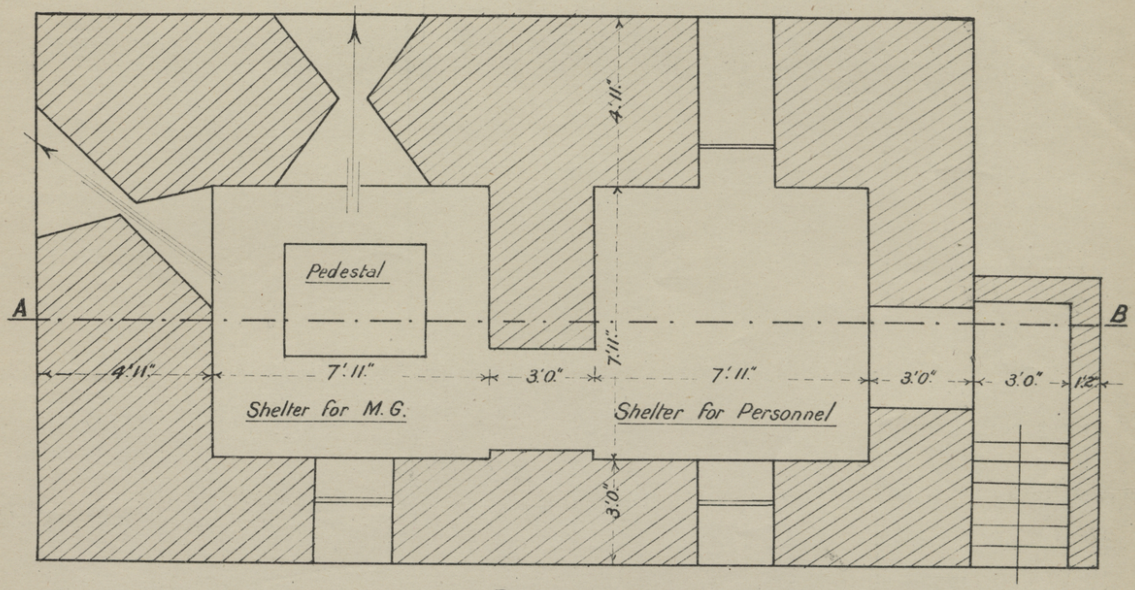
GERMAN FIELD WORKS.
PLATE 63

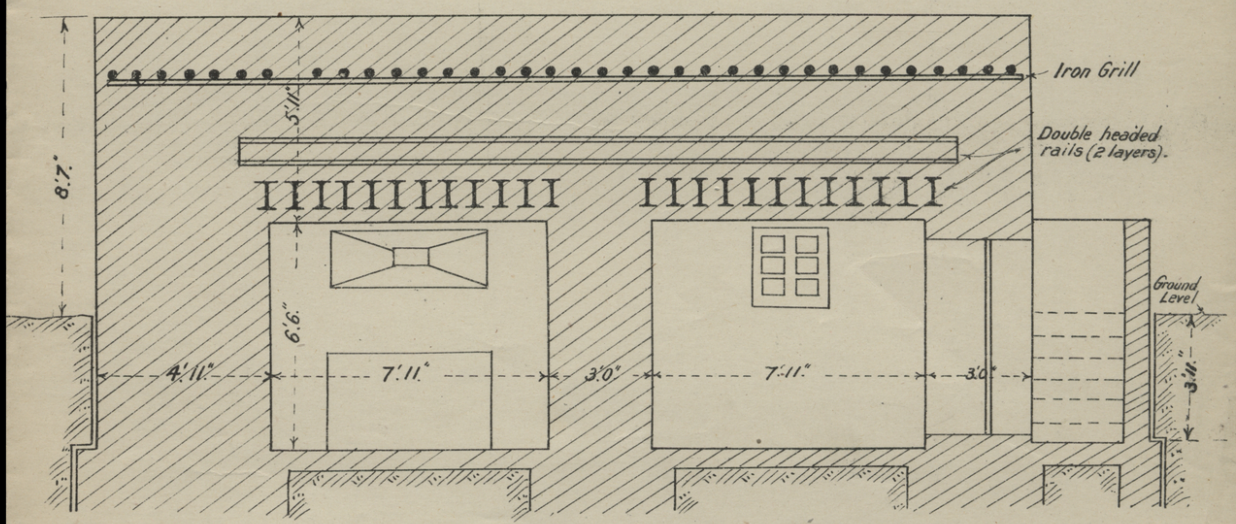
CONCRETE MACHINE GUN EMPLACEMENT

TYPE USED IN THE LEKE-KEYEM POSITION (N. OF DIXMUDE)

FIRST FRENCH ARMY, FROM SKETCH BY A GERMAN DESERTER (SAPPER)



PLAN.



SECTION A.B.

NOTE: Some shelters are 6'.10" square instead of 7'.11".
The depth of the shelter varies with ground.
Some shelters have two shelters for M.G. side by side, with one shelter for personnel.

ARMY PRINTING AND STATIONERY SERVICES A—7/17—

Drawn by F.G. Newcomb, 2nd Cpl. RE.

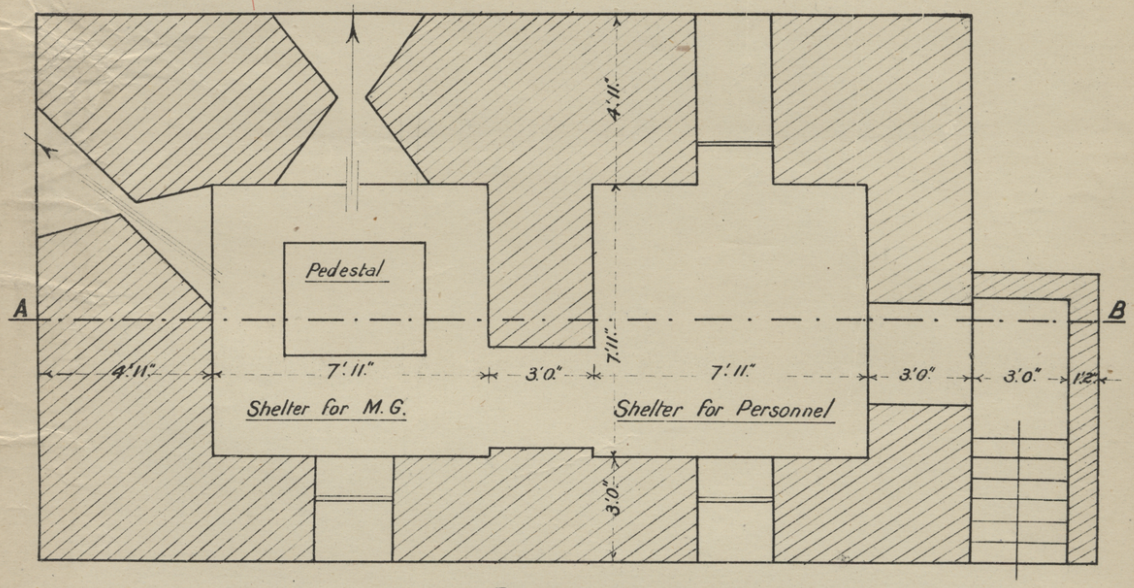
AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

GERMAN FIELD WORKS.
PLATE 63

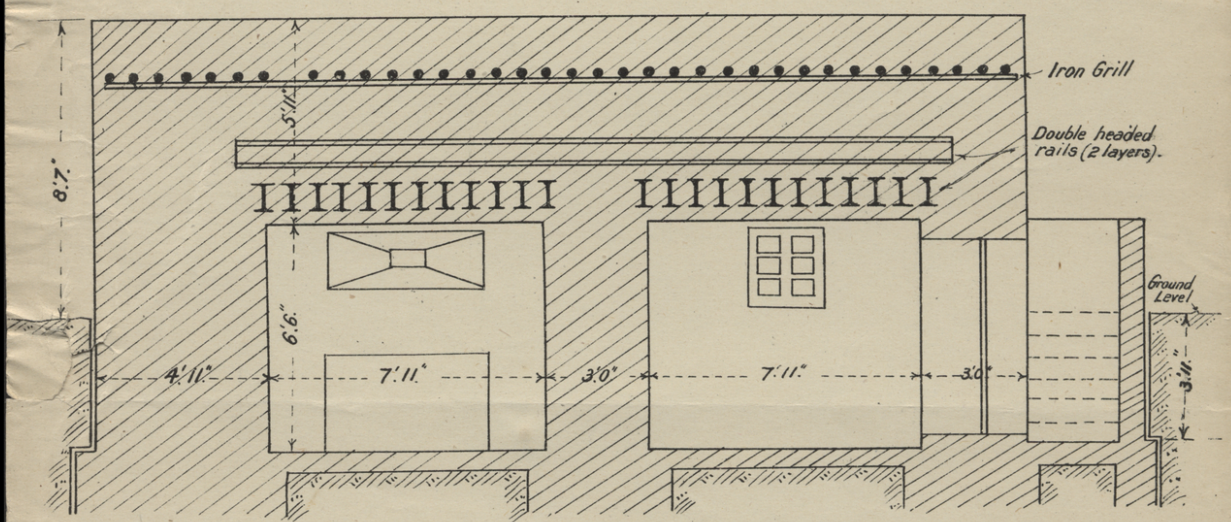
CONCRETE MACHINE GUN EMPLACEMENT

TYPE USED IN THE LEKE-KEYEM POSITION (N. OF DIXMUDE)

FIRST FRENCH ARMY, FROM SKETCH BY A GERMAN DESERTER (SAPPER)



PLAN.



SECTION A.B.

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ARMY PRINTING AND STATIONERY SERVICES A—7/17—

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1st Tunn Coy. 1918 3202

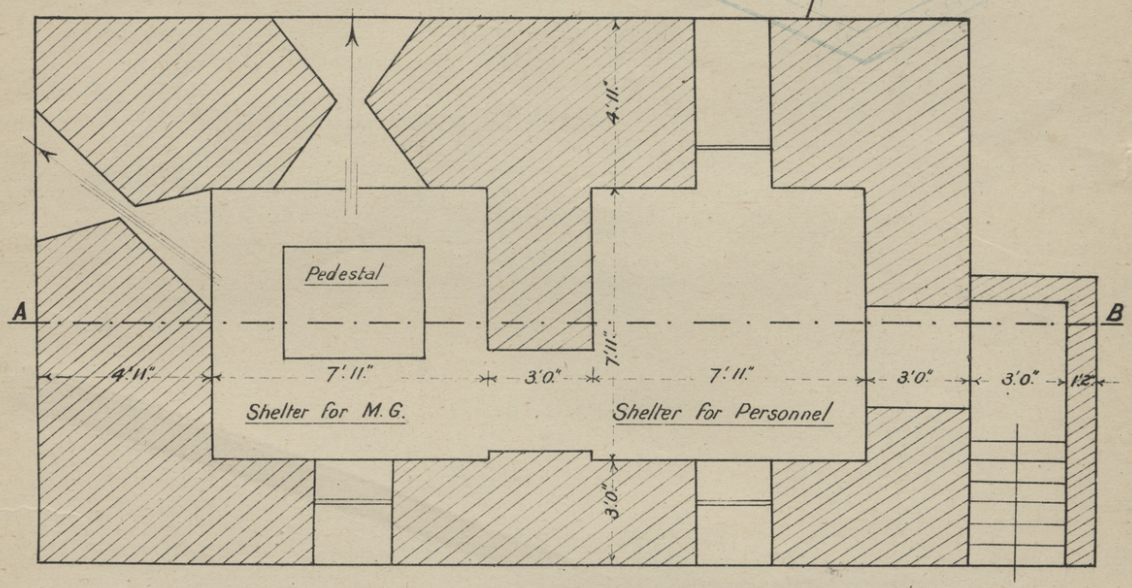
GERMAN FIELD WORKS
PLATE 63

CONCRETE MACHINE GUN EMPLACEMENT

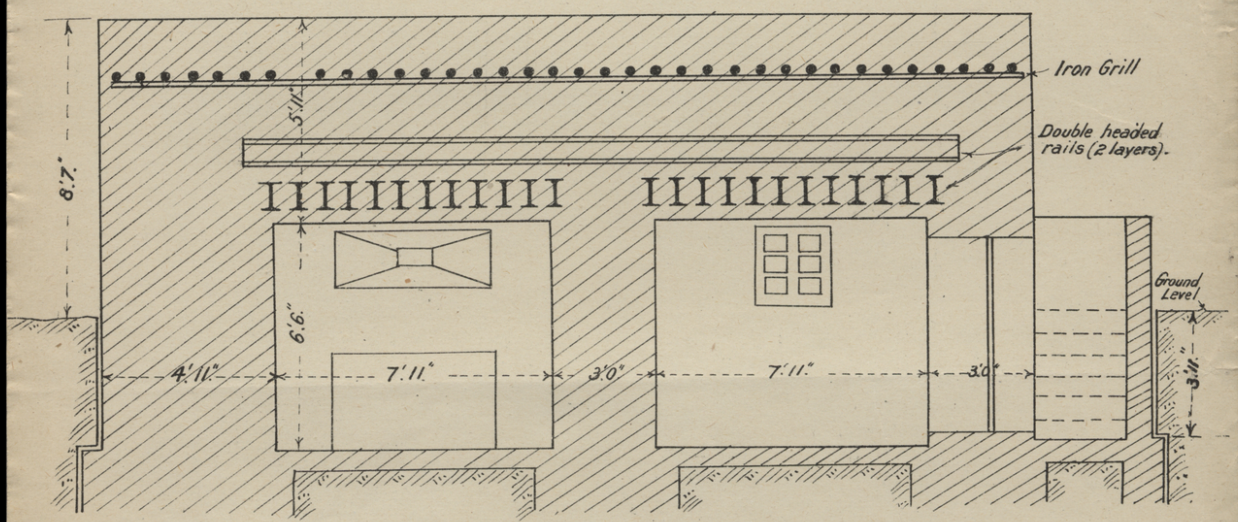
TYPE USED IN THE LEKE-KEYEM POSITION (N. OF DIXMUDE)

FIRST FRENCH ARMY, FROM SKETCH BY A GERMAN DESERTER (SAPPER)

AUSTRALIAN WAR RECORDS SECTION
359 6 51



PLAN.



SECTION A.B.

NOTE: Some shelters are 6'10" square instead of 7'11".
The depth of the shelter varies with ground.
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ARMY PRINTING AND STATIONERY SERVICES A—7/17—

AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

AUSTRALIAN WAR RECORDS SECTION
359/6/51

5 Bde 370.2

GERMAN FIELD WORKS.
PLATE 63

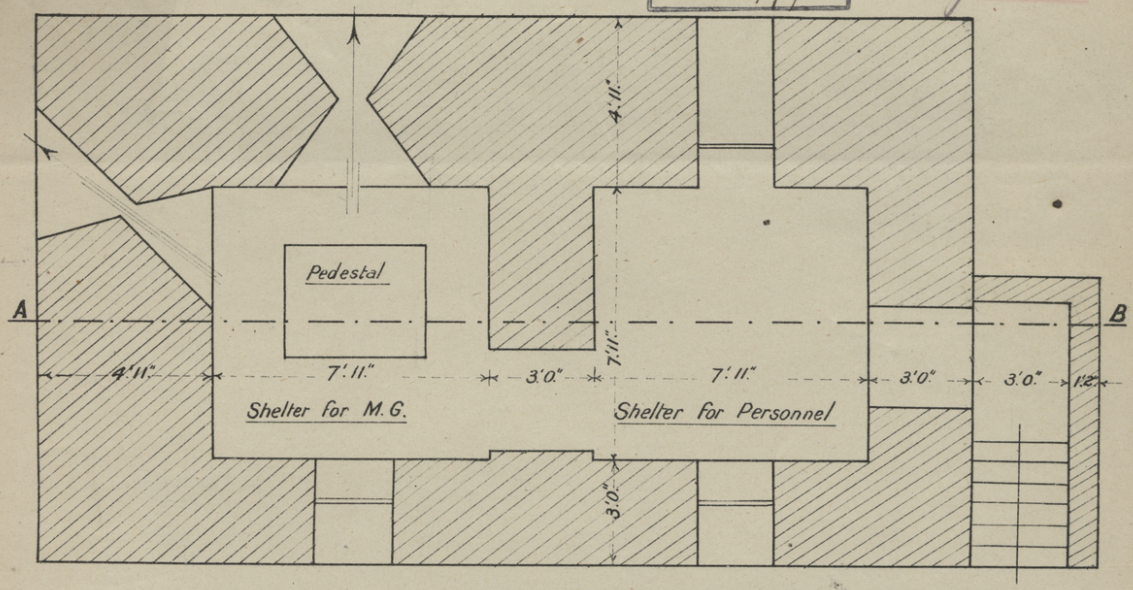
CONCRETE MACHINE GUN EMPLACEMENT

TYPE USED IN THE LEKE-KEYEM POSITION (N. OF DIXMUDE)

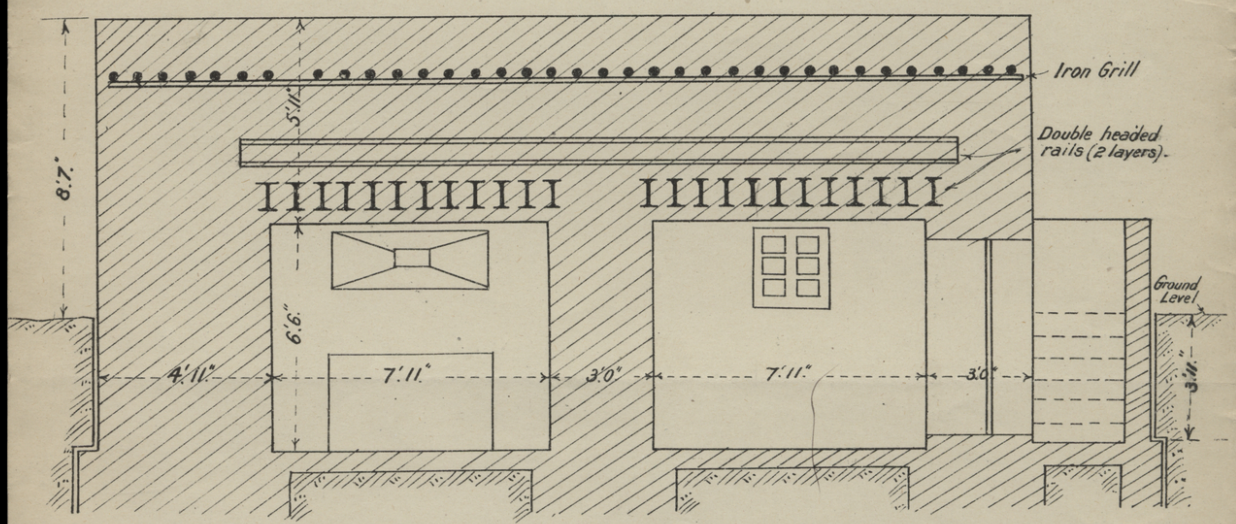
FIRST FRENCH ARMY, FROM SKETCH BY A GERMAN DESERTER (SAPPER)

5TH AUSTRALIAN INFANTRY BRIGADE.
No. 7/186
Date 12/9/17

HEADQUARTERS, 2nd AUSTRALIAN DIVISION. (GENERAL STAFF.)
G25/223



PLAN.



SECTION A.B.

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The depth of the shelter varies with ground.
Some shelters have two shelters for M.G. side by side, with one shelter for personnel.

