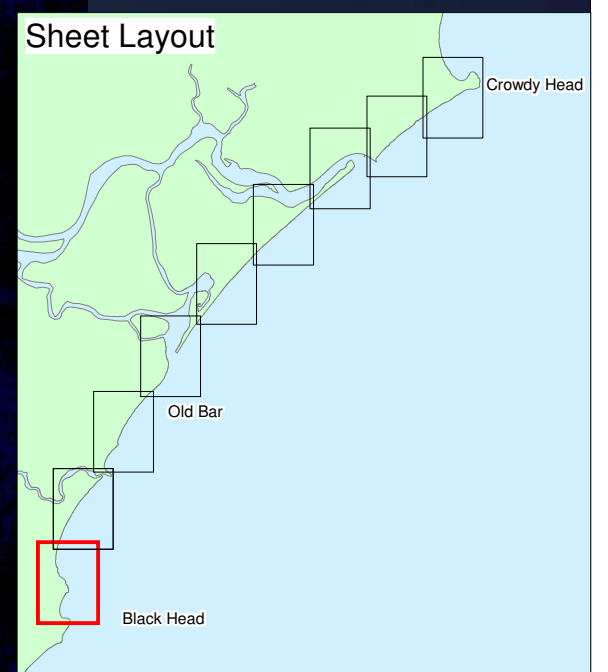




(Source: Greater Taree City Council, MidCoast Water)

- Indicative Current and 100-Year Planning Period Design Ocean Water Levels and Wave Runup Levels**
- Current Design Still Water Level (2.7m AHD)
  - 100-yr Design Still Water Level (3.6m AHD)
  - Current Design Wave Runup Level (5.3m AHD)
  - 100-yr Design Wave Runup Level (6.2m AHD)
  - ▨ Potential 100-yr Overtopping Due to Wave Runup
  - ▨ Potential 100-yr Minor Inundation Due to Wave Action
  - Sewer Network
  - Water Network
  - Stormwater Outlets on to Beach



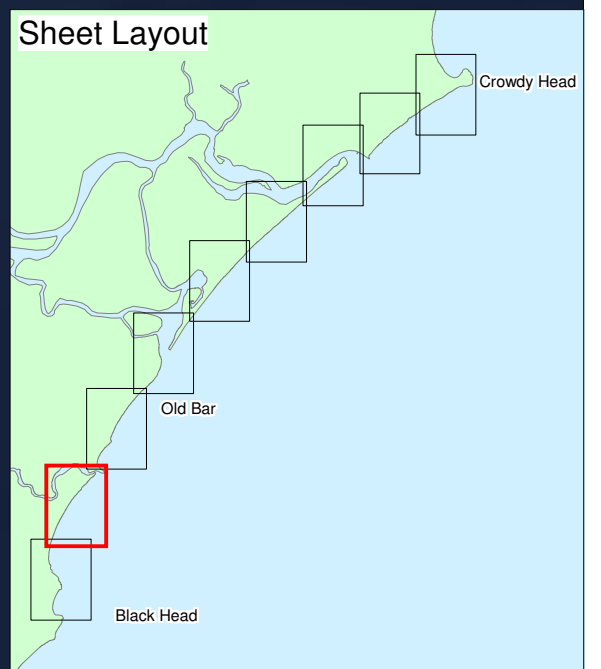
Greater Taree City Council  
 Black Head to Crowdy Head  
 Coastline Hazard Definition Study  
**Potential Coastal Inundation and Coastal  
 Stormwater, Sewer and Water Infrastructure**  
 September 2010 Figure 19a



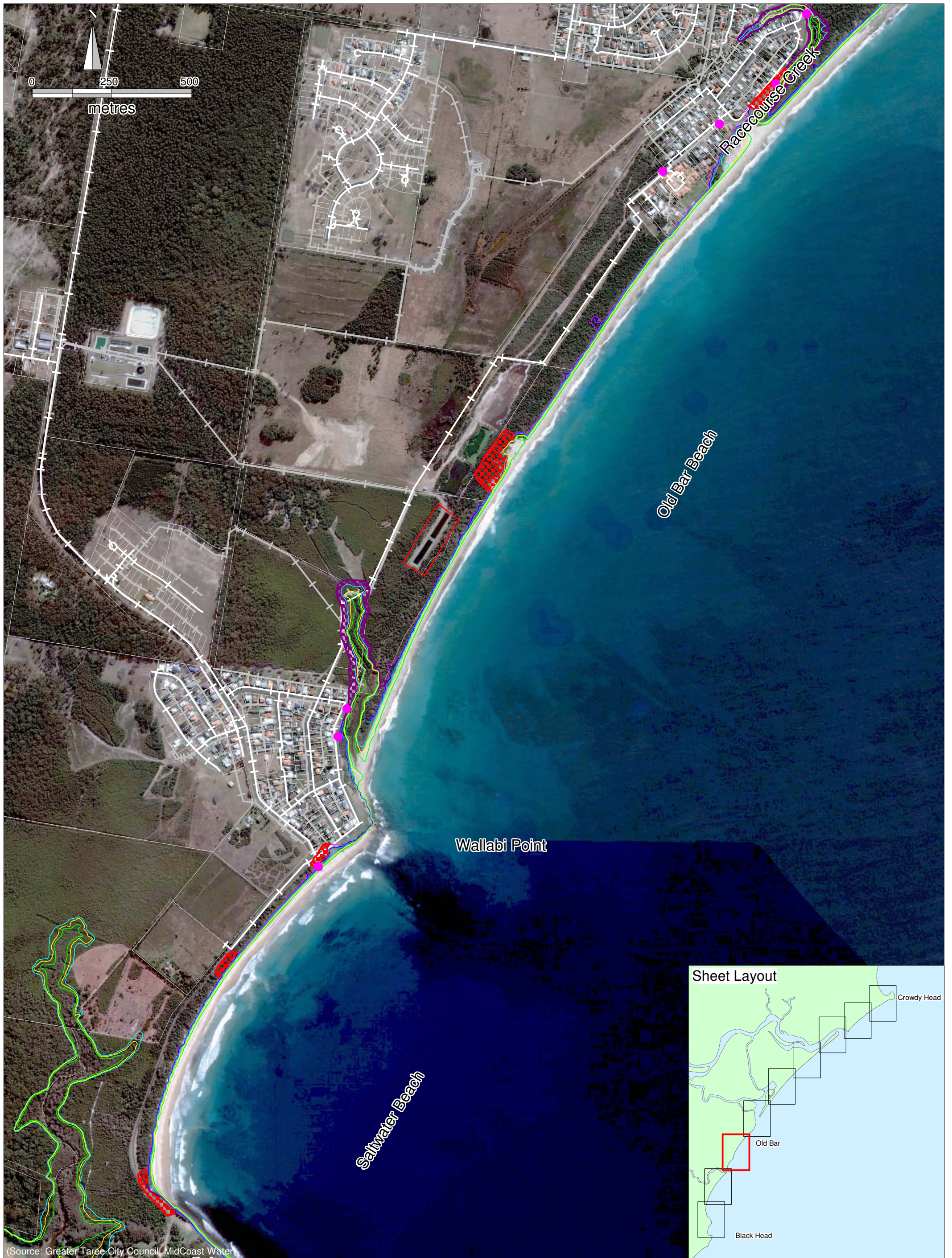
Source: Greater Taree City Council, MidCoast Water

