

**Glen Isla Dune**

**Coastal Protection Project**

**Additional Construction Information**

**14 AUGUST 2024**

**Dear Glen Isla Place Neighbours,**

**Following our communication with you on 20<sup>th</sup> July 2024, we are writing to provide you additional information related to the proposed coastal protection project on the Glen Isla dune.**

In response to the 20<sup>th</sup> July document, we received queries from two neighbours and messages from others. Thank you all for your responses. The queries we received included:

- How the work would avoid vibration damage
- How will the predominately buried rock revetment appearance be maintained after storm events

As a result of the queries, we felt that there was some misunderstanding around the scope and location of the proposed construction works so we have provided additional information on the works and how we have worked closely with the project engineers and contractor to develop a methodology to mitigate any possible construction effects on neighbouring properties.

In our last correspondence we included a copy of the vibration test that was conducted on 9 July 2024 which showed that the vibration from the rock unloading at 35m will be **a small fraction of the industry standard allowable vibration** before damage could result. One neighbouring house is 77m from our rock unloading area and the rest are over 100m or more away.

In addition to this, the key construction methodology areas that we have focused on are :

1. Understand the construction methodology used in the 2010/11 Western Bay of Plenty District Council's Erosion Protection project at The Loop, Shaw Rd etc. and the proximity of this works to neighbouring Glen Isla houses, which caused **reports of damage**.
2. Understand the methodology used for the 2023 protective rock wall construction in Three Mile Creek in front of 7 and 5 Glen Isla Place and the proximity of the works to neighbouring houses, which caused **no reports of damage**.
3. How the location of our project distances the build process from the neighbouring (non-beach front) houses and **how can we go further than the 2023 methodology to further reduce the chance of any damage**.

**The following provides further information on how our project addresses these matters.**

# Construction Effects Background

## 2010/11 Construction Work Reports of Damage

As outlined in our 20 August 2024 Glen Isla Dune Coastal Protection Project introduction document, we are aware of reports of damage including at No. 7 Glen Isla Place resulting from the 2010 – 2011 works.

The likely cause of that damage was from:

- Firstly, the unloading of rocks from the delivering truck onto a stockpile on the grass of the Three Mile Creek Reserve across from no.7
- Secondly, the trafficking, over a long period of time, of the Three Mile Creek Reserve opposite no.7 by two heavy excavators (most likely on caterpillar tracks without suspension) possibly carrying a single rock at a time from the Three Mile Creek stockpile to the sea wall work area at The Loop etc. **Please refer over to attached Addendum A** for the proximity of rock stockpile and operating equipment to Glen Isla Place houses during the 2010/11 Construction Work.

## 2023 Construction Work No Reports of Damage

We are also aware of the recently completed 2023 works to construct the protective rock wall in front of No's 7 and 5 Glen Isla Place at some 35m from No.7. We are not aware of any reports of damage to the adjoining properties (and nor is the contractor who performed the work) arising from that work, despite these works occurring much closer to No.7 than the 2010/11 works, and that rocks being delivered for the 2023 job were dropped into Three Mile Creek from a significant height off the Northern Bank of the creek.

Taking this experience into account, we decided at the beginning of our process that we would seek to adopt a different methodology than 2010/11 to address those concerns. **Please refer over to attached Addendum B** for the proximity of rock unloading and operating equipment to the Glen Isla Place houses during the 2023 Construction Work.

# Construction Effects Mitigation Adopted in Our Proposed Methodology

## 1. Avoid excavators driving over the Three Mile Creek reserve opposite No. 1, 3, 5 and 7

Our excavators will be brought to site on a transport truck which will back down toward the beach. The excavators will then unload and move seaward around the Three Mile Creek sandbag groynes, and up to the beach work area in front of the Glen Isla dune.

Excavators would then remain at the project work area until the project is finished and be removed through the same process in reverse.

The equipment to be used and its delivery methodology to the site is the same that has regularly been used by Beach Contractors about 12 times a year, for more than 12 years in undertaking dredging of Three Mile Creek. Neither Beach Contractors nor the owners I have talked to are aware of any claimed vibration or damage resulting from Beach Contractor's activity using this same excavation equipment and methodology.

