

# BHP Billiton Iron Ore

## Asset Development Projects



**Iron Ore**

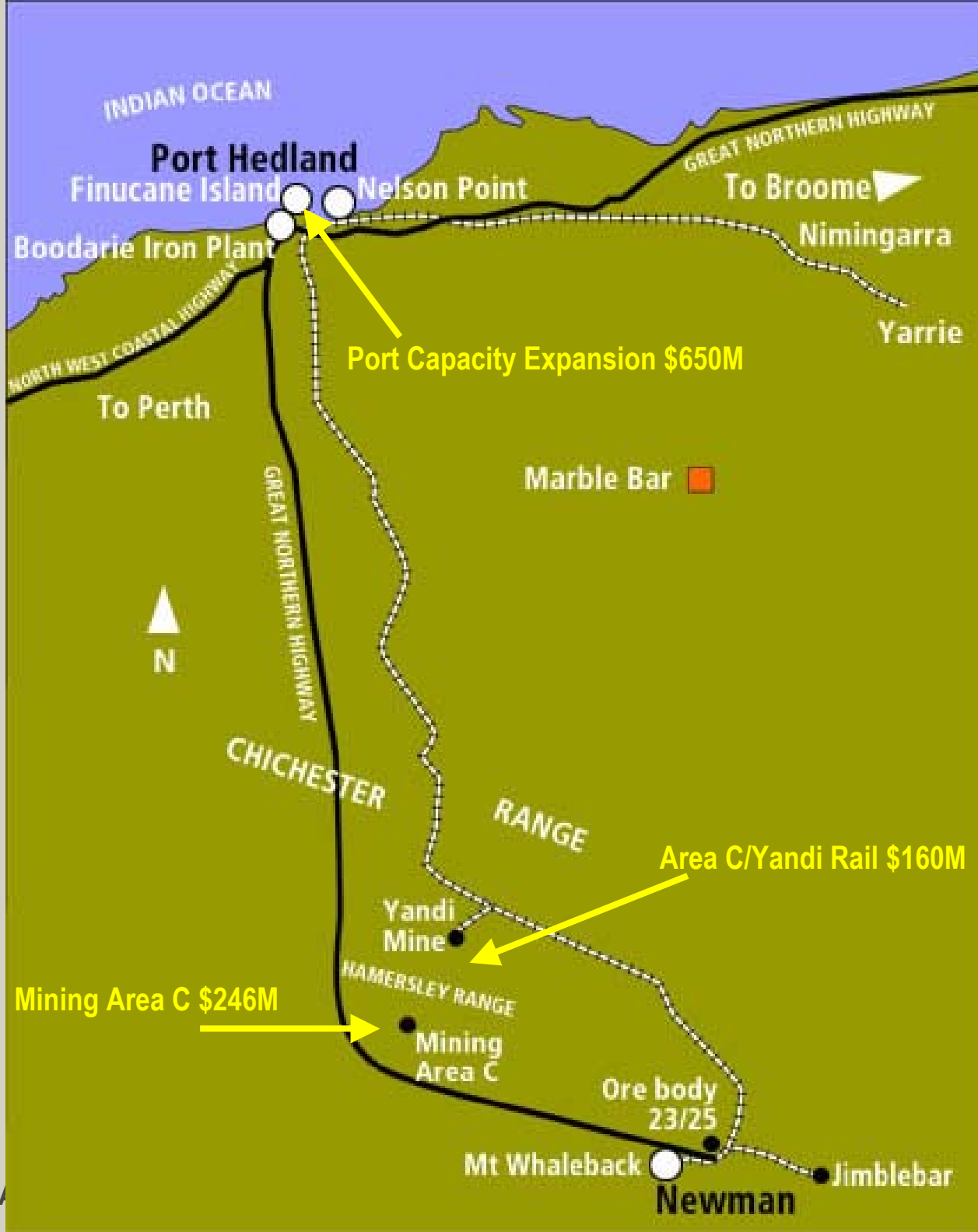
September 2003



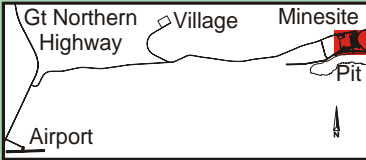
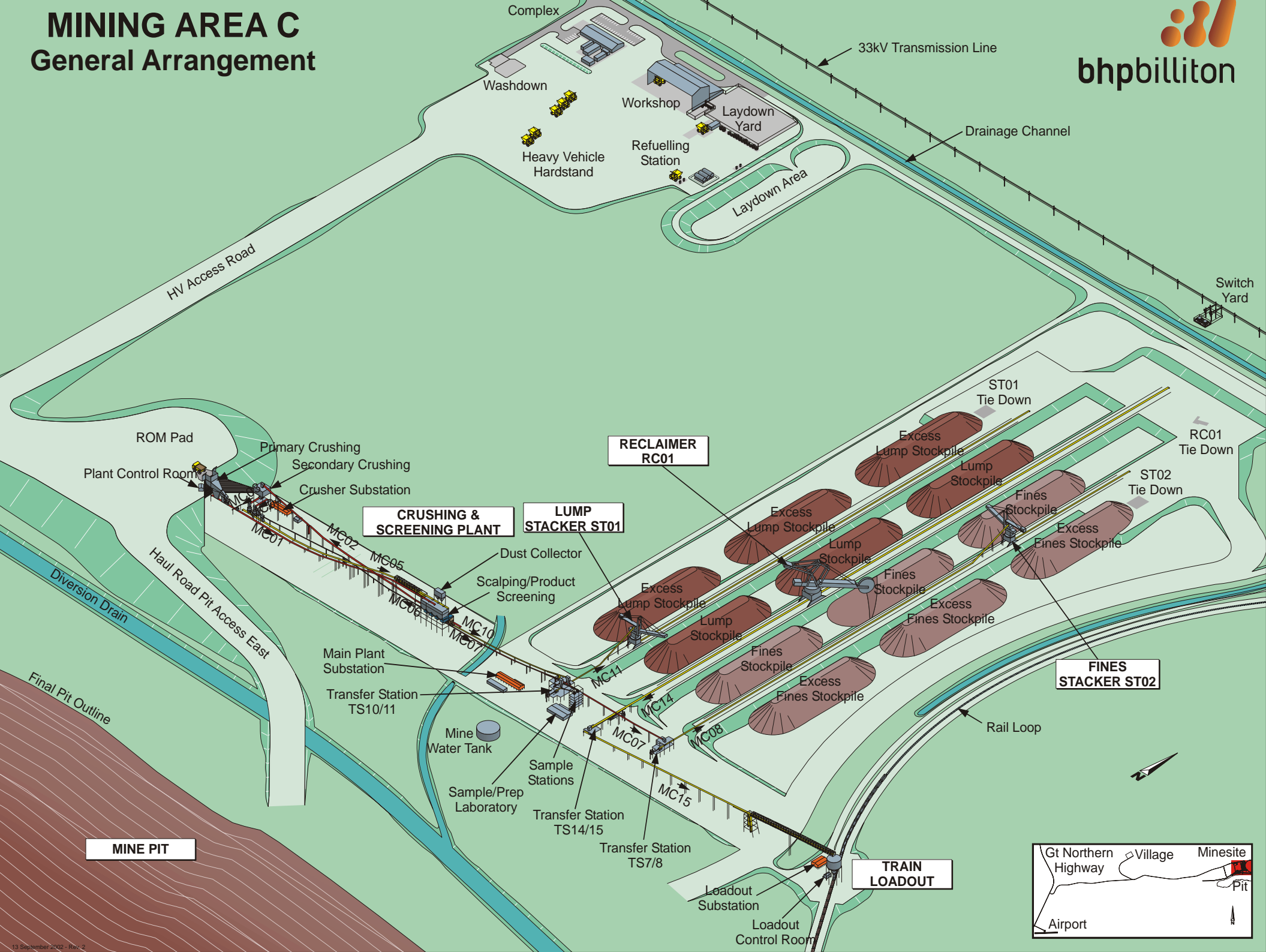
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# Agenda

- Mining Area C Project
- Area C to Yandi Rail Project
- Products and Capacity Expansion (PACE) Project
- System Capacity Increases to 100Mtpa
- Long Term Expansion (LTE) Study

