Sovereign Harbour' s Sea Defences

Ian Thomas – PCDL Project Manager

History of harbour defences

Carillion v Environment Agency

Agreed Protection Measures

Current management

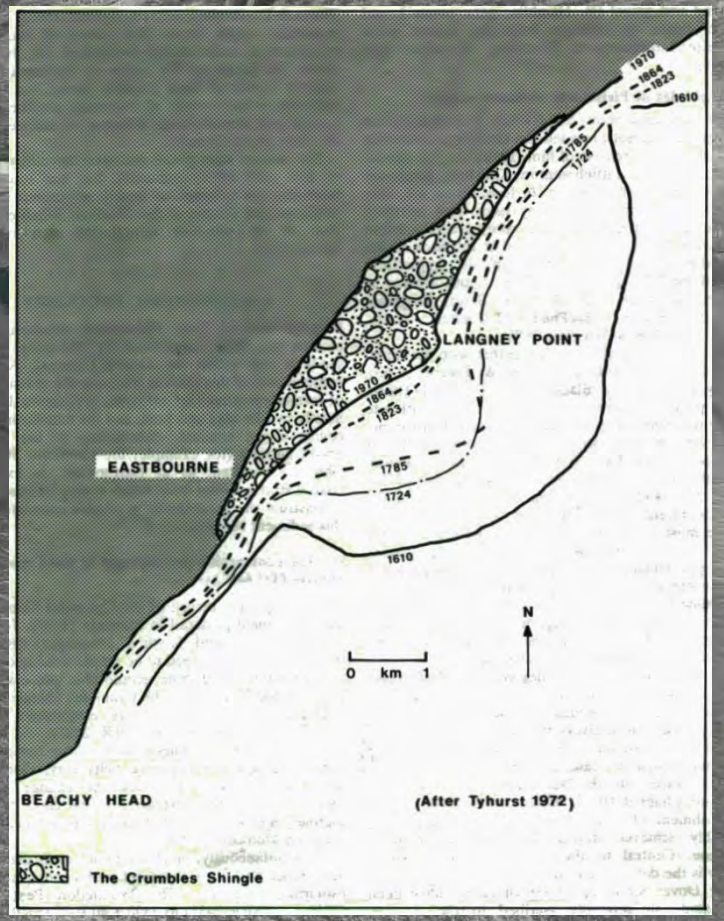


Sovereign Harbour 1973

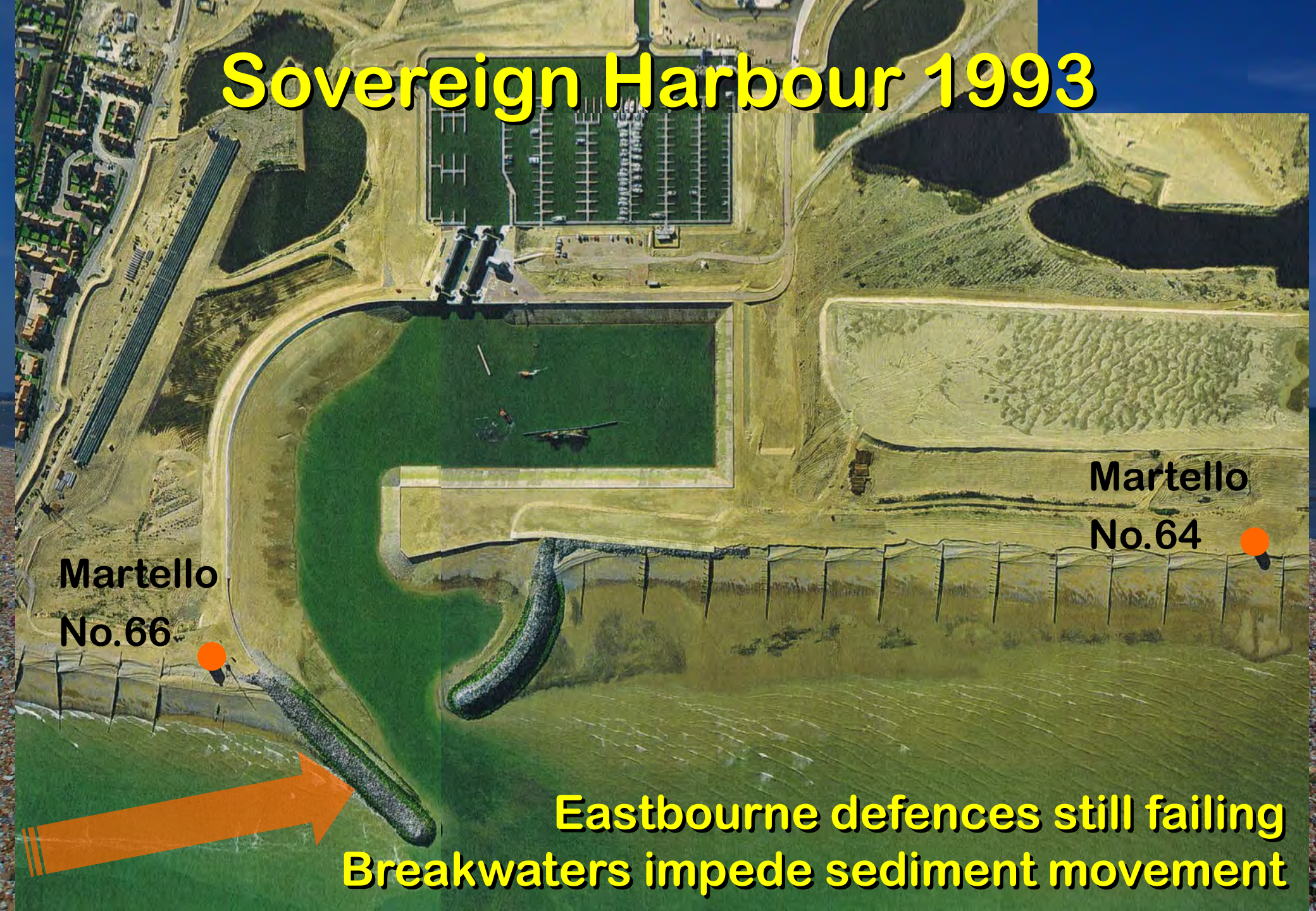
"The Crumbles"
Cuspate Foreland
In 1600 3km seaward

