Fremantle South Slipway: A vital World War II defence facility

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Since the construction of Fremantle Harbour in the late 1890s, provision of slipping facilities for the maintenance and repair of large vessels had long been an intention of the Western Australian Government. However, financial constraints meant that other public works took priority until combat moved into the Pacific region during World War II. The need to repair and maintain defence vessels on the west coast of Australia then became acute. With financial assistance from the Commonwealth Government, the Western Australian Public Works Department (PWD) designed and built a slipway of 2000 ton capacity at Arthur Head, Victoria Quay, to provide such a facility. Known as the Fremantle South Slipway, it came into operation in September 1942, servicing many Allied submarines and other navy and merchant vessels for the remainder of the war. Together with adjacent slipways built in the late 1950s by the PWD and the Fremantle Harbour Trust, Fremantle South Slipway remained in operation until the late 1990s.

In 1938, the Western Australian Government announced its intention to construct a 2000-ton slipway at Fremantle Harbour at an estimated cost of £70,000. This new slipway was intended to replace the ageing Rous Head slipway on North Mole. The Rous Head slipway, completed in 1909 as a 'temporary' measure until a more permanent facility could be constructed, was operated by the Fremantle Harbour Trust. It had a capacity of 650 tons, with a cradle of 185 feet able to accommodate vessels to a maximum keel length of 160 feet. 1 Although there were many private slipways at Fremantle Harbour and elsewhere at the time, they were generally small outfits. The Government was keen to build a large slipway capable of accommodating the largest ships of the State Shipping Service as well as military and commercial vessels, and to operate it as a public venture.

Due to the restricted area of the Harbour, the number of possible sites for the new slipway

was limited. The preferred site was at Arthur Head between South Mole and the western end of Victoria Quay. 2 The Office of the Harbour Master had occupied the site from 1897. With relocation of the Office to the western end of Victoria Quay in the early 1920s, the site was occupied in turn by Pilots' Crew Quarters, then a concrete casting yard and temporary slipways, all constructed between 1921 and 1924. 3 Construction of the slipway in this area would necessitate the demolition of all these structures.

Little progress was made until 1940 when the Fremantle Harbour Trust pressed the State Government for improved slipping facilities, stating that a slipway of 1000 ton capacity would be adequate for the State's requirements. As Australia had entered World War II the previous September, the WA Government sought comment from the Commonwealth regarding wartime needs for ship repair and maintenance facilities on the west coast of the continent. The Navy advised that a slipway of 2000-ton capacity would be capable of accommodating any Navy vessel including the largest destroyer. 4 In fact, the construction of a slipway at Fremantle had already been included in a proposed schedule of works related to defence to be undertaken by the State of Western Australia. In August 1940, over £66,000 was set aside in the State's loan fund for the works. 5

Designed by the PWD as a winch operated retrieval and launching slip, the plan was based on that for a slipway in Mombasa, Kenya. 6 Following the District Naval Office's approval of the site and design, work commenced in October 1940. 7 By mid-1941, the dredge *Parmelia* had removed almost 14,000 cubic yards of rock from the area; steel sheet piling cofferdams had been constructed; the foundations for the ways (rails) had been commenced above and below the water line; and the winch and cradle had been designed. 8 Following the collapse of the cofferdam in July 1941, construction was held in abeyance while the State Government reconsidered its financial situation. With the Navy showing considerable interest in the progress of construction, the Government agreed to continue on the understanding that the slipway was required for defence purposes. 9 Due to wartime restrictions, no rails were available for the cradle and an order was placed with BHP for 560 feet of 3" billets. 10

The contract for the winch and winding gear was let to a local engineering firm, Hoskins Foundry, for £20,525. 11 Hoskins successfully fabricated the electrically controlled double drum haulage winch, while sub-contractors Eilbeck & Sons were responsible for machining the two main drum shafts. Kalgoorlie Foundry Ltd, an affiliate of Hoskins Foundry, manufactured the down haul drum. 12

With Japan's entry into the war at the end of 1941 and its subsequent attacks on United States naval facilities in Malaysia, the Pacific, the Philippines and on northern Australian ports, the slipway situation at Fremantle became acute. The first US submarine arrived in Fremantle on 3 March 1942. Three days later, the United States Navy formally advised the Australian authorities that the US Asiatic Submarine Fleet would operate out of Fremantle under the command of Captain John Wilkes. 13 The slipway under construction at Fremantle

was to become part of an extensive Allied Naval presence in Fremantle, concentrated around Fremantle. 14

South Slipway (PWD No 1) under construction (Courtesy Battye Library 29923/3)

Following this notification, Admiral McNeil stressed to the local Minister for Public Works the need for early completion of the slipway:

