

# WELCOME

WORKING TO IMPROVE COASTAL RESILIENCY IN POINT HOPE



EA Engineering, Science,  
and Technology, Inc., PBC



AGVIQ  
AGVIQ ENVIRONMENTAL SERVICES



22

February 22, 2022

# Who We Are



Darrin Lawless

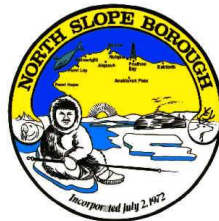


Taber Midgley  
Melissa Becker  
Sam Whitin  
Dan Walker  
Courtney Pijanowski



Lauren Bosche

# Other Project Partners



**Dredge  
Research  
Collaborative**



# With Us Today



Darrin  
Lawless



Taber  
Midgley



Melissa  
Becker



Sam  
Whitin



Dan  
Walker



Courtney  
Pijanowski




Lauren  
Bosche



# Working to Improve Coastal Resilience in Point Hope


- National Fish and Wildlife Foundation (NFWF) Grant awarded in 2021

## PROJECT GOALS

- Create a prioritized list of ***shoreline adaptation and resiliency projects*** in Point Hope
  - Develop preliminary designs for ***highest priority projects***
  - Lay the foundation for ***future funding for design and construction***
- 

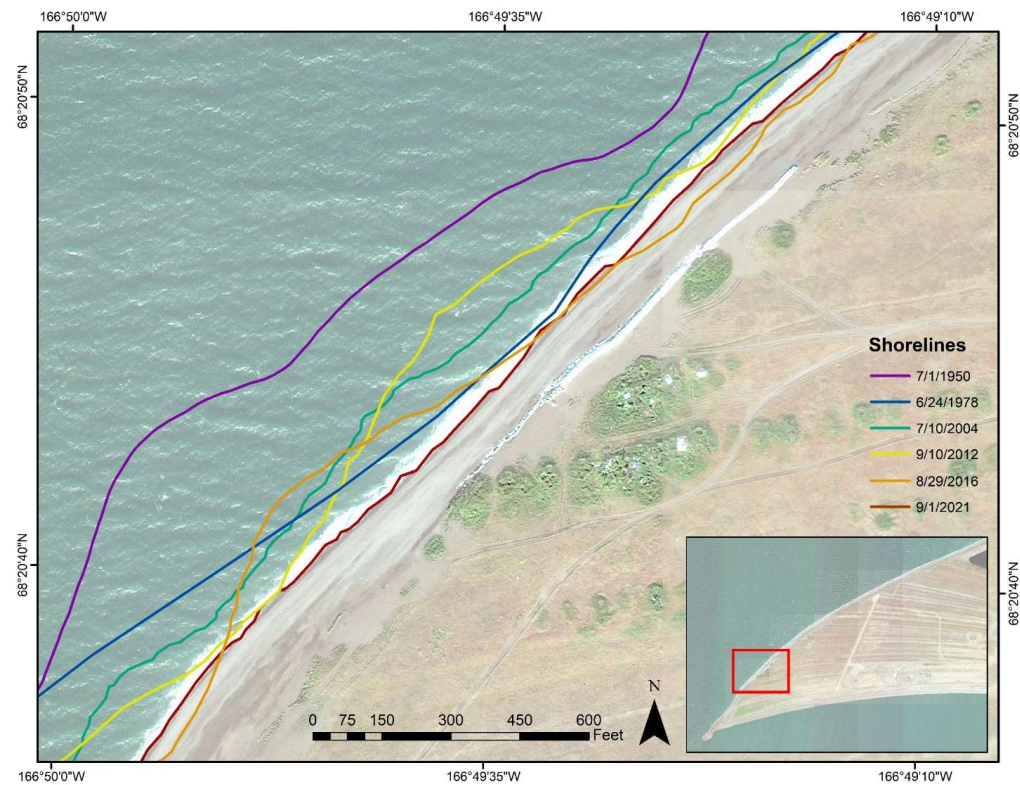
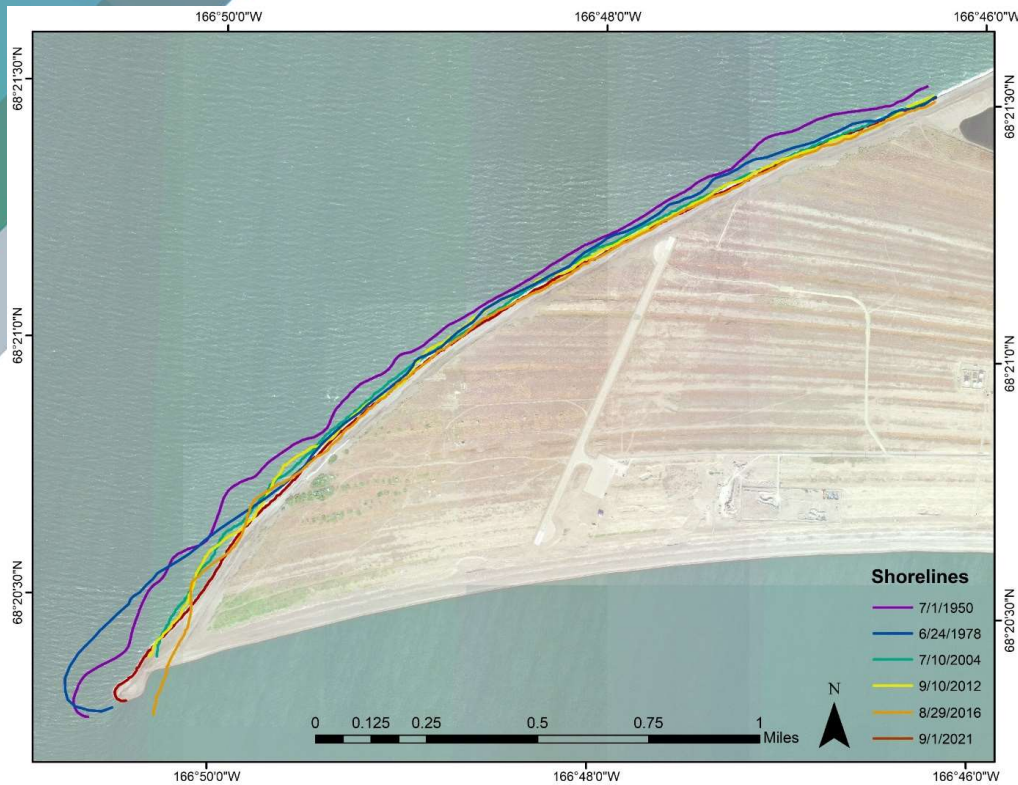