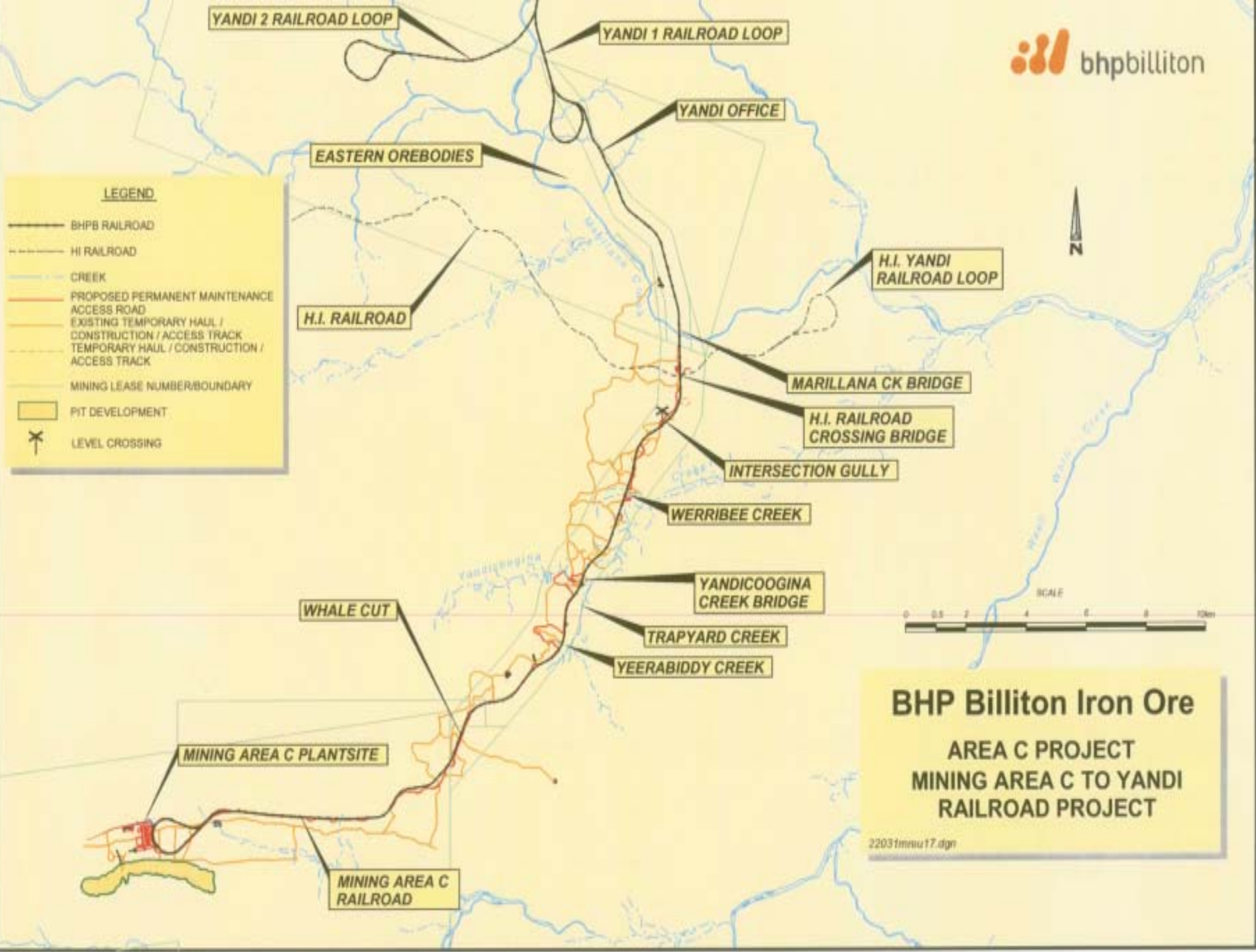


# MINING AREA C General Arrangement



**LEGEND**

- BHPB RAILROAD
- HI RAILROAD
- CREEK
- PROPOSED PERMANENT MAINTENANCE ACCESS ROAD
- EXISTING TEMPORARY HAUL / CONSTRUCTION / ACCESS TRACK
- TEMPORARY HAUL / CONSTRUCTION / ACCESS TRACK
- MINING LEASE NUMBER/BOUNDARY
- PIT DEVELOPMENT
- LEVEL CROSSING



YANDI 2 RAILROAD LOOP

YANDI 1 RAILROAD LOOP

YANDI OFFICE

EASTERN OREBODIES

H.I. RAILROAD

H.I. YANDI RAILROAD LOOP

MARILLANA CK BRIDGE

H.I. RAILROAD CROSSING BRIDGE

INTERSECTION GULLY

WERRIBEE CREEK

YANDICOOGINA CREEK BRIDGE

TRAPYARD CREEK

YEERABIDDY CREEK

WHALE CUT

MINING AREA C PLANTSITE

MINING AREA C RAILROAD

**BHP Billiton Iron Ore**

**AREA C PROJECT**

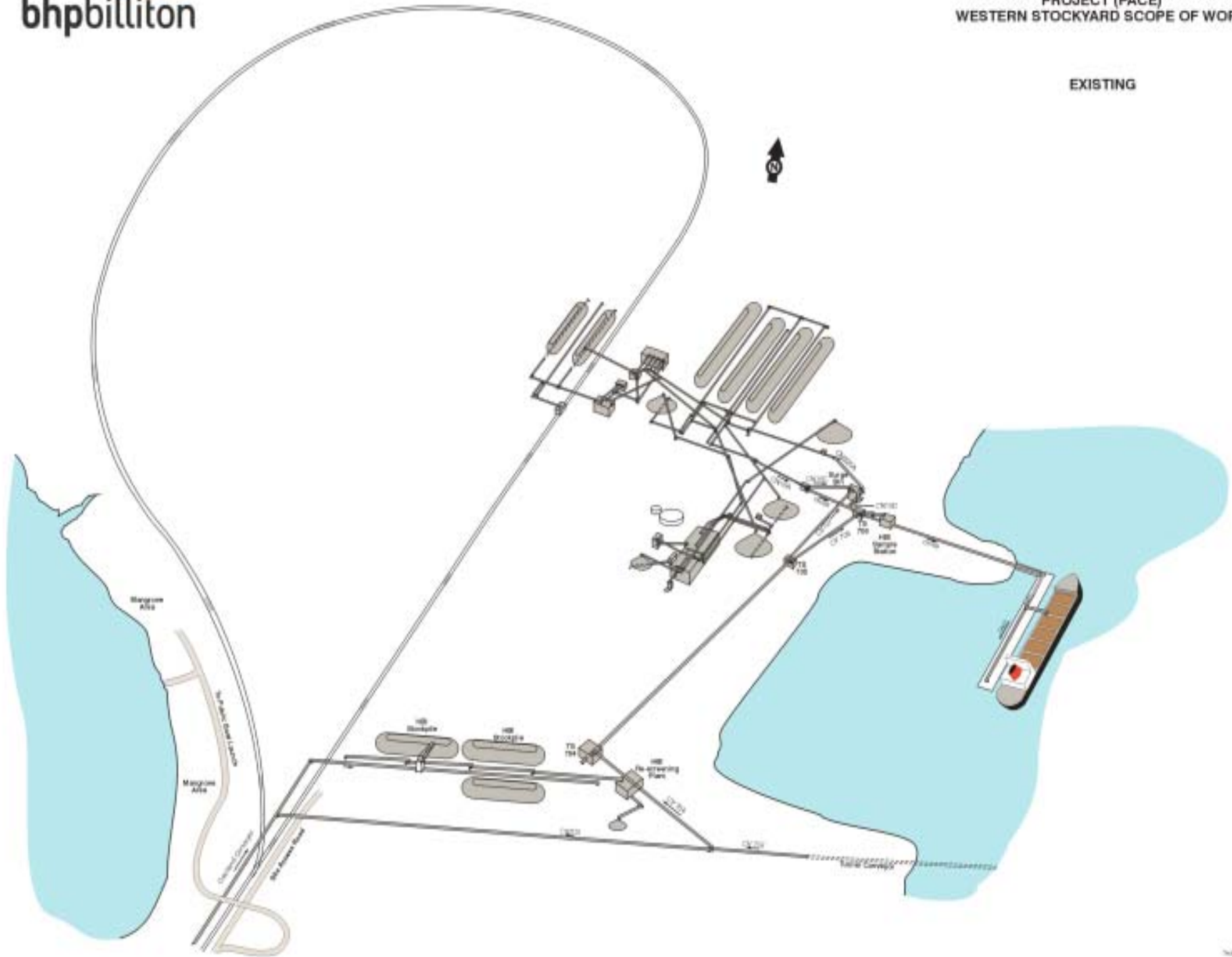
**MINING AREA C TO YANDI RAILROAD PROJECT**

