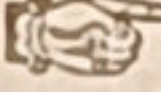




THE
NEW ZEALAND
GOVERNMENT GAZETTE,
(PROVINCE OF NELSON.)

Published by Authority.

 All Notifications which appear in this Gazette, with any Official Signature thereunto annexed, are to be considered as Official Communications made to those Persons to whom they may relate, and are to be obeyed accordingly.

ALFRED GREENFIELD, Provincial Secretary.

VOL. XVII.

NELSON, FRIDAY, MAY 14, 1869.

No. 21.

Superintendent's Office,
Nelson, 14th May, 1869.

THE SUPERINTENDENT directs the publication of the following Reports for general information.

ALFRED GREENFIELD,
Provincial Secretary.

PROVINCIAL ENGINEER'S ANNUAL REPORT.

TO THE PROVINCIAL SECRETARY, NELSON.

SIR,—I have the honor to forward, for the information of his Honor the Superintendent, my Annual Report on the Public Works executed (in whole or in part) in the several districts of the Province, during the past year.

I shall describe the various works in the order in which they appear in "The Appropriation Act, of 1868":—

Dry Dock—Nelson Harbor.—The plans for this work were commenced, and a detailed survey of four different sites was made, with all the necessary soundings and levels, as well as trial excavations to ascertain the nature of the foundation in each.

A complete set of plans was made of three of these sites, the fourth being omitted as not being eligible, and copies of these plans were made for transmission to Melbourne.

Government Buildings.—Under this head, a new room has been built, 40 by 20 feet, immediately adjoining the Provincial Hall, intended to be used as a jury and committee room, &c. The old cells and constables' room of the lock-up have been removed, and the space converted into a new office for the Resident Magistrate, and a library.

The new Police-station has been completed, and fitted internally, and the adjoining yard substantially fenced, and well gravelled.

Two public urinals have also been erected.

It was found necessary, after the earthquake which took place in October, to take down and rebuild no less than 14 chimney shafts, in the Government Buildings, which had been injured by the shock. In re-erecting them I substituted wrought iron tops for the previous brick and stone.

A paling fence has been erected around the land purchased in front of the Police-station.

Gaol—Additions, &c.—These have been completed as intended, two new rooms have been added to the Gaoler's quarters, and the grounds outside of the Gaol yard have been fenced round substantially.

Government Wharf Repairs, and Improvement of Harbor.—The repairs to the wharf have been limited to merely keeping it in serviceable order, by renewing decayed flooring planks, and in re-covering the coal and timber platforms with boards on the original decking.

Queen's Warehouse.—This building, which was in progress during my last report, has been completed, and a branch railway has been laid into it from the Government wharf, by which goods can be placed at once in the warehouse after being discharged from any vessel.

New Hospital.—This building has been completed for some time, but is not yet occupied; a wash-house has been erected, surface and underground drains made where necessary, the ground and banks formed, the slopes sowed with grass, and the road gravelled. Iron entrance gates have also been erected—and the greater part of the internal fittings have been completed. The dead-house has not yet been erected.

Buildings for Lunatics and Poor.—A few ordinary repairs have been found necessary, and plans were prepared for an

addition to the Lunatic Asylum for the accommodation of male patients;—this work is now in hand, and comprises six new cells, and an exercise ward, as well as a bath-room. The adjoining exercise yard will also be enlarged in connection with this work—which I expect to see completed in a few weeks.

Foot-bridge, Maitai Valley, Nile-street East.—This bridge has been satisfactorily completed for some time. A contract is now in hand for tarring and painting it, which will be finished in a few days.

Maitai River Banks—Protection of Roads and Bridges.—The works undertaken for this purpose have so far proved effectual, although they have not yet been tested by any very heavy floods. I have used heavy rocks, wherever practicable, as a means of rendering the work permanent and substantial. The breakwater, proposed in my last report, has been erected in the bed of the Maitai, opposite the junction of the Brook-street stream; its action, however, is not so satisfactory as I could have wished, there is still a heavy deposit of shingle after floods in the bed of the Maitai, immediately below it and within its line the amount of deposit appears to depend on the fact whether the Maitai or the Brook is in strongest flood; if the former, the deposit is less, if the latter, greater. I think this might be remedied by a small additional outlay. Under the above heading certain sums have been spent on the river banks to meet equivalent subscriptions from private individuals.

Road to Quarantine Ground and Dip.—This work was finished shortly after my last report, and there is now a road across the swamp, which, however, from the loose nature of the material of which it was formed, (being only the peaty soil from the ditches laid on fascines), will require some further work to make a good hard road; and beyond the swamp a further outlay could be made with advantage in reducing some of the hilly parts of the road, and in improving what has already been done. In addition to the work first contracted for, the fords across the tideways were improved by digging out the mud, and carting in stones to form a hard causeway in each.

Pelorus Road.—Repairs.—The principal of these have been required within a short distance of Nelson, where the river Maitai threatened to wash away the entire width of the road for some chains; this part has been protected with stake and wattle work, and with heavy stones and rocks. Other repairs, extending along the whole length of the road, have been executed from time to time, and a few more are now required. It was reported to me that the Heringa bridge, situated at the extreme end of this road, was very much decayed and in a dangerous state, in consequence of which I had a special examination made of the bridge, by which it appeared that the decay in the main beams was mostly superficial, and that the hand-rail and other minor parts would require renewing soon. The bridge generally, it was considered, would last for some years to come, with a few repairs.

Bridges.—Maintenance, &c.—Under this head have been kept in repair the roadways of different bridges; a portion of the vote also was applied to the protection of the south approach to Collingwood-street bridge, which was in danger from the ravages of the Maitai river; another portion in repairing the stone causeway and approach to the Wairoa bridge, on the southern side, as well as the floor of the bridge itself.

Road from Pigeon Valley to Motueka Valley.—A small portion of this vote only has been expended, and that under a contract for widening and improving the side-cuttings on the ridge between Stanley Brook and Motueka Valley in such a way that that portion of the road may now be used for cart traffic; this improvement is considered as a great boon to the district.

Roads between Wai it i, Motueka Valley, Motupiko, Tadmor and Wangapeka.—In expectation of the whole of this vote being available, I had prepared a specification for extending the dray road up the Motupiko Valley, a work which is much needed; it has, however, not been proceeded with, a small sum only having been paid to the District Road Board, to be expended on those parts most needing attention.

Horse Track—Waiwero to Moutere.—No expenditure has yet been made on this track. I have, however, examined the country, and determined generally the line of the track to be adopted. A surveyor is now engaged in laying it off, and will furnish a correct plan of the line shortly. This track will be of great importance, not only to the Waiwero district, but to all the settlers at Ngatimoti, and the Orinoco Valley as well, as to Nelson, or to the Upper Moutere.

Road—Clifton to Motupiki.—The Takaka Road Board has completed the remainder of the work on this road, which I have examined, and which will prove to be of the greatest service to the district, as it was very much needed.

Waimea Bridge.—This bridge was formally opened to the public on September 21st, after completing the approaches, and the stone causeway across the second or dry channel of the river. All the work as yet stands well, though we have not had any very heavy floods since its completion. The wood work will

now be in a condition to be painted, having stood during the whole of the summer and being by this time well seasoned.

Cart-bridge—Wai it i.—This bridge was completed and opened for traffic in the early part of December, 1868. It is a timber bridge, and consists of eight spans of 36 feet each, the roadway being 10 feet wide, with a three-feet footpath on each side. In this bridge one of the simplest forms of construction has been adopted, the floor resting on transverse joists, which lie on the main beams or girders. These last are stiffened at the ends by projecting corbels, which lie on the piers and abutments, which consist of totara piles well driven, and cased with stout planking.

The bridge is intended to connect the districts of Waimea South and Waimea West, a new cross road having been made in the latter district to meet it. It supplies a want reported to be very much felt in this part of the country.

Cart-bridge—Wai it i—at Fox Hill.—This work has not been proceeded with; plans and sections of the intended site have however been taken, and complete plans of the bridge itself have been made, as well as copies of those of the ironwork for transmission to England.

Horse-bridge—Motueka River.—The only work done in connection with this vote has been to take exact measurements and soundings of the river at the site selected, (the only one in fact where a bridge could be built, with our limited resources), and to drive four trial piles, with the view of testing the nature of the bottom.

The driving, although apparently into a loose shingle bed, was very hard and difficult, but the rock bottom was reached with all the piles, at a tolerably uniform depth.

The shingle over-lying the rock would appear to be very densely compacted and cemented together, and is not liable to be moved in floods, even at the surface; so that a good foundation may be relied on.

On my visits to this place, I heard much dissatisfaction expressed at the prospect of so much money being spent on a bridge, which, from its being situated in such an out-of-the-way place, would scarcely ever be used.