- Indicative Current and 100-Year Planning Period Design Ocean Water Levels and Wave Runup Levels**
- Current Design Still Water Level (2.7m AHD)
  - 100-yr Design Water Level + Mid-Range SLR (3.3m AHD)
  - 100-yr Design Water Level + High-Range SLR (3.6m AHD)
  - Current Design Wave Runup Level (5.3m AHD)
  - 100-yr Design Wave Runup Level + Mid-Range SLR (5.9m AHD)
  - 100-yr Design Wave Runup Level + High-Range SLR (6.2m AHD)
  - ▨ Potential overtopping due to wave runup
  - ▨ Potential minor inundation due to wave action

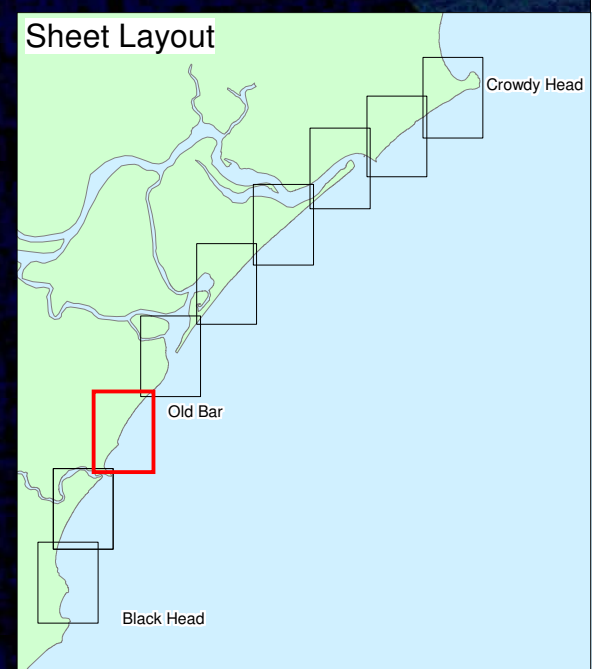
- ▭ Exfiltration Ponds
- Sewer Network
- Water Network
- Stormwater Outlets on to Beach



Greater Taree City Council  
 Black Head to Crowdy Head  
 Coastline Hazard Definition Study  
**Potential Coastal Inundation and Coastal Stormwater, Sewer and Water Infrastructure**  
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(Source: Greater Taree City Council, MidCoast Water)



- Indicative Current and 100-Year Planning Period Design Ocean Water Levels and Wave Runup Levels**
- Current Design Still Water Level (2.7m AHD)
  - 100-yr Design Water Level + Mid-Range SLR (3.3m AHD)
  - 100-yr Design Water Level + High-Range SLR (3.6m AHD)
  - Current Design Wave Runup Level (5.3m AHD)
  - 100-yr Design Wave Runup Level + Mid-Range SLR (5.9m AHD)
  - 100-yr Design Wave Runup Level + High-Range SLR (6.2m AHD)
  - ▤ Potential overtopping due to wave runup
  - ▤ Potential minor inundation due to wave action
  - Exfiltration Ponds
  - +— Sewer Network
  - Water Network
  - Stormwater Outlet



Greater Taree City Council  
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**Potential Coastal Inundation and Coastal Stormwater, Sewer and Water Infrastructure**  
 September 2010 Figure 19c



(Source: Greater Taree City Council, MidCoast Water)

- | Indicative Current and 100-Year Planning Period Design Ocean Water Levels and Wave Runup Levels |  |  |   |
|---|--|--|---|
|   | Current Design Still Water Level (2.7m AHD)                |  | Exfiltration Ponds                            |
|   | 100-yr Design Water Level + Mid-Range SLR (3.3m AHD)       |  | Sewer Network                                 |
|   | 100-yr Design Water Level + High-Range SLR (3.6m AHD)      |  | Water Network                                 |
|   | Current Design Wave Runup Level (5.3m AHD)                 |  | Stormwater Outlet                             |
|   | 100-yr Design Wave Runup Level + Mid-Range SLR (5.9m AHD)  |  | Potential overtopping due to wave runup       |
|   | 100-yr Design Wave Runup Level + High-Range SLR (6.2m AHD) |  | Potential minor inundation due to wave action |