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ARMY PRINTING AND STATIONERY SERVICES A—7/17—

AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

320.2

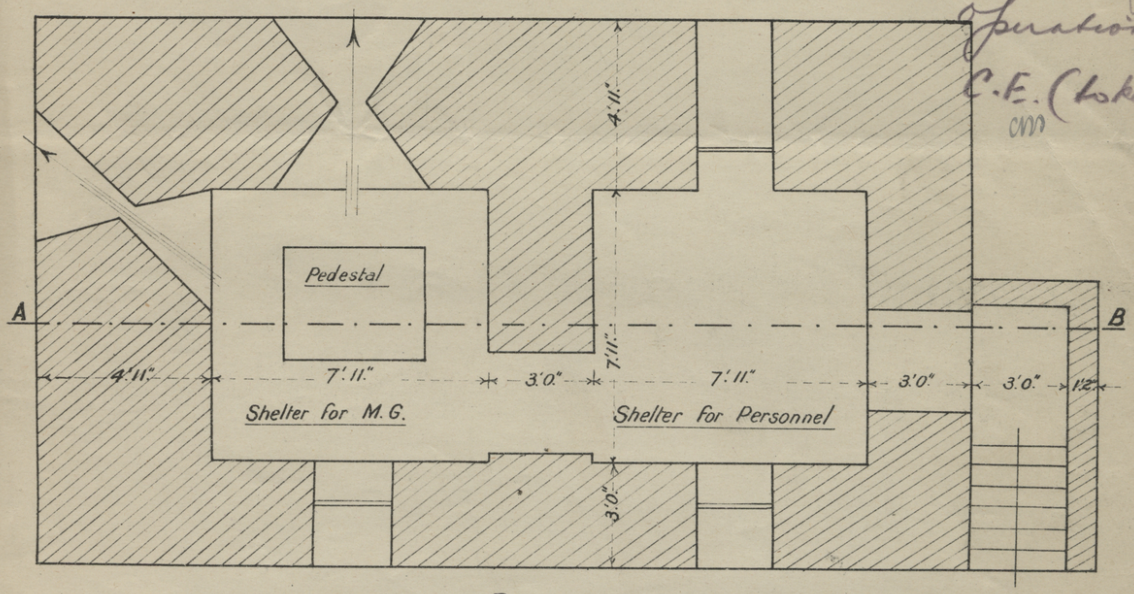
GERMAN FIELD WORKS.
PLATE 63

CONCRETE MACHINE GUN EMPLACEMENT

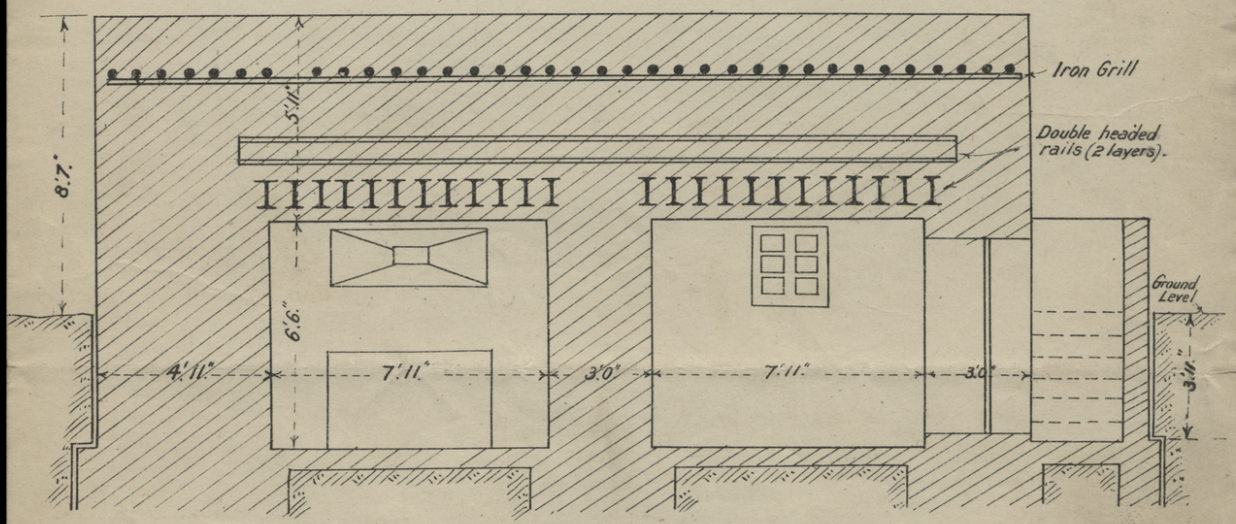
TYPE USED IN THE LEKE-KEYEM POSITION (N. OF DIXMUDE)

FIRST FRENCH ARMY, FROM SKETCH BY A GERMAN DESERTER (SAPPER)

G.O.C.
W.S. O.C.R.E.
B.G.S.
Operations
C.E. (Works)



PLAN.



SECTION A.B.

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ARMY PRINTING AND STATIONERY SERVICES A—7/17—

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AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

320.2

MINED DUGOUTS

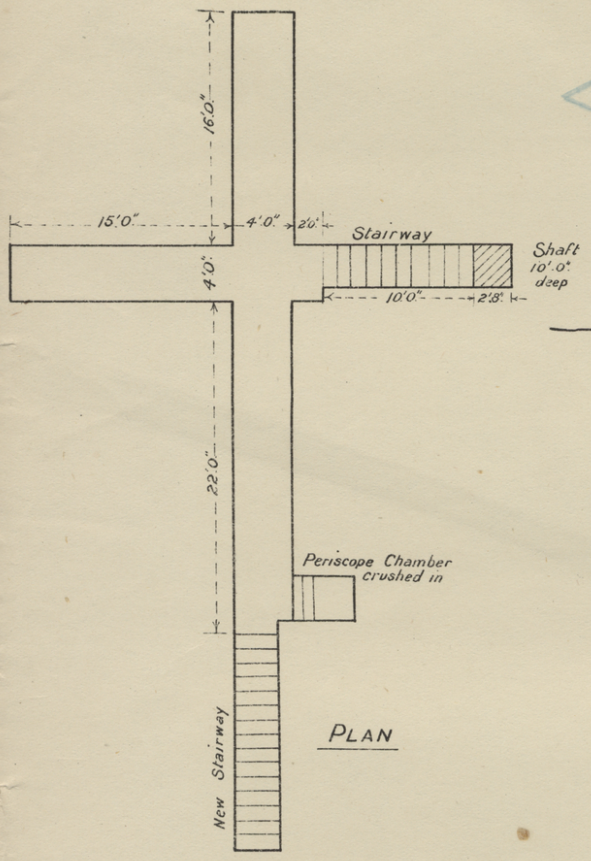
NEAR WYTSCHAETE, JUNE 1917.

To show multiplication of entrances.

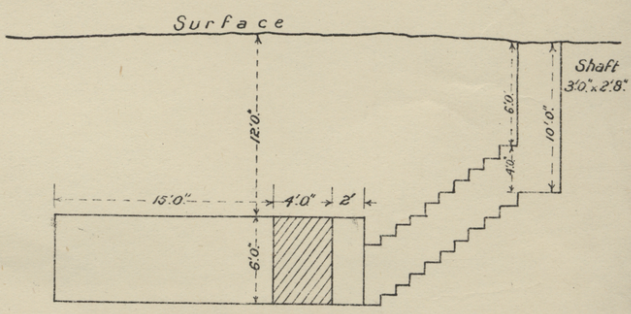
1st Tunn Coy
2378

NEAR THE HOSPICE, WYTSCHAETE.

AUSTRALIAN WAR RECORDS SECTION
359 S 170
SUB-SECTION

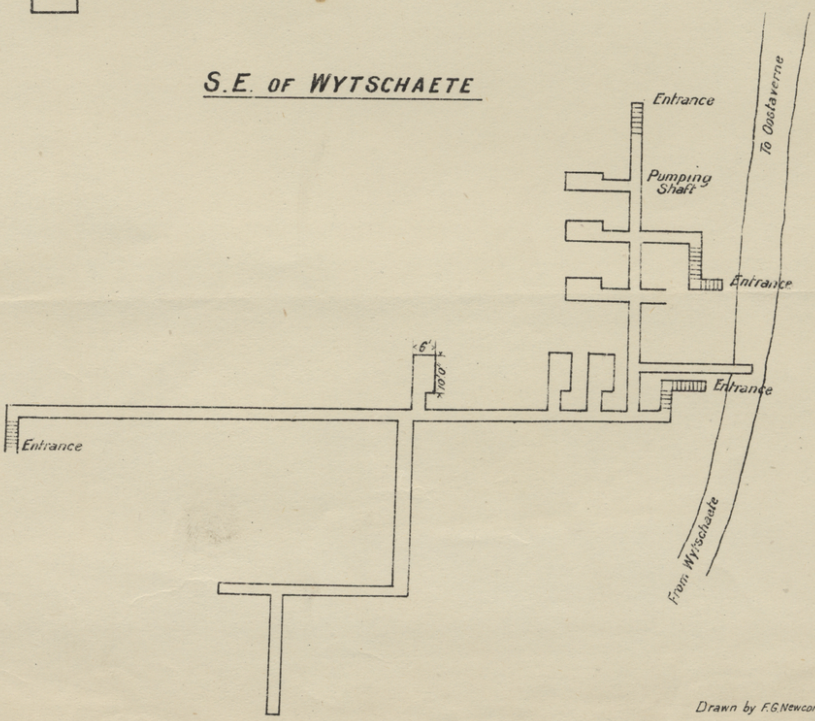


PLAN



SECTION

S.E. OF WYTSCHAETE



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AUSTRALIAN WAR MEMORIAL
AWM2022.1569.2706

MINED DUGOUTS

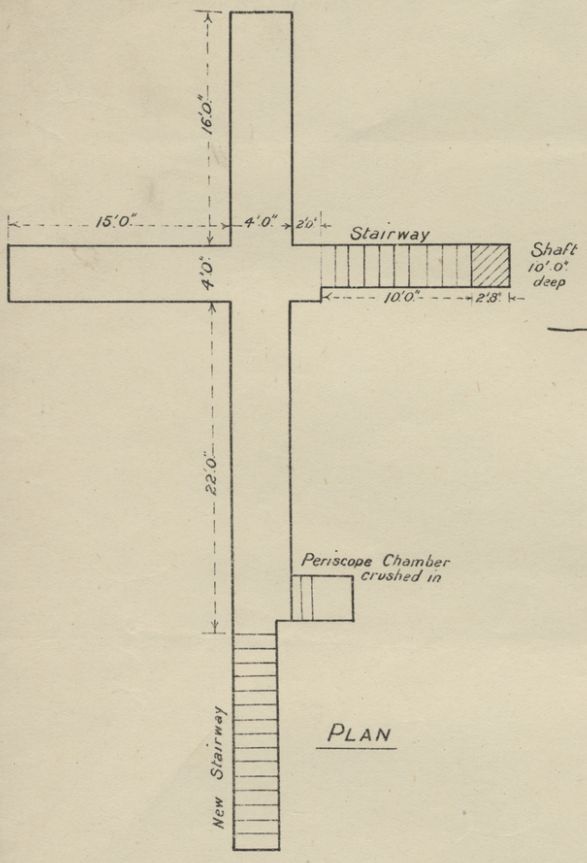
NEAR WYTSCHAETE, JUNE 1917.

To show multiplication of entrances.

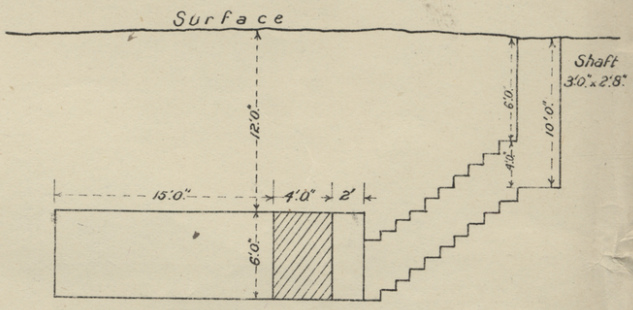
GERMAN FIELDWORKS.
PLATE 64.

AUSTRALIAN WAR RECORDS SECTION
C359 | 5 | 162
CLASSIFICATION SUB-SECTION

NEAR THE HOSPICE, WYTSCHAETE.

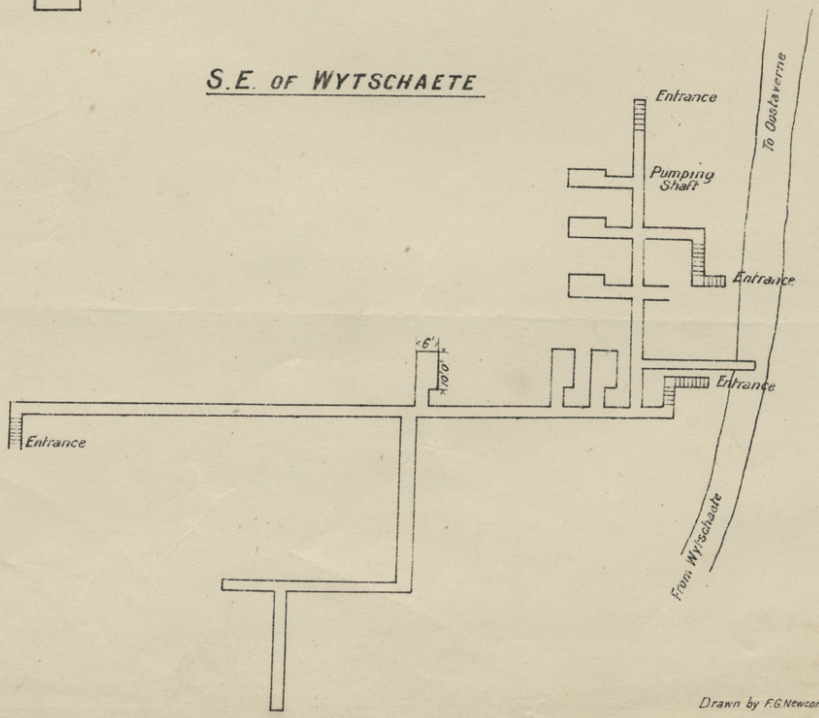


PLAN



SECTION

S.E. OF WYTSCHAETE



Drawn by F.G. Newcomb, 2nd Cpl, R.E.

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AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

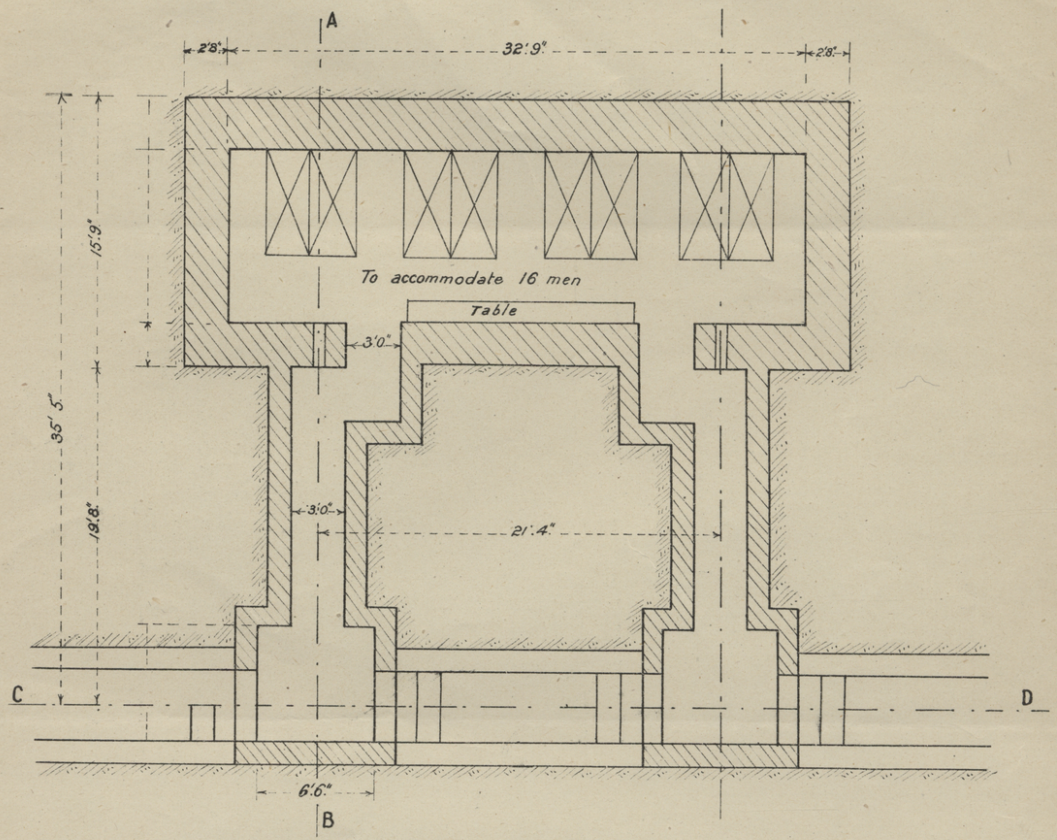
AUSTRALIAN WAR RECORDS SECTION

370.2

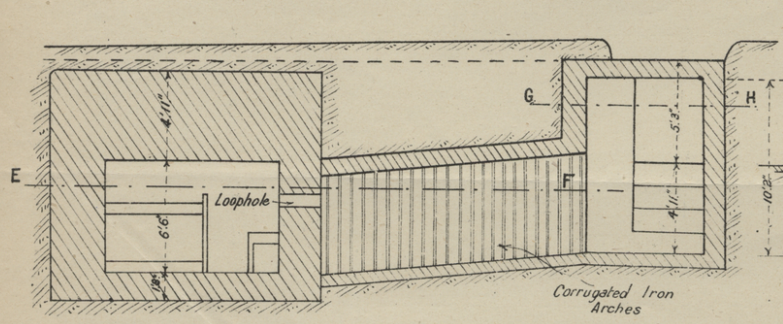
GERMAN FIELD WORKS.
PLATE 65

TYPE OF CONCRETE SHELTER IN THE SIEGFRIED LINE

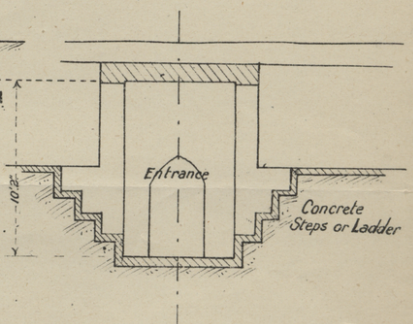
(FRENCH GROUPE D'ARMÉES DU NORD FROM RELIABLE SOURCES 30·6·17.)



PLAN ON LEVEL E.F.G.H.



SECTION A.B.



SECTION C.D.

Scale: 1/100.

Drawn by F.G. Newcomb,
2nd Cpl, R.E.

ARMY PRINTING AND STATIONERY SERVICES A—7/17—

AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

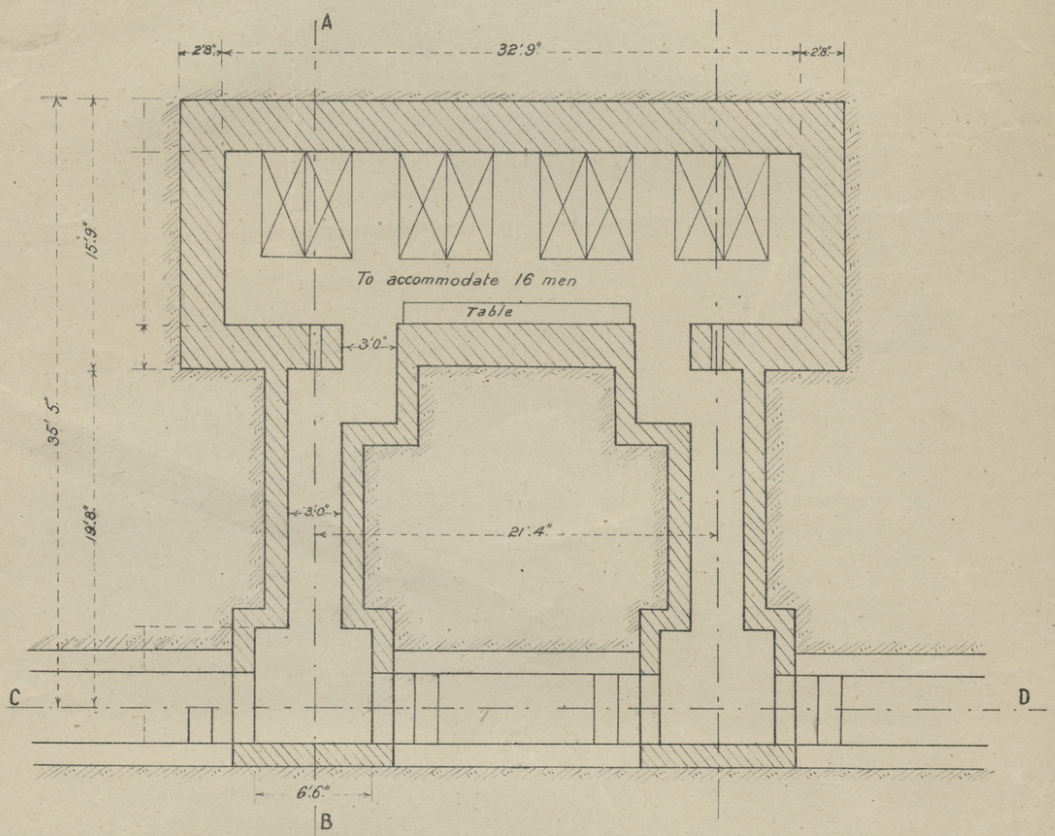
AUSTRALIAN WAR RECORDS SECTION
CLASSIFICATION
359/5/160

Lt. Gunn Coy. L378

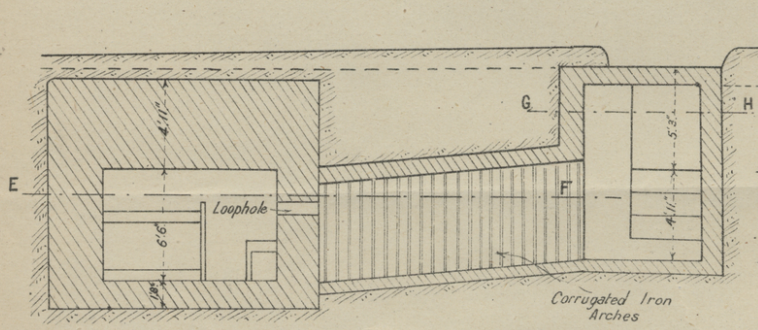
GERMAN FIELD WORKS.
PLATE 65.

TYPE OF CONCRETE SHELTER IN THE SIEGFRIED LINE

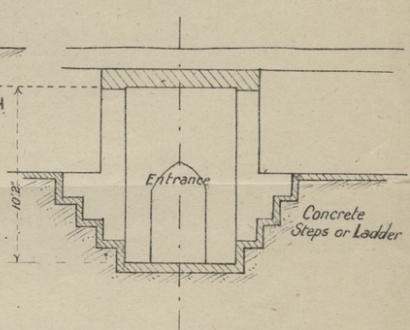
(FRENCH GROUPE D'ARMÉES DU NORD FROM RELIABLE SOURCES 30·6·17.)



