

**SENATE INQUIRY: DEPARTMENT OF ENVIRONMENT AND COMMUNICATIONS.  
RECENT TRENDS IN AND PREPAREDNESS FOR EXTREME  
WEATHER EVENTS**

**SUBMISSION: MICHAEL BALDOCK**

## **EXPOSURE OF THE NEW BUSSELTON HEALTH CAMPUS TO FUTURE EXTREME WEATHER**

With the risks of climate change now well documented, it would be logical that Governments would place their critical government infrastructure back from the coast and in areas not prone to flooding. For facilities that will have post disaster relief functions such as hospitals, one would expect this to be mandatory.

The decision therefore to place the new \$117.9 million Busselton Hospital, which is now due to commence construction, 150m from the sandy coastal edge of Geographe Bay, is a failure of the decision making process to protect the residents of Busselton and surrounding areas, from the future effects of climate change.

### **BACKGROUND**

In October 2005, the WA State Government announced a \$65million commitment for a new Busselton Health Campus. In the nine months following, a site evaluation process was undertaken by Sinclair Knight Merz (SKM) Consulting Engineers. Nine sites were assessed and the evaluation process identified four of these sites for further consideration, including the existing hospital beach-front site in Busselton.

In 2008, the State Labor Government set aside \$77 million in the Budget for a new hospital to be constructed at Vasse (located 1km inland).

During the 2008 state election campaign, the Member for Vasse, Mr Buswell, promised to build the new hospital on the existing hospital site in Busselton. Following the change in Government, Mr Hames was appointed Health Minister and in line with the wishes of the local member committed the government to build the new hospital on the existing hospital site on the beach front.

On 2 December 2010, Minister Hames confirmed that the hospital would be built on the site of the existing hospital at a cost of \$117.9 million. Construction is now due to commence with builder now appointed.

The location of the new Busselton Health Campus is shown in Attachment 1 with the existing hospital also shown. Attachment 2 shows the existing hospital and its relation to the coastline and the Vasse Diversion Drain adjacent to the hospital.

### **FLOOD AND STORM SURGE CONCERNS**

To position the largest infrastructure project and most important disaster relief facility in this community on a low lying sand site immediately adjacent to the coast places the health and lives of Busselton residents at risk and makes the State and Federal governments far more vulnerable to the financial costs of climate change and future natural disasters.

The Busselton town site is one of the most vulnerable communities in Australia with respect to sea level rise and the future risks associated with climate change. A recent report by the Federal

Department of Climate Change and Energy Efficiency entitled "Climate Change Risks to Australia's Coast" released 14 November 2009 states in section 5.1.9 that in Western Australia:  
*"Between 7,900 and 8,700 residential buildings in the local government area of Busselton may be affected by sea level rise by 2100, with the upper range of estimates representing 60 percent of all current residential buildings within the LGA."*

On page 142 of the Sinclair Knight Merz Report "New Busselton District/ Sub-Regional Hospital and Community Health Care - Technical Evaluation of Site Options" (SKM 2006), referring to the existing hospital site where the new hospital is to be constructed, the report states:

*"This site is located near the ocean at an elevation between 2-4m AHD (Australian Height Datum). The preferred access to the site would be from the Bussell Highway to the south and west. All access roads near the coast are potentially at risk of flooding from storm surges, with sections lying at or below 2.5m AHD."*

*"The northern extent of the 1 in 100 year flood plan is located 400m south of the site, and a drainage channel enters an estuarine area 200m to the east of the site. There is a risk of flooding at site B (Existing Hospital Site) should the levees or raised areas be breached, and there is also a risk of storm surge and tidal flooding."*

### **1 IN 500 YEAR FLOOD STUDY**

The Department of Water made the following recommendation in relation to selecting a site for the new Busselton hospital and was quoted in the SKM report as stating:

*"it is recommended that 500 year ARI flood protection is provided and that access to the site is not compromised during such an event"*

The SKM technical evaluation found that the capacity of the site to meet the recommended 1 in 500 year flood criteria could not be evaluated without further studies and recommended that storm surge, coastal stability and the impact of flooding on accessibility to possible sites be examined.

