000		3,000	"
	Okhotsk	6,000	500	3,000	"

Note: Population, in this table, is based principally on the Soviet National census published in 1939; forced laborers and military forces are included. Billeting capacity is, in general, computed at double the population.

V. FOOD, FUEL, WATER SUPPLY

A. Food

1. Food

Since there is little arable land, agriculture production is meager and self-sufficiency in grain is very difficult; but south of Mariinskoye along the Amur River basin, agriculture is more developed and wheat and vegetables are produced in this area.

Fishing is the only powerful industry in this area. Besides serving as food for the local population, a large quantity of fish is exported to other areas. An operational force would have difficulty in securing food locally and would have to depend mostly on what it would bring with it and on what could be sent on afterwards.

Note: Head of domestic animals in lower Amur Region.

Cattle	8,700
Hogs	40,000
Sheep	500

2. Forage

In addition to a small quantity of grain forage derived from barley, oats, etc., from May to September it is possible to use green grass, but there is very little of this. Operating forces would therefore need to bring essential forage with them or have it sent on afterwards.

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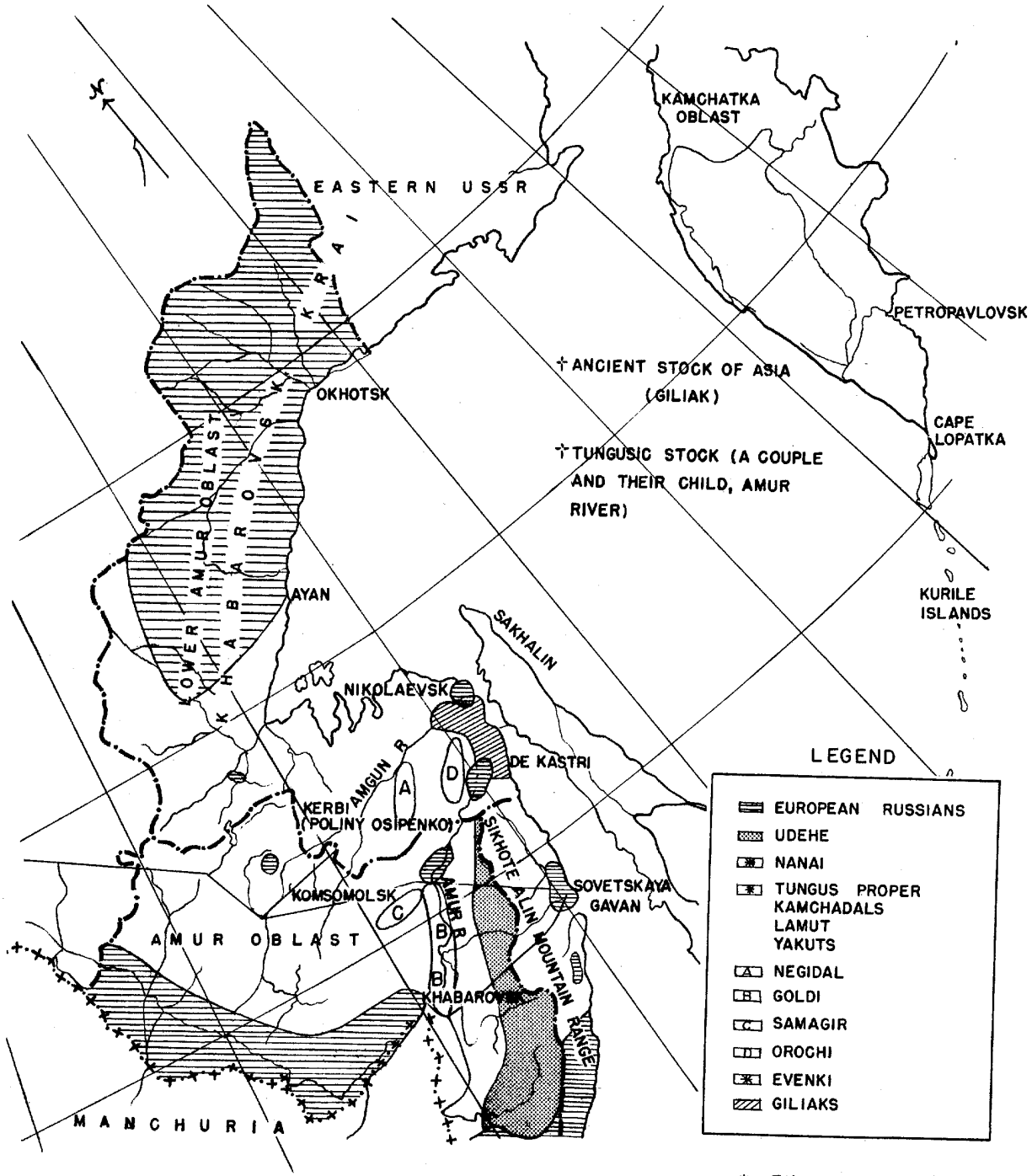
DISTRIBUTION CHART OF THE INHABITANTS OF THE LOWER AMUR OBLAST



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B. Fuel

As forests are plentiful everywhere, sufficient firewood is available. With the sparse population however, collection of wood would depend on the soldiers. The stalks of various grains make a substitute for straw, and are a necessary material in bivouacking, so it would be impracticable to use them as fuel.

C. Water Supply

Most of the local inhabitants use river water, but well water is used in areas remote from towns and rivers though the number of wells is very small. The water is good everywhere and is easy to obtain.

Although the water of the various rivers on the coast of the Sea of Okhotsk is somewhat impure it can be used for drinking: (Page 106 is missing.)

PART VI. CLIMATE

I. OVERALL CLIMATE

A. This area is situated in a high latitude, but the topography of the simple and regional modification is comparatively slight, though it is uniformly affected by the Sea of Okhotsk.

In winter, fine weather is fairly continuous although it is extremely cold. Compared with inland areas, the summer is cool and very damp; rain falls for about half of each month and visibility is rather poor.

B. The campaigning season, climatically speaking, is as shown in the following table. August to October is the most suitable time, with March to July next, and November to February as quite unsuitable. (According to a survey by the Northern 149th Unit, March 1944: "Climatic Data for Operations in Northeastern Area",)

Month

Suitability	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Findings												

Note;

More than 22 days suitable for operations.

20 to 21 days " "

16 to 19 days " "

Less than 15 days " "

C. Special characteristics of climate, which need careful consideration in the light of the requirements are as follows:

1. It is a region of extreme cold. The mean winter temperature is 20 to 25 degrees below zero (in centigrade as are following temperature. From October on, this minimum temperature falls below zero and reaches its lowest limit at 40 degrees below zero in February. It is generally comparable to the temperature in the northern part of Manchuria.

Accordingly, apart from the fact that equipment for an extremely cold area would be necessary for operations in this area, it would be best to take winter overcoats even in summer.

2. There is great variation in night and day. (See Insert 4) The variation between night and day in this area is great, by virtue of its position in the high latitudes. From June to August the day is longest, lasting from 17 to 19 hours. From the middle of May to the end of July, twilight appears all night. (The so-called perpetual twilight, which can be utilized for operations, is generally one-third of this.) In winter, on the other hand, daylight lasts no more than 5 to 7 hours.

This phenomenon follows a northward advance, and the variation gradually becomes greater.

Units operating in this area must therefore pay careful consideration to the selection of time for attack, etc.

3. The coast is icebound, and ice generally reaches about 1 meter in thickness.

Ice fields vary from place to place, but they freeze from the first of November to the middle of May, and the ice generally reaches a thickness of about 1 meter, although this is not constant. Particularly south of the southern part of the Gulf of Sakhalin and north of, and including, the Strait of Tartary, almost the whole surface freezes and becomes one great ice field. (The Sea of Okhotsk and the northern part of the Gulf of Sakhalin also freeze for a distance of from 45 to 75 kilometers from the coast, and the coast of the Gulf of Tartary also freezes.) The surface of the ice on the west coast of Sakhalin is extremely uneven and transport by sleds is difficult, but in the middle and to the west of this it is level and communication is easy.

4. Fogs are frequent at sea.

From March to August their occurrence is frequent, particularly in June when there is fog for more than ten days, but in other months they seldom occur.

5. There are large snowdrifts.

The snow piles up to a height of 25 to 50 centimeters, and the amount piled up is particularly large near Sovetskaya Gavan (1.3 meters) and near Okhotsk (3.0 meters).

6. There are long frozen layers of earth.

As there are layers of frozen earth in the greater part of this region, careful consideration is needed in regard to the building of fortifications, the construction of roads, the digging of wells, and so on.

D. General Summary of Climate in Each Area

Region / Section	Coastal Region of Gulf of Tartary Area (Includes Strait of Tartary, Gulf of Amur, and Gulf of Sakahlin)	Coastal Region of the Sea of Okhotsk
Temperature	1. On summer days it is cool, but the difference between night and day is great. In Nikolaevsk, the mean maximum temperature for July is 23 degrees; the mean minimum 3.7 degrees, and the comparative difference 17.6 degrees. 2. Equipment for extreme cold in winter would be necessary for an operating force, as also would be winter overcoats even in summer.	1. The summer is cold and even at midsummer (July) though it is hot sometimes during the day, a fall of temperature of 2 to 4 degrees in the mornings and evenings is often a reminder of the cold. 2. Equipment for extreme cold in winter would be necessary for an operating force, as also would be winter overcoats even in summer.
Rainfall	From May to September rainfall is frequent. (Nikolaevsk, 450 mm)	The rainy season is July and August, when more than half the annual rainfall occurs. It is particularly frequent in the southwest corner but decreases steadily towards the northeast. (Ayan 890 mm) (Okhotsk, 330 mm)
Snowfall	1. The period of snowfall is October to May. When the north wind is strong the snow drifts. 2. In Nikolaevsk, the quantity of snow piled up amounts to 1.5 meters.	1. The period of snowfall is October to May, and is estimated at 90 days a yr. Snowfall is frequent in Spring 2. The quantity of snow piled up gradually increases towards the northeast. (Okhotsk neighborhood, 3.0 meters).

Region Section	Coastal Region of Gulf of Tartary Area (Includes Strait of Tartary, Gulf of Amur, and Gulf of Sakahlin)	Coastal Region of the Sea of Okhotsk
Humidity	June to August are the wet period at 80-90 per cent; November to March are drier at 60-70 per cent.	Same as on the left.
Fogs	1. They occur often from May to July in a southeasterly wind. 2. They occur everywhere on the Amur River and on its banks and are particularly frequent for some hours after sunrise. It is rare that they cover the whole area of the stream, but usually gather at the points of junction of branch streams, at the mouths of valleys etc.	1. They occur often in spring (May, June) and are particularly thick. 2. They normally occur from nightfall to sunrise. But it sometimes happens that they continue fof the whole day.
Winds	In summer southeasterly winds are frequent. From September the northwest wind blows strongly; but it normally does not reach storm and strength inland.	Throughout the year they are not strong. In winter they are 4-6 meters/second; in summer 3-4 meters/second.
Freezing	1. Freezing at the mouth of the Amur River, mid November; thaw, mid-May. (On occasion it happens that it extends until the last part of June.) 2. The Gulf of Amur, the Strait of Tartary, and so on, freeze, and from January to March communication with Northern Sakhalin is possible over the ice.	1. Coast freezes early November, thaws late May (Okhotsk, Ayan) 2. Ice-field extends for a distance of from 45 to 75 kilometers from the coast.

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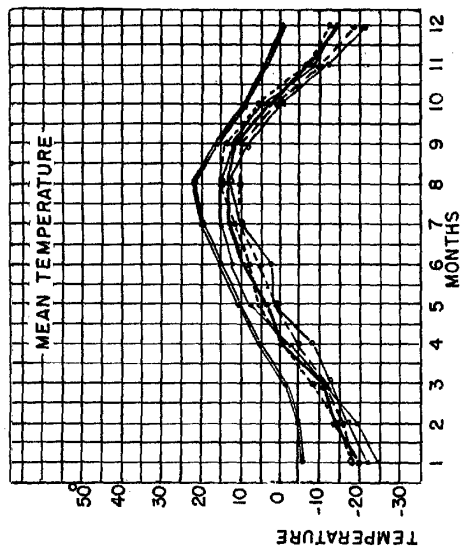
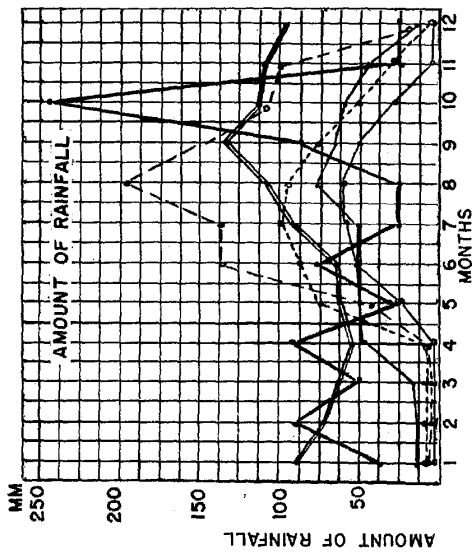
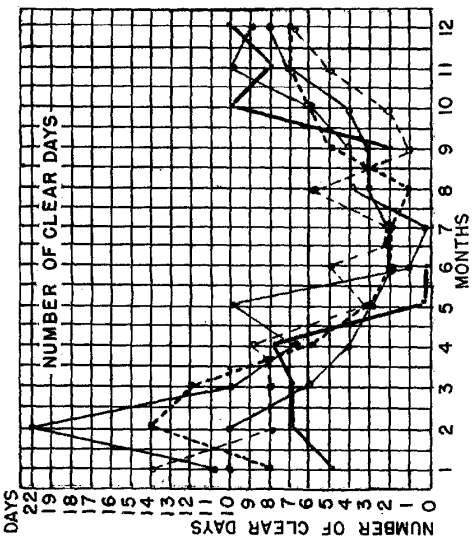
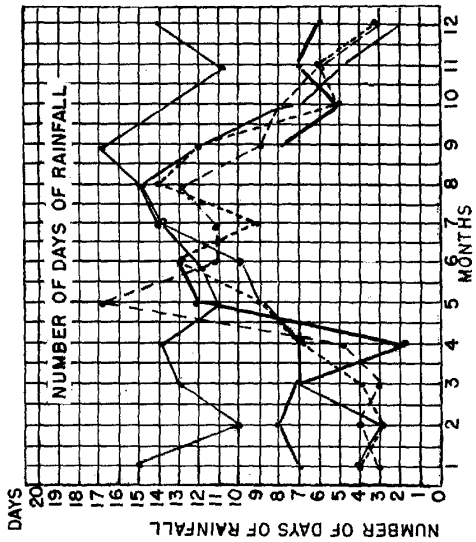
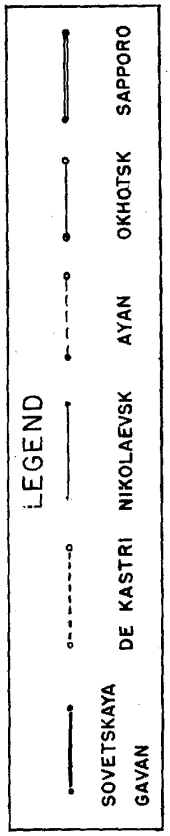
PLAN OF GENERAL CLIMATIC CONDITIONS IN PRINCIPAL PLACES OF THE LOWER AMUR OBLAST

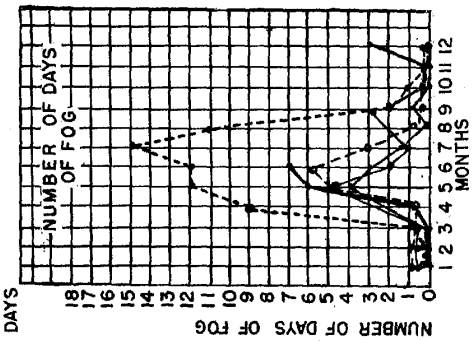


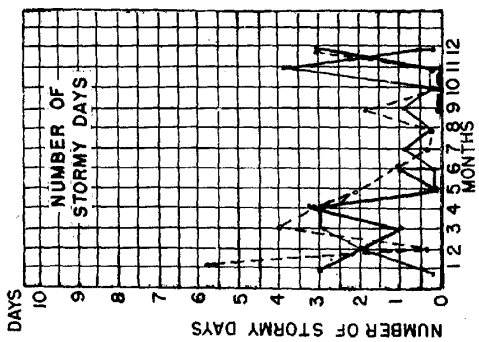












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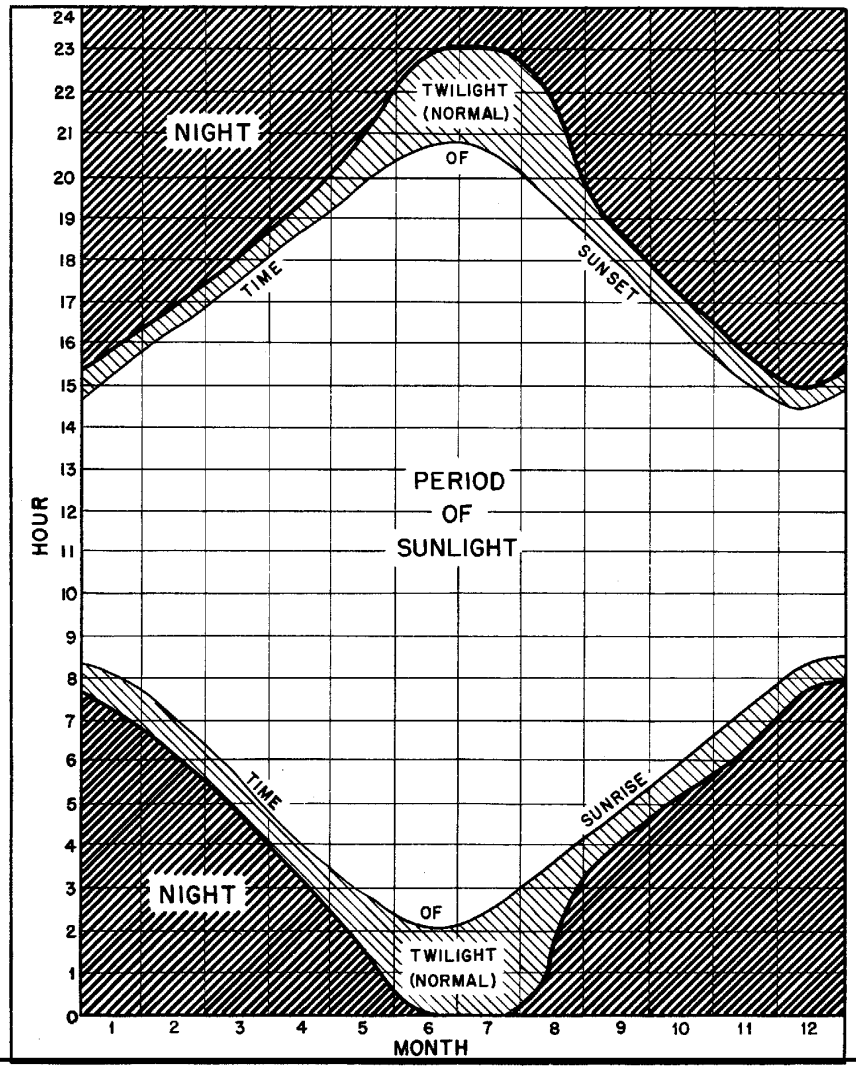
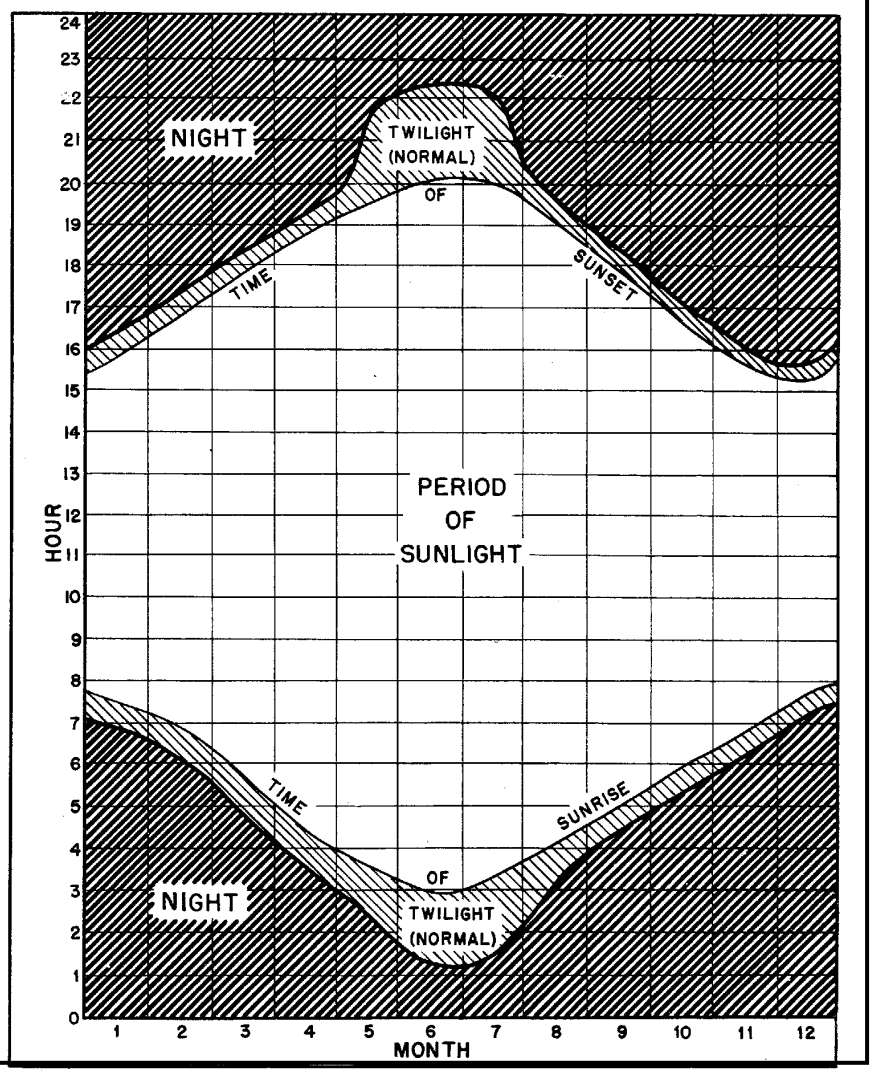
TABLES OF NIGHT AND DAY FOR NIKOLAEVSK AND OKHOTSK IN LOWER AMUR OBLAST
1944