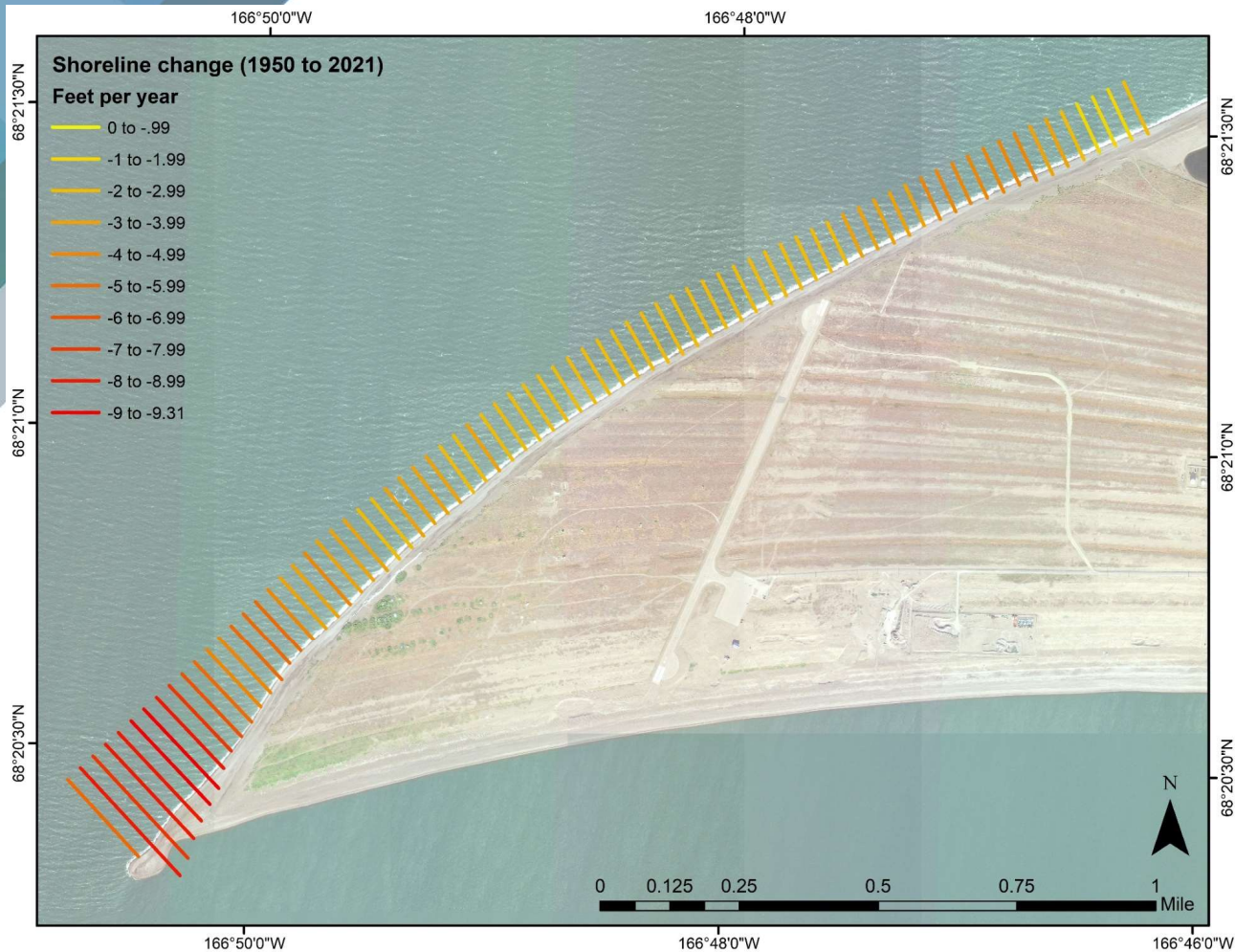
# What We've Done

- Identified community priorities
    - Preservation of Historic and Cultural Sites (North Shore Erosion)
    - Maintain and Improve Functionality of Sigluaqs
    - Reliability and Usability of 7-Mile Road
    - Safe Boat Access to Water
  - Conducted data collection and community involvement in July 2021
  - Developed several alternatives to address each of the four community priorities
- 



# Assessing shoreline change from 1950 to 2021





**We want to hear from you!**

*How do these findings compare with your experience?*

*How much shoreline change have you witnessed in your lifetime?*





**We want to hear from you!**

*What measures have been used along the coastline to slow erosion and/or reduce flooding?*





# What We Request

We need more information from you:

- Share your perspectives about what has worked and what has not worked in the past
- Tell us which alternatives will or will not work
- Share thoughts on what we missed and what we don't know



A

*COMMUNITY PRIORITY*

## Preservation of Cultural and Historic Sites (North Shore Erosion)

### CRITERION

- Slow or Prevent Erosion on the North Shore
- Protect Sigluaqs from Coastal Storm Waves and Storm Surge
- Provide Climate Change Resilience



