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COMMONWEALTH OF AUSTRALIA.

Clerk of the Senate.  
*28-6-21*

PARLIAMENTARY STANDING COMMITTEE ON  
PUBLIC WORKS.

REPORT

TOGETHER WITH

MINUTES OF EVIDENCE

RELATING TO THE

PROPOSED ERECTION OF ORDNANCE AND  
OTHER DEFENCE BUILDINGS AT KELVIN  
GROVE, BRISBANE, QUEENSLAND.

## MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

## Third Committee.

The Honorable HENRY GREGORY, M.P., Chairman.

## Senate.

Senator Hattil Spencer <sup>\*</sup>Foll.  
 Senator George Henderson.†  
 Senator John Newland, Vice-Chairman.††  
 Senator Edward Needham.‡  
 Senator William Flain.\*

\* Appointed 28th July, 1920.

† Resigned 22nd July, 1920.

‡ Re-appointed 28th July, 1920.

†† Ceased to be a Member of the Senate, 30th June, 1920.

## House of Representatives.

Llewelyn Atkinson, Esquire, M.P.  
 The Honorable Frederick William Bamford, M.P.  
 George Hugh Mackay, Esquire, M.P.  
 James Mathews, Esquire, M.P.  
 Parker John Moloney, Esquire, M.P.

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## EXTRACT FROM VOTES AND PROCEEDINGS OF THE HOUSE OF REPRESENTATIVES.

No. 103, of 9th November, 1920.

9. PUBLIC WORKS COMMITTEE—REFERENCE OF WORKS—ORDNANCE, &c., BUILDINGS, KELVIN GROVE, BRISBANE.—  
 Mr. Groom moved, pursuant to notice, that in accordance with the provisions of the Commonwealth Public Works Committee Act 1913-14, the following works be referred to the Parliamentary Standing Committee on Public Works for their report therein, viz.:—Ordnance and other Defence Buildings at Kelvin Grove, Brisbane, Queensland.  
 Mr. Groom having laid upon the Table plans, &c., in connexion with the proposed works—  
 Question—put and passed.

## PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

## PROPOSED ERECTION OF ORDNANCE AND OTHER DEFENCE BUILDINGS AT KELVIN GROVE, BRISBANE, QUEENSLAND.

### REPORT.

The Parliamentary Standing Committee on Public Works, to which the House of Representatives referred for report the question of the proposed erection of Ordnance and other Defence Buildings at Kelvin Grove, Brisbane, Queensland, has the honour to report as follows:—

## INTRODUCTORY.

Thirty years ago, the Ordnance Stores in Brisbane were located across the road from the Victoria Barracks. At that time, the Military Force in Queensland was not numerically strong, but with the introduction of universal military training it was soon apparent that greater accommodation for Ordnance Stores would be required. Since the outbreak of war, ordinary training of the Citizen Forces has been practically at a standstill, and advantage has been taken of the fact to utilize drill halls and other defence buildings for storage purposes. With the resumption of Citizen Force training, these buildings are required for the purposes for which they were originally intended, and it becomes necessary to arrange for the housing of the Ordnance Stores elsewhere.

## PRESENT PROPOSAL.

The present proposal is to erect on a site at Kelvin Grove, a distance of about half-a-mile from the Barracks, sufficient accommodation to enable the whole of the Ordnance Stores to be concentrated in that locality. The buildings proposed comprise an ordnance store, a small arms ammunition store, administrative office building, luncheon room, unserviceable goods store, inflammable goods store, lavatory block, and machinery room.

## DESCRIPTION OF THE BUILDINGS PROPOSED.

*Ordnance Store.*—This is the chief building, and is proposed to be a two-storied building, 300 feet long and 100 feet wide, built of brick with a galvanized iron roof. It is proposed to construct the floor of the lower story of brick and concrete, and that of the upper story of reinforced concrete on the flat slab cantilever mushroom system, supported on reinforced concrete stanchions. As a safeguard against fire, it is intended to divide the store by a brick cross-wall into two compartments, each 150 feet by 100 feet, and to install fire sprinklers.

In the centre of each of these stores is to be placed an electrically-driven lift, 14 feet by 8 feet. In addition, there will be the usual stores and lavatory accommodation, and electric light.

The *Small Arms Ammunition Store* will be of brick, 80 feet by 60 feet, with walls 12 ft. 6 in. high. It is a building of the standard type, similar to that adopted for Liverpool, New South Wales, and Midland Junction, Western Australia, with a loading platform 10 feet wide on the railway side, and a loading platform 10 feet wide on the road side. A double roof will be provided, and a system of ventilation adopted for the purpose of keeping the interior of the building at a normal temperature.

The *Administrative Office* is proposed to be a one-storied building of light timber construction, supported on round hardwood tree stumps capped against white ants. It will have an iron roof, with a brick storeroom; and separate lavatories for male and female employees. The site of the building projected is 81 feet by 36 feet, with a 7-ft. verandah in front and a 9-ft. verandah at the back. The accommodation will consist of one general office 79 feet by 22 feet, with a space 20 feet long by 14 feet wide for the public doing business with that office, and three smaller offices for the principal officers-in-charge, and a waiting room for the public.

The *Luncheon Room* is intended to be a brick building 36 feet by 18 feet, with a 9-ft. verandah. It is designed to provide a place where the stores and clerical staff can partake of luncheon, and spend their luncheon hour in reading, &c. The roof will be 10 feet high. Behind the building will be a separate detached block of lavatories.

The *Unserviceable Goods Store* is to be a one-storied brick building, 30 feet by 50 feet, with 11-ft. walls and an iron roof, and of the most economical construction possible.

The *Inflammable Goods Store* is to be a one-storied brick building, 30 feet by 20 feet, with 11-ft. walls and an iron roof.

The *Lavatory Block* will consist of a small brick building, 14 feet by 11 feet, and 8 ft. 6 in. high. It is to be fitted with the Kaustine sanitary system for three compartments.

The *Machinery Room* is a small brick building, 14 feet by 12 feet, designed to house the machinery which will work the lifts.

#### ESTIMATED COST:

The estimated cost of the proposal is set down at—

	£	s.	d.
Excavation and preparation of Site .. .. .	4,200	0	0
Ordnance Store Block .. .. .	26,071	10	0
Small Arms Ammunition Store .. .. .	3,840	0	0
Administrative Office Block .. .. .	2,008	0	0
Luncheon Room Block .. .. .	910	0	0
Unserviceable Goods Store .. .. .	856	0	0
Inflammable Goods Store .. .. .	470	0	0
Lavatory Block .. .. .	351	10	0
Machinery Room (for lifts) .. .. .	175	0	0
Fencing and Gates .. .. .	240	0	0
Formation of Roads .. .. .	872	0	0
Storm Water Drains .. .. .	892	0	0
Water Supply Hydrants .. .. .	1,058	0	0
Electric Lighting .. .. .	482	0	0
Electric Supply Mains .. .. .	750	0	0
Electrical Installation Lifts .. .. .	265	0	0
Lifts .. .. .	3,500	0	0
Sprinkler System .. .. .	3,000	0	0
Contingencies .. .. .	3,500	0	0
<b>Total .. .. .</b>	<b>53,041</b>	<b>0</b>	<b>0</b>

and the time necessary to complete the work is given as twenty months from the date of commencement.

#### COMMITTEE'S INVESTIGATIONS.

The Committee visited Brisbane and inspected the site proposed for the ordnance and other stores at Kelvin Grove, inspected the existing mobilization stores and the camp sites at Enoggera, and obtained evidence from the Quartermaster-General, the Director of Equipment and Ordnance Stores, as well as from the local officers of the First Military District, who will be in direct charge of the ordnance stores when erected.

*Necessity for Accommodation.*—The Committee ascertained that the military stores on ordnance charge in the First Military District are stored at 33 different buildings in six distinct groups, representing a floor space of 100,000 square feet.

It was represented to the Committee that certain drill halls and gun sheds are now used for housing stores, and that in addition privately-owned premises are rented for the purpose at a cost of £1,058 per annum.

The Committee realizes that the fact of the stores being kept in unsuitable premises which are situated in several localities must entail needless expense in administration, supervision, and caretaking. It was stated that the provision of the premises now proposed would enable the drill halls and other defence buildings to be utilized for the purpose for which they were originally intended, and render unnecessary an annual expenditure of £1,058 for rent; further, a saving could be effected in working, and it would be possible to reduce the staff 30 per cent. Under these circumstances, the Committee has no hesitation in recommending that better accommodation be provided.

*Site.*—Careful investigation was made by the Committee as to the most suitable area upon which to erect the building proposed. The site at Kelvin Grove, suggested by the Department, comprises portion of the defence area at that place, and it would be necessary to acquire an additional area of about 3½ acres of privately-owned property upon which are erected five small houses. This site is admittedly not an ideal one by reason of its situation in a valley, and would require considerable excavation and levelling to enable the stores to be erected upon it. Inquiries were made as to whether any other suitable site could be obtained at a similar distance from Brisbane, but the Committee was informed that though efforts had been made in this direction, extending over many months, it was not possible, owing to the hilly nature of the country upon which Brisbane is situated, to obtain a suitable, level area at a reasonable cost.

Evidence was obtained as to the advisability of locating the proposed stores on the defence area at Enoggera, where the mobilization stores have already been erected, but several reasons were urged against it. It was stated that, as the Kelvin Grove site is 3 miles closer to the city than Enoggera, greater convenience would result from its accessibility for the public and for the employees, and its proximity to other defence activities in Brisbane, while the expense of receiving and issuing stores, &c., would be considerably less.

Although some members were inclined to favour the adoption of Enoggera, because sufficient Commonwealth land is available at that place, yet the weight of evidence was clearly in favour of Kelvin Grove, the main arguments against Enoggera being its greater distance from the city, the difficult road which would have to be traversed, the wear and tear on the vehicles used, and the time which would be involved in the journey, so that it was represented that the annual cost of transport to and from Enoggera would exceed the interest on any capital expenditure saved by locating the stores at that place. Under the circumstances, while not enamoured of the site at Kelvin Grove, the Committee is constrained to recommend it as being the best available.

The decision arrived at by the Committee in connexion with this matter is shown in the following extract from the Minutes of Proceedings, viz.:

Mr. Mackay moved—“That the stores be erected at Kelvin Grove.”

Seconded by Mr. Mathews.

The Committee divided on the motion—

Ayes, 5.	No. 1.
Mr. Atkinson.	Mr. Moloney.
Mr. Mackay.	
Mr. Mathews.	
Senator Newland.	
Senator Plain.	

And so it was resolved in the affirmative.

The question of the amount of private land to be acquired was considered, and the Committee is of opinion that the most economical course to pursue would be to acquire at once the whole of the area of 3½ acres suggested, together with the five small houses thereon, as such houses could readily be adapted for defence requirements, or be made rent-producing by letting them to certain of the employees.

The designs of the buildings, as submitted to the Committee, being mainly on the lines of similar buildings approved (and in some circumstances modified) for other centres, are considered suitable. With respect to the ordnance store, however, the Committee is of opinion that it would be more advantageous to install sliding doors than the swing doors proposed. The Committee is also of opinion that the amount of glass window space provided on each side of the store is excessive, and should be reduced. As the doors when open are likely to obscure the windows on each side of them, it is considered that these windows could well be eliminated, and that ample light would remain if the lower row of panes for the full length of the building on each store were omitted. Furthermore, less risk of breakage of the windows would result if the lowest pane of the window was kept approximately 5 ft. 6 in. above the floor levels.

The Committee also thinks that the expense of providing a luncheon room might be saved by utilizing one of the cottages proposed to be acquired, and removing it to the position allotted for the suggested luncheon room.

**Railway Connexion.**—Evidence was taken as to the proposal to construct a railway siding into the ordnance store area, but, in view of the information obtained, the Committee is convinced that such railway is not likely to be a necessity until the military forces of Queensland are considerably greater than they are at the present time, or in the event of war. In the latter case, if the route to be traversed is secured, the construction of the necessary line could be effected without delay.

#### COMMITTEE'S RECOMMENDATION.

With the modifications above suggested, the Committee recommends that the provision of Ordnance and Defence Buildings at Kelvin Grove be proceeded with.

*H. Gregory*  
H. GREGORY,  
Chairman.

Office of the Parliamentary Standing Committee on Public Works,  
527 Collins-street, Melbourne,  
16th May, 1921.

## MINUTES OF EVIDENCE

(Taken at Brisbane.)

THURSDAY, 3RD MARCH, 1921.

Present:

Senator NEWLAND, in the chair;	
Senator FOLL,	Mr. Mackay,
Senator PLAIN,	Mr. Mathews,
Mr. Bamford,	Mr. Parker Moloney.

John Smith Murdoch, Chief Architect, Department of Works and Railways, sworn and examined.

1. *To the Chairman.*—In submitting this work to Parliament, the Minister of Works and Railways (Mr. Groom) gave a short résumé of its purposes, in the course of which he stated that:—

"These proposed stores at Kelvin Grove, Brisbane, have been rendered necessary, owing to the fact that the present ordnance stores accommodation in Brisbane is inadequate, being only one-third that of requirements, and the stores themselves being unsuitable. Not having been designed for the purpose they are not efficiently equipped. Great quantities of goods are at present stored in drill halls and rented premises. The drill halls are now required for training purposes, and the amount paid in rentals is £1,073 per annum, which expense it is considered should be no longer incurred. The fact of these stores being housed in unsuitable premises, which are situated in several localities, of course entails unwarranted expense in administration, supervision, and caretaking. The erection of new, up-to-date, and commodious stores will obviate such unsatisfactory conditions. The site proposed for these stores at present forms, in part, a portion of the defence area now devoted to the accommodation of the engineers and artillery depot at Kelvin Grove, and a small area of land adjoining, which it is proposed to acquire. The buildings generally will be erected with brick walls, concrete floors, and iron roofs, and will be similar in type, but of smaller dimensions, to the ordnance stores buildings now in course of erection at Leichhardt, New South Wales."

The buildings and works in the programme now before the Committee comprise the excavation of the site, a new ordnance store-building, and a small-arms ammunition store, administration office buildings for the administration of the Stores Branch, a luncheon-room building for the men employed in the stores, a lavatory block, a small store for unserviceable goods, as well as a small store for inflammable goods, and a machinery room. The project also includes fencing and gates, formation of roads, water supply, storm-water drains, electrical installation, lifts, and fire-prevention services. The total estimated cost of all the works included in this programme is £53,041.

2. *To Mr. Mathews.*—That total does not include the cost of the acquired land.

3. *To the Chairman.*—In explaining the various buildings to the Committee, I shall be able to show what it is estimated each building and section of the works will cost. Before discussing the individual buildings and the sections of the work in detail, I may say that this project has had, as works go, quite an unusual degree of consideration both by the local military representatives and the military representatives of the Central Administration in Melbourne, as well as by the

local officers of the Commonwealth Works Department, and the officers of the Works Department in Melbourne. The scheme now put before the Committee, therefore, has been arrived at as the result of mature consideration. At the present time, there are being completed at Enoggera, a suburb of Brisbane, about 5 miles out, stores of the usual type, such as those which have been considered by the Committee in connexion with the Midland Junction scheme. These comprise two buildings for mobilization stores, and one for military vehicles. The buildings themselves have practically been completed, and are already in occupation by the Defence Department. The mobilization stores, and the mobilization area being at Enoggera, the question whether the ordnance stores, and eventually the Defence workshops should go to Enoggera or to Kelvin Grove, had to be considered. There was very little doubt in the minds of the military as to which was the better site. In coming to a decision in regard to these two sites, the services of the Business Board—which was appointed by the Government during the war to advise the Defence Department—were requisitioned. Mr. Swinburne, the chairman of that Board, came to Brisbane, and very carefully considered the pros and cons of the two sites, and incidentally, other sites. The site at Kelvin Grove being already partially Defence property, and that at Enoggera being wholly Defence property, and both embracing the possibility of railway connexion by a siding, Mr. Swinburne, after examination, came to the decision that, despite the disabilities associated with the Kelvin Grove site as compared with that at Enoggera, the former should be selected. The disabilities of the Kelvin Grove site consist of a considerable expenditure in excavations—an outlay of something like £4,000 being necessary for the purpose—and the acquisition of private land costing probably £5,000. Mr. Swinburne determined that, even if these expenses had to be incurred, it would pay the Defence Department to adopt the Kelvin Grove site in preference to the other. These costs would involve an annual charge of £500 or £600 a year in interest; but Kelvin Grove being much nearer the city, and therefore much closer to the objective of the Stores Branch, it was thought that it would pay to adopt that site. Mr. Swinburne, in a memorandum to the Director-General of Works, Department of Works and Railways, Melbourne, dated 13th August, 1918, wrote:—

"After going into the whole question of the site for the new proposed Ordnance Stores, the Board has decided that the best sites are:—

1. Either at Enoggera near the White City, and a short distance from the railway station; or
2. At Kelvin Grove.

"Mr. Swinburne discussed the relative merits of these sites with Mr. Todd, the Director of Works, in Brisbane, and Mr. Murdoch, the Chief Architect, Department of Works and Railways, who, fortunately, was in Brisbane at that time; and also with Captain Raymond, S.O.W., who had considerable knowledge of the question, and the discussion of same, during the last two years.

