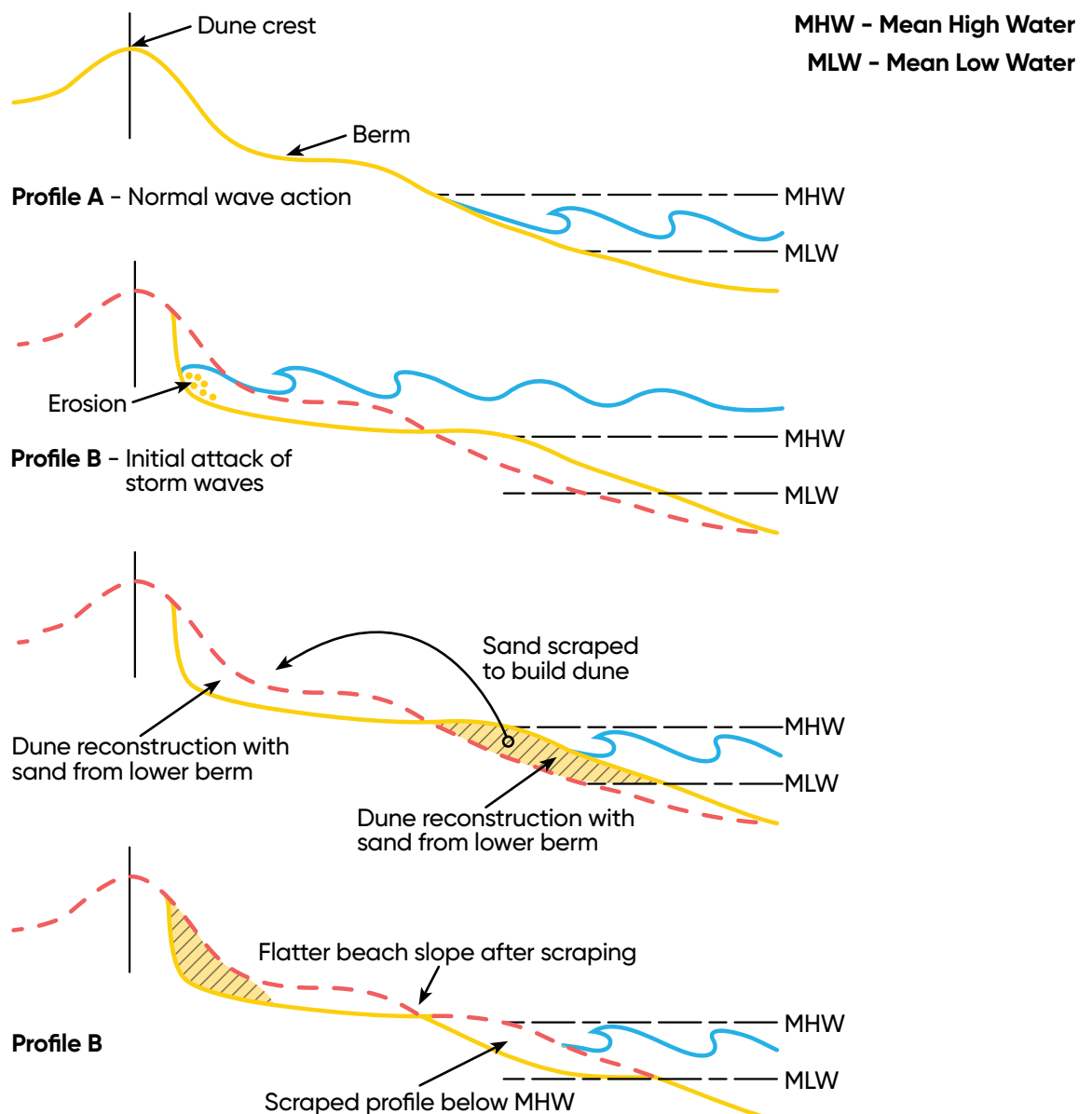


Stockton Beach Scraping

Beach Scraping

Beach scraping, also termed 'Nature Assisted Beach Enhancement' (NABE), or sand scraping, is the mechanical process of scraping sand from the lower part of the beach and depositing it landward of the beach berm to create a flatter nearshore profile. Beach scraping mimics the natural beach recovery process but increases the recovery rate compared with natural processes.



Stockton Beach

City of Newcastle (CN) undertakes a regular program of beach scraping at Stockton Beach. Beach scraping provides a valuable and readily available means of achieving an increase in local dune resilience. Beach Scraping is considered an important part of our coastal management activities prior to the delivery of mass sand nourishment which is identified as the preferred coastal management scheme in the Stockton Coastal Management Program (CMP) 2020.

Over warmer months, when weather is typically calmer, CN will conduct beach scraping on an almost monthly basis at Stockton Beach. Details of when CN conducts beach scraping are included in the monthly **Stockton Works Update**, published on the CN website and distributed to the Stockton community. While the physical act of beach scraping may seem simplistic, it is important to understand that there are environmental considerations and logistical challenges that need to be managed ahead of getting machinery on the beach.