A

*COMMUNITY PRIORITY*

## Preservation of Cultural and Historic Sites (North Shore Erosion)

### ALTERNATIVES

A1 | Artificial Dune Creation with Beach Nourishment

A2 | Dynamic Revetment

A3 | Dynamic Revetment with Artificial Dune Creation

A4 | Dynamic Revetment with Pilot Sigluaq

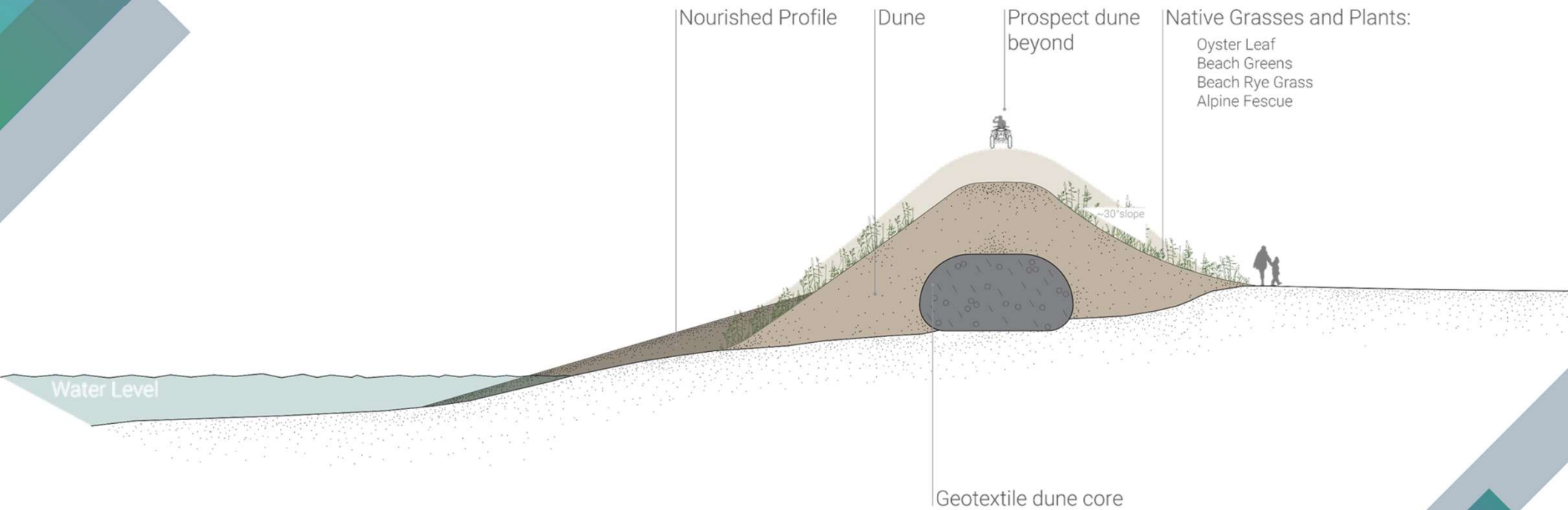
A5 | Cobble Motor

A6 | Rock Revetment



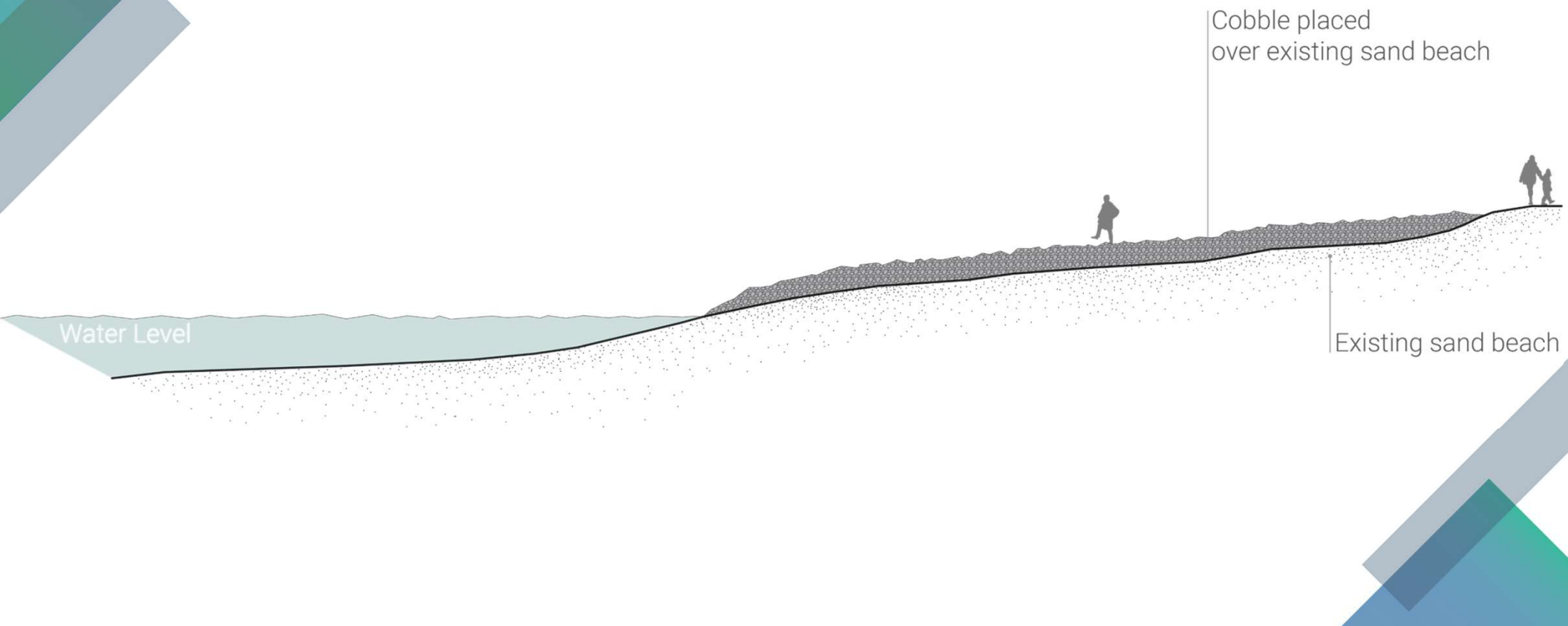
A1

# Artificial Dune Creation with Beach Nourishment



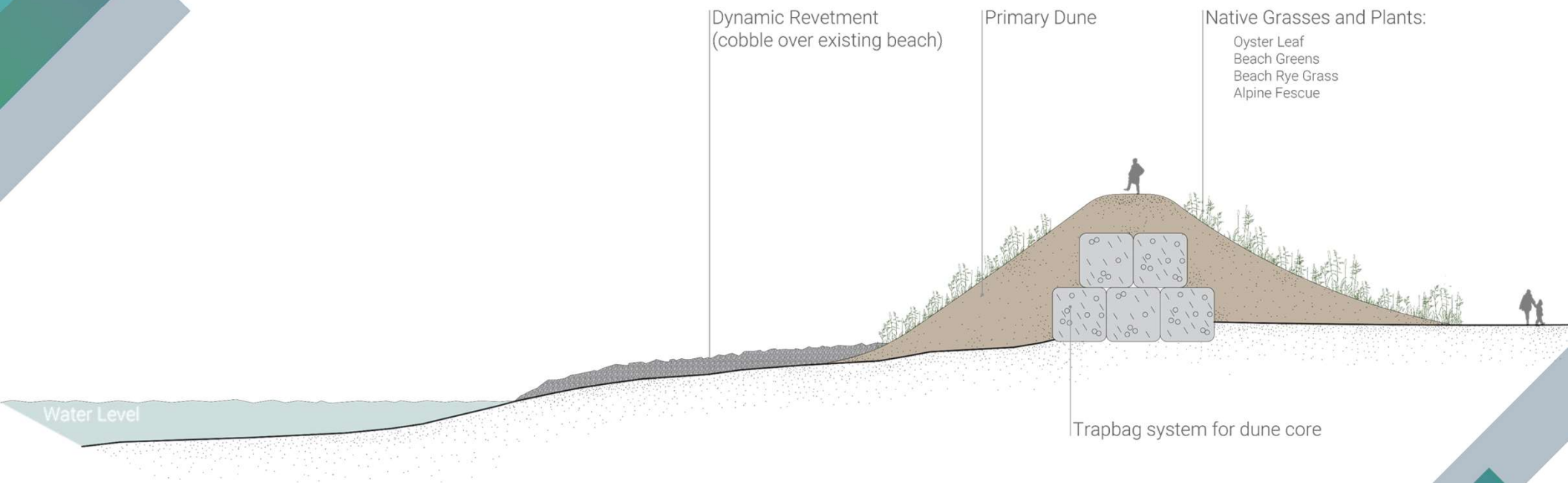
A2

# Dynamic Revetment



A3

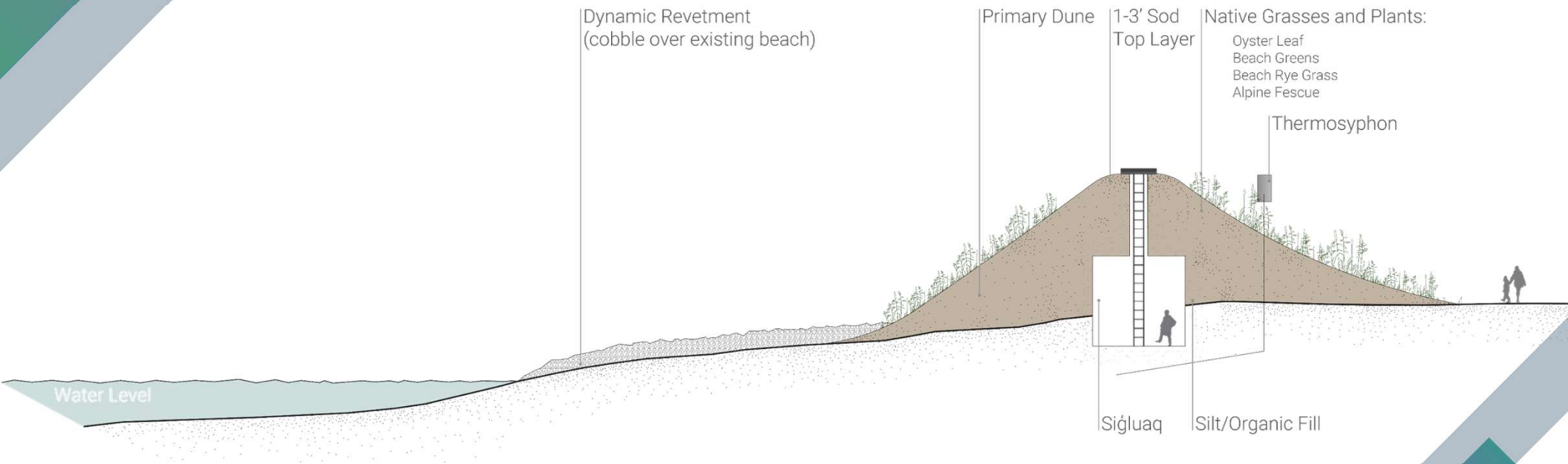