OKHOTSK



NIKOLAEVSK



II. AERONAUTICAL METEOROLOGY

4. The weather phenomena of this region which have a great effect on the flight of airplanes include fog, mist etc. which are the result of the winter low pressure areas. It is also necessary to give careful consideration to icing conditions.

Many details are still obscure but some information has been collected as a result of investigation of these factors. The most desirable time for military operations is from August to October, with April and July next. November-February is rather unsuitable.

B. Factors to be Considered when Selecting Route and Altitude

1. When there are no winter lows and no fronts, the choice of route is optional if the altitude is over 4000 meters. In prevailing winds of winter the minimum height is 3000 meters and over the sea 2000 meters.

However, in the neighborhood of lows and fronts (cloud strata reaching about 6,000 meters) and in the narrow part of the Tartary Strait, the cloud strata are extremely dense (exceeding 5,000 meters in height). There are many difficulties in rising above or crossing them.

2. In the rear of a moving high and even in a period of clear weather, there are many instances when vision becomes bad because of haze. In cases such as these it is advisable to make efforts to go around them.

3. When a front running from northeast to southwest in the aftermath of a moving winter low is advancing and finally lies north and south as it advances eastward, groups of lows collecting on the front develop markedly. It sometimes happens that the weather deteriorates more quickly than might previously have been expected. In such cases it is advisable to select a route which will avoid most of the groups of lows.

4. Lows move quite rapidly in spring and fall. Because of this, there are many opportunities to make effective surprise attacks based on sound judgment of their speed of advance and time of passage. Flying through the lower cloud strata in winter involves the danger of icing, but when the temperature is 30° below zero there is little danger of icing as long as there is no marked inversion of temperature.

5. In winter the mean degree to which the temperature drops between the ground and 5000 meters is 0.24 (degrees per hundred meters) at Nikolaevsk 0.33 (degrees per hundred meters) at Komsomolsk. In summer it is about 0.46 (degrees per hundred meters) at Khabarovsk.

In summer in the vicinity of the lower reaches of the Amur River, if an altitude of roughly 3,500 meters is reached (2,000-2,500 along the shore of the north part of the Sea of Okhotsk), the temperature drops below zero.

6. The winds in the upper air north of the central portion of the Sea of Okhotsk are shown in the table below.

Altitude (Meters)	Wind Direction	Wind Speed (Meters/Second)
500	In both spring and autumn west winds are most prevalent and in summer westerly and easterly winds prevail.	Spring 10-15 Summer 5-10 Easterly Wind 5 Fall 15-20 Winter 15
1000	The west wind prevails throughout the year but north and south winds often blow in spring and an east wind in summer.	Spring 15-20 Summer 5-10 Autumn 20 Winter 15
2000	In summer, fall, and winter, the west wind prevails. In spring the winds are north to northwest.	Spring 10-15 Summer 5-10 Autumn 20 Winter 10-15
3000	There is a westerly wind throughout the year.	Spring 10-15 Summer 10 Autumn 20 Winter 10-15

Part 7. HEALTH AND HYGIENE

I. HUMAN HEALTH AND HYGIENE

The region of the Lower Amur Oblast is a comparatively healthy place on the whole except for its severely cold weather. In particular there are no endemic diseases.

However, as conceptions of hygiene are primitive, the spread of contagious diseases which originate when river water is used as a source of water supply must be considered.

The principal local diseases of the native inhabitants are malaria, venereal diseases (mainly gonorrhea), pneumonia, etc.

A. The General Conditions of Local Hygiene and Health

Although the Russian houses have ventilation and lighting, they are tightly closed in winter to keep out the cold. Since pechkas [fireplace, sleeping niches] are used, lice, bed bugs, etc., are omnipresent and the drainage around these houses is defective and insanitary.

In the cities there are usually Russian-type bath houses, but there are generally too few for all the inhabitants and they do no bathe regularly. Although the latrines are of the sitting-type, they are quite insanitary. Drinking water is transported in tank vehicles from a reservoir.

B. Institutions for Medical Examination

There are government laboratories, private hospitals, medical examination centers, first aid stations, maternity hospitals health stations, etc., but they were few in number. Convalescent institutions which make use of hot springs and mineral springs also seem to be in operation.

The known medical institutions are as follows:

Place Names	Institutions for Medical Examinations
Sovetskaya Gavan	Navy hospital, and municipal private hospitals
De Kastri	Central hospitals built by the military
Nikolaevsk	Army hospital and 4 other general hospitals
Sofiskoe	Army hospital
Komsomolsk	General hospital and 4 other municipally established hospitals.

C. Epidemic Prevention

The thinking of the inhabitants on health and hygiene is primitive, and various contagious diseases are prevalent since their institutions are not well equipped. The inhabited places, in particular, have many lice, so there is a possibility of the spread of much eruptive typhus.

There are contagious disease research laboratories, isolation hospitals and decontamination institutions for epidemic prevention.

The inhabitants have generally had preventative inoculations.

D. Medicines

There is little manufacture of medical products so they are not readily obtainable.

II. HEALTH AND HYGIENE OF LIVESTOCK

This area has a moist climate, much low damp ground and is rich in forests. The health and hygiene of domestic animals are poor and numerous blood-sucking insects do great harm while they are growing.

Public awareness of a livestock epidemic is rare. Construction of veterinary hospitals and similar facilities seems to be improving gradually but they are still too few and smooth management of veterinary affairs is difficult.

The principal livestock epidemics are as follows:

Name of the disease	General Conditions
Anthrax Glanders	Germs exist throughout the whole area and they spread during the period of May-Sep. The main causes for spread of this disease are domestic animal burying places being washed out by floods or being dug up for highway and railroad construction.
Cattle plague	Cattle plague does the greatest harm in this region and the virus occurs throughout the whole area.
Eye diseases	Epidemic among horses and many lose their sight as a result. Swampy grazing land is the greatest cause.
Disease of bloody excrement	Cattle plague. Much of it breaks out in the forest fringes of the mountain regions. The cause is not clear. Occurs frequently near the sea coast.
Others	There is a widespread occurrence of gland and skin diseases.

Part 8. FORTIFICATIONS

There is a total of four fortified places in this area, in three of which are fortifications and garrisons (Sovetskaya Gavan, De Kastri and Lower /Nizhne/ Amur) and one place where fortifications are suspected (Okhotsk). Most of these, except for the Lower (Nizhne) Amur fortified area, were constructed after the Manchurian Incident. The troops cooperate with the fleet in these districts and their chief aim is to break up enemy landings. This seems to indicate that these are the strong points of the coast defenses (there is close combat equipment north of De Kastri.)

Note: Coastal fortifications are up to modern construction standards, but defenses on the land front seem not to have been started as yet.

I. FORTIFIED AREA OF SOVETSKAYA GAVAN

This was built simultaneously with the harbor construction which was begun about 1935 and was practically finished by 1937 or 1938. Although the conditions after that time are not clearly detailed, the batteries have an underground passage and it is reported that they are fully equipped. In view of the great importance of this port recently, it is surmised that strengthening of each kind of equipment and each defense unit has been undertaken. This however is still uncertain. Sovetskaya Gavan is the main base for the North Pacific Detachment of the Pacific fleet, and in the future, in view of the completion of the Baikal-Amur railroad, it will be a land-sea communication center. Because of its importance, defense installations are probably gradually being strengthened.

II. FORTIFIED AREA OF DE KASTRI (See Annex 6)

It appears that work has begun about 1932 and it has doubtless been strengthened since then. Detailed conditions are obscure but it is suspected that various installations were rather actively strengthened after the outbreak of the Soviet-German war in 1941.

A garrison force was permanently formed by the Red Army about 1938 and the name was changed in 1941 to the 104th Fortified Area.

This area consists of strategic points along the Tartary Strait including Nikolaevsk and, on the opposite shore, Aleksandrovsk. This is an important strategic area because it protects Sofiskoe and the inland Amur River region.

III. THE FORTIFIED AREA OF THE LOWER AMUR (See Annex 7)

Nikolaevsk is situated in a position dominating the mouth of the Amur River. Besides being a base for communications with North Sakhalin, Kamchatka, the coast of the Sea of Okhotsk and the Khabarovsk region, it is an important point on the route between America and Soviet Russia. It has had batteries and other installations since Czarist times, but these were destroyed at the time of the Nikolaevsk Incident in 1923. In addition to restoration work begun in 1932 or 1933, construction of special artillery emplacements on both sides of the river mouth was started. Although these were completed around 1938 their condition after that time is not clear.

The importance of this port since the outbreak of the Soviet-German war has constantly increased, so it may be presumed that its fortifications and installations have been strengthened. The garrison unit remains as it was.

IV. OKHOTSK DISTRICT

Since it is a strategic place fronting on the Sea of Okhotsk, it is believed that fortifications and installations exist, although reports are meager and details are not clear.

Part 9. INDUSTRY AND NATURAL RESOURCES

I. SUMMARY

The Lower Amur Oblast covers a wide area and is quite isolated. Its communications are not developed and since the population is sparse, industry is hardly worth noting except for lumbering and marine products. The lumber industry is in the process of gradual development and it is blessed with rich lumber resources. Accompanying an increased demand for lumber, mills have appeared recently in Nikolaevsk, Okhotsk, De Kastri, etc.

Salmon and various salmon-trout are plentiful in the lower reaches of the Amur River and in the coastal areas. In 1868 the Japanese began fishing and considerable development followed. The fishing catch was large and it increased continually, but in 1899 and 1900, owing to pressure by the Russian government, Japanese fishing was prohibited and it became a Russian monopoly. Even now this prohibition is being enforced along the shore of the Sea of Okhotsk. The Soviet coastal fishing industry has developed very recently as an important industry; the annual catch is over 40,000 metric tons.

II. LUMBER INDUSTRIES

The greater part of the Lower Amur Oblast is a forest area and it is rich in resources. Lumbering is an important industry.

The types of trees are chiefly acerose trees, such as larches, pinus pentaphylla, etc. They are interspersed with a few latifoliate trees.

The development of the lumber industry in this region is naturally retarded as it is an area lying in the north where communications are unsatisfactory and labor power extremely short. Lumbering is restricted to the vicinity of rivers, cities and mines where it is easy to remove the trees. They are transported principally by rafts.

It is likely that the lumber industry will continue to develop as means of transportation improve.

III. MARINE PRODUCTS INDUSTRY

Fish are plentiful in the lower reaches of the Amur River and in the Maritime Krai and the marine products industry has developed in recent years to a position of great importance.

The principal marine products are salmon, salmon trout, herring, sardine, cod, etc. Most of the catch undergoes a simple salting and pickling process and is exported to Central and European USSR.

Shallow water fish such as carp and gibel are caught in the Amur River basin.

The history of the fishing industry along the coast of the southern part of this region dates back to fishing by the Japanese in 1868. Although it was gradually developed, subsequent pressure by Russia from 1899 to 1900 was intense and in the end fishing became a Russian monopoly. The Japanese still fish along the north coast of the Sea of Okhotsk.

The present Soviet fishing industry has been greatly developed with its center as follows:

Lower Amur fishing trust at Nikolaevsk, the central Amur fishing trust at Komsomolsk and the Okhotsk and Ayan fishing trusts at Ayan. Although accurate data on the yearly catch are lacking, it appears to reach over 40,000 metric tons. The greater part, 70-80 percent, of the haul is composed of salmon and salmon trout.

Note: The yearly Japanese-Russian total fishing haul in 1942 comes to 182,000 tons.

IV. MINING INDUSTRY

Gold and iron are important mineral resources. Gold lies in the important gold-producing areas of the Eastern USSR and is mined principally in the district on the left bank of the lower reaches of the Amur River. Crude iron ore is produced in the vicinity of Nikolaevsk supplying local iron mills, and there is an estimated reserve of 14,500,000 metric tons (the annual iron ore production is about 10,000 metric tons). It is reported that two places where iron is produced have been discovered very recently in the district of Arichi(*1) in the lower reaches of the Amur River.

(*1) Japanese translation of Russian name.

Besides these, it appears that there are deposits of wolfram, antimony and tin on the sides of Udyl Lake and small amounts of such metals as lead, zinc and copper in the vicinity of Ayan.

Although the mining industry of this region was started in ancient Czarist times, its remarkable production development has taken place since the Five Year Plans.

V. INDUSTRY

Industrial facilities in the Lower Amur Oblast are generally lacking and production in this area, except for Nikolaevsk, is negligible. In Nikolaevsk are a ship-building yard, alcohol, lumber, flour and brick plants, etc. With the development of lumbering and marine industry in each important area, there are small-scale facilities such as lumber mills, canneries, and fish-processing plants.

Komsomolsk is the largest industrial center in Eastern USSR. There are an oil refinery, iron works, airplane, tank, gun, ammunition, ship-building, automobile, paper, lumber mill and other military and civilian factories.

VI. AGRICULTURE

The Lower Amur Oblast is generally unsuited to agriculture except in the Amur River basin owing to adverse soil and weather conditions. Farming is limited to the Amur River basin. The cultivated area does not exceed 3000 hectares.

Crops are wheat, rye, and oats, potatoes and vegetables, but there are not enough for self-sufficiency.

VII. HUNTING

Hunting is conducted on a wide scale as a means of livelihood for the primitive peoples who live in the forests. In particular, seals such as Phoca and Callotaria Ursina, foxes, otters and squirrels live in the Shantarskie Islands. In winter excellent furs are obtained as a result of hunting by the natives.

SUPPLEMENT NO 1. BASIC STUDY OF LANDINGS ON ICE-BOUND COASTS

This study by the 7th Engineers Regiment in December, 1937 is a summary of landing methods, with the following basic assumptions:

1. That the transports of the military forces arriving off the appointed coast will be able to anchor in the non-frozen or thinly-frozen area.

2. That the sea ice directly adjoins the continental coast and is not separated from it.

3. That the wind is landward, all ice floes are piled up and interlocked, there are ice lakes and fissures, the ice is very rough and passage for vehicles, horses, and even men is difficult.

On the outer edge of this thick ice field there is a thickness of approximately 10 cms which is mixed with hard fragments and around it a ten-meter belt of thin ice. Its outer edge is extremely irregular.

I. BASIC FACTS

A. Ice-breaking capacity of boats

The ice breaking capabilities of large and small motor boats are dependent primarily on the conditions of the ice. Ice of the same thickness is hard at low morning and evening temperatures, but during the day it is soft.

(TN: Pages 124 and 125 are missing.)

7. Dark glasses and white outer clothing.

D. Method of Measuring Ice Thickness

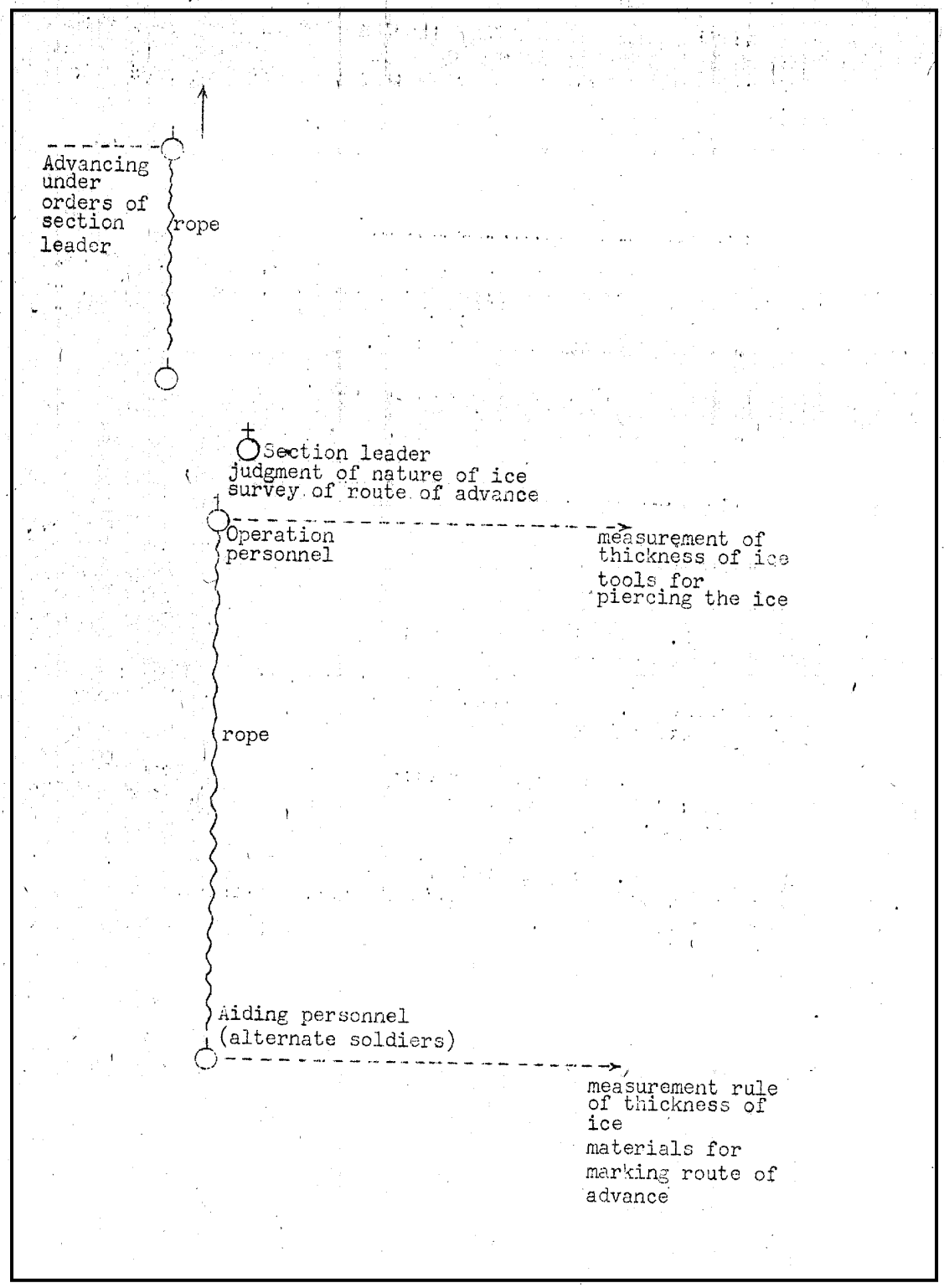
1. A man on hands and knees shakes the ice. If others, several meters distant, feel this tremor the ice is about 12 centimeters thick.

