This document was considered at Brd (or) 114th Meeting (O) Item 3.

C.O.S.(44) 328 (O)

7TH APRIL, 1944

WAR CABINET

CHIEFS OF STAFF COMMITTEE

FRENCH PARTICIPATION IN "OVERLORD"

Note by the War Office

We have collated the statements of progress which the War Office, Admiralty and Ministry of War Transport were instructed+ to prepare, and submit the following report.

2. Questions which were referred* to SCAEF

SHAEF have reaffirmed:

(a) their inability to provide any general purpose vehicles with which to re-equip the Division,

(b) that they are still anxious to accept no loaded LST after 15th May,

(c) that they will accept vehicles up to 30th June.

3. We recognise that SHAEF may experience difficulty owing to congestion at hards and on the roads leading to embarkation areas, in accepting loaded LST at South coast ports after 15th May. On the other hand, the cost of providing the equivalent M.T. ships is, in our opinion, quite disproportionate to the inconvenience which would be caused to SHAEF, and we feel that the difficulties can be overcome. We therefore consider that preparations should proceed on the assumption:-

(a) that all the Division's equipment will be brought back from the Mediterranean

(b) that all LST returning from the Mediterranean will carry vehicles.

4. Should it be necessary, however, for any LST to arrive in the United Kingdom after 15th May, SCAEF should be asked to decide:-

+ C.O.S.(44) 111th Meeting (O), Item 2
* C.O.S.(44) 109th Meeting (O), Item 8.

(a) whether he wishes them to unload on the South coast, accepting some dislocation in the OVERLORD mounting area, but thus making the craft available earlier for his own use, or

(b) whether he wishes the craft to unload at other ports, which is feasible, thus accepting some delay in the craft being available for OVERLORD owing to the subsequent additional voyage to South coast ports.

5. Move of vehicles in MKS 45

General Wilson has been instructed[ø] to sail as many vehicles as possible in MKS 45. We do not yet know how many vehicles he has been able to embark, but it is hoped that 14 LST will sail carrying some 840 vehicles.

6. Move of remaining vehicles

The number of vehicles which can return from the Mediterranean in other LST depends upon General Wilson's reply to COSMED 80. If the maximum of 26 LST (without LCT) return, they could carry 1560 vehicles. If, however, the minimum number of 19 LST return, each carrying 1 LCT, the lift will be reduced to some 660 vehicles. Thus, depending on the numbers of vehicles embarked in LST, either 12 or 19 M.T. ships will be required to lift the balance of 1600 or 2500 vehicles to complete the division to its full establishment of 4,000 vehicles.

7. General Wilson has been asked[✓] to state at what ports and on what dates vehicles will be ready to embark in the Mediterranean. On receipt of this information, M.W.T. in conjunction with W.S.A. will consider arrangements for their move by 30th June.

8. Move of personnel

Arrangements are being made for the personnel, some 13,000, less drivers who will travel with their vehicles in LST, to sail in MKF 31 which is due in the United Kingdom on 30th May.

9. Recommendation

We recommend:-

(a) That SCAEF be informed that the above arrangements are being made for the 2nd French Armoured Division to return to the United Kingdom, and that all LST must be used to their full capacity.

(b) That SCAEF be asked whether, in the event of any LST having to arrive in the United Kingdom after 15th May, he would prefer them:-

(i) to unload on the South coast thereby accepting some slight congestion in the OVERLORD area, or

ø COSMED 82.
✓ War Office 84556 Q(M)11, dated 6th April, 1944.

75A

(ii) to discharge at other ports, thereafter moving to the South coast where their arrival would inevitably be later than in (i) above.

(c) That when the programme for the return of LST to United Kingdom has been decided, General Wilson should be instructed that all returning LST should carry vehicles of this Division.

(d) That the Chiefs of Staff should recommend to the Combined Chiefs of Staff that the C.S.A. should make the necessary shipping available for the move.

Offices of the War Cabinet,
S.W.1.

7TH APRIL, 1944.

C.O.S.(44) 329 (0)

8TH APRIL, 1944

WAR CABINET

CHIEFS OF STAFF COMMITTEE

OPERATIONS BY THE POLISH SECRET ARMY

Note by Secretary

The following additional information regarding the operations by the Polish Secret Army described in C.O.S.(44) 324 (0) has now been received from S.O.E.

(i) Polish G.H.Q. in London have informed S.O.E. that the secret army intend to put Operation "JULA"+ into effect between the 6th and 10th April, 1944. It is understood that the British Ambassador in Moscow has been informed of the operation in general terms, but that it is not intended to tell him the details including the date until after the operation has taken place.

(ii) It is believed that sufficient supplies for Operation "EWA" were dropped on the area in which the operation is to take place on the night of the 3rd April. Confirmation of the safe receipt of these supplies has not yet been received from the secret army.

(Signed) L.C. HOLLIS

Offices of the War Cabinet,
S.W.1.
8th April, 1944.

+C.O.S.(44)324(0) Annex III Refers.

This document was considered at C.O.S.(44) 117th Meeting (O) 12.

C.O.S.(44)330(O)

8TH APRIL, 1944.

WAR CABINET

CHIEFS OF STAFF COMMITTEE

C.M. &. S.F. MONTHLY PROGRESS REPORT NO. 8.
(Previous Reference: COS(44)216(O)

(A) "PHOENIX".

(a) The programme is proceeding satisfactorily, 78% of the construction is completed.

(b) The labour force is at present 17,600 men, a reduction of 2,000 during the month.

(c) Towing trials of an A.1. unit (the largest size 6,300 tons) were completed in calm weather. With two 1000 H.P. tugs a speed of 4 knots was attained.

(d) The original Staff requirements for the "Mulberies" stipulated that they should be effective for a period of 90 days; as a result of further consideration it has now been laid down that they will be required up to D + 120, and possibly for a further period during the winter months. To avoid dispersal of the Contractors' plant and labour, a submission has already been made to the Chiefs of Staff for authority to proceed with the construction of a further 20 A.1. units which are certain to be required; a further demand may follow.

It is estimated that the first 20 could be completed by the end of June.

(B) "WHALE".

Pierheads.

Of the initial requirement of 15 for the operation, 5 have either arrived, or are in process of being towed, to the assembly points. The present forecast indicates that the operational requirement should be met.

Piers (Flexible Roadway).

Large quantities of the pre-fabricated equipment are now reaching the two assembly points, and every endeavour is being made to speed up the assembly.

(c) "BOMBARDON".

The trial breakwater now consists of 15 "Bombardons" - 9 in the outer and 6 in the inner line. Throughout the month the weather has been too calm to afford an adequate test, but observations up to date show that so far as the wave reduction properties are concerned, "Bombardons" as designed are slightly more effective in wave reduction than was at first anticipated.

Initial towing difficulties have been overcome, and with a 1000 H.P. tug towing 2 units, a speed of 5 to 5½ knots has been maintained.

53 "Bombardons" have so far been manufactured and the final 40 should be completed by the 15th May.

2. SUNKEN SHIPS.

Of the 24,000 feet required there was a deficit of 4,000 feet. Directions were issued under COS(44) 90th Meeting (O) of the 17th March 1944, to make good the balance.

3. FLOATING SHIP BREAKWATER.

The Chief of Naval Operations, Washington, has stated that:-

"This type of breakwater is not considered sufficiently effective to warrant its use, and Merchant Ships from U.S. sources will not be furnished therefore."

This confirms the view held by British Naval authorities. There is accordingly no requirement under this heading.

4. TUGS.

The Transportation Corps tugs, which are being delivered from U.S., are arriving in advance of the scheduled dates of delivery.

Of the 25 U.S. Naval Tugs, 10 are known to be of types unsuitable for towing "Phoenix", although capable of towing "Bombardon" or the lighter "Whale" equipment.

5. PARKING LOCALITIES FOR "PHOENIX" AND "WHALE".

Three sites have been selected - two on the South Coast for the equipment required for the operation, and one in the Thames for reserve "Phoenix" units. The equipment, as it is completed, will be towed to these localities.

GENERAL OBSERVATIONS.

Now that the main production problems have been solved, there are two main preoccupations which are under constant study:-

(a) The large amount of "Phoenix" and "Whale" equipment which will have to be towed to the assembly and parking sites during the next two months, involving a heavy strain on the available tugs;

(b) The organisation for the rapid assembly of the piers and pierheads to ensure that all the equipment is completed by the target date. In order to expedite this, the services of Civilian Contractors have been enlisted, and the U.S. are furnishing personnel, but it may be necessary to procure additional assistance from other sources, such as the Royal Marine Engineers.

For the Supreme Commander:

(Signed) F.E. MORGAN.

Lieutenant General.

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ffices of the War Cabinet,
S.W.1.

8TH APRIL, 1944.

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The circulation of this paper has been strictly limited.

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Copy No....44....

C.O.S.(44) 351 (O)

11TH APRIL, 1944

This document was considered at C.O.S.(44) 121st Meeting (O) 6.

WAR CABINET

CHIEFS OF STAFF COMMITTEE

CONTROL OF NAVAL GUNFIRE

Report by the British Joint Communications Board

Reference C.O.S.(44) 44th Meeting (O), Item 8, 10th February, 1944 in which the British Joint Communications Board was instructed to report on the suitability of the "U.S. NAVY Code for control of Naval Gunfire" for use in conjunction with British methods of controlling Naval Gunfire.

2. In reply to paragraph (b), sub-paragraphs (i) to (v) of the Chiefs of Staff questionnaire the British Joint Communications Board, in consultation with the Chief of Combined Operations and S.H.A.E.F. reports:-

(i) That the U.S. Code, as it stands, does NOT meet British requirements for Observer Controlling, although only minor alterations or additions are required.

(ii) That it would be feasible to issue a Part II for Observer Spotting, but the Board is in favour of including the requirements for Observer Spotting under the appropriate headings in the Observer Controlling Code.

(iii) Considerable amendments would be required to the Combined Operations Signal Book and it is recommended that the agreed Code should be included in its entirety in the Combined Operations Signal Book.

(iv) Special arrangements have been made for the control of Naval Gunfire in "OVERLORD" by the production of an A.E.F. Assault Signal Book, as reported in paragraph 2 of C.O.S.(44) 270(O) 18th March, 1944. A similar book is reported in use in the Mediterranean Theatre, but copies have not yet been received in the United Kingdom.

(v) It is recommended that the proposed Combined Assault Signal Book should be introduced by Theatre Commanders as soon as the necessary agreement, printing and distribution has been effected.

3. Detailed variations from the U.S. Code in the proposed Combined Assault Signal Book*, attached herewith are:-

(a) The question of "Target Description" signals has been resolved by adding the necessary three letter groups from the Combined Operations Signal Book to the U.S. Code and the twelve (approx) groups common to both books have been included in their three letter form to preserve a distinctive aspect for this type of signal.

(b) Some eight groups in the U.S. Code referring only to Field Artillery Battery Control have been omitted.

(c) Certain groups which are considered necessary have been added.

(d) For the sake of uniformity, and because there has never been a requirement for a deflection correction of less than 50 yards in Naval Gunfire in the Mediterranean, distances throughout the book are expressed in hundreds of yards. This is a departure from both the U.S. Code and the S.H.A.E.F. Assault Signal Book. It is considered that "U.3.L.F.2.", meaning in both the above codes "Up 300 yards Left 20 yards" is liable to lead to most serious errors amongst British telegraphists.

4. The Board therefore recommends action by the Chiefs of Staff Committee as follows:-

(a) That the proposed Assault Signal Book, attached herewith, be submitted to the Combined Chiefs of Staff with a view to its consideration by the Combined Communications Board for issue as a Combined Publication under the security classification of "RESTRICTED", and

(b) That as an interim measure the S.H.A.E.F. Assault Signal Book, which contains more than the attached Assault Signal Book, should be issued under the title of C.O.S.B.(2) to supersede the Combined Operations Signal Book.

(Signed) H.G. LEONARD-WILLIAMS
Chairman
BRITISH JOINT COMMUNICATIONS BOARD.

Offices of the War Cabinet,
S.W.1.

11TH APRIL, 1944.

* Annex

ANNEX

ASSAULT SIGNAL BOOK

This book contains the following Codes for the Control and Observation of Naval Gunfire:-

(A) Fire Control Code (Encode+ and Decode∅)
(B) Clock Code■

FIRE CONTROL CODE

(a) Used for directing Ships' fire by:-

(i) Shore Fire Control Parties, S.F.C.P.(U.S.)
(ii) U.S. Spotting Aircraft
(iii) Forward Observers Bombardment, F.O.B.(British)
(iv) British Spotting Aircraft

(b) Used as required and appropriate for information messages included in its scope.

(c) Where there is no R/T equivalent, the R/T message should be spoken as in the Plain Language meaning given.

CLOCK CODE

(a) Used for reporting the fall of shot of Ships' fire by:-

(i) Forward Observers Bombardment, F.O.B.(British). (Except when authorised to control fire)
(ii) British Spotting Aircraft (Except for Impromptu Targets)
(iii) British Air Observation Posts

(b) Used by any of the above for indicating a new target with reference to a previous target or reference point (but only if the distance between the new target and the old target or reference point does not exceed 1000 yards).

+ Appendix I ∅ Appendix II
■ Appendix III

APPENDIX I

ENCODE

FIRE CONTROL CODE

TARGET DESIGNATION

	W/T	R/T
NEW TARGET (followed by a spot to indicate difference in range in 100's of yards and deflection in 100's of yards to new target, or by clock code observation of new target.)	CT	Shift
OBJECTIVE LOCATED AT..... (Coordinates/ Map Reference)	OL	Objective
TARGET AT	TA	Target
TARGET IN TARGET AREA NO	AK	
TARGET BEARING .....DEGREES	TB	Target Bearing
TARGET CHANGING COURSE	TW	
TARGET COURSE	TK	
TARGET SPEED	TS	
TARGET RANGE ..... (Hundreds of yards)	RN	

TYPE OF FIRE

CLOSE SUPPORTING	CS	
COUNTER BATTERY	CB	
DEEP SUPPORTING	DS	
DESTRUCTION	CJ	
GO ON, or AM CONTINUING to fire in own time	GO	Go On or Going on
FIRE, or AM FIRING, for effect	FE	Fire or Firing for Effect
FIRE, or AM FIRING, Single rounds	F1	Single Rounds
FIRE, or AM FIRING, Salvos	VO	Volley
FIRE QUICKER	FQ	Fire Quick
FIRE SLOWER	FS	Fire Slow
HEAVY CONCENTRATION or LL	LL	Plaster
INTERDICTING/INTERMITTANT FIRE	IN	
LENGTHEN or HAVE LENGTHENED FUZE	LN	Long Fuze
NEUTRALISING FIRE	NT	Neutralise
MAXIMUM RATE	RF	
RAPID FIRE	MU	
SHORTEN or HAVE SHORTENED FUZE	SN	Short Fuze
SLOW RATE or DELIBERATE FIRE	SF	

ARMAMENT or BATTERY	W/T	R/T
ANTI-AIRCRAFT or SECONDARY	AA	
MAIN	MB	

TARGET DESCRIPTION

AIRBORNE TROOPS LANDED AT	ABT
ANTI-AIRCRAFT GUNS	AAG
ACTIVITY AT ..... (Specify if possible)	ACT
AERODROME or AVIATION FIELD	AER
ALL ARMS	ALA
AMMUNITION DUMP	AMM
ARTILLERY FIRING	GNF
ARTILLERY NOT FIRING	GNS
BRIDGE	BDG
BIVOUAC AREA	BIV
TRAFFIC BLOCK	BLK
CAVALRY or MOUNTED MEN	CAV
CLOSED	CLO
COMMAND POST	CMP
COLUMN	COL
DEFENDED POST	DEF
FACTORY or INDUSTRIAL UTILITY	FAC
HANGARS	HAG
HEADQUARTERS	HQS
HOSTILE AIRCRAFT LANDED AT.....	HAL
HORSE DRAWN TRANSPORT	HDT
INFANTRY or MEN	INF
MECHANICAL TRANSPORT	MET
MACHINE GUN (S)	MGS
MORTARS	MTR
OPEN	OPN
OBSERVATION POST	OBS
REFUGEE or CIVILIAN TRAFFIC	RED
PETROL or GASOLENE	PET
PILLBOXES	PIL

TARGET DESCRIPTION (Contd).

	W/T	R/T
PLANES ON GROUND	PLA	
PONTOON OR IMPROVISED BRIDGE	PTG	
RADAR STATION	RAR	
RAILHEAD	RED	
REFERENCE POINT A,B,C, etc.	RFA RFB RFCetc	
RESERVES	RES	
RIVER	RIV	
ROAD	ROD	
SEARCHLIGHT	SER	
SIDING	SDG	
TARGET DANGEROUSLY NEAR OWN TROOPS	DGR	
TANKS	TNK	
TRENCH	TCH	
TRAIN	TRN	
WARSHIP (may be amplified by two-letter group from Ship Description).	WAR	
WIRELESS STATION	WTS	

SHIP DESCRIPTION

AIRCRAFT CARRIER(S)	AC
BATTLESHIP(S)	BB
BATTLE CRUISER(S)	BC
CRUISER(S)	CR
DESTROYERS	DD
WAR MOTOR BOATS	EB
LANDING CRAFT	LC
MINELAYER(S)	ML
MERCHANT VESSEL(S)	MV
MONITOR(S)	MR
SMALL CRAFT	SC
SUBMARINE(S) ON SURFACE	SS
SUBMARINE(S) SUBMERGED	SU

PROJECTILE	W/T	R/T
ANTI-AIRCRAFT	AN	
ARMOUR PIERCING	AP	
HIGH CAPACITY or H.E.	BM	
COMMON	CO	
FLAT-NOSE	FL	
SMOKE	SM	
TYPE NO.	TY	
TIME AND DURATION		
CEASE FIRE NOW (or at time indicated)	CF	Cease Firing
CEASE FIRE EMERGENCY(Note - Fire cannot be recommenced until "GO" is received or a fresh series has been signalled).	ZZ	Stop
CHECK FIRE	FO	
OPEN (or resume) FIRE NOW (or at time indicated)	PF	Fire
WAIT (followed by numeral group indicating time to wait in minutes)	MQ	Wait
DURATION OF FIRE(followed by numeral group indicating time in minutes)	QQ	
FALL OF SHOT OBSERVATION		
HAVE FIRED /SALVO SIGNAL	2 Second Dash	Shot
ABNORMAL SPREAD OF SALVO	YY	Lousy
BURST CORRECT	NA	
CAN OBSERVE	OB	
CANNOT (Fire / Observe) ON TARGET INDICATED or NO GOOD	NG.	No Good.
DIRECTION OF DRIFT (3 figure group indicating true course in degrees)	DR	
DOWN (amount indicated in hundreds of yards) When not followed by a numeral a range of 50 yards is indicated,).	D	
FALL OF SHOT OBSERVED	T.	Seen
LEFT (in hundreds of yards)	LF	

/contd.

