

Research Material

NATIONAL  
FILLING FACTORY  
NO. 5  
GLOUCESTER

Primary Sources

Part One

Material in this section was obtained from the Public Record Office, (now the National Archives) Kew, and the National Railway Museum, York.

The index also contains references to schemes not wholly connected to the main subject.

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### MINISTRY OF MUNITIONS

The Ministry was created by the Ministry of Munitions Act 1915 (5 & 6 Geo. V c. 51). By an Order in Council of 24 March 1921, the Ministry ceased to exist on 31 March 1921; and a Commission appointed by the Treasury, known as the Disposal and Liquidation Commission, was established to exercise such of the powers and duties transferred to the Treasury under the Order as related to the disposal of surplus Government property, the completion and liquidation of contracts and other liabilities entered into by the Ministry. This Commission ceased to exist on 31 March 1924, when its responsibilities were taken over by a newly constituted Surplus Stores, etc. Liquidation Department in the Treasury. This Department ceased to exist as a separate entity on 31 March 1927, when the War Office took over its functions in connection with the sale of property and compensation cases and the Treasury assumed direct responsibility for claims and outstanding debts.

Before the War of 1914 to 1918 munitions supply was largely a matter for the individual services. By 1915, however, the supply situation had become critical. On April 8th a Cabinet Committee, the Munitions of War Committee, was set up to secure the maximum employment of the resources of the country on the manufacture of munitions of war. This in itself worked through a War Office Committee, the Armaments Output Committee, which had been set up a week earlier. This arrangement was superseded by the formation of a Ministry of Munitions which was established on June 9th 1915. Its function was of an ephemeral nature since the prime purpose of the Ministry was to stimulate and control the government war supplies during World War One.

The Ministry employed more staff than any previous government department. The iron and steel, chemical and engineering industries were brought under its control and similarly many nationalised, 'controlled' and private firms were engaged to give precedence to government orders. Labour too was employed under conditions fixed by the Ministry.

From 1915, the Ministry of Munitions took over from the War Office responsibility for the supply of naval ordnance and small arms, though with the exception of the Royal Naval Air Service, the Admiralty otherwise obtained both arms and equipment almost entirely independently of the Ministry. It also became responsible for the supply and inspection of explosives and munitions for the army. Additionally, in 1917 responsibility was assumed for aircraft production and aeronautical supplies on behalf of the three service organisations; but actual aircraft design was not taken over from the Air Board until January 1918.

At the beginning of the War before the formation of the Ministry of Munitions contracts for munitions were placed by the Department of the Director of Army Contracts and all matters connected with the supply, except the actual placing of the contract, were looked after by the Department of the Director of Artillery. At an early stage in the War, however, the section of the Branch of the Director of Army Contracts dealing with this matter was transferred and placed directly under the Director of Artillery. On the formation of the Ministry the Branch of the Department of Artillery dealing with contracts was transferred to the Ministry and became the nucleus of the Contracts Branch of the Ministry of Munitions.

Local Committees were formed throughout the country with a view to increasing the output of munitions by co-operative methods and bringing in these firms which up to the present had not taken up war work. The country was mapped out into areas, for each of which a Board of Management was responsible and powers were given to these Boards of Management to place contracts.

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(Extract)

MUN 5 - Documents in this class are those specifically appropriated by, or created in, the Ministry's Historical Records Branch for the purpose of preparing the official History.



# GLOUCESTER NATIONAL FILLING FACTORY.

DIRECTING BOARD:

JOHN J. STEINITZ.  
J. H. BEACH.  
HARLEY K. BUTT.  
JOHN FIELDING.

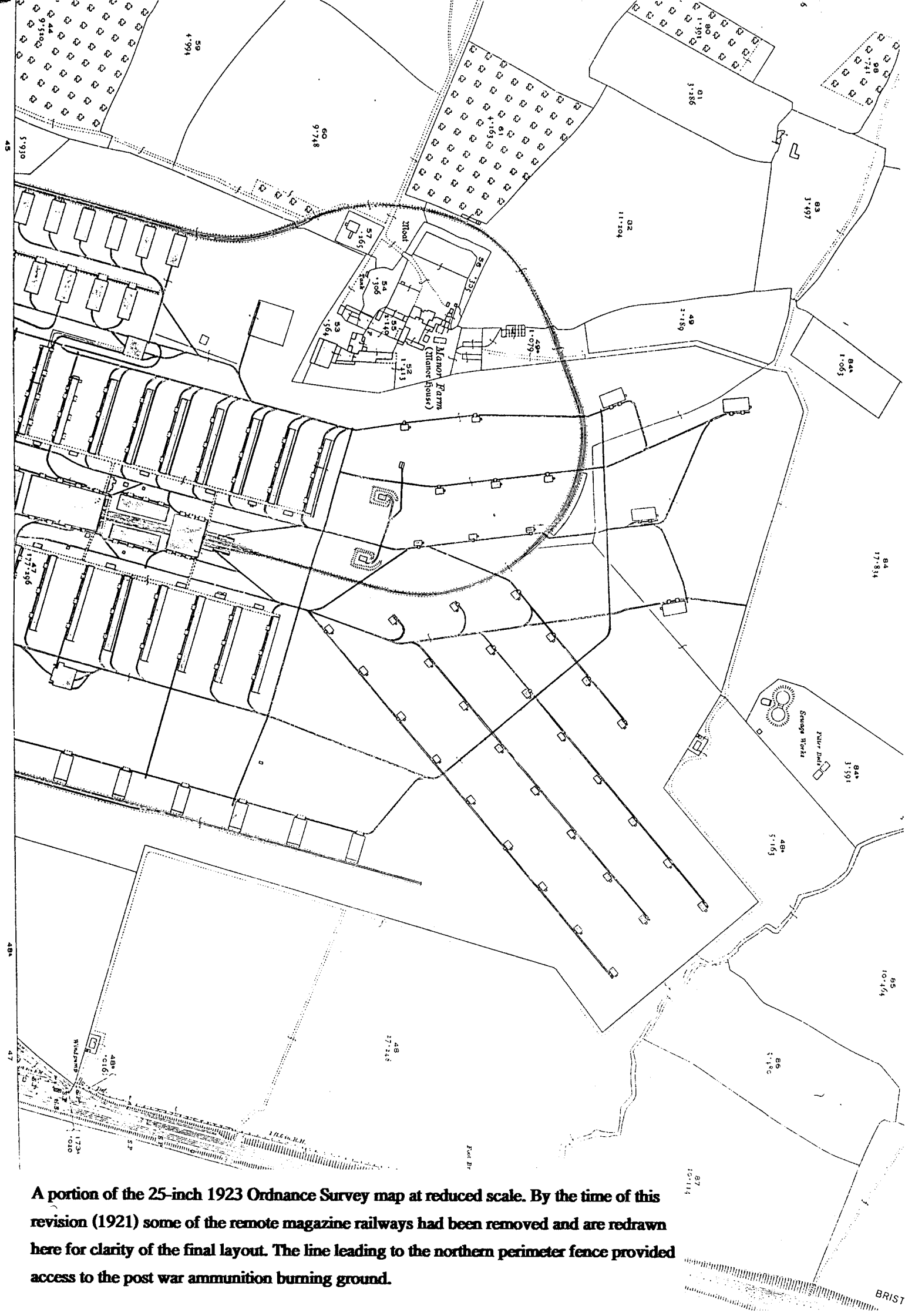
QUEDGELEY,

GLOUCESTER,

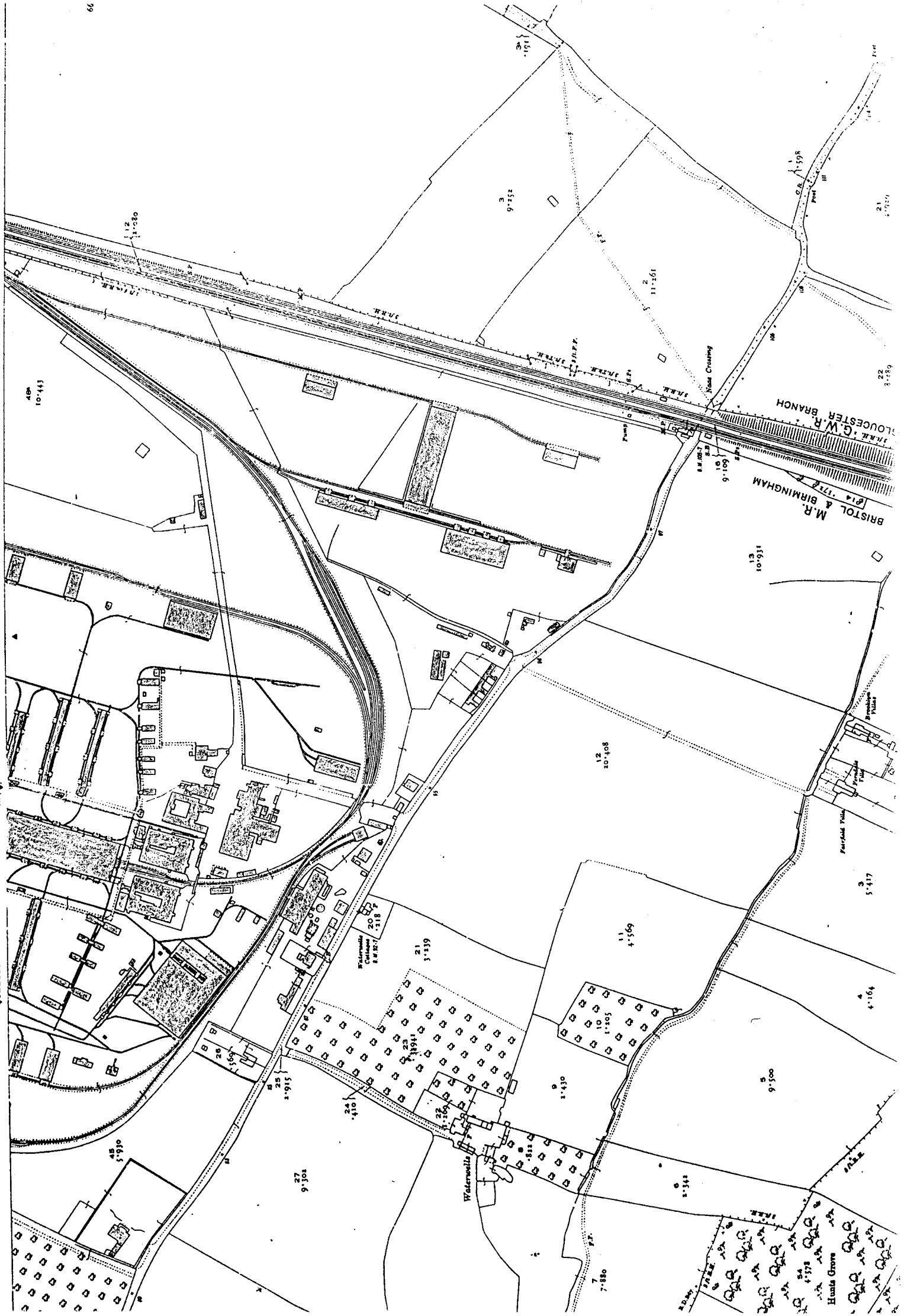
TELEGRAMS:  
"FILLER," GLOUCESTER.

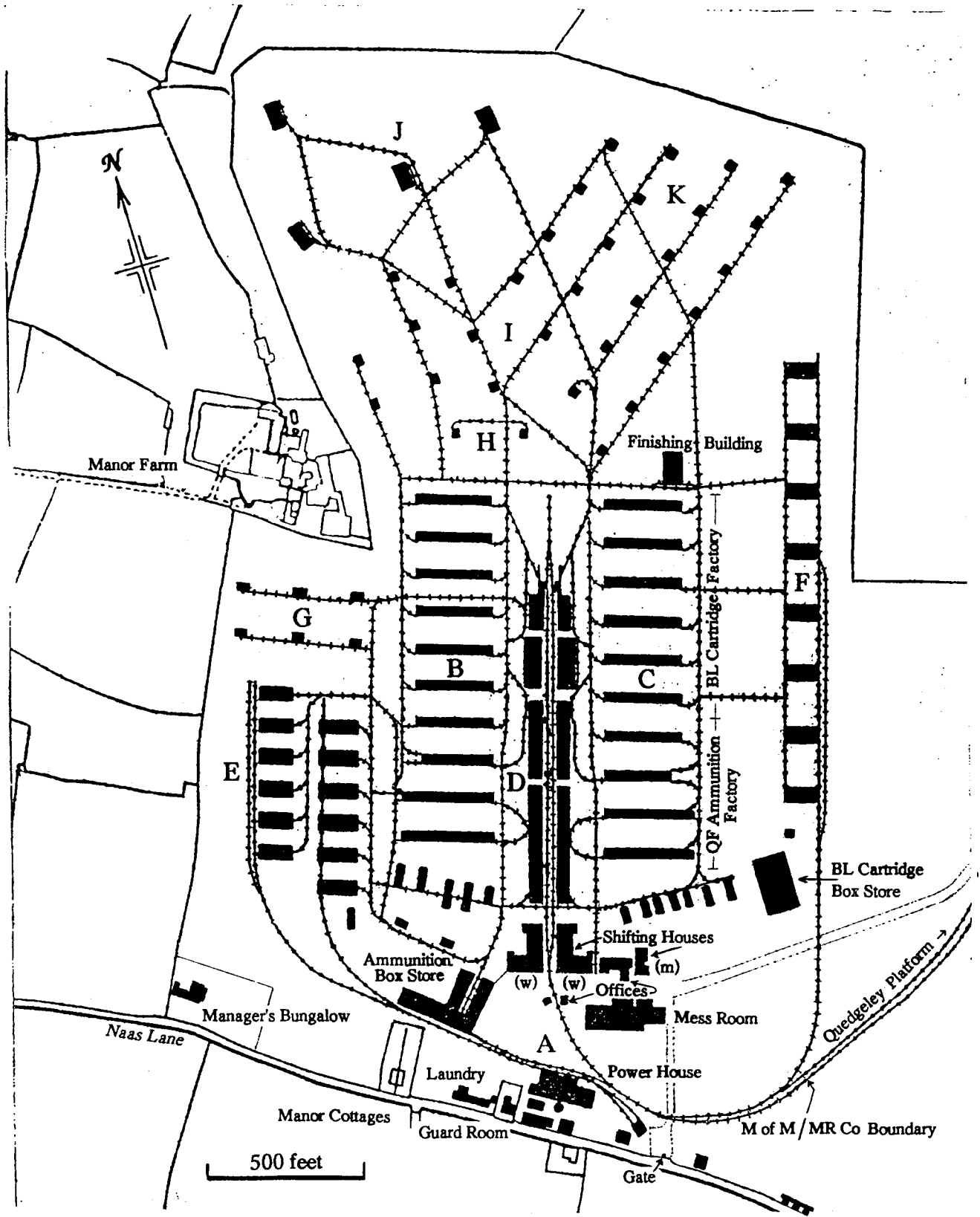
TELEPHONE NO.  
796.

191



A portion of the 25-inch 1923 Ordnance Survey map at reduced scale. By the time of this revision (1921) some of the remote magazine railways had been removed and are redrawn here for clarity of the final layout. The line leading to the northern perimeter fence provided access to the post war ammunition burning ground.





Original layout of Gloucester National Filling Factory with the additional BL cartridge box store requested by the factory management in 1916.

Sewage Works

Manor Farm  
(Manor House)

Moat

BRISTOL M.R. & BIRMINGHAM F.B.  
GLOS. & GLouc.

Windpump  
S.P.

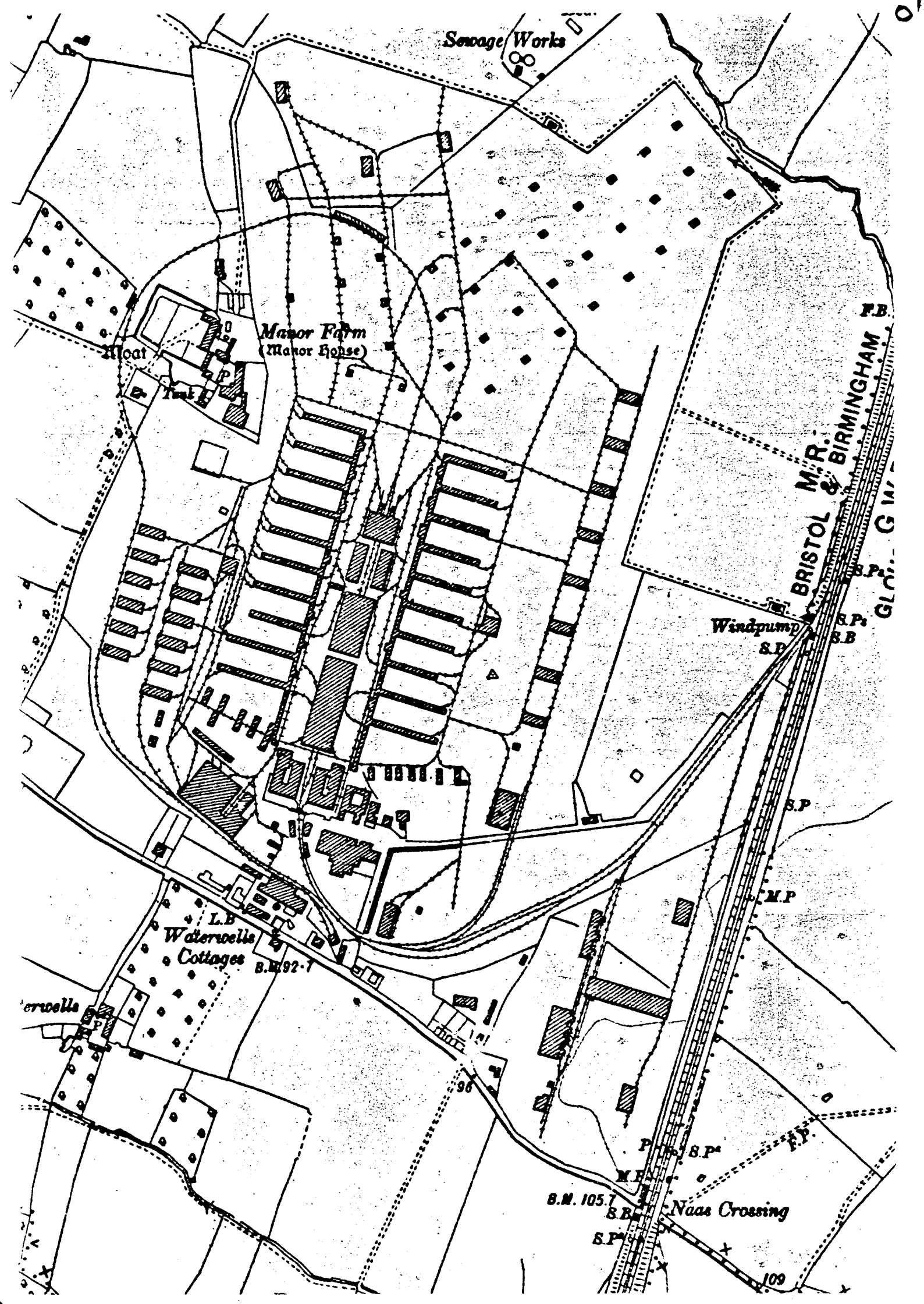
Waterwells  
Cottages

B.M. 92.7

B.M. 105.7

Naas Crossing

109



1	2	3	4	5	6
		1		2	

# NATIONAL FILLING FACTORY NO 5 - GLOUCESTER-

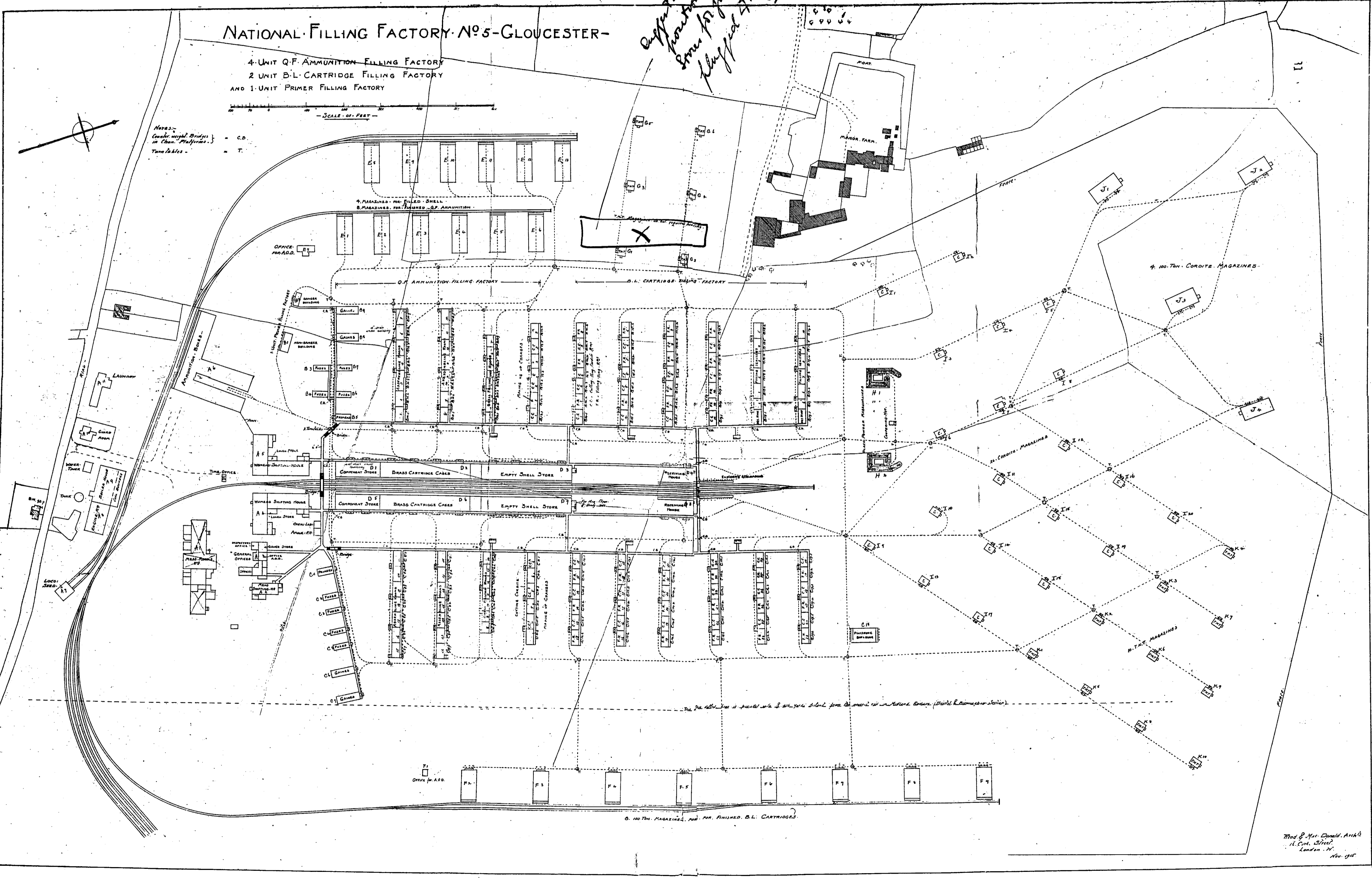
4 UNIT Q.F. AMMUNITION FILLING FACTORY  
 2 UNIT B.L. CARTRIDGE FILLING FACTORY  
 AND 1 UNIT PRIMER FILLING FACTORY

4 MAGAZINES FOR FILLED SHELL  
 8 MAGAZINES FOR FINISHED Q.F. AMMUNITION

Notes:-  
 Counter weight Bridges in Chain Platforms = C.D.  
 Turn tables = T.

SCALE OF FEET

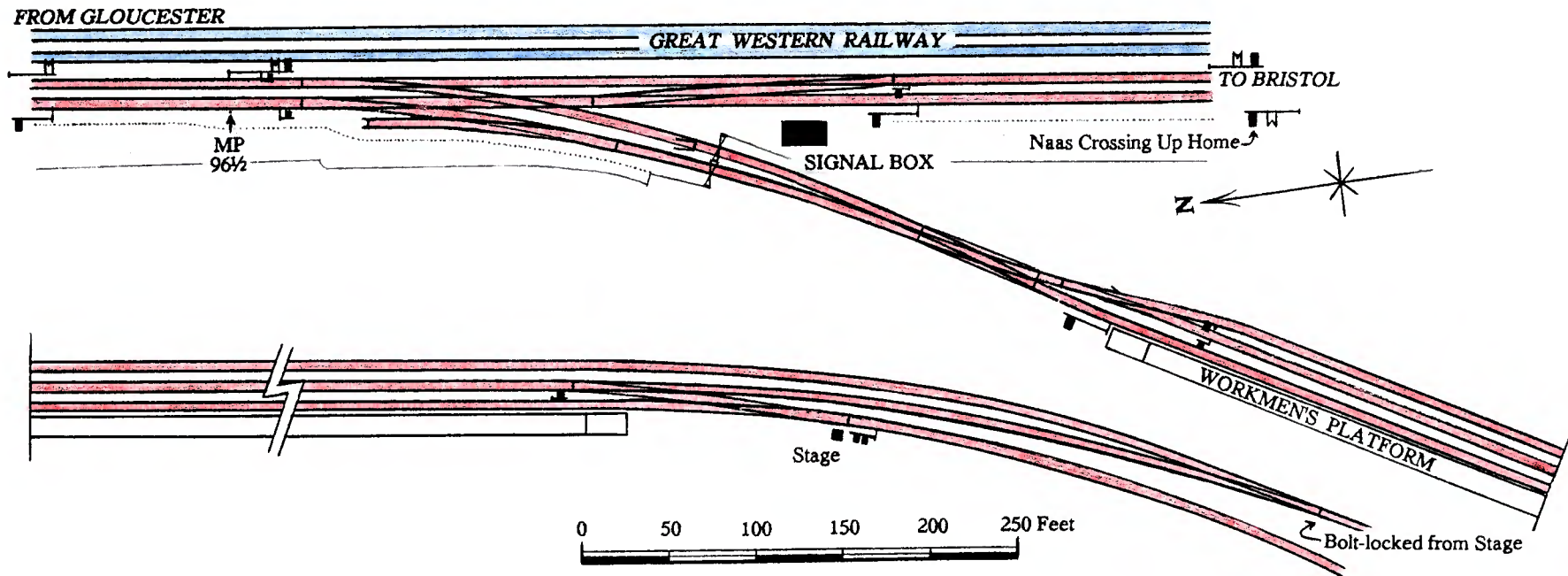
*Original location for some of filled shells for 7.5 inch shell*



# QUEDGELEY

## DOUBLE JUNCTION BETWEEN TUFFLEY JUNCTION & NAAS CROSSING

1915



Track plan of the double junction in the Midland Railway main lines and sidings adjacent to the workmen's platform. Drivers of down trains gave three whistles when passing Tuffley Junction if requiring to enter Quedgeley Sidings.

**NATIONAL FILLING FACTORY NO. 5 GLOUCESTER**  
**- APPROVED LAYOUT, NOVEMBER 1915 -**

Filling Igniters						Dry Store	CC	FR	CC	FR	CC	FR	
10	9	8	7	6	-	-	30	30	29	29	28	28	
B19							C17						
Filling Igniters						Dry Store	CC	FR	CC	FR	CC	FR	
5	4	3	2	1	-	-	27	27	26	26	25	25	
B18							C16						
FR	CC	FR	CC	FR	CC	B.L. CARTRIDGE FILLING FACTORY	CC	FR	CC	FR	CC	FR	
12	12	11	11	10	10		24	24	23	23	22	22	
B17								C15					
FR	CC	FR	CC	FR	CC		CC	FR	CC	FR	CC	FR	
9	9	8	8	7	7		21	21	20	20	19	19	
B16								C14					
FR	CC	FR	CC	FR	CC		CC	FR	CC	FR	CC	FR	
6	6	5	5	4	4		18	18	17	17	16	16	
B15								C13					
FR	CC	FR	CC	FR	CC		CC	FR	CC	FR	CC	FR	
3	3	2	2	1	1	15	15	14	14	13	13		
B14							C12						
MUC	CC	MUC	CC	MUC	CC	CC	MUC	CC	MUC	CC	MUC		
3	3	2	2	1	1	6	6	5	5	4	4		
B13							C11						
Shell Filling Rooms							Shell Filling Rooms						
7	6	5	4	3	2	1	14	13	12	11	10	9	8
B12							C10						

Assembling Rooms							Q.F. AMMUNITION FILLING FACTORY	Assembling Rooms							
14	13	12	11	10	9	8		28	27	26	25	24	23	22	
B11									C9						
Assembling Rooms									Assembling Rooms						
7	6	5	4	3	2	1		21	20	19	18	17	16	15	
B10									C8						

FR filling rooms

CC cutting cordite

MUC making up charges



INFORMATION OBTAINED THROUGH BOARD OF TRADE AS TO RATES PAID  
IN CERTAIN MUNITION WORKS IN YORKSHIRE NOT ENGAGED ON FILLING WORK

Leeds firms.

1. 12/- for a 53 hours week for women of 21 years of age and over.  
11/- for girls 20 years of age, decreasing 1/- per week to 14 years, 6/-.
2. £1 per week whilst learning, when efficient, bonus will bring the wage to not less than 30/- per week.  
Three 8 hour shifts, 6 a.m. to 2 p.m., 2 p.m. to 10 p.m., 10 p.m. to 6 a.m.

Sheffield firm.

15 years of age, 8/6 for 45 hours work. 16 years of age, 10/-. 17 years of age, 11/6. 18 years of age, 13/-. 19 years of age and over, 15/-.

Keighley firm.

15/- per week to start, rising to 17/- per week after one month.

Rotherham firm.

Proposed to pay women 15/- for the first three weeks, and 17/- a week afterwards.

Gainsborough firm.

Fixed rate of 10/- per week to beginners irrespective of age, and 15/- for the forewomen. When proficient, the workwomen will be placed on piecework rates.

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To Major Strange.

INTERIM REPORT ON WOMEN'S WAGES IN THE FILLING FACTORIES

Chaul End, Luton. (Messrs. Kent)

When taken on, girls under 16 years of age get 10/- per week. Over 16 years of age 12/- per week. After the first three weeks, each girl, irrespective of age gets a rise of 2/- per week. Girl inspectors are paid 18/- per week. Girl charge hands 16/6 per week. 7.45 a.m. to 7.30 p.m. with 1½ hours interval for meals on 5 days of the week. Saturday 7.45 a.m. to 11.45 a.m.

King's Norton Metal Co. (Abbey Wood)

The scale for learners is as follows:-

Girl aged 14 receives 6/- per week. Girl aged 15 receives 7/- per week and so on, increasing 1/- per week for each year of age, so that a girl of 20, while learning, could receive 12/- per week. When proficient they are paid piece rates. The manager seemed to consider that the average girl in this factory is earning 25/- to 30/- per week on piece work at the present.

Hours worked here are: Day Workers 7 a.m. to 7 p.m., (often kept till 9 p.m.) on 5 days of the week. Saturdays 7 a.m. to 6 p.m. Night Workers 7 p.m. to 7 a.m.

Sumner Street Munition Factory.

Circumstances here are rather peculiar as the labour is being supplied by the "Oxo" people, and they naturally want a scale of wages adopted which would not re-act adversely on conditions in their own factory. The following rates are now suggested for this factory:-

Ordinary hands 13/- per week  
1/6 and bonus (danger) } 15/- per week  
6d in lieu of tea

Overlookers 17/6 per week  
Forewomen 25/- per week  
Asst. Forewomen 21/- per week

Should you wish to consider the Woolwich rates, for purposes of comparison, I believe the usual rate of pay there is 28/- per week, an "occupation" wage of 10/- per week.

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## WAGES NOW BEING PAID FOR MUNITION WORK

At Gramophone Company's Works. Women employed on shell filling and in making shell cases, 18s. for 55hr. week when by time and averaging 22s. a week on piece work rates.

At Bryant & May's Factory, Bow. Women taken on at 14s. a week. Piece rates not introduced for nearly 2 months. Now paid as follows in making hand grenades: Screwing in dummy fuzes, 8½d. per thousand, (quickest workers earned £1. 3. 4½. a week, average much lower). Pulling out dummy fuzes, 3¾d. per thousand, (2 quickest workers earned £1. 1. 4. a week). Dropping composition into the top of fuze, 2½d. per thousand. Fixing caps to tops of fuzes, 6½d. per thousand.

At Igranic Electrical Works, Bedford. Making tubes for submarines, 8s. a week.

At Sparklets. 3d. to 3¾d. an hour, and only time and one third for night work.

At Aeroplane Works, Hendon. Machine work on steel plates for 3d. an hour. (Men were paid 10d. an hour. Mr. Graham-White pays women 18/2 for the same work).

At Nobel's. Women on shell, bullet and cartridge work at 3½d. an hour, 8 hour shifts. Time for meals deducted from their pay.

At Vickers, Sheffield. 18 years and under, 8s. 19 years and under, 11s. 20 years and under, 12s. 21 years, 14s. with 1s. a week war bonus.

At Streetly Ammunition Works, Walsall. 15s.-16s. for a 73½ hour week.

At Villiers Engineering Works, Wolverhampton. 6s. for girls of 14, rising by 1s. a year to 12s. at 21 for a 55 hour week.

[9/1915]

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## SECOND REPORT ON THE QUESTION OF WOMEN'S WAGES IN THE FILLING FACTORIES

Minimum wage examples (time) in order to consider the fixing of a minimum wage for filling work:-

Chain making, 2½d. an hour. Paper box trade, 3d. Tailoring trade (men's garments), 3½d. Shirt making, 3½d. Hollow ware trade, 13/6 a week. Tin box and canister trade, girls 18 years and over, 14/1 for a 52 hour week. Sugar, confectionary and food preserving trade, 13/- for a 52 hour week.

In peace time it was practically impossible for the better type of factory girl to live on less than 15/- per week. It is customary for such girls to pay 8/- or 9/- into the family exchequer in return for board and lodging and the remainder does not leave much of a margin for fares, shoes and clothing generally. Taking into consideration the present enhanced cost of living, and the risks attendant on filling work, 15/- would evidently be inadequate as a "fair wage" and an amount nearer 20/- would probably be nearer the mark now.

[E. H. Pratt to Major Strange, 10/1915]

[Extract]

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PRO. MUN5/81/342/6

Sent to all National Filling Factories:  
 MINISTRY OF MUNITIONS OF WAR

Whitehall Place,  
 S.W.

8th December 1915.

Sir,

Remuneration etc in Filling Factories.

The recommendations contained in the enclosed memorandum are now awaiting the approval of the Minister. Pending such sanction it appears desirable that the Management of Filling Factories should have a copy of these recommendations (which may, of course be slightly modified when sanctioned) in order that arrangements made by them should approximate to these recommendations.

I am, Sir,  
 Your obedient Servant,  
 (Sgd.) H.B. Strange.  
 Director A.M.4.

P.S. In addition to memorandum 44 referred to above, I am also sending here-with a copy of L.2.- recommendations which have already received Ministerial approval.

H.B.S.

Extract note from circular L.2. - Women of 18 years of age and over employed on time, on work customarily done by men, shall be rated at £1 per week, reckoned on the usual working hours of the district in question for men in Engineering Establishments.

October 1915.

MEMO 44I. WAGES(a) Women

Women employed in Fuze Filling, Assembling Q.F. Ammunition, making up of B.L. Cartridges and filling in blocks in 18 pdr Shells shall be employed on time and shall be paid 5d per hour during the first four weeks of their employment and 5½d per hour thereafter. Women employed in filling of H.E. other than 18 pdr block filling shall be employed on time and shall be paid 6d per hour during the first four weeks of their employment and 6½d per hour thereafter. The rate for chargewoman and for forewoman employed in the above process shall be 6½d and 7½d per hour respectively.

(b) Men

The male workers employed shall receive ½d per hour above the recognised rates of the district.

WORKING HOURS(a) Women

The normal week shall consist of 40 hrs. Each factory shall fix its own normal starting and stopping times and breaks for meals, having regard to travelling facilities and other local considerations.

The following hours are suggested as a model:-

1. Day shift 7.45 - 12 and  
 1. - 5.30  
 for 5 days a week.....43¾ hours  
 Saturday 7.45 - 12..... 4¼ . .  
 Total....48 hours
2. Night shift 6.30 p.m. to 5.30 a.m. for five nights.  
 2 breaks of ¾ hour each.
- 11 hours  
 1½ . .  
 9½ hours  
 5 . .  
 Total....47½ hours

Continued/

(b) Men

The hours of male workers either on day or night shift shall be fixed according to the requirements of their work, having regard to the working hours fixed for women above.

AGE

Women under 18 years of age shall not be employed in Danger Buildings.

Note attached to this memo: This is an unrevised copy of Memo 44. It was subsequently amended, the time rates being substantially increased.

[Extract]

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PRO. MUN4/1541

[HOURS, CONDITIONS OF WORK & RATES OF PAY IN CONTRACTOR'S FACTORY]

George Kent Ltd., Chaul End Works, Luton, Bedfordshire.

Day Shift. 7.45 a.m. to 7.45 p.m. 12 hours.

Intervals:

- Lunch (free to every employee - milk and biscuits in Mess Room) 10.40 a.m. to 11 a.m.
- Dinner (at 4d. per head supplied in Mess Room) 1 p.m. to 2 p.m.
- Tea (free to all female labour) 5 p.m. to 5.30 p.m.

Night Shift. 7.45 p.m. to 7.45 a.m. 12 hours.

Intervals as above.

The average wage is 15/- to 18/- per week together with a bonus averaging from 6/- to 10/- per week except in special cases where the rate is very much higher. Night work is paid at the rate of time and a quarter.

If any of our workers manifest signs of skin trouble from Tetryl they are allowed a day or two's absence and rest at full wages.

The men are paid a minimum wage of 30/- with bonuses based on an award under the Munition Act.

13.4.1916

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PRO. MUN4/1788

Leeds National Filling Factory.

Day Shift. 8.30 a.m. to 6 p.m. )  
 Night Shift. 8.30 p.m. to 6 a.m. ) Monday to Friday.

Saturdays. 8.30 a.m. to 5.30 p.m.

Night shift starts at 8.30 p.m. Sunday.

5.1916

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Hereford National Filling Factory.

Day Shift. 7.40 a.m. to 5.5 p.m. ) Less meal time 11.50 - 12.45 on each  
Night Shift. 7.40 p.m. to 5.5 a.m. ) shift. 49½ hours per week.

Women. 6½d. per hour + 11/- per week War Bonus + Premium Bonus.  
Average weekly wage £2. 10. 0 to £2. 14. 0.

Men. 7½d. per hour + 14/6 War Bonus + Premium Bonus + 7½% on the gross  
earnings (Ministry award in April or May for P.B. workers only).  
Average weekly wage earned £3. 15. 0 to £4.

Artisans. The usual Trade Union rates.

At the Labour Exchange there is a standing order for 100 women and 25 men per week to make up wastage. This is being met. 60 to 100 women quit weekly, the reasons given being - distance to travel to work; no hostel accommodation; a feeling of club life is desirable; frequent disputes in understanding how earnings are made up.

Output. January 1918 - 27 8" shells per worker per 50 hours week.  
July 1918, after the introduction of the Premium Bonus Scheme -  
61 8" shells per worker per 50 hours week.

Principal Products. 100,000 shells per week, which will shortly be increased to 120,000.

12.9.1918

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MINISTRY OF MUNITIONS  
SECRET WEEKLY REPORT

Week Ending

15.1.16 Report on Gun Ammunition. National Filling Factories. (C.M.4.) Cartridge Filling and Q.F. Ammunition assembling. Gloucester does not now expect to give a material output till the 1st March. The weekly output then is expected to be 6,000 primers, 10 tons B.L. cartridges, and 3,000 18-pr. complete rounds.

29.1.16 Report on Gun Ammunition. (A.M.3.) (Visit by Mr. West and Mr. Fowler to the West of England). Lister and Co.'s milk separating works at Dursley are entirely devoted to the manufacture of 18-pr. shell and primers. The output of the former is rising to 3,000, and of the latter to over 30,000 per week. A number of machines for the smaller parts of the primers have been made by the firm and the output is highly creditable.

## PRO. MUN2/3

18.3.16 Labour. Sunday Labour. On the 16th March, the Building Labour Committee resolved to recommend to all the departments concerned that Sunday work should be reduced to the minimum of absolute necessity. This recommendation arose out of complaints of the payment of excessive wages at Quedgeley in connection with the erection of the Gloucester Filling Factory. The high wages paid were due to the working of much overtime, including Sunday work at double pay, which, the Committee pointed out, "must inevitably mean hours of slack-ing."

## PRO. MUN2/5

17.6.16 Labour. Housing. Gloucester: Sir Robert Carlyle visited Gloucester recently, and discussed the general position of the housing of employees at the Quedgeley Filling Factory. It is considered likely that additional houses will have to be built, and the resources of Cheltenham and Stroud will have to be drawn upon for lodging accommodation.

24.6.16 Labour. Gloucester National Filling Factory. Total number employed. May 19th, 1,703. % increase since April 14th, 91.13. - 1 shift worked. [\*]

22.7.16 Labour. Gloucester National Filling Factory. Total number employed. June 16th, 2,420. % increase since May 19th, 42.10. - 2 shifts worked.

[\* April numbers therefore equal 891 persons employed].

## PRO. MUN2/6

19.8.16 Labour. Gloucester National Filling Factory. Total number employed. July 14th, 2,765. Three shifts were being worked at this factory.

23.9.16 Labour. Gloucester National Filling Factory. Total number employed. August 18th, 3,419. Three shifts were being worked at this factory.

## PRO. MUN2/7

14.10.16 Railway Transport. Transit Facilities for Munition Workers. The railway company have agreed that watchmen at the National Filling Factory, Quedgeley, shall travel from Gloucester by empty passenger trains under conditions at present being considered.

11.11.16 Railway Transport. Transit Facilities for Munition Workers. National Filling Factory, Gloucester. - The factory had considerable difficulty in keeping their staff of watchmen together owing to the difficulty in getting from Gloucester to Quedgeley and back. Arrangements have been made with the Midland Railway Company for the men to travel in empty passenger trains between these places.

