



Orkney Inter-Island  
Transport Study  
Rousay, Egilsay and  
Wyre Outline Business  
Case – Public  
Engagement





# The story so far...

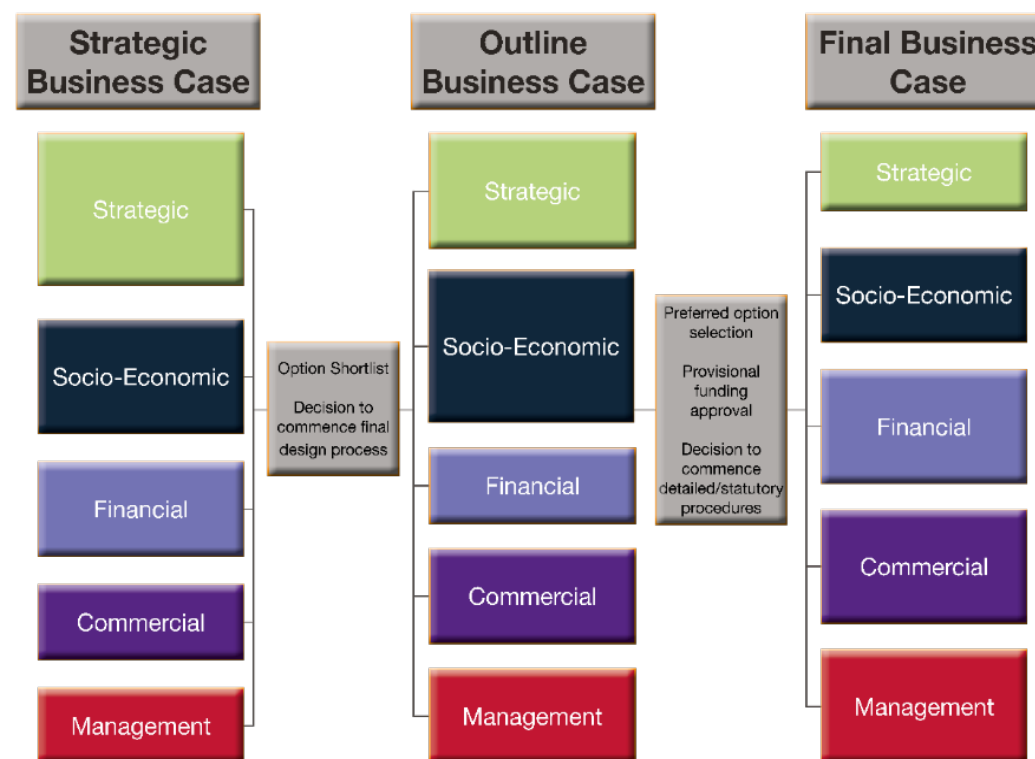


# The story so far...

- In autumn 2015, Orkney Islands Council, in partnership with HITRANS, Highlands & Islands Enterprise and Transport Scotland commissioned the Orkney Inter-Island Transport Study (OIITS)
  - The study made the case for additional capital and revenue funding for Orkney's internal transport network, recognising that both service levels and the replacement of capital assets lagged equivalent areas of Scotland
- The initial phase of OIITS ran from September 2015 to October 2016 and developed the **Strategic Business Case (SBC)**, which:
  - Developed the 'case for change' for investment in inter-island transport infrastructure and services across the Orkney Islands
  - Developed and appraised a range of options to meet the identified transport needs of each island and shortlisted a number of these options for further consideration at Outline Business Case, the next step in the process
- The SBC concluded that the immediate priorities to progress to Outline Business Case (OBC) were:
  - Additional **revenue funding** to operate more services
    - The outputs of this work fed into the recent announcement of additional funding and fares reductions for Orkney Ferries' services
  - Capital investment in **new vessels and supporting infrastructure** for the Rousay, Egilsay and Wyre route (including Gairsay)
- Recommended preferred option package presented to Members in January 2021
- Following budget negotiations with Scottish Government for Financial Year 2021/22 and Scottish Parliament elections, the proposed solution is now being presented to communities for comment

# Transport Scotland Business Case Guidance

- Securing investment in transport infrastructure in Scotland requires a 'business case' to be made in three stages:
  - **Strategic Business Case (SBC):** Develops and considers a range of options to meet an identified set of transport needs
  - **Outline Business Case (OBC):** Determines a preferred option and outlines the means by which it should be funded, procured and delivered
  - **Final Business Case (FBC):** Undertaken at the point of procurement – refines the business case and finalises the funding, procurement and delivery mechanisms
- **This OBC work only covers the Strategic and Socio-Economic Cases**, but provides a preferred option to be taken forward





# What are we presenting today?

- At the conclusion of the SBC, **three capital options** were shortlisted for further consideration
  - **Option CO2:** Replace MV *Eynhallow* with one larger vessel
    - Vessel would carry approximately 24 cars
  - **Option CO3:** Replace MV *Eynhallow* with two like-for-like vessels
    - Both vessels would carry approximately 12 cars
  - **Option CO4:** Supplement Options CO2 or CO3 with a passenger only vessel service
- This OBC further develops the three options outlined above, arriving at a **preferred option**
- In setting out the steps taken to arrive at this preferred option, these exhibition boards:
  - Set out the **problems** which the OBC is trying to resolve
  - Provide evidence on **ferry vehicle deck utilisation** (i.e. how full is the car deck?)
- Summarise the functioning of the **island supply-chain**, approach to **service delivery** and **personal travel**
- Set out potential **vessel and infrastructure options**
- Identify a **preferred option**
- Detail **next steps**
- A **feedback form** can be found here:  
<https://forms.office.com/r/prUw9BUcrU>
- The feedback gathered will be used to review and refine the preferred option as necessary
- Any questions or comments for the study team can also be sent to [OIITS@stantec.com](mailto:OIITS@stantec.com)





# Problems, Opportunities and Objectives



# What are the problems on the route?

- *MV Eynhallow* is an **ageing vessel** for which parts are becoming harder to source and life extension is becoming less economic
- She also has a **vehicle height restriction**, limiting vehicles which can be carried
  - Wider implications for fleet deployment and other islands
- **Access** to the passenger lounge for persons of reduced mobility is difficult
- **Reverse-on** vessel – difficult for those not accustomed to it and slows down turnaround
- **Vehicle-deck capacity** is constrained on peak services, whilst the vessel also has a limited **deadweight** capacity
- Service **specification** well **below Routes and Services Methodology (RSM) level**, which is the national benchmark
  - Winter timetable – no Sunday service
  - Length of operating day (06:50-19:15)
  - Frequency
- 2019 Revenue OBC recommended moving REW service to a shift-based crewing system, providing a **16-18 hour day**
  - This recommendation is fed into this OBC study

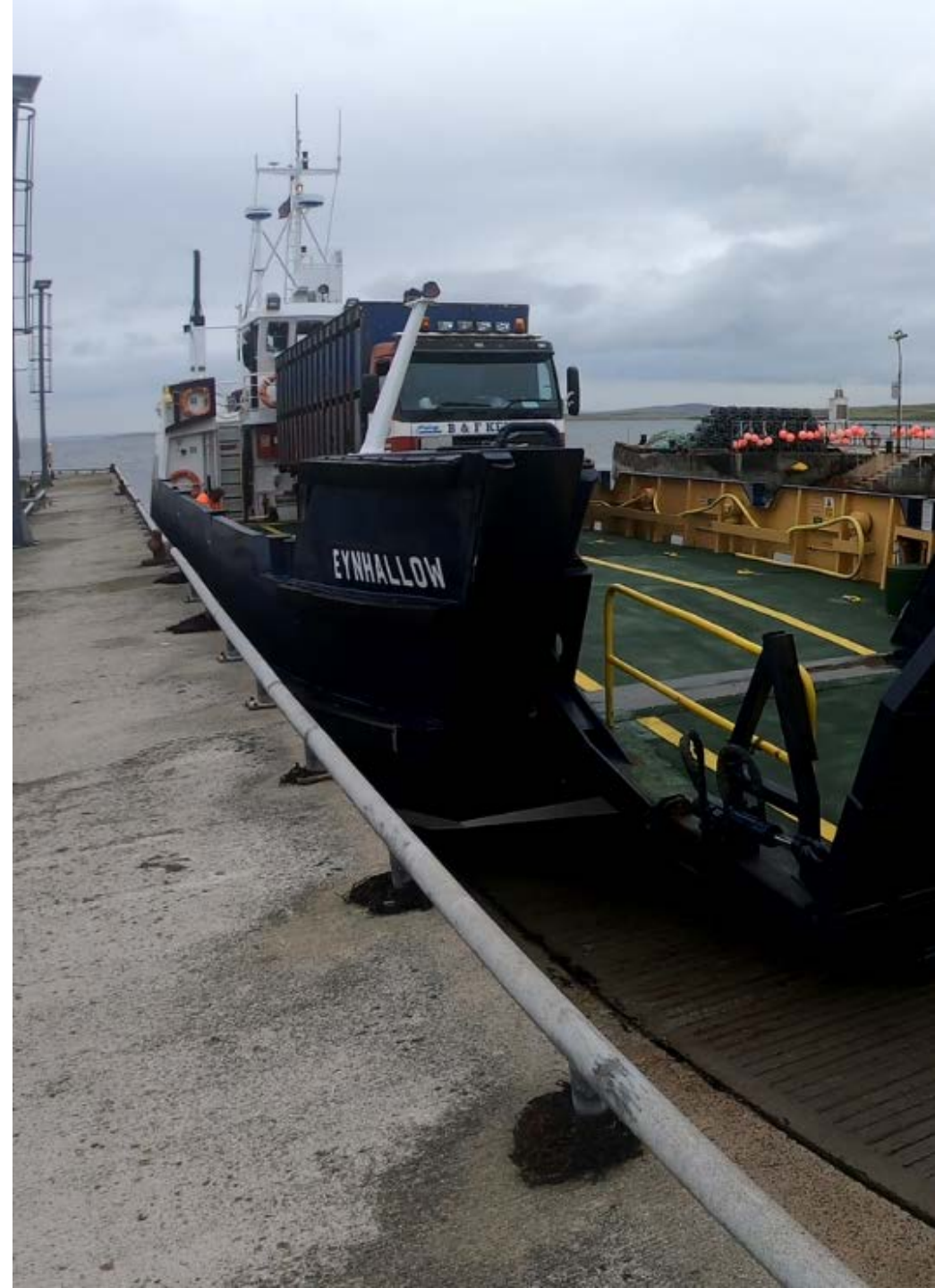
# What are we trying to achieve?