FAIL OF SHOT OBSERVATION (Contd).

	W/T	R/T
LENGTH OF DRIFT (hundreds of yards)	LD	
LOST, NOT OBSERVED	LT	Unobserved
LOWER BURST	NL	
NEGLECT, BAD SHOT (from ship) ROUND FAR OUT (from Aircraft or F.O.B.)	NN	Neglect
NO OBSERVATION	NB	
RANGE AFRESH	FR	Fresh Ranging
RANGE (or AM RANGING) by LADDER RANGING	VT	Ladder
RAISE BURST	NR	
REPEAT WITHOUT CORRECTION	OV	Repeat
RIGHT (in hundreds of yards)	RT	
SPLASH SIGNAL, shot about to fall	SSS	Splash
STRADDLE or HIT or NO CHANGE	KK	Straddle or Hit.
STRADDLE OVER...(amount indicated in hundreds of yards) (when not followed by numeral indicates 50 yards)	KD	Straddle over
STRADDLE SHORT (amount indicated in hundreds of yards) (When not followed by numerals indicates 50 yards)	KU	Straddle short
UP....(amount indicated in hundreds of yards) (When notfollowed by numeral indicates 50 yards)	U	

EFFECT

FIRE EFFECTIVE	FC
FIRE NOT EFFECTIVE	FX
MISSION SUCCESSFUL	MS
PROJECTILES FAIL TO DETONATE	TD
TARGET DESTROYED	DT

SPECIAL CODE GROUPS

	W/T	R/T
AIR O.P. WILL OBSERVE	AO	
AREA TO BE COVERED IS.....100 square yards	AY	
BATTERY FIRED	BX	
CHECK POINT	CH	
CLOSING DOWN	CD	
CONTINUE or AM CONTINUING WITH GROUND OBSERVATION	GA	
CONTINUE or AM CONTINUING WITH AIR OBSERVATION	GP	
CONCENTRATION NO.....	CN	
(May I) CONTROL FIRE (AIR/GROUND)	DJ	(Air/Ground) Control
DIRECT SHOOT	DK	
DROP FLARES OVER TARGET	DF	Flares
FIRING SHIP IS MAKING A RADICAL TURN	TN	Turning
FLARES RELEASED	FD	
FLARE ALIGHT	BU	
FLARE OVER TARGET (preceded by number of flares in sequence of dropping)	FT	Flare no....on
HOW MUCH AMMUNITION REMAINS AVAILABLE FOR BOMBARDMENT	HM	
INDICATE POSITION OR WHERE ARE YOU	CY	
I AM READY, TO OPEN FIRE	RG	Ready
I AM READY TO OBSERVE	RO	(Awake)
INDICATE TARGET (From ship to aircraft) INDICATE TARGET BY RADAR METHOD (From aircraft to ship - followed by a long dash terminating when exactly over target)	TP	Indicate target
TAKE RADAR RANGE AND BEARING.	RD	Radar
LAY ON ME - WILL LAY ON YOU	LM	
LAY OUT PANELS	LP	
LIFT FIRE	LI	
MOVE, or AM MOVING TO POSITION INDICATED	MP	Change or Changing
MY CLOCK IS CENTRED ON.....	CC	
NO MOVEMENT SEEN	MM	Nothing seen
NO FURTHER NEED OF YOU	NF	
(WILL) OBSERVE BY CLOCK CODE	CL	Clock
RELAY FOR ME	RE	Relay.

/continued.....

SPECIAL CODE GROUPS (Contd)

	W/T	R/T
REMOVE PANELS	RP	
REQUEST AIR BURST	AB	
REQUEST SHIPS FIRE	RS	
REQUEST SPOTTING AIRCRAFT SPOT THE FIRE	AD	
REQUEST POSITION OF OWN TROOPS OR POSITION OF OWN TROOPS IS	RL	
RETURN(ING) TO BASE AFTER.....MINUTES	RB	
SHIFT or AM SHIFTING, TO BCW	DW	
SHIFT, or AM SHIFTING TO SPOTTING WAVE	SW	
SHOOT ENDS	SE	
STAND BY	SB	
TAKE OVER CONTROL	CE	Control.
TERRAIN IS LEVEL	TL	
TERRAIN IS REVERSE SLOPE	TR	
TERRAIN IS UPSLOPE	TU	
VISIBILITY IS GOOD FOR SPOTTING	VG	Glass Good.
VISIBILITY IS POOR FOR SPOTTING	VP	Glass Bad
WHAT IS YOUR ALTITUDE, or MY ALTITUDE IS .....feet	AH	
YOU ARE ATTACHED TO	AT	
YOU ARE DETACHED FROM	DE	

APPENDIX II — DECODE

CODE.	P.L. MEANING	R/T CODE
2-second dash	HAVE FIRED	Shot
AA	ANTI-AIRCRAFT OR SECONDARY BATTERY.	
AAG	ANTI-AIRCRAFT GUNS	
AB	REQUEST AIR BURST	
ABT	AIRBORNE TROOPS LANDED AT.....	
AC	AIRCRAFT CARRIER(S)	
ACT	ACTIVITY AT.....	
AD	REQUEST SPOTTING AIRCRAFT SPOT THE FIRE	
AER	AERODROME or AVIATION FIELD.	
AH	WHAT IS YOUR ALTITUDE? MY ALTITUDE IS.....FEET	
AK	TARGET IS TARGET AREA NO.....	
ALA	ALL ARMS	
AMM	AMMUNITION DUMP	
AN	ANTI-AIRCRAFT PROJECTILES	
AO	AIR O.P. WILL OBSERVE	
AP	ARMOUR PIERCING PROJECTILES	
AT	YOU ARE ATTACHED TO	
AY	AREA TO BE COVERED IS..... 100 SQUARE YARDS	
BB	BATTLESHIP(S)	
BC	BATTLE CRUISERS.	
BDG.	BRIDGE	
BIV	BIVOUAC AREA	
BLK	TRAFFIC BLOCK	
BM	HIGH CAPACITY or H.E.	
BU	FLARE ALIGHT.	
BW.	SHIFT, or AM SHIFTING TO B.C.W.	
BX	BATTERY FIRED.	
CAV	CAVALRY or MOUNTED MEN.	
CB	COUNTER BATTERY FIRE	
CC	MY CLOCK IS CENTRED ON	
CD	CLOSING DOWN	
CE	TAKE OVER CONTROL	Control
CF	CEASE FIRE NOW OR AT TIME INDICATED	Cease Firing.
CH	CHECK POINT	
CJ	DESTRUCTION FIRE	
CLO	CLOSED	
CL	(WILL) OBSERVE BY CLOCK CODE	
CMP	COMMAND POST.	
CN	CONCENTRATION NUMBER.	
CO	COMMON PROJECTILE.	
COL	COLUMN	
CR	CRUISER(S)	
CS	CLOSE SUPPORTING FIRE.	

CODE	P.L. MEANING.	R/T CODE
CT	NEW TARGET (followed by a spot to indicate difference in range in 100's of yards and deflection in 100's of yards to new target, or by Clock Code observation of new target).	Shift
CY	INDICATE POSITION OR WHERE ARE YOU?	
D	DOWN (amount indicated in 100's of yards) (When not followed by numerals a range of 50 yards is indicated)	
DD	DESTROYER(S)	
DE	YOU ARE DETACHED FROM	
DF	DROP FLARES ON TARGET	Flares
DFP	DEFENDED POST	
DGR	TARGET DANGEROUSLY NEAR OWN TROOPS.	
DJ	(MAY I) CONTROL FIRE (AIR)/(GROUND)	
DK	DIRECT SHOOT	
DR	DIRECTION OF DRIFT -(3 figure group indicating true course in degrees)	
DS	DEEP SUPPORTING FIRE	
DT	TARGET DESTROYED	
EB	WAR MOTOR BOATS	
FAC	FACTORY OR INDUSTRIAL UTILITY.	
FC	FIRE EFFECTIVE	
FD	FLARES RELEASED	
FE	FIRE OR AM FIRING, FOR EFFECT.	Fire. or Firing for effect
FI	FIRE, or AM FIRING, SINGLE ROUNDS	
FL	FLAT NOSE PROJECTILES	
FO	CHECK FIRE	
FQ	FIRE QUICKER	Fire Quick
FR	RANGE AFRESH	Fresh Ranging
FS	FIRE SLOWER	Fire Slow
FT	FLARE OVER TARGET (May be preceded by number of flare in sequence of dropping)	Flare No..... on
FX	FIRE NOT EFFECTIVE	
GA	CONTINUE, or AM CONTINUING WITH GROUND OBSERVATION	
GNF	ARTILLERY FIRING	

CODE	P.L. MEANING	R/T CODE
GNS	ARTILLERY NOT FIRING	
GO	GO ON or AM CONTINUING, TO FIRE IN OWN TIME	Go on or Going on.
GP	CONTINUE, or AM CONTINUING, WITH AIR OBSERVATION	
HAG	HANGARS	
HAL	HOSTILE AIRCRAFT LANDING AT.....	
HDT	HORSE DRAWN TRANSPORT	
HM	HOW MUCH AMMUNITION REMAINS FOR BOMBARDMENT	
HQS	HEADQUARTERS	
IN	INTERDICTING/INTERMITTENT FIRE	
INF	INFANTRY or MEN	
KD	STRADDLE OVER ..... (amount indicates 100's of yds) (When not followed by numerals indicates 50 yards)	Straddle over
KK	STRADDLE, or HIT or NO CHANGE	Straddle hit
KU	STRADDLE SHORT..... (amount indicates 100's of yds) (When not following by numerals indicates 50 yards).	Straddle short
2-second dash.	HAVE FIRED/SALVO SIGNAL	Salvo
LC	LANDING CRAFT	
LD	LENGTH OF DRIFT IN HUNDREDS OF YARDS	
LF	LEFT(in hundrods of yards)	
LI	LIFT FIRE	
LL	LL FIRE, HEAVY CONCENTRATION OF FIRE	Plaster
LM	LAY ON ME, OR WILL LAY ON YOU	
LN	LENGTHEN OR HAVE LENGTHENED FUZE	Long Fuze
LP	LAY OUT PANELS	
LT	LOST, NOT OBSERVED	Unobserved
ME	MAIN BATTERY	
MET	MECHANICAL TRANSPORT	
MGS	MACHINE GUNS	
MI	MINE LAYER(S)	
MP	MOVE or AM MOVING TO POSITION INDICATED.	Change or Changing
MQ	WAIT (followed by numeral group indicating time to wait in minutes)	Wait
MR	MONITOR(S)	
MS	MISSION SUCCESSFUL	
MTR	MORTARS	

CODE	P.L. MEANING.	R/T CODE.
MU	RAPID FIRE	
MV	MERCHANT VESSEL(S)	
NA	BURST CORRECT	
NB	NO OBSERVATION	
NF	NO FURTHER NEED OF YOU	
NG	CANNOT FIRE } on target CANNOT OBSERVE } indicated or NO GOOD	No Good
NL	LOWER BURST	
NM	NO MOVEMENTS SEEN	Nothing seen
NR	RAISE BURST	
NT	NEUTRALISING FIRE	Neutralise
OB	CAN OBSERVE	
OBS	OBSERVATION POST	
OL	OBJECTIVE LOCATED AT	Objective
OPN	OPEN	
OV	REPEAT WITHOUT CORRECTION	Repeat
PRD	CIVILIAN or REFUGEE TRAFFIC	
PET	PETROL OR GASOLENE	
PF	OPEN(or resume) FIRE IMMEDIATE OR at the time indicated.	Fire
PIL	PILL BOXES	
PLA	PLANES ON GROUND	
PTG	PONTOON or IMPROVISED BRIDGE.	
QQ	DURATION OF FIRE IS TO BE... (numerals indicate number of minutes)	
RAR	RADAR STATION	
RB	RETURN(ING) TO BASE AFTER.... MINUTES	

CODE	P.L. MEANING.	R/T CODE
RD	(From ship to aircraft) INDICATE TARGET BY RADAR METHOD. (From aircraft to ship - followed by a long dash terminating when exactly over target) - TAKE RADAR RANGE AND BEARING.	Radar
RE	RELAY FOR ME	Relay
RED	RAIL-HEAD	
RES	RESERVES	
RF	MAXIMUM RATE OF FIRE	
RFA RFB RFC	REFERENCE POINT A, B, C, etc.	
RG	I AM READY TO OPEN FIRE	Ready
RIV	River	
RL	REQUEST POSITION OF OWN TROOPS or POSITION OF OWN TROOPS IS.....	
RN	TARGET RANGE.....(hundreds of yards)	
RO	I AM READY TO OBSERVE	Awake
RP	REMOVE PANELS	
ROD	ROAD	
RS	REQUEST SHIPS FIRE	
RT	RIGHT(in hundreds of yards)	
SB	STAND BY	
SC	SMALL CRAFT	
SDG	SIDING	
SE	SHOOT ENDS	
SER	SEARCHLIGHT	
SF	SLOW RATE or DELIBERATE FIRE	
SM	SMOKE PROJECTILE	
SN	SHORTEN, or HAVE SHORTENED FUZE	Short Fuze
SS	SUBMARINE ON SURFACE	
SSS	SPLASH SIGNAL; SHOT ABOUT TO FALL	Splash
SU	SUBMARINE SUBMERGED	
SW	SHIFT or AM SHIFTING TO SPOTTING WAVE	

CODE	P.L. MEANING	R/T CODE
T	FALL OF SHOT OBSERVED	Seen
TA	TARGET AT	Target
TB	TARGET BEARING.....DEGREES	Target Bearing
TCH	TRENCH	
TD	PROJECTILES FAIL TO DETONATE	
TK	TARGET COURSE	
TL	TERRAIN IS LEVEL	
TN	FIRING SHIP IS MAKING A RADICAL TURN.	
TNK	TANKS	
TP	INDICATE TARGET	
TR	TERRAIN IS REVERSE SLOPE	
TRN	RAILWAY TRAIN(complete with engine)	
TS	TARGET SPEED	
TU	TERRAIN IS UP SLOPE	
TW	TARGET CHANGING COURSE	
TY	TYPE NUMBER	
U	UP (amount indicated in 100's of yards) (When not followed by numerals a range of 50 yards is indicated).	
UB	CAN OBSERVE	
VO	FIRE, or AM FIRING SALVOS	Volley
VG	VISIBILITY GOOD FOR SPOTTING	Glass Good
VP	VISIBILITY POOR FOR SPOTTING	Glass Bad
VT	RANGE, or AM RANGING, BY LADDER RANGING	Ladder
WAR	WARSHIP(may be amplified by a two lettered group from ship description).	
WTS	WIRELESS STATION	
WW	NEGLECT, BAD SHOT (from ship) ROUND FAR OUT (From aircraft or F.O.B.)	Neglect.
YY	ABNORMAL SPREAD OF SALVO	Lousy
ZZ *	CEASE FIRE. EMERGENCY *	Stop

* Note:- Fire is not to be re-opened until "GO" or a fresh series is signalled.

APPENDIX III

CLOCK CODE

1. The Clock Code is the Observation Code normally used by British spotting aircraft and F.O.P's. Observations are re-ported by a letter and a number which denote the position of the shell burst on a horizontal clock face diagram superimposed in the minds eye on the target.

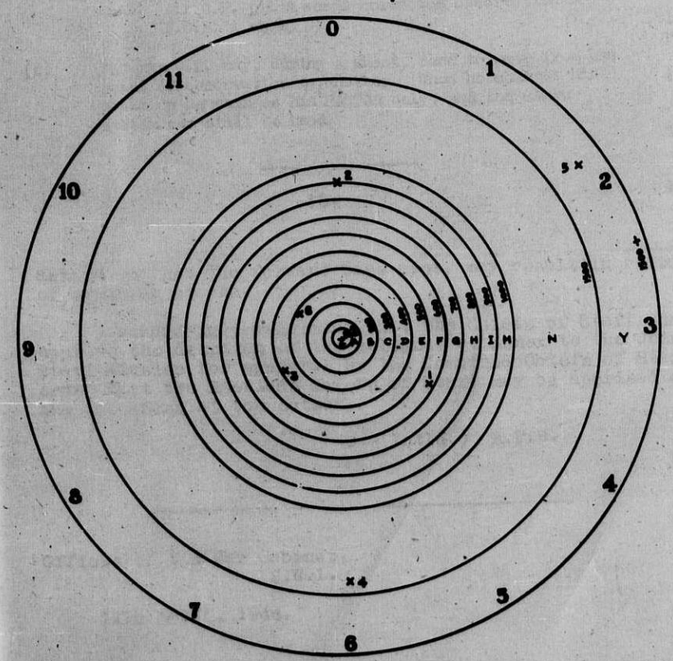
2. The diagram is shown below. The target is taken as the centre of the clock. The hour of 12 (for which 0 is used in the code) is always made to point to Grid North.