PLAN ON LEVEL E.F.G.H.



SECTION A.B.



SECTION C.D.

Scale 1/100

Drawn by F.G. Newcomb,
2nd Cpl. R.E.

ARMY PRINTING AND STATIONERY SERVICES A—7/17—

AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

320.2

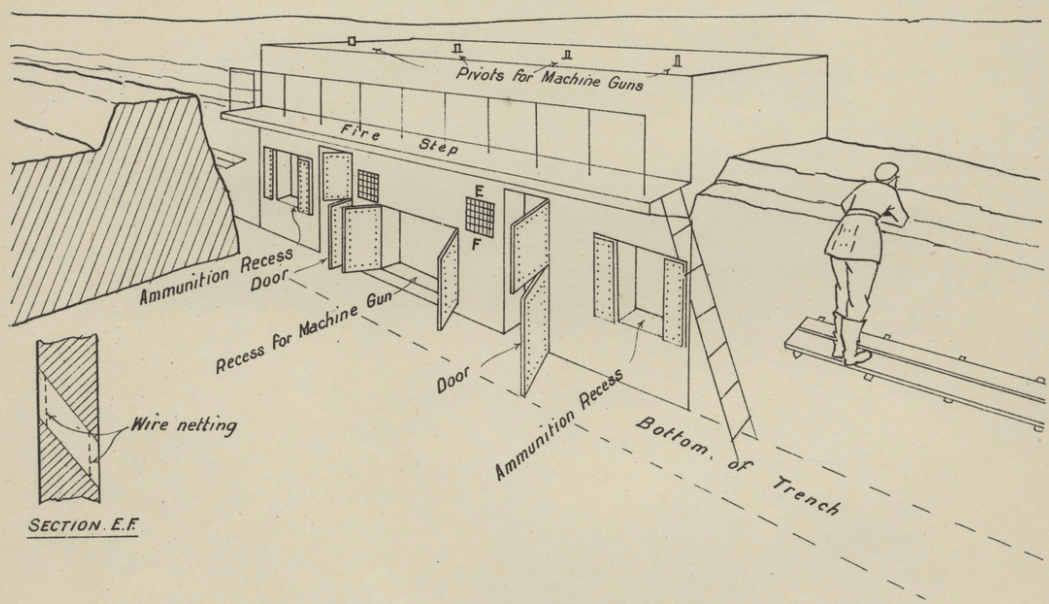
GERMAN FIELD WORKS.
PLATE. 66.

CONCRETE DEFENSIBLE POST (MEBU).

FIRST FRENCH ARMY, 21, JULY 1917.

From Statement of Prisoners.

AUSTRALIAN WAR RECORDS SECTION
C359 | 3 | 12
CLASSIFICATION



SECTION. E.F.

This pattern, said to have been built in May 1917, exhibits the following new features :-

(1) Pivots for 4 Machine Guns
(2) The windows of the Post are made obliquely in the concrete, and have two pieces of wire netting to prevent hand grenades being thrown in
(3) Guard rail to the fire step.

There are periscope chimneys (not shown) and the doors both of the shelters and the recesses are plated with 5 mm. steel as in earlier patterns.

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2nd Cpl, R.E.

AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

15th AUSTRALIAN INFANTRY BDE. 4/1930 1/35 4/1917

330.2

GERMAN FIELD WORKS.
PLATE 67.

DUGOUTS AND WIRE

FROM CAPTURED HECTOGRAPH, JULY 1917

359/5/170

HEAD QUARTERS ★ ARMY CORPS ★ A. & N.Z.

27/505

15th A.I. Bde. L 629.

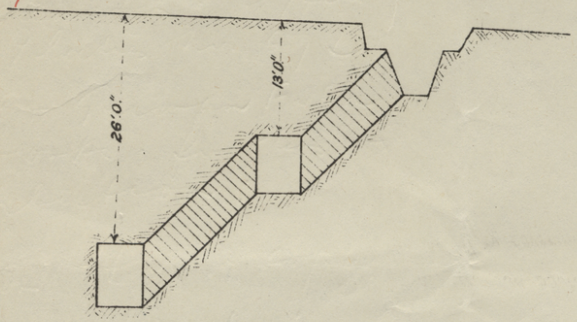
1. DUGOUTS

Suitable arrangement of shell proof

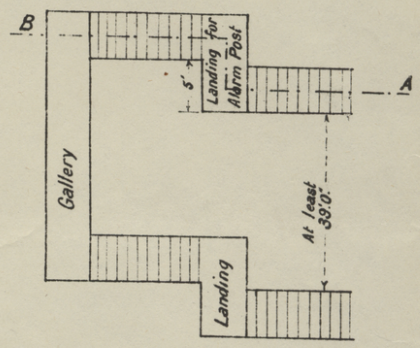
(a). ISOLATED SHELTER

Index 359/4

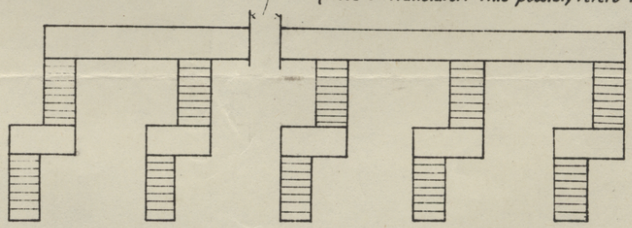
SECTION A.B.



PLAN

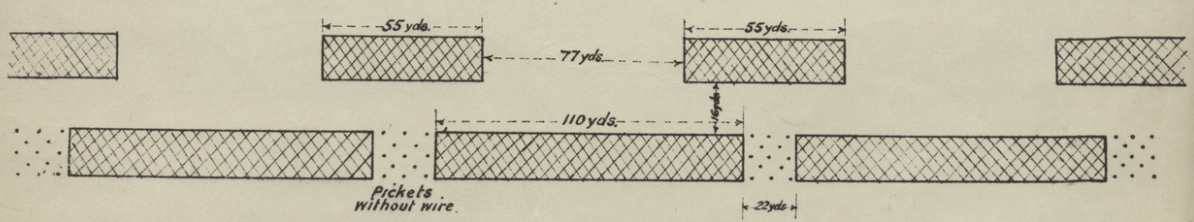


(b) GROUPS OF SHELTERS



2. OBSTACLES.

Suitable arrangement of continuous obstacles behind the front line; also in front of the first line of the Artillery covering position and all rearward positions.



NOTE: The gaps are not of fixed dimensions but should be varied to suit the requirements of the covered advance of storm troops.

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Drawn by F.C. Newcomb, 2nd Cpl., R.E.

AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

1st Leaf No 6
Q 298

AUSTRALIAN WAR RECORDS SECTION
359 5 152

GERMAN FIELD WORKS.
PLATE 67.

DUGOUTS AND WIRE

FROM CAPTURED HECTOGRAPH, JULY 1917.

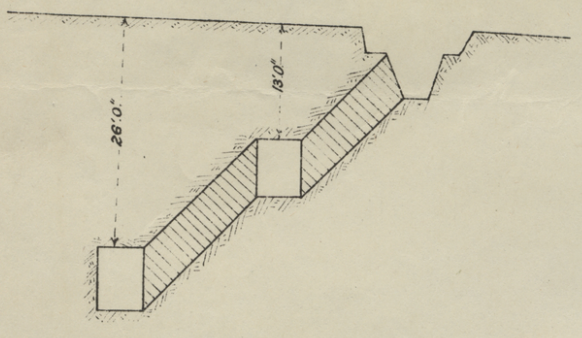
HEADQUARTERS, 1ST INFANTRY BRIGADE
No. 17886
9 SEP. 1917
AUSTRALIAN IMPERIAL FORCE

1. DUGOUTS

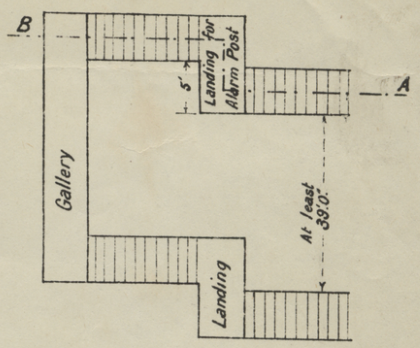
Suitable arrangement of shell proof

(a). ISOLATED SHELTER

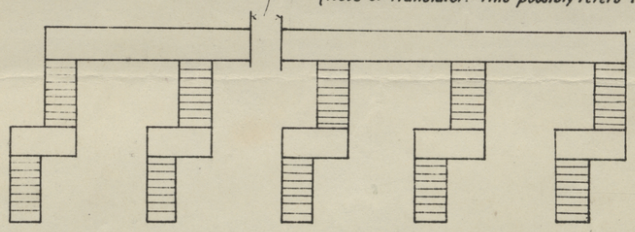
SECTION A.B.



PLAN

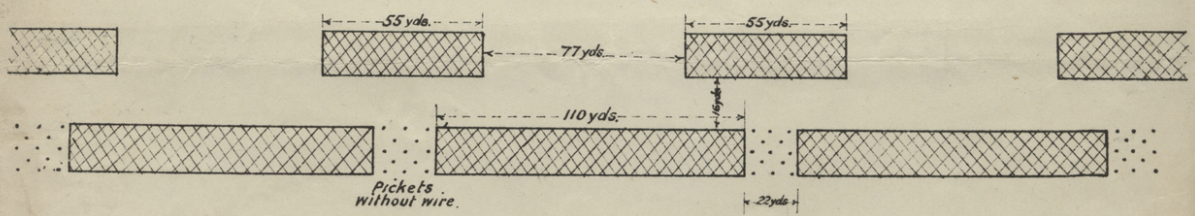


(b) GROUPS OF SHELTERS



2. OBSTACLES.

Suitable arrangement of continuous obstacles behind the front line; also in front of the first line of the Artillery covering position and all rearward positions.



NOTE: The gaps are not of fixed dimensions but should be varied to suit the requirements of the covered advance of storm troops.

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Drawn by F.C. Newcomb, 2nd Cl., R.E.

AUSTRALIAN WAR MEMORIAL
AWM2022.1569.2706

320.2

GERMAN FIELD WORKS.
PLATE 67.

DUGOUTS AND WIRE

FROM CAPTURED HECTOGRAPH, JULY 1917.

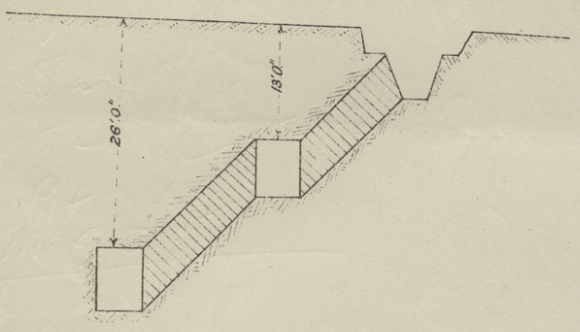
C359

1. DUGOUTS

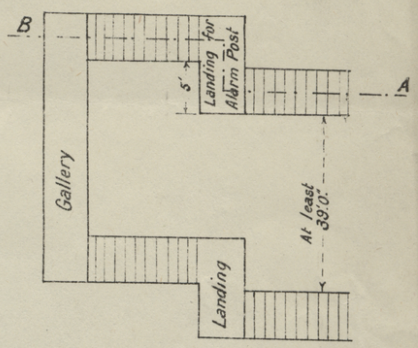
Suitable arrangement of shell proof

(a). ISOLATED SHELTER

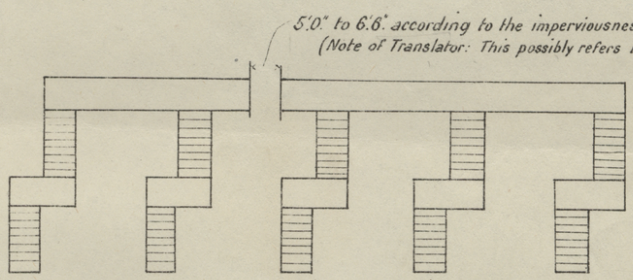
SECTION A.B.



PLAN

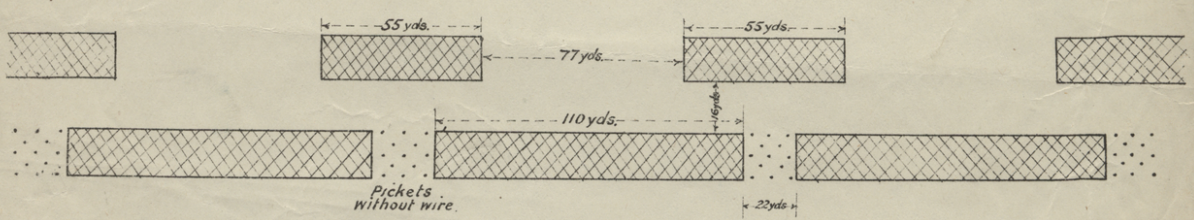


(b) GROUPS OF SHELTERS



2. OBSTACLES.

Suitable arrangement of continuous obstacles behind the front line; also in front of the first line of the Artillery covering position and all rearward positions.



NOTE: The gaps are not of fixed dimensions but should be varied to suit the requirements of the covered advance of storm troops.

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Drawn by F.C. Newcomb, 2nd Cl. R.E.

AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

1st Inf Bde
Q 298.
D
320.2
11/4/19

AUSTRALIAN WAR RECORDS SECTION
CLASSIFICATION SUB-SECTION
15 10 / D~~33~~ 7 / 10

To accompany German Fieldworks, Plate 68.

GERMAN BANGALORE TORPEDOES.

Three forms of enemy's Bangalore torpedoes have recently been reported. In two of them the handle portion of the "Stick" hand grenade was used as the firing device; in the third, a friction lighter similar to the one in the "Egg" hand grenade, with a length of safety fuze, was employed.

In two, the charge consisted of 1 kilo. packets of Perdit in damp-proof cardboard boxes (in one case with the addition of a few slabs of dynamite). In each packet there were three gaines filled with wax, any one of which after being cleared with a wooden prick punch can be used for the insertion of the detonator. In the third torpedo the charge was packed in a 3-inch zinc pipe.

1. The first torpedo (reported by 3rd Div. 27-7-17, *see* Figs. 1 and 2) was 9 ft. 6 ins. long, and consisted of ten 1 kilo. packets of Perdit, wired to a deal plank, and covered with a sheet of zinc painted black. At one end was the handle, with detonator, of a "Stick" grenade. The other end was blocked with wood. Packets Nos. 3 and 4, 5 and 6, 7 and 8 respectively were connected by a detonator.

Method of Ignition.—Remove screw cap from end of handle and pull the wire loop or button found in the recess under the cap. The safety fuze burns 5½ seconds.

To render Useless.—Remove the handle and extract all the detonators.

2. The second torpedo (reported by 502nd (Wessex) Field Coy. R.E., *see* Figs. 3 and 4) was 9 ft. 8 ins. long. This also contained ten 1 kilo. packets of Perdit, but with seven slabs of dynamite, interpolated between Nos. 1 and 2, packed in a wooden box. The bottom of the box was extended for the attachment of the firing apparatus, which consisted of two friction lighters with lengths of safety fuze connected to detonators in two of the gaines of the first packet of Perdit. As in (1), there were connecting detonators:—between packet No. 2 and the dynamite, between Nos. 5 and 6, and Nos. 8 and 9.

Method of Ignition.—Pull the wire loop of the friction lighter.

To render Useless.—Cut through the safety fuze, remove the friction lighters and the detonators.

3. The third torpedo (reported by the C.R.E. 35th Div., 22-7-17) consisted of a 7-ft. length of ordinary 3-in. zinc water-piping filled with an explosive which appeared to be Perdit.

One end of the pipe was plugged with clay, the edges of the pipe being pinched over to keep the plug in position. The other end of the pipe was closed by the firing apparatus, which consisted of an ordinary German "Stick" grenade. The lid of its tin cylinder was removed so that the charge in the grenade was in direct contact with the explosive in the torpedo. The handle of the grenade was carried separately. There were 19 lbs. of explosive in the torpedo, or about 2½ lbs. per foot run.

Method of Ignition.—In order to fire the torpedo, all that it is necessary to do is to screw in the wooden stick handle with its detonator fixed, and pull the string loop or button. The fuze burns 5½ seconds. The torpedo could be fired from cover by attaching a length of string to the loop or button on the grenade.

To render Useless.—Unscrew the handle and remove the detonator.

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AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

GERMAN BANGALORE TORPEDOES

TORPEDO Nº 1

Fig. 1.

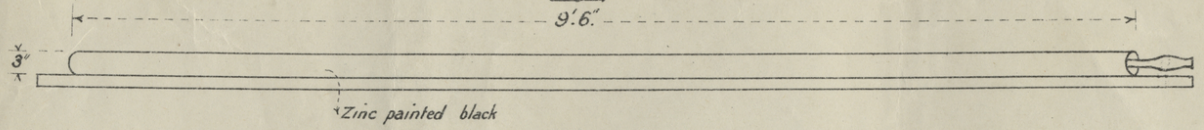
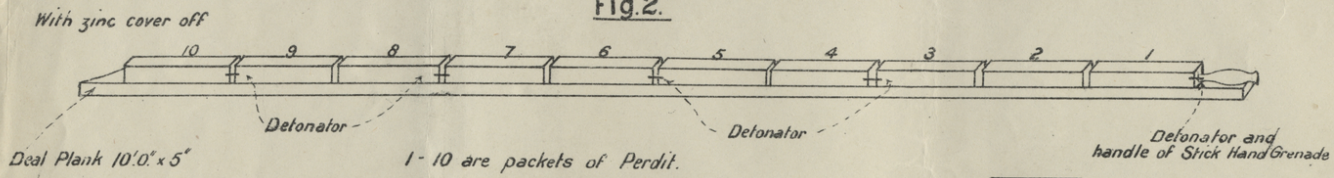


Fig. 2.

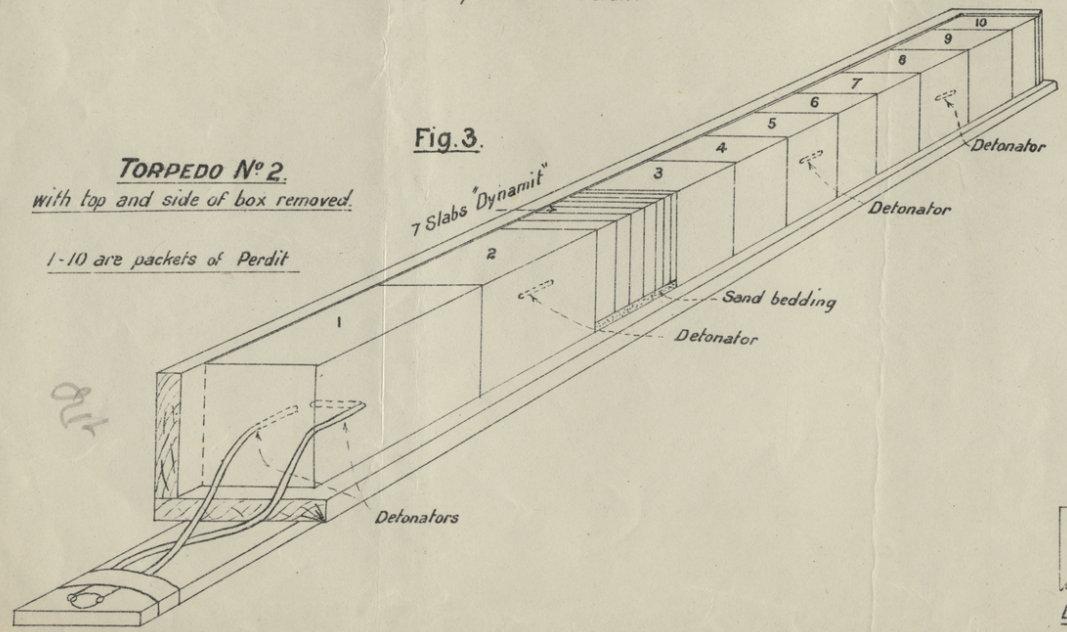


TORPEDO Nº 2.

With top and side of box removed.

1 - 10 are packets of Perdit

Fig. 3.



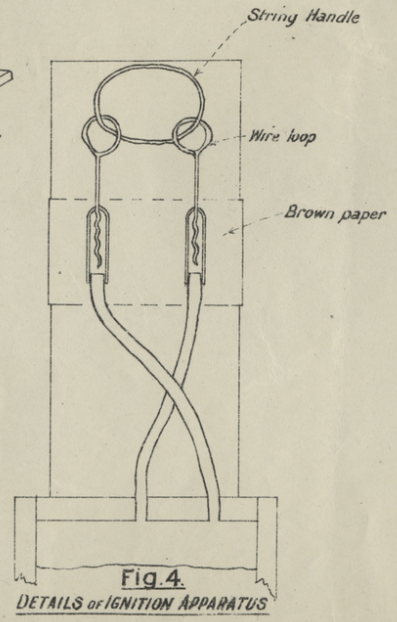


Fig. 4.

DETAILS of IGNITION APPARATUS

GERMAN FIELD WORKS.
PLATE 68.

