

# Munda International Airport – New Terminal Building

**KA PROJECT REFERENCE:** 201335  
**INDUSTRY:** Civil Infrastructure - Aviation  
**DISCIPLINES:** Aviation Design, Architecture, Building Services, Structural and Civil Engineering, Interior Design, and Graphic Design (Wayfinding Signage)

## PROJECT SUMMARY

### CLIENT

China Civil Engineering Construction Corporation (CCECC) on behalf of the Ministry of Communication and Aviation (MCA) Solomon Islands (World Bank Funded)

### LOCATION

Munda International Airport (IATA: MUA), Munda Settlement, Western Province, New Georgia Island Solomon Islands

### PROJECT TYPE

Developed & Detailed Design, Documentation and Construction Supervision

### YEAR COMPLETED

Project Design completed December 2021.  
 Construction currently in mobilization phase



## PROJECT DESCRIPTION

A Design-Build contract was awarded by the Solomon Islands Ministry of Communication and Aviation (MCA), acting as the Employer, to China Civil Engineering Construction Corporation (CCECC). CCECC appointed Kramer Ausenco and NACO, Netherlands Airport Consultants as design consultants for this project. The scope of works includes a new Terminal Building and related Special Airport Systems, landside infrastructure, utilities and airside related civil works.

This new Terminal Building is to be situated on a generally flat site in Munda settlement at the site of the current Munda International Airport, adjacent to the existing aircraft parking apron, on the island of New Georgia, Solomon Islands. The new Airport Terminal Building will be replacing two existing separate Domestic and temporary International Terminal Buildings. The development of the new Terminal Building will provide:

- Better compliance with aviation processing as per international regulations
- Allow for future expansion flexibility; and
- Provide dedicated Domestic & International Arrivals and Departures zones supported with associated Front-of-House and Back-of-House facilities and amenities.

Kramer Ausenco brought its expertise gained on numerous other airport projects, particularly terminal building upgrades, to help deliver this project. Similar recent experience was the delivery of the Jacksons Airport International Terminal Upgrade and more recently engineering consultancy services for Stage 1 of the Jacksons International Terminal Building Upgrade. Kramer Ausenco was able to use the intimate knowledge and understanding obtained from these consultancies to successfully deliver this project.

Total Terminal Building Floor Area – ~1,700m<sup>2</sup>. Additional ~5,100m<sup>2</sup> of External Covered Areas, Building Services Compound, Public Circulation and Car Parking.

## PROJECT ROLE

The design of this project was delivered in three stages:

### Stage 1: Project Inception and Preliminary Design Report (PIPDR)

Preliminary Design support to CCECC. Deliverables included, but not limited to, Project Inception and Preliminary Design Report (PIPDR) supplemented with Preliminary Design Drawings

---

### **Stage 2: Developed Design – Draft Final Design Report (DFDR)**

Deliverables included, but not limited to, Draft Final Design Report (DFDR) supplemented with Developed Design Drawings produced in collaboration with other Project disciplines – Structural, Civil and Building Services; and

### **Stage 3: Detail Design – Final Design Report (FDR)**

Deliverables included, but not limited to, Final Design Report (FDR) supplemented with Detailed Design Drawings produced in collaboration with other Project disciplines – Structural, Civil and Building Services. The Detailed Design Drawings formed the basis of Issue for Construction drawings suitable for commencing construction on site

#### **Project Scope Services:**

- Architectural Developed & Detailed Design & Documentation (Including Interior Design and Wayfinding Signage)
- Structural & Civil Design & Documentation
- Building Services Design & Documentation
- Construction Supervision Services