3. The distance of the circles in the diagram, in yards from the centre of the clock, are as follows:-

Z	A	B	C	D	E	F	G	H	I	M	N	Y.
50	100	200	300	400	500	600	700	800	900	1000	1500	over 1500

4. The position of the burst is reported by sending the smallest circle within which the burst falls (not necessarily the nearest circle) followed by the nearest clock hour. The letter and clock hour are repeated in giving the observations. Thus bursts at the points marked X and numbered 1 to 6 in the diagram would be reported as follows:-

No.1.	N4 N4	- 600 yards and at 4 o'clock. i.e.	grid bearing of from the target.	120°
No.2.	I0 I0	- 900 yards and at 12 o'clock.	"	360°
No.3.	D8 D8	- 400 yards and at 8 o'clock.	"	240°
No.4.	M6 M6	- 1500 yards and at 6 o'clock.	"	180°
No.5.	Y2 Y2	- Over 1500 yards at 2 o'clock.	"	60°
No.6.	G10 G10	- 300 yards and at 10 o'clock.	"	300°



CLOCK CODE

AIDS TO OBSERVATION:

(WHEN USED BY AIR O.P.).

There are certain aids to observation which have been found useful - one of these, the Factor Method, is given below:-

(a) The following aid to observation may be used.

The Air O.P. determines before taking off, the approximate position from which he will observe and therefore towards which clock hour he will be looking in a direct line over the target. This clock hour will be known as the "FACTOR".

(b) The Air O.P. when in the air observes on an arbitrary clock as though always looking from South to Grid North in a direct line over the target, i.e. from 6 o'clock to 12 o'clock, and he observes the fall of shot on this clock. To each observation in terms of the arbitrary clock the Factor is then added, and the result, which is the correct Grid Clock Hour, will be passed to the F.O.B.

Example:

(i) Air O.P. pilot decides that he will observe along the line 4 to 10., therefore the Factor is 10.

(ii) He observes a shot fall 400 yards from the target at 5 o'clock on his arbitrary clock, i.e. D.5, to this he adds Factor 10, making 15 or 3 o'clock.

(iii) Air O.P. pilot sends corrected observation to F.O.B. i.e. D3 D3.

(c) The Air O.P. may, during a shoot, need to move from one point of observation to another. When he changes his position he changes his FACTOR only, and the above system can still be used.

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TOP ~~MOST~~ SECRET. Copy No. 44

C.O.S.(44) 332 (O)

11TH APRIL, 1944

WAR CABINET

CHIEFS OF STAFF COMMITTEE

SOUTH-EAST ASIA COMMAND - MAINTENANCE OF FORCES IN FORWARD AREA

Memorandum by the Chief of the Imperial General Staff

(Reference: C.O.S.(44) 104th Meeting (O), Minute 1)

There appears to be a serious danger that the greatly increased scale of operations in Northern Burma, together with the failure of deliveries over the Assam Lines of Communication to reach the level anticipated may result in an administrative position of such stringency as to face the Commander with the alternatives of severely limiting his freedom of action during the current operations, or risking a breakdown during the monsoon.

It seems probable that, far from the necessary stocks being built up to insure against breakdowns in the Lines of Communication during the monsoon, the recent addition of more than two divisions to Northern Burma, together with enemy action against the forward base area, may result in reduction of existing stocks.

I accordingly recommend that the Chiefs of Staff should approve the despatch of the telegram at Annex to the Joint Staff Mission for approval by the Combined Chiefs of Staff in order that the American Chiefs of Staff may be apprised of the situation at the outset.

(Intld.) A.F.B.

Offices of the War Cabinet,
S.W.1.

11TH APRIL, 1944.

ANNEX

Copy of Draft Telegram

From: Air Ministry

To: Britman, Washington.

Following from Chiefs of Staff No. C.O.S.(W).....

First We are concerned about the maintenance situation on the Burma front especially Imphal and Ledo forces. In particular the stock reserve position.

Second Deliveries over the Assam L. of C. during the last three months have been far short of monthly forecasts with the result that allocations for stocking have presumably been seriously reduced.

Third An urgent review now seems appropriate because of:-

(a) Approaching monsoon and consequential breaks on railway.

(b) Development of Burma operations.

(c) Increased load due to proposed increase of U.S. air forces.

You should accordingly seek the approval of the C.C.S. to the despatch to S.A.C.S.E.A. of the draft in our immediately following telegram.

From: Air Ministry

To: Britman, Washington

C.O.S.(W).....

Following is draft referred to in C.O.S.(W).....

First As in first of C.O.S.(W).....

Second Please furnish an urgent report stating:-

(a) Position of reserve stocks forward of L. of C. in the Ledo, Imphal and Arakan fronts expressed in terms of days for the forces concerned.

(b) Estimate of reserve stocks as in (a) above on
1st June
1st July

(c) Percentage of daily tonnages on Assam L. of C. allocated to building up stock reserve.

Third Agreed by C.C.S.

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This document was considered at CO (44) 121st Meeting (O).

C.O.S.(44) 333 (O)

11TH APRIL, 1944

WAR CABINET

CHIEFS OF STAFF COMMITTEE

BAN ON THE USE OF INFRA-RED DEVICES

Memorandum by Supreme Commander
Allied Expeditionary Force

The Chiefs of Staff proposed at their 94th Meeting (O) dated 21st March, 1944, to raise the ban on the operational use of infra-red devices as from 1st May, 1944, and to down grade the equipment then in use from "MOST SECRET" to "SECRET".

2. The Supreme Commander has given the proposal his consideration, and requests that his concurrence with the general raising of the ban on infra-red devices, and the down grading of the equipment be transmitted to the Chiefs of Staff.

For the Supreme Commander:

(Signed) W.B. SMITH,
Lieutenant General.

Offices of the War Cabinet,
S.W.1.

11TH APRIL, 1944.

MOST SECRET. Copy No. 51

This document was considered at C.O.S.(44) 128th Meeting (o) 2. 142nd " - 9.

C.O.S.(44) 334 (O)

12TH APRIL 1944

WAR CABINET

CHIEFS OF STAFF COMMITTEE

ORGANISATION AND EMPLOYMENT OF FRENCH FORCES

Copy of a letter (Z.2440/7/G) dated 10th April 1944 from the Foreign Office to the Secretary, Chiefs of Staff Committee

* * *

You will by now have received a copy of Duff Cooper's telegram No.412ø of the 5th April, containing a summary of the French Committee's comments on the draft agreement regarding the employment of French forces.

2. As you know, the Foreign Office agree with the French Committee that this agreement should be concluded between the Allied Governments and the Committee. While we do not think that the United States Chiefs of Staff mind about this from the military point of view, they are probably afraid of treading on the political coat-tails of the State Department. If they persist, we will have to clear up this side of the question in the end with Washington.

3. As regards the rest of the telegram, we assume that the Chiefs of Staff will be considering the question and that you will let us have their views in due course.

4. When we eventually reply to this telegram, we consider that it might be useful to instruct Duff Cooper to emphasise to Massigli the very real difficulties in bringing the Leclerc Division to this country and the trouble that our military authorities have taken to overcome them in order to try to bring about some softening of the French attitude.

* * *

(Signed) OLIVER HARVEY

Offices of the War Cabinet, S.W.1.

12TH APRIL 1944.

ø Annex

ANNEX

Copy of a telegram (No.412) dated 6th April 1944 from Mr. Duff Cooper to the Foreign Office

My telegram No.396.

Massigli yesterday gave to Acting United States representative and myself memorandum containing French Committee's comments on draft contained in FAN 343.

Following is summary.

Committee considers agreement should be concluded between Allied Governments and Committee not between latter and Combined Chiefs of Staff. They therefore propose preamble of which the following is translation.

/Begins/

The governments of United States and the United Kingdom of the one part and the F.C.N.L. of the other, have agreed on terms stipulated below regarding employment in the struggle against the common enemy, in combination with American and British forces and under a common High Command of the French land, sea, and air forces hereinafter referred to as "French Forces".

/Ends/

2. Committee considers that principles set out in Article 2 of their draft are essential. These were:

(a) plans for employment of French forces would only be drawn up after consultation with French High Command;

(b) if the latter could not accept them it would refer to F.C.N.L. and matter would then be settled by agreement between the British and American Governments on the one hand and the Committee on the other. Committee cannot therefore accept article 3 of C.C.O.S. draft which would give French Command no appeal against C.C.O.S' decisions. They desire to throw into the struggle the largest possible proportion of the forces under their authority but being responsible to France for these forces they consider that they must be informed of operational plans drawn up after consultation with French High Command. Taken strictly the C.C.O.S. formula would not even allow the Committee to retain control of forces which they might consider indispensable for maintenance of order or protection of lines of communication in French territories.

3. They therefore consider Article 3 of their draft should stand. They regret that the C.C.O.S. draft limits the functions of their representative accredited to C.C.O.S. to present the Committee's views thus excluding any real collaboration. They equally regret at level of "theatre of operations" nothing more is contemplated than the presence of Liaison Officer with the Commander-in-Chief.

4. Committee presume that first sentence of paragraph 3 of C.C.O.S' draft which replaces first paragraph of Article 4 of their draft is based on misunderstanding. Purpose of their draft was to ensure that the forces constituting rearmed divisions should in principle be engaged as largely formed units and not in small bodies as reinforcements of other units. Committee do not think there can be any disagreement on this point.

5. Secrecy of communications. Committee insist on principle laid down in Article 4 paragraph 2 of their draft particularly since C.C.O.S. draft goes back on situation now prevailing. Commanders of French Naval units operating with the Allied forces enjoyed the right of secret communication with their superiors and the restrictions imposed in this respect on the communications of Commander of French expeditionary force in Italy (which should in any case be removed) only apply to telegrams.

6. Committee therefore maintain as a whole proposals put forward in their draft of 27th December. They point out that their proposals are in full conformity with the relative provisions of the Churchill-de Gaulle agreement of 7th August 1940 and the Lyttleton-de Gaulle agreement of 25th July 1941. They urge the importance of reaching early agreement, failing which execution of plans now being elaborated for engagement of French forces in forthcoming operations, can only be delayed.

C.O.S.(44)335(O).

12TH APRIL, 1944.

WAR CABINET

CHIEFS OF STAFF COMMITTEE.

CIVIL DEFENCE AND HOME GUARD MANPOWER.

Note by Secretary.

At their meeting+ held on 11th April the War Cabinet considered a memorandum ø by the Chancellor of the Exchequer. In paragraph 5 of the Annex to the paper it was pointed out that, until a revised operational appreciation enabled a reduction to be made in the existing commitments of the Civil Defence General Services, the National Fire Service and the Home Guard, there was no possibility that these three Services as a whole would be able to release personnel for other sectors of the war effort.

2. The War Cabinet :-

(1) Accepted the conclusions and recommendations set forth in the Annex to W.P.(44) 184.

(2) Directed all Departments concerned to expedite the re-organisation of the fire guard at business premises prescribed by the new Fire Guard orders.

(3) Invited the Chiefs of Staff to submit a revised operational appreciation as soon as operations on the Continent had progressed far enough to make this possible.

(Signed) L.C. HOLLIS.

Offices of the War Cabinet,
S.W.1.
12TH APRIL, 1944.

+ W.M.(44) 47th Conclusions, Minute 4.
ø W.P.(44) 184.

This document was considered at C.O.S.(44) 121st Meeting(O).

C.O.S.(44)336(O)

13TH APRIL, 1944

WAR CABINET

CHIEFS OF STAFF COMMITTEE

DEMOLITION OF U-BOAT BASES AND OTHER INSTALLATIONS IN LIBERATED TERRITORIES

Report

There are now in existence in enemy occupied territory certain offensive installations such as U-Boat and E/R-Boat bases and "CROSSBOW" and long range artillery sites which will be of little value to Allied forces of occupation and which, if not destroyed, will constitute a potential threat to our post-war security. (A list of such installations is attached*). We consider that arrangements should be made for their destruction as and when the territories in which they are situated come under Allied control.

2. To ensure demolition, action should if possible be taken at an early date after the installations fall into our hands. The destruction of these installations will be a major engineering problem requiring specially qualified personnel, and complete demolition can only be achieved if careful plans are made. Unless the installations are destroyed before the territories in which they are situated are returned to the control of their own authorities, considerable difficulties may be experienced in completing the negotiations which will be necessary to obtain the agreement of those authorities to the destruction of works which they may regard as valuable windfalls. It will therefore be important to eliminate all unnecessary delay in the demolition of such of these installations as fall into our hands in the course of operations.

3. Demolition during operations could be undertaken as a military measure, and would appear to raise no political considerations. It is, however, unlikely that it will be possible to destroy all the installations during the period of operations or military control. The destruction of some will therefore inevitably be a matter for later settlement with the Governments concerned.

* Annex.

4. In order to ensure that adequate preparations are made to handle this problem, we recommend that the Combined Chiefs of Staff:-

(a) Approve the principle that U-boat bases and other dangerous enemy installations in liberated territories must be demolished at the earliest possible date;

(b) Agree that the destruction of such installations as fall into our hands in the course of operations is a military necessity, and that the question of the destruction of such installations as cannot be so destroyed, should be raised by the Foreign Office and State Department with the Allied Governments concerned as soon as possible;

(c) Take note that the War Office is carrying out a technical investigation of this whole problem, in consultation with other interested Departments and will make the results of its investigations available to SHAEF and to A.F.H.Q.;

(d) Direct the Supreme Allied Commander and the Allied Commander-in-Chief, Mediterranean Theatre, in the light of (c) above, to plan for demolition of such installations as they fall into our hands, so far as this may be possible without prejudice to current operations. These plans should provide for the recording of data and the removal of material required for intelligence and technical purposes.

(Signed) A.E. NYE
E.N. SYFRET
D.C.S. EVILL

Offices of the War Cabinet,
S.W.1.,

13TH APRIL, 1944.

ANNEX

U-BOAT AND E/R BOAT SHELTERS
(In order of priority for destruction)

1. U-BOAT SHELTERS. REINFORCED CONCRETE

(a) Channel and Atlantic Ports

Location	No. of Pens	Estimated Capacity
LORIENT	23 2-4 (under construction)	32 with maximum 41 boats
ST. NAZAIRE	14	20 " " 26 "
BREST	15	20 " " 25 "
LA PALLICE	10	13 " " 16 "
BORDEAUX	11	15 " " 19 "

(b) Norwegian Ports

TRONDHEIM	5 Further block under construction	13
BERGEN	2 5 (under construction)	4

(c) French Mediterranean Ports

MARSEILLES — Concrete shelters under construction possibly for E. or R. boats

2. E/R BOAT SHELTERS. REINFORCED CONCRETE

Channel and Atlantic Ports

IJMUIDEN	12 18 (under construction)	12	"
ROTTERDAM	16	16	"
DUNKIRK	14	14	"
BOULOGNE	6	14	"
OSTENDE	6	12-24	"
LE HAVRE	9	13	"
CHERBOURG	3	10	"

3. "CROSSBOW" SITES

(a) 5 Large Sites
(b) 8 Ski Supply Sites
(c) 96 Ski Sites

4. ENEMY LONG RANGE ARTILLERY SITES IN THE PAS DE CALAIS

This document was considered at C.O.S.(44) 128th Meeting (O)

C.O.S.(44)337(O)

13TH APRIL, 1944

WAR CABINET

CHIEFS OF STAFF COMMITTEE

FRENCH PARTICIPATION IN "OVERLORD"

(Reference: C.O.S.(44)114th Meeting (O), Minute 3)

Memorandum by S.C.A.E.F.

1. Reference is made to your COS/542/4ø subject same as above, dated 8th April, 1944, requesting the Supreme Commander's views concerning the acceptability of unloading any L.S.T.'s that might arrive in the United Kingdom after the 15th of May.

2. While it is acceptable to unload any L.S.T.'s that may arrive in the United Kingdom after 15th May, 1944 in the Thames, Bristol Channel, or South Coast ports west of Plymouth inclusive, they cannot be accepted at this time in the Portsmouth, Southampton, Portland area. It is most important that every effort be made to plan the movement of the L.S.T.'s in question so that they will arrive in the United Kingdom prior to 15th May.

For the Supreme Commander

(Signed) W.B. SMITH

Lieutenant General, U.S. Army
Chief of Staff

Offices of the War Cabinet,
S.W.1.,

13TH APRIL, 1944.

ø Annex to C.O.S.(44)114th Mtg.(O), Min. 3.

TOP SECRET

Copy No. 44

This document was considered at Cabinet 127 Meeting (O) Minute 3.

C.O.S.(44)338(O)

14TH APRIL, 1944

WAR CABINET

CHIEFS OF STAFF COMMITTEE

REQUIREMENTS FOR DDT IN SOUTH-EAST ASIA COMMAND
(Reference: C.O.S.(44)280(O))

Note by the Secretary

It will be recalled that the Vice Chiefs of Staff, at their 98th Meeting (O) on 23rd March, 1944, approved the despatch to Washington of a telegram* urging that a large scale field trial of DDT as an agent for malarial control should be carried out under service conditions in S.E.A.C., and that DDT should be made assignable.

2. No reply has been received to this telegram, but Group Captain Hill, one of the Medical Advisers specially sent home from South-East Asia Command, has recently returned from Washington with full information on the subject. Sufficient DDT has been obtained to carry out the trial in S.E.A.C., and the Experimental Station at Porton are also experimenting with equipment for air spraying.

3. The full potentialities of DDT are not yet sufficiently known, and the methods of its employment are not yet sufficiently developed, for firm estimates of our requirements to be made. The amount that could be usefully employed in 1944 is fairly small, but large provisional demands have been put forward for 1945. All the necessary action is proceeding, both here and in Washington, and no good purpose would be served by pressing now for DDT to be made assignable.

4. Group Captain Hill has placed full information in the hands of the War Office and the Ministry of Supply.

(Signed) L.C. HOLLIS

Offices of the War Cabinet,
S.W.1.,

14TH APRIL, 1944

* C.O.S.(W)1231

C.O.S.(44)339(O)

14TH APRIL, 1944.

WAR CABINET.

CHIEFS OF STAFF COMMITTEE.

MANPOWER FOR THE WAR AGAINST JAPAN.

Note by the Secretary.

1. At their meeting on 13th April, 1944, the War Cabinet:-

> "Invited the Chiefs of Staff and the Joint War Production Staff to prepare revised plans on the lines proposed in W.P.(44)173. In the preparation of these plans it should be assumed that the Japanese war would last for two years after the defeat of Germany. Full account should be taken of the geographical limitations on the deployment of forces against Japan, of the extent to which armies of occupation made lighter demands on manpower and supplies and of the savings in production which, after allowing a reasonable insurance, could be made by the use of accumulated stores." ∂

2. The proposal in W.P.(44) 173 upon which action is required by the Chiefs of Staff Committee is as follows:-

> "The Chiefs of Staff should be asked to work out the effect on their military intentions for the Japanese war, and on their other concurrent commitments - including of course the occupation of Europe - if the Service manpower one year after the European war were limited to 3 million men."