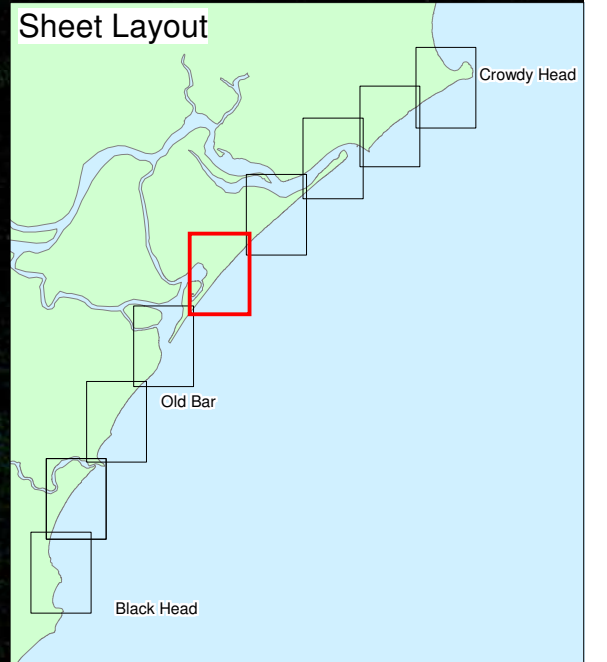
**WorleyParsons**  
resources & energy

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Black Head to Crowdy Head  
Coastline Hazard Definition Study  
**Potential Coastal Inundation and Coastal  
Stormwater, Sewer and Water Infrastructure**  
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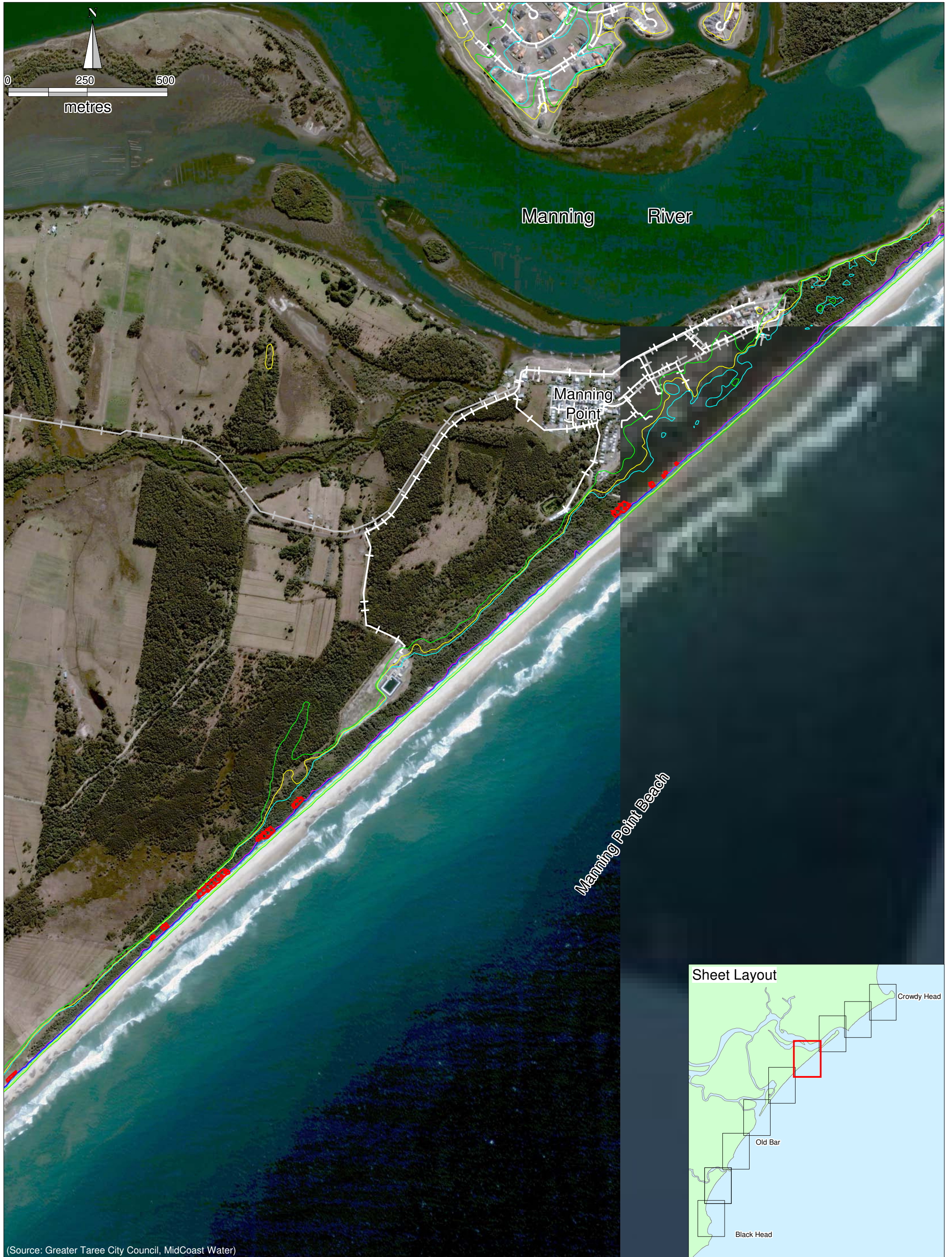
(Source: Greater Taree City Council, MidCoast Water)



Indicative Current and 100-Year Planning Period Design Ocean Water Levels and Wave Runup Levels		
Current Design Still Water Level (2.7m AHD)	100-yr Design Wave Runup Level + Mid-Range SLR (5.9m AHD)	Exfiltration Ponds
100-yr Design Water Level + Mid-Range SLR (3.3m AHD)	100-yr Design Wave Runup Level + High-Range SLR (6.2m AHD)	Sewer Network
100-yr Design Water Level + High-Range SLR (3.6m AHD)	Potential overtopping due to wave runup	Water Network
Current Design Wave Runup Level (5.3m AHD)	Potential minor inundation due to wave action	Stormwater Outlet