- The following study objectives were set in the SBC and agreed with communities:
  - ***Transport Planning Objective 1:*** *The capacity of the ferry services should not act as a constraint to regular and essential personal, vehicular and freight travel between the island and Orkney mainland.*
  - ***Transport Planning Objective 2a:*** *Where an island has a ‘commutable’ combined ferry or drive / public transport / walk time to a main employment centre (e.g. up to 80 minutes), the connections provided should facilitate commuting.*
  - ***Transport Planning Objective 3:*** *The scheduled time between connections should be minimised to increase flexibility for passengers and freight by maximising the number of island connections across the operating day.*
  - ***Transport Planning Objective 4:*** *The level of connectivity provided should minimise the variation between weekdays, evenings, Saturdays and Sundays.*
  - ***Transport Planning Objective 5:*** *Where practicable and realistic, islanders should be provided with links to strategic onward connections without the need for an overnight stay on Orkney mainland.*





# Carryings and Capacity Utilisation





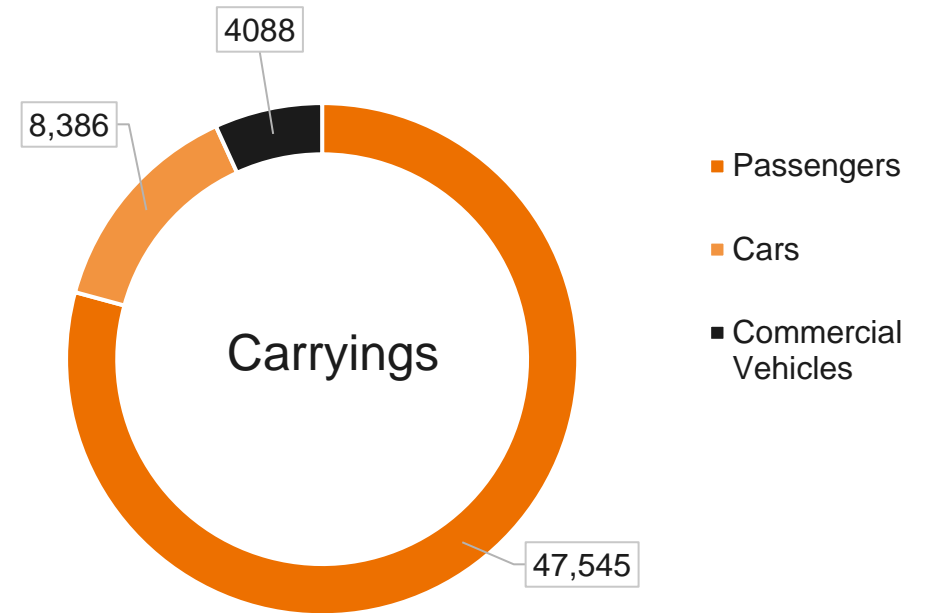
# Carryings

April 2017 – March 2018

- 4,875 sailings across all route legs
- 47,545 passengers
- 8,386 cars
- 4,088 commercial vehicles

High level of seasonality on the route

- **54%** of all car carryings between May and September
- Peak carryings in August– **13%** of annual car carryings





# Capacity Utilisation

- Vessel carrying capacity
  - MV *Eynhallow* has published vehicle capacity of **10** – however, the actual number is closer to **6-8** in terms of modern cars
  - Weight limit of **40 tonnes**
- 513 sailings – **10%** of total sailings – recorded a vehicle-deck capacity utilisation of **>90%** (i.e. they were effectively full)
  - 502 (**98%**) of these sailings were on Rousay – Tingwall or Tingwall – Rousay legs
  - Carrying on these sailings will generally represent cumulative REW traffic, with Rousay typically being the first / last port of call
- Respondents to the resident survey noted the following sailings as being the most difficult to secure a booking on:
  - to Tingwall (Rousay departure time)
    - **07:45**
    - **10:05**
    - **14:10** dominant sailing for commercial vehicles
  - from Tingwall (Tingwall departure time)
    - More even distribution
    - Peak sailing is **16:05** but **14:45** and **18:00** departures also identified as problematic





# Supply-Chain, Services & Personal Travel

*This section profiles the supply-chain, services and personal travel characteristics of Rousay, Egilsay and Wyre*

*Note that the data were largely collected in 2019*





# Why are the services used?

- A research programme was carried out to understand the use of the ferry services.
  - **Supply-chain**
    - Depth interviews with suppliers to the islands
  - **Service delivery**
    - Depth interviews with service providers
- **Personal travel**
  - Stakeholder consultation
  - REW resident survey – large sample size (see table below)

	No. of Responses	Population at 2011 Census	Response as % of Population
Egilsay	12	26	46%
Rousay	108	216	50%
Wyre	6	29*	21%

\* Actual permanent resident population now understood to be nearer 9

# Supply-Chain

- Relatively high frequency and short duration of crossing, combined with population size, shape the nature of freight operations to and from the island group
- Significant levels of self-haulage – e.g. livestock trailers and bringing in goods in own-vehicles
- For the main island haulier:
  - The tariff structure drives the length of vehicle used (i.e. pick-ups and trailers rather than standard HGV)
  - Goods consolidated at Outer North Isles hub at Hatston and picked up 3-days per week – typically travels on 07:45 outbound and 10:40 return
- Bulk / single load deliveries undertaken by mainland haulier
- Current height restriction on vessel an issue for larger commercial vehicles (e.g. cattle floats)





# Service Delivery

- **Education (as at April 2020)**
  - Primary
    - On-island nursery and primary school on Rousay - 1 child enrolled in nursery / 9 in school
    - No education provision on Egilsay or Wyre
    - One child travels daily from Egilsay to Rousay – timing of ferry not ideal for this, plus significant downtime for child escort
    - When carrying out the engagement, there were 3 teachers on Rousay, but it is understood that the roll and thus teacher numbers have reduced. At that time, none of the teachers were resident on the island and commuted in daily
  - Secondary
    - 15 children travel to Kirkwall Grammar School daily, 13 from Rousay and 2 from Egilsay
    - Outbound on 07:10 (Egilsay) / 07:45 (Rousay) and return on 16:05
- **Health**
  - GP practice in Rousay – 24/7 nurse practitioner cover with Dounby GP visiting on Monday and Friday AM and all-day Wednesday
  - Egilsay and Wyre residents have the additional time and cost of travelling to Rousay for medical appointments
- **Waste Management**
  - Main island haulier collects waste and takes it to Orkney mainland
  - Egilsay and Wyre waste picked-up on return journey from freight drop-off
- **Contractors**
  - Various mainland contractors serve REW
  - Egilsay and Wyre also regularly served by Rousay contractors – additional ferry cost associated with this



# Personal Travel (1)

- 29% of REW residents **keep a car at Tingwall**
  - 38% do this because it can be difficult to regularly book a **car space on the ferry** when that individual wants to travel (although cost is a bigger driver)
- Frequently used service - average resident makes **2-trips per week**. Almost all trips are to **Kirkwall**
- Journey purpose
  - 30% of all trips are for **shopping**
  - 29% for travelling to **place of work** and returning on the same day
  - Wide **range of other purposes** including business / self employed / employer's business and non-daily commuting
- Car / van dominant mode of travel to final destination
- **90%** of respondents reported occasions when they **cannot get a booking on the ferry**
- Around ¼ noted that they would **take the car on the ferry more** often or all the time if a **larger drive-through ferry** was introduced (i.e. no reversing on)
- Inter-island travel mainly from Egilsay and Wyre to Rousay – social / health / education purposes – but infrequent



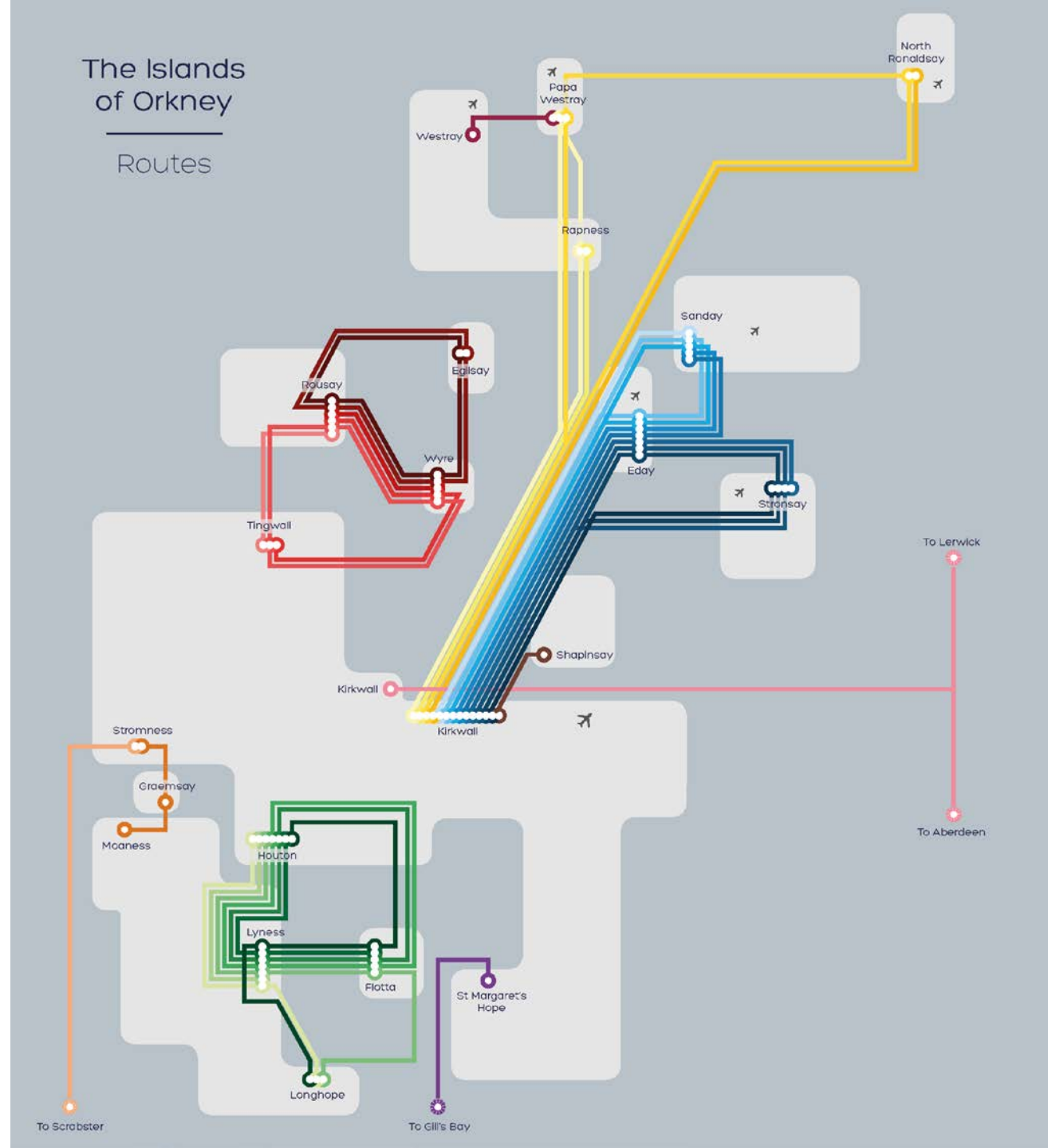
## Personal Travel (2)

