

Road Pavements Forum, May 2010

KING SHAKA INTERNATIONAL AIRPORT

THE CHALLENGES

MC BARNARD (BKS ENGINEERING & MANAGEMENT)



1. Background
2. Location
3. Organization
4. Airside Works
5. Landside Works
6. Access to KSIA
7. Conclusion



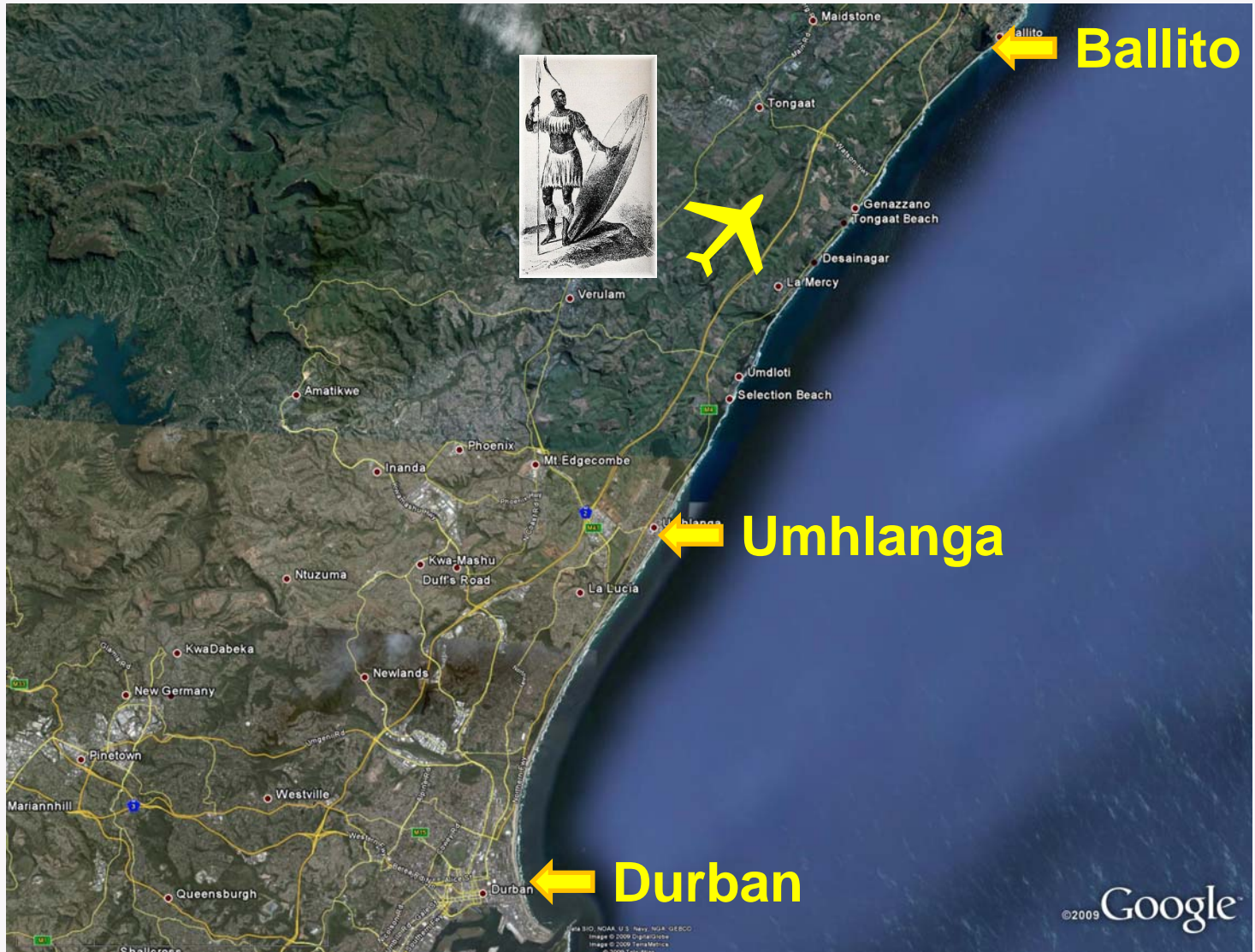
1. BACKGROUND

- **1971: FEASIBILITY STUDY**
- **1973: MASTER PLANNING**
- **1975: MASS EARTHWORKS AND DRAINAGE CONTRACT**
- **2007: PHYSICAL DEVELOPMENT**