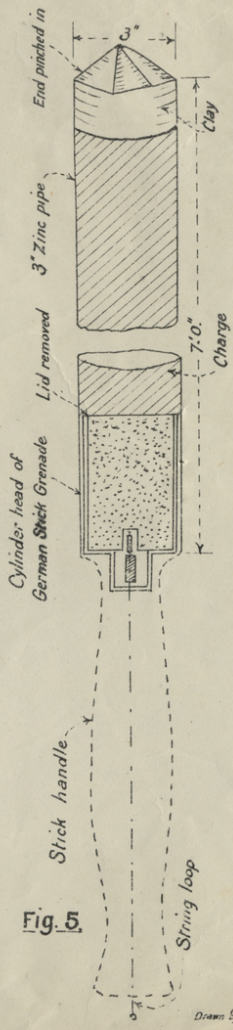


Fig. 5.

Drawn by F.G. Semmens 2nd Cpl. R.E.

ARMY PRINTING AND STATIONERY SERVICES A—8/17—

AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

To accompany German Fieldworks,
Plate 68.

GERMAN BANGALORE TORPEDOES.

Three forms of enemy's Bangalore torpedoes have recently been reported. In two of them the handle portion of the "Stick" hand grenade was used as the firing device; in the third, a friction lighter similar to the one in the "Egg" hand grenade, with a length of safety fuze, was employed.

In two, the charge consisted of 1 kilo. packets of Perdit in damp-proof cardboard boxes (in one case with the addition of a few slabs of dynamite). In each packet there were three gaines filled with wax, any one of which after being cleared with a wooden prick punch can be used for the insertion of the detonator. In the third torpedo the charge was packed in a 3-inch zinc pipe.

1. The first torpedo (reported by 3rd Div. 27-7-17, *see* Figs. 1 and 2) was 9 ft. 6 ins. long, and consisted of ten 1 kilo. packets of Perdit, wired to a deal plank, and covered with a sheet of zinc painted black. At one end was the handle, with detonator, of a "Stick" grenade. The other end was blocked with wood. Packets Nos. 3 and 4, 5 and 6, 7 and 8 respectively were connected by a detonator.

Method of Ignition.—Remove screw cap from end of handle and pull the wire loop or button found in the recess under the cap. The safety fuze burns 5½ seconds.

To render Useless.—Remove the handle and extract all the detonators.

2. The second torpedo (reported by 502nd (Wessex) Field Coy. R.E., *see* Figs. 3 and 4) was 9 ft. 8 ins. long. This also contained ten 1 kilo. packets of Perdit, but with seven slabs of dynamite, interpolated between Nos. 1 and 2, packed in a wooden box. The bottom of the box was extended for the attachment of the firing apparatus, which consisted of two friction lighters with lengths of safety fuze connected to detonators in two of the gaines of the first packet of Perdit. As in (1), there were connecting detonators:—between packet No. 2 and the dynamite, between Nos. 5 and 6, and Nos. 8 and 9.

Method of Ignition.—Pull the wire loop of the friction lighter.

To render Useless.—Cut through the safety fuze, remove the friction lighters and the detonators.

3. The third torpedo (reported by the C.R.E. 35th Div., 22-7-17) consisted of a 7-ft. length of ordinary 3-in. zinc water-piping filled with an explosive which appeared to be Perdit.

One end of the pipe was plugged with clay, the edges of the pipe being pinched over to keep the plug in position. The other end of the pipe was closed by the firing apparatus, which consisted of an ordinary German "Stick" grenade. The lid of its tin cylinder was removed so that the charge in the grenade was in direct contact with the explosive in the torpedo. The handle of the grenade was carried separately. There were 19 lbs. of explosive in the torpedo, or about 2½ lbs. per foot run.

Method of Ignition.—In order to fire the torpedo, all that it is necessary to do is to screw in the wooden stick handle with its detonator fixed, and pull the string loop or button. The fuze burns 5½ seconds. The torpedo could be fired from cover by attaching a length of string to the loop or button on the grenade.

To render Useless.—Unscrew the handle and remove the detonator.

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AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

GERMAN BANGALORE TORPEDOES

TORPEDO No 1

Fig. 1.

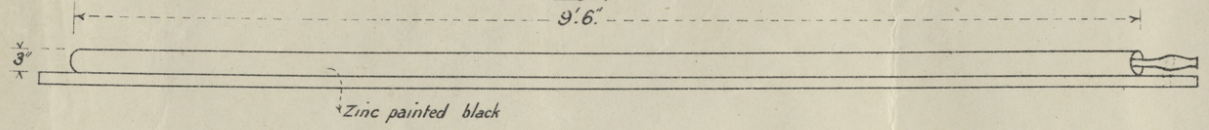
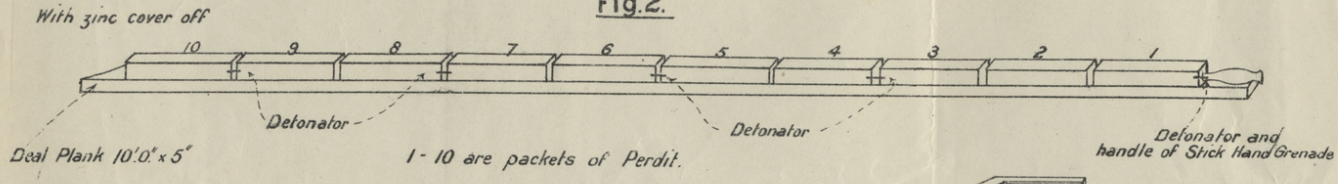


Fig.2.

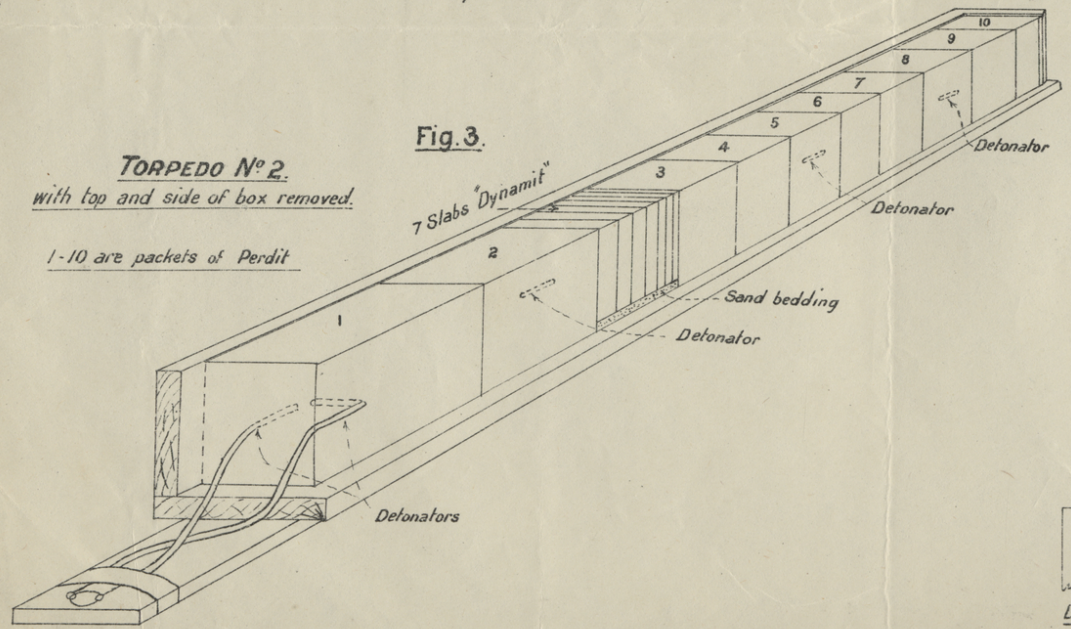


TORPEDO No 2.

with top and side of box removed.

1 - 10 are packets of Perdit

Fig.3.



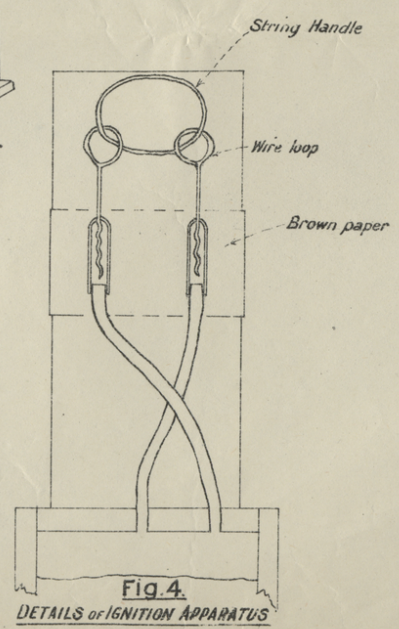


Fig.4.
DETAILS OF IGNITION APPARATUS

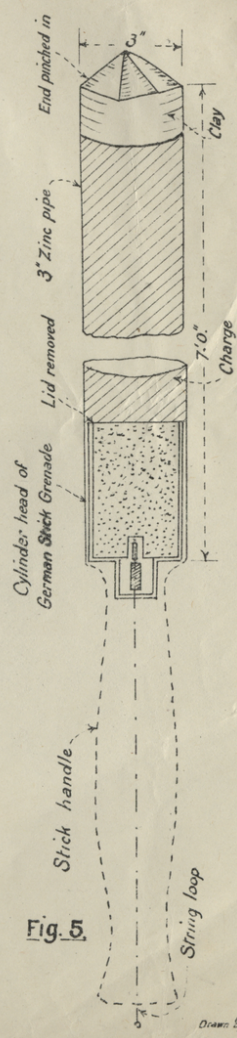


Fig.5.

Drawn by F.G. Vernon
2nd Cpl. R.E.

ARMY PRINTING AND STATIONERY SERVICES A—8/17—

AUSTRALIAN WAR MEMORIAL
AWM2022.1569.2706

German Fieldworks.
Plate No. 69.

GAPS IN WIRE ENTANGLEMENTS.

(From a captured memorandum issued by 233rd Inf. Div., 13-7-17.)

Gaps must be 13 to 16 feet wide and made in groups of four, spaced over a length of 90-110 yards. For the present, until required, they will be closed with a plain wire. This will prevent tracks being made through them which would reveal their presence in photographs.

I. In single belts of wire in the open, gaps will be made on the skew. (*See* Fig. 1.)

II. In double and triple belts of wire, zigzag lanes will be made. (*See* Fig. 2.)

III. In wired hedges, gaps in the wire will be left as shewn in Fig. 3, and filled, behind the hedge, by a knife rest.

IV. In gaps intended for infantry only, there should be pickets; they will not be wired, but wire will be kept ready at hand.

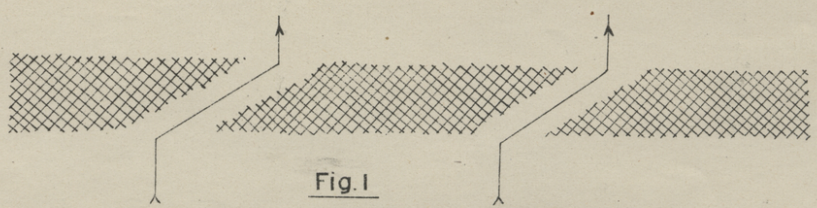


Fig. 1

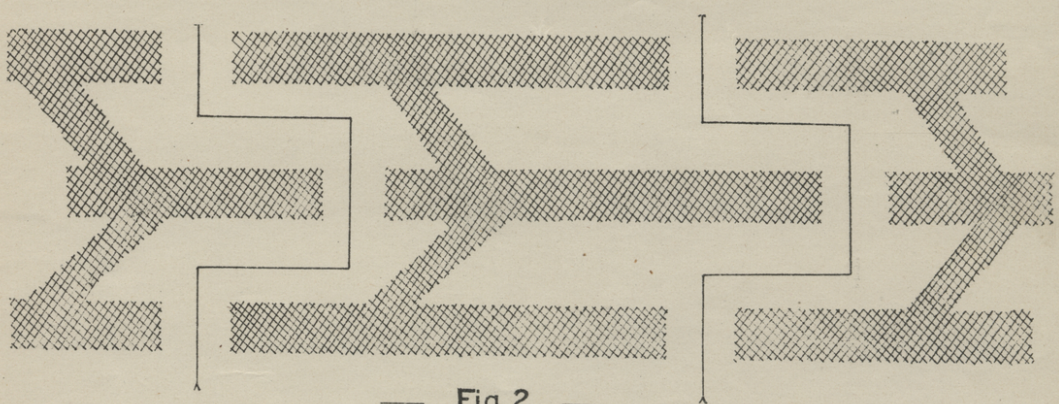


Fig 2.

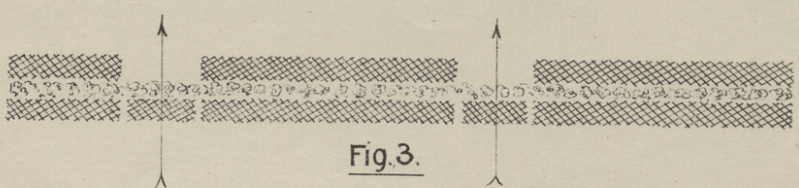


Fig. 3.

ARMY PRINTING AND STATIONERY SERVICES A—8/17—S1368—

AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

AUST. DIVISION
A27/70
DIV. ARTILLERY H.Q.

Note attached to German Fieldworks, Plates 70—77.

HEADQUARTERS, 2ND AUSTRALIAN DIVISION. (GENERAL STAFF.)
G24/1/78.

HINDENBURG LINE

(Including the Quéant—Drocourt Line).

The section East of Arras is called the Wotan position.
The section North of St. Quentin is called the Siegfried position.
The section South of St. Quentin is called the Alberich position.

1. The Hindenburg line does not as a whole follow any well marked physical feature. It exhibits generally, however, a definite tendency to utilize the reverse slopes on the West side of certain marked depressions. Occasionally it is sited behind the natural obstacle of a river or canal.

2. (*a*) From La Fère to the Oise (at Alaincourt) it is behind (East of) the Oise.

(*b*) It crosses the watershed between the Oise and the Somme (St. Quentin) on reverse slopes.

(*c*) From St. Quentin to Vendhuille, it covers the Canal de St. Quentin, running along a reverse slope.

(*d*) From Vendhuille to Bantouzelle, it is for a short distance—3½ miles—in rear (East) of the Canal, though a position on the West bank appears available. This portion is low down the forward slope so that it covers a good observation line on the heights above it.

(*e*) From Bantouzelle to Drocourt, it covers, at varying distances, the depression in which lie the Canal de l'Escaut, the Grand Ravin, the Canal du Nord and the Canal de la Sensée, on a general reverse slope.

3. Though thus running for much of its length on a reverse slope, its general trace is too straight for full advantage to be taken of ground. It goes over hill and valley, as, for instance, may be seen between Bantouzelle and Havrincourt, where it crosses four valleys and also runs over the crest of a hill. Both front and support trenches of the front system are, however, frequently on a reverse slope. Where there is a shallow parallel depression close in front, or a considerable valley spreading out westwards with the opposite heights at some distance, the firing line is generally on the crest.

4. The siting frequently admits of direct artillery observation from heights in rear, and the attacker in his advance must generally come over ground that is under such observation. At the same time, observation from our side is denied.

5. Advanced infantry posts in shell holes or narrow trenches, frequently without any covered communication to the rear, are organized in front of the main line.

6. The principles of the construction of positions laid down in the German Manual—"General Principles of the Construction of Field Positions" of 13th November, 1916, translated as S.S. 558, and in General von Below's memorandum of 30th January, 1917, translated as S.S. 553—"Experience of the German First Army in the Somme Battle," appear to have been carried out. In the latter it is stated "the front infantry trenches are well placed if they are situated on a reverse slope out of sight of ground observation of the enemy's artillery, and are overlooked by their own artillery observers from a position at least 550 yards in rear. At the same time, these observers should be able to see well into the ground over which the enemy must attack, for at least 200 yards in front of their own wire, and it should be possible to overlook, either from the front or a flank, at least a part of the ground behind the belt over which the enemy must make the approach marches."

7. A broad defensive zone behind the front line is gradually being constructed as contemplated in the above-mentioned instructions.

8. Illustrations of the trace and profile of the trenches are given in Plate 70 (1) and (2), the general organization of a section in Plates 71 and 72, and the arrangement of wire in Plates 73, 74 and 75.

9. The following points will be noticed:—The traverses are thick, 24 to 33 feet, and the trenches wide and mostly unrevetted (some are reported to be deeper than those illustrated and to have two gangways, one at the bottom of the trench and the other on an intermediate level below the fire step). The support trench is 200 to 250 yards (but the limits are elsewhere reported to be 150 to 300 yards) from the front trench; there are plenty of communication trenches, often branching when they enter a line; the wire extends considerable distances in front of the line and is arranged so that it can be flanked by machine guns [*see* 11], and there are large gaps in the wire in front of the support trench through which troops can move to the counter-attack. Some wire near Bellenglise is said to be electrified.

AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

10. **Machine Guns.**—Von Below in his memorandum lays down: "Built up machine gun emplacements are soon smashed to pieces unless they are shell proof (against heavy artillery). As a rule, the best way is to provide shell-proof shelters for the machine guns, in which they are to be kept until required for action, when they are fired over the parapet." This rule has been observed by the construction, where there has been time, of "Mebus." These are ferro-concrete dug-outs, containing shelters for men and machine guns, arrangement for periscope observation, with a banquette on the rear side from which the M.G. can be fired, the concrete building itself forming the parapet (*see* Plate 76. Some "Mebus" are less elaborate, being merely a concrete shelter with a plank banquette). The arrangement of "Mebus" in a parapet is shown in Plate 71.

11. The relation of the machine guns to the wire entanglement is illustrated in Plate 75. They are sited at the intersection of the edges of salients*. The wire actually in front of them is often low or sunk.

12. No concrete or covered M.G. emplacements have been seen. Concrete emplacements have, however, been reported in the support trench and between the support and front trenches in canal banks and in hillocks, woods, etc. Open M.G. emplacements have been found situated outside the trenches, in holes, approached by underground passages, that is, they are similar to "Champagne emplacements." The approaches to them are covered for some distance, but there is usually a trench in fairly close proximity.

13. **Dug-outs.**—Deep mined dug-outs in the front line trench were "absolutely prohibited" by von Hindenburg (S.S. 544, Translation of Memo. of Chief of the General Staff of the Field Army, 25th December, 1916) after the "serious and regrettable reverses" of the Autumn of 1916, but many are still to be found (*see* Plate 70, (1) and (2)). This is said to have been due to lack of time to construct concrete ones. Where possible, however, concrete shelters have been made every 50 to 100 yards (*see* Plate 77) for the garrison of the front line. (Some of these are merely "funk holes" but probably others are provided with banquettes so that they may be used as "Mebus.") It is reported that in some parts there are larger concrete dug-outs, 6 × 6 × 2 metres, at irregular intervals, while in others that there are only sufficient concrete shelters to accommodate the company and platoon commanders. Photographs of the Hindenburg line in course of construction show typical excavations in which concrete dug-outs are being made, both in front of, and behind the parapet.

14. In the support trench there are both concrete and mined "residential" dug-outs. The entrances are in the trench and also behind it in the open field. Entrances in a trench are under the parapet and are arranged so that there is only one between each pair of traverses.

15. **O.P.s.**—A special wedge-shaped pattern of O.P. (*vide* German Fieldworks, Plates 53 and 55) consisting of two skins of steel, built up of plates bolted together, with concrete between them, has been found. It is sometimes combined with a "Mebu" (*see* Plate 76), but is also erected independently of any other structure.

16. **Subways.**—Between Somme and Oise, it is reported that the front and support trenches are connected underground, and that covered communications run back for half a mile; and elsewhere that it is intended to have a complete system of underground connections and parallel tunnels. Such a tunnel has actually been found near Heninel (*see* Plate 70 (1)).

17. **Trench Mortar Emplacements.**—Trench Mortars are said to be mostly in the support trench, but have been noticed, in aeroplane photographs, in short lengths of trench forming loops in rear of the front trench, and in the space between front and support trenches.

18. **Tank Guns.** Field guns in concrete emplacements behind the support trench have been reported. The emplacements appear from a captured drawing to be shelters for detachment and gun, from which it can be got up by a ramp to fire over the parapet.

19. **Strong Points.** As in earlier systems, there are strong points which are easily recognizable in photographs by the continuous wire round them.

NOTE.—Many of the arrangements observed in the portions of the Hindenburg line that have been captured will no doubt be modified in accordance with the experience of recent fighting, as the footnote to Section 11, taken from General von Armin's report, shows. This document admits that the old rigid methods of defence have failed, and another method of constructing positions must be employed as soon as a battle commences. Supports and reserves, however, will continue to occupy continuous trenches made on reverse slopes.

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* This arrangement has been found by the enemy to be a mistake, as it leads to the detection of the machine gun emplacements. A captured document issued by General Sixt von Armin, commanding Fourth German Army, on the "Construction of Defensive Positions" (translated as S.S. 574), dated 30-6-17, lays down: "They (machine guns) must take the enemy by surprise. It is, therefore, not advisable to place them in the angles of the wire, where the enemy is bound to suspect their presence. Only dummy emplacements should be constructed at these points, while the actual machine guns are sited in concealed emplacements to a flank or in rear."

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AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

55th Division

Note attached to German
Fieldworks, Plates 70—77.