- **2/3** of respondents noted that the **current ferry timetable does not meet their travel needs** – major issues identified include:
  - Lack of **winter Sunday** service (83%)
    - *Issue to be resolved through recent revenue funding increase*
  - **Reliability** of service – cancellations (83%)
  - **Time of last sailing** departing from Tingwall (83%)
  - Lack of **vehicle carrying capacity** when I wish to travel (67%)
- Activities being missed out predominantly social in nature, although employment also cited as an issue
- $\frac{3}{4}$  noted that ferry and timetable prevent people on Orkney mainland **visiting the islands** as often as they would wish to – implications include:
  - More difficult / expensive to get **tradespeople** to the islands
  - More difficult / expensive to get **deliveries** to the islands
  - **Friends / family** visit less often than they would like
- Strong aspiration for **improved connectivity** – **84%** in favour





# Option Development





# Recap of Options

- Options (*renumbered for OBC*):
  - **Option 1:** Replace the MV *Eynhallow* with one larger vessel
  - **Option 2:** Replace the MV *Eynhallow* with two like-for-like vessels
  - **Option 3:** Supplement Options 1 or 2 with a passenger only vessel service
- Regardless of preferred option – it is assumed that:
  - The (main) **Ro-Ro vessel will operate a 16-18 hour day, up to 7-days per week, year-round**
  - The service to **Gairsay** will be continued – the means by which this will be delivered will be considered through the design process





# Is there a case for a passenger vessel?

- Screening ahead of full option development led to the conclusion that a **supplementary passenger vessel should not be considered further** because:
  - Obvious advantage would have been to provide a **direct service to Kirkwall** but...
    - ...**journey time** considered too long and potential **reliability / passenger comfort** issues
    - ...bus connections could be provided to later Tingwall sailings
  - Given likely demand, vessel would operate from Rousay, so **interchange** issues for Egilsay and Wyre passengers (and potential reduction in Ro-Ro connections)
- **Limited benefits** compared to Ro-Ro given strong car-based demand from REW
- **Cost saving** for one small Ro-Ro plus a passenger vessel compared to a single larger Ro-Ro **minimal**, and **additional crew** required
- **Low levels of public interest** in this option

# REW– Key Ro-Ro Vessel Parameters

- Existing vessel has:
  - an actual capacity of 6-8 passenger car units (PCUs)
  - bow ramp only, with requirement to reverse onto the vessel
- **Option 1** – 1\* Larger Vessel (1\*22 PCU)
  - For infrastructure design, we have assumed the following vessel parameters based on recent hybrid ferries procured in Scotland
    - Bi-directional ferry with bow and stern ramps
    - 43.5m length overall, 12.2m beam, 1.73m draught Operating speed 9 knots
- **Option 2** – 2\* Equivalent Vessels (2\*10PCU)
  - For infrastructure design, we have assumed the following vessel parameters
    - Bi-directional ferry with bow and stern ramps
    - 35.6m LOA, 10m beam, 1.56m draught, 10 PCU
    - Operating speed 9 knots
- The following boards show a potential '**design vessel**' for each option and the required **infrastructure at each terminal** to accommodate them
  - For Option 2, drawings are provided for **overnighting** both vessels in Rousay or one vessel in Rousay and one in Tingwall





# Design Vessels

For illustrative purposes, two design vessels have been used in the option development, with the specification equivalent to that set out on the previous board

## MV *Lochinvar* – 22 PCU (Option 1)

Credit: Bruce Cowan, Glasgow

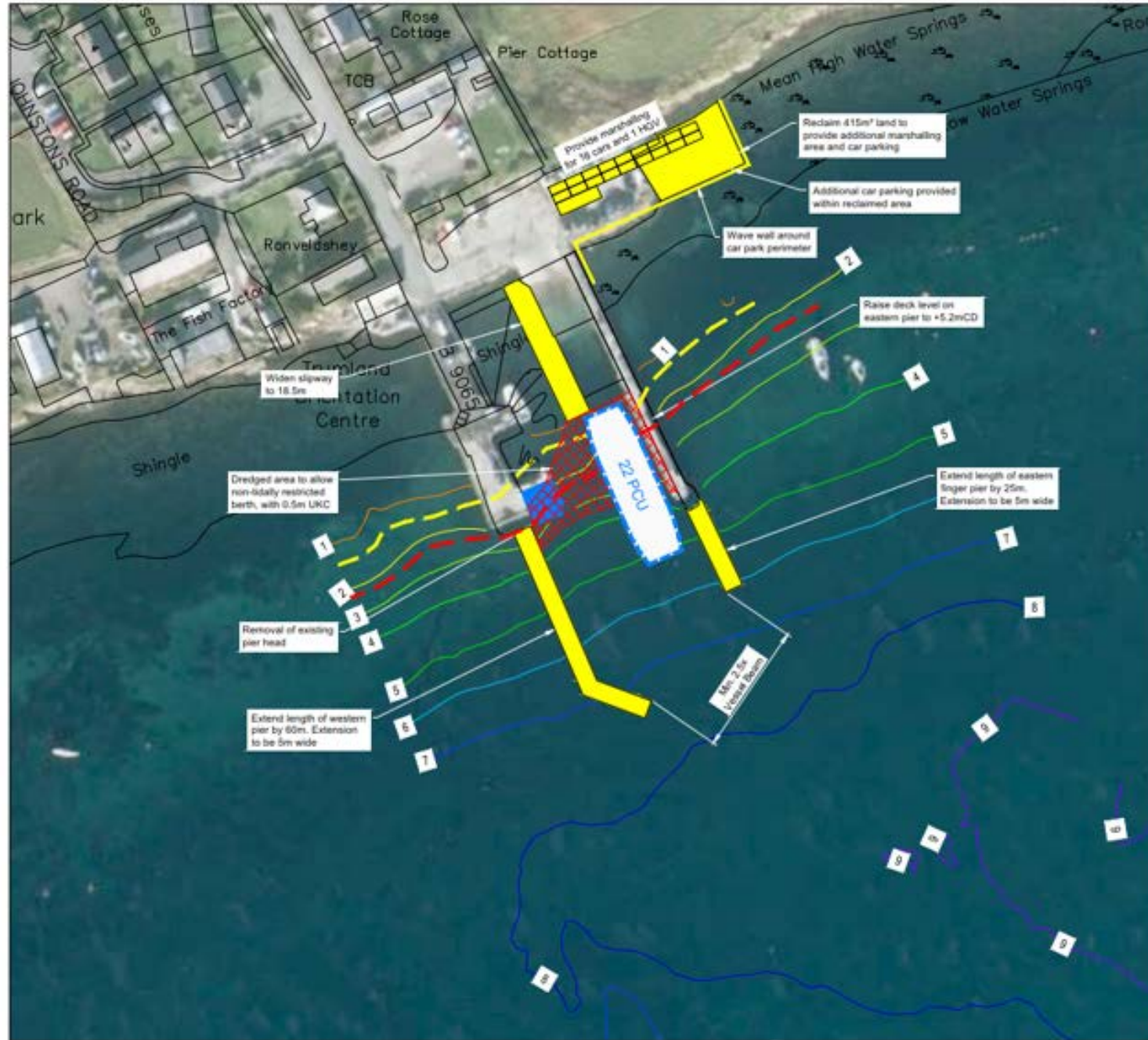


## MV *Loch Striven* – 10 PCU (Option 2)

Credit: Mn28



## Option 1 – Rousay – Larger Vessel, 1x Overnight Berth



### Orkney REW OBC Option Development Rousay Option 1 - 22 PCU

- Current Vessels**
- 2 REW slipway vessels, MV Eynhallow and MV Shapinsay (refit)
  - Overnight berth for current fleet

- Potential Future Vessel (Shown)**
- 22 PCU, 43.5m slipway vessel, 12.2m beam, 1.73m draught
  - Double ended vessel to help with manoeuvrability and to minimise the requirement to reverse onto the vessel
  - Overnight berth for potential future vessel
  - Reclaim land to provide additional marshalling and car parking area

- Potential Solution - Rousay Option 1 (Shown)**
- Extend width of slipway by 6.5m to accommodate 22 PCU vessel
  - Extend length of eastern finger pier by 25m to accommodate 22 PCU vessel overnight
  - Remove existing pier head on western pier
  - Extend western pier by 60m and provide 'dog-leg' to improve shelter within the harbour
  - Increase level of all pier decks by 1.05m
  - Provide concrete wave wall along perimeter of car park
  - Provide fenders along the slipway berth
  - Passenger access to remain via slipway
  - For use with Egilsay Option 1, Wyre Option 1 and Tingwall Option 1
  - Capital dredge to 3.3mCD to give maintained depth of 2.3mCD
  - Assume 1 in 12 slope for long-term stability of bed material

- Notes**
- Concern at Rousay regarding wave run-up and overtopping of the car park, slipway berth and eastern pier during storm conditions
  - No fenders at present along slipway berth
  - Disruption during westerly and south-westerly conditions
  - Available water area at LAT and MLWS for potential future 22 PCU slipway vessel shown, with 0.5m UNCL
  - Approximate dredge area shown to allow non-tidally restricted berthing for potential future 22 PCU slipway vessel
  - Bathymetric survey November 2019
  - All levels are to Chart Datum

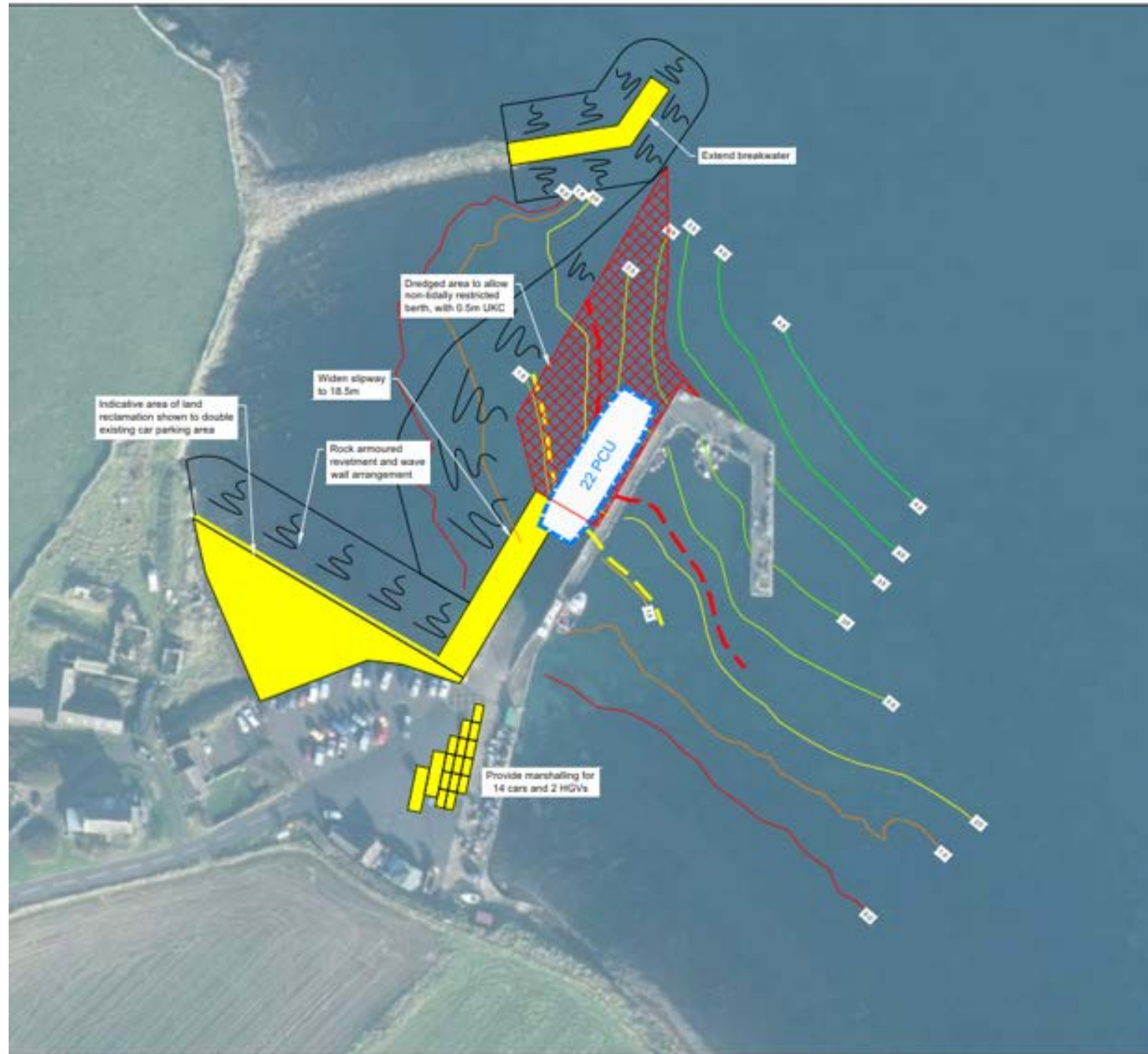
- — Extent of available water area at MLWS for 22 PCU vessel
- — Extent of available water area at LAT for 22 PCU vessel