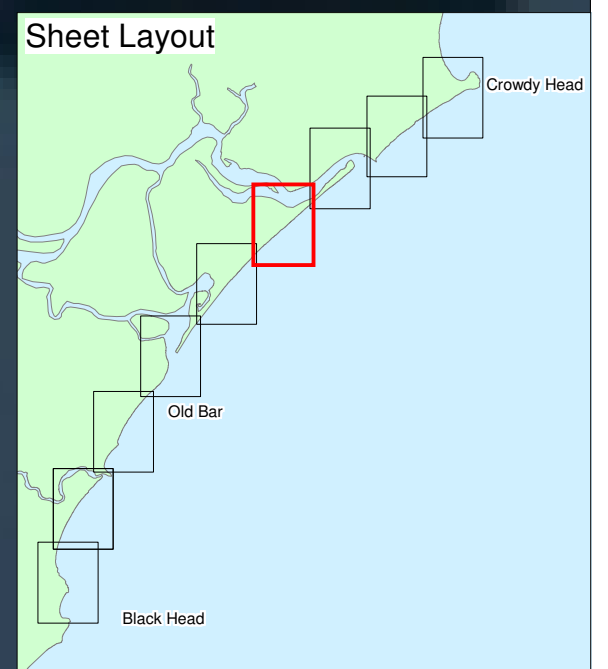


Greater Taree City Council  
 Black Head to Crowdy Head  
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**Potential Coastal Inundation and Coastal Stormwater, Sewer and Water Infrastructure**  
 September 2010 Figure 19e



(Source: Greater Taree City Council, MidCoast Water)

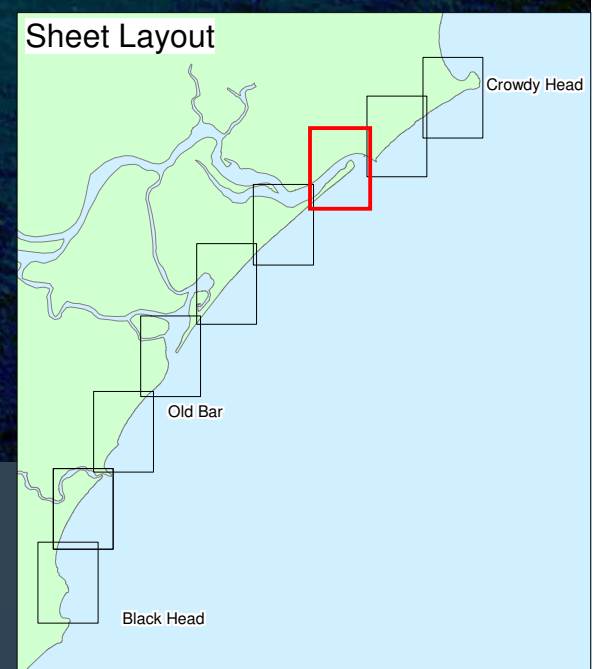
Indicative Current and 100-Year Planning Period Design Ocean Water Levels and Wave Runup Levels			
	Current Design Still Water Level (2.7m AHD)		Exfiltration Ponds
	100-yr Design Water Level + Mid-Range SLR (3.3m AHD)		Sewer Network
	100-yr Design Water Level + High-Range SLR (3.6m AHD)		Water Network
	Current Design Wave Runup Level (5.3m AHD)		Stormwater Outlet
	100-yr Design Wave Runup Level + Mid-Range SLR (5.9m AHD)		Potential overtopping due to wave runup
	100-yr Design Wave Runup Level + High-Range SLR (6.2m AHD)		Potential minor inundation due to wave action



Greater Taree City Council  
 Black Head to Crowdy Head  
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**Potential Coastal Inundation and Coastal Stormwater, Sewer and Water Infrastructure**  
 September 2010 Figure 19f



(Source: Greater Taree City Council, MidCoast Water)



- | Indicative Current and 100-Year Planning Period Design Ocean Water Levels and Wave Runup Levels |  |                    |
|---|--|--------------------|
| Current Design Still Water Level (2.7m AHD)   | 100-yr Design Wave Runup Level + Mid-Range SLR (5.9m AHD)  | Exfiltration Ponds |
| 100-yr Design Water Level + Mid-Range SLR (3.3m AHD)  | 100-yr Design Wave Runup Level + High-Range SLR (6.2m AHD) | Sewer Network      |
| 100-yr Design Water Level + High-Range SLR (3.6m AHD)   | Potential overtopping due to wave runup                    | Water Network      |
| Current Design Wave Runup Level (5.3m AHD)  | Potential minor inundation due to wave action              | Stormwater Outlet  |

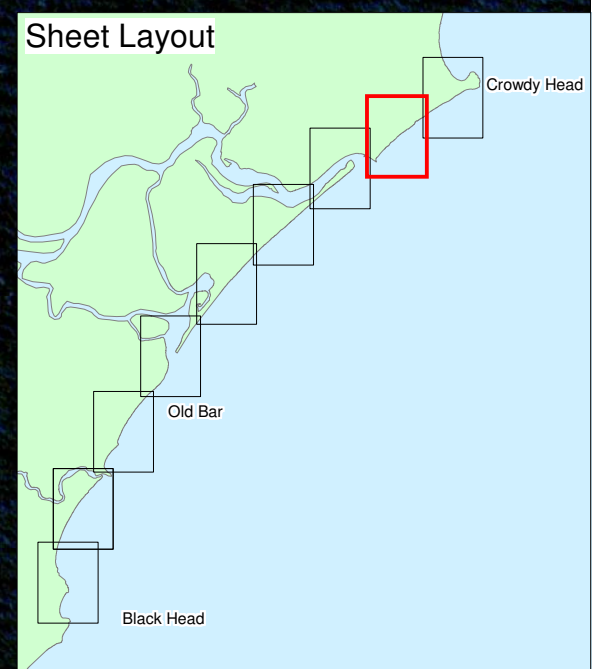


Greater Taree City Council  
 Black Head to Crowdy Head  
 Coastline Hazard Definition Study  
**Potential Coastal Inundation and Coastal  
 Stormwater, Sewer and Water Infrastructure**  
 September 2010 Figure 19g



(Source: Greater Taree City Council, MidCoast Water)