Week Ending

2.12.16 Finance. Summary of Cost Returns, 1916.

## GLOUCESTER

Class of Ammunition	Unit	Cost per Unit and Shells Filled, &c						Production		Remarks
		August			July			August	July	
		£	s	d	£	s	d			
Assembling filled fuze and gaine.	100	1	6	7.93	0	10	6.16	46,405	143,410	
Filling 14-dram exploders.	100	2	10	11.78	2	15	2.25	64,375	134,719	
Completing 18-pr. H.E. amatoI incomplete rounds.	1	0	13	8.46	0	13	9.04	79,855	74,801	1
Filling primers No.1 MKII.	100	6	16	11.75	6	17	2.98	56,304	49,432	
Filling, assembling, and packing 18-pr. Shrapnel N.C.T.	1	2	11	0.68	2	11	7.83	94,031	75,736	
Assembling and packing 4.5-in. H.E. complete rounds.	1	2	15	9.69	2	15	10.17	72,483	69,383	2
Filling and priming 4.5-in. N.C.T. cartridge.	1	0	16	11.18	0	18	2.21	10,335	36,191	
Filling 4.7-in. cartridge cordite.	1	1	5	2.03	1	8	3.80	18,468	16,174	
Filling 6-in. 26-cwt. cartridge cordite.	1	1	3	7.05	1	3	11.92	30,924	21,696	
Filling 8-in. cartridge cordite.	1	2	6	7.20	2	5	10.31	32,120	40,716	
Filling 60-pr. cartridge cordite.	1	2	7	8.20	--			20,112	--	

1. Excluding cost of incomplete rounds and block charges.
2. Excluding cost of cartridges.

## PRO. MUN2/8

16.12.16 Finance. Summary of Cost Returns, 1916.

## GLOUCESTER

Class of Ammunition	Unit	Cost per Unit and Shells Filled, &c			Production
		September			September
		£	s	d	
Assembling fuze and gaine.	100	0	10	9.56	211,628
Filling 14-dram exploders.	100	2	17	0.61	19,202
Filling primers, No.1, Mark II.	100	6	4	0.57	82,944
Assembling 4.5-in. H.E. complete rounds.	1	2	15	1.64	54,884
Filling and assembling 18-pr. Shrapnel N.C.T. rounds.	1	2	10	2.93	153,439
Filling cartridges -					
4.5-in. Q.F. N.C.T.	1	0	15	11.07	61,678
4.7-in. Q.F. cordite.	1	1	8	5.61	21,848
60-pr. B.L. N.C.T.	1	2	14	9.53	49,340
6-in. 26-cwt. B.L. cordite.	1	1	8	9.07	20,990
6-in. 26-cwt. B.L. N.C.T.	1	1	6	8.76	66,554
8-in. B.L. cordite.	1	1	16	10.70	51,025
Completing incomplete 18-pr. H.E. rounds requiring burster, fuze, and primer.	1	0	13	2.31	179,089

Week Ending

3.2.17 **Railway Transport.** Sidings. During the week orders have been passed for the construction of sidings in connection with a Gravel Pit, at Frocester.

**Labour.** Housing. Hostels. - Gloucester.\*

Number of workers actually accommodated on January 20th, 19† January 27th, 20†  
† Passed through during the week.

\* Clearing hostel, i.e., a hostel which serves for the temporary accommodation of munition workers until proper arrangements have been made.

10.2.17 Number of workers actually accommodated on February 3rd, 22†.

**Housing.** Progress Report. Gloucester. A considerable increase in the influx of women workers is anticipated, and the Advisory Committee are revising the list of available lodgings.

24.2.17 Number of workers actually accommodated on February 10th, 20†.  
February 17th, 25†.

## PRO. MUN2/9

3.3.17 **Labour.** Housing. Hostels. - Gloucester.

Number of workers actually accommodated on February 24th, 21†.

† In residence at the end of the week.

10.3.17 Number of workers actually accommodated on March 3rd, 21†.

† In residence at the end of the week. In addition during the week, 8 "passed through" the hostel at Gloucester.

21.4.17 **Railway Transport.** Sidings and new works.

Orders for the following have been passed during the week:-

H.M. Explosives Factory, Henbury -

Extension of platforms at Stapleton Road and Lawrence Hill,	£7,163.
Patchway Tunnel signals,	642.
Yate Aircraft Factory Siding,	835.

## PRO. MUN2/10

5.5.17 **Labour.** Sunday Labour in the National Filling Factories.

Special sanction was given in February to Sunday labour in the National Filling Factories until the end of April in connection with the urgent demands for big guns. The question has now arisen whether this permission should be extended for a further period. Enquiries at all the National Filling Factories show that regular Sunday work has been dispensed with. The only work which is being done on Sunday is in connection with (1) repairs to machinery, &c; (2) the loading or unloading of waggons in order to avoid congestion Monday; (3) certain necessary operations to prevent shops being shut down on Monday for want of components; and (4) night-shift work which begins on Sunday nights or ends on Sunday mornings. The Controller of gun ammunition filling has asked for a special order giving permission for this amount of Sunday work.

## PRO. MUN2/11

25.8.17 **Storage.** Gloucester Box Storage. A skating rink has been taken over at Gloucester for this purpose, in view of the release of the Gloucester Box Store for the storage of grain.

## PRO. MUN2/13

10.11.17 **Finance.** Lands Branch. Property taken over during the week under DORA; Griggs Saw Mills, Gloucester.



PRO. MUN2/13 (Continued)

Week Ending

17.11.17 Finance. Results of Working of Canteens for October.

No.5 FILLING FACTORY

Approx No. of Workers	Sales		Trading Results				Last Month's Results			
	This Month	Last Month	Profit		Loss		Profit		Loss	
	£	£	£	%	£	%	£	%	£	%
4,913	1,372	1,241	38	2.9	-	-	9	1.7	-	-

8.12.17 Finance. Result of Cost Returns from Filling Factories for October 1917.

GLOUCESTER

Class of Ammunition	Unit	Cost per Unit		
		£	s	d
Filling 14-dram exploder bags.	100	1	16	7
Assembling fuzes and gaines.	100	1	2	4
Filling, assembling, and packing 18-pr. H.E. cordite round amatol, 80/20, block charges.	1	2	4	6
Filling, assembling, and packing 18-pr. shrapnel N.C.T. complete round.	1	2	8	11
Filling and packing -				
60-pr. cordite cartridge.	1	1	8	5
6-in. 26 cwt. N.C.T. cartridge.	1		17	9
8-in. N.C.T. cartridge.	1	1	14	11
8-in. cordite cartridge.	1	1	14	9
Completing incomplete 18-pr. cordite rounds.	1	2	3	10
Fuzing 18-pr. shrapnel rounds.	1		12	5
Filling and packing -				
6-in. 26 cwt. cordite cartridge.	1		19	7
8-in. H.V. cordite cartridge.	1	3	9	4

29.12.17 Finance. New Depôts Opened.- Central Store Depôt No.59, Griggs Timber Sheds, Bristol Road, Gloucester (storage of boxes and shooks).

PRO. MUN2/14

2.2.18 Finance. Factory Costs &c. Filling Factories.

Gloucester. - The December costs afford good comparisons with those prevailing at other factories and with their own November costs.

PRO. MUN2/15

15.6.18 Finance. Lands Branch. The following moneys have been authorised:- Harescombe -- Quedgeley Road (damage claim) £400.

29.6.18 Finance. Lands Branch. D.O.R.A. - During the week the following property has been taken over under Defence of Realm Act:- Whateley (Warwickshire). Brick works for use as magazine.

Week Ending

6.7.18 Finance. Lands Branch. D.O.R.A.—During the week the following property has been taken over under Defence of Realm Act:-  
Ruabon. Plas-Bennion works for use as magazine.

Labour. Hours of Labour. Sunday Labour. There was a steady decline in Sunday labour during the year from November 1916 to November 1917, but from the latter date the amount of Sunday labour has increased every month. The increase in the autumn of 1917 was chiefly due to the expansion of the aircraft programme and urgent Admiralty work. The large increase in the spring of 1918 is attributable to the special efforts which were put forth in many establishments to replace the losses of war material caused by the German offensive in March.

13.7.18 Labour. Welfare and Health. T.N.T. Alternation.— Following upon the report of the T.N.T. Advisory Committee, which disclosed a great reduction in the cases of T.N.T. poisoning owing to improved methods of working, the Minister has authorised factory medical officers to give permission for continuous employment on T.N.T. work. The effect of this removal of the present regulation for alternation of work will be a halving of the number of workers coming into actual contact with this explosive.

27.7.18 Finance. Lands Branch. Roads.— The following moneys have been authorised in respect of road services:-  
Gloucester — Bristol, &c. (damage claim) £2,460.

17.8.18 Finance. Lands Branch. Roads.— The following moneys have been authorised in respect of road services:-  
Gloucester County Borough. Coney Hill Road, &c. (repairs) £900 0 0.

PRO. MUN2/17

23.11.18 Transport. Transport of Munition Workers. As a result of the armistice and the re-arrangement of working hours at the various factories, a number of train alterations have been effected to meet the present requirements.

Ordnance. Gun Ammunition Filling. Gloucester.—Staff reduced to about 2,000. Situation fairly satisfactory.

30.11.18 Ordnance. Gun Ammunition Filling. Gloucester.— Further reduction has taken place, and only about 1,500 of the staff remain.

PRO. MUN2/18

MINISTRY OF MUNITIONS  
CONFIDENTIAL WEEKLY REPORT

Week Ending

7.12.18 Liquidation. Demobilisation of Workers. National Filling Factories. On 11th November, 1918, there were employed at 16 factories, 66,951 hands, 15,130 men, and 51,821 women. On 30th November, 1918, there were 16,847 hands; 7,181 men and 9,666 women, 75 per cent. having been released.

4.1.19 Disposal. Land, Buildings, Plant, Machinery. Filling Factories Retained for Emergency Production:-

Hereford (shell filling)  
Gloucester (cartridge case filling)  
Perivale (fuse filling)

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Week Ending

17.5.19 Progress in the Disposal of Factories. Factories which may be disposed of subject to satisfactory conditions as regards reinstatement and storage of plant:-

Gretna, Irvine, Queensferry, Swindon, Avonmouth, Ellesmere Port and Sutton Oak (Explosives); Hereford, Gloucester, Perivale and Banbury (Filling); Nottingham (Ordnance); The Periscope Prism Company's Factory (Optical Munitions); Cardonald and Lancaster (Projectiles).

PRO. MUN2/20

2.8.19 Stores and Transport. Port Forwarding Section. Dumping of Explosives. Approximately 600 tons of waste explosives have been sent to Richborough for loading a large hopper barge which has been allocated to the Ministry of Munitions for dumping explosives. When loaded the barge will be towed to Portland, where the Admiralty have given permission for more explosives to be loaded. They have also arranged to provide a tug to tow the barge to the dumping ground situated almost 200 miles west of Plymouth.

6.9.19 National Factories and other Properties. Breaking down of ammunition is proceeding at Hereford Filling Factory, Gloucester Cartridge Filling Factory, Perivale Fuze Filling Factory and Banbury Filling Factory, all of which are to be retained.

13.9.19 National Factories and other Properties. The "Class A" list of factories has been revised. The following factories will no longer be required and can be put up for disposal, subject to the approval of the War Office, Admiralty and War Cabinet:-

Waltham Abbey Royal Gunpowder Factory (except the southern portion); Gloucester Cartridge Filling Factory; Queensferry T.N.T. Factory; Swindon Explosives Factory; Irvine Nitro-Cellulose Factory; Avonmouth Poison Gas Factory; Ellesmere Port Poison Gas Factory.

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The History of the Ministry of Munitions, Vol V, Pt II, Ch V.

WAGES OF WOMEN & GIRLS ON "WOMEN'S WORK" [1915]

District	Work done	Wages	Length of Week
Dursley	Machining and viewing primers	Average £1 weekly	51 hrs

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Correspondence between architect Herbert Read of Messrs. Read & MacDonald,  
16 Cork Street, Bond Street, London W. and the Ministry of Munitions.

19.8.15 To HR. Sir, Will you please note that the wheel base limit for trolleys should be 1' 9", that is, provided that the wheels are not of greater diameter than 12", while the outside length of the trolley should not be more than 3' 3". These dimensions have been found suitable as affording facile handling on the turntables.

4.9.15 To Col. H B Strange. Dear Sir, National Filling Factories. The following is an approximate list of the numbers of hands required in a factory of one unit:-

	Men	Women
Cutting cordite		10
Making up charges		40
Shell filling		42
Assembling room		105
Shifting house		2
<u>Stores</u>		
Empty shell	5	
Cartridge cases	5	
Components & fuze stores etc.	5	
Magazines	10	
Boiler house	4	
Electrician	1	
Looking after thermometers		1
Shunters	2	
Tramway porters	10	
Mess room attendants	1	3
Office & clerks	1	4
	<u>44</u>	<u>207</u>

These numbers are very approximate.

Undated MoM minute sheet. Factories at Leeds, Liverpool, Gloucester, Houston, Park Royal and Central Factory: each 4 assembly units, 2 B.L. cartridge units.  
Per unit = 207 women, 44 men } assembling.  
Per factory = 1150 women } B.L. cartridge.

15.9.15 To HBS. Roof coverings over the railway lines between the store buildings are not to be dealt with until the factories are completed.

16.9.15 To Major W E Wailes. I beg to acknowledge receipt of your letter of yesterday's date giving me the accommodation required for purposes of inspection, ...but I do not quite understand about the bonding space in filled shell required.

I take it this only refers to a factory where they are filling shell by running the explosive in, but in the case of filling shell with TNT moulded charges, the TNT has already been proved, and therefore the shells will not be proved between the filling and the making up into completed ammunition. The completed ammunition will then be bonded in the magazines until proof, but a space of only 84 square feet is required for 2000 rounds of this.  
I should like the point cleared up.

17.9.15 To HR. In order to facilitate the use of steam locomotives for shunting purposes within the new filling factories, I have been in consultation with Major Cooper Key on the subject and have received the accompanying communication from him respecting the safeguards it will be necessary to adopt.

I shall be glad to hear that provision can be made for all the doors to be hung in such a manner as to obviate any risks from engine sparks as locomotives pass along the various buildings.

30.9.15 To HBS. I beg to acknowledge receipt of your letter informing me that TNT magazines do not require to be heated.

So far I have arranged to heat these, as the magazines being exactly the same size as the small cordite ones, it was thought that they might be interchangeable, but if you think that I should omit the heating I would arrange which of the magazines are to be used for TNT.

2.10.15 To MoM. Light Railway Trucks. I note that Messrs. R. White & Sons of Widnes have now got the order for 6 covered trucks (with doors) and 24 open trucks for the factories at Aintree, Leeds, Houston and Gloucester.

5.10.15 To HR. With reference to your letter of the 30th September 1915, I wish you to arrange that the TNT magazines are not heated. They should, therefore, be the most inaccessible so as to have a shorter distance to carry the heating pipes.

11.10.15 To HR. Mr. V. Hodge, an architect of H.M. Office of Works, is proceeding to Gloucester to supervise the erection of a Filling Factory.

12.11.15 (Note). MoM requests copies of the approved layout plans of the factories at Leeds, Liverpool, Glasgow and Gloucester.

12.11.15 To HBS. I am sending you herewith copy of the 3 ton Black Powder magazines for the factories I have in hand, also plans of the 100 ton Cordite magazines and the 100 ton B.L. Finished Cartridge magazines.

You will notice that I have shown mounding to the Black Powder magazines only. It is not proposed to mound the other magazines.

It is proposed to roof the Black Powder magazines which are simple small pitch roof with asbestos slating, but the large magazines have the Belfast Truss roofs so are circular on top. These I propose covering with Grave's unflammable felt, and the outsides of the walls which are timber I propose to cover with Portland cement rendering on metal lathing, and the insides of these buildings will be lined with uralite.

4.12.15 To HBS. I beg to say that I am putting the proposed laundries in hand, as settled by you yesterday.

The estimated cost of one laundry equipped complete with hand washing machines, wringers, mangles etc., is £850.

The buildings provide a large store room for clean and new overalls, and a repairing room; these would have to be built in any case.

I have consulted the King's Norton Metal Co., who are running a laundry for their works at Abbey Wood: they are paying a piece price of 1½d per overall (or men's suit) and Mr. Melville Smith puts the cost of soap, soda and fire-proofing materials together with interest on capital etc., at another 1d, making 2½d per overall.

The average time for washing an overall would be once a fortnight.

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Note. A decision was taken not to fireproof overalls due to cost, the Ministry quoting 3d per overall every fortnight.

## LETTERS TO BOARDS OF MANAGEMENT OFFERING ASSISTANCE IN FACTORY MANAGEMENT.

29th November, 1915.

H. Coke Powell, Esq.,  
 Secretary No.5. National Filling Factory,  
 Apsley House,  
 Southgate Street,  
 GLOUCESTER.

Sir,

As the date on which work will be commencing at the Factory is drawing nearer, and as there is so much to oversee in preparation of ways and means of carrying it out, it is thought well to draw further attention to points in connection with the letter from this office dated 4th November, so as to help to ensure that they are being dealt with.

The regulations and instructions for the conducting of Danger Building Work which are being supplied are:-

- (1) General Poster of Rules.
- (2) Directions for Overlookers samples of ten of which are enclosed. These show the form in which they are drawn up, and you will be able to know, in the case of work with which you will be concerned, whether the notes that have been taken by your staff sufficiently amplify these to provide entire and complete knowledge of every item of work which you will have to undertake; from the time the components enter the Store to the dispatch of the completed work.

Your attention is drawn to the leaflet "Notes for the information of Staff undergoing instruction", especially paragraph 2. It is now the time to add to any information by further visits, if need be, to Woolwich. Sets are being posted to you, and it will be for you to demand the numbers of copies you require.

- (3) You will already have received a copy of -
  - (a) Magazine regulations.
  - (b) Army Ordnance Regulations, Part I.
  - (c) Army Ordnance Regulations, Part II.

The sections which more particularly apply are:-

- (a) Preface and Sections 2 to 8.
  - (b) Section 3 pages 17 and 20.
  - (c) Sections 1 to 7.
- (4) Small books of regulations which contain the rules of the general poster, and also further and more explicit points in connection with Danger Building Work. These will be for the guidance of the Management Staff, and will also be provided in sufficient numbers so that each person employed will have a copy. It will be for you to demand the necessary quantities.

It would be most desirable that you should arrange for the Head Clerk who will be dealing with forms and demands, and also with the booking necessary in handling the Staff, to visit here to receive direct information from our Stores Branch; also possibly to go to Woolwich to pick up some information about the methods that are pursued there.

As you will, or should, now have formed definite proposals as to the course of work generally in the Factory, and also the special employees who will be required, you will be in a position to have decided upon the numbers of the same and their occupations. It is felt that this is most necessary, as it is one of the steps to the work coming into life of the Factory, and is one, the postponement of which, must mean a want of definiteness which will sorely delay and hamper work when it commences; in that it must mean that work is not schemed out.

Such are General Foreman, Sectional Foremen and Forewomen, Overlookers or Supervisors, leading Hands of Shops, Packers, Labellers, Storemen, Lampmen,

Continued/

Clerks, Checkers, Watchmen, Platform men, Truckers, Gatemmen, Shifting House Attendants, First Aid, Matron, Magazine men, and possibly others, as well as the Ground Staff of all natures.

It is most desirable that as far as may be possible any of your Explosive Workers from Foremen downwards, should, during any interim period be placed in Factories already working; so that they may become familiar with Explosive Work, even if it cannot be the actual nature they will be employed on. It is desired that you should take steps to so place them, calling upon the assistance of this Department if need be. Will you, therefore, submit actual proposals in this direction.

Will you also make a complete statement of the numbers of your prospective staff for whom courses of instruction will yet be required to be arranged, and the dates by which they would be available.

The articles with which you will be supplied (except in any case whether other arrangements have been concluded with you) are - The components proper i.e. those which will be used in the gun and any adjuncts for protecting the same, such as gummets slings or clips, also the packages either for transit dispatch or for issue to service.

You should compile lists of all other articles which you will require to use in completing the work which will be entrusted to you and request information from this Department with regard to any of such as to the provision of which you are not perfectly clear.

As you are now in possession of full information of the work with which you will be required to deal, will you say whether you have obtained correct knowledge of the designs concerned with the same, and whether you have demanded them. It would be well if you stated the drawings you have demanded, so that they may be checked.

It will be advisable that you should apportion members to your shops, and draw up "limit papers", both of persons and materials to be allowed therein, also lists on tools which may be introduced. The "limit papers" are as you know decided upon grounds of safety tempered by necessity. It would be well to be prepared with all this beforehand, as it would also lead to work being schemed out as said in the case of the Staff.

I am, Sir,

Your obedient Servant,

for Director A.M.4.

PRO. MUN4/1479

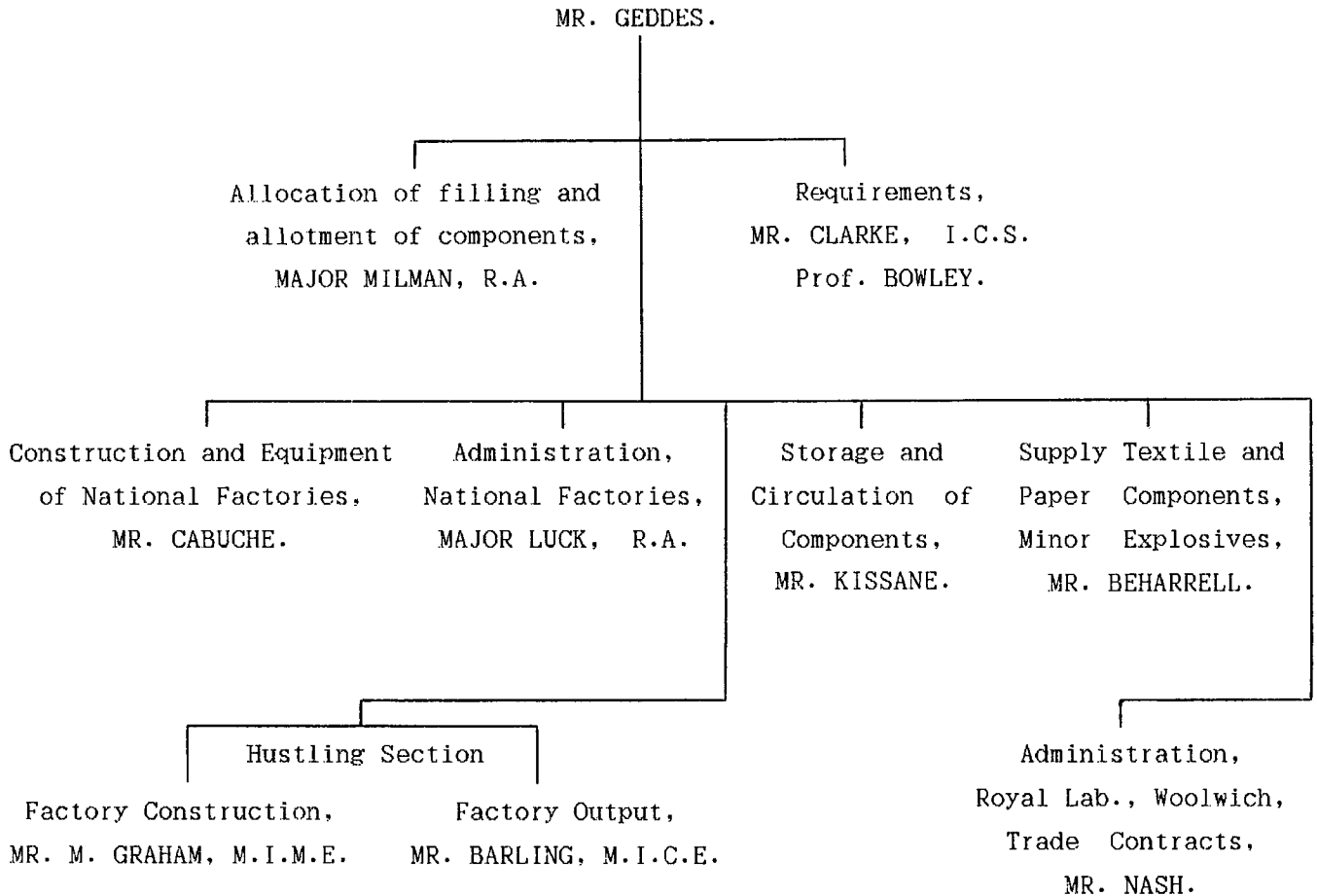
[Note]

From 10.1.16 AM4 becomes CM4

CM4(W) Maj. Milman.	Filling allocation and component allotment.
CM4(X) Mr. Kissane.	Storage of components.
CM4(Y) Mr. Cabuche.	Construction and equipment of Filling Factories.
CM4(Z) Maj. Luck R.A.	Administration and organisation of National Filling Factories and technical.
CM7(A) Mr. Nash.	Contracts for completed rounds.
Mr. Beharrell.	Purchase of textiles, paper, minor explosives, provision of consumable stores.

FILLING FACTORY AND COMPONENT DISTRIBUTION.  
Organisation.

16th January 1916.



[Notes]

Allocation Section. Responsible for the available capacity for each class of work by being in touch with the factory production section under Luck and Nash. Major Milman, R.A., transferred from the Ordnance Department, Woolwich, to take charge of this section.

Factory Construction. Mr. Cabuche, an architect.

Factory Administration. Major Luck, an artillery officer, who was Assistant to the Chief Superintendent, Woolwich. Mr. Nash deals with Woolwich Royal Laboratory, and all contract production.

Store Section. Mr. Kissane, from the Admiralty.

Textile etc., Supply. Mr. Beharrell, from the N.E. Railway.

Factory Construction. Mr. Maurice Graham, a civil and mechanical engineer, constructed, adapted and equipped storage accommodation at Devonport and Plymouth for the Ministry.



## REPORTS BY MAJOR SIR JAMES DOUGLAS ON VISITS TO FACTORIES.

GLOUCESTER.

10.11.15. Saw Mr. Steinitz, Mr. Beach and Mr. Watkins the Manager. The latter has just arrived and seems a live man and should quickly pick up his job, but it is all new to him. I went over many points with them and arranged that they should meanwhile set out the points they required to attend to and clear up, and that Messrs. Steinitz and Watkins should come to Armament Buildings on Monday the 15th to obtain information, lists and drawings of tools and plant so that they may properly start their preparations for work. Mr. Watkins will proceed to Woolwich on Wednesday the 17th for a few days and afterwards return again for a full course of instruction. I impressed on them that it was most desirable that a second man should be with Mr. Watkins at Woolwich, and that they will arrange.

The special points I wish to draw attention to are:- Midland Railway connection just commenced, and the line pegged out. The Railway say that it will be a month before sidings and connections will be completed. A through road should be put in with all speed as other work is very much delayed by want of approval for materials. The position of the passenger platform would be much better if it were nearer the entrance to the Works, but this, I understand, would be impossible.

The Factory Railway track is of the most serious importance so as to get communication to the ground. The present approaches to the ground are most restricted and have caused delay. I find to-day the 15th, that instructions have been able to be given enabling the Board of Management to get on with the supply of the rails etc., so that they are now in a position to press forward the provision of this railway track and they fully understand the necessity for so doing.

The layout plan shows that the Factory Magazine ground-line crosses a large number of platforms, and if the layout as shown by the plan is correct it would seem to require review.

There were some 400 men on the work, and the Contractor is a keen man, but much blocked by the traffic. There is not much showing in the main stretch of buildings; some walling beginning, and the railway line being levelled. The back set of Q.F. Magazines on one side is advanced, and the framing of one row should be up shortly (this is so by the 15th). I think three of the Magazines should be finished in fourteen days, but there will be no approach except by cart. The Contractor could get on more labour if he had more traffic facilities.

I consider there is no chance of any work being done till the end of January, but the Contractor will concentrate on half one side, and the allied shifting house. This is the most hustled bit of work I have seen, but it is all delayed by the traffic.

They had not, at my visit, formed any ideas as regards the preparation for work, but are now in a position to get forward with their arrangements. Their pattern of clothing is a bad one, being deficient at the neck and in the opening, and this will be attended to.

Mr. Steinitz will have several points to put before you when he calls on the 15th. The Board will be glad to get the question of the £12,000 advance settled.

31.12.15. This Factory has not yet received all necessary drawings. This is to be deplored as it leaves them in uncertainty.

They have two men that they desire to have sent to Woolwich to obtain information - Aldridge (Foreman) and London (Store Holder). There will still be much visiting to Woolwich necessary as Factories are now becoming aware of many points on which information is necessary. It is to be trusted that delay

(31.12.15)

will not occur by reason of any restriction of numbers to be admitted.

I learnt that Lt. Wyatt (I.L.S.) touched on the matter of steel blades for cutting cordite at this Factory, and again stated that it could not be permitted. This he seems to have stated with extreme decision.

The long delay which took place with the railway connection combined with several weeks of wet weather, has resulted in the construction being backward, and the best date which can be proposed for any work is 1.2.16 when if heat and light are available, as they expect, the Q.F. shops on the western side could be put to work. The ground is badly poached everywhere with haulage and there is a great deal to do and I should think that 1.2.16 is rather a hopeful estimate of anything more than tentative work. No temporary electric heating is possible as no current would be available except from their own generator.

On the western side (the first to be available) the Receiving House is in frame and two of the four blocks are in frame with some boarding and roofing and they expect to get a single line of the railway to them.

The railway station and sidings track which the Railway Company are doing are finished and being used; the further extensions which the Factory are doing are completed up to the centre of the Factory and I pressed the Board to urge on the work so that approach to the Q.F. finished stores (which are well advanced) might become available.

Some of the buildings on the eastern side are in frame. The Factory have named the end of May as the date for completion of this part but with energy this date should be anticipated.

There is no provision made for accommodating the various people whom it will be necessary to house on the site such as stokers, etc., and the Chairman will take the matter up. Decision as to the Bungalow for the Manager is not yet received.

The 6 T.N.T. Magazines are ready but the ground lines are not in place yet and there appears to be some uncertainty as to the arrangement of the track to get the trucks to the level of the magazine platforms. I met Mr. Read and put the point to him. No other Magazines are yet visible.

Of the 12 O.F. finished Stores, 2 are ready except light and heat but practically no use can be made of them till the Factory line comes to them. The other 10 are in different stages internally and should become ready at different dates in January.

(Extract)

3.2.16. This Factory has greatly advanced since my last visit, and although the date named for starting is 21.2.16 instead of 14.2.16 that is mainly due to the preparations for heating. The Manager fully expects to have heat by then.

The Factory have the expectation of starting on O.F. work. They have received no intimation (other than their allocation) as to what is at first required of them. They have a certain amount of their O.F. plant, but for this they depend on the Department. If B.L. work is required of the Factory as a beginning, they should be informed. The B.L. plant they are procuring themselves and would expect to have sufficient for a start by 21.2.16. The Factory could take up O.F. primer work 21.2.16.

The Manager appears to have a very good grasp of all his work and I think appreciates the Danger Building principles better than any.

It is for decision what is to be required of this Factory as regards expansion into further shops than they will start on. There should be much possible during March. Here, as elsewhere, I am of opinion that a clear expression as to urgency should be made, based on prospects of components and plant, so that Factories may not remain satisfied with contractors' dates. This is the same at Leeds, Liverpool, Glasgow and Gloucester, and if plant and components are

(3.2.16)

forthcoming, I see no reason why good advances can not be attempted at no distant date.

The points I would bring to notice at Gloucester are:- The importance of urging forward the Fire scheme and this in view of the now known possibility of air raids.

The great necessity of clearing the stock yard out of the Farm. This Farm has been excluded from the Factory area which makes the removal of the stock yard all the more necessary.

The need for bringing into force the proposal for grouping Factories in view of air raids and the need of organising the handling of the people and the extinction of lights in such an event. The extinction of light seems the best protection.

At this Factory many of the trees should be cut down as they are a grave risk to buildings in wind. The advantage of stopping blast does not outweigh this, as the trees are large high-topped trees. There are several fences within the area [which] require cutting down to facilitate patrolling. I would advise a circular to Factories on this point.

Magazine construction at this Factory is behind hand if storage accommodation is shortly looked for, although the magazines will be forthcoming with the other buildings.

A guard of 20 men will make its appearance on the 5th instant and the remainder can follow as soon as accommodation is provided. This should be urged forward at all Factories because (i) at present the guarding must be local on occupied parts (ii) the existence of the guard is so intermixed with the life of the Factory that it is a disadvantage that it should not be on the spot. I am of the opinion that occupation of the Farm should without doubt be taken, (it would serve for the guard's accommodation) as otherwise, the guarding of the Factory will be very imperfect indeed.

I am of the opinion that the Commander of Guards should be instructed to submit for the information of the Department any points which render the performance of their duties difficult, e.g. the non-existence of gates, the nature of the fences, the juxtaposition of hedges or trees to the fences. It would appear that the Department have a responsibility in these matters. At this Factory at Gloucester a large extent of [the Factory] is not guardable as it stands owing to hedges running close to the fence and from trees in the line of the fence which would assist in its being crossed. It must be accepted that neither the sheet iron fences nor the barbed wire present any great obstacle which argues for there being at any rate a clear line.

3.3.16. I wrote last night that the Factory was ready to take up work of any nature for which they have allocation, but cannot make a start for reasons of no sets of components being complete.

Several points of my report of 3.2.16 are in the same position, e.g. trees still standing, and internal hedges ditto. Magazine construction. State of boundary fence. Farm as yet external to the Factory area.

4 Blocks are now available for work and a Danger Building area which includes them. The others had Ammunition Stores and the 6 Magazines and other complimentary buildings enclosed. By early in April, 7 more working blocks, the 4 Receiving Houses, will be available. It is possible, if components become available, that this date will be disappointing, as till then only the present 4 blocks will be for use. The second range of 7 small component stores will be available for use and enclosed in a few days. By end of April it is anticipated that the whole of the working shops and certain of the Magazines, viz. those in the area adjacent to the Farm, will be available.

The major matter of concern at present is the availability of Magazine accommodation; other buildings have at present to be used. This is objection-

(3.3.16)

able as it leads to bulk explosives being stored in buildings which are adjacent to working shops and to other buildings, and also leads to loss of accommodation in arranging to interspace. One has to look at from the point of view of fire risk. I talked the matter over with Chairman and Manager, and have asked them to submit a scheme of utilization of buildings for storage of explosives on the lines which seemed best.

The Hydrant plan should, I consider, allow of command over all necessary parts of the Factory. They intend to fit up a trolley with hose reel, branches &c., so that it can be run to any point to add to the fittings at any spot. This is a most valuable idea, and readily carried out at no expense or delay. I recommend that it be forthwith followed at all Factories having ground rails.

I saw the A.O.D. Officer, and spoke with him as to that Department supervising the fitting of doors, window shutters, observation windows, to which Colonel Meeres agreed. I found that he wished to represent that the level of floors being that of trolley rails, the O.F. Stores at this Factory are not convenient for quick handling.

This Factory is not patrolling anything outside the Danger Building area enclosed. It is necessary that this should be done. The Chairman recognizes this and will arrange. They have no difficulty in getting men of a kind for such work. I think all patrols want to be armed with a really efficient bludgeon - something they could deal death with. It would be useful when wanted, and give the idea that they were then in grim earnest. The Guard consists of 36 men - 6 N.C.O's and 1 Officer, and no more will be available till further accommodation is obtained when the Farm is taken over on 25.3.16 when the strength will be 90. The O.C. of the Guard considers (I think rightly) that he should have two more sentry posts at present. The guarding is, at present, partly external and partly internal. I learnt that none of the sentries had ammunition. The O.C. will serve ammunition to the external sentries. It is best to leave the internal ones without. This shows the advisability of squaring up the guard question. The O.C. of the Guard is relieved to know that the Farm is to be included.

The Heating should improve now that the flood water is being drained from the pipe conduit.

(Extract)

24.3.16. This Factory has made very good arrangements for the assembling of Gaines and Fuzes and has started work.

This Factory has not received the Instructions for Burning Ground.

The Boundary Fences are in the same state, not having been unmasked. I understand that the attempt to connect the Department with the W.O. on this question has to a large extent failed but that Mr. Graham has succeeded in finding a means of getting attention paid. In due course he will get to Gloucester.

This Factory is I consider about the best managed and everything to which attention is drawn meets with consideration and response.

(Extract)

9.4.16. I am desirous of sending the D.B.O's of Leeds, Liverpool, Gloucester and Houston to where ever the shell filling, either melting or pressing is being carried out in the most similar manner so that they may see it and learn the course of work. Would you ask Sir H. Barlow where such places would be as for each case, so that arrangements can be made. It is also requisite to know when each of the above named places will be starting. I rather understood that Leeds would be starting in about 10 days from now.

(Extract)

10 & 11.4.16. This Factory has now opened out 6 Blocks of the first Q.F. unit and has also enclosed within its Danger Area the Receiving Houses, Q.F. Finished Stores, several Magazines and Component Stores and further Magazines will be available in a few days.

There is every reason to be satisfied with the Management's arrangements, for although some temporary misoccupations exist, they are unavoidable and the Management appreciates requirements and is seeking to be right in all particulars and responds readily to any suggestion.

The Amatol block charges are being examined and a good many are found damp. It would be well to know at what stage this occurs and whether the packages are entirely satisfactory, and also whether the methods of storage are always sufficient.

It seems that it is not decided whether Amatol Shell filling is to be set up at this Factory. The actual Factory site does not seem to present much room for this and if adjacent land is required it should be recollected that proposals exist, or at any rate were made, for erecting certain A.O.D. Stores on some of the adjacent land.

The state of the second unit of Q.F. Buildings and the B.L. Buildings and Magazines argues for some time elapsing before they will be [ready] for use and I should suppose that it will be found that the Factory will be in the end, waiting for buildings.

The completion of provision of electric cable is a somewhat serious matter and should be hastened. This always leads to irregularities in lighting somewhere.

I spoke with the O.C. of the Guard. He feels that the masking of much of his fence by hedges and also the existence of trees along it is a difficulty. It should be arranged that all such should be cut down as otherwise Guarding must be imperfect.

(Extract)

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PRO. MUN4/1380

Report for fortnight ending Saturday 1.1.1916.

Munition Store No. 22 Shrewsbury.

The store will be principally used for the storage of Ammunition Boxes arriving from Ireland and manufactured in the neighbouring district, until such time as the Gloucester Filling Factory can take them in.

[Extract]

[Note: Stores 1 - 22 listed, commercial premises, dock and railway buildings].

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## COLONEL BARLOW'S REPORT ON VISIT TO NATIONAL FILLING FACTORIES

GENERAL. LAYOUT. The only point where we consider a mistake has been made (at Houston, Liverpool, Leeds and Gloucester) has been in the double handling of explosives involved by not taking the ordinary broad gauge tracks right up to the various magazines, so that the ordinary railway trucks could be unloaded directly into them, instead of unloading into narrow gauge trucks for conveyance to the magazines. Having regard to the general excellence of the layout, we can only suppose that Paragraph 65 of the "Regulations for Magazines and Care of War Material" has been read as precluding the use of animal traction; and this, and the inadmissibility of the use of ordinary railway locomotives, and therefore the necessary hand haulage, has led to this transshipment of explosives into trucks of a size capable of man handling. It is feared that even if animal traction be now allowed, a change cannot now be made economically, as in all the factories the bulk of the magazines are too far finished with unloading porches of a height only capable of admitting the narrow gauge trucks, and in addition, the sleepers and rails for the narrow gauge railways are already provided, and in many cases actually laid. The recommendation I refer to is to permit animal traction to facilitate movement of the narrow gauge trucks to and from the magazines, which latter, as will be seen from the plans, are scattered over a considerable area.

H. W. Barlow, Col.

Superintendent, Royal Laboratory.

14.1.16.

[Extract]

[Notes]

Colonel Barlow, in the company of Mr. Hinks, Major Sir James Douglas and Captain Cabuche, visited Cardonald and Houston on January 4th, 1916; Liverpool on the 5th; Leeds on the 6th; Coventry on the 7th; and Gloucester on the 8th.

This is the only direct reference to the Gloucester factory in an otherwise favourable report. Paragraph 65 mentioned above, states: No cultivation is to be permitted inside magazine yards, nor are any animals to have access to them. (1913). - See below.

PRO. MUN4/2044

REGULATIONS OF THE AMMUNITION FACTORIES UNDER THE MINISTRY OF MUNITIONS,  
NOT INCLUDING THE ROYAL FACTORIES.  
1916.

Rule 29. No cultivation is allowed in the danger area, nor are animals admitted except in a case where pony traction is necessary for truck or trolley hauling. It must be understood, however, that no stabling is allowed to be erected.

General note on mess rooms:

The separation of sexes is satisfactorily provided for.

PRO. MUN4/1570

INFORMATION OBTAINED FROM REPRESENTATIVES OF NATIONAL FILLING FACTORIES  
AT CONFERENCE DECEMBER 22ND 1915.

Name	Actual or anticipated dates of Erection or adaptation of premises		Working		Delivery	
	Commencement	Completion subject to weather & labour conditions	Commencement	In full operation	Commencement	Full rate reached
1. Leeds	13. 9.15	End of Feb	Filling primers now	End of March	Jan(Primers)	April
2. Liverpool	18.10.15	End of Mar	Middle of January	End of March	End of Jan	April
3. Perivale	26. 8.15	End of Feb	1.12.15	End of March	Now deliver- ing 100 Fuze	April
4. Glasgow (Houston)	25. 9.15	End of Feb	Middle of January B.L. Cart. Making up 18 pdr. S+HE	End of March	End of Jan	April
5. Gloucester	20.10.15	End of May	1. 2.16 18 pdr. S+HE	End of April	During Feb	May
6. Central FF Nottingham			Lord Chetwynd to supply			
7. Hayes Emergency	18. 9.15	15. 3.16	30.10.15	1. 4.16	8.11.15	10.4.16
8. Southwark	1. 9.15	15.11.15	1.10.15	1. 1.16	8.10.15	15.1.16
9. Watford Southern FF			Site not yet settled			
10. White & Poppé Coventry	12. 9.15	End of Jan -partially	End of Jan -partially	End of March	Feb 1916	End of April
11. King's Norton Abbey Wood	23. 9.15	Middle of January	End of Dec -partially 6" How. Cart. Primer fill- ing & Tubes	End of Jan	During Jan	End of Feb
12. Nobel's Explosives Cardonald	18.10.15	Buildings ready at end of year	End of Jan subject to delivery of plant	End of April	Early in Feb subject to plant	Early in May
13. Vickers Lancaster	23.11.15	End of June 1916	Beginning of May 1916	Middle of July 1916	June 1916 60 pdr fill- ing may commence in May 1916	July 1916
14. Armstrong, Whitworth						
15. Emergency Otley						

} Not started

23.12.15

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NATIONAL FILLING FACTORIES  
 Progress Record, January 6th 1916  
 No.5 Gloucester.

Managed by Directing Board. J. Steinitz - Chairman.  
 J. Woodruffe - Secretary.

Capacity. Manufacture B.L. Cartridges 200 tons.  
 Assemble Q.F. Ammunition 4.5" 10,000 rounds. Weekly.  
 13 or 18-pdr (H.E. or S.) 80,000 rounds.  
 Fill and complete Primers 80,000.

Progress

Decided upon. Chairman appointed August 25th 1915.  
 Looking for sites " " "

Building commenced. October 20th 1915.

BUILDINGS	September 25th.	October 30th.	November 20th.	December 27th.
New site chosen	Architect surveying	Work on buildings commenced Timber, etc., being delivered	Number of buildings in progress - 40. Heating installation commenced Power plant being purchased Water supply scheme being arranged	Buildings to be erected - 122: in progress - 68: practically completed - 8.  Heating, lighting, water supply, drainage and fencing well in hand.
<u>SIDINGS</u>			Sidings in progress	Siding and platform completed and in use  Factory track and Light Railway progressing

Date of Completion (estimated), end of May 1916.