> It will be readily understood that construction of this slipway is now a most urgent defence requirement and that anything that can be done to expedite its construction will be greatly appreciated. 15

In April 1942 the Melbourne Navy Office, Department of the Interior, wired Perth asking that the slipway be extended by 100 feet at the lower end. 16 While the PWD advised that this could be achieved, 17 Premier Willcock expressed his concern that Western Australia was expected to fund the Navy's request. He advised Prime Minister Curtin:

> My Government are very pleased to be able to make what will prove a most essential contribution to the Navy's needs but we have to recognise that the considerable increase in the capital cost will render the slipway an uneconomical proposition after the war ... but for the Navy's request, this work, in common with our other public works, would have been suspended during the war ... 18

The Prime Minister replied that the extensions to the slipway were being made to:

> ... enable Allied submarines and destroyers to be slipped for underwater repairs and refitting ... [t]he work had been graded No. 1A priority by the War Cabinet. I would greatly appreciate anything you can do to ensure the speedy completion of this vital defence work as I have been informed by the Allied naval authorities that they are counting on the completion of the slipway by the end of July 1942. 19

Despite this urgency, financial concerns and the PWD's commitments to other wartime capital projects continued to delay the slipway's completion. State Treasury did not approve additional loan funds until August 1942, and the £135,000 was only set aside 'subject to the State Government taking action to obtain a subsidy from the Commonwealth Government? 20 In the same month, the local Works Director of the Commonwealth Allied Works Council

confirmed that the PWD would be reimbursed £12,000 to cover the cost of the extension. 21

Meanwhile, the United States Navy requested that the slipway be extended by another 33 feet (making a total of 133 feet longer than the original design) in order to accommodate their Fleet-type submarines. 22 By this time there were 15 USN Fleet-type submarines based at Fremantle, and following the United States Navy's advice that perhaps twice that many would be stationed at Fremantle, local authorities agreed that this could be achieved. 23 From the point of view of both the US Navy and the Commonwealth Government, it was imperative that suitable slipping facilities be provided on the western side of Australia for maintenance and repair work on large US destroyers and submarines for. 24

Construction of the slipway and associated buildings (including the winch house, workshop and store, slipway office, paint store and amenities building) was finally completed in September 1942. Two cranes were transferred from North Wharf in readiness for the first slipping. 25 The PWD continued to be responsible for the complex, with workers coming from both the PWD and the State Engineering Works. Due to wartime needs, it was agreed that the Rous Head slipway at North Mole would also remain in operation, and responsibility for this complex was transferred from the Fremantle Harbour Trust to the PWD. 26 The PWD subsequently referred to the Rous Head slipway as 'Fremantle North Slipway', while the new Arthur Head slipway was to be known as 'Fremantle South Slipway'.

The first vessel to be slipped on Fremantle South Slipway was the *Chungking*, a vessel of 1850 tons deadweight operated by the State Shipping Service. From 22 to 26 September 1942, the *Chungking* sat high on the slipway while her hull was washed down, chipped and painted below the wind and water plate. 27

Between 1942 and 1945, the port of Fremantle hosted over 170 Allied submarines from the US, British and Dutch navies, together with their support vessels. Many of these were serviced on the Fremantle South Slipway. 28 However, the slipway still could not fully accommodate the USN Fleet-type submarines. Until the USN ARD 10 floating dock arrived from San Francisco in March 1944, repair work to USN submarines was done with only part of the vessel hauled out of the water. Divers completed the underwater work. 29 Despite this, the USN authorities were satisfied with the land based slipping facilities at Fremantle, reporting in 1944 that all work on ships up to 3000 tons—steam turbines, reciprocator engine and diesel—could be handled by the Western Australian Government workshops and employees, together with civilian contractors. 30 Following the arrival of the floating dock, many of the USN, British and Dutch submarines continued to be hauled up the slipway for painting. During March and April 1944, for example, 11 submarines were slipped and painted. 31

In comparison, the slipway could accommodate British submarines fully for repair and

maintenance, as they were significantly smaller than their USN counterparts. The first was the *Clyde*, which arrived in Fremantle for repairs in August 1944. 32 In December of the same year, another British submarine, *Sea Rover*, was escorted to Fremantle after it collided with HMAS *Bunbury* off Rottnest Island. *Sea Rover* was slipped at Fremantle, where 'her mangled bows were cut away and replaced with a makeshift bow'. 33

As previously agreed, at the end of 1942 the Western Australian Government sought reimbursement from the Commonwealth for part cost of construction of Fremantle South Slipway. In support of the State's claim, the PWD advised that additional costs had been incurred due to the amount of overtime worked, the need to employ casual labour, the 7.5% increase in the basic wage, and the need to use billets instead of rails (which were now unavailable). The need for quick delivery of materials for the cradle also added to the estimated cost. 34