## 2. Minimise the effect of rock transportation to the work area

We propose to use the same equipment that delivered the rocks to Three Mile Creek during the 2023 works which is a road legal pneumatic wheeled tractor and trailer unit, to transport rocks from the quarry to out in front of our proposed work area, on the upper reaches of the beach.

We are using the same trailer load weight as the 2023 works, which is limited by the capacity of the trailer.

One material difference however is that in our case the rocks will only be dropping from the 1.5m trailer height, not the circa 4m of the combined trailer height, the height of the creek bank and the depth of the creek used in the 2023 Three Mile Creek rock wall protection project. Our rocks will also be unloaded onto soft sand.

Another material difference is that the closest location of our proposed rock unloading areas are significantly further away from the neighbouring houses than the location of the rock unloading in both 2010/11 and 2023. **Please refer to attached Addendums C, D, E.**

## 3. Minimise excavator transportation of rocks

We are seeking to add further mitigation beyond the 2023 works, in the Northern part of our project, with the use of a small Marooka tracked vehicle which will lift rocks from the unloading area on the upper beach and transport these to the excavator which will be digging and placing the rocks at the work front. This minimizes the need for the much heavier excavators to move carrying a load back and forward along the work area.

The effect of the excavator operating will be further mitigated due to the work area being substantially further away from neighboring houses than the 2023 works. **Again, please refer to attached Addendum C.**