L. Enoggera.—This site would be a full 4½ miles from the city, but has the advantage of being close to a railway station on a branch line, and the whole of the necessary land

being Commonwealth property. The land which the ordnance stores will occupy would not be valued at more than, say, £500 to £1,000. It is estimated that the cost of the siding from the railway to the proposed site of the ordnance stores would not be more than £1,500.

3. *Kelvin Grove.*—This site at first seemed very repelling on account of its situation in a valley, and required heavy expenses for blasting and levelling in order to get a suitable level site for the stores. The Government land is valued at about £2,500. In addition to the land at present owned by the Government, it will be necessary to acquire four houses and land at a cost of, approximately, £3,500. The four houses, however, would be an interest bearing asset, useful for the employees in connexion with the stores. The siding would be much more expensive than at Enoggera, and a longer distance from the nearest point of the railway. The siding may cost about £3,500.

*NOTE.*—The site is only about half-a-mile from the barracks, and not less than 3 miles nearer town than Enoggera.

*General.*—The whole question, however, as between the two sites cannot be determined by mere capital cost. Assuming that the buildings in each place will cost about the same, the difference in cost on land, siding, &c., will be about £10,000. It has to be decided whether the interest upon £10,000—say £500 a year—

At the present time, the interest would be more than that.

"Which the Kelvin Grove site would cost, as compared with Enoggera, is justified. If the annual cost is not more than £500, in the opinion of the Board, the Kelvin Grove site would ultimately be considerably cheaper on account of the annual saving in cartage, the general convenience for deliveries, and also in supervision.

"Before, however, determining what site should be definitely chosen, the Board will be obliged if the Director-General of Works will have careful estimates made—

- (1) of the cost of siding into each of the properties, such estimates to be given by the Queensland Railway Department;
- (2) of the cost of levelling the site at Kelvin Grove in order to give a clear level space, say, of at least 5 acres of ground, if possible, and, in addition, to say what further space can be gained by additional cost in levelling.

"It may be stated that, in considering the question of levelling, it is not absolutely necessary to have all the stores on one level, so that by building the stores on different levels certain blasting and levelling may be obviated. On this question, however, it must be remembered that the various stores should not to any great extent be on greatly different levels, i.e., the different levels must be in moderation in order that convenient access to the railway siding may be available.

"A reliable estimate should be obtained of what expenditure would be necessary to resume the four cottages and the land next to the road nearer to the railway station; and, further, find out if it will be necessary to resume any land between the road and railway station for siding.

"The Board will be obliged if the Director-General of Works can put these investigations in hand."

This memorandum was signed by Mr. Swinburne, as chairman, on behalf of the Board of Business Administration. These points were looked into, and estimates were obtained of the cost of acquiring the necessary land at Kelvin Grove, and of taking the railway into the Kelvin Grove and the Enoggera sites. Estimates were also obtained of the cost of acquiring private land to supplement the existing Defence land at Kelvin Grove and that furnished by a prominent firm of valuers in Brisbane, in November, 1918, were £4,380. This private land comprises fourteen different properties, and in round figures the total area is about 3½ acres. At that time, four houses were erected on the land; but since then there has been erected another small house which, in the event of the military store buildings now under consideration going on the site, would have to be removed. The Chief Engineer of the Queensland Railway Department, on 1st November, 1918, estimated the cost of taking a railway siding into Kelvin Grove site at £2,168, while he estimated that the cost of a siding into the Enoggera land would be £304. A year later, when it was anticipated that a start might be made with these works, the Railway Chief Engineer was again asked to give his opinion as to what would be the cost of these railway sidings at that time. He wrote that there would be an increase of £30 in his estimate for the Kelvin Grove siding, bringing it up to £2,498, and an increase of £81 in the case of the Enoggera siding. These increases, he said, were due to a 25 per cent. increase in wages, increase in the cost of sleepers, rails, and fastenings, and provision for wet pay and paid holidays to labour which had taken place since the previous estimates were supplied.

4. *To Mr. Mathews.*—The Railway Department would do the work for us at cost price.

5. *To Senator Newland.*—Before finally deciding on the Kelvin Grove site, it became necessary to look into the possibility of bringing the railway siding from the nearest point. From the Queensland Railway system to the Kelvin Grove site, the Railway Department proposed to encroach partly on public lands, which at that time were vested in the City Council, but were about to be handed over by the State Government to the Queensland University trustees, and partly over a public road the property of the Ithaca Municipal Council. The City Council, the University trustees, and the Municipal Council of Ithaca, were accordingly approached, and treated us very magnanimously. The Brisbane City Council said the matter was no longer one for them to deal with, because it was proposed to hand over the land to the University trustees. The University trustees themselves said they had no objection if the State Government had none. The State Government, in turn, said that as the University trustees had no objection they had none to offer. The Ithaca Municipal Council agreed also to allow the railway to go partly on one of their roads and to cross it by means of a level crossing into the Defence site. We had nothing but the utmost consideration shown us by these public bodies. The Ithaca Council, very properly, I think, urged, however, that in the interest of public safety another small allotment of land would have to be purchased at the point on the plan which I shall show the Committee. Probably £500 will purchase the property, and, in the interests of public safety, its acquisition will be necessary. After all these negotiations, the Defence Department came to the conclusion that it should proceed with the ordnance store scheme on the Kelvin Grove site. Ever then, Colonel Owen, Director-General of Works, and the Director of Military Works, Melbourne, in order to be quite sure of the suitability of the site, came to Brisbane, and, with the Chief Engineer

of the State Railway Department, looked very fully into the possibility of obtaining in the vicinity of Brisbane a site that would admit of railway connexion being made with it. They even went out as far as Bald Hills, but came to the conclusion that nothing better could be obtained than the site of Kelvin Grove. That being so, buildings were planned for the Kelvin Grove site. A good deal of consideration has been given to the position which they should occupy, and the result of all this is the scheme now before the Committee, which I shall explain. As to railway connexion, the military conclusion is that unless trouble arises it will be unnecessary; but should a national emergency arise, a siding would have to be put in. That work, perhaps, could be carried out in a couple of weeks. Until a time of stress does arise, however, the intention, I understand, is not to put in the railway siding, so that all the stores going in and going out will be conveyed by vehicular transport. After all, the chief place to which stores will be taken will be the Military Head-quarters, which, as Mr. Swinburne has pointed out, are not more than half-a-mile away. A certain quantity of stores would, of course, go to the railway station and the wharfs to be sent into the several Military Districts. It is considered that it would possibly be more economical to handle the stores by road transit until a time of stress arises. That being so, the project now before the Committee does not include that of putting in a railway siding.

6. *To Mr. Mathews.*—The approaches, in the meantime, will never be blocked. The University lands and the public road will not be alienated.

7. *To Senator Newland.*—I do not think the University authorities would alter their opinion as to the proposed alienation of land. The area on which the line would encroach is not likely ever to be used for building purposes. It is very low, and any additional University buildings would be erected on the higher land. The route of the proposed railway skirts the edge of the University land. I produce a blue print showing the route. There would be a shunting charge of 1s. per ton, with a minimum shunting charge of 10s. The siding would be something like half-a-mile in length. The excavation and filling necessary to prepare the site for the several buildings proposed to be erected now are estimated to cost £4,200. It is proposed that, eventually, in addition to the buildings for which these plans provide, another ordnance store of similar size, and in all probability workshops, will be erected on this site. The workshop project is withheld for the present, the idea being, I understand, that they may go out to Enoggera; but there is no intention of proceeding with those buildings at this stage. The estimate of £4,200 does not include the cost of excavating and levelling for the future store and workshops. The necessity for a level site is because of the possibility of a railway siding coming in later on, as it would be undesirable to have too big a fall. The chief building, that is the ordnance store, is to be built of brick. It will be a two-storey building, 300 feet by 100 feet. It is to have on one side a platform 10 feet wide, abutting on the railway siding the whole length of the building, and on the other side a similar platform, 10 feet wide, abutting on the roadway. The floor will be kept up to the standard height of railway trucks, and at a similar height above the road level on the other side. The ground floor of the building will be of concrete and brick, and will take loads to any extent. It is intended to construct the first floor of reinforced concrete supported on reinforced concrete stanchions, as at the Leichhardt Stores, Sydney—a work that was very fully gone into at the time by the Committee. The method of constructing this floor is proposed to be that of the flat-slab cantilever, mushroom system, which has

been investigated on several occasions by the Committee. On this occasion, however, it will be no longer necessary to pay a royalty to the patentee because the patentee's protection under the Commonwealth law expired at the end of last year. We are now free to adopt this style of construction at any time without having to pay royalty. The ordnance store is to be divided into two parts, as a safeguard against fire, by a brick cross wall, just as was done at the Leichhardt Stores. The store will thus be divided into two compartments, each 150 feet long by 100 feet wide. In each of these stores a lift is to be placed in the centre of the building. Each lift will be 14 feet by 8 feet. There will be a fireproof door between the two stores, and there will be the usual lavatory and stairs, just as we have provided at Leichhardt. We shall also have a similar roof covered with iron. The sewerage system of Brisbane is now in course of construction, but Kelvin Grove is so low that it is not anticipated that it will be available there for some years to come. In these circumstances, it became a question of whether we should provide for the ordinary pan system adopted here, or the "Kautstine" system. We decided to put in the latter, although I understand that the company is so busy that it may be difficult to get the installation.

8. *To Mr. Bamford.*—I understand that the company is inundated with orders.

9. *To Senator Newland.*—Just as at Leichhardt, the supports for the concrete floor of the upper story will be in four rows, spaced at 20-ft. centres across the building, and at 18-ft. centres lengthwise. Since my arrival here yesterday, I have discussed this particular system of concrete construction with our local officers. The system being new to Brisbane, and the cost of cement at present being inordinate, we went into the question of substituting hardwood for concrete for this upper floor, and of hardwood instead of concrete stanchions.

10. *To Mr. Mathews.*—I do not say that a hardwood floor with a corrugated galvanized iron ceiling would be quite equal to the concrete as a fire-proof proposition; but previous investigations have, no doubt, shown the Committee that, in the event of a fire occurring in a building in which there are sprinklers and other means of fire extinction, little more damage would be done than the charring might be said to be just as satisfactory as the other. The drawback to the adoption of hardwood as against concrete is the obstruction that would be caused to the lower floor on account of the impossibility of making such big spans with hardwood as can be given when concrete is used. Yesterday we prepared, rather hurriedly, a plan showing what obstruction would be caused by the adoption of hardwood instead of concrete stanchions.

11. *To Mr. Bamford.*—We are providing for the sprinkler system, and there will be an ample supply of water.

12. *To Senator Newland.*—With hardwood construction, our spans for the beams would have to be reduced from 20 feet to 16 ft. 8 in. in each direction, and in each half store building, measuring 100 feet x 150 feet, we would have 40 supports in the case of hardwood, as against 28 if concrete were used. Whether the saving obtained by changing the method of construction would be commensurate with the additional obstruction that would be caused is a point that should be carefully considered. The chances are the Defence Department, having regard to the extent of the saving in cost that would be effected, would prefer not to have the obstruction. The saving would be somewhere between £1,500 to £2,000.

13. *To Mr. Bamford.*—The use of concrete stanchions would give a great deal more freedom on the ground floor.

14. *To Senator Plain.*—I think that the fire-risks in either case would be pretty well equal.

15. *To Mr. Mackay.*—I would respectfully suggest that the Committee might ask the Defence Ordnance Stores authorities whether the saving that would thus be effected would compensate for the obstruction that would ensue. I know that their desire is that the stores shall be as open as possible; but I thought it would be interesting to the Committee to look into the two points. The use of hardwood would mean an additional twelve supports in each half of the building.

16. *To Senator Foll.*—The local cement is very dear. 17. *To Senator Newland.*—There is no doubt that the carrying out of the work would be done more expeditiously if hardwood were used for these supports and the upper floor. I think we could get the hardwood from the War Service Homes Department for something like 15 per cent. less than it costs in the open market. The Works Director inquired from the War Service authorities this morning, and they said that if we approached them they would do their very best to meet us.

18. *To Senator Foll.*—I do not know that it was announced by Senator Millen in the Senate, when the War Service Homes Commission acquired the timber areas here, that in no circumstances would the timber be used except for War Service Homes purposes. We might use a variety of timber growing on their lands which is not used in the construction of cottages.

19. *To Senator Newland.*—The adoption of hardwood for the upper floors and supports would probably hasten the construction of the building to the extent of two or three months.

20. *To Senator Foll.*—It would also hasten the commencement of operations.

21. *To Senator Newland.*—I estimate that all the works provided for on these plans could be completed in from eighteen to twenty months. Everything depends on whether we adopt the contract or day-labour system. That is a matter of policy to be decided by the Government. Very much depends upon conditions. All industrial matters, including building operations, are so uncertain that recently a contractor who tendered for a certain work which we advertised would not undertake to carry it out within any given time. The Leichhardt works are being carried out under contract by the construction branch of the State Works Department. Even in that case, owing to the shortage of steel, we have had very serious delays.

22. *To Mr. Mathews.*—There is a shortage of good skilled labour here, but no shortage of unskilled labour.

23. *To Mr. Mackay.*—More carpenters than bricklayers will probably be available here. I think I am pretty safe in saying that the average skilled artisan at the present time can get more work than he can do.

24. *To Senator Newland.*—There is a tremendous demand for steel. We should be more likely to have delays with the steel than with the timber proposition, since this is a timber country, and hardwood of very excellent quality can be obtained here. No material saving would be effected by having concrete stanchions and hardwood floors. We could not apply the timber construction to the flat-slab system of concrete; it would not be worth while to attempt to mix the two systems of concrete and timber construction. We have provided for lifts as I have already said, in the centre of the building. In connexion with the Leichhardt stores, the question of whether the lift should be in the centre instead of on the outside walls was considered at length. The Committee decided in favour of placing them on the outside walls; but, after going into the matter with the stores experts, it was determined to revert to the original proposal. The Committee, I think, was so advised. The provision of lifts in the centre of the building is in accordance with the American system.

We are using electrical power. We propose to have the usual natural window lighting on the sides of this building. It has been planned on the Leichhardt scale. It is open to question whether the stronger light here would enable us to do with a little less window lighting. That, however, might well be left to the Works Department. If we consider that we can reduce the window areas that will be done. I would remind you that the buildings will be 100 feet wide, so that the light derived from the side windows will have to carry 50 feet. Going down in the channels, between the piles of stores, I think a fair amount of light is necessary. If it is considered that the lighting can be reduced, a slight saving may be made, but the question needs to be very carefully considered. Provision is made for lighting the building by electricity. We have an item of £482 for that purpose. We shall need to have the electric light in the office, and a few lights in the store. It will not be a big installation. The building next in importance is the Small Arms Ammunition Store. It also resembles the type of buildings that we have erected elsewhere, and which were recently inquired into by the Committee in connexion with the Midland Junction proposal. In this instance, the loading platform fronting the railway line will be wider, so that there will be no chance of the engine coming under the projecting roof. The size of this building will be 80 feet by 80 feet. It is intended eventually to double it. The walls will be 12 ft. 6 in. high. The building is of the standard type adopted at Liverpool and Midland Junction, and, in addition to the loading platform on the railway side, will have a loading platform 10 feet wide on the road side. A double roof for purposes of coolness is also to be adopted here. That is to say, there will be an inner roof covered with malloth, with a 2-ft. space between that and the outer roof, which will be covered with galvanized iron. Down the centre of the store we shall have a row of stanchions, and the spacing of this will be 10 ft. 4 in. at the centre. In this instance, a train coming along the loading platform will be well outside the overhanging roof. Exactly the same method of side lighting under the projecting eaves will be adopted as in the case of all the other stores, and also the same method of ventilation—a method designed to keep the interior of the building at an even normal temperature. The size of this building is in accordance with the requirements of the Defence authorities. It is a unit size, and is intended to be doubled later on. The building next in importance as regards size is the administrative office, where all the clerical work connected with the control of the Stores Branch of the Defence Department will be conducted. That building is intended to be located at the entrance gate to the site from Sylvan-road. The public coming to do business at the stores area will use that gate, and the first building encountered by them on entering will be this administrative block, where accounts will be paid and all administrative matters will be conducted. This is to be a one-storey building of light timber construction, and of a class very general in Queensland. It will be supported on round, hardwood tree stumps capped against white ants. It will have an iron roof, with a brick store-room and separate lavatories for male and female employees. The size of the building is 81 feet by 36 feet, with a 7-ft. verandah in front, and a 9-ft. verandah at the back. The accommodation will consist of one general office 70 feet long by 22 feet wide, with a space 20 feet long by 14 feet wide for the public doing business with that office, and three smaller offices for the principal officers in charge, together with a waiting-room for the public seeking interviews with them. This building will have a 10-ft. 6-in. ceiling, and the cost is estimated at £2,008. I should have mentioned that the small arms ammunition store is estimated to cost £2,840.