## Option 1 – Tingwall – Larger Vessel



### Orkney REW OBC Option Development Tingwall Option 1 - 22 PCU

**Current Vessels**

- 2 REW slipway vessels; MV Eyrhallow and MV Shapinsay (refit only)

**Potential Future Vessel (Shown)**

- 22 PCU, 43.5m slipway vessel, 12.2m beam, 1.73m draught
- Double ended vessel to help with manoeuvrability and to minimise the requirement to reverse onto the vessel

**Potential Solution - Tingwall Option 1 (Shown)**

- Extend width of slipway by 8.5m to accommodate 22 PCU vessel
- Provide increased marshalling area
- Provide fenders along the slipway berth
- Passenger access to remain via slipway
- Indicative area of land reclamation shown to double existing car parking area (dependant on land ownership)
- Provide concrete wave wall along perimeter of car park on western side with rock armoured revetment
- Extend the length of the breakwater (wave modelling required to confirm design)
- For use with Rousay Option 1, Egilsay Option 1 and Wyre Option 1
- Capital dredge 3.3mCD to give maintained depth of 2.3mCD
- Assume 1 in 12 slope for long-term stability of bed material

**Notes**

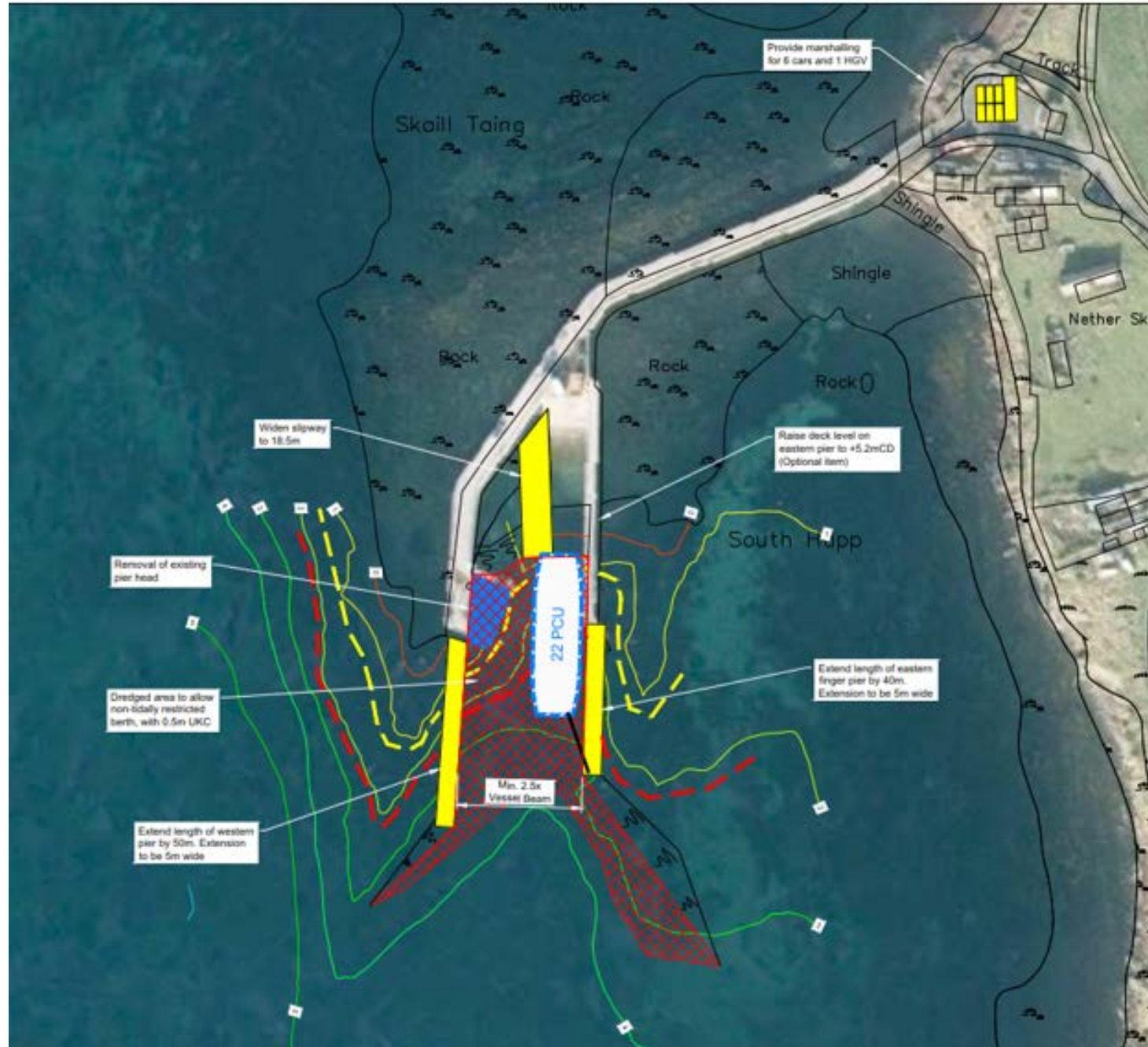
- Concern at Tingwall regarding wave run-up and overtopping of the car park and slipway berth during storm conditions
- Approach to harbour is routinely dredged
- No fenders at present along slipway berth
- Disruption during northerly conditions
- Available water area at LAT and MLWS for potential future 22 PCU slipway vessel shown, with 0.5m UKC
- Approximate dredge area shown to allow non-tidally restricted berth for potential future 22 PCU slipway vessel
- Bathymetric survey November 2019
- All levels are to Chart Datum

- Available water area at MLWS for 22 PCU vessel
- Available water area at LAT for 22 PCU vessel





## Option 1 – Egilsay – Larger Vessel



### Orkney REW OBC Option Development Egilsay Option 1 - 22 PCU

**Current Vessels**

- 2 REW slipway vessels; MV Eynhallow and MV Shapinsay (refit only)

**Potential Future Vessel (Shown)**

- 22 PCU, 43.5m slipway vessel, 12.2m beam, 1.73m draught
- Double ended vessel to help with manoeuvrability and to minimise the requirement to reverse onto the vessel

**Potential Solution - Egilsay Option 1 (Shown)**

- Extend width of slipway by 6.5m to accommodate 22 PCU vessel
- Extend length of eastern finger pier by 40m to accommodate 22 PCU vessel
- Remove existing pier head on western pier
- Extend western pier by 50m to improve shelter within the harbour
- Increase level of all pier decks by 0.83m (Optional item)
- Provide designated marshalling area
- Provide fenders along the slipway berth
- Passenger access to remain via slipway
- For use with Rousay Option 1, Wyre Option 1 and Tingwall Option 1
- Capital dredge to 3.3mCD to give maintained depth of 4.3mCD
- Assume 1 in 12 slope for long-term stability of bed material

**Notes**

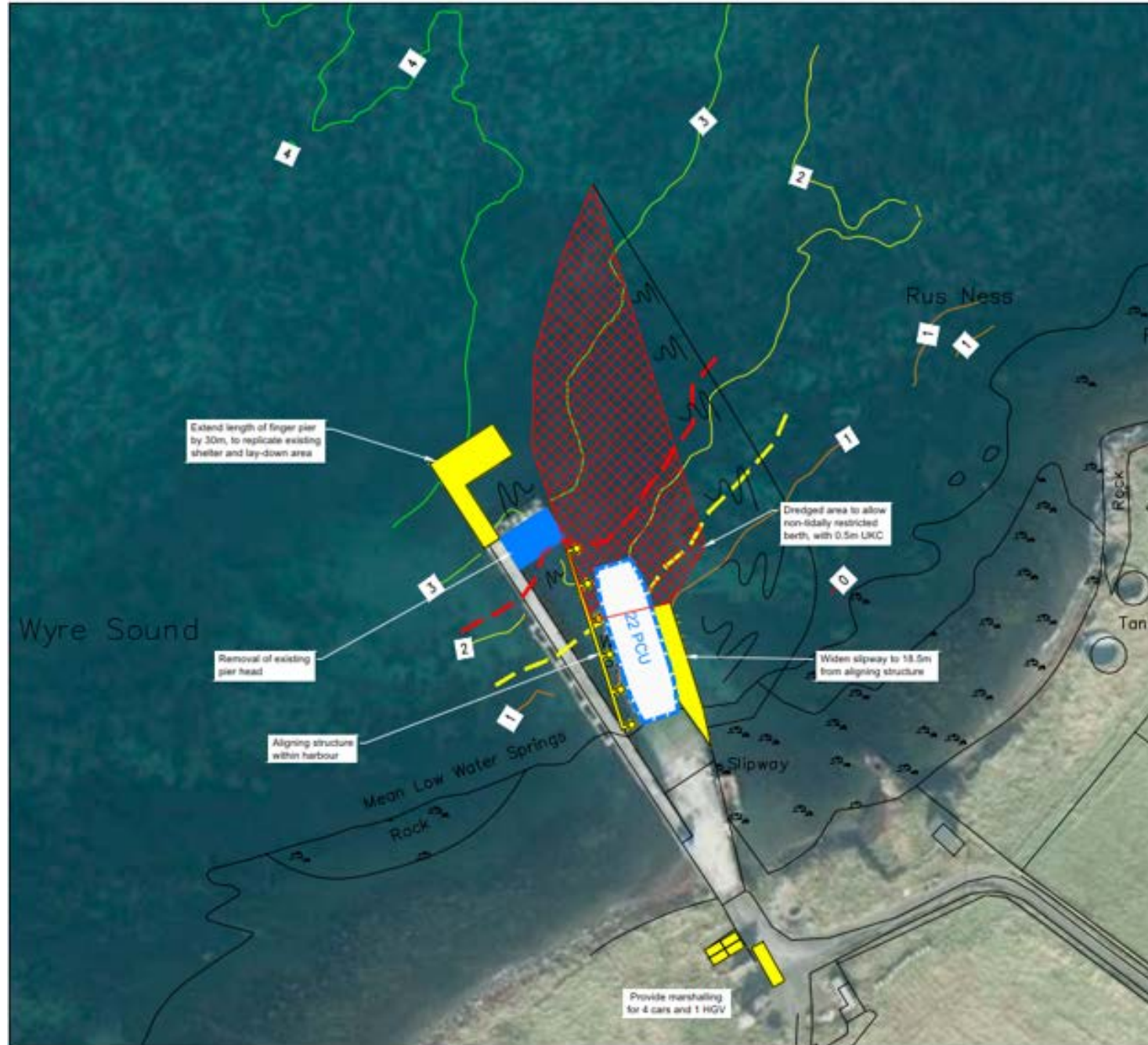
- Concern at Egilsay regarding wave run-up and overtopping of the slipway berth during storm conditions
- Approach to harbour is routinely dredged
- No fenders at present along slipway berth
- Disruption during south-westerly round to south-easterly conditions
- Swell inside harbour can cause disruption to sailings
- Available water area at LAT and MLWS for potential future 22 PCU slipway vessel shown, with 0.5m LWC
- Approximate dredge area shown to allow non-tidally restricted berth for potential future 22 PCU slipway vessel
- Bathymetric survey November 2019
- All levels are to Chart Datum

