

# Overberg Set-back Line Saga

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This document provides a short history of the Overberg Set-back Line Project and a summary of the current situation. The latter is based on information noted during informal interactions between the author and role players at the Overstrand Municipality and the Province.

### **The First Draft Proposals - June 2011**

- The first Set-back lines and Draft Regulations are published for comment
- The set-back lines puts more than 50% of BB to seaward of the Limited Development and Physical Processes Set-back Lines.
- The Draft Regulations, presented together with the draft Set-back lines, prohibits the building, alternation, extension, etc. of structures located seaward of the lines without a “Coastal Permit”.
- This first submission of the set-back lines documents raise huge and negative response from property owners.

### **Final Report - June 2012**

- Final Report for “The Establishment of Coastal Set-back Lines for the Overberg District” is issued by the Province to Interested and Affected Parties.
- The Report refers to Set-back lines, revised Draft Regulations and a Public participation Report, but none of these documents were included or could be obtained from the Province (I have tried on numerous occasions).
- The position of the lines (unofficially obtained) are unaltered, but the well written report describes in great detail the scientific Methodology followed to determine the lines.
- The report recognises that the straightforward application of the lines in urban developed areas is not practical and makes various recommendations on the practical use of the scientifically determined set-back lines in the urban environment through the input of Municipalities.
- The Report also recommends that shorter time horizons than 100 years should be introduced with shorter time horizons applicable to certain activities – e.g. a wooden walkway should have a different time horizon than say a sewerage works.

### **Over to the Municipality - 8 March 2013**

We have a meeting with Neville Green where we learn that in response to the Final Report and set-back lines received from the Province, the Municipality is in the process of determining their version of the set-back lines and is planning their own public participation process on these lines.

### **Planned Municipal Public Participation on Set-back Lines - September 2013**

Following up progress on the planned public participation process with the Municipality (Liezl Bezuidenhout) we learn that a Consultant has been found to manage the Municipal public participation and that the process is planned for December when many property owners would be able to participate.

### **Overberg Set-back Line Project Suspended - December 2013**

- Again following up progress with Liezl Besuidenhout we learn that the Province has “suspended” the Overberg Set-back Line project.
- This has been done because the Province together with the City of Cape Town has developed a revised methodology to determine and implement Set-back lines, and is in the process of extending the Project to include the West Coast. Once the West Coast work has been concluded the Overberg data will be revised using the new methodology.
- Liezl Bezuidenhout also tells us that the NEM:ICM Act is in a process of being amended and that the Province is already changing their approach to regulations in line with the envisaged changes. She refers us to the Province for more details.
- A quick look at the NEM:ICM Amendment Bill (December 2012) reveals the following very important change: Where the current Act (Section 25) requires that the MEC **shall** through Regulations prohibit any building, alteration, extension, etc. of any structures to the seaward side of a Set-back Line, the Amendment Bill states that the MEC **may** through Regulations prohibit any building, alteration, extension, etc. of any structures to the seaward side of what is now called a Management Line (no longer called a Set-back Line).
- Note that the NEM:ICM Amendment Bill has not been signed into law yet, but is likely to be signed some time next year (after the election).
- From discussions with officials at the Province and other role players we learn the following about the new Management Line methodology:

<p>Note that what follows is based on “off the record” interactions with Municipal and Provincial Officials on the subject and does not form part (to my knowledge) of any “official” policy documents yet. I am however pretty confident that it quite close to the truth.</p>
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### **The new Set-back Line Methodology**

- Where the Overberg study used a 100 year time horizon to determine the location of the Physical Processes Set-back Line, time horizons 20, 50 and 100 years will now be used delivering three different Hazard Lines (the old Physical Processes Lines). Refer to the note on the determination of the lines below.

- The question is which line (20, 50 or 100 years) should be the Management Line?
- The proposed solution is to use the three Physical Process/Hazard lines for forward planning in undeveloped areas and for addressing risk in developed areas. This basically means that in coastal areas, which are currently not developed, the lines will be strictly applied to prevent development in inappropriate (higher risk) areas, but that in already developed areas the lines will be used to determine risk and to regulate building/alteration on existing stands.
- In developed areas the three lines will be used to create “Risk based overlay Zones” – the risk overlay zones are applied on top of the existing Municipal development zones.
- The overlay zones depict areas of High risk (below the 20 year line), Medium risk (between the 20 and the 50 year lines) and Low risk (between the 50 and the 100 year lines) to the effects of physical processes (storm surge, sea level rise and climate change).
- Management of development (building, alteration, extension, etc.) happens through Municipal building restrictions applicable to each overlay zone and there are no longer Provincial Regulations applicable. Therefore no more Coastal Permits required for painting your house if you are below the old Physical Processes line as per the original and now defunct draft Regulations. Building plans will now have to comply with Municipal building restrictions appropriate to the applicable Risk Overlay Zone.
- This is good news, but we are not there yet! We will have to wait and see for about another 2 -3 years to learn the final outcome of the process.