The figure of 3 million represents a cut of half a million on the figure previously proposed by the Chiefs of Staff in C.O.S.(44) 149(O).

3. In anticipation of the instructions of the Chiefs of Staff, the Joint Planning Staff have been requested to prepare a report on the lines required by the War Cabinet.

(Signed) L.C. HOLLIS.

Offices of the War Cabinet,
S.W.1.,
14TH APRIL, 1944.

∂ W.M.(44) 48th Conclusions, Item 4.

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Special Circulation

C.O.S.(44) 340 (O)
14TH APRIL, 1944

WAR CABINET

CHIEFS OF STAFF COMMITTEE

"CROSSBOW"

Eleventh Report by Assistant Chief of Air Staff (Intelligence)

This report follows the Tenth report by Assistant Chief of Air Staff (Intelligence) C.O.S. (44) 308 (O) dated 31st March 1944.

SUMMARY

Repair and construction of ski sites

1. There has been an increase of 4 (from 15 to 19) during the past fortnight of sites where repairs and/or construction are known to be proceeding. There is some evidence of the delivery of machinery at two sites. Low level photographic reconnaissance has not been able to confirm or deny the presence of launching rails at three sites where they were suspected of being in position.

Production of hydrogen peroxide

2. There is evidence of the production of high concentration hydrogen peroxide at Peenemunde and at Ober Raderach (near Friederichshafen). This is probably one of the fuels used in the HS.293 rocket bomb and in pilotless aircraft.

Large sites

3. Activity continues at Siracourt and Sottevast where buildings of great strength are under construction.

Propaganda

4. Enemy propaganda, both at home and abroad, has given very little attention to the subject of "retaliation."

Offices of the War Cabinet,
S.W.1.

14TH APRIL, 1944

ANNEX.

Progress in civil engineering at ski sites

1. A table is attached at Appendix "A" showing the number of "Ski" sites judged to be capable of operating in the near future at varying rates of fire, provided that the necessary machinery had been installed, and the missiles made available.

2. In paragraph 1 of the Annex to the Tenth Report by A.C.A.S.(I) (C.O.S.(44) 308 (O), dated 31st March 1944) it was noted that the number of sites where repair and/or construction was known to be proceeding had increased from 10 to 15 during the previous fortnight. This figure has now increased to 19. Also, there are now 14 sites instead of 6 where work is possibly proceeding. The number of potentially operational sites has increased from 41 to 54 during the past 14 days. Their estimated fire power might amount to the equivalent of about 24 fully completed sites.

Progress in military engineering at ski sites

3. High level photography showed the possible presence of launching rails at three "Ski" sites; namely La Bristellerie and La Glacerie (in the Cherbourg Peninsula), and Ecalles sur Buchy (South of Dieppe). Subsequent low level recce. has not, however, been able positively to identify or deny the presence of these rails.

4. Photographic reconnaissance of Zudausques (West of St. Omer) and Linghem (South of St. Omer), where "essential buildings" are 98 and 96 per cent complete respectively, showed a trailer between the two rectangular buildings. A stationary object nearby was also seen at the former, but lack of definition in the photographs does not allow a description or useful measurements to be given. It is possible that machinery of some kind was being delivered.

Large sites - Siracourt (See annotated print at Appendix "B")

5. Activity was first reported at this site from photographs on 4th September 1943. The works in an early stage were seen to consist of two parallel trenches 25 feet wide and 650 feet long. Structures consisting of open frameworks were erected alongside and partly over these trenches, (1 & 2 on annotated print). The frameworks and the trenches were camouflaged. A line at right angles to the trenches passes through London. Two concrete mixing plants (3 & 4 on print) were installed. The most recent photographs show that the frameworks (1) and (2) are being filled solid with concrete to form walls 23 feet thick. At the south western end the space between these walls is being covered with a heavy roof of reinforced concrete, (5 on print). The large heaps of aggregate which are to be seen near the concrete mixers (3 & 4) show that much concrete has yet to be placed.

6. West of the main construction a rectangular excavation 115 ft. by 75 ft. was begun (7). This was blasted by several direct hits in the raid of 31 January 1943 and has since been abandoned. (7 on print). Two excavations (6) northwest of the main structure are probably tunnel entrances. The purpose of the tunnels, however, is not clear. A tall camouflaged water tower which formerly stood northeast of the site was destroyed in an attack between 31st January and 26th March.

7. A main line railway connection has been a feature of the site from the earliest days of its construction.

Large sites - Sottevast (See annotated print at Appendix "C")

8. Since this site was described in Appendix "B" to the Seventh Report (C.O.S. (44) 173 (O) dated 19th February) a good deal of progress has been made with the construction. The scaffolding 580 feet by 33 feet has developed into what appears to be a solid wall. At its western end a second wall has been built running southwest for 140 feet. A third wall which returns at right

angles to this at its southwestern end will form, when complete, the end of a rectangular building of great strength. (1 on annotated print). Further work has been done on the trenches at (2), but the details are obscured by camouflage. A deep rectangular hole at (6) may have been covered in at its northwestern end.

Production of concentrated hydrogen peroxide (See Plan at Appendix "D")

9. A detailed examination of photographs suggests very strongly that two large buildings at Peenemunde (670 x 318 feet and 810 x 400 feet respectively) are used to produce high concentration hydrogen peroxide by the electrolytic process. One bears a marked resemblance to buildings in this country used for peroxide manufacture, and the other is suitably constructed to contain the apparatus required for concentrating the solution. There is also a special loading point surrounded by a water-filled moat where the product is transferred to rail tank cars. Using normal British practice as a standard of comparison, the annual production might be about 1500 - 2000 tons at 90% concentration.

10. In addition, it seems highly probable that the circular emplacement at Peenemunde (see Plan at Appendix "D") is used to produce high concentration hydrogen peroxide by the electrostatic synthesis of oxygen and hydrogen at very low temperature, a process not used commercially in this country, but one in which the Germans were known to be interested before the war. The output of this plant is more difficult to estimate, but probably equals that from the two large buildings.

11. Further, there are three installations at a factory at Ober Raderach (near Friederichshafen) which are almost identical with the structure at the centre of the circular emplacement at Peenemunde. Other buildings are entirely consistent with the production of hydrogen peroxide by the electrostatic process. The output would be about three times that from the circular emplacement at Peenemunde. The Ober Raderach factory has frequently been mentioned in intelligence reports as having a connection with "secret weapons" and one report stresses the danger of explosions if the place was bombed.

Actual and potential uses of high concentration hydrogen peroxide.

12. There is good evidence that hydrogen peroxide is the main constituent of the German liquid fuel known as "T-Stoff" (see note at Appendix "E"). "T-Stoff" is used (in conjunction with "Z-Stoff" - confirmed as being calcium permanganate) as a propellant in the HS.293 rocket bomb and in rockets used for assisted aircraft take-offs. It is now reasonably sure that "T-Stoff" is also used to propel pilotless aircraft: in any case, this fuel fulfils some important function in their operation. It is also theoretically possible to use hydrogen peroxide in the large rocket. (Experiments with the large "A.4" rocket have been made at Peenemunde).

Other sources of production

13. A study of known sources of hydrogen peroxide production in Germany has been initiated. Using their pre-war output of 30% concentration as a basis for estimation, the five largest firms could produce about 2000 - 3000 tons of 90% concentration per annum. It may therefore transpire that Peenemunde and Ober Raderach are the two most important centres of production.

Propaganda

14. A note on "German Propaganda and a Secret Weapon" is at Appendix "E". This note concludes that the German Propaganda Ministry does not expect sensational results from Crossbow within about the next 6 weeks. There is nothing in propaganda either for or against the use of Crossbow weapons on a small scale.

Pilotless aircraft trials

15. The accuracy obtained between 1st and 14th March has been maintained in subsequent trials. On this basis, about 60% of the aircraft launched from France would fall in an area equivalent to Greater London.

APPENDIX "A"

SITES POTENTIALLY OPERATIONAL IN THE NEAR FUTURE.

	Total number of Sites	Cat. A	Cat. B.	Cat. C or D
1. Sites which have been 80% or more complete for approximately 2 months.	21	2	12	7
2. Repairs and/or construction proceeding on sites less than 80% complete.	19	11	7	1
3. Repairs and/or construction possibly proceeding on sites less than 80% complete.	14	12	1	1
SITES PROBABLY NOT OPERATIONAL IN THE NEAR FUTURE				
4. Sites where no progress has been made for approximately 2 months.	25	21	2	2
5. Probably no repairs and/or construction proceeding.	6	5	1	-
6. Damage too recent to assess enemy's repair policy.	11	10	1	-
	96	61	24	11

13th April, 1944

SECRET

APPENDIX 'B'.

KEY TO ANNOTATED PRINT NO. 4093 OF SORTIE J/729
TAKEN ON 26th MARCH 1944.

1) Framework for reinforced concrete wall.

2) Framework for reinforced concrete wall.

3) Concrete mixer.

4) Concrete mixer.

5) Reinforced concrete roof over space between walls.

6) Probable tunnel entrances.

7) Remains of rectangular excavation.

SECRET.
APPENDIX C.

KEY TO ANNOTATED PRINT NO. 3043 OF SORTIE J/7C8
TAKEN ON 25th MARCH 1944.

1) End of partly constructed rectangular building.

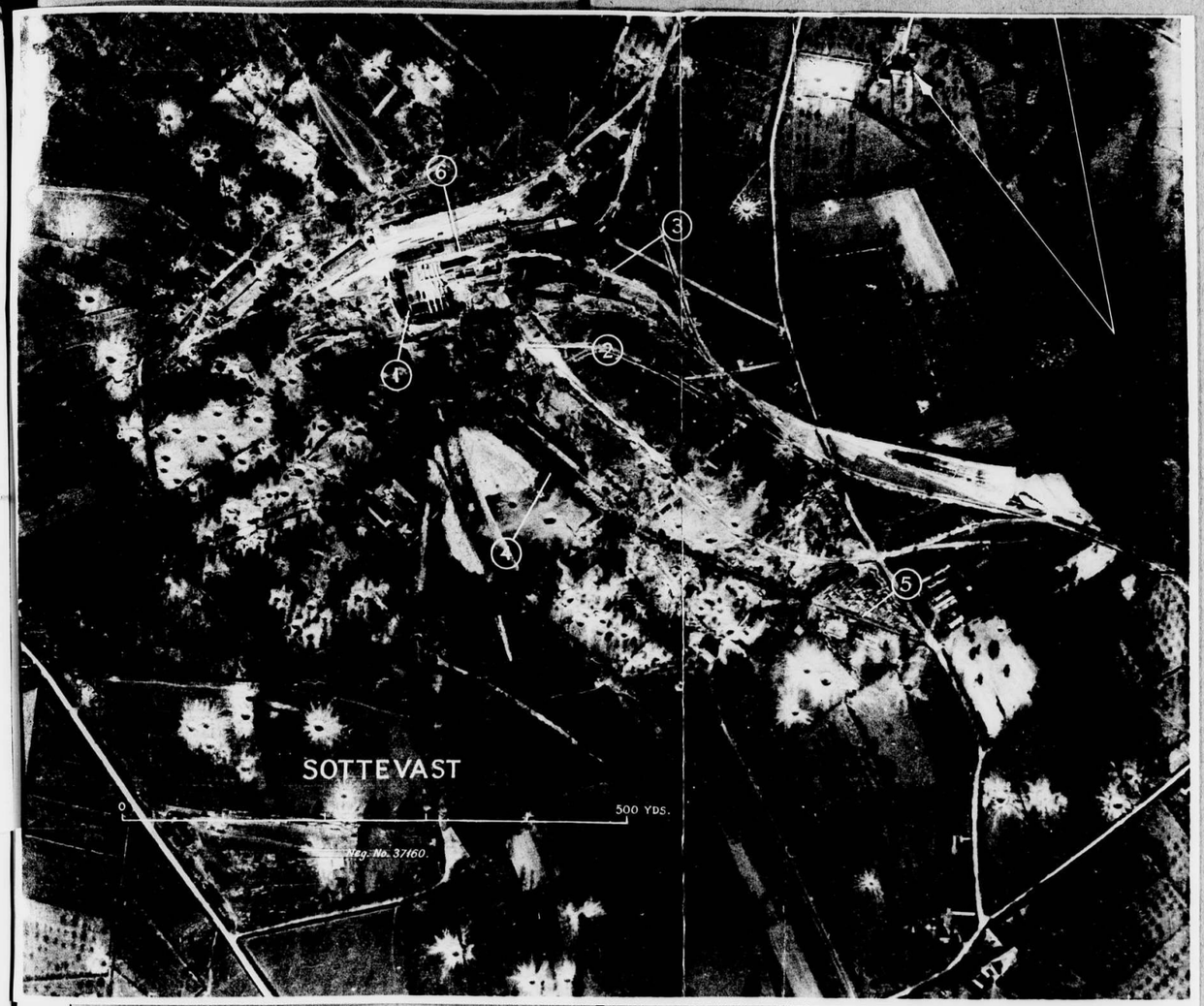
2) Two trenches aligned on LONDON.

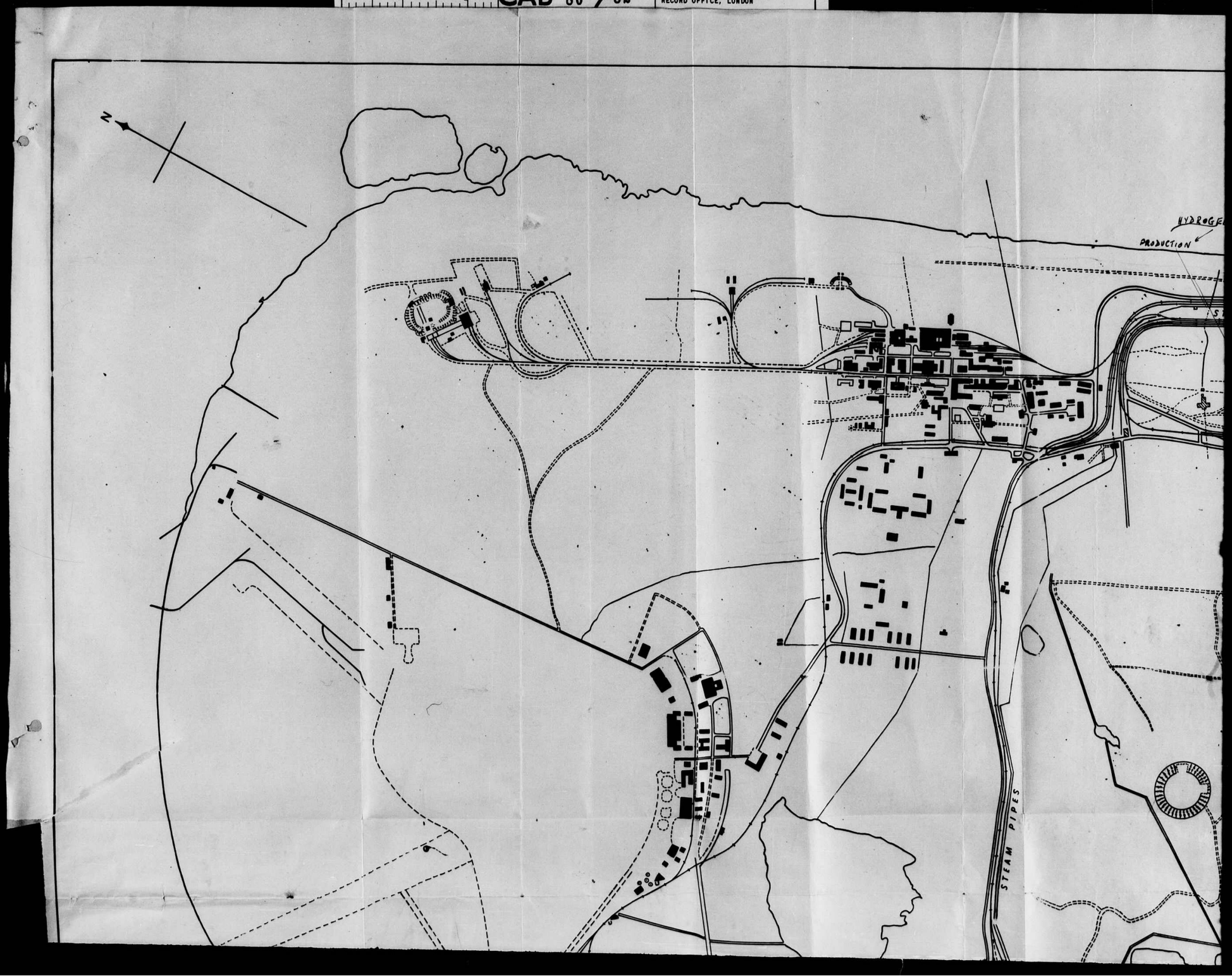
3) Curved cutting leading to the northern end of (2).