Commencement of Production (estimated), February 1st 1916.

Work in full swing (estimated), end of April.

Cause of Delay. Transport by road only from Gloucester.

Supply of tools and plant. All practically completed except Chamber 2.F. Gauges which are being hastened, and Primers which are of recent allocation. Plant is however all ordered.

Staff instructed at Woolwich. Male Manager, Asst. Manager.  
 Female 12 trained; 19 in training;  
 20 arranged for.

Danger Building Officer. Not yet appointed.

Interval between commencement of building and commencement of production. 3½ months.

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PRO. MUN4/471

NO.5 NFF GLOUCESTER  
Progress Report

December 31st 1915.

LABOUR (Estimated) MEN 372: WOMEN 2,300.

Existing position at January 15th 1916

It is expected that one unit will be working by the middle of February, but this will depend upon receiving the material for the heating and lighting installations. Considerable delay has occurred in securing men for Plate-laying. Failure to do so will prevent the factory starting by the time stated. It is hoped that by mid-February a start will be made if the tools and gauges for Q.F. are delivered in sufficient quantities.

Estimates of capacity  
15.1.16

B.L. Cartridges 2.75" 10 pdr. 4.5" and upwards. Filling Capacity, Tons of propellant per week.				Assembling and completing 13 & 18 pdr.  No. of Rounds in 000s.					
	Dec	March	June	Sept		Dec	March	June	Sept
GLOUCESTER	-	25	100	200	GLOUCESTER	-	3	40	80
Leeds	50	90	200	200	Leeds	5	18	80	80
Liverpool	-	30	70	200	Liverpool	-	14	26	80
Glasgow	-	57	211	200	Glasgow	-	12	44	80
Woolwich	80	80	280	450	Woolwich	100	200	200	200

- [Extract]  
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PRO. MUN4/1778

NATIONAL FILLING FACTORIES  
Monthly Report  
January 1916

No.5 Gloucester

PROGRESS

Half of the buildings were in progress at the commencement of the month. Progress has been good, and about one-fifth of the buildings are now complete.

OUTPUT

Originally estimated to commence work on 1st February; subsequently it was estimated that by 1st March weekly output would be 6,000 primers, 3,000 18-pdr complete rounds and 10 tons of B.L. cartridge filling. Now stated that minor operations will probably commence by middle of February.

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NATIONAL FILLING FACTORY PROGRESS  
 No.5 Gloucester  
 3rd February 1916

Description of Buildings	Total to be erected	No. Commenced	No. Completed	Heating		Lighting		Water Supply		Drainage	
				Commenced	Completed	Commenced	Completed	Commenced	Completed	Commenced	Completed
Cordite Magazines (22T)	20										
TNT Magazines	16		6								
Finished Ammunition and filled Shell Magazines	12	4	8				12				12
B.P. Magazines	2	2									
100T Cordite Magazines	4										
100T B.L. Cartridge Magazines	8	2									
Cordite Cutting 3 ea. & making up 2 Sections 3 ea.	Sec2	Sec2									
Cordite Cutting 3 ea. & filling 10 Sections 3 ea.	Sec10	Sec2									
Shell Filling 2 Sections 7 ea.	Sec2	Sec2									
Assembling 4 Sections 7 ea.	Sec4	Sec4		2		1					
Filling Igniters 2 Sections 5 ea.	Sec2										
Dry Store to ea.	2										
Empty Shell Store	2	2									2
Brass Cartridge Store	2	2									2
Components Store	2	2									2
Box Store	1		1				1				
Fuzes	8	4	4	2	4		4				4
Gaines	4	2	2	2	2		2				2
Primers	2	1	1	1	1		1				1
Receiving House	2	2									
Unloading Explosives	2										
Boiler House	1	1									
Womens' Shift House	2	2					2	2		2	
Womens' Mess	1		1		1		1			1	
Mens' Shift House	1		1		1		1	1		1	
Mens' Mess	1		1		1		1			1	
General Offices (1 Block)	1		1		1		1		1		1
A.O.D.	1	1									
Finishing Building B.L.	1										
Guard Room	2		2								
Chemical Laboratory and Ambulance Room	1	1									
Timekeeper	1										
Loco Shed	1	1									
Laundry	1	1									
Coopering Hut	1	1									
Water Tower	1	1									
Danger Building	1	1		1							
Non Danger Building	1	1		1							
Barracks for Factory Workmen	1	1								1	
<b>Totals</b>	<b>129</b>	<b>45</b>	<b>28</b>	<b>9</b>	<b>13</b>	<b>1</b>	<b>26</b>	<b>3</b>	<b>1</b>	<b>6</b>	<b>26</b>

Fencing round site Completed.  
 Fire Service 3½ miles, 2 miles laid.  
 Full gauge railways & sidings 4 miles, 1½ miles laid.  
 Narrow gauge railways & sidings 7 miles, 3 miles laid.

NATIONAL FILLING FACTORY PROGRESS  
No.5 Gloucester  
10th February 1916

Description of Buildings	Total to be erected	No. Commenced	No. Completed	Heating		Lighting		Water Supply		Drainage	
				Commenced	Completed	Commenced	Completed	Commenced	Completed	Commenced	Completed
Cordite Magazines (22T)	20										
TNT Magazines	16		6								
Finished Ammunition and filled Shell Magazines	12		12				12				12
B.P. Magazines	2	2									
100T Cordite Magazines	4	4									
100T B.L. Cartridge Magazines	8	5									
Cordite Cutting and making up	3 ea.										
2 Sections	3 ea. Sec2	Sec2	Sec2		1	1					1
Cordite Cutting and filling	3 ea.										
10 Sections	3 ea. Sec10	Sec8									
Shell Filling											
2 Sections	7 ea. Sec2	Sec2			1	1					1
Assembling	4 Sections 7 ea. Sec4	Sec4	Sec4	2		1	1				2
Filling Igniters											
2 Sections	5 ea. Sec2	Sec2									
Dry Store	2 to ea.	2									
Empty Shell Store	2	2									2
Brass Cartridge Store	2	2		1							2
Components Store	2	2		1							2
Box Store	1		1				1				1
Fuzes	8		8		8		8			4	4
Gaines	4		4		4		3			2	2
Primers	2		2		2		2			1	1
Receiving House	2	2									
Unloading Explosives	2										
Boiler House	1	1				1					
Womens' Shift House	2		2		2		2			2	
Womens' Mess	1		1		1		1		1	1	
Mens' Shift House	1		1		1		1	1		1	
Mens' Mess	1		1		1		1		1	1	
General Offices (1 Block)	1		1		1		1		1		1
A.O.D.	1	1		1						1	
Finishing Building B.L.	1										
Guard Room	2		2	(Temporary water supply and drainage)							
Chemical Laboratory and Ambulance Room	1		1	1						1	
Timekeeper (Temporary)	1										1
Loco Shed	1	1									
Laundry	1	1									
Coopering Hut	1	1									
Water Tower	1		1								
Danger Building	1		1		1					1	
Non Danger Building	1		1		1	1				1	
Barracks for Factory Workmen	1	1								1	
<b>Totals</b>	<b>129</b>	<b>45</b>	<b>45</b>	<b>6</b>	<b>24</b>	<b>5</b>	<b>33</b>	<b>3</b>	<b>3</b>	<b>22</b>	<b>27</b>

Fencing round site Completed.  
 Fire Service 3½ miles, 2½ miles laid.  
 Full gauge railways & sidings 4 miles, 2 miles laid, cuttings cut for ½ mile more.  
 Narrow gauge railways & sidings 7 miles, 3 miles laid, in more complete state.

SECRET

C.M.4.

WEEKLY PROGRESS REPORT NO.32  
For week ending March 11th 1916

No.5 N.F.F. Gloucester.      Commenced 20th October 1915.  
 Making up B.L. & Q.F.      Approximate number of buildings to be erected, 131.  
 Cartridges; assembling      Number in progress, 100.  
 Q.F. Ammunition.              Number completed, 56.  
                                  Heating: Complete and progressing in 41 buildings;  
                                  all sectional boilers fixed.  
                                  Lighting: Complete and progressing in 54 buildings.  
                                  Water supply progressing.  
                                  Drainage: Soil and rain water drainage in hand beyond  
                                  first Unit.  
                                  Light railway and clean platforms in progress.  
                                  Fencing finished.  
                                  Men employed, 1,103.  
                                  Value of work to date, £119,000.  
                                  Bad weather has impeded progress.

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PRO. MUN5/155/1122.3/64

## NATIONAL FILLING FACTORIES

Report on Construction

For week ending March 18th 1916

No.5 N.F.F. Gloucester.      Commenced 20th October 1915.  
 Making up B.L. & Q.F.      Approximate number of buildings to be erected, 132.  
 Cartridges; assembling      Number in progress, 103.  
 Q.F. Ammunition.              Number completed, 56.  
                                  Heating: Complete and progressing in 48 buildings.  
                                  Lighting: Complete and progressing in 56 buildings.  
                                  Water supply and drainage in progress.  
                                  Light railway, clean platforms and factory track in  
                                  hand.  
                                  Fencing completed.  
                                  Weather conditions have again been poor.  
                                  Men employed, 1,080.  
                                  Value of work to date, £124,000.

For week ending April 1st 1916

No.5 N.F.F. Gloucester.      Commenced 20th October 1915.  
 Making up B.L. & Q.F.      Approximate number of buildings to be erected, 132.  
 Cartridges; assembling      Number in progress, 106.  
 Q.F. Ammunition.              Number completed, 58.  
                                  Heating: Complete and progressing in 55 buildings.  
                                  Lighting: Complete and progressing in 62 buildings.  
                                  Water supply in hand.  
                                  Drainage: Soil and surface water drainage progress-  
                                  ing.  
                                  Light railway, clean platforms and factory track  
                                  progressing.  
                                  Fencing completed.  
                                  Fire service complete and in progress for 2½ miles.  
                                  Men employed, 1,105.  
                                  Value of work to date, £137,000.

Continued/

NATIONAL FILLING FACTORIES  
Report on Construction  
For week ending June 3rd 1916

No.5 N.F.F. Gloucester. Commenced 20th October 1915. \_\_\_\_\_  
Making up B.L. & Q.F. Approximate number of buildings to be erected, 151.  
Cartridges; assembling (1 added since last report).  
Q.F. Ammunition. Number in progress, 151.  
Number completed, 107.  
Heating: Complete and progressing in 84 buildings.  
Lighting: Complete and progressing in 102 buildings;  
third oil engine completed.  
Water supply in hand.  
Drainage: Nearing completion: one filter bed  
finished and working.  
Light railway and factory track approaching  
completion.  
Clean platforms in hand.  
Fencing completed.  
Fire service nearing completion.  
Men employed, 969.  
Value of work to date, £177,500.

For week ending August 5th 1916

No.5 N.F.F. Gloucester. Commenced 20th October 1915.  
Making up B.L. & Q.F. Approximate number of buildings to be erected, 156.  
Cartridges; assembling Number in progress, 156.  
Q.F. Ammunition. Number completed, 156.  
Factory completed week ending 22/7/16.  
Removal of 6 T.N.T. Magazines. Two dismantled, and  
foundations for them in new position in hand.  
Extensions to Light Railway : Time Offices.  
In progress.  
Minor works in connection with Military guard and  
the guarding of the Factory in hand, also  
maintenance.  
Men employed, 170.  
Value of work during week, £700.

Week ending October 7th 1916

No.5 N.F.F. Gloucester. F.G. Railway Extension. Excavation delayed with the  
Making up B.L. & Q.F. bad weather. The complete run of the excavation for  
Cartridges; assembling a single line will be finished this week.  
Q.F. Ammunition; Men employed, 183.  
filling Primers; Value of work since completion, £8,170.  
assembling Fuze and Gaine;  
filling Exploders.

Week ending October 21st 1916

F.G. Railway Extension. Complete run of the single  
track is down. Excavations for the double track are  
practically finished. One gate has been fixed.  
Minor works extensions and general maintenance are  
being carried out.  
Men employed, 168.  
Value of work since 22nd July, £11,120.

DDG(C)

NATIONAL FILLING FACTORIES  
Expenditure

I attach provisional estimated amounts required for erection and equipment of the National Filling Factories.

C.M.4.Y  
29.1.16

NATIONAL FILLING FACTORIES AND STORES,  
ESTIMATED PROVISIONAL EXPENDITURE.

Factory	Expenditure for Year 1915/16	Anticipated Total Expenditure
No. 1 Leeds	£136,500	£184,000
No. 2 Liverpool	£130,000	£152,100
No. 3 Perivale	£238,000	£350,000
No. 4 Georgetown	£264,100	£264,100
No. 5 Gloucester	£117,000	£150,000
No. 6 Chilwell	£382,800	£632,800
No. 7 Hayes	£275,000	£350,000
No. 8 Southwark	£ 10,000	£ 10,000
No. 9 Banbury	£ 25,000	£ 45,000
No.10 Coventry	£100,000	£200,000
No.11 Abbey Wood	£ 19,000	£ 19,000
No.12 Cardonald	£ 31,140	£ 31,140
No.13 Morecambe	£ 60,000	£250,000
No.14 Newburn	£ 70,000	£200,000
No.15 Otley	£ 60,000	£150,000
No.16 Horley	£ 20,000	£ 29,000
	<u>£1,938,540</u>	<u>£3,017,140</u>

PRO. MUN4/1656

C.M.4.(Y)  
Construction

5.2.16

Sir,

No.5 N.F.F. SHELL PAINTING

With further reference to correspondence and particulars that have been issued by this Department as to the provision of accommodation and plant for the painting of Shells.

It has now been definitely decided that this work shall be undertaken by National Filling Factories, and I shall therefore be glad to receive particulars and estimate of the plant and buildings you propose laying down for this purpose, and to know that this work is being pushed on.

I am, Sir,

Your obedient Servant,

H. L. Cabuche  
for D.D.G.M.S.(C)

Continued/

Correspondence between The Dept. of Munitions Supply,  
and National Filling Factory No.5 Gloucester.  
Extracts and summaries.

3.1.16 From John J. Steinitz, Chairman Directing Board, Gloucester NFF.  
 Col. Sir H. W. Barlow, Superintendent, Royal Laboratory, Royal Arsenal, Woolwich, and Mr. Hinks, Danger Buildings Manager, of the same Department, propose to visit this Factory on the 8th January. ...I will be pleased to act on any advice they give.

3.1.16 + 5.1.16 200 books, "Regulations of the Ammunition Factories" sent.

5.1.16 MoM minute. It is agreed that the Police service at the Gloucester Factory should be paid for, until a Military Guard is provided, and I enclose a Form of Agreement applicable to the case, which please complete with the Chief Constable. The Police have been in attendance for some weeks, but payment need not necessarily date from the commencement.

6.1.16 From V. B. Fergusson, Assistant Manager, Gloucester.

I am writing for permission to visit the Danger Buildings at Woolwich Arsenal, in order to see the filling of No.2 Gaines, which work we have to undertake at this Factory. I propose coming to Woolwich on Wednesday next, the 12th inst., spending two days at the Arsenal.

7.1.16 To A. Glyn Watkins, Secretary, Directing Board, National Filling Factory, Apsley House, Southgate Street, Gloucester.

...I am also sending 15 Special Notices, printed in red, of "Articles Prohibited in the Factory Area".

8.1.16 To A. Glyn Watkins.

Tools and Gauges for B.L. Cartridges. ...I think I have previously made it clear to you that the Ministry are providing the plant for 18-pdr. Q.F. Ammunition and for primers for your Factory, but not for B.L. Cartridge work.

11.1.16 To J. A. Woodruffe, Secretary, Gloucester NFF, Apsley House.

Telegram. We require immediate storage for 200,000 rounds packed in 50,000 service boxes 18-pdr. assembled ammunition with loaded cartridge H.E. Shell still requiring bursting charge and fuze to complete. Please wire at once how many rounds of the above you can immediately take into your magazine.

12.1.16 To A. Glyn Watkins, General Manager.

In view of the advanced state of work, it is essential that a strong guard should be provided from an early date.

12.1.16 MoM sending further supply of printed sheets of Directions for Over-lookers. "Lyddite", "Trotyl and Amatol", "Reception Stores for unfilled shells". Also 200 books "Regulations of the Ammunition Factories".

12.1.16 To J. A. Woodruffe, Gloucester.

...It is desirable that men entering magazines should be only those dressed in full magazine clothing. Requisite number of men to be employed as required and they should pass from building to building, leaving, necessarily, from the dirty way, but in clean clothes, except boots. The pattern of dirty boots will be made known to you, which the men should change for the magazine shoes when entering the magazines. Will you please say whether you are in a position to provide the necessary clothing, as no doubt you are, as you will have arranged for other men to be dressed in clean clothing. ...Forward material from which your women's Danger Building clothing is made.

13.1.16 From A. Glyn Watkins.

"Use Lists" in Filling Rooms at Woolwich. Send copies of Primer Filling Rooms. Q.F. Assembling Rooms. Shell Filling Rooms. Cordite Cutting Rooms. B.L. Cartridge Rooms. Igniter Rooms.

15.1.16 Provision of steel ring gauges for gauging 18-pdr., 4.5" and 60-pdr. ammunition after being painted. Also gauged unpainted.

17.1.16 The Bearer is Mr. London who has been appointed senior store-keeper at Gloucester National Filling Factory. ...To obtain instruction at the Ordnance Stores, Woolwich, in accounting for stores in connection with 18-pdr. Q.F. and all natures of B.L. above 18-pdr. including components and their packaging for 2 weeks. Mr. Aldridge, Foreman, 3 weeks.

18.1.16 Sheets of Directions for Overlookers - amend 16-dram to 14-dram Trotyl Exploder.

18.1.16 MoM request 30 Police to guard Factory, only 12 can be spared. This is inadequate, so urge for Military Guard from an early date as the Factory is expected to commence work within a fortnight.

20.1.16 Training of Male Staff at Woolwich Arsenal. No place for Mr. Pryer (Assistant Foreman) at present.

21.1.16 The Minister has at his disposal the sum of £6,000 given by the Maharajah Scindia for the benefit of munition workers ...can be most suitably spent in provision of rest-rooms, reading rooms, or amenities of a similar nature, including lectures, at the canteens in connection with the more important National factories. If you have any suggestions for disposing of a part of this sum in question on such purposes, ...submit the same for the Ministry's approval. [See also MUN4/1520, below].

22.1.16 John W. Barnett, "Highmead", Tuffley, enquired on 19.1.16 regarding particulars of the Staff requirements at Quedgeley. The Managing Staff are already appointed and trained.

24.1.16 MoM minute. The National Factory at Gloucester will, it is hoped, be ready for B.L. Cartridge filling towards the end of February. Could you please indicate the nature of cartridges that would most probably be required to commence work upon, in order that preparation may be made accordingly.

24.1.16 To J. A. Woodruffe, Secretary, Apsley House, Gloucester.

Every endeavour should be made to bring into early operation individual units of the Factory to deal with such urgent classes of work as assembled rounds and B.L. Cartridge filling, and any temporary installation that will achieve this end will receive favourable consideration at the Ministry.

25.1.16 To J. A. Woodruffe.

It has been brought to notice that the arrangements for enclosing the Factories by fences are by no means complete. Internal protection requires necessity of enclosing magazine areas by fencing off from the rest of the factory so that there may be distinct points of entry. Internal protection to be in full force at the time the Factory is in a position to start work and receive its first consignment of explosive material.

27.1.16 To Gloucester.

Military Guard of 2 officers and 90 men required for the protection of this factory. Arrange for necessary buildings to accommodate the guard from an early date. Our Construction Dept. has been requested to arrange for the accommodation specified.

31.1.16 To A. Glyn Watkins, General Manager, Gloucester.

I note you anticipate being ready to fill and assemble 18-pdr. Q.F. Cartridges by the 14th February.

31.1.16 To J. J. Steinitz, Chairman, Directing Board, Gloucester.

I think you will like to see the enclosed copy of a confidential letter from Col. Kensington relative to the new secretary of your Filling Factory. I leave it to your judgement how much importance should be attached to these comments.

1.2.16 To A. Glyn Watkins, Apsley House, Southgate Street, Gloucester.

Sending further supply of 500 books "Regulations of the Ammunition Factories", and further 100 large posters "Special Rules for Ammunition Factories".

Mr. William Mark to be Foreman. Currently working at Woolwich until required.

[Started work at Gloucester on 21.2.16.]

3.2.16 To J. J. Steinitz.

I thank you for your letter of the 2nd inst. and am very glad to learn that you are perfectly satisfied with Mr. Woodruffe.

4.2.16 To J. A. Woodruffe, Secretary, Apsley House.

The Factory will be receiving four Gauges Low Chamber for 18-pdr. Q.F. Ammunition.

7.2.16 MoM minute. The Gloucester Filling Factory is anxious to have the assistance of two B.L. Cartridge hands. I shall be glad if you can arrange for one of these to start there on the 21st inst., and the second on 13th March. (Messrs. McTaggart and Cook).

3.3.16 To J. A. Woodruffe, Gloucester.

Mr. Geo. McTaggart's rate of pay is 47s. 6d. per week, to which should be added Subsistence Allowance under the following scale, as per O.F. Rule 40:-

1st week, 5/2d. per day. 2nd, 3rd and 4th weeks, 3/9d. per day. 5th week to end of 3 months, 3/4d. per day. After three months, special bonus, having regard to the fact that by that time he should be in permanent lodgings. The expenses stated, viz., 13s. 1d. should be paid by you.



10.3.16 MoM minute. Mr. Steinitz of Gloucester National Filling Factory, was here today, and stated that a start had been made on 2.75" Cartridges. He also stated that the Factory would like an allocation for How: 4.5" Cartridges Cordite, as they have prepared for this nature. An allocation for 2,000 will be issued.

15.3.16 From A. Glyn Watkins, General Manager, Gloucester.

With reference to Mr. Geo. McTaggart, who was sent here to assist as leading hand, I find that the rate of pay and the allowance that must be made to this man is out of proportion to his value to this Factory, and if it can be arranged, I shall be obliged if you will be good enough to recall him to Woolwich.

MUN4/1473

17.3.16 From A. Glyn Watkins.

Provision of telephone extension from Factory switchboard. I shall be moving into the house in the course of a fortnight and will then be responsible for attending to the Air Raid calls. (G.P.O. required authority from the MoM).

22.3.16 To Director of Army Signals, General Post Office, - from MoM.

Re. proposed telephone exchange lines to the residences of the General Manager, Assistant Manager, and Engineer of the Gloucester National Filling Factory.

MUN4/1441

22.3.16 To The Secretary, Gloucester.

Engagement of female labour. ...Suggested that the managements of National Filling Factories should be asked to take greater advantage of the Board of Trade Labour Exchanges in meeting their demands for female labour available in towns where local industries have been adversely affected by the War, and the policy of the Board of Trade is to transfer this labour to Munition Factories wherever possible. ...I beg to request that you will bear this suggestion in mind when considering the employment of additional female labour.

23.3.16 To J. A. Woodruffe Esq., Secretary, Gloucester.

Cordite Cuttings. A certain amount of Cordite Cuttings are being accumulated at the Filling Factories, and it is desirable that arrangements should be made for collecting them for issue to Cordite firms for re-working. ...Will you, therefore, send me statement ...showing the quantities of cuttings of various sizes now on hand. Each maker's Cuttings should be kept separate by sizes, and the returns should identify the sizes and makers.

31.3.16 MoM minute. A telegram has been received from Gloucester National Filling Factory asking for forwarding instructions for 4.5" N.C.T. cartridges which they have filled. It is proposed to issue an Allocation Order to them to assemble 2,000 4.5" H.E. per week. C.M.4 (X) has been asked to send them filled shell and boxes. They should therefore retain their cartridges for use in connection with the assembly.

4.4.16 MoM minute. An allocation for assembling 5,000 has been issued.

5.4.16 John J. Steinitz, Chairman of the Gloucester NFF Directing Board, living at the Bell Hotel, Gloucester.

5.4.16 From A. Glyn Watkins, Gloucester.

I understand it is the intention of the Chief Inspector, Woolwich, to engage women and train them at this Factory for the post of Examiner. ...The Board consider this is not desirable, more satisfactory if the examiners receive their training either at Woolwich or at some Factory that has been established for some time.

MUN4/1473

6.4.16 To The Secretary, Gloucester.

I enclose herewith a letter which I have received from a Mr. Merrett, of Green Farm, Hardwicke, Gloucester, in regard to the renting of certain land adjoining your Factory for the stabling of horses. Will you please communicate with Mr. Merrett on the matter as may be necessary.

MUN4/1441

11.4.16 MoM minute. To Mr. Maurice Graham C.M.4.P Room 534.

I send you copy of a letter dated April 8th, which I have received from a lady - a very capable person, who is working at the Gloucester Filling Factory as an overlooker:-

(11.4.16)

I found a good proportion of our factory girls were intending to strike on Monday, as they have to pay their railway fare to and from the factory and Gloucester, viz. 2s/2d. per week. The contractors' men have it paid, also the clerical staff of the factory, but not the workers. They do not think this fair. It leaves them very little to live on out of £1. per week when railway fares and insurances have been paid.

There is really a good deal of dissatisfaction among them. The overseers, or many of them, have been promised 35s/-, and they now refuse to give them more than 30s/- a week.

The men also are getting growly, but they have promised to keep still until I have done all I can for the girls. I have made the girls promise to work on quietly for another week, if I try to get things a little more promising for them. It is no use going to the Manager, or the Local Board. The Lady Superintendent and I have tried it several times with no result, and if we keep on they will simply chuck us out, and we shall be unable to help any more. Can you suggest any help for me, as I have given them my word to do my best for them, and I also want to stop strikes. There are many other little grievances, but this is the chief. Everyone feels that it is being run on the cheap, both with labour and tools, the latter being rotten things, mostly local made. Could you also tell me if these recent local factories get a war bonus, as the girls are asking.

MoM minute. I thought you were the best person to send this to, if not will you please pass it on to the proper quarter, as it seems to call for attention. A. E. W. Hazel.

Mr. Nash. This does not concern me. Maurice Graham 11.4.16.

Miss Pratt\* Have you heard any complaints.

15.4.16 MoM minute. Mr. Nash. I have seen Dr. Hazel on the subject and he has agreed to write to his correspondent pointing out that the proper course for employees who have any grievance is to make a formal representation to the Management. It is not desirable to encourage employees to take matters up with the Ministry until they have dealt with the Manager.

With regard to the complaint generally, you may care to have the following information:- 1. The Gloucester rate £1. per week compares quite favourably with the earnings of women in the local industries. 2. The proposal to pay train fares seems undesirable as endless complications ensue when liability for travelling expenses is accepted. If it came to that, it would probably be better to raise the wages. 3. The Management have a scheme in hand whereby workers will be entitled to earn rather more. 4. The allegation that the overlookers were promised 35/- is untrue.

I discussed the above points with Dr. Hazel, with the proviso that he should not pass the information on to his correspondent.

The growing practice on the part of individuals both inside and outside the factories, of sending unsubstantiated complaints direct to the Ministry, without previous reference to responsible officials on the spot, evidently needs to be discouraged. E. H. Pratt.

MUN4/1473

29.4.16 Telegram. Watkins Filler Gloucester.

Representatives from Railway Transport War Office and Railway Company proceeding your factory tomorrow arriving three thirty in regard to War Office Siding running off Ministry Siding. Will you attend or send representative.

Angus Munexplo London. (J. C. Angus)

MUN4/1441

11.5.16 Sent to Gloucester, six copies amended design "Method of Filling Cartridge Q.F. 18-pdr. N.C.T. Shrapnel Mark IV".

16.5.16 MoM minute. WAGES. I have a complaint referred to me by the Wages Section of the Ministry under which certain Employees at Gloucester National Filling Factory complain of so called grievances in that they have to pay costs of train fares to and from their work. Will you please ascertain from all National Filling Factories, for the purpose of record in this office, the following information:- 1. Rates of pay to women employed on Danger Building work, and outside Danger areas. 2. Normal number of hours worked in a week.

\* Staff Inspector of the National Filling Factories.

(16.5.16)

3. What additional pay, if any, is given for night work. 4. Any allowances that are given to cover the cost of train or tram fares, also ask them to give definite rates of pay for different grades such as Forewomen, Overseers etc. Please see attached letter from the Chairman of the Directing Board of the Gloucester Filling Factory complaining that women Examiners in the service of the Inspection Department at Gloucester are paid Rates higher than the Factory Employees are paid.

22.5.16 To J. A. Woodruffe, Gloucester.

Enclosed for your information six copies of Specification L3957, Cartridge B.L. 9.2" Gun 29 1lb 10oz. Cordite M.D. Mark 1.

MUN4/1473

22.5.16 From A. Glyn Watkins, Gloucester.

Sir, Overalls for Women Workers in Danger Area. In reference to your letter of the 28th ult., an order for our estimated requirements for overalls for our women workers was placed locally when the Factory was being started, and I estimate that during the next 12 months, 2,000 additional sets of overalls and caps will be required for this Factory. The position is therefore as follows:-

1. Flannel or lasting cloth required at present, nil.
2. Ditto ditto. during coming 12 months, 20,000 yds 30" wide.
3. Material to be delivered to this Factory.

22.5.16 MoM minute. 5/7ths of the Factory is completed. The Factory is insured by the Builders up to the time it is handed over to the Board of Management. The Construction Company propose to insure the value of the property still in their hands.

24.5.16 From J. A. Woodruffe.

Alien Labour. I have to inform you that up to the present moment no aliens have been employed by us as far as I have been able to trace from the registration particulars at the moment.

Numbers of extra hands are being engaged weekly here, and fresh registration particulars reaching me daily, and I therefore propose to advise you officially as, and when, Alien Labour is employed here.

MUN4/1441

25.5.16 From J. A. Woodruffe.

Sir, Medical Requirements. I am directed to inform you that our Medical Staff consists, at the present moment, of one Doctor and Nurse.

The remuneration of the Medical Officer, Dr. Goss, is £150 per annum, retaining fee, plus 4/- per case, with a reduced rate for large numbers. The Nurse, Miss H. Priestley, is in receipt of a salary of £100 per annum.

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PRO. MUN4/1520

DDG(C)

...I have communicated with four of the large National Filling Factories with regard to the gift which has been given by the Maharajah Scindia for the benefit of munition workers. I have received replies to the effect that they fully appreciate the gift, and each suggests that if part of this sum were devoted to equipping rest rooms or reading rooms, it would be keenly appreciated by the workers.

C.M.4.Z  
3.2.16

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The Director General of Munitions Supply,  
Ministry of Munitions,  
Armament Buildings,  
Whitehall,  
London S.W.

Letters received by CM4 relating to Filling Factories.

-3.16 MoM minute. On March 25th, my representative went to No.5 National Filling Factory at Quedgeley, Gloucester, to inspect the stock of 18-pdr High Explosive 80/20 Amatol blocks (Curtis's & Harvey) which had been sent there for shell filling and which the Inspecting Officer stationed there had reported was deteriorating from damp.

There are 50,000 block charges there which were received direct from Messrs. Curtis's & Harvey on the 5th March and following days up to 10th March.

The charges were packed as usual in ordinary wood packing cases lined with corrugated paper and each charge wrapped in paper.

Instructions are being issued that waterproof paper linings to the boxes must be provided in future.

The contents of several cases were used - a few charges in each (roughly to 5 to 10 per cent) were found to be affected by damp where the protecting coat of wax had become detached or rubbed off - the remainder were in a servicable condition.

Instructions have been given to the Inspecting Officer as to which charges are acceptable and which should be put aside pending a decision on samples which have been handed over to Chemist W.D., for determination of moisture.

Shell filling will be started at Quedgeley on Monday 27th March.

There are no appliances for testing explosives at the Factory.

The stores are now artificially warmed but the charges arrived about a week before the heating was installed. I.L.S.

29.3.16 Gloucester to MoM, Armament Buildings.

Sir:- For the attention of Captain Cabuche, Room No.549.

I have received instructions from C.I.W. that a new type of filling has been adopted for the 18-pdr H.E. shell. This new filling requires the insertion of a Trotyl pellet below the exploder bag.

I shall be glad to hear whether we are to make these pellets ourselves or whether they will be supplied to us ready made.

If we are to make them ourselves, would it be possible for you to send us drawings of the press required? (Signed) General Manager.

30.3.16 Gloucester to MoM. DGGAF.

Sir:- Assembling Fuze No.100 and Gaine.

In reply to your letter dated March 28th, in which you ask for a report on what steps have been taken to provide the safeguards prescribed in your letter of March 8th for assembling Fuze No.100 and Gaine, I have to inform you that I have procured, as far as possible, tools in accordance with the drawing sent to me, excepting that the stabbing operations are being done by hand, and not in a press.

I will prepare detailed drawings of the various tools and send them on as soon as possible.

I may say that the appliances I have provided have been inspected by Major Sir James Douglas and also by Colonel Ward of Woolwich. Both these gentlemen express approval.

I have already secured 2 18 Pdr. Shells, and have slotted a hole in the side in exactly the same way as shown on the blue print enclosed with your letter of the 28th March, and the shield thus provided is being used during the stabbing operation on the assembled adapter and fuze. (Signed) Genl. Manager.

7.4.16 Gloucester to MoM.

Sir:- For the attention of Mr. Angus.

In reply to your two letters dated 21st and 27th March with reference to the possible output of this Factory, I have the honour to inform you that I consider with the Factory as at present planned, working double shift, assuming that the necessary labour is available, and components are delivered as required, the following output could be maintained:-

(a) 4.5" H.E.	13,000 rounds
(b) 18-pdr. H.E.	60,000 rounds
(c) 18-pdr. Shrapnel	60,000 rounds
(d) B.L. Cartridges	200 tons

Continued/

PRO. MUN4/1410 (Continued)

To increase the output by a further 40000 rounds of 18 pdrs. would, I consider, require further building accommodation and I enclose a plan shewing, (in red) what extra accommodation I estimate would be necessary. The estimate of the accommodation is based on the understanding that finished ammunition would not remain at this Factory longer than 4 weeks.  
(Signed) General Manager.

3.5.16 Gloucester to MoM. DGMS.

Sir:- Exploders - Trotyl 14 drams.

In reply to your letters of the 15th ult: and 19th ult: and sets of sketches enclosed for plant and tools involved in filling trotyl exploders, I beg to state that the obtaining of the necessary plant for this work has been taken in hand.

The contents of your letter of the 25th ult: have been noted with reference to the weighing machine, and a 14 dram machine will be provided as authorised.

In regard to the injurious effects on the workers produced by the beating of bags to size, this is a matter that already has our attention, and respirators will be provided, as required. (Signed) General Manager.

9.5.16 Gloucester to MoM. DGMS.

Sir:- Fire Risk.

In reply to your letter dated 29th April under the above reference, I have the honour to report that the arrangements for dealing with an outbreak of fire at this Factory are as follows:-

- (a) Permanent hydrants are fixed throughout the Factory area, and near each hydrant there is a hose box with hose and necessary fittings. The water is brought from the Gloucester Water Supply and in order to provide sufficient pressure, permanent pumps are fitted in the Boiler House.
- (b) Arrangements have been made with the Captain of the Guard to detail 1 Sergeant and 10 men who are always ready to deal with any outbreak of fire. The Guard House is in telephonic communication with the Factory switchboard day and night.

I am directed by the Chairman of the Board to inform you that the arrangements made generally and the provision of apparatus are, in the opinion of the Board, adequate for all emergencies. (Signed) General Manager.

10.5.16 Gloucester to MoM.

Sir:- For attention of Mr. Angus.

I am directed to inform you that it is considered advisable that an additional 11,000 square feet of storage accommodation for boxes should be provided at this Factory, and with your approval my Board will put this work in hand at once. (Signed) General Manager.

PRO. MUN5/187/1340/54

GUN AMMUNITION FILLING.  
DAILY STATEMENT OF STORAGE ACCOMMODATION AND TRAFFIC AT 6 PM.

BOX STORE NO. 26 GLOUCESTER.

Total storage capacity 42,000 cubic feet. Space unoccupied 40,630 cubic feet. Space allocated, but at present unoccupied 40,630 cubic feet. Number of wagons per day that can be unloaded 15. Number of wagons under load 0. Number of wagons expected 1.

31.5.1916

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DGGAF. Director General, Gun Ammunition Filling.  
DGMS. Director General, Munitions Supply.  
Armament Buildings,  
Whitehall,  
London S.W.

C.M.4.- Letters and Minutes

To C.M.4.T.

Gloucester National Filling Factory No.5.

A week ago, eighty truck loads of incomplete 18-pr. Rounds arrived at the above Factory from abroad and had to be unloaded at once. The work was, at first, delayed by C.I.W's representative, who wished the cases to be segregated according to the Lot No. of the Cordite Propellant. This delayed unloading too much and had to be stopped, and the cases are now stacked indiscriminately. Is there any reason why the consignment must be segregated according to Lot No. of the Cordite charge.

C.M.4.Z.  
20.3.16.

To Mr. Strain.

Daily Return - 20.3.16.

I observe from the Daily Return that Gloucester is awaiting the following components and shall be glad if you can forward supplies:-

18-pdr. Shrapnel (N.C.T.) Awaiting Discs, Shalloon 1.5" dia.  
Cartridge Q.F. 4.5" (Cordite) Awaiting Thread, Machine 25/4".  
Primers. Awaiting Discs, paper whited brown .34".  
Awaiting Discs, paper white fine .875".

H. L. Cabuche  
C.M.4.Z.  
21.3.16.

To C.M.4.X.

I am informed that Gloucester are awaiting the following items, and shall be glad if you could hurry them forward:-

<u>Fuze, Graze No. 100 and</u>	Case, packing fuze, cylinders No. 100F.
<u>Gainé No. 2 to assemble.</u>	(Issue Warrant R.9771 on Kent's for 10,000 per week - 8/3/16).
<u>Shells B.L.</u>	Plugs F.H. 2" No. 2 Mk II. (Issue Warrant 10,669 on 17/3/16 for 1428 from Sherwell, Birmingham).
<u>60 Pdr. Shrapnel.</u>	Cartridges Q.F. 18 Pdr. Cases, empty.
<u>Cartridges Q.F. 18 Pdr.</u>	(Issue Warrant 11,434 on S/S KOREA for 21,648 on 15/3/16 and for 997 on King's Norton Metal Company, Issue Warrant 10,462).
<u>Shrapnel. Filling and</u>	Shells, Shrapnel Q.F. 18 Pdr. (Issue Warrant 9041 on S/S CARMOYAN for 18,600 - 2/3/16).
<u>Assembling.</u>	

H. L. Cabuche  
C.M.4.Z.  
21.3.16.

To Major Castens.

Drawings and specifications not yet received at Gloucester from Woolwich:-

Cartridges Q.F. 4.5" (N.C.T.). Shells, B.L. 60 Pdr. Shrapnel.  
Cartridges Q.F. 4.7" (Cordite). Shells, B.L. 4.5" Howitzer.

H. L. Cabuche  
C.M.4.Z.  
21.3.16.

## POST OFFICE TELEGRAPHS

Received 11.43 a.m. 25.3.16.

Output up till last night 2309 2.75" 409 6" 30cwt Howitzer 405 9.2" Howitzer assembled 250 filled fuzes and gains making a start on 8" this morning.

Filler Gloucester.

Continued/

To Mr. Nash.

Mr. Watkins of the Gloucester National Filling Factory has telephoned me as follows:-

"I was commencing the filling and assembling of the 18 pdr. H.E. Q.F. rounds when the C.I.W. Officer stopped me on the grounds that he considered the Amatol blocks were not in a fit condition to be used." Mr. Watkins asked him what he considered was unfit about these blocks, and the Officer replied to the effect that he thought they were damp. Mr. Watkins states the wax coating has broken away at the corners, but, in his opinion, he feels the case is not as serious as the C.I.W. Officer thinks. The first consignment of Amatol blocks reached the Factory on the 5th of March, and the last consignment - which the C.I.W. also states are unfit - reached the Factory on the 10th of March. These blocks were stored in a dry building, which was heated. Mr. Watkins states the heating, whilst not being in a perfect condition, was, in his opinion, suitable. Mr. Watkins asks that a responsible Officer be sent down to give an early decision upon the state of these blocks, as he regrets very much having to stop this filling, especially in view of the fact that he has the Fuzes and Gains assembled, and could be producing good results in output.

H.L.C.  
C.M.4.(Z)  
24.3.16

[ See also page 36 ]

To Captain Cabuche.

Gloucester National Filling Factory No.5.

I visited the above factory yesterday, and am pleased to report that excellent progress is being made. With only four out of the 20 main buildings available they are proceeding with seven of their allocations. The small fuze and gain store buildings, just north of the office, are being adopted temporarily for the powder filling of 60 pr. and 4.5" shrapnel shell and work on these will commence next week.

Six more of the main buildings are expected to be brought into use in 3 weeks time and there is no doubt that this factory will show a very satisfactory output shortly thereafter.

The following allocations are now going forward and the output on Thursday the 30th inst. was as stated:-

2.75" Cartridge 469.

4.5" N.C.T. 49. Work retarded by tightness of glazeboard lids. In similar circumstances, Liverpool C.I.W. men got permission to slit rim of lid.

6" 30cwt N.C.T. 163.

8" Howitzer 17.

9.2" Howitzer 125.

18 pr. H.E. completing incomplete rounds 176.

Fuze and Gain assembly 637. Paper mache collars to cover fuze thread and detonator urgently required.

4.7" Cartridges. Awaiting brass cases but will proceed to fill bags as soon as a building available.

60 Pr. and 4.5" Shrapnel Shell. See above. Will proceed next week.

4.5" Cordite Cartridges. Awaiting Cordite, which is advised. Will then proceed as soon as a building available.

Primers. Components advised.

18 Pr. Shrapnel. Complete rounds to fill and assemble. Awaiting shells and building.

18 Pr. H.E. Complete rounds to fill and assemble. Will proceed as soon as stock of incomplete rounds can be worked off.

A.T.B.  
1.4.16.

[A. T. Beazley, Capt.]

Continued/

To Director General, Munitions Supply.

Sir,

For attention of Captain Cabuche  
Cartridge 4.7 Cordite

In reply to your letter regarding the filling of Cartridge 4.7 Cordite, we are starting immediately on the filling of the bags, but would point out to you that it is not advisable to build up too great a stock of these, and I trust therefore that the missing components will be available as soon as possible.

In reply to the last paragraph of your letter enquiring when we expect to commence 4.5 Cordite filling, I have to inform you that I hope to make a start on this nature on Monday morning next.

A. Glyn Watkins.  
5.4.16.

To Mr. Nash.

I confirm wiring to you last evening as follows:-

Today's output of assembled fuses and gains is 601. In reply to your wire re 18 pdrs. have not yet assembled any complete rounds but have completed 1395 rounds of partly filled American 18 pdrs. 1000 of these have been accepted by C.I.W. and are ready for shipment.

A. Glyn Watkins.  
5.4.16.

To Mr. Nash, from Chilwell N.F.F.

...An issue warrant has been received to despatch 12,000 and 2,000 a week 4.5" shell to Quedgeley Siding, Gloucester, and a number of these are now being loaded up.

