Boskalis
Dredging & Marine Experts

PROJECT SHEET

NEWCASTLE, AUSTRALIA
NCIG BERTHS 8 AND 9 DREDGING PROJECT

INTRODUCTION

For 200 years the Port of Newcastle has been Australia's premier coal export harbour. Of the 95 Mtpa of various commodities such as steel, aluminum, minerals and so forth exported from Newcastle in 2008-2009, 90.5 Mtpa were attributable to coal. Average annual growth rate of coal exports from 1990 to 2006 was 6.1%. This constant increase has caused a spike in ships queuing to enter the harbour to be loaded. To increase capacity and avoid these traffic jams, a decision was made to develop a new coal stockpile area and construct a third coal terminal.

In April 2007 the Newcastle Coal Infrastructure Group (NCIG) received approval from the New South Wales Government to proceed. NCIG has a 35-year lease on the 136-hectare site on Kooragang Island and construction on Stage One of the facilities with capacity to load 30Mtpa is almost completed. The shiploading facilities have been built to the west of the existing Kooragang shiploaders, with the new stockyards and rail facilities to the south-west of the Kooragang Coal Terminal. The port is located at the mouth of the Hunter River which, as part of the project, was deepened to allow ships to reach the new berths. The goal is to maximize the productivity of the Hunter Valley coal chain.

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FEATURES

Client	Newcastle Coal Infrastructure Group, with Aurecon Hatch as EPCM Contractor
Location	Newcastle, Australia
Period	November 2007 - May 2010
Contractor	Boskalis Dredeco Joint Venture

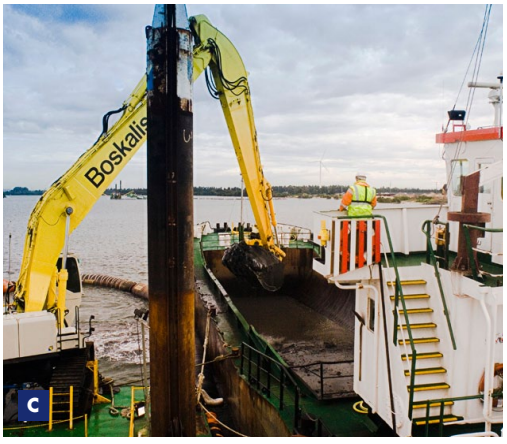
A

A Location map
B The cabins of the backhoes are equipped with state-of-the-art technology
C The backhoe operation in full swing
D Aerial view of the Newcastle project in progress

PROJECT SPECIFICATIONS

The original Boskalis Dredeco Joint Venture contract with NCIG was to dredge in preparation for Coal Export Terminal 3, with a capacity of 30 Mtpa. Material from the South Arm of the Hunter River would be removed to create two berth pockets (Kooragang K8 and K9). During execution of this Main Contract, however, additional works were added:

- the dredging to the west side of the K9 area to provide sufficient depth along the future K10 Berth Pocket for future wharf construction (this is part of the NCIG stage 2 works for 45 Mtpa),
- the precision environmental dredging of clean and contaminated materials



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D

in a Heavy Lift vessel Channel (HCL) and in the so-called Secondary Remediation Zone (SRZ) under a separate contract agreement
- dredging to the required depth for the Port Waratah Coals Services (PWCS) Kooragang K7 Berth Pocket and basin, combined with the NCIG Temporary Coal Shipping Channel (TCSC), which was executed as a variation under the scope of the original Main Works contract.

ENVIRONMENT AND SHALLOW WATERS PRESENT CHALLENGES

The K8 and K9 dredging areas comprised of significant volumes of rock, which meant that the very large CSD Ursa was required for the job. Yet, to dredge in K8 and K9 the Ursa had to pass through the still shallow K7 and narrow Entrance Channel. To navigate these waters, the Ursa had to be made as light as possible (to reduce draught) and wait for the highest tide.

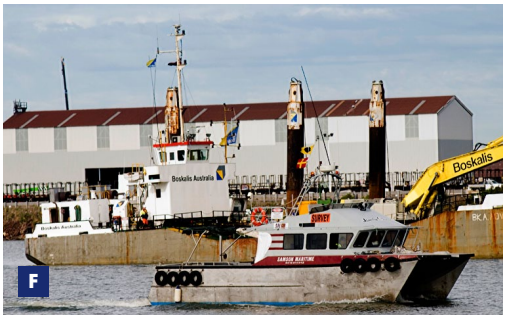
In addition, the soft and stiff clay material removed from K8 and K9 was unsuitable for the reclamation part of the project. The project plan included dredging this material with backhoes and disposing of the material at an unconfined offshore site. Additional sand to raise the low-lying swampy areas to required levels was dredged from a sand borrow pit located further upstream within the South Arm.
To meet this immediate requirement for additional sand, the CSD Bilba was mobilized to site for early sand supply. Shortly thereafter the CSD Wombat was mobilized to site where they worked together for a short period of time. All sand and rock dredging was managed successfully so that other contractors on site could execute their tasks without interference. At all times strict environmental criteria for water management were met by using different outlets and large settlement ponds with multiple gate valves. In the SRZ, with its contaminated sediments, environmental concerns were heightened. To comply, two backhoes were equipped with environmental buckets and barges suitable for the transportation of contaminated materials were utilized.

EARLY CONTRACTOR INVOLVEMENT

Although the actual dredging started November 28, 2007, contractor involvement began in July 2007 with project preparation and consultancy. Early on, Hydronamic, Boskalis' in-house engineering firm, designed the layout and phasing of the reclamation area and settling basins and the design of the perimeter bunds and location of hydraulic structures. This was a crucial contribution for meeting environmental standards and predicting expected results enabling the client to inform government and acquire necessary permitting.

Early contractor involvement also led to the flexibility of the joint venture to take on additional work at K9, preparatory work for K10, as well as to remove 600,000 m^3 of clean and contaminated material at SRZ, upgrading all equipment to remediation standards and arranging for comprehensive employee health testing. Strict adherence to Australian environmental and OH&S regulations was achieved in a challenging socio-ecological environment.

The official opening was held on May 3, 2010, and the Main Works contract was completed in June 2010. In three years time a total of over one million manhours were worked with not one Lost Time Injury.



E Special barges, suitable for the transportation of contaminated materials, were utilized
F Survey activities in the port
G In oprder to reduce draught, the very large Cutter Suction Dredger (CSD) Ursa had to be made as light as possible and wait for the highest tide

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