

Mussel Industry
Puhi Rare - 6 Berth Hardstand Wharf

*Concept - 6 Berth Hardstand Wharf with Mid Road Access Ramp
 No Provision for a Ferry Terminal*

| | |
|--|---------------------|
| Coffer Dam | \$3,218,000 |
| Excavation of Soft Muds | \$687,000 |
| Hardstand Rock Bund Wall | \$1,004,000 |
| Hardstand Bulk Fill | \$728,000 |
| Concrete Wharf Deck | \$1,782,000 |
| Access Ramp | \$286,000 |
| Hardstand & Access Ramp Pavement | \$783,000 |
| Dredging | \$347,000 |
| | \$8,835,000 |
| Allow Preliminary & General Costs of 20% | \$1,767,000 |
| | \$10,602,000 |

Please Note
 These are only preliminary comparative costings
 associated with Conceptual Designs for providing a
 an extension to the Wharf Facility at the Sugarloaf

Please Note these costs do not include provision for:

- GST
- Resource Consent Fees and Associated Costs
- Building Consent Fees
- Costs associated with a Ferry Terminal
- Utility Services on the Wharf
- Fendering and Bollard Provisions

Puhi Rare - 6 Berth Hardstand Wharf

6 Berth with mid road Exit Ramp - 200 m long Wharf Frontage

Based on Bloxam Option 3 Design Profile

Coffer Dam

Construct a double sheet pile coffer dam
around the site to enable working in the dry
Double Sheet Pile Wall Tied Together and
filled with Rock Fill

Allow \$7,500/m

| | | | | |
|------------|-----------------|-----|---------|--------------------|
| Coffer Dam | lm | 390 | \$7,500 | 2,925,000 |
| | Contingency 10% | | | <u>\$292,500</u> |
| | | | | \$3,217,500 |
| | say | | | \$3,218,000 |

Excavation of Soft Sediments Inside Cofferdam

Dewater basin & operate in the dry
Excavate soft muds to fill
This includes lowering the sea floor in front of the Hardstand

Dewater Basin

| | |
|------------------------|----------|
| Pumping allow \$30,000 | \$30,000 |
|------------------------|----------|

Excavation

Assume 250m of Temporary Haul Road
because of soft ground conditions

For costing purposes it is assumed that the
material is disposed of off site and structural fill
imported

It is possible that the excavated material could be
dried and reused as cement stabilised structural fill
on site but it is probable the costs would be
similar

| | | | | |
|-------------------------------------|------|--------|------|----------------|
| Excavate Muds for disposal off site | cu.m | 21,234 | \$28 | \$594,552 |
| | | | | <u>624,552</u> |

| | | | | |
|-----------------|-----|--|--|------------------|
| Contingency 10% | | | | 62,455 |
| | | | | 687,007 |
| | say | | | \$687,000 |

Wharf Hardstand Bund Wall

290m of structural Rock Fill topped by 1m concrete retaining wall
0.75m graded rock riprap to seaward side

| | | | | |
|--|------|-------|------|---------|
| Structural Rock Fill | cu.m | 13484 | 42 | 566,328 |
| 1.0m concrete retaining wall | cu.m | 50 | 1130 | 56,500 |
| Free Draining selected backfill to wall back | cu.m | 90 | 50 | 4,500 |
| Concrete Capping Beam | lm | 90 | 540 | 48,600 |
| Geotextile beneath riprap | sq.m | 2250 | 15 | 33,750 |
| Riprap material 0.75m thick | cu.m | 1690 | 120 | 202,800 |

| | | | | |
|-----------------|-----|--|--|--------------------|
| | | | | 912,478 |
| Contingency 10% | | | | 91,248 |
| | | | | 1,003,726 |
| | say | | | \$1,004,000 |

Hardstand Structural Clay Backfill

| | | | | |
|---------------------------|------|-------|------|------------------|
| Import Spread and Compact | cu.m | 26446 | \$25 | \$661,150 |
| | | | | 66,115 |
| | | | | 727,265 |
| | say | | | \$728,000 |

Concrete Wharf Deck

200m of elevated concrete wharf. Primarily precast components
Top RL + 3.8m Continuous top beam . Piles at 5.0 c/c . along front
Nominal 6.0m Deck width. Supported on bund wall at back.
Say \$1350/sq.m

| | | | | |
|----------------|------|------|---------|--------------------|
| Concrete Wharf | sq.m | 1200 | \$1,350 | 1,620,000 |
| | | | | 162,000 |
| | | | | 1,782,000 |
| | say | | | \$1,782,000 |

Mid-Road Access Ramp

80m long x 8m wide ramp climbing at the back of the
Hardstand and with gabion retaining walls

| | | | | |
|------------------------|------|------|-----------------|------------------|
| Rock Fill for the Ramp | cu.m | 1600 | \$42 | 67,200 |
| MSE Retaing Walls | sq.m | 320 | 600 | 192,000 |
| | | | | <u>259,200</u> |
| | | | Contingency 10% | <u>25,920</u> |
| | | | | <u>285,120</u> |
| | | | say | \$286,000 |

Hardstand & Exit Ramp Pavement

Pavement based on -200mm subgrade improvement layer,
250mm GAP 65 subbase, 150mm GAP 40 basecourse
40mm structural asphalt

| | | | | |
|--|------|------|-----------------|------------------|
| Subgrade improvement layer 0.2m thick | cu.m | 1580 | 78.5 | 124,030 |
| Subbase – GAP 65 - 0.25m thick | cu.m | 1975 | 78.5 | 155,038 |
| Basecourse - GAP 40 – 0.15m thick | cu.m | 1185 | 98 | 116,130 |
| Asphaltic Concrete pavement 40mm thick | sq.m | 7899 | 40 | 315,960 |
| | | | | <u>711,158</u> |
| | | | Contingency 10% | <u>71,116</u> |
| | | | | <u>782,273</u> |
| | | | say | \$783,000 |

Dredging

Dredge in front of the wharf extension down to RL -1.0m CD line
Note. This is the material outside the coffer dam

| | | | | |
|---------------------------------|------|-------------|-----------------|------------------|
| Dredge soft silts incl. overcut | cu.m | 5000 | 45 | 225,000 |
| Dispose soft silts off site | cu.m | <u>5000</u> | 18 | 90,000 |
| | | | | <u>315,000</u> |
| | | | Contingency 10% | <u>31,500</u> |
| | | | | <u>346,500</u> |
| | | | say | \$347,000 |