There is no doubt that on this ground it never will be used, except in high floods, and on these occasions it will be serviceable for travellers from and to Riwaka and Takaka, and in cases of emergency. In the very highest floods it will however be unapproachable.

It has been suggested that a horse-ferry would answer every required purpose at this place, and the suggestion is worth consideration; it must, however, be borne in mind that this would involve the expense of a ferry-house, and the salary of a ferry-keeper; as no one could make a living by the ferry fees, seeing that the use of the ferry would be only occasional. It is stated that this river during the winter, at times, cannot be crossed by horse or dray for weeks together, it seems very desirable therefore that some provision should be made for crossing at these times.

Hurunui Bridge.—This work is being executed by the Canterbury Government. I had an opportunity of seeing the contractor for the work during the month of January, and he then informed me that about seven spans were completed, the total number being seventeen spans of 40 feet, and four of 25 feet each. The site, originally fixed to be on the main line of road, at Hastie's, has been changed, and the bridge is being erected about 1½ mile lower down, where, on the south side, high rocky abutments can be obtained, the other side being a low flat shingle bank. Since the work has been in progress the experience of one or two large floods has led the engineer to propose the expediency of increasing the width of the waterway (and necessarily the expense of the bridge) of which increased expense, the Government half. Of this proposal, I cannot see the fairness, as after submitting a tender to the amount of £6000, for the construction of the bridge, founded on the plans as amended for the new site, and after that increased tender had been agreed to by the Nelson Government, the Canterbury Government are virtually pledged to complete the bridge, any alterations they may now think it necessary to make, notwithstanding.

Karamea Roads.—A portion of this vote has been expended in improving the old road to the head of the Karamea, by way of the Wangapeka River, for a distance of about eighteen miles above the Wangapeka plain. This was put in good order for horse traffic, and a stone ford constructed by which to cross the Wangapeka, about ten miles up. The road up the Baton River has also been repaired, and below the Baton, along the Motueka River banks.

Main South Road.—This vote has been expended in making substantial improvements and repairs in different places along the whole length of the road, a considerable portion having been spent in the Long Valley, where good wide side-cuttings have been made to replace the old road on the flat, which was constantly being damaged and rendered impassable by floods. These cuttings have been gravelled, and will, I hope, be found to be a lasting piece of work, as also the other repairs which

were effected; attention in all cases being directed to have the work done in a permanent and lasting manner.

Botanical Garden Reserve, draining and improving.—The unfinished work, suggested in last year's report, has been completed, and a good drain has been laid along Bridge-street East to the Maitai, which will effectually drain the reserve. The making of this drain was entrusted (by arrangement) to the Board of Works, one-half the cost being paid by the Government. The reserve, as intended, has been laid down in grass, and the corners and borders planted with trees and shrubs; a good drain has also been cut along the foot of the hills to join the drain above spoken of.

Road, Riwaka to Takaka.—The necessary annual repairs on this road are now in hand, such as cutting down the low scrub which encroaches on and overhangs the track in many places, cleaning out and re-forming the side-cuttings, repairing culverts and water-courses, &c.

Courthouse and Lockup, Takaka.—This building has been completed and in use for some time, the balance of the vote has been paid to the Road Board with instructions to have the ground substantially fenced, and some small necessary out-buildings erected.

Road—Takaka to Collingwood.—The amount voted for this line has been divided between the Road Boards, to be spent in ordinary repairs. I believe the coastline between these two places could, at a moderate outlay be made available for dray traffic, and would be considered as of great service by the inhabitants of the respective districts.

Court-house repairs, Collingwood.—This work has been let by contract, and is now in hand; it was very much needed, as the building was very much dilapidated.

Foot Bridges, Brook-street Valley.—These have been erected as intended, in a substantial manner, and are a great convenience to the public, who now use this road in considerable numbers.

Water Works.—Since my last report the principal work has been the laying of the house services, 537 of which are now completed, besides all the public buildings, and the extension of the main pipes in one or two localities. I am sorry to have to report that considerable expense has been incurred in repairing damage done to the works either maliciously or wantonly, and that such damage is still of frequent occurrence. In other respects the works are in good and efficient order and repair. I found it necessary, after the earthquake of the 19th October, to inspect the Reservoir, and found that the effect of the shock had been to increase the small amount of leakage which previously existed. To remedy this, I took a favorable opportunity, and had the whole of the inner surface of the walls well pointed and faced with cement. This was attended with good results, and the new works appear to stand well. I have also found it necessary to protect at sundry places the banks of Brook-street stream, where their destruction by floods would affect any road or other work connected with the above works.

Improving Road between Nelson and Waimea.—A complete set of levels was taken in connection with this proposed work, and plans and sections were prepared, and specifications made for it. No portion of the work, however, has been executed.

Roads and Public Works, Collingwood Goldfields.—Under this head sundry small repairs to roads have been executed and a Ferry-house built in connection with the Aorere ferry at Collingwood.

A specification for substantially repairing and improving the road to Ro'e'y river was prepared, and tenders were called for, one of which was accepted, but the contracting party abandoned his contract, and the work has not been executed.

The bridge over Slate river had been reported as dangerous for some time, and I took the opportunity, on my last visit to Collingwood, of inspecting it. I found that it was scarcely in a safe state for pedestrians, and procured the necessary dimensions for repairing it as a foot-bridge, which is really all that is at present required. As soon as I can finish the plan and specification for the work, tenders will be called for its execution.

Altering and Improving Road over Moutere Hills.—In answer to a numerous signed memorial on this subject I was directed to examine a new line proposed by the memorialists, and accordingly did so. I found it to correspond very nearly with a line I examined some years ago. The memorialists have, I think, over-stated the advantages of the line proposed, which are, however, obvious enough to warrant a further careful examination of the district before proceeding to the outlay of the money voted, in the manner intended by the Provincial Council, viz, the alteration of the present road near the summit of the Moutere Hills, by which the steepest and highest portion of them will be avoided, by cutting through some of the spurs, on a cross line, and embanking across some deep gullies.

Horse-bridge, Takaka, above the Waingaro.—The necessary measurements and levels have been taken for this work, and the plans of the bridge have been partly completed. Since it was first proposed to erect this bridge, I have heard many opinions expressed as to its inutility, and on my last visit to Takaka,

took occasion to enquire further into the matter. A new road has just been completed, crossing the Takaka within a few chains of the site proposed, by a ford, which is permanent, and so good as to obviate, in many minds, the necessity for a bridge, which if erected, would it is urged, only be used on rare occasions, a view of the matter from which it is impossible to differ on an examination of the adjoining road and ford.

Suburban North—Road Widening.—This road was examined and measured, and specifications were prepared for the proposed work, which, however, has not been executed. It seems desirable that it should be done at an early opportunity.

Bridge, River Ludd, Happy Valley.—This bridge has been built for some time, though at a cost beyond the sum voted. This arose from the fact, that by adopting the site at first pointed out as available, one end of the bridge and road would have been on private ground, and the necessary alterations enforced a lengthening of the bridge, at an increased cost. The stream also was blocked up with heavy drift, which endangered the safety of the new bridge, and the cost of removing which was not included in the sum voted.

Extension of Trunk Road up Motueka River, towards the Dove.—The amount voted under this head was applied, under a pressure of circumstances, to the preservation of the present road rather than to its extension. The means adopted for this purpose, though of a kind ordinarily successful in protecting the banks of a river against the action of floods, were, I regret to say, in this instance unsuccessful; and the works were destroyed by the successive action of more than usually heavy floods.

As this district is rising in importance, I should be glad to see some provision made for carrying out the work as intended.

Motueka Jetty.—Amongst these I may report the repair and improvement of Motueka jetty. Two stout mooring piles have been driven, one at each end of the head, at such a distance as to be serviceable for a larger class of vessels than have heretofore visited Motueka. The deck area has also been enlarged by filling in one of the angles behind the T head, and the head itself has been strengthened by additional piles and braces.

Dipping Tank and Sheep Yards, Fox Hill.—This work has been completed and in use for some weeks. It has been erected on a reserve purchased for the purpose, and consists of large receiving yards, dipping tank, and drying yard, with two boilers, well, and pump, as also a second pump for emptying the tank. It will, I hope, be found complete and serviceable in every particular.

WEST COAST ROADS, AND OTHER PUBLIC WORKS.

Buller Valley and Tributaries.—I regret that the funds of the Province were not in such a state as to warrant a larger expenditure than has taken place during the past financial year in this district. Some work, however, has been done, and that generally of a permanent and useful character: from the turn off in the Big Bush, the dray road as far as the Howard has been materially improved and repaired in a substantial manner. Many soft parts have been well metalled and drained, and good stone fords made in place of bridges wherever practicable, and several new bridges and culverts have been built.