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# PRODUCTS AND CAPACITY EXPANSION PROJECT WESTERN STOCKYARD WORKS

PRODUCTS AND CAPACITY EXPANSION  
PROJECT (PACE)  
WESTERN STOCKYARD SCOPE OF WORK

EXISTING

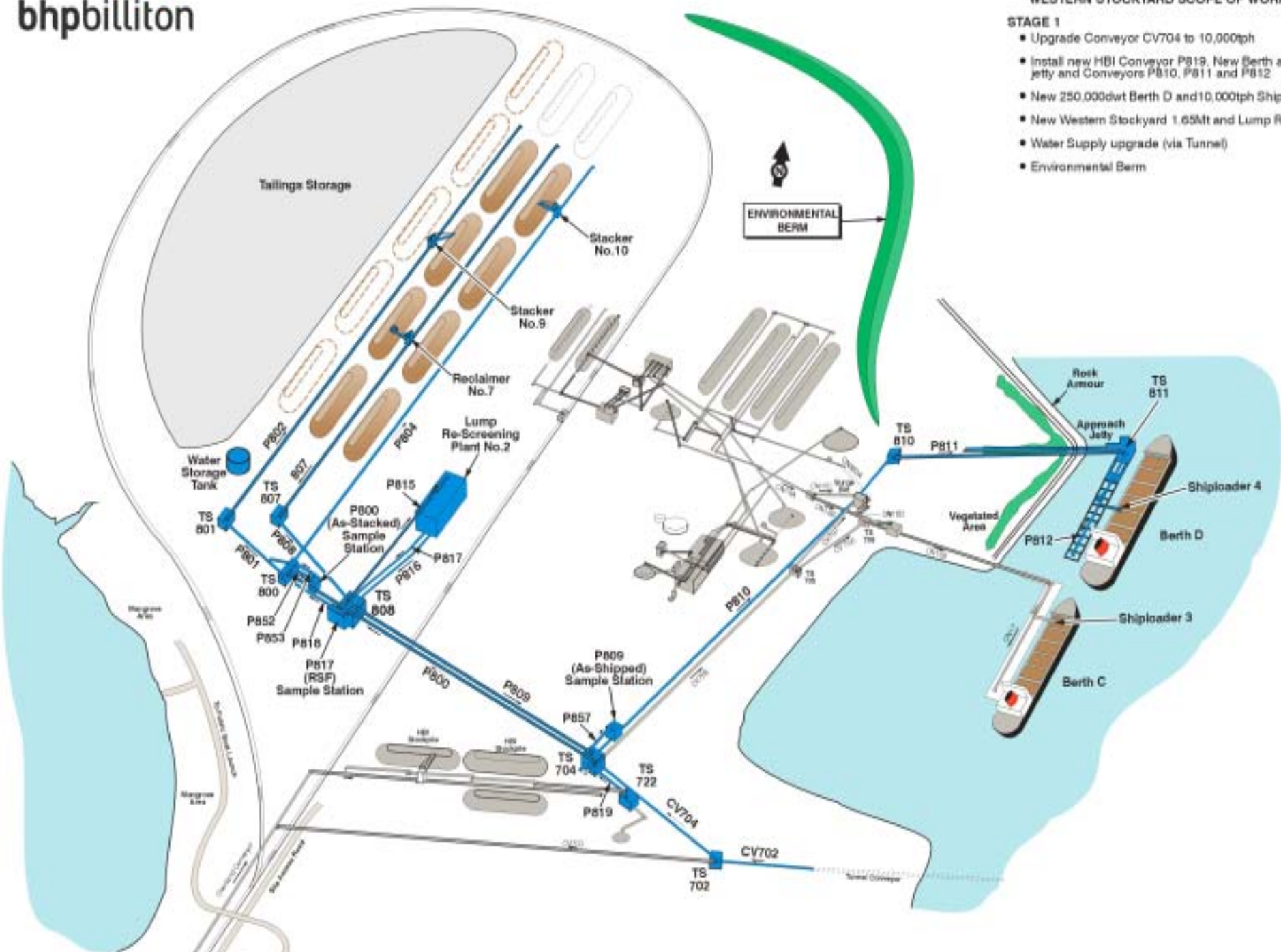


# PRODUCTS AND CAPACITY EXPANSION PROJECT WESTERN STOCKYARD WORKS

## PRODUCTS AND CAPACITY EXPANSION PROJECT (PACE) WESTERN STOCKYARD SCOPE OF WORK

### STAGE 1

- Upgrade Conveyor CV704 to 10,000tph
- Install new HBI Conveyor P819, New Berth approach jetty and Conveyors P810, P811 and P812
- New 250,000dwt Berth D and 10,000tph Shiploader No 4
- New Western Stockyard 1.65Mt and Lump Re-screening Plant
- Water Supply upgrade (via Tunnel)
- Environmental Berm



# Asset Development Projects

## KPI's

<b>Financial KPI's</b>	<b>Mining Area C Project</b>	<b>PACE Project</b>
Original Auth. Budget - 100% (AUD\$M)	398	653
Current Auth. Budget - 100% (AUD\$M)	406	647
<b>Project Schedule KPI's</b>		
Rail 1 <sup>st</sup> Ore	Nov-03	N/A
Ship 1 <sup>st</sup> Ore from Finucane Island	N/A	Feb-04
Facility Handover to Operations	Dec-03	Mar-04
<b>Project HSEC KPI's</b>		
Fatalities	0	0
LTIFR	<2	<2
Level 3 Environmental incidents	0	0
Indigenous Employment (% of site hours)	5%	5%
IR Lost Time (% of total hours)	2-3%	2-3%

All projects are currently running ahead of schedule and under budget – in A\$'s and in US\$'s



# Asset Development Projects Schedule / Cost / Safety Performance

<b>Project Milestones</b>	<b>Planned</b>	<b>Actual</b>
Project Approval	22 Mar 02	22 Mar 02
Complete Nelson Point Commissioning	26 Jul 03	17 Jul 03
Rail track available for Commissioning Train	1 Sep 03	16 Aug 03
Complete Commissioning – Area C	11 Sep 03	26 Aug 03
Rail 1 <sup>st</sup> ore to Nelson Point from Area C	1 Oct 03	16 Aug 03
Ship 1 <sup>st</sup> ore ex Nelson Point	31 Oct 03	24 Sep 03
New Shiploader delivered to Finucane Island	27 Nov 03	25 Oct 03
Ship 1 <sup>st</sup> ore ex Finucane Island	28 Feb 04	26 Jan 04

	<b>Current Budget</b>	<b>Progress</b>
Area C	245,780	99%
Rail	159,985	99%
PACE	647,179	70%
<b>TOTAL</b>	<b>1,052,944</b>	<b>85%</b>

	<b>Manhrs</b>	<b>LTI's</b>	<b>LTIFR</b>	<b>CI's</b>	<b>CIFR</b>
Area C	1,092,152	1	0.9	4	3.6
Rail	1,109,200	0	0	2	1.8
PACE	1,674,192	0	0	7	4.2
<b>TOTAL</b>	<b>3,875,544</b>	<b>1</b>	<b>0.2</b>	<b>13</b>	<b>3.4</b>

# Mining Area C Project Crushing Plant



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# Mining Area C Project Screening Building



# Mining Area C Project Reclaimer



# Mining Area C to Yandi Railroad Project Bulk Earthworks – Cut 28

Length 390m

Depth 35m

Batter Angle 3:1



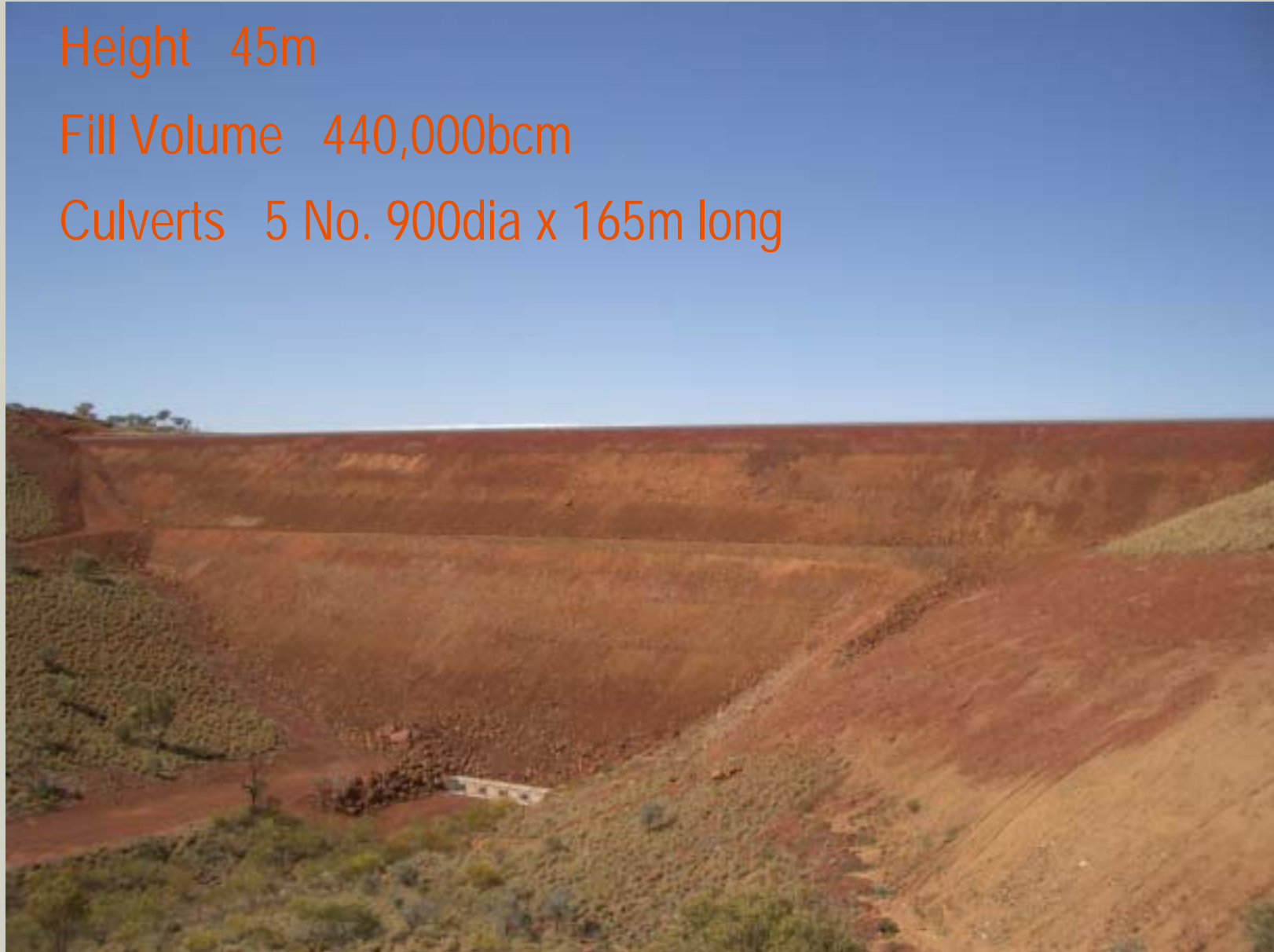
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# Mining Area C to Yandi Railroad Project Yeerabiddy Creek