When it became evident that the State Government had not undertaken any flood assessments for the hospital, I requested MLC Giz Watson to put forward questions to the State Minister for Health via the WA parliament. In WA State Parliament Question on Notice No. 3513 tabled in the Legislative Council on 22 February 2011 by MLC Ms Watson asked if a 1 in 500 year flood assessment would be undertaken. The Minister responded on the 5<sup>th</sup> of April, 2011 that it would.

Further questions have revealed that a flood assessment was requested from the Department of Water on the 25 February 2011 (3 days after the above question in parliament) and the Department of Water responded on 4 March 2011, only 7 days later.

Minister Hames stated that requests for the study should be referred to the Department of Water. After being unable to obtain a copy, a Freedom of Information Application was submitted for the report and the FOI documents were received in November 2011. We now have this "Study" and it is attached as "BSN Hospital Flood Doc 4"(attachment 3). The "Study" is the half page email sent by the Water Resource assessment Branch on Friday the 4<sup>th</sup> of March. This report is totally inadequate for a flood study for a \$117.9 million critical infrastructure asset that is to be placed in one of the most susceptible locations in Australia to sea level rise, erosion and flooding.

Paragraph four of the study states that *"it should be noted that access to the site during such an event may be restricted due to the inundation of the approach roads"*. With the only access roads to the hospital at or lower than 2.5m AHD (refer attachment 4 for AHD levels) and a 500 year ARI flood level of 3.5m to 3.8m AHD by 2100, there will be no access and that a long time before year 2100 we can expect restricted or no access. This includes the Mill Road and Craig Street access roads.

The Australasian Health Facility Guidelines states *"Where possible facilities shall NOT be located on designated flood plains"*. The Health Department would argue that the Hospital is not located in

the existing defined 1 in 100 year flood plan. The local 1 in 100 year flood plain is defined without consideration of the effects of sea level rise or increased climate variability and the use of a 1 in 100 year flood criteria is no longer regarded as acceptable for the site selection criteria of a Hospital.

The Department of Health's own consultant engineers, Sinclair Knight Mertz (SKM), in 2006 in their "Technical Evaluation of Site Options" states in the executive Summary that:

*"Accordingly, the capacity of the sites to meet the recommended 1 in 500 year flooding criteria cannot be evaluated without further studies. This report has provided an analysis of the sites with reference to the 1 in 100 year event (as defined by DoE and analysed in JDA (2005)) only. **The assessment to date has considered the implications of the 1 in 100 year flood only. It is noted that the 1 in 100 year event may not be a good indicator of the performance of the sites during the 1 in 500 year event and that further analysis is required.**"*

SKM gave criteria for the flood study in their report as follows

*"To assess the sites against the criterion of a 1 in 500 year event would require a detailed hydrological study, addressing, as a minimum:*

- *A determination of the 1 in 500 year rainfall event. This would need clarification of how the DoW define a 1 in 500 year event, particularly given the comparatively short period of data available for analysis;*
- *A determination of the flood routing and mapping (as part of appropriate hydrological modelling) for this rainfall event;*

*Additionally, factors such as storm surge, coastal stability and the impact of flooding on accessibility to each site would merit examination under these storm conditions."*

Given the above recommendations by SKM the investigation requested of, and the response by the Department of Water are inadequate.

Paragraph 4 of the "Study" by the Department of Water recommends that the Department of Transport

*"is contacted regarding appropriate setbacks from the coast to ensure adequate protection from coastal processes (inundation/ wave action, shoreline recession, etc) is afforded into the future".*

This was on the 4<sup>th</sup> of March 2011. The Coastal Infrastructure section of the Department of transport in 2010 undertook the study "Sea Level Change in Western Australia – Application to Coastal Planning" which advises other departments such as the Department of Planning on sea level rise and coastal erosion. The Minister for Transport, Mr Buswell was asked in WA State Parliament (Legislative Council Question On Notice 4551) whether the Department of Transport had been contacted regarding the appropriate setbacks for the Busselton Hospital from the coast to ensure adequate protection from coastal processes and on the 21<sup>st</sup> of September 2011 the answer by the Minister for Transport was no.