25. *To Mr. Mathews.*—There is a retiring place for the females to be employed in this building, and there will be a retiring place for the men at the store. We have provided special accommodation for them there.

26. *To Senator Newland.*—It is intended to erect a special building for the stores and clerical staff, a building where they will be able to get hot water, to partake of luncheon, and spend their luncheon-hour in reading or other pastimes. The building will be of brick, 36 feet by 18 feet, with a 9-ft. verandah. Behind it there will be a separate detached block of lavatories. The height of the ceiling will be 10 feet. Water will be provided for heating purposes, and to cleanse the utensils used at luncheon.

27. *To Mr. Mathews.*—There will be no special packing under the roof of this building; but all under the eaves will be open, and there will be an air outlet in the ceiling. The roof construction will be in accordance with that general in connexion with domestic construction in Brisbane. The roof might be insulated if desired by the introduction of sawed or sawdust.

28. *To Senator Newland.*—The lunch-room will be opposite the main store building on the other side of the roadway; and, since that building is to be of brick, it was thought that it would be well also to construct this room of brick. It will have 11-in. cavity walls. The cost of construction in wood would be less, but all the official buildings on this part of the site are, with one exception, to be of brick. The administrative buildings are to be on a separate part of the site, as it does not form one of the group we propose that it shall be of wood. If it is considered that a wooden lunch-room would not constitute an eyesore, that method of construction could be adopted.

29. *To Senator Foll.*—The building of the lunch-room of wood would not constitute a special fire risk. Except that it forms part of a group of brick buildings, I do not know why it should not be of timber. The building as proposed by us is estimated to cost £10, but a saving of from 15 per cent. to 20 per cent. would probably be made by constructing it of timber.

(Taken at Brisbane.)

FRIDAY, 4th MARCH, 1921.

Present:

Senator NEWLAND, in the Chair;  
Senator FOLL, Mr. Mathews,  
Senator Plain, Mr. Mackay,  
Mr. Bamford, Mr. Parker Moloney,  
John Smith Murdoch, Chief Architect, Department of Works and Railways, further examined.

30. *To Senator Newland.*—I have yet to give the Committee a description of four more buildings in order to complete the list. The first of these is the unserviceable goods store. It is to be a brick one-storey building 30 feet by 20 feet, with 11-foot walls, and an iron roof. It will be lighted by windows in the usual way, and will be of the most economical construction possible to adopt. The walls will be of 11-inch brickwork. It was suggested yesterday that the lunch-room might be of wood, and I said that would probably mean a saving of £200, but that a wooden building would not be in accordance with the group to which it belonged. When we visited Kelvin-grove yesterday afternoon, it was suggested by Senator Foll that if that site were selected, the small cottage recently erected on it might be used for a lunch-room. It could be easily shifted to the proposed site for the lunch-room building, and the partitions removed. The suggestion

is worthy of consideration. The unserviceable stores building could be constructed of wood or iron, but while the goods placed in such a store might be no longer suitable for defence purposes, they might still be of considerable value. A saving could be effected by building the store of wood or iron, but I should like the whole group to be in brick. The cost of this store in brick is estimated at £866. A saving of about £75 would be made by constructing it wholly of timber. A considerable portion of the building, even under the present proposal, will be of wood. It will have the appearance of being a brick building, but in reality will be half timber in construction. The next building consists of a small block of latrines for the men employed at the stores. The administrative staff will have their own lavatory in their own building, this latrine block will be for those working in the stores. Similar provision is made at the lunch-room. The latrine block will consist of a small brick building 14 feet by 11 feet and 8 ft. 6 in. high. It will have the usual water provision, and its cost will be £350 10s. It is to be fitted up with a kaustine installation for three apartments. The only other building remaining to be described is a small room for the machinery to work the lifts. It is estimated that that room, which will be 14 feet by 12 feet, will cost £175. The electrical plant will be installed in it. It is not proposed to generate any power at the stores. This building will also be of brick. The figures I have given will cover the cost of all the buildings. The remaining items which go to make up the total estimate are: Fencing and gates, £240; formation of roads, £672; storm water drains, £692; water supply and hydrants, £1,058; electric lighting, £482; electric supply mains, £750; electric installation for the lift, £265; lifts, £3,500; and sprinkling system, £3,000. A general contingency of £3,500 has been added to cover unforeseen items and any possible gaps which may have occurred since this estimate was drawn up.

Lawrence Herbert Story, Senior Ordnance Officer, 1st Military District, sworn and examined.

31. *To Senator Newland.*—Excluding post-humum equipment stored at the Mobilization Stores at Enoggera and that at the Ordnance Depot at Townsville, military stores on ordnance charge in this district are stored in thirty-three different buildings in six distinct groups, representing a floor space of 100,000 square feet. The buildings include two gun parks for Field Artillery, an Engineer Depot, the Army Service Corps drill-hall and wagon-sheds, the Brigade wagon-shed of the Field Artillery, and a drill-hall at Townsville. In addition, there is a gun park and two stables at Enoggera, which are independent of the Mobilization Stores there. The stores for which the plans before the Committee provide will give space in lieu of this temporary accommodation, and will relieve us of an annual rental outlay of £1,058. When proper Ordnance Stores are available it will be possible to vacate the drill-halls and gun-sheds, which are required for the units of the Citizen Forces and for their new recruiting training. This accommodation is not available to them at present. The carrying out of the scheme before the Committee will enable us to vacate the whole of the drill-halls and gun-sheds which are required by the Citizen Forces for training purposes. In the 100,000 square feet of floor space to which I have referred as being occupied by stores at the present time, the space occupied by wagons and the gun parks are included. Our stocks should be materially reduced by the issue of clothing and equipment to the Forces. The temporary ordnance depot at Enoggera will be retained probably as a base to facilitate issues of equipment to camps of training and schools of instruction at Enoggera. I have included in the floor space of 100,000 square feet some of the

space now occupied at Enoggera. We shall vacate practically 30,000 feet of floor space of buildings which were built for units of Citizen Forces, but which are not available to them at present.

32. *To Mr. Mackay.*—With the building of these stores, we shall not have to continue the use of buildings now rented at a cost of £1,058 per annum.

33. *To Senator Foll.*—The lease of the Market-street buildings now rented is terminable, I believe, on three months' notice by either side.

34. *To Mr. Bamford.*—A gun park is a building provided for the accommodation of guns and equipment on issue to a Field Artillery Battery.

35. *To Senator Newland.*—I understand that prior to my coming to Queensland the question of a site for Ordnance Stores had been under consideration. I have been here for a little more than two years. The Kelvin Grove site since then has been inspected by Mr. Swinburne, the Quartermaster-General, Brigadier-General Forsyth, and Colonel Wilson, the Director of Ordnance Stores. I have made inquiries, but have been unsuccessful in locating any other suitable site reasonably close to barracks and head-quarters as well as to the railway system, and of a reasonably level character.

36. *To Mr. Bamford.*—I prefer the Kelvin Grove site to that at Enoggera. A number of advantages attach to having the stores close to the city. The greater proportion of the training in the metropolitan area is responsible for the barracks, the rifle ranges, the Units of Citizen Forces and the Cadet Training Areas. It is an important factor in the economic handling of stores that Ordnance Stores be centrally situated and reasonably close to the points to be served. The Kelvin Grove site is preferable, not only on account of its proximity to the railway, but because it is close to the Normandy marshalling yard for cattle and vehicle transport.

37. *To Senator Newland.*—The Kelvin Grove site has another advantage, in that it is in close proximity to Victoria Park, which in case of emergency could be used as a site for dumps of stores if there was not sufficient room for the stores inside the Ordnance Compound. It is also in the immediate vicinity of the Field Artillery gun park, Engineer Depot, and the Army Service Corps drill-hall. Then, again, the military laundry is in the immediate vicinity. That is an important consideration, as many of our textile stores require to be washed and fumigated. The laundry is owned by the Department. Further, the Kelvin Grove site is convenient to a tram-line, which also passes District Head-Quarters, and by means of which the proposed site is within two or three minutes' journey of Head-Quarters. It is thus very convenient to the public, which is an important consideration when we are inviting quotations for supplies or disposing of surplus stores. Our experience is that if a sale of stores is held within the city boundaries, or handy to the city, quite a number of persons will inspect them with a view to purchase or quotation. We have at times endeavoured to sell stores at Enoggera, and in some instances not one person has gone there to inspect. The proximity of the site to Head-Quarters will mean a saving of time on the part of the Senior Ordnance Officer in attending Head-Quarters, or officers from Head-Quarters attending the Ordnance Stores, to confer in regard to store issues, receipts, and other matters. It will also mean economy in the matter of haulage, both to and from the railways and the wharfs. There are the main points in favour of the Kelvin Grove site. I am not aware that it is not intended to bring the railway on to this site at the present time. The absence of a siding will make a difference in the cost of working our stores there. The bulk of the

stores received into the Ordnance Store consist of small lots. The only exception is small arms ammunition, which is received in lots as much as 2,000,000 rounds at a time. This small arms ammunition is sent out again in small quantities to Rifle Clubs, Military Units, and so on. A very considerable quantity of equipment is issued to camps. Small quantities distributed in the metropolitan area are usually sent out by road. Where there was any considerable quantity to be despatched by rail, the goods would be loaded direct from the stores into trucks if the stores were connected with the railway. The trucks would be shunted to the assembling yard, and then sent to their destination. In this way, we should avoid a good deal of unnecessary handling. That advantage would not apply to the same extent to the Enoggera site. There is not a great deal of traffic on the Enoggera line. Trains are run at very long intervals. It is a single line of rails, and the marshalling yard in that case would be Brunswick-street, which would involve a 5-mile run. Unless we had specially large consignments, necessitating a special train, there would be a difficulty in getting a single truck sent out there, and in getting it back as required. It was only yesterday that I heard that a proposal had been made to select Enoggera as the site for these stores. I repeat, that the Kelvin Grove site is preferable. It would certainly require a lot of levelling, and the cost of a siding into it will be considerable; whereas, as you say, there is already a railway siding running into the Enoggera land. I think now that much greater difficulty and inconvenience would be experienced as a result of having the stores at Enoggera. In the first place, whichever route is taken to Enoggera, there is a very stiff pull, so that the loads would have to be restricted, and there would be a considerable loss of time. Unless an early start could be arranged, and the loads could be carried quickly to their destination, it would be impossible for one team to make two trips a day from that point. Assuming that the Forces had been equipped on a peace footing, the camps would involve the greatest volume of transport. We have material going from here to the south, and vice versa. These goods would have to be carted to Enoggera and back again. You ask whether that would occur very often. We are holding ten camps in different parts of the State this year. Two of these camps will be held at Enoggera; while others will be held at Maryborough, Rockhampton, Toowoomba, Lismore, Townsville, Cairns, Mackay, and Lytton. In respect of each of these camps, a considerable quantity of goods would have to be sent from the Ordnance Stores, but the bulk of the equipment for the three northern camps will be handled from Townsville, where we have a small depot. Most of the stores will be sent to their destination by rail and brought back in the same way. Those intended for Lytton are usually sent out by road. From 30 to 40 tons of goods would be sent to an average camp. The cost of handling goods from a store-room at Enoggera would be greater than in the case of Kelvin Grove. The chief cost would arise in connexion with the handling of the ordinary receipts and issue. The clerical work attaching to that would be done at the Ordnance Store wherever they were situated, but the handling of the goods at the wharfs or the railway, and the cartage out as well as the handling at the other end, would be greater if the stores were at Enoggera than if they were at Kelvin Grove. I can supply you later on with an estimate of the difference in the cost. When these stores are erected, the goods will have to be moved from the groups of buildings I have already enumerated. I have not been consulted as to the type of buildings to be erected, but through the courtesy of the Works Director I have seen the plans.

I think that the responsible officers of the Defence Department in Queensland should be given an opportunity to make suggestions with respect to any proposed buildings. We in the 1st Military District have not been consulted, but I presume that officers of the Army Head-Quarters in Melbourne have been. I am satisfied with the lay-out of the buildings shown on the plans before the Committee. It seems to me, however, that it would be better to have the unserviceable stores buildings closer to the main store than is proposed. That would facilitate handling, and give us more yard room. I am emphatically of opinion that a lunch-room is necessary. The eating of lunches in the store-room encourages vermin. Then, again, when lunch-bags are left in a separate lunch-room, the possibility of pilfering is greatly reduced. I approve of the administrative offices being quite separate. Generally speaking, I approve of the whole scheme.

38. *To Senator Foll.*—I do not think it would be an advantage to have the Ordnance Store near the Mobilization Stores; it would really be a disadvantage, inasmuch as in the case of an emergency we should be making issues from the Mobilization Store, and at the same time there would be greatly increased activity at the Ordnance Store. There would be no advantage in having the Ordnance Stores at the centre where troops would be mobilized in an emergency. The emergency equipment would be at the Mobilization Stores. The troops would have their peace equipment on issue, and on mobilization they would report at the Mobilization Stores and draw their war-issue. There is practically a continuous stream of material leaving and returning to the stores. Stores which have become unserviceable are dealt with by Boards, and returned to the Ordnance Store, and stores having to be replaced to replace them should say that about 60 per cent. of the stores handled are in connexion with the metropolitan area, the remaining 40 per cent. go into the country and to the north. It would not be more difficult to send that 40 per cent. from Enoggera than it would be to send them from Kelvin Grove, in so far as their actual despatch was concerned. Once the goods were on the railway trucks, our difficulties would cease; but the important consideration is that before such stores can be issued they have to be delivered at the Ordnance Stores by either contractors or from the other Military Districts. The chief difficulty presented by the additional 4 miles of haulage which the Enoggera site would involve is that it would be almost impossible to work two trips a day. The bulk of our stores are received by steamer from the south. Practically no stores are received by rail. The Kelvin Grove site, no doubt, will involve a considerably greater expenditure than that at Enoggera, but it will ultimately prove to have been the cheaper proposition. Hardwood floors, if tongued and grooved, would present no difficulty to me; but I scarcely think it would be desirable to have hardwood floors in a building where goods would be stored, inasmuch as it would be a harbor for vermin such as cockroaches, silver fish and moths. The increased number of supports which a hardwood floor would involve would be a great disadvantage. The greater the number of uprights the more would be the difficulty in the way of storing our goods to the best advantage in their several groups. Another drawback is that if we were using trucks to remove heavy packages on a wooden floor, considerable noise would be caused, and dust would fall to the ground floor beneath. The buildings at present being used by us as Ordnance Stores have wooden floors, but there are ceilings underneath the upper floors. If we had a ceiling to the ground floor of the proposed Ordnance Store, no objection could be taken to the putting in of a hardwood

floor that was tongued and grooved, but I would prefer a concrete floor.

39. *To Mr. Parker Maloney.*—I am not in touch with the Enoggera proposal. If stores were erected at Enoggera in the neighbourhood of the Y.M.C.A. building, they would encroach on the training area and necessitate the removal of a number of buildings there. It would not be impossible to have an Ordnance Store there, but it would be impracticable to run a railway siding on to the higher level because of the steep grade covered in a very short distance. It would also be undesirable to have the Ordnance and Mobilization Stores together at such a point, since they would stand out clearly in such country, and an airman on a bombing expedition would have no difficulty in picking them up. It is also undesirable to encroach on the training area.

40. *To Mr. Mackay.*—The goods at present stored by us in rented premises comprise about one-third of the total value of our stocks. I anticipate by the building of these stores at Kelvin Grove to effect a saving in working conditions, and to be able to reduce the staff by at least 30 per cent. At present, we have 97 men on the staff. We must certainly get the stores out of the drill-hall, as the units concerned have no space in which to put their stores or accommodation for training while we are in occupation of them.

41. *To Mr. Bamford.*—I was present when Mr. Swinburne examined the Kelvin Grove site. The preliminary work for the erection of Mobilization Stores at Enoggera was in hand when I came here, and I think that Mr. Swinburne had passed over that site, so far as Ordnance Stores were concerned.

42. *To Senator Foll.*—It would not be possible to administer the Ordnance and Mobilization Stores more efficiently and economically if they were both on the same site. Once the Mobilization Stores are properly arranged there will only be a skeleton staff of three or four men there. In ordinary times, there will be no issues from them. The erection of a central Ordnance Store will result in greater efficiency, and far more efficient supervision than is at present possible.