2. Organizations of a section and summary of its action

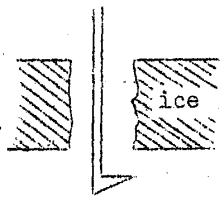
There are five people in one section including the section leader. They advance two at a time, under the supervision of the section leader.

a. If from a kneeling position a hole cannot be punched in the ice with one blow of the pick, it is more than 15 centimeters thick.

b. The ice thickness is surveyed from a prone position by inserting a claw or brick hammer, a 5-inch nail or a specially-made skewer.



3. Sometimes the ice at the bottom of the hole drops, and therefore the thickness of the ice is misjudged; in such cases a measuring rule is required.



Measuring Rule

4. There are gaps where the tide ebbs and flows along the coast, so care must be taken, particularly when it snows.

E. Clothing and Gear for Personnel

1. Clothing

Winterized overcoats, small and large gloves and shoes, equipment for walking on thin ice (easily carried when necessary), winterized hats and white outer clothing.

2. Equipment

Binoculars, (non-commissioned officers and above), snow glasses (dark glasses), life jackets, bamboo sticks, 1.5 to 2 meters long (tied to the center of the body parallel to surface of the ice when walking to prevent sinking in the water).

F. Equipment for Traversing Thin Ice

To distribute the weight over a wide area it is best to select materials which are easily obtained and built. The following, for example, should be used.

1. Skis (long and short) can be used by men in places where the ice is level and smooth.

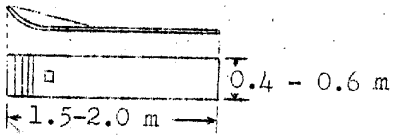
2. Cow sleds (formed by joining skis together) used for baggage and machine guns.

3. Makeshift wooden shoes for the men (wooden shoes are made from thick, wide, wooden boards).

4. Snowshoes for the men

5. Dogsleds (individual sleds)

For use of each man (sketch follows)



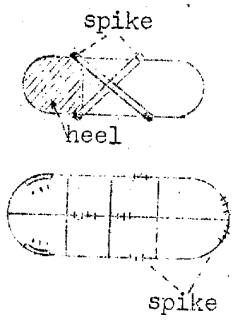
6. Straw snow-shoes (SANDAHRA)

Snowshoes or straw snowshoes are necessary because of the many uneven spots in the snow.

G. To Prevent Slipping

Special features can be added to winterized shoes as follows:

1. Rope wound around the shoe
2. Special metal attachments (see sketch).



H. Precautions when Sinking

1. If you sink, remain calm and hang on to the stick.

2. If you panic when you fall and hurriedly lift your self by hooking a foot over the edge of the ice to which you are clinging, you will cause the ice to break again. Therefore it is best to lift yourself carefully and throw the body horizontally as quickly as possible.

3. To save a person, throw him something that floats such as a board, or else lasso him or pull him up by the rope to which he is secured.

4. Soldiers who are pulled out should be put in a warm place immediately.

Note:

With a land temperature of 15 degrees below 0° and a sea temperature of 4 degrees below 0°, men will die after they have been retrieved if they are immersed for 15 minutes and horses pulled out after 5 minutes in the water will die in 10 minutes.

II. METHODS OF LANDING WITH SMALL BOATS

A. Preparation of large and small motor boats (paragraph which refer only to the engineers will be abridged.)

1. Large and small motor boats are covered by boards which give protection from spray and ward off the cold while navigating. After arrival, if the ice is weak, or violent beaching of the boat causes the weak, soft ice around the boat to crack, these boards can be spread out and used for landing safely.

2. Preparations must be made to facilitate transmission of orders and commands by voice tube between the boat captain and the helmsman.

3. If the ice is found to be too thin it is necessary to prepare a great many walking aids for the men (and horses) and reinforcement materials, such as straw mats, wooden boards and steel nets.

4. It will be necessary to reduce the number of men (and horses) carried to suit conditions.

B. Navigation

1. On reaching the edge of the ice efforts must be made to find the thin parts, find a way through them and strike the field of thick ice as long as the boat is able to break ice. There are many occasions when it is advisable to increase the breaking power of the boat by rocking it from left to right or else by withdrawing and advancing again.

Care must be taken not to damage the anchor and rudder in this operation.

2. Because of the difficulty in changing direction while in the ice field, it is best to advance by direct route as far as possible to the area where the ice is thick enough.

3. Because of the movement of the hull in the tidal current and mud, the engine should be made to go at slow speed at first whereby the hull is made to press against the ice. In order to make the boat stationary the anchor must be made ready.

C. Preparation for Debarking

1. When the boat is stationary, the engineers immediately measure the thickness of the ice and ascertain whether operations over the ice are possible.

2. There is danger in dropping the engineers on the ice, just as there would be on a wave-swept coast.

3. When the ice is not thick enough, boards and a steel net may be laid on the ice and the troops may drop onto that.

Materials should be laid as follows:

a. First attach the steel net to one end of the board and lay it gently on the ice. Next put one end of another board on the first, and put the other end on the boat. Debarkation of troops is made either by this method (an anti-slipping scheme is used on the board), or else by a small rope ladder. Those troops who have debarked finally lay boards, steel nets and straw-mats and facilitate debarkation of the other troops.

b. Because the board must be as close as possible to the ice it is advisable to devise measures to avoid disturbing the ice such as slicing away the surface or piling up the snow under the board.

D. Action of the Embarked Unit

1. When the embarked unit commanders receive word from the engineers that there are no obstacles to landing in the vicinity, details also about the ice ahead, etc., according to previous preparations and orders, they first indicate the direction and landing point and order the reconnaissance squads to debark. The other troops then debark quickly on the ice.

2. Though naturally the direction of advances is primarily determined by tactical demands, the following points must also be considered in order to advance safely over the ice:

a. Choice of direction because of unevenness and undulation when ice is very thick due to the large jams of drift ice.

b. Approach to river mouths where the ice is usually thick, since zones around river mouths where the water is deep generally freezes easily.

c. Near the area of exposed and hidden rocks where the ice is usually quite thick because sea water cools easily and the ice does not float readily.

d. It is advantageous to choose a direction in which the ice is driven toward land by the wind and tidal current.

3. It is best to lay boards lengthwise on thin ice or else spread straw-mats, steel nets, (20-30 centimeters mesh) and bamboo mats.

4. Though ice may be hard, there are places where drift ice fragments are jammed and the ice may be thin. Because troops may fall through, the device of tying the troops with a net or have them all grasp a leather rope and carry a bamboo stick must be employed. When the ice field is covered with snow a special warning about falling through is necessary.

5. If the snow has not been swept away and the ice is thick enough, slipping of field artillery vehicles and animals may be checked with a pick and by scattering straw about.

6. The principles of road building for heavy vehicles and animals is the same in general as those for quickly-constructed roads. Projections of ice can be chopped away with picks and axes.

An axe is a most useful implement and an obtuse-angled blade is best.

7. Because the ice is usually cracked by the ebb and flow of the tide at the dividing line between the land and sea ice, the necessary materials must be prepared and carried. However, cracking does not always occur at the point where land and sea ice meet. Precautions must be taken against the effect of sudden change in the depth of the sea bottom some distance from the coast. If the difference in ebb and flow is small, or if the ice is quite thick, special precautions are not required.

8. When determination of the depth of ice is difficult owing to it being covered with snow, special caution must be exercised.

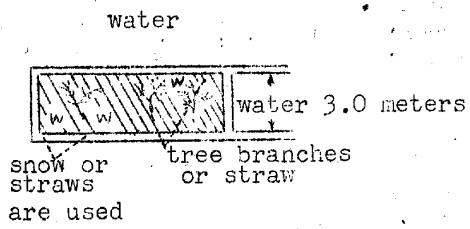
9. During landings, wind direction and force must be noted and precautions taken in the case of off-shore winds.

E. Measures to be taken for Heavy Vehicles on Ice

1. The following methods should be used for field artillery and other vehicles:

a. Increase thickness of ice.
b. Spread boards, bundles of small sticks, steel nets, etc.
c. Break thin ice (by use of tools and explosives).

2. To increase the thickness of the ice, a low dike is built, the water freezes, and if tree branches, straw and steel nets have been added, its strength can be increased further. (See following chart)



3. Snow etc., is piled into the lower part and levelled off. Boards, small sticks or steel nets can be laid. (A non-slip device is required for this board.)

4. To ground boat on nearly hard ice, the thin ice can be broken either by explosives or by an ice saw.

If conditions permit, special ships such as small-type icebreakers may be used.

SUPPLEMENT NO 2. TERMS RELATING TO THE OCEAN, COASTS AND HARBORS

Term	Explanation
Roadstead	An anchorage on an unbroken coast where to a certain extent, it is possible to avoid storms and ships can anchor temporarily.
Anchorage	A place where the bottom and depth are suitable for ships to anchor.
Shelter	A general term for an anchorage where ships can be anchored for safety and protected from storms.
Spits	Pebbles and sand formations in shallow water which do not follow the sea coast and project out into the sea in the shape of a bird's bill, are called sandspits or rockspits according to their bottoms; when this is unknown they are called shallow spits.
Tongue	A low cape which projects out into the sea and is roughly tongue-shaped.
Bluff	A high land projecting out into the sea of river, very steep, and almost perpendicular to the surface of the water.
Drying rocks	Slightly rounder in shape than a cliff. Rocks which are covered at high tide.
Rocky ledge	A line of rocks running parallel to the coast and having the appearance of a wall.
Bar	A belt of sand and pebbles which accumulates at the entrances of rivers and bays. A hindrance to navigation.
Flood Current	The current caused by the tidal rise of the sea.
Ebb Current	The current caused by the tidal fall of the sea.
Spring tide	Tide with the maximum range.
Neap tide	Tide with the minimum range.

Spring rise — The height reached by mean high water level of spring tides above datum level of soundings.

Neap rise — The height reached by mean high water level of neap tides above datum level of soundings.

Holding ground — A sea bottom of soft mud in which the ship's anchor will hold tightly with little or no fear of dragging, is called good holding ground. A bottom of soft sand or light coarse soil in which the grip of the anchor bill is bad, with danger of dragging the anchor, is called bad holding ground.

Note: Although these terms are used mainly by the navy, they are given as reference because they are quoted in this study.

SUPPLEMENT NO 3. CONVERSION TABLE OF WEIGHTS AND MEASURES

Classification	Terms	Metric System
Linear	1 Russian mile (verst)	1.1 kilometers
	1 sazhen	2.1 meters
	1 arshin	71.1 centimeters
	1 fut	30.5 centimeters
	1 vershok	4.4 centimeters
Weights	1 tsentner	99.9 kilograms
	1 pud	16.4 kilograms
	1 funt	409.5 grams
	1 zolotnik	4.3 grams
Liquid Capacity	1 bochka	4.9 hectoliters
	1 vedro	12.3 liters
Acreage	1 desyatina	109.3 ares

Note: 1. Although the metric system is used at present in the Soviet Union, there are local peoples who still use the above terms.

2. The figures in this table are carried only to one decimal place.

ANNEX No 1

GENERAL TOPOGRAPHICAL AND GEOGRAPHICAL SKETCH
OF THE LOWER AMUR OBLAST

1. Koloma R
2. Kolymski Mountain Range
3. Inya R
4. Tas Kystabyt Mountain Range
5. Kukhtui R
6. Okhota R
7. Ulya R
8. Dzhugdzhur Mountain Range
9. Indigirka R
10. Verknoyansk Mountain Range
11. Aldan R
12. Yudomo-Mayski Mountain Range
13. Maya R
14. Pribrezhny Mountain Range
15. Udskaya B
16. Uda R
17. Tugurski G
18. Ulbanski G
19. Tugur R
20. Novanja Mountain Range
21. Lake Orel
22. Gulf of Sakhlin
23. Gulf of Amur
24. Strait of Tartary
25. Nikolaevsk
26. Amgun R
27. Lake Chylya
28. Nago
29. Lake Udyl
30. De Kastri
31. Aleksandrovsk
32. Lake Kizi
33. Sofiskoe
34. Amur
35. Sikhote Alin Mountain Range
36. Sovetskaya Gavan
37. Khungari R
38. Komsomolsk
39. Lake Evoron
40. Dusse Alin Mountain Range
41. Yam Alin Mountain Range
42. Dzhagdy Mountain Range
43. Bureya Mountain Range
44. Ternay
45. Khabarovsk
46. Birobiazhan
47. Obluche
48. Bureya
49. Zavitaya
50. Kuybyshevka
51. Blagdveshchensk
52. Svobodny
53. Shimanovskaya

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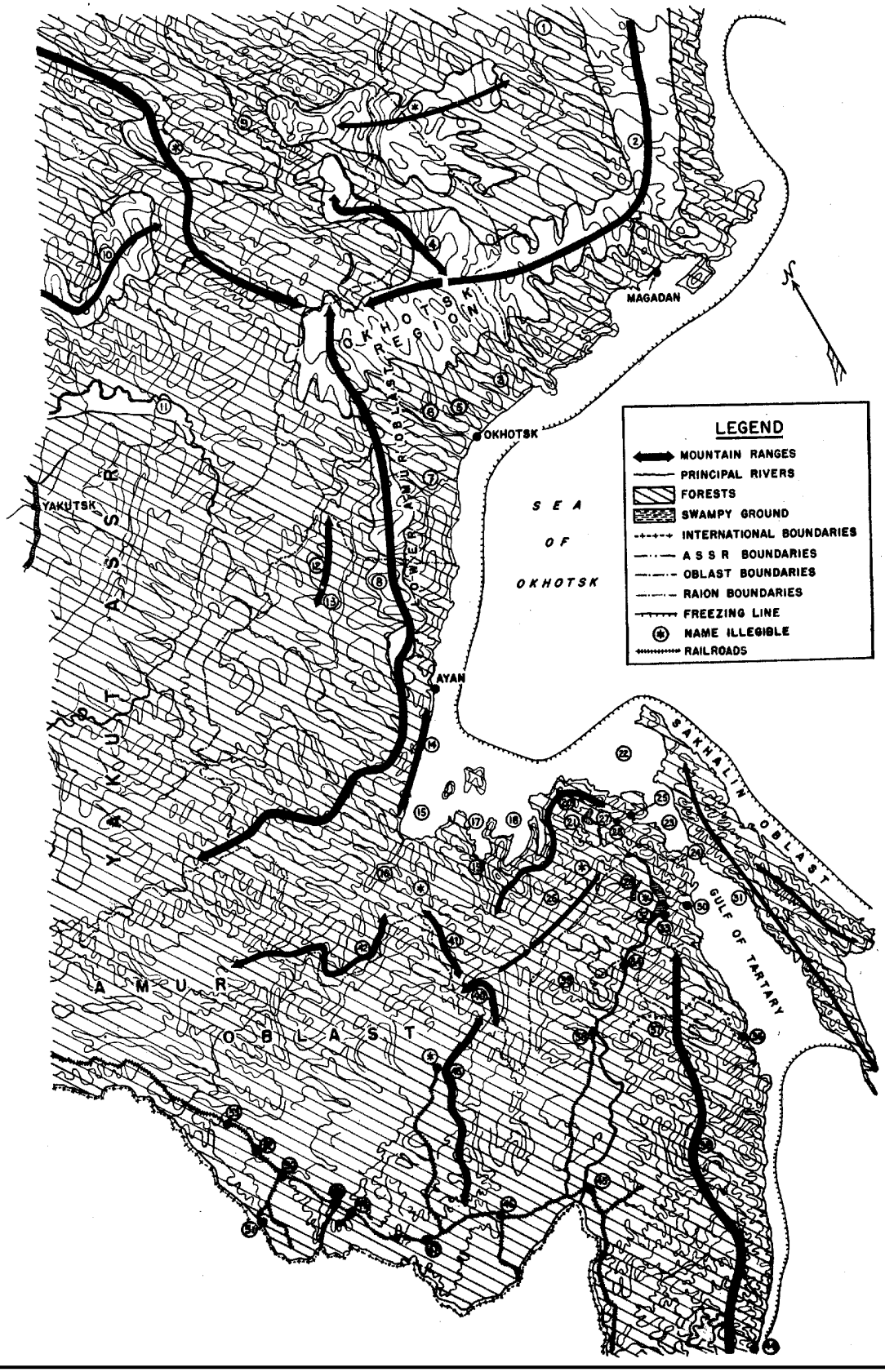
ANNEX NO 1