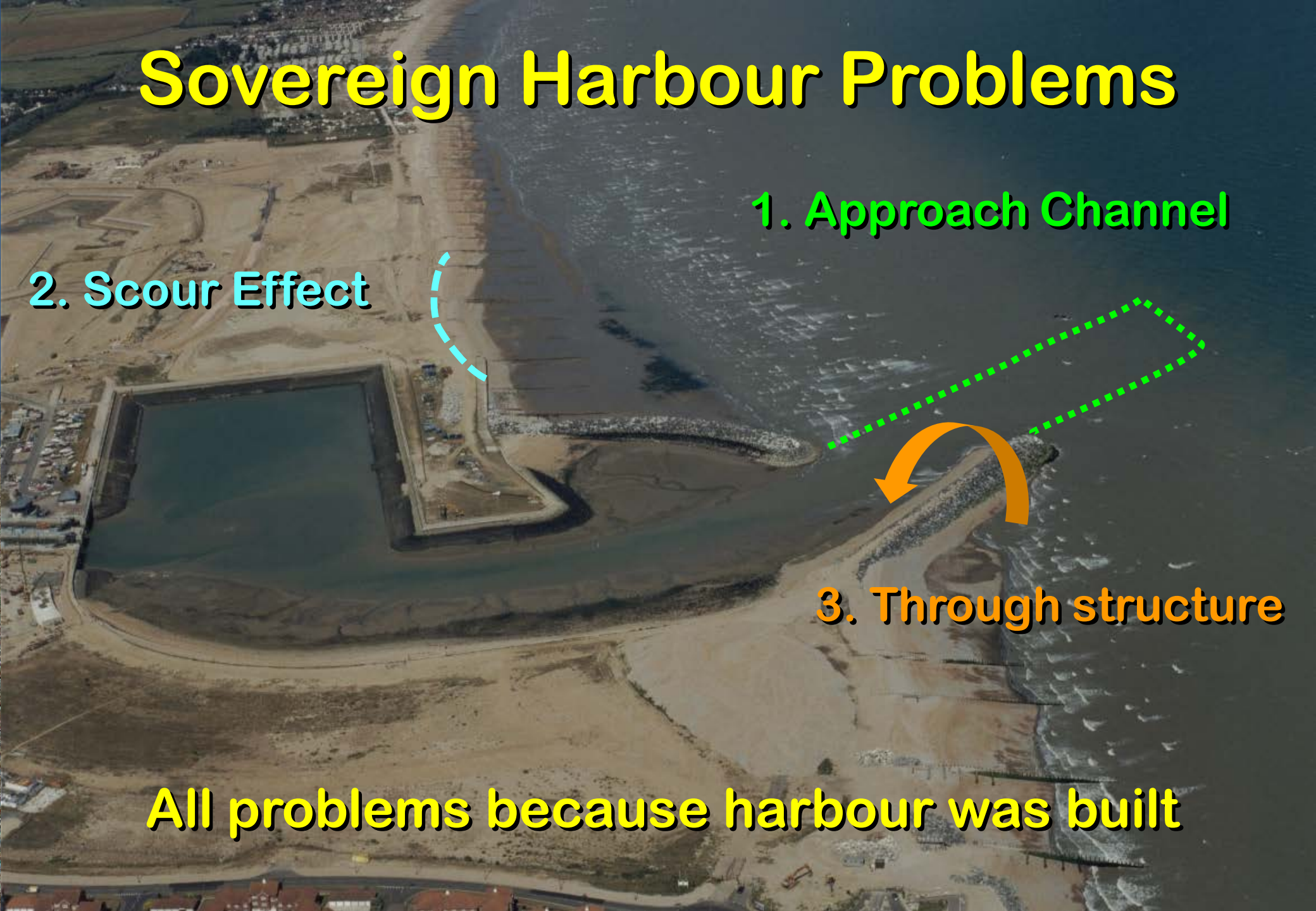
Martello
No.66

Free sediment movement
West to East




Sovereign Harbour 1992
Martello
No.64
Martello
No.66
Free sediment movement
Eastbourne defences failing


Sovereign Harbour 1993
Martello
No.64
Martello
No.66
Eastbourne defences still failing
Breakwaters impede sediment movement


Sovereign Harbour Problems
1. Approach Channel
2. Scour Effect
3. Through structure
All problems because harbour was built

Sovereign Harbour Problems

Additionally;