Although the Commonwealth had already agreed to assist with the provision of similar facilities in Queensland and NSW, 35 the Prime Minister appointed a Board to determine whether WA was entitled to a partial reimbursement. The three Board members, A B Doyle, Engineer, Captain RAN; Mr Sturtevant, Works Director, Commonwealth Department of the Interior; and R W Dumas, Director of Works, Public Works Department, reported to the Prime Minister on 22 January 1943. 36

The Board advised that the slipway had been used for 96 days out of the 102 since its completion, and continued to be used by Australian, British and US Navy vessels. Other users included some Commonwealth ships (other than war ships), State owned ships and a number of local vessels. The Board concluded: 'It is quite clear that the slip is performing vital defence services...'. It recommended that the Commonwealth contribute £79,000 (50%) to the total cost of the slipway complex. 37 The Commonwealth Government accepted the Board's recommendation provided that a number of conditions were met, 38 viz. the provision that all Commonwealth ships, Allied warships and ships operating under Naval Charter, as well as US lend-lease ships, pay a concessional rate for use of the slipway. Against normal practice, the Navy would use its own labour in preference to workers provided by the PWD or State Engineering Works. 39

Requirements for the future operation and management of the slipway were also included in the agreement. These provisions, which proved to be quite onerous for the State, broadly required that:

l. the State keep the slipway in working order;

2. the State retain the slipway for the duration of the war and for at least 12 months thereafter;

3. if the State were to sell the slipway after this time, the Commonwealth would have first

right of refusal. If the Commonwealth did not exercise this option and the State sold the slipway, the Commonwealth was to receive 50% of the sale price. Commonwealth agreement was also required if the State were to lease the complex to a third party or transfer it to another State Government instrumentality;

4. the State allow a Commonwealth appointed officer to review the accounts at any time; and,

5. the State provide an inventory of all plant and equipment. 40

The WA Government agreed to all conditions. 41

After the war, Fremantle South Slipway continued to service State Government and Commonwealth ships (naval vessels in particular), and the 8 ships of the State Shipping Service fleet. Commercial firms such as Mcllwraith McEachern Ltd, the Orient Line, Adelaide Steamship Co and McDonald Hamilton & Co also used the slipway for maintenance and repairs. 42

In preparation for slipping each vessel, the Dockmaster (the officer in charge of the slipping operation) supervised the adjustment of the cradles as per each particular vessel's docking plan. The shape, length and weight of the vessel type determined the set up. 43 Scaffolds also had to be erected with cranes in appropriate positions so that trestles could be put in place for access to the hull for cleaning and painting. This was a time consuming process, sometimes taking several days to set up the scaffolding alone. In later years a cherry picker was used, saving much time and energy. Slipping of vessels was always undertaken in the mornings when the weather was calmer. It was a very slow process which involved many workers using hand-operated winches to guide the ship into the slip cradle. Deslipping was usually done in the afternoons, depending on favourable weather and tide conditions. 44 The PWD employed 6 to 10 permanent employees on the site. They were responsible for the day-to-day maintenance of the slipway as well as working on the exterior of ships (for example, scraping and painting). The State Engineering Works was responsible for undertaking the majority of the interior maintenance and machinery work. Any work the State Engineering Works was not able to do was met by local engineering firms. 45

By the mid-1950s, as vessels began to exceed the load design, problems with the haulage of ships began to emerge. Bearings which could not be adequately maintained under water were also wearing and failing. Although improvements were made by replacing the old half-shell open bearings with sealed bearings with pressure lubrication, Fremantle South Slipway was still not able to accommodate the increased tonnage of vessels requiring slipping, particularly the new State Shipping Service ships. 46 In 1957 repairs were made to the lower section of the cradle, thus increasing the slipway's capacity to 2400 tons, primarily to allow for the slipping of new State ships. 47 In the following year, the capacity of the slipway was again upgraded through the revision of the pulley system, 'which allowed the last and

heaviest portion of the haul to be carried out on a four part rope haul in place of two'. 48 This 'double up' winch block increased the capacity to 2750 tons, and the slipway could now accommodate the heaviest of the State ships, Delamere. 49 In 1967 Fremantle South Slipway was further upgraded to 3000 tons through the replacement of the cradle and rails. This enabled the slipping of MV Kangaroo, now the largest of the State ships. 50