GENERAL TOPOGRAPHICAL AND GEOGRAPHICAL SKETCH OF THE LOWER AMUR OBLAST



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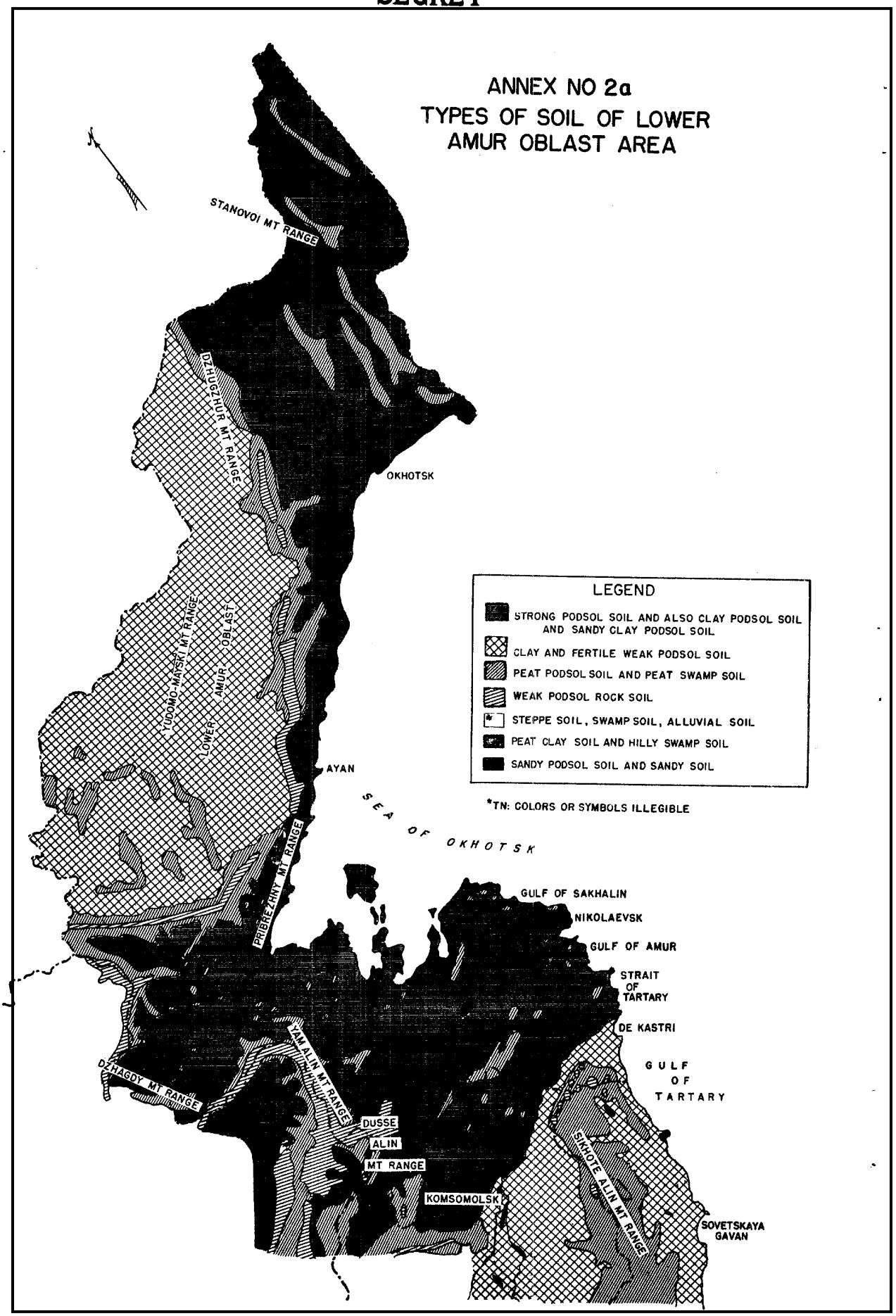

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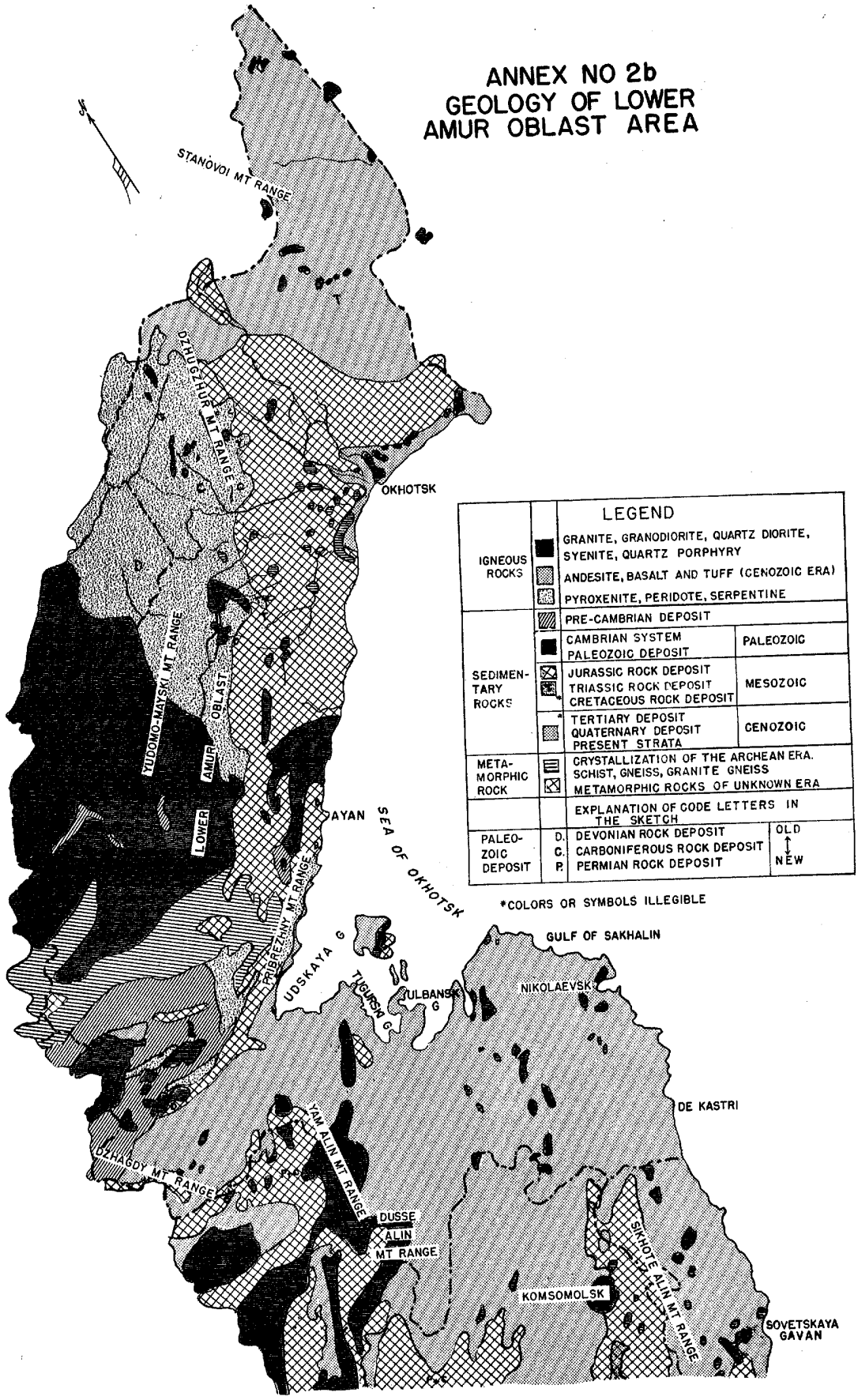
ANNEX NO 2b
GEOLOGY OF LOWER AMUR OBLAST AREA



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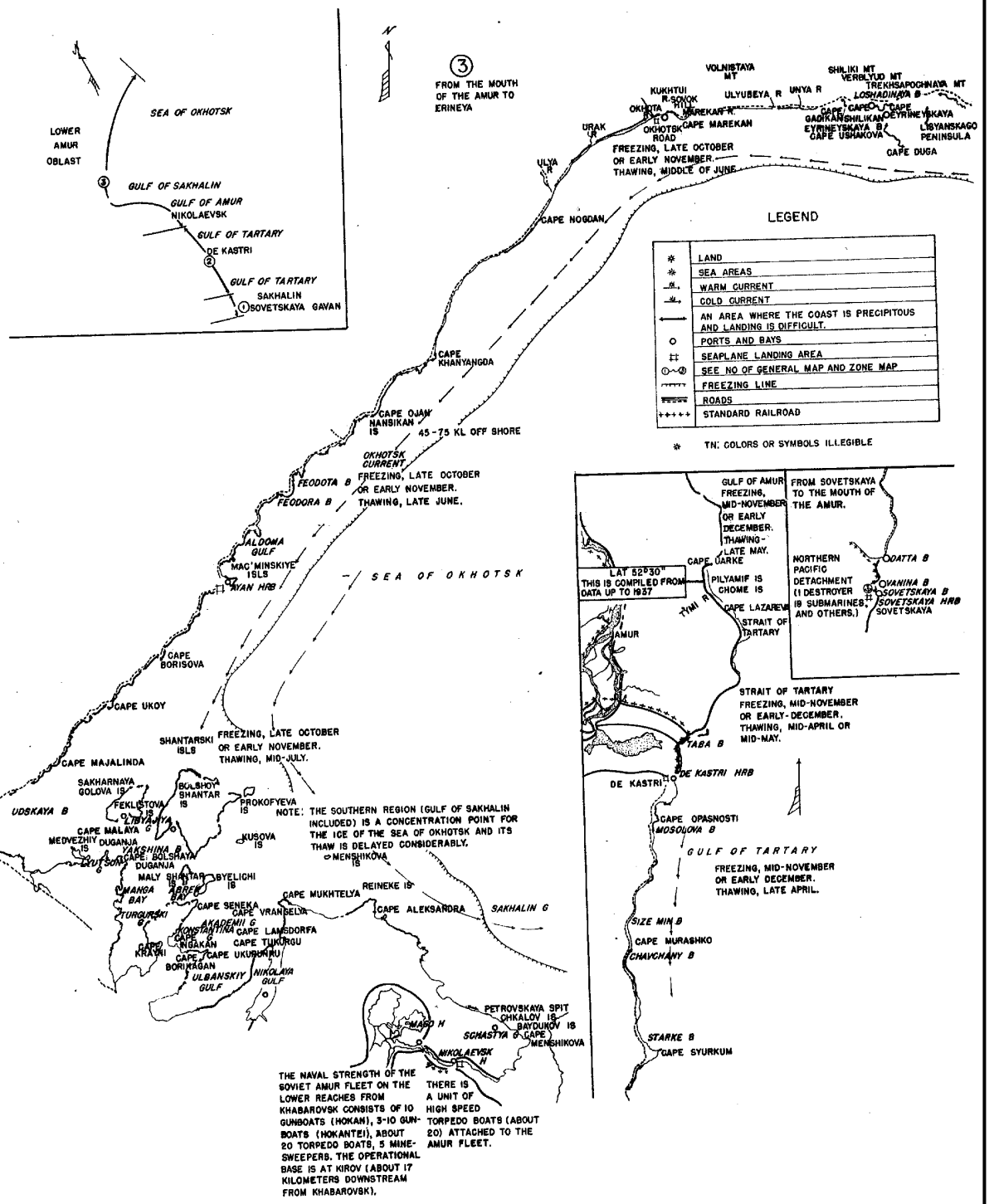
ANNEX NO 3
GENERAL SKETCH OF COASTS, HARBORS AND ISLANDS OF LOWER OBLAST



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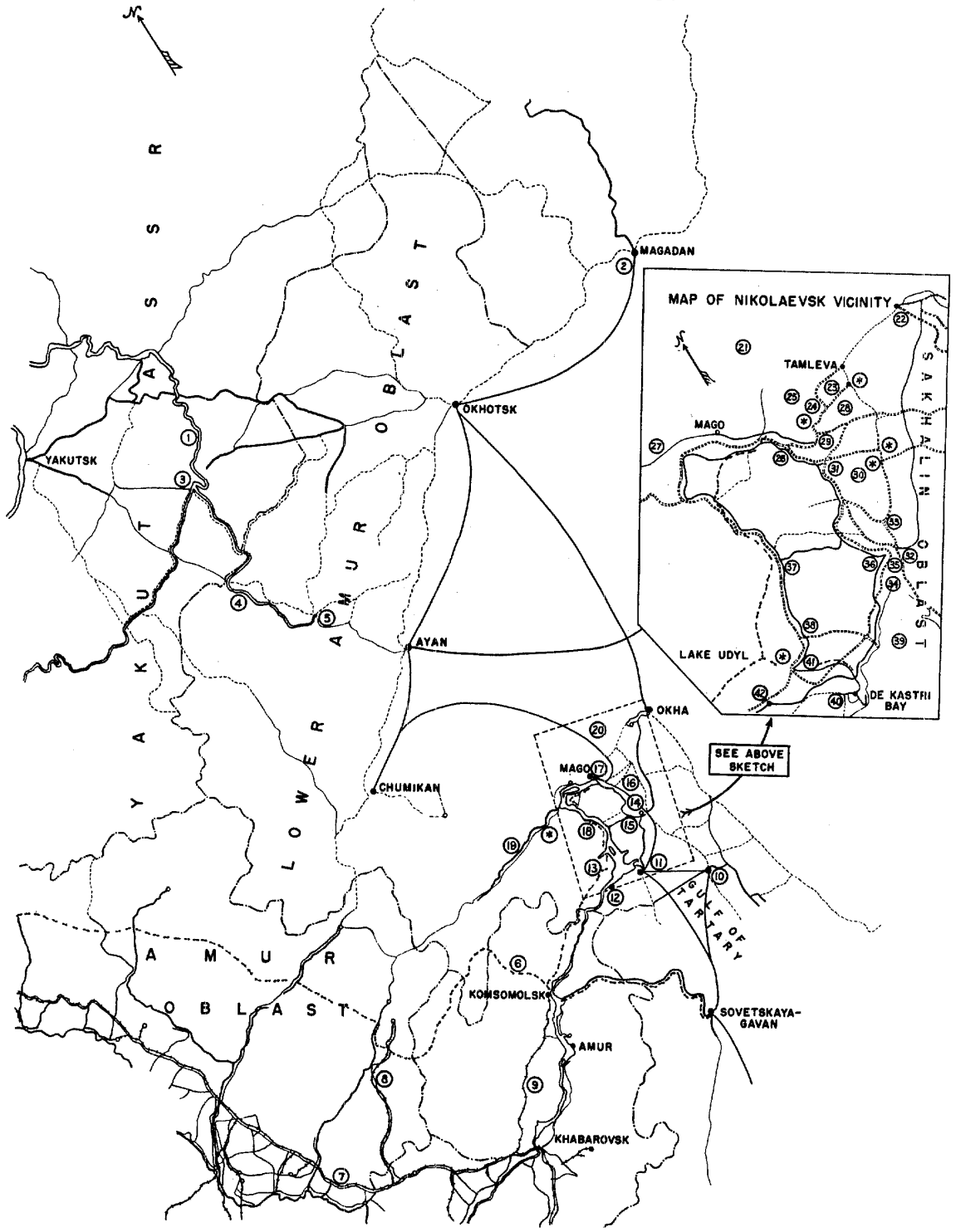
ANNEX NO 4

GENERAL SKETCH OF COMMUNICATIONS NETWORKS OF THE LOWER AMUR OBLAST



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ANNEX No 4

GENERAL SKETCH OF COMMUNICATIONS NETWORKS
IN THE LOWER AMUR OBLAST

1. Aldan R
2. Nagaevo
3. Ust Maya
4. Maya R
5. Nelkan
6. Baikal-Amur RR
7. Trans-Siberian RR
8. Izvestkovy Br Line
9. Komsomolsk Br Line
10. Aleksandrovsk
11. De Kastri
12. Sofiskoe
13. Mariinskoye
14. Strait of Tartary
15. Muravyeva
16. Gulf of Amur
17. Nikolaevsk
18. Bogorodskoe
19. Amgun R
20. Gulf of Sakhalin
21. Gulf of Sakhalin
22. Moskalvo
23. Baydukov Is
24. Langr
25. Vlasyeyo
26. Nikolaevsk
27. Course unknown
28. North Channel
29. Lva Tolstogo
30. Gulf of Amur
31. Cape Pronge
32. Pogobi
33. Cape Uaz
34. Strait of Tartary
35. Cape Muravyeva
36. Lazareva
37. Bogorodskoe
38. Lake Kadi
39. Gulf of Tartary
40. De Kastri
41. Mariinskoye
42. Sofiskoe

Principal Road Table of Lower Amur Oblast Area

Area	No	Summary of the Characteristics	Influence of Atmospheric Phenomena
Area to the south of Uda River	A	Sovetskaya-Datta and 90 km to the east of Komsomolsk (motor vehicle) (Accuracy A)	
	B	Sovetskaya Gavan-Datta (motor vehicle)	
	C	De Kastri-Kizi (motor vehicle) 7 meters in width. Kizi-Sofiskoe carries motor vehicles.	De Kastri-Kizi (motor vehicle) All year (motor vehicle)
	D	Considerable repair required to make the road passable by motor vehicles.	It is difficult for vehicles to pass during rain and thawing season.
	E	It is reported that motor vehicles can pass. (Reliability B,C)	It is difficult for vehicles to pass during rainy or thawing season between De Kastri, Marinskoe and Kagi.
	F	Cape Pronge-Kukla is very good (motor vehicle). The characteristics of the others are also generally good.	
	G		
	H	Nikolaevsk-Nago at times of good weather (motor vehicles).	It is difficult for vehicles to pass during rain or thawing season.
	I	It appears to have been reconstructed lately.	It becomes a very good road for sleds in winter.
	J	Road for military use	
Area to the north of Uda River	K	Details unknown	
	L	A section (motor vehicles)	
	M	A section (provision wagon)	
The winter connecting road between Continent and northern Sakhalin	N	To the east from the center of the ice is generally rough and movements are quite difficult. At the center and to the west from the center the ice is reasonably flat and movements are easy.	It is dangerous when the weather is bad.
	O		
	P		
	Q		
	R		
Winter season roads	S		
	T		
	U		

Principal Road Table of Lower Amur Oblast Area

Areas	No	Roads	Evaluation
Areas to the south of Uda River	A	Sovetskaya Gavan-Komsomolsk	Motor vehicle
	B	Sovetskaya Gavan-De Kastri	Animal
	C	De Kastri-Sofiskoe	Motor vehicle
	D	Sofiskoe-Komsomolsk	Provision wagon
	E	De Kastri-Mariinskoye-Kukla	Motor vehicle?
	F	De Kastri-Cape Lazareva-Cape Pronge-Kukla	Motor vehicle
	G	Cape Lazareva-Bogorodskoe	Motor vehicle
	H	Nikolaevsk-Nago-Kerbi-Ust Ulmalta	Provision wagon
	I	Nikolaevsk-Verashyevd	Provision wagon
	J	Nikolaevsk-Lva Tolstogo	Motor vehicle
Areas to the north of Uda River	K	Ayan-Nelkan	Animal
	L	Okhotsk-Yakutsk	Animal
	M	Okhotsk-Magadan	Animal
	N	My-Pogobi	Horse sled
The winter connecting road between continent and north Sakhalin	O	Pronge-Byrka (Tengi Cape)	Dog sled
	P	Cape Petkh-Langari	Dog sled
	Q	Langr-Tamlevo (Kimkh)	Dog sled
	R	De Kastri-Sofiskoe	Provision wagon
	S	Kizi-Mariinskoye	Provision wagon
Winter season road	T	Lazareva Cape-Cape Khuzi-Mariinskoye	Provision wagon
	U	Amur	Provision wagon

NOTE: ? Indicates those of doubtful accuracy

ANNEX NO 5

Map and Tables of Conditions in the Lower Reaches of the Amur River (Map is in the process of being completed and will be mailed at a later date.)

Explanatory Notes: The object of the "Map and Tables of Conditions in the Lower Reaches of the Amur River" is to supply material for military purposes by presenting a clear picture of the waterways and river basin conditions along the lower Amur River (Khabarovsk to the river mouth).

TABLE OF CONTENTS

The contents of this record are taken from the following studies:

Name of Study	Classification	Date Prepared	Compiling Authority
Summary of Research Report on Water and Sea Transportation in Eastern USSR	Secret	Jul 1944	Imperial Hq Army Department
Conditions Around Mouth and Lower Reaches of the Amur River (Khabarovsk-Nikolaevsk)	Secret	Aug 1944	Harbin Special Service Agency
General Outline of Central Amur River	Military Secret	Mar 1940	General Staff Headquarters

(Contd)

Siberian East Coastal Water Route Study, Volume I		Jul 1930	Hydrographic Office
Weather Influence on Operations in the Key Points of Eastern USSR	Secret	Jul 1941	General Staff Headquarters
Outline of Meteorology in Far Eastern USSR	Confidertial	Aug 1941	General Staff Headquarters

I. EXPLANATION

The Amur is a great river, 4,308 kilometers long, lying between 46 and 54 degrees north latitude and 113 and 141 degrees east longitude. It has great economic and military value, and it is also valuable from the point of view of communications. Considering that there are few land transport routes in the 945 kilometers between Nikolaevsk and Khabarovsk, the Amur has great value as a communication and transportation route between these important places in peace and war. With the recent flow of Russian materials and the building progress in the great industrial belt of Komsomolsk, the value of the river with the Komsomolsk branch line has remarkably increased.