1. BACKGROUND

- **TRAFFIC VOLUMES TO DURBAN INCREASED WITH 14% PA**
- **CAPACITY OF DIA = 3 MILLION PASSENGERS PER ANNUM @ LOS C, CURRENT TRAFFIC VOLUME = 5 MPPA.**
- **INTERCONTINENTAL FLIGHTS FROM DIA NOT POSSIBLE**
- **DEVIATION AIRPORT FOR AIRBUS A380 FROM ORTIA**
- **STIMULUS FOR KZN ECONOMY - DURBAN/MSUNDUZI AREA HAS A POPULATION 5,5 MILLION - 12% RSA.**
- **DEVELOPMENT OF TOURISM, IN 2000 WHEN CUSTOMS AND IMMIGRATION LEGISLATION WAS CHANGED DURBAN ACCOMMODATED 7 INTERNATIONAL CARRIERS.**
- **JOB CREATION - EMPLOYMENT ON SITE PEAKED AT**

2. LOCATION OF ~~AIRPORT~~



3. ORGANIZATION – STAFF

~~ACCOMM.~~



**MAIN
GATE /
MEDICAL**

TRAINING COLLEGE

**CONTRACTORS
YARDS**

**MAIN
CAMP**

AERIAL VIEW OF SITE FROM LOOKING NORTH EAST

3. ORGANIZATION – MAIN SITE

CAMP



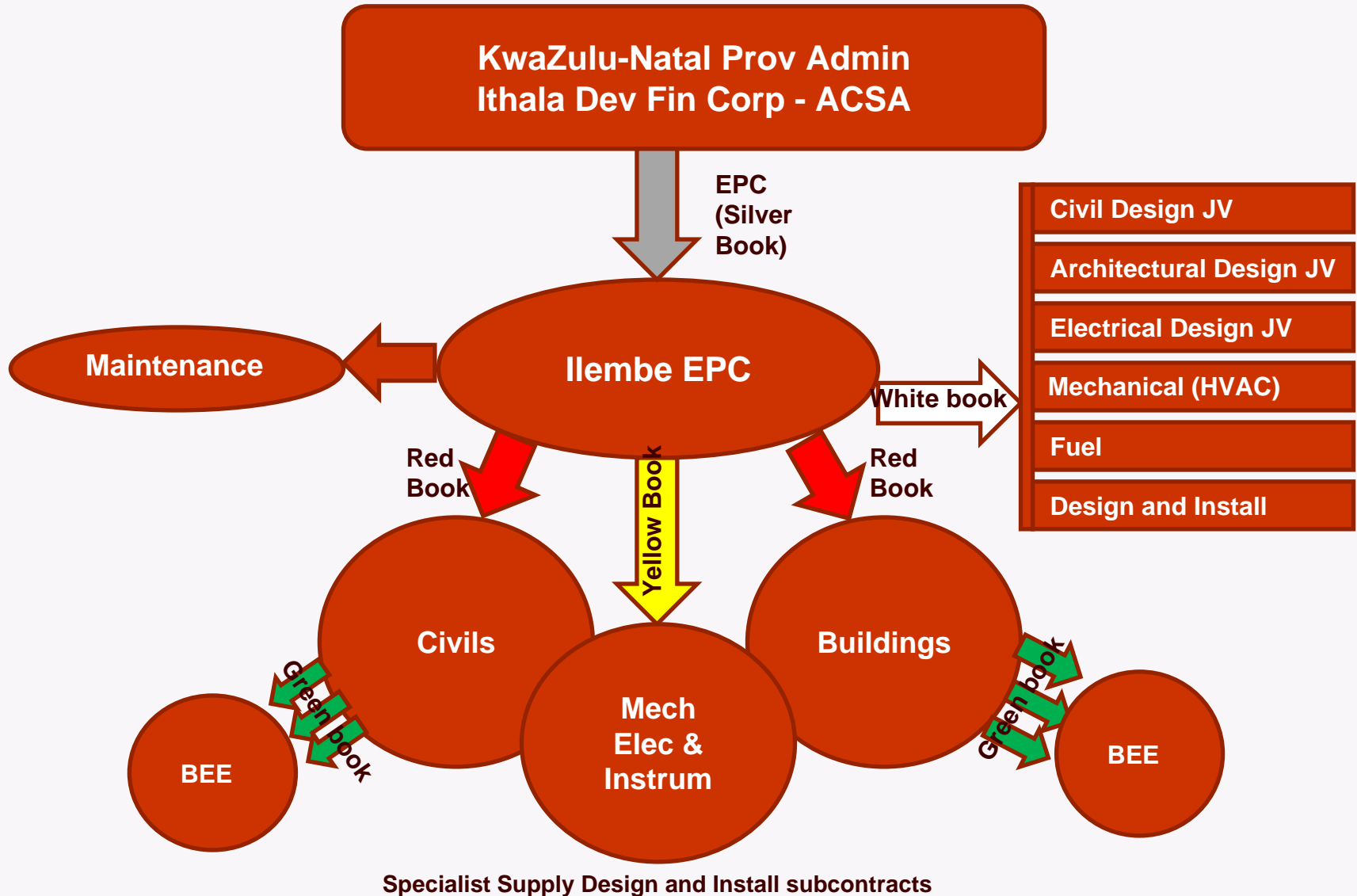
MAIN SITE CAMP

3. ORGANIZATION – T/B CAMP



TERMINAL BUILDING SATELLITE CAMP

3. ORGANIZATION – CONTRACT



3. ORGANIZATION – ILEMBE

~~DESIGN JV~~

Civil Engineering JV

- BKS
- Goba
- PD Naidoo Assoc.
- Young & Satharia

Architectural JV

- Osmond Lang
- NSM
- Ruben Reddy
- Shabangu
- Mthulisi Msimang

Spoormaker – HVAC

Electrical JV

- CA du Toit
- Khanyisa
- Matla
- BFBS – Fire Eng.

Encon – Fuel

Specialist ‘Design & Install’

- Alcatel – IT network & systems