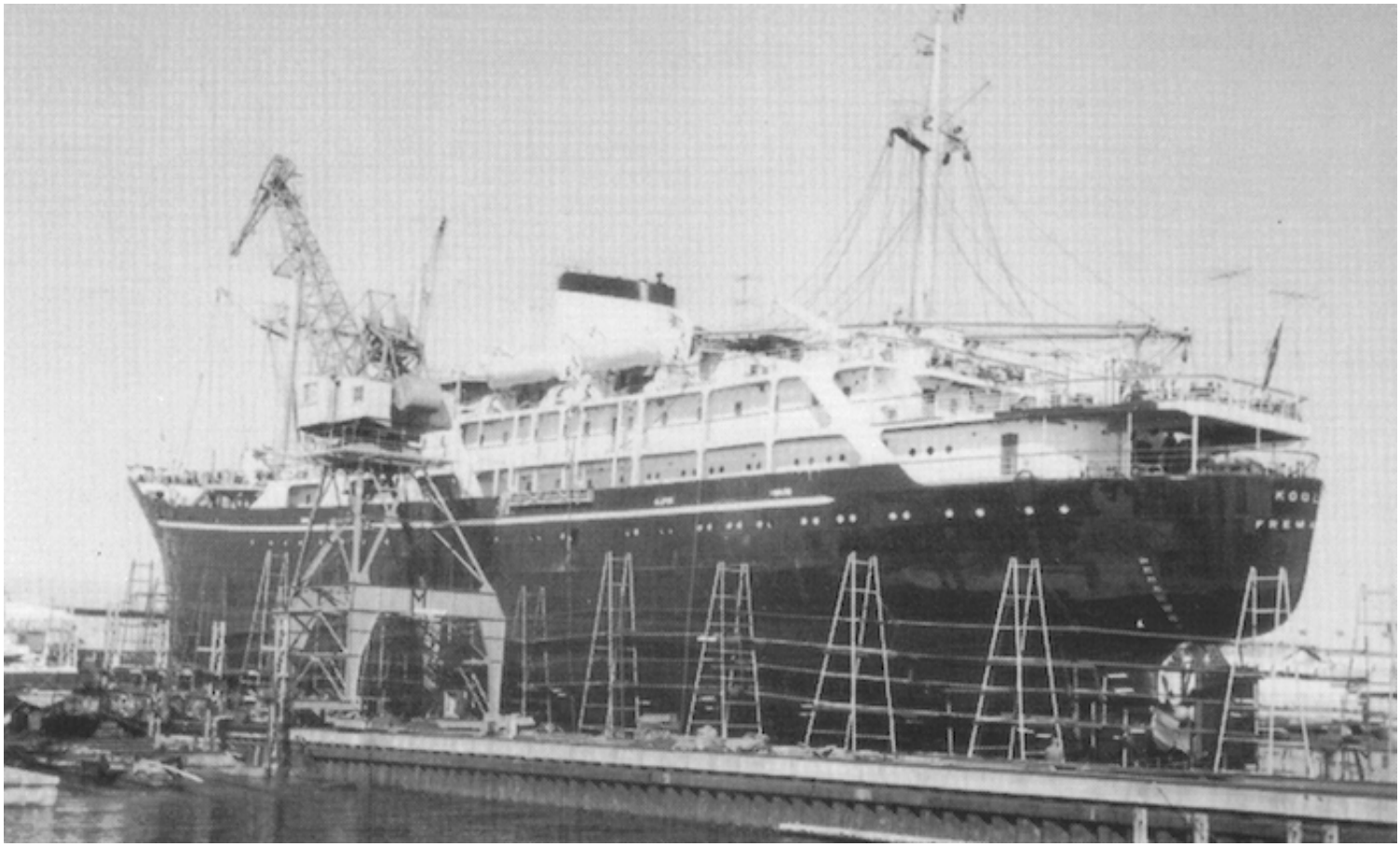
Fremantle South Slipways (No 2 at left, No 1 at right), c 1960 (Courtesy Fremantle Port Authority)

By July 1954, the 'temporary' Fremantle North Slipway at Rous Head (constructed in 1909) was nearing the end of its useful life. In addition to its reduced capacity (by this time it down to 150 tons), its location prevented the extension of No 1 Berth into a fully land-backed wharf. It also inhibited the widening of the Entrance Channel, which was necessary to allow for the entry of the large passenger liners expected on the Australian run in the early 1960s. 51

Due to the favourable foundations and existing infrastructure at Arthur Head, it was decided that a new slipway of 600 tons to replace the Fremantle North facility would be built to the north of the Fremantle South Slipway. 52 Preliminary designs were completed in October 1956 and construction commenced in the following January. The hauling winch (which had been manufactured in the workshops of the State Engineering Works at Leighton) incorporated the motive and gearing components of the winch from the old Fremantle North Slipway. 53 The PWD purchased from the Fremantle Harbour Trust a second-hand Arrol electric gantry crane which had been built in 1912 for use in servicing both slipways. 54

