

Your Ref: PD/WE 2/2/203 (R226)
Our Ref: NN5635.185A/DDP/mf
Enquiries To: D du Plessis
Date: 4 March 1997

LIEBENBERG & STANDER
KwaZulu-Natal (Pty) Ltd
CONSULTING ENGINEERS AND PROJECT MANAGERS
REGISTERED FROM SOUTH AFRICAN ASSOCIATION OF CONSULTING ENGINEERS
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PLAN ON SUBSTRUCTURE
SCALE 1:200

PLAN ON QUAY DECK
SCALE 1:200

Refer to Annexure B for more details on Design Loading.
1.3 Factors of Safety for Overall Stability Considerations
The FOS for overall stability of the quay construction, for all combinations of design loads, is 1,5. The FOS against slip circle failure of the embankment is 1,25.

- 1. Design Criteria**
- 1.1 Material Properties and Related Matters**
- a) Concrete strength : Class 35 MPa/19 aggregate for reinforced concrete.
Concrete strength : Class 20 MPa/19 aggregate for blinding concrete.
 - b) Concrete cover to reinforcement : 100 mm to diaphragm walls
100 mm to capping beams
50 mm to quay slab
 - c) Reinforcement strength : Characteristic strength of high - yield steel (SABS 920) = 450 MPa.
 - d) Soil constants :
Sand : saturated unit weight : 20kN/m³
co-efficient of active earth pressure : 0,30
co-efficient of passive earth pressure : 3,00
Clay : saturated unit weight : 16kN/m³
co-efficient of active earth pressure : 0,38
co-efficient of passive earth pressure : 2,40
- 1.2 Design Loads**
- a) Transporter bogey loads : 80 kPa, to be applied on plan footprint areas as specified by the load-out contractor
 - b) Soil pressure for retaining walls : Effects of surcharge from transporter loads to be taken into account.
 - c) Wave pressures on barettes : Negligible
 - d) Bollard forces : Horizontal force of 35Tt, at right angles to the quay in a seaward direction, and 50,0Tt, parallel to the quay in a longitudinal direction.
 - e) Link bridge loads : 27,0Tt/m vertical line load on the eastward side of the capping beam.
 - f) Fender forces : 128,0Tt from barge reaction during load-out.

Property Manager
Portnet
PO Box 1027
DURBAN
4000

Attention: Mr DN Ritson

Dear Sir,
**PORT OF DURBAN : PROPOSED FABRICATION YARD FOR INTERSHORE
SUB 10 OF LOT 10031, DURBAN**

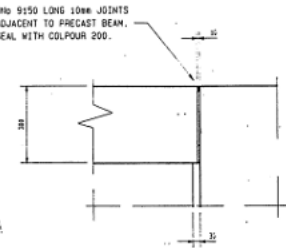
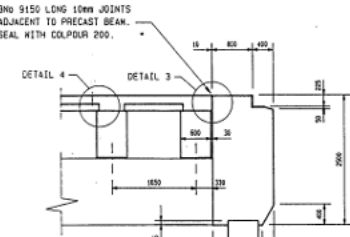
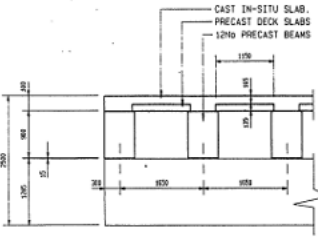
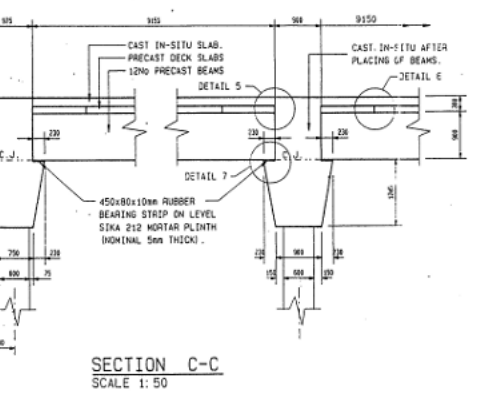
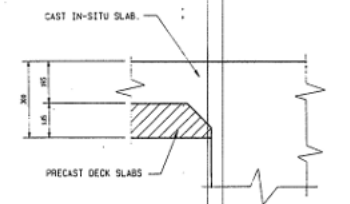
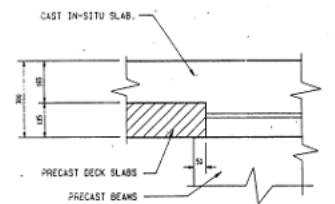
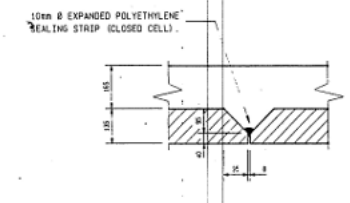
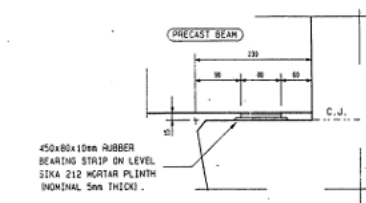
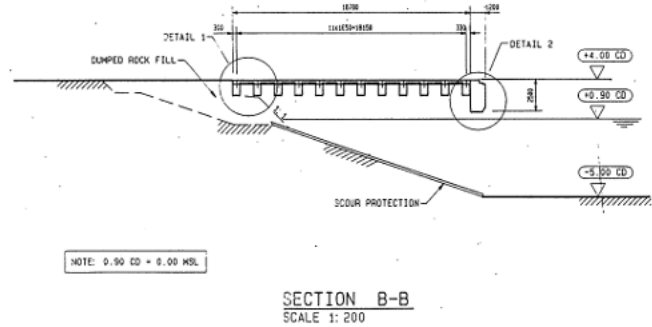
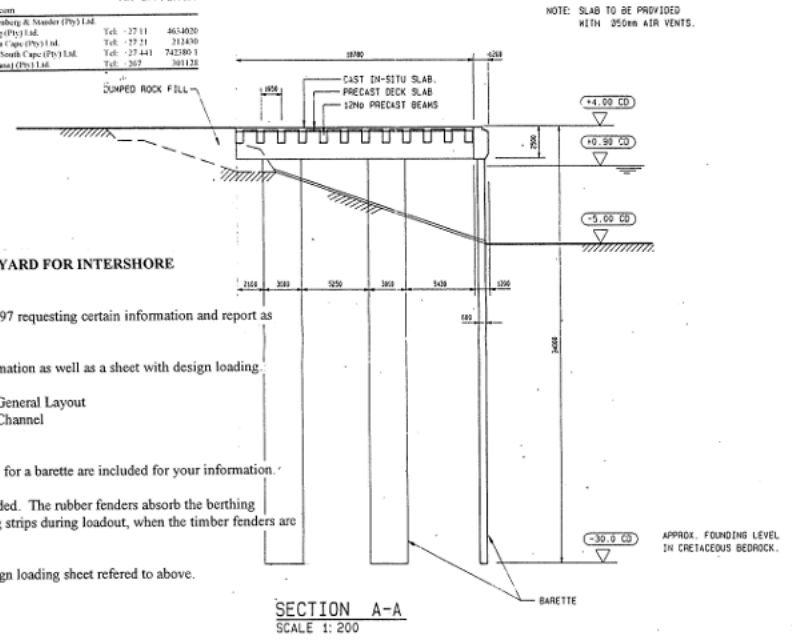
We refer to the above and your letter dated 14 January 1997 requesting certain information and report as follows :