HINDENBURG LINE

(Including the Quéant—Drocourt Line).

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The section South of St. Quentin is called the Alberich position.

1. The Hindenburg line does not as a whole follow any well marked physical feature. It exhibits generally, however, a definite tendency to utilize the reverse slopes on the West side of certain marked depressions. Occasionally it is sited behind the natural obstacle of a river or canal.

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AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

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18. **Tank Guns.** Field guns in concrete emplacements behind the support trench have been reported. The emplacements appear from a captured drawing to be shelters for detachment and gun, from which it can be got up by a ramp to fire over the parapet.

19. **Strong Points.** As in earlier systems, there are strong points which are easily recognizable in photographs by the continuous wire round them.

NOTE.—Many of the arrangements observed in the portions of the Hindenburg line that have been captured will no doubt be modified in accordance with the experience of recent fighting, as the footnote to Section 11, taken from General von Armin's report, shows. This document admits that the old rigid methods of defence have failed, and another method of constructing positions must be employed as soon as a battle commences. Supports and reserves, however, will continue to occupy continuous trenches made on reverse slopes.

---

* This arrangement has been found by the enemy to be a mistake, as it leads to the detection of the machine gun emplacements. A captured document issued by General Sixt von Armin, commanding Fourth German Army, on the "Construction of Defensive Positions" (translated as S.S. 574), dated 30-6-17, lays down: "They (machine guns) must take the enemy by surprise. It is, therefore, not advisable to place them in the angles of the wire, where the enemy is bound to suspect their presence. Only dummy emplacements should be constructed at these points, while the actual machine guns are sited in concealed emplacements to a flank or in rear."

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Note attached to German
Fieldworks, Plates 70—77.

HINDENBURG LINE

(Including the Quéant—Drocourt Line).

The section East of Arras is called the Wotan position.
The section North of St. Quentin is called the Siegfried position.
The section South of St. Quentin is called the Alberich position.

1. The Hindenburg line does not as a whole follow any well marked physical feature. It exhibits generally, however, a definite tendency to utilize the reverse slopes on the West side of certain marked depressions. Occasionally it is sited behind the natural obstacle of a river or canal.

2. (*a*) From La Fère to the Oise (at Alaincourt) it is behind (East of) the Oise.

(*b*) It crosses the watershed between the Oise and the Somme (St. Quentin) on reverse slopes.

(*c*) From St. Quentin to Vendhuille, it covers the Canal de St. Quentin, running along a reverse slope.

(*d*) From Vendhuille to Bantouzelle, it is for a short distance—3½ miles—in rear (East) of the Canal, though a position on the West bank appears available. This portion is low down the forward slope so that it covers a good observation line on the heights above it.

(*e*) From Bantouzelle to Drocourt, it covers, at varying distances, the depression in which lie the Canal de l'Escaut, the Grand Ravin, the Canal du Nord and the Canal de la Sensée, on a general reverse slope.

3. Though thus running for much of its length on a reverse slope, its general trace is too straight for full advantage to be taken of ground. It goes over hill and valley, as, for instance, may be seen between Bantouzelle and Havrincourt, where it crosses four valleys and also runs over the crest of a hill. Both front and support trenches of the front system are, however, frequently on a reverse slope. Where there is a shallow parallel depression close in front, or a considerable valley spreading out westwards with the opposite heights at some distance, the firing line is generally on the crest.

4. The siting frequently admits of direct artillery observation from heights in rear, and the attacker in his advance must generally come over ground that is under such observation. At the same time, observation from our side is denied.

5. Advanced infantry posts in shell holes or narrow trenches, frequently without any covered communication to the rear, are organized in front of the main line.

6. The principles of the construction of positions laid down in the German Manual—"General Principles of the Construction of Field Positions" of 13th November, 1916, translated as S.S. 558, and in General von Below's memorandum of 30th January, 1917, translated as S.S. 553—"Experience of the German First Army in the Somme Battle," appear to have been carried out. In the latter it is stated "the front infantry trenches are well placed if they are situated on a reverse slope out of sight of ground observation of the enemy's artillery, and are overlooked by their own artillery observers from a position at least 550 yards in rear. At the same time, these observers should be able to see well into the ground over which the enemy must attack, for at least 200 yards in front of their own wire, and it should be possible to overlook, either from the front or a flank, at least a part of the ground behind the belt over which the enemy must make the approach marches."

7. A broad defensive zone behind the front line is gradually being constructed as contemplated in the above-mentioned instructions.

8. Illustrations of the trace and profile of the trenches are given in Plate 70 (1) and (2), the general organization of a section in Plates 71 and 72, and the arrangement of wire in Plates 73, 74 and 75.

9. The following points will be noticed:—The traverses are thick, 24 to 33 feet, and the trenches wide and mostly unrevetted (some are reported to be deeper than those illustrated and to have two gangways, one at the bottom of the trench and the other on an intermediate level below the fire step). The support trench is 200 to 250 yards (but the limits are elsewhere reported to be 150 to 300 yards) from the front trench; there are plenty of communication trenches, often branching when they enter a line; the wire extends considerable distances in front of the line and is arranged so that it can be flanked by machine guns [*see* 11], and there are large gaps in the wire in front of the support trench through which troops can move to the counter-attack. Some wire near Bellenglise is said to be electrified.

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AUSTRALIAN WAR RECORDS SECTION
CLASSIFICATION SUB-SECTION
AWM 93/9/78

10. **Machine Guns.**—Von Below in his memorandum lays down: "Built up machine gun emplacements are soon smashed to pieces unless they are shell proof (against heavy artillery). As a rule, the best way is to provide shell-proof shelters for the machine guns, in which they are to be kept until required for action, when they are fired over the parapet." This rule has been observed by the construction, where there has been time, of "Mebus." These are ferro-concrete dug-outs, containing shelters for men and machine guns, arrangement for periscope observation, with a banquette on the rear side from which the M.G. can be fired, the concrete building itself forming the parapet (*see* Plate 76. Some "Mebus" are less elaborate, being merely a concrete shelter with a plank banquette). The arrangement of "Mebus" in a parapet is shown in Plate 71.

11. The relation of the machine guns to the wire entanglement is illustrated in Plate 75. They are sited at the intersection of the edges of salients*. The wire actually in front of them is often low or sunk.

12. No concrete or covered M.G. emplacements have been seen. Concrete emplacements have, however, been reported in the support trench and between the support and front trenches in canal banks and in hillocks, woods, etc. Open M.G. emplacements have been found situated outside the trenches, in holes, approached by underground passages, that is, they are similar to "Champagne emplacements." The approaches to them are covered for some distance, but there is usually a trench in fairly close proximity.

13. **Dug-outs.**—Deep mined dug-outs in the front line trench were "absolutely prohibited" by von Hindenburg (S.S. 544, Translation of Memo. of Chief of the General Staff of the Field Army, 25th December, 1916) after the "serious and regrettable reverses" of the Autumn of 1916, but many are still to be found (*see* Plate 70, (1) and (2)). This is said to have been due to lack of time to construct concrete ones. Where possible, however, concrete shelters have been made every 50 to 100 yards (*see* Plate 77) for the garrison of the front line. (Some of these are merely "funk holes" but probably others are provided with banquettes so that they may be used as "Mebus.") It is reported that in some parts there are larger concrete dug-outs, 6 × 6 × 2 metres, at irregular intervals, while in others that there are only sufficient concrete shelters to accommodate the company and platoon commanders. Photographs of the Hindenburg line in course of construction show typical excavations in which concrete dug-outs are being made, both in front of, and behind the parapet.

14. In the support trench there are both concrete and mined "residential" dug-outs. The entrances are in the trench and also behind it in the open field. Entrances in a trench are under the parapet and are arranged so that there is only one between each pair of traverses.

15. **O.P.s.**—A special wedge-shaped pattern of O.P. (*vide* German Fieldworks, Plates 53 and 55) consisting of two skins of steel, built up of plates bolted together, with concrete between them, has been found. It is sometimes combined with a "Mebu" (*see* Plate 76), but is also erected independently of any other structure.

16. **Subways.**—Between Somme and Oise, it is reported that the front and support trenches are connected underground, and that covered communications run back for half a mile; and elsewhere that it is intended to have a complete system of underground connections and parallel tunnels. Such a tunnel has actually been found near Heninel (*see* Plate 70 (1)).

17. **Trench Mortar Emplacements.**—Trench Mortars are said to be mostly in the support trench, but have been noticed, in aeroplane photographs, in short lengths of trench forming loops in rear of the front trench, and in the space between front and support trenches.

18. **Tank Guns.** Field guns in concrete emplacements behind the support trench have been reported. The emplacements appear from a captured drawing to be shelters for detachment and gun, from which it can be got up by a ramp to fire over the parapet.

19. **Strong Points.** As in earlier systems, there are strong points which are easily recognizable in photographs by the continuous wire round them.

NOTE.—Many of the arrangements observed in the portions of the Hindenburg line that have been captured will no doubt be modified in accordance with the experience of recent fighting, as the footnote to Section 11, taken from General von Armin's report, shows. This document admits that the old rigid methods of defence have failed, and another method of constructing positions must be employed as soon as a battle commences. Supports and reserves, however, will continue to occupy continuous trenches made on reverse slopes.

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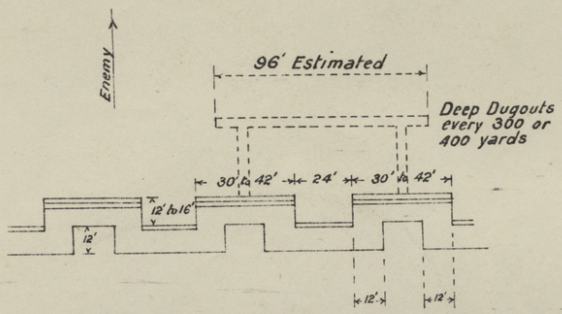
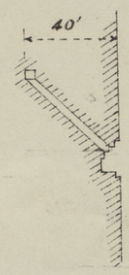
GERMAN FIELD WORKS.
PLATE 70.
No1.

HINDENBURG LINE
between BULLECOURT & HÉNINEL. JULY 1917.

TRACE of FIRE TRENCHES

FRONT LINE

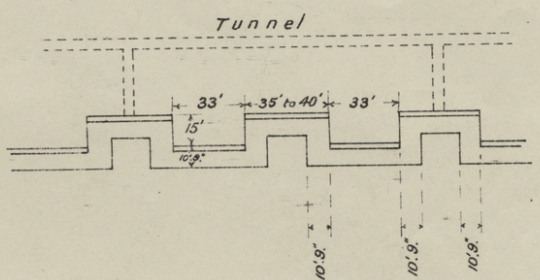


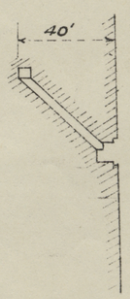


Fire Bays. { 42' long 1 mile South of HÉNINEL
30' long close to HÉNINEL

SUPPORT LINE

(210 to 250 yards from Front Line.)





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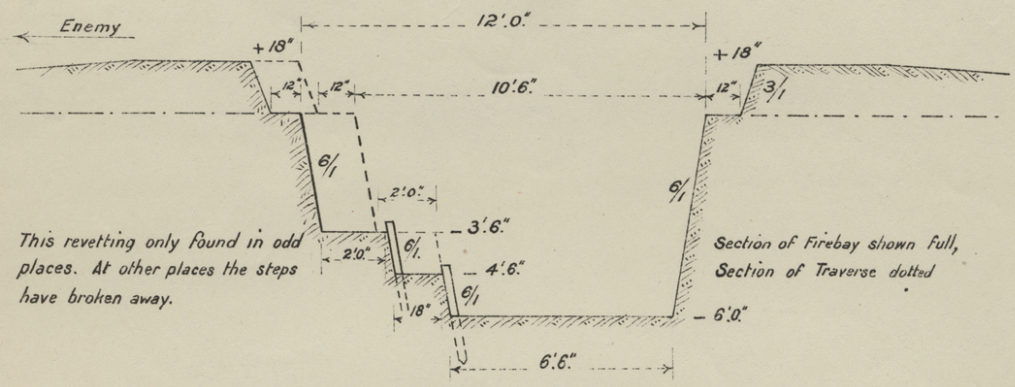
HINDENBURG LINE
between BULLECOURT and HÉNINEL. JULY 1917.

GERMAN FIELD WORKS.
PLATE 70
Nº 2.

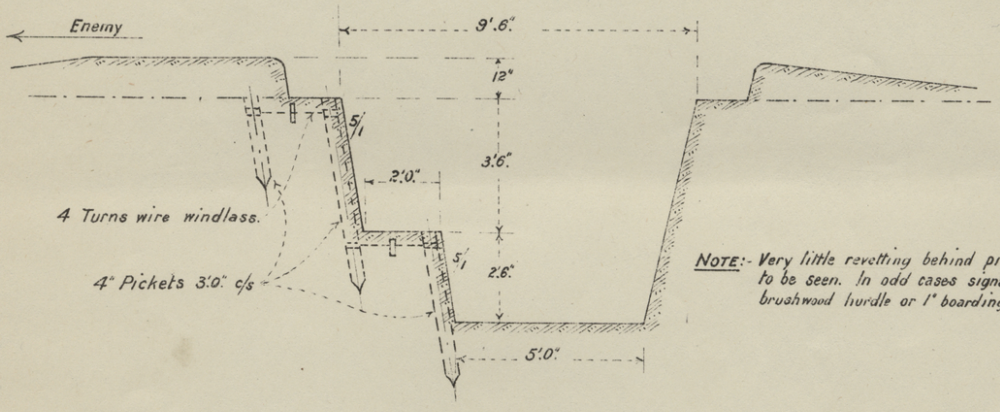
PROFILE OF TRENCHES

FRONT LINE



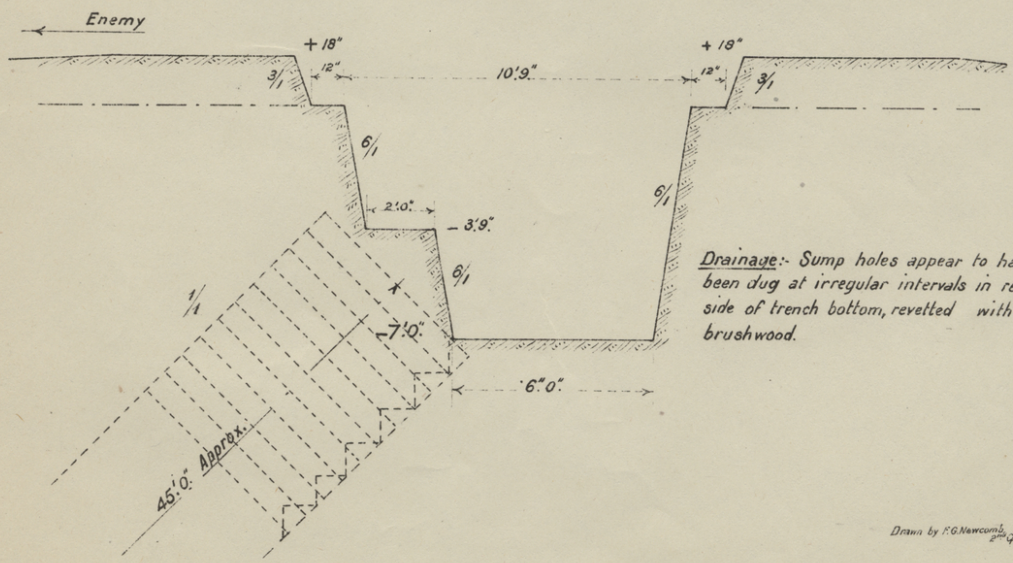
This revetting only found in odd places. At other places the steps have broken away.

Section of Firebay shown full, Section of Traverse dotted



NOTE:- Very little revetting behind pickets to be seen. In odd cases signs of brushwood hurdle or 1" boarding

SUPPORT LINE



Drainage:- Sump holes appear to have been dug at irregular intervals in rear side of trench bottom, revetted with brushwood.

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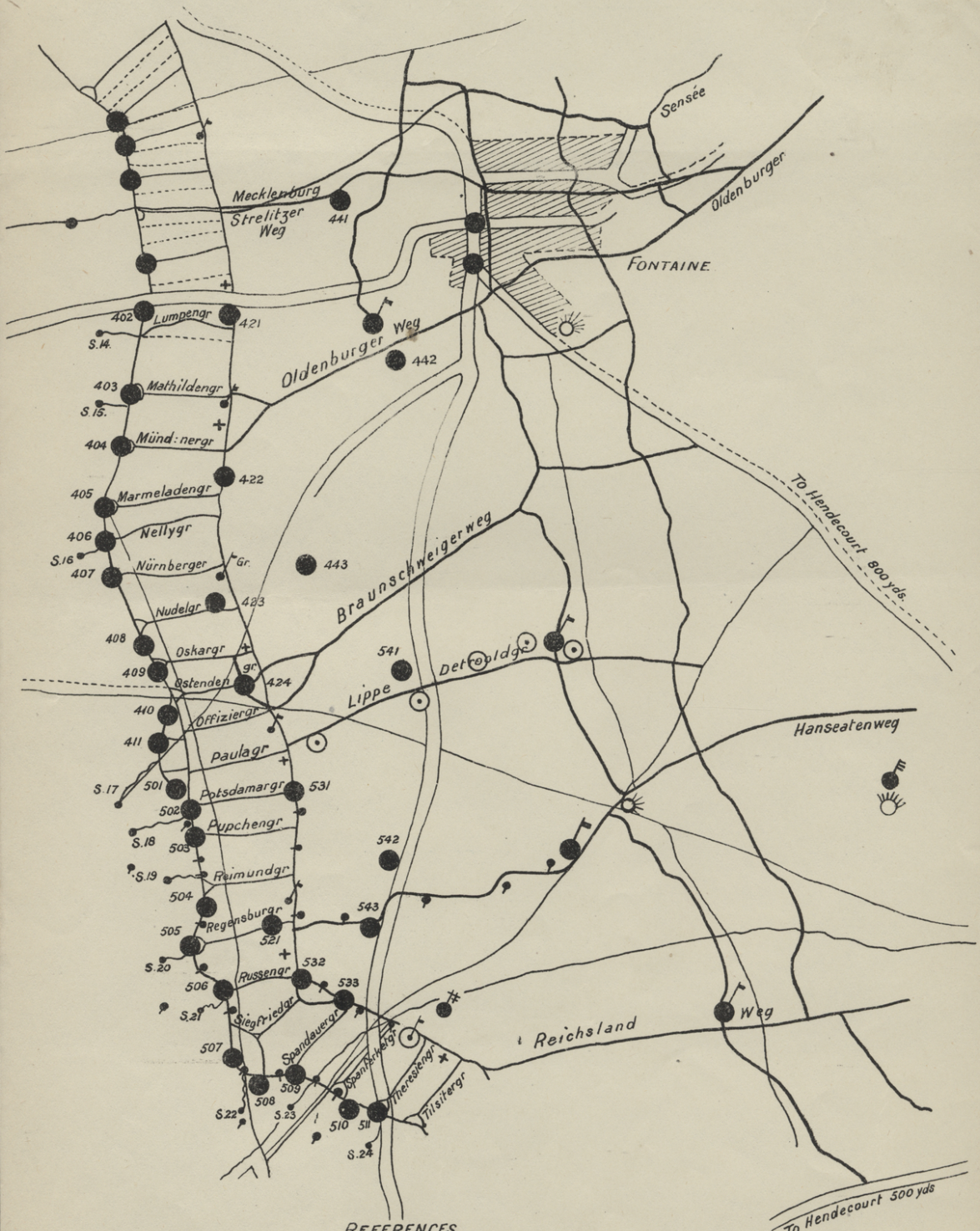
GERMAN FIELD WORKS
PLATE, 71.

HINDENBURG LINE

PART OF LINE NEAR CROISILLES
FROM CAPTURED PLAN. JULY 1917.



REFERENCES.

- Battalion Battle H.Q.
- Regt Battle H.Q.
- Mebu (Concrete defensive post)
- Coy. Commander's Dugout
- Aid Post
- Drinking Water Well
- Visual Signal Station
- Chain of Runners Posts to Regt Battle H.Q.
- Sentry Posts in Foggy weather

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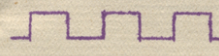
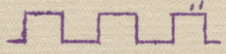
German Fieldworks, Plate 72 - Corrections:-

Conventional Signs.

(a)  Shelters; should be 

(b) "Wired M.G. Emplacement"; should be "Mined M.G. Emplacement".

CONVENTIONAL SIGNS

Drawn by F.G. Newcomb, 2nd Cpl. R.E.

- Mined Dugout
- Concrete Dugout
- Wire
- Shelters
- Latrine
- Completed trenches
- Wired Machine Gun Emplacement
- Concrete
- T.M. Trench Mortar Emplacement
- Batt.n H.Q. Dugout
- Regimental Battle H.Q. Dugout
- Concrete Observing Station for I group.
- Listening Post.

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HINDENBURG LINE AT BELLICOURT.

FROM A CAPTURED MAP. JULY 1917.

GERMAN FIELD WORKS
PLATE, 72.

SCALE

50 0 100 200 300 400 500 600 700 800 900 1000.

CONVENTIONAL SIGNS

Drawn by F.G. Newcomb, 2nd Cpl, R.E.