## **DISASTER PLANNING**

When asked about planning and operational requirements for the new Busselton Hospital in Question on Notice No. 3831 asked in the WA Legislative Council on 12 April 2011, the Minister for Health Mr Hames responded:

*"The new campus will be situated above the predicted level of a '1 in 500 year' flood event. In the event that such a situation occurs the facility's disaster response plan will come into effect. This would include an assessment of how best to manage current inpatients and may include evacuation or continuing to manage the patients within the facility. This is an assessment that is*

*made at the time of such an event. If patient transfer is deemed appropriate there will be a number of options available for undertaking this task.*

*The WA Country Health Service has jurisdictional responsibility for the land within the hospital boundary and does not have jurisdictional responsibility for the surrounding access road network. Road access to the site falls within the portfolio of the Minister for Transport.”*

The Department of Health has confirmed that a helicopter landing pad and therefore helicopter access is not in the scope of the project. With no road or helicopter access, the only other method of evacuation of the proposed 80 bed hospital will be by boat. The Broadwater flood plain runs parallel with the coast for the length of Busselton and in the event of a 1 in 500 year flood event, a minimum 1.5km boat ride will be required to transfer patients from the hospital to the Busselton Bypass Road.

The St John's Ambulance Service is also proposed to be located on the site, with the result that Busselton is also unlikely to have an ambulance service in the event of a 1 in 500 year flood event.

### **CORRESPONDENCE WITH THE ATTORNEY GENERAL'S DEPARTMENT**

I have raised the issue of the Busselton Hospital with the Federal Attorney- General's Department and questioned whether the State Government had satisfied its obligations with regards to the following:

1. Has the selection of the site for the location of the new Busselton Hospital resulted in a “reduced risk from the impact of disasters” which is an agreed outcome of the *National Partnership Agreement on Natural Disaster Resilience – Implementation Plan 2010/11 – Western Australia* signed by the State Government on the 10<sup>th</sup> of August 2010?
2. Have natural disaster and mitigation strategies in respect of likely and recurring disasters been developed and implemented for the site, as a condition of Federal Government assistance for the restoration or replacement of an essential public asset, under section 4.4.1 of the *Natural Disaster Relief and Recovery Arrangements 2007*?
3. Is the selection of the proposed site for the new Busselton Hospital by the State Government consistent with the Australian Government Attorney-General's Department Strategic Plan 2010-12 item 6.4 which states “*Work closely with critical infrastructure stakeholders to implement the Critical Infrastructure Resilience Strategy, which will contribute to the continuity of essential services during an emergency or disaster.*”?
4. Has the Western Australian State Government undertaken the planning process for the new Busselton hospital in accordance the Risk Management Standard, AS/NZS ISO 31000:2009?
5. Have the performance, construction, operation and maintenance risks the design of the facility will be required to mitigate been defined in the Facilities Risk Management Plan at the commencement of design, as required by the WA Health Facility Guidelines for Engineering Services 2006?
6. Will the hospital be designed to operate through any local disaster including maintenance of site access as required by the WA Health Facility Guidelines for Engineering Services 2006?

The responses have been to state that the Commonwealth Government has no jurisdiction with regards to this issue (Refer Attachment 5). This is despite the State and Commonwealth Governments signing the “*National Partnership Agreement on Natural Disaster Resilience – Implementation Plan 2010/11 – Western Australia*” which includes an agreed outcome to “reduced risk from the impact of disasters”.

With the Commonwealth Government having spent \$6 billion in payments following the Queensland floods, it certainly has a financial interest in minimizing the impact of future natural disasters.

## **CONCLUSION**

Despite all the warnings regarding the impacts of climate change, the locating of the new Busselton Hospital on the beach front has proceeded with access to the hospital in extreme weather events being discarded as a priority.

The impact of sea level rise and increased storm intensity on privately owned coastal property is a complex policy area. Decisions by governments on where to place critical infrastructure, which has a post disaster relief function, is straight forward in comparison. If governments are not prepared to act in relation to the positioning of a hospital, there can be no expectation that anyone else will take climate change preparedness seriously.

## **ATTACHMENTS**

### **Attachment 1:**

Overall Site Plan of the New Busselton Health Campus

### **Attachment 2:**

Aerial View of existing Busselton Hospital showing WA Planning Commission Position Statement – SPP 2.6 - 150m Horizontal Setback Line

### **Attachment 3:**

BSN Hospital Flood Doc #4 obtained through Freedom of Information

### **Attachment 4:**

Contour Levels of Existing Hospital from Appendix E of “Technical Evaluation of Site Options” undertaken by consulting engineers Sinclair Knight Mertz 2006

### **Attachment 5:**

Correspondence from the Attorney-General's Department to M Baldock dated 23 May 2011.





