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29th. April, 1924.

NOTES REGARDING PRINCES WHARF.

Length 1,280 feet.
 Width 281 "
 Berthage provided, about 2,800 feet, including berth across end of wharf.
 Depth alongside. 38ft. at L.W.S.T. which can be increased to 40ft. when required.
 Area of reinforced concrete, over 7 $\frac{1}{2}$ acres.
 Area of reclamation at foot of wharf, over 2 $\frac{1}{2}$ "
 Total area, about, 10 acres.

Central roadway 60ft. wide, with 80ft. wide sheds on each side, and 31ft. quay.

First pile driven - 13th. October 1921.

Last pile driven - 8th. March 1924.

There are ^{six} two-storey reinforced concrete sheds, each 320ft. x 80ft, having a floor area, including flat roofs, of over 10 acres, and a storage capacity of about 50,000 tons.

A wide balcony is provided on the first floor, on to which cargo may be landed, or from which it may be picked up for loading into vessels.

A complete equipment of electric conveyors and steel chutes in each shed provides for the transfer of merchandise from floor to floor.

Sheds are connected by means of substantial steel bridges with reinforced concrete floors, giving access at first floor and roof level.

The centre roadway is sunk to a level which enables trucking from shed floor direct to lorry.

EQUIPMENT:

Shipping is served by twelve 5 and 3-ton electric cranes of most modern design. The front leg of these cranes travel along the edge of the quay, and the back leg on the top of the shed, leav-

ing the quay unobstructed for railway and other traffic.

Four cranes of similar capacities traverse across the full width of the wharf on the roof of sheds.

Six 1-ton monorail cranes run the full length of each shed on the roadside, and serve to transfer merchandise from truck or lorry on to the first floor, and vice versa.

Double lines of railway are provided on each quay with cross-overs, and six 1-ton electric capstans assist in the operation of the railways.

The wharf will be provided with handsome gates and fences of the same design as rest of the waterfront.

A very complete electric service for power and light is installed and an ample water supply for shipping and fire fighting purposes.

Total weight of materials used in wharf and sheds, - about 94,000 tons. Weight of steel used, - 3,350 tons.

Total cost - about £604,750, made up as under;

Wharf and Reclamation	£345,000.
Sheds	160,000.
Cranes	64,000.
Elevators, chutes & gear in sheds	4,500.
Electric Installation	10,000.
Water Supply	3,000.
Weighbridge & Offices	3,000.
Railway Sidings	10,000.
Capstans - Electric	2,500.
Gates and Fences	2,750.

29th. April 1924.

NOTES REGARDING PRINCES WHARF.

Length 1280 feet.

Width 281 feet.

Berthage provided, about 2800 feet. *including both across end of wharf*

Depth alongside, 38 ft. at L.W.S.T. which can be increased to 40 ft. when required.

Area of reinforced concrete, over 7 $\frac{3}{4}$ acres.

Area of reclamation, *at front of wharf* over 2 $\frac{1}{2}$ " .

Total area about 10 acres.

Central roadway 60 ft. wide, with 80 ft. wide sheds on each side, and 31 ft. quay.

First pile driven 13th. October 1921.

Last pile driven 8th. March 1924.

There are six ^{25ft x 80ft} reinforced concrete sheds, each 320 ft. x 80 ft, having a floor area, including flat roofs, of over 10 acres, and a storage capacity of about 50,000 tons.

A wide balcony is provided on the first floor, on to which cargo may be landed, or from which it may be picked up for loading into vessels.

A complete equipment of electric conveyors and steel chutes in each shed provides for the transfer of merchandise from floor to floor.

Sheds are connected by means of substantial steel bridges with reinforced concrete floors, giving access at first floor and roof level.

The centre roadway is sunk to a level which enables trucking from shed floor direct to lorry.

Equipment.

Shipping will ^{is} be served by twelve 5 and 3 ton electric cranes of most modern design.

The front leg of these cranes travel along the edge of the quay, and the back leg on the top of the shed, leaving the quay unobstructed for railway and other traffic.

Four cranes of similar capacities traverse across the full width of the wharf on the roof of sheds.

Six 1-ton monerail cranes run the full length of each shed on the roadside, and serve to transfer merchandise from truck or lorry on to the first floor, and vice versa.

Double lines of railway are provided on each quay with cross-overs, and six 1-ton electric capstans assist in the operation of the railways.

The wharf will be provided with handsome gates and fences of the same design as rest of the waterfront.

A very complete electric service for power and light is installed and an ample water supply for shipping and fire fighting purposes.

Total weight of materials used in wharf and sheds, about 94,000 tons.

Weight of steel used, 3350 tons.

Total cost about ~~1,000,000~~.