# Dynamic Revetment with Artificial Dune Creation







# Dynamic Revetment with Pilot Siglauq



A5

# Cobble Motor

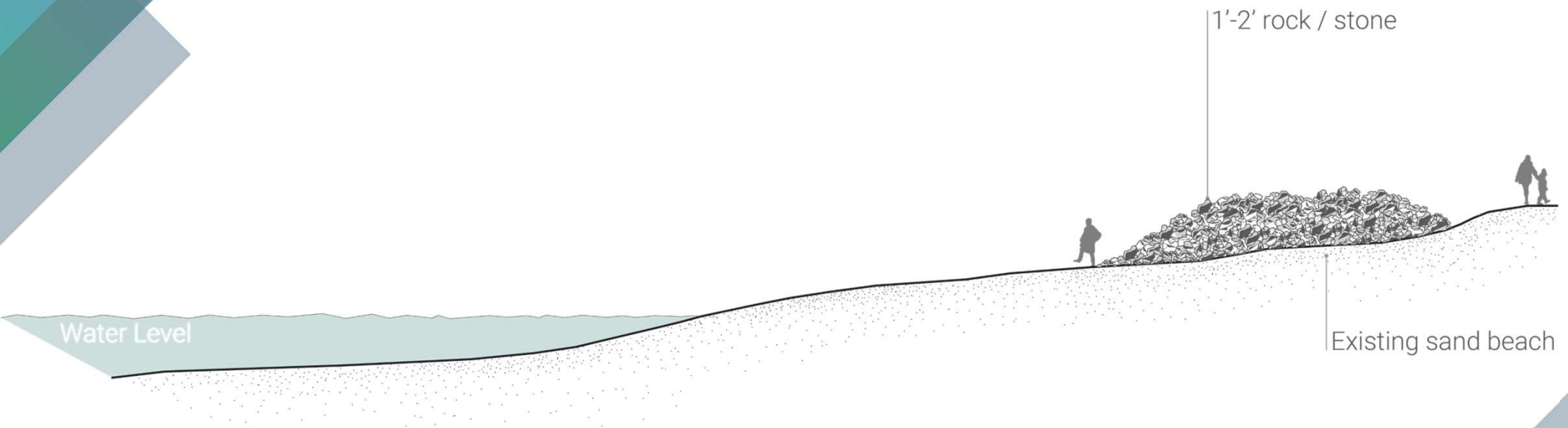
Single

Multiple



A6

# Rock Revetment







B

*COMMUNITY PRIORITY*

## Maintain and Improve Functionality of Sigluaqs

### CRITERION

- Maintain Adequate Temperatures for Meat Storage Year Round
- Provide Adequate Ventilation for Entry
- Maintain or Increase Permafrost Table Elevation



B

*COMMUNITY PRIORITY*

## Maintain and Improve Functionality of Siġluaqs

### ALTERNATIVES

B1 | Augment Existing Siġluaqs

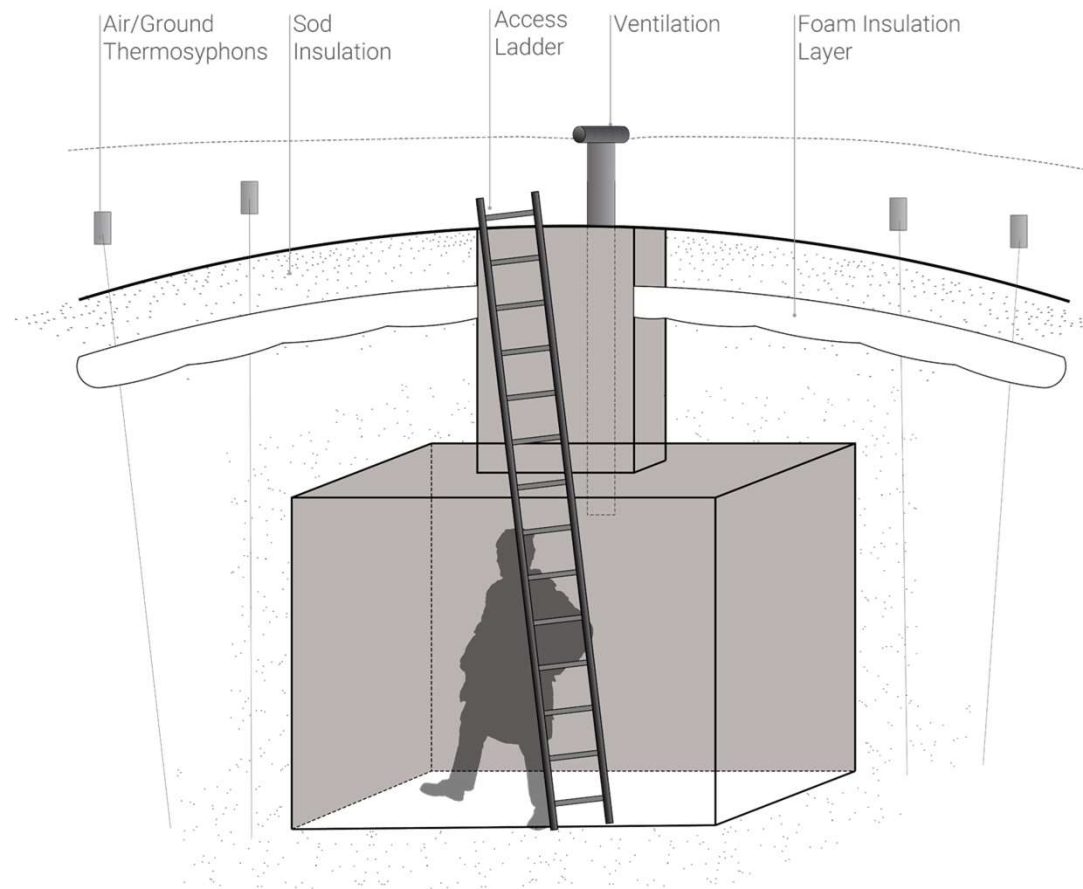
B2 | New Siġluaq Construction at Old Tikiġaq