The cart-bridge over the Buller, near the Slips, has also been re-erected.

A few repairs, absolutely necessary, have been made on the South Buller road, and some others are at present in hand; but the amounts hitherto available, are totally inadequate to meet all the really pressing demands. This is the more to be regretted as there are evident signs of a revival of industry in these districts, which I should be glad to see encouraged by some timely expenditure where most needed. These remarks will also apply to the North Buller road, along which a considerable traffic is carried on as far as the Lyell, and which in many places and for long distances is in a very bad state of repair.

In the Lower Buller Valley the improvement and completion of the track as a horse-road, has been for some time in contemplation; that is, from the port upwards as far as the Lyell. Specifications have been prepared of the required work, which is now advertised for public tender. The specifications do not include the alteration of the old track at the Ohika hill, but I should consider all the improvements much enhanced in value if that work could also be carried out. I have given instructions to have the line carefully examined and laid off, from which an estimate of the probable cost can be formed; I do not apprehend that it will be so great as to prevent the work being proceeded with almost immediately.

Plans and specifications have also been prepared for certain additions &c. to Westport Gaol, which were really necessary, viz., mess-room or kitchen, two additional cells, and small room, and passage adjoining; also, quarters for the Gaoler, consisting of three rooms and store. This work is also advertised for tender.

Tenders have also been called for and received for the enlargement of the Court-house at Charleston, according to plan and specifications prepared, and the work will be proceeded with without delay.

For further information on the state of the public works on the West Coast, I must refer to the exhaustive report of the District Engineer, Mr. J. H. Lowe, which also contains an estimate of the probable amount required for public works during the ensuing year. While agreeing generally with the estimates in the aggregate, I may state that some of the individual items may require modifications, depending, however, on the manner in which the works are carried out.

I must also refer to a special report on the Buller banks, made by me after my visit to the West Coast, in September last, to which I think it is unnecessary to add further remarks on that important subject.

I shall forward my estimate for other public works (now in preparation) as early as possible.

I have the honor to be Sir,
Your Obedient Servant,

JOHN BLACKETT,
Provincial Engineer.

Nelson, 13th April, 1869.

DISTRICT ENGINEER'S REPORT.—NELSON SOUTH-WEST GOLDFIELDS.

TO THE PROVINCIAL SECRETARY, NELSON.

SIR,—In accordance with instructions received from his Honor the Superintendent, I have the honor to submit the following Report on the Public Works which have been executed during the past year; and, also, a description of the works which, in my opinion, are necessary for the public service during the ensuing year:—

GREY VALLEY.

Since the 1st April, 1868, a very great deal of work has been required in the maintenance of the horse tracks between Cobden and Ahaura. The tracks are for the most part on the banks of the river, and are consequently exposed to the damaging effects of freshes after every fall of rain. Almost every month the road has been blocked up in some part or other, and the traffic entirely suspended until the impediment could be removed. These stoppages have either been from slips on the terrace cuttings and sidings, or the deposit of drift-wood on the tracks, or else the falling in of the banks along which the road lay. This has occurred so frequently that the track has scarcely ever been clear of a road party for a month at a time; but before the men have restored the road to some sort of order another fresh has rendered it necessary to go over the work again.

New Work.—With the object of avoiding certain parts where the inroads of the river rendered it impossible to maintain a road anywhere near it, three pieces of new road have been formed. First, about one and a-half miles have been made from Coal Creek bridge to the first terrace; this piece was well made and thoroughly drained, and since its completion in July last, has not required any repairs. It is entirely removed from the river, and shortens the distance considerably. The next piece is near Camptown, Red Jack's creek and the third between Nelson creek and the Ahaura, but the rapid rate at which the river tears down the banks about these latter parts makes it very doubtful how long the tracks may exist. Since I have had charge of the public works, I have not had any work done on these tracks more than was absolutely necessary for the safe traffic of horses, as I considered the situation quite unsuitable for any permanent roads.

AHAURA ROADS.

Owing to the encroachment of the two rivers, Grey and Ahaura, at their junction the situation of the Ahaura township has become very critical. Finding it necessary speedily to remove the Police Camp and Lock-up, a new site was sought for, and a secure place found about three miles up the Ahaura river. On this spot a township has been surveyed under the Goldfields Regulations, and roads have been made giving access thereto. These roads likewise provide for a shorter route to the diggings on the Ahaura and Orwell creek and vicinity, and are substantially formed, as well as being perfectly safe from injury in any weather.

COAST ROADS.

The votes of the Provincial Council were amply sufficient for the maintenance of these roads, which sustain very considerable traffic, and are at the present time in very good condition, the only exception being in the case of the road over Cape Foulwind, a distance of three miles, which is of a very treacherous nature, costly to maintain, and requiring constant attention. During the earlier part of the year, a foreman was engaged in overlooking the roads in the Charleston district, but latterly the work required in maintaining them has much diminished, and his services have been dispensed with. In the months of July and August the Razorback track was repaired throughout, and several new cuttings made in the gorge of the

Fox's river, greatly improving the track, by avoiding repeated crossing and recrossing of the stream, which crossing places were very far from safe when the river was rising.

ADDISON'S.

The road to Addison's Flat has been repaired in the earlier part of the year, and has since been constantly maintained in good order under a contract. The road was extended about two and a-half miles to the Shamrock Lead, and another new piece of about two miles length was made from Charleston to Brown's terrace. Both of these new pieces form parts of a projected direct line of road from Westport to Charleston by way of Addison's Flat. The distance intervening between the ends of the finished roads is about five miles.

CALEDONIAN.

A road was formed from Westport to the Caledonian Lead in the early part of the financial year; it was completed in August, and since that time has been maintained under a monthly contract. The road was originally formed in a cheap and unsubstantial manner, and in consequence has required very constant attention to keep it in order, under the very heavy traffic of pack horses to which it has been subjected.

BRANCH ROADS.

An extension of the branch road to Darkie's Terrace near Charleston, was required to facilitate the supply of coal to the steam-machinery lately introduced, and a similar branch road for a like purpose has been made from the main coast road to the Candlelight Flat workings. These branch roads were constructed at the joint expense of the Government and the parties interested therein. A rush having set in to Rockfort's Terrace, near Brighton, and a large number of men having been attracted to the spot, very great anxiety was expressed by the public of Brighton for the immediate formation of a road thereto. I had a blazed line cut with the object of ascertaining the best route for a road, which at the same time served the purpose of a foot track, and was a great assistance to the diggers passing to and fro. I carefully inspected the country to form an estimate of the cost of a road, and to determine the most advantageous course, and reported fully thereon to the Government; but I did not at the time, nor do I now, consider any further outlay to be warranted.

BUILDINGS.

The following works have been done in the three districts of the Goldfields, under the head of buildings, repairs and fittings.

At Westport.—The new Custom-house was completed early in the year, and the building formerly used as a Custom-house was enlarged and altered to form a dwelling-house for the Postmaster.—A new building has been erected for a Telegraph office, adjoining the Post-office.—In the Gaol the cells have been provided with windows and ventilators, and the Gaol-yard enclosed with a fence of galvanised iron on a strong wooden framework. Other fencing has been put up to form yards around the Police-quarters, and Survey, and Custom-house.

At Charleston.—New buildings were built during the year for Post-office and Survey-office. During the early part of the year, a house was rented for the Warden's residence, and subsequently a house was purchased for that purpose, near the Nile bridge.

At the Grey.—It was found necessary to remove the Warden's camp from the Twelve-mile Landing, on account of the great danger of the situation in times of flood, and also the principal centre of the mining operations has been moved further up the river. The Court-house, Police Camp, and Lock-up was therefore removed to Camptown, a newly surveyed township at the foot of Red Jack's Creek. At this place, a Camp reserve was laid off, fenced and cleared, and the buildings brought from Twelve-mile and re-erected. Stables have been put up on the reserve, and at the new township of Ahaura. A new Lock-up was erected at the Ahaura, by order of the late Commissioner early in the year, which, together with the old Police Camp, it was found necessary to remove to higher ground; the great inroads of the Rivers Grey and Ahaura having rendered the site of the buildings highly dangerous. Various repairs and fittings throughout the different buildings and offices on the West Coast have been executed or supplied, from time to time.

REMOVING SNAGS, &c.

Under the vote of the Provincial Council in last session, for mooring posts, anchors, and removing snags, the principal work has been required in the Port of Westport.