Height 45m

Fill Volume 440,000bcm

Culverts 5 No. 900dia x 165m long



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# Mining Area C to Yandi Railroad Project Marillana Creek Bridge



# 1<sup>st</sup> train from Mining Area C – 16 August 2003





# BHP Billiton Iron Ore

PACE Project



## Iron Ore

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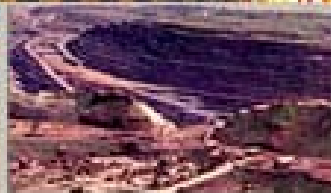






# BHP Billiton Iron Ore

## Capacity Increases



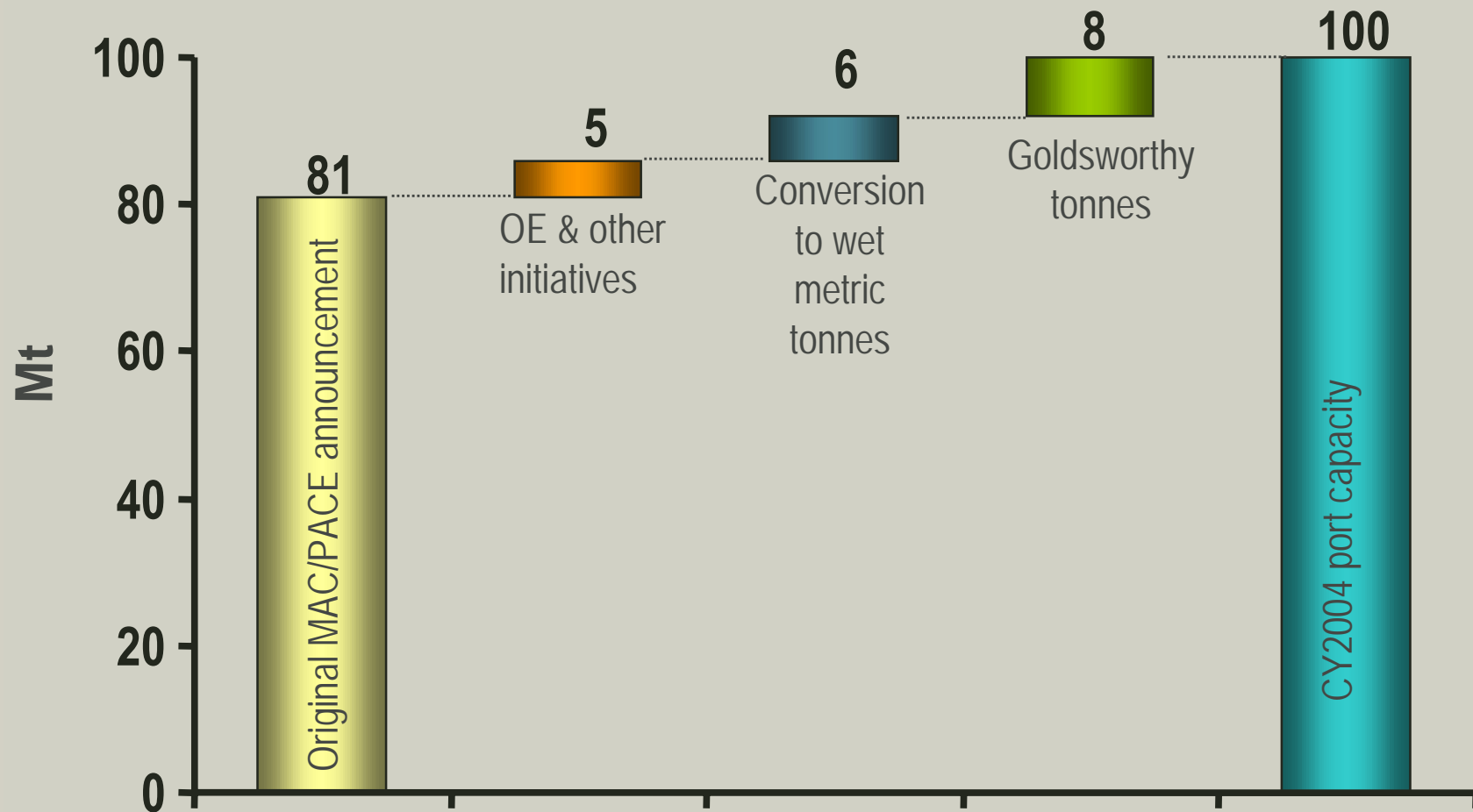
# Iron Ore

September 2003



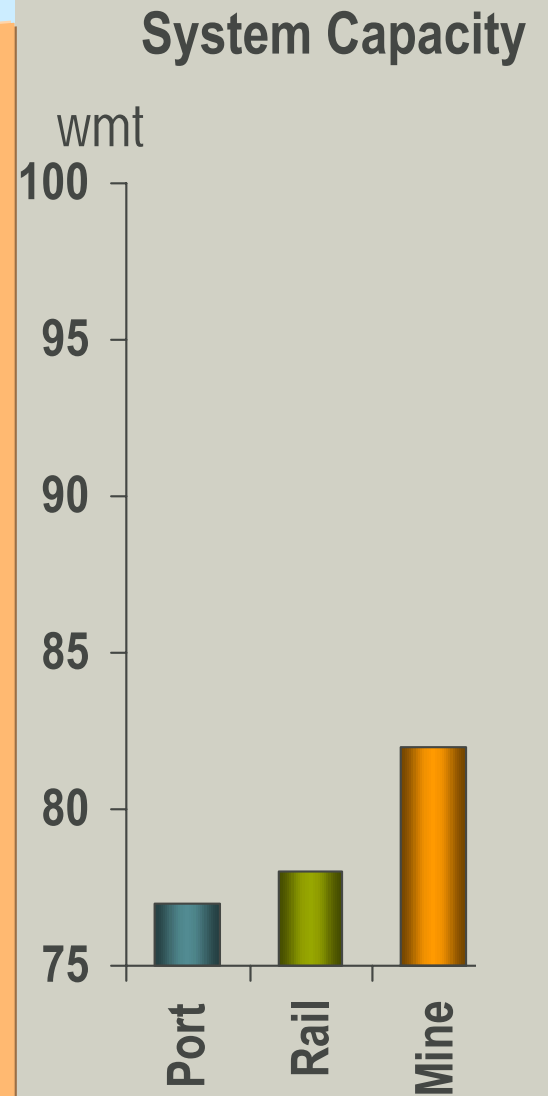
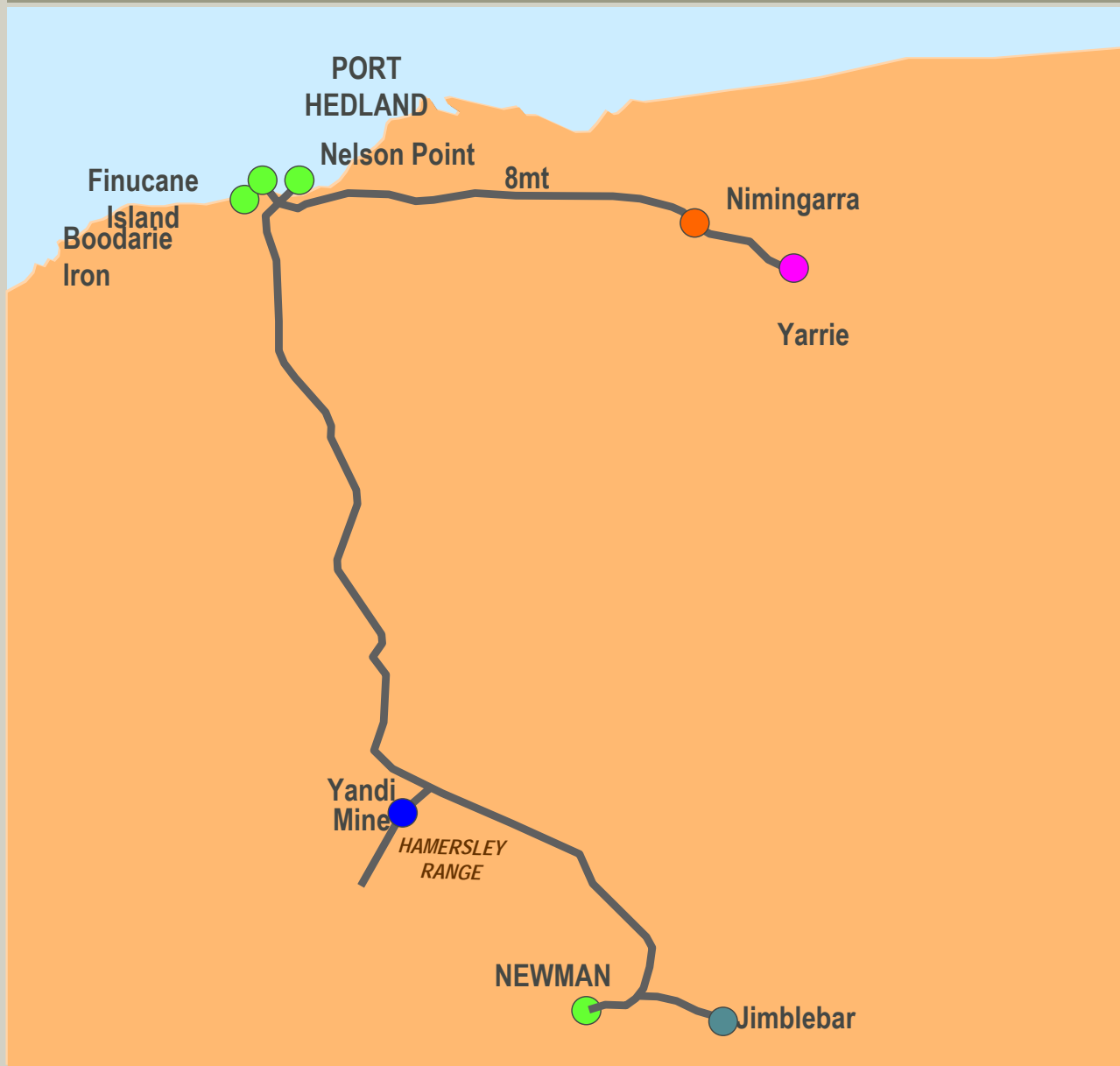
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# Port Capacity Improvements 81Mt → 100Mt



