

REPORT

25th October, 2010

FAO: Mr. Joe Noonan,
C/o. Noonan Linehan Carroll Coffey, Tel/Fx: 021 427 0518/4347, jnoonan@nlcc.ie
54 North Main Street,
Cork.

OUR REF: rta-25.10.10-nlcc-rky-4.09
YOUR REF: (Proposed Incinerator)

RE: Coastal Erosion, Hydrogeology & Flooding

1 Introduction

This report presents a review of Indaver's 2010 Addendum to the EIS in respect of the author's concerns relating to coastal erosion, hydrogeology & flooding and supplements the author's earlier reports of 30/4/09, 5/5/09 and 13/5/09.

2 Coastal Erosion

Concerns arising from the EIS addendum in relation to Coastal Erosion are discussed in the following sections.

2.1 Rock Revetment Programme

There are inconsistencies and contradictions in the rock revetment programme presented. In §2.4.4 paras. 2 & 4 it is stated that any such programme would ideally have to be integrated an overall programme for the local coastline. It is made clear in the Addendum that no such programme has been agreed with the local authority, Office of Public Works and/or other appropriate bodies.

2.2 Serious Threat Posed by Coastal Erosion

Whilst the author does not necessarily agree with the figures presented, it is obvious from the section entitled §2.4.3 *Basis of Design* that the serious threat posed by coastal erosion to this site is recognised in this Addendum to the EIS. This is in contrast to EIS §14.14.3 where it is stated that mitigation measures are not required in respect of Coastal Recession and Coastal Flooding.

2.3 Scheduling of Coastal Protection

Inconsistently and apparently ignoring the threat posed by coastal erosion however, the stage at which the construction of such a rock revetment programme should be scheduled in relation to the proposed development has not been stated. The reader's attention is drawn to this extraordinary omission in §3.9.4.3 *Coastal Retreat & Coastal Flooding Impacts*, para. 4.

There is a nominal lifespan of 30 years being ascribed to this facility (§3.5.3.3 EIS Addendum). The scheduling of works in the interests of the prevention of marine-related flooding and coastal erosion should be assigned within this time frame.

§3.7.5.1 directly refers to lack of scheduling for these works. The following wording is used: *The coastal defence works on Gobby Beach, if required at some future stage, ...*

I draw the reader's attention again to §12 of my report of 13/May/2009 particularly considering that the timing of the implementation of coastal erosion prevention measures is unclear. The cut and fill process that is proposed to create the finished land surface levels purports to use the natural sandy till available on site. As is evident along the coastal section, this fill is easily eroded and is prone to collapse under conditions of super-saturation. It appears from the EIS that the incinerator is to be constructed on such material without rock piling. Without sea defences, coastal erosion would be expected eventually to undermine such a structure.

2.4 Absence of Site-Specific Hard Data

Whilst it is now evidently apparent to the developer that coastal erosion is a serious issue for this site in that a height of +6m (§2.4.3.4) and length of 130m (§3.7.5.1) is being suggested for rock revetments, no directly measured site-specific hard data has been presented in the EIS or the EIS Addendum relating to critical influences such as wave height, tidal extremes, wind strengths and/or storm influences. All predictions are based on computer-generated or other models supported by information/data that is not specific to Gobby Beach and this site. §2.4.2 of the EIS Addendum draws the reader's attention to this issue in identifying *Lack of information on wave climate* as a constraint on providing a solution to Coastal protection. This infers that no such site specific data has been collected or acquired in respect of the proposed development. This omission is extraordinary in consideration of the seriousness of the coastal erosion and/or flooding and the elapsed time since it was drawn to the developers' attention. At the very least such data is essential to validate the models being advanced and being used to set design elements of the proposed development. In the author's opinion and firmly supported by the extreme history of coastal erosion at Gobby Beach, any decision to condition or grant planning permission would be wholly inappropriate in the absence of such vital site-specific hard data.

2.5 Ordnance Levels

Again there is some confusion in respect of Ordnance Levels in Addendum §2.4.3.4 where a crest level of 6.0m is first referred to without any ordnance datum. I draw the reader's attention to §8 of my earlier report dated 13/May/2009. It is also later stated in Addendum §2.4.3.4 that the crest height will vary from +6mOD to +4mOD but that overtopping will be compensated for by width. This statement appears counter-intuitive and obviously requires clarification.