C	UPDATED DOCUMENTATION	23.08.12	
B	UPDATED DOCUMENTATION	20.07.12	
A	ADDENDA	15.05.12	
No.	Amendment	Date	CHK'D

**DESIGN DEVELOPMENT**

CONTRACTORS MUST VERIFY ALL DIMENSIONS ON THE SITE BEFORE COMMENCING ANY WORK ON SITE OR MAKING ANY SHOP DRAWINGS WHICH MUST BE SUBMITTED AND APPROVED BEFORE MANUFACTURE.

Architect:

**HASSELL**  
 Podium Level Central Park 152 - 158 St. Georges Terrace Perth, Western Australia 6000  
 T 61 8 6477 6000 F 61 8 6477 6100  
 Email: perth@hassell.com.au

Structural & Civil:

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 Web: www.bgandecom.au

Building Services:

**AECOM**  
 GPO Building Level 6, 11 Forrest Place Perth, WA 6000  
 T (61) 6430 2500 F (61) 6430 2999  
 Web: www.aecom.com

**Government of Western Australia**  
 Department of Health  
 WA Country Health Service

**Government of Western Australia**  
 Department of Treasury  
 Strategic Projects  
 Department of Finance  
 Building Management and Works

PROJECT NAME:  
**BUSSETON HEALTH CAMPUS**

DRAWING TITLE:  
**OVERALL SITE PLAN**

DRAWN	Author	DESIGNED	PRINCIPAL	REDUCTION	
CHECKED	Checker	DESIGNED	PRINCIPAL	0	25
APPROVED	Designer	DATE	23.08.12	DRAWING No.	Revision
SCALE	1:500 @ A0	DF FILE No.	A_00_0012		C

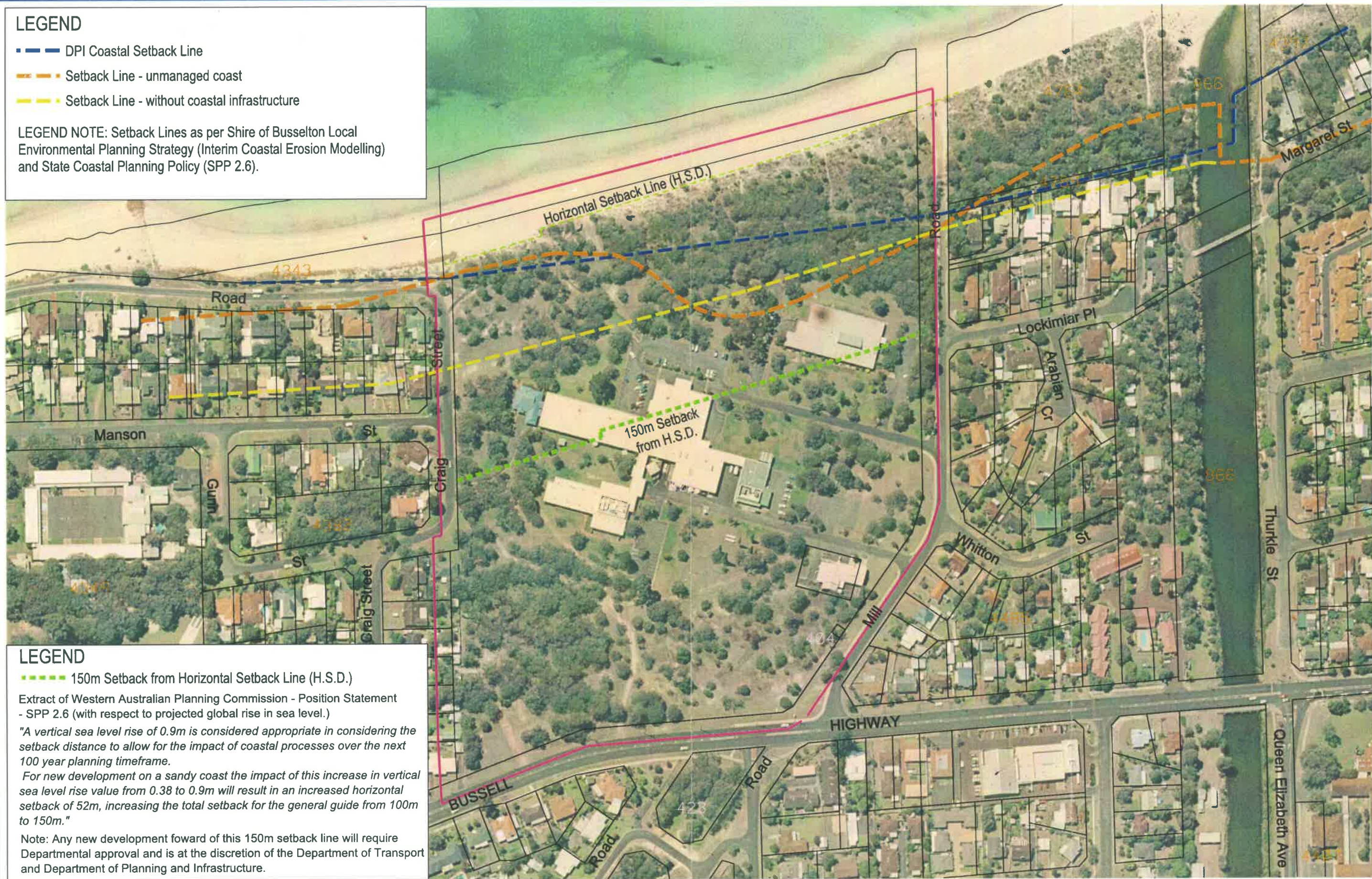
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**LEGEND**

