

REMOVAL OF AN UNLAWFUL SEAWALL FROM A SYDNEY OPEN COAST BEACH - THE STEPS TO SUCCESS

Peter Horton¹ and Daylan Cameron²

¹ Principal Engineer (Coastal & Maritime), Haskoning Australia, North Sydney, NSW

² Senior Environment Officer (Natural Hazards), Warringah Council, Dee Why, NSW

Introduction

A seawall comprising relatively small (about 30 to 120 kg mass) dry packed rocks was unlawfully constructed by a private landowner on private property at a Sydney beach in 2008, partly to incorporate a stairway to allow access to the beach for the landowner after coastal storms lowered beach sand levels in 2007.

The Local Council took action against the landowner, and the owner then submitted a retrospective Development Application (DA) for the works. The DA (and a related Building Certificate application) was refused by the Council for a number of reasons, including potential impacts on public safety due to the potential for rocks to be scattered over the beach in a coastal storm.

Ultimately, the illegal seawall was removed. In the paper herein, the key arguments and steps involved that enabled the Council to achieve removal of the seawall are outlined, to demonstrate that unlawful protective works can be successfully removed from a beach.

Note that all levels given herein are to Australian Height Datum (AHD). Zero metres AHD is approximately equal to mean sea level at present.

Description of Illegal Seawall

A photograph of the illegal seawall after its construction is provided in Figure 1. This "seawall" comprised sandstone rocks with a typical dimension of about 350mm, with rock masses varying between about 30kg and 120kg. The rocks had been placed in an approximate brickwork pattern at a slope of between 45° and 60° from the horizontal, and built around sandstone steps (average dimension about 400mm) fixed in position with cement mortar at a slope of about 30°. The seawall had a crest level of about 6.1m AHD and toe level of about 3.5m AHD.

Given the relatively low rock mass and relatively high toe level, the illegal seawall was expected to fail in a relatively frequent storm event (eg 10 year average recurrence interval or more frequent). To withstand a 100 year average recurrence interval (ARI) storm with beach scour levels in the order of -1m AHD, the toe level of the structure would have had to have been at least 4.5m lower. Furthermore, to resist 100 year ARI wave action, sandstone rock masses would have to be in the order of 3 to 10 tonnes, about 100 times larger than in the illegal seawall.



Figure 1: Illegal seawall about 2 years after construction, in March 2010

Previous Protective Works

Prior to construction of the illegal seawall, coastal storms in June and July 2007 exposed previous protection works that had been undertaken at the property, as visible in Figure 2. The rocks comprising these historical works (typical dimension about 1m to 1.5m and typical mass several tonnes) are much larger than the rocks comprising the illegal wall, and extend several metres lower. The historical works are located immediately landward of where the illegal seawall was constructed.

The historical works were mostly constructed to protect properties from coastal erosion as a result of past storms, including in 1967, 1974 and 1998.

Given the substantial nature of the historical protective works, it is evident that the undersized and poorly founded illegal seawall was essentially providing no significant protective function against wave action and beach erosion beyond the historical works alone.

Prior to the 2007 storms, the landowner would have been able to walk directly seaward of their property on to sand. That is, it could be argued that the illegal seawall (and in particular the stairway constructed within it) was to facilitate access to the beach when sand levels lowered after the storm, rather than providing property protection, and access could have been achieved with the stairway alone (without any of the additional adjacent rocks).



Figure 2: Historical protection works exposed at subject property in July 2007

Initial Action from Council

The Local Council took action against the landowner with orders to remove the works, and the owner then submitted a retrospective Development Application (DA) for the works. The DA included a Statement of Environmental Effects (SEE) completed by a planning consultant, and a report completed by a coastal engineer.

In the SEE, it was argued that the illegal seawall was consistent with *State Environmental Planning Policy No. 71 – Coastal Protection* (SEPP71) as (amongst other factors) it did not impact on the beach environment or beach amenity (being located on private property). It was also stated that the illegal seawall was required “in order to provide stability to the existing embankment and which otherwise would present a possible danger to occupants of the site or users of the adjoining beach”.

The coastal engineer considered that the illegal seawall would have insignificant impact on neighbouring properties as it would fail in a severe coastal storm. The impact of seawall failure was considered to be a temporary scattering of rocks immediately adjacent, which would be naturally covered by sand as the beach recovered following the storm. This failure was not considered to have a significant detrimental impact on public safety.

Council Review of DA

The DA, and a related Building Certificate (BC) application, was refused by Council for a number of reasons, including potential impacts on public safety and beach amenity due to the potential for rocks to be scattered over the beach in a coastal storm.

Although beach recovery after a storm typically occurs over a period in the order of weeks to months, this does not mean the scattered rocks from failure of the illegal seawall would be buried under the beach.

At Manly Beach in 1999, undersized sandstone rocks were strewn by wave action into the nearshore zone and created a safety hazard and nuisance to beach users for many months. Due to the relatively low specific gravity of sandstone of 2.2 tonnes/m³ (compared to say igneous rock such as basalt at 2.6 tonnes/m³), and buoyancy, it was found that the scattered rock did not always self-bury in the wave zone. It was expected that a similar situation would occur with failure of the illegal seawall, hence making it a potential risk to public safety and beach amenity.

Other reasons for refusal of the DA and BC included that the illegal seawall was inconsistent with the aims and objectives of SEPP71, and it was emphasised that failure of the seawall would be likely to detrimentally and unnecessarily impact upon Council's resources and/or risk liabilities due to scattering of rocks over the public beach area. Council also considered that the seawall would essentially have to be rebuilt to be made "acceptably safe", and that complete or near complete redesign of structures in situations of such substantive environmental and public risk impacts was not a matter that could be suitably contemplated by the BC process.

Landowner Appeal

The landowner appealed to the Land and Environment Court against the refusal of the DA for use of the illegal seawall, against refusal of the building certificate to regularise the building of the seawall, and against an order issued by the Council under Section 121B of the *Environmental Planning and Assessment Act 1979* requiring the removal of the seawall.

Statements of Facts and Contentions were submitted to the Court and meetings between the landowner's team and the Council's team were held. After this, the landowner agreed to discontinue the appeal and to remove the illegal seawall, with the stairway at least initially remaining in place.

Seawall Removal

The illegal seawall was initially removed by the owner in November 2011, as depicted in Figure 3. Inspection indicated that, as evident, numerous small rocks remained in the dune, prompting a request for further removal of rocks.



Figure 3: View after initial removal of illegal seawall, November 2011

Key Factors Leading to Successful Removal

It is considered that the key factors that enabled eventual removal of the illegal seawall were as follows:

1. reporting of the initial illegal seawall installation to the compliance unit of Council;
2. review of DA documentation from a technical perspective, that is challenging statements from an objective demonstrable position that could not be easily questioned;
3. the fact that the illegal seawall would most likely cause public safety and beach amenity impacts if it failed, which was likely to occur in a relatively frequent storm;
4. having a team of multidisciplinary experts dealing with the matter, such as in legal, planning and coastal engineering fields; and
5. being persistent in holding to the facts of the matter and not compromising on the essential matters.

Conclusions

An illegal seawall constructed at a Sydney open coast beach in 2008 was eventually removed by the landowners in 2011. The main objection of the Local Council to the works was that they were likely to cause public safety and beach amenity impacts (due to rocks being strewn over the public beach) when they failed, with failure likely in a relatively frequent storm.

They key factors that enabled eventual removal of the illegal seawall included initial reporting to the compliance unit of Council, objective technical review of DA documentation, having a team of multidisciplinary experts dealing with the matter, and being persistent.