43. *To Mr. Mathews.*—I favour the Kelvin Grove site, which is the most convenient for the receipt and distribution of goods. The various units have just resumed training. While training was suspended, they had practically no stores on issue, and the administration was almost at a stand-still. It is essential that the different units should have proper accommodation for their stores. Of the thirty-three buildings now occupied, twenty-two will be released when these new stores are erected, exclusive of the present head-quarters of the stores at Petrie Terrace. They could be released in time. The buildings which will not be released consist of a depot at Enoggera, where we have two stores and two workshops. There is also a kerosene store at Enoggera. The small arms ammunition store at the barracks could be released if required for other purposes. We have also a temporary shelter for vehicles on the higher ground at Kelvin Grove. We shall release that, because it is taking up part of the parade ground. That will be contingent upon the issue of the waggons to the units. The buildings which will remain in use will be those at which no staff will be regularly employed. The depot, for instance, could be closed if there were no valuable stores there. On the approach of a camp, stores required could be sent out there in order to facilitate issues. The speedy issue and return of stores is an important consideration. It is not the intention of the Department to retain for storage purposes the stores to which I have referred. We shall do away with them as standing stores.

44. *To Senator Newland.*—It has been found that a hardwood floor is almost fireproof, and as sprinklers are to be installed in the Ordnance Store, the risk of

fire from the use of a hardwood floor would be very slight. I think the centre of the building is the best position for the lifts. They will not interfere with the storing of the goods, or the shifting of them from one part of the building to the other, nor will they interfere materially with the floor space. As we may be receiving stores by road, and despatching them by rail, it is better to have the lifts in the centre, inasmuch as we thus have to traverse only half the distance in taking the goods into the lift and half the distance in taking them later on from the lift to the railway siding. Sprinklers are desirable as an additional safeguard, but since the public are not admitted, and smoking on the part of the staff is prohibited, the risk of fire is small. If a fire did break out in the store, however, it would be a very disastrous one. That being so, there is no waste of money involved in the installing of sprinklers.

Major William Henry Raymond, Acting Staff Officer of Engineers, 1st Military District, sworn and examined.

45. *To Senator Newland.*—The Kelvin Grove site was originally acquired from the Grammar School Trust about 1908 or 1909, and a proposal was put forward in 1910 to acquire the additional ground outside for the erection of Ordnance Stores. The possibility of other sites has been discussed from time to time, but no other site is so central and convenient. One advantage is that the Commonwealth owns the greater part of the land now to be acquired, and requires only a limited area, whereas if we went elsewhere, with the exception of Enoggera, we should have to acquire the whole of the land needed for the purpose. The Kelvin Grove site will best meet all the local requirements, which certainly have not changed materially during the past ten years. I do not think it will be found expensive as compared with the Enoggera site. The same cost would be involved in levelling off the land for our purposes. The Mobilization Stores at Enoggera occupy the site on which it was proposed to put the Ordnance Stores, and the Committee has seen the excavations that were necessary there. If the Ordnance Stores were erected further along the railway siding there, the levelling off would not be more costly than at Kelvin Grove, but I should say that it would be practically the same, since there is no level ground there. My experience convinces me that the Kelvin Grove site is as suitable as any that could be found near Brisbane. There are other sites; but they are a long way from the centre. It is necessary that the Ordnance Stores should be adjacent to the city, and as near as possible to District Headquarters. Every day in the year transactions are going on between Headquarters and the Ordnance Store. On the other hand, Mobilization Stores are looked after by caretakers, and need to be seen by officers from Headquarters only once or twice a year. I do not think communications carried on by telephone between Headquarters and the Ordnance Store would be satisfactory. Even if the Enoggera site would cost £10,000 less, the advantage would be with Kelvin Grove because of the saving in the cost of transport. That was really the view taken by the Business Board. I think the cost of transport to Enoggera would be double that to the Kelvin Grove site. There would be no difference in the cost of handling, because, as you say, there is a railway siding at the Enoggera site, and the men working at Enoggera do not receive higher wages than those within the city. The only additional cost would be in receiving or in sending out small lots by motor to some suburban area, or on the railway stations or wharfs. Even if the Enoggera site were selected, many parcels would have to be sent to the Roma-street station. I hold the view that the saving that would be effected by the selection of Enoggera, so far as the cost of the site itself is concerned,

would be exceeded by the increased cost in haulage. I was not consulted in regard to the planning of the buildings as now before the Committee. The Works Department went into them with Headquarters in Melbourne; but, up to a certain point, I was in touch with Headquarters, Melbourne. I made a contour survey of the land at Kelvin Grove, and have made quite a number of plottings for different proposals. I think the estimate of £4,200 for excavating and filling is fairly within bounds. It may be a little more or less. As to the lay-out, my opinion is that no part of these buildings should be over the sewer. The plan shows the Small Arms Ammunition Store and part of the main building over the sewer. Further excavations to permit of their erection on the other side would hardly be necessary. I do not think there would be any material difference. The lay-out is unsuitable. It would be an advantage if the route of the proposed railway siding were varied to the extent of several degrees, so that the buildings could clear the drain. The railway line should be a little more to the north. The buildings instead of lying level with the boundary of the land would then run more diagonally than is now proposed. I suggest that the dead end on the western side should not go right up to the boundary, so that vehicles could thus be loaded or unloaded from that end. The departmental plan shows a steep wall which would make it impossible to load or unload vehicles at that point. Subject to these alterations, I approve of the departmental plan for the building. A building for small arms ammunition 100 feet by 60 feet would be better than the building, say, 80 feet by 80 feet, since the distance to be covered from tramways, if they were put down in the building, would be shorter on each side.

46. *To Mr. Mackay.*—It will be necessary to purchase a piece of land known as the Lady Musgrave Hospital reserve. No inquiry has been made by the Defence Department as to what the land will cost; the Department of Home and Territories has dealt with that matter. Our Department has taken no steps to get under the properties which will have to be acquired. It is not our province to do so. The three cottages on the top of the hill as well as the one on the other side, and the small cottage in the centre of the site, will have to be purchased. In addition, there are three big allotments and four allotments adjoining the little house in the centre, which will have to be purchased. The purchase of the land, I believe, is included in the estimate.

47. *To Mr. Bamford.*—I do not know the owners of any of the land proposed to be resumed. I do not even know the names of any of them save that of a policeman, who built the new house towards the centre of the ground. I have not heard of any protest on the part of the property-owners against the proposed resumption of their property. I have here a plan showing the Kelvin Grove and Enoggera sites, and the relative positions of the various drill halls and head-quarters to those sites. There would be a difference in the cost of the buildings if they were erected at Enoggera instead of the ground. I have not heard of any advantage in that regard will be in favour of Enoggera. I know of no actual site at Enoggera which I could recommend. It is certainly true that it would be unnecessary for the Government to resume land there. If the stores could not be erected on Commonwealth land there they could not be erected on any other site in the district. I was here during Mr. Swinburn's inspection, and was in touch with him throughout his visit, but I have not seen his report on the subject; but I would endorse it, because it would be based on information that I gave him. This report was available before the Mobilization Stores were erected at Enoggera. I do not know who was responsible for the erection of those stores there. I should not like to attach the responsibility to any one.

The site is a good one for mobilization stores. It is close to the mobilization area and the railway line, from which the siding will run. The same facilities would not recommend it for Ordnance Stores purposes. It is just as necessary to have these Ordnance Stores in the city as it is for a warehouseman to have his warehouse in the city. If a warehouseman could induce his clients to do their business with him on a site some distance from the city he would go there. I would not recommend a new head-quarters and the whole of our military activities to Enoggera than I should think of recommending that the General Post Office should be established there. My reason for that is that it would not be central for persons having business with the Service. Relatively, the public have a lot to do with head-quarters. Having given the most careful consideration to this question, I hold that Kelvin Grove is more suitable than is the Enoggera site for Ordnance Stores. I am firmly convinced of that. I have been studying and working on the question for the last ten years, and my opinion has never varied.

48. *To Mr. Mathews.*—I think the main building should be put further north so as to prevent any portion of it being built over the drain. If anything went wrong with the foundations or the drain became choked the situation of that building as shown on the plan would be most undesirable. I have known the site for some time. The heaviest rainfall we have had here is 4 inches in an hour. As a matter of fact, we had that downfall at that rate for twenty minutes. There is no record of the condition of the Kelvin Grove site in such circumstances. My observations during the last fourteen years do not lead me to think that there is the least danger of the site ever being flooded. The present drain is sufficient to carry off all the flood waters coming upon it. There is never any accumulation of water there, nor is there any possibility of the water being dammed up. If the drain overflowed, the overflow, after all, would be only a matter of a few inches. As one who knows as much about the floods that have taken place in Queensland during the last fifty years as any other man in the State, I have no hesitation in saying that this land will never be flooded.

49. *To Mr. Parker Maloney.*—Although the erection of these buildings at Kelvin Grove will involve a considerably greater expenditure than would their erection at Enoggera, where we have our own land, there would be a considerable saving in transport, because of the proximity of Kelvin Grove to the city. There are many items, such as clothing, boots, hats, and such like goods to be issued to the various centres in the metropolis. Mr. Swinburn asked for certain information. It was furnished to him by the Ordnance Store Branch, and the conclusion he came to was that Kelvin Grove was the more suitable site. I agree with that view. There would not really be a difference of £10,000 between the expenditure on the two sites. As a matter of fact, it would be a saving of £10,000 in the case of the buildings for the mobilization stores at Enoggera. I think there would not be a difference of more than about £2,000. When I said that there were advantages in respect of the Kelvin Grove site which would compensate for the difference of, say, £7,000 in the cost involved, I certainly based that conclusion on the belief that a railway siding would be run into the Kelvin Grove site. As to the matter with Mr. Swinburn, we estimated the cost of a railway siding at Kelvin Grove at £2,000. The buildings to be acquired were valued at that time, and I do not think there will be much difference in their actual valuation to-day.

50. *To Senator Foll.*—I was not consulted in regard to the general design of these buildings. I should not like to express an opinion as to the suitability of the buildings shown in the plan, because I have not studied them. Having glanced at them casually as

displayed in this room, I must say that I do not approve of so much window space as is shown in the main building, but I would not care to express a definite opinion until I have carefully studied the plan. When new works are contemplated in this State, I am consulted in regard to them up to a certain point. I discuss them with the various officers concerned, such as the Director of Works, Melbourne, the District Commandant, and others, but they are finalized by the Director of Works in consultation with other authorities, and I am not further consulted. They get my opinion, and that of others, and they have the final determination of such matters. I have not been ignored in this case. I think there are too many large glass windows in the main building. They will involve additional cost in upkeep, and uniforms stored near the windows, unless effectively covered, would be affected by the light. I also think that sliding doors would be better than doors opening inwards. They would lead to economy of space.

Lawrence Herbert Story, Senior Ordnance Officer, recalled and further examined.

51. *To Senator Foll.*—I saw these plans some months ago. My opinion was not sought as to the type of buildings to be erected, and as Ordnance Staff will occupy the proposed buildings, I should like to deal with one or two matters relating to them. In the first place, I think that provision is made for too much glass window space on the northern side of the Ordnance Store. The lighting provision made might be very suitable in Victoria, where the percentage of dull days is much larger than it is in Queensland—I suppose that here we do not have more than 5 per cent. of dull days—but it would be very trying to them. If they were working under so much glass, particularly on the northern side, and the excess of lighting would have a detrimental effect on textile stores. Then, again, sliding doors would be preferable to those for which provision is made. A loss of space is involved by the use of doors opening inwards, and in the case of doors opening outwards there is always a danger of their being ratched off their hinges by a sudden gust of wind unless they are securely fastened. I also observe that no provision is made for workshops in connexion with the proposed stores. We have, approximately, ton armourers, two saddlers and harness makers, a permanent sail-maker, and a permanent carpenter. In addition, I understand that under the new organization there is to be some slight alteration in the control of the Armament Artificers, and that they will be included in the workshops within the Ordnance compound. Browning is carried on at Ordnance Stores, and there must be a separate room for such work. The workshops should be entirely distinct from the other buildings. A part of the workshop could be used for Browning purposes, but the fumes would have to be isolated from the smitly. I think they would affect an ordinary iron roof, and that it would be necessary for the Browning room to have a ceiling.

52. *To Mr. Bamford.*—A gile roof would be cooler than an iron roof, but even if tiles were used it would be necessary to line the ceiling.

53. *To Senator Foll.*—There should be a forge in the workshop for the use of the armourers. I can supply the Committee with an estimate of requirements with respect to each class of artisan in the workshop. Last week I obtained a rough draft of the proposed office accommodation, and while the total space available would be adequate for the interior arrangement, I think could be improved upon. The improvements I have in mind would not involve any structural alteration.

54. *To Senator Newland.*—A re-arrangement of the partitions is necessary.



55. *To Senator Foll.*—There are several sections to be accommodated in the office. For instance, to facilitate the work, we have brought into the Ordnance building the office of the Secretary to the District Contract Board, so that our Ordnance, Orders, and Accounts section may be in immediate contact with him. I am inclined to think, also, that the Audit section should be separated in some way from the others in the ledger-room, so that they may better concentrate on their work. That difficulty could be overcome by the construction of a light partition.

56. *To Mr. Mathews.*—I am not a believer in having a large office divided off to any extent. As a matter of fact, I made alterations here so that the different section would be under the supervision of the men controlling it. I obtained a rough draft of these plans from the local Works Branch only last Thursday, and have scarcely had time to go into them in detail. I can supply the Committee next week with a plan showing the alterations which I consider are necessary. As to the window space in the Ordnance Stores, it seems to me that the glass windows on the lower floor come down too low, so that there is a great possibility of breakage both from within and outside. It would be very uncomfortable for men engaged on the northern side of the building, to be working with the sun blazing on them through this glass. On the southern side it would be less objectionable.

57. *To Senator Foll.*—We require fair lighting, but we have no minute work such as is likely to try the eyes. If the lighting of the Ordnance Stores was as good as that of the Mobilization Stores at Enoggera, it would be sufficient. It might be desirable to have a little more glass than we have in those stores, but it should be higher up than is shown in these plans. It could also afford additional means of ventilation.

58. *To Mr. Mathews.*—I have been in this State for a little over two years, prior to that I was stationed at Adelaide. We had a browned room there, in the Defence Department, Adelaide, for fifteen years, and was in close touch with the armourer. During the last seven years of my service there I do not think much browned was done. A great many of the arms that went overseas should have been browned, but time would not permit of it. I do not know that much browned has been done in this country. There have been rapid changes in the arms during the last few years, and it has been unnecessary to re-brown the old type of rifles, because they have passed out as obsolete. It would not take long to install a browned room later on, if such was approved, but the difficulty is to get the official machinery moving. A browned room would not be a costly item, but provision for the necessary space should be made in any structural plans for workshops.

59. *To Senator Newland.*—The Mobilization Stores at Enoggera are 80 feet wide, whereas the Ordnance Store is to be 100 feet wide, but I still think we should obtain more lighting from the less windows than are provided for in the plans before you. The number of windows on the northern side might very well be reduced. The space occupied by sliding doors would be sufficiently lighted from the doorway itself. Sliding doors would not affect the lighting of the building to any material extent. It would be an advantage to do away with some of the windows provided for in the plans. When the sliding doors were open, there would give us the light required in the bays between each door. From a workshop point of view, it would be better for the artisans to be clear of the Ordnance Stores. All overhauls and repairs should be done in separate workshops. Textile linings and other goods often come back to the stores full of moths, silver fish, and other pests, which would be distributed all over the buildings if the stores

were examined and overhauled in the store itself. It is better therefore that they should be examined in the workshops. A workshop building is necessary for overhauling, inspection, and repairs. I do not suggest that a separate browned room should be erected. My proposal is that it should be part of the armourer's workshop or the smithy. We should have a complete workshop even if it be only on a small scale.

Lieutenant-Colonel James Murdoch Archer Durrant, Assistant Quartermaster-General, 1st Military District, sworn and examined.

60. *To Senator Newland.*—When some thirty years ago the Ordnance Stores were just across the road from the Military Administrative Head-quarters in Victoria Barracks, the Queensland Stores were not numerically strong, but on the introduction of universal training it was apparent that before many years had gone by, it would be necessary to have more accommodation in the Ordnance Stores. Nothing however was done. The authorities carried on in an unsatisfactory way until 1914, when the war broke out. From that time till the close of the war, there was practically no training of the Citizen Forces. The stores required for the Citizen Forces went on accumulating, and were placed from time to time in buildings that would be required for the Citizen Forces when training recommenced. Training operations have now resumed, and these buildings are required at once for the training and administration of the Citizen Forces. Commanding officers all over the metropolis are crying out for their drill halls, and offices to be restored to them. That request cannot be complied with, because we have no other place in which to put our stores. I mention this fact in order to show the urgent necessity for the erection of proper Ordnance Stores. The situation now is that, in addition to the buildings that should be used by the Citizen Forces, but which our Senior Ordnance Officer is holding for the housing of his stores, we are also hiring expensive buildings in the city. So much for the necessity of a new Ordnance Store. I should like now to point out that the Ordnance Services are an integral part of the Administrative Head-quarters in Queensland. The Senior Ordnance Officer and myself, one might say, work hand in glove. I have constantly to refer to him, and he is constantly referring to me. From that point of view, it would be very inconvenient to have him far away from Victoria Barracks. Not only the Senior Ordnance Officer, but the Records and the Administrative Offices, as well as the files, which are constantly passing between Head-quarters and the Ordnance Stores, should not be far away from Head-quarters. That being so, in looking for a site for a new Ordnance Store, an endeavour was made to find a suitable one as close as possible to the Victoria Barracks, and after a thorough search round Brisbane the site at Kelvin Grove was found to answer all requirements most satisfactorily. The question of convenience, apart from the question of transport between Brisbane and Enoggera, is very important in relation to administration generally. The Kelvin Grove site is admittedly difficult for building purposes, but there is hardly a level place anywhere around Brisbane. The city is built on a succession of hills and dales. Unless you go down to the flat, unhealthy ground near the river, it is impossible to find a suitable level piece of ground anywhere near Brisbane. The construction of a railway into Kelvin Grove site would undoubtedly be an advantage. The fact that the present Ordnance Stores are not connected with the railway system shows that such a connexion is not absolutely necessary for the carrying on of the work, but a railway siding would certainly facilitate it. Without a railway siding we shall have more transport by horse and motor vehicles. Most of our stores from the south come by boat. I do not know that the absence of a

railway siding would involve more handling, but Mr. Story is best qualified to express an opinion on that point. We do not want to put guns into the Ordnance Stores, but it may be necessary to do so. A great deal depends on policy. As matters now stand, we anticipate that the guns we get from overseas will be issued to the Citizen Forces; but we have instructions that we may issue only a proportion to the Citizen Forces, and keep a proportion in store. Those I think will be kept at the Mobilization Stores.