- Glidepath – Baggage Handling
- ICM – Cargo Handling
- Thyssen Krupp – Airbridges

4. AIRSIDE WORKS

- **Taxiways**

- 25700 wide with effective length 1500m shoulder
- 50m length with parallel taxiway sealed shoulders
- 300m wide strip
- Designed for A380 on flights to Australia
- Approved in taxilanes

**CARGO
APRON
TAXIWAY**

**PASSENGER
APRON
TAXIWAYS**

**PARALLEL
TAXIWAYS**

**DVOR
EXIT**

RUNWAY

**THRESHOLD
TAXIWAYS**



4. AIRSIDE WORKS RUNWAY / TAXIWAY SYSTEM



FIN

4. AIRSIDE WORKS APRONS

- **BERARDIE**

- 22 AIRRIGS W/ 3 BODY WIDE AIRCRAFT
(AIRBUS 380) W/ DIE INCL 132 AIR
BRIDGES W/ 4 NARROW
• 4 NARROW BODY AIRCRAFT
• 2 DEDICATED CARGO STANDS
• USED BY THE WIDE BODY AIRCRAFT

DELT

A



CHARLI

E

BRAV

O



4. AIRSIDE WORKS ALPHA APRON



VIEW LOOKING NORTH OVER ALPHA APRON STANDS OF THE TERMINAL BUILDING AND

4. AIRSIDE WORKS ASSEMBLING AN AIR BRIDGE



**12 Narrow Body
4 Wide Body**

4. AIRSIDE WORKS DVOR



5. LANDSIDE WORKS TERMINAL BUILDING

- Design Capacity – 8 mppa
 - Building Footprint – 170m x 120m by 25m tall (x6 DIA)
 - Total floor Area: 103 000 m²
 - Sandton City: 126 000 m²
 - Menlyn Park: 115 000 m²
 - Ground floor Arrivals level
 - First floor Departures level
 - Airline offices mezzanine level
 - 72 Check-in desks
 - 5 Baggage reclaim carousels
- 