Construction of the slipway known as Fremantle South Slipway No. 2 (together with its

associated winch and winch house) was completed by May 1959, when the first vessel was slipped for maintenance. 55 This new slipway was used for small vessels operated by the PWD, Fremantle Harbour Trust and commercial interests. 57



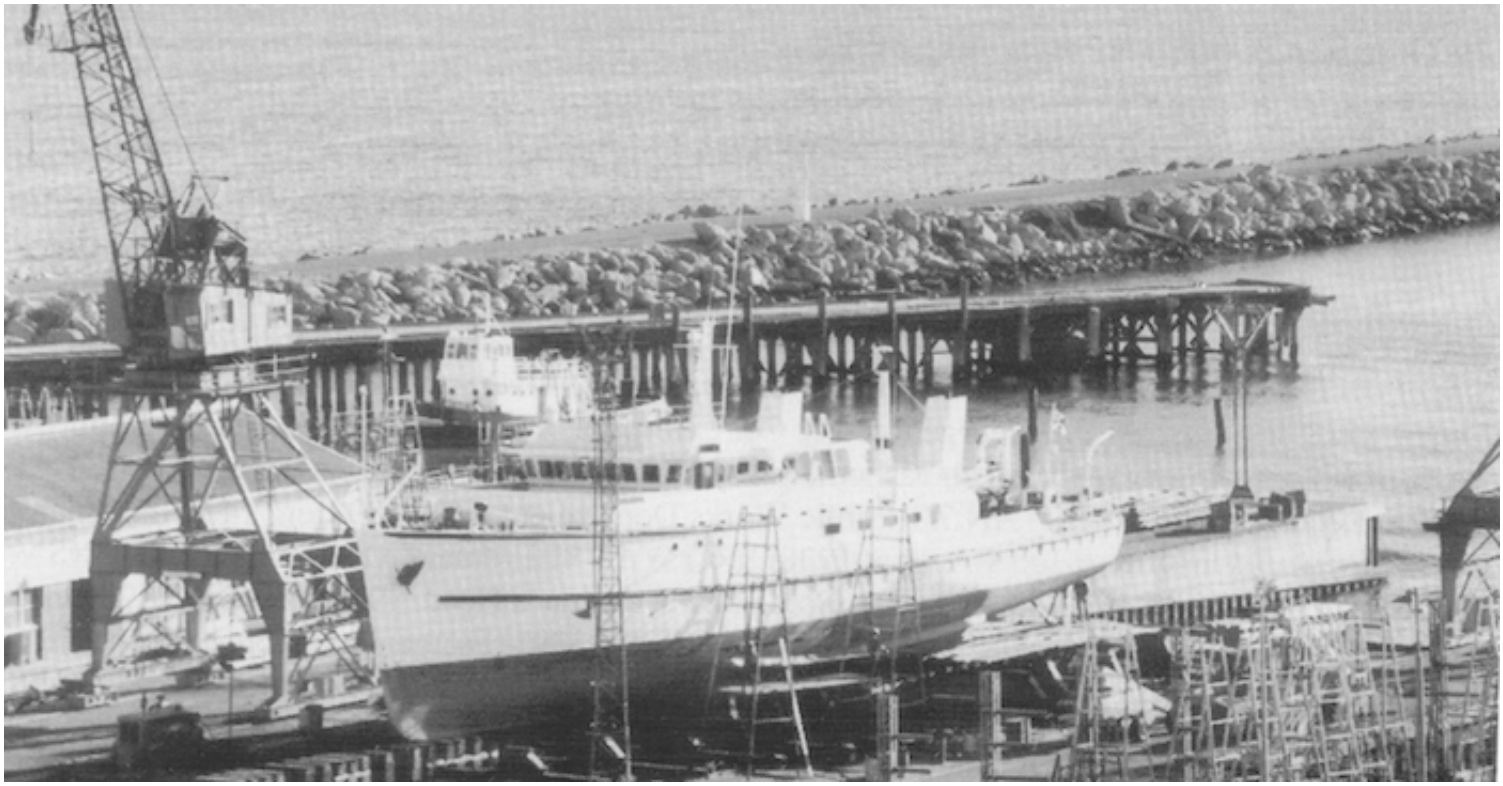
State Ship SS Koolama on Fremantle South Slipway, 22 May 1972 (Courtesy Fremantle Port Authority)