I can give you some information as to what would be the cost of delivering stores in the metropolitan area from Kelvin Grove as compared with Enoggera. A two-horse lorry costs us 10s. per ton from here to Enoggera. If we had an Ordnance Store at Enoggera, all the stores we got from the south would have to be transported out there, and for delivery in and around Brisbane, as well as for delivery by rail to other parts of Queensland, would have to be carried back again into the city. In that way we should have superfluous haulage, so that the cost of hauling would be greater if these buildings were erected at Enoggera instead of at Kelvin Grove. So far as I know, the military Head-quarters in Brisbane have not been consulted as to the lay-out of the buildings as shown on these plans. The men who have to use these stores should, in my opinion, have been consulted up to a certain point. Head-quarters here were consulted regarding the site, but were not consulted to the best of my knowledge as to the type and extent of the buildings to be erected. There should be workshops where the Ordnance Stores are built, because the people working in them are part of the S.O.S.'s staff, and require to be under his observation. Articles to be repaired are sent to the Ordnance Stores, and then passed out to the workshop. Furthermore, even articles which are returned not necessarily for repair have to be overhauled by these workmen before they are re-issued. The workshop, however, is mainly because of the danger of fire, should not be part of the Ordnance Stores building. The forge, the carpenter's glue pot, and the tinsmith's fire can all present real and live danger of fire, and there would be a possibility of the Ordnance Stores being burnt down if these workmen were housed within them. Practically little or no repairs are carried out at the Mobilization Stores as compared with those which must be carried out at an Ordnance Store. When everything has been overhauled and sectionized at the Mobilization Stores, we may shut the doors and, save for a periodical inspection, to insure that everything is all right, we need not disturb them until an outbreak of war, and the material had to be issued. The Ordnance Store is the place where all the business relating to stores is done, and therefore it should be close to the barracks. I have examined the plans now displayed on the wall, and through the courtesy of Mr. E. E. Smith, Commonwealth Works Director for Queensland, I was able some time ago to inspect them in his office. It occurred to me then that the swinging doors which are provided for were not desirable, and that there was far more glass provided for than was necessary. The arrangement of the rooms in the administrative block could have been made to better advantage had the Senior Ordnance Officer been consulted, because his opinion as to the size of the rooms, and as to where the clerks of the audit section and the account section should be placed is worth having. He knows exactly how big each section is, and what space is really required for them. The internal subdivision of the administrative block could be re-arranged to better suit the Senior Ordnance Officer. I agree with the evidence which has been given by Mr. Story. If the doors swing inwards, there is a great loss of space as compared with sliding doors. If they swing outwards, there is a consequent loss of space on the loading platform outside, also freedom of movement

on the platform outside is interfered with, and there is interference generally with easy working. It would be much better to have sliding doors. Such doors would not interfere with the lighting of the building. The swinging doors, when open, as a matter of fact, would smother as much light as would sliding doors when drawn back. With the exception of these points, I think the proposed Ordnance Store as shown on the plans before the Committee will be very suitable.

61. *To Mr. Mathews.*—The stores in the existing buildings will be removed by road transport to the new store. We have two motor trucks here, and do a tremendous amount of work with them. They offer quick means of transport, and are far more economical than horse transport. No stores have been obtained locally since my return from the war, but no doubt during the war period considerable purchases were made locally. Any goods manufactured here for our use would have to be taken by road to the Ordnance Store. We have railway communication at one wharf, but it is of no value. Stores coming from the south by boat could not be removed by road as economically as by rail if they were in large lots. Our two motor trucks could only cope with a small shipment, and in that case road transport would be economical, because we could not have to hire any motor trucks. But if, for instance, we had a shipment of, say, 100 cases of boots, our two trucks would not make much impression on them, and the demurrage would quickly amount to a big figure. My experience is that one needs to be most expeditious in shifting goods from wharfs. There are not many suitable motor trucks here which could be hired for such work. We should have to hire horse transport. It would be economical to have a railway siding into the Kelvin Grove site in the case of issues to camps. We could fill up a certain number of railway trucks with the camp equipment required for Toowoomba, or any other place. Apart from the camps, however, I do not think we would use railway trucks at all; our motor vehicles would do all that was necessary. For an Ordnance Store generally, motor transport would be most expeditious and economical except in the case of stores required for the camps.

62. *To Mr. Bamford.*—At the present time, consignments of boats would come to Market-street. If we had accommodation for them, we would take them by road to Kelvin Grove, but large consignments for Enoggera would go by rail if landed at the wharf connected with the railway. So far, it has been only *post bellum* equipment from overseas that we have had to take to Enoggera.

The witness withdrew.

Edwin Evan Smith, Commonwealth Works Director for Queensland, sworn and examined.

63. *To Senator Newland.*—On three occasions I went over the proposed sites for Ordnance Stores in Brisbane. In one instance, I inspected them with Mr. Swinburne. In another instance, with Colonel Quest; and then with Mr. Reading, a member of the Business Board. We inspected the several sites, and I think it was generally conceded that Kelvin Grove was not a very favorable one, but that the difficulties which it presented were not insurmountable. The plans show how the difficulties have been overcome, and at what cost. I do not think I can say any more as to whether or not the site is suitable for the purposes for which it is intended; the question is one on which the Ordnance officer should express an opinion. It is certainly a nearer town than is Enoggera. To my mind, its most difficult feature relates to the approach from the railway system. From the evidence given it would seem that the military authorities will be able to do without a railway siding, and to carry on with road transport. That greatly simplifies the matter. I understood from

the railway engineers that it would be difficult to carry a siding into the Kelvin Grove site, as there is only one line going out to Mayne at the present time. The form of the country would also involve a considerable amount of filling, and I do not think the work could be carried out for anything like the amount named in the State Railway Department's estimate. They gave, in the first instance, an estimate of £900, and twelve months later an estimate of £364 for running the siding into Enoggera. That siding, which is 164 chains long, was put in by the State Railway Department, and it actually cost £760. The Commonwealth Works Department made the track, and the State Railway Department only laid the sleepers. I do not think the railway siding into Kelvin Grove could be constructed at the cost estimated by the Railway Department. The latest estimate was made twelve months ago, and since then the cost of unskilled labour has greatly increased. I think the whole cost of the buildings will be very much more than is set down. I have gone through the estimate, and I think it should be increased to the extent of between £4,000 and £5,000 in respect of the whole undertaking. I am sure that the State Railway Department gave us a fair deal in putting in the Enoggera Siding, and that £760 was the actual cost. I have been over the route of the proposed Kelvin Grove Siding, and from my observation and knowledge of the country think the estimate is very low. I have not participated in the preparation of the plans before the Committee. They were sent to me for criticism some little time ago, and before being finally prepared were once more sent up to me. I had had them in my office for only three days when I was asked to return them. I consulted Mr. Story in a semi-official way, and went into the plans with him. After our consultation I wrote to our head office, and on grounds upon which Mr. Story and I agreed, criticized the plans in so far as the doors and windows of the store were concerned. The plans were slightly altered, but not to the extent that I think they should have been, having regard to Queensland conditions. I agree with Mr. Story that the windows in the Ordnance Store are too numerous, and that sliding instead of swinging doors should be provided. I am not acquainted with the system of mushroom concrete construction to be adopted in this case. I have text-books on the subject, but have not carried out any such work. I believe the system is a very good one, but think it would be extremely expensive, because a good deal of centering must be used. I do not think there would be any difficulty in carrying out that form of construction in Brisbane. The suggestion that we should have timber supports and timber floors for the upper story instead of concrete is one with which I concur. Mr. Murdoch and I have discussed the matter before, and I have held all along that it would be a good proposition in a State like Queensland, where we have so much hardwood available. I do not think that the additional supports which would be required if hardwood were used would interfere with the floor space. They might interfere with stocking operations, but not to any extent. There certainly would be no greater fire risk. I have a very considerable leaning towards hardwood as a protection against fire. The substitution of hardwood for the floor and its supports would lead to a saving of from £1,500 to £2,000. The ceiling below the floor could be lined with some sort of asbestos composition; that would make a very good fireproof proposition. The hardwood supports would have to be 10 inches by 10 inches, which is much larger than the proposed concrete supports, and the floor joists would also be larger; but we could make up for the extra loss by these larger floor joists by putting in extra two courses of brickwork round the building. That would involve an additional cost of only some £70. The substitution of hardwood as suggested would effect a saving of time in construction. It might possibly result in a saving of one month. More skilled labour would be required, but

the reduction in the time occupied would mean a saving of money. The timber would be in very big bulk, and labourers as well as skilled men would be required for concrete work as well as for a hardwood job. The timber would have to be well seasoned. The War Service Homes authorities told me they would have no difficulty in supplying the timber, and we should probably obtain it from them at a reduced rate. An outside miller has also told me that he could supply seasoned timber for this work. The War Service Homes authorities are stocked at the present time, and one of my officers came to me recently and offered me any timber I required. He told me that he could procure the scantlings which would be wanted.

64. *To Senator Plain.*—I have checked the estimate of £4,000 for excavating and filling at Kelvin Grove. There is also an item of £4,380 for cost of acquiring land and houses in the neighbourhood, and there is an additional estimate of £500 in respect of the acquisition of the newly-built cottage. I do not think we could get that cottage for £500.

65. *To Mr. Mackay.*—The owners of the land to be acquired have not yet been consulted. If it were decided to put in hardwood supports, the larger scantlings required would be 16 inches by 12 inches. I have been told by outside firms that the timber is procurable. There is a distinct easing down in the prices of timber just now, and there is likely to be, because there is just now almost a cessation of building.

66. *To Mr. Bamford.*—A railway siding into Kelvin Grove would come off the Mayne line. The length of the Enoggera siding is 164 chains, while the Kelvin Grove siding would be 25 chains long. Bricks to-day cost about £5 a thousand.

67. *To Mr. Mathews.*—The Commonwealth Works Department prepared that part of the track for the Enoggera siding which is in our own ground. The State Railway Department gave me a plan showing the line running into our ground. They knew that we would have to excavate for building purposes, and they assumed, no doubt, that they would come in on the level. In the case of the Kelvin Grove siding, the State Railway Department would do the embankment outside our land and run the sleepers and railway right into our ground. I think the estimate is too low. They undertake to do the work and to charge us the actual price. I know the Kelvin Grove site very well, but have never seen it under very heavy rainy conditions. It is undoubtedly a water-course, as you say, but for that the barrel drain would not have been put in. I think the size of that drain is sufficient to carry off all the water that might come down from the surrounding watershed. I notice that there are two outlets at the end to take the surplus water off the top of the drain. I should like to see the land in wet weather, but I think the drain would probably get the water off in a satisfactory way. The drain is sufficient, in my opinion, to carry off any storm water. We should have to make provisions for draining in connexion with this work, but that provision will throw the drainage over the road.

(Taken at Melbourne.)

TUESDAY, 3RD MAY, 1921.

Present:

Mr. Gregory, Chairman;  
Senator Foll,  
Senator Newland,  
Senator Plain,  
Mr. Atkinson,  
Mr. Mackay,  
Mr. Mathews,  
Mr. Parker Moloney.

Lieut.-Col. Thomas Murdoch, Director of Works, Department of Defence, Melbourne, sworn and examined.

68. *To the Chairman.*—I have been associated with the proposal for the erection of Ordnance Stores at Kelvin Grove, Queensland, which work has been

referred to this Committee. We have stores already in Brisbane which are insufficient for our requirements. We have various rented places scattered about the city. Altogether, there are 31 of these in Brisbane, devoted to the various purposes of our Department. In addition to the Permanent Ordnance Stores occupying 20,000 square feet, we have 21,000 square feet rented at a cost of a little over £1,000 per annum. In addition, we are occupying drill hall accommodation amounting to about 25,000 square feet. Our requirements in area at the present time are about 60,000 square feet. The plan for the proposed erections at Kelvin Grove provides for an eventual increase, when that may be deemed necessary; but 60,000 square feet should give us sufficient space for some years. The estimated cost of the proposed scheme is £53,041. Our Mobilization Stores are at Enoggera. They are similar in design to the stores being erected in other parts of Australia for the same purpose. In Western Australia we have the Ordnance and Mobilization Stores combined in the one group. In Brisbane, we have the latter at Enoggera Camp, about 4½ miles from Brisbane, and it is the opinion of the Department that the erection of the ordnance stores would be preferable at Kelvin Grove, which is only about three-quarters of a mile from Roma-street Station—and, say, 1½ miles from Brisbane. We have at present no stores at Enoggera. The ground plan in connexion with the proposal for Kelvin Grove has been got out with an idea to provide eventually railway facilities there. It is not proposed now, however, to put a railway into the site. In peace times we do not consider that railway connexion is urgent, or necessary, so far as Ordnance Stores are concerned. This applies particularly to the present proposal, since we shall be three-quarters of a mile from the central station. With respect to the class of goods handled, the majority of the stores coming in will be in big parcels arriving by boat. Deliveries, on the other hand, will be mainly in small parcels—less than truck loads. In Brisbane the bulk of the goods delivered is about the city, and road transport will be most suitable for that. About half of the remainder will be distributed by boat. There are no water facilities adjacent to Kelvin Grove. Before deciding on the latter as the most suitable, various sites around Brisbane were examined, and the most favoured of these others was at Tennyson, on the railway, on the south side. But even that would have involved the use of a lighter in order to secure water facilities. The construction of a siding into Kelvin Grove would cost considerably more than in regard to Enoggera, and there is this factor also, that the Kelvin Grove site entails the purchase of land. The sum of £2,668 was given as the final cost in connexion with the construction of a railway siding at Kelvin Grove, whereas the amount mentioned in regard to Enoggera was £300. For the purchase of extra land at Kelvin Grove the estimate was about £5,000, including the purchase of some cottages. These would be useful for our purposes. Against this, the land at Enoggera belongs to the Defence Department, so that there would be no question of purchase of that site. I think the latter is the superior site for building purposes. Kelvin Grove would require a great deal of expenditure in levelling. I think the additional cost at the latter, over Enoggera, in order to provide the same facilities, would amount to about £12,000. That would include the cost of a siding which we do not at present propose. There is a good roadway from the central station to Kelvin Grove. There would be a saving in administration if both Ordnance and Mobilization Stores were on the one site. Both branches are under the same officer. The roadway from central station to Enoggera is fair, but there are very steep grades. Running costs for motor transport would be heavy. From the Ordnance Stores supplies would have to be distributed over the whole of Queensland. Deliveries would be made by rail and water, and deliveries for the city itself would be all by road. The

question of receipt and outgoing of stores, involving cost of transport, was carefully gone into in considering the two sites. We reckoned that the bulk came in by water—about 80 per cent of it. That would have to be loaded on to road transport since railway connexion is not available to the wharfs. If those stores were taken to Enoggera it would come to about the same, whether they were sent straight out by road, or by motor to Roma-street station, and thence by rail. If the stores went by rail, still another handling would be involved, whereas if they went out entirely by road there would be these three extra miles compared with Kelvin Grove, and they are not altogether good roads. Then again, in regard to distribution, quite three-quarters would have to come to Brisbane, either to be delivered in the city or to be sent away by water. Again, there would be the question of road transport. The remaining quarter only could be sent straight from the stores by rail. That portion would be in large parcels. Small parcels would probably have to be sent by road to Enoggera station, a mile from the Enoggera stores, since parcels cannot be sent from the small station which is close to the Mobilization Stores. It would mean considerably more handling of the stores if the proposed buildings were decided upon at Enoggera. The distance from the wharfs would be about 4½ miles to Enoggera, and about 1½ miles to Kelvin Grove. I certainly recommend the construction at the latter site on the ground of cheapness in relation to transport facilities. From any other aspect, however, Enoggera is preferable, but the cost of transport is paramount. The distance of the Leichhardt Stores, in Sydney, from the wharfs or the central railway station, would be more than 4 miles; and in Western Australia the stores are 8 miles out. There, however, the conditions are altogether different. Goods coming by sea are loaded direct on to the truck, and in any case stores could not be erected at Fremantle or within reasonable distance of road transport therefrom on account of the danger of proximity to the sea-board. Preferably, the stores should be erected on the far side of Perth. While the stores are on the truck they might as well go to Midland Junction, a matter of 10 miles out. Again, all country deliveries would have to go through Midland Junction. I look upon the erection of the buildings for ordnance in Brisbane as being absolutely essential. I do not consider that it would be possible to use portions of the present Mobilization Stores in conjunction with the buildings which our Ordnance already occupies in Brisbane. A certain portion of our stores is at present in buildings which we want for other purposes. Altogether, there would be no room in the Mobilization Stores for anything, but Mobilization Stores except perhaps camp equipment.

