

Have your say on the future of Adelaide's beaches

Future management options



The process so far

In April last year, the South Australian Government announced a comprehensive independent review of all available coastal (sand) management options would be undertaken to find a long-term solution to coastal erosion across Adelaide's beaches.

The 12-month review, which commenced in December 2022, builds upon previous investigations, data and analysis of Adelaide beach management, and explores relevant interstate and overseas examples of coastal management.

Scientific review

The review includes consideration of:

1. How to manage sand on Adelaide's beaches to minimise disruption for all communities, avoid environmental harm and maximise sand staying on beaches.
2. The Adelaide community's views on sand management options and on the impact of the current sand management approaches, including trucking and pipelines.
3. Lessons from international and interstate examples of sand management on metropolitan beaches.
4. What can be learned from the most up to date analysis of climate science about future management of Adelaide's beaches.

The scientific review shortlisted the management options outlined in this document for community consultation.

Details on options that did not make the shortlist are available at www.environment.sa.gov.au/coasts.

Why do we need to manage Adelaide's beaches?

Adelaide's coastline is one connected system with sand naturally moving northward due to wind and waves. This causes a build-up of sand on beaches where its northerly movement is interrupted, such as Glenelg and Semaphore Park, and erosion on beaches such as Sealiff, West Beach and Henley Beach South.

As there is only limited new sand naturally entering the system, Adelaide's beaches have to be managed, and have been for nearly 50 years by the state government. The aim is to protect homes, businesses and infrastructure from storms, and to provide sandy beaches for our community to enjoy.

This has been done by moving sand from where it builds up to areas that are being eroded. This has involved trucking sand from one point to another, as well as using a sand recycling pipeline. Sand has also been brought in from external sources, including quarries or offshore deposits.

Without moving sand, some beaches would erode to rock and clay, and rock walls or other sea walls would be required to protect coastal homes, businesses and roads from the sea.

Have your say!

yourSAy

It is very important to the success of the review that it is informed by an understanding of what matters most to the community so we want your views on the different sand management approaches.



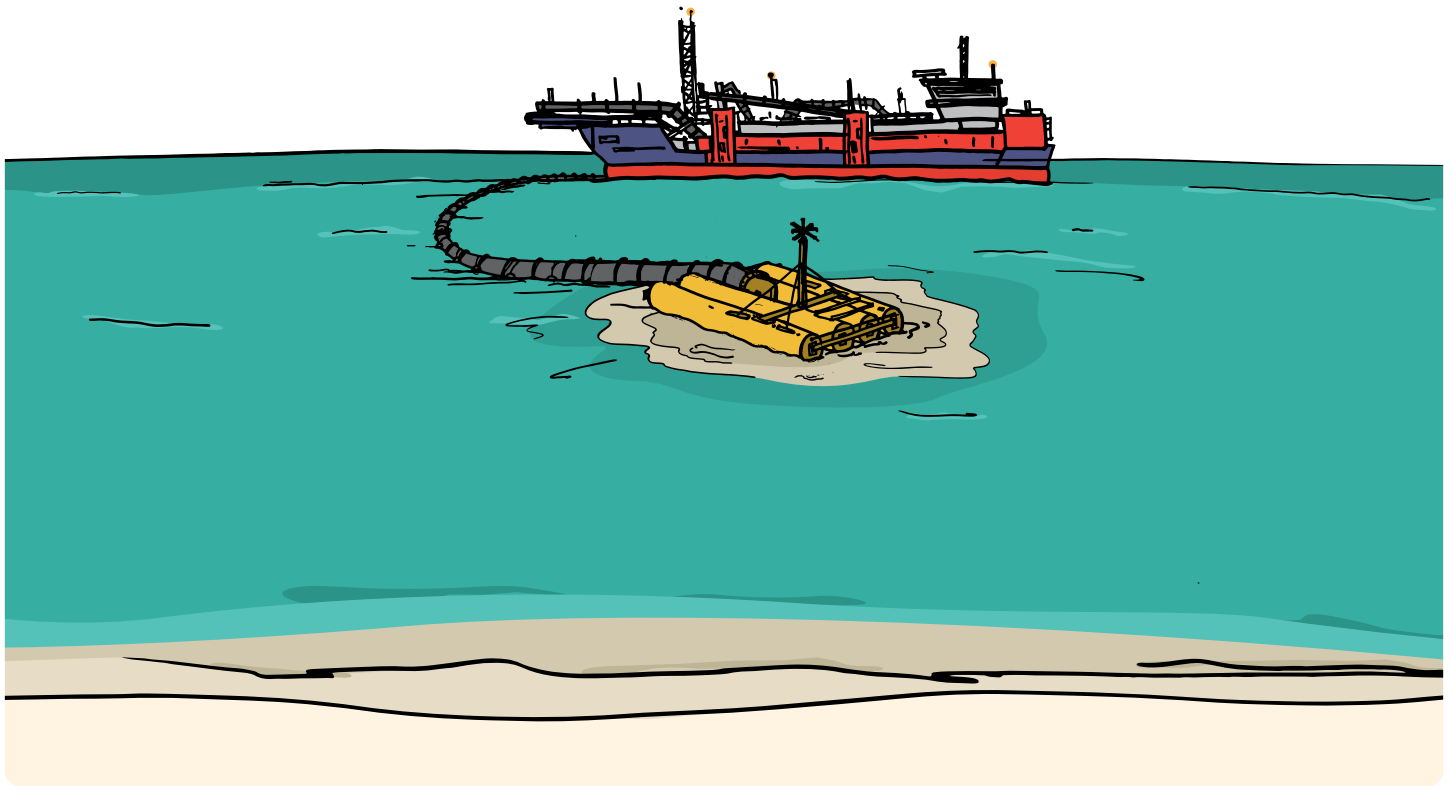
We encourage you to submit your feedback on the shortlisted options by using the state government's YourSAy portal at: yoursay.sa.gov.au/abmr-shortlist