Indicative Current and 100-Year Planning Period Design Ocean Water Levels and Wave Runup Levels			
	Current Design Still Water Level (2.7m AHD)		Potential overtopping due to wave runup
	100-yr Design Water Level + Mid-Range SLR (3.3m AHD)		Potential minor inundation due to wave action
	100-yr Design Water Level + High-Range SLR (3.6m AHD)		Exfiltration Ponds
	Current Design Wave Runup Level (5.3m AHD)		Sewer Network
	100-yr Design Wave Runup Level + Mid-Range SLR (5.9m AHD)		Water Network
	100-yr Design Wave Runup Level + High-Range SLR (6.2m AHD)		Stormwater Outlet



Greater Taree City Council  
 Black Head to Crowdy Head  
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 September 2010 Figure 19h



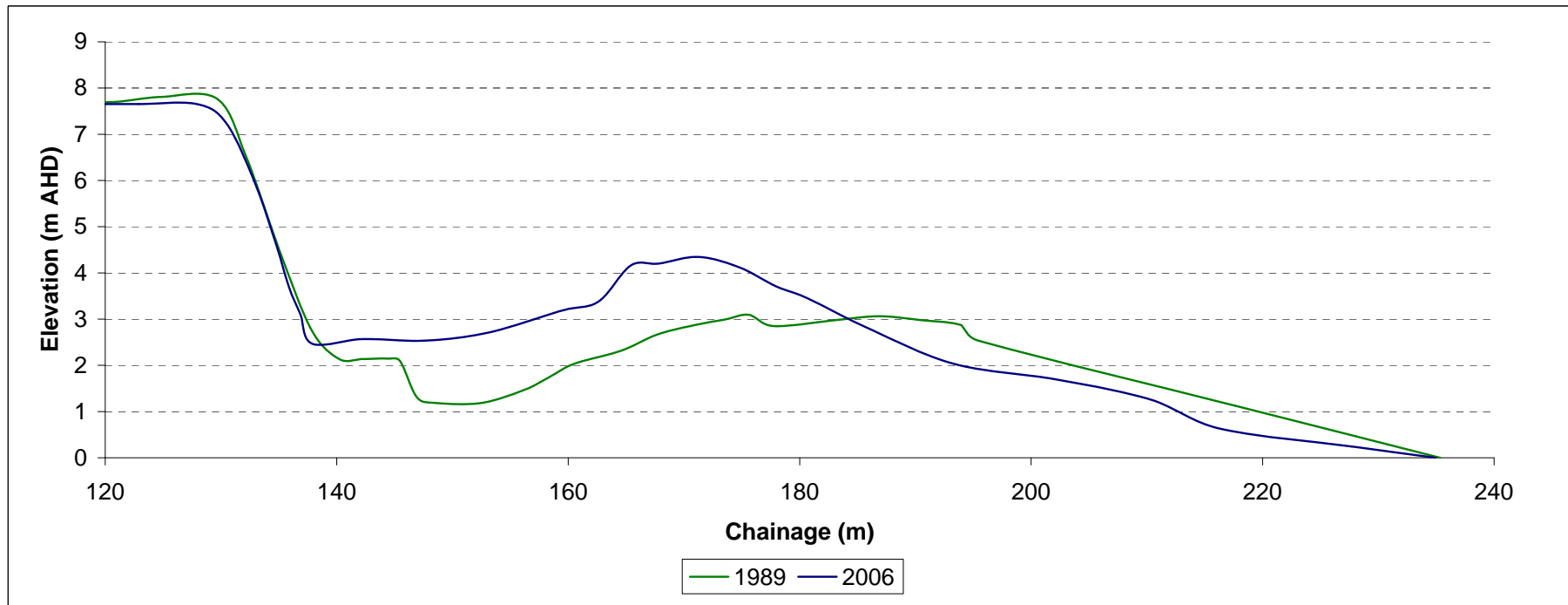


(Source: Greater Taree City Council, MidCoast Water)

- | Indicative Current and 100-Year Planning Period Design Ocean Water Levels and Wave Runup Levels |  |                    |
|---|--|--------------------|
| Current Design Still Water Level (2.7m AHD)   | 100-yr Design Wave Runup Level + Mid-Range SLR (5.9m AHD)  | Exfiltration Ponds |
| 100-yr Design Water Level + Mid-Range SLR (3.3m AHD)  | 100-yr Design Wave Runup Level + High-Range SLR (6.2m AHD) | Sewer Network      |
| 100-yr Design Water Level + High-Range SLR (3.6m AHD)   | Potential overtopping due to wave runup                    | Water Network      |
| Current Design Wave Runup Level (5.3m AHD)  | Potential minor inundation due to wave action              | Stormwater Outlet  |



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 Stormwater, Sewer and Water Infrastructure**  
 September 2010 Figure 19i