69. *To Senator Vachell.*—There is no difficulty in having the Mobilization and Ordnance Stores on the same site; indeed, we prefer it. But different considerations arise at each site. At Enoggera the military authorities hold a sufficiently large area to provide ample room for stores for both purposes, and I do not think that the erection of ordnance stores at Enoggera would seriously interfere with the requirements of that place as a training area. The railway is within 300 or 300 yards from the buildings at Enoggera. With regard to my statement that there would be more handling if the ordnance stores were built at Enoggera it should be remembered that they have to come first from the steamer. They are then taken to the railways and loaded on to trucks, then they would be unloaded from the Enoggera siding and then they would be distributed to the wharfs, and into the stores. With respect to distribution, the bulk of the work, comprising small parcels, would probably have to be transported to Enoggera station, which is a mile away. While we are transporting those by motor, they might as well be run straight into the city and a handling thus saved. I am asked whether the same argument would not apply to Kelvin Grove. If stores

are distributed, to go by boat, they would be required to be put on to motor conveyances at the central station to be run down to the wharf, even if they were sent by rail from Enoggera. Therefore the handling might just as well be cut out and the whole job done by transport. If the distribution occurred from Kelvin Grove the stores would go direct by road to the boat, and the distance would be about 3 miles less, while, as I have already said, those 3 miles are over a bad road. It is not proposed to provide workshop accommodation at both ends, but only at Kelvin Grove. We will not require repair shops at Enoggera, or anything more than a very small shop, which would be worked by the staff from Kelvin Grove if required. I am aware that the selection of a site for ordnance stores has aroused difference of opinion for a number of years. But in view of the prime factor of transport, Kelvin Grove is to be preferred. I am aware that the cost of preparing the Kelvin Grove site will amount to about £4,000, and that another £5,000 may be involved in purchase of land. Even putting that against the fact that the Enoggera land is Government-owned, I still think that the Kelvin Grove site would be the more economical. The difference in interest upon the capital involved amounted to £400 a year, that would be more than compensated for by the difference in the cost of handling. I am not in a position to speak with authority on the question of motor vehicles, and whether more would be required or where they would need to be housed. The £5,000 which I have mentioned in connexion with purchase of land at Kelvin Grove includes the coming five cottages. The pulling down of one would be necessary in order to secure the land for construction purposes, but it would be feasible to retain the other four as they stand, taking only a portion of their ground. It is not absolutely essential at present that we should take more than one of these, that one being on the site of the store itself. In that way the item of land purchases could be considerably reduced for public purposes. We are not in a position to negotiate for the purchase of the whole just now, at any rate. I am asked whether goods would be coming into and going out of the Ordnance Stores every day. I should think they would be going out practically each day, if not coming in in bulk. The distribution would be largely in small packages, not necessarily for camps, but as issue to Citizen Force units. I should think an ordinary light vehicle would be sufficient for these purposes. At camp time, however, there would be a considerable increase in the distribution of requirements. There is not at present a firm offer for the Kelvin Grove properties mentioned. We cannot say what the cost might be, if and when we should decide upon purchase. Our valuation was something like £4,000 for the five cottages; that was two years ago. I do not think the Tenyson site, which is 5 miles out, would provide any advantages over either Kelvin Grove or Enoggera. The buildings have been designed with the approval of the Defence Department, and the local Defence authorities have been consulted. They are satisfied that the buildings are the best type for the intended purposes.

70. *To Mr. Parker Moloney.*—The difference in the estimated cost at Kelvin Grove compared with the other site, including railway facilities, is about £12,000; but as we do not propose to put in the siding at present it would be approximately £10,000. That involves a matter of about £500 interest per annum. I do not think there was but the slightest difficulty in providing railway connexion between the Rifle Range station and the stores if constructed at Enoggera.

71. *To Mr. Mackay.*—The chief recommendations of Kelvin Grove are the main item of transport and the associated fact that it is more central. There would not be anything stored in the ordnance buildings which could be considered objectionable or dangerous if they were constructed nearer to the city. The sole reason

why there is no recommendation for construction nearer to the centre of things is that there is no suitable site available. It will not be absolutely necessary to purchase the private properties at Kelvin Grove, but it would be advisable to do so if they can be got at a reasonable cost without much delay. We have not a great much ground at the proposed site for our purposes. In addition to land for building on, we need space for standing vehicles, &c., that is, in the event of future war emergencies. The transport already being utilized for the conveyance of ordnance stores is in the possession of the Department, and I do not think it would be necessary to acquire more.

72. *To Senator Plain.*—If there were railway facilities direct to the wharfs, and we could get our incoming bulk stores straight from the boat on to trucks, we would naturally have proposed the erection of a siding forthwith on the site of the Ordnance Stores. Some of the wharfs to-day possess railway facilities, but we cannot be sure that the vessels carrying our goods would be berthed alongside those wharfs. If we could get our staff delivered straight from steamer to truck it would be just as cheap as to erect the stores at Enoggera, except that in distribution of small parcels, road transport to the city would still be employed. The amount of that, however, could be handled by the two cars which we have at present.

73. *To the Chairman.*—Both sites are at present efficiently served in regard to water supply—that is, for Brisbane—as a matter of fact, I do not think either has a very good service. I understand that the sprinkler system has been proposed in connection with the ordnance buildings, so that that would involve overhead tanks. I am asked whether I think the cost of transporting the goods in vans over the comparatively short distance to Kelvin Grove would be materially less than to Enoggera. I think so, both remembering the difference in the distance and the nature of the proposed ordnance stores as urgent. Even in pre-war days the scattered accommodation at Brisbane was inadequate. The proposal for construction is by reinforced concrete, on the mushroom system.

74. *To Mr. Mathews.*—I have inspected the Kelvin Grove site. With regard to the possibility of flooding, I personally questioned Major Raymond, who has lived in the neighbourhood of Kelvin Grove for about twenty years. He knew of the reference in question, and with that in view he told me that he had never seen the site flooded. Further, after a recent very heavy rainfall he had particularly noted the area, and he said that there was no sign of flooding, and that an hour after the downpour there was no sign of any water lying about. The Department is in regard to that consideration. With regard to proximity of mobilization and ordnance stores, each consideration is gone into on individual merits; although, as I have pointed out, the two should be grouped where otherwise convenient. It is not a question of having two sites. The Kilda-road stores are not most conveniently situated, and the erection of new building, has been seriously considered with a view to providing railway connexion. The establishment of such stores in the heart of each capital city is by no means essential, but is naturally considerably to be preferred. We look upon the order of cost of site, we would naturally prefer to have them centrally situated. Kelvin Grove is a more central site, and presents easier problems of handling of mobilization.

75. *To Senator Foll.*—I am asked whether I am not of opinion that there is more glass work proposed in the structures than is absolutely necessary, and whether, in view of the fact that the stores will be made much away with some of them, I am inclined to agree with the criticisms of certain witnesses at Brisbane in respect to that matter. There is probably too much glass. I do

not think that it would be necessary to extend the roof over in the form of an awne. There would still be ample light if some of the glass areas were cut out. In regard to the criticism that no provision has been made for workshops I am aware that on the plan before the Committee there is no such provision, but it is intended to provide workshops at Kelvin Grove in a separate building. At the time of the reference of this matter to the Committee the question of shops and site had not been determined. But the points have since been decided. It is proposed to have, as a brownie room, a special room in the workshop, at the end. I am asked if it would not be cooler to do the roofing with tiles instead of iron. There might be a little in that, but I do not think tiles are cheaper in Brisbane. We would still have to line the ceilings; and I understand that the question of damage by hail has been raised in connexion with tiles.

76. *To the Chairman.*—The plans were prepared in collaboration with the Defence Department officials concerned. I understand that the heads of the Departments in Brisbane were consulted. I know that a plan was submitted to the Commandant. I cannot say to what extent the Senior Ordnance Officer was consulted, but I do know that his ideas were sought, although not all of them were acted upon.

77. *To Senator Newland.*—I understand that in his evidence Major Raymond referred to the possibility of flooding at Kelvin Grove, and that he was afraid of the position of the main building; as shown on the plan, because it was proposed to erect it over the drain. He was antagonistic to that, for fear that anything should go wrong with the foundations owing to possible choking of the drain. I have already remarked that Major Raymond was aware of this reference when he made that particular note of the area in regard to flooding, at the time of a very heavy fall.

(Taken at Melbourne.)  
WEDNESDAY, 4th MAY, 1921.

Present:  
Mr. GRAYSON, Chairman;  
Senator FOLL, Mr. Mackay,  
Senator Newland, Mr. Mathews,  
Senator PHILL, Mr. Parker Moloney,  
Mr. ATKINSON,  
Lieut.-Col. Archie John Landies Wilson, Director of Equipment and Ordnance Stores, Department of Defence, Melbourne, sworn and examined.

78. *To the Chairman.*—The lay-out plans in connexion with the Ordnance Stores in Queensland were prepared by the Works Department, in consultation with the Quartermaster-General and myself, and are fully in accordance with the wishes of the Department in Melbourne. In the preparations of the plan I cannot say whether the local officers were consulted. That would be in the hands of the Works officers at headquarters, and the Works Officer in the district. The whole question of the condition was discussed on the Kelvin Grove site by the Quartermaster-General, the Chief Stores Officer in Brisbane, the Works Officer in Brisbane, and myself, when we arrived at the conclusion in principle as to what was necessary for ordnance stores in Brisbane. The actual preparations of plans were left to the Works Department, but the district authorities were consulted fully as to their requirements. I believe it to be necessary to consider the climatic and local conditions in the preparation of such plans, and I believe that aspect of the question was not overlooked, as I was informed that one of the principal officers in the Works and Railways Department at Melbourne, who was connected with the preparation of these plans, had had a lengthy experience

in Brisbane, and was quite aware of the climatic conditions there. If the Committee has been informed in evidence that there is an excessive quantity of glass in the walls, and that as a result the building would be uncomfortable and difficult to work in, I can only say that I have heard no such complaint. I certainly consider that the Works Officers in Melbourne and in Brisbane should and would have been consulted in regard to the necessary provisions to meet climatic conditions. The plan before the Committee embodies our complete requirements up to the present, except that the workshop is not to be erected at once. It is our intention to concentrate all our work, apart from mobilization, on this site, as that is considered to be essential. As to the accommodation to be provided for the armourers, I may say that the question of the workshops is connected very closely to the housing of armourers. The Armoury Staff is to be taken over by the Workshops Officers, and until the work shops are actually erected the armourers will be accommodated in a portion of the Ordnance Store. At present it has not been decided which part they will occupy, but that is not so important, because that can be placed in the most convenient portion, which will probably be at one end of the building. If it has been said that the work of "browning" is injurious to goods that may be adjacent, I may explain that we will not be performing any "browning" operations in the main Ordnance Store, and, as a matter of fact, I do not think it will be necessary to do any "browning" in Brisbane at all. From memory, I think there will be about twenty armourers, with their assistants, in Brisbane altogether. The work of armourers is just as important as any other branch of the work, and they will not occupy a very large space, as very little accommodation is required for the actual repairs to be done. I presume it will be necessary to erect a light partition to separate them from the rest of the store, but their work cannot be regarded as noisy. It is our intention to accommodate the armourers in the Ordnance Store when it is built. When I refer to workshops, I mean shops for repairs to field artillery. In every State at present there is a workshop which is controlled by the Inspector of Ordnance Machinery, and those workshops effect repairs to field guns, and to any parts of fixed guns, that is, guns for fixed defence. They also repair field artillery carriages and ammunition waggons. It is proposed when the new workshops are erected to transfer to the control of the main workshop all other trades, such as armourers, carpenters and saddlers. These men are at present working under the Senior Ordnance Officer, and are located at the Ordnance Store. When the workshops are erected they will be under the control of an Inspector of Ordnance Machinery, who will be stationed at the Advance Stores, and will be under the control of the Chief Ordnance Officer. The Chief Inspector of Ordnance Machinery is an officer on the General Staff in Melbourne, and he is responsible to the military officers. For approximately twelve months the bulk of repair work will probably be at the mobilization stores; but when once the guns and vehicles forming the mobilization equipment are made serviceable after the rough handling they have received on board ship, they will be placed in store, and there will not be any amount of overwork, but it is strictly within, in addition to the fixed workshops which will do the heavy work, to have mobile workshops on motor lorries which will be despatched to the point of mobilization where such work as is necessary will be done. When the new building is erected, I hope the old store will not be necessary. I remember in connexion with the Leichhardt proposition that there was an absolutely necessary concentration of our work in the one site, and we are adopting that policy in connexion with this proposal. The Department approved of such a schema, and the only deviation will be that we will have mobile

workshops as a part of our war machinery. It will be a means of training the men in these workshops in times of peace, as they will be called upon to go to mobilization centres and do such light work as may be necessary. I have visited Brisbane in connection with this proposal, and have inspected the sites at Kelvin Grove and Enoggera. At Enoggera there was ample land for the erection of stores. Apart from the question of distance and transport, I do not think it would be better in the interest of administration and economy to have mobilization and ordnance stores on the one site. I cannot see that in a great importance, as there is practically no movement in mobilization stores, so I do not see that any great advantage is to be gained by having ordnance stores on the same site as mobilization stores, and on the other hand there is great advantage in having the ordnance stores on another site. In time of war it would be unsatisfactory to have mobilization stores in close proximity to ordnance stores. In laying down any scheme I would not rely entirely on the situation of mobilization stores. In a few years, our present policy may be modified considerably, and it may be found necessary to mobilize troops at points other than those now proposed. We can never say what will happen in war time, and so long as we have good accommodation in which to hold our mobilization stores, with a railway siding and a good central ordnance store into which we can receive goods from manufacturers and issue by rail, it would not matter to me if the place of mobilization were suddenly changed, because with railway connexion we could very quickly despatch our supplies any reasonable distance. Mobilization stores have recently been erected at Enoggera, and it is essential that a railway siding should go into those stores. We have a siding for the mobilization stores. If ordnance stores were erected at Enoggera it would mean a continuation of the present siding. In connexion with the Ordnance Stores at Kelvin Grove, it has been recommended that the siding should not be constructed at present; but we have always stressed the point that it should be possible to connect the Ordnance Store at Kelvin Grove with the Queensland railway system. It is not of great importance that a connecting railway should be provided at present, so long as it is capable of being laid down in war time. There have been negotiations in connexion with the land to be crossed in laying down such a siding. In the event of a building being erected at Kelvin Grove, I think it should be the policy of the Department to secure the area that would be covered by such a connexion. I inspected the site at Kelvin Grove, and from many points of view it is highly satisfactory, but although the contour of the land is unsatisfactory, it can be made quite suitable when certain excavation and filling work is undertaken. I understand that there is a large gully which will have to be filled. I am informed that 200 and 700 feet between the high and low ground; but I understand that the land would be excavated to a depth of only 6 feet, and that the material removed could be used in filling up the gully adjacent. You have informed me that the estimates show that £4,200 will be required for excavating and filling, and that £45 is to be paid for the land. Also that the plans show that 100 cubic yards will have to be moved. I understand that that provides for about 5 acres of level ground. When the matter was discussed on the spot there seemed to be some difference of opinion as to what the cost was likely to be; there was some hesitation in expressing a definite opinion until the exact nature of the ground had been definitely ascertained by taking levels. Viewing the ground it appeared to be of a soft nature, but a little distance away I could see very heavy outcrops of rock. I should say that the estimate is based on the possibility of a considerable amount of blasting having to be undertaken. I would not have anything to do with the estimated cost of excavating and spreading. We have ample land of our own at