**2010/2011 THE LOOP WALL  
INDICATIVE CONSTRUCTION METHODOLOGY AND  
PROXIMITY TO RESIDENCES**

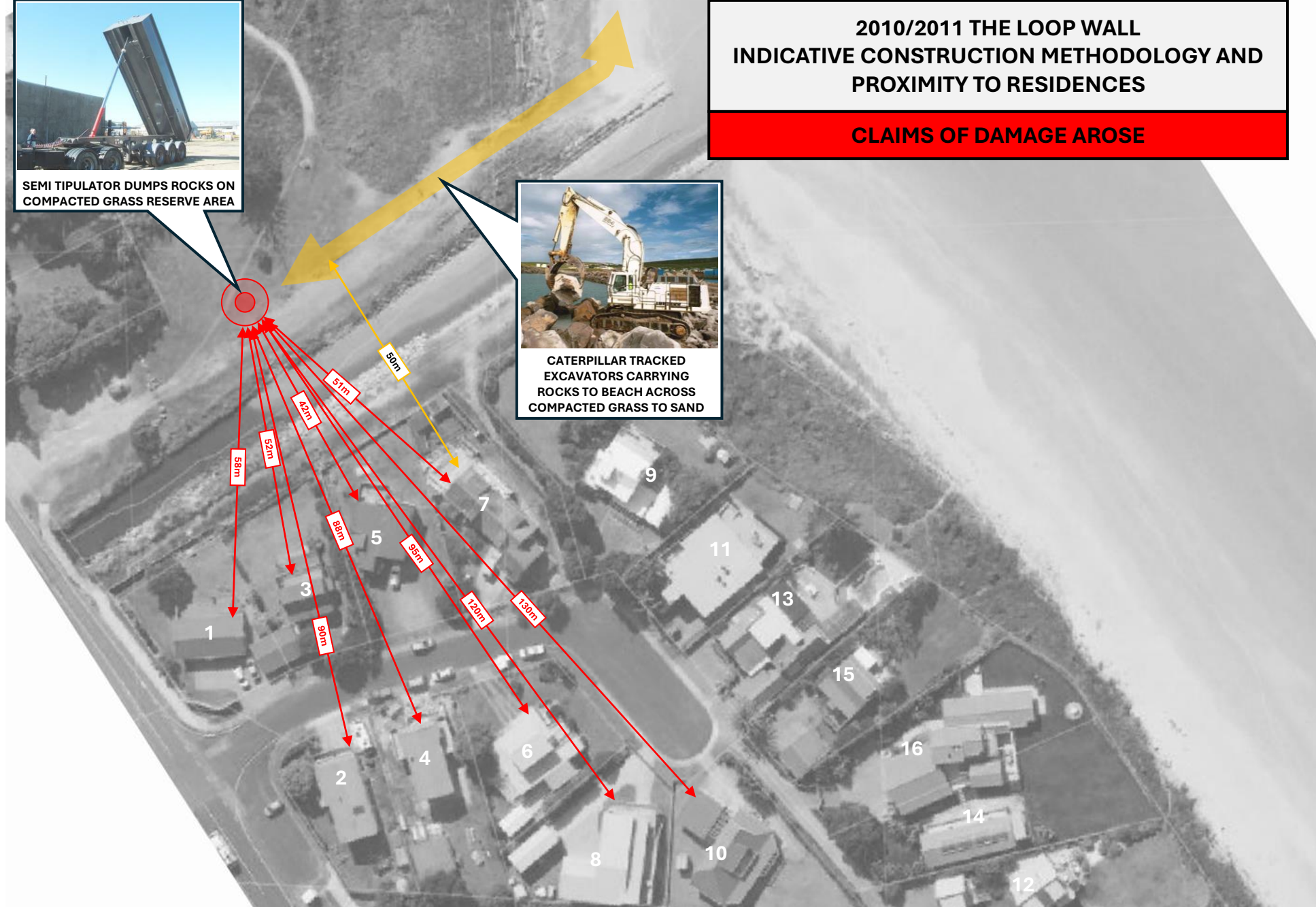
**CLAIMS OF DAMAGE AROSE**



**SEMI TIPULATOR DUMPS ROCKS ON  
COMPACTED GRASS RESERVE AREA**



**CATERPILLAR TRACKED  
EXCAVATORS CARRYING  
ROCKS TO BEACH ACROSS  
COMPACTED GRASS TO SAND**



**ADDENDUM A**

**2010/11 Indicative Methodology Illustration**

Note: images examples only of indicative equipment, not photos of actual equipment used



**2023 THREE MILE CREEK PROTECTIVE ROCK WALL  
INDICATIVE CONSTRUCTION METHODOLOGY AND  
PROXIMITY TO RESIDENCES**

**NO REPORTS OF DAMAGE**



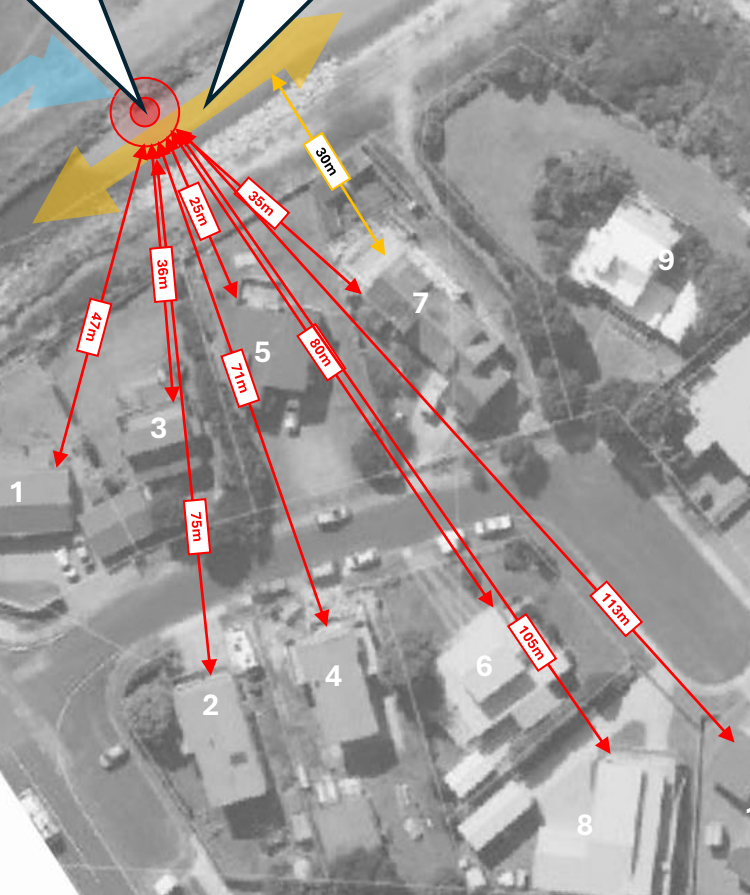
**PNEUMATIC TRACTOR/TIPULATOR  
DUMPS ROCKS FROM RESERVE  
DOWN CIRCA 4m INTO CREEK BED**