B3 | New Siġluaq Construction at New Location



B1

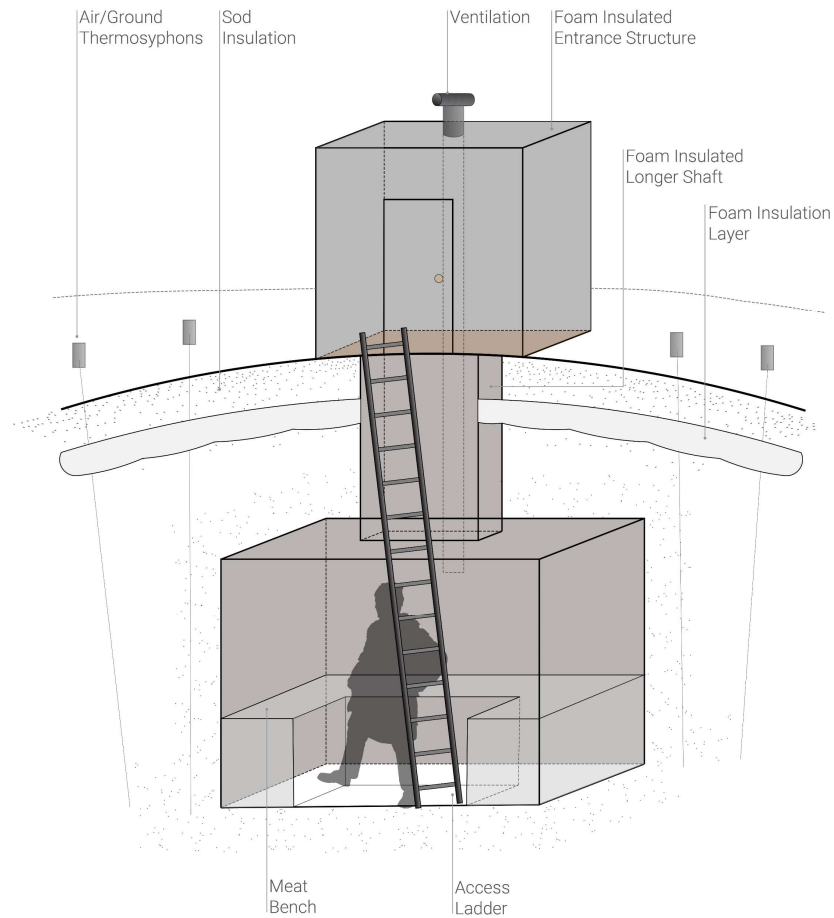
# Augment Existing Sigluaqs





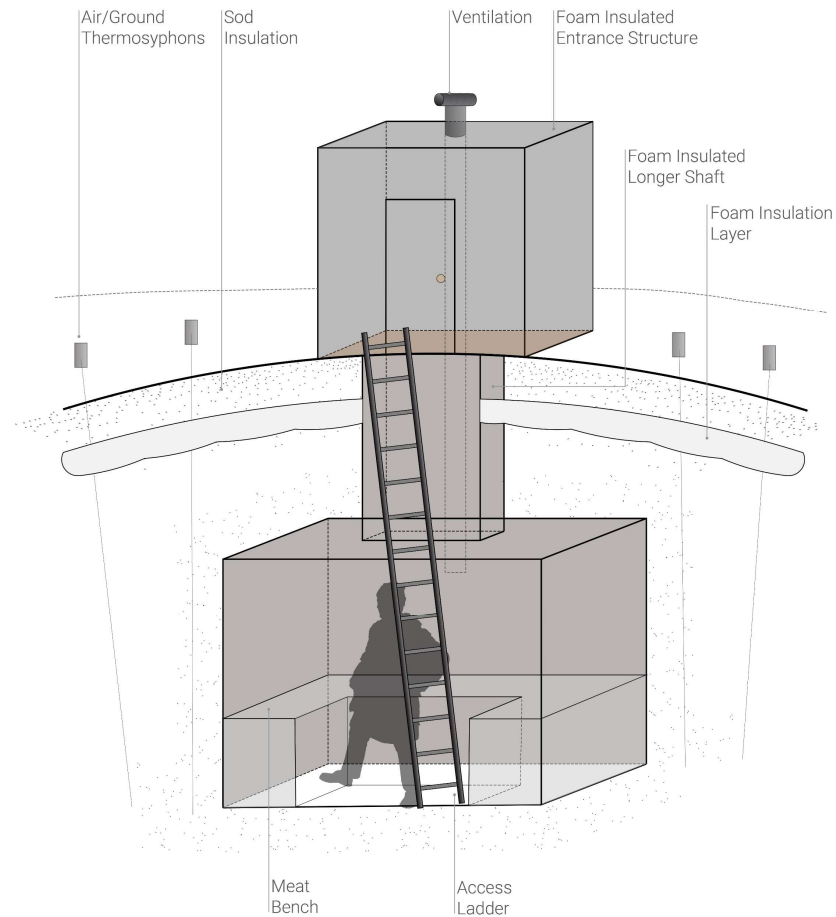
B2

# New Sigluaq Construction at Old Tikigaaq



B3

# New Sigluaq Construction at New Location





C

*COMMUNITY PRIORITY*

## Reliability and Usability of 7-Mile Road

### CRITERION

- Reliable Emergency Evacuation Route to Higher Ground
- Evacuation Staging Area
- Reduce Settlement due to Permafrost Thawing
- Provide Access to Potential Gravel Sources