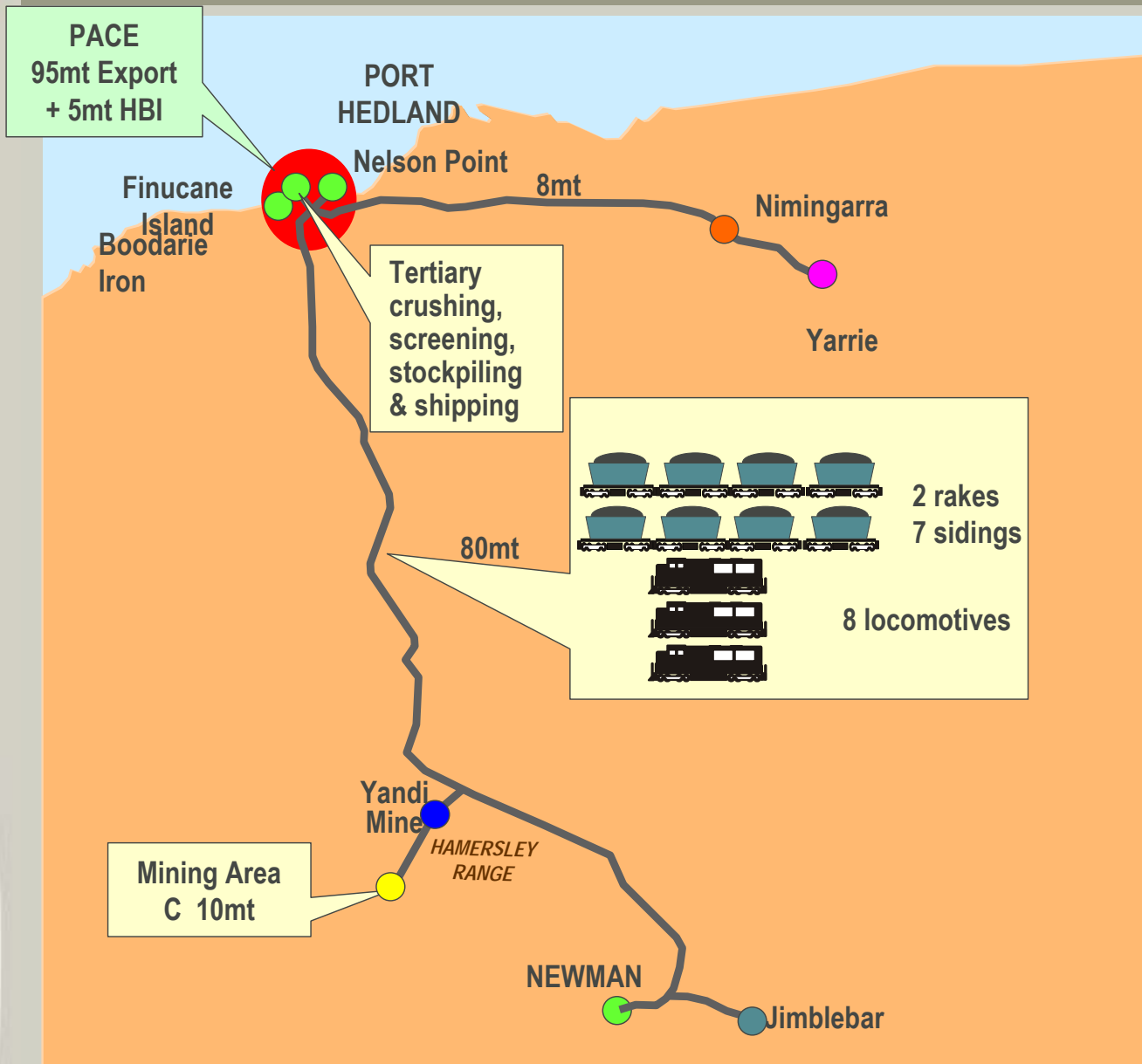
# BHPB WA Iron Ore System Capacity

77mt

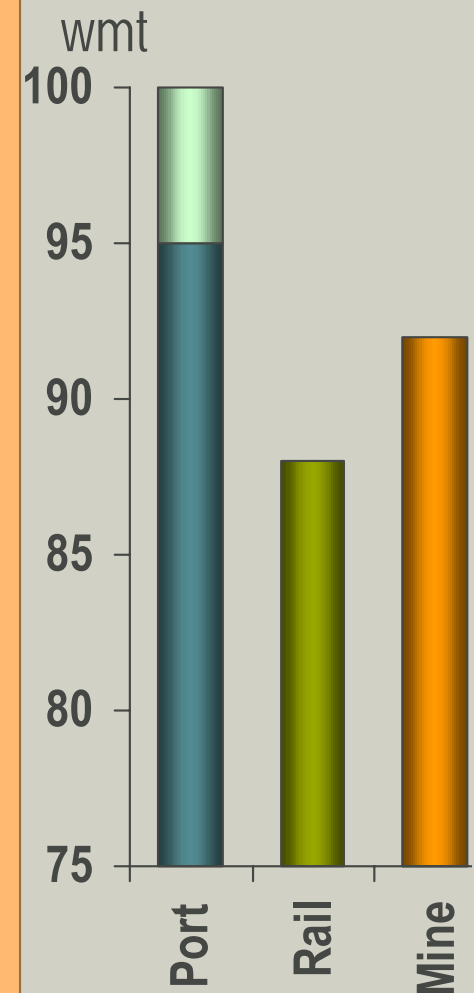


# BHPB WA Iron Ore System Capacity

77mt → 88mt



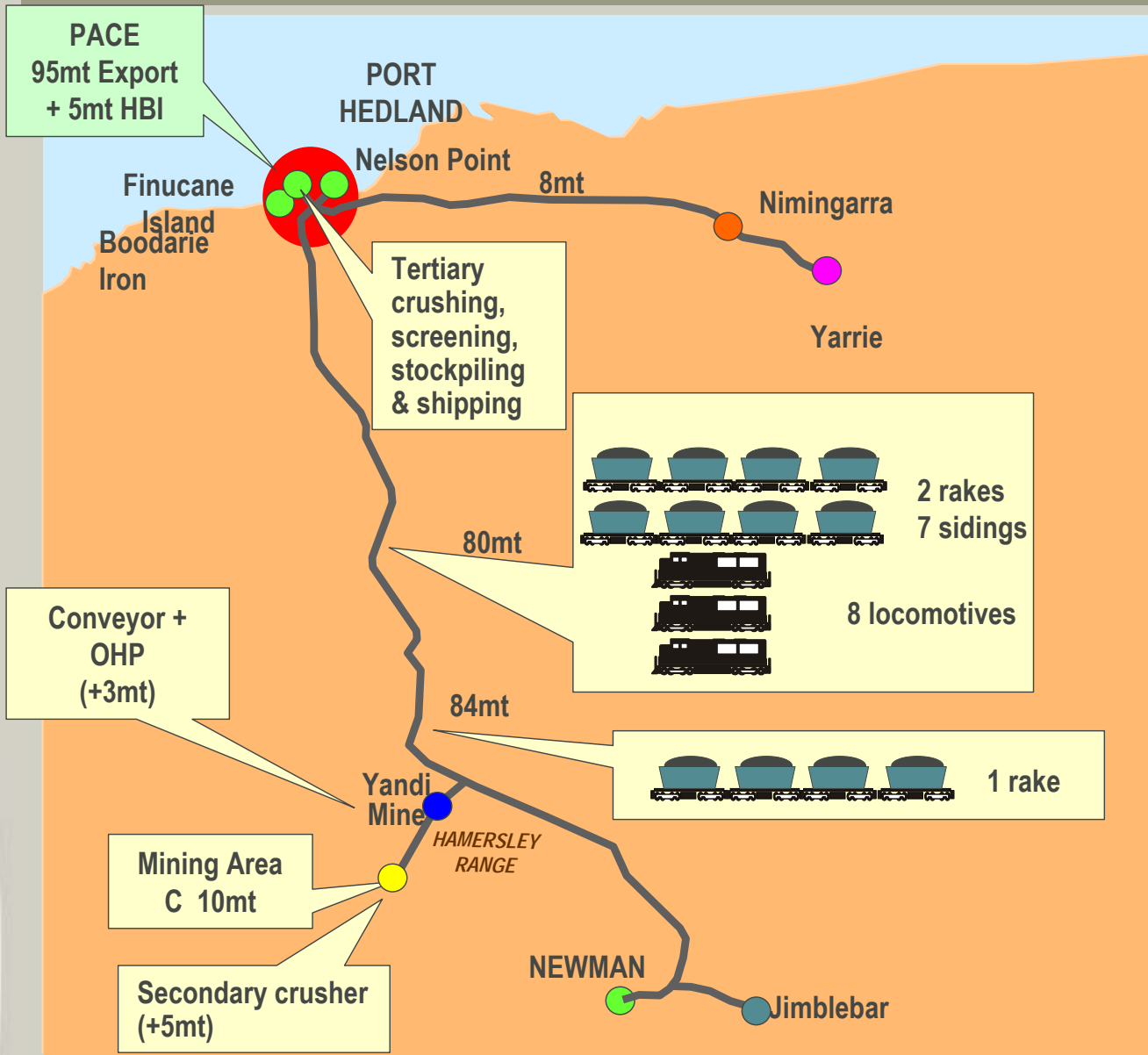
## System Capacity



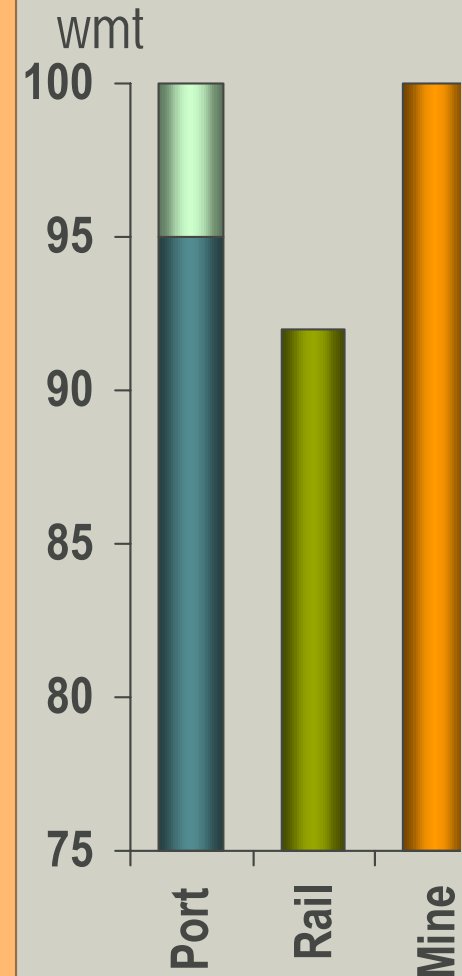


# BHPB WA Iron Ore System Capacity

77mt → 92mt

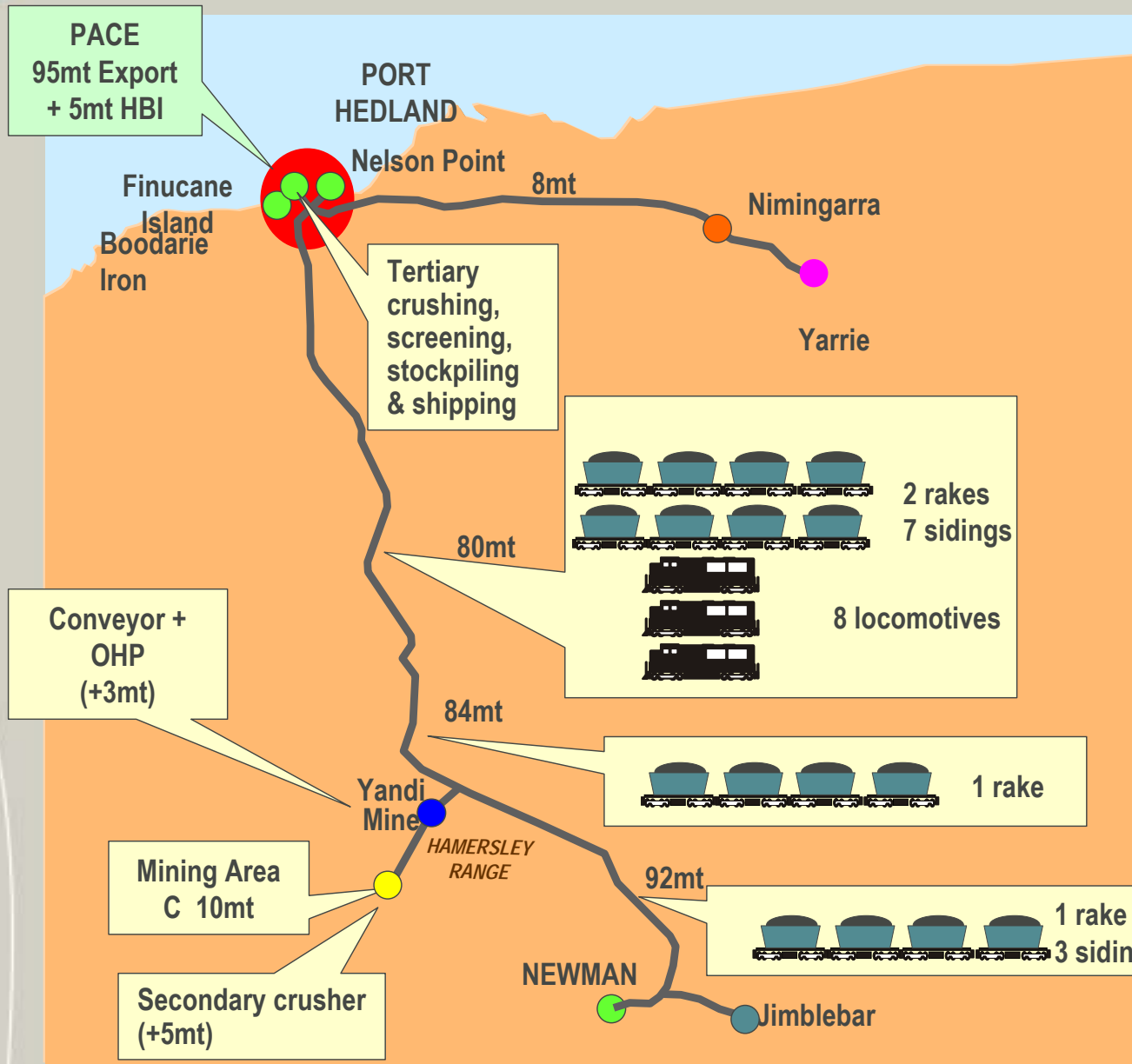


## System Capacity

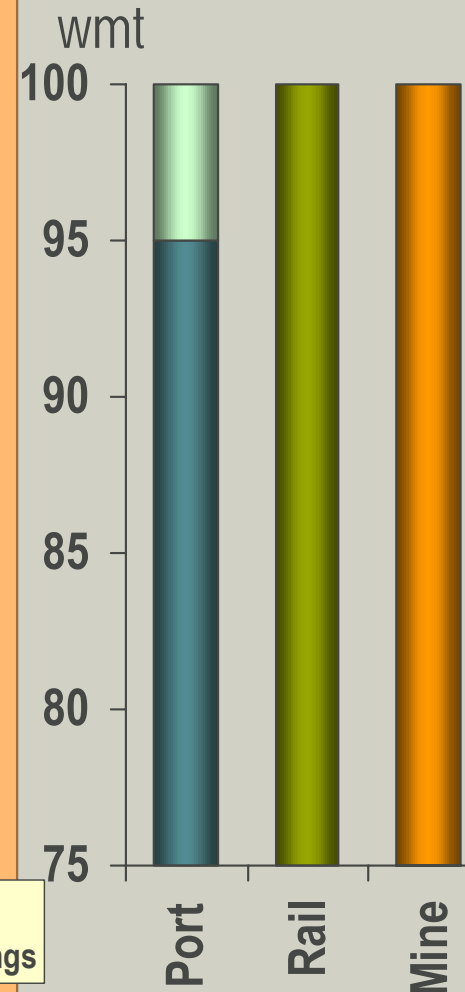