The Buller River in every flood brings down very large and numerous snags, and they have to be removed very promptly, in order to secure the safety of shipping. The engagement of vessels for the purpose of raising snags was very expensive, to avoid which, a small schooner was purchased by the Commissioner, in July last, and fitted up with a powerful windlass and other appliances, to adapt it specially

for lifting snags. The vessel has been entirely under the management of the Harbor-Master, who has worked it with his ordinary boat's crew. Since commencing work, in August last, all the main channels in the port have been cleared of numerous very large snags. The vessel is found to answer the purpose remarkably well, and proves a very great acquisition to the port, and, considering the expense formerly incurred, by hiring a vessel and crew whenever a snag was lodged in a dangerous position, the purchase and working of the schooner has evidently been an economy.

Grey.—The snags in the Grey river have been troublesome, but not to a like extent with those in the Buller. The place where snags accumulate is just in the vicinity of Cobden wharf, and are a constant source of damage or danger to vessels mooring alongside. They have been cleared away at occasional intervals during the year, but others still come down. The whole expense, however, during the year has not exceeded £75, and that has included the removal of several snags of old standing in addition to fresh ones, so that a considerably smaller sum may be sufficient to keep the berth clear next year.

New signals have been provided for the stations at Westport and Charleston, and other accessories required by the Harbor-Masters, as buoys, chains, oars, &c., &c.

PROTECTING THE BANKS OF THE BULLER.

Previous to the commencement of this financial year certain works were begun on the Buller river, with the object of protecting the banks from the encroachments of the river, and also for the purpose of providing wharfage for shipping. These works were continued in the year now ending. From the first this undertaking lay under great disadvantage. The line of bank requiring protection was of great length, and while any works were in progress, the process of demolition was constantly going on. The safest plan would obviously have been to begin up the river, at a point carefully chosen and well protected, and thence worked down stream, making the work good as it proceeded. There were, however, other considerations opposed to such a course.

Firstly.—The shipping required wharfage immediately. *Secondly.*—By lying alongside the banks the vessels greatly aggravated the mischievous action of the river. And, *thirdly*, the lower part of the town and the most valuable of the ground was in the most imminent danger. The jetties were, therefore, first erected in the most convenient places, and breastworks were subsequently commenced to assist the jetties in opposing the current, and to protect the intermediate portions of the bank. On the 14th October, while the work was still incomplete, one of the heaviest floods ever experienced in the Buller came down with disastrous effect. Large portions of the banks and works on them were swept away, and things were left in a condition far worse than ever; by reason of the great depth to which the river was scoured close under the bank, it became evident that any further attempt to cope with the floods in the Buller on principles hitherto adopted would be hopeless. Other plans have been suggested and reported on to the Government. Since the flood above referred to, the inroads of the river have continued with little intermission. During high spring tides the damage done is more rapid and extensive, but it scarcely ever ceases. Wharf-street was nowhere less than a chain in width twelve months ago, now, in one place it is too narrow safely to admit the passing of a dray. The sites of many houses cannot be expected to remain many weeks longer. Attempts have been made to resist the action of the tides, which are even more destructive than the floods, but so loose and shifting is the ground that nothing can stand in it for any length of time. The class of temporary protection against the tides which has answered best is a row of posts about five or six feet apart sunk a good depth in the ground, and long fascines closely packed with clay between the posts and face of the standing bank. Sandbags and breastworks of slabs have also been tried, the former, though efficacious at first, decay very rapidly. The latter present a surface on which the water takes great effect when it rises on them, and the swell sways the breastwork to and fro, until the whole is loosened, and so becomes destroyed. Of the piling work which was done prior to the flood above mentioned enough has stood to form two very useful landing places which have supplied every accommodation for wharfage for some months past. Unless the banks entirely recede from these landing places, I think there is fair reason to hope they may yet stand a long while to come.

BULLER VALLEY ROADS.

On the main Buller road certain works have been done in the way of repairs, chiefly above the Lyell. These works were done by the direction of the Provincial Engineer, and paid for in Nelson. The line of road between Westport and the Lyell, is at present in an unfinished state. It has been carefully inspected, with the object of preparing specifications of work necessary to complete it. Those works coming under the class of projected works will be enumerated in their place further on.

FIRE AT CHARLESTON COAL-SEAM.

A very troublesome contingency occurred at Charleston in the earlier part of the year. One of the coal seams at the rear of the town took fire, either by accident, or more probably, the carelessness of persons passing the place. A large mass of coal was ignited, and the sulphurous fumes emitted from it, was a source of very great annoyance to the inhabitants, and threatened, if it increased, to become insupportable. A contract was taken to extinguish the fire for £50, or nothing if attempts were unsuccessful. It appears the fire was got under, and no sign appearing for two months, the money was paid. Shortly after, about the time I took charge of the works, the fire reappeared, not only in the original spot, but also at a distance of forty or fifty yards therefrom, indicating that the fire had spread considerably underground. I had a water-race turned into it, and dug channels to conduct the water into the seam itself, and by constant attention for a short time the fire was entirely extinguished.

PROPOSED WORKS.

I have now the honor to propose in detail, certain works for the ensuing year, and would premise a general view of the goldfields, with reference to its roads, in connection with the centres of mining operations. All the gold workings may be comprised in these four principal groups:—

Firstly—the Marine Terrace Workings.—This group extends from Waimangaroa to the Township of Brighton, and comprehends all the terrace diggings of Westport, Charleston, and Brighton, including the North Lead, Giles' Terrace, German, Caledonian, and Carolina Terraces, Addison's Flat, Shamrock Lead, Darkie's Terrace, Candlelight Flat, Four-mile and Welshman's Terrace, and known auriferous terraces four or five miles further south.

Secondly—the Beach Workings.—This section takes all the beach line from the Razorback to the River Grey. These workings are, more or less, remunerative, require little capital, and no very hard work, and steadily maintain a considerable number of men scattered along their length.

Thirdly—the Grey Valley Diggings, which are worked, at the present time, to a greater or less extent, on most of the tributary streams on either side of the river, comprising the Diggings at No-Town, Blackball, Redjack's, Nelson Creek, Moonlight, Ahaura, Orwell Creek, Topsy's, Nobles and Duffers' Gullies, and Napoleon Hill.

Fourthly—the Buller Valley Diggings.—These comprise scattered and at present isolated workings, between the Port and the Inangahua, and higher up the river the more important diggings on the Lyell and Matakitaiki, and country intervening, as well as Soldiers', Boatman', and various other gullies on the Inangahua. From this it will be seen that a line of roads from Westport down the coast to the mouth of the Grey, thence following that river to its source, crossing the Watershed, and returning down the Inangahua and down the Buller to Westport; again passes through auriferous country throughout its length. Hence it becomes evidently a point of the first importance that such a line should be a substantial and well constructed trunk road, for not only is it required at the present time for the benefit of the whole population, but also from the formation of the country it, only, must always be the main artery of communication, and the development of the South-west Goldfields to a very great extent depends upon it. A large portion of this line is now a very fair bridle track. From Westport to Charleston it is open for dray traffic, and from thence to Cobden it is a good horse road, using the beaches where available, and the rest for the most part tolerably substantial but requiring a few repairs. The roads on the Buller, Inangahua, and the Grey have many links wanting to complete the circuit above described, and to these points the first attention will be directed in the following detailed statement of works required. The next consideration will be the improvement of branch tracks to some of the most populous diggings which stand in greatest need of it; and thirdly, the local requirements of townships and harbors. After careful consideration I have divided the details under seven general heads, and I would respectfully express a hope that whatever sums may be voted by the Provincial Council they may be grouped in a single vote for each head. My reason for so strongly recommending this course is, that in the varying circumstances of a Goldfield, it is impossible to predict its requirements for the space of twelve months; but however accurately a detailed estimate may be made to suit the wants at present existing, it is quite probable that in a few months time it may be found that such a distribution of funds would be entirely useless, and yet an equal amount, otherwise disposed, may be as urgently needed as ever.

Under the following seven heads, all the works I have to recommend, will be included, viz.:—

1. Roads in the Buller Valley and tributaries.
2. Roads in the Grey Valley.
3. Roads on the coast line or seaboard.
4. Branch roads to new diggings, contingencies.