C

*COMMUNITY PRIORITY*

## Reliability and Usability of 7-Mile Road

### ALTERNATIVES

C1 | Reconstruct Road Through Low-Lying Area

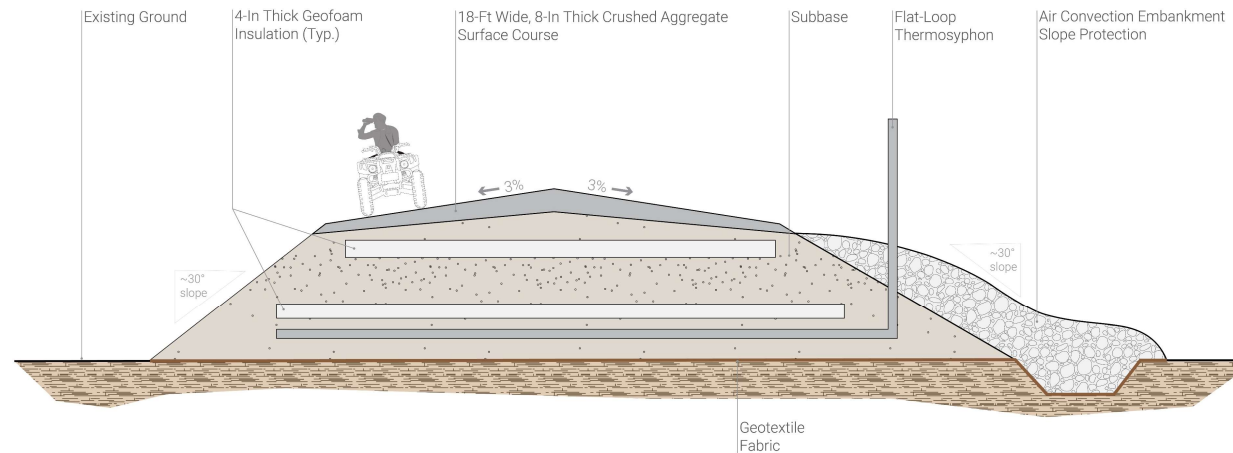
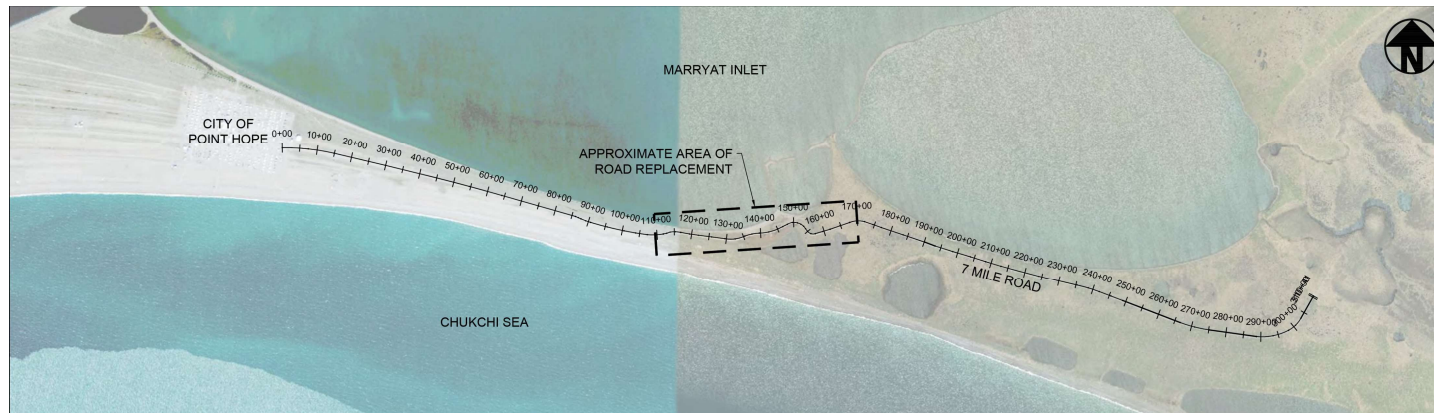
C2 | Reroute Road around Low-Lying Area

C3 | Construct Evacuation Pad

C4 | Extend Road to Kuukpuk River and Potential Gravel Source

C1

# Reconstruct Road Through Low-Lying Area





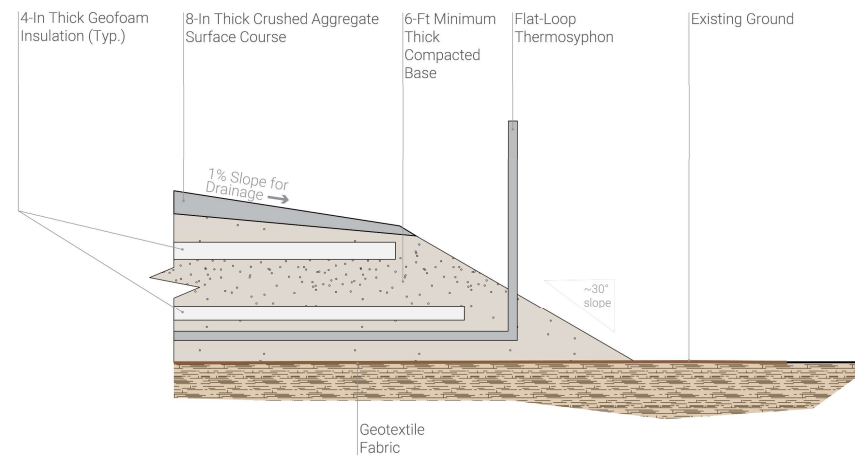
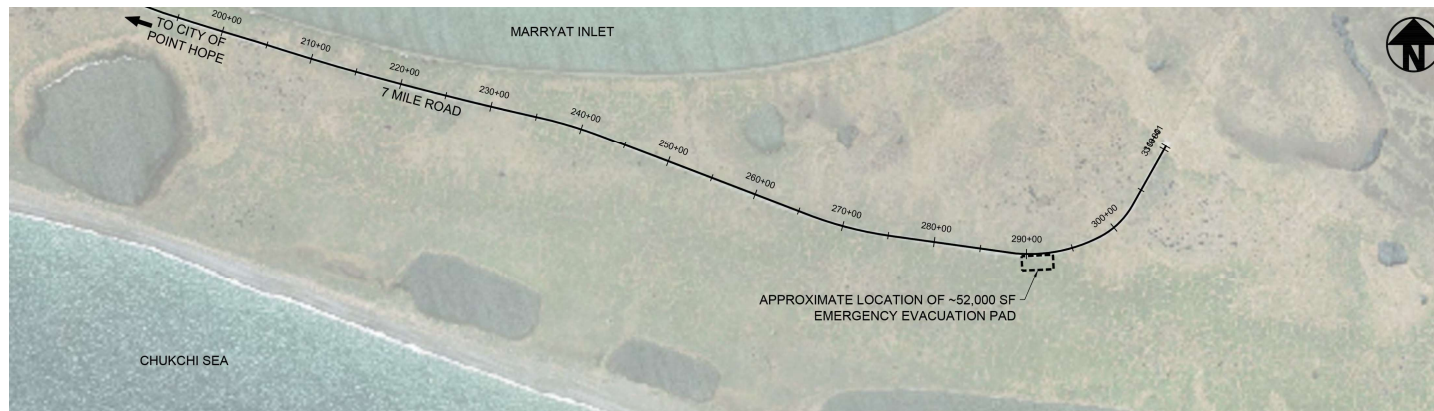
C2