- Mined Dugout
- Concrete Dugout
- Wire
- Shelters
- Latrine
- Completed trenches
- Wired Machine Gun Emplacement
- Concrete
- T.M. Trench Mortar Emplacement
- Batt.n H.Q. Dugout
- Regimental Battle H.Q. Dugout
- Concrete Observing Station for 1 group.
- Listening Post.

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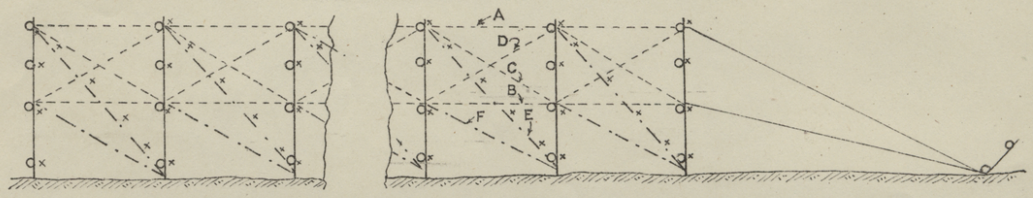
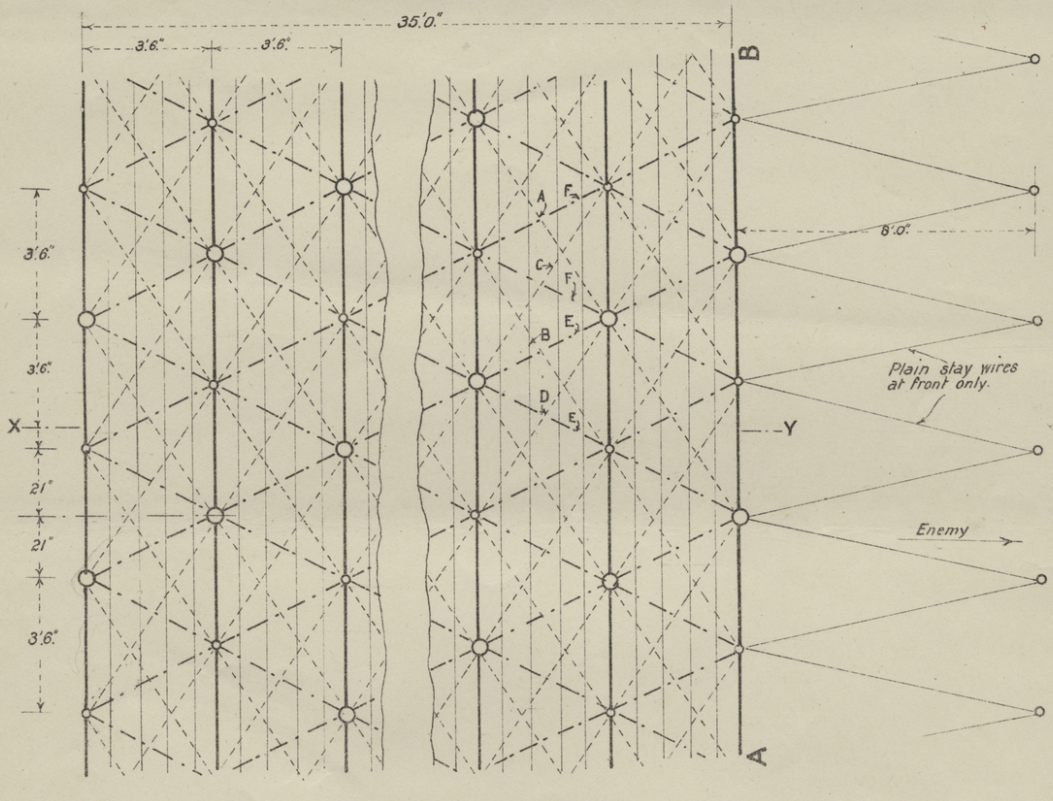
HINDENBURG LINE

between BULLECOURT & HÉNINEL - JULY 1917.

WIRE ENTANGLEMENT



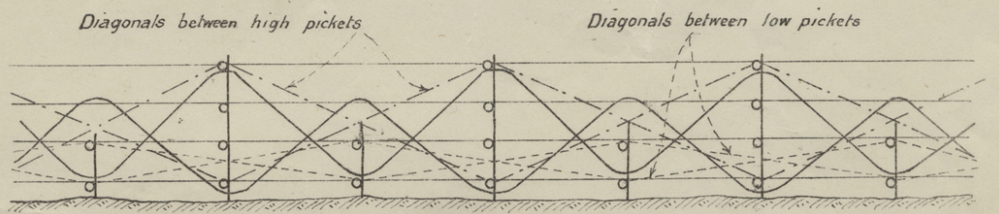
CROSS SECTION X.Y.



PLAN.

- Wire joining tops of pickets
- Wire from top of one picket to bottom of picket in front
- Parallel wires running along diagonals and also parallel wires on main fences.
- Main fences
- High pickets 4 ft.
- Low pickets 2 ft.

All corkscrew pickets, pointed tops.



ELEVATION OF PICKETS and WIRE on MAIN FENCE A.B. (all other main fences similar)

NOTE:- This elevation does not show any intermediate wires between main fences.

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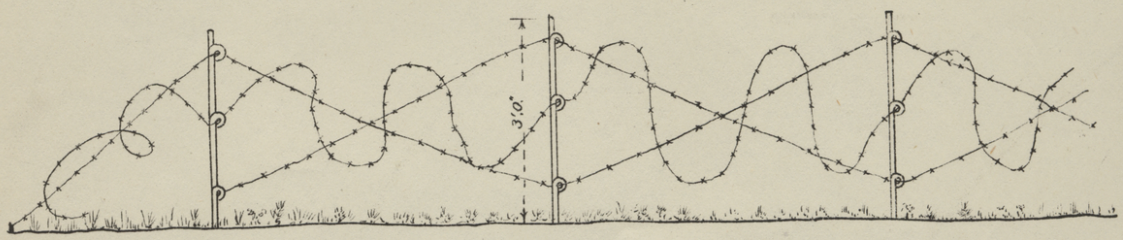
HINDENBURG LINE

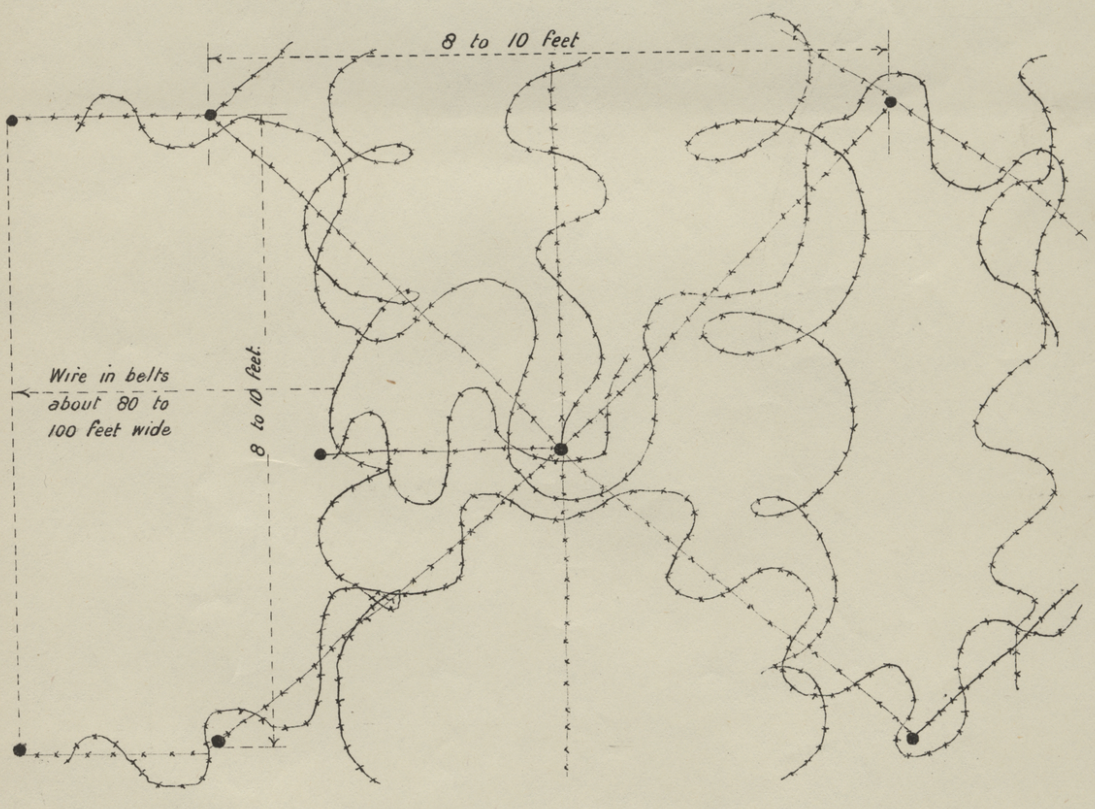
between BULLECOURT & HÉNINEL. JULY 1917.

GERMAN FIELD WORKS.
PLATE 74

WIRE ENTANGLEMENTS.



N.B. Screw Pickets used in soft ground, angle iron pickets in hard chalk.



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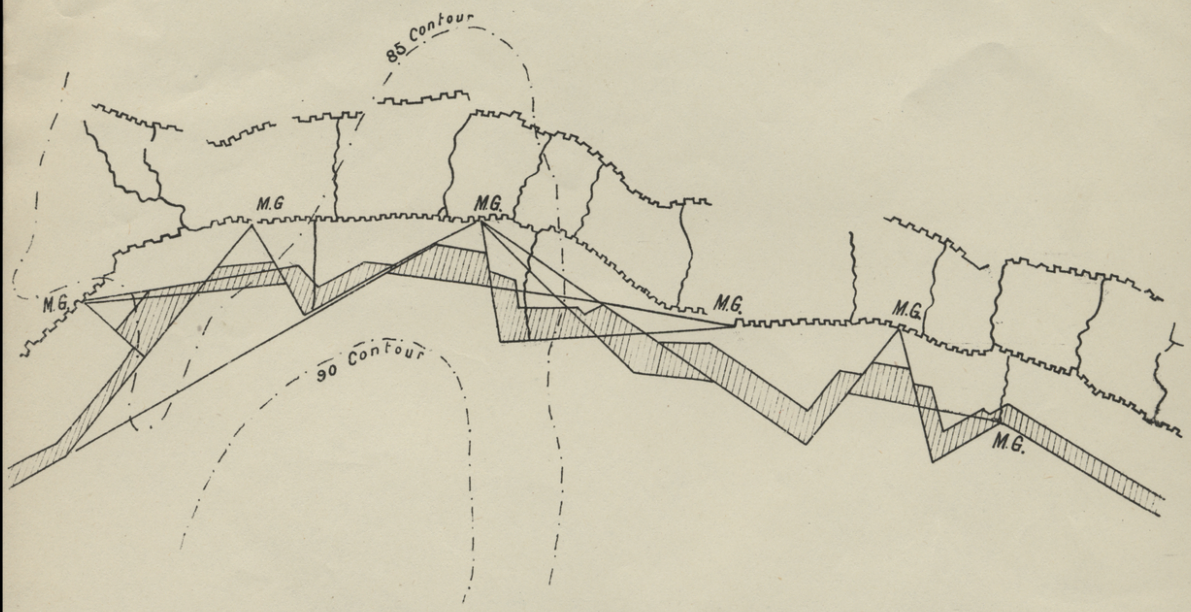
GERMAN FIELD WORKS
PLATE. 75

HINDENBURG LINE

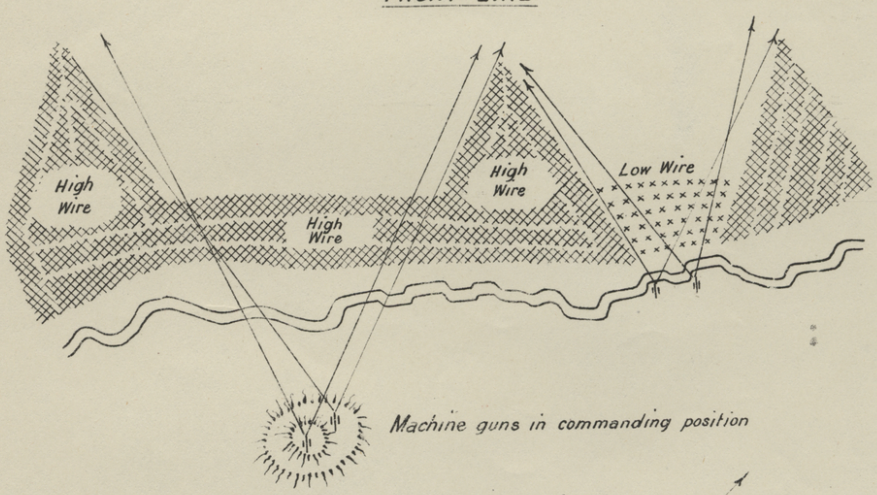
LOCATION OF MACHINE GUNS FROM THE FORM OF THE WIRE.

I. U22, C. to U30, A. near BULLECOURT.

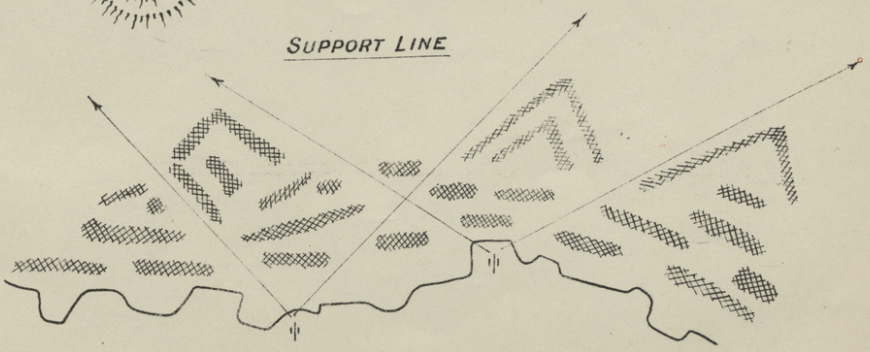


II. THEORETICAL ARRANGEMENT FROM GENERAL VON BELOW'S MEMORANDUM, "EXPERIENCES OF THE FIRST ARMY IN THE SOMME BATTLE" 30th JANY 1917.

FRONT LINE



SUPPORT LINE



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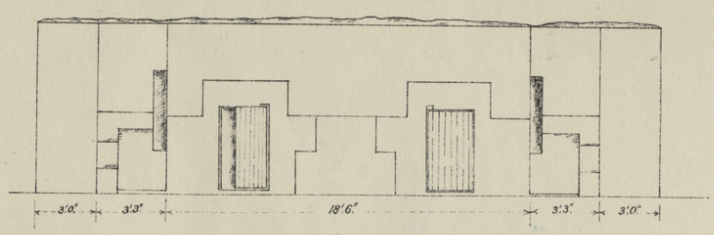
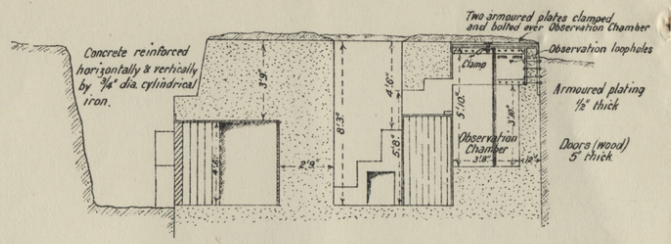
HINDENBURG LINE

A "MEBU" (REINFORCED CONCRETE DEFENSIBLE POST)

GERMAN FIELD WORKS.
PLATE 76.

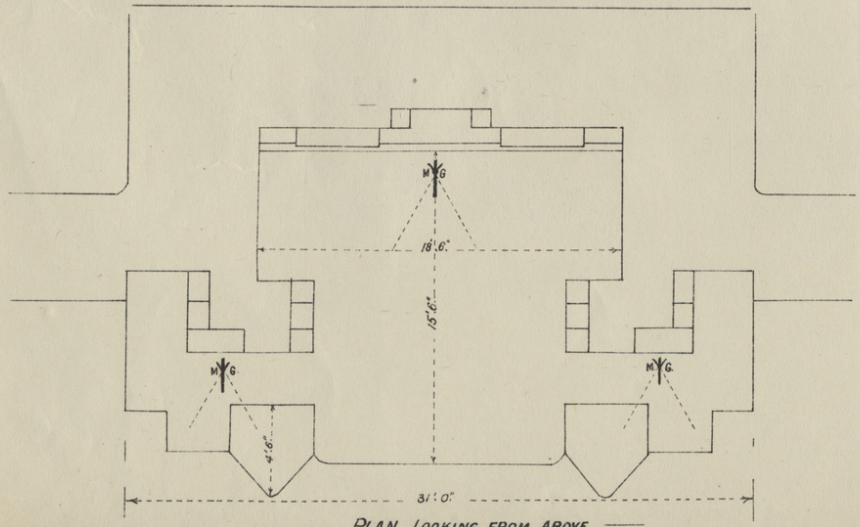


ELEVATION LOOKING FROM TRENCH.

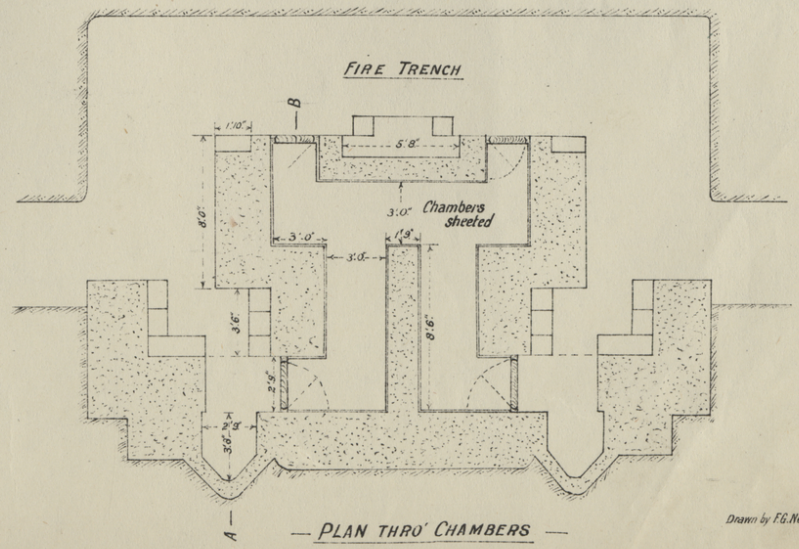


SECTION ON LINE A.B.

Emplacements at every 100 yards interval.



PLAN LOOKING FROM ABOVE



PLAN THRO' CHAMBERS

Drawn by F.G. Newcomb, 2nd Cpl. R.E.

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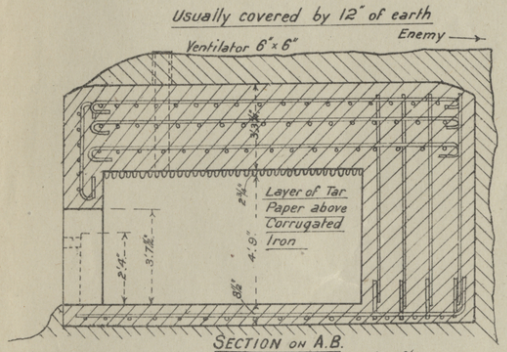
AWM2022.1569.2706

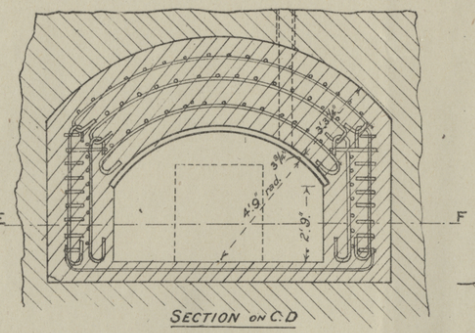
CONCRETE SHELTERS IN HINDENBURG LINE
near HENINEL
(446th FIELD Co R.E., July 1917.)

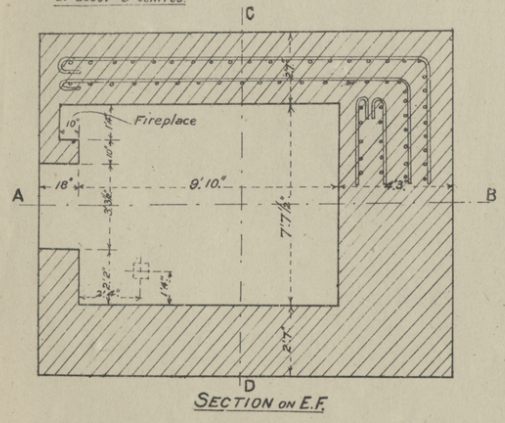
GERMAN FIELD WORKS.
PLATE 71.
Plate 77

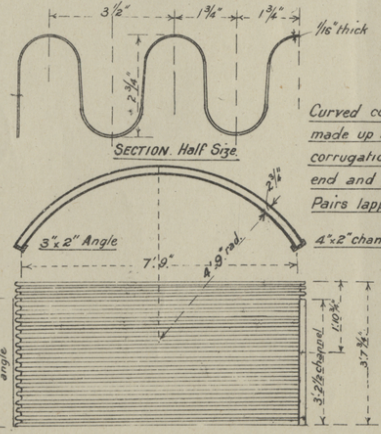
TYPE A.