- Available water area at MLWS for 22 PCU vessel
- Available water area at LAT for 22 PCU vessel





## Option 1 – Wyre – Larger Vessel



### Orkney REW OBC Option Development Wyre Option 1 - 22 PCU

**Current Vessels**

- 2 REW slipway vessels, MV Eynhallow and MV Shapinsay (reft only)

**Potential Future Vessel (Shown)**

- 22 PCU, 43.5m slipway vessel, 12.2m beam, 1.73m draught
- Double ended vessel to help with manoeuvrability and to minimise the requirement to reverse onto the vessel

**Potential Solution - Wyre Option 1 (Shown)**

- Extend width of slipway to 18.5m from aligning structure accommodate 22 PCU vessel
- Extend length of pier by 30m to accommodate 22 PCU vessel
- Remove existing pier head
- Reinststate pier head at end of pier extension to maintain shelter with the harbour and to replicate existing lay-down area
- Provide designated marshalling area close to wailing room
- Passenger access to remain via slipway
- For use with Rousay Option 1, Egilsay Option 1 and Tingwall Option 1
- Capital dredge to 3.3mCD to give maintained depth of 2.3mCD
- Assume 1 in 12 slope for long-term stability of bed material

**Notes**

- Wyre harbour is shallow and has a rocky bed
- Not currently dredged
- Disruption and tidal constraints during westerly conditions
- Available water area at LAT and MLWS for potential future 22 PCU slipway vessel shown, with 0.5m LWC
- Approximate dredge area shown to allow non-tidally restricted berth for potential future 22 PCU slipway vessel
- Bathymetric survey November 2019
- All levels are to Chart Datum

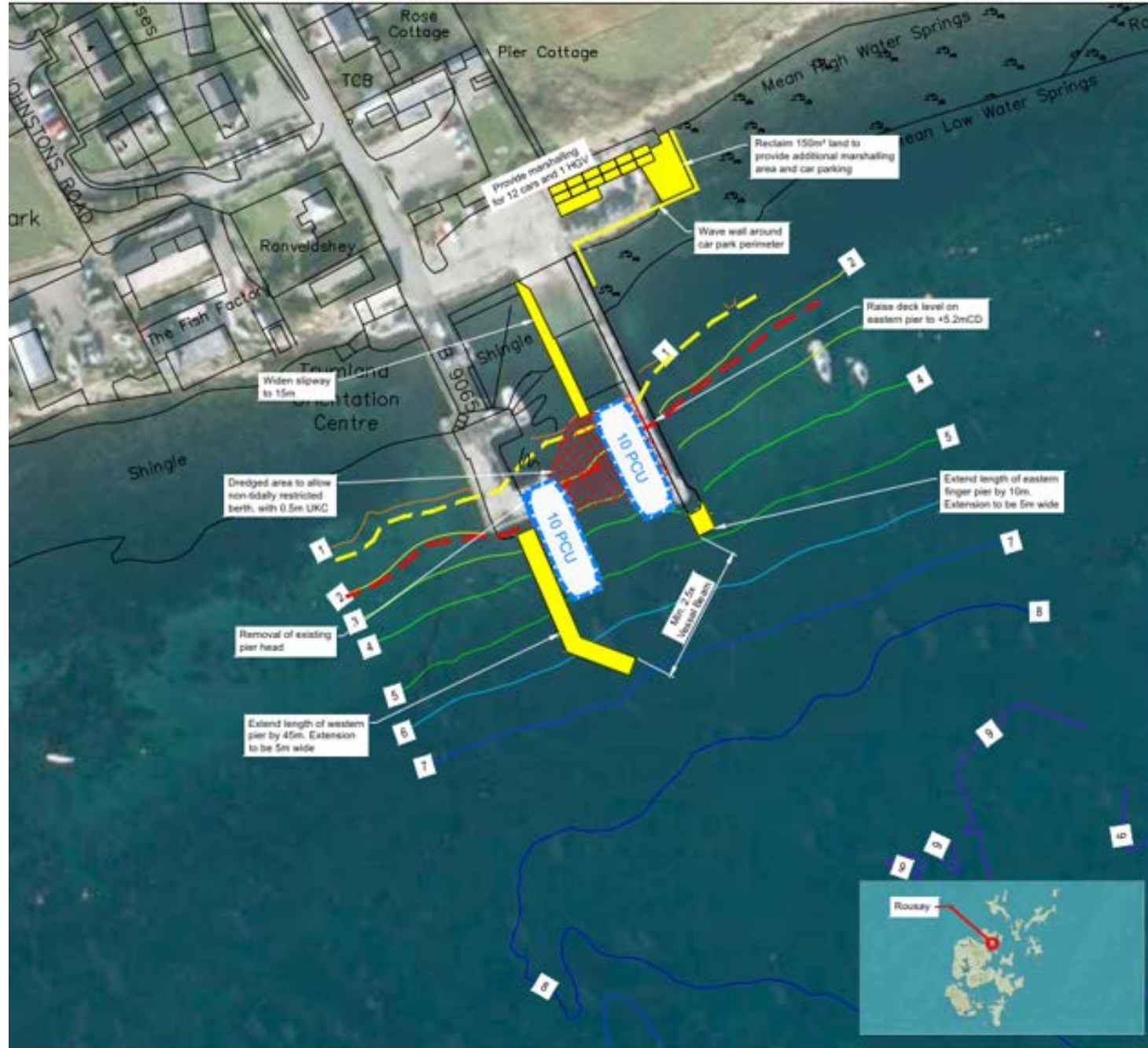
- █ Extent of available water area at MLWS for 22 PCU vessel
- █ Extent of available water area at LAT for 22 PCU vessel







## Option 2 – Rousay – Smaller Vessel, 2x Overnight Berths



### Orkney REW OBC Option Development Rousay Option 2A - 2x 10 PCU (Both Rousay Based)

- Current Vessels**
- 2 REW slipway vessels; MV Eynhallow and MV Shapinsay (left only)
  - Overnight berth for current fleet

- Potential Future Vessels (Shown)**
- 2x 10 PCU, 35.6m slipway vessels, 10m beam, 1.56m draught
  - Double ended vessels to help with manoeuvrability and to minimise the requirement to reverse onto the vessel
  - Overnight berth for both potential future vessels

- Potential Solution - Rousay Option 2A (Shown)**
- Extend width of slipway by 3m to accommodate 10 PCU vessel
  - Extend length of eastern finger pier by 10m to accommodate 10 PCU vessel overnight
  - Remove existing pier head on western pier
  - Extend western pier by 45m to accommodate second 10 PCU vessel overnight
  - Provide 'dog-leg' on western pier to improve shelter within the harbour
  - Increase level of all pier decks by 1.55m
  - Provide concrete wave wall along perimeter of car park
  - Provide fenders along the slipway berth and western berth
  - Passenger access to remain via slipway
  - For use with Egilsay Option 2, Wyre Option 2 and Tingwall Option 2A
  - Reclaim land to provide additional marshalling and car parking area
  - Capital dredge to 3.1mCD to give maintained depth of 2.1mCD
  - Assume 1 in 12 slope for long-term stability of bed material

- Notes**
- Concern at Rousay regarding wave run-up and overtopping of the car park, slipway berth and eastern pier during storm conditions
  - No fenders at present along slipway berth
  - Disruption during westerly and south-westerly conditions
  - Available water area at LAT and MLWS for potential future 10 PCU slipway vessels shown, with 0.5m UKC
  - Approximate dredge area shown to allow non-tidally restricted berth for potential future 10 PCU slipway vessels
  - Bathymetric survey November 2019
  - All levels are to Chart Datum

