Wafi Golpu Airstrip Development

KA PROJET REFERENCE: 18209
INDUSTRY: Civil Infrastructure - Aviation
DISCIPLINES: Civil Engineering, Aviation Consulting

PROJECT SUMMARY

CLIENT
Wafi Golpu

LOCATION
Morobe Province, Papua New Guinea

PROJECT TYPE
Design and Documentation

YEAR COMPLETED
2018

PROJECT DESCRIPTION

Newcrest and Harmony Gold Mining Company Limited (Harmony) each currently own 50% of the Wafi-Golpu Project through the Wafi-Golpu Joint Venture (WGJV).

The Wafi-Golpu Project is an advanced exploration project located in the Morobe Province of Papua New Guinea, 65 kilometres south-west of Lae City, and includes the Golpu copper-gold porphyry deposit, the Nambonga copper-gold porphyry deposit and the Wafi high sulfidation epithermal gold deposit. Exploration activity to date has shown that the Wafi-Golpu tenements host one of the highest-grade porphyry copper systems in south-east Asia (the Golpu deposit).

If developed the Wafi-Golpu Project has the potential to make a significant economic and social contribution to Papua New Guinea over a long period. Newcrest's ongoing commitment to PNG is to develop and operate the Wafi-Golpu Project in a way that is economically viable, environmentally responsible and socially acceptable.

PROJECT ROLE

KA was engaged by WGJV to undertake a concept design study of a proposed airstrip adjacent the proposed world class Wafi Golpu copper mine. In undertaking this service, KA has been in close collaboration with the PNG National Airports Corporation (NAC) to obtain operational requirements for a DHC 6 Twin Otter runway strip. The study included preliminary civil engineering, pavement design and documentation sufficient to provide WGJV with a high-level cost estimate for budget and decision to proceed or not with the construction. This airstrip was planned as a temporary measure to improving access to the mine prior at he mine set up stage. Scope included Prelim Design and Documentation, Pre-Feasibility Study, and High-level Cost Estimate (+/-30%).

Wafi Golpu Airstrip Development

PROJECT DATASHEET

Project Reference: 18209
Industry: Civil Infrastructure - Aviation

ASSIGNMENT NAME:	APPROX. VALUE OF THE CONTRACT:
Wafi Golpu Airstrip Development	PGK 225,632
LOCATION & COUNTRY:	**DURATION OF ASSIGNMENT (MONTHS):**
Morobe Province, Papua New Guinea	6 Months
NAME OF FUNDING AGENCY:	**TOTAL NO. OF STAFF-MONTHS OF THE ASSIGNMENT:**
Wafi Golpu Joint Venture	1.27 Staff – Months
ADDRESS OF AGENCY:	**APPROX. VALUE OF THE SERVICES PROVIDED BY YOUR FIRM UNDER THE CONTRACT:**
Level 2/189 Coronation Dr, Milton QLD 4064, Australia	PGK 225,632
START DATE (MONTH/YEAR): COMPLETION DATE (MONTH/YEAR):	**NUMBER OF PROFESSIONAL STAFF-MONTHS PROVIDED BY ASSOCIATED CONSULTANTS:**
State Date: June 2018 Completion Date: December 2018	N/A
NAME OF ASSOCIATED CONSULTANTS, IF ANY:	**NAME OF SENIOR PROFESSIONAL STAFF OF YOUR FIRM INVOLVED AND FUNCTIONS PERFORMED:**
N/A	Peter Moodie – Study Manager Adam Kramer – Project Engineer Peter English – Aviation Specialist Robert Aup – Civil Engineer

NARRATIVE DESCRIPTION OF PROJECT:

Newcrest and Harmony Gold Mining Company Limited (Harmony) each currently own 50% of the Wafi-Golpu Project through the Wafi-Golpu Joint Venture (WGJV). The Wafi-Golpu Project is an advanced exploration project located in the Morobe Province of Papua New Guinea, 65 kilometres south-west of Lae City, and includes the Golpu copper-gold porphyry deposit, the Nambonga copper-gold porphyry deposit and the Wafi high sulfidation epithermal gold deposit. Exploration activity to date has shown that the Wafi-Golpu tenements host one of the highest-grade porphyry copper systems in south-east Asia (the Golpu deposit). If developed the Wafi-Golpu Project has the potential to make a significant economic and social contribution to Papua New Guinea over a long period. Newcrest's ongoing commitment to PNG is to develop and operate the Wafi-Golpu Project in a way that is economically viable, environmentally responsible and socially acceptable.

The Project Area comprises three main areas of proposed activity:

- **Mine Area** – The proposed Mine Area is located on the northern side of the Owen Stanley Ranges of Papua New Guinea (PNG), approximately 65 kilometres (km) from the Port of Lae, in the foothills of the Watut River catchment. The elevation of the Mine Area ranges from approximately 100 metres above sea level (mASL) to 380Masl. Most of the Mine Area is steep and mountainous, and is covered by dense tropical rainforest.
- **Infrastructure Corridor** – The proposed infrastructure corridor is situated on the floodplains of the Watut and Markham rivers and includes the Mine Access Road. The proposed 32km long Northern Access Road connects the Mine Access Road to the Highlands Highway. A concentrate pipeline extends from the Mine Area to the Coastal Area.
- **Coastal Area** – The proposed Coastal Area includes the proposed Port Facilities Area and the proposed Outfall Area. The proposed location of the filtration plant and associated materials handling and ship loading facility is the Port of Lae and the Outfall System comprising the mix/de-aeration tank and associated facilities is located approximately 6 kilometres to the east of the Port, in close proximity to the Markham River estuary on the Huon Gulf.

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- Prelim Design and Documentation
- Pre-Feasibility Study
- High level Cost Estimate (+/-30%)

DESCRIPTION OF ACTUAL SERVICES PROVIDED BY YOUR STAFF WITHIN THE ASSIGNMENT:

Kramer Ausenco's detailed scope of services included:

1. Airport Benefit-Cost and economic Analysis

   Undertake high level concept plans for potential airport sites, determining cost-benefit analysis parameters (project set-up), Identifying potential benefits, Identifying potential costs, determining the commercial/financial feasibility of a regional airport.

   1.1. Air Transport Analysis
   - For the base case, forecast future air traffic activity and carry out an assignment of this traffic among the nearby existing airports, based on their current limitations;

   1.2. High Level Concept Plan
   - To facilitate the benefit-cost and economic analysis, concept plans for the airport will be developed. The concept plans will be based on the facilities required to meet forecast air traffic levels and to service the needs of the airport.
   - The concept plans will highlight the number/length of runways, the associated taxiways and aircraft parking aprons, the scale of terminal facilities and the other associated facility requirements.

   1.3. Benefit-Cost-Analysis (BCA) Setup
   - Determining a base case against which alternatives can be evaluated.
   - Specifying the alternate case to be evaluated.
   - Identifying the perspective from which the benefit-cost analysis is being undertaken.
   - Determining the extent to which non-financial/non-market factors will be taken into consideration.

   1.4. Identification and Quantification of Potential Benefits
   - Direct cost savings
   - Indirect cost savings
   - Safety considerations
   - Logistical considerations

   1.5. Identification & Quantification of Potential Costs
   - Development costs
   - Land acquisition costs
   - Closure/abandonment of other infrastructure

   1.6. Determining the Commercial/Financial Feasibility
   - Capital expenditure
   - Operating profitability/benefit

2. Potential Site Identification Analysis
   - Larger regional selection analysis/methodology
   - Shortlisted site selection analysis/methodology

3. Stakeholder Impact Analysis
   - Interviews with key stakeholders and the aviation industry
   - Assessment of sub-regional plans and strategies
   - Scenario analysis on a sub-regional basis