- — — DPI Coastal Setback Line
- - - Setback Line - unmanaged coast
- - - Setback Line - without coastal infrastructure

LEGEND NOTE: Setback Lines as per Shire of Busselton Local Environmental Planning Strategy (Interim Coastal Erosion Modelling) and State Coastal Planning Policy (SPP 2.6).



**LEGEND**

- - - - - 150m Setback from Horizontal Setback Line (H.S.D.)

Extract of Western Australian Planning Commission - Position Statement - SPP 2.6 (with respect to projected global rise in sea level.)

"A vertical sea level rise of 0.9m is considered appropriate in considering the setback distance to allow for the impact of coastal processes over the next 100 year planning timeframe.

For new development on a sandy coast the impact of this increase in vertical sea level rise value from 0.38 to 0.9m will result in an increased horizontal setback of 52m, increasing the total setback for the general guide from 100m to 150m."

Note: Any new development forward of this 150m setback line will require Departmental approval and is at the discretion of the Department of Transport and Department of Planning and Infrastructure.

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No.	Revision	App.	Date

**BSO**  
DEVELOPMENT CONSULTANTS  
Licensed Surveyors  
Project Managers  
Town Planning  
Residents/Commercial Projects  
72 Duchassa Street, P.O. Box 414  
Busselton W.A. 8250  
T: (08) 9754 1188 F: (08) 9754 2828  
E: admin@bsoc.com.au

**EXISTING HOSPITAL SITE SETBACK PLAN  
BUSSELL HIGHWAY & MILL ROAD  
BUSSELTON**

SHIRE OF BUSSELTON

CLIENT	SEAPORT PTY LTD		
DWN	HJ BURTON	DATE	15-October-2010
SCALE A3	1:2,500	DGN	Exist Hospital Setbacks.dgn
DATUM	FILE	1240Comm	MODEL/PLOT 1240 Hospit Setback
			REV 0



0 100 200 300 400 Meters





FABIEN Gerard

From: [REDACTED]  
Sent: Tuesday, 31 May 2011 5:02 PM  
To: [REDACTED]  
Subject: FW: Busselton Hospital - BHC Site Survey  
Attachments: 51019-7.PDF

From: [REDACTED]  
Sent: Friday, 4 March 2011 2:13 PM  
To: [REDACTED]  
Subject: FW: Busselton Hospital - BHC Site Survey

[REDACTED]

The Department of Water in carrying out its role in floodplain management provides advice and recommends guidelines for development on floodplains with the object of minimising flood risk and damage.

The Public Works Department surveyed peak ocean tide/storm surge levels in Geographe Bay following the Cyclone Alby event in April 1978 and the peak level near the hospital site was found to be ~2.4 m AHD (refer to the attached plan). The return interval of the Cyclone Alby event at Busselton is uncertain but is likely to be ~200 year ARI.