## Reroute Road around Low-Lying Area



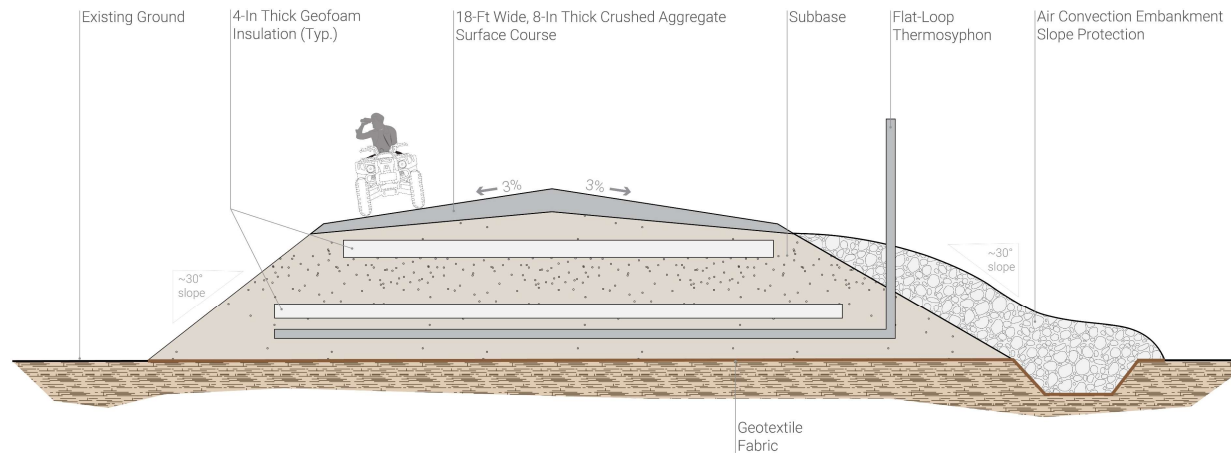
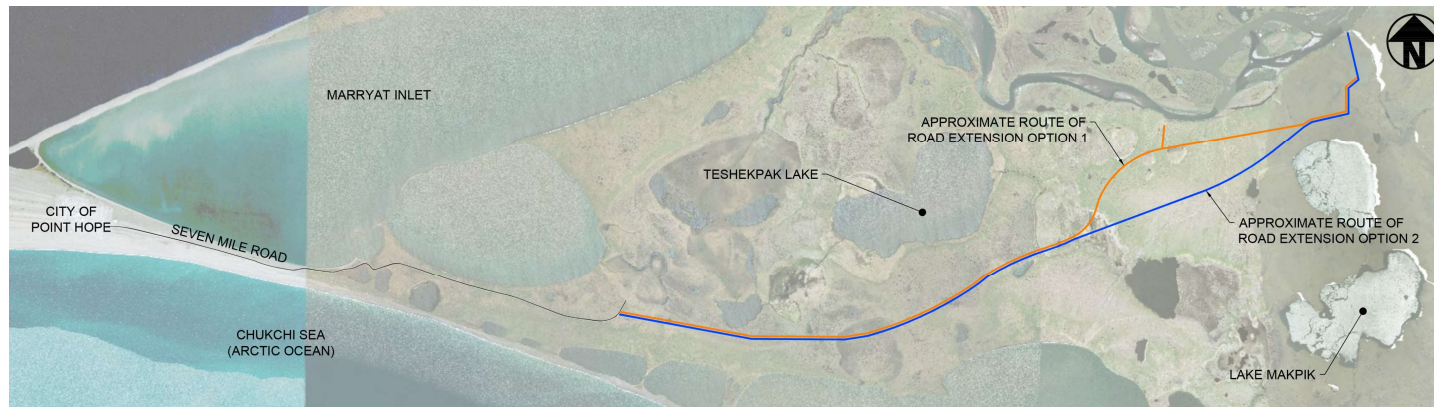
C3

# Construct Evacuation Pad



# C4

## Extend Road to Kuukpuk River and Potential Gravel Source





D

*COMMUNITY PRIORITY*

## Provide Safe Boat Access to Water

### CRITERION

- Provide Boat Access to Marryat Inlet or Chukchi Sea
- Support Larger Boats
- Prevent Damage by Sea Ice