1. Planning a beach scraping campaign

There are areas of Stockton beach that are well suited to beach scraping. These areas are typically characterised by wider beach frontages, well established dune vegetation and healthy dune volume to act as a buffer to erosion in case of unfavourable weather conditions.

Conversely, there are areas where it is not recommended that beach scraping occur. These areas are typically where the beach width might be narrower, dunes less established or infrastructure assets may be located. These areas may be particularly vulnerable if conditions do not allow for timely beach recovery following the beach scraping works.

CN continually monitors the beach via survey methodologies such as photogrammetry analysis to quantify the longevity of previous sand scraping events and to validate identified opportunities for the next round of beach scraping.

Coordinating a survey requires CN's drone pilots and survey technicians to be available at an appropriate low tide in suitably calm weather conditions. Data from the survey is processed and analysed to identify the most beneficial location for beach scraping.

A key consideration in planning a beach scraping campaign is whether suitable quantities of sand have been naturally accreted from the previous scraping round or since an erosion event. In periods of significant erosion or damaging swell it is unlikely that there are suitable quantities of sand on the beach to safely conduct beach scraping without adverse environmental impacts. These preliminary planning activities can take up to two weeks.

Both monitoring and scraping activities are highly sensitive to environmental conditions including tide height, swell, wind, and rain. This means, on occasion, due to site safety or equipment capability, components of the planning and preparation work need to be postponed at the last minute which results in planning and preparation moving back to needing to start all over again.

There may be several calm days when it appears to be perfect conditions for beach scraping activity to occur however sometimes due to the impact of unfavourable conditions in the planning stage, planning has not progressed enough to enable the commencement of a beach scraping campaign and these steps are a prerequisite to commencing beach scraping. Beach scraping, like any environmental activity, needs to be done in a considerate and proactive way, and not reactively on short notice.



2. Timing of a beach scraping campaign

The timing of beach scraping activities is an important aspect influencing the potential success of the work. The timing of scraping needs to account for several factors, including:

- Seasonal variation in coastal processes and resulting beach profile fluctuations
- Potential threats to resident beach fauna (ie. nesting birds and intertidal species)
- Seasonality in beach usage and access
- Favourable conditions for dune vegetation planting

Tidal movements are a key consideration when planning a beach scraping campaign. Optimum tidal opportunities, that allow beach scraping of the largest possible area, do not occur often and are even rarer when coinciding with calm sea conditions.

3. Environmental considerations

CN is committed to acting in an environmentally considerate way which means that the physical volume of sand available in a sand scraping campaign may not be as large as many would like or anticipate.

There are limitations on the area available for beach scraping and therefore the volume of sand. For example, the beach can only be scraped above 1.3m AHD (AHD is the mean high-water mark + median wave run-up) to allow sand to be effectively naturally replenished following beach scraping work.

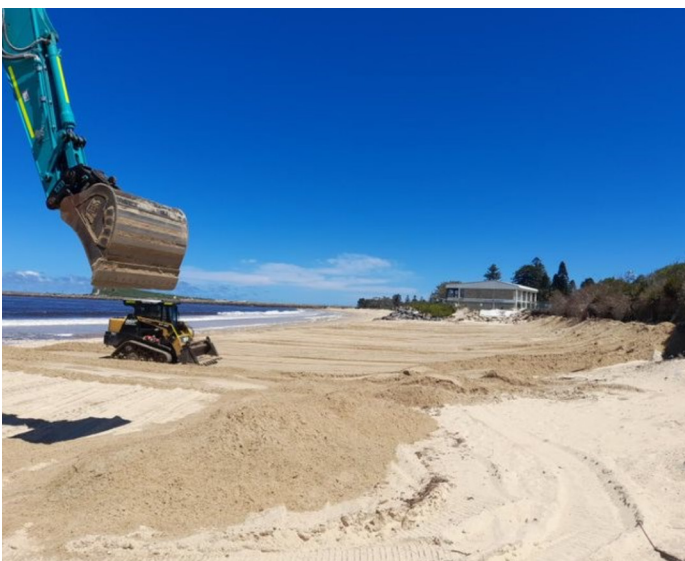
This represents the landward limit of the scraping 'win' area. The seaward scraping extent is dependent on local tides hence the importance of extremely low tides to maximise the area available to win quantity. It is also recommended that sand is only scraped at a depth of 0.2m to protect benthic fauna.

These local environmental constraints are the determining factors in the available quantity of sand that can be won in any given area. Working within this environmental framework still provides opportunity for significant increase in both amenity and resilience from beach scraping activities, while protecting our local environment and its processes.

4. Impact to the community

Beach scraping may cause some disruption to local businesses and the community. CN teams are often required to move people off the beach during good weather and recreational time to undertake beach scraping activities.

CN is always mindful of the indirect impact this work has on community members hence CN's strict planning approach to ensure our community partners have advance notice where possible of any planned beach scraping activity.



For further information about beach scraping activity at Stockton Beach please email mail@ncc.nsw.gov.au