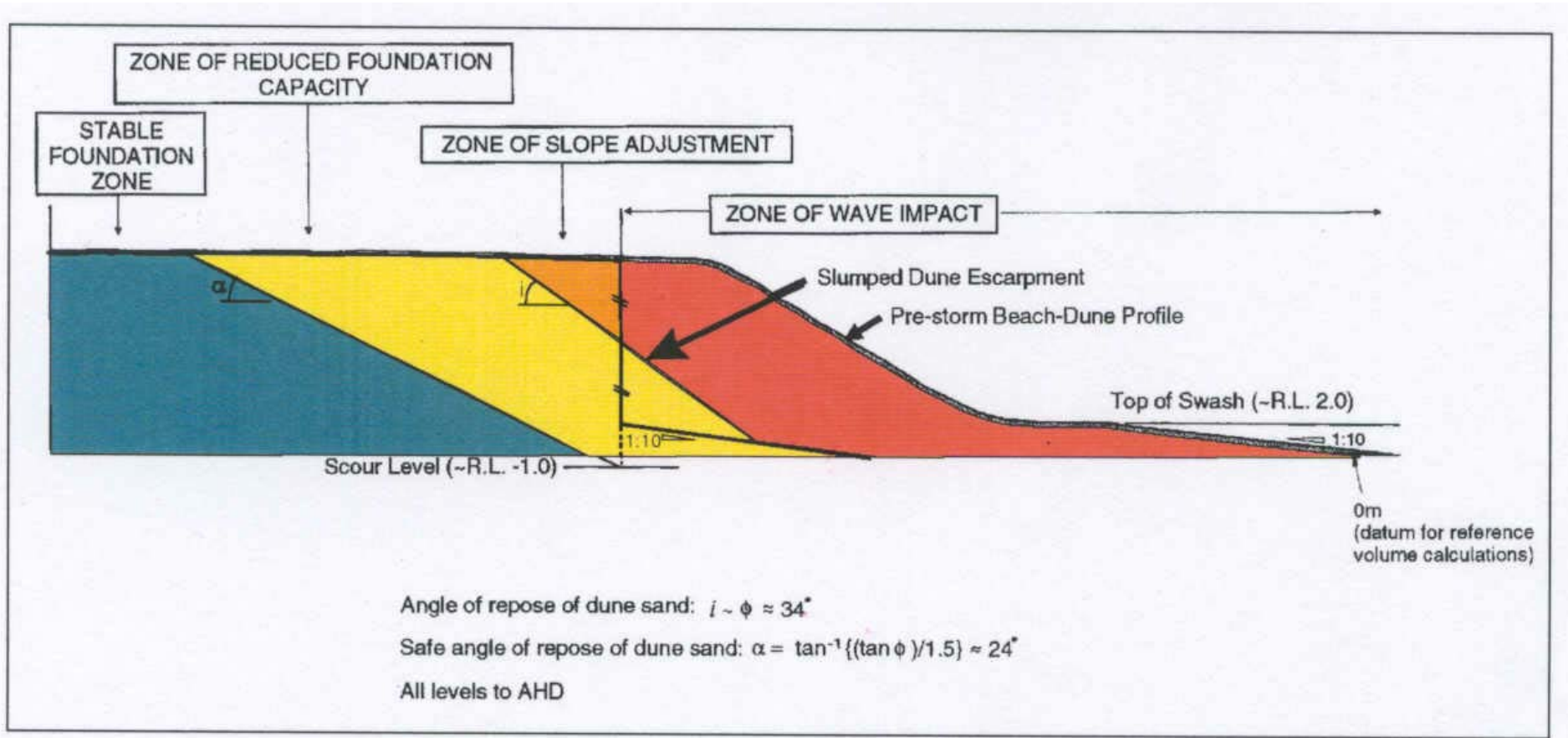
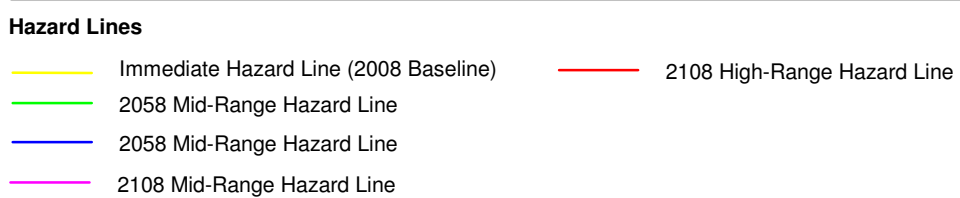


Figure 21. Schematic representation of coastline hazard zones (after Nielsen et al, 1992)



Greater Taree City Council  
 Black Head to Crowdy Head  
 Coastline Hazard Definition Study  
 Immediate, 2058 and 2108 Hazard Lines  
 September 2010 Figure 22a



- Hazard Lines**
- Immediate Hazard Line (2008 Baseline)
  - 2058 Mid-Range Hazard Line
  - 2058 Mid-Range Hazard Line
  - 2108 Mid-Range Hazard Line
  - 2108 High-Range Hazard Line

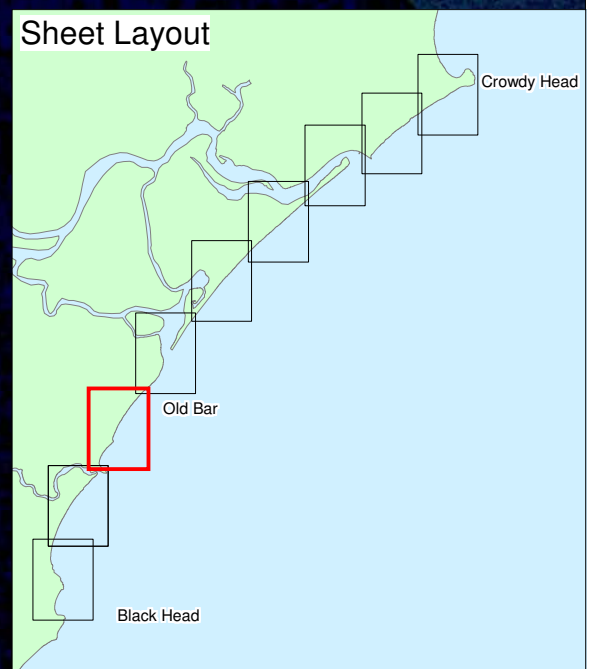


Greater Taree City Council  
 Black Head to Crowdy Head  
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 Immediate, 2058 and 2108 Hazard Lines  
 September 2010

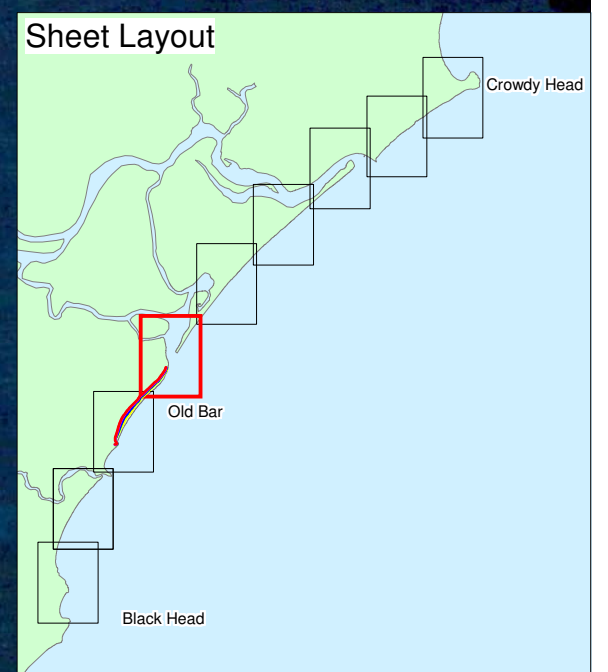
Figure 22b



- Hazard Lines**
- Immediate Hazard Line (2008 Baseline)
  - 2058 Mid-Range Hazard Line
  - 2058 Mid-Range Hazard Line
  - 2018 High-Range Hazard Line
  - 2018 Mid-Range Hazard Line