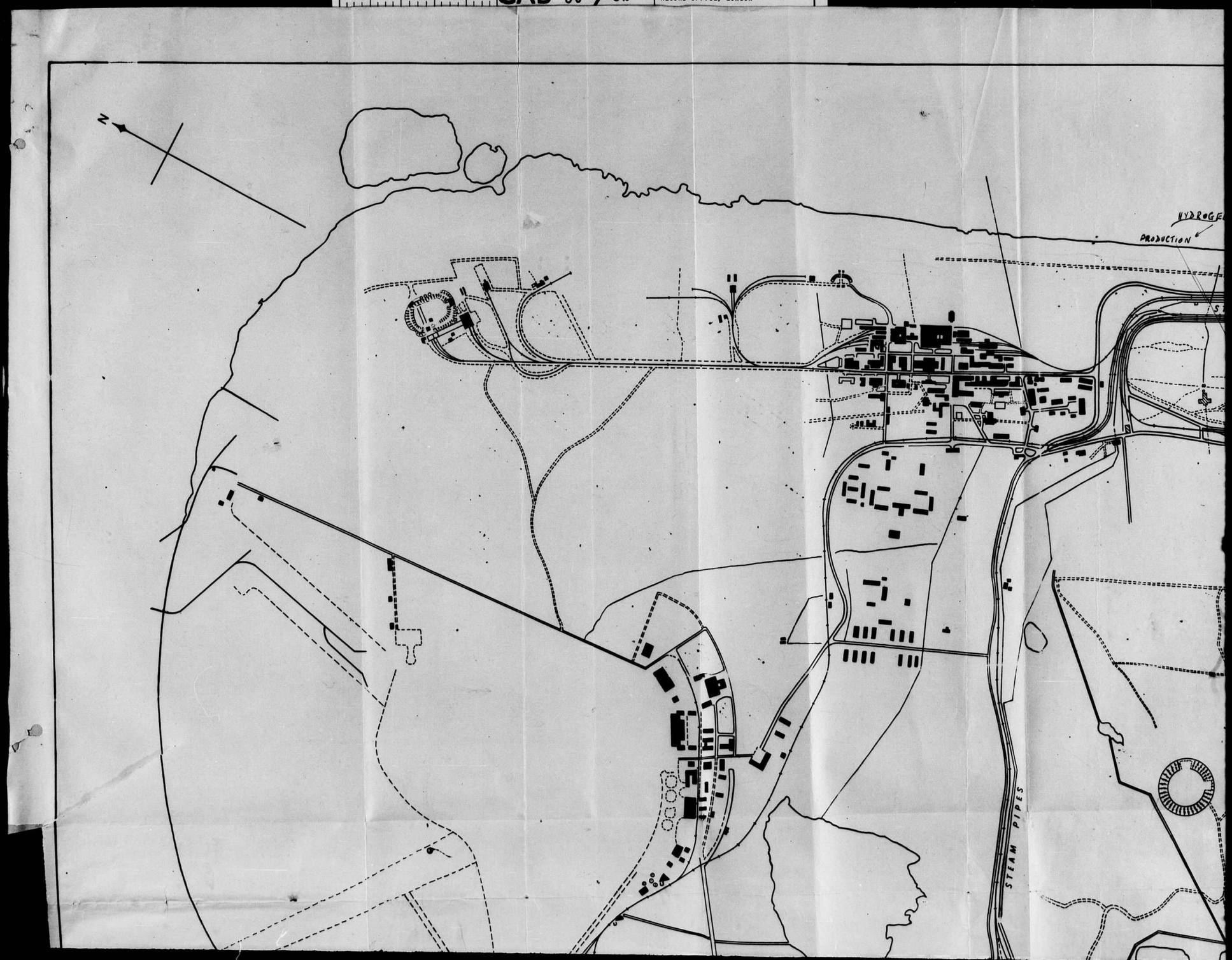
4) Long building with rail access and camouflaged loading platform.

5) Dump of timber and building materials.

6) Deep rectangular hole.







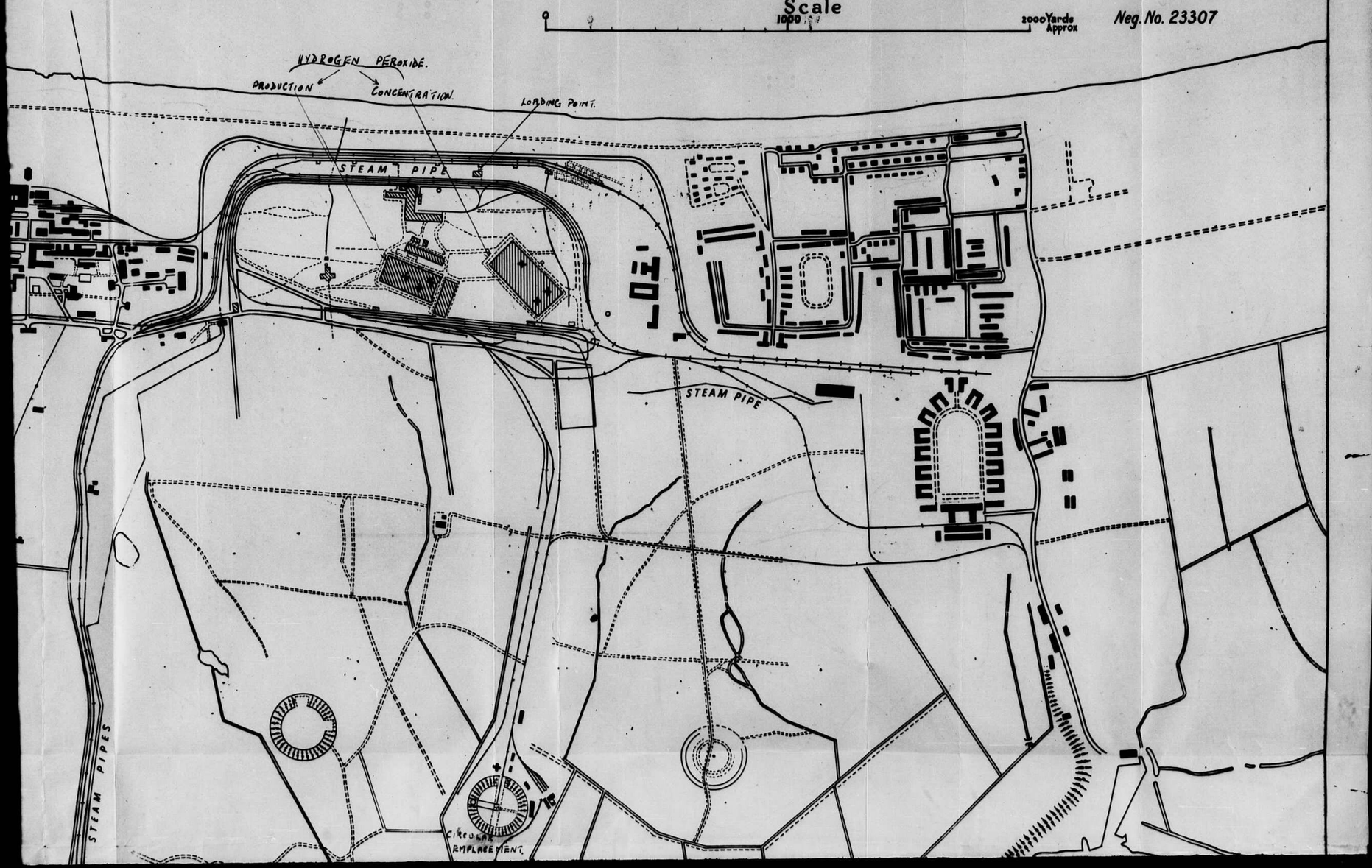
APPENDIX D'119

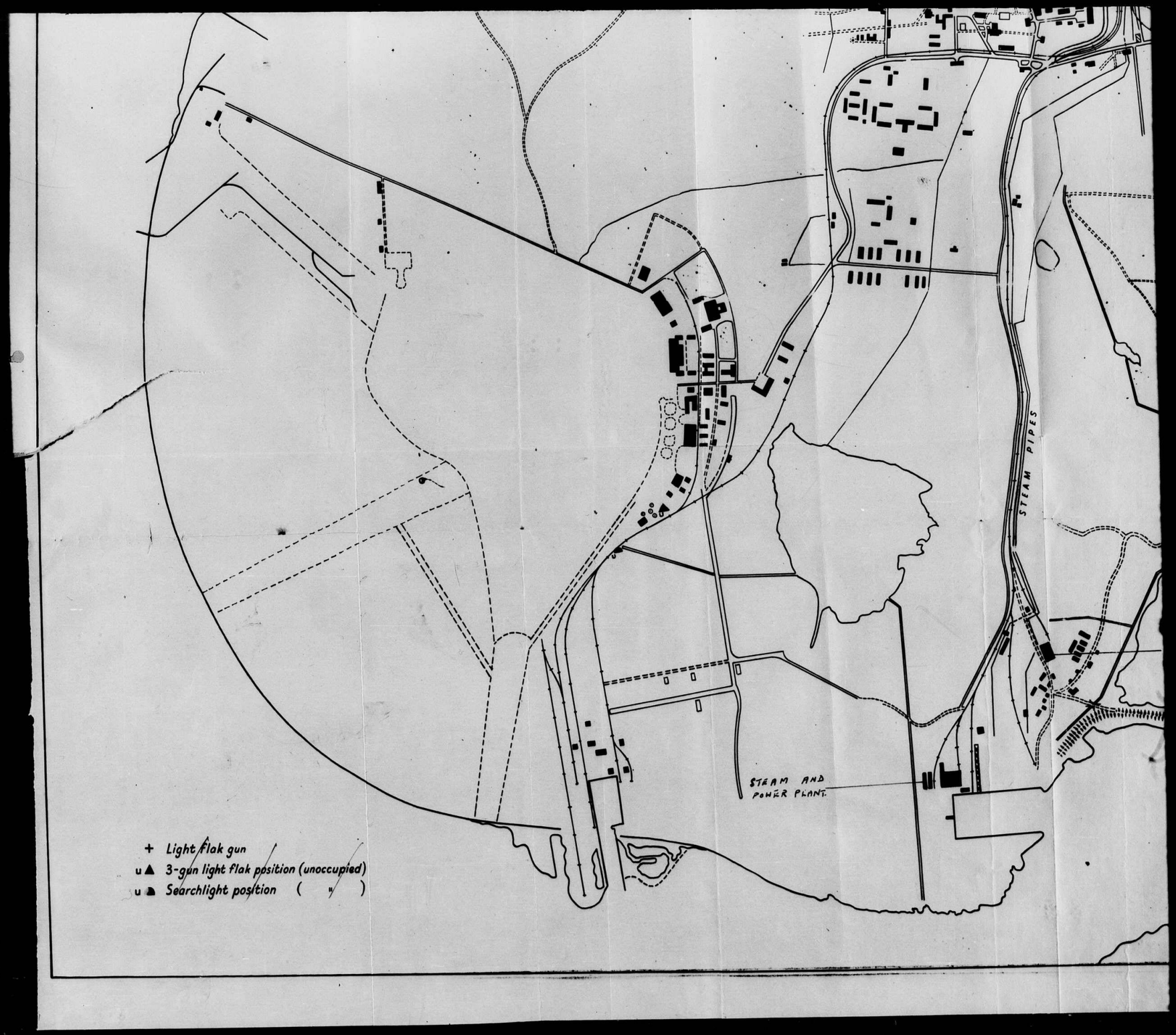
SKETCH PLAN OF PEENEMÜNDE AREA

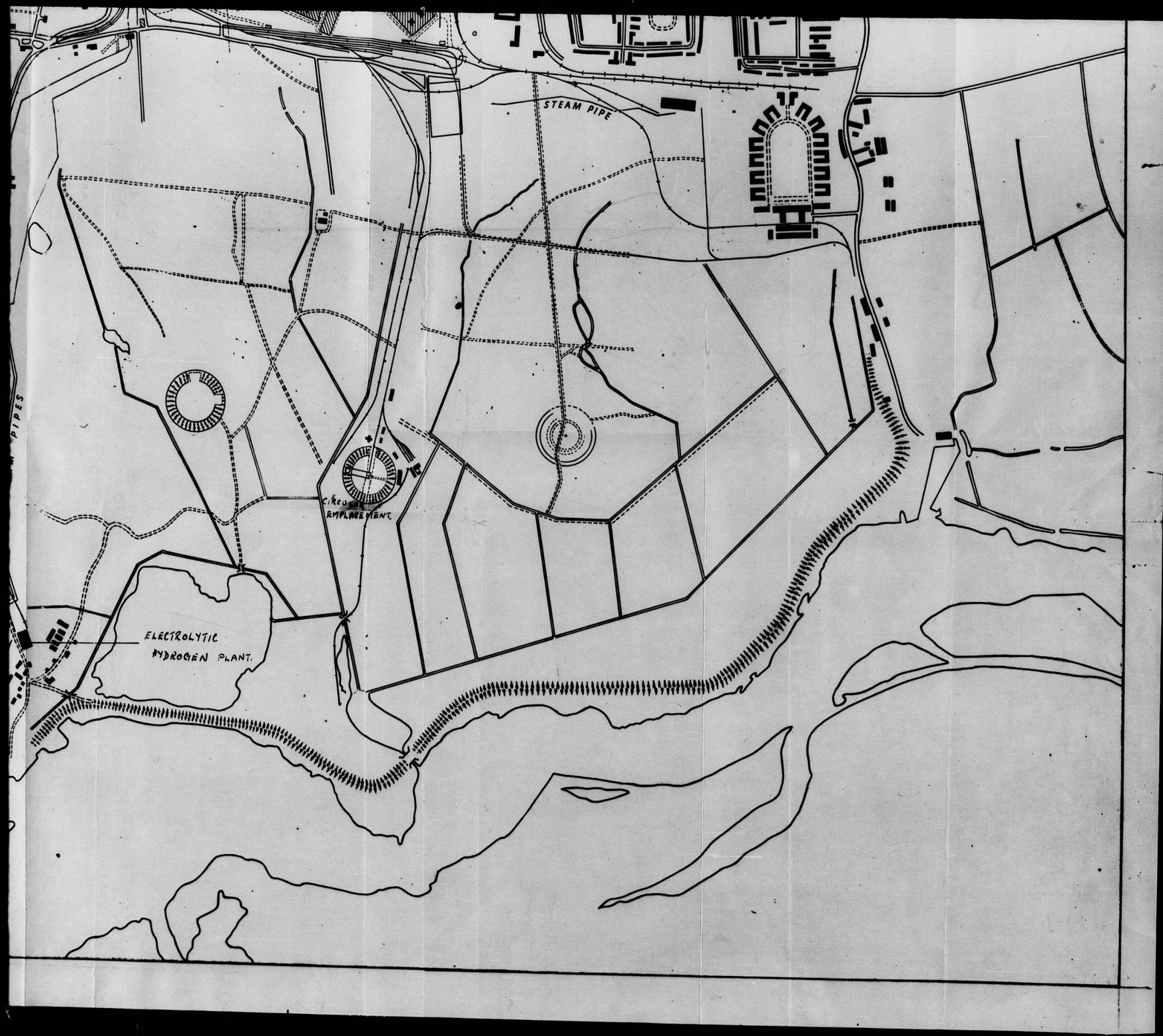
C.I.U. PLAN Nº D/254

Scale 0 1000 2000 Yards Approx

Neg. No. 23307







M.S.S. SECURITY

TOP SECRET

APPENDIX "E"

EVIDENCE CONCERNING THE NATURE OF T-STOFF

Introduction

1. Nearly a year ago we received our first Most Secret indication of the existence of "T-Stoff", which was subsequently found to be the driving component fuel of the HS 293 rocket unit. It contains data which may differentiate between the two types of suggested composition, and is therefore worthy of examination in some detail.

Data

2. On 30th April 1943, 1 Airfield Servicing Company (S)3, probably at Villacidro reported the following figures for concentration tests of "T-Stoff".

Container 1	:	81.5 per cent
" 2	:	81.1 "
" 3	:	81.9 "
" 4	:	80.3 "
" 5	:	81.3 "
" 6	:	81.9 "
" 7	:	82.4 "
" 8	:	82.4 "
" 9	:	83.6 "
" 10	:	82.2 "
" 13	:	82.4 "
" 14	:	82.8 "

Deduction

3. From this information, it is possible to make direct deductions:

(a) The principal component in T-Stoff constitutes between 80 and 84%.

(b) It is necessary to check the concentration, perhaps because this is expected to vary with age.

(c) Variations of about 3% in the major component do not appear to make it unsuitable for use.

4. If the concentration is plotted against the number of the container, then it is clear that there is a high correlation between the two quantities, so that statistically the higher the number of the container, the higher the concentration. The chances of this correlation being accidental are of the order of 100 to 1 against: it is therefore worth looking for an explanation.

5. Obviously the containers have not been numbered for the purpose of listing after the percentages have been measured, because otherwise the concentrations would have been in strict numerical order. The omission of containers 11 and 12 would not be explained by this hypothesis, and suggests that the container numbering had some significance before the measurements were made. The simplest explanation is that the containers were numbered either on arrival at the airfield or on despatch from the factory, so that the higher numbers belong to the later containers. 11 and 12 were missing perhaps because they had been used. If this explanation is correct, then it is evidence that the major component of T-Stoff does in fact decompose with time, confirming deduction (b).

Nature of Fuel

6. Two main types of fuel have been proposed as being T-Stoff. The earlier

/was

was based upon Diglycol Dinitrate mixed with Ethylene Glycol and Cellosolve, the percentage of the first component varying between about 70 and 75%. This is incompatible with the foregoing figures of 80 - 84%; moreover if there were any appreciable decomposition of a nitrated component, it would probably be so dangerous as to be unfit for use.

7. The later type of fuel considered was based on hydrogen peroxide, and it is interesting that the present experimental fuels which are being tried in this country have percentages of peroxide varying between 80% and 85%, with about 5% methyl alcohol and the remainder water. Moreover, this fuel would tend to decompose with time.

8. It is of course impossible to deduce positively from the Most Secret evidence that T-Stoff is in fact a hydrogen peroxide fuel, but the evidence does discriminate strongly between the two types so far found possible in this country. When this is added to the other evidence, such as (1) the use of metal non-catalytic to the decomposition of hydrogen peroxide in the fuel tank, connecting pipes and burner, (2) the flame temperature and (3) the fact that captured samples of permanganate solution used as the igniting mixture (Z-Stoff) would not be strong enough to ignite the glycol type fuel, the case for a hydrogen peroxide fuel becomes very strong.

9. While there is still a little doubt as to whether T-Stoff is used as the main propellant for the FZG 76, there is no doubt that it plays an important part either in the launching or propulsion of this missile. Attacks on hydrogen peroxide factories are therefore a promising Crossbow countermeasure.