Not only is it used as a strategic supply route in war time, but if the flow of Russian reinforcements via Vladivostok were shut off, it would have great value as a supplementary route from America to Eastern USSR.

Note: 2,200,000 metric tons were transported on the Amur in 1943.

II. CONDITIONS OF THE WATER ROUTE

A. Characteristics of the Water Routes

In the lower reaches of the Amur the characteristics of the water routes are as follows:

Classification		Characteristics	Summary
Width of River		800-3000 meters	1. There are tributary sections where it reaches more than 10,000 m. 2. At the river mouth, it is 15,000 meters from Cape Tobakh to Cape Prongo. 3. The narrowest part (800 m) is 7-8 km downstream from Litvintseva (35 km downstream from Nizhne Tambovskoye)
Water Depth	Average Condition Minimum depth	3-5 meters 2 meters	
Speed of Current	Gradient fall	30.0 meters	30 meters from Khabarovsk to Nikolaevsk level
	Average condition	1.5-3.0 (Ed: probably decameters) per minute	1. The speed of the current is closely related to the water level. It is usually slow in low water season and fast in the high water season. 2. In the upper reaches the velocity is greater than in the lower reaches
Amount of Water	Average condition	Plentiful	
	Conditions of high and low	Small	High water season: mid May to early Jun, late Jul to early Sep. Low water season mid-Jun to end Jul, Sep, Oct.

Obstacles to Water route	Nature of bottom	Muddy gravel	
	Number of shallows	37(34)	Soviet definition of shallows is generally as follows: 1. River wide and shallow, or 2. River deep and narrow [sic]
	Tributaries	19 large	
Route facilities	Markers	Complete	
	Night lights	In existence	
Transportation area	River raft	Possible	
	Ship transportation	Possible	Because of large waves at times of violent winds, use of weak ships is inadvisable
	Water transport	2000-ton ocean-going ships can go up to Sofiskoe (at high water season to Khabarovsk).	
Thawing and Freezing		End Oct to mid-Nov, and end Apr to mid-May	
Navigable period		Mid-May (late Apr)-end of Oct (average 165-170 days) at Nikolaevsk 166 days, at Khabarovsk 184 days.	
Thickness of ice		1.0-1.3 meters	

B. Water Level

The water level of the Amur River depends upon the rise and fall of numerous lakes and ponds which feed it in the lower reaches of the Amur area. The Maritime Krai generally dries up in the winter, but, in the summer, there is a comparatively large rainfall; this, the maximum high-water period is not during the spring thaw, but at the end of the summer rainy period--from mid-May to early June and from late July to early September. The low water period occurs from mid-June to late July and during September and October. Viewed regionally, the water level in the Khabarovsk, Komsomolsk, Nikolaevsk areas is comparatively high but is low in the Nikolaevsk area.

In the Khabarovsk, Mariinskoye and Nikolaevsk areas the maximum and average water level is as follows (Reliability B-C):

Area / Water Level	Khabarovsk	Mariinskoye	Nikolaevsk
Maximum	7.47 meters	6.75 meters	2.68 meters
Average	3.58 meters	3.66 meters	0.95 meters

1. Spring water level

The amount of snowfall in the upper and middle reaches of the river (the same as included between Khabarovsk and Nikolaevsk) is light, and downstream, especially around Nikolaevsk, it is great. Consequently in spring at the high water period (the thaw period) in the upper and middle reaches ordinarily the rise of the water level is comparatively unnoticeable. In the upper and middle reaches however, at the end of the high water around Nikolaevsk there is much melting snow, and the high water level is spread over a rather long period of time. That is, the severity in the upper and central stream areas tends to continue downstream. When the high water subsides upstream and in the central reaches, high water is still maintained downstream. The rainy period which has not ended during this time is in North Manchuria from July to August, in Khabarovsk from July to August (June to September), and in Nikolaevsk from July to September.

2. Summer water level

In the rainy season the water level is increased by precipitation. As the freezing season approaches there is low water, even though in the Khabarovsk area the amount is increased compared to spring; the rise of the water in the Nikolaevsk area is not large in comparison.

C. Water Temperature

The relationship between land temperature and water temperature of the river and its tributaries is roughly the same. Only in the days directly after the drift ice in spring is the water temperature lower than the land temperature. After that the water temperature gradually rises and increases more than the air temperature, finally producing fog. The highest and lowest temperatures in one day on the river banks and mud-stream are roughly the same. The lowest temperature comes between 0400-0600, and the highest at about 1500.

D. Tides

1. Period

The period of ebb and flow at Langr Island, near the mouth of the river, is about a half day. In the North Channel and Sakhalin Channel, twice a day; but in the South Channel and in the Lower Amur, high tide occurs only once a day.

2. Speed (per hour)

Generally 1.8 - 3.7 kilometers at high tide, 5 - 7 kilometers at low tide.

a. South Channel - about 3 kilometers

b. North Channel - at high tide 1.6 - 3.2 kilometers; at low tide 4.8 - 6.3 kilometers.

c. Sakhalin Channel - 3.2 - 6.3 kilometers

3. Water level

The area influenced by the ebb and flow of the tide is Nikolaevsk, Mago and to the vicinity of Tyr. During the navigable period the rise of the water level is not more than 2 meters.

a.	South Channel	0.45 - 0.92 meters
b.	North Channel	0.92 - 2.14 meters
c.	Sakhalin Channel	1.53 - 2.14 meters

III. CHANGE OF WEATHER AND CLIMATE

A. General Characteristics of Climate

The climate is generally continental although violent changes in weather, such as exist inland, are rare. In winter high pressure areas are extremely cold, the wind is weak, and good weather prevails. In summer, rainfall is plentiful.

The chief characteristics of the weather are as follows:

1. Extremely cold area

In winter the average temperature is 20-25 degrees below zero. (All temperatures are centigrade.) After September the average temperature falls to zero, reaching an extreme low of 40 degrees below in February.

2. There is a great variation between day and night.

There is a great variation between day and night, generally dependent upon the latitude. Days are longest from June to August, reaching 17-19 hours. From the middle of May to the end of July it is twilight all night. (For operations the so-called perpetual twilight covers about one-third of the time.) In winter on the other hand the day is not over 5-7 hours long.

3. Generally from the middle of May to the middle of November all water areas freeze and the ice reaches about 1 meter in thickness.

4. Fog occurs at sunrise or before in summer and rarely lasts long.

5. The amount of rainfall is not remarkably large. There is little snowfall upstream and in the central river areas, but downstream it amounts to 25-50 centimeters.

6. The wind velocity throughout the year is low. September-December it is about 6 meters per second and in the other months 2-4 meters per second.

B. Air Temperature

In general the weather is continental. The summer temperature range is about 40 degrees.

The periods of extreme cold and heat in this area are as follows: Fall and spring weather lasts only a very short time, and the transition from summer to winter is abrupt.

Extreme cold (period of average temperature of 15 degrees below zero) December-February (3 months).

Summer: July-August (2 months).

The summer mean temperature is 20 degrees. The mean maximum temperature is 28 degrees (the Tokyo July level.) In winter the average temperature is under 20 degrees below zero. The mean minimum temperature is 25 - 29 degrees below zero. The extreme low goes below 40 degrees.

C. Rain and Snow

The amount of precipitation is generally small, amounting to 500-900 millimeters annually. In summer (June-September) it averages 50-100 millimeters monthly. The winter average is 25-50 millimeters per month or less. The area of the lower reaches has more precipitation than the upstream and central river areas. The snowfall amounts to 25-50 centimeters.

The following is the average number of days of snow per year in each district:

Nikolaevsk-Sofiskoe area - 80 days
Komsomolsk area - 60 days
Khabarovsk area - 40 days

D. Wind

The velocity of the wind is generally low and the air is calm.

The force and direction of the prevailing winds in each area are as follows:

Region	Summer	Winter
Nikolaevsk vicinity	Southeast	Northwest
Sofiskoe vicinity	Northeast	West
Komsomolsk vicinity	North	South
Khabarovsk vicinity	Early period northeast Later period southwest	Southwest and west

The velocity of wind in winter is high and reaches 5-6 meters per second. In summer it is low or 2-4 meters per second.

E. Visibility

The average visibility is good in summer, generally about 20 kilometers, and in winter, though rather bad, is about 10 kilometers.

F. Fog

1. Fog rises between thawing and freezing seasons from the relationships of air and water temperature. It generally arises at sunrise or before and is not long in duration. Rarely covering the whole river basin, it usually collects at the mouth of streams and at the confluence of tributaries. When navigating at sunrise it is necessary to consider the fog.

2. Fog varies in its duration and times of occurence according to the terrain. It is not uniform but generally occurs more often in the mountain areas than the flat areas.

3. Various indications of fog are as follows:

a. Fog likely

(1) When the sun is hot during the day, there will be no fog at night.

(2) When it is warm during the day and there has been rainfall, there will be fog toward evening.

(3) When fog arises around ships and ships' fittings after sunset and at night.

(4) When fog arises at tributaries or in mountain valleys, marshy or mountain land.

b. Fog unlikely

(1) When there is not rain or cloudiness.

(2) When after sunset the wind arises, or when the wind is strong and continues blowing through the night.

IV. FREEZING AND THAWING

A. Summary

This vast river area extending between 48-53 degrees north and 135-141 degrees east. The central area is in the southeast monsoon belt; the downstream area is in the Okhotsk cold wind belt.

Though freezing and thaw periods are irregular, generally, freezing lasts from the end of October to the middle of November, and the thaw from the end of April to the middle of May. (The river mouth opens in late May or early June.)

The Nikolaevsk area freezes about half a month earlier and thaws half a month later than the Khabarovsk area. The data is extremely scant on the drift ice period and details are not clear, but in the central Amur (between Tu-yun and Man-chou-t'un in northern Manchuria) the freeze and thaw vary two weeks more or less. This is estimated from the fact thatthere is drift ice. The lower reaches also should show a great disparity.

The navigable period is generally from the end of April or the middle of May to the end of November. In the Khabarovsk area it is about a month longer than in the Nikolaevsk area. The thickness of the ice is not uniform according to the place, but from December to March it reaches about 1 meter and passage over the ice is possible.

B. Conditions of freezing and thawing

1. Freezing

a. Occurence of drift ice and ice on the banks of the rivers.

The beginning of freezing is generally within 5-10 days of the first day with a mean temperature of freezing. Ice appears for the first time, and fragments of ice cover the surface of the river and float downstream. Next the river banks, the shallows, and the curves freeze. The period from the appearance of fragments to the freezing of the river banks is about nine days. At the time the river banks freeze, the river begins to freeze by the cooling of pebbles in the river bed and rocks on the banks.

Thus the river bed cools and freezes faster than the drift ice, and as a consequence of an increase in the ice thickness, because of its buoyancy and cohesion with the pebbles, it floats and becomes drift ice. The size of the ice floes increases as time passes.

Early in the drift-ice period the temperature and the speed of the current cause the pieces of ice to break up while they are still small.

b. Cohesion of the drift ice and closing of the river routes.

The drift ice freezes to the ice on the river banks. Gradually the river routes narrow and close over. Finally, all the stream sections where the speed is great are shut off. The drift ice then freezes together and forms large floes, and quickens the closing of the river routes. The cohesion of the ice floes with another occurs on every surface of the ice, top and bottom, left and right, and diagonally, so the surface of the drift ice is very rough. With the gradual narrowing of the river routes, the downstream flow of the drift ice becomes irregular so the cohesion of drift ice is quickened, or the frozen surface is pushed up, shows in irregular tooth shapes, or comes to form a small mountain.

2. Thawing

The thawing period is generally several days before the average temperature is at freezing.

Directly before the drift ice begins to thaw, the ice becomes thin over the entire surface, and within a week or ten days passage for infantry is dangerous. Then comes the thaw.

Beginning with the part well exposed to the sun, the thawing ice is permeated by cracks from the melting water and it cracks because of the buoyancy of the ice and the water pressure. Much larger ice floes than those of the freezing period float downstream. The drift ice floes collide violently and make a great roar.

3. Data is fragmentary on the navigable period between freezing and thawing in the Khabarovsk and Nikolaevsk areas. Obtaining the real facts is difficult but they are generally as follows:

Area		Nikolaevsk	Mariinskoye	Khabarovsk
Finding	Thaw Period	Mid-May to late May (End of May to early June)	The first-middle of May	End of Apr-first of May
	Freeze Period	Mid-November	Mid-November	Late November
	Navigable period	Mid-May to early Nov Average: 20 May to 3 Nov		Early May (late Apr) to early Nov. Average: 3 May to 7 Nov
	Days navigable	167		188
Years 1900 to 1910	Thaw period	Farliest 3 May Latest 25 May Average 16 May		16 April 1 May 23 April
	Drift ice period	Farliest 12 May Latest 28 May Average 19 May		23 April 11 May 2 May

(Contd)

Area		Nikolaevsk	Mariinskoye	Khabarovsk
	Period of opening traffic in water routes	Earliest 14 May		6 Apr
		Latest 26 May		12 May
		Average 20 May		3 May
	Drift ice period	Earliest 26 Oct		27 Oct
		Latest 10 Nov		5 Nov
		Average 31 Oct		1 Nov
	Freezing period	Earliest 3 Nov		18 Nov
		Latest 18 Nov		2 Dec
		Average 10 Nov		24 Nov
	Navigable Days	Shortest 153		178
		Longest 191		194
		Average 167		188

Year	Nikolaevsk	Mariinskoye	Khabarovsk
1940	Navigation to Khabarovsk Opened 20 May 1st trip to Nikolaevsk: Arrived 22 May Navigation to Khabarovsk: Closed 24 Oct		Routes opened 3 May. Komsomolsk navigation begun 5 May. Nikolaevsk navigation begun 17 May, ended 21 October.
1941			3 May navigation routes opened.
1942			4 May navigation route opened.
1943			22 October navigation to Nikolaevsk ended.
1944	25 May arrived at Nikolaevsk		

5. [sic] Thickness of ice

Though the average thickness of the ice from year to year is generally 1.0-1.3 meters, it varies according to changes in air temperature. A minimum average is 0.5 meters, and a maximum average is 1.7 meters (at Nikolaevsk).

Maximum thickness occurs in March.

The relationship of air and water temperatures to freezing of rivers is generally as follows:

Maximum Land Temperature	Thickness of the ice
Zero	Begins to freeze
5 degrees below zero	10 centimeters
10 degrees below zero	25 centimeters
15 degrees below zero	50 centimeters

V. WATER TRANSPORTS

4. Types and Numbers of Ships

The Amur shipping office (at Khabarovsk) vessels are as follows:

Classification Type	Number of ships 1940 (estimated)	1939-41 (known ships only)	Summary
Passenger steamers	20	17	Passenger tugs 7; tanker tugs 9; toil tugs 10; others 37.
Passenger tugs and tugs	79	63	
Freight lighters	203	125	
Oil lighters	43	21	
Small steam boats		15	
Types known		5	

Note: There are also 5 dredges, but it is not known to which ships bureau they belong.

B. Wharf, Ship-building and Repair Facilities

See the condition charts of wharf facilities, shipbuilding and repair shops.

C. Fuel for Ships

Details on ship fuel, such as the amount which can be assured, are unknown, but the percentage of steamships and internal combustion engines (diesel engines) which come under the Amur Shipping Office are as follows:

Internal combustion engines (diesel engines 5.5 percent
Steamships 94.5 percent

Itemization (Oil 13.5 percent
(Coal 46.0 percent
(Wood 35.0 percent

D. Conditions of Transport

1. Principal Water Routes

Water Route	Distance (km)	Conditions of Service
Khabarovsk-Nikolaevosk	945	Regular fast ferry and freighter
Khabarovsk-Komsomolsk	365	Regular ship
Nikolaevosk - Kerbi (Poliny Osipenko)	493	Regular passenger tug
Mariinskoye-Kerbi (Poliny Osipenko)	570	There appears to be a regular ship

2. Conditions of service

Conditions between Khabarovsk-Nikolaevsk according to a table of ship arrivals and departures published by the USSR Peoples' Commissariat for Transportation in 1940 are as follows:

a. General Table of Times of Service, by months, of regular steamers

Route	Khabarovsk-Nikolaevsk				Nikolaevsk-Khabarovsk				
Type	Fast	Postal	Freight		Fast	Postal	Freight		*
Month	Pass ship	ship	passenger ship	Sub total	pass ship	ship	Passenger ship	Sub Total	
May	4	2	3	9	3	2	3	8	17
Jun	6	4	7	17	7	4	6	17	34
Jul	7	4	12	23	6	4	12	22	45
Aug	7	4	13	24	7	3	13	23	47
Sep	7	4	14	25	7	4	13	24	49
Oct	5	2	9	16	5	3	11	19	35
Total	36	20	58	114	35	20	58	113	227

* Total times in service

The required time and distance between principal points as follows:

Table of required time and distance between prinipal points.

Distance and type of ship / Point	Required Time: Distance (km)	Postal ship	Required time from Nikolaevsk: Fast passenger ship	Passenger Freight	Distance (km)	Required time between places: Postal Ship	Fast Passenger Ship	Passenger Freight
Nikolaevsk								
Bogorodskoe	191	18.35	21.30	20.50	191	18.35(5.8)	21.30(5.8)	20.50(6.5)
Bulava	242	23.45		29.50	51	5.10(6.1)		9.00(10.6)
Mariinskoye	277	27.30	30.01	33.50	35	3.45(6.4)	8.40(6.0)*	4.00(6.9)
Pofiskoe	315	32.20	34.30	38.50	38	4.50(7.6)	4.20(6.8)	5.00(7.9)
Nizhne Tambovskoye	481	48.55	54.30	60.15	166	16.35(7.9)	20.00(9.5	21.25(10.2)
Komsomolsk	580	60.55	69.40	75.50	99	12.00(7.3)	15.10(9.2)	15.35(9.4)
Venznesenskoye	639	66.05	76.00	82.50	59	5.10(5.3)	6.20(6.4)	7.00(7.1)
Troitskoye	740	76.00	87.40	94.40	101	9.55(5.9)	11.40(6.9)	11.50(7.0)
Vatskoye	866	86.55	102.00	109.00	126	10.55(5.2)	14.20(6.8)	14.30(6.8)
Khabarovsk	945	93.00(5.9)	110.00(7.0)	119.00(7.6)	79	6.05(4.6	8.00(61)	10.00(7.6)

* From Bogorodskoe

(2) Downstream

Distance and type of ship / Point	Distance (km)	Required Time Postal Ship	Required time from Nikolaevsk Fast Passenger ship	Passenger Freight	Distance (km)	Required time between places Postal Ship	Fast Passenger Ship	Passenger Freight
Khabarovsk								
Vyatskoye	79	4.25		4.40	79	4.25(3.4)		4.40(3.5)
Troitskoye	205	12.40	11.40	13.30	126	8.15(3.9)	11.40(3.4)*	8.50(4.2)
Tenzneseaskoye	306	19.35	17.30	20.55	101	6.55(4.1)	5.50(3.5)	7.25(4.4)
Komsomolsk	365	24.30	22.30	26.10	59	4.55(5.0)	5.00(5.1)	5.15(5.3)
Nizhne Tambovskoye	464	32.00	29.20	34.35	99	7.30(4.0)	6.50(4.1)	8.25(5.1)
Sofiskoe	630	46.40	41.30	48.45	126	14.40(7.0)	12.10(5.8)	14.10(6.7)
Mariinskoye	668	50.05	45.30	52.00	38	3.25(5.4)	4.00(6.3)	3.15(5.1)
Pulava	703	52.15	47.50		35	2.10(3.4)	2.20(4.0)	
Bogorodskoe	754	58.10	52.40	59.45	51	5.55(7.0)	4.50(5.7)	7.45(5.4)#
Nikolaevsk	945	71.10(4.5)	66.00(4.2)	75.00(4.8)	191	13.00(4.1)	13.20(4.1)	15.15(4.8)

*From Khabarovsk
#From Mariinskoye

Note: The required times are shown in hours. Those in parentheses shows the required time for one kilometer in minutes.