5. LANDSIDE WORKS TERMINAL BUILDING NOV 2007



3 months

5. LANDSIDE WORKS TERMINAL BUILDING JUNE



View of Terminal Building & Airside Corridor looking North. Works to Arrivals level slab & columns and Departures level staging & decking in progress.
First pours of Central and Northern Corridor slabs complete

9 months

5. LANDSIDE WORKS TERMINAL BUILDING NOV 2008



15

months

VIEW OF AIRSIDE CORRIDOR AND TERMINAL BUILDING WITH STRUCTURAL CONCRETE

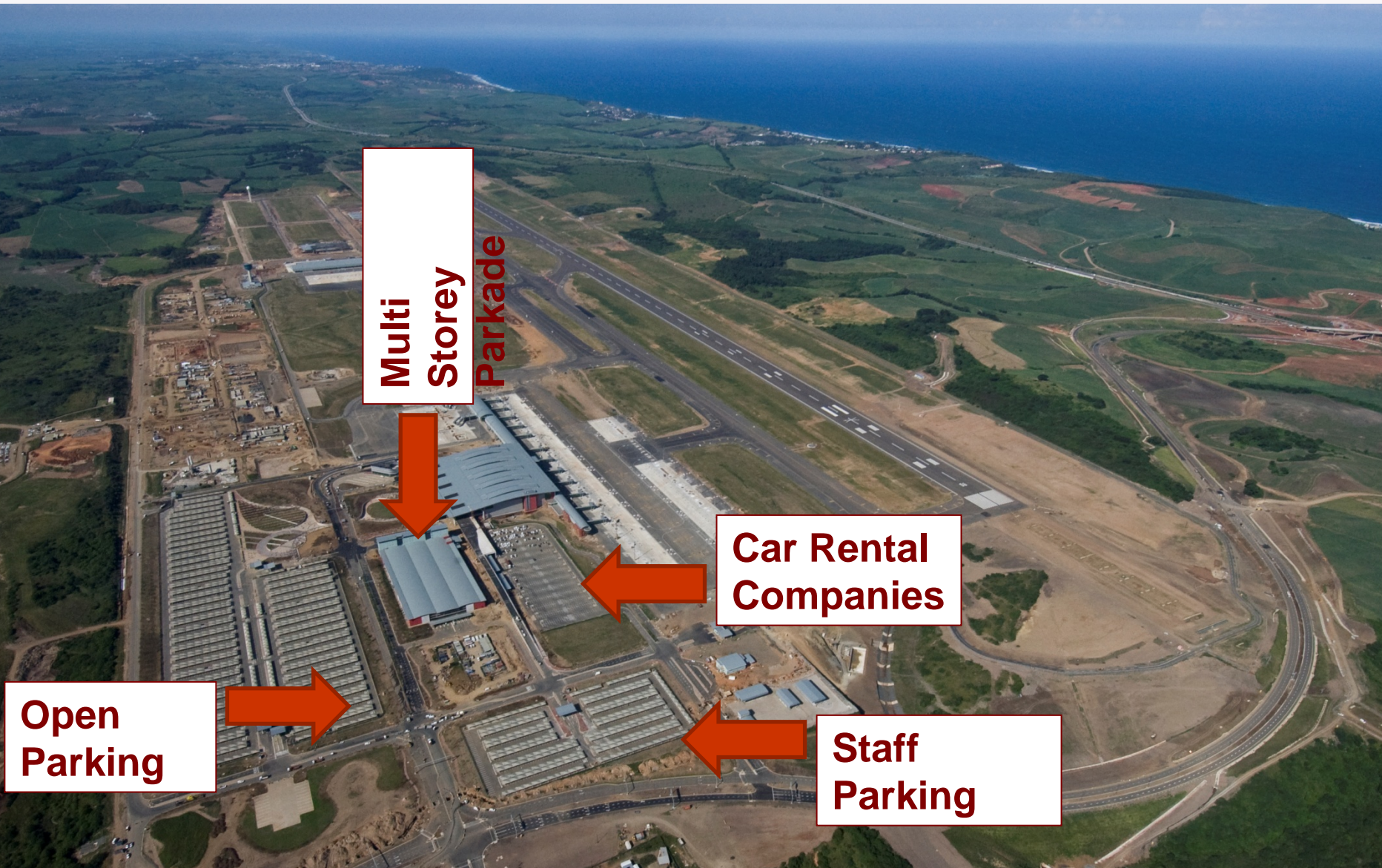
5. LANDSIDE WORKS TERMINAL BUILDING JUNE 2009