Manufacture

10. While there may be differences in detail regarding the interpretation of the large buildings and circular emplacements at Peenemunde and the factory at Ober Raderach, it is reasonable to think that peroxide production has been proceeding at Peenemunde for some time, and the large buildings, with their relatively restricted access, are satisfactorily explained as the production centre. The work at the circular emplacement and at Ober Raderach certainly indicates considerable care by the Germans to minimise the effect of explosions, so that they are either handling a new explosive or a tricky fuel, probably connected with the pilotless aircraft or rockets. In either case they are worthy bombing targets.

TOP SECRET

APPENDIX "F"

GERMAN PROPAGANDA AND A SECRET WEAPON.

(Based on information to 12th April.)

SUMMARY

The caution and reticence of propaganda both at home and abroad has been deepened. Unlike foreign audiences, Germans are still permitted to deduce that current German raids may be part of "retaliation." There would be no advantage to the Propaganda Ministry in behaving in this way if it expected sensational results from Crossbow within say the next six weeks. (There is nothing in propaganda either for or against the possibility of the use of Crossbow weapons on a small scale.)

EVIDENCE

Attention to the subject of retaliation remained at an extremely low level both at home and abroad, and would have been negligible but for Ribbentrop's statement (5 April) that "we shall sweep these air gangsters from the European skies and incidentally repay them at a high rate of interest." During the past two weeks only two references have been observed in broadcasts to England, and inside Germany, apart from Ribbentrop, there seem to have been no references in broadcasts and only four observed in the press. Of these four, two were in the local Essen press after the raid on the 26th, and one in the Mülhauser Tagblatt, which is less strictly controlled than the press inside Germany proper. It would seem therefore that there is a strict directive inside Germany to avoid mention of retaliation. Even Goebbels on the 31st March promised only that Germany's forthcoming initiative would help the German public to endure the air terror.

The references to retaliation in German home propaganda fail to state that current German raids are not the real retaliation. This contrasts with propaganda to England and elsewhere abroad.

The news agencies operating for foreign consumption have uttered warnings which are remarkable on the whole for evasiveness. Thus, a Transocean survey on 30th March said:

> "In April three things may be expected:... an increase of the German attacks on Britain by old and new means."

Transkontinent on 31st March said:

> "We have often pointed out that there are no miraculous weapons and no secret weapons, neither will there be any the use of which might bring about a sudden change in the war."

This admission is worth noting, for Germans until several weeks ago had been told that when retaliation started it would bring about a change in the whole aspect of the war. And propaganda outside Germany is liable to be more optimistic than propaganda to the home population.

As before, it is difficult to explain this caution and reticence except on the grounds that the German leaders do not expect to launch Crossbow with sensational results within any near future.

13th April, 1944 — Political Warfare Executive.

W.O.S.(44) 341 (O)

15TH APRIL, 1944

WAR CABINET

CHIEFS OF STAFF COMMITTEE

PROVISION OF PARACHUTES FOR THE MEDITERRANEAN

Note by Secretary

The attached memorandum* by A.F.H.Q. containing details of the requirement for 5,000 supply dropping parachutes notified in Medcos 82 is circulated for consideration by the Chiefs of Staff.

(Signed) L.C. HOLLIS

Offices of the War Cabinet,
S.W.1.,

15TH APRIL, 1944.

* ANNEX I

ANNEX I

RELEASE OF 28-FOOT PARACHUTES TO HEADQUARTERS SPECIAL OPERATIONS, MEDITERRANEAN

Memorandum by A.F.H.Q.

1. Attached hereto is a copy of an appreciation ø regarding the adequacy of supplies of dropping equipment prepared by Commander Force 133 as at 10 March 1944.

2. As indicated in the summarisation of the appreciation contained in the covering letter x, dated 21st March 1944, addressed to Brigadier General CAFFEY and signed by Major General STAWELL, the success of the supply dropping operations as now planned until October is dependent upon Headquarters Special Operations, Mediterranean, obtaining 5000 28-foot parachutes per month for the period May to September inclusive. Such equipment may only be obtained from United Kingdom production from which no parachutes are presently allotted to Headquarters Special Operations, Mediterranean.

x ANNEX II
ø ANNEX III

3. Unless sufficient 28-foot parachutes can be obtained by Headquarters Special Operations, Mediterranean, supply dropping functions of that organisation will be curtailed during June and from that time forward. In view of the extremely urgent necessity the release is requested of 5000 28-foot parachutes per month, for the period May to September inclusive, to Headquarters Special Operations, Mediterranean, from United Kingdom production.

4. After October there will be an estimated shortage of 900 28-foot parachutes per month. However, requirements will be resubmitted prior to that date based on conditions then existing.

5. Since there is a time-lag involved in shipping from the United Kingdom, it will be appreciated if prompt consideration may be given the above request.

For the Supreme Allied Commander Mediterranean Theatre:

(Signed) J.A.H. GAMMELL,

Lieutenant General,
Chief of Staff.

ANNEX II

SUPPLY OF DROPPING EQUIPMENT, FORCE 133/O.S.S.

Copy of a letter (114/Q(E)) dated 21st March, 1944 from Major-General Stawell to Brigadier General Caffey

* * *

1. Attached is an Appreciation regarding the adequacy of supplies of Force 133 supply dropping equipment made by Commander Force 133 as at 10th March, 1944.

2. On the assumptions explained in the attached Appreciation, it is estimated that parachutes now in stock or coming forward (from United Kingdom or Mid East production) will be sufficient to meet the full programme of air sorties from Mediterranean bases until October, subject to:-

(a) The Chiefs of Staff authorising immediately the release of 28-foot parachutes (which are at present blocked to build up a stock in United Kingdom), so that 5,000 arrive in ITALY in May for use in June, and thereafter at the rate of 5,000 monthly.

(b) The local production of 28-foot parachutes being undertaken, giving a release of 2,000 from June and rising to 3,500 in September.

(c) The local production of 18-foot parachutes in EGYPT continuing and not being subjected to the government interference which is feared.

3. After October there will be fewer parachutes available than required, unless bad weather, as may be expected at that time of year, restores the equilibrium.

4. Unless the release of 28-foot parachutes is obtained, and if the estimates of successful Mediterranean air sorties for March-May are fulfilled, there will be insufficient 28-foot chutes for the programme in June, when good weather should permit large scale deliveries.

5. Owing to the time-lag involved in shipping from the United Kingdom action to obtain release of 28-foot parachutes therefore appears urgent; otherwise there is a serious probability that aircraft will be grounded by lack of 28-foot parachutes, towards the middle or end of June.

* * *

ANNEX III

APPRECIATION OF THE ADEQUACY OF SUPPLIES OF FORCE 133 SUPPLY DROPPING EQUIPMENT MADE BY COMMANDER FORCE 133 AS AT 10TH MARCH, 1944

1. OBJECT

The object of this paper is to examine the supplies of supply dropping equipment available to Force 133 and to see whether they are adequate to meet demands for operational sorties as at present estimated.

2. GENERAL

(a) In November 43 a target of 850 tons a month of airborne stores for the Balkans was proposed. This target would, it is estimated, require between 400 and 500 sorties a month, dependent on the aircraft available. Provisioning for supply dropping equipment was made by Force 133 on this basis.

(b) In January 44 additional commitments in respect of MASSINGHAM, MARYLAND and the Poles were handed over to Force 133 and the then existing operational programmes for these groups were stepped up. No provisioning had been made to meet this increased operational activity and those items of equipment which are in shortest supply will have very largely to be provided by Force 133 for these operations out of stocks provisioned for the Balkans.

(c) There is no difficulty in arranging for expansion at short notice of containers and other items of supply dropping equipment, and the limiting factor in supply dropping equipment is the production of parachutes. This Paper is therefore directed mainly to examining the parachute position.

ASSUMPTIONS

The following assumptions are made:-

(a) That the Balkan demand for airborne stores will continue to be as great as can be met with the aircraft or supply dropping equipment likely to be available.

(b) That the demand for airborne stores from MASSINGHAM will not be reduced.

(c) That M.E. production of 18' parachutes is available at the same scale for Force 133 as at present.

(d) That M.E. production of 28' parachutes for delivery in June of 2,000, rising to 3,500 in September, is achieved.

(e) That 5,000 28' parachutes per month will be delivered to Force 133's order in the Mediterranean area from U.K. sources from incl. May onwards.

3. FACTORS INFLUENCING DEMAND

In determining the requirements of supply dropping equipment the following factors must be considered:-

(a) The number of successful sorties likely.

(b) Type of aircraft available.

(c) Possibility of dropping without using dropping equipment.

(a) Number of successful sorties likely

(i) It has been estimated by MAAF that there will be successful sorties as follows:-

March 341
April 375

(ii) It is estimated that in the following months there will be 600 successful sorties in MAY and 650 in JUNE onwards.

(b) Type of aircraft available

(i) Different aircraft carry different numbers of containers and different quantities of different types of parachutes.

(ii) While the Halifax takes 15 containers, 15 28' container parachutes and, on the average, 20 18' package parachutes, the Dakota takes 6 containers, 6 28' container parachutes, 7 300 lb. packages in the fuselage requiring 7 28' parachutes and, on the average, 16 18' package parachutes.

(iii) The number and size of parachutes for fuselage loads depends upon the number and weights of packages which can be carried in the fuselage. While the containers carried on bomb racks normally take a 28' parachute, the number and size of parachutes required for fuselage loads vary not only with each type of aircraft but with each individual sortie according to:-

(a) Type of stores being sent.

(b) The weight of the bomb rack load.

(c) The distance the aircraft is flying.

(d) The type of equipment being used for dropping.

(e) The facilities for handling big bulk packages in the aircraft.

(iv) From the point of view of provisioning for supply dropping equipment, as well as from the point of view of preparation of loads for individual sorties and the planning of deliveries to individual missions in the Field, it is of advantage to restrict the numbers of different types of aircraft to a minimum.

(v) In making estimates in Appendices A and B, March and April consumption has been based on types and number of aircraft stated in MAAF's signal J.C.S. 117 of 11 Feb.44 and consumption for the following months on Halifax sorties only plus 50 sorties monthly from Italian aircraft.

(c) Possibility of developing free drops

(i) Research is being directed to increasing the amount of stores which can be dropped without using dropping equipment ("free drops"). Items which it is known can be free-dropped safely are clothes including boots, blankets, soft medical supplies, certain kinds of food.

(ii) For the purpose of these estimates, no free drops have been assumed; during the approaching summer period it is assumed the demands will be for arms and explosives rather than clothing.

(iii) To the extent to which free drops may prove to be possible there is a reserve of supply dropping equipment.

4. FACTORS INFLUENCING SUPPLY

(a) All available supplies of supply dropping equipment are manufactured in M.E. with the exception of 28' parachutes and certain package parachutes required for special purposes.

(b) The U.K. production of 28' parachutes is believed to be 12,000 per month, which are allocated according to priority laid down by the Chiefs of Staff. In view of the present stock in the Mediterranean theatre of 20,000 parachutes, no release has been made by the U.K. to Force 133 during the months of January, February and March, as there is such an acute shortage of these parachutes that release is being made only to meet actual operational demands and issues to build up reserve stocks are not at present permitted. Further releases will be dependent upon the relative priority given by Chiefs of Staff to S.O.E. Mediterranean operations. It has been assumed that a release will be made in April for delivery in Mediterranean area in May.

(c) Tentative arrangements have been made for the production of 28' parachutes in the M.E. in accordance with details given in Appendix A. Final sanction is still awaited for the project from Air Ministry.

(d) The limiting factor in the production of parachutes in the M.E., as in the rest of the world, is the supply of fabric from which they are made. Force 133 parachutes are made from Egyptian cotton; the primary obstacle to expansion lies in the mill production of cotton and not in the manufacture of the parachutes. Apart from the shortage to meet all civilian and military demands in EGYPT, there are political difficulties in earmarking for the manufacture of parachutes even that quantity which is now being obtained.

(e) It has been assumed, however, that the present releases for 18' parachutes and the estimated production of 28' parachutes, which it is hoped will shortly be started, will not be thereby hindered.

5. ESTIMATED SUPPLY OF PARACHUTES

(a) 28' container parachutes (Forward position shown in Appendix A)

On the basis that:-

(i) The U.K. will supply 5,000 28' parachutes per month deliverable Mediterranean theatre from inclusive May.

(ii) The projected M.E. manufacture of 28' parachutes is successful and quantities will be available at the rate of -

June - 2,000; July - 2,500;
August - 3,000; September - 3,500;

it is estimated that sufficient 28' parachutes will be available until October to mount the sortie requirements assumed; . thereafter there will be a deficiency of 900 per month if the same number of sorties is required.

(b) 18' parachutes. (Forward position shown in Appendix B)

(i) On the assumption that the present rate of deliveries at 10,000 18' package parachutes a month will be maintained, it is estimated that sufficient will be available to mount until July the sortie requirements assumed.

(ii) In August there would be a deficit of 696, and in September and months thereafter a deficit of 3,500.

(iii) It is estimated that this deficit would until mid-October be offset by the use of a stock of 9,500 sound parachutes of obsolete pattern now held. (These parachutes are sound but their weight-carrying capacity is inefficient compared with the present and projected series of parachutes).

(iv) In making the above estimate no credit has been taken for free drops.

(v) April deliveries show estimated reduction of 2,000 parachutes, owing to a change over in production to a new series parachutes.

(vi) Attempts are being made to obtain an increase of 2,000 per month from inclusive May of the new series parachutes, but as it is not certain that this production will be available to Force 133 it is being disregarded.

(d) SUFFICIENCY OF PARACHUTES TO MEET REQUIREMENTS 3 HALIFAX AND 2 DAKOTA SQUADRONS

A statement has also been prepared (Appendix E) showing that estimated availabilities could support 3 Halifax and 2 Dakota Squadrons operating 546 successful sorties monthly over the period April-September without drawing on the obsolete types of 18' chutes, allowing for free drops or using surplus 28' parachutes to offset deficiencies of 18' parachutes. Reserves from such sources would be available to mount 104 sorties being the difference between 546 sorties and the 650 presumed as planned which might be made up from sundry aircraft from time to time at the disposal of S.O.E. Mediterranean.

6. DISTRIBUTION AND RESERVES

(a) Difficulties of the overall position are increased by the time-lag involved in delivering supplies from the production centres in U.K. and EGYPT to the aircraft bases, and the distance between the bases themselves.

(b) The effect of this distance is to make difficult the switching of air effort from one base to another base where they can be loaded with stores suitable to a new theatre of operations. It is, therefore, desirable that adequate stocks should be maintained at the points where they will be needed.

(c) Containers are NOT a practical proposition to send by air due to their bulk.

(d) Parachutes are fairly mobile and in an emergency can be sent by air, but this may mean that operational aircraft have to be used for ferrying, resulting in a reduction in operational sorties.

From the date of loading in a ship to the date when they will be available for service, a period of:-

5 weeks from U.K.
4 weeks from M.E.

should be allowed.

7. CONCLUSIONS

(a) On the basis that there are available, including March dues in, 20,000 28' parachutes and 18,000 18' parachutes during March, that U.K. release 5,000 28' parachutes for and after April and M.E. production of 28' parachutes comes up to expectations, it is estimated that successful sorties at the rate of:

March - 341
April - 375
May - 600
June and following months - 650

can be maintained up to and including October (Appendices A and B).

(b) Availabilities of 2 ' parachutes will be adequate for August sorties but a shortage of new-type 18' parachutes is expected then; in September and October the shortage of new-type 18' parachutes is estimated at 3,500. The shortages may in fact NOT occur, as in the calculations NO allowance has been made for "free drops", and in any case can be offset by drawing from the stocks of 9,500 obsolete pattern parachutes now held.

(c) From October onwards stocks of both kinds of parachutes may be exhausted; availabilities will be 8,500 28' and 10,000 18' monthly as against requirements of 9,400 and 13,500 if the basis of 650 sorties a month is not reduced by indifferent weather.

(d) If Chiefs of Staff do NOT agree to release 5,000 28' parachutes in April for arrival in Mediterranean theatre in May, operations on any scale will cease as from end May.

(e) On the basis of stocks at beginning March, plus estimated monthly dues in, there will be enough supply dropping equipment to operate 3 Halifax and 2 Dakota squadrons over the period April-September inclusive (Appendix D). These squadrons would give an estimated figure of 546 successful sorties monthly.

(f) The difference of approximately 100 sorties per month between these 546 sorties and the 650 presumed as planned might be made up from the sundry aircraft put from time to time at the disposal of S.O.E. Mediterranean. These sorties could be mounted from :-

(i) Surplus 28' parachutes available after catering for the Halifax and Dakota squadrons.

(ii) Drawing on the 9,500 obsolete type of 18' parachutes held.

(iii) Stores which can be "free dropped".

(b) Availabilities of 2 ' parachutes will be adequate for August sorties but a shortage of new-type 18' parachutes is expected then; in September and October the shortage of new-type 18' parachutes is estimated at 3,500. The shortages may in fact NOT occur, as in the calculations NO allowance has been made for "free drops", and in any case can be offset by drawing from the stocks of 9,500 obsolete pattern parachutes now held.

(c) From October onwards stocks of both kinds of parachutes may be exhausted; availabilities will be 8,500 28' and 10,000 18' monthly as against requirements of 9,400 and 13,500 if the basis of 650 sorties a month is not reduced by indifferent weather.

(d) If Chiefs of Staff do NOT agree to release 5,000 28' parachutes in April for arrival in Mediterranean theatre in May, operations on any scale will cease as from end May.

(e) On the basis of stocks at beginning March, plus estimated monthly dues in, there will be enough supply dropping equipment to operate 3 Halifax and 2 Dakota squadrons over the period April-September inclusive (Appendix D). These squadrons would give an estimated figure of 546 successful sorties monthly.

(f) The difference of approximately 100 sorties per month between these 546 sorties and the 650 presumed as planned might be made up from the sundry aircraft put from time to time at the disposal of S.O.E. Mediterranean. These sorties could be mounted from :-

(i) Surplus 28' parachutes available after catering for the Halifax and Dakota squadrons.

(ii) Drawing on the 9,500 obsolete type of 18' parachutes held.

(iii) Stores which can be "free dropped".