5. Streets and local improvements.
6. Harbor and signal stations.
7. Buildings, repairs and fittings.

I. Buller Valley Roads.—On the main road up the Buller River, a large amount of works have been done in former years. In many parts, great distances of very good road exist at the present time, but these parts are disconnected. The great increase in the mining population above the Lyell, is alone sufficient reason to propose the completion of this road as a work of chief importance; but, in addition, there is the consideration that this road forms a large part of the main trunk line through the Goldfields. To complete the road to the Lyell, about one and a-half miles of new road is required round the base of the Ohika hill, to avoid the range over which the present road passes, and which is altogether too steep and difficult for a horse road. In this new piece there is a good deal of rock-work and generally very heavy side-cutting, for which I estimate £1300. 2nd.—a short but difficult cutting in the face of the solid rock, called Hawk's Crag, which is part of the original plan for a road, but left untouched. I have examined the place carefully, and am satisfied no other road would answer as well or cost less for cutting, say £250. 3rd.—About one mile and a half new road-making over the Blackwater Hill, say £500. And for general repairs and restoration of old work, say £700. On the Inangahua very little is required to re-open, in a temporary manner, the track from the junction to the "landing," a point eight miles up the stream; but to make a permanent road, it may be found necessary to alter the road at the further end, in order to avoid some loose and sliding rocks where the road is now blocked by slips. To pass behind these rocks it might be necessary to form anew about one mile of road, for which I put down £300. The road between the Lyell and the Maruia has been damaged by slips, and generally requires repairs, say £500. To complete the thoroughfare from Nelson to the West Coast, either a bridge or a ferry is wanted near the Lyell. Either would entail considerable cost. For a ferry, approaches would be required through very rough and rocky ground, and for a bridge the carriage of the necessary ironwork up the river in small boats would greatly enhance the otherwise expensive character of such a structure in the situation in question. I believe all requisite measurements of the site for a bridge have been taken by the Provincial Engineer, therefore I do not enter further into that matter. I put down either for the ferry and approaches, or for the bridge over the Buller, £1000. And, lastly, for general maintenance of the Buller Valley Roads, £500, giving a total of £5050 for this item.

II. Grey Valley Roads.—Between Cobden and the Arnold ferry, I consider the route chosen for the road is as good as can be obtained; from thence to the new township of the Ahaura, none of the present track is in a situation that warrants the outlay even of the sums required during the year to keep it passable. 1st.—The new line I propose in continuation of the scheme mentioned for a trunk line throughout the diggings is as follows:—Continuing the present road on the right bank of the Grey from the present ferry about two miles higher up, where a very much better and safer ferry may be established, crossing the river at this point, I would take a new line of road direct to the terrace ground near the river, and continue it along the higher grounds over Redjack's Creek to Nelson's Creek terraces and thence follow the succession of terraces to the Ahaura. This will avoid all the river banks and shingle beds which have hitherto been a continual trouble. I estimate, from Langdon's Ferry to New Crossing, £600; and thence to Nelson's Creek, £1800; and to the Ahaura, £1200.

2nd.—To render the road between Cobden and the Ferry safe from slips, it will be necessary to cut away the hill-side to a proper inclination, and cut down the overhanging trees which do much mischief by swaying in the wind, and loosening with their roots quantities of ground, which eventually falls on the road. About 5 chains require cutting back, to batter about 10 inches to the foot, which will run the work to a considerable height, perhaps, 40 feet; and 15 chains more require an average of 12 feet high. For this, I set down £150. This sum, judiciously applied, should render the Terrace sidling safe for the future. To avoid the overflows in this section which are impassable at ordinary floods, and highly dangerous when the river is rising, about £300 would suffice.

3rd.—From the Little Grey junction to the Inangahua Saddle, the whole road is bad, and insufficient for the traffic even now upon it. I would, however, only recommend the formation of the latter five miles, which even now are scarcely passable, and during the winter and spring will only be travelled at great risk. The further part of the road follows at present the windings of a creek to gain the benefit of its stoney bottom, and when this falls off, the road plunges into a dense bush; and the horses flounder amongst the roots and bog-holes for three or four miles. A direct line could be struck mostly over open plain to avoid this bad place, and shorten the distance considerably.

Any attempt to improve the existing track would be a fruitless expense. The road proposed on the open terraces would require the upper soil, which is soft and spongy, to be thrown off, and a hard gravelly surface would be laid bare, and of itself form an excellent road; some part would be through bush, but without a survey, it is not possible to state what distances are actually required. I reckon, however, five miles at £250 per mile.

4th.—Great complaints have been made of the branch tracks to Red Jack's and Nelson's Creek, and considering their requirements at the present time, I should have proposed, for Red Jack's, £750; and for Nelson's Creek, £200. Should, however, the Government decide to form the main road above described, from the crossing to the Ahaura, these branch tracks would, to a great extent, be done away with, as the main road would pass through the centre of the diggings. Should it be found necessary still to maintain a landing place at the foot of Red Jack's Creek, some part of the above sum would be needed in this instance, I therefore set down £500 for Red Jack's Creek.

Old established diggings have been steadily maintained at No-Town, Duffers', and Noble's Gullies, for which I set down £400, £300, and £200 respectively. These have constantly supported a considerable number of miners for years past, and no help has yet been afforded by Government in the way of tracks, those that exist, such as they are, having been made by the inhabitants of the neighborhood. The Moonlight Creek is a subject difficult to estimate upon without a more careful survey than I have had the opportunity of giving it. To form anything like a good road would cost a very large sum, and it is not to be contemplated considering that the locality has retrograded. There are, however, several claims in work, and applications are made for extensive leases on the quartz reef. I should, therefore, propose a small sum to be laid out in improving the passages of the river bed, say £150. Lastly, for maintenance of the above Grey roads, £500.

The Amuri road has long been proposed in connexion with the branch tracks up the Ahaura. As a sum of £2000 was voted last year and not expended, I need only say it is fully as much required now as then, and I think the opening of the road would assist greatly in the development of the Ahaura Gold Diggings. Total for roads in the Grey Valley, £9350.

III. Roads on the Coast Line.—The main road from the Buller to the Grey already exists in fair condition on the whole, the principal exception is in the instance of the road across Cape Foulwind. This piece of road is formed by laying the scrub and vegetation that was cut in clearing the bush in the line of the road, and a covering of the cement, which forms the substratum broken up in pieces is laid on the top. Under the traffic of horses and drays the cement becomes pulverized and reduced to a fine sand, which never binds or sets in the least; consequently every dray passing ploughs a deep furrow, and all that can be done is to fill it again with similar material. For the last ten or eleven months, a man has been constantly employed at £4 per week doing this work. Now the scrub underneath shows signs of decaying, and the amount of work that will entail will be very great in future. It was a mistake in the first instance to form the road in this manner; it should have had the upper soil thrown off, and the natural surface of the cement would have formed a durable road. I think the plan dilapidated, to reform it in the way I suggest. A part might be thus treated during the ensuing year; and other parts could be kept up and made to answer as they are till a future time. The most unsound parts likely to require it during the year might be renewed, as I propose, for £500.

Some improvements are needed in the Fox's river. The upper part of the track lies in the river bed entirely, and some of the crossing places frequently become dangerous. At the same time, to make a road independently of the river would cost a far larger sum than is warranted now. I therefore propose the sum of £100 to form new approaches, &c., when destroyed by freshes. The maintenance of this line will be costly as compared with others.

The roads about Charleston, though now in fair order, require a great deal of attention, as the traffic is considerable, and the roads are soft. Noth of Brighton, the approaches to the sea beaches are very liable to be destroyed by the sea; and the cuttings on the Bluff tracks, though tolerably sound and substantial, yet whenever they do occasionally fall away, repairs are expensive as the ground is rocky.

I estimate £1000 for maintenance of the roads on the coast, including Addison's, Caledonian, and all at the rear of Charleston. In all cases of maintenance of roads, I would strongly recommend the letting of suitable portions by monthly contracts as a complete and convenient manner of providing for constant repairs.

Communication between Westport and Charleston.—The road from Westport to Addison's has been extended to the Shamrock Lead, in the direction of Charleston; and a road has been made from Charleston to Brown's Terrace on the way to Shamrock

Lead; a distance of about five miles of open Pakihis divides the two. This formed, the road would be complete, in a direct line from Packer's Point to Charleston. The advantages of this route would be a shorter distance than the present road by the beach. Secondly, a good road independent of tides; and thirdly, the connection of the mining districts lying between Westport and Charleston with both towns. For the completion of this line I estimate £1250. The districts of Addison's, Shamrock, and Brown's Terrace, are not progressing very fast, and after all, the proposed connection would only provide a bridle-track, so that I do not place this proposition in a prominent place.

The extension of the Giles' Terrace or Caledonian track, in a branch along the North Lead, would, I think, prove of great service, and if not just now absolutely required, it is so very probable that it may become so, that my estimates would be very incomplete without it. I estimate for the extension of a road under the North Lead Terraces, to the Waiatea, £400.

Total for the Coast line, £3300.

IV. *Branch Roads to New Diggings and Contingencies.*—To meet unforeseen contingencies, which might occur on the discovery of new diggings, I propose the sum of £2000.

V. *Streets and Local Improvements.*—Westport.—The back streets in the township of Westport are for the most part swampy and boggy, and a great deal of unwholesome ground and stagnant water exists, even in streets on which are numerous habitations. It has previously been the habit of the Government to assist the inhabitants to the extent of one-half the expense. I therefore propose £500 to meet equivalent subscriptions. The amount I consider a small one for the purpose but considerable assistance in the work might be derived from the employment of prison labor, particularly in ditching, and forming, and stumping the roadways.