Submissions close Sunday, 15 October at 5:00 pm.

Dredging



Dredging would involve sand being collected from the seabed using a dredging vessel and being delivered to West Beach or other beaches in need of sand. This could include taking sand from deposits offshore of Largs Bay, Outer Harbor and/or Port Stanvac.



OPTION 1.1

Dredge existing sand near the shore



About **2km offshore of North Haven** when collecting sand from the seabed and would move to 100-150m offshore of **West Beach** when placing the sand.



Sand would be collected from the seabed using a **small dredge**, which would sail south and pump the sand into **West Beach** using a **floating pipeline** that runs from the **vessel to the shore**, to deposit sand near the shoreline. Sand could also be delivered to other beaches as required.



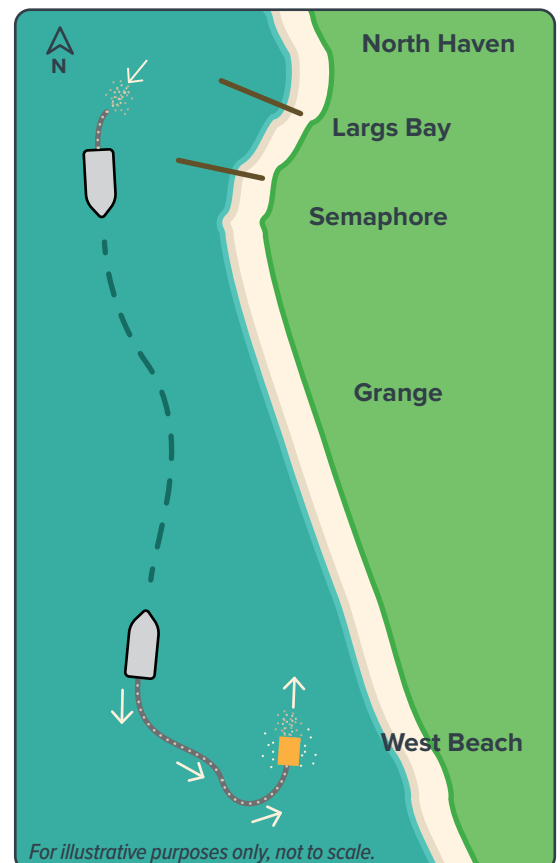
This option would involve an initial **large quantity** of sand being collected from offshore of North Haven and then delivered to West Beach in the first year of operation and ongoing sand **top-ups** every **4 years**.



The initial collection and delivery of a large volume of sand would be expected to take about **3-4 months**. Ongoing top-ups would be delivered every **4 years** and would be expected take about **2 months** to complete.