Chetwynd.  
6.4.16.

To Mr. Nash.

I confirm wiring you today as follows:-

Today's output of assembled 100 fuses and gains 604. Completed rounds of American 18 pdrs. 540 and 4.5" Howitzer N.C.T. charges 178.

A. Glyn Watkins.  
6.4.16.

To Mr. Nash.

I confirm wiring you today as follows:-

Yesterday's output 100 fuses and gains 658. Completed rounds of 18 pdr. 840 and filled N.C.T. 4.5" Howitzer charges 216.

A. Glyn Watkins.  
7.4.16.

To The Secretary, Gloucester.

... D.D.G.(C) is very pleased to hear that you have today brought into use two more rows of buildings, and that during the next week you anticipate bringing in a large number more to production.

I shall be extremely obliged if you will do all you can to press the output in connection with 4.5" Cordite and N.C.T., B.L. cartridges, as these rounds are most urgently required.

As regards your 18 pdr. H.E. and 4.5" H.E. rounds, every endeavour should be made to work up to your allocation at a very early date, as these particular rounds are very urgently needed.

H.L. Cabuche for Director C.M.4.(Z).  
11.4.16.



"C" BOOK  
WEEK ENDING APRIL 1ST 1916  
GLOUCESTER

18-pr. Filling and Assembling

S. No buildings. Awaiting Rubber rings. 20,000 sent on April 1st.

18-pr. Completing incomplete Rounds

H.E. Up.

Filling Shrapnel Shell 60 pdr

Start 5.4.16.

Filling Shrapnel Shell 4.5"

Start 7.4.16.

Making up B.L. Cartridges 2.75"

Up.

Making up B.L. Cartridges 4.7"

No cartridge cases but have started making up charges.

Filling Primers

No buildings.

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PRO. MUN4/1384

SHELL AND FIXED AMMUNITION FILLING WEEKLY REPORTS

Report for Week Ending 25.3.16.

Leeds, Liverpool and Gloucester are awaiting proof and passing of shell.

R. Guy King  
27.3.16.

Report for Week Ending 1.4.16.

Gloucester start 60 pdr. and 4.5" Shrapnel next week.

R. Guy King  
1.4.16.

Report for Week Ending 15.4.16.

Georgetown, Liverpool and Gloucester are working on 60 pdr. S. and Liverpool are starting on 4.5" S.

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PRO. MUN5/187/1340/53

B.L. CARTRIDGE FILLING PROGRAMME  
(INCLUDING Q.F. 4.5" HOW)

GLOUCESTER

8" How. N.C.T.	20,000.
6" 26 cwt. How. N.C.T.	35,000.
60 pr. N.C.T.	50,000.
4.7" Cordite.	12,000.
4.5" N.C.T.	10,000.

L.C.P. Milman  
A.D.D.G. (C)  
C.M.4. (W)

April 1916.

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C.M.4.(Z).

I enclose for your information a Memorandum which has been prepared on the position with regard to H.E. Filling, from which you will see that the limiting factor is that of the capacity to assemble Q.F. Ammunition. I should be glad if you would kindly go carefully into the question and let me know whether the forecast of the capacity at the National Factories given below still holds good, or whether without additional buildings the capacity can be extended.

Leeds.	80,000.
Liverpool.	80,000.
Glasgow.	80,000.
Gloucester.	80,000.
Hayes.	50,000.
Devonport.	30,000. Fuzing only.

On present forecasts capacity will have to be found for the assembling of say 450,000 rounds 18-pdr. and 13-pdr. Shrapnel, and 4.5" H.E. on the basis of the September net requirements plus margin, and roughly 700,000 rounds on the basis of the 1917 Requirements plus margin.

[Sgd] J. G. Beharrell.  
C.M.4.(R).

15.3.16.

## [Extract from Memorandum]

Conclusion.

It is clear from this Memorandum that enquiries should at once be made with a view to seeing how the assembling capacity at the various National Filling Factories can be enlarged.

- (a) By additional buildings;
- (b) By double shift working;
- (c) By alteration of method so as to obtain a larger output in a given space.

Having regard to the absolute dependence on Chilwell for adequate supply of big natures, it may be well to consider the position if this factory is put out of action for a time. This question is however entirely one of insurance. The margin of safety in other respects is ample.

Application for authority.

- (1) To provide by double shifting - doing more in existing buildings or putting up new buildings; - assembling capacity for 18 Pdr., 13 Pdr. and 4.5" to the extent of 450,000 rounds in September and 700,000 rounds in 1917.
- (2) To provide against total destruction of our largest unit, viz: Chilwell. If this additional security plant for 60 Pdr. and upwards is approved, it should be put down in the South West of England, in order to take all its shell, from the imports into areas 5 and 6, marked "N" on the map, which to-day has to be hauled to Chilwell.

[Sgd] E. C. Geddes.  
D.D.G.(C).

15.3.16.

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Mr. Angus.

Mr. Nash would like you to write letters at once to Leeds, Liverpool, Glasgow, Gloucester and Hayes, giving each a statement showing the number of 18 pr. H.E. and Shrapnel, also 4.5" H.E., which they will be required to assemble, and to state that, as we understand it, their present capacity for assembling H.E. or Shrapnel is, in the case of the 4 National Factories, the equivalent of 80,000, and at Hayes 50,000.

They should be asked to say what their existing capacity is, in their opinion, equal to, on the understanding that it is for double-shift working. Also, they should state what additional buildings they will require, to make up any deficiency.

[Sgd] R. E. Farra.(?)

17.3.16

Minute Sheet

C.M.4.(Z).

Capacity for Assembling and Packing 4.5" H.E. ammunition is urgently required. I should therefore be glad to know whether the undermentioned National Filling Factories are in a position to undertake this service.

Liverpool.  
Gloucester.  
Georgetown.

And if so at what rate per week.

L. C. P. Milman  
C.M.4.(W).

22.3.16.

C.M.4.(W).

The capacity for assembling 4.5" H.E. Ammunition was designed for 10,000 rounds at each of the above. The factories should be requested to undertake this work, and it is suggested that an allocation of 5,000 should be given to each of the Factories named.

J. C. Angus  
For Director C.M.4.(Z).

1.4.16.

C.M.4.(Z).

Allocations for assembling 5,000 per week to each of the above named factories have been issued.

J. V. Ramsden  
C.M.4.(W).

4.4.16.

PRO. MUN4/1401

ASSEMBLING H.E. AND Q.F. AMMUNITION

D.D.G.(C).

The original capacity for assembling H.E. Ammunition i.e. 4.5" and 18 pr. H.E. was as follows:-

<u>Leeds</u>	80,000 rounds 18 pr. H.E.	<u>Georgetown</u>	80,000 rounds 18 pr. H.E.
	10,000 rounds 4.5" H.E.		10,000 rounds 4.5" H.E.
<u>Liverpool</u>	80,000 rounds 18 pr. H.E.	<u>Hayes</u>	80,000 rounds 18 pr. H.E.
	10,000 rounds 4.5" H.E.		10,000 rounds 4.5" H.E.
	<u>Gloucester</u>		80,000 rounds 18 pr. H.E.
			10,000 rounds 4.5" H.E.

In conjunction with Mr. Beharrell, I addressed, on 21st March, letters to the National Factories concerned, informing them that according to the revised programme they would be required to assemble H.E. and S rounds as follows:-

<u>Leeds</u>	80,000 rounds 18 pr. H.E.	<u>Georgetown</u>	80,000 rounds 18 pr. H.E.
	80,000 rounds 18 pr. S.		80,000 rounds 18 pr. S.
	70,000 rounds 4.5" H.E.		50,000 rounds 4.5" H.E.
<u>Liverpool</u>	80,000 rounds 18 pr. H.E.	<u>Hayes</u>	50,000 rounds 18 pr. H.E.
	80,000 rounds 18 pr. S.		50,000 rounds 18 pr. S.
	60,000 rounds 4.5" H.E.		60,000 rounds 4.5" H.E.
	<u>Gloucester</u>		80,000 rounds 18 pr. H.E.
			80,000 rounds 18 pr. S.
			13,000 rounds 4.5" H.E.

Continued/

Gloucester reply that they would require certain extra accommodation, which includes 10 small huts, in continuation of the present Q.F. assembling, and a finishing building, the dimensions of which are not given.

In view of the urgency of the matter, and also of the comparative ease with which the work of extension of buildings can be taken in hand...I ask your permission to start the extensions at once, pending on final decision as to the number of additional buildings that will be required.

17.4.16.

[Sgd] P. A. M. Nash.

PRO. MUN4/1582

MEMORANDUM OF DISCUSSION ON ADVANCE "C" BOOK  
FOR THE WEEK ENDING MAY 13TH 1916

18-PDR.

In view of the fact that very little expansion is now required in the filling of B.L. Cartridges, Leeds, Liverpool, Georgetown and Gloucester should be urged to develop the filling and assembling of 18-pdr. both H.E. and Shrapnel.

[Extract]

OBSERVATIONS ON OUTPUT AT NATIONAL FILLING FACTORIES  
WEEK ENDING MAY 13TH 1916

No. 5 N.F.F. Gloucester

CARTRIDGE FILLING.

4.5" Howitzer N.C.T. It is not desired to raise this allocation which the Factory has now reached. The additional number of cartridges required for the assembling allocation which has now been raised to 20,000 a week can be supplied from the heavy stocks of filled cartridges already existing.

6" 26 cwt. Howitzer Cordite. These cartridges are urgently required.

8" Howitzer Cordite. The progress here is somewhat slow.

9.2" Howitzer Cordite. Not more than 1,000 of the existing allocation are required, as this nature is not in the Factory's ultimate programme.

Q.F. AMMUNITION.

An output of filled and assembled 18-pdr. ammunition is expected from this factory, and it is not understood why no start has been made on either Shrapnel or H.E.

PRIMERS.

The factory should get to work on these with a view to being self-supporting.

19.5.16.

Note. The Advance "C" Book gives the actual work of each factory against their allocation, and compared with their previous performances. MUN4/463.

THE MINISTERThrough D.G.M.S.Copy to P.M.S.B.L. CARTRIDGE FILLING CAPACITY

I have already submitted a general review of the H.E. Shell filling capacity of the country, fixed ammunition assembly capacity, and of the minor component filling capacity.

I now submit a Report on the B.L. Cartridge Filling Capacity of the country.

The problem of bringing the B.L. Cartridge making capacity of the country up to any standard is not one which lends itself to any wholesale action, and it involves gradual increases of the capacity and training of the staff at the various factories doing the work to enable it to be satisfactorily carried out. This work is practically all done in State-owned factories, as will be seen in the list on Page 2 of the Memorandum attached.

...On a tonnage basis it will be seen from page 2 that, even assuming that the whole capacity is utilised and represents output (which it can never do), we have practically no margin in June, and we have a deficiency in September and ultimately. For June the comparison I have given is capacity against Net Requirements.

In order to arrive at a more accurate basis of comparison, we have devised during the past few months a "unit" based on Woolwich experience. The theory of a unit basis, as you will be aware, is to allot an output value factor to each article, and then express your comparison in the units so arrived at.

The fallacy of the tonnage basis is shewn by a comparison of the various 4.5" Howitzer Cartridges. These weigh practically the same, but the 4.5" Cordite has an actual production value of four times as much as the 4.5" Ballistite or N.C.T. Cartridge.

From the unit summary table...it will be seen that in June we have a surplus of about 50 per cent. in capacity over Net Requirements, and roughly 33 per cent. over Net Requirements plus margin, working down to an ultimate deficiency of about 8 per cent.

From the conclusion on Page 5 of Mr. Beharrell's Memorandum it will be seen that by utilising night shifts, some of this can be made good, but we do not know the extent to which Air Raids will interfere with night working, and this is becoming a very serious factor. There is also the factor of insurance against damage for which no provision has been made in the Statement. Scattered factories like these would not, in all probability, be seriously wrecked by a High Explosive bomb, but an incendiary bomb setting fire to a building in which there was propellant on the windward side of a B.L. Cartridge Filling Factory, would more than likely run right through it and I therefore think in this case, as in others, it would be prudent to provide amply for Net Requirements plus margin with an insurance establishment equivalent to the estimated output of the largest unit, and I shall be obliged if an authority can be given to me to work on this, as experience shews whether in fact our theoretical figures are justified.

Meanwhile, I propose to take immediate steps to meet the possible June shortage arrived at on the tonnage basis, even although it is demonstrated, by what I consider to be a more accurate basis of calculation, that we have the capacity.

I shall be glad of approval to this.

[Sgd] E. C. Geddes.  
D.D.G.(C).

10.4.16.

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(Extract)

Continued/

Memorandum by Mr. Beharrell.

The following table shows the capacity forecasted as available for B.L. Cartridge filling in June and September.

	<u>June</u>	<u>September</u>
Woolwich	180	388
Armstrong	.5	.5
King's Norton	7.5	10
Thames Ammunition	2	2
Vickers	2	2
Leeds	200	200
Liverpool	150	200
Glasgow	200	200
Gloucester	140	200
Hayes	50	50
Abbey Wood	75	75
TONS	<u>1,007</u>	<u>1,327.5</u>

The following summarises the position:-

	TONS		
	<u>June</u>	<u>September</u>	<u>Ultimate</u>
Net Requirements	958		
Net Requirements plus margin	1,295	1,443	2,087
Capacity	1,007	1,327	1,327
Surplus over Net Requirements	49		
Deficiency below Net Requirements plus margin	288	116	760

From the above it is clear that judging our capacity on the tonnage principle we have barely sufficient capacity to fill net requirements without margin for June, and no account has been taken for time lag, and there is a deficiency compared with net requirements plus margin of 288 tons in June, 116 tons in September, and 760 tons ultimate.

It is very much open to question whether tonnage is the proper measure of capacity for B.L. Filling, as the output of any shed varies very much according to the class of work on which the hands are engaged.

The Woolwich capacity and also the capacity of the Trade is undoubtedly on the basis of double shifts, but I understand that the capacity of the various National Factories has been forecasted on the basis of one shift only. This being so it will be seen that the [output] could be expanded...which would appear to be ample margin for insurance, after allowing for the fact that the requirements are exclusive of special requirements.

[Sgd] J. G. Beharrell.  
C.M.4.(R).

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(Extract)

## C.M.4.

Classification of Stores

To remove any misapprehension which may exist, the following definitions are given for the different classes of Stores with the purpose for which they were built.

- (1). Munition Stores are intended for the storage of inspected and proved empty components or incomplete rounds not immediately required for filling or completing.
- (2). Factory Stores are for the reception of a reserve of empty components required for filling at that Factory.
- (3). Inspection Bonds are for the reception and inspection of empty components (home and overseas) which have not been inspected at the place where they were manufactured: also for empty shell awaiting recovery proof. They are designed to hold a month's anticipated receipts, (inspection usually taking three weeks) but are not intended for storage subsequent to inspection and proof.
- (4). Bond Stores are situate in the Factory Area and are intended to contain filled components awaiting proof: they are designed to hold 3 to 4 weeks' output of the factory: as soon as possible after proof they are despatched to where they are required for assembling or to a Munition Store.
- (5). A.O.D. Stores are not Bond Stores and may or may not be in the Factory Area: they are for the storage of complete ammunition ready for issue pending its despatch to the Front: they are in charge of an A.O.D. Officer who takes over the ammunition from the Factory and receives instructions from the War Office as to its disposal.

E. C. GEDDES.  
D.D.G.(C).  
24.6.16.

(Extract)

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Home Office Inspector, No. 5 National Filling Factory:

H.M. Inspector of Factories, 3 Market Parade, Gloucester.

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## STORAGE

In 1915 it was decided that the Ministry should provide storage capacity [for the War Office] at each National Filling Factory for 4 weeks' output which was to be under the control of the Army Ordnance Department. Accumulation at the filling factories themselves was thus prevented but the accommodation soon proved inadequate, partly owing to the change in programme, resulting in re-allocation among the filling factories and partly to the action of the War Office in restricting the amount of propellant to be stored in any one magazine to 100 tons, whereas the average capacity of each was about 200 tons. Owing to questions of layout and general safety it was impossible to extend the stores which had already been established at the filling factories and fresh accommodation was arranged for at Credenhill, Bramley and Altrincham.

By September 1916 it had become necessary to hold six weeks' supply of filled ammunition in England so that existing capacity had to be extended by 50%. Shell stores were provided at Hereford, Quedgeley, Lewes and Middlewich and capacity for the equivalent number of cartridges in other districts. During the last few weeks of the year stoppage of overseas traffic and other setbacks due to bad weather caused congestion at the filling factories' stores and at Banbury concrete platforms were laid down by the sidings and covered with a dutch barn roof to take the surplus which could not be held in the ordinary stores. As this method proved satisfactory it was later followed in extending the capacity at several of the other stores.

The safety conditions necessary in such stores naturally added very considerably to the problem of securing adequate accommodation. After the explosion at the ammunition dump at Rouen in the spring of 1916 a Committee on the storage of Filled Gun Ammunition was appointed to consider the whole question. Some of the requirements laid down by this committee, however, proved to be impracticable in actual working, and it was found necessary to abandon the regulations drawn up for the ideal storage programme and make the best of existing conditions. Thus the recommendation that shell stores should be under 4,000 square feet in area and at least 200 yards apart, was never carried out, as it would have entailed the acquisition of some 2,000 acres of additional ground while the cost of administering a large number of small scattered depots would have been very heavy. The larger stores were made as safe as possible by means of sand-bag traverses, earth mounds or partitions of concrete or double galvanised iron. It was accepted that propellants should be stored in different buildings from H.E. shells, that fixed ammunition or boxes containing complete rounds should not be stored with either propellants or H.E. shell of other natures, and that chemical shell, bombs and grenades should be kept separate from other ammunition.

(Extract)

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MINISTRY OF MUNITIONS  
 Armament Buildings  
 Whitehall, S.W.

25th May, 1916.

Dear Sir John Steevens,

In view of the report upon the recent explosion at Rouen it is considered desirable that an enquiry should be held into the arrangements which have been made for storage of filled ammunition at the National Filling Factories and at the works of Filling Contractors. In order to have the matter investigated I am proposing to appoint a small Committee of representatives from the factory sections concerned, with the addition of Sir James Douglas (who is in charge of Danger Building Regulations), and you very kindly promised to appoint a representative upon such a Committee.

I enclose a remit which I suggest the Committee should act upon, and should be glad if you could look through it and let me know whether you agree, or whether you would like it modified in any way.

Yours very truly  
 E C Geddes

Major-General Sir J S Steevens, KCB  
 War Office  
 S.W.

(Extract)

Minute sheet to Mr. Nash.

It should be remembered that the War Office decided not to adopt the recommendation of the Committee of Enquiry upon the Rouen explosion to the effect that shell and propellants (other than in the case of fixed ammunition) should be packed in separate boxes and that H.E. shells should not be sent out fuzed. This of course would have affected 4.5".

E C Geddes  
 DDG(C)  
 25.5.16

(Extract)

#### Recommendations of the Court of Enquiry

1. That the main consideration in dealing with an outbreak of fire amongst ammunition is necessity for very quick action, and if a plentiful supply of water is not available that an ample supply of chemical fire engines should be provided.
2. That small sheds are desirable, erected as far apart as possible and mounded from each other, that protection could be given by walls of the sheds being erected of breeze, concrete or double galvanised iron walls with earth or sand between.  
 Where large sheds are in existence or must be erected, that traverses such as sand bags or breeze concrete partitions...should be provided to sub-divide the shed as much as is practically possible.  
 The sheds at Rouen are 400' x 70' and the space between the parallel sheds...is 70 feet. This was not considered sufficient and it was recommended that there should be at least 70 yards between the parallel sheds. Also that the sheds should be sub-divided by fire-proof traverses.
3. That several small depots are preferable to one large depot, and that a depot should not be overcrowded, as this makes it practically impossible to localize a fire.
- 4a. That propellants should be stored in a different building to H.E. Shells.

Continued/

- 4b. That fixed ammunition or boxes containing complete rounds should not be stored with either propellants or H.E. shell of other natures.
- 4c. That chemical shell, bombs and grenades should be kept separate from other ammunition.
5. That except in the case of fixed ammunition, shell and propellants should not be packed in the same boxes, and that the practice of sending out H.E. shells fuzed should be discontinued.

S. T. Burgoyne.  
11.5.16

[Extracts from]

Minutes of the second meeting of the Committee on Storage of Filled Gun Ammunition, held Wednesday & Thursday, June 14th & 15th 1916 at Gloucester.

Present: Chairman, Col. C. S. Meeres, representing A.O.D. Maj. Thomas, representing D.G.M.G. Maj. Sir James Douglas, representing Danger Buildings and Regulations. Maj. Coningham, representing the Home Office. Mr. Graham, representing C.M.4.(P) Construction. Mr. Baines, representing H.M.O.W., Fire Appliances, etc. Secretary, Lieut. Rowley, representing C.M.4.(Z) Capacity.

#### GENERAL.

Permanent positions of all portable fire appliances in each and every building should be prominently and clearly indicated on the walls and floors of such buildings. A complete description and the number of all fire appliances available for use in the building should be prominently posted. This notice should detail the position of the nearest hydrant.

This recommendation was made as it was found that a search in many buildings failed to disclose the whereabouts of these appliances. In some cases they were hidden behind stacks etc., and in others had been apparently taken from the buildings.

#### DETAIL.

(A) SITE: Suitability as regards vulnerability to illegal access etc.

##### EXTERNAL GUARDING.

The attention of the Committee was drawn to two points which seem undesirable.

The existence of a heavy thorn fence running east from the Farm, parallel to the Factory, north of the new magazines.

The occupation of Contractors' men of the out buildings on the Farm (just off the T.N.T. Magazines, G Series) and the consequent fire risks to these and other danger buildings in the vicinity.

##### (B) LAY OUT OF STORES.

##### A.O.D. STORES E. SERIES.

It was noted in some cases in buildings not on A.O.D. charge that empty and non-explosive components were stored with explosive components in the same building. It is recommended that these be separated in accordance with existing regulations.

It was noted in some cases that Electric Lights in buildings were below the height of the stacks. Some modification of this should be made.

The nature of the roofs on these buildings increases the fire risks, and it is recommended that fire proofing should be considered.

These buildings considered to be too close to one another.

##### G. SERIES.

The use of these magazines for storing high explosives or gunpowder is considered to be highly undesirable because of their proximity to workshops and A.O.D. Stores.

I. SERIES.

The proximity of building No. 9 is considered to be too great to workshops and it is recommended that this should be used for other purposes other than storing propellants or explosives. It is also considered highly desirable that building No. 10 and No. 13 be mounded so as to afford protection to working buildings and Black Powder Magazines.

E. SERIES.A.O.D. MAGAZINES FOR FILLED CARTRIDGES.

These Magazines are undoubtedly too close together from the standpoint of explosive and fire risks. To minimize, traversing might be adopted between the stores [and] it would be particularly advisable to protect the present magazines with roofs of some non-inflammable material to prevent the possibility of ignition from falling debris as far as possible. The patrolling of these places should also be particularly watched.

D. SERIES.

It is recommended that no explosives should be kept in this range of wooden buildings. The explosives stored here represent a grave fire risk to the whole factory.

It was noted in D4 that there were some twenty-six girls engaged in the filling of 60 pdr. Shrapnel Shell, and that there was no less than 100 lbs (bulk) of gunpowder in the shop. Even had this been a suitable building for this work, this quantity is far in excess of what is safe.

In the so called empty shell stores D3, it was noted that in addition to the empty shells there was a considerable quantity of H.E. filled plugged shell and incomplete primed Q.F. Ammunition. This ammunition was stored there owing to lack of other storage accommodation. It seems necessary therefore, that additional storage accommodation should be found for filled plugged shell, and a suggested position for these stores is shown on the attached plan.[\*]

Further if it is found impossible to deal with incomplete H.E. 18 pdr. Q.F. Ammunition at Ports of Delivery, it is desirable that a further suitable site for this work, quite away from these series of buildings should be selected.

EMPTY BOXES.

It is considered highly undesirable to accumulate large quantities of empty boxes close to Factory buildings owing to the increased fire risks. It was noted in this connection that large quantities of empty boxes were stored between buildings D3 and D4, this due presumably to the shortage of labour etc., for transport further away.

(C) ADEQUACY OF ARRANGEMENTS FOR PREVENTING SPREAD OF FIRE.

It is considered impracticable owing to the constant flow of ammunition to be dealt with and the small size of the stores to adopt systems of internal traverses. It is recommended, however, that where practicable break joints and selective stacking be adopted as far as possible.

FIRE APPLIANCES: Organisation of Fire Brigades, etc.GENERAL.

The consideration of the fire risks existing at this Factory confirms the Committee in their opinion as to the desirability of appointing a permanent inspecting officer, who will be solely concerned in fire risks at all National Filling Factories. It is suggested that the appointment of this individual be taken up with Commander Sladen of the London C.C. and Fire Brigade.

The appointment of a permanent fireman at the Factory under the direction of the factory management is considered to be highly desirable.

DETAIL.

A false fire alarm was given and it was noted that the time elapsing between the alarm and the first jet from the hose was eleven minutes. Eight and a quarter minutes elapsed before the arrival of the fire picket.

The hooter used by the Factory for giving the alarm was much too weak, and could not be heard at all parts. It is suggested in regard to the latter, that a stronger hooter should be installed, and also as an additional precaution, that local alarms be arranged for.

A very unsatisfactory feature presented itself in the arrangements, viz, for the collection and detention of all girls in shifting houses within the danger area.

It is desirable that oil fired locos should be used within the factory area. Failing this, all locos operating in the Factory should be equipped with spark catchers, etc.

FINAL.

UNKNOWN EXPLOSIVES.

Particular attention should be given to Rule 12, Class I D.B. Regulations, as to receiving of explosive packages.

The danger of storage of large quantities of Ammunition fuzed with 100 Fuzes was brought to the attention of the Committee and to overcome the possibility of danger from faulty fuzes, it is recommended that the efficient carrying out of the bump test by means of suitable proof apparatus should be carried forward with all energy.

C. S. MEERES, COLONEL.

Chairman.

[\* Additional accommodation to occupy the area formerly taken up by the G series of six T.N.T. magazines immediately south of the farmhouse. See MUN4/1487.]

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[Extracts from]

Report on Conference held at War Office 23rd February 1917  
to consider question of A.O.D. storage at National Filling Factories.

[Present: Representatives from W.O., M of M., and Woolwich Arsenal]

The general object of the meeting seemed to be one of impressing on various departments concerned, the necessity for making the best of the conditions prevailing at various factories with reference to the storage of B.L. Cartridges, Q.F. Ammunition, and Shell. Particular attention was given to the necessity for storage regulations because of the incessant blockbacks etc. which we were experiencing and also because of the fact that the Army Council had decided that increases in programme were required, and that as a promise had been given by the Ministry to produce these quantities, that arrangements must be made to store.

Even though a four weeks' basis had been laid down by the Ministry and agreed with the War Office for an output storage figure for the various Filling Factories, it was requested that we, the Ministry, help in every possible way to facilitate as much storage as possible being handed over to the War Office, in order that they may take care to the best advantage of the enormous stocks which would accumulate.

B.L. CARTRIDGES.

After some discussion the necessity was agreed of representing to the Army Council that storage of same in buildings situated at Factories should not be restricted to a 100 ton limit, and a recommendation was accordingly agreed to the effect that B.L. Cartridge Magazines at Factories, built in the original instance for this purpose, should be considered as practically with no limit beyond that of actual spacing, so that where it was possible because of the nature concerned, to store as much as 200 - 250 tons of Ammunition in a building 80' x 40' that same should be done.

Continued/

A general recommendation was made to the effect that buildings constructed as B.L. Cartridge Magazines at Filling Factories where 50 yards apart or more, should not be limited to the 100 tons but should be considered as capable of holding 200 tons or even more.

Q.F. AMMUNITION.

In view of previous recommendations on this question, it was decided that Q.F. Ammunition should be stored with a limit only of actual space available.

B.L. SHELLS.

The necessity was pointed out and action agreed, of placing stores of B.L. Shells out in the open. It was furthermore agreed that the A.O.D. must necessarily take charge of these dumps and arrangements would necessarily have to be made by them accordingly.

FINAL.

It was pointed out that if a blockback occurred in the shipment of B.L. Cartridges, and present available accommodation was not suitable, that the War Office would have to find other, and it was suggested that the erection of marquees under A.O.D. supervision might meet the case. This was agreed.

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June 22nd, 1916.

Sir,

## STORAGE ACCOMMODATION FOR AMMUNITION BOXES.

I beg to acknowledge receipt of your letter dated June 19th, and to say that as a result of the visit to Gloucester of the Committee which has been appointed to enquire into the position etc., of A.O. Department stores at factories, certain points have arisen which affect the question of this empty box store which your Board propose to build, and I am asking Mr. Maurice Graham to visit your factory at as early a date as possible to go further into the matter with you, and he will bring with him the decisions of the Committee alluded to above.

I am, Sir,

Your obedient Servant,

(Sgd.) P. A. M. Nash.

DIRECTOR C.M.4.(Z).22/6/16.

The General Manager,  
National Filling Factory,  
Quedgeley,  
near Gloucester.

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C.M.4.(P).

With reference to the attached letter of date to Gloucester, please see my Minute dated 21/6/16 to D.D.G.C which I have written as a result of the decisions of Col. Meeres' Committee, of which you are a member.

The whole question of storage at Gloucester is now one as to whether separate accommodation must be provided for the storage of 18 pr. incomplete rounds and 4.5" filled shell. If Gloucester is permanently to deal with these two natures, it is clear we shall have to provide additional storage in a suitable place and of a suitable description to store incomplete rounds of 18 pr. and filled, plugged, 4.5" shell. This will release the storage accommodation now put aside for empty shell, and I think Gloucester had better at once prepare plan and estimates for a suitable store for storing, say, 25,000 4.5" filled shell, and 4 weeks' supply, on ultimate allocation, of incomplete rounds 18 pr. H.E. This will, as stated above, give them accommodation in their empty shell stores for boxes.

The site on which the new stores should be built is one that must be carefully considered in regard to position, as high explosive as well as propellant is involved.

Will you please go into the matter with Gloucester, as it will save much correspondence if discussion takes place on the spot.

I would like a word with you on this subject when you can conveniently spare the time.

(Sgd.) P. A. M. Nash.

22/6/16.C.M.4.(Z)

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Continued/

## C.M.4.(Z).

D.D.G.C.

I attach Minutes of the Committee on storage of filled Gun ammunition as a result of their visit to Gloucester. I have the following recommendations to offer:-

GENERAL.

I attach copy of the Regulations for National Filling Factories alluded to, Clauses I to III. You will remember that these were recently sent out, Class I as obligatory, Class II are to be insisted upon, but not necessarily to be issued in the present form. Class III are suggestions which are considered to be advisable.

The Committee now suggest that these Regulations Classes I to III should be posted in a conspicuous place accessible to all workers, preferably in the shifting houses. This recommendation is, I understand, a precaution so that no employee could plead complete ignorance of Regulations which have been placed upon the factory management. To meet the Committee's recommendation, it will be necessary to again inform the management of factories that Class I of these Regulations are obligatory, and must be enforced, and to advise Sir James Douglas as Inspecting Officer to report any departure therefrom.

The Committee under the same heading "General" recommend that permanent positions of all portable Fire Appliances in each and every building shall be prominently and clearly indicated on the walls or floors of such buildings. This is very necessary, and I concur with the recommendation.

DETAIL.EXTERNAL GUARDING.

It will be sufficient to extract the Committee's remarks to the management of Gloucester factory.

INTERNAL GUARDING.

I will call for an early report from the factories with reference to Rule 22 of Class I of the Danger Building Regulations, which lays down that an efficient system of Internal Guarding of the whole area by day and by night, must be laid down in writing and submitted for approval.

LAY OUT OF STORES.A.O.D. STORES E. SERIES.

The above stores are all A.O.D. Stores, and the Gloucester Board of Management must now be addressed to make them clear, and hand them over to A.O.D., unless the A.O. Department can agree to letting the factory retain a portion temporarily. The attention of the factory management must also be drawn to the position of the electric lights.

The Committee recommend the fire proofing of the roofs of all these buildings in Series E, namely, 12. I propose to ask the Gloucester Board to submit recommendations accordingly together with cost.

G. SERIES.

The Committee state that the use of these magazines for storing High Explosives or Gun powder is considered to be very undesirable because of their proximity to Workshops and A.O.D. Stores. The Committee refer to 6 T.N.T. Magazines, and presumably it will now be necessary to address the Gloucester Board for replacement of these 6 magazines on a suitable site elsewhere, and to consider whether the existing magazines thus replaced, can be used for any other purpose.

I. SERIES.

Building No. 9, referred to by the Committee is a Cordite Magazine, and I propose to ask the Gloucester Board to build another magazine in replacement elsewhere, and if necessary to submit proposals for mounding two other magazines No. 10 and 13, so as to afford the protection desired by the Committee.

F. SERIES.A.O.D. MAGAZINES FOR FILLED CARTRIDGES.

The Committee state that these magazines are undoubtedly too close together on account of explosive risks and fire risks. The Committee suggest traversing between the Stores, and the protecting of the present Magazine roofs with some non-inflammable material. In this case I propose to ask for an estimate of the cost.

D. SERIES.

This series of Stores is the empty store capacity of the factory, and includes Receiving Houses D.4 and D.5.

It was never intended that explosives should be stored in D. Series, and proposals are, I am aware, being considered by the Gloucester Board for dealing elsewhere with the unloading of explosives. I have addressed you on other papers in regard to proposals for building storage accommodation for storing H.E. filled plugged shell, and incomplete primed Q.F. Ammunition, or incomplete rounds containing burster charges. In course of time, I will be in a position to submit full proposals to cover these recommendations of the Committee.

In regard to the statement on top of Page 4 of the Committee's report that the operation of filling 60 Pr. shrapnel in the receiving house D.4. was being carried out contrary to Regulations, I will address the Board of Management Gloucester, and have already given instruction that this matter should be looked into, and I understand that the amount of explosive there at any one time, has already been reduced to 25 lbs.

EMPTY BOXES.

As you are aware the disposal of the present stocks of empty expendable boxes is being dealt with under new arrangement with C.M.4.B., and the factories have been asked to obtain local tenders for the purchase of the empty boxes.

ADEQUACY OF ARRANGEMENTS FOR PREVENTING SPREAD OF FIRE.

The extract from Ordnance Committee Minute 3136, copy attached, which lays down a proper system for stacking filled ammunition etc., will be communicated to factories in the form of a circular.

CONSTRUCTION.

It is noted that a general report covering the necessity for the construction of external traverses etc., will be rendered later.

FIRE APPLIANCES.

Extract of this report will be submitted to the management of the Gloucester factory, and I concur in the recommendations of the Committee, that an expert Fire Officer should be appointed to the staff of this Department, temporarily, to report and advise factories in regard to arrangements in general for dealing with outbreaks of fire. I understand that Mr. Hubert Baines is prepared to take up this matter with Commander Sladen of the Metropolitan Fire Brigade.

FIRE APPLIANCES. DETAIL.

An extract of this will be sent to the Gloucester factory. From my experience, I do not consider it practicable to convert the steam fired locomotives into oil fired without serious constructional difficulties, and I will ask the Gloucester Board of Management to have their locomotives fitted with efficient spark catchers.

UNKNOWN EXPLOSIVES.

The attention of the Gloucester Board of Management will be drawn to Clause 12, Class 1, of the Danger Building Regulations.

The Committee have drawn attention to the factory storing large quantities of Ammunition fuzeed with No. 100 Fuzes, and the possibility of danger from faulty Fuzes, and recommend that the efficient carrying out of the Bump Test by means of suitable proof apparatus should be carried forward with all energy. I do not understand why reference is made to the necessity of this Bump Test, when the same is being already rigidly carried out, and I propose



asking the Committee for a further report on this matter, informing them that the Bump Test is already being rigidly carried out at factories where the Fuzes are filled.

I shall be obliged if you will approve of the action I propose to take, and return the papers to me, when the same will be at once taken in hand.

26/6/16.

(Sgd.) P. A. M. Nash.  
C.M.4.(Z).

PRO. MUN5/187/1350/3

COPY OF REPORT by the Deputy Director of Ordnance Stores,  
Woolwich Arsenal, dated 25th November 1916.

D.E.O.S.

On the evening of the 23rd instant, the Ordnance Officer, Quedgeley reported that his magazines were full, the Factory management would not hand over any further magazines and intimated that unless the Ordnance Officer took in more cartridges they would be left in the open.

I directed the Ordnance Officer to put cartridges in the magazine gangways for the night, and spoke to D. of A. who could only give relief to a very slight extent. Next day I managed to arrange for a large measure of relief - but unless the present traffic difficulties are quickly overcome, the same trouble will doubtless arise again and it may not be possible to afford any relief.

Some time ago I spoke both to Ministry of Munitions, and the Manager but so far have not been able to obtain more than 5 out of 8 magazines.

The magazines on Factory charge are being used for storing and painting cases and cylinders, for which surely magazines were not necessary.

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[Copy]

WAR OFFICE.  
LONDON S.W.

17th December 1916.

Sir,

I am commanded by the Army Council to bring to notice that by arrangements made between the Ministry and this office from the very initial stages of the procedure to be adopted in the handing over ammunition from the Factories for supply to the troops, it was agreed and laid down that storage for one month's output at each Factory would be provided concurrently with the provision of the Factory and handed over to the Army Ordnance Department in which to receive, store and despatch, etc. the ammunition as required.

Upon this point there was a very clear arrangement and understanding, and all arrangements have been made in accordance with that decision.

It has been brought to the notice of the Army Council however, that although in some cases the necessary storage has been provided it is not being handed over as agreed upon, and in other cases the provision made is not sufficient. Instances of the former occur at Banbury, Georgetown, Hayes and Quedgeley whilst at Derwenthaugh sufficient for one week's output only is available.

Continued/

Enclosed I forward the copy of a report dated the 25th ultimo, giving an example of the difficulties which arise, to which the Army Council desires to invite particular notice.

I am therefore to ask that the attention of the Minister of Munitions may be drawn to this subject and to request that the storage buildings in question may be handed over in accordance with the arrangements which have been agreed upon.

Further, I am to bring to notice that it is very desirable in cases where factory output is being increased beyond the quantities originally intended, the storage may be increased *pari passu* to meet the requirements arising from such increase.

I am,  
Sir,  
Your obedient Servant,  
(SGD) B. B. CUBITT.

The Secretary,  
Ministry of Munitions of War,  
WHITEHALL S.W.

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MINISTRY OF MUNITIONS OF WAR

6th January 1917.

Sir,

With reference to War Office letter of the 17th ultimo on the question of arrangements made in the initial stages between the War Office and the Ministry of Munitions concerning the provision of storage for the output of filling factories, the Minister, is of course, aware that it was agreed that storage should be provided at each National Factory sufficient for one month's output of ammunition.

At the time this agreement was come to arrangements were made to secure provision of storage accordingly, and schemes were prepared on the basis of a tentative allocation to each National Filling Factory of a quota of the ultimate requirements under the programme which was then in the possession of the Ministry. Since that time there have been fluctuations in the demand for ammunition, at times in the direction of a decrease in certain natures, and latterly, and that quite recently, in the direction of an all round increase, on a scale which had never been anticipated.

In addition to the difficulties arising out of this unexpected increase in the demand for ammunition, which has necessitated a general re-allocation of work at National Filling Factories, two other factors have operated against the Ministry giving full effect in each particular instance to the agreed policy.

- (1) The curtailment, at the instance of the War Office, of the amount of explosives or propellants to be stored in the several magazines provided.
- (2) The impossibility, due to original lay-out and the undesirability on grounds of safety, of erecting further storage on the sites chosen in the first instance for filling factories.

With regard to (1), the Minister understands that the War Office desires that the amount of propellant stored in a cartridge magazine shall be limited to 100 tons, whereas the actual average capacity of these magazines is about double that quantity.

Continued/

Though it is recognised that the utilisation of the capacity of these magazines to the full would be attended with slightly greater risk, it is understood that this may be considered as mainly a fire risk, and in view of the fact that the protection from fire of National Filling Factory Buildings has been very thoroughly dealt with by a Committee presided over by Lieut-Commander Sladen, Chief of the London Fire Brigade, and having regard to the general situation with reference to building labour and material, the Minister is of opinion that this is a risk which, were the output storage at National Filling Factories under the Ministry, the Ministry would be justified in assuming.

To meet the desire of the War Office to limit the capacity of magazines to 100 tons, and at the same time to meet the storage requirements on the present programme would necessitate a construction of at least another 40 magazines.

With reference to (2), whilst all filling capacity at the various factories, owing to improved workshop practice and efficiency of operatives, may possibly be developed to a degree considerably in excess of what could have been reasonably anticipated in the early stages, the Minister thinks that the Army Council will readily understand that it is not possible or desirable to increase the storage accommodation 'pari passu'.

As soon, however, as it appeared probable that the ultimate requirements of ammunition would necessitate more storage than could conveniently be erected at filling factories, arrangements were made to provide extra storage at three separate places, Credenhill, Bramley and Altrincham. Further now that the new programme has been finally presented and accepted by the Ministry, the entire question of storage is undergoing a thorough review.

From that review, so far as it has gone, it would appear advisable, in order that the Ministry may cope with the ultimate storage requirements in accordance with the original agreement, that the Ministry should take over the so called W.O. portion of the proposed Bramley Depot, as a Depot for the receipt of the output of National Filling Factories alone, and Dr. Addison would be glad to hear that the Army Council agrees to this proposal.

With reference to the specific complaints in connection with Banbury, Georgetown, Hayes, Quedgeley and Derwenthaugh, the following observations are submitted.

1. Banbury. Arrangements have been made to erect transit sheds at this factory, so as to obviate the necessity for doing any slinging or grummetting in the filled shell stores provided. On completion of these sheds the stores will be handed over to the Army Ordnance, it being understood that shell will be taken over as soon as completed by the factory. It has been found necessary to supplement this storage with a concrete platform covered by a Dutch barn roof, in order to make up to the four weeks agreed.
2. Georgetown. This is the first time that any complaint has been received with reference to the amount of storage handed over by the Factory to the Army Ordnance, and the matter is therefore being taken up with the Management.
3. Hayes. Arrangements have already been made for handing over this storage to the Army Ordnance Department in accordance with their request.
4. Quedgeley. Only five out of the eight Cartridge Stores have been handed over to the Army Ordnance. This, based on the assumption of actual space required, should be sufficient as per existing records, but not when the actual amount of propellants stored in a single building is limited to 100 tons or less.
5. Derwenthaugh. With reference to the Q.F. Stores at Derwenthaugh, storage for three to four weeks' output of Q.F. ammunition has been provided and turned over to the Army Ordnance.

I have the honour to be Sir,  
Your obedient Servant,  
(SGD) EDMUND PHIPPS.  
GENERAL SECRETARY.