Greater Taree City Council  
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 Immediate, 2058 and 2108 Hazard Lines  
 September 2010 Figure 22c



- Hazard Lines**
- Immediate Hazard Line (2008 Baseline)
  - 2058 Mid-Range Hazard Line
  - 2058 Mid-Range Hazard Line
  - 2108 Mid-Range Hazard Line
  - 2108 High-Range Hazard Line

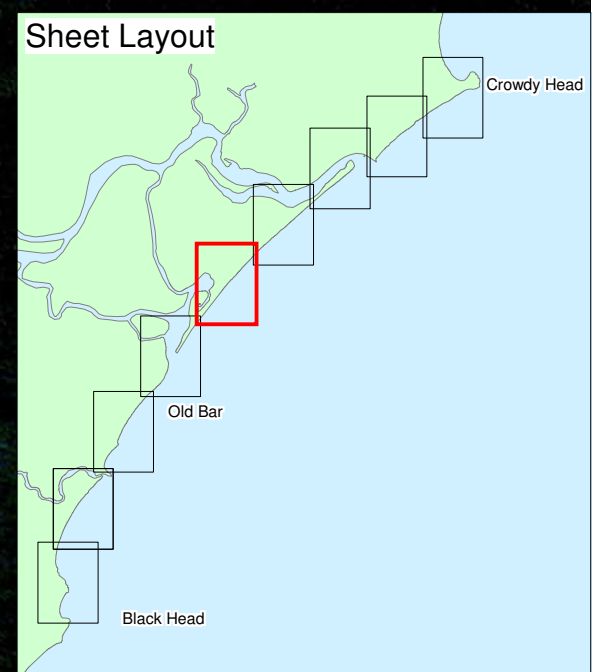


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 Black Head to Crowdy Head  
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September 2010

Figure 22d

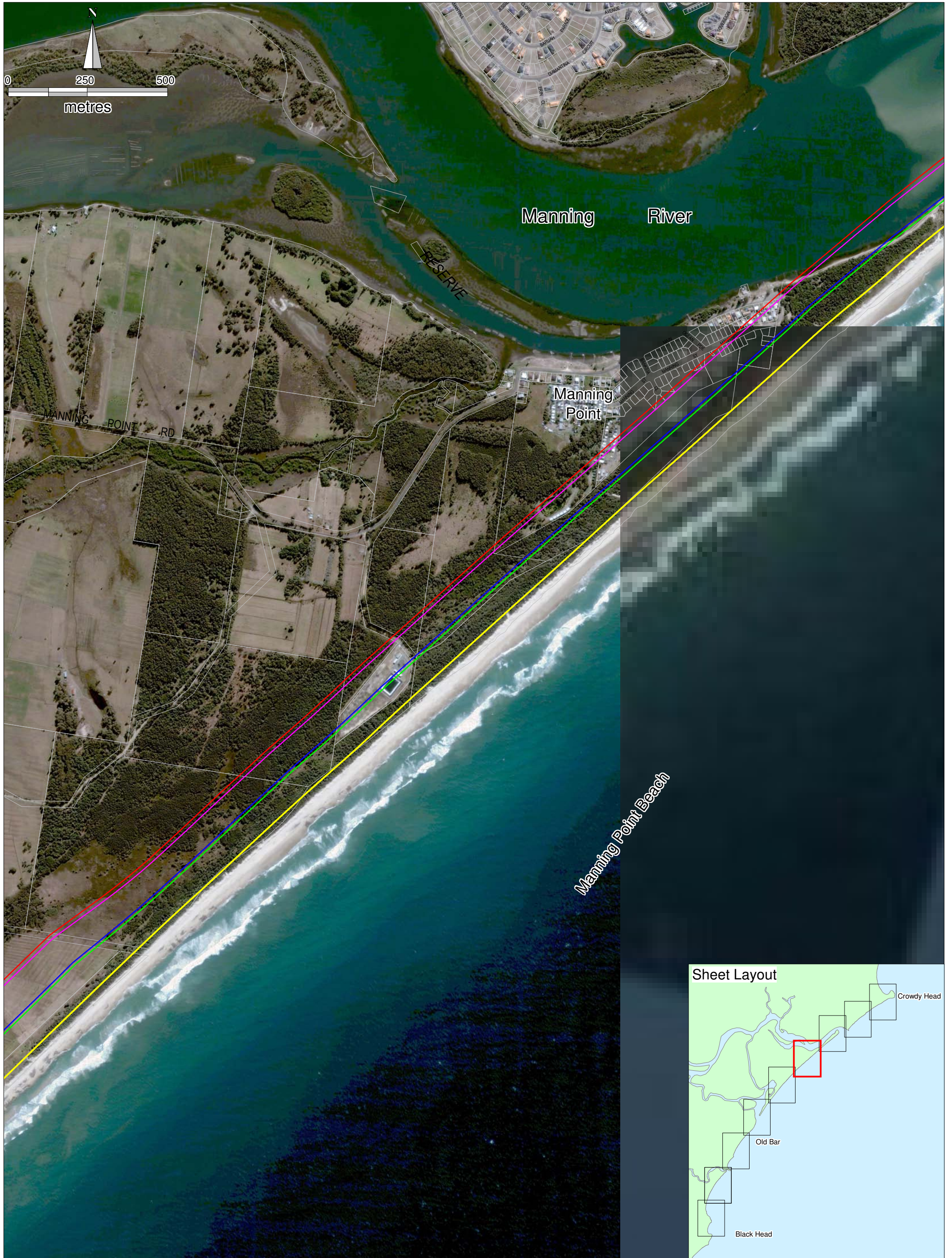


- Hazard Lines**
- Immediate Hazard Line (2008 Baseline)
  - 2058 Mid-Range Hazard Line
  - 2058 Mid-Range Hazard Line
  - 2108 Mid-Range Hazard Line
  - 2108 High-Range Hazard Line