2.6 Freeboard

A proposal for a free-board of 0.5m is being maintained in the design platform level for the road. As previously stated in §10 of my report of 13/May/2009, it is my contention that a freeboard of 0.5m is insufficiently prudent when dealing with a combination of storm-related and marine flooding. §14.9 of the EIS also proposes a freeboard of 0.5m for the proposed elevation of the Waste Transfer Station. As a comparison the GDSDS (Greater Dublin Strategic Drainage Strategy) recommends FFLs (Finished Floor Levels) in the Dublin Docklands of 4.0mOD using a 1:200 flood level of 3.13mOD. This approach is adhered to in Arup's Flood Risk Assessment for the DART Underground of 17/May/2010 www.dartundergroundrailwayorder.ie/assets/.../A15.2.pdf.

2.7 Return Periods

A 1:50 year return period is used for wind speed determination in §2.4.3.3 and a 1:100 year return period is applied in the revetment design §2.4.3.2. The design life for the revetment is stated as 50 years. There appears to be considerable inconsistency here in the modelling parameters being employed.

2.8 Storm Events – Coastal Impact

§2.3.5 *Description of Road Upgrade* pg. 16, para. 3 that states that the main cause of flooding is from the coast to the east. Whilst there is no site-specific data definitively validating this statement and storm rainfall must also be a significant contributing factor, the statement in itself acknowledges the EIS Addendum's recognition of the impact of storm events on the coast.

3 Flooding

Concerns raised in the EIS addendum in relation to Flooding are discussed in the following sections.

3.1 Flood Risk Management Guidelines

The OPW/DoELG Flood Risk Management Guidelines came into force in November 2009 and categorically require the planning system at national, regional and local levels to act as follows:

- (1) Avoid development in areas at risk of flooding by not permitting development in flood risk areas, particularly floodplains, unless where it is fully justified that there are wider sustainability grounds for appropriate development and unless the flood risk can be managed to an acceptable level without increasing flood risk elsewhere and where possible, reducing flood risk overall;
- (2) Adopt a sequential approach to flood risk management based on avoidance, reduction and then mitigation of flood risk as the overall framework for assessing the location of new development in the development planning processes; and
- (3) Incorporate flood risk assessment into the process of making decisions on planning applications and planning appeals.

At the site-specific level, developers and their agents are required to:

- (12) Carefully examine their development proposals to ensure consistency with the requirements of these guidelines including carefully researching whether there has been instances of flooding on specific sites or potential for flooding and declaring any known flood history in the planning application form as required under the Planning and Development Regulations 2006.
- (13) Engage with planning authorities at an early stage, utilising the arrangements for pre-planning application consultation with regard to any flood risk assessment issues that may arise.
- (14) Carry out a site-specific flood risk assessment, as appropriate, and comply with the terms and conditions of any grant of planning permission with regard to the minimisation of flood risk.

Compliance with these guidelines is now obligatory. Given that the proposed development is located on a site susceptible to regular flooding, all of the above constraints apply.

3.2 Flood Risk Assessment

In respect of both due diligence and the 2009 Flood Risk Management Guidelines it is apparent that a flood risk assessment is required for this site. In the interests of reliability and accuracy, any modelling undertaken in respect of such a risk assessment must be based on site-specific hard data and control parameters such as return periods and sea level rise predictions must adhere to current best practice.

3.3 Storm Drainage from the Road

The description of the road upgrade in §2.3.5 pg. 16, para. 5 proposes that the realigned road drain to the existing surface water sewer which outfalls to the beach at Gobby Beach. It is stated that the size, condition and capacity of the surface water sewer will be assessed during the design stage. In §2.3.3 pg. 15, para. 2 it is further stated that the flooding can be addressed and that further drainage design would be undertaken during the detailed design stage of the road project.

It is clear to the author that no more than a desk study has been undertaken in relation to this aspect and until the reasons behind the duration of the flood events are understood, a solution neither be proposed nor guaranteed. The failure of the existing surface water sewer to drain accumulated flood waters from the affected areas of the road is of particular relevance.

3.4 Scheduling of Road Upgrade

The upgrade of the road is proposed in §3.3.5 to take place in advance of works on the Indaver Site purportedly so as to minimise disruption to local traffic. This prioritisation of the upgrade to eliminate one aspect of the flooding is commendable. However equal priority must be given to preventing the ingress of the marine contribution as acknowledged in §2.3.5 pg. 16, para. 3 where the main cause of flooding is stated to be *from the coast to the east*. Upgrading the road whilst ignoring the coastal protection required is akin to dealing with the symptoms as opposed to the cause.

This completes this report.

Authored by Mr. Shane Bennet on behalf of S.M. Bennet & Co. Ltd. End of Document