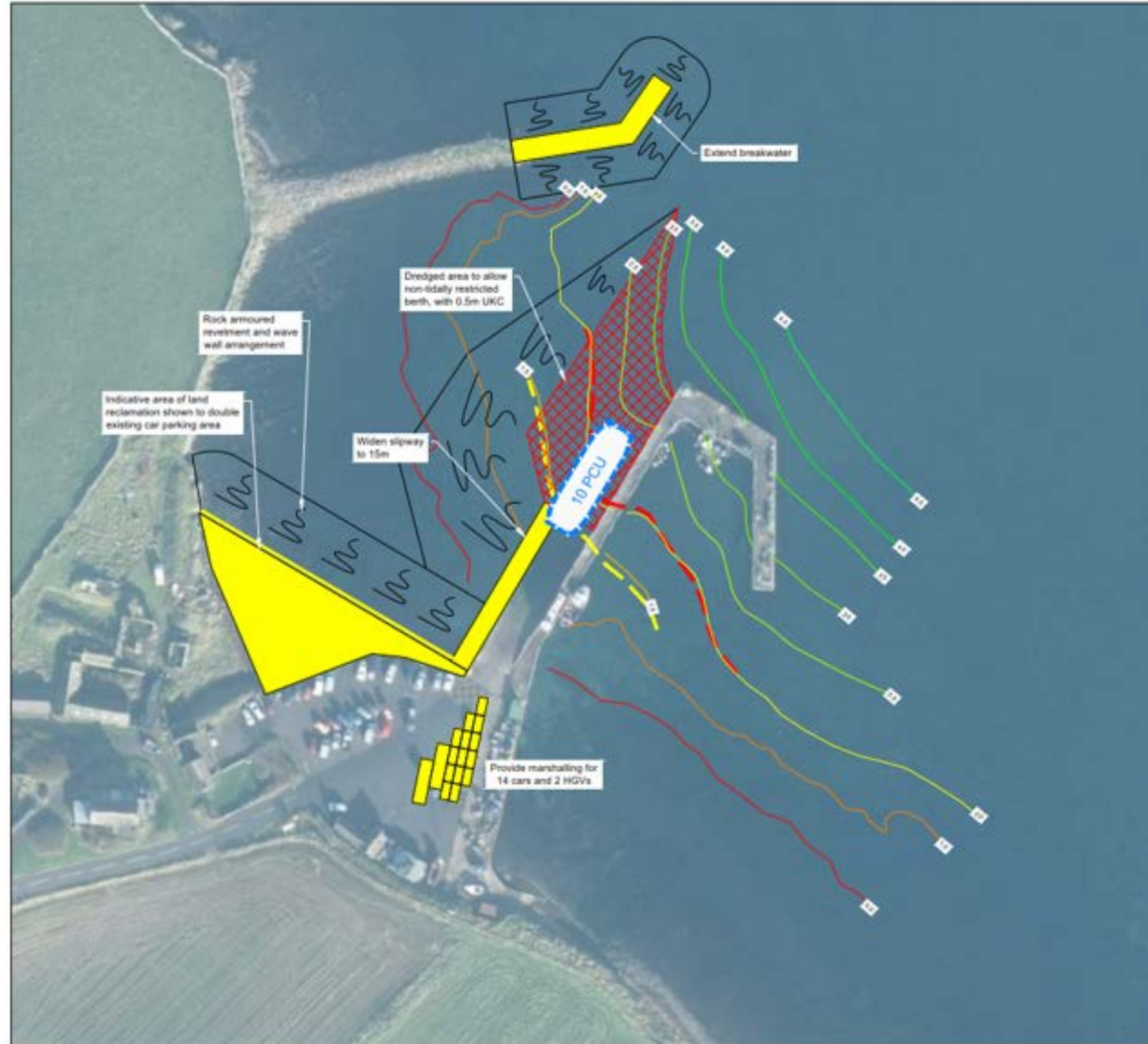
— Extend of available water area at MLWS for 10 PCU vessel  
— Extend of available water area at LAT for 10 PCU vessel







## Option 2 - Tingwall - Smaller Vessel



### Orkney REW OBC Option Development Tingwall Option 2A - 10 PCU (Both Rousay Based)

- Current Vessels**
- 2 REW slipway vessels, MV Eyrhallow and MV Shapinsay (refit only)

- Potential Future Vessel (Shown)**
- 10 PCU, 35.6m slipway vessels, 10m beam, 1.56m draught
  - Double ended vessel to help with manoeuvrability and to minimise the requirement to reverse onto the vessel

- Potential Solution - Tingwall Option 2A (Shown)**
- Extend width of slipway by 5m to accommodate 10 PCU vessel
  - Provide increased marshalling area
  - Provide fenders along the slipway berth
  - Passenger access to remain via slipway
  - Indicative area of land reclamation shown to double existing car parking area (dependent on land ownership)
  - Provide concrete wave wall along perimeter of car park on western side with rock armoured revetment
  - Extend the length of the breakwater (wave modeling required to confirm design)
  - For use with Rousay Option 2A, Egilsay Option 2 and Wyre Option 2
  - Capital dredge to 3.1mCD to give maintained depth of 2.1mCD
  - Assume 1 in 12 slope for long-term stability of bed material

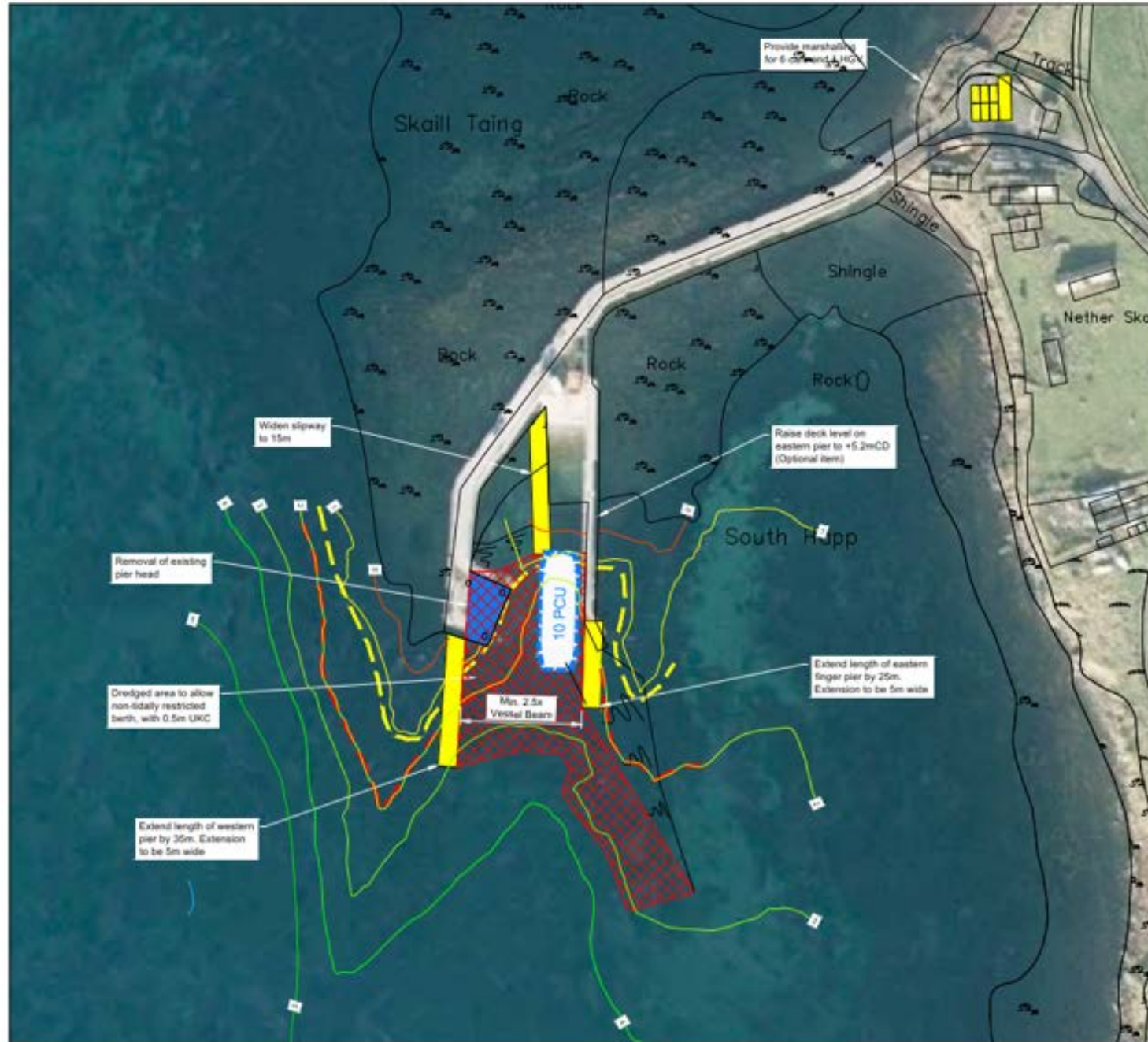
- Notes**
- Concern at Tingwall regarding wave run-up and overtopping of the car park and slipway berth during storm conditions
  - Approach to harbour is routinely dredged
  - No fenders at present along slipway berth
  - Disruption during northerly conditions
  - Available water area at LAT and MLWS for potential future 10 PCU slipway vessel shown, with 0.5m URC
  - Approximate dredge area shown to allow non-tidally restricted berth for potential future 10 PCU slipway vessel
  - Bathymetric survey November 2019
  - All levels are to Chart Datum

- — Extent of available water area at MLWS for 10 PCU vessel
- — Extent of available water area at LAT for 10 PCU vessel





## Option 2 - Egilsay – Smaller Vessel



### Orkney REW OBC Option Development Egilsay Option 2 - 10 PCU

**Current Vessels**

- 2 REW slipway vessels, MV Eynhallow and MV Shapinsay (refit only)

**Potential Future Vessel (Shown)**

- 10 PCU, 35.6m slipway vessels, 10m beam, 1.56m draught
- Double ended vessel to help with manoeuvrability and to minimise the requirement to reserve onto the vessel

**Potential Solution - Egilsay Option 2 (Shown)**

- Extend width of slipway by 3m to accommodate 10 PCU vessel
- Extend length of eastern finger pier by 25m to accommodate 10 PCU vessel
- Remove existing pier head on western pier
- Extend western pier by 35m to improve shelter within the harbour
- Increase level of all pier decks by 0.83m (Optional item)
- Provide designated marshalling area
- Provide fenders along the slipway berth
- Passenger access to remain via slipway
- For use with Rousay Option 2A/2B, Wyre Option 2 and Tingwall Option 2A/2B
- Capital dredge to 3.1mCD to give maintained depth of 2.1mCD
- Assume 1 in 12 slope for long-term stability of bed material