## STATISTICS OF CONTROLLED AND NATIONAL FACTORIES

The number of national factories is approximately as follows:-

<u>National Projectile Factories.</u>	16 factories under the management of 11 firms
<u>National Shell Factories.</u>	42 factories under 27 Boards of Management.
<u>National Filling Factories.</u>	18.
<u>Explosive Factories.</u>	30.
<u>Box Factories.</u>	6.
<u>Trench Warfare Filling Factories.</u>	7.
<u>Ammunition Components Factories.</u>	4.
<u>Salvage and Repair Factories.</u>	3.
<u>Tool and Gauge Factories.</u>	7.
<u>S.A.A. Factories and Rolling Mills.</u>	5.

D.M.R.S. 10.5.17.

PRO. MUN4/1716

## NATIONAL FILLING FACTORIES MAINTENANCE

Gloucester.

Management's Comments.

"Prejudicial to good Management and if Maintenance of Factory under another Government Department instead of directly under Management, a very much tighter grip on Maintenance expenditure ought to be kept than can possibly be kept under existing arrangements." (Ex Chairman's letter 16.2.17.)

Leeds.

"You know the experience this Factory has had with the Office of Works and any work they have undertaken has been thoroughly unsatisfactory."

(Sgd) Joseph Watson, Chairman. 25.5.17.

"O.W. maintenance gross extravagance and will cost Country far more than is doing at present." (Sgd) Joseph Watson, Chairman. 14.6.17.

"Office of Works carrying out all work they are capable of dealing with. Irwins handling major work which Office of Works cannot deal with and our own staff doing balance." (Sgd) Joseph Watson, Chairman. 14.9.17.

[Extracts]

[Notes]

The Ministry was of the opinion that the Leeds management were deliberately offering work to a contractor when the Office of Works should have been carrying out maintenance to management's instructions.

Other factories were happy with Office of Works maintenance.

## GUARDING OF VULNERABLE POINTS

## Minute Sheet

- (1) Sir L Worthington Evans.
- (2) The Minister.

These papers are referred to you in order that you may be officially aware that, to meet the needs of the Army, Military Guards are being withdrawn from a great many factories. The plans for this have been worked out for some time here under General Savile, and we have been satisfied that the substitution of police for the Military Guard can safely be made in a very large proportion of our factories. I do not think that you will want to go in detail into the lists attached. They will be discussed with the Heads of Departments themselves. This file contains a copy of the decision of the War Cabinet of May 8th, in accordance with which we have been working in close touch with the War Office and Home Forces.

Phipps  
15.5.17.

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The Secretary,  
War Office,  
London, S.W.

War Office,  
London, S.W.

VERY URGENT

8th May, 1917.

**SECRET**

Sir,

I am commanded by the Army Council to say for the information of the Minister of Munitions that they have lately had under review the number of men employed on guards for Vulnerable Points. The present system was established in the early stages of the war when we were without experience as to the possibility of sabotage and before our system of controlling undesirable aliens had been perfected. The number of enemy aliens at large has been reduced since the beginning of the war from 75,000 to 23,000 of all ages and both sexes of whom only some 4,200 are enemy males of military age. All are now so carefully watched that their capacity for harm is limited to what is possible to be done by a few individuals. The entry of enemy agents into the United Kingdom has been provided against by forbidding aliens to land at any but certain ports and so no enemy alien can land at all without the sanction of the Secretary of State. The ports are very carefully watched and although it is not possible to guarantee the credentials of all aliens it is almost impossible for new enemy aliens to slip through. No acts of sabotage have been committed during the war.

2. In these circumstances and in view of the present man power situation which makes it imperative to reduce the number of troops employed at home to the absolute minimum the Army Council has decided to recommend the War Cabinet to accept the risk of reducing guards on Vulnerable Points to a minimum retaining only those on points of very importance such as important docks, magazines, filling factories, cable landing places and quays where aliens might land.

I am,

Sir,

Your obedient Servant,

B. B. Cubitt.

The Secretary,  
Ministry of Munitions.

[Extract]

SECRET

MINISTRY OF MUNITIONS OF WAR,  
STOREY'S GATE,  
WESTMINSTER, S.W.1.

17th October, 1917.

Sir,

I beg to inform you that with the concurrence of the Minister of Munitions the Military Guard on your factory will be withdrawn on the 1st proximo.

I need hardly remark that this action necessitates close supervision over the arrangements made for internal protection which is undertaken by and is under the control of the factory management, and a close scrutiny of all persons within the factory area.

I am, Sir,  
Yours faithfully,

W. Clare Savile.  
Brig. General.

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VULNERABLE POINTS FROM WHICH IT IS PROPOSED THAT  
MILITARY GUARDS SHOULD BE WITHDRAWN ON 1ST NOVEMBER

(a) Government Explosives Factories.

Perivale	N.F.F. No. 3.	Gloucester (Quedgeley)	N.F.F. No. 5.
Hayes	N.F.F. No. 7.	Southwark	N.F.F. No. 8.
Banbury	N.F.F. No. 9.	Cardonald	N.F.F. No.12.
Morecambe	N.F.F. No.13.	Devonport	N.F.F. No.16.
Horley	N.F.F. No.17.	Waltham Abbey	R.G.P.F.
Langwith	H.M. Factory.	Northwich (Victoria)	H.M. Factory.
Penrhyndeudraeth	H.M. Factory.	West Gorton	H.M. Factory.
Hackney Wick	H.M. Factory.	Ellesmere Port	H.M. Factory.
Litherland	H.M. Factory.	Sutton Oak	H.M. Factory.
Craigeleith	H.M. Factory.	Trafford Park	H.M. Factory.
Coleford	H.M. Factory.	King's Lynn	H.M. Factory.
Colnbrook	H.M. Factory.	Avonmouth	H.M. Factory.
Swindon	H.M. Factory.	Irvine	H.M. Factory.
Bradley	H.M. Factory.	Lytham	H.M. Factory.
Greetland	H.M. Factory.		

(b) Private Works.

Hayle	National Explosives Co.
Barrow	Asiatic Petroleum.
Northwich	(Brunner Mond, Lostock. ( do. Sandbach. (Ammonium Soda, Plumbley.
Copley	Sharp & Mallet, except magazine.
Great Oakley	Explosives & Chemical Products.
Leeds (Stourton)	Brotherton.
Pitsea	British Explosives.
Greenhithe)	
Dartford )	E.C. Powder Co. (Longfield Bean).

Continued/

(b) Private Works.

Fulham (Blake - White City.  
( do. Stevenage Road.  
Ware Sabulite Co.  
Runcorn Castner Kellner.  
Denaby British Westfalite.  
Gathurst Roburite & Ammonal.  
Wakefield Ellison & Son.  
Erith Thames Ammunition Works.  
Waltham Abbey Nobels.  
Abbey Wood (King's Norton Metal.  
(Greenwood & Batley.  
(N.F.F. No. 11.  
Halifax Brooke's Chem., Lightcliffe.

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## REPORT OF THE VULNERABLE POINTS COMMITTEE

Classification of Vulnerable Points.

To enable a decision to be easily reached as to which vulnerable points should be guarded, a classification in three groups has been adopted:-

- A.- Those whose loss or destruction would have a dominating influence on the conduct of the war.  
B.- A serious effect.  
C.- Those of less importance than A or B.

The War Cabinet have decided, under date 8th May 1917, that only vulnerable points would continue to be guarded, the destruction of which would hamper or delay operations.

To give effect to this decision, the Committee have selected vulnerable points which in their opinion are covered by this, and have added them to the Schedule, Class "X" or points of vital national importance.

This has entailed a complete revision of the Schedule.

November 1917.

SCHEDULE

## X.- Points of Vital National Importance.

CABLE LANDING STATIONS, WIRELESS TELEGRAPH STATIONS, DOCKS, COAL & OIL STORES,

## EXPLOSIVE &amp; AMMUNITION STORES.

Crombie (Rosyth). R.N. Magazine.	Grangemouth Docks, Mine Store.
Inverness Station, Ammunition trucks for fleet.	Immingham, Mine Store.
Lodge Hill, H.M. Magazine.	Chattenden, Naval Magazine.
Devonport, Bull Point.	Upnor, Naval Magazine.
Southampton, Marchwood.	Portsmouth, Priddy's, Hard & Bedenham.
Purfleet, Magazine.	Longtown, H.M. Magazine.

## EXPLOSIVE FACTORIES.

## FILLING FACTORIES.

Georgetown.	Chilwell.	Leeds.	Lemington Point.
Faversham.	Coventry.	Pembrey.	Hereford.
Liverpool.	Watford.	Erith.	Fulham.
Edmonton.	Abbey Wood.	Greenford.	Walthamstow.

## FACTORIES, SUPPLY DEPOTS, MISCELLANEOUS.

Continued/



## A.- Points of First Importance.

CABLE LANDING STATIONS, WIRELESS TELEGRAPH STATIONS, PORT WAR SIGNAL STATIONS, AIRCRAFT STATIONS, DOCKS, SHIPBUILDING & REPAIRING YARDS, COAL & OIL STORES,

## EXPLOSIVE &amp; AMMUNITION STORES.

Buxton, H.M. Proof Range (T.W.S.).	Salterforth (Skipton), H.M. Magazines.
Selby, Magazine (A.O.D.)	Gatwick, (F. Shell).
Warehousing and Transport Co. (Toluol, glycerine).	Newhaven, British Portland Cement Co. Trench Warfare Stores.
Peterborough, Northam Brickworks, Eye Green.	Bramley, A.O.D.
New Peterboro' Brickworks, Fletton.	Corsham (Wilts), Monks Quarry, Ridge Quarry,
Star Pressed Brickworks, Pingle Siding.	Porton Poison Gas Shells.
United Brickworks, Whittlesey.	Slimbridge (Glos), H.M. Magazines.
Credenhill, A.O.D.	Altrincham, A.O.D.
Northwich, Crystal Mine,	Birkenhead, Nitrate Stores.
Fletcher and Rigby Mine,	Liverpool, Herculaneum Caves, Hornby Dock Store.
Poole Mine.	Pembrey, Lando Siding (F. Shell).
Rocky Island, (Cork Harbour).	Ruabon, Ruabon Brick and Terra-Cotta Works.
Chislehurst, Caves.	Erith, Curtis and Harvey's Magazine.
Northolt, Magazine, (for N.F.F. No.7. Hayes).	Wembley, Poison Gas Shells.

## EXPLOSIVE FACTORIES.

## FILLING FACTORIES.

Cardonald.	Stirling.	Denaby.
Derwenthaugh.	Scotswood.	Banbury.
Horley.	Birmingham.	Devonport.
Gloucester, Quedgeley.	Perranporth.	Redruth.
Roscare.	Morecambe.	Port Sunlight.
Dartford.	Hayes.	Mitcham.
Perivale, (Park Royal).	Shepherd's Bush.	Southwark.
Sutton.		

## FACTORIES, SUPPLY DEPOTS, MISCELLANEOUS.

## B.- Points of Serious Importance.

CABLE LANDING STATIONS, WIRELESS TELEGRAPH STATIONS, WAR SIGNAL STATIONS, PORT WAR SIGNAL STATIONS, AIRCRAFT STATIONS, DOCKS, SHIPBUILDING YARDS, COAL & OIL STORES,

## EXPLOSIVE &amp; AMMUNITION STORES.

Glasgow, Avenue Street.	Mile End, (I.B.)
Irvine, Magazine.	Ashby de la Zouch, Heather Brick Works.
Bingley, Ebor Mills.	Burslem, Magazine.
Chesterton, High Carr Brick Works.	Dudley, Wren's Nest Mine.
Stourbridge, Glazed Brick Works.	Edwalton, Ludlow Hill Brick Works.
Enderby, Magazine.	Leeds, Middleton Fireclay Works.
Leicester, Glenfield Premier Company's Works.	Measham, Red Bank Brick Works. Coronet Brick Works.
Melton Mowbray, Lion Brick Works. (Scalford).	Middleton, Magazine.
North Shields, Bell Street Munition Store.	Moira, Magazine.
Skipton, Magazine.	Rowditch, Derby Brick Company's Works.
Tyne Docks, Magazine.	Sharpness Docks, Magazine.
Calvert, Magazine.	Thurmaston, Star Brick Works.
Godstone, Terra-Cotta Works.	Baynard's Castle, Haslewood Brick Works.
High Brooms, Magazine.	Crowhurst (Lingfield), Fletton Crown Works.
Peterborough, No.3 Yard, Fletton, Dogsthorpe Siding, Warboys.	Holwell, Magazine.

Reigate Tunnel Caves.	Southwater, Sussex Brick Works.
Tattenham Corner, Bomb Store (T.W.)	Tunbridge Wells, High Broom.
Warnham, Sussex Brick Works.	Woburn Sands, Brick Works.
Bath, Magazine.	Binfield, Magazine.
Bridgwater, Dunball (I.B.)	Bristol, H.M. Store (T.W.),
Burlesdon, Magazine.	Feeders Road.
Exeter, Exeter Brick & Tile Works.	Gloucester, Magazine.
Hamworthy, Kinson Pottery Co.	Nuneaton, Stockingford Brick Works.
Pinhoe (Exeter), Poltimore Brick	Plymouth, Bayley's Wharf (Sutton Pool),
& Tile Works.	Laura Bridge, Ocean Quay,
Rowlands Castle, Magazine.	Stonehouse Pool.
Shortwood (Mangotsfield),	Swindon, Stratton Road.
Cattybrook Brick Co.	Buttington, Brick & Tile Works.
Caerleon, Magazine.	Coalport, Magazine.
Ironbridge, Magazine.	Jackfield, Magazine.
Madeley, Madeley Wood Tile Works.	Manchester, City Exhibition Hall (I.B.)
Millburgh, Magazine.	Trafford Park, Magazine.
Pant, Magazine.	Rhos, Llywn Einion Brick Works.
Rishton, Queen's Red Facing Works.	Ruabon, Monk & Newell's Works.
Saltney (Chester),	Shutfield (Salop), Shutfield Tile Works.
H.M. Oleum & Toluol Store.	St. Helens, Sutton Glass Works (I.B.)
Swansea, Magazine.	Westbury (Salop), Sarn Brick & Pipe Works.
Wharton (Cheshire),	Wheatsheaf, Magazine.
Bostock Wagon Works.	Whitchurch, Fenn's Bank Brick Works.
Wrexham, King's Mill Brick Works.	Barking, H.M. Magazine.
Belvedere (Kent),	Canvey Island, Wood's Hulks.
Crab Tree, Manor Way.	Neasden, G.C.R. Siding.
Silvertown, New Oil Wharf,	Wandsworth, Falcon Lane Siding,
(Oleum, &c.)	182a, Stewarts Road,
Woolwich Arsenal C.I.W. Block.	Willesden, Perivale,
	Willesden Lane (I.B.)

EXPLOSIVE FACTORIES.

FILLING FACTORIES.

Burslem.	Chesterfield.	Dudley.	Huddersfield.
Osset.	Penistone.	Selby.	Stoke on Trent.
Wakefield.	Birmingham.	Bristol.	Middlewich.
Battersea.	Hammersmith.	Honor Oak Park.	Stratford, East.

FACTORIES. MISCELLANEOUS.

C.- Points of Less Importance.

CABLE LANDING STATIONS, WIRELESS TELEGRAPH STATIONS, WAR SIGNAL STATIONS,  
 PORT WAR SIGNAL STATIONS, AIRCRAFT STATIONS, DOCKS, SHIPBUILDING YARDS,  
 COAL & OIL STORES, EXPLOSIVES FACTORIES, FACTORIES, MISCELLANEOUS.

[Extract]

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Sir James Stevenson,  
Member of Council P.

There is a group of Filling Factories known as the L.G. Factories, one at Leeds, Gloucester, Glasgow and Liverpool, which up to date have been controlled by Boards of Management.

These Boards were set up by Mr. Lloyd George and were given a charter to construct, equip and run Filling Factories in, or near, the above mentioned towns. Output was then the sole consideration, all other considerations had to take a secondary place.

The conditions then existing might be summarised as follows:

- (1) Labour was plentiful and cheap and practically uncontrolled, whilst sources of recruiting were unlimited, and no restrictions were imposed with regard to methods.
- (2) Financial control was lax, accounting was almost non-existent.
- (3) T.N.T. poisoning was unknown.
- (4) Welfare was scarcely recognised.
- (5) Requirements were far beyond capacity, and speedy production was the sole consideration.
- (6) Abundance of material, plant and labour were available for construction; and each unit had only to meet its own needs and develop its own processes independent of all others.

The conditions at the present time are entirely changed inasmuch as:

- (1) Man power is a vital problem. Methods of recruiting for Government Departments are restricted by Ministerial decision. Wages are regulated by, and cannot be raised without the consent of, other departments; in fact labour must be dealt with on lines of national policy; and central direction and control is necessary to ensure that such national policy be given effect to.
- (2) The Finance Department of the Ministry under ever-increasing pressure from the Treasury, is tightening up its control with regard to Capital Expenditure, Cost of Production, Factory Accounts, Expenditure on Canteens, etc., and to secure its demands being met central authority is absolutely necessary.
- (3) & (4) The Health and Welfare of Workers has assumed such importance that a separate section of the Ministry now exists whose recommendations are binding on Supply Departments unless cause is shown, particularly in connection with T.N.T. poisoning, etc. This requires the initiation of measures on a general and uniform plan for the protection of the health of the employees; and these measures must be insisted upon.
- (5) Capacity is now generally in excess of requirements, insurance has to be provided for; frequent changes in demand, storage accommodation, the condition of supply of H.E. and Components, and many other factors give rise to problems necessitating the handling of capacity as a whole by a central department, which has a pur-view of all the elements in the situation.
- (6) Material, plant and labour are now all short, whilst changes in programme and processes, development of new methods and machines, have perpetually to be dealt with. Provision to meet these can far more easily and economically be made by a central authority.

Generally speaking the Controller of Gun Ammunition Filling is the recognised head of all the filling factories in the country. Under the Ministry Organisation other departments such as Finance, Labour, Health and Welfare, etc., load him with the responsibility for seeing that the policy approved by the Ministry is observed at his Factories. This is the accepted system, and it cannot be worked, unless the head of the department has authority and control commensurate with his responsibility, so that his instructions on such essential matters are accepted by all and acted upon.

Continued/

There is no question now of the risk of production falling short of requirement, and what is wanted is not so much the energy of pushing business men, (who are fretted by any form of control, and who, in many cases, refuse to accept it), as the steady work of carrying on and gradually improving conditions, and bringing them into line with the general scheme and requirements of national policy.

Those Boards of Management consist largely of business men of considerable standing and ability, and I am anxious fully to acknowledge the services of almost uncalculable value performed by these Boards in constructing, equipping, and bringing to the productive stage their respective factories. Their work in a practically unknown sphere of effort was a wonderful exhibition of fearless initiative and constructive genius and energy. But it is none the less clear that their functions are now exhausted, and that their continued retention serves no good purpose; indeed I feel obliged to state that it will be extremely difficult for me to continue properly to discharge my responsibility to the Ministry unless a change is at once made.

I may state that these views are held, not only by all the Directors in my Department, but are also shared by the heads of all departments of the Ministry who have had dealings with our factories, and I have already suggested that the views of the following gentlemen be asked, before a decision is arrived at.

Mr. Dannreuther, C.M.F. Mr. Webster Jenkinson, D.F.A.

Mr. Duckworth, Chairman of Canteen Committee.

Mr. Frank Baines, Office of Works. Dr. O'Donovan, Health and Welfare.

Mr. U. Wolff, Labour Regulations. Major Greenly, Asst. C.I.M.

[Sgd] L. C. P. Milman  
C.G.A.F.  
19.12.17.

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Note: The points raised in the letter above were covered in a previous memorandum, an extract from which is reproduced below.

**Control of National Filling Factories by Boards of Management.**  
Proposal to substitute Direct Control by C.G.A.F.

Very wide powers were conferred upon these Boards in connexion with the administration and internal economy of their respective factories. No doubt having regard to the munitions position in 1915 the best method of getting filling factories constructed with a speed corresponding to the urgency of the situation was to delegate extensive powers to local bodies. Without doubt, too, this policy was justified by results.

We are now, however, at a considerable distance in time from the issue of these charters, and in the meantime, and particularly within the last six months, conditions have radically altered and the arguments in favour of local freedom in the control of factories have lost their force. This is so much the case that I consider the time has now come when it can be demonstrated that the retention of Boards of Management in control of National Filling Factories is not only no longer necessary, but is undesirable.

[Sgd] L. C. P. Milman.  
C.G.A.F.  
25.10.17.

(Extract)

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Note: This proposal dates from June 1917 when the Perivale factory came under the direct control of the Ministry of Munitions.

To the Secretary.

I attach a statement giving particulars of the four Boards of Management.

Leeds. The two active members of this Board are Mr. Joseph Watson, and Mr. T. L. Taylor, who are respectively in charge of the Cartridge Filling Factory and the Amatol Factory. These gentlemen assume full control of the factories, and we have experienced considerable difficulty in getting them to carry out our instructions.

Liverpool. Sir Benjamin Johnson and Mr. Wortley devote the greater part of their time to the interests of our two factories, and have been very helpful to us from the beginning, and our relations have always been of the most cordial nature.

Georgetown. None of the members of the Board take any active part in the control or working of the factory, and act more or less in an advisory capacity.

Gloucester. The Chairman, Mr. Macgregor, is the only member of the Board who takes any active interest in the working of the factory.

[Sgd] L. C. P. Milman.  
C.G.A.F.  
13.11.17.

No.1 Leeds Board of Management.

Chairman:- Mr. Joseph Watson. (Whitehall Soap Works, Leeds).  
The Hon. Rupert Beckett. (Beckett Bank, Leeds).  
Mr. Arthur G. Lupton. (Messrs. Wm. Lupton & Co. Ltd., Whitehall Mills, Leeds).  
Mr. Bernal Bagshawe. (Leeds Forge Co. Ltd., Leeds).  
Mr. Thomas L. Taylor. (Clarence Iron & Steel Works, Leeds).  
Secretary:- Major George Yewdall, Quebec Chambers, Quebec Street, Leeds.

No.2 Liverpool Board of Management.

Chairman:- Sir Benjamin Sands Johnson. (Managing Director of Messrs. Johnson Bros. Ltd., Bootle Dye Works, Bootle).  
Vice Chmn:- Mr. Henry B. Wortley. (Shipowner, Messrs. Alfred Holt & Co., Water Street, Liverpool).  
Mr. Max Muspratt. (Chairman, United Alkali Co. Ltd., Liverpool).  
Secretary:- Mr. R. G. McKinlay, 320, Royal Liver Buildings, Liverpool.

No.4 Glasgow Board of Management.

Chairman:- Mr. W. Melville. (Civil Engineer, St. Enoch Station, Glasgow & South Western Railway Co.)  
Mr. James Miller. (Architect). 15, Blythswood Square, Glasgow).  
Mr. James Dalrymple. (Manager, Glasgow Corporation Tramways).  
46, Bath Street, Glasgow.  
Gen Manager:- Mr. Gilbert McPherson.  
Secretary:- Mr. J. Livingston Dykes, No.4 N.F.F., Georgetown, Paisley.

No.5 Gloucester Board of Management.

Chairman:- Mr. John Macgregor (formerly J. Steinitz).  
(Managing Director, Gloucester Railway Carriage & Wagon Co.)  
Mr. John Fielding. (Fielding & Platt Ltd., Gloucester).  
Mr. Harley K. Butt. (John M. Butt & Co., Gloucester).  
Secretary:- Mr. J. H. Beach.  
(Secretary, Gloucester Railway Carriage & Wagon Co. Ltd.)

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COMMITTEE ON FIRE PROTECTION & FIRE APPLIANCES  
AT NATIONAL FILLING FACTORIES & MUNITION STORES  
NO.5 NATIONAL FILLING FACTORY, GLOUCESTER

[Notes]

10.3.1917 Visit by a Travelling Inspector. An underground rainwater tank with a capacity of 20,000 gallons had been formed near the general offices from which also the Gloucester Fire Engine could pump either into the factory main or direct on a fire.

1.1918 We ascertained that several small fires had occurred although these had not previously been reported to us.

2.1918 Plan of new fire station approved.

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PRO. MUN5/227

COMMITTEE ON FIRE PROTECTION & FIRE APPLIANCES  
AT NATIONAL FILLING FACTORIES & MUNITION STORES  
NO.5 NATIONAL FILLING FACTORY, GLOUCESTER

[Notes]

4.1918 We have re-visited this Factory in order to discuss with the Management the question of increasing the permanent staff of their Fire Brigade, and the Management have now agreed to adopt the three shift system. As a better Man-Power value would be obtained by the adopting of this scheme with the present 12 men, we understand that the Management do not now wish to increase their staff.

It was suggested to the Management that they should consult with the Gloucester Fire Brigade with reference to the use of the Gloucester Fire Float working from the Canal by relays with the steamer or motor pump.

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COMMITTEE ON FIRE PROTECTION & FIRE APPLIANCES  
AT FILLING FACTORIES & MUNITION STORES  
NO.5 NATIONAL FILLING FACTORY, GLOUCESTER

[Notes]

1.1918 The Fire Staff are at present located at the building near the main gate. The management have a proposal to remove this to the centre of the three cleanway bridges over the Railway Station. [Adopted]. The lookout duty on the tank gantry can be undertaken by this Station. Proposal for 3 shifts of 20 watchmen. Military Guard retained here at A.O.D. Emergency, where a large quantity of boxed ammunition is stored.

There is extensive storage of boxed ammunition in the open between the 'E' magazines and the Manor Farm. A range of magazines were removed from this position on recommendations of the Filled Gun Ammunition Committee.

28.8.1918 "Semi-residential" scheme for firemen approved at Meeting.

4.10.1918 Visit by a Travelling Inspector. Nos.6 and 7 of B12-1 and B12-7 are now used as CE Pellet press houses, C7 for filling Trotyl bursting charges, otherwise the work carried on appears the same as at our last inspection, i.e. the assembly of 18 pdr. H.E. and Shrapnel. A new box store of inconbustible construction has been erected at the S.E. corner of the Factory. A new Fire Station has been erected at the east side of the Central Railway Station close to the approach, and a "look-out" established on the roof of the Station close by. From the "look-out" a fire bell can be rung in the pump house, thus enabling the fire pumps to be started without delay.

Present fire staff: 1 superintendent, 1 assistant superintendent and 12 regular men. In addition there are 60 special constables (formerly termed watchmen) and 60 auxiliaries. The regular firemen work on two shifts - six being on duty at a time (one in the look-out room, one on duty in the Station, and four patrolling the Factory), and at least three of the men off duty can be relied upon to be available at any time.

The space between the new Box Store and the Trotyl building is used for box painting, and there appears to be a tendency for the boxes to encroach too close to the danger building. Care should be taken that a clear space of at least 60 feet is always maintained between the danger building and the nearest storage.

3.1.1919 Visit by a Travelling Inspector. Process work hitherto carried on has ceased, Filling discontinued and filling sheds B10 to B19 and C10 to C17 have been cleared of all fittings. The present use of the Factory is as stores for the undermentioned explosive material:-

B1 to B9	Primers and Fuzes
C1 to C7	do.
B10 to B19	Cordite
C8 to C17	do.
D1 to D8	General stores and empty shell
E1 to E13	Q.F. Ammunition
I1 to I20	T.N.T. Ammunition
J1 to J4	do.
K1 to K10	do.
G1 to G6	do.
H1 to H2	B.P. Magazines now empty

No reduction in strength of fire staff, full watching and patrolling are being performed.

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PRO. MUN4/2031

The Secretary  
WAR OFFICE  
London S.W.1

23rd January 1918

The Secretary  
MINISTRY OF MUNITIONS

...I am commanded by the Army Council to say that they have again had under consideration the question of guarding vulnerable points in the United Kingdom.

In view of the fact that after three and a half years of War no attempt has been made by any ill-intentioned person against Factories, Magazines, or any other vulnerable points in this Country, and bearing in mind the urgent necessity for economy in man power, the Council are of opinion that if the guarding was carried out on the police system by men armed with a rifle instead of by regular military guards as at present, a saving of personnel and money would result.

If any reduction can be effected, it may be possible to place at your disposal for police work inside Munition Factories certain men discharged from the Army.

I am requested that the Council may be informed at an early date whether you have any remarks to offer on the above proposals.

I am, Sir,  
Your obedient Servant,  
(Sgd) B. B. CUBITT.

[The Standing Committee on the Policing of Munitions Factories  
replied in the negative to the above suggestion]

NATIONAL FILLING FACTORY NO.5  
GLOUCESTER

March 11th 1918

The Controller of Gun Ammunition Filling  
MINISTRY OF MUNITIONS OF WAR  
28, Northumberland Avenue  
London W.C.2

Sir,

For attention of Mr. Duggan.

I am obliged to you for your letter of the 7th March concerning the external protection of this Factory.

I have to inform you that on the instructions contained in your letter dated 31st October, G.A.F.2., the external guard at this Factory was entirely abolished.

In my view an external guard of at least 12 men always on duty is essential, and I would strongly recommend that the 12 men be armed with carbines and buckshot.

None of our watchmen are armed in this way at present, and I do not consider that there are any particularly vulnerable points where such guarding should be undertaken, but I would recommend that the system be adopted right round outside the Factory.

I would strongly deprecate permitting any man inside the Factory to carry arms of any description.

I am, Sir,  
Your obedient Servant,  
(Sgd) A. GLYN WATKINS.  
General Manager.

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PROTECTION OF VULNERABLE POINTS  
GLOUCESTER

On the 5th inst. I visited the above Factory with Mr. Duggan in order to enquire into the present policing arrangements there and those proposed by General Fortescue, the Superintendent of Safety Service at the Factory, in his Report dated the 19th March. In this report I shall only deal with the Establishment that I consider will suffice to give the Factory reasonable protection.

The outside perimeter of the Factory Grounds is about 4537 yards protected by barbed wire and only 900 yards is protected by corrugated iron fence. The whole area is divided into 10 beats for patrolling purposes by the police.

Beat Nos. 1 and 2 take up the perimeter, and patrolling is carried on inside the fencing.

Beat Nos. 3, 4, 6 and 7 are not of great importance as they do not contain explosives.

Beat Nos. 5, 9, 10 and a part of 8 are very important, especially so 9, 10, which are isolated and which need very careful guarding. The ground about here, that is to the N. and N.E. of the factory is undulating.

At present there is a force or establishment of 62 men including the chief watchman, assistant watchmen, Sergeants and men. They work in 3 shifts of 8 hours each, giving after excluding officers, 18 men for patrolling work in each shift. General Fortescue's proposed establishment allows for 108 constables or a number nearly double the present number and certainly looking at the scheme from his point of view, as given in his report, I consider his demands are not too high, but I think we can improve the present state of guarding the factory by redistribution of beats and by allowing for a small reserve to fall back on in case of sickness, leave etc. among the men.

My proposals are to guard the more dangerous area with more men and reducing the number in the less important areas. I think we should go on the principle of making your gates secure and letting the interior of the house alone. I propose that, the beats should be manned as follows:-

The perimeter Beats I and II	2 men to patrol along the fencing and inside of it.
Beat III	1
IV	1
V	2
VI	} 1 These beats are central and are protected by the surrounding one
VII	
VIII	2
IX	3
X	3
<hr/>	
Total	15

If this number is multiplied by 3 to allow for the 3 shifts we shall want 45 men and to this I would add a reserve of 15 per cent to allow for sickness and leave, orderlies etc., making a total of about 51 men. In India in the Police there was always a reserve allowed on this scale and as the work done at this factory is trying I think we should give the men as much help as possible. At present for want of a reserve, men have to do extra work when some are absent. I would also strongly recommend that General Fortescue's suggestion of arming the men on Beat Nos. I and II be adopted, and that all the members of the Police Establishment be sworn in as Special Constables and according to para: 5 of the Special Constables Order of 1914 placed under the General as he is responsible for the work of the Police at this factory.

An Officer of higher rank than the Chief Watchman at present employed should be considered and I would recommend an Inspector or Superintendent on say about £200 a year. At Hayes, and White & Poppe's in Coventry, they have such officers who work under the Superintendent of Safety Service and are of great help to them in maintaining discipline, and looking after the internal arrangements of the Establishment from a Police point of view.

Continued/

I heard the question of Wages of the men discussed. From an economical point the present arrangements of paying the men by the number of hours they work, seem quite alright, but I would prefer to see the men get a weekly wage, the amount to be fixed according to rates prevailing about the place for workmen etc. Weekly wages are given at most of the Government Factories and I think by doing this, we have a better hold over the men as regards discipline and efficiency.

Telephones have been placed in several convenient spots and there is always an operative present at the Exchange.

Tell Tale Clocks are used for checking patrols and there is always a D.B.O. present at the Factory.

I should like to note here that I thought that the factory being so far away from the Town adds to its security also that the class of people one meets in these parts seem of a better stamp than met with in places like Birmingham and other large commercial centres.

My proposals therefore are

- (1) To redistribute the men on the different beats.
- (2) To allow a reserve of 15 per cent on the present force of constables.
- (3) To have all members of the police force sworn in as Special Constables and to place them under the S.S.S.
- (4) To appoint a Superintendent or Inspector to work under the S.S.S.

F. E. Kemp  
Chairman, Standing Committee on the  
Policing of Munition Factories

6.4.1918.

Notes

Letter from Gloucester, 15.5.18.- Kemp's instructions being carried out.

Special Constables at Gloucester will be at the rate of 52/- per week...rather less than is now paid on the hourly basis plus bonus, and therefore economical. C. L. Conacher. Assistant Director GAFF. 16.5.18.

PRO. MUN4/1700

Military Guards still retained at undermentioned National Filling Factories, though in much reduced force:-

No.1 Leeds No.2 Liverpool No.4 Georgetown No.6 Chilwell  
No.21 Coventry No.14 Hereford No.8 Watford No.7 Greenford

29.8.1918.

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NO.5 NFF GLOUCESTER  
Particulars of buildings with areas, height, safe load per ft. super,  
and parts suitable for storage.

October 1918.

Class A. Suitable for immediate storage.

Class B. Suitable for storage if machinery or fittings removed.

Class C. Not suitable for storage.

Plan Nos. refer to plans attached to records.

Description with plan Nos.	No. of building	Total area	Clear height in ft.	Max safe load per ft. sup.	Suitable for storage
Canteen A1	1	21,100	10.0	1½ cwt	B
Shifting Houses A2 A4 A5	1	33,825	"	"	B
Offices General A3 A7 A8 A15 E7 F1	6	14,241	"	"	B
Foremans Offices, various	6	2,744	"	"	B
Ambulance Room A6	1	943	"	"	C
Paint Shop A9	1	1,000	10.0	unlim.	B
Store for soiled gowns A10	1	675	8.0	1½ cwt	A
Experimental Shop A11	1	500	"	"	C
Box Store A12					
Nos. 1,2,3.		16,800	16.0		A
Nos. 4,5,6.		20,000	10.0		A
Tramway Bay A13		2,800	no roof		C
Loco Shed A14		1,400	14.0	unlim.	C
Water Tower A16					
Power Station A17 A18	2	11,100	10.0	unlim.	C
Garage A19		720			C
Engineering Shop A20	1	1,500	13.6	unlim.	C
Smithy A21	1	400	10.0	"	C
Primer Factory B1 B2	1	3,632	"	"	B
Fuze Stores B3-9 C1-5	12	8,800	"	"	A
Work Shop B10-19 C6-18 120 rooms	23	105,200	"	"	B
General Stores D1-8	8	56,000	"	"	A
Do. D9-10	2	15,000	"	"	A
A.O.D. Magazines E1-6 E8-13	12	48,000	"	"	A
Do. F2-9	8	25,600	"	"	A
Explosives Magazines H1 H2 I1-27 J1-4 K1-10	43	31,967	"	"	A
Guard Huts M1-4		2,370	8.0	"	C
Police and Staff Quarters		8,375	"	"	C
Manor House Farm Staff Quarters		4,000			C
Manager's Bungalow		1,868			C

Total Summary of Storage Capacity

Total Storage for Class A&B		Class C
Area	Cube	Area
405,584	4,083,315	35,976

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MINISTRY OF MUNITIONS OF WAR - NATIONAL FACTORIES

Location	Capital Cost at 31st March 1918	Turnover for year ended 31st March 1918	Approx No. of Workers	Total Wages for year	Total Cost of Production
Gloucester	£ 410,451 13s 3d	£15,661,943 7s 3d	4,451	£345,070 16s 6d	£14,039,007 4s 11d
Leeds*	£ 549,253 17s 10d	£35,276,099 19s 7d	3,807	£464,624 0s 11d	£33,096,278 13s 9d
Liverpool*	£ 350,751 12s 7d	£19,550,696 11s 3d	5,372	£526,314 5s 1d	£17,872,774 1s 1d
Georgetown	£1,368,356 4s 7d	£36,702,138 5s 1d	9,554	£859,971 8s 1d	£30,758,941 4s 8d

\* Not including Amatol plant.

28.10.18  
(Extract)

PRO. MUN4/6738

GLOUCESTER

Capital Expenditure to 31st March 1918	Plant and Machinery to 31st March 1918	Total
£366,345 14s 3d	£44,105 19s 0d	£410,451 13s 3d

Capital Cost at 30th September 1918	Turnover for half year ended 30th September 1918	Total Cost of Production	Loss
£423,607 2s 0d	£9,795,735 7s 2d	£9,809,061 15s 3d	£13,326 8s 1d

MEMORANDUM ON THE CAPACITY FOR MUNITIONS RETAINED UNDER GOVERNMENT CONTROL

Cartridge Filling. Capacity for cartridge filling at Gloucester, expressed in terms of equivalent filled rounds is 8,600 tons, or 18% of pre-armistice consumption. Woolwich provides some additional capacity for cartridge filling.

14.12.19

PRO. MUN5/118/700/28

ROYAL COMMISSION ON AWARDS TO INVENTORS.

FIRST REPORT, 1921.

Presented to Parliament by Command of His Majesty.

Name of Claimant	Nature of Claim	Amount Awarded
52. Mr. M. H. Moulton	Labour Saving Devices	£100

[84 claims to 31.7.1920]

## CORRESPONDENCE

5.11.18 MoM to all National Filling Factories except Banbury, Chittening and Morecambe. PRIVATE & CONFIDENTIAL.

Dear Sir, I have just received information today asking me to reduce the output from the Factories, and for the present I think the case will be met if no more labour is taken on at the Factories, and any wastage that takes place need not therefore be replenished.

Should I receive any further instructions with regard to production, I will make you acquainted with the fact at the earliest possible moment.

Yours faithfully, L C P Milman, Controller of Gun Ammunition Filling.

6.11.18 No.5 NFF to Brig. Gen. L C P Milman, C.M.G., Controller of GAF, MoM of War, 28 Northumberland Avenue, London WC2.

Dear Sir, I am in receipt of your letter of the 5th inst., in connection with output in the Factory, and have to inform you that I have given instructions accordingly.

Yours faithfully, A Glyn Watkins, General Manager.

7.11.18 No.5 NFF to Brig. Gen. L C P Milman.

Sir, I am in receipt of your letter of the 29th October with reference to the demobilization of labour employed in National Filling Factories and have to inform you that in the opinion of the Directing Board it is not necessary to give the employees of this Factory 14 days notice, but that 7 days would suffice.

I am to say that it is recommended that the services of the women employees be dispensed with as follows:-

First, those employed as domestic servants before working at the Factory. Of these there are over 1,000 employed and it is thought that they would be absorbed in their old employment at once.

Second, those who were not employed at any regular employment before the war.

Third, those who have been employed at some specific trade.

I am instructed to make a special point of saying that, in the Directing Board's opinion, preference should be given to soldier's widows, that is to say, their services should not be dispensed with as long as it is possible to employ them.

I am Sir, your obedient servant, V B Ferguson, Assistant General Manager.

Note. The Ministry did not wish to "wash their hands" of the women employed at the National Factories, and requested suggestions as to the best way of dispensing with their services.

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MINISTRY OF MUNITIONS  
DEPARTMENT OF GUN AMMUNITION FILLING

CONFERENCE RE DEMOBILISATION OF LABOUR & TEMPORARY UTILISATION OF LABOUR  
AT NATIONAL FILLING FACTORIES CONSEQUENT ON DECLARATION OF ARMISTICE

Room 8, Junior Constitutional Club, Ministry of Munitions,  
Northumberland Avenue, W.C.  
Wednesday 13th November, 1918, at 2.30 p.m.

Deputy Controller Gun Ammunition Filling (Mr. J. B. Strain) presided over Ministry of Munitions officials and Filling Factory representatives.

The Chairman read the following telegram despatched to Factories on the 12th inst:

"The Controller and Directors of G.A.F. desire to express their great appreciation of the part played by the staff and workers at  
.....  
in achieving such a glorious victory.

General Milman."

Chairman

The Filling Department never failed to meet the demands of the War Office. Mr. Lloyd George chose the best available talent in the different districts where factories were to be built, and then gave them a free hand to proceed.

On the occasion of a Dinner given to Mr. Lloyd George by Sir Eric Geddes to celebrate the production of one million rounds of gun ammunition in a week, Mr. Lloyd George disclosed the fact that when the Germans were pressing back the British Armies and practically knocking at the gates of Paris, the total ammunition at our disposal on the Western Front amounted to less than could now be produced by one of our Factories in a single morning. The miracle was that in those circumstances the Germans were held up. The nation could never sufficiently honour the men of the Expeditionary Force who stemmed the tide with little else than courage and a sense of right and honour.

Information had that day been received from the Labour Supply Department that three days' holiday on full pay, including statutory war bonuses, should be granted to all workers at all Factories. The days specifically mentioned were Monday, Tuesday and Wednesday of this week. The first week would then commence after the three days' holiday.

Suggested temporary employment sufficient to keep workers employed, even partially, for the next two weeks pending demobilisation:-

Reliable stock taking of all stores and components.  
Inventories of all plant, tools, machinery, furniture, etc.  
Breaking down of obsolete components and surplus stores.  
Cleaning of factories and machinery.  
Clearing factories of explosives.  
Breaking down of all unserviceable boxes.  
Debanding of shells.  
Work on land.

Sir Benjamin Johnson (Liverpool) thought that work on the land was a "hopeless stunt."

Utilisation of Factories for other work.

Mr. Glyn Watkins (Gloucester) said no offer had been made in connection with the Gloucester Factory. He enquired whether the Government were prepared to consider concrete proposals for buying the Factories.

The Chairman: Oh, yes, and preference will be given to existing managers.

[Notes]

Interim Report on Demobilisation at National Filling Factories - 25.10.18.  
So that [some of the occupations to which we could devote our labour temporarily] may not be made too attractive, we would suggest that the working hours be reduced so that the wages will not exceed 25/- per week.