D

*COMMUNITY PRIORITY*

## Provide Safe Boat Access to Water

### ALTERNATIVES

D1 | Permanent Concrete Boat Ramp on Marryat Inlet

D2 | Temporary Roll Out Ramp

D3 | Portable Tundra Mats

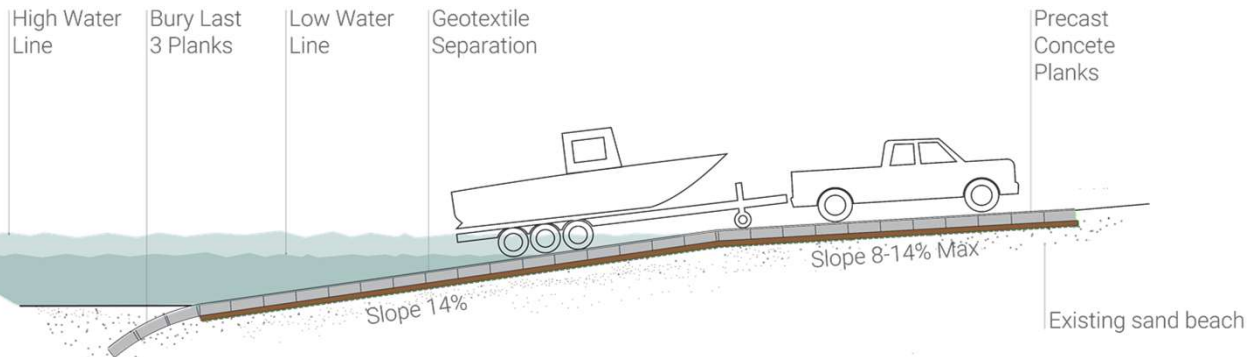
D4 | Dedicated Boat Launch Tractor





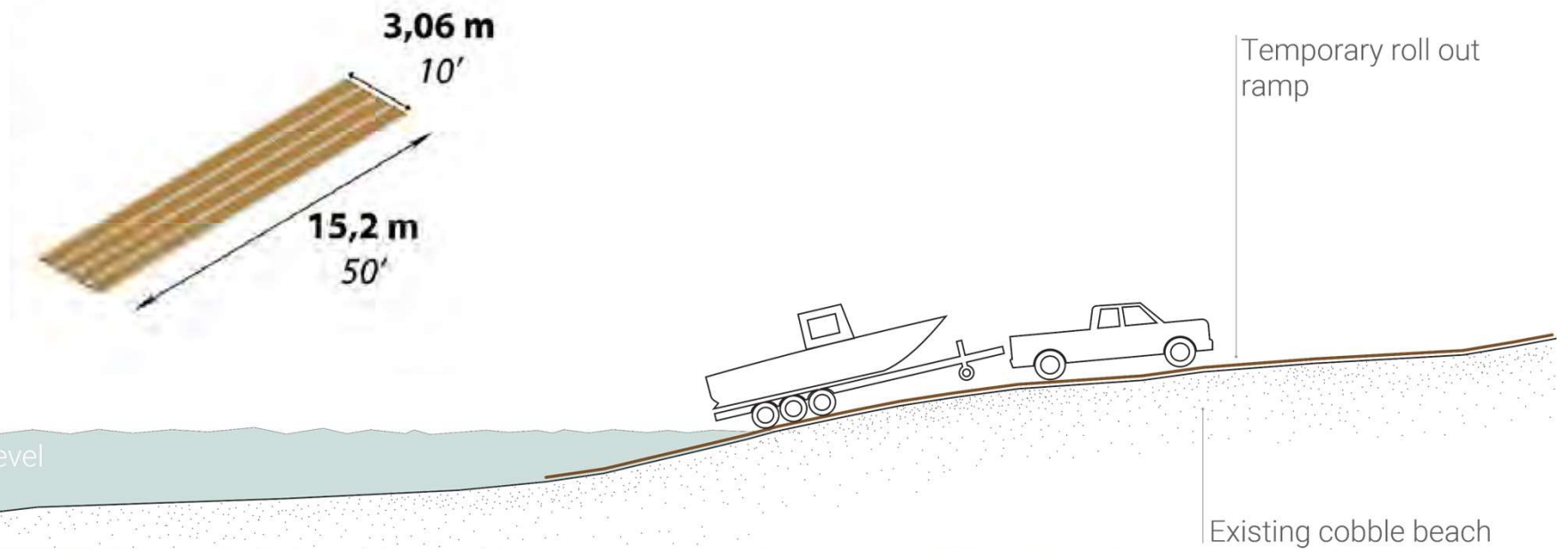
D1

# Permanent Concrete Boat Ramp on Marryat Inlet



D2

# Temporary Roll Out Ramp



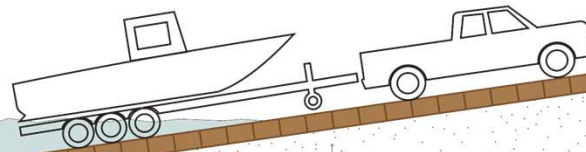
D3

# Portable Tundra Mats



Portable  
Tundra Mats

Water Level



Existing cobble beach

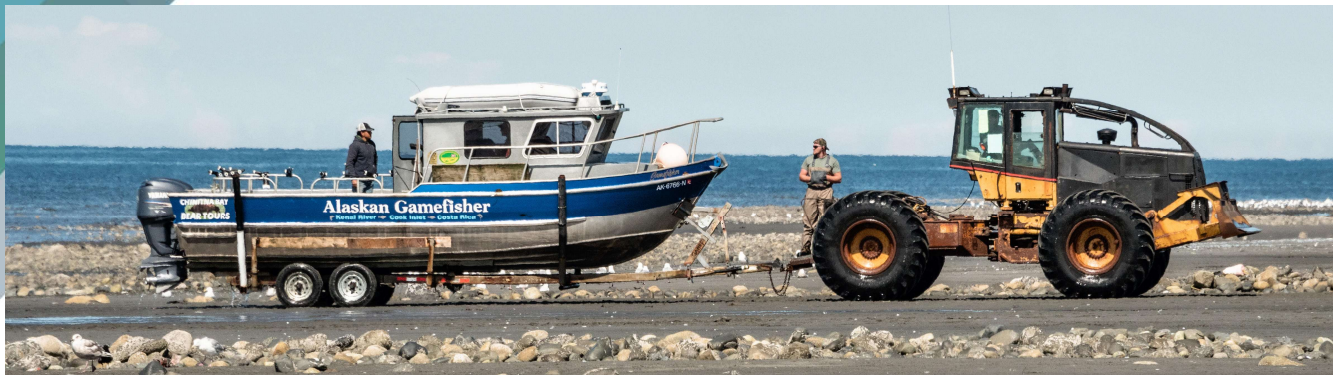
DIMENSIONS	AVG. # MATS PER LOAD	AVG. WEIGHT
4' X 12" X 20'	8 - 9	4,650 - 5,350 lbs.
4' X 12" X 30'	5 - 6	7,347 - 5,350 lbs.
4' X 12" X 40'	4	9,300 - 10,700 lbs.

NOTE: CUSTOM DIMENSIONS AVAILABLE

MATERIALS: Hardwoods

D4

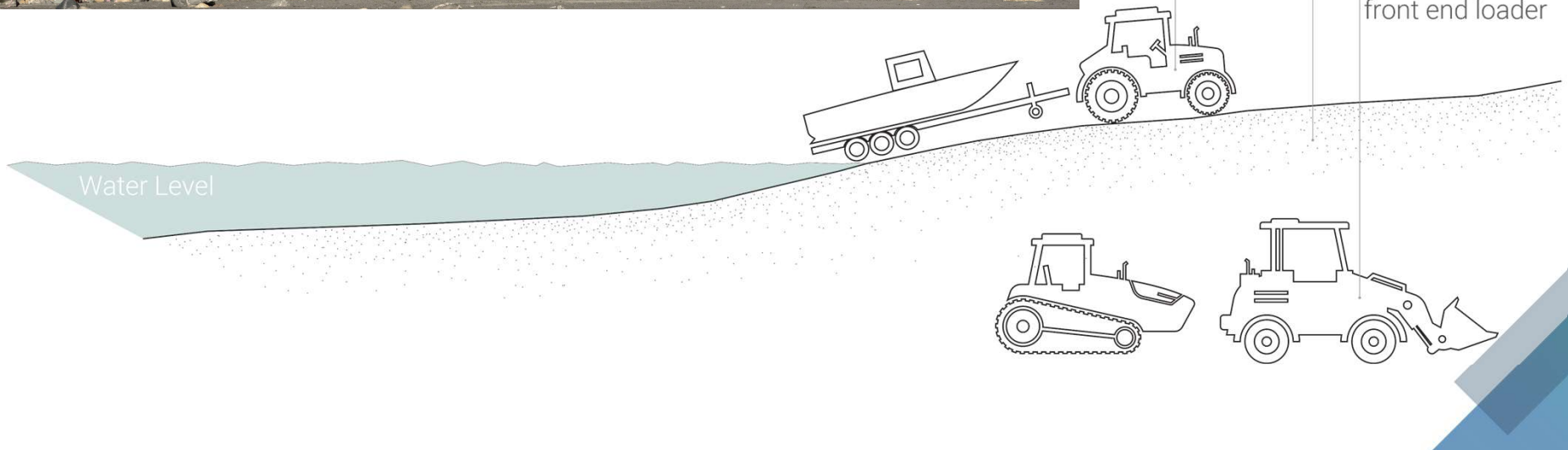
# Dedicated Boat Launch Tractor



Dedicated tractor

Existing cobble beach

Alternate options:  
tracked tractor or  
front end loader





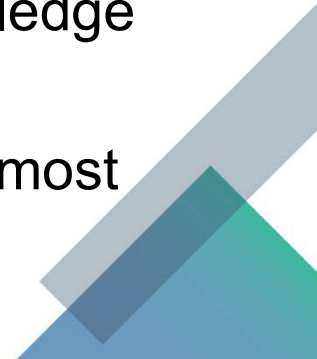


# Next Steps

## TODAY

- Vote for the alternatives you like
- Share more information about the priorities and alternatives
- Tell us what is important to you and what is not

## IN THE COMING WEEKS

- We will refine the alternatives based on the knowledge you will share with us today
  - We will prepare grant applications to support the most important priorities and most feasible alternatives
- 



# Thank You!

Contact Taber Midgley with questions or comments

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