\$604,750

Made up as under:

<i>Wharf & Reclamation</i>	<i>£ 345,000</i>
<i>Sheds</i>	<i>150,000</i>
<i>Cranes</i>	<i>60,000</i>
<i>Elevators, chutes & gear in sheds</i>	<i>4,500</i>
<i>Electric Installation</i>	<i>10,000</i>
<i>Water Supply</i>	<i>3,000</i>
<i>Highways & offices</i>	<i>3,000</i>
<i>Rly sidings</i>	<i>10,000</i>
<i>Capstans (electric)</i>	<i>2,500</i>
<i>Gates & fences</i>	<i>2,750</i>

23rd October 1923.

PRINCE'S WHARF

This pier will be 1250 feet long.

The width will be 281 feet.

The length of berthage will be 2800 feet (= say $\frac{1}{2}$ mile).

The depth alongside will be 35 feet below L.W.S.T. and can be made 40 feet at any time.

The surface area of pier and quay will be 10 acres.

The number of piles in the wharf will be 2250.

The total length of these placed end to end will be $25\frac{1}{2}$ miles, and the weight 27,000 tons. The first pile was driven on 13th October 1921.

This pier will be constructed throughout on the flat slab or mushroom system, except on the quays where the girder and beam system will be used.

The saving to be effected by this method is estimated at a minimum of £50,000.

The total weight of materials to be used in this pier and sheds is about 94,000 tons.

The quantity of steel to be used is about 3500 tons.

The pier will be similar in general layout to Queens Wharf with a central roadway, a shed on each side of the roadway, and a quay with two lines of railways and four double crossovers on the seaward side of the sheds.

The quay is designed to carry at any point a load of a 5 ton electric crane weighing 60 tons, and two locomotives each weighing 45 tons, being a total of 150 tons at any point. This contrasts with the limit of 5 tons on the old timber jetties.

There will be flights of concrete steps at the shore and seaward ends of the pier.

SHEDS. There will be six reinforced concrete sheds, each about 320' x 80' with ground, upper floor, and roof storage areas.

The total floor area being about $10\frac{1}{2}$ acres.

The storage space in ground and upper floors will be about 3,700,000 cubic feet.

All upper floors of sheds will be connected longitudinally and transversely by runways from 20' to 12' wide, thus giving access from floor to floor without passing outside the shed.

EQUIPMENT OF SHEDS. Each shed will have three electric conveyors capable of carrying one ton from ground to upper floors. There will also be a number of electric whip hoists.

The roadside of each shed will form a loading bank, and any one or all doors of shed can be open at one time.

Materials from upper floors will be passed down gravity chutes direct to cart or truck.

At the level of the upper floor along the roadside of each shed there will be a 1 ton "walking" crane, that is a crane travelling on a single rail overhead and below, and capable of moving to any doorway and handling material into or out of shed and truck.

The flat roofs of the sheds will have well holes through which the quayside cranes can pass goods.

At the ends of each pair of sheds there will be a 5 ton travelling crane carried on a railway on the roof.

These cranes will control all parts of the areas between shed ends, and being on the roof will themselves be out of the way of all traffic.

QUAY EQUIPMENT. There will be six 5 ton electric cranes on each side of the pier, making 12 in all. These will be the latest balanced jib type.

The height from quay to jib head will be about 80 feet in normal position, and the crane will lift its load at about 45 feet clear of the quay edge.

The back leg of the cranes on quays will be carried on the eaves of the sheds, and so leave the quay quite clear for traffic.

There will be a balcony running the whole length of the quay side of all sheds.

There will be at least eight electric capstans, and one 20 ton weighbridge.

There will be offices for H.M. Customs, the Harbourmaster, Traffic Manager, and Storekeepers.

The electric switchboard controlling the whole pier and each shed will be centrally situated. From this room will run all the electric power and lighting mains.

The lighting will be on a liberal scale, and will receive added reflection value from the white painted walls and ceilings.

The power mains will be carried to the various plug boxes, to which cranes can be connected wherever they are required for working cargo. The fresh water supply will be of very ample capacity.

Excellent lavatory accommodation is proposed, and staircases and spiral steps are being built in convenient positions.

Gear for working cargo is to be kept from encumbering wharves by being stored on the roofs of sheds.

Provision is made in the plans for completely roofing in the whole length of the roadway, and if necessary, the roof area of the sheds at some future time.

When finally completed this pier and its equipment will be a very handsome addition to shipping accommodation in Auckland, and the scheme will provide for the City one of the finest road improvements ever effected in Auckland in addition to forming over an acre of reclaimed land with a 380 ft. frontage to the new street upon which it has been suggested to build offices for the Harbour Board which would ensure a handsome architectural adornment at the City's watergate for all time.

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ENGINEER TO THE BOARD