J. B. Strain. Chairman, Sub-Committee.

## SMALL LOTS OF B.L. CARTRIDGES AT FILLING FACTORIES

QUEDGELEY

Lot Nos:	No: of Cartges	Designation
4397 F.C.	25	Cartges: B.L. 6" How: (30 cwt) 2-lb. 8-oz. Cordite.
4430 F.C.	25	" "
4370 F.C.	25	" "
4372 F.C.	25	" "
4375 F.C.	25	" "
4653 F.C.	25	" "
4396 F.C.	25	" "
4455 F.C.	25	" "
4599 F.C.	25	" "
4696 F.C.	25	" "
4572 F.C.	25	" "
278 S.	25	" "
316 S.S.	25	" "
4576 A.C.	25	" "
4698 A.C.	25	" "
4740 A.C.	25	" "
972	30	Cartges: B.L. 60 pdr. 9-lb. 7-oz. Cordite.
1024	20	" "
944	10	" "
2800	10	" "
2672	10	" "
5353	15	Cartges: B.L. 6" Howr: 5-lb. 12-oz. N.C.T.
P.890	10	Cartges: B.L. 60 pdr. 9-lb. 7-oz. Cordite.
K.3247	20	" "
Q.N.570	20	Cartges: B.L. 6" (26 cwt) 4-lb. 11½-oz. Cordite.
G.2824	15	" "

[Signed] W. Stoyle.  
 Capt: R.F.A.  
 O. O. Quedgeley.

4.1918

## STATEMENT OF MUNITIONS ESTABLISHMENTS

## SOUTHERN COMMAND

<u>Firm</u>	<u>Place</u>		<u>Remarks</u>
N.F.F. No.5.	Gloucester.	600 tons of Propellants. 150,000 fuses No.106. 200,000 detonators.	A.O.D. Depot adjoins Factory. To be used as large temporary H.E. store.
H.M. Magazine.	Gloucester.	Propellants Gunpowder.	

[23.12.18]

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<u>Locality</u>	<u>Establishment</u>	<u>Material</u>	<u>Quantity</u>
Slimbridge.	H.M. Magazine.	Propellants ) Gunpowder ) High Explosives)	9,140 tons.

Quedgeley near Gloucester.  
National Filling Factory.

<u>Materiel</u>	<u>Quantity</u>
Bursting Charges 18-pdr. A.&T.	120,500
" " Lyddite	3,364
C.E. Pellets	84,275
Caps for Primers	787,282
Complete Rounds 18-pdr. H.E.	22
" " " Shrapnel	26
" " 13-pdr. H.E.	8
Detonators 4 Grain	5,830,238
Exploders C.E. 12 drams	190
" " 14 "	2,080
" " 19 "	26,588
" Trotyl 4 "	2,411
" A	354,804
" B	346,286
" C	172,743
Fuze No.15A	9,226
" 44	19,162
" 44/80	90
" 80	693,578
" 65A	32,359
" 94	19,830
" 101E	67,460
" 131	11,291
" 146	161,163
" 180	87,274
" 103	601,231
" 106	840,487

Continued/



<u>Materiel</u>	<u>Quantity</u>
Incomplete Rounds 18-pdr. H.E.	15
"          "          "    Shrapnel	100
Primers No.1 MKII or III	2,079,292
Shells 60-pdr. Shrapnel	35,917
"    18-pdr. H.E.	282
"          "    Shrapnel	63,895
"          "    Gas	1
"    4.5" H.E.	1
" Fuzed"          "	30
" "18-pdr. Shrapnel	1
" " "          H.E.	2
Cordite	1,378,798 lbs

25.9.19

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[Note] Relief of guards to take effect at all Establishments not later than 31.12.19.

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STATEMENT OF MUNITIONS ESTABLISHMENTS

Quedgeley.    No.5 National Filling Factory.    Ammunition and Explosives.  
 Slimbridge.    H.M. Magazine.            Propellants and Explosives.    8,714 tons.

Quedgeley, Gloucester.  
 National Filling Factory No.5.

<u>Component</u>	<u>Quantity</u>	
	<u>Filled</u>	<u>Empty</u>
Detonators Various	2,246,248	
Exploders	882,691	
Cartridges	16,478	
Fuzes	3,275,899	
"    & Gaine Assembled	119,201	
Gaines	1,297,560	
Primers	2,079,781	3,772,709
"    Caps for	1,853,702	
Shells Various		276,549
Igniter Sets	2,445,375	
Cordite	972,955 lbs	
T.N.T.	785,297 "	
Ammonium Nitrate	364 "	
Ammonium & Trotyl Bursting Charges	123,433 "	
Trotyl Pellets	92,967 "	
Lyddite Block Charges	3,364 "	
C.E. Pellets	84,275	

[1.20]

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## LIST OF TRADE FACTORIES UNDERTAKING FILLING OPERATIONS

Sir W.G. Armstrong, Whitworth & Co., Ltd.,  
Scotswood. Derwenthaugh. Lemington.

Bickford Smith & Co., Ltd.,  
Redruth. Camborne. St. Helens (Lancs). Hery (France).

Birmingham Metal Munitions Co., Ltd.,  
Adderley Park. Streetley.

Coventry Ordnance Works Ltd.,  
Coventry.

Curtis & Harvey Ltd.,  
Gunpowder Mills, Faversham.

Eley Bros. Ltd.,  
Edmonton.

Explosives Loading Co., Ltd.,  
Faversham. Pembrey.

Geo. Kent Ltd.,  
Chaul End, Luton.

King's Norton Metal Co., Ltd.,  
Abbey Wood. Birmingham.

Kynoch Ltd.,  
Lion Works, Birmingham.

Nobel's Explosives Co., Ltd.,  
Westquarter, Glasgow. Waltham Abbey. Perranporth.

Thames Ammunition Works Ltd.,  
Erith.

Vickers Ltd.,  
Dartford. Ward End, Birmingham.

Harrison & Co.,  
Birmingham.

Clifford Bros.,  
Birmingham.

Singer Manufacturing Co.,  
Clydebank.

Edmonton Munition Co.,  
Palmers Green, N.

Western Electric Co., Ltd.,  
North Woolwich.

Harding, Wace & Co.,  
Pickett's Lock, Lower Edmonton.

W.E. Blake Explosive Loading Co., Ltd.,  
Wood Lane, Shepherd's Bush. Hurlingham.

SUMMARY OF FILLING DONE BY N.F.F. GLOUCESTER  
Week Ending - 1916

	Mar 18	Mar 25	Apr 1	Apr 8	Apr 15	Apr 22	Apr 29	May 6
18-pdr H.E. Completing uncompleted rounds from abroad.			700	3,800	8,496	9,200	17,396	15,526
2.75" B.L. Cartridges	1,877	1,487	1,910	2,900	3,996	3,600	3,860	3,724
4.5" B.L. Cartridge			300	970	1,030	1,400	5,083	9,020
6" B.L. Cartridges		480	860	900	1,132	800		340
8" B.L. Cartridges			110	860	890	370	278	302
9.2" B.L. Cartridges		470	800	1,170	1,514	1,140	1,036	783
Assembling Fuze 100 & Gaine No.2		313	2,400	3,400	8,226	9,800	24,769	26,242
60-pdr S. Shell				200	1,156	430	185	1,384
18-pdr S. incomplete rounds						260	136	1,448
4.7" B.L. Cartridges							387	622
4.5" Assembling & Packing H.E. & S.							920	6,552
	May 13	May 20	May 27	Jun 3	Jun 10	Jun 17	Jun 24	Jly 1
18-pdr H.E. Completing uncompleted rounds from abroad.	4,220	6,274	13,808	20,704	12,739	23,072	26,862	22,296
2.75" B.L. Cartridges	5,958	6,567	2,602	336				
4.5" B.L. Cartridges	10,866	2,506	603	8,539	21,009	18,631	21,325	25,298
6" B.L. Cartridges		1,205	2,825	3,438	2,816	3,943	4,624	5,070
8" B.L. Cartridges	472	556	848	1,499	982	1,735	4,779	5,852
9.2" B.L. Cartridges	848	1,204	1,384	1,074	809	279	155	
Assembling Fuze 100 & Gaine No.2	7,942	6,274	21,049	17,435	15,387	11,053	8,622	42,771
60-pdr S. Shell	1,942	1,940	1,780	1,855	1,672	2,360	2,336	337
18-pdr S. incompl rounds	14,732	2,160	76					
4.7" B.L. Cartridges	683	755	1,115	2,451	1,971	2,102	1,154	2,407
4.5" Assembling & Packing H.E. & S.	8,081	16,242	16,358	14,080	17,374	20,934	19,148	17,228
18-pdr complete rounds H.E.		2,676	4,808	4,952	7,470	7,822	10,000	9,140
18-pdr complete rounds S.		2,964	4,724	5,890	8,736	10,440	9,310	10,816
Primers						10,984	3,760	3,760
	Jly 8	Jly 15	Jly 22	Jly 29	Aug 5	Aug 12	Aug 19	Aug 26
18-pdr H.E. complete rounds	7,114					1,249		
18-pdr H.E. Completing uncompleted rounds from abroad.	19,946	17,360	17,364	17,727	16,730	17,224	22,099	17,118
18-pdr S. complete rounds	14,128	20,563	22,542	24,458	22,847	21,930	24,120	31,632
4.5" Assembling & Packing	18,371	18,250	16,470	16,246	16,296	16,843	20,366	20,364
4.5" B.L. Cartridges	21,635	4,058					2,836	14,943
4.7" B.L. Cartridges	3,657	4,020	4,184	5,043	5,606	4,349	4,057	4,496
6" B.L. Cartridges	5,195	5,072	5,278	6,736	6,849	7,611	8,395	8,884
8" B.L. Cartridges	6,918	9,663	15,458	10,735	13,684	6,042	4,348	7,212
Assembling Fuze 100 with Gaine	46,750	24,260	37,810	30,855	24,760	6,860	2,010	15,035
Primers	18,056	10,224	9,072	15,984	15,264	11,952	14,688	15,120
60-pdr B.L. Cartridges						4,103	13,480	2,592

Continued/

SUMMARY OF FILLING DONE BY N.F.F. GLOUCESTER  
 Week Ending - 1916

	Sep 2	Sep 9	Sep 16	Sep 23	Sep 30	Oct 7	Oct 14	Oct 21
18-pdr H.E. complete rounds								
18-pdr H.E. Completing uncompleted rounds								
from abroad.	25,312	42,487	42,468	43,948	48,036	49,538	52,246	39,716
18-pdr S. complete rounds	30,974	31,702	32,557	26,034	28,612	34,101	30,768	27,692
4.5" Assembling & Packing	12,572	8,588	5,856	17,530	2,704	130	642	2,732
4.5" B.L. Cartridges	8,413	7,027	5,905	22,222	17,452	19,546	14,486	
4.7" B.L. Cartridges	7,429	8,290	3,773	129	130	1,780	7,184	5,424
6" B.L. Cartridges	9,588	13,042	26,179	23,533	15,522	7,983	26,784	25,501
8" B.L. Cartridges	8,491	7,598	11,245	13,550	17,738	30,973	18,187	20,245
Assembling Fuze 100 with Gaine	31,985	46,050	44,910	47,140	11,000	37,090	35,520	22,410
Primers	12,384	17,424	13,104	18,144	27,004	22,608	26,352	17,856
60-pdr B.L. Cartridges	7,947	13,329	12,267	9,030	11,645	889		15,205
	Oct 28	Nov 4	Nov 11	Nov 18	Nov 25	Dec 2	Dec 9	Dec 16
18-pdr H.E. complete rounds	8,068	10,851	12,500	13,316	18,422	19,906	17,900	
18-pdr H.E. Completing uncompleted rounds								
from abroad.	34,776	36,142	33,440	35,690	28,316	35,348	43,182	
18-pdr S. complete rounds	25,546	27,358	37,650	35,792	33,518	30,340	29,124	
4.5" Assembling & Packing	2,714	888	1,186	1,092	596	602	1,178	
4.5" B.L. Cartridges								
4.7" B.L. Cartridges	1,442	6,390	8,510	4,702	6,320	6,256	1,840	
6" B.L. Cartridges	28,978	124		18,636	20,224	19,171	15,128	
8" B.L. Cartridges	6,651	15,730	17,559	11,594	12,295	12,740	15,136	
Assembling Fuze 100 with Gaine	30,610	35,850	39,500	52,670	40,205	43,130	59,380	
Primers	25,080	40,032	46,800	33,408	45,072	49,680	59,184	
60-pdr B.L. Cartridges	21,319	6,510	1,888	10,148	13,346	12,141	18,596	

NATIONAL FILLING FACTORIES  
OUTPUT TO APRIL 1ST 1916

Gloucester No.5

NATURES

Complete Rounds

18 Pdr H.E. 711

Cartridges

2.75" 4,330

4.5" 321

6" How. 1,342

8" 105

9.2" 1,270

Gaines

Assembled Fuze  
and Gaine 2,729

OUTPUT APRIL 1ST 1916 TO MARCH 31ST 1917

Gloucester No.5

NATURES

Complete Rounds

18 Pdr H.E. 1,951,946

18 Pdr S. 1,314,578

4.5" H.E. 349,279

Cartridges

2.75" 31,136

4.5" 295,250

4.7" 124,043

60 Pdr 491,475

6" How. 729,068

8" 512,225

9.2" 11,396

Primers 170,257

Assembled Fuze

and Gaine 1,914,433

Exploders 992,395

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PRO. MUN7/45

STATEMENT OF PROPELLANTS USED IN FACTORIES DURING WEEK ENDING 21.7.17.

No.5 National Filling Factory.

CORDITE

Gun	8" MkVII	18-pdr	4.7"	60-pdr	8"
	Used Stock	Used Stock	Used Stock	Used Stock	Used Stock
	-- 28¼	29 173¾	-- 17	114¾ 170¾	51¼ 191¾
					Total used 195

NITRO-CELLULOSE

	18-pdr	6"
	Used Stock	Used Stock
	20½ 141¼	149¾ 81¼
		Total used 170¼

Amounts in 2000lb. tons.

Explosive Storage Section, 24th July 1917.

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PRO. MUN4/1703

SUMMARY OF NATIONAL FILLING FACTORIES, 29.8.17.

Gloucester No.5. Cartridges, Primers, etc. Assembling Q.F. Ammunition.

	Present Allocation	Estimated Maximum Capacity
	Per Week	Per Week
<u>Cartridges</u>		
B.L. 60-pdr. 6" How. 8" How.	72,000	103,000
Q.F. 18-pdr.	80,000	160,000
<u>Primers</u>	200,000	300,000
<u>Assembling Q.F. rounds</u>	80,000	160,000
<u>Shell 18-pdr. (block charges)</u>	80,000	160,000

Employees Males 682 Females 4,081 Total 4,763.

Capital Cost up to 23rd May 1917. £340,841. 11. 11d.

Area 343 acres.

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SUMMARY OF COMPARATIVE COSTS  
 SEPTEMBER 1917  
 GLOUCESTER

18-pr Cordite Block Charges  
 Filling & Priming Cartridge  
 Filling & Fuzing Shell  
 Assembling & Packing

Labour	Oncost	Total	Prodn. per Worker
-6	-7	1-1	73

Filling & Packing  
 60-pr Cordite Cartridges

Labour	Oncost	Total	Prodn. per Worker
-8	-9	1-5	50

18-pr NCT Shrapnel  
 Filling & Priming Cartridge  
 Filling & Fuzing Shell  
 Assembling & Packing

Labour	Oncost	Total	Prodn. per Worker
-4	-4 $\frac{3}{4}$	-8 $\frac{3}{4}$	99

Filling & Packing  
 6" 26cwt. NCT Cartridges

Labour	Oncost	Total	Prodn. per Worker
-3 $\frac{3}{4}$	-1	-4 $\frac{3}{4}$	106

Assembling Fuze & Gaine

Labour	Oncost	Total	Prodn. per Worker
7-6 $\frac{1}{2}$	8-7 $\frac{1}{2}$	16-2	440

Filling & Packing  
 8" Cordite Cartridges

Labour	Oncost	Total	Prodn. per Worker
1-10 $\frac{1}{2}$	1-8	3-6 $\frac{1}{2}$	18

Filling 14dr. Exploders

Labour	Oncost	Total	Prodn. per Worker
1-6	1-8 $\frac{1}{2}$	3-2 $\frac{1}{2}$	2219

Filling & Packing  
 8" (Mk I for Mk VII How)  
 High Velocity Cordite Cartridges

Labour	Oncost	Total	Prodn. per Worker
2-1	-4 $\frac{3}{4}$	2-5 $\frac{3}{4}$	16

Filling Primers No 1 Mk II

Labour	Oncost	Total	Prodn. per Worker
3-1 $\frac{1}{2}$	1-5 $\frac{1}{2}$	4-7	1072

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CLAIM BY N.F.W.W. AND OTHERS FOR INCREASE IN WAGES  
OF EXAMINERS AND OVERLOOKERS.

New scales promulgated in March 1916, Inspection Department, Woolwich.

Examiners 20/- to 25/-	} Fuze shop E 105	48 hrs.
Overlookers 27/-		
General Overlookers 30/-		

The rates given by the Inspection Department are applicable at other places besides Woolwich, and the rates now given compare very favourably with rates outside the London District.

[Extract]

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PRO. MUN4/1493

WOMEN'S WAGES

-.4.16 Gloucester NFF. 20/- per 48 hours.

PRO. MUN4/3878

5.2.17 There has been no increase in wages at Gloucester since November last, when female labour had to be given a general increase of 2/- a week and a War Bonus of 1/6 per week contingent on good time keeping.

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PRO. EXT1/315 Part 19  
(Was MUN5/56/300/73/19)

AVERAGE EARNINGS IN NATIONAL FILLING FACTORIES, MAY 1917.  
No.5 Gloucester.

		<u>MALES</u>			
		Checkers	Labourers	Engine Drivers	Carpenters
No. of hours in working week		48	48	48	48
	Day Shift	61	61	70	61
Average Total}	Night Shift	62½	62½	--	62½
	Rate per head	9¾d	4½d-8d	11¾d	9½d-1/-
Earnings}	Day Shift	£2-12-5d	£1-15-2d	£3-16-4d	£2-11-3d
	Night Shift	£2-15-0d	£1-16-10d	--	£3- 4-6d
Average Wage*}	Day Shift	£2- 9-2¼d	£2- 2-11d	£3- 2-8¾d	£3- 3-0½d
	Night Shift	£2-10-4½d	£2- 6-5¼d	£2-13-10d	£3- 5-2¼d

		<u>MALES</u>	<u>FEMALES</u>
		Painters	Filling Operations
No. of hours in working week		48	48
	Day Shift	48	48
Average Total}	Night Shift	62½	48
	Rate per head	8½d-11d	6½d
Earnings}	Day Shift	£1-14-0d	£1- 6-0d
	Night Shift	£2- 4-0d	£1- 6-0d
Average Wage*}	Day Shift	£2- 9-10½d	£1- 9-0½d
	Night Shift	£2- 8-5d	£1-12-6d

\* All N.F.Fs.



DEPARTMENT OF MUNITIONS INSPECTION

Conference held on 24.2.17.

It was agreed that the minimum rate of the Inspection Department female examiners at Filling Factories engaged on filled work should be raised from 25/- to 27/-, with corresponding increases to supervisory grades.  
[From 4th March, 1917].

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11.7.17. Normal rates for women examiners in this Department are

Examiners	31/-
Overlookers	34/-
General Overlookers	38/-
Assistant Forewomen	44/-

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MUN 5/83/342/119

November 1917.

Directions relating to the renumeration of women and girls for munition work.

Work of a class which prior to the war was customarily done by men.  
Time workers. Women employed on work customarily done by men shall be paid not less than 6d. per hour, with a minimum of 24/- per week.  
Girls under 18 years of age employed on work customarily done by men shall be paid as follows:-

<u>Working Week</u>	<u>Age</u>			
	17-18	16-17	15-16	under 15
48 hours	20s 0d	18s 0d	16s 0d	14s 0d
49 "	20s 6d	18s 6d	16s 6d	14s 6d
50 "	21s 0d	19s 0d	17s 0d	15s 0d
51 "	21s 6d	19s 6d	17s 6d	15s 6d
52 "	22s 0d	20s 0d	18s 0d	16s 0d
53 "	22s 6d	20s 6d	18s 6d	16s 6d
54 "	23s 0d	21s 0d	19s 0d	17s 0d

The above rates shall not prevent the recognition of special ability or responsibility.

Work of a class which prior to the war was not recognised as men's work. Women and girls employed on time shall not be paid less than the following rates:-

Women 18 years and older,	5½d. per hour.
Girls 17 years and under 18,	4½d. per hour.
Girls 16 years and under 17,	3½d. per hour.
Girls 15 years and under 16,	3 d. per hour.
Girls under 15 years,	2½d. per hour.

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LISTS OF EMPLOYEES IN GOVERNMENT ESTABLISHMENTS  
NATIONAL FILLING FACTORIES

Gloucester.

Controlled Establishment No.3536.

<u>Week Ending</u>	<u>Males</u>	<u>Females</u>	<u>Total</u>
June 17th 1916	307	2,113	2,420
July 1916	409	2,360	2,769
August 18th 1916	528	2,891	3,419
September 15th 1916	579	3,337	3,916

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PRO. MUN5/155/1122.3/70

NUMBER OF EMPLOYEES IN NATIONAL FILLING FACTORIES.  
NO.5 GLOUCESTER.

	<u>1916</u>					
	JULY	AUG	SEPT	OCT	NOV	DEC
Total*	2,713	3,419	3,916	3,865	3,621	3,212
	34,996	42,562	48,597	52,554	55,099	60,808

	<u>1917</u>					
	JAN	FEB	MAR	APL	MAY	JUNE
	4,089	5,559	6,364	6,284	5,431	4,920
	63,764	75,680	81,670	81,969	75,135	70,972

	JULY	AUG	SEPT	OCT	NOV	DEC
	4,763	4,530	4,481	4,459	4,524	4,604
	73,599	72,192	74,201	66,518	64,850	63,335

	<u>1918</u>
	JAN
	4,664
	60,536

\*All NFFs. Nos 1-9, 21, 11-14 & 18.

[To explain the break in numbers of NFFs, i.e. 15, 16, 17, 19 and 20, two were originally held by stores at Horley and Devonport respectively, and one number was kept vacant, as were those between 18 and 21, on the chance of more factories being required. No.8 Southwark S.E. closed April 1918, and No.10 Coventry changed to 21 following investigations into numerous premature.

Extracted from MUN5/155/1122.3/59 ]

CENSUS OF WOMEN WORKERS, GLOUCESTER.

1,163 Domestic servants.
273 Dressmakers / Milliners.
125 Laundry workers.
6 Dairymaid and Farm hands.
734 Trade factory workers.
52 Clerks / Typists etc.
187 Waitresses, Barmaids and Shop Assistants.
1,296 Home duties and sundry.
<u>3,836</u>

(Undated)

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NOTE BY THE SENIOR ORGANISING OFFICER FOR WOMEN'S EMPLOYMENT  
IN THE SOUTH WESTERN DIVISION.

MINISTRY OF LABOUR  
EMPLOYMENT DEPARTMENT

To  
Miss Durham,  
Central Office,  
Westminster.

I beg to forward the enclosed notes with regard to the supply of labour for Filling Factories in the South Western Division:-

We have a National Filling Factory at Quedgeley, three miles from the City of Gloucester. The demand for labour at first was easily supplied by the Employment Exchange from a Register of Gloucester women and girls.

In view of the fact that there was great danger of local industries being depleted it was found essential to go outside Gloucester for labour. The factory agreed to run a train from Stroud to Quedgeley, and arrangements were made for a train to run between Cheltenham and Quedgeley. A special appeal was made in the County for munition workers - I attach a copy of the appeal - we had a great response and were able to supply all the needful labour. Very little labour has been imported at all for the Quedgeley Factory - there has always been a steady flow of available labour from Cheltenham, Stroud and Gloucester itself.

(Signature unreadable)  
Senior Organising Officer  
17/5/17

(Extract)

**An Appeal to Women  
BY THE  
MINISTER OF MUNITIONS**

It is essential that the women of this country should know and realise the present urgent demand for more workers in the munition factories. Lack of workers means lack of shells, and England has learnt with bitterness what that stands for in the modern battlefield.

The Government machinery is now prepared, the factories are ready, hundreds of thousands of women are already at work; but many thousands more are wanted, and wanted immediately, in order to bring up our production to the needs of our Armies in the field.

I earnestly appeal to unoccupied women of all classes between the ages of 18 and 40, to register for Munition Work at their nearest Employment Exchange and to be prepared to follow up their registration by carrying out whatever work is needed of them, wherever it may be, however far from home.

CHRISTOPHER ADDISON,  
Minister of Munitions.

1/17

[Note: The above appeal was circulated for the factories in west London; the Gloucester appeal is missing].

PRO. MUN5/51/300/41

## MEMORANDUM ON THE DISPLACEMENT OF LABOUR OWING TO REDUCTION IN THE MUNITION PROGRAMME RENDERED NECESSARY BY THE CUT IN RAW MATERIAL, FEBRUARY 1918.

For the information of the Supply Departments who are arranging reduction in the shell programme the following information as to districts in which the reduction in the industrial population would be regarded favourably in view of the housing problem may be of use.

The following areas may be regarded as particularly bad, and any reduction would be desirable:-

Tyne, Clyde, Tees and Birkenhead shipbuilding centres.  
Coventry, Derby, Hereford, Letchworth, Mid-Lanarkshire area.  
Lincoln, London areas of Erith, Crayford, Dertford and Hendon.  
Sheffield, Barrow, Bristol and Dudley.

The following districts are also reported as congested and, subject to the priority of the first list, the same remarks would apply to them as to the districts set out above.

Chelmsford, Chepstow, Cowes, Dolgarrog, Farnborough, Weybridge.  
Luton, Melksham, Gloucester, Llanelly, Northwich, Leeds  
and Wolverhampton.

It is difficult to give more precise indications than this, in particular it is almost impossible to find a single munitions area in the country where there can be said to be a surplus of accommodation. The erection of houses for the working classes has practically ceased since the outbreak of war, and the men who have been called up to the Colours and who have to be replaced by newcomers, have to a very large extent left their families in the occupation of their homes. This has involved in practically every munitions area the influx of new industrial population entirely disproportionate to the amount of housing accommodation set free by the calling up of men to the Colours.

[Unsigned]  
22.2.18.

(Extract)

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PRO. MUN5/349/342/3

BOARD OF TRADE INDEX NUMBERS OF RETAIL FOOD PRICES  
SHOWING PERCENTAGE INCREASE OVER LEVEL OF JULY 1914

January 1915 - 18	July 1915 - 34
January 1916 - 42	July 1916 - 61
January 1917 - 87	July 1917 - 104
January 1918 - 108	

## PURCHASING POWER OF £1 (IN FOOD) ON THIS BASIS

July 1914 - 20/-	December 1914 - 17/-
June 1915 - 14/10	December 1915 - 13/8
June 1916 - 12/4	December 1916 - 10/8

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MINISTRY OF MUNITIONS  
WELFARE & HEALTH SECTION

Clearing Hostels

Number. Clearing Hostels are as follows:-

- A. Managed by Sir R. Carlyle.  
Gloucester. (Not now clearing).  
Lancaster.  
Hereford.  
Middleborough, Coventry.  
1 Block, No. 1, Coventry.
- B. Managed by private bodies.  
Coventry Girls Shelter. (Partly rescue).  
Coventry, Y.W.C.A., Park Road.  
Birmingham, St. Mary's Y.W.C.A.  
Llanelly Girls Club.  
Swansea, Y.W.C.A.  
Lincoln, G.F.S.  
London, T.A. Portman House, Lisson Street.

GLOUCESTER

<u>Efficiency.</u>	Has not had imported workers for some time.
<u>Encroachment of Permanent Residents.</u>	Factory has not been taking on any labour lately, therefore hostel has become permanent. 37 residents at present, all permanent.
<u>Cleansing of Clothing and Bodies.</u>	No special arrangements as this hostel is now practically a permanent one.
<u>Recreation Rooms.</u>	Fairly satisfactory, rather bare. Improvement now being considered by Housing Management Department. No organised recreation, piano, books.
<u>Sleeping Accommodation for late comers and cleansing of bedding.</u>	Accommodation if necessary.
<u>Treatment of girls as respectable.</u>	The complaint is made that the Superintendent is too lenient.
<u>Number of Baths.</u>	Two baths for 38 tenants. Hot water supply is receiving attention. No charge.

[c. 9/1918]

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DANGER BUILDING OFFICERS  
Gloucester No.5

1 Senior DBO @ £400 p.a.  
2 DBOs @ £350 p.a.

In October 1915 the trade firms at work on ammunition were:-  
Vickers. Armstrong. Curtis's & Harvey. Explosives  
Loading Co. King's Norton Metal Co. Bickford Smith.  
Birmingham Metal. Eley Bros. Coventry Ordnance.  
Geo Kent. Thames Ammunition Works.

Three months later there had been added:-  
Kynoch. Nobel. Picard Freres. Singer.  
Clifford & Harrison.

MEMORANDUM ON DANGER BUILDING PRACTICE IN THE  
NATIONAL FILLING FACTORIES, OCTOBER 1915 - NOVEMBER 1918

To meet the requirements of safety the Ammunition Filling Department of the Ministry organised a staff of Danger Building Officers for each factory with an Expert at their head - a former Superintendent of the Royal Laboratory - who had his headquarters at the Ministry. The DBOs, all of whom were Military Officers, had no previous knowledge of the handling or properties of explosives, or in their handling in the processes of filling. They attended from three weeks to a month at the Ordnance College at Woolwich, where they received an elementary training in the properties of explosives, and in the Royal Laboratory, where they saw the processes of filling as carried out there, and obtained from the trained DBOs of the Royal Laboratory some insight into the nature of the duties they would have to perform in their own factories. After completion of their courses they went to their respective factories for duty, but were not borne on the books of the factory, but as responsible to, and reporting direct to, the head of the Danger Building Department at the Ministry. Their method of dealing with the Management was by entering in a DBOs' Report Book anything that they considered wrong or undesirable.

Extract from 'Information and Instructions for Danger Building Officers'  
"The DBO will visit each Factory with which he is concerned, with the utmost frequency, at uncertain hours so as to ascertain what takes place at the Factory at all times of the day and night and that efficient supervision is at all times exercised whether it be in the admission of work people or other persons, the carrying out of work, the closing down, the receipt of working of traffic, guarding when closed, or any other matters affecting the safety of the Factory".

In addition to the Factory arrangements for guarding and patrolling, the whole of the areas in which the various factories were situated, were surrounded with fencing, usually of barbed wire, and the exterior perimeter was patrolled by sentries furnished by a Military Guard supplied by the War Office. At first these guards were of considerable size, but about the middle of 1917 they were reduced to some extent, and very drastically reduced at the end of 1917.

In August 1916 a change was made by placing the Danger Building Officers directly under the Management of the factories in which they served and making them part of the Managerial staff. The head of the Danger Building Department at the Ministry retired and his post was not filled up. His duties of visiting the factories and reporting upon procedure were transferred to another expert assisted by two senior military officers acquainted with war stores.

(Extract)

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FATALITIES FOLLOWING EXPLOSIONS AT NATIONAL FILLING FACTORIES

No.	Date	Place	No. of Factory	Number killed		
				Men	Women	Total
1	10 3 16	Hayes	7	-	2	2
2	28 3 16	Hayes	7	-	1	1
3	24 7 16	Chilwell	6	1	-	1
4	22 8 16	Banbury	9	1	-	1
5	5 12 16	Leeds	1	-	35	35
6	2 1 17	Hayes	7	1	-	1
7	18 1 17	Cardonald	12	1	1	2
8	21 3 17	Leeds	1	-	2	2
9	26 4 17	Georgetown	4	-	3	3
10	29 5 17	Cardonald	12	-	1	1
11	2 6 17	Hayes	7	-	1	1
12	22 6 17	Georgetown	4	1	-	1
13	3 7 17	Coventry	21	-	1	1
14	13 10 17	Morecambe	13	10	-	10
15	4 10 17	Watford	24	2	1	3
16	5 10 17	Chilwell	6	2	-	2
17	20 10 17	Abbey Wood	11	1	-	1
18	30 11 17	Fulham	27	-	2	2
19	1 2 18	Watford	25	1	-	1
20	5 4 18	Morecambe	13	2	-	2
21	31 5 18	Leeds	1 Amatol	3	-	3
22	1 7 18	Chilwell	6	108	25	133
23	23 7 18	Liverpool	2 Amatol	-	3	3
24	26 7 18	Chilwell	6	2	-	2
25	29 10 18	Georgetown	4	1	-	1
26	18 11 18	Pembrey	18	-	3	3
				137	81	218

The accidents tabulated have been classified as follows:

	No. of accident in table above						Total No. killed
	1	2	3	5	8	9	
I Fatal results mainly due to the methods employed being regarded as comparatively safe and the work being carried on without traverses or other protecting screens.	1	2	3	5	8	9	44
II Fatal results mainly due to the buildings involved having been erected at a period when fire rather than explosion was feared in the operation performed and many workers being exposed to the effects of an explosion.				22			133
III Very great destruction due to the material of which the buildings were made, especially the roofs, owing to fires after several explosions.				14			10
IV Accidents due to methods or tools found unsuitable after experience.				18			2
V Accident due to a defect developing in the plant.				4			1
VI Accident due to a defective fuze when breaking up ammunition returned from France.				26			3
VII Accidents due to carelessness or neglect by workers.	7	12	13	16	17	24 25	10
VIII Accidents due to insufficient care by Managements in adapting methods of work.				6	20	23	6
IX Purely accidental, causes ascertained.				10	11		2
X Purely accidental, causes doubtful.				15	19	21	7

Col. Sir H W Barlow, December 1918.

MINISTRY OF MUNITIONS OF WAR  
RULES AND REGULATIONS OF THE NATIONAL AMMUNITION FILLING FACTORIES  
HMSO 1916

Except in the case of a limited number of specified officials, entrance to Danger Buildings will be made through the Shifting Rooms only, excepting that entrance may be made direct into a Danger Building or platform, which has been declared "dirty," and is properly fenced off. All persons admitted shall pass a barrier at which an official is stationed, whose duty it will be to see that all entering are "clear," i.e., do not carry prohibited articles, are properly dressed, and in a fit condition to undertake work.

Searching will be conducted as follows:-

Operatives after removing prescribed clothing are to be searched by persons deputed for this work, and until they have been searched are not to pass the barrier into the "clean" portion of the Shifting Room. "Clean" applied to buildings, platforms, clothing etc. in Danger Areas means such buildings etc. are reserved exclusively for use in work on, and in connection with, explosives. All operatives will before entering change their outer clothes, viz: overcoat, coat, waistcoat, trousers and boots (or, in the case of female operatives, such outer clothes as the Management may direct) for special Danger Building clothing and shoes provided by the Factory. No pockets will be allowed, nor are the bottoms of trousers or sleeves to be turned up, and jackets are to be worn buttoned up. No persons are permitted to walk upon any "clean" floor or platforms unless wearing the special shoes provided, nor, while wearing these shoes, may they walk anywhere else.

When receiving empty shells or components of ammunition a portion of the platforms will be shut off by special barriers and declared "dirty". Shells will be carefully wiped and passed through the barrier to the "clean" side, operatives on either side being kept distinct, and forbidden to cross the barrier.

A person under the age of 16 years shall not be employed in or enter the Danger Area, except in the presence and under the supervision of a responsible adult.

Female operatives shall avoid, as far as possible, the wearing of hairpins, combs, jewellery, and shall not have exposed metal parts or fastenings to their clothes which can come into contact with materials or tools with which they are working; they must either plait their hair or tie it up.

The giving of information connected with work, or with the Factory, to unauthorized persons, is prohibited.

Direct sunlight must not be allowed to fall upon explosives.

Locomotives should be fitted with efficient spark arresters, and also with water-pans below fireboxes.

(Extract)  
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RULES FOR EMPLOYEES OF THE AMMUNITION FILLING FACTORIES  
UNDER THE MINISTRY OF MUNITIONS, NOT INCLUDING THE ROYAL FACTORIES  
HMSO November 1917.

1. Entrance to Danger Buildings.- Entrance to Danger Buildings is to be made through the shifting rooms only, unless otherwise authorised for some temporary purpose by the Management.
2. Searching.- Every person entering or leaving the Factory, except in such places in the non-danger area authorised by the Management, and workers at all times, shall submit to be searched by any official authorised by the Factory, and shall also submit the contents of any bag, basket or package for examination when called upon to do so. A record of this searching shall be kept in a book provided for the purpose.
3. Prohibited Articles.- All tobacco, pipes, cigarettes, matches, cases of materials having any connection with smoking; any combustibles, chemicals or explosives; knives, scissors, revolvers or arms of any description; exposed articles of iron or steel, umbrellas, sticks or bags, or any other prohibited article specially prohibited by notices posted in conspicuous places in the factory, must be delivered up before entering the danger area.  
Employees having any such articles in their possession after entering will be placed in custody with a view to punishment and dismissal.
4. Procedure on Entering.- Before entering, all persons must be "clear," i.e., they must search their pockets and hand over all such forbidden articles.  
They must turn down (or turn inwards if sewn) the ends of their trousers and brush off all dust and grit.  
Rub their boots on the mat and take them off (except Officers and visitors, for whom over-slippers are provided), and step into "magazine" shoes.  
All workers employed in magazines or other "Danger Buildings" are liable to be thoroughly searched at the entrance gate each time they enter, and a percentage are always so searched.  
The employees, before being searched, must themselves turn out their pockets. Should anyone fail to do so and any prohibited article be found, the offence will be considered far more serious.
5. Private Clothing.- The private clothing, taken off and left in the shifting lobby, is also subject to examination.  
Each person has a peg allotted to him in the "dirty" part of the shifting room for his clothing.
6. Smoking.- No person shall smoke or light fires within the Factory.
7. Intoxication.- No person who is in a state of intoxication, or who is, in the opinion of the Factory's authorised officials or doctor, otherwise unfit for work, shall be admitted into the Factory.  
Any person found in the premises in a state of intoxication shall be deemed to have committed a breach of these Rules.
8. Workmen to keep to their own Shops.- No person shall enter or leave the premises except by the special gates, nor shall they loiter on the platforms or in the buildings after their special employment is ended; nor, except by special order of the officials in charge, enter any other part of the Works than the one assigned to their labour.
9. Magazine Clothing to be Worn.- Every person employed in the danger area of the Factory shall put on the special "magazine" clothing without pockets which are provided in the Dressing Rooms, and shall leave them there before quitting the Factory; and no person shall be permitted to wear or carry any article of iron or steel, nor shall any pockets be permitted in any garments under the magazine clothing.
  - (a) Workmen must not wear their own braces or belts, on account of the metal fastenings. Braces will be provided.
  - (b) They must be careful of their "magazine" clothing.
  - (c) Care must be taken that it does not become impregnated with explosive matter.
  - (d) No alteration, no pockets permitted.

PRO. MUN5/94/346/35 (Continued)

All persons employed in danger buildings except as in Rule 12 will, before crossing the barrier, take off all their outer clothing (hat or cap, coat, waistcoat, trousers, boots)- in the case of women, such clothing as the Factory management may direct - then cross the barrier and put on the special clothing provided for them, which should be kept in special bags, one for each person.

10. Flannelette, Hairpins, Combs Prohibited.- Underclothing made of "flannel-ette" is always to be discouraged as far as possible, even if declared to be unflammable. The use of hairpins and combs is strictly forbidden. The operatives must either plait their hair or tie it up under the cap.

11. Surgical Appliances.- Workmen wearing surgical appliances must inform their foreman.

12. Writers, book-keepers and men not employed on explosives may wear their own clothing, but must be searched.

22. Thunderstorms.- Every Danger Building must be closed and left on the approach of a thunderstorm, unless the Factory's officials consider it unsafe and impracticable to stop the process in hand, nor is work to be resumed until permission is given.

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PRO. MUN5/92/346/18

HEALTH OF MUNITION WORKERS COMMITTEE  
"HEALTH OF THE MUNITION WORKER"  
(1917)

Rules for the use of Trinitrotoluene.

No person under 16 years of age shall be employed, and no person under 18 years of age shall be employed unless such employment is approved.

No person shall be employed for more than a fortnight without an equal period of work at a process not involving contact with T.N.T.

Every person employed shall be supplied gratis daily with half a pint of milk or an approved substitute.

Every person employed in a T.N.T. process shall be examined by the Medical Officer...at least once in every week or at such shorter or longer intervals as may be approved.

(Extract)

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PRO. MUN5/94/346/35 (Continued)

CASES OF TOXIC JAUNDICE FROM T.N.T. - JAN. TO DEC. 1916  
(The raised figures represent deaths)

	Total
N.F.F. 1. Barnbow Common.	399
N.F.F. 2. Aintree.	1
N.F.F. 5. Quedgeley, Gloucester.	1 [*]
N.F.F. 6. Chilwell.	4215
N.F.F. 7. Hayes. .	82
N.F.F.13. Morecambe.	41

[\* Notes. Female, October. No reported cases in 1917 or 1918.

"The first death among T.N.T. fillers of which there is official knowledge occurred in January 1916 at Messrs. Curtis's and Harvey's works, Faversham."]

SIDINGS OR PLATFORMS ON RAILWAY PROPERTY  
WHICH MAY OR MAY NOT BE TAKEN OVER BY THE RAILWAYS AFTER THE WAR

PLACE	RAILWAY	NATURE OF WORK	ESTIMATED COST
1. Gloucester	MID	N.F.F. No.5 - Extension of Gloucester and Barnwood Sidings. (See 2)	£

SIDINGS IN CONNECTION WITH STORE SHEDS, MACHINERY SHOPS  
OF FILLING FACTORIES BELONGING TO THE MINISTRY

PLACE	RAILWAY	NATURE OF WORK	ESTIMATED COST
2. Gloucester	MID	Sidings and Platform at No.5 N.F.F. (See 1)	£11,535
Quedgeley	MID	Shunters Cabin	£67

[6/1916]

PRO. RAIL491/166

MIDLAND RAILWAY  
TRAFFIC COMMITTEE MINUTES

Meetings of the Traffic Committee, Derby.

Thursday 18.11.1915 Gloucester.

Resolved that siding accommodation be provided near Naas Crossing, Gloucester, for dealing with the traffic to and from the National Shell Filling Factory which is being erected at that point, including a platform for dealing with the workpeople's trains, as shewn in block red colour, from the main line to the point marked "A" "B" on the plan "A" submitted. That additional sidings shewn in block red colour on inset plan "B" be provided at Barnwood sidings, Gloucester, for the collection and marshalling of the traffic of the factory; and that additional sidings shewn in red colour on inset plan "C" be, also, constructed at Gloucester for the storage of the trains required to convey the workpeople to and from the place, at a total estimated cost of £11,535.

The War Office will bear the whole of the expense, and the matter was referred to the Way and Works Committee.

Thursday 22.6.1916 Gloucester.

Resolved that, for the purpose of dealing with the traffic to and from the Army Ordnance depot, which is being established near the National Shell Filling Factory at Gloucester, an additional siding be provided, as shewn on the plan now submitted, alongside the three existing sidings which have been laid down for the traffic of the Shell Filling factory, the Midland Company to carry out the portion shewn in block red colour at an estimated cost of £430, and the War Office themselves to complete the siding as shewn in red lines; and that the other sidings alongside the Ordnance buildings shewn in block red colour on the plan be provided, the War Office to arrange for the ground to be filled up and prepared to formation level and supply the Company with the necessary sleepers and crossing timbers, the Midland Company providing and laying down the remainder of the permanent way, at an estimated cost of £1,620.