1. A set of quay drawings are included for your information as well as a sheet with design loading. Drawing No's : 5635AN 408 : Barett Details
5635AN 407/8 : Loadout Quay - General Layout
5635AN 401/5 : Quay Approach Channel
5635AN 211/11 : Site layout
2. A barett is one panel of a diaphragm wall. Details for a barett are included for your information.
3. Both rubber and timber fendering have been provided. The rubber fenders absorb the berthing forces, while the timber fenders are used as rubbing strips during loadout, when the timber fenders are removed.
4. Details of the bollards loading is given on the design loading sheet referred to above.

Trust this information meets your requirements.

Yours faithfully
[Signature]

D du Plessis
Liebenberg & Stander KwaZulu-Natal (Pty) Ltd



- GENERAL NOTES:**
1. DESIGN INFORMATION: DESIGNED IN ACCORDANCE WITH SABS 8100 (1992)
 2. CHARACTERISTIC STRENGTH OF MATERIALS:
CONCRETE STRENGTH: BLINDING CLASS 20/19 (MPa/mm); BARETTES CLASS 30/19; BEAMS AND SLABS CLASS 35/19
REINFORCEMENT TO COMPLY WITH THE REQUIREMENTS OF SABS 920 (1985)
WILD STEEL 250 MPa
HIGH TENSILE STEEL 450 MPa
 3. MINIMUM CONCRETE COVER TO REINFORCEMENT UNLESS OTHERWISE SHOWN
BARETTES: ENDS 150mm; SIDES 50mm; CONCRETE CAST AGAINST SOIL
ALL FORMED ELEMENTS 75mm
 4. SURFACE FINISH: EXPOSED SURFACES TO HAVE A SMOOTH SURFACE FINISH. ALL EXPOSED CORNERS TO BE CHAMFERED 20x20mm UNLESS OTHERWISE SHOWN
 5. ALL BARETTES TO BE NOMINAL 3000x6000 FOUNDERS IN CHETACEOUS BEDROCK, IE
 6. FENDERING: HARDWOOD FENDERS AT 4m C/C WITH 5/8 FASTENERS
 7. ALL CONSTRUCTION JOINT SURFACES OF PRECAST BEAMS, SLABS AND CAST IN-SITU CONCRETE TO BE PREPARED BY "GREEN CUTTING".

NB: FOR 3m Ø TYRE FENDER SEE DH64-B-706

NO.	DATE	REVISION DESCRIPTION
6	13/9/95	GENERAL REVISION

INTERSHORE FABRICATION YARD
SOUTH SANHA & NORTH N'DOLA PLATFORMS

LOADOUT QUAY - GENERAL LAYOUT

LIEBENBERG & STANDER

RAADWENDE INGENIEURS / CONSULTING ENGINEERS
LIEBENBERG & STANDER SENTRUM
ROSEBANK 1 SQUARE CAPE TOWN 8001
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5635 AN 407/8

DH 64-B-900 sht.