Concrete reinforced by round iron bars, from ½" to ¾" crossed at about 6" centres.



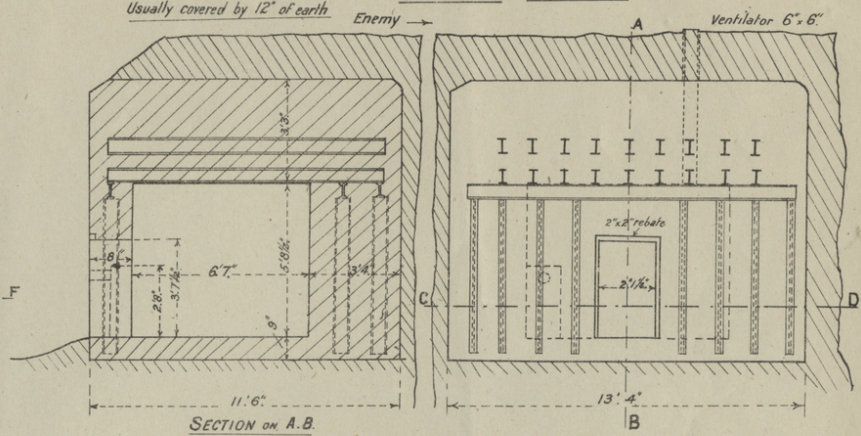




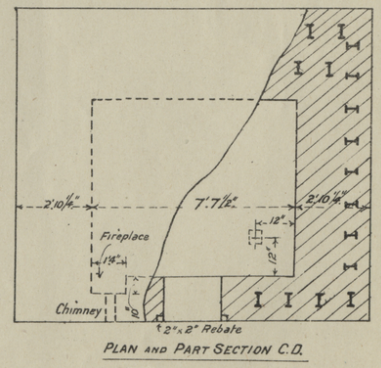
Curved corrugated iron sheets made up in pairs, lapped one corrugation, with angle iron one end and channel the other. Pairs lapped two corrugations.

TYPE. B.

N. 27 d. 80.55. Map 51b S.W.



Concrete reinforced by Rolled Steel Joists, placed at about 14" centres.



NOTE: From inspection of damaged shelters it appears that Type 'A' is stronger. The joists in Type B. serve to separate the concrete into blocks, and when hit the mass seems to split more readily. 'A' when hit, seems to lose little more than the outer skin of concrete.

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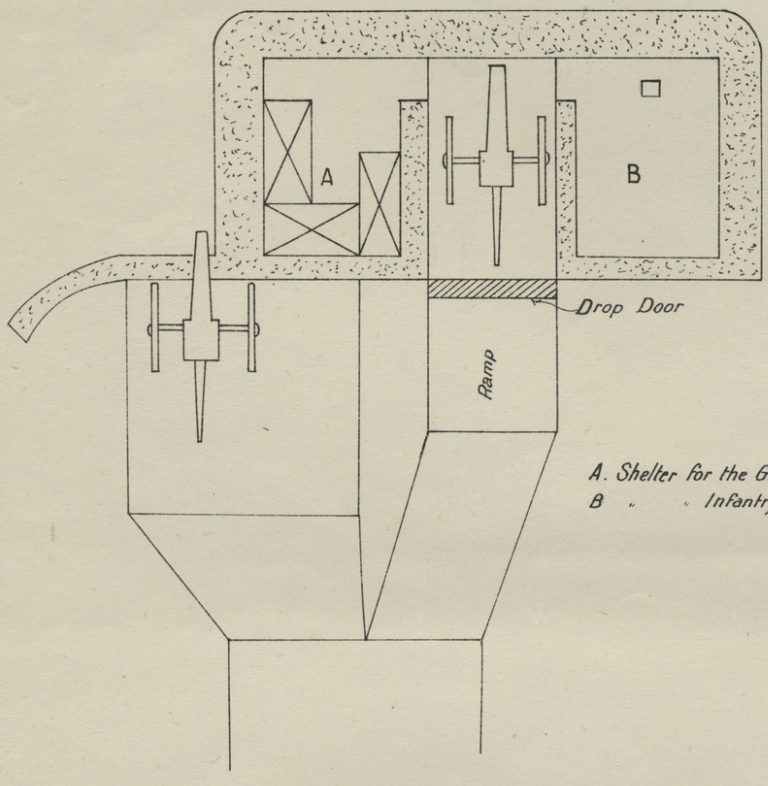
GERMAN FIELD WORKS.
PLATE 78.

ANTI-TANK GUN EMPLACEMENT

WITH SHELTER FOR DETACHMENT AND GUN.

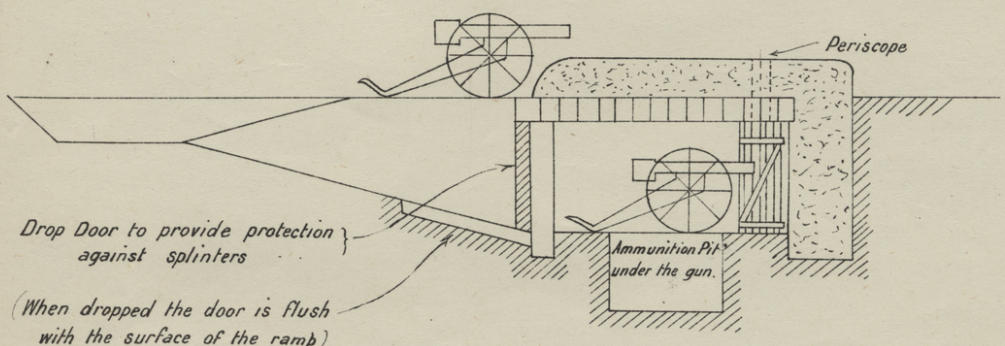
(FROM CAPTURED SKETCH, AUG. 1917)

PLAN



A. Shelter for the Gun Detachment
B " " Infantry Protective Detachment

SECTION



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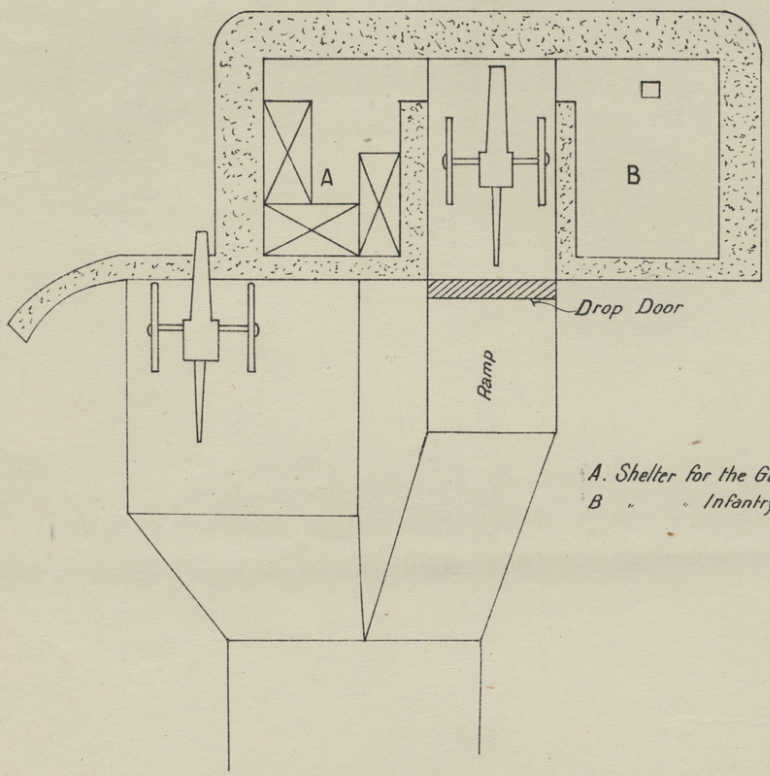
AUSTRALIAN WAR RECORDS SECTION
423/9/75

ANTI-TANK GUN EMPLACEMENT

WITH SHELTER FOR DETACHMENT AND GUN.

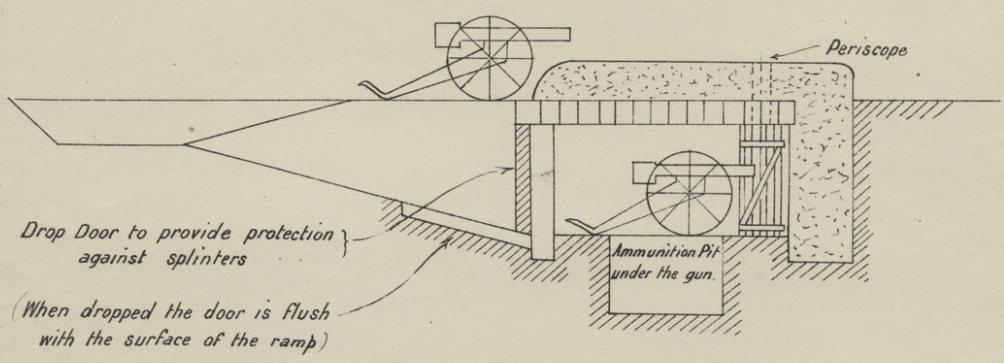
(FROM CAPTURED SKETCH, AUG. 1917)

PLAN



A. Shelter for the Gun Detachment
B " " Infantry Protective Detachment

SECTION



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2nd Cpl. R.E.

AUSTRALIAN WAR MEMORIAL
AWM2022.1569.2706

1st Tunnelling Coy. L372

GERMAN FIELD WORKS.
PLATE 78.

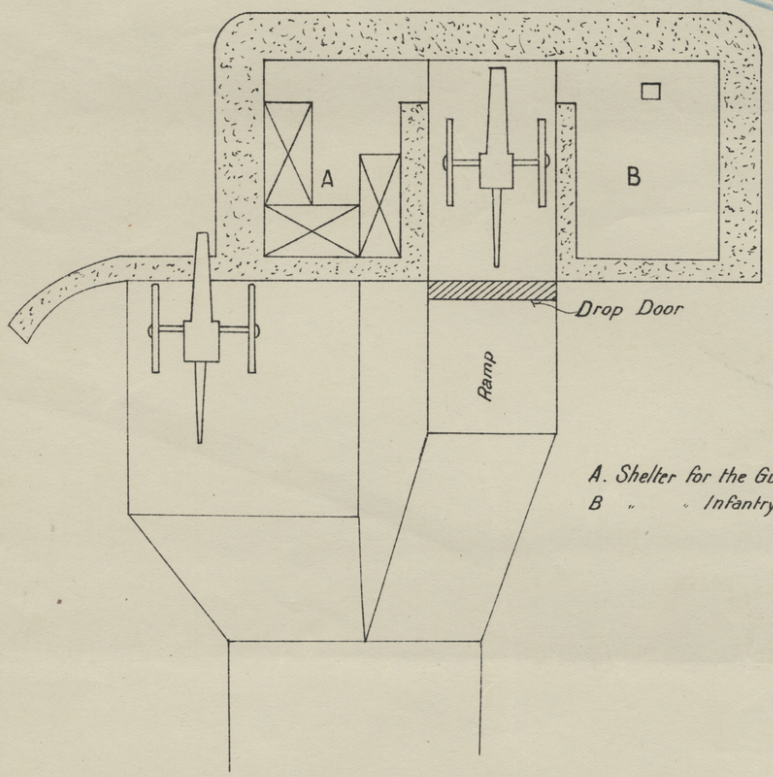
ANTI-TANK GUN EMPLACEMENT

WITH SHELTER FOR DETACHMENT AND GUN.

(FROM CAPTURED SKETCH, AUG. 1917)

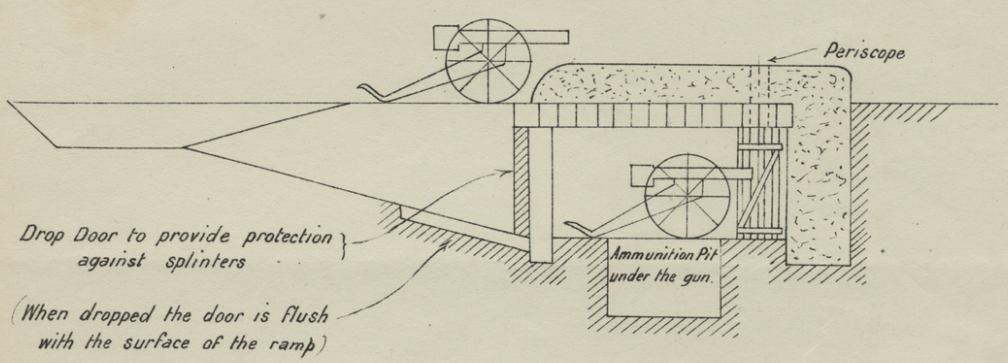
AUSTRALIAN WAR RECORDS SECTION
925 | 3 | 40.
CLASSIFICATION SUB-SECTION

PLAN



A. Shelter for the Gun Detachment
B " " Infantry Protective Detachment

SECTION



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AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

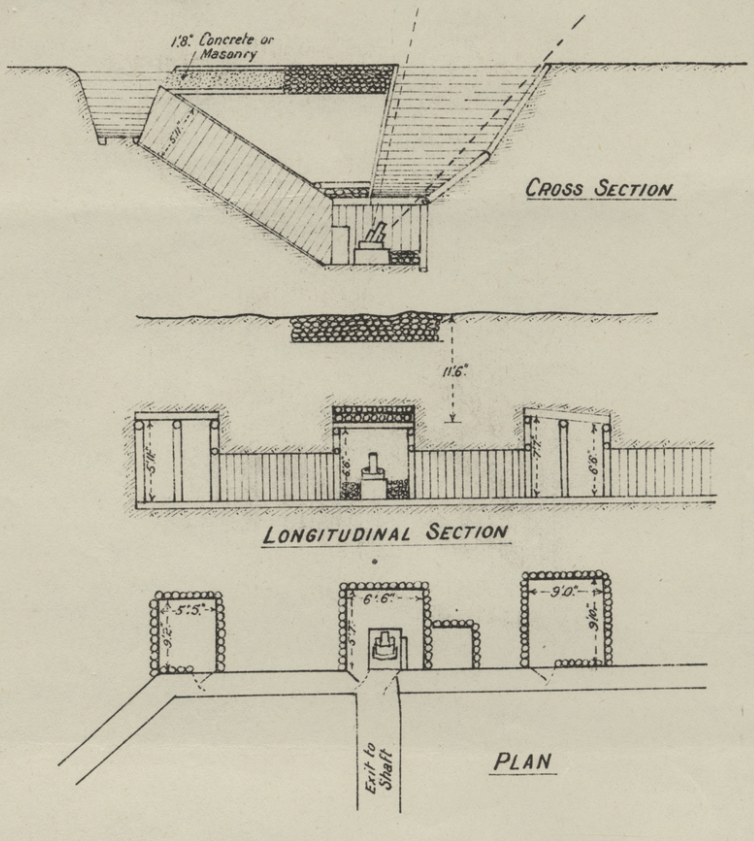
TRENCH MORTAR EMPLACEMENTS

FROM CAPTURED DRAWING DATED 9TH APRIL 1917.

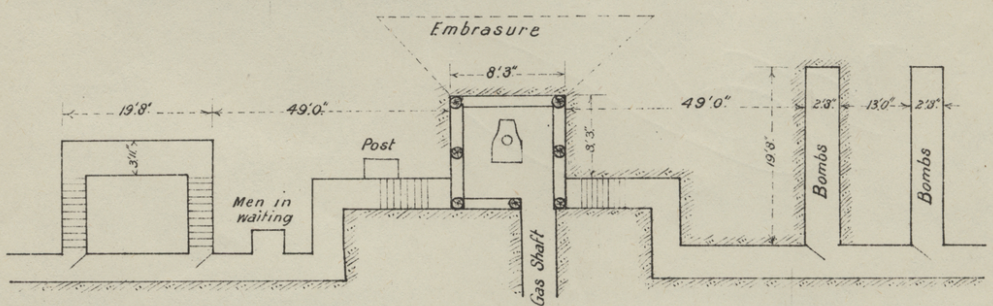
Not to Scale.

GERMAN FIELD WORKS.
PLATE 79.

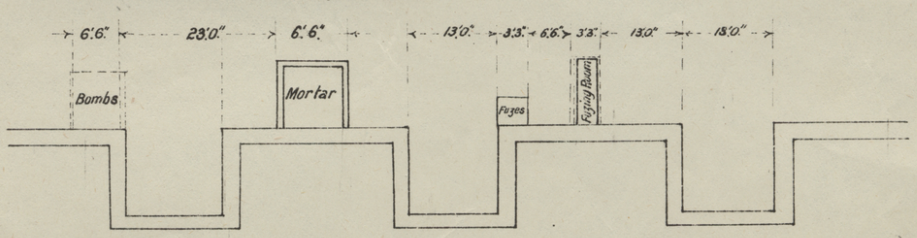
I SHELL PROOF EMPLACEMENTS



II. MINED EMPLACEMENT



III. EMPLACEMENT IN AN OPEN TRENCH



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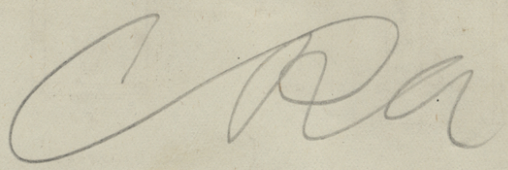
AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706



AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

1st Tunn Coy 2372 370.2

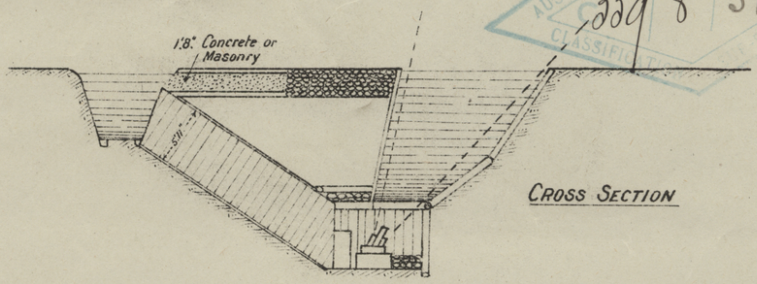
TRENCH MORTAR EMPLACEMENTS

GERMAN FIELD WORKS.
PLATE 79.

FROM CAPTURED DRAWING DATED 9TH APRIL 1917.
Not to Scale.

AUSTRALIAN WAR RECORDS SECTION CLASSIFICATION 359 8 31.

I SHELL PROOF EMPLACEMENTS



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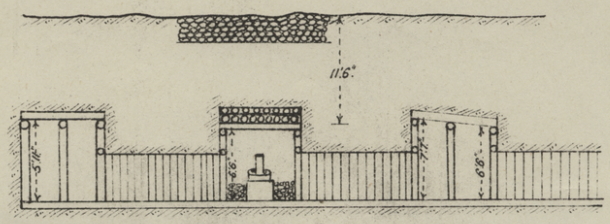
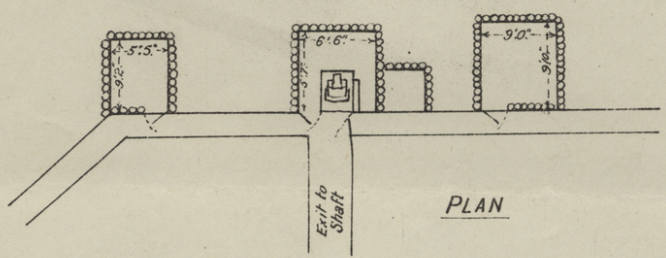
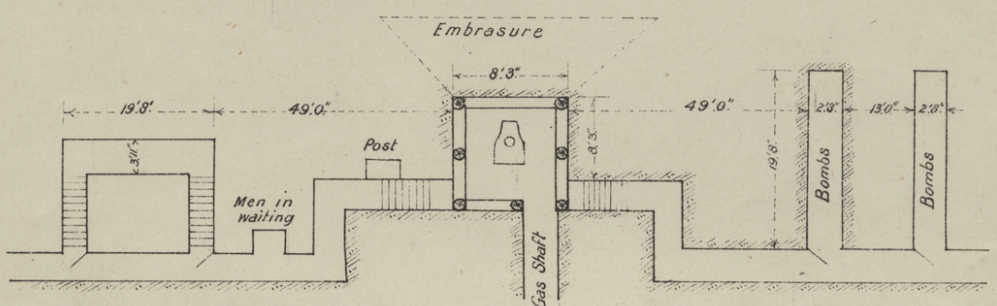


LONGITUDINAL SECTION

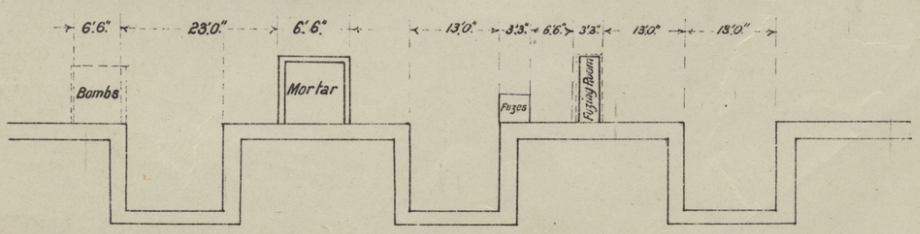


PLAN

II. MINED EMPLACEMENT



III. EMPLACEMENT IN AN OPEN TRENCH



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AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

320-2

TRENCH MORTAR EMPLACEMENTS

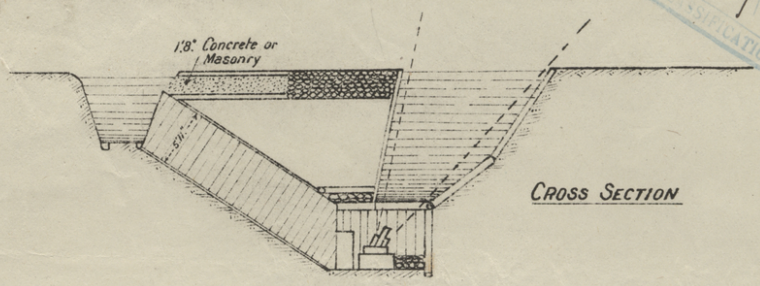
FROM CAPTURED DRAWING DATED 9TH APRIL 1917.