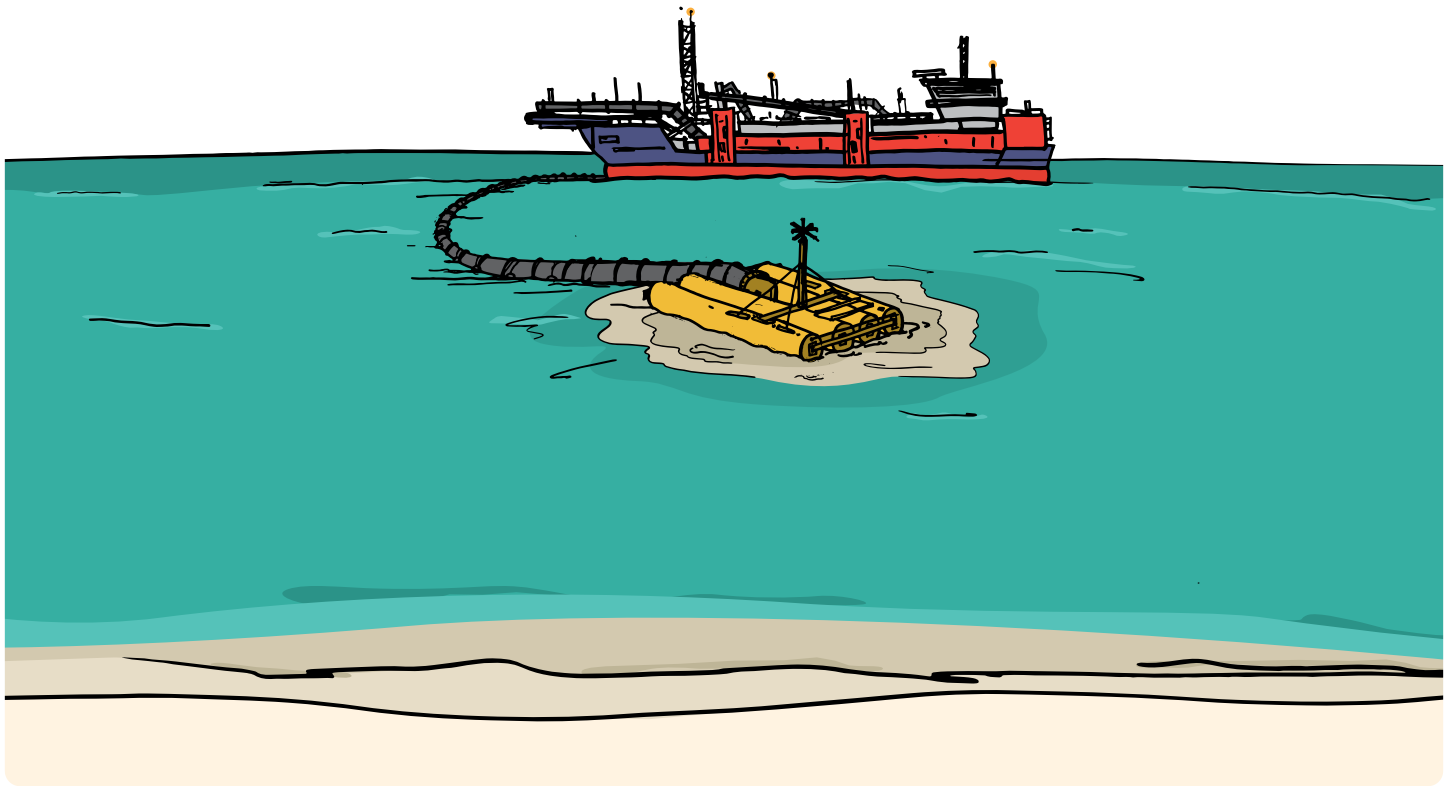
The estimated total **20-year cost** for this method is **\$45-50 million** subject to the availability of a suitable dredge.



Dredging



Dredging would involve sand being collected from the seabed using a dredging vessel and being delivered to West Beach or other beaches in need of sand. This could include taking sand from deposits offshore of Largs Bay, Outer Harbor and/or Port Stanvac.



OPTION 1.2 Dredge using large offshore sand deposits



Location about **2km offshore** at the chosen collection site(s) and then 100-150m offshore of **West Beach** when delivering the sand.



External sand could be sourced from the **seabed** at larger offshore deposits, including **Largs Bay, Outer Harbor** and/or **Port Stanvac** (subject to further investigations and approvals).



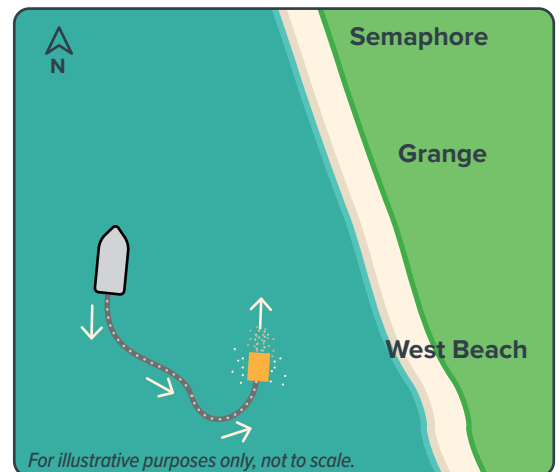
Sand would be collected from the seabed using a **medium-sized dredge**, which would pump the sand into **West Beach** using a **floating pipeline** that runs from the **vessel to the shore**, to deposit sand near the **shoreline**. Sand could also be delivered to other beaches as required.



Delivery of a **very large quantity** of sand from nearby sources would be expected to take **3-4 months**.