**Notes**

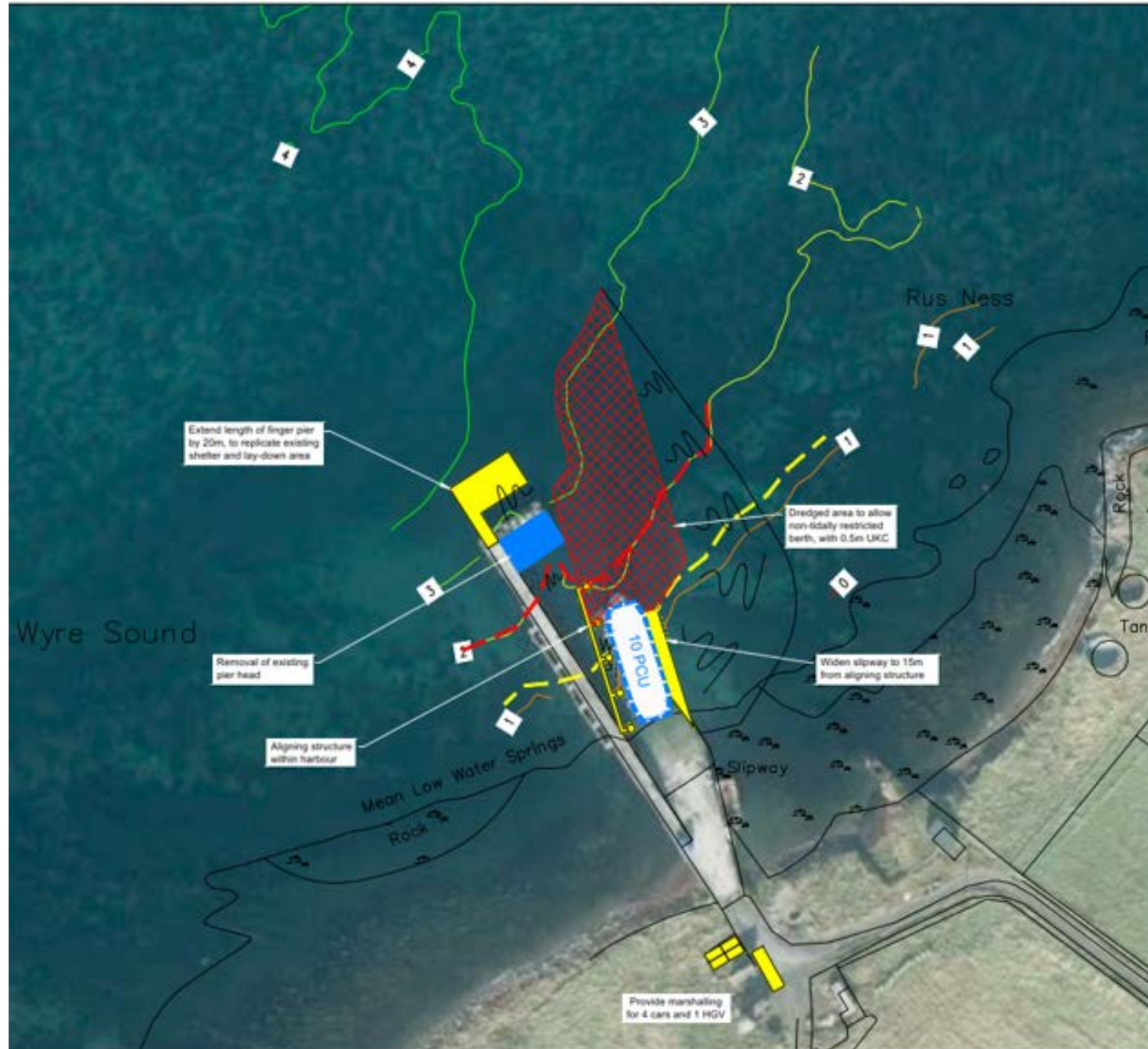
- Concern at Egilsay regarding wave run-up and overlapping of the slipway berth during storm conditions
- Approach to harbour is routinely dredged
- No fenders at present along slipway berth
- Disruption during south-westerly round to south-easterly conditions
- Swell inside harbour can cause disruption to sailings
- Available water area at LAT and MLWS for potential future 10 PCU slipway vessel shown, with 0.5m UKC
- Approximate dredge area shown to allow non-tidally restricted berth for potential future 10 PCU slipway vessel
- Bathymetric survey November 2019
- All levels are to Chart Datum

- █ Extent of available water area at MLWS for 10 PCU vessel
- █ Extent of available water area at LAT for 10 PCU vessel





## Option 2 - Wyre – Smaller Vessel



### Orkney REW OBC Option Development Wyre Option 2 - 10 PCU

- Current Vessels**
- 2 REW slipway vessels, MV Eynhallow and MV Shapinsay (refit on)
- Potential Future Vessel (Shown)**
- 10 PCU, 35.6m slipway vessels, 10m beam, 1.56m draught
  - Double ended vessel to help with manoeuvrability and to minimise the requirement to reverse onto the vessel
- Potential Solution - Wyre Option 2 (Shown)**
- Extend width of slipway to 15m from aligning structure accommodate 22 PCU vessel
  - Extend length of pier by 20m to accommodate 10 PCU vessel
  - Remove existing pier head
  - Reinstall pier head at end of pier extension to maintain shelter with the harbour and to replicate existing lay-down area
  - Provide designated marshalling area close to waiting room
  - Passenger access to remain via slipway
  - For use with Rousay Option 2A/2B, Egilsay Option 2 and Tingwall Option 2A/2B
  - Capital dredge to 3.1mCD to give maintained depth of 2.1mCD
  - Assume 1 in 12 slope for long-term stability of bed material

- Notes**
- Wyre harbour is shallow and has a rocky bed
  - Not currently dredged
  - Disruption and tidal constraints during westerly conditions
  - Available water area at LAT and MLWS for potential future 10 PCU slipway vessel shown, with 0.5m UKC
  - Approximate dredge area shown to allow non-tidally restricted berth for potential future 10 PCU slipway vessel
  - Bathymetric survey November 2019
  - All levels are to Chart Datum

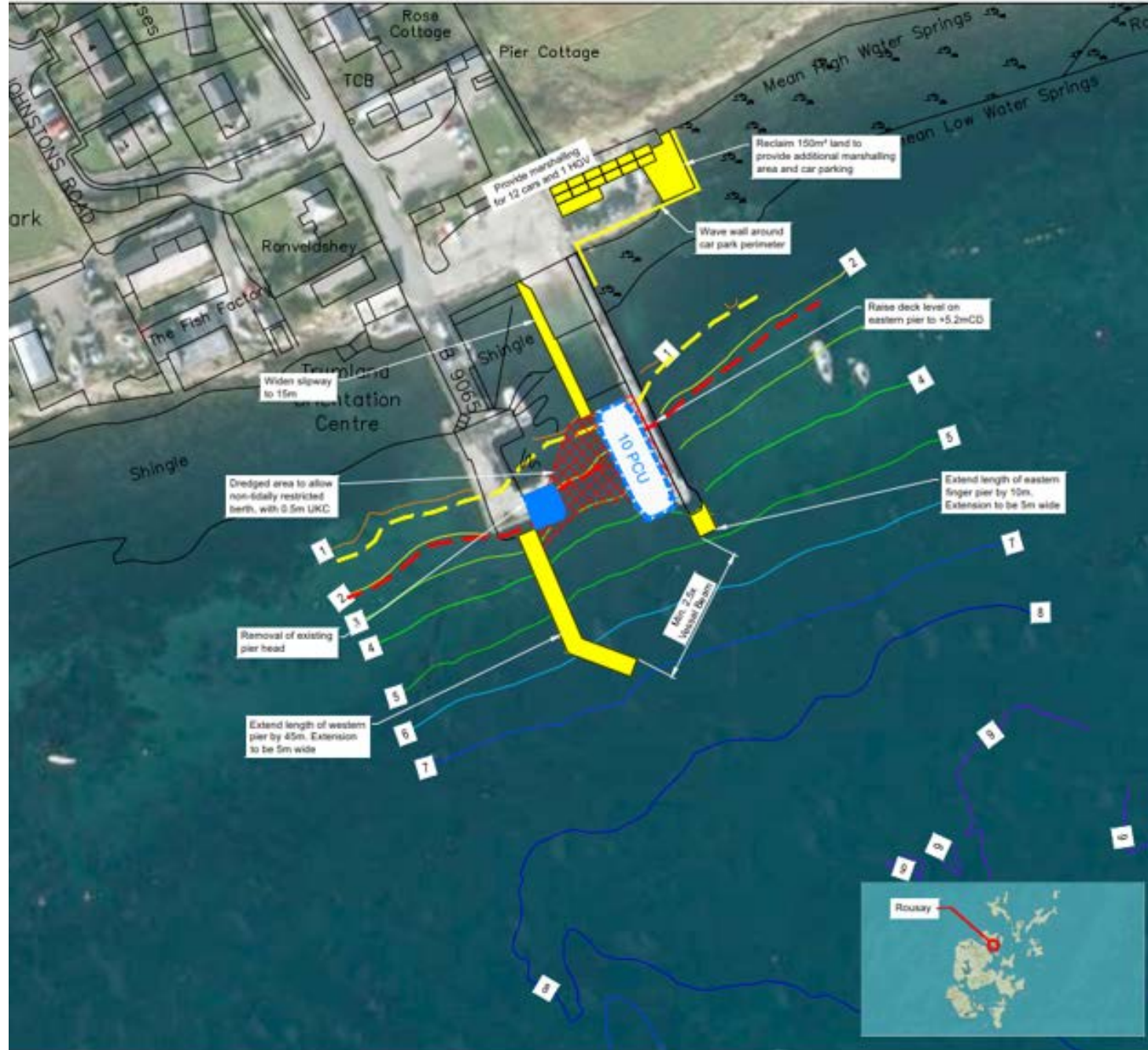
- █ Extent of available water area at MLWS for 10 PCU vessel
- █ Extent of available water area at LAT for 10 PCU vessel







## Option 2 – Rousay – Smaller Vessel, 1x Overnight Berth



### Orkney REW OBC Option Development Rousay Option 2B - 2x 10 PCU (One Rousay Based, One Tingwall Based)

- Current Vessels**
- 2 REW slipway vessels, MV Eynhallow and MV Shapinsay (left only)
  - Overnight berth for current fleet

- Potential Future Vessel (Shown)**
- 10 PCU, 35.6m slipway vessels, 10m beam, 1.56m draught
  - Double ended vessels to help with manoeuvrability and to minimise the requirement to reverse onto the vessel
  - Overnight berth for one potential future vessel

- Potential Solution - Rousay Option 2B (Shown)**
- Extend width of slipway by 3m to accommodate 10 PCU vessel
  - Extend length of eastern finger pier by 10m to accommodate 10 PCU vessel overnight
  - Remove existing pier head on western pier
  - Extend western pier by 45m and provide 'dog-leg' to improve shelter within the harbour
  - Increase level of all pier decks by 1.55m
  - Provide concrete wave wall along perimeter of car park
  - Provide fenders along the slipway berth
  - Passenger access to remain via slipway
  - For use with Egilsay Option 2, Wyre Option 2 and Tingwall Option 2B
  - Reclaim land to provide additional marshalling and car parking area
  - Capital dredge to 3.1mCD to give maintained depth of 2.1mCD
  - Assume 1 in 12 slope for long-term stability of bed material