Consideration must also be given to the possible impact of sea level rise over the next century. The recent position statement on State Coastal Planning Policy recommends the adoption of a 0.9 m vertical sea level for the 100 year planning time frame to 2110.

Consequently, the 500 year ARI flood level in this location is estimated to be ~3.5 to 3.8 m AHD by the year 2110. Therefore, a minimum floor level of 4.3 m AHD is recommended for the proposed hospital to ensure adequate flood protection. It should be noted that access to the site during such an event may be restricted due to the inundation of the approach roads.

In addition, it is recommended that the Depart of Transport ([REDACTED] telephone [REDACTED]) is contacted regarding appropriate setbacks from the coast to ensure adequate protection from coastal processes (inundation / wave action, shoreline recession, etc) is afforded into the future.

Please note that a failure to adhere to these recommendations will result in a greater exposure to risks of flood damage. It should be noted that this advice is related to major flooding only and other planning issues, such as environmental and ecological considerations, may also need to be addressed.

Regards

[REDACTED]

[REDACTED]  
Water Resource Assessment Branch  
Department of Water (WA)  
Ph: [REDACTED]  
fax: [REDACTED]  
email: [REDACTED]

Released  
Under  
E.O.I.



**From:** [REDACTED]  
**Sent:** Friday, 25 February 2011 1:02 PM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** FW: Busselton Hospital - BHC Site Survey

BMW are seeking a 500 year ARI flood level at the new Busselton Hospital site so floor levels can be established. Also, need to consider the 0.90 metre sea level rise over the next 100 years. Let's discuss ....

---

**From:** [REDACTED]  
**Sent:** Friday, 25 February 2011 12:51 PM  
**To:** [REDACTED]  
**Subject:** Busselton Hospital - BHC Site Survey

Hi [REDACTED],

As discussed this week please find attached the site survey drawing for the Busselton Hospital site. If you have trouble opening the document please let us know and will organise a different format. The SKM technical report for the site recommends design of floor levels to suit a 1 in 500 flood level.

A question raised by the Minister has been whether the required level to meet 1 in 500 flood level take into account rising sea levels?

Many Thanks and Regards,

[REDACTED] | Delivery Group 1

**Department of Treasury & Finance**  
Building Management & Works  
A: Level 5, 169 Hay Street, East Perth 6004  
T: [REDACTED] F: (08) [REDACTED]  
E: [REDACTED]

 Please consider the environment before printing this email

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**From:** [REDACTED]  
**Sent:** Friday, 25 February 2011 12:25 PM  
**To:** [REDACTED]  
**Subject:** FW: FW: BHC Site Survey

Site survey i assume water will have a viewer

[REDACTED]  
Project Officer | Delivery Group 1  
Planning and Delivery

**Department of Treasury & Finance**  
Building Management & Works  
Level 5, 169 Hay Street, East Perth 6004  
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[REDACTED] [www.bmw.wa.gov.au](http://www.bmw.wa.gov.au)

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**From:** [REDACTED]  
**Sent:** Friday, 25 February 2011 9:23 AM  
**To:** [REDACTED]  
**Cc:** [REDACTED]  
**Subject:** Re: FW: BHC Site Survey

Hi [REDACTED]  
Hope everything is well with you.  
Attached survey plan of Busselton Hospital as requested.

--  
Regards,

[REDACTED]  
Associate Director

[REDACTED]  
M: [REDACTED]

On 25/02/2011 9:05 AM, [REDACTED] wrote:

Regards,

[REDACTED]  
Director

**Bateman**  
Architects

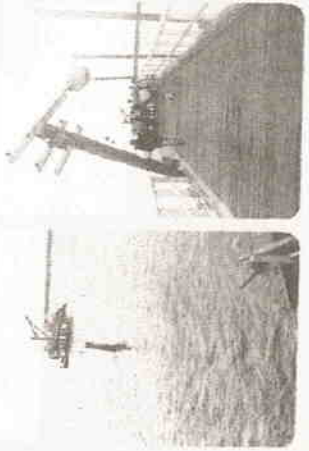
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M: [REDACTED]  
Web: [REDACTED]