At about the same time, the Fremantle Harbour Trust constructed its own small slipway to the south of Fremantle South Slipway No l. This 100-ton slipway was also built by the PWD and came into operation in September 1958 when the Lady Forrest was slipped for maintenance. 57 The slipway was used for maintenance of the Trust's own craft and it operated independently of the adjacent PWD Slipways. Permanent labour for the slipway was recruited from the ranks of the members of the Federated Ship Painters and Dockers Union. 58

By the late 1970s, the two PWD slipways at Victoria Quay were operating at a loss and the Government investigated alternatives for their continued use. In response to a report prepared by consultant engineer CC Hughes in the early 1980s, the PWD embarked on a refurbishment campaign to provide improved facilities. New spray painting and sand blasting equipment was purchased and the activities of PWD staff were limited to the operation of the cradle; the slipping and de-slipping of vessels; and the maintenance and security of the slipways, buildings and equipment. As the PWD no longer undertook any hull cleaning work or ship repairs, private industry (which already carried out all engineering, refrigeration, plumbing and shipwrighting works) could expand into this field.

59 Arrangements were also made to transfer two 3-ton luffing cranes from the Fremantle Port Authority to replace the existing cranes. 60

Modifications were also made to the No 1 Slipway to allow for the slipping of naval vessels, particularly *Oberon* class submarines and destroyer escorts. 61 The previous alignment of a 1:20 grade was reduced with a movable support structure built above the cradle to provide for better retrieval of submarines. 62 Following these modifications, the submarine *HMAS Onslow* was slipped on 16 September 1981. *HMAS Swan*, a destroyer escort, was successfully slipped the following month. 63 Other ships serviced at the complex over the years included whaling vessels; tugs from Fremantle, Kwinana and northern ports; Departmental dredges and pontoons; and the Fremantle Port Authority's 80-ton floating crane *Pelican*, as well as a variety of commercial vessels. 64 The Navy's hydrographic survey ship *Diamantina* (used for updating most of the hydrographic information around Australia), the survey vessel *Moresby*, and the lighthouse tender *Cape Don* were also regularly slipped at Fremantle. 65



Fremantle South Slipway, I 981 (Courtesy Fremantle Port Authority)

As the three slipways continued to operate at a loss, the Government regularly reviewed their operation through the 1980s. 66 Although it was proposed that the complex close on 1 July 1984, 67 the decision was not formally made until 16 March 1987, when State Cabinet finally resolved to close the complex as alternative (private) slipways were operating effectively at Jervoise Bay. 68 In the following year all three slipways were decommissioned and Swandocks, a local firm, began operating the complex as a private ship maintenance enterprise. The Swandock lease which covered all three slipways and associated buildings ended in 1998.

Today, the slipway complex at Victoria Quay remains largely intact, complete with ways,

dolphins, winches and associated buildings. As a complex of three retrieval and launching slipways of differing capacities constructed in the 1940s and 1950s, it forms a very important component of Fremantle's industrial heritage. Fremantle South No 1 Slipway, the largest of its type in Australia, is now used by the Maritime Museum of Western Australia for the conservation and display of *HMAS Ovens*, an *Oberon* class submarine. Fremantle South No 1 Slipway thus continues in a new role: assisting in the interpretation of Western Australia's maritime history.

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ENDNOTES

1. C S R Palmer, 'Fremantle Harbour Works, WA', in Proceedings of the Institution of Engineers, London, 191 1, p23; Joshua Fielden Ramsbotham, *The History of the Work Done on the Site of the Fremantle Graving Dock: a paper read before the Liverpool Engineering Society, 19 March 1913, with discussion*, George Reed & Co, Liverpool, 1913, p347; PWD Annual Report, 1909, p16. This slipway replaced an earlier slipway constructed on the site in 1897.

2. State Records Office (SRO) AN 7/1 Public Works Department ACC 689 Item 1472—Fremantle Dock, correspondence dated 9 August 1938; SRO WAS 87 Fremantle Harbour Trust CONS 3467 Box 15 Item 564, Boundaries for the Port Land at Arthur's Head.

3. SRO AN 7/ 1 Public Works Department ACC 689 Item 2329—Fremantle Harbour Works—New Slip for Construction of Hulls for Dredges *Parmelia* and *Fremantle*. Memo on file, 17 July 1924; J S H Le Page, *Building a State: a History of the Public Works Department 1829-1985*, WA Water Authority, 1986, pp 400-405.

4. National Archives (NA), Series PP280/l Item N1943/44/195—Fremantle Slipway, memo on file detailing previous correspondence re with the slipway, c1943.

5. Ibid.

6. Le Page, *Building a State*, p. 416.

7. NA Series PP280/1 Item N1943/44/195—Fremantle Slipway, memo on file detailing previous correspondence re the slipway, c1943

8. PWD, Annual Report, 1941, p22. For a fuller description of the construction of the slipways, see Le Page, *Building a State*, pp 415-420.