Enoggera, and speaking of the ground as I remember it, I think we would have to excavate and fill practically to the same extent, or at least to an amount almost approaching that of Kelvin Grove. We have had to incur similar expenditure in connexion with the erection of mobilization stores at Enoggera. We could not find 5 or 7 acres of level ground convenient to the railway, and suitable for the erection of stores, without a fairly heavy expenditure, and I should say that there would be a similar outlay in connexion with the building of the railway. The cost of railway construction in normal times is about £5,000 per mile, and it would be expensive if we had to construct a bridge over the creek at Enoggera to get on to the level ground at the rifle range. The cost would be excessive, and if we encroached on the rifle range we would interfere with the long distance ranges. There is a heavy slope in the vicinity of the Young Men's Christian Association hut, and I think the cost of excavation for the mobilization stores was £3,000 or £4,000. The estimated cost of the siding at Enoggera is, I believe, £365 as against £2,858 for one at Kelvin Grove. But it must be remembered that the difficulty in relation to the siding only commences after leaving the mobilization stores, and the site there would be practically on the edge of the gully. I am only expressing this opinion on what I remember of the ground; but I feel sure that heavy expense would be incurred in constructing a difficult to estimate the cost of carrying goods by up-to-date motor lorries from and to Kelvin Grove as compared with Enoggera. At present we are sending vast quantities of post-war material from overseas, and conditions are not in any way normal. As far as I can estimate the inwards and outwards traffic of ordnance stores in normal conditions would average, approximately, three tons per day both ways. Of that quantity, a large portion of the outward tonnage particularly, would be split up into numbers of small parcels, and with the present high cost of transport the expense of distributing these small parcels across the metropolitan area from Enoggera would be very heavy indeed. If we were to remove our Central Ordnance Stores from the main centre of manufacture there would be an additional heavy expenditure. It is not a cost that can be readily reckoned, and it is not chargeable to defence transport. If we were to let a contract to a firm in Brisbane the contractors would have to deliver goods, in one instance, three-quarters of a mile, and in another five miles. It is, therefore, obvious that the cost of carrying these goods the longer distance would be higher. As nearly as I can estimate the annual cost of doing the work at Enoggera would be between £700 and £1,000 more than at Kelvin Grove. Apart from the cost, the convenience and facilities to business houses must be considered, and the greater facilities afforded at Kelvin Grove are, in my opinion, of tremendous advantage to the Defence Department. Leichhardt would be about 6 or 7 miles from Sydney, and in selecting that site we were influenced by the fact that Leichhardt is an important manufacturing centre. Whilst keeping that in view we were also anxious to get as far away from the sea-board as possible. Leichhardt was the most convenient site that we could obtain, particularly in view of the fact that it was an important manufacturing centre. But a certain decision was arrived at, but the Quarter-master-General's Department had eventually to give not have the Ordnance Stores south of the Swan River, and our branch was then forced to place them on the most convenient site north of the River. I do not think a railway connexion is essential in connexion with ordnance stores in time of peace, but a connexion would have to be made in the event of war. I do not think the city and Kelvin Grove and Enoggera. In moving the three tons estimated into the city from Enoggera, I

think that we could only do two trips per day with an ordinary horse lorry. I do not suggest that it is the intention of the Department to use horse lorries, but I have used them as the basis in making the comparison. We have to consider whether the Department would be justified in using heavy motor lorries. I would not recommend using heavy motor lorries to take a load of one and a half tons from Enoggera, because it would not pay to use a heavy vehicle for carrying small parcels which could be handled by express carrying companies delivered in the metropolitan area. I believe six trips could be made from Kelvin Grove while two trips were being made from Enoggera. I understood from the Works Officers that it was the usual practice to have a motor house in connexion with the lift operations, apart from the main building. I consider the general layout satisfactory.

79. To Mr. Alkinson.—I am satisfied that there are no better sites available in the vicinity of Brisbane than those at Enoggera and Kelvin Grove, and I consider the one at Kelvin Grove preferable. The matter was fully considered by Mr. Swinburn, who considered the cost of transport in all its phases, and recommended Kelvin Grove. It is a matter of urgency to build ordnance stores, because we are paying heavy rents, and occupying military premises that are required for other purposes. Practically all the stores that are going into the mobilization stores have arrived with the exception of some artillery equipment. Nearly all the material that has arrived has been placed under cover; some of it is in the mobilization store at Enoggera. The arrival of this material has necessitated the Department providing premises to accommodate it. The *post bellum* equipment is not being housed in the ordnance stores. The mobilization stores hold the material required to complete the equipment of troops when transferring from a peace to a war footing. The actual issue for peace conditions is made from the ordnance stores, which are more a place of business for the receiving and issuing of clothing and equipment required for the maintenance of troops in time of peace. The equipment of the mobilization stores is quite apart, and is kept for war purposes. The necessity for erecting additional building has arisen, because we are compelled to accommodate ordnance material in rented premises and in drill halls that are now required for the training of Citizen Forces and Senior Cadets. We have to vacate these halls at the earliest possible date, and it is of course desirable that we should cease paying rents as soon as we can. The cost of watchmen alone in protecting scattered buildings is very great, and the erection of this store would be the means of effecting a great saving by concentrating the work in one place. If we were to erect stores at Enoggera we would have to provide accommodation for a staff of one hundred men, and it would be difficult to get highly skilled tradesmen to go out there. That difficulty does not arise in connexion with Kelvin Grove. If it can be proved that the proposed building is unsuitable for the climatic conditions it can be altered, and, if necessary, I would strongly advocate such changes being made.

80. To Senator Foll.—I approve of sliding doors, and I believe they were provided for in the building. In regard to what may be termed the excessive use of glass, I may say that one great essential in an ordnance building is sufficient light, but if it is proved that the quantity can be reduced I will be quite satisfied. If textiles were exposed to excessive heat and light there is a possibility of them fading and deteriorating. When I referred to sliding doors I was dealing with the inside doors. Sliding doors are in my opinion desirable, but they would be more expensive, as certain steel work and rollers would have to be provided at the top and bottom. I do not favour folding doors in an ordnance store, as there is always a possibility of them being left half open.

and being allowed to bang. From what I know of the Brisbane climate I think the eaves should be sufficiently wide to protect the windows, and thus assist in making the building cooler. I was informed in Brisbane that some of the hailstorms destroyed iron roofs, and if the falls are sufficiently heavy to penetrate iron I suppose tiles would be cracked. Iron roofs would be satisfactory if the gauge was sufficiently heavy and they were properly sloped. It is not proposed to erect a forge in the building. If the armourers want any forging done they can go to the artificer's workshop.

81. To Mr. Mathews.—We have Assistant Inspectors of Ordnance, and will still remain in charge of the workshop. The Assistant Inspector of Ordnance Machinery would take over all other tradesmen at present employed in ordnance stores. He would come under the Chief Ordnance Officers instead of being a separate unit. In the past he has not been under the chief officer. He assumes control over all tradesmen, and is under the Chief Ordnance Officer. These men are members of a military corps, and I believe it is intended to form a corps of the armourers and storemen, and to bring in the whole of the permanent staff. Experts have expressed the opinion that the site at Kelvin Grove was quite safe. Although the ground is irregular I understand there is no fear as to the effectiveness of the drainage.

82. To Senator Nealand.—We keep men for the handling of goods in and out of the store, and whether the stores are erected at Kelvin Grove or Enoggera we would have to employ a certain staff. For ordnance work I do not think it would pay the Department in normal times to keep more than one motor lorry working. The pay of the men would go on whether they were employed in driving motors or engaged about the store. I do not think one man could handle all the work for Enoggera. I have estimated that the traffic in normal times would represent about 3 tons per day both ways, but there might be a week or a fortnight when there would be little coming or going. That is why I suggested that in normal times it would be better to employ parcel delivery firms. I believe the Railways said that it would be prepared to pick up twice a day at Enoggera. It may be said that business firms could send their goods out to the siding at Enoggera, where they could be picked up by a motor vehicle. I am afraid the cost to the firms of sending from their premises to the railway yards in Brisbane, and trucking the goods out to Enoggera siding, would be so high that it would be much cheaper to run them straight out. I doubt whether we would ever use the railway except under special circumstances, such as when camp training is being conducted. We intend to avoid that expenditure by erecting a building for camp equipment. The only idea of having a railway siding is to suit our convenience for war purposes, even of course it might be necessary to send out from London. It is difficult to express an opinion concerning the suitability of a site in the vicinity of the Y.M.C.A. but until levels have been taken. The site at Enoggera on which the mobilization stores are built appeared to be fairly level, but it is surprising to learn the amount of earth that had to be moved. We could not have narrow roadways such as we have around mobilization stores for ordnance stores, as the traffic to the latter is fairly heavy, and that to the former, except in time of war, very light. I am asked whether a continuation of the siding past the mobilization stores would interfere with the manoeuvring area. My recollection of the site leads me to believe that a considerable area past the Y.M.C.A. but would have to be excavated and filled, and that the site would have to be extended. It would be necessary to have three sets of rails in war time, and the ordnance stores, and that has been taken into consideration. I doubt very much

whether there is room between the track and the Y.M.C.A. but for three sets of rails without undertaking extensive excavation. The workshops are not under my control. The Inspector of Ordnance Machinery is an independent officer on the Quarter-master-General's staff and he is in charge of the main workshops. We are to erect workshops at Kelvin Grove, and mobile workshops would undertake any work that would have to be performed at Enoggera. I do not think Mr. Murdoch would be in a position to express a definite opinion on the erection of workshops. If you look at the plan you see that provision has been made for two fairly large workshops, and I should say from the plan that his view is not correct. Two shops 48 feet by 96 feet should be all that was necessary for the Queensland district. I believe the Inspector of Ordnance Machinery would be strongly in favour of having his workshop close to the city, because I know the difficulty he has experienced in getting highly skilled tradesmen for certain classes of his work. It would be difficult to get men to go to Enoggera. I understand that the plan provides for the erection of an additional store at Kelvin Grove, and the preparation of the site will provide sufficient filling for the gully. I understand that it was intended to level off all the ground within the red line on the plan, but I now see that that is incorrect. I understand the figures given for the extension of a siding at Enoggera are £365, as against £2,688 at Kelvin Grove. I have not gone into the question, but the estimate for Enoggera seems to be very low. You have informed me, according to the estimates, it will cost £10,000 more at Kelvin Grove than it would at Enoggera, and I am asked whether I consider the extra expense is justified by the convenience provided to the Department. I think it is.

83. To Mr. Parker Moloney.—I have explained that it is difficult to make a comparison between the cost of carting to Kelvin Grove and Enoggera for, say, a period of three months. I have estimated that the inward and outward tonnage would average 3 tons a day over a period of twelve months. For the last two years and at the present time that estimate would be exceeded, and any figures based on present day traffic would be very misleading, because the cost would be far too high in one way and too low in another. At present the quantity of goods handled is so great that we have to employ a fairly large staff with a number of vehicles, and the gross total would be much greater than it is likely to be twelve months hence. But the cost per ton mile would be much less now than it would be twelve months hence. If we have a big bulk, vehicles can be loaded to their full capacity, as is done at present, but in twelve months' time, when we are working under normal conditions, there will naturally be a greater number of trips and smaller consignments. We could get some idea from the pre-war figures, but we will have to add a considerable amount because costs have altered considerably since then. I do not see any possibility of getting reliable data. I have looked into the question in an endeavour to obtain information for the Committee, and in the course of it I questioned the senior ordnance officer in Melbourne, who said that at present and for some time to come the issues and receipts would amount to 30 tons per day, but that would not be the case under normal conditions. I gave the figures quoted by the New South Wales authorities which were thirteen tons per day, but he said his transport would not approach that. It is difficult to make a comparison of the cost of carrying goods ½ of a mile to Kelvin Grove and 4 miles to Enoggera. We could get the actual cost of the ingoing and outgoing, but we are dealing with war equipment, and the figures would not be of much use. If we endeavour to get at the cost of transport on the basis you have

mentioned we would not get far, because I feel sure that under normal conditions we would have to resort to deliveries by parcels express firms. If we did not do that we would have our own vehicles crossing their own tracks and this involving a heavy unnecessary expenditure. If we went to Enoggera we would have to cut out that system altogether, as there is hardly a company that would pick up there, but I would not give that as the only reason for selecting one site as against the other. In face of the estimate it is difficult for me to make any definite assertions concerning the expenditure of building the two lines, but I am not at all satisfied that the estimates are correct. I think that in the cost of the two, taking into consideration the cost of excavation for ordnance stores at Enoggera, there would not be such a great difference. I could not, however, make a definite statement until levels were taken. I would not be in favour of erecting ordnance stores right up against mobilization stores, because it would be undesirable to have troops around ordnance stores and interfering with mobilization traffic. If we were to build at Enoggera we would have to extend the line a considerable distance beyond the Y.M.C.A. hut. It may be necessary later on to construct another mobilization store at the end, and for that reason I think the estimate mentioned is a very low one indeed.

84. To Mr. Mackay.—We are holding much larger stocks in Queensland than we were in 1914, and when the proposed building is erected it will provide ample accommodation for our stock. I think there will be a little room to spare for future use, but not a great deal. Taking into consideration the necessity for having supplies available for any extension, I think the proposed ordnance stores supply just about sufficient accommodation for our need. We do not anticipate adding material to our stock in the near future. When the stores are erected the amount we are paying in rent will cease.

85. To the Chairman.—I have been asked whether the expenditure of £1,340 for windows in the stores alone is justified and whether it is essential to have so much light, considering that goods will be stacked up against the walls of the building. There will be a passage way along the wall, but if it would be cheaper to dispense with some of the glass work, I would be in favour of it. I doubt whether materials stored in the building would suffer in consequence of excessive light, because they would be in bales, and consequently would not be exposed. It is also necessary to have as much light as possible to keep out moths and other pests. It would not be advisable to store harness, leather or rubber goods too close to the windows. I should make further inquiries as to the necessity for having so many windows and will advise the Committee of the result of my investigations.

86. To Mr. Mathews.—I have nothing to do with the site selected for mobilization stores. The Chief of the General Staff Branch decides on the location of troops at a certain place, and he has said in this case that it is to be at Enoggera, with the result that the mobilization stores are erected there. Knowing that the Kelvin Grove site is available, I consider it preferable to the Enoggera site for the erection of ordnance stores.

87. To the Chairman.—I would recommend the elimination of the lower row of panes of glass from the main store building in both first and second storeys, and that the remaining glass work be raised about a foot in the first storey, thus providing for a solid concrete wall extending along the whole length of the building to a height of 5 ft. 6 in. from floor level in the case of the first storey, and 4 ft. 6 in. in case of second storey. This will allow a depth of glass of 4 feet throughout.

(Taken at Melbourne.)  
TUESDAY, 10th MAY, 1921.

Present:

Senator NEWLAND, in the chair;

Senator Plain, Mr. Mathews,  
Mr. Atkinson, Mr. Parker Moloney,  
Mr. Mackay.

Major-General John Keatly Forsyth, C.M.G., Quarter-master-General, Commonwealth Military Forces, sworn and examined.