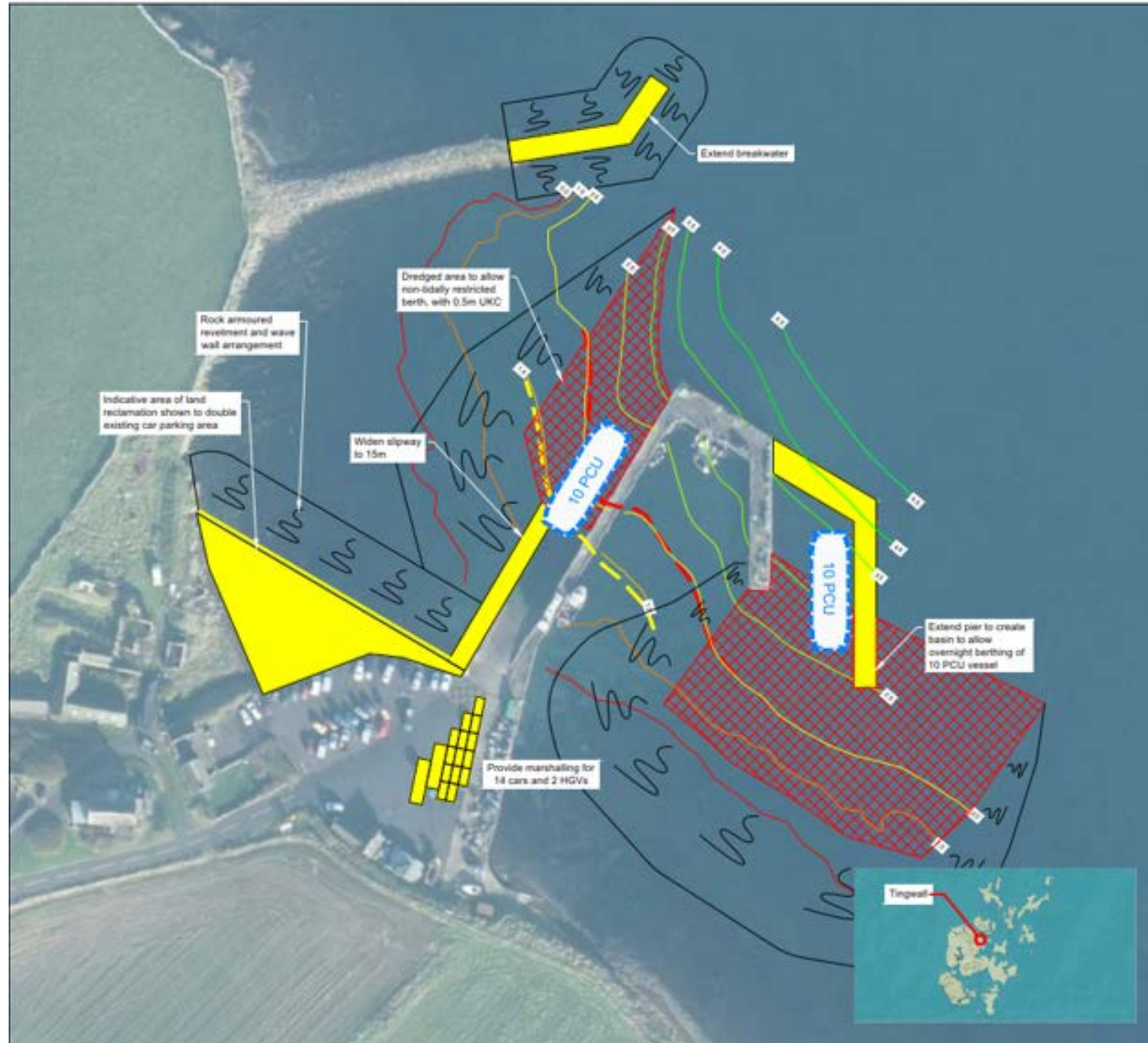
- Notes**
- Concern at Rousay regarding wave run-up and overtopping of the car park, slipway berth and eastern pier during storm conditions
  - No fenders at present along slipway berth
  - Disruption during westerly and south-westerly conditions
  - Available water area at LAT and MLWS for potential future 10 PCU slipway vessels shown, with 0.5m UKC
  - Approximate dredge area shown to allow non-tidally restricted berth for potential future 10 PCU slipway vessels
  - Bathymetric survey November 2019
  - All levels are to Chart Datum

— Extent of available water area at MLWS for 10 PCU vessel  
— Extent of available water area at LAT for 10 PCU vessel





## Option 2 – Tingwall – Smaller Vessel , Overnight Berth



### Orkney REW OBC Option Development Tingwall Option 2B - 10 PCU (One Rousay Based, One Tingwall Based)

Current Vessels  
 • 2 REW slipway vessels; MV Eynhallow and MV Shapinsay (refit on)

Potential Future Vessel (Shown)  
 • 10 PCU, 35.6m slipway vessel, 10m beam, 1.56m draught  
 • Double ended vessel to help with manoeuvrability and to minimise the requirement to reverse onto the vessel  
 • Overnight berth for one potential future vessel within new harbour

Potential Solution - Tingwall Option 2B (Shown)  
 • Extend width of slipway by 5m to accommodate 10 PCU vessel  
 • Extend finger pier to east to create new harbour for overnight berthing of 10 PCU vessel  
 • Provide increased marshalling area  
 • Provide fenders along the slipway berth and along the inner faces of the new harbour  
 • Passenger access to remain via slipway  
 • Indicative area of land reclamation shown to double existing car parking area (dependant on land ownership)  
 • Provide concrete wave wall along perimeter of car park on western side with rock revetment  
 • Extend the length of the breakwater (wave modelling required to confirm design)  
 • For use with Rousay Option 2B, Egilsay Option 2 and Wyre Option 1  
 • Capital dredge to 3.1mCD to give maintained depth of 2.1mCD  
 • Assume 1 in 12 slope for long-term stability of bed material

Notes  
 • Concern at Tingwall regarding wave run-up and overtopping of the car park and slipway berth during storm conditions  
 • Approach to harbour is routinely dredged  
 • No fenders at present along slipway berth  
 • Disruption during northerly conditions  
 • Available water area at LAT and MLWS for potential future 10 PCU slipway vessel shown, with 0.5m UKC  
 • Approximate dredge area shown to allow non-tidally restricted berth for potential future 10 PCU slipway vessel  
 • Bathymetric survey November 2010  
 • All levels are to Chart Datum

Legend  
 • Yellow: Extent of available water area at MLWS for 10 PCU vessel  
 • Red: Extent of available water area at LAT for 10 PCU vessel





# Appraisal and Preferred Option







# Transport Planning Objectives

	Option 1: 1*larger vessel	Option 2: 2*LfL Vessels
<b>TPO1:</b> The capacity of the ferry services should not act as a constraint to regular and essential personal, vehicular and freight travel between the island and Orkney mainland.	✓✓	✓✓
<b>TPO2a:</b> Where an island has a 'commutable' combined ferry or drive / public transport / walk time to a main employment centre (e.g. 80 minutes), the connections provided should facilitate commuting.	✓✓	✓✓✓
<b>TPO3:</b> The scheduled time between connections should be minimised to increase flexibility for passengers and freight by maximising the number of island connections across the operating day.	0	✓✓
<b>TPO4:</b> The level of connectivity provided should minimise the variation between weekdays, evenings, Saturdays and Sundays.	✓✓	✓✓✓
<b>TPO5:</b> Where practicable and realistic, islanders should be provided with links to strategic onward connections without the need for an overnight stay on Orkney mainland.	✓✓	✓✓✓

- The table above shows how each option performs against the TPOs on a **xxx** (major negative) to **✓✓✓** (major positive scale)
- Both options contribute strongly to the objectives
- Option 2 typically performs more strongly because it offers more connections, but each connection would have a lower capacity
- Assumed revenue measures to extend timetable implemented



# Scottish Transport Appraisal Guidance Criteria

	Option 1: 1*larger vessel	Option 2: 2*LfL Vessels
Environment	✓	✗
Safety	✓	✓
Economy	✓✓	✓✓
Integration	✓	✓✓
Accessibility and Social Inclusion	✓✓	✓✓

- The table above shows how each option performs against the STAG criteria on a ✗✗✗ (major negative) to ✓✓✓ (major positive scale)
- Addition of second vessel would lead to a minor **environmental** disbenefit (although offset if a green fuel is used)
- Minor **safety** benefit from vessel built to modern standards and reduced reversing onto the ferry
- Moderate **economy** benefits through increased capacity and frequency (associated with revenue measures only in Option 1)
- Option 2 has a higher **integration** score because it is more frequent
- Improved **accessibility** – step-free access to the passenger lounge



## Cost to Government and Deliverability – Option 1 (1\*Large Vessel)

Landside Infrastructure Works	CAPEX 2021 (£m)
Rousay	£6.7
Egilsay	£5.9
Wyre	£4.1
Tingwall	£3.6
<b>Total</b>	<b>£20.3</b>

- Vessel costs subject to design (in response to output specification), procurement and market conditions
  - Most recent CMAL hybrid ferry – MV *Catriona* (2017) - **£12.3m**
- Requirement for one additional crew to operate the 16-18 hour day – Revenue OBC estimated increase in operating costs of **£265k** per annum
- Deliverable option subject to enabling technical works, crew recruitment and switch to shift system to provide the 16-18 hour day



## Cost to Government and Deliverability – Option 2 (2\*Small Vessels)

Infrastructure Works	CAPEX 2021 (£m)	CAPEX 2021 (£m)
	<i>Both vessels Rousay based</i>	<i>1 vessel Rousay based, 1-vessel Tingwall-based</i>
Rousay	£5.0	£4.8
Egilsay	£4.3	£4.3
Wyre	£3.2	£3.2
Tingwall	£3.4	£9.6
<b>Total</b>	<b>£15.9</b>	<b>£21.9</b>

- Vessel costs again subject to design, procurement and market conditions – anticipated **£8m-£10m** per vessel (**£16m-£20m** overall)
- Requirement for **3 additional crews**
  - 1 additional crew to operate Vessel 1 (the ‘shift-boat’ on a 16-18 hour day)
  - 2 additional crews to operate Vessel 2 on a ‘standard’ day (e.g 06:00-18:00)
  - Estimated net additional operating cost of circa **£1.1m** per annum
- Considerably lower capital cost to base both vessels in Rousay, but would be challenging to find three additional crews on Rousay
  - Alternative would be for crew to travel from mainland on ‘shift boat’ but this may be counted as ‘in-work’ time and reduce the operating day of the second vessel



# Preferred Option

- **Option 1 (1\*large vessel) - Replace MV *Eynhallow* with one larger vessel, combined with revenue measure to extend operating day – rationale as follows:**
- Solution would **address major concerns of REW communities:**
  - Provision of winter Sunday
  - Longer operating day
  - Increased vehicular Capacity
    - *Note - risk of smaller 10 PCU vessels being almost entirely filled by one standard commercial vehicle*
  - Drive through ferry
  - Improved passenger access
  - Whilst the increased frequency offered by two vessels would be welcomed, each sailing would have a lower capacity
- **Lower capital costs**
  - Difference between Options 1 (1\*large) and 2 (2\*small) is marginal if both vessels overnight in Rousay (both in the £30m-£35m region)
    - but deliverability issues in terms of local crew recruitment
    - Option 2 would cost £5m-£10m more if an overnight berth at Tingwall is required
- **Lower operating costs**
  - Option 1 (1\*large) has significantly lower operating costs – circa £800k per annum less
    - Whole life cost of Option 2 (2\*small vessels) therefore much greater
    - Also, potential requirement for an additional bus service to connect with the extra ferries
- No precedent of any island group with a population <300 having a two-vessel service



# Next Steps





# Next Steps

- Following the community engagement process, the Stantec, Mott MacDonald and OIC team will incorporate the findings and **finalise the OBC report in late Summer 2021**
- The OBC will report will be submitted to Scottish Government as part of the **Council 'ask' for funding**
- As discussions progress, the Commercial, Financial and Management Cases will be developed setting out how the preferred option will be funded, procured, delivered and managed
- If / when a position in principle can be reached on how the vessels and infrastructure will be funded, **detailed design** of both the vessels and infrastructure would commence.
- The completion of the **Final Business Case** would be undertaken at the point of procurement, updating the OBC to reflect final costs, procurement approach etc





# What to do next

- The boards you have just read provide some areas you may wish to feed back on, but we would be happy to hear any views that you have
- As a reminder, the feedback form can be found here:  
<https://forms.office.com/r/prUw9BUcrU>

- Any questions or comments for the study team can also be sent to [OIITS@stantec.com](mailto:OIITS@stantec.com)

**Thank you for taking the time to read this material**