Charleston streets might also be principally attended to by the prisoners of the Gaol, but to meet expenses of carting metal, &c., as occasionally required, I estimate £200.

Cobden.—For draining and repairing Bright and Robinson-streets, and part of Stafford-street, £150.

Fencing on Municipal Reserve, Westport.—Hitherto the residents in the Government houses on the Municipal reserve have been unable to make any use of the ground for gardens or any other purpose for the want of an enclosure, and this enclosure is further needed as a protection to the properties themselves, as the buildings are liable to damage from stray cattle, &c. There are about 36 chains of fence required, for which I estimate £150, including gates.

Total for street and local improvements, £1000.

VI. *Harbor and Signal Stations.*—Westport.—In the port of the Buller, there is a great deal requiring consideration. The protection of the river banks is no doubt the first question, but that being in the hands of the Provincial Engineer, I will say nothing of it here.

The harbor is, however, in my opinion, still further threatened by the sea itself on the South Spit. This Spit is composed of sand and shingle, and is simply a bank, which encloses the tidal waters, called the Buller Lagoon. This lagoon comprises one of the chief portions of the harbor accommodation, which the West Coast of this Island can ill afford to spare. In one part of this, the sea threatens to break through. It is difficult to calculate what events might ensue, if this were to take place. One consequence would, I think, follow inevitably, that the bar would become shallower as the river gained more outlet, and this alone would be an incalculable mischief to the port.

The breach of the sea into the lagoon would possibly sweep away the Spit altogether, and the refuge for shipping in times of flood—the quiet haven for fitting and repairing vessels that now exists, would be gone irretrievably. The means of preventing so great a disaster, I think are neither difficult nor expensive.

The action of sea waves upon a beach is altogether different from that of a flowing river on its banks, and to be differently treated accordingly.

I should propose to form groins of strong posts, sunk deep in the sand or shingle, with birch or manuka sticks and brushwood wattled between them; these should run out from high water to low water marks at an inclination to the line of the sea, to be determined on observations of the most prevalent winds, and currents in the sea. If properly planned, these would accumulate sand and shingle, both from the sea itself and the drift of sand before the wind, which is almost equally to be looked to as a resource as the other.

Such works are not costly, and may be quickly constructed; and their efficiency has been tested with known success on various parts of the English coast.

Some resistance will be found essential to the encroachment of the sea on the South Spit, and at a part of the North beach, nearly opposite the Roman Catholic Chapel.

I consider £600 would be ample for all needed in this respect. The advantages and accommodation of the port would be immensely increased by the deepening of the channel entering into the lagoon from the river. At low water there is a bar

laid dry which might be easily cut away, and by working at lowest spring tides a sufficient depth could be obtained to admit vessels drawing from 8 to 10 feet of water. This bar is entirely composed of shingle, and should be cleared, say 50 feet wide and 3 feet deep, and perhaps the length of two or three chains.

Two other channels in the lagoon require widening, and in some instances it might be found advisable to put up a groin of some description to retain the stream at flood and ebb in the deepened channel. This, however, I consider a small matter, and possibly not to be found necessary. For the deepening of the channels, &c., say £200.

A small jetty would be a very great advantage on the South Spit, for the purpose of unloading cargo and cattle from steamers, &c., and also for the ballasting of outward-bound vessels. There is a good site for the erection of such a jetty, which is out of danger from floods, and need not be built in a costly manner, say £150. For removing snags, (for which occasionally extra hands are required by the Harbor-master beyond the ordinary boat's crew) and repairs to the schooner, boats, &c., the supply of gear, and fitting an office in the old hospital building, now used as a store for tools, gear, &c., for the use of the Harbor-master, I put down £100.

Grey.—Removing snags from Cobden wharf, £100. I have, at a former time, reported to the Provincial Engineer upon the state of the Cobden wharf. About £150 was spent upon it during the past year. A great part is now rapidly decaying, and it must become very costly to maintain. I do not, therefore, recommend any extensive repairs being bestowed upon it, the whole structure not being worth it. For the present it seems very much less required than formerly. Vessels rarely come alongside as the principal coal depot is on the Greymouth Wharf. I would suggest that amongst the conditions stipulated upon the lease of the Brunner Mine in connection with the railway, it should be provided that the company reconstruct the Cobden wharf, the material to be entirely the stone from the adjacent hill side. I do not anticipate that this wharf will be required to any great extent until a railway is formed to convey coal from the mine to the port, on the Cobden side of the river. To maintain it, however, for any purpose it will require at least £50 during the ensuing year.

Sundries for signal stations, gear, &c., at the Grey and Charleston, £50.

Total on harbors, &c., £1250.

Before closing the subject of harbor works, &c., I would venture to suggest a few remarks regarding the protection of the banks of the Buller River. I have read the report of the Provincial Engineer thereon, as well as those of Messrs. Woods and Balfour, on which I trust it will not be considered an impropriety in me to offer an opinion. On the means proposed as a remedy for the existing evils, I should be entirely in favor of the former.

Mr. Woods proposes an economical scheme as an experiment, the plan being to re-open the channel at the back of the Island abreast of Packer's Point. This appears to me a mistaken view altogether.

First.—It is demonstrable that, if it is even possible to do it, the cost would be enormous. It is proposed to clear the old channel at the upper end of the island. The main current of the river impinges on the island below this point, wherefore it is obvious, the mere clearing out of the said channel above, can have no effect on that current. To cause the stream then to flow into this old channel, it would be necessary to turn it off the opposite bank at a much higher point, which would cost as much as the work proposed by Mr. Blackett in another place. The difference being that Mr. Blackett's work would complete the purpose in view, while Mr. Woods' would be but one experimental step towards it.

Secondly, admitting the possibility of turning the river, or a large part of it, as proposed behind the island, it appears to me a remedy of so dangerous a nature, that it should receive the gravest consideration. I am myself convinced it would result in the destruction of the South Spit to the irreparable damage of the port. I think, however, it is unnecessary to warn the Government against this course, as I am sure the proposed amount of £2000 is utterly insufficient to accomplish it.

The true principle appears to be, to turn the stream off the injured part of the North bank by the least possible deflexion from its wonted course, and that can only be attained by works on that side of the river, and about the spot indicated by the Provincial Engineer. From further investigation of the resources at hand, no doubt some modification in the details of the work will be found necessary, but such modification will not, I think, diminish the expense as estimated at £12,000.

The kind of embankment proposed, is, I believe, the only one capable of standing in the Buller, where any breakwater has to resist a body of water from 35 to 40 feet deep at a high velocity, and having nothing but a loose shingle bottom to rest upon.

I have only one suggestion to make in addition, to ask consideration of a question whether so large an expenditure as is

required to protect the bank near the sea might not more advantageously be applied in opening and forming the streets of the town in the upper part, as it was originally planned. A natural bank acts as a breakwater to protect the banks some distance below it, and though it is covered in floods it could be added to at a moderate expense. Wharfs could stand safely under the lee of the bank referred to, and there is ample draught of water for shipping.

VII. *Buildings.*—Westport.—The extension of the gaol is the only new work required at Westport. The building now existing was originally intended as a lock-up merely. It has subsequently been used as a gaol for the reception of prisoners for all the stations on the South-west Goldfields. The extension required is four additional cells, a kitchen, and wash-house, and Gaoler's quarters, estimated at £400.

Charleston.—An addition to the Court-house has long been needed, and is more especially on the session of the District Court at Charleston. Additions and alterations estimated at £350.

Grey.—A Lock-up and Police quarters at Nelson Creek has been a want severely felt, the constable having been unable a times to find any place in which to secure a prisoner. Estimated, £100.

The new rush at Napoleon Hill promises to be one of the most important mining centres on the Coast, and it is probable a Lock-up there cannot long be dispensed with. Estimate as above, £100.

Maintenance of Existing Buildings, Painting, Repairs, &c.—Most of the buildings at Charleston and Brighton, including the Warden's house at the latter place, and the buildings on the Camp reserve at Cobden and Ahaura will require painting during the ensuing year; various other repairs and fittings will be required in all parts of the Goldfields, for which I cannot reckon less £1000.

Total for buildings, repairs and fittings, £1950.

ESTIMATES FOR PUBLIC WORKS.