# BHPB WA Iron Ore System Capacity

77mt → 100mt

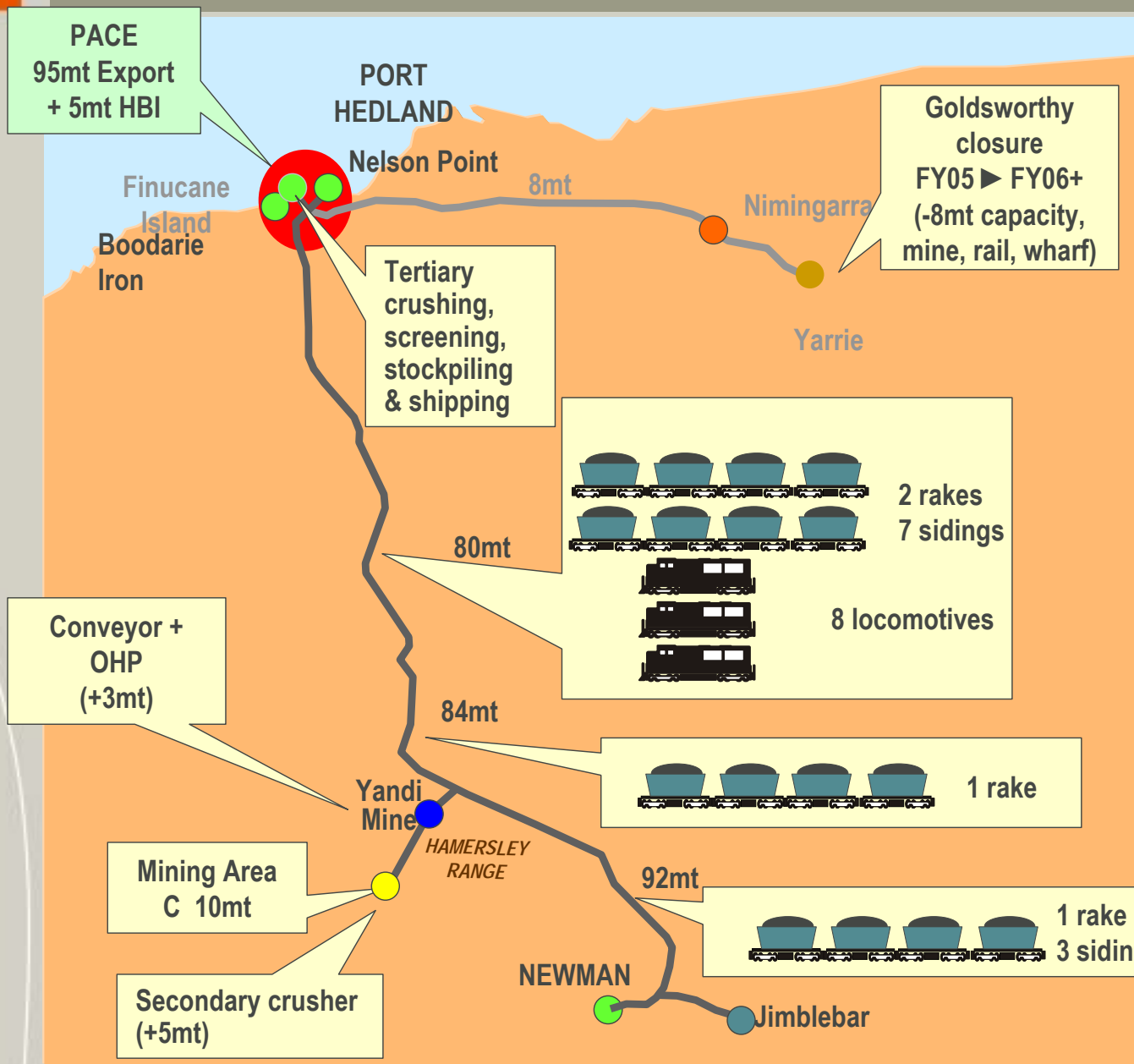


## System Capacity

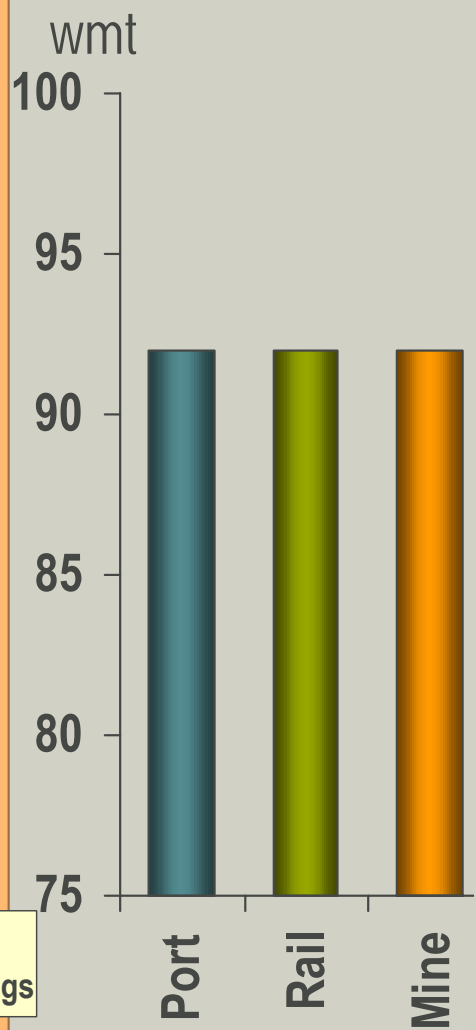


# BHPB WA Iron Ore System Capacity

77mt → 92mt



## System Capacity



# Timing of Capacity increases

- Mining Capacity:

- Additional 5Mt at Area C 1<sup>st</sup> Qtr CY2004
- Additional 3Mt at Yandi (IOWA) 1<sup>st</sup> Qtr CY2004