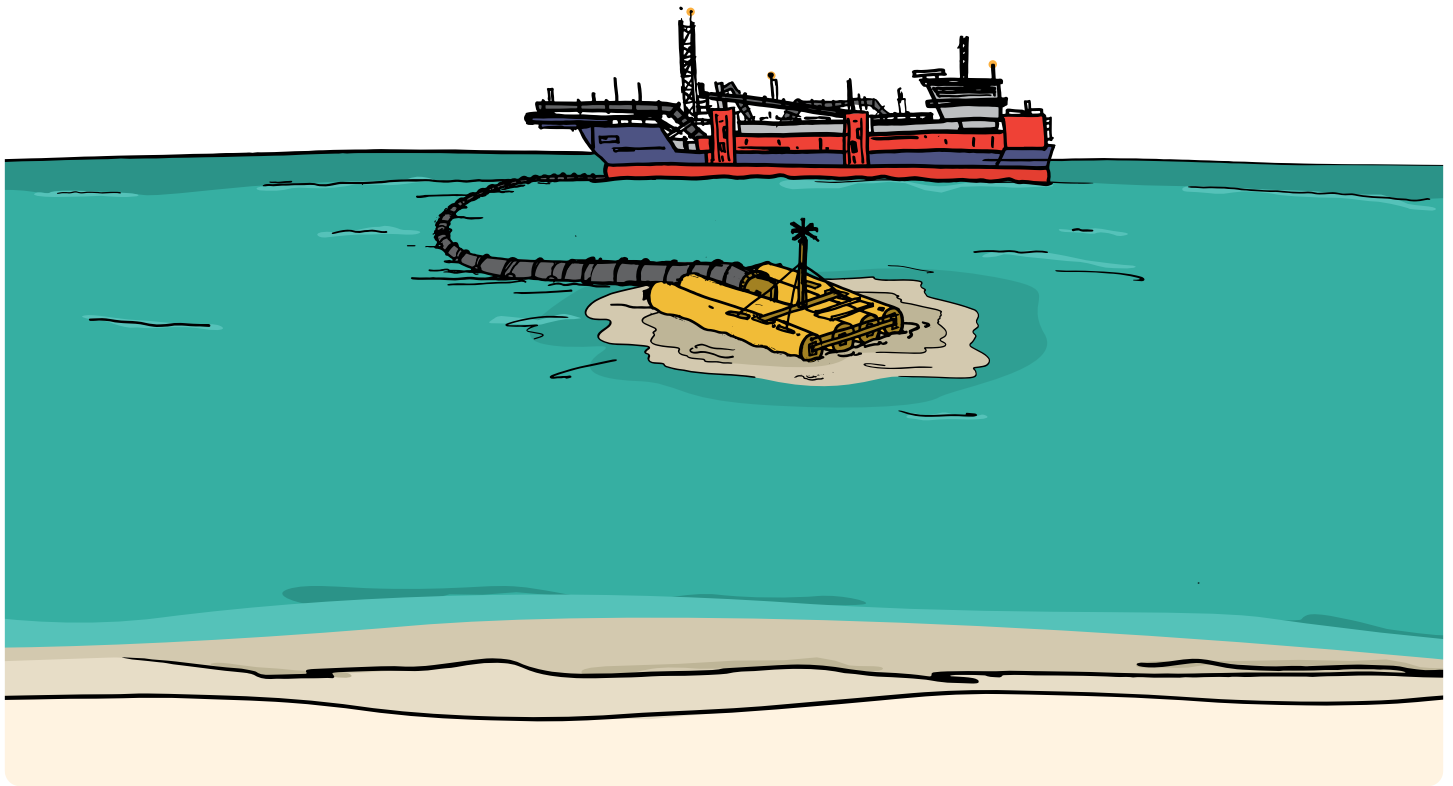
The estimated total **20-year cost** for this method is **\$55-60 million** if using **nearby sand** sources subject to availability of a suitable dredge.



Dredging



Dredging would involve sand being collected from the seabed using a dredging vessel and being delivered to West Beach or other beaches in need of sand. This could include taking sand from deposits offshore of Largs Bay, Outer Harbor and/or Port Stanvac.



OPTION 1.3

Combination of dredging offshore deposits and trucking quarry sand



The dredge would be located offshore at the collection site and about 100-150m offshore of **West Beach** when distributing the sand.



External sand could be sourced from the **seabed** at offshore deposits, including **Largs Bay, Outer Harbor** and/or **Port Stanvac** (subject to further investigations and approvals). In addition, dredged sand would be complemented with **sand sourced** from **land-based quarries**.



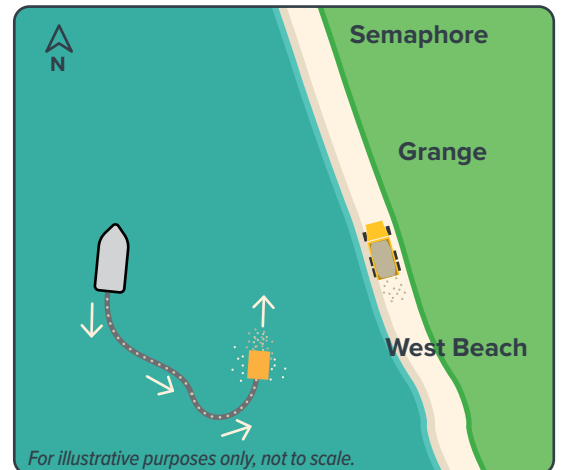
Sand collected by the **dredge** would be pumped as a slurry into **West Beach** using a **floating pipeline** that runs from the vessel to **deposit sand** near the **shoreline**. **Quarry sand** would be delivered on to the **beach** using **trucks**.



Delivery of a **smaller annual quantity** of **quarry sand** would be expected to take about **3 months each year** for the first **5 years**. Delivery of the **medium quantity** would be expected to take about **3-4 months every 4 years** commencing from the second year.