**CATERPILLAR TRACKED  
EXCAVATORS MOVING ALONG  
CREEK PLACING ROCKS TO WALL**



**PNEUMATIC WHEELED TRACTOR  
AND TRAILER DELIVER ROCKS TO  
THE BEACH FRONT WORK AREA**



**ADDENDUM B**

**2023 Indicative Methodology Illustration**

Note: images examples only of indicative equipment, not photos of actual equipment used



PNEUMATIC WHEELED TRACTOR AND TRAILER DELIVER ROCKS TO THE BEACH FRONT WORK AREA



CATERPILLAR TRACKED EXCAVATOR EXCAVATING SAND AND PLACING ROCKS

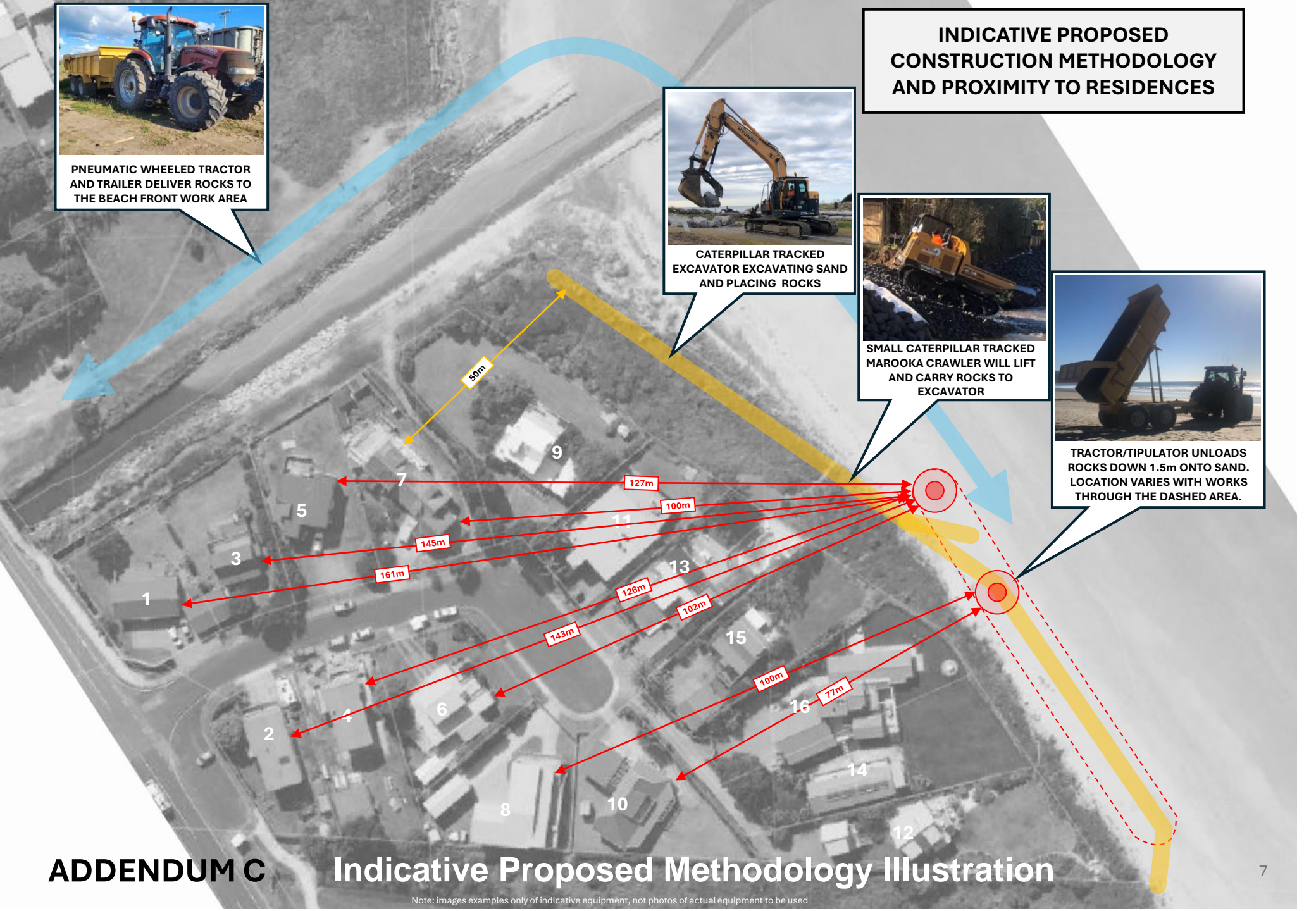


SMALL CATERPILLAR TRACKED MAROOKA CRAWLER WILL LIFT AND CARRY ROCKS TO EXCAVATOR

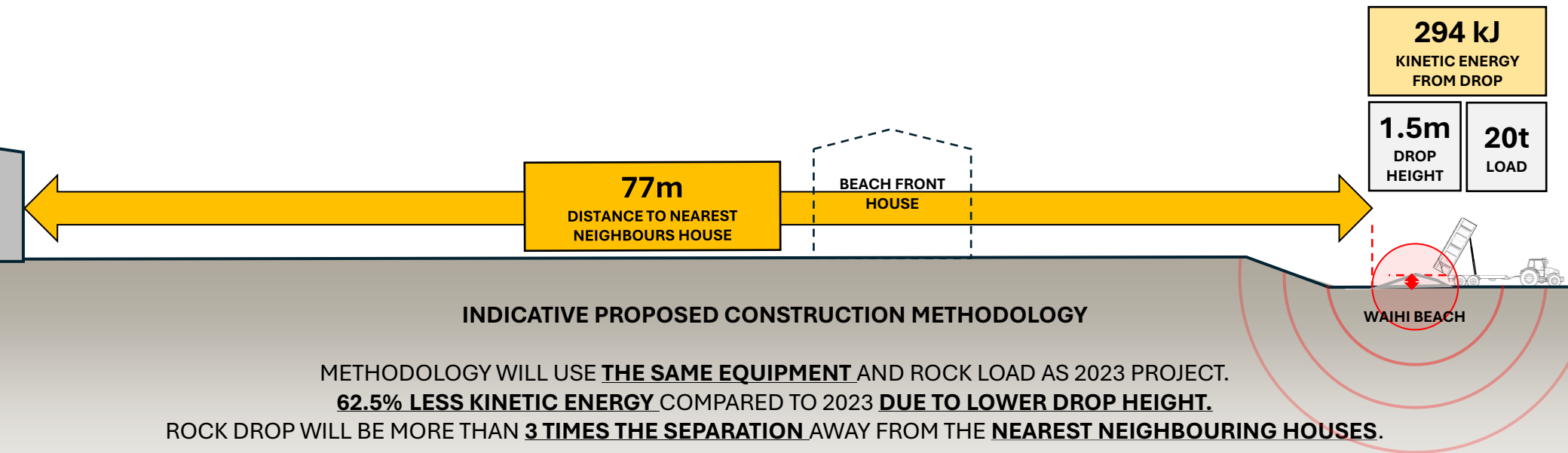
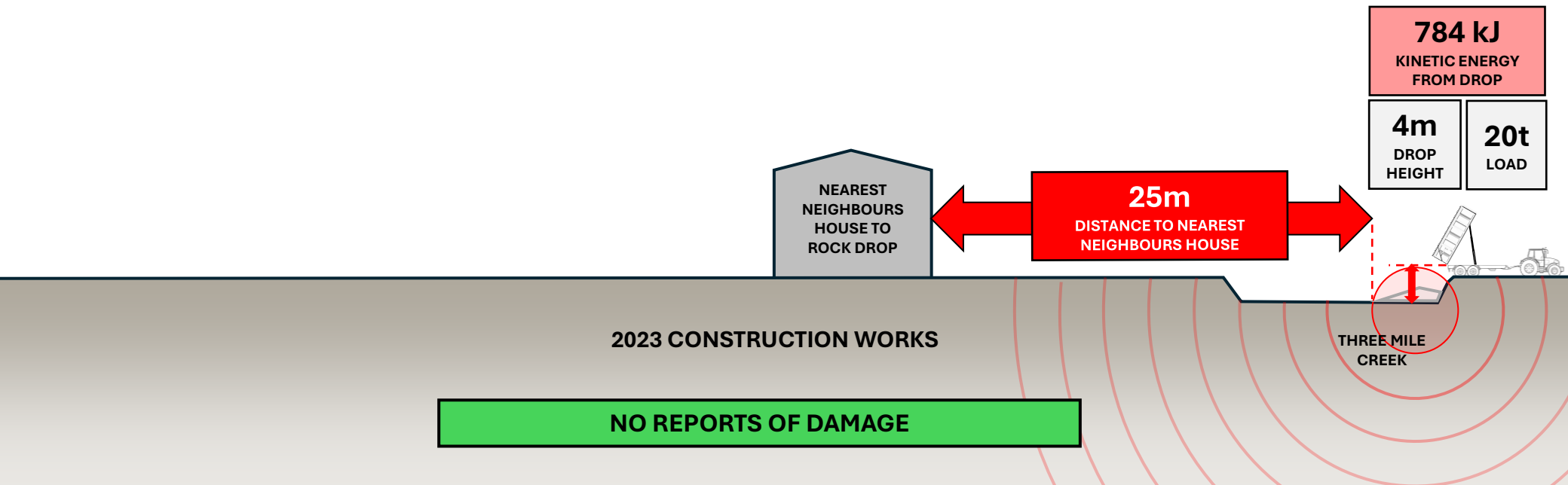