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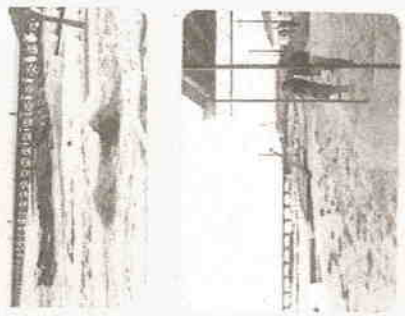
**From:** [REDACTED]  
**Sent:** Thursday, 24 February 2011 3:19 PM  
**To:** [REDACTED]  
**Subject:** BHC Site Survey



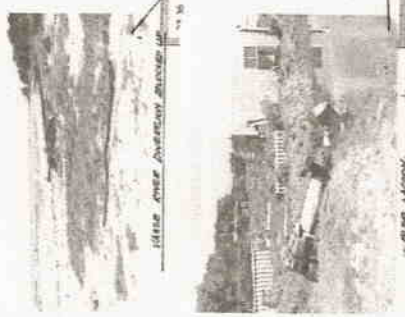
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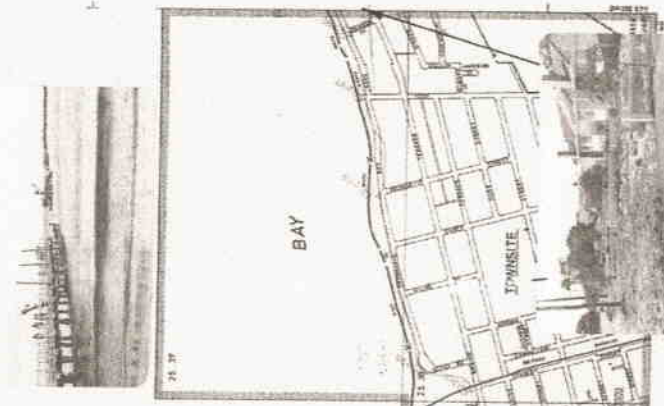
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INDIAN



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PLAN 7  
datum A.H.D.

LAND DISTRICT  
LOCAL AUTHORITY  
ON PLAN 4137/40

SUESEX  
SHIRE OF BUSSELTON  
4137/40 SOUTH WEST MINERAL FIELD

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F.O.I.

<p>REVISIONS</p> <p>NO. DATE BY</p> <p>1 10/10/00 J.M.</p> <p>2 10/10/00 J.M.</p> <p>3 10/10/00 J.M.</p> <p>4 10/10/00 J.M.</p> <p>5 10/10/00 J.M.</p>	<p>APPROVED</p> <p>DATE 10/10/00</p> <p>BY J.M.</p>	<p>PROJECT</p> <p>NO. 1000/1000</p> <p>DATE 10/10/00</p>	<p>SCALE</p> <p>1:1000</p>
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**Australian Government**  
**Attorney-General's Department**

AG-MC11/05478

23 May 2011

Mr Michael Baldock

Dear Mr Baldock

I refer to your letter to the Attorney-General, the Hon Robert McClelland, seeking Commonwealth support for an inquiry into the decision by the Western Australian Government to locate the Busselton Hospital on a flood-prone low lying beach front location. The Attorney-General has asked me to reply on his behalf.

While the Prime Minister has called for State and Territory emergency services ministers to evaluate Australia's preparedness for, and resilience to, large-scale natural disasters; under Australia's constitutional arrangements the Australian Government does not have primacy for the protection of life and property within the jurisdictions. This remains the responsibility of each State and Territory. Therefore, it is appropriate for you to raise your concerns with the Western Australian Government. You mention that the decision to locate the hospital in a low lying area is outside the recommendations made by the Western Australian Department of Water. That agency may be the best placed to address your concerns on this issue.

Another avenue that you might consider is through the Australian Building Codes Board (ABCB), which is currently investigating the design and construction of certain buildings in flood-prone areas with the view to produce a standard suitable for inclusion in the national Building Code of Australia, together with an accompanying handbook. I understand that the draft standard will be available for consideration by the ABCB Board in late June 2011. Accordingly, I suggest that you contact ABCB at [ncc@abcb.gov.au](mailto:ncc@abcb.gov.au).

I appreciate your interest in community safety. The scale of the recent flooding has been exceptional and a stark reminder that floods are still part of the Australian environment after so many years of drought.

Yours sincerely

Katherine Buchanan  
Director, Disaster Resilience  
Emergency Management Capability Development Branch