Not to Scale.

GERMAN FIELD WORKS.
PLATE 79.

5th a-D. Box 574
AUSTRALIAN WAR RECORDS SECTION
CLASSIFICATION 359 8 31 SUB-SECTION

I. SHELL PROOF EMPLACEMENTS



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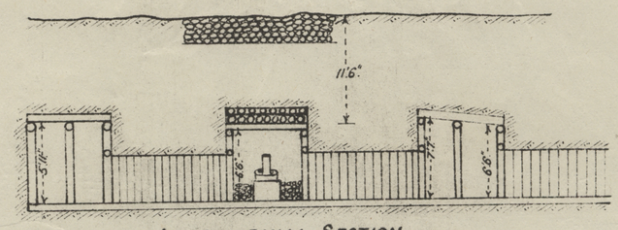

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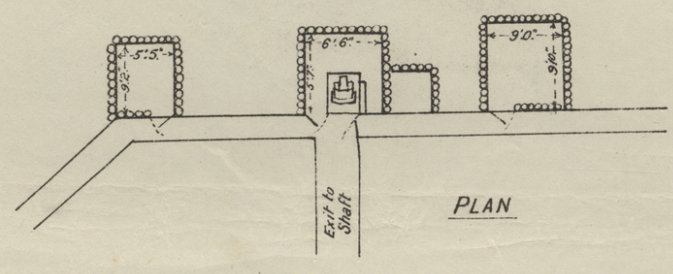
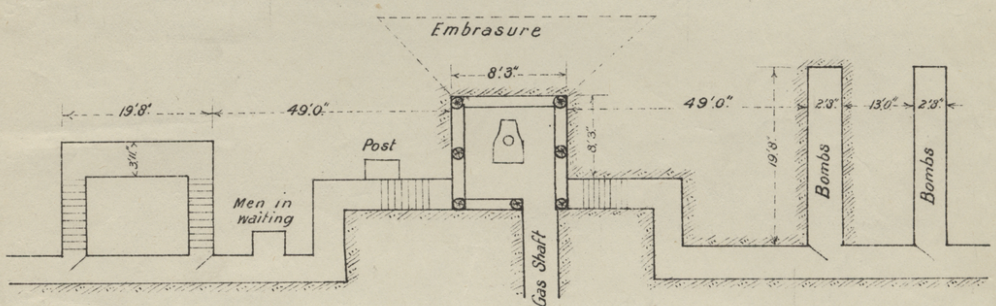
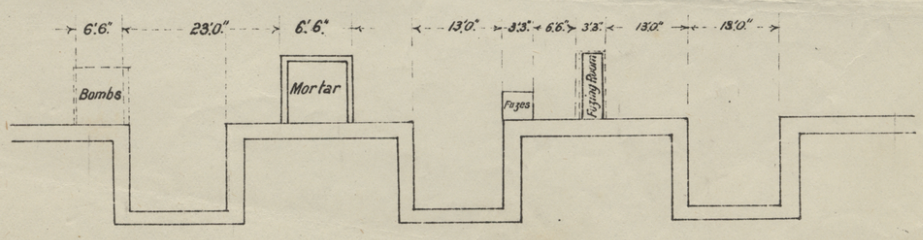


PLAN

II. MINED EMPLACEMENT



III. EMPLACEMENT IN AN OPEN TRENCH



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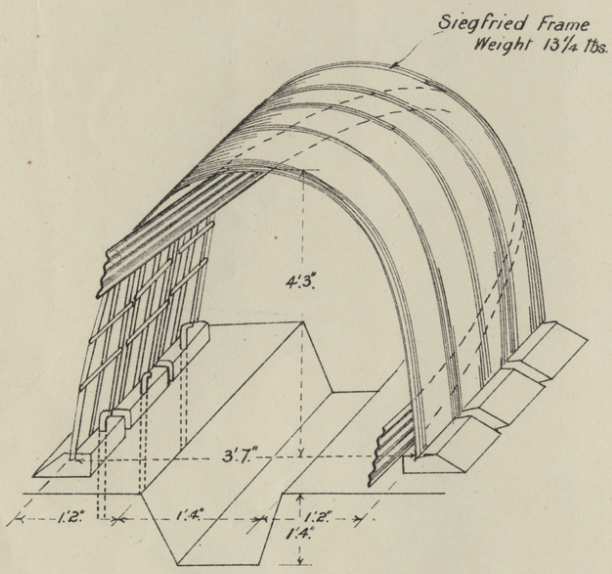
AUSTRALIAN WAR MEMORIAL AWM2022.1569.2706

HASTY SHELTERS

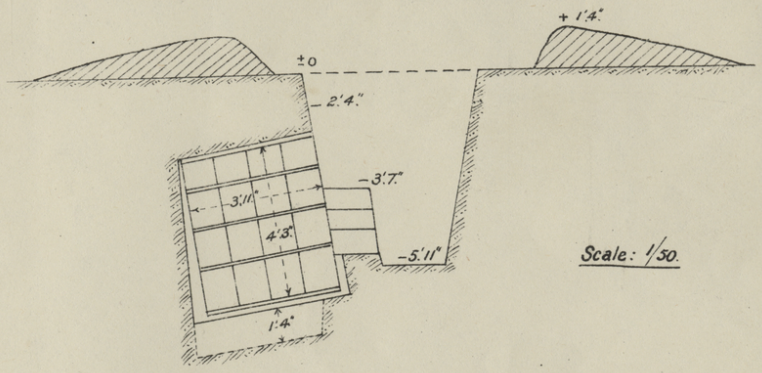
FROM CAPTURED DRAWING OF PIONEER BATTALION 106.
August 1917.

GERMAN FIELDWORKS.
PLATE. 80



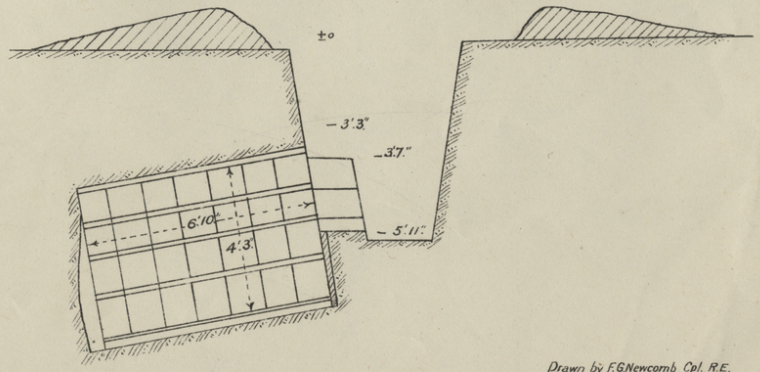
VIEW OF COVER SITTING

FUNK HOLE FOR 3 MEN SITTING - TIME 2 HOURS.



Scale: 1/50.

FUNK HOLE FOR 3 MEN LYING DOWN - TIME: 4-6 HOURS



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AUSTRALIAN WAR MEMORIAL
AWM2022.1569.2706

HEADQUARTERS, 2ND AUSTRALIAN DIVISION. (GENERAL STAFF.)
425/855

5TH AUSTRALIAN INFANTRY BRIGADE. No. 17/23 Date 29/9/17

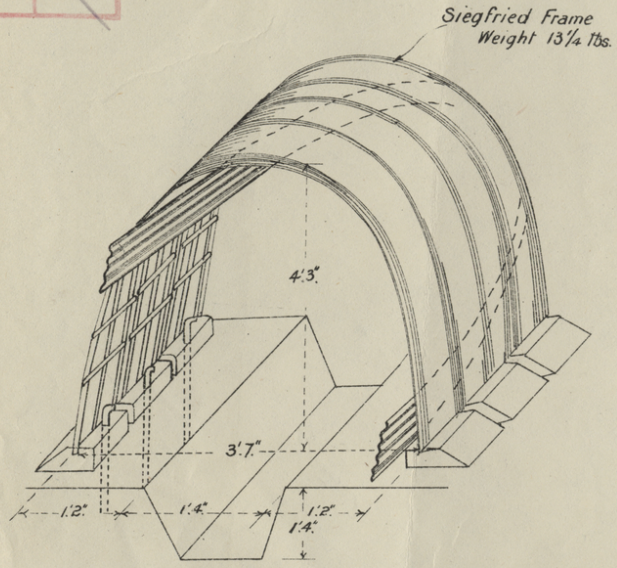
AUSTRALIAN WAR RECORDS SECTION CLASSIFICATION 359 5 172 SUB-SECTION

HASTY SHELTERS

FROM CAPTURED DRAWING OF PIONEER BATTALION 106.
August 1917.

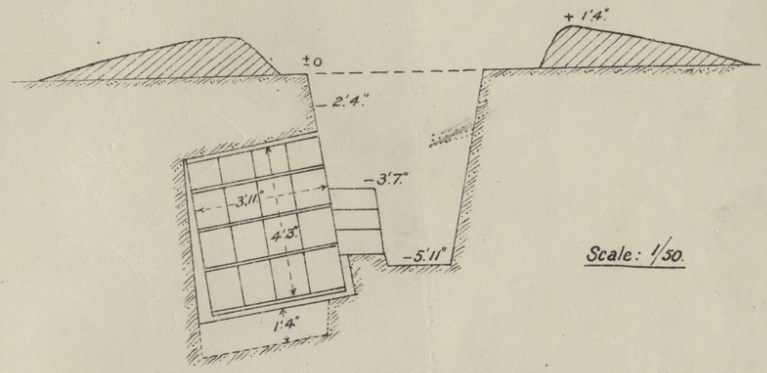
GERMAN FIELDWORKS.
PLATE. 80

5TH AUSTRALIAN INFANTRY BRIGADE. No. Date



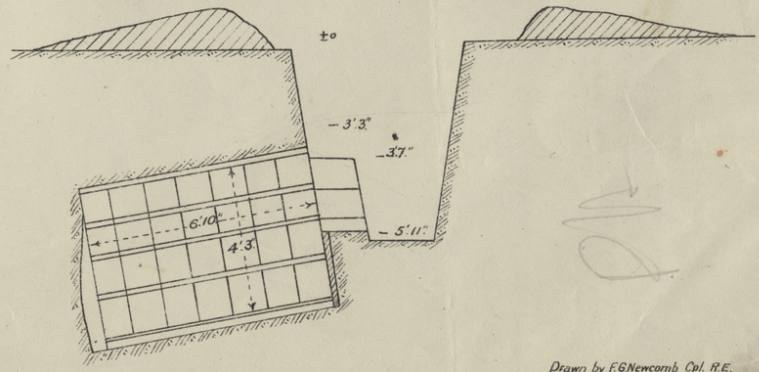
VIEW OF COVER SITTING

FUNK HOLE FOR 3 MEN SITTING - TIME 2 HOURS.



Scale: 1/50.

FUNK HOLE FOR 3 MEN LYING DOWN - TIME: 4-6 HOURS



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5A 4 Bde

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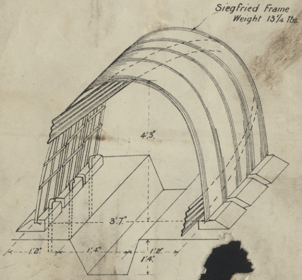
HASTY SHELTERS

FROM CAPTURED DRAWING OF PIONEER BATTALION 106.
August 1917.

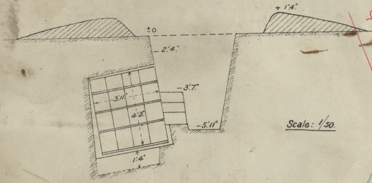
GERMAN FIELDWORKS.
PLATE. 80

HEADQUARTERS,
1ST ANZAC.
27/525.



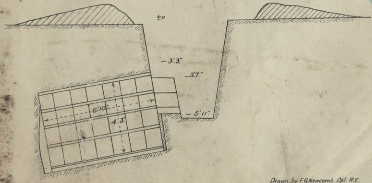
VIEW OF COVER SITTING

FUNK HOLE FOR 3 MEN SITTING _ TIME 2 HOURS.



Scale: 1/50.

FUNK HOLE FOR 3 MEN LYING DOWN _ TIME : 4-6 HOURS



AUSTRALIAN WAR MEMORIAL
359.5/152
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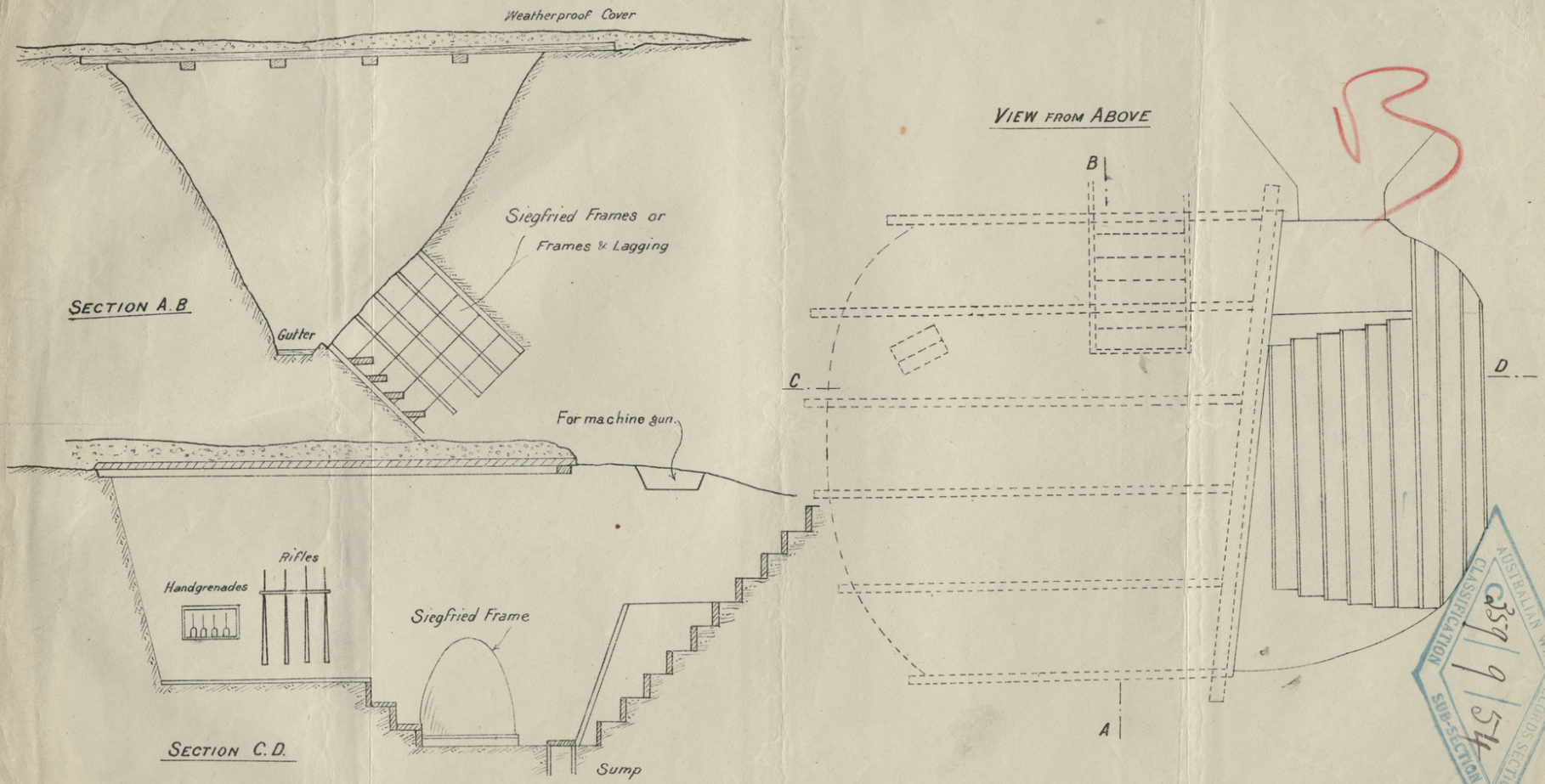
AWM2022.1569.2706

DEEPENED SHELL HOLE EMPLACEMENT

FROM CAPTURED DRAWING OF PIONEER BATTALION 106.
August 1917

GERMAN FIELDWORKS.
PLATE 81.



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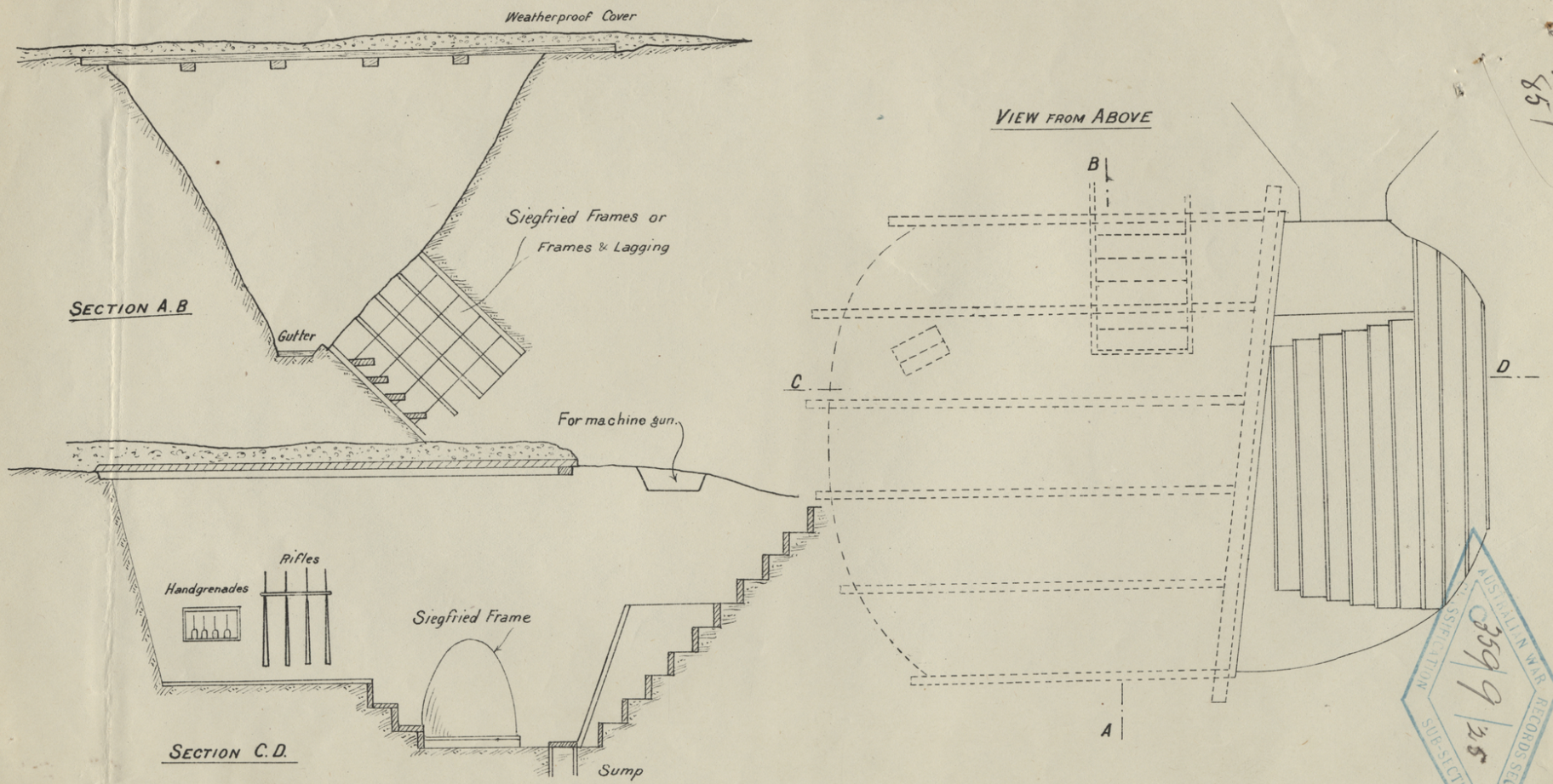
DEEPENED SHELL HOLE EMPLACEMENT

FROM CAPTURED DRAWING OF PIONEER BATTALION 106.
August 1917

GERMAN FIELDWORKS.
PLATE 81.



AUSTRALIAN WAR RECORD SECTION
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SUB-SECTION
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