- **No bypassing 1993 – 1999**
- **NE Beach groynes fell over**
- **Carillion v Environment Agency**

Shingle Stockpile
c40,000m^3





Carillion – Agency Disagreement



Intent to include in 2000 contract

Carillion – Agency Disagreement

No Scour Protection

No Bypassing Agreement

Denuded Beaches North of Marina

Harbour Omitted from 2000 Agreement

Sovereign Harbour's Defences



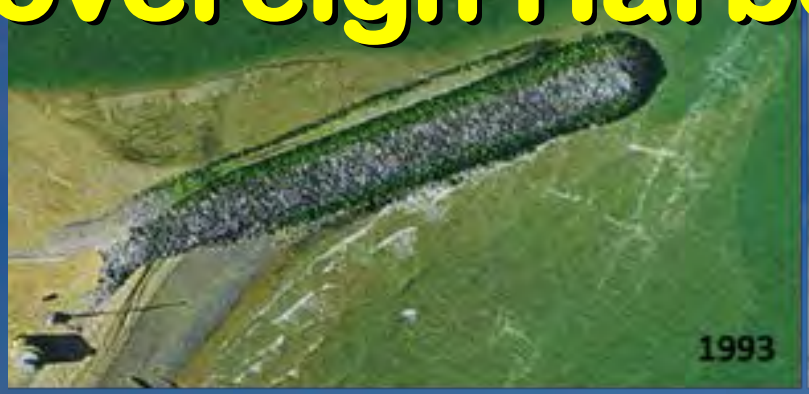


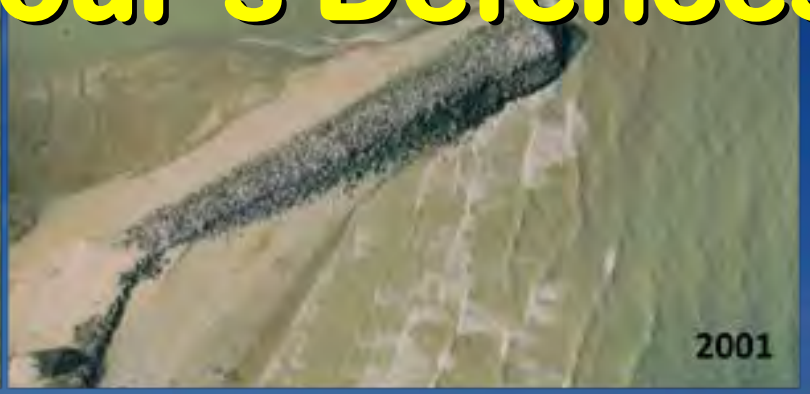
Carillion agreed to provide;
Rock revetment