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 Black Head to Crowdy Head  
 Coastline Hazard Definition Study  
 Immediate, 2058 and 2108 Hazard Lines  
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- Hazard Lines**
- Immediate Hazard Line (2008 Baseline)
  - 2058 Mid-Range Hazard Line
  - 2058 Mid-Range Hazard Line
  - 2108 Mid-Range Hazard Line
  - 2108 High-Range Hazard Line



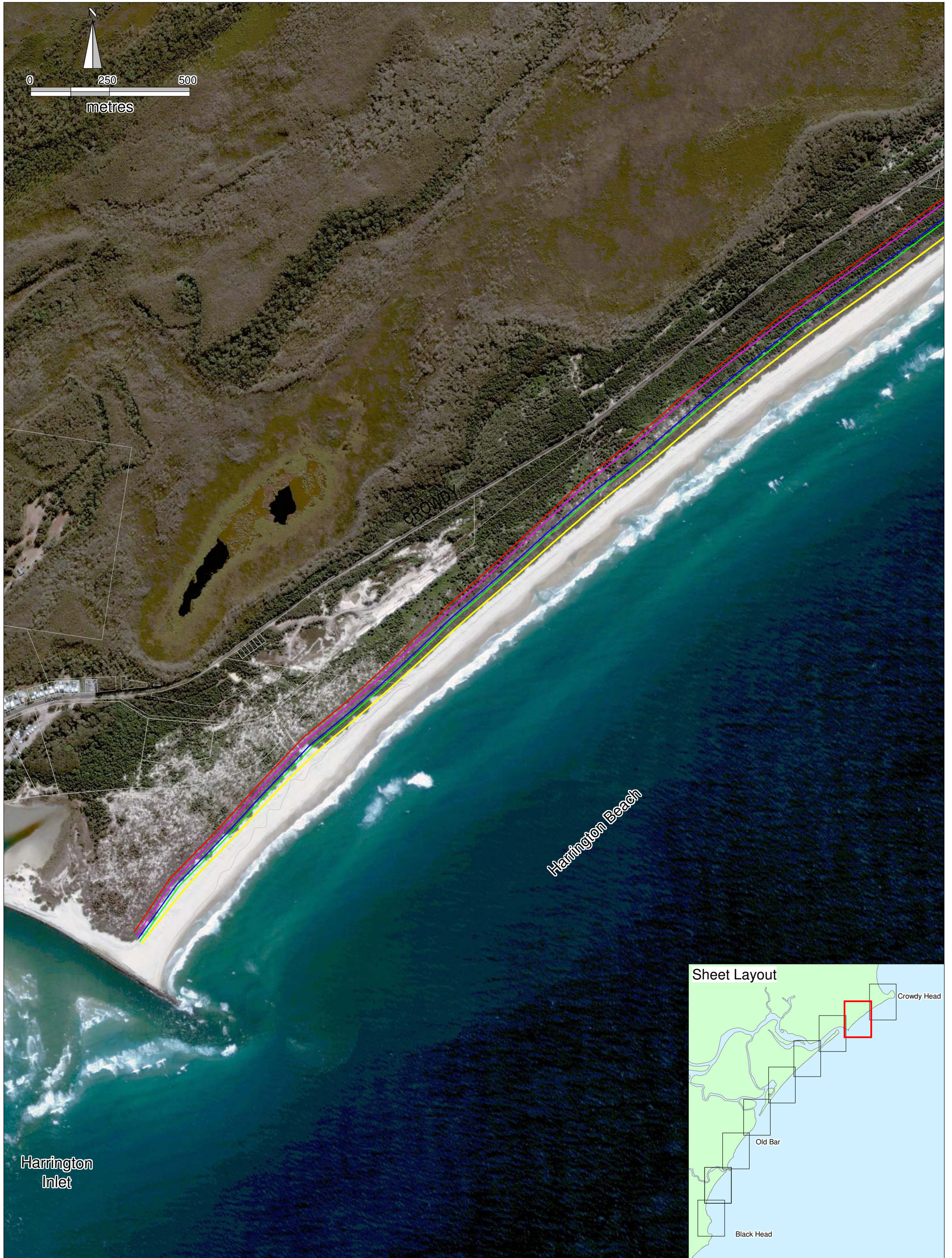
Greater Taree City Council  
 Black Head to Crowdy Head  
 Coastline Hazard Definition Study  
**Immediate, 2058 and 2108 Hazard Lines**  
 September 2010 Figure 22f



- Hazard Lines**
- Immediate Hazard Line (2008 Baseline)
  - 2058 Mid-Range Hazard Line
  - 2058 Mid-Range Hazard Line
  - 2018 Mid-Range Hazard Line
  - 2018 High-Range Hazard Line



Greater Taree City Council  
 Black Head to Crowdy Head  
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**Immediate, 2058 and 2018 Hazard Lines**  
 September 2010 Figure 22g



**Hazard Lines**

	Immediate Hazard Line (2008 Baseline)		2108 High-Range Hazard Line
	2058 Mid-Range Hazard Line		
	2058 Mid-Range Hazard Line		
	2108 Mid-Range Hazard Line		



Greater Taree City Council  
 Black Head to Crowdy Head  
 Coastline Hazard Definition Study  
 Immediate, 2058 and 2108 Hazard Lines  
 September 2010

Figure 22h



- Hazard Lines**
- Immediate Hazard Line (2008 Baseline)
  - 2058 Mid-Range Hazard Line
  - 2058 Mid-Range Hazard Line
  - 2018 Mid-Range Hazard Line
  - 2108 High-Range Hazard Line



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Figure 22i