Continued/

PRO. RAIL491/166 (Continued)

[22.6.1916]

The whole of the cost of the work to be carried out by the Midland Company, estimated at £2,050 will be borne by the War Office.

The matter was referred to the Way and Works Committee.

Thursday 18.1.1917 Gloucester.

Resolved that additional carriage storing accommodation be provided at the Quedgeley National Filling Factory by extending one of the dead end sidings at the place as shewn on the plan produced; the cost, which is estimated at £115, being borne by the Government.

The matter was referred to the Way and Works Committee.

Thursday 21.6.1917 Gloucester.

Resolved that siding accommodation be provided at Quedgeley, Gloucester, in connection with the new cartridge stores which the War Department is establishing at the Army Ordnance depot at that place. The cost is estimated at £505 which will be borne by the Government, who will, also, make their own arrangements for extending the accommodation to the site of the new stores.

The matter was referred to the Way and Works Committee.

PRO. RAIL491/167

Thursday 22.6.1922 Gloucester and Brent.

Resolved that the siding accommodation at Gloucester and Brent shewn...on the three plans produced which was constructed during the war on Government account in connection with traffic to and from Government factories, be purchased from the Government at a total estimated cost of £2,750.

The matter was referred to the Way and Works Committee.

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General Manager's Office,  
Midland Railway,  
Derby.

29th November, 1915.

Sir,

GLOUCESTER. QUEDGELEY.  
Accommodation for National Shell Filling Factory

I enclose herewith plan shewing a double junction etc., with the main lines of the Midland Railway between Naas Crossing and Tuffley Junction, which is being provided in connection with the accommodation for the National Shell Filling Factory at Quedgeley, Gloucester, and shall be glad to hear that the Department agree to the accommodation being brought into use, as and when required; subject to the requirements, if any, of the inspecting officer being complied with after he shall have visited the place.

I am,  
Sir,  
Your obedient Servant,

For W. Guy Granet.

The Asst. Secretary,  
Railway Department,  
BOARD OF TRADE.

-----

BOARD OF TRADE  
(RAILWAY DEPARTMENT),  
7, WHITEHALL GARDENS,  
LONDON, S.W.

Sir,

I am directed by the Board of Trade to acknowledge the receipt of your letter of the 29th Nov., forwarding a plan of certain proposed works at Quedgeley, Gloucester, on the Midland Railway, with a view to the grant of provisional sanction to proceed with the works and bring them into use as and when required.

In reply, I am to inform you that the Board of Trade approve of the works shown upon the plan, on condition that they are submitted for inspection when complete.

I am,  
SIR,  
Your obedient Servant,  
(Sgd) W. F. MARWOOD  
(Dated) 4 DEC. 1915

The General Manager,  
Midland Railway.

-----

Continued/

PRO. MT6/2423/3 (Continued).

General Manager's Office,  
Midland Railway,  
Derby.

1st January, 1916.

Sir,

GLOUCESTER. QUEDGELEY.  
Accommodation for National Shell Filling Factory

Referring to your letter, R.13544, of the 4th ultimo, I beg to inform the Department that the works in question at Quedgeley, Gloucester, will be ready for inspection any time after Monday, the 3rd instant.

I am,  
Sir,  
Your obedient Servant,

For W. Guy Granet.

The Asst. Secretary,  
Railway Department,  
BOARD OF TRADE.

-----

BOARD OF TRADE  
(RAILWAY DEPARTMENT),  
7, WHITEHALL GARDENS,  
LONDON, S.W.

Sir,

I am directed by the Board of Trade to acknowledge the receipt of your letter of the 1st Jany giving notice, with a view to inspection on behalf of the Department that it is intended to open for public traffic certain new works at Quedgeley, Gloucester, on the Midland Rly.

In reply I am to inform you that the Board of Trade have appointed Colonel Druitt, R.E., to make the inspection as soon as he conveniently can.

I am to add that the usual month's notice of the Company's intention to open the work for public traffic is dispensed with in this case, upon condition that should the works in question be brought into use before such inspection has taken place, any requirements which the Inspecting Officer may make shall be complied with, and that the Inspecting Officer shall be at liberty to make a re-inspection of the work at any subsequent time.

I am,  
SIR,  
Your obedient Servant,

[3.1.16]

To the General Manager of the  
Midland Railway.

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Continued/

RAILWAY DEPARTMENT,  
BOARD OF TRADE,  
8, Richmond Terrace,  
Whitehall, London, S.W.

12th May, 1916.

SIR,

I have the honour to report for the information of the Board of Trade, that in compliance with the instructions contained in your Minute of the 3rd January, I have inspected the new works at Quedgeley on the Midland Railway.

At this place a new double junction has been laid in the main lines, leading to a new shell filling factory, with a workmans platform. A crossover road has also been provided between the down and up lines.

The necessary running and shunting signals are worked from a new signal-box, containing 22 working and 6 spare levers.

The workmans platform is 700 feet long, 12 feet in width, and 3 feet above rail level, and is well provided with lamps.

The interlocking and other arrangements being satisfactory, I can recommend the Board of Trade to sanction the use of the new works in question.

I have, etc.,  
[Sgd] E. Druitt.

The Assistant Secretary,  
Railway Dept.,  
Board of Trade.

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[No heading]

Sir,

I am directed by the Board of Trade to transmit to you the enclosed Copy of Colonel Druitt's Report of his inspection of certain new works at Quedgeley on the Midland Railway, and I am to inform you that the Board sanction the use of the new works in question.

I am,  
Sir,  
Your obedient Servant,

(Signed) ERNEST G. MOGGRIDGE.  
(Dated) 15 MAY, 1916.

[The General Manager,  
Midland Railway].

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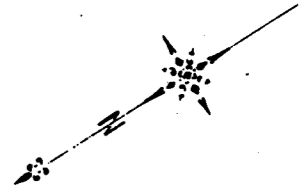
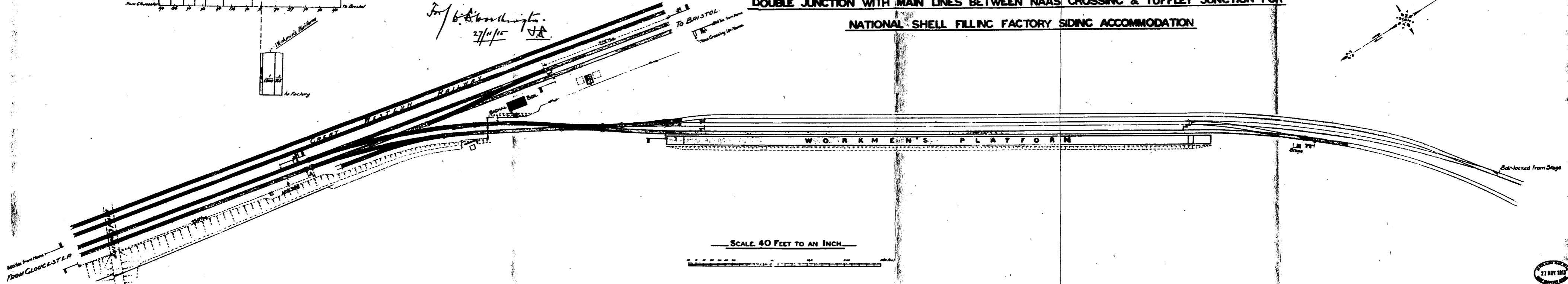
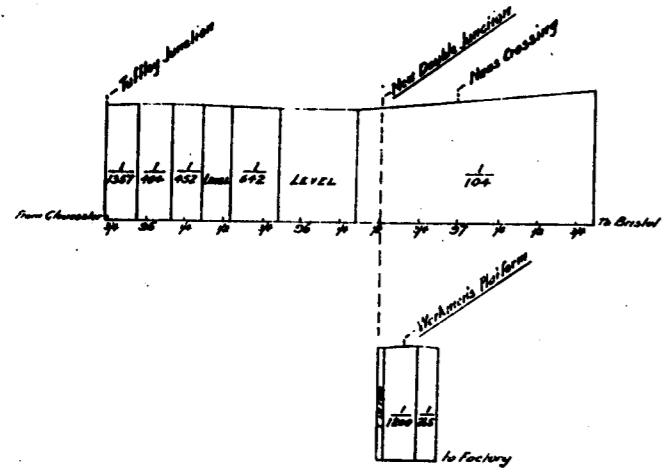
MIDLAND / L.M.S. RAILWAY WEEKLY NOTICES  
RELATING TO  
QUEDGELEY SIGNAL BOX  
1915 - 1926



# M.R. —QUEDCELEY—

DOUBLE JUNCTION WITH MAIN LINES BETWEEN NAAS CROSSING & TUFFLEY JUNCTION FOR  
NATIONAL SHELL FILLING FACTORY SIDING ACCOMMODATION

*Prof. B. Worthington.*  
27/11/15 J.A.



Reference:

MTG/2423/3	BC/4037
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4037						
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## MIDLAND RAILWAY WEEKLY NOTICES

Week ending December 4th 1915.

On Sunday next, November 28th, from 7.0 a.m. until about 5.0 p.m., the Engineer will have possession of the up main line between Naas Crossing and Tuffley Junction, for the purpose of laying in points and crossings. During the operation, single line working will be adopted on the down main line between Tuffley Junction and Naas Crossing. Inspector Robinson will appoint a Pilotman, and the Tuffley Junction Signal Box will be open.

Quedgeley:- On the same day, commencing at 7.0 a.m., the following alterations will be made:-

A new intermediate Block Telegraph Signal Post on the up side of the line near Naas Crossing down main line distant signal, for the purpose of signalling trains on the Midland up and down main lines only, will be opened and named "Quedgeley."

A new connection with the up main line will be brought into use for construction purposes.

The signals will be:-

A distant signal on the post of the Naas Crossing up main line home signal, and a home signal and a starting signal on the up side of the line to regulate the running of trains on the up main line;

A distant signal for the down main line, alongside that line.

A three-armed bracket signal alongside the down main line to regulate the running of trains approaching on that line; the upper arm on the left-hand post will be Quedgeley down main line home signal applicable to trains going forward on the down main line, and the lower arm on that post will be Naas Crossing down main line outer distant signal; the arm on the right-hand post will not be brought into use until further notice.

A signal with two arms on the same side of the post on the down side of the line to regulate the running of trains on the down main line; the upper arm will be Quedgeley down main line starting signal, and the lower arm Naas Crossing down main line intermediate distant signal.

This Signal Box will be open as required for ballast train purposes between 8.0 a.m. and dusk on weekdays only.

Week ending December 11th 1915.

On Sunday next, December 5th, from 7.0 a.m. until about 5.0 p.m., the Engineer will have possession of the down main line at the new Quedgeley Signal Box, for the purpose of laying in points and crossings. During the operation, single line working will be adopted on the up main line between Naas Crossing and Tuffley Junction. Inspector Robinson will appoint a Pilotman, and the Quedgeley and Tuffley Junction Signal Boxes will be open.

Quedgeley:- On the same day, commencing at 7.0 a.m., the following alterations will be made:-

A new facing connection leading from the down main line into the sidings at Quedgeley and the following new signals will be brought into use:-

An arm signal on a bracket on the post of the down home signal, to regulate the running of trains approaching on the down main line and going into the sidings;

A two-armed bracket signal near the Signal Box, to regulate the running of trains going into the sidings; the right-hand arm will apply to trains going on to the line alongside the platform, and will be controlled from the stage at the factory sidings end of the platform, and the left-hand arm will apply to trains going on to the third siding from the platform.

A single-armed signal near the north end of the platform, to regulate the running of trains from the line alongside the platform on to the up main line; Single-armed dwarf signals to regulate the running of trains from the second and third sidings from the platform on to the up main line;

A single-armed dwarf signal alongside the up main line to give permission for trains to set back from the up main line on to the down main line or into the sidings;

A single-armed dwarf signal between the up and down main lines, to give permission for trains to set back from the down main line on to the up main line.

The crossover road between the platform line and the siding alongside it, at the factory sidings end of the platform, and the following new signals will be brought into use and worked by Guards and Shunters from a stage:-

A single-armed dwarf signal to regulate the running of trains from the line alongside the platform into the dead-end siding;

A two-armed dwarf signal to regulate the running of trains from the dead-end siding; the upper arm will apply to trains going on to the platform line, and the lower arm to trains going on to the second line from the platform.

This Signal Box will be open as required for ballast train purposes between 8.0 a.m. and dusk on weekdays only.

Week ending December 18th 1915.

Quedgeley:- On and after Monday next, December 13th, this Signal Box will be open from 7.30 a.m. until 7.15 p.m. Mondays to Fridays, and 7.30 a.m. to 5.15 p.m. Saturdays and Sundays, and closed for lamping purposes as required on Mondays and Thursdays.

Drivers must not exceed a speed of 15 miles an hour when passing over the Junction leading to and from the platform line and sidings in either direction.

Week ending February 5th 1916.

Tuffley Junction:- From Monday next, January 31st, Drivers of down trains must, when passing Tuffley Junction, give three whistles if requiring to enter Quedgeley Sidings.

Week ending June 3rd 1916.

Quedgeley:- On Sunday next, May 28th, from 6.0 a.m. until about 5.30 p.m., the Engineer will have possession of the Shunting Siding for the purpose of laying in points.

A ballast train will leave Gloucester for Quedgeley at 6.0 a.m. and return about 5.30 p.m.

Week ending July 8th 1916.

Quedgeley:- On Sunday next, July 2nd, this Signal Box will be open from 6.0 a.m. to 5.30 p.m. in connection with Engineering operations in the sidings.

Week ending March 10th 1917.

Hours of duty at Midland and Joint Line Signal Boxes.

Quedgeley:- 5.40 a.m. to 8.40 p.m. on Monday, 1.0 a.m. to 8.40 p.m. Tuesday to Friday, 1.0 a.m. to 7.0 p.m. on Saturday, and as required for the running of trains to and from Quedgeley on Sundays.

Week ending August 4th 1917.

Quedgeley:- On Sunday next, July 29th, commencing at 6.0 a.m., the following alterations will be made:-

The short dead-end siding will be lengthened about 85 yards so as to form a shunting siding.

A new two-armed bracket signal near the Signal Box to regulate the running of trains from Quedgeley Sidings will be brought into use; the right-hand arm will apply to trains going on to the up main line, and the left-hand arm to trains going into the new shunting siding.

A new siding alongside the present outside siding to be named "No. 3" siding, and a new single-armed dwarf signal fixed outside the new No. 3 siding to regulate the running of trains from the new siding up to the new two-armed bracket signal described above will be brought into use.

The single-armed signal regulating the running of trains from the outside siding will be placed about 20 yards further from the Signal Box.

Some of the locking will be removed for alterations.

Week ending December 21st 1918.

Quedgeley:- This Signal Box is only open for the running of workmen's and freight trains to and from Quedgeley on weekdays.

Week ending November 6th 1920.

Hours of duty at Midland and Joint Line Signal Boxes.

Quedgeley:- Open only for the running of freight trains to and from Quedgeley on weekdays.

Week ending March 20th 1926.

On Monday next, March 15th, from 8.0 a.m. until about 12.0 noon, the Engineer will, between the running of trains have possession of the down main line at Quedgeley for the purpose of taking out points.

Quedgeley:- On the same day, commencing at 8.0 a.m., the facing connection in the down main line and the signal regulating the running of trains and engines approaching on the down main line and going into the sidings will be dispensed with.

Week ending May 1st 1926.

On Sunday next, April 25th, from 7.0 a.m. until about 1.0 p.m., the Engineer will have possession of the up main line, and, from about 1.0 p.m. until about 5.0 p.m., possession of the down main line between Tuffley Junction and Naas Crossing. During the operation, single line working will be adopted on the up and down main lines, alternately, as required, between Naas Crossing and Tuffley Junction. Mr. Robinson will appoint a Pilotman, and the Tuffley Junction Signal Box will be open.

A ballast train will leave Barnwood at 6.30 a.m. for Tuffley Junction and return about 5.0 p.m., and the necessary Signal Boxes will be open as long as required.

Quedgeley:- On the same day, commencing at 7.0 a.m., the Quedgeley Signal Box and the points and signals worked therefrom, will be dispensed with.

Naas Crossing:- On the same day, commencing at 7.0 a.m., the inner distant signal for the down main line will be dispensed with.

On Wednesday next, April 28th, commencing at 9.0 a.m., the distant signal for the down main line will be superseded by a slightly shorter signal.

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[Notes]

PRO. RAIL963/110

MIDLAND RAILWAY SUPPLEMENT TO NO.25 APPENDIX TO THE WORKING TIME TABLE.  
SEPTEMBER 1ST 1917, UNTIL FURTHER NOTICE.

HOURS OF DUTY AT MIDLAND AND JOINT LINE SIGNAL BOXES.

Quedgeley: Same as at week ending March 10th 1917.

PRO. RAIL957/1

GOVERNMENT CONTROL OF RAILWAYS:

August 5th, 1914, to August 15th, 1921. (LMSR Time Table)

MIDLAND RAILWAY EXTRA WORKS  
[Monthly Record of Actual Costs]

GLOUCESTER. Siding accommodation &c for National Shell Factory.  
The cost to be borne by H. M. War Office. Estimate: £11,535.

25th November 1915 - 23rd November 1916.

	£	s	d
Pt. Way	6942.	11.	2
Signals	973.	7.	8
Telegraphs	129.	12.	7
Loco Dept	66.	4.	6
Buildings	41.	2.	6

Reported complete 20th July 1916.

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GOSSINGTON near Coaley. Siding accommodation to Govt. Store. Estimate: £6,000.

17th February 1916 - 31st August 1916.

	£	s	d
Pt. Way	3574.	16.	1
Signals	896.	0.	9
Telegraphs	95.	17.	5

Reported complete 22nd June 1916.

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GLOUCESTER (Quedgeley). Additional siding accommodation. Army Ordnance Depot.

8th June 1916 - 31st August 1916.

Estimate: £2,050.

	£	s	d
Pt. Way	885.	16.	9

Reported complete 16th November 1916.

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PRO. RAIL491/1133

GLOUCESTER. Extension of siding, Quedgeley.

Sidings &c H. M. War Office. Estimate: £115.

18th January 1917 - 15th February 1917.

	£	s	d
Wages	15.	9.	3
War Bonus		1.	8
Engine Power	6.	0.	0
Pt. Way Materials used	27.	16.	8

Reported complete 19th April 1917.

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QUEDGELEY, Gloucester. Siding connection and extension of dead end siding.  
(Detonator Stores)

Sidings &c War Office. Estimate: £505.

5th July 1917 - 25th October 1917.

	£	s	d
Pt. Way	335.	13.	0
Signals	11.	11.	8
Telegraphs	5.	19.	5

Reported complete 15th November 1917

11th April 1918:- To Traffic Department. Signalman's Wages &c. £1. 6s. 5d.

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NO.78 MIDLAND RAILWAY EXCURSION TIME TABLE  
December 10th, to December 18th, 1915

WORKMEN'S TRAINS

Commencing on Monday next, December 13th, and until further notice, new Workmen's trains and Empty Carriage trains will run on Weekdays and Sundays as shewn below:-

		Weekdays and Sundays	Mondays to Fridays inclusive	Saturdays and Sundays
		Workmen's Train	Empty Carriages	Empty Carriages
GLOUCESTER	dep.	7 30 a.m.	6 43 p.m.	4A42 p.m.
QUEDGELEY	arr.	7 40 "	6 55 "	4 52 "
		Empty Carriages	Workmen's Train	Workmen's Train
QUEDGELEY	dep.	7 55 a.m.	7 10 p.m.	5 0 p.m.
GLOUCESTER	arr.	8 5 "	7 20 "	5 10 "

A - In the event of the 2.25 p.m. from Derby to Bristol running 5 minutes or more late on Saturdays, the 4.42 p.m. E.C. from Gloucester must leave at 4.30, and arrive at Quedgeley at 4.40 p.m.

Gloucester G and P.

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S.T.N.  
233.

Derby, December 9th, 1915.

SPECIAL TRAIN NOTICE  
WORKMEN'S TRAINS between GLOUCESTER and QUEDGELEY

Referring to page 594, No.78 Excursion Programme, commencing on Thursday next, Dec. 16th, the carriages forming the 7-30 am Workmen's Train (Weekdays and Sundays) from Gloucester will be stabled at Quedgeley until the return trip, and the

- 7-55 am E.C. Quedgeley to Gloucester (Weekdays and Sundays)
- 6-43 pm E.C. Gloucester to Quedgeley (Mondays to Fridays inclusive)
- 4-42 pm E.C. Gloucester to Quedgeley (Saturdays and Sundays)

will be LIGHT ENGINES only.

-----

S.T.N.  
244.

Midland Railway, Derby.  
December 17th, 1915.

SPECIAL TRAIN NOTICE  
WORKMEN'S TRAINS  
Gloucester and Quedgeley  
FRIDAY, DECEMBER 24th

6.15 p.m. Light Engine Gloucester to Quedgeley and 7.10 p.m. Workmen's Train Quedgeley to Gloucester will run as under on this date:-

		Light Engine		Workmen's Train
GLOUCESTER	dep.	2 45 p.m.	QUEDGELEY	dep.
QUEDGELEY	arr.	2 55 "	GLOUCESTER	arr.
				3 15 p.m.
				3 25 "

Continued/

DECEMBER 25th & 26th

The light engines and Workmen's trains between Gloucester and Quedgeley (page 594, No.78 Excursion Time Table, and S.T.N. 233) will be cancelled on these dates.

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["Gloucester G & P". G = Provide Guard. P = Loco. provide power.]

PRO. RAIL963/107

MIDLAND RAILWAY WORKING TIME-TABLE, JANUARY TO JUNE, 1916.

Notice for March, 1916.

To be attached to the October, 1915, Working Time-Table.

Workmen's trains, Empty Carriage trains, and Light engines run as under between Gloucester and Quedgeley:-

	<u>WEEKDAYS</u>					
	W	W	S	EC	SO	SO
	am	am	LE	pm	LE	EC
			pm	pm	am	pm
GLOUCESTER dep.	6 0	8 0	5 40	6 20	11 45	4 5
			A	B		
QUEDGELEY arr.	6 10	8 10	5 50	6 29	11 55	4 18

SUNDAYS

Will not run on March 19th, April 9th and 30th, and May 21st.

	W	LE
	am	pm
GLOUCESTER dep.	6 0	4 5
QUEDGELEY arr.	6 10	4 18

WEEKDAYS

	EC	LE	S	S	SO	SO
	am	am	W	W	W	W
			pm	pm	pm	pm
QUEDGELEY dep.	6 25	8 20	6 5	7 10	12 22	5 0
		A				
GLOUCESTER arr.	6 35	8 30	6 13	7 20	12 30	5 10

SUNDAYS

Will not run on March 19th, April 9th and 30th, and May 21st.

	LE	W
	am	pm
QUEDGELEY dep.	6 25	5 0
GLOUCESTER arr.	6 35	5 10

A - Will work Empty Carriages on Tuesdays. B - To start from Up Platform.  
 S - Does not run on Saturdays. SO - Saturdays only.  
 W - Workmen.

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MIDLAND RAILWAY WORKING TIME-TABLE, JULY 14TH, 1916.

GLOUCESTER AND QUEDGELEY.

	W	W	W	F	EC SO	LE SO
	am	am	am	am	pm	pm
GLOUCESTER dep.	6 0	7 15	8 0	10 15	12 3	12 50
QUEDGELEY arr.	6 10	7 25	8 10	10 30	12 12	12 57
	EC SO	LE S	EC S	EC S		
	pm	pm	pm	pm		
GLOUCESTER dep.	4 5	4A50	5 40	6B20		
QUEDGELEY arr.	4 18	4 58	5 50	6 29		
	EC	EC	LE A	W SO	F S	W SO
	am	am	am	am	am	pm
QUEDGELEY dep.	6 25	7 32	8 20	11 40	11 40	12 22
GLOUCESTER arr.	6 35	7 40	8 30	11 48	11 55	12 30
	F SO	W SO	W S	W S	W S	
	pm	pm	pm	pm	pm	
QUEDGELEY dep.	1 55	5 0	5 20	6 5	7 10	
GLOUCESTER arr.	2 10	5 10	5 30	6 13	7 20	

A - Empty Carriages on Tuesdays. B - Starts from Up Platform.  
 S - Does not run on Saturdays. SO - Saturdays only.  
 W - Workmen. F - Freight.

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MIDLAND RAILWAY WORKING TIME-TABLE, JULY 14th, 1916.

Notice for October, 1916.

To be attached to the July, 1916, Working Time-Table.

Workmen's, &c., Trains between Gloucester and Quedgeley run as under:-

	W	W	W	W	F	EC SO	EC SO	
	am	am	am	am	am	am	pm	
GLOUCESTER dep.	5 50	6 30	7 15	8 3	10 15	11B20	12B 3	
QUEDGELEY arr.	6 0	6 40	7 25	8 13	10 30	11 30	12 12	
	EC SO	EC SO	LE A	EC S	EC S	EC S		
	pm	pm	pm	pm	pm	pm		
GLOUCESTER dep.	1B25	2B18	4 5	4B50	5B40	6B20		
QUEDGELEY arr.	1 33	2 25	4 18	4 58	5 50	6 29		
	EC	EC	EC	LE A	W SO	F S	W SO	W SO
	am	am	am	am	am	am	am	pm
QUEDGELEY dep.	6 7	6 53	7 32	8 20	11 5	11 40	11 40	1 10
GLOUCESTER arr.	6 15	7 3	7 40	8 30	11 13	11 55	11 48	1 18
	W SO	F SO	W S	W SO	W S	W S	W S	
	pm	pm	pm	pm	pm	pm	pm	
QUEDGELEY dep.	2 0	2 40	4 35	5 0	5 20	6 5	7 10	
GLOUCESTER arr.	2 10	2 55	4 45	5 10	5 30	6 13	7 20	

A - Empty Carriages on Tuesdays. B - Starts from Up Platform.

S - Does not run on Saturdays. SO - Saturdays only.

W - Workmen. F - Freight.

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MIDLAND RAILWAY WORKING TIME-TABLE, JANUARY 1ST, 1917.

GLOUCESTER AND QUEDGELEY.

	EC	W	W	W	W	F	EC	
	M						SO	
	am	am	am	am	am	am	am	
GLOUCESTER dep.	3 30	5 50	6 30	7 15	8 3	10 15	11B20	
QUEDGELEY arr.	3 40	6 0	6 40	7 25	8 13	10 30	11B30	
	EC	EC	EC	LE	W	EC	EC	
	SO	SO	SO	A	S	S	S	
	am	pm	pm	pm	pm	pm	pm	
GLOUCESTER dep.	11B55	1B40	2B18	4 5	4B50	5B40	6B20	
QUEDGELEY arr.	12 5	1 48	2 25	4 18	4 58	5 50	6 29	
	W	EC	EC	EC	LE	W	F	W
	M				A	SO	S	SO
	am	am	am	am	am	am	am	am
QUEDGELEY dep.	4 0	6 7	6 53	7 32	8 20	11 5	11 40	11 40
GLOUCESTER arr.	4 10	6 15	7 3	7 40	8 30	11 13	11 55	11 48
	W	W	F	W	W	W	W	W
	SO	SO	SO	S	SO	S	S	S
	pm	pm	pm	pm	pm	pm	pm	pm
QUEDGELEY dep.	1 10	2 0	2 40	4 35	5 0	5 20	6 5	7 10
GLOUCESTER arr.	1 18	2 10	2 55	4 43	5 10	5 30	6 13	7 20

A - Empty Carriages on Tuesdays. B - Starts from Up Platform.  
 S - Does not run on Saturdays. SO - Saturdays only.  
 M - Does not run on Mondays. W - Workmen. F - Freight.

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Notice for January, 1917.

To be attached to the January, 1917, Working Time-Table.

QUEDGELEY AND GLOUCESTER.

1.10 pm (SO) Workmen Quedgeley to Gloucester } Will run as under:-  
 5.20 pm (S) Workmen Quedgeley to Gloucester }

	SO	S
	pm	pm
QUEDGELEY dep.	1 17	5 32
GLOUCESTER arr.	1 30	5 42

TRANSFER TRIPS BETWEEN MIDLAND AND GREAT WESTERN COMPANIES AT GLOUCESTER.  
 The Great Western Company will work a trip, with Quedgeley traffic, from Gloucester New Yard (G.W.) at 9.30 am., arriving Gloucester Upper Yard (Mid.) at 9.35 am., returning E.& B. from Gloucester Upper Yard (Mid.) at 9.55 am., arriving Gloucester New Yard (G.W.) at 10.0 am.

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MIDLAND RAILWAY WORKING TIME-TABLE, JANUARY 1ST, 1917.

Notice for February, 1917.

To be attached to the January, 1917, Working Time-Table.

The service of trains between Gloucester and Quedgeley, shown on page 429, has been revised as under:-

		EC	W	W	W	W	F	F	EC
		M					SO	S	SO
		am	am	am	am	am	am	am	am
CHELTENHAM									
(Lansdown) dep.					7 10				
GLOUCESTER arr.					7 20				
QUEDGELEY dep.	3 30	5 50	6 30	7 25	8 3	9 50	10 15	11b25	
QUEDGELEY arr.	3 40	6 0	6 40	7 35	8 13	10 8	10 30	11 35	
		EC	EC	EC	LE	W	LE	EC	W
		SO	SO	SO	A	S	S	S	S
		pm	pm	pm	pm	pm	pm	pm	pm
CHELTENHAM									
(Lansdown) dep.	12 20						6 10		
GLOUCESTER arr.							6 25		
QUEDGELEY dep.		1b40	2b18	4 5	4b55	5 25		6 50	
QUEDGELEY arr.	12 45	1 48	2 25	4 18	5 3	5 35		7 0	
		W	W	EC	EC	LE	LE	W	F
		M						SO	S
		am	am	am	am	am	am	am	am
QUEDGELEY dep.	4 0	6 7		7 25	7e12	8d20	11 10	11 40	
GLOUCESTER arr.	4 10	6 15		7 35	7e52	8d30	11 18	11 55	
QUEDGELEY dep.			6 35						
CHELTENHAM arr.			6 50						
(Lansdown)									
		W	W	W	F	W	W	W	W
		SO	SO	SO	SO	S	SO	S	S
		am	pm	pm	pm	pm	pm	pm	pm
QUEDGELEY dep.	11 45	1 17	2 0	3 0	4 40	5 0	5 32	6 5	7 10
GLOUCESTER arr.	11 53	1 30	2 10	3 15	4 48	5 10	5 42	6 13	7 20
QUEDGELEY dep.	11 58						5 47		
CHELTENHAM arr.	12 8						6 0		
(Lansdown)									

b - Starts from Up Platform. d - Empty Carriages on Tuesdays and Wednesdays.  
 e - Empty Carriages on Saturdays. S - Does not run on Saturdays.  
 M - Does not run on Mondays. SO - Saturdays only. W - Workmen. F - Freight.

Workmen's trains run as under on the dates named:-  
 Sundays, February 4th, 11th, 18th, and 25th.  
 Sundays, March, 4th, 11th, 18th, and 25th.

		W	LE		LE	W
		am	pm		am	pm
GLOUCESTER dep.	9 0	5 10		QUEDGELEY dep.	9 20	5 30
QUEDGELEY arr.	9 10	5 20		GLOUCESTER arr.	9 30	5 40

MIDLAND RAILWAY WORKING TIME-TABLE.  
PASSENGER SERVICE OCTOBER 1ST, 1917, UNTIL FURTHER NOTICE.

		<u>Weekdays</u>								
		EC	W	W	W	W	EC	EC	EC	
		M					SO	SO	SO	
		am	am	am	am	am	am	pm	pm	
CHELTENHAM										
(Lansdown) dep.					7 10			12 20		
GLOUCESTER	arr.				7 20					
	dep.	3+30	5 50	6 30	7 25	8 3	11 25		1 43	
QUEDGELEY	arr.	3 40	6 0	6 40	7 35	8 13	11 35	12 45	1 51	

		<u>Sundays</u>								
		LE	EC	LE	EC	W	LE			
		ec	S	S	S					
		pm	pm	pm	pm	am	pm			
CHELTENHAM										
(Lansdown) dep.					6 25					
GLOUCESTER	arr.				6 42					
	dep.	4 5	5 5	5 30	6 50	9 0	5 10			
QUEDGELEY	arr.	4 18	5 15	5 40	7 0	9 10	5 20			

+ - Conveys men to light up 4 15 a.m. ex Quedgeley.  
ec - Empty Carriages on Tuesdays, Wednesdays, and Saturdays.

		<u>Weekdays</u>								
		W	W	W	LE	LE	W	W	W	
		M	a	a	am	b	SO	SO	SO	
		am	am	am	am	am	am	am	pm	
QUEDGELEY	dep.	4 15	6 12	7 5	7 42	8 20	11 10	11 45	1 17	
GLOUCESTER	arr.	4 25	6 22	7 15	7 50	8 28	11 18	11 53	1 30	
	dep.		6 27					11 58		
CHELTENHAM	arr.		6 40					12 8		
(Lansdown)										

		<u>Sundays</u>								
		W	W	W	W	W	W	LE	W	
		SO	S	SO	S	S	S			
		pm	pm	pm	pm	pm	pm	am	pm	
QUEDGELEY	dep.	2 0	4 40	5 0	5 32	6 5	7 10	9 20	5 30	
GLOUCESTER	arr.	2 10	4 48	5 10	5 42	6 13	7 20	9 30	5 40	
	dep.				5 47					
CHELTENHAM	arr.				6 0					
(Lansdown)										

a - Empty Carriages on Mondays.  
b - Empty Carriages on Tuesdays and Wednesdays.

M - Does not run on Mondays. S - Does not run on Saturdays. W - Workmen.

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MIDLAND RAILWAY WORKING TIME-TABLE.  
 FREIGHT SERVICE BETWEEN GLOUCESTER AND BRISTOL AND BRANCHES,  
 OCTOBER 1ST, 1917, UNTIL FURTHER NOTICE.

Weekdays

		Mineral am	Stopping Freight am	E&B pm	Through Freight pm
GLOUCESTER	dep.	10 15	11 20	-	6 30
BARTON STREET JC.		10 17	11 22	-	6 32
TUFFLEY JC.		-	-	3 30	-
QUEDGELEY	arr.	10 30	-	3 35	6 45
COALEY JC.	arr.	=====	11 55	=====	=====
	dep.		12 10		
GOSSINGTON	arr.		12 15		
	dep.		12 45		

(To Bristol)  
 -extract-

		Empties am	Stopping Freight am	
BRISTOL (St. Philip's)	dep.	10 20	10 50	
GOSSINGTON	arr.	-	2 5	
	dep.	-	2 45	w - Take water.
COALEY_JC.	arr.	-	2 50	* - Stops to shunt
	dep.	-	4 20	for or follow
QUEDGELEY	arr.	12 40	-	other trains,
	dep.	12 52	-	or for staff,
BARTON STREET JC.		-	4 58	tablet, or
GLOUCESTER	arr.	1w20	5 0	examination.
	dep.	1*25		
BARNWOOD SIDINGS	arr	1 30		

-extract-                      -extract-

		Mineral S am	Mineral SO pm		Mineral pm
QUEDGELEY	dep.	11 40	12 25	4 15	7 30
BARTON STREET JC.		11 52	12 38	4 32	7 43
GLOUCESTER	arr.	11 55	12 40	4 35	7 45
	dep.	1 5	1 5	=====	=====
BARNWOOD SIDINGS.	arr.	1 10	1 10		

S - Does not run on Saturdays. SO - Saturdays only.

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Complete time-tables for Gloucester - Bristol traffic follows.

MIDLAND RAILWAY WORKING TIME-TABLE.  
 FREIGHT SERVICE BETWEEN GLOUCESTER AND BRISTOL AND BRANCHES,  
 OCTOBER 1ST, 1917, UNTIL FURTHER NOTICE.

Weekdays

		Stopping Freight am	
GLOUCESTER	dep.	11 20	
BARTON STREET JC.		11 22	
COALEY JC.	arr.	11 55	
	dep.	12 10	
GOSSINGTON	arr.	12 15	
	dep.	12 45	
BERKELEY ROAD	arr.	12 50	
	dep.	1 8	
CHARFIELD	arr.	1 25	
	dep.	2 40	
WICKWAR		3 2	
YATE	arr.	3 16	
	dep.	5 30	
WESTERLEIGH N. JC.		5 37	
WESTERLEIGH S. JC.	arr.	5 40	
	dep.	6 35	
BRISTOL (St. Philip's)	arr.	7 5	

		Empties am	Stopping Freight to Barnwood am
BRISTOL (St. Philip's)	dep.	10 20	10 50
LAWRENCE HILL JC.		10 22	10 52
FISH PONDS	arr.	10*29	-
	dep.	10*30	11 2
MANGOTSFIELD STA. JC.		10 36	11 8
MANGOTSFIELD N. JC.		-	11 20
WESTERLEIGH S. JC.		10 45	-
WESTERLEIGH N. JC.	arr.	10 47	11*27
	dep.	11 18	11*30
YATE	arr.	-	11*36
	dep.	11 27	11*41
WICKWAR	arr.	-	11 55
	dep.	-	12 8
CHARFIELD	arr.	-	12w15
	dep.	-	12*20
BERKELEY ROAD	arr.	-	12 37
	dep.	12 3	2 0
GOSSINGTON	arr.	-	2 5
	dep.	-	2 45
COALEY JC.	arr.	-	2 50
	dep.	-	4 20
STANDISH JC.		12 28	4 36
QUEDGELEY	arr.	12 40	-
	dep.	12 52	-
BARTON STREET JC.		-	4 58
GLOUCESTER	arr.	1w20	5 0
	dep.	1*25	-
BARNWOOD SIDINGS	arr.	1 30	-

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[Timing points only listed here]

MIDLAND RAILWAY WORKING TIME-TABLE.  
PASSENGER SERVICE JANUARY 1ST, 1918, UNTIL FURTHER NOTICE.

		<u>Weekdays</u>							
		LE	W	W	W	W	EC	EC	EC
		M					SO	SO	SO
		am	am	am	am	am	am	pm	pm
CHELTENHAM	(Lansdown) dep.				7 10			12 20	
GLOUCESTER	arr.				7 20				
	dep.	3 30	5 50	6 30	7 25	8 3	11 25		1 43
QUEDGELEY	arr.	3 40	6 0	6 40	7 35	8 13	11 35	12 45	1 51

		<u>Sundays</u>							
		EC	W	W		W	LE		
		++	S	S					
		pm	pm	pm		am	pm		
CHELTENHAM	(Lansdown) dep.			6 25					
GLOUCESTER	arr.			6 42					
	dep.	4 5	5 5	6 50		9 0	5 10		
QUEDGELEY	arr.	4 18	5 15	7 0		9 10	5 20		

++ - Empty Carriages on Tuesdays, Wednesdays, and Saturdays.

		<u>Weekdays</u>								
		W	W	W	LE	LE	W	W	W	
		M	a	a	am	b	SO	SO	SO	
		am	am	am	am	am	am	am	pm	
QUEDGELEY	dep.	4 15	6 12	7 5	7 42	8 55	11 10	11 45	1 17	
GLOUCESTER	arr.	4 25	6 22	7 15	7 50	9 5	11 18	11 53	1 30	
	dep.		6 27					11 58		
CHELTENHAM	arr.		6 40					12 8		
	(Lansdown)									

		<u>Sundays</u>							
		W	W	W	W	W	LE	LE	W
		SO	S	SO	S	S	S		
		pm	pm	pm	pm	pm	pm	am	pm
QUEDGELEY	dep.	2 0	4 40	5 0	5 32	6 5	7 10	9 20	5 30
GLOUCESTER	arr.	2 10	4 48	5 10	5 42	6 13	7 20	9 30	5 40
	dep.				5 47				
CHELTENHAM	arr.				6 0				
	(Lansdown)								

a - Empty Carriages on Mondays.

b - Empty Carriages on Tuesdays and Wednesdays.

M - Does not run on Mondays. S - Does not run on Saturdays. W - Workmen.

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MIDLAND RAILWAY WORKING TIME-TABLE.  
 FREIGHT SERVICE BETWEEN GLOUCESTER AND BRISTOL AND BRANCHES,  
 JANUARY 1ST, 1918, UNTIL FURTHER NOTICE.

Weekdays only

		Mineral am	Stopping Freight am	E&B (10 50 am ex Bristol)	E&B pm	Through Freight pm
GLOUCESTER	dep.	10 15	11 20		-	6 30
BARTON STREET JC.		10 17	11 22	-	-	6 32
TUFFLEY JC.		-	-	-	3 30	-
QUEDGELEY	arr.	10 30	-	-	3 35	6 45
COALEY JC.	arr	=====	11 55	-	=====	=====
	dep.		12 10	3 5		
GOSSINGTON	arr.		12 15	3 10		
	dep.		12 45	=====		
			To			
			Bristol			
			(St. Philip's)			

		Mineral S am	Mineral SO pm	Empties pm
BRISTOL (St. Philip's)	dep.	-	-	10 20
QUEDGELEY	arr.	=====	=====	12 40
	dep.	11 40	12 30	12 52
BARTON STREET JC.		11 52	12 43	-
GLOUCESTER	arr.	11 55	12 45	1w20
	dep.	12 55	12 55	1*25
BARNWOOD SIDINGS	arr.	1 0	1 0	1 30

-extract-

		Stopping Freight pm	Mineral pm	Mineral pm
GOSSINGTON	dep.	3+55	-	-
COALEY JC.	arr.	4 0	=====	=====
QUEDGELEY	dep.	=====	4 15	7 30
BARTON STREET JC.			4 32	7 43
GLOUCESTER	arr.		4 35	7 45

S - Does not run on Saturdays. SO - Saturdays only.  
 + - Worked by 10 50 am Bristol.  
 w - Take water.  
 \* - Stops to shunt for or follow other trains,  
 or for staff, tablet, or examination.

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MIDLAND RAILWAY WORKING TIME-TABLE.

Notice for April, 1918.

To be attached to the January, 1918, Working Time-Table.