3. Navigable speed

Data about navigable speeds is scarce but they are generally as follows from the above service conditions:

Downstream	a.	Minimum required time	66 hours-average km	4.2 minutes
		Maximum required time	75 hours "	4.8 minutes
Upstream	b.	Minimum required time	93 hours "	5.9 minutes
		Maximum required time	119 hours "	7. minutes

Judging from the time required downstream between Nizhne Tambovskoye and Sofiskoe and upstream between Komsomolsk and Sofiskoe, the central river area seems to be the most difficult to operate.
NOTE: Navigable speed, according to other data, is as follows:

Navigation		Passenger ships (km per hour)	Tugs (km per hour)
Upstream	Full	7.80	11.50
	Empty	8.54	4.23
Downstream	Full	16.75	11.00
	Empty	17.50	12.50

E. Suitable Ships

The ships which navigate the Amur should be of shallow draft because of the depths of the water (minimum 2 meters), but 2,000-ton ships such as those described can navigate upstream to Sofiskoe (in high water to Khabarovsk). Shallow draft ships for use on the river appear to be able to go upstream beyond Khabarovsk.

Though the regular ships now used by the USSR are about 1700-ton maximum, their draft when fully loaded is about 6 feet (1.83 meters).

Weak ships should not be used because large waves arise when strong winds blow against the current..

F. Notes of Warning on Navigation

1. Methods of judging shallows and channels in the Gulf of Amur

a. See the condition map of channels.
b. In the channels when the waves are high it is calm above the shallows so they are distinct. When the wind is against the current, this is especially conspicuous.
c. When there is no wind on the boundary between shallow and deep water, there is a line of bubbles. There are many places where the water is churned up. In general where the bubbly area is divided into several lines that flow away, there are no shallows in the channel.

d. When there is wind on the water area where the muddy Amur is full and does not mix with the clear seawater, the waves are high and the water is muddied in the channel; above the shallows, it is comparatively calm, but the muddiness is slight and its boundaries are perceptible by the reflection of light.

e. In water area where the sea water is mixed and slightly muddied, the shallows are reddish-brown in color and the deep and shallow areas are easily perceptible.

2. Notes of warning covering distance between Nikolaevsk and Sofiskoe

a. The deep water sections are the places where the current erodes and the river is narrow. The shallow sections are found where the current is slow, and the river is wide, and at the confluences of tributaries.

b. The rise and fall of tide water is not usual between Mago and Nikolaevsk during extreme low water.

c. The first ships to go upstream after the thaw must take soundings, without fail, despite past data, explanations, and references of the pilots. Then, using these depths as a standard up to the freezing season, the depths can be estimated.

d. The direction of the river current can after be estimated by its strength. When there is a steep slope or a side of the base of a mountain the deepest part of the river is 100-300 meters distant from that side.

On the other hand, where there is a gradual slope it is necessary to navigate at a safe distance offshore because of the shallowness along the banks. Both banks are seldom deep.

e. A swift current does not always indicate deep places. Where the river bed is subjected to violent changes the current may be swift even where there is a shallow section.

f. At a distance of 50-100 meters from the outer edge of fish stakes built out from shore, the depth is generally suitable for navigation.

3. Notes of warning between Sofiskoe and Komsomolsk

a. Between Kiselevka and Sredne Tambovskoye the water is comparatively deep, and there are many whirlpools because of the swift, curved sections of the stream and the steep promontories, hence cautious navigation is necessary.

b. Between Sredne Tambovkoye and Verkne Tambovskoye both sides of the river are low and flat. The river is wide and markers are lacking. It is generally shallow and there are numerous islands and shallows, hence caution should be exercised in navigation.

4. Notes of warning on route between Komsomolsk and Khabarovsk

In the river between these areas, the tributaries and islands are numerous, the river is wide, and the current is rapid. The low, flat places on both banks at high water periods cause an increase in the speed of the current and the width. The water routes are changed by flood water and drift ice. The islands and shallows also influence their positions, necessitating caution in navigation.

ANNEX No 6

Map of De Kastri and Vicinity

Summary

1. De Kastri has the best and shortest water routes from the Japanese shore to Sofiskoe--the Amur River port. There is also an automobile road connecting with Nikolaevsk by way of Lazareva. It occupies an important place in landing operations, but the natural conditions and position of the harbor render it unsuitable. Navigation is difficult for large ships in the Tartary Strait. Various facilities are very poor and though, economically speaking, its value is comparatively small, it has military value as a fortified area, a naval base (motor torpedo boats, submarines), airfield and seaplane base, etc. Army and Navy forces are permanently based there. It assumes strategic importance for the protection of the Amur River sector and therein has great value.

2. There are 500 houses and a population of about 2500.

3. Principal military establishments (permanent garrison)

a. De Kastri fortified area

Construction was begun about 1932 and it appears to have been subsequently strengthened. Although details are not clear, it is suspected that various facilities were rather actively strengthened after the outbreak of the Russo-German conflict in 1941.

b. The permanent garrison consists of the army fortified Raion headquarters, Coastal Border Guard Sector Headquarters, artillery, infantry, cavalry and construction forces, and a navy force.

c. Airfield

d. Seaplane base

e. Motor torpedo boat and submarine base

f. Army and navy barracks

g. Ammunition, ordnance warehouse

h. Cable and telegraph station

4. Port facilities

a. Wharf (1,000 meters)

b. Various machines (4)

5. Important facilities

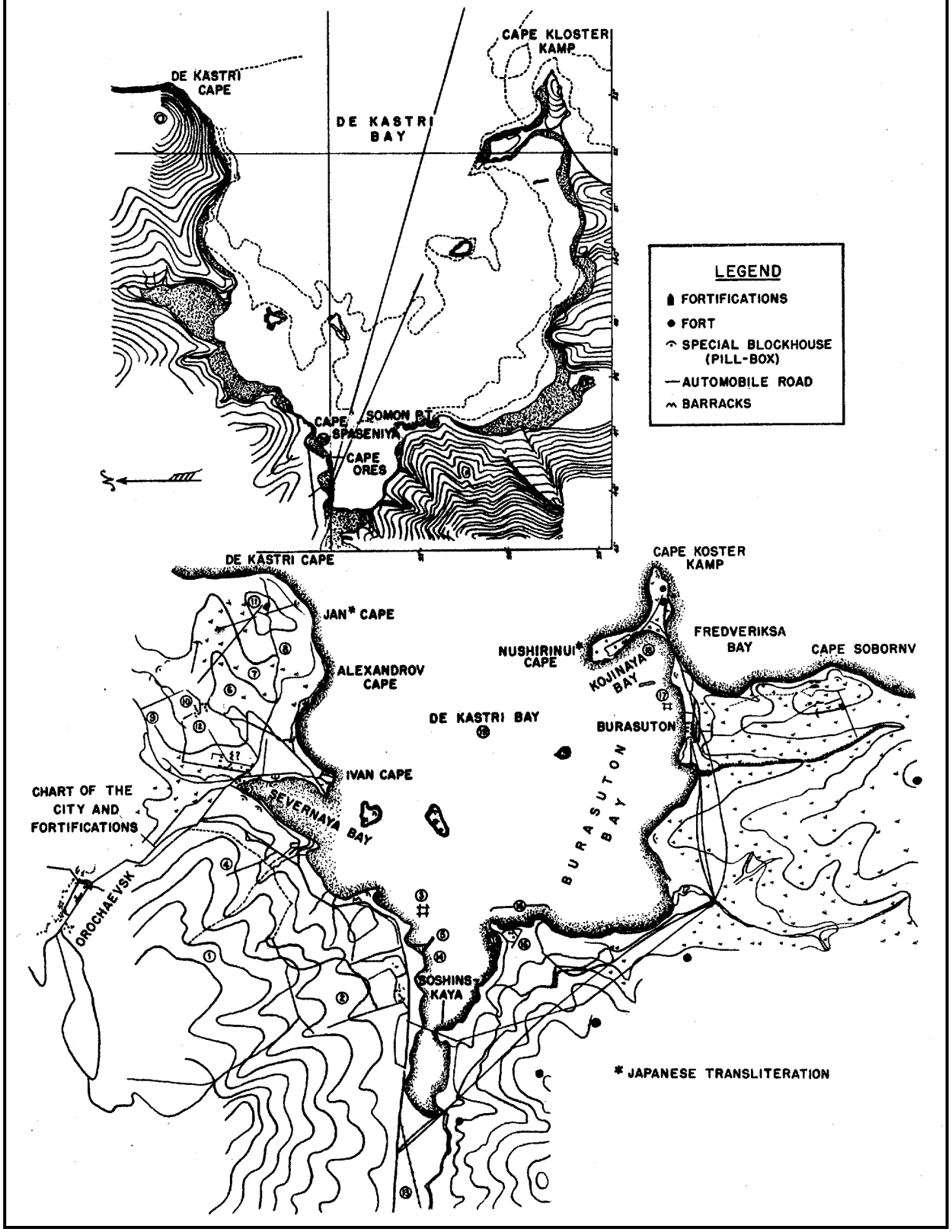
Post office, schools, cable and telegraph office, army construction headquarters, hospital and customs office.

Key - ANNEX No 6 (Contd)

1. Sparse forest area, travel off roads is possible.
2. Militarized zone
3. Seaplane base
4. Apparently some sort of establishment
5. There is a permanent hangar for 2 or 3 planes.
6. Hq
7. Sparse forest
8. There are small cross-paths which run into the forest.
9. Apparently an establishment in the valley
10. Fortress
11. Fortress
12. Coastal defense force
13. Firing area
14. Motor torpedo boat base; nine there at present, but 10 are stationed here
15. O R storage tank area
16. Height of cliffs - 50 meters
17. Seaplane base
18. Submarine base
19. De Kastri Bay
    a. The ice period is from early November to late April.
    b. From late August to late September it becomes very windy. The best weather is in June and July.
    c. The rainy season is from March to July, especially in June and July.
20. Loading area

ANNEX NO 6

MAP OF DE KASTRI AND VICINITY



ANNEX No 7

Map of Vicinity of Nikolaevsk

1. The City of Nikolaevsk

a. Nikolaevsk faces the Amur River mouth and is situated in a position to control the entrance to the Amur River, which is an artery of the Eastern part of USSR territory. As well as being a center for communications with North Sakhalin, Kamchatka, the Sea of Okhotsk and the Khabarovsk region, it is an important place from the standpoint of the link between Russia and America. It has military installations such a motor torpedo boat base, a fortified district, etc. It is an important city militarily, economically and from the point of view of communications. There are some 1500 houses and 25,000 people (there is a recent report that the number of houses is about 15,000 and that the population has reached about 70,000).

b. Nikolaevsk is a port which links the Amur River basin and the open sea. Although it occupies a position of importance in military affairs and communications, the water of the river mouth and the Strait of Tartary is shallow; it is difficult for large ships (above 4,000 ton) to enter and leave and it freezes over in winter (November-May) when it becomes an unserviceable port. Because of this, in comparison to the importance of its position, its value as a port is small; and it is probably also for the same reason that it has not developed as a trading port.

c. Important government offices.

Northern Army Group Headquarters, garrison hospital, the Raion headquarters of the Coastal Border Guard Unit, the Oblast executive committee, the customs house, telephone and telegraph stations, the post office and radio relay station.

d. Principal factories

Power plants, shipyards, oil refineries, flour mills, alcohol distilleries, lumber mills, drinking-water purification plant, brick factory.

e. Important military installations

Torpedo-boat base, seaplane base, airfield for land planes, radio station.

f. Harbor installations

1 pier for ocean-going ships
7 piers for steamships

ANNEX No 7 (Contd)

Map 1:

1. Seaplane base
2. Wooden bridge (2 meters wide). Motor vehicle passage is possible.
3. Military (army) warehouse
4. 10 high-speed boats
5. Hangars
6. City market
7. Without even developing the present sloping grassy land, an airfield could be constructed with a little effort.
8. Municipal cemetery
9. Park
10. Army post (barracks)
11. 4 telegraph poles, about 30 meters high
12. Stable
13. Fourth Raion, second section
14. Executive committee
15. Infantry barracks
16. Former Japanese consulate
17. Shipping Control Bureau
18. Lookout tower
19. Lumber mill
20. This place is suitable as a military rendezvous for the landing of troopships.
21. Two-story tile building (school)
22. Radio relay station
23. Wharf for military use
24. Market pier
25. Mail pier
26. Iron foundry
27. Border Guard Unit Headquarters
28. Monument
29. Cemetery
30. Warehouses

Map 2:

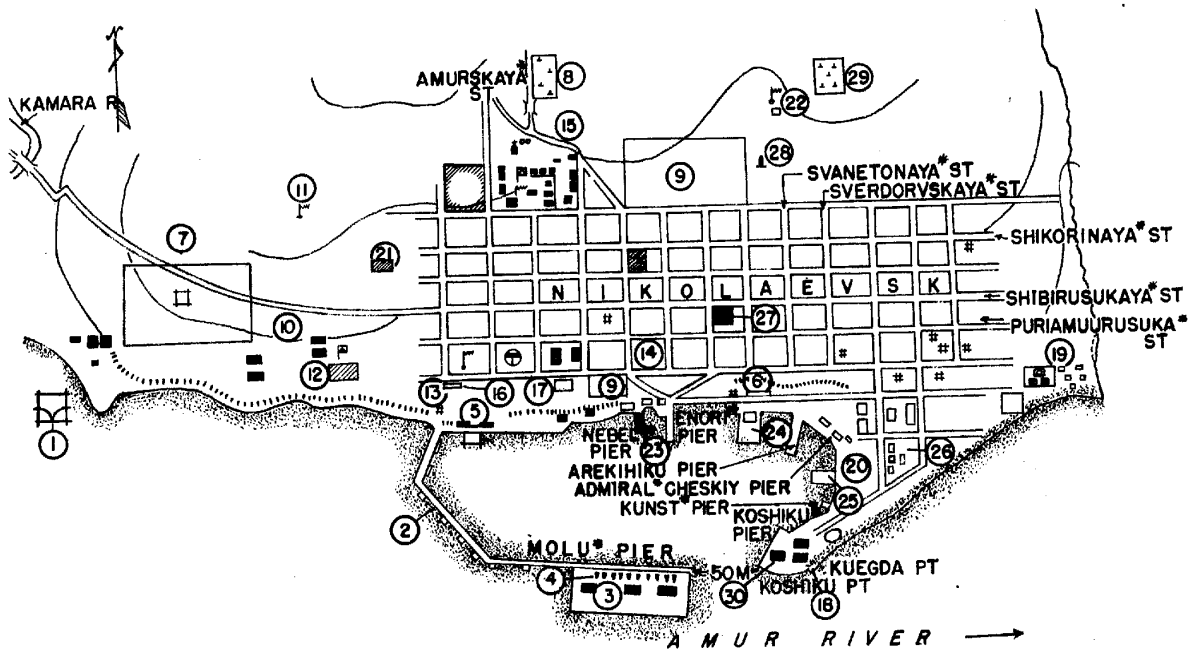
1. Summary of the Nikolaevsk Fortified Area

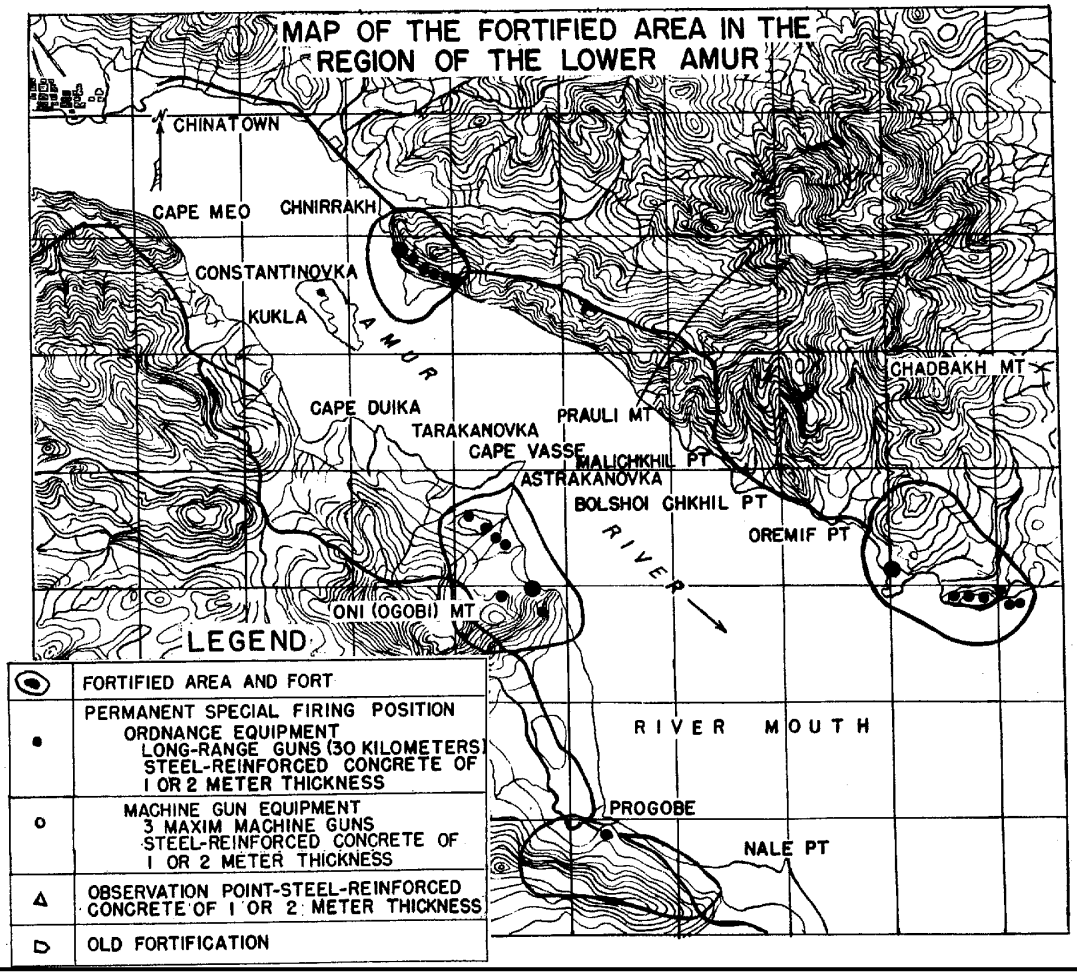
From the time of the Tsarist regime the establishment of forts and other things was accomplished, but in 1923 these were destroyed during the Nikolaevsk Incident. With the beginning of the reconstruction of these in 1932 or 1933, the construction of special firing emplacements on both sides of the river mouth was newly begun. Although these were completed about 1938, little is known of their condition after that time.

The importance of this port increased steadily after the outbreak of the Soviet-German war, and it is believed that the fortifications and installations were once more strengthened. A defense unit has been there since former times. (For details, see "Manual of Eastern USSR Fortifications," Part II, Coastal Fortifications.)