- **450 m long**
- **2.4m thick**
- **50% buried**

Constructed in 2001

Sovereign Harbour's Defences

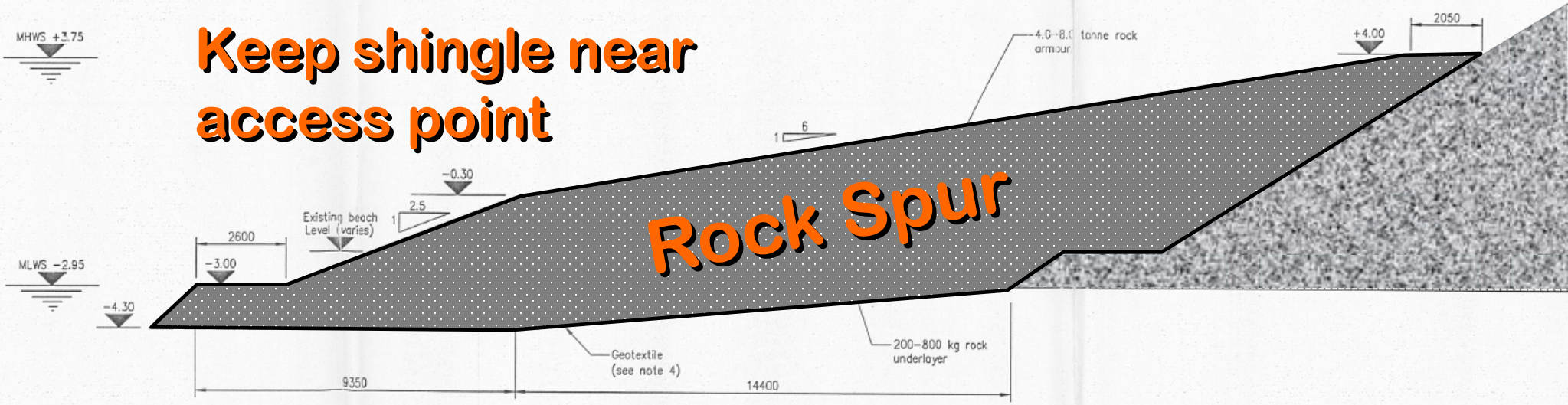








Keep shingle near access point



Sovereign Harbour's Defences

Summary

2001 Carillion provided;

- Rock Revetment (NE Beach)
- Rock Spur (SW Beach)
- Access to stockpile

2002 Environment Agency took over maintenance

2003 Negotiated extension to PCDL contract

Management Strategy

Annual Replenishment



Regular Recycling





Monthly Monitoring



Winter Reprofiling



Shingle Bypassing



Groynes

Why are they not being replaced?

Environment Tropical hardwood - Greenheart
100years to grow, last 30-40 years
1-2 trees/acre of rainforest