#### **Notes on the determination of the Lines:**

The following is an extract from the Overstrand Final Set-back Line Report and I have included it for a better understanding of how a “Physical Processes” line or “Hazard” Line is determined:

*“If we examine the case of Betty’s Bay (Figure 1) located along the sandy shoreline and within a mobile dune cordon, one can see the combined effects of the different modelling steps. The red line is the wave run up for a 1:10 year storm at MHWS. The blue line is the 1:100 year storm wave run up. The difference in the two wave run up positions is not much due to the bathymetry reducing the 1:100 wave storm height to a level only slightly higher than the 1:10 year storm. The yellow line is the combination of a 1:100 year storm erosion allowance (20m) added to the 1m of sea level rise regression. The long term erosion trend at Betty’s Bay is just under 2m per year based on the aerial photography between 1973 and 2005. Based on the annual long term erosion of 2m per year the 100 year trend is of the order of 200m. The yellow line is then set back 200m to account for these processes and is*

shown as the orange line. The limited development line (shown in turquoise) is then determined using social, environmental and economic criteria.

In terms of the specifications and definitions of the Western Cape Province's Coastal Development Set-back Lines methodology, the **orange** line functions as the “**coastal processes/'no development' line**” and the **turquoise** line as the “**limited development line**”.



Figure 1: Typical Set Back Analysis Process (Betty's Bay)

So to determine the line for a 100 year time horizon for a sand shore, take:

- 20m short term storm erosion (1:100 year storm)
- Add the shoreline retreat due to the sea level rise forecast for the next 100 years - the method assumes 1m sea level rise for 100 years. To estimate the shoreline retreat for the sea level rise, the so called BRUUN model is used. The BRUUN Model predicts that a sandy beach will retreat by 1m for every 10mm of sea level rise. Therefore for 100 years and 1m sea level rise, add 100m to the short term erosion allowance. This gives 120m.
- To this then add long term beach erosion based on old aerial photographs, which the Consultants estimated at 2m per year (I do not quite believe this number!). For a 100 years this adds a further 200m to give a total of 320m.

- This brings us to the “Physical Processes Line” in the Figure 12 above as quoted from the Final Set-back Line Report.

Now using this method and assuming that the models and estimates is correct, one can estimate where the Physical Processes Line would be for a 20 year and a 50 year time horizon:

- 20 Year Hazard Line – demarcating landward edge of the “high risk zone” would be:  
20m storm erosion<sup>1</sup> + 20m shoreline retreat due to 200mm sea level rise + 40m (2m x 20 years) long term beach erosion = 80m above the current high water mark  
In Nerine Crescent this means that most of the sea front properties would be mostly landward of this line – i.e. not in the high risk zone.
- 50 Years Hazard Line – the “Medium risk zone” would be between 80m above the high water mark (the landward edge of the High Risk Zone) and the Medium Risk Line determined as:  
20m storm erosion + 50m shoreline retreat due to 500mm sea level rise + 100m (2m x 50 years) long term beach erosion = 170m  
In the same area of BB this means that the “Medium Risk Zone” would extend to about halfway between Nerine Crescent and Nivenia Road.
- 100 Years Hazard Line – the 100 year line would be as indicated as the “physical Processes Line” in Figure 12 of the report included above – i.e. about on Myrica Road - and this would be the landward edge of the “Low Risk Zone”.

I have labelled the three roads referred to above (Nerine, Nivenia & Myrica) in the Figure below and indicated the High Risk zone in red, the Medium Risk Zone in Yellow and the Low Risk zone in green.

Note that I am not an environmental specialist and I may have misunderstood the information I received or incorrectly applied the method. Therefore take my zones as indicated above with a pinch of salt!

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<sup>1</sup> The Final Set-back Line Report indicated the positions of the calculated short term shore erosion lines due to a 1:10 year storm and a 1:100 year storm (refer Figure 12 of the Report). These two lines turned out to be so close together, that I have used the worst case (1:100 year) number (20m) here for the 20 year and 50 year estimates.