APPENDIX A

M E D I T E R R A N E A N

Forward Position

28' Parachutes

ONTH	STOCK AT BEGINNING OF MONTH	DUES IN	ESTIMATED OPS	ESTIMATED CONSUMPTION	CUM. SURPLUS OR DEFICIT
arch	20,000	Included in March	341	4,523	+ 15,477
pril	15,477	NIL	375	4,970	+ 10,507
ay	10,507	5,000	600	8,650	+ 6,857
une	6,857	7,000	650	9,400	+ 4,457
uly	4,457	7,500	650	9,400	+ 2,557
ug.	2,557	8,000	650	9,400	+ 1,157
ept.	1,157	8,500	650	9,400	+ 257

otes:

1) March consumption is based on successful sorties, HALIFAX 185, DAKOTA 96, FORTRESS 10, ITALIAN 50. Ref: MAAF Signal, JCS 117 11 February 1944.

2) April consumption is based on successful sorties, HALIFAX 194, DAKOTA 120, FORTRESS 10, ITALIAN 50. Ref: MAAF Signal, JCS 117 11 February 1944.

3) May consumption is based on successful sorties, HALIFAX 550, ITALIAN 50.

4) June-September consumption is based on successful sorties HALIFAX 600, ITALIAN 50.

5) Estimates for May-September have excluded Dakotas as MAAF Sig 11 February indicates that these aircraft may not be available after April.

6) "Dues In" assume that Chiefs of Staff authorise priority release of 5,000 chutes monthly to Mediterranean theatre and that ME production comes up to expectations, i.e. 2,000 June, 2,500 July, 3,000 August, 3,500 September.

APPENDIX B

MEDITERRANEAN

Forward Position

18' Parachutes

MONTH	STOCK AT BEGINNING OF MONTH	DUES IN	ESTIMATED OPS	ESTIMATED CONSUMPTION	CUM. SURPLUS OR DEFICIT
March	18,000	Included in March	341	6,196	+ 11,804
April	11,804	8,000	375	7,500	+ 12,304
May	12,304	10,000	600	12,500	+ 9,804
June	9,804	10,000	650	13,500	+ 6,304
July	6,304	10,000	650	13,500	+ 2,804
Aug.	2,804	10,000	650	13,500	- 696
Sept.	-	10,000	650	13,500	- 3,500

Notes:

(1) Consumption has been worked out on same basis as see notes 1-5 of Appendix 'A'.

(2) The figures do NOT include Force 133 holdings of 9,500 sound chutes of an obsolete pattern.

(3) Free drops, i.e. the dropping of packages without chutes has NOT been taken into account.

APPENDIX C

STATEMENT SHOWING NUMBER OF 28' and 18' PARACHUTES REQUIRED TO OPERATE HALIFAX AND DAKOTA AIRCRAFT

1. **HALIFAX**

(a) **Assumptions**

(i) Aircraft carries 15 containers requiring 15 28' parachutes and 20 packages in the fuselage requiring 20 18' parachutes.

(ii) 1 Sqn. consists of 18 First Line Aircraft.

(iii) Each aircraft undertakes 10 sorties per month of which 7 are SUCCESSFUL, equals 126 sorties per squadron per month.

(b) **Parachutes Required to Operate 1 - 4 Squadrons for One Month**

		28'	18'
1 Squadron	(126 Sorties)	1890	2520
2 Squadrons	(252 ")	3780	5040
3 "	(378 ")	5670	7560
4 "	(504 ")	7560	10,080

2. **DAKOTA**

(a) **Assumptions**

(i) Aircraft carries 6 containers requiring 6 28' chutes, 7 panniers requiring 7 28', 16 packages requiring 16 18' chutes.

(ii) 1 Sqn. consists of 12 First Line Aircraft.

(iii) Each aircraft undertakes 10 sorties per month of which 7 are SUCCESSFUL, equals 84 sorties per squadron per month.

(b) **Parachutes Required to Operate 1-4 Squadrons for One Month**

		28'	18'
1 Squadron	(84 Sorties)	1092	1344
2 Squadrons	(168 ")	2184	2688
3 "	(252 ")	3276	4032
4 "	(336 ")	4368	5376

Note The above figures are INDICATIONS of parachute requirements. Although for containers on bomb racks the 28' parachutes are normally required, the size of the parachute needed for fuselage packages depends upon the weight of the package it is required to drop. Therefore either more or less 28' or 18' parachutes may be required.

3. Monthly Parachute Requirements for Operating Halifax and Dakota Squadrons Together

(a) One HALIFAX and One DAKOTA SQUADRONS - 210 Sorties

	HALIFAX	DAKOTA	TOTAL
28' Parachutes	1890	1092	2932
18' "	2520	1344	3864

(b) Two HALIFAX and One DAKOTA SQUADRONS - 336 Sorties

	HALIFAX	DAKOTA	TOTAL
28' Parachutes	3780	1092	4772
18' "	5040	1344	6384

(c) Three HALIFAX and One DAKOTA SQUADRONS - 462 Sorties

	HALIFAX	DAKOTA	TOTAL
28' Parachutes	5670	1092	6762
18' "	7560	1344	8904

(d) Three HALIFAX and two DAKOTA SQUADRONS - 546 Sorties

	HALIFAX	DAKOTA	TOTAL
28' Parachutes	5670	2184	7854
18' "	7560	2688	10,248

(e) Two HALIFAX and two DAKOTA SQUADRONS - 420 Sorties

	HALIFAX	DAKOTA	TOTAL
28' Parachutes	3780	2184	5964
18' "	5040	2688	7728

(f) One HALIFAX and two DAKOTA SQUADRONS - 294 Sorties

	HALIFAX	DAKOTA	TOTAL
28' Parachutes	1890	2184	4074
18' "	2520	2688	5208

(g) One HALIFAX and three DAKOTA SQUADRONS - 378 Sorties

	HALIFAX	DAKOTA	TOTAL
28' Parachutes	1890	3276	5166
18' "	2520	4032	6552

STATEMENT SHOWING NUMBER OF HALIFAX AND DAKOTA

WHICH CAN BE OPERATED WITH

THE NUMBERS OF 18' & 28' PARACHUTES ESTIMATED TO BE AVAILABLE

	28' PARACHUTES			18' PARACHUTES				
Month	BAL.B/F FROM PREVIOUS MONTH	DUES IN DURING MONTH	TOTAL AVAILABLE	BAL.B/F FROM PREVIOUS MONTH	DUES IN DURING MONTH	TOTAL AVAILABLE	SUFFICIENT TO OPERATE	ESTIMATED NO. SORTIES
April	14,885	-	14,885	11,180	-	11,180	3 HALIFAX 2 DAKOTA	546
May	7,031	5,000	12,031	932	10,000	10,932	3 HALIFAX 2 DAKOTA	546
June	4,177	7,000	11,177	684	10,000	10,684	3 HALIFAX 2 DAKOTA	546
July	3,323	7,500	10,823	336	10,000	10,336	3 HALIFAX 2 DAKOTA	546
Aug.	2,969	8,000	10,969	88	10,000	10,088	3 HALIFAX 2 DAKOTA	546
Sept.	3,115	8,000	11,115	-	10,000	10,000	3 HALIFAX 2 DAKOTA	546

NOTES: Sept. Deficit of 18' Parachutes can be made up from stock of obsolete types (Ref. Note 2 Appx. C)

The circulation of this paper has been strictly limited.
It is issued for the personal use of C.

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TOP SECRET

Copy No. 94

This document was considered at Cos(44) 130th Meeting, (O) Item 6.

C.O.S.(44) 342 (O)

RESTRICTED CIRCULATION

15TH APRIL, 1944

WAR CABINET

CHIEFS OF STAFF COMMITTEE

CONTROL OF SPECIAL OPERATIONS IN THE MEDITERRANEAN THEATRE

Note by Secretary

The attached copy* of a report submitted by A.F.H.Q. to the Combined Chiefs of Staff describing the organisation for control of special operations in the Mediterranean Theatre is circulated for information and record purposes.

(Signed) L.C. HOLLIS

Offices of the War Cabinet,
S.W.1.
15TH APRIL, 1944

* Annex

ANNEX

Report by Allied Force Headquarters to the Combined Chiefs of Staff

COMMAND ORGANISATION

1. Early in February, 1944, a Special Sub-Section was established in the office of the Assistant Chief of Staff, G-3, AFHQ to deal with Special Operations. The Chief of this Sub-Section set up a day to day Control Group at CASERTA (ITALY). This Group is in effect an advanced detachment of the Special Operations Sub-Section, G-3 at AFHQ.

2. The function of the Sub-Section at AFHQ is to initiate policies for command approval, to prepare directives for lower formations and agencies, to allot priorities of facilities and to furnish reports. The advanced detachment at CASERTA is responsible for allocating aircraft for day to day operations on AFHQ directives.

3. The composition of these bodies is:

a. Special Operations Sub-Section, G-3

1 Brigadier General, Chief of Sub-Section
1 Colonel (Br) (at CASERTA)
1 Lt. Colonel (US)
1 Major (Br)
1 Wing Commander
Navy
SOE
OSS
SIS
G-2
U.S. Minister
British Minister
P.W.B.
'A' Force
:- Represented at Meetings

b. Day to Day Control Group

1 Colonel (Br) detached from Sp Ops Sub-Section, G-3, AFHQ
MAAF
AAI
ISSU-6
2677th HQ Co
ISLD
'A' Force
P.W.B.
:- Represented at Meetings

4. From this it is seen that a Wing Commander of MAAF is a member of the Special Operations Sub-Section at AFHQ. A Wing Commander of MAAF also works side by side with the Colonel who is head of the Day to Day Control Group at CASERTA. This Wing Commander is responsible for implementing the day to day air sorties direct to HQ 334 Wing at BRINDISI through the Operations Room at Force 266 (formerly Advance Force 133), where an Air Force Operations Officer works in direct contact with the operations officers of SOE/OSS. The implementation of air sorties for 624 Squadron, detached from 334 Wing at BLIDA, is the responsibility of a Special Operations Staff of MAAF located at ALGIERS for this purpose.

PLANNED INCREASES OF AIRCRAFT FOR SPECIAL OPERATIONS

5. British S.D. Aircraft

An increase on aircraft establishment for 624 and 148 Squadrons of 334 Wing has recently been authorized. This will bring the number of Halifax aircraft in these Squadrons up to 18 each by the end of April. Reinforcement for these Squadrons has been authorized as from March to 10 aircraft per month and an extra 10 aircraft has been allotted to form a Workshop Reserve. C-47 aircraft of 267 Squadron (249 Transport Wing) are temporarily operating under 334 Wing when their normal work permits.

6. Polish S.D. Aircraft

Authorisation has been given to increase 1586 Polish Flight to 12 Halifaxes and crews immediately.

7. American S.D. Aircraft

68 Reconnaissance Group at present consists of 7 B-25's and 3 B-17's, but the intention is to augment the B-17's by 15 B-24's in the near future. Numbers 51 and 7 Squadrons of the 51st Troop Carrier Wing have been assigned temporarily to Special Operations and Number 8 Squadron of Troop Carrier Command has 4 aircraft assigned to these duties. These aircraft may be lost to Special Operations in the event of their being required for normal military airborne operations.

8. Italian S.D. aircraft

The Italian Bomber Transport Force located in the HEEL of ITALY is also employed on Special Operations. Some difficulty may be experienced with serviceability of these aircraft, but it is anticipated that they will be able to furnish 50 sorties per month.

OPERATIONAL PLANNING

9. On the establishment of the G-3 Special Operations Sub-Section to centralize and co-ordinate the planning and execution of all SOE/OSS activities, MAAF decided to place all S.D. Aircraft in a common pool under 334 Wing at BRINDISI. At the same time, aircraft were obtained on temporary loan from Troop Carrier Command and 216 Transport Group in order to swell the numbers of aircraft available to the various SOE/OSS organisations. These aircraft were also added to the pool and the result was to place all aircraft at the disposal of all organisations. By forming this pool, MAAF made it possible to switch the full weight of its special duties air effort to the support of any organisation at a given moment. Although No. 1586 Polish Flight was considered as reserved for operations over POLAND, there were so many nights when weather prevented this, that the Polish Flight Commander agreed to operate his aircraft in the pool when weather was bad over POLAND on the understanding that the pool should be switched over to Polish operations when the weather was favorable. Unfortunately, only one operation to POLAND has been possible so far, but owing to the pool system, it may be possible to increase these sorties before the nights get too short.

10. On the strength shown in the Order of Battle, the following plan (Appendix 'A') was made to cover the months of February, March, April and May. It will be seen from the Table of Results for February (Appendix 'B') that the schedule which it was hoped to complete was in fact not fulfilled. This was entirely due to the extremely bad weather conditions encountered in all areas during the month. The results for March to date show a substantial increase with the exception of FRANCE and POLAND.

11. It was originally thought that 4 Halifaxes would suffice for the Southern FRANCE commitments and this number of aircraft was detached from 624 Squadron to BLIDA. The priority for these operations was then raised and in order to meet the new requirements, the rest of 624 Squadron was moved to BLIDA to operate with the 3 B-17's. OSS has undertaken approximately 1/3 of the commitment to Southern FRANCE with 2,000 American containers. Since British aircraft are not modified to carry American containers, it is singularly unfortunate that more B-17 aircraft have not been available for these operations. OSS are now packing British containers.

12. Owing to difficulties encountered with staging at advanced bases due to range limitations and the consequent difficulties of maintenance and control, the 7 B-25 aircraft are not employed on operations to Southern FRANCE and are based in ITALY for sorties to the BALKANS and Northern ITALY.

13. In planning an operation, every effort is made to load each aircraft to capacity. In the case of FRANCE, this is made difficulty by the fact that for security reasons, some grounds are unable to accept a full Halifax load. This trouble was overcome by arranging a series of alternative grounds so that the aircraft may drop half its load on one ground and the rest on the second ground. It is usual practice moreover, to carry out operations involving the dropping of Special Intelligence personnel in conjunction with a normal supply sortie to the same general area. Thus the greatest economy is rigidly attempted.

14. The Italian aircraft are employed for day operations with fighter cover to the BALKANS. Efforts are being made to obtain more facilities for them for night flying and to train them for night operations.

FUTURE ORGANISATION

15. Recently it was decided that direct control of all SOE/OSS operations in YUGOSLAVIA and ALBANIA was to be assumed by Supreme Allied Commander Mediterranean Theatre. In order to co-ordinate all SOE/OSS matters arising in the Mediterranean Theatre, Major General STAWELL was appointed as Commander Special Operations Mediterranean Theatre and directed to set up his Headquarters in ITALY. Advanced Force 133, located at BARI, assumed control of Special Operations inside YUGOSLAVIA and ALBANIA and also of all operations across the ADRIATIC. To avoid muddle, Advanced Force 133 was renamed Force 266. Administration of SOE/OSS organisations continues to be the responsibility of MIDEAST for the present.

16. Headquarters Special Operations Mediterranean Theatre has not as yet been set up in ITALY, but when this has been accomplished, the channels for demanding Air Transport for Special Operations will become simplified and in fact a new directive is in course of preparation. Further, the functions of the advanced detachment of Special Operations Sub-Section at CASERTA will be effected by the establishment in ITALY of the Headquarters Special Operations Mediterranean Theatre and the future of this detachment is now under discussion.

APPENDIX 'A'

ORDER OF BATTLE OF SPECIAL OPERATIONS AIRCRAFT, MED. THEATRE

Controlling Formation	UNIT	Type & Number of Aircraft	Location	Area of Operations
1. PERMANENT				
334 Wing (Brindisi)	148 Squadron	18 Halifaxes	Brindisi	Poland, Balkans, N. Italy, etc.
	624 Squadron	18 Halifaxes	Blida	Southern France
	1586 (Polish) Flight	12 Halifaxes	Brindisi	Poland, Balkans, N. Italy
	Italian Air Force	40 (approx) SM-82, SM-81 Cant 1007	Lecce	Balkans, N. Italy
2. TEMPORARY				
334 Wing	68 Recon Group	7 B-25's	Manduria	N. Italy, Balkans
	51 T.C. Squadron	10 C-47's	Brindisi	N. Italy, Balkans
	7 T.C. Squadron	10 C-47's	Brindisi	N. Italy, Balkans
	8 T.C. Squadron	4 C-47's	Gioia	N. Italy, Balkans
	267 Squadron	12 C-47's	Bari	N. Italy, Balkans
	68 Recon Group	3 B-17's	Blida	S. France

APPENDIX 'B'

REQUIREMENTS, AVAILABILITY AND ALLOCATION OF SPECIAL OPERATIONS AIR SORTIES - 15 February 1944

	FEBRUARY			MARCH			APRIL			MAY		
	Required	Allotted	Available	Required	Allotted	Available	Required	Allotted	Available	Required	Allotted	Available
South France	70	70	70	120	120	120	130	130	130	130	130	130
N. Italy	30	30		30	30		30	30		30	30	
Poland	10	10		30	30		44	44		?	* Balance to be allotted later.	
Greece	28	28		28	28		40	28		40		
Yugoslavia	80	80		80	100		80	80		80		
Albania	12	12		10	10		10	10		10		
Bulgaria	20	20		30	29		40	32		50		
Roumania	—	—		—	3 (other Balkan Countries)		—	—		—		
Hungary	—	—		—	—		—	—		—		
Czechoslovakia	—	—		—	—		—	—		—		
SUB-TOTAL	180	180	180	312	230	230	244	224	224	?	?	?
TOTAL	250	250	250	432		350	374		354	?		?

NOTES:
1. Availability figures for S. France, and all other areas combined, are shown separately in view of the location of the aircraft. - BLIDA
2. Resources of 334 Wing, 51 Troop Carrier Wing, Italian aircraft, 68 Ron Group, 1586 (Polish) Flight are included.
3. Requirements for BALKANS are based on ME estimates (cable 3600, 8 Feb), for S. France and N. Italy on figures submitted by ISSU-6 and OSS and approved by G-3 (Special Operations).
4. Availability figures are based on JCS/117, 11 Feb. Air Marshal Slessor to AFHQ.
5. For March allowance had to be made for 100 sorties to Greece to support Operation NOAH'S ARK. In fact these sorties were not required and were redistributed to the BALKANS as shown above.