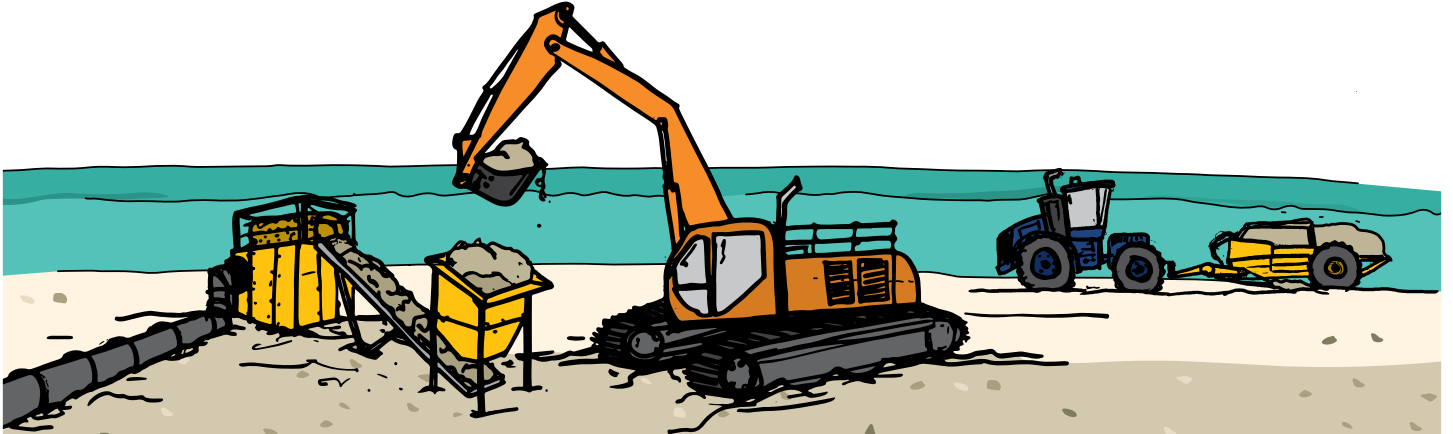
The estimated total **20-year cost** for this method is **\$60-100 million** subject to the availability of a suitable **dredge** and **sand deposits**.



Pipeline



Sand pumping uses underground pipelines to transfer sand and seawater from beaches where sand is building up to beaches in need of sand. Operating the pipeline would involve collecting sand from the beach or nearshore for 4 months at a time. Quarry sand would be delivered annually over the first 5-year period to restore West Beach.



A combination of quarry sand and sand collected from dedicated sand harvesting areas between Semaphore Park and Largs Bay would be used. For the pipeline component, sand intake points could be located at Largs Bay, Semaphore and Semaphore South.

The bulk of the pipeline sand would be primarily discharged at West Beach but additional discharge

points located along the coastline, including West Beach (Rockingham St), Grange (The Esplanade), Tennyson (Moredun St) and West Lakes Shore (Mirani Ct), would allow sand to be delivered elsewhere as required. Quarry sand would be sourced from land-based quarries and delivered to West Beach using trucks accessing the beach via the Adelaide Sailing Club.

OPTION 2.1

Pipeline using tractors/trucks on beaches



Sand would be collected **onshore** using **machinery** (trucks and scrapers) and fed into the **pipeline** through **sand collection units**. The sand would be **pumped south** through an **underground pipeline** and released at **West Beach** or other locations as required. **Permanent booster pump stations** would be located along the **pipeline route**.



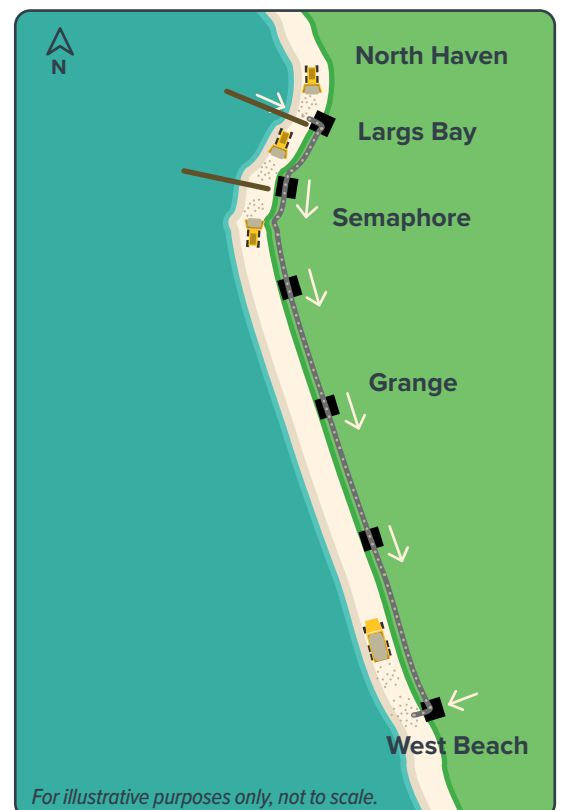
Delivery of a **small annual quantity** of **quarry sand** would take about **3 months** each year for the **first 5 years**. Sand collection units would be located at **Semaphore South**, **Semaphore** and **Largs Bay**. Sand would be **collected** from the beach by **tractor** and **sand scraper** around the **Semaphore** and **Largs jetties**, and the **Semaphore South breakwater**.



Work would be undertaken **yearly** over about **4 months**.