TRACTOR/TIPULATOR UNLOADS ROCKS DOWN 1.5m ONTO SAND. LOCATION VARIES WITH WORKS THROUGH THE DASHED AREA.

# INDICATIVE PROPOSED CONSTRUCTION METHODOLOGY AND PROXIMITY TO RESIDENCES

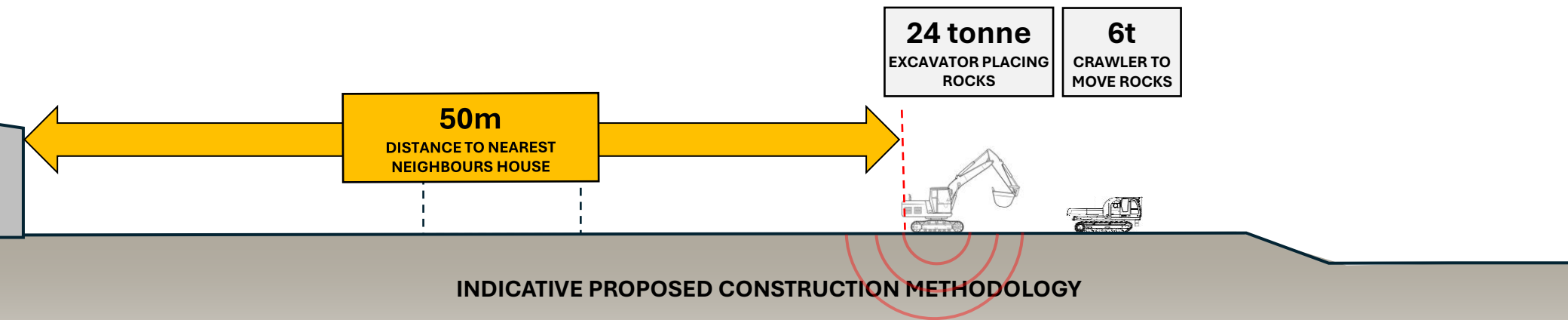
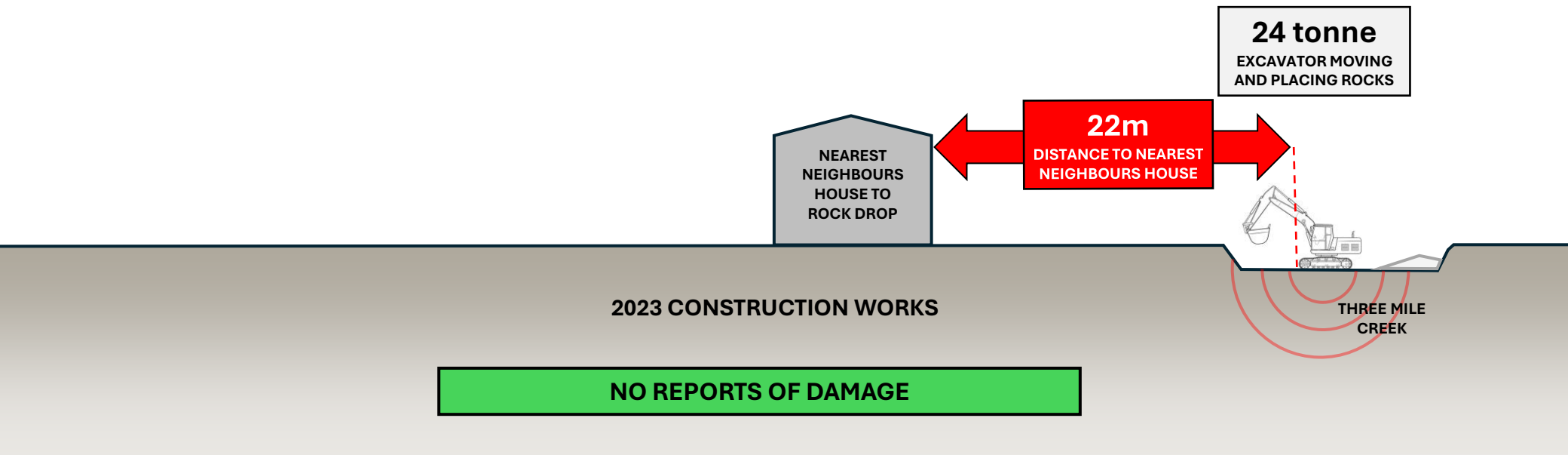