Workmen's trains between Cheltenham, Gloucester, and Quedgeley, on weekdays, run as under, instead of as shewn in the January Passenger Working Time-Table:-

						<u>Saturdays only</u>		
						EC	EC	EC
						am	pm	pm
CHELTENHAM (Lansdown) dep.					am			
GLOUCESTER arr.					am			
GLOUCESTER dep.	5 50	6 30	7 25	8 3	9 10	11 25	12 8	1 0
QUEDGELEY arr.	6 0	6 40	7 35	8 13	9 20	11 35	12 18	1 10

<u>Saturdays only</u>			<u>Saturdays excepted</u>					
EC	EC	EC	LE	EC	EC	EC	EC	EC
pm	pm	Q	A	pm	D	pm	pm	C
pm	pm	pm	pm	pm	pm	pm	pm	pm
CHELTENHAM (Lansdown) dep.		2 34						7 45
GLOUCESTER arr.		2 50						7 59
GLOUCESTER dep.	1 43		4 5	4 5	4 58	5 49	6 20	8 2
QUEDGELEY arr.	1 51		4 15	4 15	5 8	5 58	6 35	8 12

					<u>Saturdays only</u>							
					EC	EC	EC	EC	LE			
					am	am	am	am	A			
					am	am	am	am	am			
QUEDGELEY dep.					6 7	6 52	7 42	8 20	9 30	11 10	11 45	12 45
GLOUCESTER arr.					6 15	7 3	7 50		9 40	11 18	11 53	12 53
GLOUCESTER dep.												
CHELTENHAM arr. (Lansdown)								8 45				

<u>Saturdays only</u>			<u>Saturdays excepted</u>						LE
pm	pm	Q	pm	pm	pm	pm	pm	pm	pm
pm	pm	pm	pm	pm	pm	pm	pm	pm	pm
QUEDGELEY dep.	1 22	2 0	5 0	4 40	5 32	6 5	6 15	7 10	8 35
GLOUCESTER arr.	1 30	2 8	5 10	4 50	5 41	6 13	6B25	7 18	8 45
GLOUCESTER dep.		2 11						7 20	
CHELTENHAM arr. (Lansdown)		2 24						7 33	

- A - Empty Carriages on Tuesdays and Wednesdays.
- B - Stable at Gloucester.
- C - Stable at Quedgeley.
- D - Two Engines.
- Q - Runs when required.

MIDLAND RAILWAY WORKING TIME-TABLE, JANUARY, 1918.

Notice for July, 1918.

To be attached to the January, 1918, Working Time-Table.

Workmen's trains between Cheltenham, Gloucester, and Quedgeley, on Weekdays, run as under, instead of as shewn in the January Passenger Working Time-Table:-

						<u>Saturdays only</u>		
						EC	EC	EC
						am	pm	pm
CHELTHENHAM								
(Lansdown) dep.					8 56			
GLOUCESTER arr.					9 7			
dep.	5 50	6 30	7 25	8 3	9 10	11 25	12 8	1 0
QUEDGELEY arr.	6 0	6 40	7 35	8 13	9 20	11 35	12 18	1 10

<u>Saturdays only</u>				<u>Saturdays excepted</u>				
EC	EC	EC	Q	LE	EC	EC		EC
pm	pm	pm	pm	pm	pm	pm	pm	pm
CHELTHENHAM								
(Lansdown) dep.		2 34						7 45
GLOUCESTER arr.		2 50						7 59
dep.	1 43		4 5	4 5	4 58	5 49	6 50	8 2
QUEDGELEY arr.	1 51		4 15	4 15	5 8	5 58	7 0	8 12

						<u>Saturdays only</u>				
						E	EC	EC	EC	LE
						am	am	am	am	am
QUEDGELEY dep.						6 7	6 52	7 42	8 20	9 30
GLOUCESTER arr.						6 15	7 3	7 50	9 40	11 18
dep.										11 45
CHELTHENHAM arr.									8 42	12 45
(Lansdown)										12 53

<u>Saturdays only</u>				<u>Saturdays excepted</u>						LE
				Q						
pm	pm	pm	pm	pm	pm	pm	pm	pm	pm	pm
QUEDGELEY dep.	1 22	2 0	5 0	4 40	5 32	6 5	6 15	7 10	8 35	
GLOUCESTER arr.	1 30	2 8	5 10	4 50	5 41	6B13	6 25	7 18	8 45	
dep.		2 11						7 20		
CHELTHENHAM arr.		2 24						7 33		
(Lansdown)										

- A - Empty Carriages on Tuesdays and Wednesdays.
- B - Stable at Gloucester.
- C - Stable at Quedgeley.
- D - Two Engines.
- E - Empty Carriages on Mondays.
- Q - Runs when required.

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MIDLAND RAILWAY WORKING TIME--TABLE.

Notice for October, 1918.

To be attached to the January, 1918, Working Time-Table.

Workmen's trains and Empty Carriage trains between Cheltenham, Gloucester and Quedgeley, on weekdays, run as under instead of as shewn in July Working Notice.

						<u>Saturdays only</u>			
						EC	EC	EC	EC
						L			Q
						am	pm	pm	pm
CHELTENHAM		G							
(Lansdown) dep.	am	am	am	am	am				
GLOUCESTER arr.				7 40			12 45		
dep.	5 50	6 30	7 25	7 58	9 10	11 25		1 43	4 5
QUEDGELEY arr.	6 0	6 40	7F35	8 8	9F20	11 35	1 10	1 51	4 15

Saturdays excepted

						LE	EC	EC		H
						A				pm
						pm	pm	pm	pm	
CHELTENHAM										
(Lansdown) dep.									7 5	
GLOUCESTER arr.										
dep.	4 5	4 58	5 55	6 50						
QUEDGELEY arr.	4 15	5D 8	6 5	7 0	7F30					

							EC	LE	EC	LE
							M			A
							am	am	am	am
QUEDGELEY dep.	6 7	6 55	7 5	7 42	8 15	9 30				
GLOUCESTER arr.	6 15	7 5	7 13	7 50	8 23	9 40				
dep.		7 10								
CHELTENHAM arr.		7 25								
(Lansdown)										

Saturdays only

							Q
							pm
							am
QUEDGELEY dep.	11 10	11 45	12 10	1 22	2 0	5 0	
GLOUCESTER arr.	11 18	11B53	12 18	1 30	2B 8	5 10	
dep.			12 20				
CHELTENHAM arr.			12 36				
(Lansdown)							

Saturdays excepted

							LE
							pm
							pm
QUEDGELEY dep.	4 40	5 32	6 3	6 15	7 10	8 0	
GLOUCESTER arr.	4 50	5 41	6 11	6 25	7B18	8 10	
dep.			6 13				
CHELTENHAM arr.			6H25				
(Lansdown)			K				

A - Empty Carriages on Tuesdays and Wednesdays. B - Stable at Gloucester. D - Two Engines. F - Stable at Quedgeley. G - Two Engines except on Mondays. H - 6.17 p.m. (G.W.) Gloucester to Lansdown Junction to run 8 minutes later. J - Empty Carriages on Mondays. K - Empty Carriages run on to Down Goods Line and stand there until ready to leave and form 7.5 p.m. Workmen's train from Cheltenham. L - Two Engines. Q - Runs when required.

MIDLAND RAILWAY EXCURSION TIME TABLE, 1918.

FRIDAY, SATURDAY, AND SUNDAY, MARCH 29th, 30th, and APRIL 1st.

The Workmen's trains between Cheltenham, Gloucester, and Quedgeley, shewn on S.T.N. 537 of February 6th, will be cancelled on the above days.

CHELTHENHAM, GLOUCESTER, AND QUEDGELEY WORKMEN'S TRAINS.

Monday and Tuesday, May 20th and 21st.

The Workmen's trains shewn on page 6 of the April Working Notice WILL NOT RUN.

GLOUCESTER AND QUEDGELEY WORKMEN'S TRAINS.

The following trains will be cancelled on the dates named:-

Monday and Tuesday, August 5th and 6th.

The whole of the service shewn in S.T.N. 709.

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PRO. RAIL963/113 [also 114, 116.]

MIDLAND RAILWAY WORKING TIME-TABLE.

PASSENGER SERVICE FROM MAY 5TH, 1919, AND FROM OCTOBER 1ST, 1919.

DERBY AND BRISTOL AND BRANCHES.

	W	EC	
		S	
	am	pm	
GLOUCESTER dep.	8 15	4 58	
QUEDGELEY arr.	8 23	5 8	
	LE	W	W
		SO	S
	am	pm	pm
QUEDGELEY dep.	8 35	12 10	5 32
GLOUCESTER arr.	8 45	12 18	5 41

No Sunday service.

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PASSENGER SERVICE MAY 3RD, 1920, UNTIL OCTOBER 3RD, 1920.

	W	LE	LE
		SO	S
	am	pm	pm
GLOUCESTER dep.	8 0	12 45	4 58
QUEDGELEY arr.	8 8	12 53	5 8
	LE	W	W
	A	SO	S
	am	pm	pm
QUEDGELEY dep.	8 15	1 15	5 32
GLOUCESTER arr.	8 23	1 25	5 41

No Sunday service.

A - Empty Carriages on Tuesdays. S - Does not run on Saturdays.  
SO - Saturdays only. W - Workmen.

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MIDLAND RAILWAY  
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TIME TABLE  
OF  
ADDITIONAL TRAINS, &C.  
AUGUST 28th to SEPTEMBER 5th, 1920.  
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TRAIN ALTERATIONS.

Commencing on MONDAY, AUGUST 30th, the workmen's trains, and light engines (as shewn below) will be discontinued:-

8. 0 a.m. (Workmen) Gloucester to Quedgeley.  
8.15 " (L.E.) Quedgeley to Gloucester.  
12.45 " (L.E.) S.O. Gloucester to Quedgeley.

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1.15 p.m. (Workmen) S.O. Quedgeley to Gloucester.  
4.58 " (L.E.) S. Gloucester to Quedgeley.  
5.32 " (Workmen) S. Quedgeley to Gloucester.

Gloucester G note.

Gloucester and Bristol locos. note.

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S. - Does not run on Saturdays.  
S.O. - Saturdays only.

G. - Provide guard.

MIDLAND RAILWAY WORKING TIME-TABLE.  
 FREIGHT SERVICE BETWEEN GLOUCESTER AND BRISTOL AND BRANCHES,  
 MAY 5TH, 1919, UNTIL FURTHER NOTICE.

Weekdays only

		Mineral am	Stopping Freight am
GLOUCESTER	dep.	10 15	11 20
BARTON STREET JC.		10 17	11 22
QUEDGELEY	arr.	10 30	-
COALEY JC.	arr.	=====	11 55
	dep.		12 10
GOSSINGTON	arr.		12 15
	dep.		12 45
			-extract-
			To
			Bristol
			(St. Philip's)
			8 0 pm

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		Mineral am
QUEDGELEY	dep.	11 40
BARTON STREET JC.		11 52
GLOUCESTER	arr.	11 55
	dep.	12 55
BARNWOOD SIDINGS.	arr.	1 0

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OCTOBER 1ST, 1919, UNTIL FURTHER NOTICE.

Weekdays only

		Mineral am	Stopping Freight am
GLOUCESTER	dep.	10 15	11 20
BARTON STREET JC.		10 17	11 22
QUEDGELEY	arr.	10 30	-
COALEY JC.	arr.	=====	11 55
	dep.		12 10
GOSSINGTON	arr.		12 15
	dep.		12 52
			-extract-
			To
			Bristol
			(Engine Shed
			Sidings)
			6 50 pm

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		Mineral am
QUEDGELEY	dep.	11 40
BARTON STREET JC.		11 52
GLOUCESTER	arr.	11 55
	dep.	12 55
BARNWOOD SIDINGS	arr.	1 0

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MIDLAND RAILWAY WORKING TIME-TABLE.  
 FREIGHT SERVICE BETWEEN GLOUCESTER AND BRISTOL AND BRANCHES,  
 MAY 3RD, 1920, AND OCTOBER 4TH, 1920, UNTIL FURTHER NOTICE.

Weekdays only

		Mineral am	Stopping Freight am
GLOUCESTER	dep.	10 30	11 20
BARTON STREET JC.		10 32	11 22
QUEDGELEY	arr.	10 47	-
COALEY JC.	arr.	====	11 55
	dep.		12 10
GOSSINGTON	arr.		12 15
	dep.		12 52
			-extract-
			To
			Bristol
			(Engine Shed
			Sidings)
			6 50 pm

		Mineral am
QUEDGELEY	dep.	11 40
BARTON STREET JC.		11 52
GLOUCESTER	arr.	11 55
	dep.	12 55
BARNWOOD SIDINGS	arr.	1 0

PRO. RAIL963/121

MIDLAND RAILWAY

General Superintendent's Office,  
 DERBY.

FREIGHT TRAIN ALTERATIONS

-----  
 10 30am Gloucester to Quedgeley )  
 11 15am Quedgeley to Barnwood ) Will run when required only.

TRAINS OFFICE.  
 OCTOBER 28th, 1921.

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MIDLAND RAILWAY WORKING TIME-TABLE.  
 FREIGHT SERVICE BETWEEN GLOUCESTER AND BRISTOL AND BRANCHES,  
 JULY 11TH, 1921, UNTIL FURTHER NOTICE.

Weekdays only

		Mineral am	Stopping Freight am
GLOUCESTER	dep.	10 30	11 15
BARTON STREET JC.		10 32	11 17
QUEDGELEY	arr.	10 47	-
COALEY JC.	arr.	====	11 49
	dep.		12 20
GOSSINGTON	arr.		12 25
	dep.		12 52
BERKELEY ROAD	arr.		12 57
	dep.		1 12
			-extract-
			To
			Bristol
			(Engine Shed
			Sidings)
			6 50 pm

		Mineral am
QUEDGELEY	dep.	11 15
BARTON STREET JC.		11 27
GLOUCESTER	arr.	11 30
	dep.	11 40
BARNWOOD SIDINGS	arr.	11 45
		(LE from
		Gloucester)

PRO. RAIL963/121+123

OCTOBER 3RD, 1921, UNTIL FURTHER NOTICE.

		Mineral am	Stopping Freight am
GLOUCESTER	dep.	10 30	11 35
BARTON STREET JC.		10 32	11 37
QUEDGELEY	arr.	10 47	-
STANDISH JC.		====	11 56
COALEY JC.	arr.		12 8
	dep.		12 20
GOSSINGTON	arr.		12 25
	dep.		12 43
BERKELEY ROAD	arr.		12 48
	dep.		1 12
			-extract-
			To
			Bristol
			(Engine Shed
			Sidings)
			6 50 pm

Continued/

MIDLAND RAILWAY WORKING TIME-TABLE.  
 FREIGHT SERVICE BETWEEN GLOUCESTER AND BRISTOL AND BRANCHES,  
 OCTOBER 3RD, 1921, UNTIL FURTHER NOTICE.

		<u>Weekdays only</u>	Mineral
			am
QUEDGELEY	dep.		11 15
BARTON STREET JC.			11 27
GLOUCESTER	arr.		11 30
	dep.		11 40
BARNWOOD SIDINGS	arr.		11 45

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PRO. RAIL963/124

MAY 1ST, 1922, UNTIL FURTHER NOTICE.

		<u>Weekdays only</u>	Mineral	Stopping
			Q	Freight
			am	am
GLOUCESTER	dep.		10 30	11 35
BARTON STREET JC.			10 32	11 37
QUEDGELEY	arr.		10 47	-
COALEY JC.	arr.		=====	12 8
	dep.			12 20
GOSSINGTON	arr.			12 25
	dep.			12 38
BERKELEY ROAD	arr.			12 43
	dep.			1 23
				-extract-
				To
				Bristol
				(Engine Shed
				Sidings)
				8 33 pm

---

		Mineral
		Q
		am
QUEDGELEY	dep.	11 15
BARTON STREET JC.		11 27
GLOUCESTER	arr.	11 30
	dep.	11 40
BARNWOOD SIDINGS	arr.	11 45

Q - Runs when required.

MIDLAND RAILWAY WORKING TIME-TABLE.  
 FREIGHT SERVICE BETWEEN GLOUCESTER AND BRISTOL AND BRANCHES,  
 OCTOBER 2ND, 1922, UNTIL FURTHER NOTICE.

Weekdays only

		Mineral Q am	Stopping Freight am
GLOUCESTER	dep.	10 20	11 35
BARTON STREET JC.		10 22	11 37
QUEDGELEY	arr.	10 35	-
COALEY JC.	arr.	====	12 8
	dep.		12 20
GOSSINGTON	arr.		12 25
	dep.		12 38
BERKELEY ROAD	arr.		12 43
	dep.		1 23
			-extract-
			To
			Bristol
			(Engine Shed
			Sidings)
			8 33 pm

		Mineral Q am
QUEDGELEY	dep.	11 15
BARTON STREET JC.		11 27
GLOUCESTER	arr.	11 30
	dep.	11 40
BARNWOOD SIDINGS	arr.	11 45

PRO. RAIL957/3

LONDON MIDLAND AND SCOTTISH RAILWAY COMPANY  
 (MIDLAND DIVISION)  
 FREIGHT SERVICE BETWEEN GLOUCESTER AND BRISTOL AND BRANCHES,  
 JULY 9TH, 1923, AND OCTOBER 1ST, 1923, UNTIL FURTHER NOTICE.

10 20 `Q` Gloucester to Quedgeley, now Stopping Freight.

11 35 Gloucester to Bristol (St. Philip's) 8 10 pm.

11 15 `Q` Quedgeley to Barnwood Sidings, now Stopping Freight, and terminates  
Gloucester 11 30.

Q - Runs when required.

LONDON MIDLAND AND SCOTTISH RAILWAY COMPANY  
 (MIDLAND DIVISION)  
 FREIGHT SERVICE BETWEEN GLOUCESTER AND BRISTOL AND BRANCHES,  
 JULY 14TH, 1924, AND SEPTEMBER 22ND, 1924, UNTIL FURTHER NOTICE.

Weekdays only

		Stopping Freight Q am	Stopping Freight am
GLOUCESTER	dep.	10 20	11 25
BARTON STREET JC.		10 22	11 27
QUEDGELEY	arr.	10 35	-
COALEY JC.	arr.	=====	11 58
	dep.		12 20
GOSSINGTON	arr.		12 25
	dep.		12 38
BERKELEY ROAD	arr.		12 43
	dep.		1 23
			-extract-
			To
			Bristol
			(St. Philip's)
			8 10 pm

		Stopping Freight Q am
QUEDGELEY	dep.	11 15
BARTON STREET JC.		11 27
GLOUCESTER	arr.	11 30

PRO. RAIL957/8+9

JULY 13TH, 1925, AND SEPTEMBER 21ST, 1925, UNTIL FURTHER NOTICE.

Weekdays only

- 10 20 `Q` Gloucester to Quedgeley (10 35) stopping freight.
- 11 25 Gloucester to Bristol (St. Philip's) (8 10) stopping freight,  
 now suspended on Saturdays.
- 11 15 `Q` Quedgeley to Gloucester (11 30) stopping freight.

GREAT WESTERN SERVICE TIME TABLES NO.7  
 SUPPLEMENT, OCTOBER 1916, AND UNTIL FURTHER NOTICE  
 Commenced August 7th 1916.

Workmen's Trains between Stroud and Gloucester.  
 Daily - Mondays to Saturdays inclusive.

	arr.	dep.		arr.	dep.	arr.	dep.
	am	am		pm	pm	pm	pm
GLOUCESTER	--	6+35	GLOUCESTER	SX		SO	
STROUD	6 55	7 25	(Down Platform)	--	6 25	--	1 27
STONEHOUSE	7 31	7 35	STONEHOUSE	6 40	6 42	1 42	1 44
GLOUCESTER	7 50	--	STROUD	6 48	--	1 50	2+20
			GLOUCESTER			2 40	

PRO. RAIL937/119

SERVICE TIME TABLES, JANUARY 1917, AND UNTIL FURTHER NOTICE

	arr.	dep.		arr.	dep.	arr.	dep.
	am	am		pm	pm	pm	pm
STROUD	--	7 25	GLOUCESTER	SX		SO	
STONEHOUSE	7 31	7 35	(Passenger Sta)	--	6 25	--	1 27
GLOUCESTER	7 50	--	STONEHOUSE	6 40	6 42	1 42	1 44
(Passenger Sta)			STROUD	6 48	--	1 50	--

PRO. RAIL937/119

SERVICE TIME TABLES, APRIL 2ND 1917, AND UNTIL FURTHER NOTICE

	arr.	dep.		arr.	dep.	arr.	dep.
	am	am		pm	pm	pm	pm
STROUD	--	7 25	GLOUCESTER	SX		SO	
STONEHOUSE	7 31	7 35	(Passenger Sta)	--	7 30	--	1 27
GLOUCESTER	7 50	--	STONEHOUSE	--	7 46	1 42	1 44
(Passenger Sta)			STROUD	7 52	--	1 50	--

PRO. RAIL937/120

SUPPLEMENT, JULY 1917, AND UNTIL FURTHER NOTICE  
 Commenced May 25th 1917.

1.27 pm (Workmen's Train) Gloucester to Stroud (SO) now;

	arr.	dep.		arr.	dep.
	pm	pm		pm	pm
GLOUCESTER	--	1 45	STROUD	--	2+20
STONEHOUSE	2 0	2 2	GLOUCESTER	2 40	--
STROUD	2 8	--			

PRO. RAIL937/120

SERVICE TIME TABLES, NOVEMBER 1917, AND UNTIL FURTHER NOTICE

	Workmen's Train			Workgirls		Workmen's Train	
	arr.	dep.		arr.	dep.	arr.	dep.
	am	am		pm	pm	pm	pm
STROUD	--	7 25	GLOUCESTER	SX		SO	
STONEHOUSE	7 31	7 35	(Passenger Sta)	--	6 30	--	1 45
GLOUCESTER	7 50	--	STONEHOUSE	--	6 46	2 0	2 2
(Passenger Sta)			STROUD	6 52	--	2 8	--

+ Engine, Van & Guard.

GREAT WESTERN SERVICE TIME TABLES NO.7  
 SUPPLEMENT, MARCH 1918, AND UNTIL FURTHER NOTICE  
 Commenced February 16th 1918.

1.45 pm (Workgirls) Gloucester to Stroud (SO) now;

	arr.	dep.
	pm	pm
GLOUCESTER	--	1 8
STONEHOUSE	1 23	1 24
STROUD	1 30	--

SUPPLEMENT, AUGUST 1918, AND UNTIL FURTHER NOTICE  
 Commenced July 1st 1918.

Workgirls' Services - Gloucester and Stroud.

7.25 am Stroud to Gloucester (Week Days) now;

	arr.	dep.
	am	am
STROUD	--	7 15
STONEHOUSE	7 21	7 25
GLOUCESTER	7 40	--

Commenced July 6th 1918.

6.30 pm Gloucester to Stroud (SX) now;

	arr.	dep.		arr.	dep.
	pm	pm		pm	pm
GLOUCESTER	--	6 25	STROUD	--	7+ 0
STONEHOUSE	--	6 41	GLOUCESTER	7 20	--
STROUD	6 47	--			

Commenced July 6th 1918.

1.8 pm Gloucester to Stroud (SO) now;

	arr.	dep.		arr.	dep.
	pm	pm		pm	pm
GLOUCESTER	--	12 32	STROUD	--	1+ 5
STONEHOUSE	--	12 48	GLOUCESTER	1 25	--
STROUD	12 54	--			

SUPPLEMENT, SEPTEMBER 1918, AND UNTIL FURTHER NOTICE  
 Commenced August 12th 1918.

7.25 am Stroud to Gloucester (Week Days) now;

	arr.	dep.
	am	am
STROUD	--	6 50
STONEHOUSE	6 56	7 0
GLOUCESTER	7 15	--

Light Engine and Guard to leave Gloucester at 5.0 am  
 as in Service Book.

+ Return Light Engine.

GREAT WESTERN SERVICE TIME TABLES NO.7  
 SUPPLEMENT, SEPTEMBER 1918, AND UNTIL FURTHER NOTICE  
 Commenced August 12th 1918.

6.30 pm Gloucester to Stroud (SX) now;

	arr.	dep.
	pm	pm
GLOUCESTER (Down Platform)	--	5 55
STONEHOUSE	--	6 11
STROUD	6 17	--

Light Engine and Guard to leave Stroud at 6.30 pm.  
 Gloucester arrive 6.55 pm.

1.8 pm Gloucester to Stroud (SO) now;

	arr.	dep.		arr.	dep.
	pm	pm		pm	pm
GLOUCESTER	--	12 3	STROUD	--	12+45
STONEHOUSE	--	12 19	GLOUCESTER	1 10	--
STROUD	12 25	--			

Discontinued from November 28th 1918  
 (December Supplement)

+ Return Light Engine.

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GREAT WESTERN SERVICE TIME TABLES NO.7  
 APRIL 2ND 1917, AND UNTIL FURTHER NOTICE

	Basingstoke Goods	
	Q	MX
	arr	dep
	am	
Hereford (Barton)		1+30
" (Barr's Court)	1 35	
Rotherwas South	1+40	2 3
Holme Lacy		CS
Fawley		CS
Ross		CS
Mitcheldean Road		CS
Stop Board	2 54 P	2 57
Longhope	3 5 X	3 15
Grange Court	3 26	3 45
Gloucester		4 0
" 'T' Sidings	4 5	4 28
Brimscombe	5 2 BE	5 5
Kemble		CR
Swindon	6 0 EW	6 15

PRO. RAIL937/120

SUPPLEMENT, JULY 1917, AND UNTIL FURTHER NOTICE

1.30 a.m. Hereford to Basingstoke.

The single engine load from Ross to Mitcheldean Road is 16 wagons, and whenever it is necessary to duplicate the train to Mitcheldean Road the additional trip should run as under.

First Trip

	arr	dep
	pm	
Hereford (Barton)		10+50
" (Barr's Court)	10 55	
Rotherwas South	11+0	11 30
Holme Lacy		CS
Fawley		CXS
Ross		CS
Mitcheldean Road	12 20	

Engine, Van and Guard

	arr	dep
	am	
Mitcheldean Road		12 25
Ross		CS
Fawley		CS
Holme Lacy		CS
Rotherwas South	1 10	

Second Trip

1.30 a.m. Ordinary Train Hereford to Basingstoke, which must leave Rotherwas at 1.30 a.m. and call at Mitcheldean Road to pick up the trucks detached from the first trip.

Amended times Grange Court to Gloucester.

	arr	dep
	am	
Grange Court	3 26 P	3 30
Gloucester (Passenger)		3 50
" 'T' Sidings	3 55	

Commenced July 3rd 1917.



GREAT WESTERN SERVICE TIME TABLES NO.7  
 NOVEMBER 1917, AND UNTIL FURTHER NOTICE

	Basingstoke Goods	
	Govt. Stores	
	Q MX	
	arr	dep
	am	
Hereford (Barton)		1+30
" (Barr's Court)	1 35	
Rotherwas South	1+40	2 3
Holme Lacy	CS	
Fawley	CS	
Ross	CS	
Mitcheldean Road	CS	
Stop Board	2 54 P	2 57
Longhope	3 5 X	3 15
Grange Court	3 26 P	3 30
Gloucester (Passenger Stn)	3 50	
" 'T' Sidings	3 55	4 28
Brimscombe	5 2 BE	5 5
Kemble	CR	
Swindon Loco Yard	5 55	
Swindon	6 0 EW	6 15

APRIL 1918, AND UNTIL FURTHER NOTICE

	Basingstoke Goods	
	Govt. Stores	
	Q MX	
	arr	dep
	am	
Hereford (Barton)		1+30
" (Barr's Court)	1 35	
Rotherwas South	1+40	2 3
Holme Lacy	CS	
Fawley	CS	
Ross	CS	
Mitcheldean Road	CS	
Stop Board	2 54 P	2 57
Longhope	3 5 X	3 15
Grange Court	3 26 P	3 30
Gloucester (Passenger Stn)	3 50	
" 'T' Sidings	3 55	4 28
Brimscombe	5 15 BE	5 20
Kemble	CR	
Swindon Loco Yard	6 20	
Swindon	6 25 EW	6 48

GREAT WESTERN SERVICE TIME TABLES NO.7  
 APRIL 1918, AND UNTIL FURTHER NOTICE

		Govt. Stores for Redhill S.E.& C.			
		MTX			
		arr	dep	arr	dep
		am		pm	
Hereford (Barton)			11 35		
" (Barr's Court)			11 40		
Rotherwas South		11 45	12 5		2 20
Holme Lacy	CS				CS
Fawley	CS				CS
Ross	CS			2 50 X	2 52
Mitcheldean Road		12 55		3 12	3 30
Stop Board				3 32 P	3 35
Longhope	Returns to				CS
Grange Court	Rotherwas for			3 52	3 55
Gloucester (Passenger Stn)	second load				4 15
" Transfer Sidings				4 20	4 40
Brimscombe	Sig. 5-3-3			5 20 BE	5 25
Kemble				5 52 CR	6 0
Swindon Loco Yard					6 30
Swindon				6 35 EW	7 5

Returns as a Special.

PRO. RAIL937/121

SUPPLEMENT, MAY 1918, AND UNTIL FURTHER NOTICE

11.35 a.m. (Ammunition) Hereford to Redhill (for Richboro)  
 Wednesdays, Thursdays, Fridays and Saturdays.

Commenced March 28th 1918.

Start at 10.35 a.m. and run 1 hour earlier throughout. When train starts from Gloucester 'T' Sidings with traffic ex Quedgeley, it must leave there at 4.10 p.m.

- BE-Attach Bank Engine only.
- CR-Calls when required only.
- CS-Call at Single Line Station for Train Staff or Ticket only.
- EW-Stop for examination and water only.
- MTX-Monday and Tuesday excepted.
- P -Stop dead here.
- Q -To be signalled as a Government Stores Train 5-3-3.
- RR-Runs when required only.
- X -One train crosses another on Single Line.
- x -Shunt for or follow another Train, but not to do work.

GREAT WESTERN SERVICE TIME TABLES NO.7  
 JULY 1ST 1918, AND UNTIL FURTHER NOTICE

	Basingstoke Goods	
	Govt. Stores	
	Q MX	
	arr	dep
	am	
Hereford (Barton)		1+30
" (Barr's Court)		1 35
Rotherwas South	1+40	2 3
Holme Lacy		CS
Fawley		CS
Ross		CS
Mitcheldean Road		CS
Stop Board	2 54 P	2 57
Longhope	3 5 X	3 15
Grange Court	3 26 P	3 30
Gloucester (Passenger Stn)	3 50 X	4 0
" 'T' Sidings	4 5	4 38
Brimscombe	5 15 BE	5 20
Kemble		CR
Swindon Loco Yard		6 20
Swindon	6 25 EW	6 48

PRO. RAIL937/122

SUPPLEMENT, AUGUST 1918, AND UNTIL FURTHER NOTICE

10.50 p.m. Hereford (11.30 p.m. ex Rotherwas)  
 to Mitcheldean Road.  
 To terminate at Ross.  
Commenced July 1st 1918.

	arr	dep
	pm	
Hereford (Barton)		11+20
" (Barr's Court)		11+25
Rotherwas South	11+30	12 0
Holme Lacy		CS
Fawley		CS
Ross	12 30	

Engine, Van and Guard to return to Rotherwas, leaving Ross at 12.45 a.m. and running in times of 12.35 a.m. ex Mitcheldean Road to work 2.3 a.m. Rotherwas to Basingstoke.

PRO. RAIL937/122

GREAT WESTERN SERVICE TIME TABLES NO.7  
 SUPPLEMENT, AUGUST 1918, AND UNTIL FURTHER NOTICE

1.30 a.m. Hereford to Basingstoke.

(Weekdays (MX) and Sundays)

Commenced July 1st 1918

	arr		dep	
		am		
Ross	2 33 X		2 47	Attach traffic off first trip.
Mitcheldean Road	3 6		3 9	Detach BE.
Stop Board	3 12 P		3 17	To be assisted Ross to
Longhope		CS		Mitcheldean Road by engine of
Grange Court	3X35 P		3 40	10.15 p.m. ex Ludlow.
Gloucester (Passenger Stn)		4 0		
" 'T' Sidings	4 5			and on as in Service Book.

Discontinued November 24th 1918.

(December Supplement)

- BE - Attach Bank Engine only.
- CR - Calls when required only.
- CS - Call at Single Line Station for Train Staff or Ticket only.
- EW - Stop for examination and water only.
- MX - Mondays excepted.
- P - Stop dead here.
- Q - To be signalled as a Government Stores Train 5-3-3.
- X - One train crosses another on Single Line.
- + - Empty Train or Motor, or Engine and Van.

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PRO. RAIL937/122

GREAT WESTERN SERVICE TIME TABLES NO.7  
JULY 1ST 1918, AND UNTIL FURTHER NOTICE

		Govt. Stores for Redhill S.E.& C.			
		Q MTX			
	arr	dep	arr	dep	
	am		pm		
Hereford (Barton)		10 35			
" (Barr's Court)		10 40			
Rotherwas South	10 45	11 5		1 20	
Holme Lacy	CS		CS		
Fawley	CS		CS		
Ross	CS		CS		
Mitcheldean Road	12 0		2 12	2 30	
Stop Board			2 32 P	2 35	
Longhope	Returns to		CS		
Grange Court	Rotherwas for		2 52 P	2 55	
Gloucester	second load		3 15		
" 'T' Sidings			3 20	4 10	
Stonehouse	Sig. 5-3-3		4 35 x	4 40	
Brimscombe			5 0 BE	5 5	
Swindon Loco Yard			6 10		
Swindon			6 15 EW	6 35	

PRO. RAIL937/122

SUPPLEMENT, SEPTEMBER 1918, AND UNTIL FURTHER NOTICE

1.20 p.m. Rotherwas to Redhill (MTX).

	arr	dep
		pm
Stop Board	2 34 P	2 39
Longhope		CS
Grange Court	2 57 P	3 2
Gloucester (Passenger)		3 22
" 'T' Sidings	3 27	

and on as in Service Book.

PRO. RAIL937/122

SUPPLEMENT, OCTOBER 1918, AND UNTIL FURTHER NOTICE

RR (Govt. Stores) Gloucester 'T' Sidings to Lillie Bridge.

	arr	dep
		am
Gloucester 'T' Sidings		1 25
Brimscombe	2 10 BE	2 30
Kemble	3 5 CR	3 25
Swindon Loco Yard		4 0
Swindon Transfer	4 5 EW	4 20

Signalled 5-3-3

MIDLAND RAILWAY WORKING TIME-TABLE.  
 FREIGHT SERVICE, JANUARY 1918, UNTIL FURTHER NOTICE.

[Insert]

General Superintendent's Office,  
 MIDLAND RAILWAY,  
 DERBY.

N1/235-10

October 9th, 1918.

Ammunition, Credenhill to Newhaven and Richborough.

-----

Commencing on Monday, October 14th, the Midland Company will work this traffic to Worcester to be exchanged at the latter place to the Great Western Company, and the following arrangements must be made:-

7.40pm Hereford to Worcester. (Mondays to Saturdays). Will convey a full load of ammunition traffic, and detach same at Wyld's Lane Junc, Worcester.

In those cases when there is enough ammunition traffic to necessitate the running of an additional train, a special must be run as under:-

	Q	
	p.m.	
HEREFORD (Moorfields)	dep 4.30	
B&B.C. Junction	pass 4.33	
Barrs Court Junction	" 4.36	
Shelwick Junction	" 4.40	
Ledbury	" 5*21	
N.E. Ledbury Tunnel	" 5*25	
Colwall	arr 5*35	
"	dep 5*38	
Stop Board	arr 5*39	
" "	dep 5*43	
Malvern Wells	pass 5.51	
Malvern Link	arr 6* 2	
" "	dep 6* 6	
Rainbow Hill Junction	pass 6.31	
WORCESTER (Wyld's Lane Jc.)	arr 6.35	

When this special is required to run the 1.5pm Worcester to Hereford must be double-headed, and additional brake be sent on the train, and a guard sent from Worcester to Hereford by the 12.50pm passenger train.

When there is more ammunition traffic than the 7.40pm ex Hereford can lift, but not enough to necessitate the running of the 4.30pm special, the surplus ammunition must be conveyed from Hereford by the 9.50pm Swansea to Worcester, and be detached at Wyld's Lane Junc. Worcester.

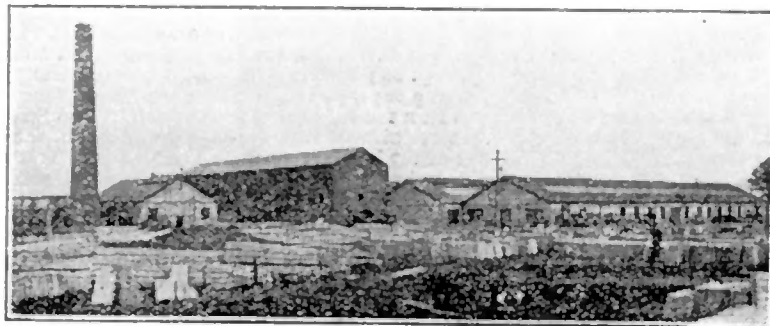
THE AMMUNITION TRAFFIC MUST IN ALL CASES BE MARSHALLED NEXT THE ENGINE.

Please give the necessary instructions to your people concerned, and acknowledge receipt.

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\* Stops to shunt for or follow other trains, or for staff, tablet, or examination.

Q Runs when required.

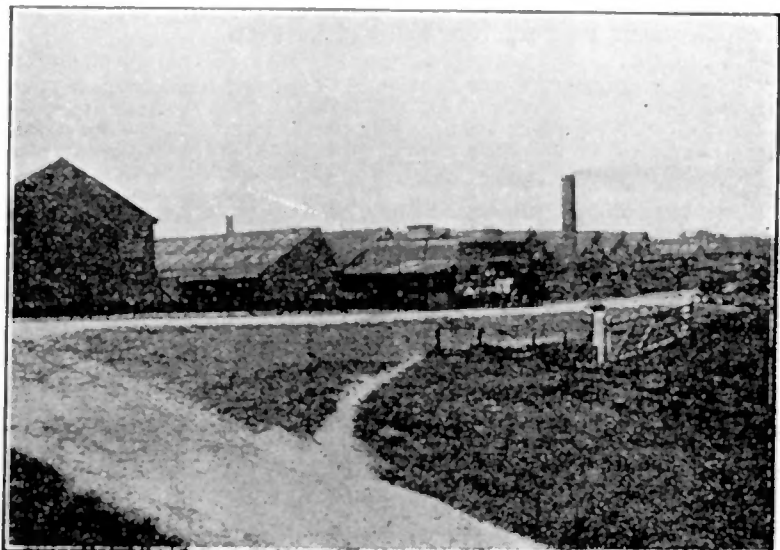


NATIONAL CONCRETE SLAB FACTORY, YATE.

area 7,200 ft. sup. Other buildings consist of Offices, Stores and Smithy, Garage, Reinforcing Shop, Heavy Stores, Power House, and Lavatories. Total ground area of buildings, 61,000 ft. sup. (about). POWER AND LIGHTING: Electric, generated on the premises. HEATING: Steam and Stoves. WATER: Part from Well on property and part from Public Main. OFFICE ACCOMMODATION for 20 clerks.

**National Box Factory, Park Royal, Willesden.**

For sale, in one lot. SITUATION: About one mile from Park Royal Passenger and Goods Stations. AREA: 3 acres 1 rood. CONSTRUCTION: The majority of the buildings are constructed in brick, with slated roofs, some partly glazed, concrete and timber floors. The various buildings comprise: Main Shop, including Machine, Assembly and Polishing Shops, Cloak-room and Drying Kiln, ground area, 19,150 sq. ft.; Power and Boiler-houses, ground area, 1,590 sq. ft.; Offices and Stores, ground area, 1,732 sq. ft.; Timber Sheds, ground area, 4,781 sq. ft. Drying Kilns



NATIONAL BOX FACTORY, WILLESDEN. FRONT OF FACTORY FROM CANAL BRIDGE

and Loading Sheds, ground area, 8,745 sq. ft.; Shed, ground area, 4,890 sq. ft. There are also Men's and Women's Mess-rooms and Lavatories, Loading and Sawing Sheds, brick-built Cottage, etc. Total ground area of buildings, 46,500 ft. super. (about). CANAL: The Grand Junction Canal adjoins. SIDINGS: There are ample private sidings laid down and connected with the L.N.W. Rly. LIGHT AND POWER: Electric, and also Suction-Gas Plant. HEATING: Hot-water pipes. WATER: From the Uxbridge Valley Water Company. OFFICE ACCOMMODATION: For 12 Clerks. MESS-ROOM ACCOMMODATION: For 100 persons.

**National Lens Factory, "Westmoor Hall," Green Street, Brimsdown, Enfield.**

This freeh 11 property will be sold by auction on September 24th next by Messrs. Herring, Son & Daw, 98, Cheapside, E.C.2. The following is a brief description. SITUATION: The property is situate on the north side of Green Street, which leads from Brimsdown Station (G.E.R.) to Enfield Highway, about 1/4 mile west of the station. AREA OF LAND: About 1 acre. BUILDINGS: A brick built and tiled detached house, used as Photographic Lens Factory, comprising three floors and cellars. There is also a small brick-built transformer house. The total floor area is about 3,500 ft. super. POWER AND LIGHTING: Electric. HEATING: Gas Radiators and fires. WATER: From public main.

**Flying Boat Assembling Sheds, Lytham, Lancashire.**

To be sold by private treaty in one lot. SITUATION: About 1/2 mile from Lytham Station (L. and Y. and L. and N.W. Joint Railways). Adjacent to River Ribble and having entrance in Preston Road. AREA OF LAND: 10 a. 3 r. 5 p. (about). CONSTRUCTION: The main sheds are constructed with reinforced concrete, steel principals, with corrugated iron roofs. The other buildings are mainly of brick construction with steel roofs covered corrugated iron. The principal buildings comprise: Western Assembling Shed, ground area, 31,500 ft. super.; Eastern Assembling Shed, ground area, 36,750 ft. super; Cloak Room, Lavatories, etc., ground area, 2,436 ft. super; Mess Room, ground area, 1,218 ft. super; Offices, ground area, 1,185 ft. super. Other buildings include Boiler and Pump Houses, Stores, Carpenters' Shop, Petrol Store, etc. There is a concrete slipway 150 ft. long x 25 ft. wide. Total ground area of buildings about 75,700 ft. super. LIGHTING: Electric. HEATING: Steam. WATER: From public main. OFFICE ACCOMMODATION: For 18 clerks. MESS ROOM ACCOMMODATION: For 60 persons.

**H.M. Wood Distillation Factory, Bideford, Devon.**

The land, buildings, plant and machinery to be sold by private treaty in one lot. SITUATION: Adjacent to L. and S.W. Rly. and about 1/4 mile from Bideford Station (Passenger and Goods), Fronting on River Torridge. AREA OF LAND: 9 a. 2 r. 12 p. (about). CONSTRUCTION: The buildings have been erected in and since 1915, and are mainly of steel framing with corrugated iron walls and roofs, and concrete floors. The principal buildings are: Retort House, Acetate Store, etc., area, 7,944 ft. super.; Refinery (part 3 storeys), area, 6,126 ft. super; Boiler and Coal House, area, 1,600 ft. super; General Store, area, 1,480 ft. super; Charcoal House (portion 2 storeys), area, 8,109 ft. super. Other buildings comprise Fitters' Shop, Pump House, Acetate House, Laboratory, Liquor Store, Lavatories, Offices, Carpenters' Shop, Canteen, etc. Total Floor Area of buildings, 33,000 ft. super (about). The factory has been used for the production of Grey Acetate of Lime, Naphtha, Tar, Charcoal, and other by-products. LIGHTING: Electric, generated on the property. POWER: Steam. HEATING: Steam radiators. WATER: Part from river and part from public main. SIDINGS: There are private sidings connected with the L. and S.W. Rly. OFFICE ACCOMMODATION: For 12 clerks. MESS ROOM ACCOMMODATION: For 100 persons.

Reference:-

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