9. NA Series PP280/1 Item N1943/44/195—Fremantle Slipway, memo on file detailing previous correspondence re the slipway, c1943. Had the Navy not been interested in using

the slipway, it is unlikely that it would have been constructed to 2,000 tons. The State Government had sold its largest vessel, the *Sir William Matthews*, to the Victorian Government in April 1941, as the biennial docking of the dredge in Melbourne was proving too expensive for the WA Government.

10. NA Series PP280/1 Item N1943/44/195—Fremantle Slipway, memo on file detailing previous correspondence re the slipway, c1943.

11. NA Series PP280/1 Item N1943/44/195—Fremantle Slipway, memo on file detailing previous correspondence re the slipway, c1943. Hoskins Foundry was the only tenderer for the job and had no previous experience in constructing comparable winches.

12. NA Series K1141/1 Item N1941/42/128—Fremantle Slipways Extensions. After constructing the winch for the 2000 ton slipway at Fremantle Harbour, Hoskins Foundry was sought to undertake further similar work. They constructed the winch for the 15 ton Fairmile Slipway at North Fremantle and a winch for a slipway in Newcastle, NSW, c1944. In 1956, Hoskins was unable to undertake the contract for a 600-ton winch for the PWD as they were engaged in manufacturing a double drum winch of 1200 ton capacity for the Melbourne Harbour Trust.

13. Lynne Cairns, *Fremantle's Secret Fleets: Allied Submarines in Western Australia during World War II*, Maritime History Series, No 1, Western Australian Maritime Museum, Fremantle, 1995, pp 2-3, 17.

14. See Cairns, *Fremantle's Secret Fleets*, for a description of the Allied Naval facilities in Fremantle during World War II.

15. NA Series PP280/1 Item N1943/44/195—Fremantle Slipway, memo on file detailing previous correspondence re the slipway, c1943.

16. ibid.

17. NA Series KK1 141/1 Item N1941/42/128—Fremantle Slipways Extension, telegram from PWD to Department of the Interior, 14 May 1942.

18. NA Series PP280/1 Item Nl943/44/195—Fremantle Slipway, memo on file detailing previous correspondence re the slipway, c1943. .

19. ibid.

20. ibid.

21. NA Series KK1141/1 Item N1941/42/128—Fremantle Slipways Extension.

22. ibid.

23. Cairns, *Secret Fleets* p30; NA Series KK1141/1 Item N1941/42/128—Fremantle Slipways Extension.

24. NA Series KK1 141/1 Item N1941/42/128—Fremantle Slipways Extension, correspondence dated 22 December 1942.

25. Max Anderson, former Chief Engineer, Harbours and Rivers; information provided to author,

22 March 2000.

26. *Government Gazette*, October 1942; Fremantle Harbour Trust, Annual Report, 1942.

27. SRO AN 7/23 Public Works Department ACC 1661 Item 12—South Slipway, Application No 1, 28 September 1942. The schedule of conditions of use and scale of charges was attached to the application for slipping forms.

28. Cairns, *Secret Fleets*, p43; SRO AN 7/23 Public Works Department ACC 1661 Item 12—South Slipway Applications

29. Cairns, *Secret Fleets*, pp39, 43. The ARD floating dock was moored at the eastern end of Fremantle Harbour. 30. USN Base Facilities Report, South West Pacific Area, 15 September 1944, pp26-28 as cited in Cairns, *Secret Fleets*, p43.

31. SRO AN 7/23 Public Works Department ACC 1661 Item 12—South Slipway Applications.

32. Cairns, *Secret Fleets*, p49.

33. Cairns, *Secret Fleets*, p51.

34. NA Series K1141/1 Item 1941/42/128—Fremantle Slipways Extensions, correspondence from PWD to Allied Works Council, Perth, 17 December 1942.

35. NA Series PP280/1 Item N1943/44/195—Fremantle Slipway, correspondence dated 22 December 1942.

36. NA Series PP280/1 Item N1943/44/195—Fremantle Slipway, correspondence dated 22 January 1943.

37. ibid. This included the £12,000 approved in August 1942.

38. NA Series PP280/1 Item N1943/44/195 —Fremantle Slipway, correspondence from Prime Minister to the Premier of WA, 20 July 1943. Requisition form D8240 authorising payment to the State of Western Australia was signed on 1 November 1943.

39. ibid.

40. ibid. A copy of the inventory sent to the Commonwealth as a condition of payment is included in this file.

41. ibid.