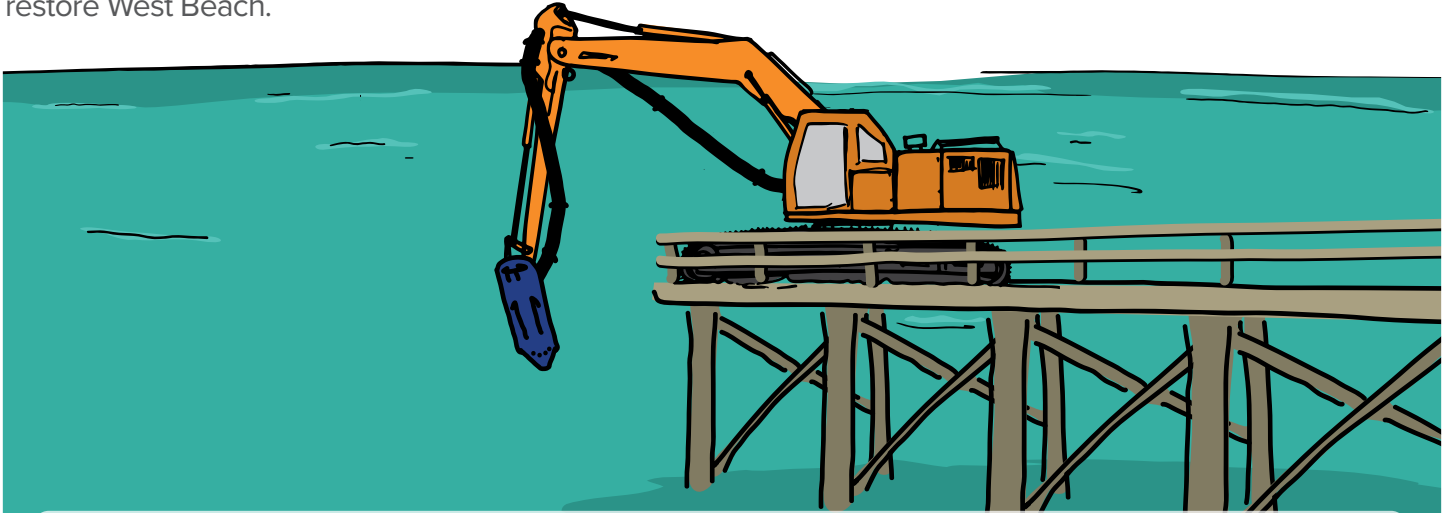
The estimated **20-year cost** for this method is **\$140-155 million**.



Pipeline



Sand pumping uses underground pipelines to transfer sand and seawater from beaches where sand is building up to beaches in need of sand. Operating the pipeline would involve collecting sand from the beach or nearshore for 4 months at a time. Quarry sand would be delivered annually over the first 5-year period to restore West Beach.



A combination of quarry sand and sand collected from dedicated sand harvesting areas between Semaphore Park and Largs Bay would be used. For the pipeline component, sand intake points could be located at Largs Bay, Semaphore and Semaphore South.

The bulk of the pipeline sand would be primarily discharged at West Beach but additional discharge

points located along the coastline, including West Beach (Rockingham St), Grange (The Esplanade), Tennyson (Moredun St) and West Lakes Shore (Mirani Ct), would allow sand to be delivered elsewhere as required. Quarry sand would be sourced from land-based quarries and delivered to West Beach using trucks accessing the beach via the Adelaide Sailing Club.

OPTION 2.2 Pipeline using dredge pump system on jetties



This option involves a **submersible pump** operating from a crane on the **Semaphore** or **Largs Bay jetties**. The dredge pump would mobilise the surrounding seabed sand, which is then pumped into the pipeline system through a pipe along the jetty and under the beach (see illustration).



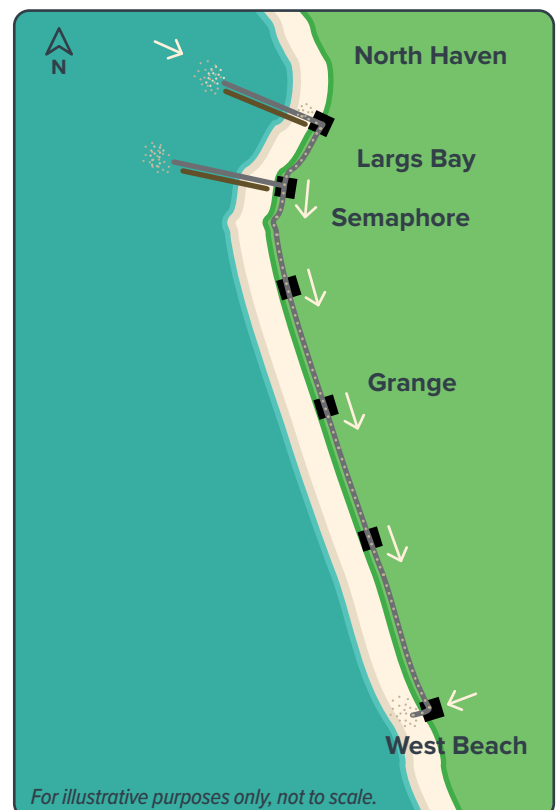
Delivery of a **small annual quantity** of **quarry sand** would be expected to take about **3 months each year** for the **first 5 years**. **Four jet pumps** would be installed on the **Semaphore** and **Largs Bay jetties**. Sand would be **collected adjacent/under the Semaphore and Largs Bay jetties**.