- Rail Capacity

- 2<sup>nd</sup> rake (+ 4Mt) 4<sup>th</sup> Qtr CY2003
- 3<sup>rd</sup> rake (+ 4Mt) 1<sup>st</sup> Qtr CY2004
- Extra 3 sidings (+ 4Mt) 1<sup>st</sup> Qtr CY2004
- 4<sup>th</sup> rake (+ 4Mt) 2<sup>nd</sup> Qtr CY2004

# BHP Billiton Iron Ore

## Long Term Expansion Study



# Iron Ore

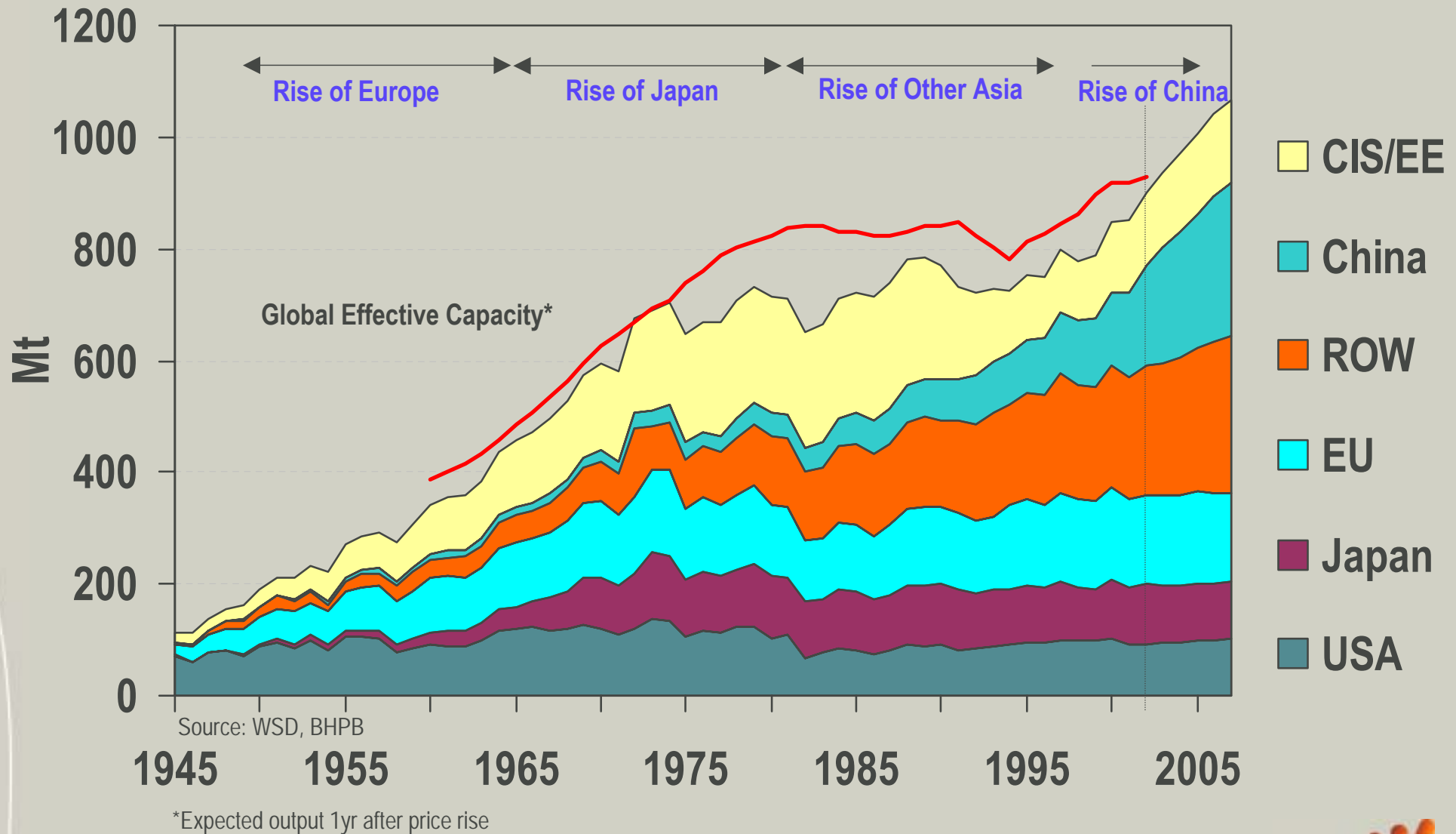
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# LTE PFS