88. To Senator Newland.—The necessity for Ordnance Stores exists, and sites were sought for a long time ago. Three were suggested: one at Kelvin Grove, one at Enoggera, and another at a place called Tennyson, up the river. The last-mentioned site was ruled out very quickly, it having many disadvantages, and not many advantages. Whether Enoggera or Kelvin Grove should be selected was fully considered. It was dealt with some time ago by the Business Board of the Defence Department, and Mr. Swinburne, who specially interested himself in the matter, after consultation with the Defence authorities, expressed the opinion, in writing on an official file, that Kelvin Grove, taking all things into consideration, was the most suitable. He discussed the question from several points of view. He estimated that Kelvin Grove would cost £10,000 more than Enoggera—that is to build—owing to the fact that certain excavation work would have to be done at Kelvin Grove, and that land would have to be purchased at a cost of, say, £4,000; the land at Enoggera was our own. That amount for land is now probably increased somewhat owing to higher values. In his own mind Mr. Swinburne felt certain that the increase of £500 on the £10,000 could be saved, because from Kelvin Grove there would not be the long cartage of 4½ miles over a hilly road, and it is a hilly road. We have already built Mobilization Stores at Enoggera, and I should say that the area to be treated there in the way of excavation is probably about the same as will be necessary at Kelvin Grove. The cost of the excavation at Enoggera, for Mobilization Stores, was originally £2,925, and additional excavation was found necessary, as the building proceeded, at a cost of £640, making a total of £3,565. It is, I believe, very difficult, even for an expert, from just looking at the site, to in any way estimate what would be the cost of excavation necessary to level it. My own opinion, when we selected the site for the Mobilization Stores, was that there would be very little excavation needed, but when I saw the work in progress I was surprised at the amount that had to be done. If we decided to build the Ordnance Stores at Enoggera the site would be close to the Mobilization Stores, in a position further away from the railway station, but on a line in continuation of railway siding constructed from Mobilization Stores. My impression of that ground is that it would require more excavation to level it than did the Mobilization site; but nobody can give a definite opinion as to that unless levels are taken. There is another factor which influences the difference in the cost between the two sites, and that is the factor of a railway line. Estimates were got out for respective lines, and those estimates included the construction of one right up to the sites, but not on them, as it was not known exactly where the building would be placed. The cost of the line to Kelvin Grove was given by the railway people in Brisbane in November, 1918, but whether the cost would be the same now I do not know; however, if the cost be increased to Kelvin Grove it must be increased to Enoggera, so, comparatively, the difference will be the same. The price given in the case of Kelvin Grove was £2,168, and of Enoggera, £204. I do not think that that comparison would exist now if we built Ordnance Stores at Enoggera,

because there is only a single line along the Mobilization Stores; in the case of the Ordnance Stores being built we would require this line to be doubled. The new line, if we built at Enoggera, would be a line from the boundary of your property to the boundary of the new Ordnance Stores site. I think it is about 20 chains, and I am informed by the Director of Works that the approximate cost of the line will be £1,000, which he regards as conservative. That would be a single line added to the line we have, and extended until it reached the boundary of the Ordnance Stores. That would be a double line required for the Ordnance Stores, and this would make the work dearer. There are other factors to be considered when deciding as to the comparative merits of the site for our purposes. Kelvin Grove is really in the city, half-a-mile from the barracks; and that, in itself, is a credential. Our Citizen Military officers and the contractors who will deal with the Ordnance Stores require ready access to them. Officers on business at the barracks would be able, on the same tram-line that takes them to the barracks, to go to the stores half-a-mile further on. The communication with Enoggera is bad. There is a railway, and I am informed by General Living, lately Commandant in Queensland, that there are from eight to ten trains a day. The bulk of these trains, however, are at the busy times of the day, when they are used by the people going to and from the city to business, and at midday there is practically only one train. This shows how inconvenient such a site would be for those who have personal dealings with the stores, and of these there are a great many. As to whether the saving in cartage would pay a great deal on the extra expenditure at Kelvin Grove, I cannot give any definite information. Mr. Swinburne was of opinion that it would be easily eaten up in the cartage of material. There is one point that should be brought out. In the case of cartage from Enoggera the distribution has still to be done after arrival at the city, whereas in the case of Kelvin Grove all the distributing would have to be done. Then there is the factor of residential accommodation for the employees. I cannot speak definitely, but I am of opinion—it was so in Queensland many years ago, when I was stationed there—that most of the employees live round about Kelvin Grove, Paddington, and those places. There is good house accommodation near the stores, and I think it can safely be said that such accommodation does not exist at Enoggera; and it would be a problem to house the employees there. There is a good deal of excavation required at Kelvin Grove. The estimated cost obtained from the Public Works Department was for 14,200 feet, at 4s. a foot, or £2,860; and filling, 12,600 feet, at 2s. a foot, or £1,260. There has to be added the filling up of some holes for about £100, making a total of £4,200. Of course, the filling would be done with the soil taken out from the excavations. On those figures there would be more staff excavated than would be required for the actual filling, and that could be done on the ground; there will be no additional expense for carting it away. From the contour of the ground I think there would be excavation and filling up required to carry in the railway; but that is only a mental impression. There is no way of finding out how much it would be, except by taking levels. I cannot tell you what the cartage from Kelvin Grove will represent, but I am of opinion that the £500 would be eaten up at Enoggera. There is much land lived in small parcels, comparatively speaking, and if the stores were near town these parcels could be shipped out at once. It would not pay to run a motor lorry with a small load from Enoggera, and hence either a great deal of inconvenience through delay or additional

expense must be met. Even if a lorry did some in the 4 miles, and made three trips a day, that would be 24 miles, at, roughly, 15. 4d. per mile, or 32s. a day. If we take 313 working days in the year we are approaching the £500. There would be a continual delivery from the stores, more or less every day. When I speak of small parcels, I mean uniforms and things like that, and there are times. I just now the extent of the transport is in Victoria at present, but it is large, and the abnormal condition of affairs is due to the re-organization and the calling in of equipment during the war and its re-issue now, and so forth. Troops were not clothed for a long while, owing to the war, and neither were the cadets, and these arrears are being made up. At camp times there is always a big rush, and many tons of stuff are issued. A good many troops would be camped at Enoggera, but not all, because in Queensland we cannot concentrate them on one camping ground as in the small States; we must have camps in different parts of the country, and the stores have to be sent by rail and water. It is not proposed to connect Kelvin Grove stores at the present time by rail, it not being thought advisable to incur the expenditure if it could be avoided. It would be an advantage to have the stores at Enoggera, seeing that there is a railway there already, but we must remember that the railway does not connect with all places of delivery, the Brisbane River always being between. We could not make small deliveries by rail even from Enoggera to Brisbane, as the expense would be too great, and it is a very rare thing to have a truckload. There are very many contractors dealing with the stores in Brisbane. From those contractors we get cloth, and all our stuff in Queensland is open to tender. We cannot make as much for ourselves there as elsewhere, but our stuff is very varied; I cannot say offhand what it is. From my recollection of Brisbane in the days when I had to do the examining there before we had examiners, we had to deal with all sorts of woodwork, ropework, saddlery, and other leatherwork made in Queensland, horse rugs and clothing. I did not think for the moment that the saddlery and other leather is done at the Commonwealth Factory, in Melbourne, where most of our leatherwork is made. Camp food and fuel requirements are dealt with by the contractors, and these requirements go straight to the camps; they are not dealt with by the Ordnance Stores, but arranged for at Head-quarters. I think the traffic between the merchants in Brisbane and the Ordnance Stores will in the future be pretty considerable. That is a matter I should like to look into. I cannot say off-hand how many employees will be at the stores, but I should say there would be, roughly, from 90 to 100. Of late the number has been inflated with temporary hands, and, owing to that, I have lost perspective. I have seen the plans of the buildings, and the main point that arose in my mind was that of the glass in the sides. I am of opinion that that glass is too low down, being only 2 ft. 6 in. from the floor on both lower and second stories. I understand that the reason for so much glass is due to the anxiety that the building, which is a large one, shall be properly lighted. An objection is that, being so low down, the glass is very liable, indeed, to breakage by accident, and it also makes it quite easy to break it for pilfering purposes. The whole question hinges on whether there will be enough light if we do away with some of the glass. I discussed the matter with the Supervising Architect of the Department of Works and Railways, and the Director of Works, Defence Department, and I am satisfied that if we took out the lower pane of glass and made the bottom of the glass 4 ft. 6 in. from the floor, there would be sufficient light. That means taking out 3 feet of glass from the bottom.

It was pointed out by the Supervising Architect that by a little structural change in the girders carrying the second story, which could be arranged, the glass could be lifted another foot at the top. This would mean glass all around the building of a height of 4 ft. 2 in. I am not an expert, and I cannot say definitely whether this 4 ft. 3 in. of glass will give sufficient light. The glass fills up the whole length of sides practically, except for the sashes and the floor. The architects were very much afraid that there might not be sufficient light in such a large building; but the Queensland light is very bright. I do not think that so much light would have any damaging effect on the material stored in the building, because the material is mostly baled and cased. The old way was to put the stores on racks, but it has been found that with baling and casing we can have things as much as taken stock easily and minimize pilfering. We protect the material against moths and animals with certain prepared paper wrappers and naphthalene preparation; and experience has taught that this is absolutely safe. There can be no damage by the light to the edges of the material if it is baled. We cover the bales of clothing and blankets, &c., withessian, and the boots and mess tins, &c., are in boxes. The question of possible damage by hailstones has been raised in reference to the glass. I lived in Queensland until fifteen years ago, and certainly I saw storms occasionally in which everything in the nature of glass that the hailstones struck was smashed. I have a recollection of only one storm, however, that smashed things *in bulk*. That was in about 1886, when there was a wind which drove the stores. Usually the big storms come down straight, and mainly in the nature of rain, but such a destructive storm as we have in Gospiak 24-gauge iron was the only thing that would withstand these storms in the old days. For this building I suggest sliding doors as against hinged doors, the latter of which open inwards and block the floor space. I further think that sliding doors are less likely to get out of order. Sliding doors are a good deal more, but they economize space and are the more convenient. I understand from the architect that the floors are to be concrete. It is not intended to put wooden stumps under the floor. There is no doubt that good hardwood flooring would last, but it would then be advisable to have the building on brick or concrete piers, from the white-ant point of view. I would not recommend wood blocks under the floor, whatever kind of floor it might be. The administrative buildings are shown on the plan as erected on wooden stumps, and that is an ordinary kind of construction in Queensland. If you can get under such buildings, you can watch and there is no danger from white ants. Good stumps will last out a building, but the stumps ought to be at least 9 inches in diameter. I have known Kelvin Grove generally for some years, and I have never known it to be flooded, though I have often ridden round the neighborhood when floods were on. The gully in Victoria Park adjoining gets a bit of a hanker, but there are good drains to carry it away. The general situation of the site is not low, and it is not a flood area. I remember, on the occasion of the 1883 flood, what a revelation it was to me to find what places flooded and what places did not. You would see a depression which you would think must be flooded at such times, but, although that place might be higher than the hills, the fact was that the whole country stood higher than the flooded area. I have not particularly studied the position of the lifts in the building; I know that two are proposed, and I think that will be sufficient, as provision has been made for shuttes, if necessary. Altogether, I am satisfied with the plans except as to the glass and doors.

89. To Mr. Atkinson.—I do not know what sort of ground will have to be removed from the Kelvin Grove

site. I understand that the cost is 4s. for excavating and 2s. for filling, but I cannot say whether that is a high figure. Comparing the two sites, I endorse the opinion that Kelvin Grove is the better for Ordnance Stores.

90. To Mr. Mahony.—It would be better if there were railway communication direct with the Ordnance Stores at Victoria Barracks, Melbourne. Railway provision is more for war and camp purposes. When camps are on, large quantities of stores have to be carted down to Spencer-street at heavy expense. I think that the railway is essential in the Ordnance Stores, especially in war time, though it is a question whether it is advisable to build railways for peace-time work. That is why I suggest that the railway should be left out at Kelvin Grove in the meantime. In Queensland not all, but most of the transport to ships is done by lorry. The only railway connexion with ships that we have from Kelvin Grove is from Bulimba, lower down the river, where there are big wood sheds, and large wharfs are built—the place where some people say Brisbane should be—and, with Pinkenba some miles still further down the river. Most of the shipping with which we are concerned comes up to the city wharfs, with which there is no railway connexion. The Inter-State boats come up the river to the city wharfs. So far as Queensland is concerned for shipping purposes, the value of railways either at Enoggera or Kelvin Grove would be minimized, because it would simply mean double handling, unless the goods went to Bulimba or Pinkenba. If the Ordnance Stores were at Enoggera and goods were brought by railway to the city for use by units in the city, they would have to be distributed by vehicle. There will have to be subsidiary stores, as is the case at the present time at Townsville. The Ordnance Stores will be a sort of main store from which the other smaller stores will draw as required. The Ordnance Store is a sort of bulk store, and goods sent to Queensland, for say, Rockhampton, would first go into the bulk store, there would be double handling. I think that for the present a railway is not necessary, and motor transport would be the more economical. There is a large drain at Kelvin Grove, quite sufficient to carry away storm-water; that is the result of inquiries I have made.

91. To Mr. Parker Maloney.—I do not think there would be any difficulty in getting a railway line to the site if the Ordnance Stores were established at Enoggera; it would simply be the continuance of the line to the Mobilization Stores. I do not know the exact site that would be decided on. Some have suggested that it might be over the creek—the rifle range site—and an objection is that a lot of construction would be required to place a line there, if, indeed, it were practicable at all. There is another objection to the Enoggera site that I did not mention, namely, that it would cut up part of our camp site, which is not extensive for the purpose of a concentration area. I think that if the stores were put further on than the Mobilization Stores, on the same alignment, it would interfere with the rifle range camp of twenty-four huts we have built. I cannot say for certain, but I think we would have to move the camp so as to get it away from the Ordnance Stores, or even, perhaps, to make room for the stores. I do not know that I think it necessary to take the Ordnance Stores right away from the Mobilization Stores, but I would like it at least a quarter of a mile away; that would not interfere with the rifle range in any way. However, I cannot speak of these things positively, because they were not in my mind when I was on the ground. There is no great objection to having Mobilization Stores adjacent to the Ordnance Stores, but I think that would not be good. There is, in the objection, that both stores would be on the same railway line, and that might cause congestion, with clashing of the staffs; but that difficulty

is not insurmountable. I think that a hardwood floor would serve our purposes—good, solid, well-seasoned tongued and grooved timber. The floor is hardwood in the Equipment Store, and cement in the Vehicle Stores, in the Mobilization Stores at Enoggera.

92. To Mr. Mackay.—I think there will have to be further excavation than that now proposed in order to provide for future requirements in buildings at Kelvin Grove. It would be much better to have all the buildings on one level; with different levels railway construction would be a problem. The area of land now proposed to be excavated will serve our purposes for a long time. I do not think that the Victoria Park will prove of much use to us. There is a big space there, the acquisition of which in time of war might be of utility. The expansion of the stores in war time is great. The portion of Victoria Park next to the site is hilly, but half-a-mile further on there is good level ground. Another thing, at Normanby Station there are several lines of rail, and these could be easily extended to make a good marshalling yard. I attach great importance to the fact that accommodation would be available for employees at Kelvin Grove; at Enoggera the Government would have to provide accommodation, though I do not know that this would be part of the Defence Department's business. I suppose the population will go there eventually.

93. To Senator Train.—The formation at Enoggera is such that the excavating was easy—it was not rock that had to be excavated. My recollection is that the stuff was moved with scoops. I do not know what it cost a yard. In my estimate I have considered ordinary conditions, which, of course, are intensified by war conditions.

94. To Mr. Atkinson.—I do not know what the fire-fighting apparatus is, but I should say we should have sprinklers.

95. To Senator Newland.—I do not think that a concrete floor would be likely to cause dampness in the stores, and I see no objection to such a floor, unless it is that it would prove too cold for the employees. There is a little cottage on the south-east corner, which we propose to acquire. If we do not acquire that cottage and land we do not know what might be built there and block us, at any rate, it will be a very useful cottage for us.

The witness withdrew.

Henry Gustavus Connell, Chief Civil Engineer, Department of Works and Railways, sworn and examined.

96. To Senator Newland.—Originally I was asked to inspect the site with a view to levelling, preparing the site for buildings, and to the general drainage. It is a site that is easily levelled and drained. There may be a fair amount of storm-water, but there is a big culvert or storm-water drain running through it which will accommodate all that may accumulate. If the stores were erected there I do not see any danger of floods, with decent provision for drainage. The necessary excavating and filling up is about 14,000 yards at 6s., including levelling. That is not a high figure; indeed, at this particular place it is rather moderate. The ground there is siltist; there are about 7 or 8 feet of overburden, and the bottom portion to be excavated is hard and must be shot. In some parts the excavation goes a trifle over 30 feet deep, and with anything from 8 to 20 feet there will always be necessity for explosives. The 14,000 yards does not cover the whole of the area of the ground, but only the area required to make a suitable site for the building at present projected. The south-eastern portion of the ground is not touched or levelled, and the plan produced explains why. In order to get sufficient material to level up the building, the south-western portion of the ground is excavated. From the south-western portion of the ground to the furthest side of site is about



500 feet, and that helps to raise the price of filling and spreading. Some of the filling is of coarse sand require no loading, but will not be available in the same way. The 500 feet is not over the average lead for works of this style. When I was there I saw that a new cottage had been built, and that, apparently, there are people who think this is good building land. The drain is a barrel drain, running through the gully. The whole ground has a natural fall from the western side to the eastern corner. If this drain were not in existence the water would naturally find its way down the valley, and this would occur if the barrel drain proved insufficient. There does not seem any prospect of serious disability due to flooding. I know the Enoggera site, but I do not know the exact site for the projected stores. I had nothing to do with the site for the Mobilization Stores. I should say that the excavating at Enoggera and Kelvin Grove will prove very similar, as they are on similar country. I cannot say how the prices would compare, but from memory I think they will be similar.

05. To Mr. Mackay.—With the excavation the area available at Kelvin Grove, according to the map before me, is about 640 feet by an average of 230 feet to 230 feet. The new cottage comes right on to the site, and will have to be acquired. It will not be necessary for us to interfere with the cottage on the south, or with the three on the north. The filling of the land will not dam any water above the site in flood times.

The drain takes in from the western corner of the land, runs through the gully, and is made of concrete surface drains 4-in. and 6-in. diameter, and 3-in. underground pipes into the main drain; the water on the surface is carried in the shortest way. Any surplus water will find its way in the present natural course as at present. All the south eastern portion of the land will be left as at present, with the natural valley and the natural water course, the Victoria Park road. The concrete portion on the western side will still have a slope, and could not possibly dam in any land.

07. To Mr. Mackay.—I was up there after heavy rain, and did not see any indication that any water from the higher slopes had overflowed. There was a little water in the valley, but that was simply from the southern side of the land. Water from the westward to the westward had evidently found its way through the present drain, but there was no indication of any overflow. I do not know whether the Government will be called upon to keep this drain in repair, but I should say that that is a council matter. I think it is quite safe to have buildings over the drains, and I do not see what objection the local council could have. It will not prevent their access to the drain. It is a good concrete barrel drain, 4 feet in diameter, and I should think that its maintenance is a matter for the local council.