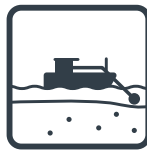
Work would be undertaken **yearly** over about **3-4 months**. Jetties would likely be closed to the public during collection.



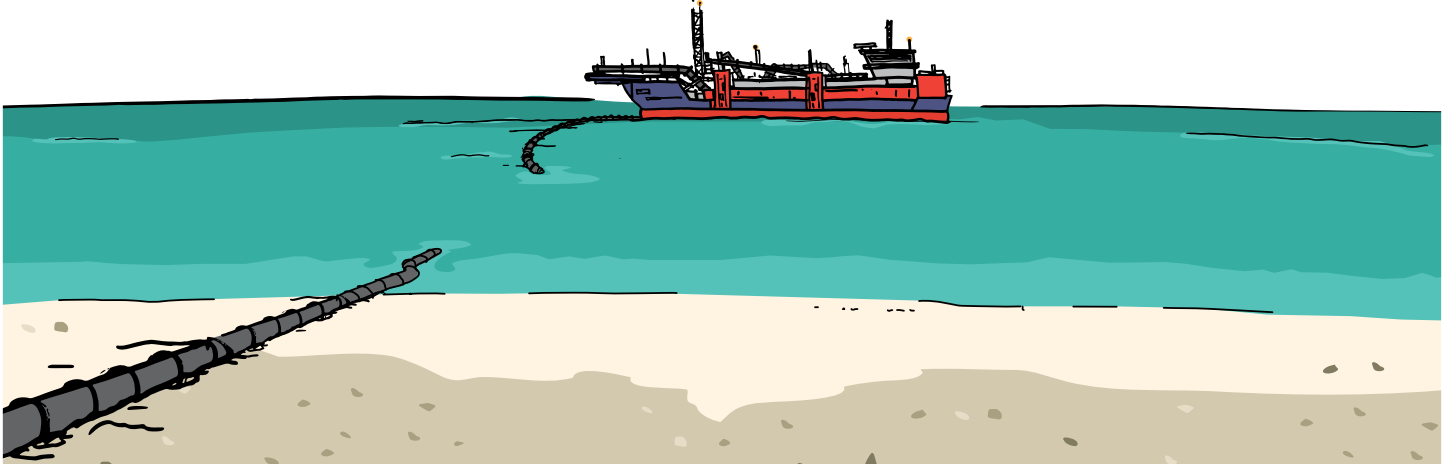
The estimated **20-year cost** for this method is **\$140-150 million**.



Pipeline



Sand pumping uses underground pipelines to transfer sand and seawater from beaches where sand is building up to beaches in need of sand. Operating the pipeline would involve collecting sand from the beach or nearshore for 4 months at a time. Quarry sand would be delivered annually over the first 5-year period to restore West Beach.



A combination of quarry sand and sand collected from dedicated sand harvesting areas between Semaphore Park and Largs Bay would be used. For the pipeline component, sand intake points could be located at Largs Bay, Semaphore and Semaphore South.

The bulk of the pipeline sand would be primarily discharged at West Beach but additional discharge

points located along the coastline, including West Beach (Rockingham St), Grange (The Esplanade), Tennyson (Moredun St) and West Lakes Shore (Mirani Ct), would allow sand to be delivered elsewhere as required. Quarry sand would be sourced from land-based quarries and delivered to West Beach using trucks accessing the beach via the Adelaide Sailing Club.

OPTION 2.3 Pipeline using a temporary dredge



A **small sized dredge** would **collect sand** from the **near shore seabed** and **pumped directly** into the **pipeline** through the nearest **collection station**. A **mobile collection** method using a **dredge** provides flexibility on where sand can be sourced



Delivery of a **small annual quantity** of **quarry sand** would be expected to take about **3 months each year** for the **first 5 years**. Sand would be **collected** from the **seabed** using a **small dredge** between **Semaphore South** and **Largs Bay jetty**.



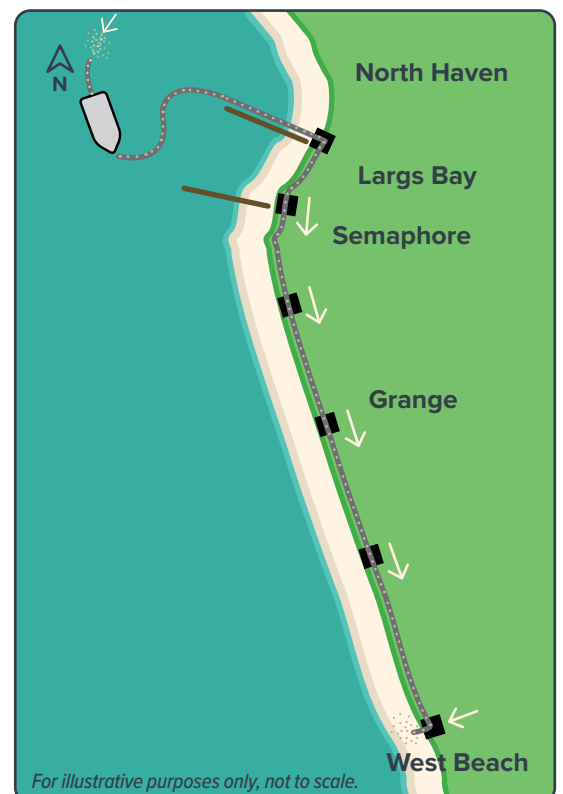
The dredge would collect sand from the seabed offshore near Largs Bay and Semaphore and pumped into the pipeline.