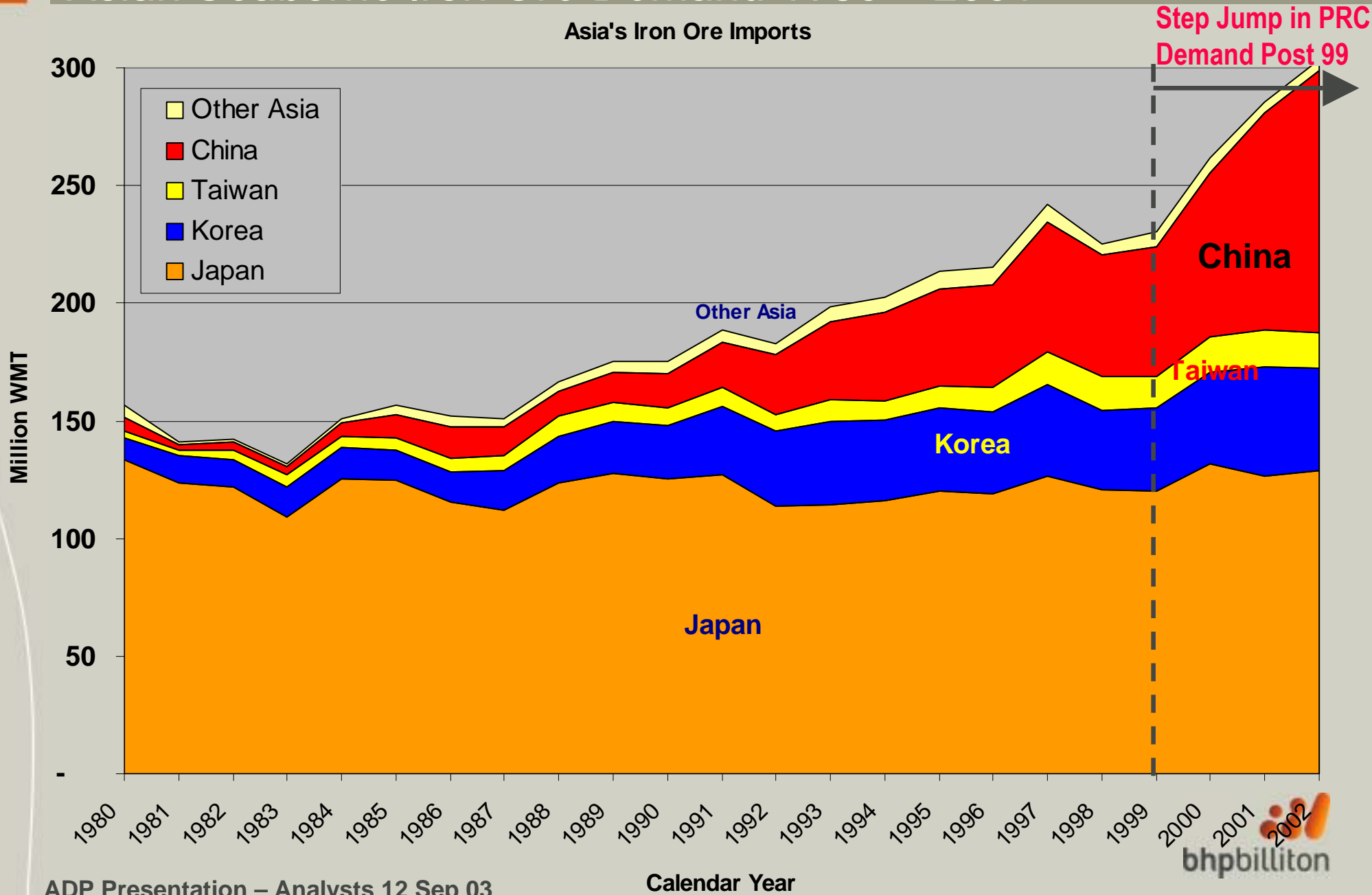
## Global Crude Steel Production – Base Case



# LTE PFS

## Asian Seaborne Iron Ore Demand 1980 – 2001

Asia's Iron Ore Imports



# LTE PFS

## Catalyst / Initiator

- Rapid, unprecedented and anticipated long-term sustainable increase in demand for Iron Ore that exceeds current supply capacity of major seaborne traders
- Growth centred on China
- Originally based on 120 Mtpa capacity with 40:40:40 split from Newman : Yandi : Area C. Expansion study will now consider possibilities closer to 140 Mtpa or beyond

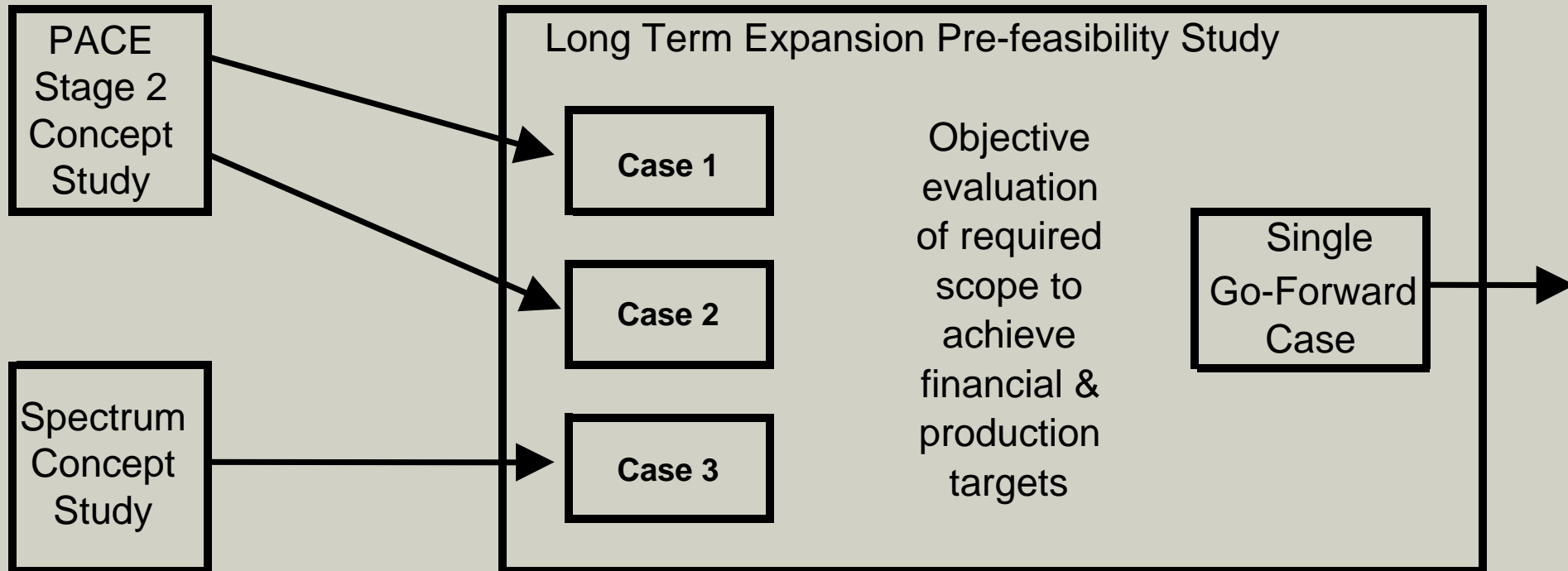


# LTE PFS

## Purpose

To select a single go forward case for long term expansion based on 3 concept studies

Assessment of the concepts will be carried out on all parameters (not only NPV) in accordance with BHPBIO's Investment System Standard for a PFS



# LTE PFS

## The Cases

<b>Case</b>	<b>Description</b>
<b>Case 1</b>	<b>Two Flexible Ports</b> Based on a four car dumper / four berth port configuration at Port Hedland. Includes installation of Car Dumper 4 (CD4) and upgrading of Berth C at Finucane Island.
<b>Case 2</b>	<b>Three Independent Ports</b> Maintains three car dumpers and three export berths. The port material handling system is modified and expanded to maximise use of the three shiploading berths, by revising operating practices and dedicating stockyards to shiploaders.
<b>Case 3</b>	<b>Spectrum</b> Fundamentally changes the existing operation with crushing and screening of high grade ores undertaken at Newman. Lumps and fines for each product produced “on grade” at each mine hub.
<b>Others</b>	Hybrids adopting the best ideas in all options