APPENDIX 'C'

SPECIAL OPERATIONS AIRCRAFT

(Operating from Med. Theatre)

SUMMARY OF RESULTS

1-29 February, 1944

AREA	SUB AREA	ALLOTTED	SUCCESSFUL	% OF SCHEDULE ACCOMPLISHED
	Yugoslavia	80	31	38
	Greece	28	11	48
	Albania	12	14	116
	Bulgaria	20	1	5
BALKANS		140	57	40
	Sorties attempted	80	Successful 57 or 71%	
N.ITALY		30	13	43
	Number of sorties attempted are not available.			
S.FRANCE		70	7.5	10.7
	Sorties attempted	28	Successful 7.5 or 26%	
POLAND	Number of sorties attempted are not available			
		10	Nil	Nil

SORTIES FOR MARCH

1-21 March Incl.

COUNTRY	SORTIES ALLOTTED 1-31 March	SORTIES SUCCESSFUL 1-21 March	% OF SCHEDULE ACCOMPLISHED
GREECE	28	57	203
ALBANIA	10	11	110
YUGOSLAVIA BULGARIA	100 29	83	64
ITALY	30	28	93
FRANCE	120	41	33
POLAND	30	1	3
OTHER COUNTRIES	3	1	33
TOTALS	350	222	63

This document was considered at C.O.S. (44) 137th Meeting (O) 3.

C.O.S. (44) 343 (O)

16TH APRIL 1944

WAR CABINET

CHIEFS OF STAFF COMMITTEE

COASTERS FOR FAR EAST OPERATIONS

Report by the Admiralty

The Chiefs of Staff Committee at their meeting[ø] on 23rd March invited the Admiralty in conjunction with the Ministry of War Transport, to examine as a matter of urgency and to submit by the 15th April 1944 a report on the output and rate of construction that could be achieved under a programme for building coasters suitable for operations in the South-East Asia Command, taking into account the possibilities of building in Australia and Canada and of obtaining assistance by building in the U.S.A.

2. The Ministry of War Transport, after consultation with the Merchant Shipbuilding Department of Admiralty only as to what merchant ship building yards in U.K., at present used for Naval construction, are likely to be released for the construction of Merchant Shipping, have made a report attached at Annex.

3. The use of Naval berths, which are not taken into account in the Ministry's report, has been examined by the Admiralty and it is expected that some 10 slips may become available for production of coasters of types A and B and thus would enable the completion of 10 vessels during 1945 in addition to the production possibilities in U.K. reported on by the Ministry. The release of these Naval berths, however, is subject to the following:-

(a) No special requirements arising out of losses in OVERLORD.

(b) No requirements for Naval construction beyond the 1944 programme now under consideration.

(c) No "follow on" programme of L.S.Ts at the yards concerned.

(d) That the factors affecting production enable present dates of ships on the berths in view to be kept.

ø C.O.S. (44) 98th Meeting (O), Minute 6

4. CONCLUSIONS -

(a) Subject to unforeseen factors the release of Naval berths should enable 10 coasters of type A and B to be constructed in the U.K. during 1945 in addition to those referred to in the Ministry of War Transport's report.

(b) There is no possibility of constructing coasters of types A and B which will be completed in time to meet S.E.A.C's requirements in March 1945.

The Ministry of War Transport's report indicates:-

(c) That a further 14 coasters of types A and B and 36 coasters of type C (including 21 of the M. of W.T. standard type) might be completed in the United Kingdom during 1945 in Merchant Shipbuilding yards, apart from any assistance which might be obtained from Canada and the United States.

(d) Australia is a possible source of construction for the remainder of the type C coasters and enquiries are being pursued as to how many can be built there.

(e) It is unlikely that S.E.A.C's requirement for operations in the Spring of 1945 can be met by new construction and only a small proportion by existing tonnage of suitable craft.

TO SUMMARISE

(f) The prospects are a total of 24 coasters of types A and B, 36 Coasters of type C (including 21 M. of W.T. type) to be completed during 1945 apart from any arrangements that can be in Canada, Austria or U.S.A.

Offices of the War Cabinet,
S.W.1.,

16TH APRIL, 1944

ANNEX

COASTERS FOR FAR EAST OPERATIONS

REPORT BY THE MINISTRY OF WAR TRANSPORT

TERMS OF REFERENCE

1. The Chiefs of Staff Committee at their meeting on the 23rd March, 1944, invited the Admiralty, in conjunction with the Ministry of War Transport, to examine as a matter of urgency and to submit by the 15th April, 1944, a report on the output and rate of construction that could be achieved under a programme for building coasters suitable for operations in the South East Asia area, taking into account the possibilities of building in Australia and Canada and of obtaining assistance by building in the U.S.A.

2. The Committee also invited the Ministry of War Transport to make a review of the numbers and employment of existing ships which would be suitable for this purpose.

3. The following report has been prepared after preliminary consultation with the Merchant Shipbuilding Department of the Admiralty.

REQUIREMENTS

4. Detailed figures of requirements in the South East Asia area have been received from S.E.A.C. as follows:-

Type A	Approximate size	3,000 tons deadweight
	Number required	24
Type B	Approximate size	1,200 tons deadweight
	Number required	31 (excluding hospital ships)
Type C	Approximate size	300/400 tons deadweight
	Number required	82

(of which number S.E.A.C. is willing to accept 21 of standard type now under construction in the U.K.).

5. It is assumed that operations will not take place in South East Asia before March 1945, and that these coasters would be required from that date onwards for maintaining the sea lines of communication after the assault.

6. It should be emphasised that the preceding paragraphs relate only to the requirements of the South East Asia Command, as the numbers and types of coasters required to implement a South West Pacific strategy would probably be very different.

EXISTING SHIPS

7. Nearly all the small ships formerly employed in Far Eastern waters were coal burners relying upon the Chinese coalfields for their supplies. As these coal supplies will not be available S.E.A.C. has correctly asked that all ships for use in South East Asia should be oil burners. A preliminary survey indicates that the number of oil burners of a suitable type remaining is small. These are all employed in essential services - either civil or military - and would have to be replaced by other suitable tonnage before they could be made available to S.E.A.C. This applies particularly to the ships that are in service in Australian waters under Australian or American control. Efforts will be made to assemble the maximum number of suitable ships in the Indian Ocean but this will be a slow process and it is considered that no substantial contribution can be expected from this source.

NEW BUILDING RESOURCES (MERCHANT SHIPBUILDING)

United Kingdom

8. The constructions of coasters of the required types at the expense of ocean-going merchant ships (fast cargo liners, tramps and tankers) is considered to be unacceptable in view of the small amount of British construction and the large deficiency in British shipping services. Examination of U.K. resources has therefore been confined to the berths at present building vessels of not more than 5,000 tons deadweight.

9. If a building programme were undertaken on berths of this type entirely without regard to the effect on other requirements, 1 coaster of Type A and 7 of Type B could be completed in the first half of 1945. Between 1st July and 31st December 1945, it would be possible to produce a further 5 coasters of Type A and 15 of Type B. The entire cessation of output of U.K. coasters, including coasting tankers, could not be accepted, in view of the need for vessels of these types, the losses to be expected in OVERLORD, and the increasing requirements.

10. If, after OVERLORD has been successfully launched, the losses of U.K. coasters are found to be lighter than is now anticipated, the Ministry of War Transport would agree to consider building some coasters of the types required by S.E.A.C. provided it was clearly understood that, until the termination of the European war, it would be necessary to employ them in support of operations in Europe. The utmost that could be contemplated would be the substitution of one half of the normal programme by the new type and this would allow of the building of about 14 coasters of Types A or B by the end of 1945.

11. As regards Type C, the 21 standard M.W.T. coasters can be produced before the end of 1945, and, subject to the termination of the war in Europe permitting, could be made available for use in South East Asia. Of the other 61 vessels of this size, some 15 might be produced in the U.K. at the expense of:-

7 small coasters
1 Coasting tanker
7 Ship tugs.

It would be preferable to build these small craft nearer to the theatre of war owing to the difficulties of delivery, apart from any other consideration, but if this proves to be impossible the Minister of War Transport will review the situation again after OVERLORD.

12. It will be seen, therefore, that at the best, S.E.A.C's requirements might be met from U.K. resources by the end of 1945, only to the extent of some 14 coasters of Types A or B and some 36 of Type C (including 21 of standard M.W.T. type in lieu).

Canada

13. In view of Canada's existing Naval and merchant shipbuilding commitments, together with the pressure already put upon the Canadian shipbuilding authorities to produce coasters and tugs for OVERLORD, it is unlikely that Canada could begin to make any contribution towards meeting S.E.A.C's requirements before the end of 1944, and that any contribution in 1945 would be small. The requirement is, however, being brought to the notice of the Canadian authorities and a further report will be made.

Australia

14. The Australian shipbuilding authorities have been asked by the Ministry of War Transport to concentrate on the building of ships of 4000/6000 tons deadweight. Any suggestion that they should now build coasters of Types A and B might interfere with production and would in any event produce only a negligible number of coasters of the types required.

15. Australia is now building coasters of Type C, mainly for the U.S. Army. Engines for these vessels have to be supplied from the U.S.A. or the U.K. Supplies from the U.S.A. have proved to be negligible and it is believed that the resultant delay in deliveries of completed ships as well as the forward movement of the U.S. Naval and Military forces may have resulted in the U.S.A. losing interest in Australia as a source of production. Enquiries are being pursued in the hope of arranging for production to be continued on British account, provided that the engines are supplied from the U.K.

U.S.A.

16. The types of coasters now being built in the U.S.A. are not suitable for meeting S.E.A.C's requirements and very strong pressure would be necessary to persuade the U.S. shipbuilding authorities to make any alteration in types to be produced over the balance of 1944. On the other hand, it may prove to be possible to persuade them to build coasters of types A and B in the 1945 construction programme. Preliminary enquiries are being made through the British Merchant Shipping Mission but a strong case would need to be put forward through the Combined Chiefs of Staff to obtain any definite results.

17. It is understood that the Admiralty will report separately about the feasibility of producing coasters of the type required by S.E.A.C. on Naval shipbuilding berths and Merchant Shipbuilding berths now used for Naval Construction.

CONCLUSIONS

18. (i) It is unlikely that more than a small proportion of S.E.A.C's requirements can be met from existing tonnage.

(ii) It is clear that S.E.A.C's requirements cannot be met in full even by the end of 1945 by new building in the U.K. Arrangements might, however, be made to build about 14 coasters of Types A and B in the U.K. by the end of 1945 subject to OVERLORD being successfully launched without coaster losses heavier than those at present expected.

(iii) Efforts will be made to obtain additional coasters of Types A and B by building in the U.S.A. and possibly Canada.

(iv) As regards type C up to 36 (including 21 M.W.T. standard coasters) might be produced in the U.K. by the end of 1945. The only other possible source appears to be Australia, and enquiries are being pursued with a view to ascertaining how many of this type could be built there.

(v) Until the termination of the War in Europe, the diversion of any coasters from the European theatre, even those suitable for S.E.A.C., will probably be unacceptable.

RESTRICTED CIRCULATION

C.O.S.(44) 344(O)

16TH APRIL, 1944

WAR CABINET

CHIEFS OF STAFF COMMITTEE

"CROSSBOW"

15th Progress Report by the Deputy Chief of the Air Staff

(Previous Reference C.O.S.(44) 313(O))

Classification of "Ski" Sites

61 sites are now classified as Category A, 4 sites having been repaired during the past fortnight. Of the remaining 35, 33 are scheduled for attack by the Tactical Air Forces and the Eighth Air Force.

2. The state of structural completion of the 35 sites in Category B, C and D is as follows:-

90 - 100%	9
80 - 89%	12
70 - 79%	7
60 - 69%	3
50 - 59%	1
Under 50% or apparently abandoned	3
	35

Attack of "Ski" Sites

3. During the period 2nd - 15th April, bad weather conditions prohibited any sort of operations against "Ski" sites on 7 days; on the remaining 7 days operations were restricted to small scale attacks by Fighter and Medium Bombers, mainly by reason of cloud conditions. A statement of sites attacked and bomb tonnage dropped is given below, details being shown in Annex III.

	No. of Sites Attacked	Bomb Tonnage Dropped
TACTICAL AIR FORCES	14	252

4. Since the commencement of operations against "Ski" sites 96 sites have been attacked and 16,188 tons of bombs dropped.

Results of Attacks on "Ski" sites

5. (i) Results of attacks on "Ski" sites during the period 2nd - 15th April are as follows:-

CATEGORY A	Nil
CATEGORY B	3
CATEGORY C	2
CATEGORY D	1
NO COVER	8

(ii) Cumulative Results

15 sites, previously assessed as Category A, have been repaired and re-assessed in lower categories. Three of these have been attacked and made Category A again. Taking these re-assessments into account, and embodying the results of Paragraph 5 (i) above, the cumulative results to date are as follows:-

CATEGORY A	61
CATEGORY B	24
CATEGORY C	11
CATEGORY D	Nil

Potential Fire Power of "Ski" Sites

6. In C.O.S.(44) 261(O) of the 16th March an estimate was made of what might be the potential fire power of the "Ski" sites as at the middle of April. It was calculated that any site over 60% complete might be capable of firing at a rate dependent on its state of completion and the degree of damage inflicted. This estimate took into account Category A sites known to be under repair and nearing completion, and thus capable of operating by the date in question.

7. It was then estimated that the potential rate of fire at mid-April would be reduced to the equivalent of ten completed sites. This estimate was based on maintaining the rate of destruction which had been inflicted up to mid-March. This degree of destruction has, however, seriously fallen off since then, and the rate of repair has consequently improved.

8. The estimated fire power which might be developed in the near future is now estimated as approximately equivalent to that of 25 completed sites. This assumes, however, that pilotless aircraft are available in sufficient numbers and that all the necessary technical equipment and supplies have been provided at the sites. There is, however, no evidence to confirm this assumption. The previous and present estimates are illustrated in the diagram at Annex I.

9. During the period 14th March to 14th April, out of 32 days there have been no less than 13 on which it was impossible to carry out any operations; weather conditions being worse than any experienced during the winter. Furthermore, on the 19 days when it was possible to operate, out of the 1,983 sorties despatched against "Ski" sites, 54 proved to be abortive.

10. Other reasons for the reduced effort against "Ski" sites have been the need for operations against "E" and "R" Boat pens at IJMUIDEN, where the concrete structures were approaching completion and demanded immediate attacks. This involved the whole of the Ninth Bomber Command on one day when weather conditions over "Ski" sites were good. The need for immediate attacks against the large sites and certain important gun emplacements which were also approaching completion have to a lesser degree interfered with the weight of attack against "Ski" sites.

Attack of large sites

11. During the period attacks against large sites were carried out as shown below:-

	Attacks 2nd - 15th April	Bomb Tonnage Dropped
MIMOYECQUES	1 blind bombing	26
SIRACOURT	1 blind bombing	51
WATTEN	1 blind bombing	39
		116

12. The above attacks have resulted in the following damage to these sites:-

(i) MIMOYECQUES

At least three hits have been scored on the rectangular excavation, but the railway, which crosses it, has not been cut. Bombs have exploded in the mouths of three shafts in a line parallel to the long side of the excavation, completely destroying the shaft head gear in each case. Other bombs in this area have probably damaged light railway lines. The main railway access to the tunnel has not been interrupted on either side. Comparison of photographs taken on 11th and 13th April (those on the 11th being after the attack on that day) shows that activity had been resumed by the 13th. The excavation and the area round the shaft heads showed signs of having been tidied up. A train is seen in motion on the photographs of the 13th on the track leading to the rectangular excavation, and loaded trains are seen on the main line railway tracks near both entrances to the tunnel.

(ii) SIRACOURT

No fresh damage.

(iii) WATTEN

No fresh damage

13. Since operations against large sites commenced on the 31st January, 1944, 3,922 tons have been dropped in 39 attacks, and taking into account the results in the previous paragraph the damage is now classified as follows:-

CATEGORY W (more than 3 months to repair)	1	MARTINVAST
CATEGORY X (1½ to 3 months to repair)	2	LOTTINGHEM WIZERNES
CATEGORY Y (2 weeks to 1½ months to repair)	4	MIMOYECQUES SIRACOURT SOTTEVAST WATTEN
CATEGORY Z (No damage of importance)	Nil	

14. At Annex II is a Sketch map showing the reinforcements and re-distribution of flak defences of "Ski" site areas which have occurred since the 1st February 1944. The movement of light flak guns is more significant than the movement of heavy guns since the latter also provide area protection. It will be seen from the Sketch map that there has been a considerable increase in light flak at "Ski" sites during the period in question. The tendency to increase is continuing especially at sites which are in an advanced state of construction, or where repairs are proceeding.

Priority of attack of "Crossbow" sites

15. In accordance with the instructions of the Chiefs of Staff at their meeting on the 21st March when the 13th Report was considered, the Air Commander-in-Chief, A.E.A.F. was requested to intensify his attacks against "CROSSBOW" targets. A similar request was also made to the Commanding General U.S. Strategical Air Forces in Europe. They have both pointed out that weather conditions in particular have prevented a great degree of effort being applied to this task.

16. Since that date the direction of operations of the Strategical Air Forces out of England has been transferred to the Supreme Commander, Allied Expeditionary Force. On the 15th April, 1944, the Deputy Supreme Commander, Allied Expeditionary Force held a meeting with the Strategical Air Force Commanders and the Air Commander-in-Chief, A.E.A.F. at which the priority accorded to "CROSSBOW" was discussed. It was confirmed that for the present the task of neutralising the "CROSSBOW" menace took priority next after "POINTBLANK" and before the Transportation Plan, both in the operations of the Eighth Air Force and of the Allied Expeditionary Air Forces. It was also agreed that special effort should be applied whenever suitable weather conditions allowed, so that the menace should be minimised to the maximum possible extent before the more urgent tactical needs of "OVERLORD" arose.

17. The order of priority as between large sites and the "Ski" sites is as set out in Annex III, and it is recommended that this should remain unchanged for the time being.

Offices of the War Cabinet,
S.W.1.
16TH APRIL, 1944.

C.O.S.(44) 93rd Meeting(O)

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