42. SRO AN 7/1 Public Works Department ACC 689 Item 2369 - North and South Slipways, Fremantle, Conditions of use and scale of charges.

43. Max Anderson, former Chief Engineer Harbours and Rivers, and Trevor Leaver, former Principal Engineer Harbours and Rivers, information provided to author 21 February 2000. The Fremantle Port Authority Archives holds a number of docking plans for different vessel types.

44. ibid.

45. ibid.

46. Le Page, *Building a State*, p494.

47. PWD, Annual Report, 1957, p18; SRO WAS 1618 Colonial Secretary's Office Correspondence CONS 5348 Item 22- Fremantle South Mole Slipway, Operation and Maintenance; PWD, Annual Report, 1958, p23.

48. Le Page, *Building a State*, p494.

49. SRO WAS 1618 Colonial Secretary's Office Correspondence CONS 5348 Item 22- Fremantle South Mole Slipway, Operation and Maintenance.

50. ibid. The billets (used in the initial construction of the cradle when rails were not available) were replaced at this time.

51. SRO AN 7/ 1 Public Works Department, Harbours and Rivers ACC 1503 Item 1737/54—New Slipway to replace Existing Rous Head, correspondence dated 1 July 1954; correspondence from PWD to FHT, 19 April 1956.

52. ibid.

53. PWD, *Annual Report*, 1957, p18; SRO AN 7/ 1 PWD, Harbours and Rivers ACC 1503 Item 1737/54—New Slipway to replace Existing Rous Head, memos on file dated 14 May 1957 and 23 October 1957.

54. SRO AN 7/1 PWD, Harbours and Rivers ACC 1503 Item 1737/54 - New Slipway to replace Existing Rous Head.

55. The 2000 ton slipway was known as Fremantle South Slipway No 1 from this time. The two slipways were also known as PWD No l and PWD No 2 to differentiate them from the adjacent Fremantle Harbour Trust slipway. Fremantle North Slipway was taken out of commission at this time.

56. SRO WAS 1618 Colonial Secretary's Correspondence CONS 5348 Item 22 —Fremantle South Mole Slipway, Operation and Maintenance.

57. SRO WAS 87 Fremantle Harbour Trust CONS 3467 Box 33 Item 935—Slipways south side of Harbour and Sandblasting, memo dated 1 l September 1958. The plan set for this slipway (PWD 35656, held by the FPA) is titled 'Re-erection of Fairmile Slipway at Arthur's Head'. It is thought that some of the components of the Fairmile Slipway and winch, which was constructed near the Tar Pot on North Wharf by the PWD during World War II, were relocated and used in the construction of the FHT slipway. However, this has not been established with certainty.

58. SRO WAS 87 Fremantle Harbour Trust CONS 3467 Box 33 Item 935—Slipways south side of Harbour and Sandblasting, memo dated 3 September 1956; FHTC, *Annual Report*, 1957, p10.

59. SRO WAS 88 Fremantle Port Authority CONS 6093—Slipways General, correspondence from PWD to FPA, 19 July 1982; Minutes of FPA Meeting, 28 July 1982.

60. SRO WAS 88 Fremantle Port Authority CONS 6093—Slipways General; SRO WAS 1618 Colonial Secretary's Correspondence CONS 5348 Item 22 - Fremantle South Mole Slipway, Operation and Maintenance.

61. SRO WAS 88 Fremantle Port Authority CONS 6093—Slipways General.

62. Anderson and Leaver, information provided to author, 21 February 2000.

63. SRO WAS 1618 Colonial Secretary's Correspondence CONS 5348 Item 22—Fremantle South Mole Slipway, Operation and Maintenance, report on the trial slipping of *HMAS Swan*, 7 February 1983. This report includes photographs.

64. SRO AN 7/1 Public Works Department ACC 689 Item 2369 - North and South Slipways, Fremantle, Conditions of use and scale of charges, memo dated 17 May 1957; SRO WAS 1618 Colonial Secretary's Office Correspondence CONS 5348 Item 22- Fremantle South Mole Slipway, Operation and Maintenance, correspondence from Minister for Works to Transport Consultant, c1982.

65. Anderson and Leaver, information provided to author, 21 February 2000.

66. SRO WAS 88 Fremantle Port Authority CONS 6093—Slipways General. See for example,

minutes of meeting between representatives of the PWD and FPA, 12 May 1983.

67. SRO WAS 1618 Colonial Secretary's Office Correspondence CONS 5348 Item 22- Fremantle South Mole Slipway, Operation and Maintenance.

68. SRO WAS 88 Fremantle Port Authority CONS 6093—Slipways General.

Garry Gillard | New: 24 August, 2017 | Now: 16 December, 2018