ANNEX NO 7
MAP OF VICINITY OF NIKOLAEVSK

CITY MAP





ANNEX No 8

Map of the Vicinity of Ayan

1. Summary

a. It is an important port on the coast of the Sea of Okhotsk, protected from all winds except those from the south, and is suitable for the anchorage of large ships. It has sandy beaches and suitable landing points.

b. The population is about 3,000 and most of the inhabitants engage in fishing.

c. Principal facilities are the Coastal Border Guard Sector Force, the Raion executive committee, the Raion military committee, a courthouse, a postoffice, a meteorological station, a bank, the Okhotsk Fishing Trust headquarters, a savings bureau, a purchasing association, a small school and a park for children.

d. Equipped as a seaplane base

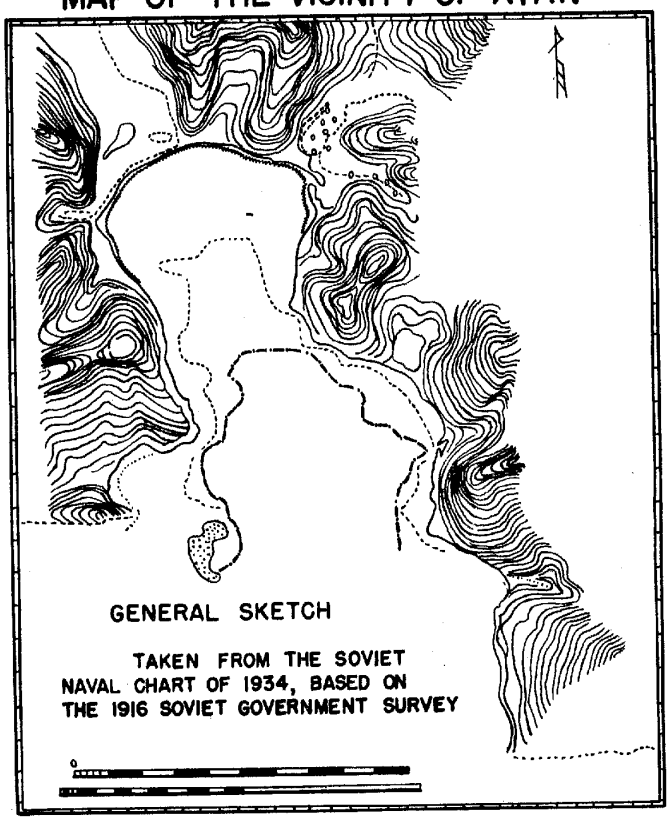
e. The sources of water supply are wells (6) and springs (11), but during the winter these wells and springs freeze over or dry up, so for the most part melted snow is used for drinking purposes.

Map No 1 - City Map

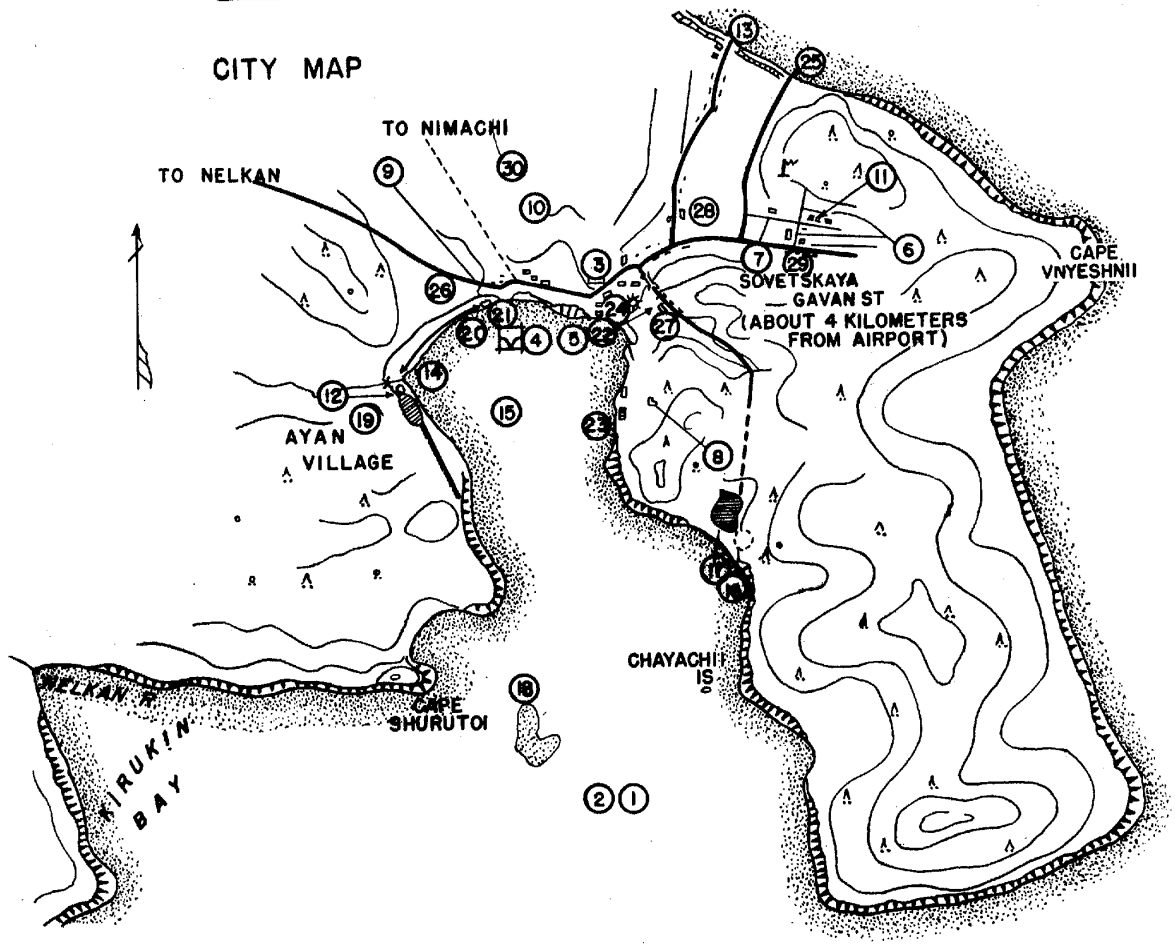
1. Freezing occurs inside the harbor during early November; and outside the harbor during late November.
2. Thawing - After April, the ice is washed out of the bay.
3. Headquarters of the Border Guard Sector Unit.
4. Seaplane base
5. Lumber mill
6. Raion executive committee
7. Raion military committee group
8. Does not freeze over in winter
9. Coaling station
10. Raion purchasing association headquarters.
11. Savings bureau
12. There are three large warehouse.
13. There is a heavy crane (used for the porpoise catch)
14. Suitable place for landing
15. Ships with a draft under 4.3 meters can navigate freely.
16. There was a stockpile of about 1000 tons and supply ships in 1942.
17. A water supply for ships
18. Shoal
19. Population is about 100
20. Fuel storehouse
21. Airport
22. A suitable landing area.
23. Headquarters of the fishing trusts and factories
24. Warehouse
25. A mechanical lift used for descending a cliff
26. Suitable place for landing
27. A power plant
28. Raion purchasing association
29. Bakery
30. Barrel factory, warehouse, garage

ANNEX NO 8

MAP OF THE VICINITY OF AYAN



CITY MAP



ANNEX No 9

Map of the Vicinity of Okhotsk

1. Summary

a. Like Ayan it is an important port of the Sea of Okhotsk. Though it is exposed to southerly winds and strong waves penetrate it, it has excellent holding grounds. Because the whole region has sandy beaches, landings can be made anywhere.

b. There are about 500 houses and approximately 3,000 inhabitants. Fishing and hunting are the main occupations of the natives. About 67 kilometers southwest of Okhotsk are the Okhotsk headquarters of the Japanese and Russian Fishing Industry and several other factories.

c. Principal Facilities

Factories, Raion executive committee, Coastal Border Guard Sector Unit Headquarters, brickyard, oils and fats factory, lumber mill, wireless station.

d. Installations

In addition to the airfields and seaplane base, there is reason to believe that fortifications exist.

1. General Map

a. Marekan Pt
b. Okhotsk
c. Suitable location for landing
d. Japanese and Russian Okhotsk regional headquarters

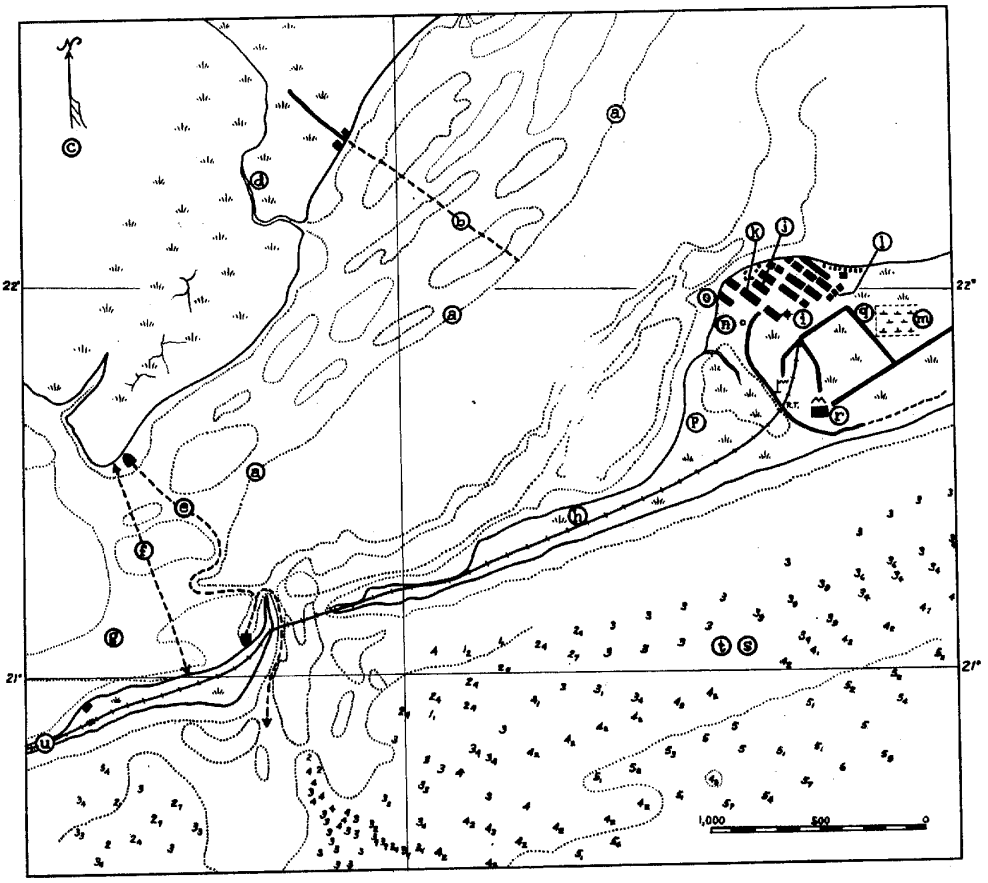
2. City Map

a. Since this is a large area of sand banks, during ebb tide it looks like a large dike.
b. Fording is possible during extreme ebb tide, and boat operations are possible during high tide.
c. (Note): It is said that with the shoals which shift annually the markers are also changed.
d. Lebyajiya R
e. Sea route for boats during high-tide
f. Possible to ford during extreme ebb tide
g. Buistraya R
h. Tunguzskaya Spit
i. Court
j. Okrug executive committee
k. Hospital
l. Telegraph office
m. Cemetery
n. Church
o. Club
p. Old barracks
q. Chapel

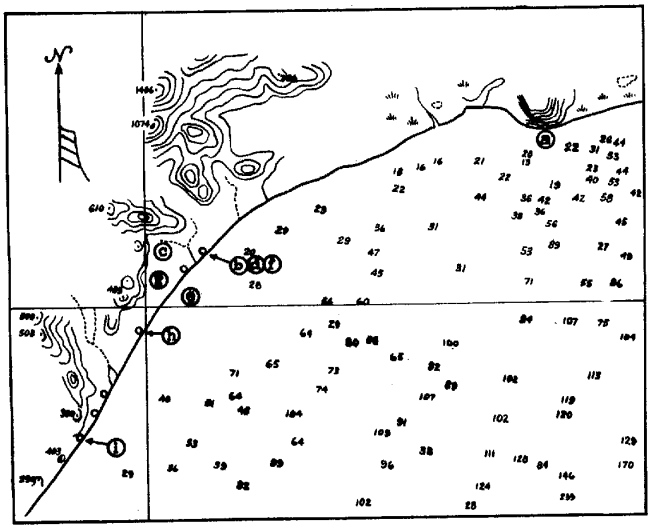
ANNEX NO 9

MAP OF THE VICINITY OF OKHOTSK

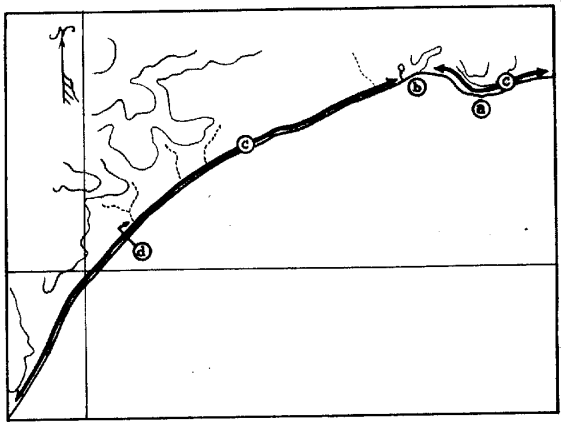
CITY MAP



MAP OF THE JAPANESE AND RUSSIAN FISHING INDUSTRY FISH MARKET AREA



GENERAL MAP



ANNEX No 9 (Contd)

r. Border Guard Sector Unit Hq
s. Freezing: Latter part of September
t. Thawing: Ice-drift from the north during May and June
u. To Yakutsk

3. Map of the Japanese and Russian Fishing Industry fish market area

a. Marekan Pt
b. Japanese and Russian Okhotsk headquarters area
c. No bridge across the river
d. Japanese and Russian Okhotsk Headquarters
e. No 2 fishing area
f. Japanese and Russian Okhotsk headquarters area (Photograph not reproducible)
g. Forest along the seacoast (scrub forest) (Photograph not reproducible)
h. No 3 fishing area (Photograph not reproducible)
i. View of Okhotsk No 5 fishing area taken from Ulya river mouth (This photograph and items below, which it includes, are not reproducible)
485 - (TN: meters) hill. Soviet fishing grounds No 5 fishing area
546 - (TN: meters) hill
Nogdan Pt

ANNEX No 10

Map of the Vicinity of Mariinskoye

1. Summary

a. It faces the Amur River and has wharf installations to accommodate 1,000-ton ships. It is important from the standpoint of communications with automobile roads running to De Kastri, Sofiskoe, Kukla (across from Nikolaevsk).

b. There are about 100 houses and approximately 1,000 inhabitants. Principal occupations are farming and fishing.

c. Military installations

Airfield for land-based planes, Amur River Small Warship Unit barracks, Red Army Unit barracks.

d. Principal facilities

School, Post Office, telephone office, fishing association.

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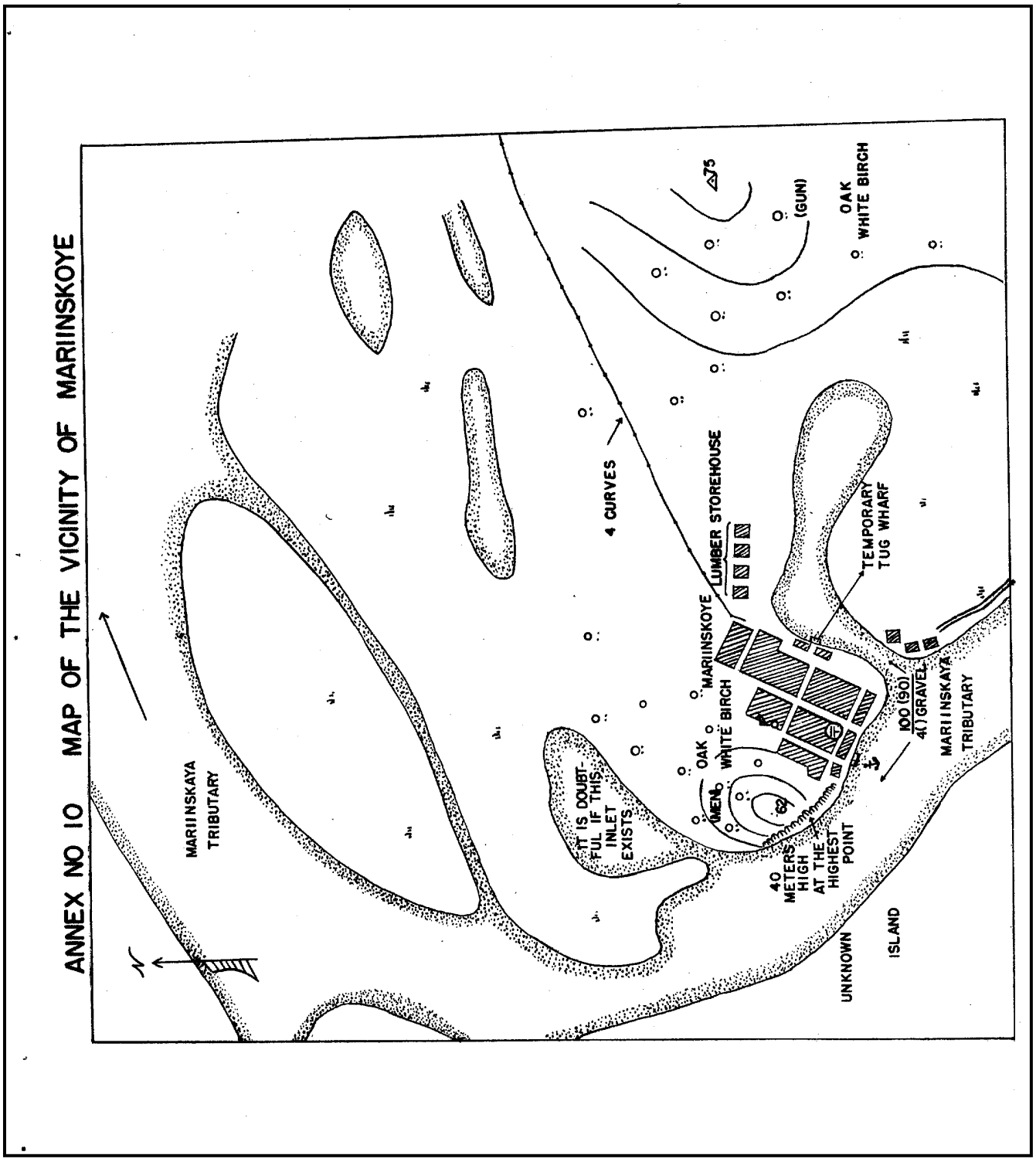

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ANNEX No 11
Map of the Vicinity of Sofiskoe

1. **Summary**

a. It is located on the bank of the Amur River and is a strategic point for military transportation. That is, it is a junction for a land route (automobile road) to De Kastri and waterways to Nikolaevsk and Komsomolsk. There are airfields and seaplane bases, and both the airforce and Red Army units are stationed here. (Recent reports of oil pipe lines to Okha, Sakhalin).

b. Since the area fronting on the Amur River does not have very many subsidiary waterways, it is ideally located for intercepting river connections.

c. There are about 200 houses and about 5,000 inhabitants.

d. Important installations

Seaplane base, land airfield, military supply depot, fuel dump installations, wooden pier (can accommodate eight 70-meter ships).