My estimates for the public works for the financial year ending March 31st 1870, stand thus:—

1st Roads in Buller Valleys	£5,050
2nd Roads in Grey Valleys	9,350
3rd Roads on the Seaboard	3,300
4th Branch roads to New Diggings	2,000
5th Streets and local improvements	1,000
6th Harbor and Signal Stations	1,250
7th Buildings, repairs and fittings	1,950

Total for West Coast public works £23 900

This does not include any provision for the protection of the banks of the Buller. I have also refrained from making reference to the Brunner mine and railway, since I have had no official connection with the working of the mine, and any proposition touching the railway, in the present stage of the question, belongs more to the Warden's Department than mine.

I have the honor to be, Sir,

Your most Obedient Servant,

J. HENRY LOWE,

District Engineer,
South-west Goldfields.

Cobden, 31st March, 1869.

DISTRICT SURVEYOR'S REPORT—NELSON SOUTH-WEST GOLDFIELDS.

TO THE PROVINCIAL SECRETARY, NELSON.

SIR,—I have the honor to forward, for the information of his Honor the Superintendent, a report of the Survey Department on the South-west Goldfields for the past financial year, together with suggestions relative to the working of it during the ensuing year.

2. In the earlier part of the past year there were only two Surveyors upon the staff—the District Surveyor stationed at Westport, and an Assistant Surveyor on the Grey. Private Surveyors were engaged, as their services were required, at the Buller and Charleston. During the latter part of the year a Mining Surveyor was regularly engaged at Charleston for mining work only, and paid by the work done.

3. The office work at the Central Survey Office at Westport very greatly increased this year, so that the District Surveyor was much less able than formerly to attend to the field and mining work. It was on this account that private Surveyors were occasionally employed at the Buller in mining work, and the general surveys were not proceeded with to any extent.

4. In December 1868, the Government appointed an Assistant Surveyor for the Buller district, which was a great acquisition to the staff, for not only did he execute satisfactorily the mining work, which had been very imperfectly done by private Sur-

veyors previously, but he also resumed and carried on the general surveys of the district.

5. It was represented to the Government that a similar arrangement would be highly beneficial in the Charleston district, and that is now provided, so that the existing staff consisting of a district Surveyor and Draughtsman, and three assistant Surveyors, will, I think, prove very efficient.

6. To ensure the greatest possible efficiency, it is doubtless the most important matter to ascertain and define a complete system under which the exertions of each may be directed to one common purpose.

7. Such a system I have the honor now to propose. I will first suggest a general plan on which I consider the Survey department should be conducted, and the work proposed to be done, and the end to be attained. And secondly, the staff required and estimated cost of it.

8. I have always considered the object to be obtained by a Government Survey Establishment is not only to define the position and boundaries of various blocks of land, but also to form such maps as may portray faithfully the natural features of the country, for the purpose of affording a knowledge of the conditions of it, which can be attained in no other way.

The public, for the most part, have very imperfect ideas of the country, and the maps existing are very incomplete. Some good general map of the Goldfields is especially wanted, copies of which should be open for the inspection of the public in the Survey Office of each of the Warden's districts. These maps should indicate the position of all surveyed lands disposed of, or for sale or lease; showing the towns, roads, rivers, and ranges, plains, terraces, and bush, and some general description of the soil. Showing also the Gold-diggings, past and present. Such information would obviously be of incalculable advantage to all—travellers, prospectors, and explorers.

There has been a great deal of surveying, and yet these objects are very far from having been attained, and the reason, I submit, has been the want of a comprehensive system on which the surveys are to be conducted, and in the meanwhile each surveyor has done his work in a manner intelligible only to himself, having no real connection with the work of others, and so the whole is disjointed, confused, and comparatively useless.

9. In proposing a plan for the systematic working of the surveys, I do not say anything of a trigonometrical survey, as I suppose the funds available for West Coast surveys will be insufficient to admit of it; but there are other systems more economical, if less perfect, which would at least make somewhat of a substitute.

10. *Main Traverse Survey.*—I propose to have a traverse made in a complete circuit round the Coast, Grey Valley, Inangahua, and Buller, to be carefully taken on the ground, and afterwards resolved by calculations, so as to work its own proof. When this has been done with tolerable success it should be plotted on a general map. It would be carried on in three divisions simultaneously.

1. From Inangahua Saddle to the Totara River.

2. From Totara to Cobden.

3. From Cobden to Inangahua.

Each division being executed by the Surveyor of the district respectively.

Fixed Points.—In the survey of this traverse permanent marks, easily defined, in secure situations, are to be left not more than three or four miles apart at farthest. It would not take long to accomplish this. There would then be a framework upon which every successive survey could be hung. Every fixed point in the circuit becomes available as a new starting point for extending or amplifying the surveys. And these stations are to be accurately defined on the general map, and numbered consecutively.

11. *Uniform system of field books kept by Surveyors.*—In taking the field notes for this main traverse, and all surveys connected with it, which are to make up the general survey I describe, the Surveyors should observe a uniform plan, so that the work of any one Surveyor can be continued by another without any difficulty.

12. *Connection with old Surveys.*—All the old surveys of sections in various districts would be readily connected with this main traverse, and thus all the surveys would become reduced to order and their value immensely increased.

13. *Warden's Surveys.*—The Surveyor appointed to do this work would have to leave it for a day or so, whenever required by the Wardens for mining surveys, which should always command immediate attention, but the Surveyor would leave sufficient work to engage his men until his return, and so a great deal of useful work would be got through. When called away to mining work the general object would still be kept in view; for the Surveyor should be required to adhere to regulations in regard to mining surveys to be framed to that end, that is to say:—

14. *All Sections to be connected.*—If possible every surveyed section, whether for agricultural lease, gold-mining lease or

extended claims is to be connected with some point already defined on the general map.

15. If the distance or nature of ground render that impracticable, and if there be more than one such section in the neighborhood, then the Surveyor should establish two or three permanent stations in suitable places to which all the surveys in the vicinity may be referred, then at some subsequent opportunity these are to be connected with the main survey.

16. *Reporting.*—The Assistant Surveyors should be required, in all cases where their reports or plans are necessary, to return them to the proper officer immediately on completion of the particular work. Very great inconvenience and loss of time has arisen from neglect in this respect.

17. The Surveyors will be required to furnish plans and reports of all extended claims, gold-mining leases, agricultural leases, and other things ordered by the Wardens, to those Wardens, and also to the District Surveyor in the cases of agricultural and gold-mining leases only.

18. *Plotting.*—The Assistant Surveyors should not plot any of their general survey work. They should copy their field notes on letter paper and transmit them as often and regularly as possible to the District Surveyor.

19. The plotting of the general surveys should be performed by the draughtsman at the central office, under the supervision of the District Surveyor.

20. *Filling up Field Notes.*—It should be the duty of the Draughtsman to receive all the copies of field books above-mentioned, as forwarded by the different Surveyors, arrange them in order, and file them, and plot on the general map the work contained in them at once.

21. Any inaccuracy to be reported to the District Surveyor, and the Surveyor sending the same, whose first duty, on receiving such notice, it should be to rectify the error.

22. *General Map.*—The general map to be compiled by the Draughtsman in the District Surveyors' Office, would be comprehended in a succession of sheets, each representing ten miles of latitude.

23. The main traverse and fixed stations would be marked and numbered thereon, the lines denoting the squares of subdivision of the Province also marked and the squares numbered, every surveyed section of land sold or leased or open for occupation to be correctly defined and tinted with the distinguishing color, together with as much detail of roads, rivers, creeks, terraces, plains and bush, as the scale and good draughtsmanship will admit.

24. *Scale.*—The scale of the general map should be twenty chains to one inch.

25. On no account whatever should anything be marked on this map which has not been actually surveyed; and no sketching or guess-work on any account admitted.

26. *Secondary Maps and Plans.*—Any plans which may be required of other scales, to show further details or to be more comprehensive, can then be prepared with reference to the general map bearing the same fixed stations, whereby they become identified.

27. *Mining Districts Maps and Plans.*—In the same way separate plans should be kept of mining districts, shewing every registered claim, &c., such plans being related to the general map by the identification of the fixed stations.

28. *Filings of Plans of disconnected Surveys.*—Any surveys which from various reasons it may be inexpedient to connect at the time should be fully plotted, and the plans kept in a reserved place, marked "Disconnected Surveys," and any Surveyor in the neighborhood should at any subsequent period be supplied with the proper data for completing the connection at the first opportunity.

29. *Necessity of permanent data.*—The particular reason for accurate mining district plans, having the surveys of claims, &c. referred to fixed points [is this, that the Surveyor should be entirely independent of the pegs of the claims. Such pegs are constantly shifted by the miners, or knocked away, and a Surveyor relying on them, as usually is the case, becomes involved in inextricable confusion.

30. *Detailed field notes to be taken.*—At the time of making the mining surveys, whether for claims, races, sites, or other purpose, the Surveyors should note the topographical features of the locality which are to be marked on the plans, so that whenever a connection is established with the main survey all these topographical details can be incorporated in the general map.