21 months

VIEW OF THE TERMINAL BUILDING AND AIRSIDE CORRIDOR LOOKING NORTH OVER
ALPHA APRON

5. LANDSIDE WORKS PARKING



**Multi
Storey
Parkade**

**Car Rental
Companies**

**Open
Parking**

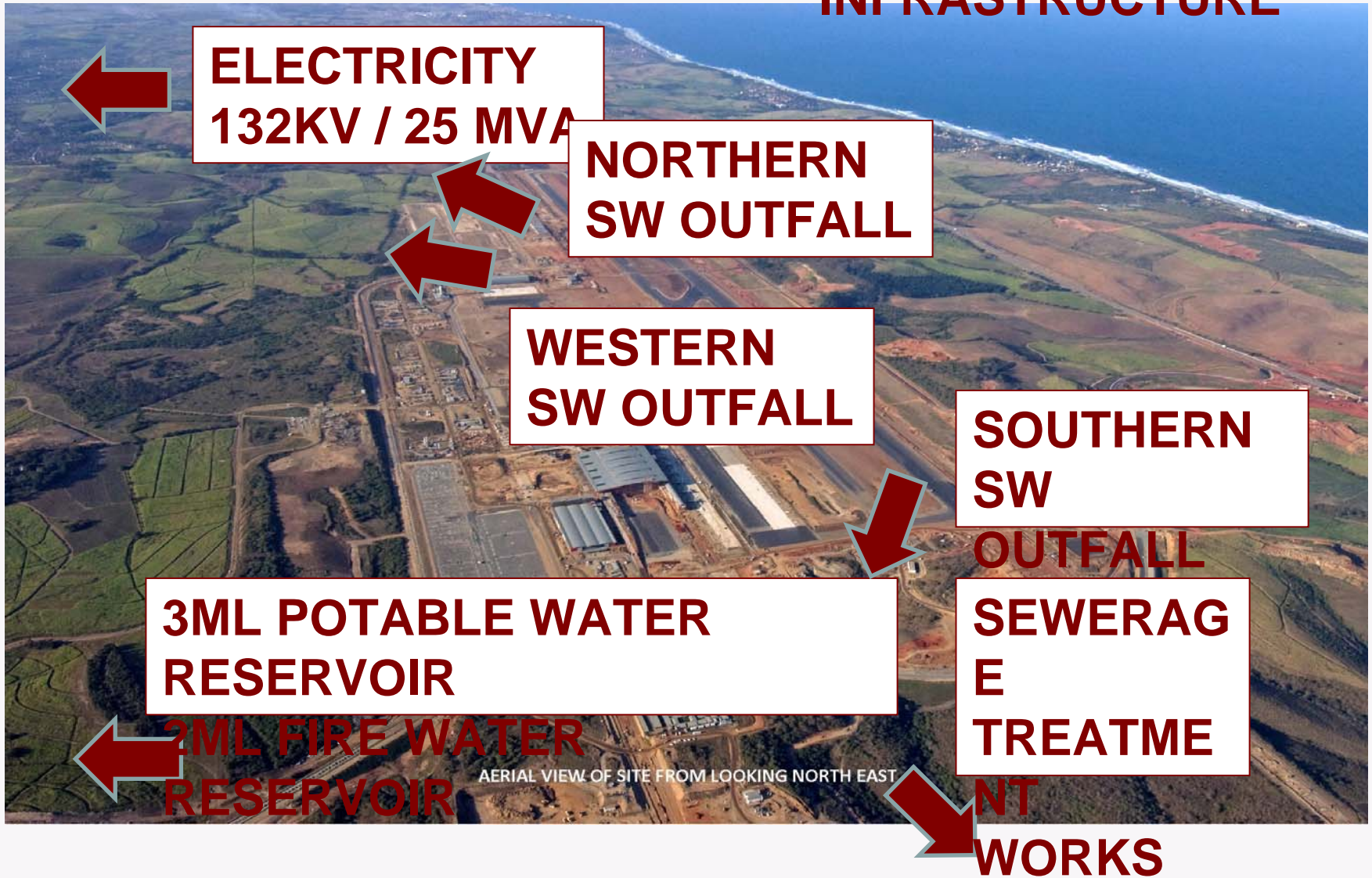
**Staff
Parking**

5. LANDSIDE WORKS 1500 MULTI STOREY CAR PARKADE



MULTI STOREY PARKADE - EXTERNAL FINISHES AND PAINTING TO COLUMNS IN PROGRESS

5. LANDSIDE WORKS BULK SERVICES INFRASTRUCTURE



5. LANDSIDE WORKS SOUTHERN STORM WATER DRAINAGE



5. LANDSIDE WORKS CONTROL TOWER



5. LANDSIDE WORKS CONTROL TOWER



5. LANDSIDE WORKS