KEY

2. General Map

a. Amur River main stream
b. Very swampy area
c. Both apparently subterranean installations
d. It is reported that there are 14 subterranean iron re-inforced fuel dumps.
e. Land-based plane field
f. To De Kastri
g. Gornaya Waterway
h. Sofiskoe Mt
i. To Komsomolsk

3. City Map

a. Main stream of the Amur R
b. Approximately 1,200 meters
c. Hangar 70 x 38
d. Seaplane base
e. Water approximately 26 m deep.
f. Storehouse
g. To Komsomolsk
h. Clearing the trees for road constructions
i. Since the surrounding area is scrub forest, the garrison troops have no difficulty moving around.
j. Military supply depot
k. Barracks
l. Headquarters
m. Cultivated land
n. Inlet
o. Civilian homes
p. Flour mill
q. Military supply depot, 50 x 20, 33 buildings
r. CHIGURI*
s. Underground installations
t. Navigation possible for 250 ships
u. Apparently subterranean installations
v. Automobile road
w. To Airfield
x. To De Kastri

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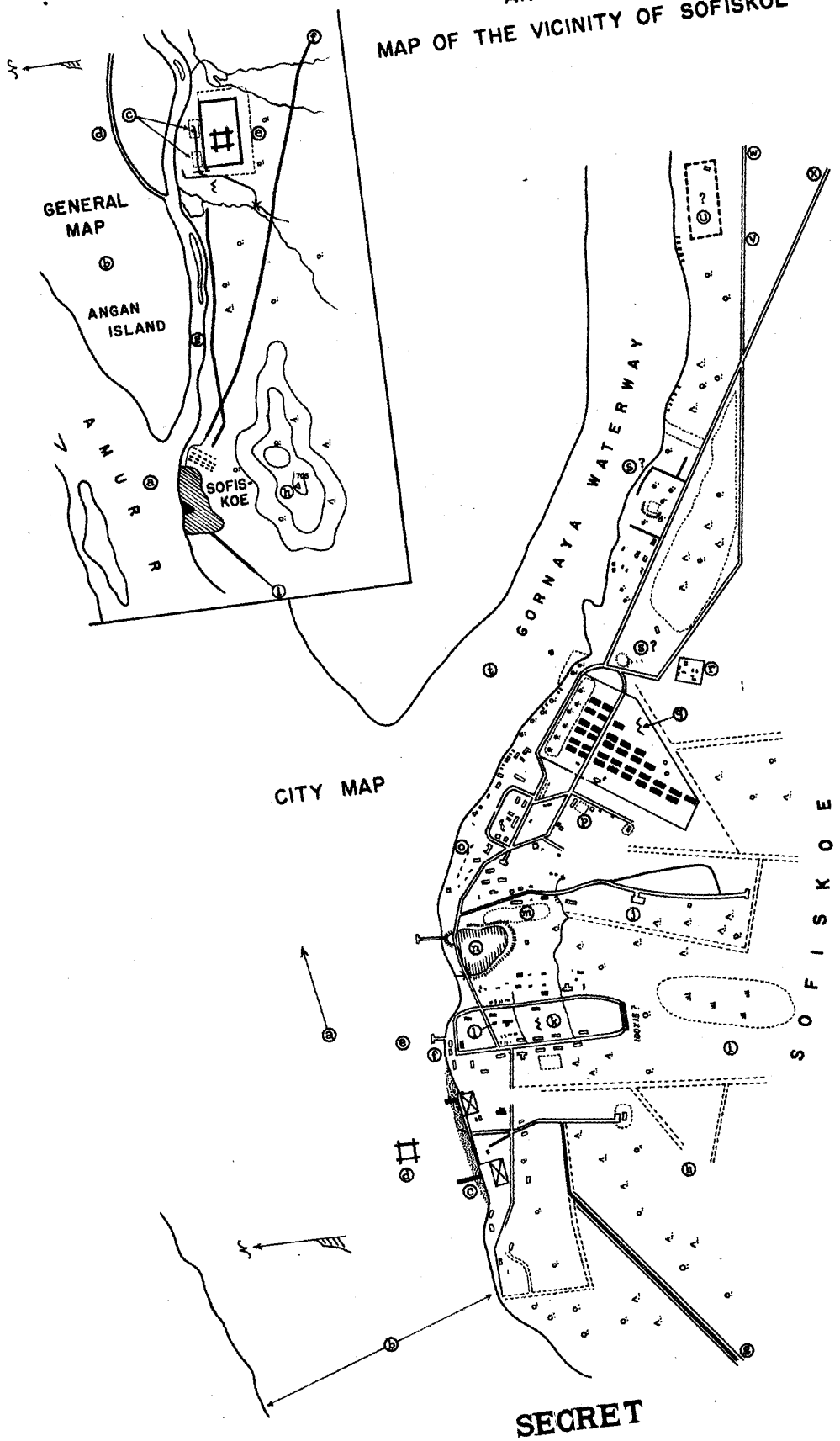
ANNEX NO 11

MAP OF THE VICINITY OF SOFISKOE



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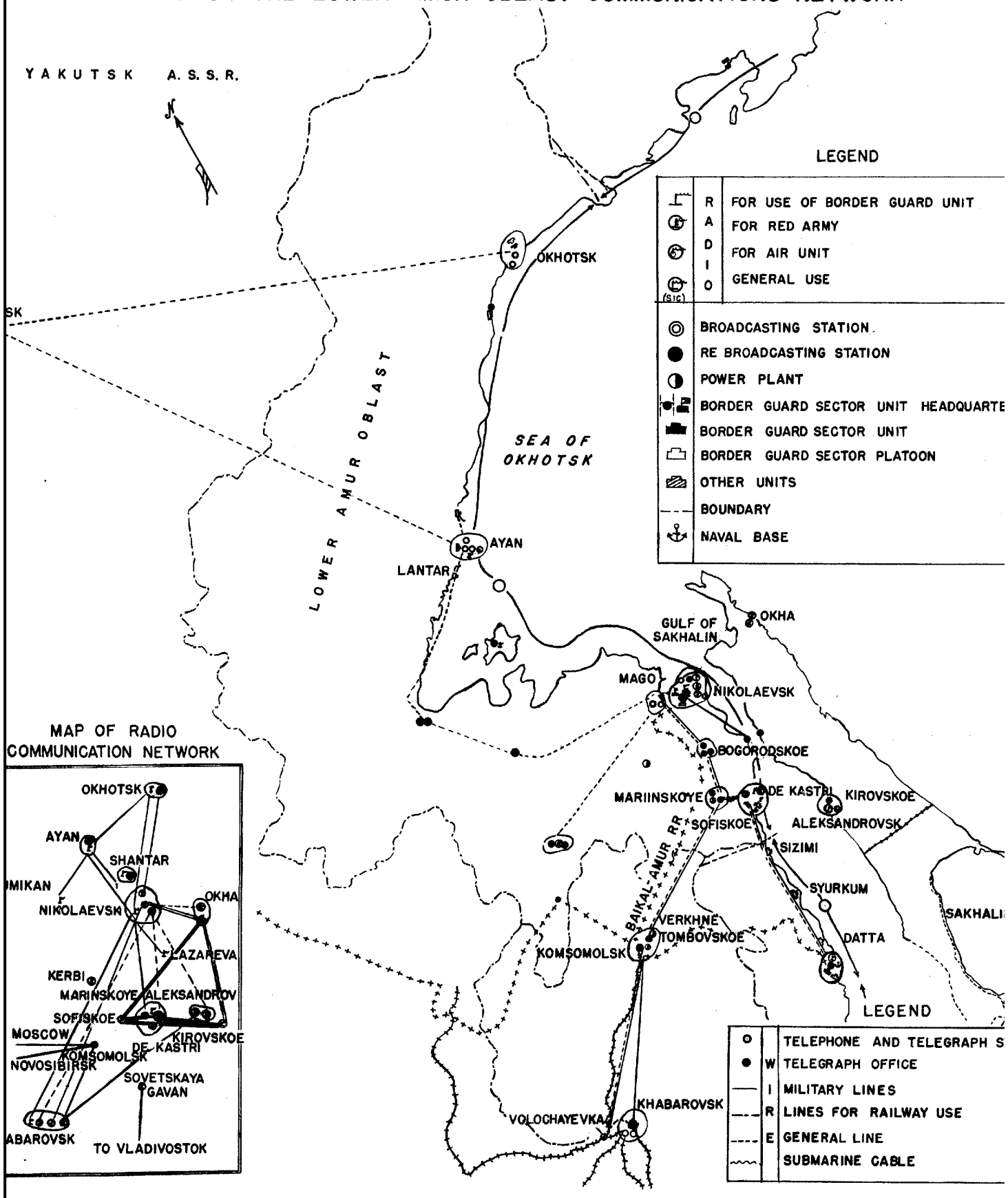
ANNEX NO 12

MAP OF THE LOWER AMUR OBLAST COMMUNICATIONS NETWORK



MAP OF RADIO COMMUNICATION NETWORK

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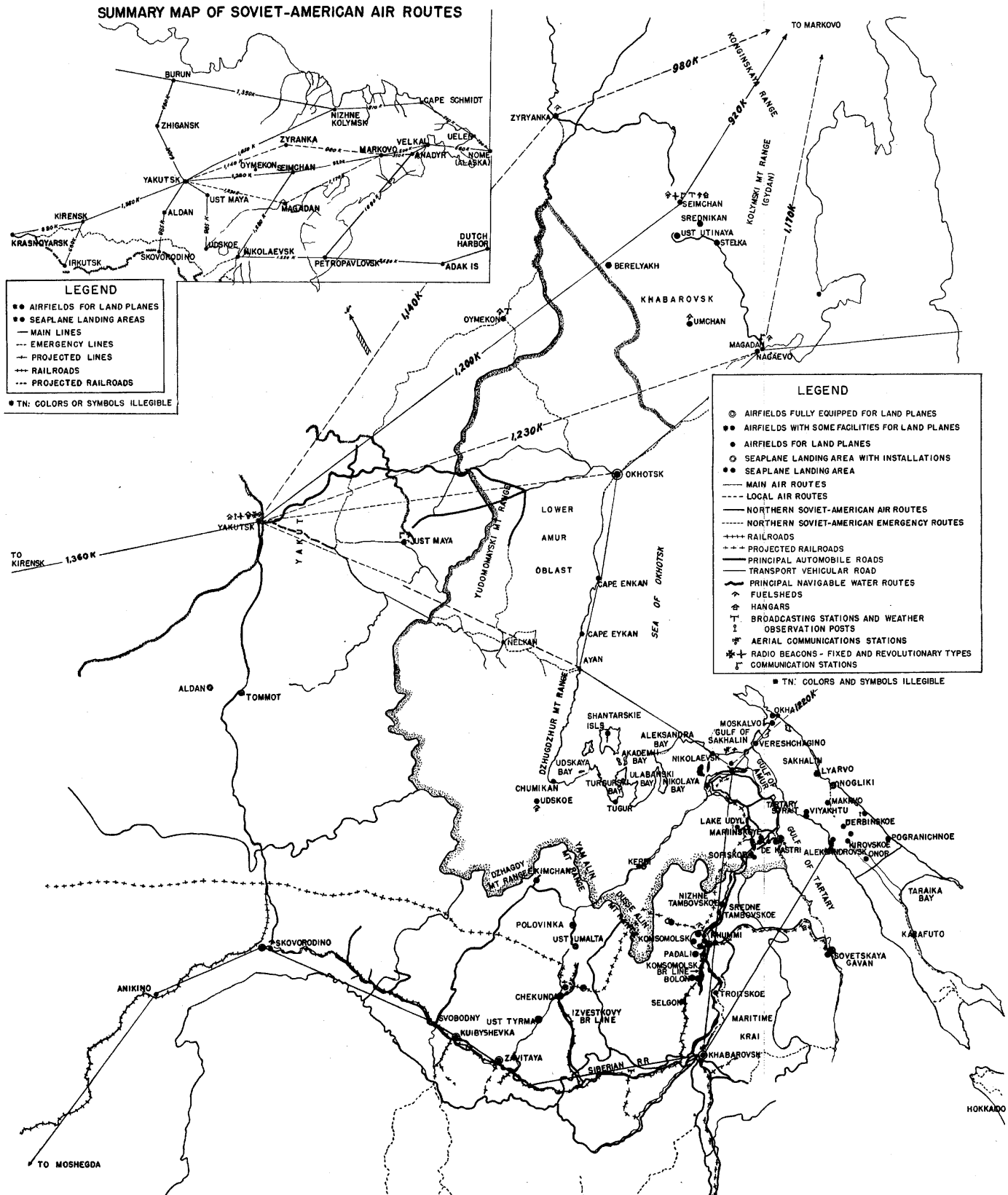
ANNEX NO 13
SUMMARY MAP ON AIRFIELD ESTABLISHMENTS AND AIR ROUTES IN THE LOWER AMUR OBLAST



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ANNEX No 13

Scale - 1:2,500,000 Summary Map on Airfield Establishments and Air Routes in the Lower Amur Oblast

Table on Airfields in Lower Amur Oblast Region (1944 - 1945)

District	Place Name	Land Airfields				Seaplane Landing Area	
		Runways	Installations	Revetments	Characteristic	Installations	Characteristics
Along the Gulf of Tartary	Sovetskaya Gavan De Kastri	20x20				Hangar 1 There appears to be installations	Good
Amur River (Including tributaries) Region	Komsomolsk	(South) 16x16 runway 1x7 1x9	Complete	Open air	Good	Small hangars 3	Generally good
		(North) 30x18 runway 1x12	Generally complete	Open air	Good		
Amur River	Komsomolsk	(North No 2) 5x9		Open air	Generally good		
	Komsomolsk	West					
	Komsomolsk	(East) 12x4	Fuel shed	Some exist	Generally good		
	Khumni	(West) 16x6	Fuel shed		Generally good		
	Gorin	(East) 11x9			Generally good		
	Gorin	(West) 15x3.8		Open air	Good		
	Sredne Tambovskoe						
	Nizhne Tambovskoe						

Amur River	Sofiskoe	Medium-sized planes			Generally good		Good
	Mariinskoye						To some extent a seaplane landing area
	Kizi						
	Oz Udyl						
	Kerbi						
	Nikolaevsk	Runway 15x15 3x1			Generally good	There are establishments	Excellent
Along Sea of Okhotsk	Baydukov Island						
	Kosa(?)						Seaplane landing area
	Tugur						
	Ostrov						
	Bolshoi						
	Shantar(?)						
	Chumikan						
	Udskoe		Fuel shed		Generally good		
	Ayan						
	Cape Eykan						
	Cape Enkan						
	Cape Odzhan						
	Okhotsk					There are establishments	Generally good

Approved For Release 1999/08/25 : CIA-RDP78-03109A000500011021-1

ANNEX No 14

Map of Industries and Resources of Lower Amur Oblast Area

Production Table of Principal Industries and Minerals

Plant Location	Nikolayevsk	Komsomolsk
Product		
Generating Sta	14,000 kw (year)	47,000 kw (year)
Iron ore	10,000 tons (year)	
Copper ore		120,000 tons (year)
Aircraft		100 machines (month)
Tanks		30 tanks (month)
Guns		10 guns (month)
Ammunition		6,000 heavy shells (month) 300,000 light shells

NOTE: In this table, "year" indicates capacity of production in a year, and "month" indicates capacity of production in a month.

KEY

1. Inya R
2. Ulbeya R
3. Inya
4. Okhotsk
5. Ancha
6. Maya R
7. Ayanmaik
8. Aldan
9. Ayan
10. Uda R
11. Chumikan
12. Udskoye
13. Shantarskie Is
14. Gulf of Sakhalin
15. Chlya
16. Mago
17. HEREKACHINSUKI*
18. Amgun R
19. Guga
20. Kerbi
21. Udskoye
22. Bolshe Mikhaylovskoye
23. NEREOSUKOE*
24. Pokrovskoye
25. Udylskaya
26. Amur R
27. Nizhne Tambovskoe
28. Verkhne Tambovskoe
29. Komsomolsk
30. Raions directly subordinate
31. Maritime Krai
32. Dyuanka
33. Sovetskaya B
34. Pilvo
35. Strait of Tartary
36. Gulf of Amur
37. Nikolaevsk
38. De Kastri
39. NAROEFUSUKI*

*Japanese transliteration

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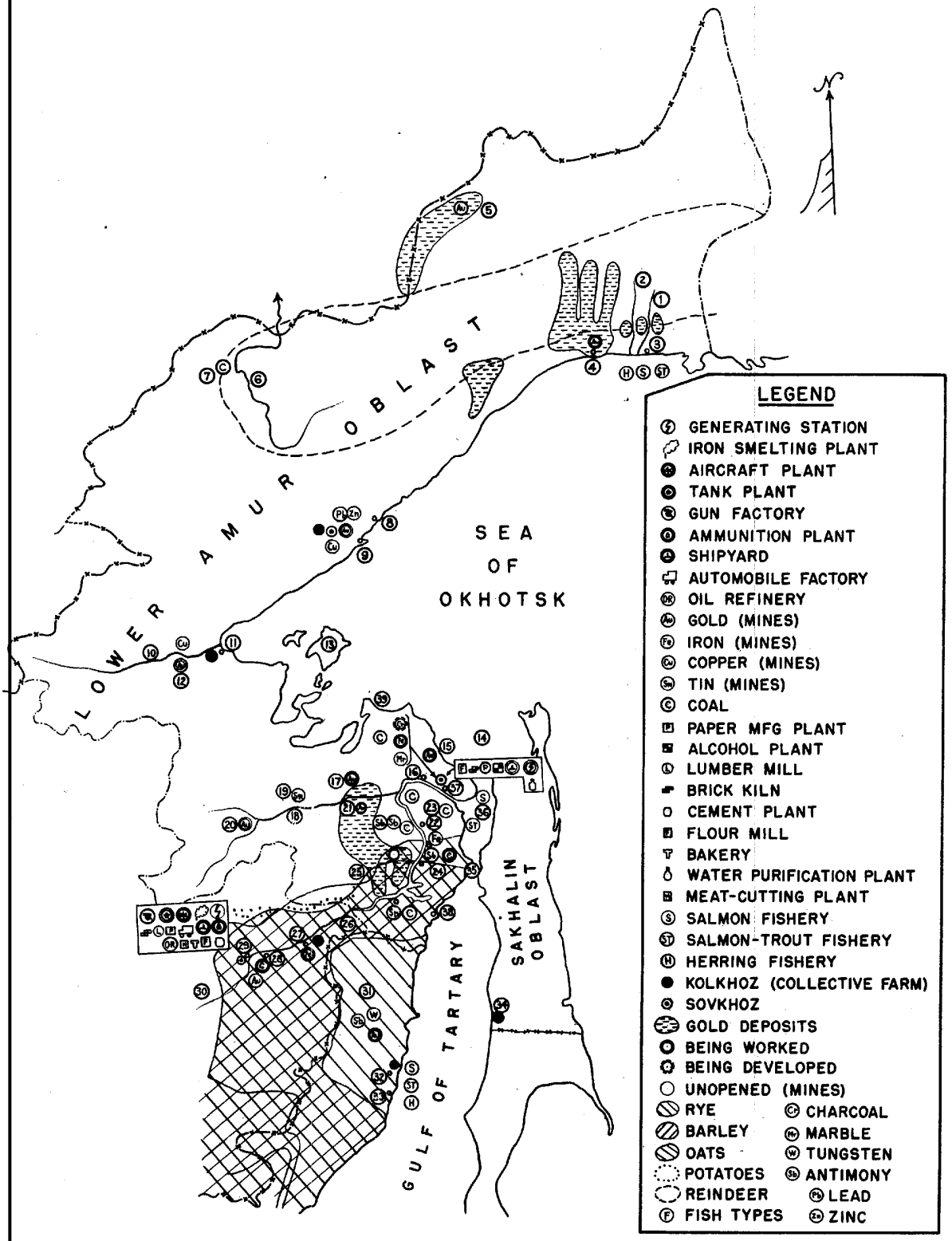
ANNEX NO 14

MAP OF INDUSTRIES AND RESOURCES OF THE LOWER AMUR OBLAST AREA



NOTE: THIS MAP GIVES ONLY THE PRINCIPAL FEATURES OF INDUSTRY AND RESOURCES.

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