## ADDENDUM D Indicative Section from Rock Drop to Nearest Neighbouring House





METHODOLOGY WILL USE **THE SAME EXCAVATOR EQUIPMENT** AS BOTH 2023 AND MONTHLY THREE MILE CREEK DREDGING. ROCK MOVEMENT TO WORK FRONT PROPOSED BY **A 6 TONNE CRAWLER (75% LESS WEIGHT THAN EXCAVATOR)** TO LIMIT EXCAVATOR MOVEMENT. OUR PROPOSED EXCAVATOR ACTIVITY WILL BE MORE THAN **2 TIMES THE SEPARATION AWAY FROM THE NEAREST NEIGHBOURING HOUSES.**

## ADDENDUM E Indicative Section of Excavator Working to Nearest Neighbouring House

# Dune face replenishment

At completion of the works the structure will be backfilled and covered with sand plus BioCoir or similar Coconut Matting to keep the sand from wind loss, and finally planting. If the dune were to retreat to the maximum extent of its past retreat (which occurred during 2023), the structure would remain 'mostly hidden'. Any Rocks exposed will look tidy, not the shambles we all saw after Gabrielle – refer top row of photos below. Our expectation is that, if rocks are exposed, they would be recovered again through natural processes as the dune rebuilds between storm events, although of course, that depends on natural processes beyond our control. By way of example, the images below show approximate comparison of the natural accretion of sand back onto the Glen Isla Dune following Gabrielle and Hale cyclone damage.

FEBRUARY 2023



FEBRUARY 2023



FEBRUARY 2023



JULY 2024



JULY 2024



JULY 2024



# Summary

## **In summary, the proposed Glen Isla Dune Protection Project will:**

- Provide ongoing protection and rehabilitation of the Dune, including erosion protection, ecological security, replacement of much exotic vegetation species with indigenous sand trapping species, reestablish bird life.
- Provide a barrier between the greater Glen Isla subdivision and the sea which will assist all properties with matters such as resilience, current and future Insurance considerations, localised reputation, real estate values and resale liquidity etc.
- Be achieved without cost to the ratepayers or any of the neighbouring properties.
- Have insurances in place to cover the project and potential effects of the project

## **The design of the wall will:**

- Be covered in sand other than after significant storm events, but will soon naturally be re-covered as has occurred since 2023
- Allow for possible sea level rise as part of the calculations
- Provide a barrier to possible increased bad weather events, courtesy of climate change
- Not hold water on the land-side, the wall will be permeable to rainwater draining to the sea
- Provide for end-plate effects

## **The construction of the wall will:**

- Use the same equipment and load weight as the 2023 works to Three Mile Creek from which there were no reports of damage
- Drop the load from around 1/3 of the height that the 2023 load was dropped
- Drop the load more than 2 times further away from the nearest neighbour's house than occurred in 2023
- Use a light-weight crawler machine to transport rocks to the work-front where the excavator is not able to reach the drop point to avoid the need for the excavator to move around the work area more than needed to dig and place the rocks