31. By these means a general map becomes constructed, which is always capable of receiving additions or improvements, and always containing a valuable fund of information; and when extended claims are worked out and abandoned the natural features that were surveyed simultaneously still remain, and records are kept of the progressive course of gold working through the country.

32. *Draughtsman to assist Surveyors.*—As soon as the Draughtsman in the District Surveyor's Office has completed any portion of the general map he should send a tracing of it to

the Surveyor to whose work it appertains for his guidance and assistance, and he should further supply all other plans and details any of the Surveyors may require.

33. *Reference of field books and maps.*—All field books filed in the District Surveyor's Office should be headed with the number of the nearest fixed point to the work, for the purpose of reference.

34. This will be of especial advantage in the case of surveyed sections of land for sale or lease, as immediate reference can be made from the plans to the Surveyors' field notes, and every requisite detailed information obtained which relates to the particular piece of land.

35. I have now the honor to enumerate the staff in my opinion necessary to carry out the plans I have proposed, and salaries estimated for their payment.

District Surveyor.—Should the District Surveyor hold that office only he could not carry out his duties properly at a less salary than £400 per annum, for he would be required to travel occasionally over the various districts; but there is no doubt one officer may supervise the surveys efficiently, and perform the duties of District Engineer simultaneously. In my estimates for the Survey Department, I, therefore, set down £200 for the District Surveyor, on the supposition, that with his pay as Engineer, the salary would be made up to £450.

36. *Assistant Surveyors.*—The services of one assistant Surveyor will be required in each Warden's district. The general duties of each will be

1st.—To perform all mining surveys required by the Warden of the district, conformably to his instructions, as well as to the general regulations of the Survey department.

2nd.—Whenever disengaged from the above work, to proceed with the works required by the District Surveyor.

3rd.—To render all such reports or returns as may be required by the District Surveyor, or by the Survey regulations.

4th.—The Surveyor will be held responsible for the due employment of men engaged by him, and he will prepare the vouchers for their payment, and, in addition to anything required by the Paymaster of the district, he will forward a copy of the vouchers so paid for Survey labor, or other expenses, to the District Surveyor once a month, to be filed in the District Survey office.

37. The pay of the Surveyor in the Buller district (Mr. Lewis) has been during the past year at the rate of £250 per annum. I have the honor to suggest that it should be raised to £300. The other assistant surveyors have £300, and the Buller is only second to the Grey district in extent, which entails many expenses for travelling about, particularly in the mining work.

38. The Grey district is by far more difficult than the other two. The Surveyor's services are actually required at irregular intervals on all the active diggings, from Canoe Creek to Napoleon Hill, a distance of 70 miles; and I would suggest that the Surveyor in the Grey district be allowed occasional horse hire and mileage at the rate of 1s. 6d. per mile one way, when he is sent upon mining surveys—such mileage to be counted from station or camp, as the case may be.

39. In the Buller district, the principal diggings where surveys are required, are in the vicinity of Westport. I do not therefore recommend mileage—unless the Surveyor is sent to the Lyell, or some such distant place, where his expenses would be great for accommodation.

40. In the Charleston district the work is easier than either of the others. The diggings lie close to the township, and there has been always a large number of surveys required in a small district, so that there is very little of travelling or other expenses. I do not recommend mileage in this (Charleston) district.

41. I have entered in my estimates £900 for three surveyors, at £300 each. The mileage, if allowed, would come out of the sum for labor, tents, and sundries.

42. The draughtsmen's services I consider indispensable in the District Survey Office. The office has hitherto been very creditably filled by Mr. Trent, and I beg to bring to the notice of the Government that he has not only well fulfilled the duties imposed on him but that he is now entrusted with more responsible duties than formerly, in the keeping of books and records of the office—and, as I have suggested, will be required to do all the general mapping of the work of surveyors in all districts.

Pay of H. Trent.—He has I believe been seven years in the service of the Nelson Provincial Government, his pay has been once raised from £75 to £150, at the time of his coming to the West Coast. I have the honor to recommend that it should be once more raised to £200.

43. *Survey Laborers.*—The surveyor of the Buller District will generally require two and sometimes three hands to perform the works as I have proposed them. In the Grey district three will almost always be employed.

In the Charleston district two may be needed during such time as the surveyor can devote to general surveying. I do not consider any men, or certainly not more than one, will be necessary to assist in the mining surveys at Charleston. In all other districts one man will always be sufficient to assist the Surveyor in mining work. But as a general rule I consider the employment of laborers in mining surveys should be dispensed with; the miners on the claims being always ready to assist, and for their own satisfaction it is well that they should do so.

44. I have estimated £1,150 for survey labor wages, tents, tools, sundries, &c.; and for stationery, instruments, and drawing materials for the Survey Office, £50. These have been ordered from England, and are expected shortly. An order was sent, by the authority of the late Commissioner, in September last, to England, for a supply of drawing papers and other materials.

45. *Estimates.*—Total estimate for the Survey Department, £2,500.

46. *Agricultural Leases.*—In the District Surveyor's Office a register is kept of all lands for which Deeds of Lease have been issued under "the Goldfields Act, 1866."

47. I conceive it to be the duty of the District Surveyor to see that such lands have been laid out in accordance with the regulations.

48. In order that the deeds may be prepared expeditiously, I have to suggest that a plan of routine may be decided on, and a copy thereof sent to each officer who has to do with the matter.

49. It has happened very lately that applications have been made for land and the land actually surveyed and no particulars have reached the District Survey Office during the space of many months; so that no steps were taken towards the granting of the lease and the applicants grow weary of the delay.

50. It is provided in the agricultural leases regulations, that upon receiving applications after the posting of notices, and hearing of objections, the Warden shall direct a Surveyor to mark out the ground and report thereon. And the Warden shall then forward the application, report, and plan for the approval of the Superintendent.

51. I have instructed the Assistant Surveyors of the different districts that they shall at the same time that they report on such a survey to the Warden of the district, report also in a printed form to the District Surveyor accompanying such report with a plan of the ground.

52. This report and plan is to contain all the particulars which are necessary to the preparation of the deed of lease, and moreover contain a description of the land, which is to be filed in the Survey office as data upon which the Waste Lands Board may at a future time assess the land when it may become purchaseable under the 52nd section of the Goldfields Act.

53. Should the Superintendent signify his approval of any application forwarded by a Warden as above, I have the honor to suggest that the District Surveyor should receive immediate instructions to prepare the deeds, particulars of which he will already have received from the Surveyor who laid out the

land, as described in clause 51 above. The District Surveyor will then prepare the deeds, register them, and forward them for the signature of his Honor the Superintendent. They will then be forwarded to the Warden to whose district they appertain, and he will obtain the signature of the lessee. The District Surveyor marks upon the lease in pencil the fees to be charged as under regulations.

Since September, 1868, the number of leases issued from the District Survey Office amounted to 47, comprising a total of 763 acres. Several of these have been applied for since 1866, and most during 1867. The long delay in the granting of the leases has been one reason for the diminution in the number of applications during 1868. Several other sections have been long applied for, and some actually surveyed in 1866 and 1867, by private surveyors—chiefly at Brighton, for which I was unable to prepare the deeds, as the ground was laid out in opposition to the regulations—and they have stood over till they can be resurveyed. I did not instruct the Mining Surveyor to re-survey these blocks, as I did not wish an additional survey fee to be charged upon them, and I was in hope that a Staff Surveyor would be appointed to the district, which has now been done. It will be his first duty to attend to these re-surveys, in order that the outstanding applications may be settled.

In the experience I have had amongst the agricultural settlers on the goldfields, I have been led to the conviction that very many more applications would be made under the very advantageous system of goldfields leasing, if the ultimate purchasing price were definitely fixed in the first instance. I would therefore venture to suggest for the consideration of the Government—

1st.—That a certain price per acre should be set on the land at the time of granting the lease—(say £2, or in some particular cases in the vicinity of townships, £2 10s., or £3), at which price the lessee would be entitled to purchase under the 52nd section of the "Goldfields Act."

2nd.—That rents paid up previously to the date of purchase be reckoned as part payment of the said fixed price. Under the present circumstances people imagine the improvements they may make on the land will augment its cost when they come to buy it, and they are prejudiced against the undertaking in consequence. In the arrangement I have suggested every one would know exactly what the land will cost him either to lease or purchase at any period of the term of lease, and he would have greater confidence in commencing his work. The encouragement of *bona fide* settlers and agriculturists will, I have no doubt, always receive the attention of the Government, as greatly tending towards the advancement of the country.

I have the honor to be,

Sir,

Your obedient servant,

J. HENRY LOWE,

District Surveyor.

Cobden, 31st March, 1869.