CARGO FACILITIES



AERIAL VIEW OF SITE FROM LOOKING NORTH EAST

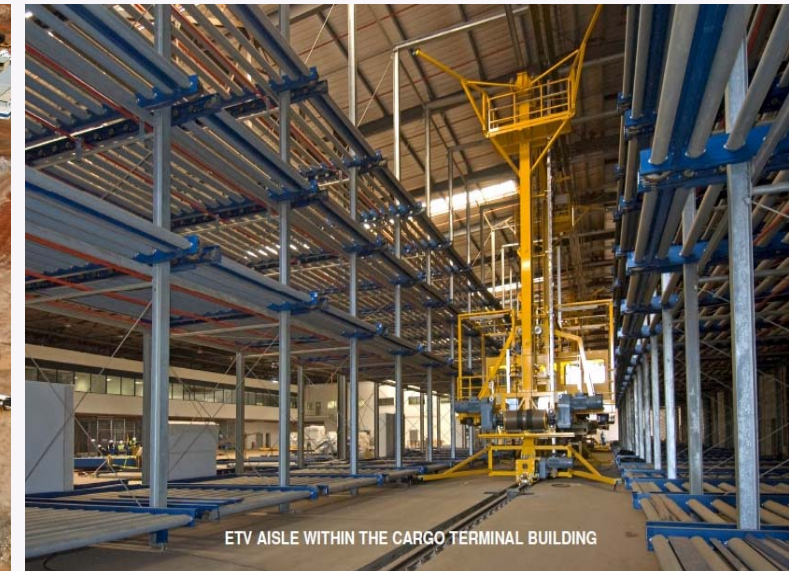
5. LANDSIDE WORKS CARGO FACILITIES

- Capacity to process 100 000 tons per annum / peak volume 500 tons per day
- Built in accordance with internationally accepted standards and norms
- 25% of capacity shall be allocated for perishable cargo

Courier & Parcel Facility

- International parcel & courier facility designed to handle 1,000 bags / parcels per hour in & out.
- Local parcel & courier facility designed to handle 400 bags / parcels per hour in & out.