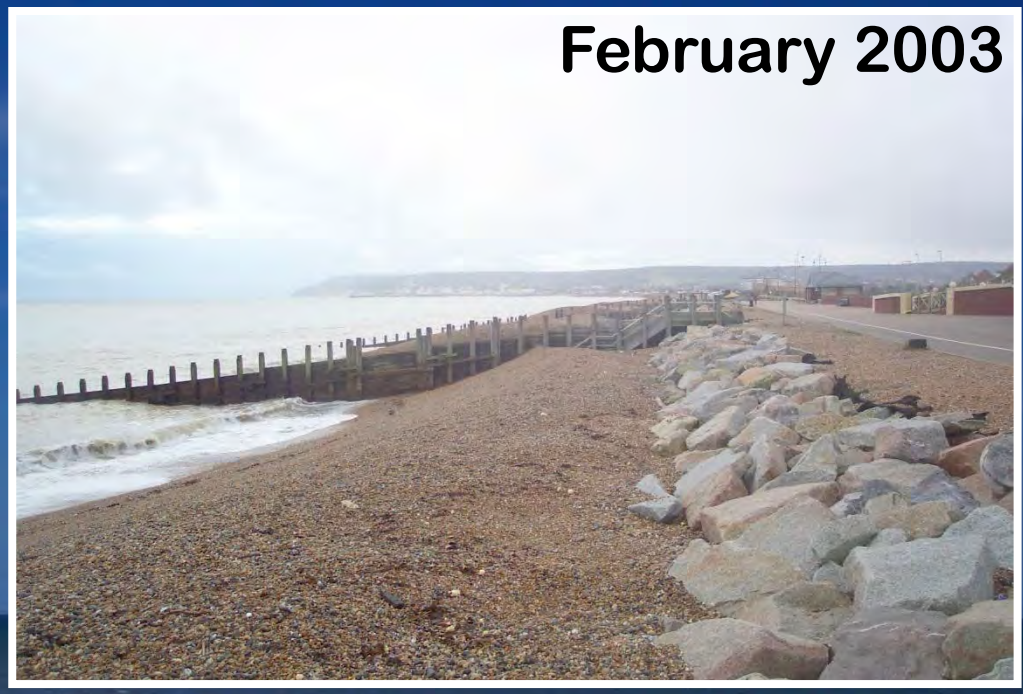
Economics 150 groynes @ £100,000?

Modern plant Move shingle all winter for 4 groynes

Technical Don't work how people think
…an example from Langney

Also see www.pevensey-bay.co.uk/feature



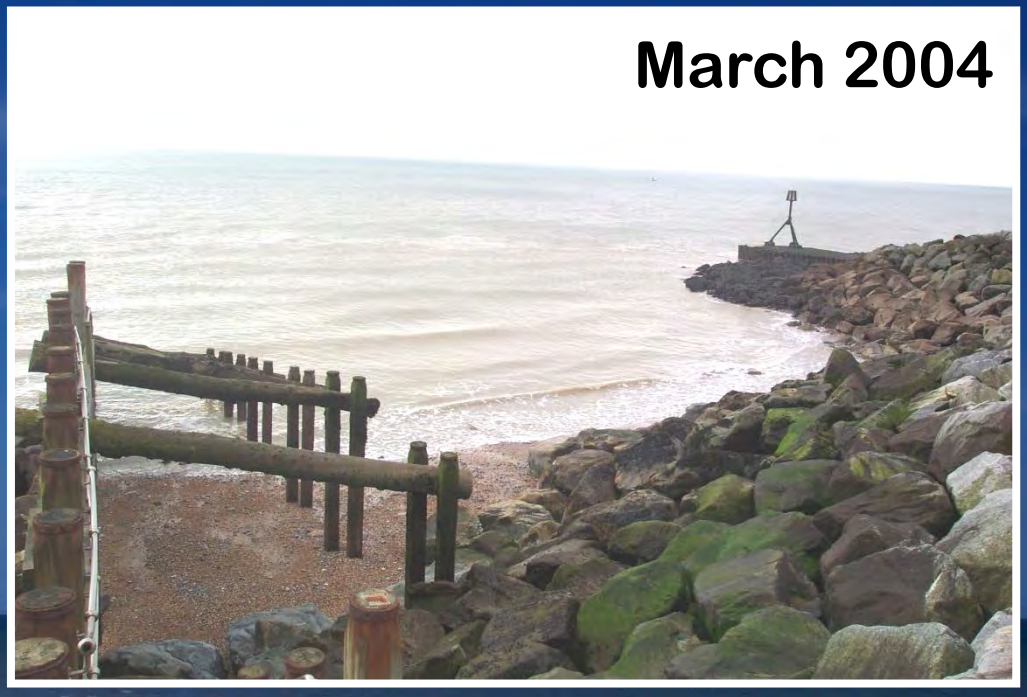






West side of Langney Outfall









East side of Langney Outfall





Result – Severe under-run





East side of Outfall

Management Strategy

Contracted to;

Maintain historic crest position and historic beach volumes

Allowed up to 5m crest recession
Repairs prioritised by risk

Bypassing





Constraints imposed by EBC

When, where, and route





Quantity; weather & EBC works

Reprofiling





Repair of crest recession





Recycling





Return eroded shingle from downdrift

Small storms from PBSC





Larger events may be from Cooden

Replenishment (August)

















Post Replenishment


Management Strategy
All works are intrusive
Minimised where possible
This is an eroding coast
and
No machines in summer so everyone can enjoy the beach