Work would be undertaken **yearly** over about **4 months**.



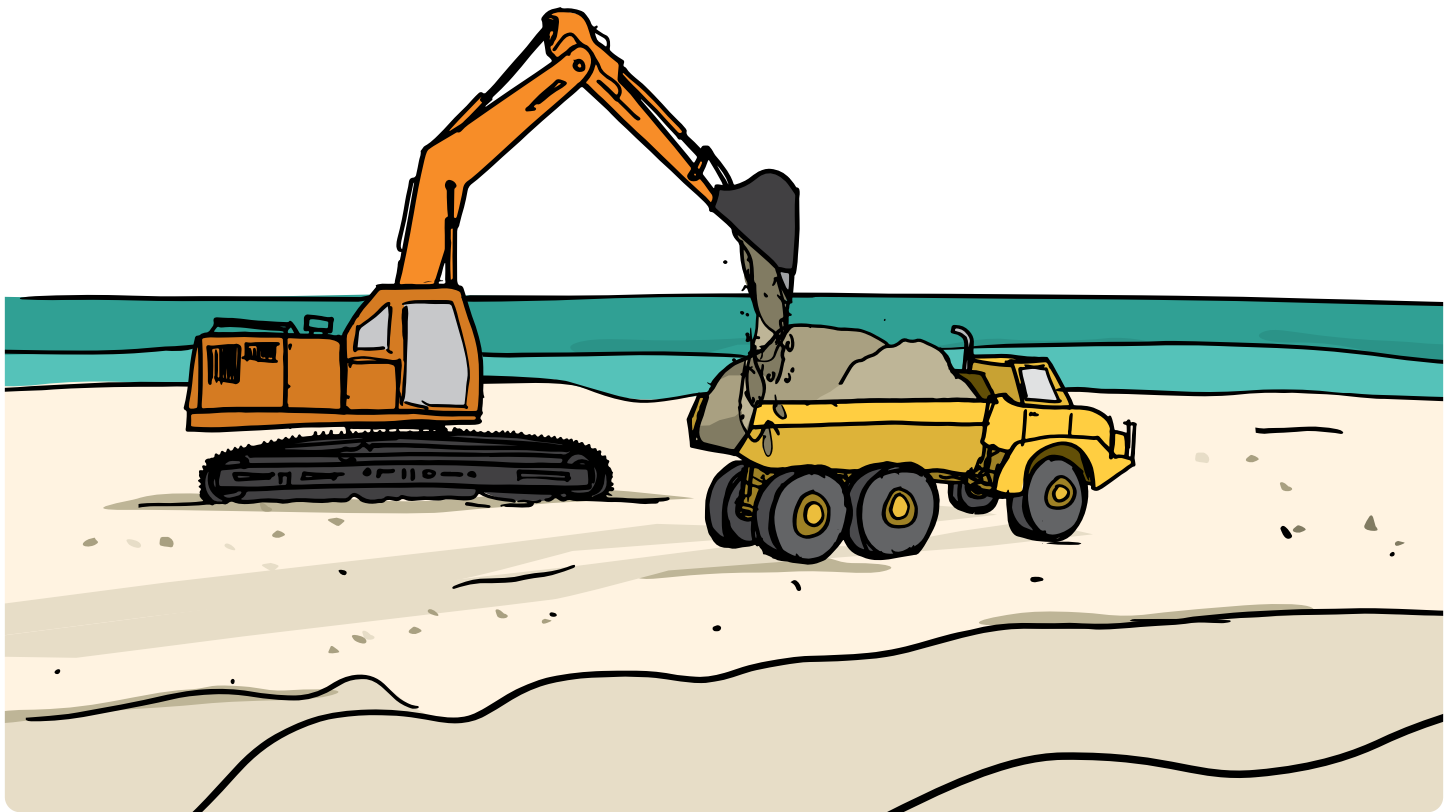
The estimated **20-year cost** for this method is **\$140-155 million**.



Carting



Maintain current arrangement: Moving sand using trucks and machinery and external quarry sand.



OPTION 3

Moving beach sand and quarry sand using trucks and machinery



Sand would be **collected** from the **beach** using an **excavator** and **front-end loader** and trucked to areas where sand is required. **External quarry sand** would be delivered using **trucks** on **public roads**. **Excavators** would be used to move the deposited sand to achieve the **desired beach profile**.



Equal amount of sand would be **collected onshore** from **Semaphore South** and **north of the Semaphore jetty** and delivered using **trucks** on **public roads** to **West Beach** or other beaches in need of sand. Sand sourced from **land-based quarries** would be delivered to West Beach using trucks accessing the beach via the **Adelaide Sailing Club**.



Sand delivery would happen **twice a year** over **2-3 months**.



The estimated **20-year cost** for this method is **\$100-110 million**.