5. LANDSIDE WORKS CARGO FACILITIES



5. LANDSIDE WORKS TRADE ZONE

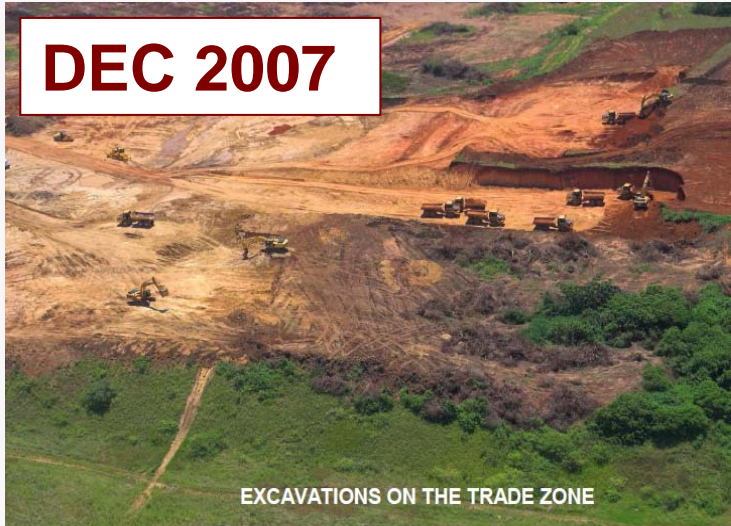


- Commercial orientated real estate
- 10 hectares, comprising 44 serviced stands @ 0.5 ha for single storey
- Earthworks in Trade Zone
 - Height of koppie: 121 m
 - Depth of valley: 67 m
 - Average height of platform: 90 m
 - Volume earth moved: 2.3 mill m³

AERIAL VIEW OF SITE FROM LOOKING NORTH EAST

5. LANDSIDE WORKS TRADE ZONE

DEC 2007



**JUN
2008**



DEC 2008



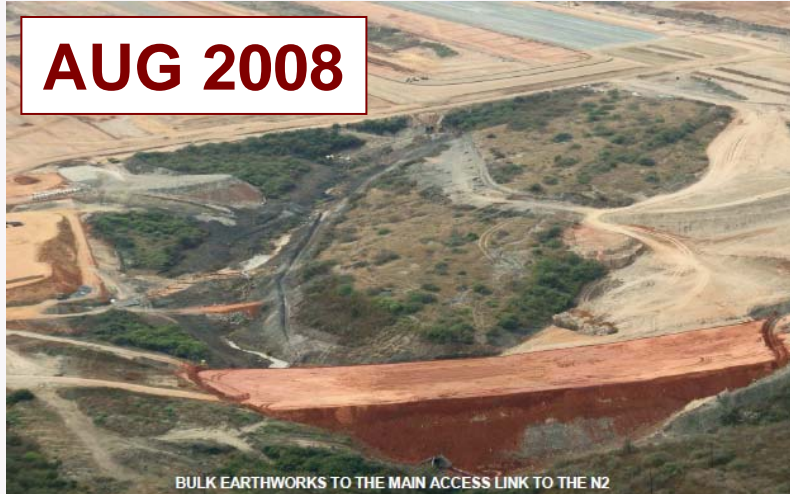
AUG 2009



6. ACCESS TO KSIA



6. ACCESS TO KSIA MAIN ACCESS FROM N2 & INTERCHANGE



6. ACCESS TO KSIA R102 DOUBLED FROM UMHLANGA

I/C



7. CONCLUSION

MATERIALS	QUANTITY	EQUIVALENT TO:
TERMINAL FLOOR AREA	103 000 M ²	27 SOCCER PITCHES
AIRSIDE PAVEMENTS	400 000 M ²	50 KM 2-LANE HIGHWAY
AIRSIDE ASPHALT	115 000 TON	200 KM - 6M WIDE ROAD
MASS EARTHWORKS	13 + 6 MILLION M ³	2,500 OLYMPIC SWIMMING POOLS
CONCRETE	100 000 M ³	50 OLYMPIC SWIMMING POOLS
STRUCTURAL STEEL	4 700 TON	½ THE EIFFEL TOWER
ELECTRICAL CABLING	1 200 KM	FROM DURBAN TO GAUTENG AND BACK

FROM GREENFIELD TO AIRPORT FIT FOR A KING



**AUG
2007**



**APR
2010**