## Munda International Airport – New Terminal Building

**Project Reference:** 201335

**Industry:** Civil Infrastructure - Aviation

<b>ASSIGNMENT NAME:</b>	<b>APPROX. VALUE OF THE CONTRACT:</b>
Munda International Airport – New Terminal Building	USD\$5,000,000.00
<b>LOCATION &amp; COUNTRY:</b>	<b>DURATION OF ASSIGNMENT (MONTHS):</b>
Munda International Airport (IATA: MUA), Munda Settlement, Western Province, New Georgia Island Solomon Islands	Ongoing
<b>NAME OF FUNDING AGENCY:</b>	<b>TOTAL NO. OF STAFF-MONTHS OF THE ASSIGNMENT:</b>
Ministry of Communication and Aviation (MCA) Solomon Islands (World Bank Funded)	Project Design commenced March 2021 - Ongoing
<b>ADDRESS OF AGENCY:</b>	<b>APPROX. VALUE OF THE SERVICES PROVIDED BY YOUR FIRM UNDER THE CONTRACT:</b>
MCA – PO Box G8, Honiara, Solomon Islands	
World Bank - Washington, D.C., United States	AUD \$ 899,350
<b>START DATE (MONTH/YEAR): COMPLETION DATE (MONTH/YEAR):</b>	<b>NUMBER OF PROFESSIONAL STAFF-MONTHS PROVIDED BY ASSOCIATED CONSULTANTS:</b>
Design/Procurement: Mar 2021 – Dec 2021 Construction: Currently in mobilization phase	9 Person-months
<b>NAME OF ASSOCIATED CONSULTANTS, IF ANY:</b>	<b>NAME OF SENIOR PROFESSIONAL STAFF OF YOUR FIRM INVOLVED AND FUNCTIONS PERFORMED:</b>
NACO – Netherlands Airport Consultants The Hague, The Netherlands	Rychard Cebula – Supervision Team Leader/Project Design Manager Daniel Tucker – Country Manager Rychard Cebula – Design Manager / Architect Douglas Habu – Project Architect Chris Barnes – Structural Engineering Manager Jason Goddard – Project Director

### NARRATIVE DESCRIPTION OF PROJECT:

A Design-Build contract was awarded by the Solomon Islands Ministry of Communication and Aviation (MCA), acting as the Employer, to China Civil Engineering Construction Corporation (CCECC). CCECC appointed Kramer Ausenco and NACO, Netherlands Airport Consultants as design consultants for this project. The scope of works includes a new Terminal Building and related Special Airport Systems, landside infrastructure, utilities and airside related civil works.

This new Terminal Building is to be situated on a generally flat site in Munda settlement at the site of the current Munda International Airport, adjacent to the existing aircraft parking apron, on the island of New Georgia, Solomon Islands. The new Airport Terminal Building will be replacing two existing separate Domestic and temporary International Terminal Buildings. The development of the new Terminal Building will provide:

- Better compliance with aviation processing as per international regulations
- Allow for future expansion flexibility; and
- Provide dedicated Domestic & International Arrivals and Departures zones supported with associated Front-of-House and Back-of-House facilities and amenities.

Kramer Ausenco brought its expertise gained on numerous other airport projects, particularly terminal building upgrades, to help deliver this project. Similar recent experience was the delivery of the Jacksons Airport International Terminal Upgrade and more recently engineering consultancy services for Stage 1 of the Jacksons International Terminal Building Upgrade. Kramer Ausenco was able to use the intimate knowledge and understanding obtained from these consultancies to successfully deliver this project.

Total Terminal Building Floor Area – ~1,700m<sup>2</sup>. Additional ~5,100m<sup>2</sup> of External Covered Areas, Building Services Compound, Public Circulation and Car Parking.

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

#### INCEPTION PHASE

#### PRELIMINARY ACTIVITIES

- Team management, communication protocols, systems and controls put in place in close collaboration with the Client, China Civil Engineering Construction Corporation (CCECC). Project management standard was established for the design and construction phase to ensure an effective project process and to control cost and schedule for the effective implementation of the project.
- Project critical criteria including design and regulation standards of the International Civil Aviation Authority Organisation (ICAO), and International Air Transport Association (IATA) were identified.
- Regulatory bodies governing development consent were consulted early to mitigate potential approvals permitting delays in later stages of the project implementation. In addition to the requirements under the Solomon Island National Building Code and Australian National Construction Code (BCA 2019) were identified.

#### *SITE RECONNAISSANCE AND ASSESSMENT*

- Site Reconnaissance and Assessment undertaken to gauge the current site conditions and operational requirements that informed design team reviewing and evaluating the existing facilities and conditions.
- A consultation process considered comments from the Client. The KA team queried site data available that might affect general layout issues from a construction engineering viewpoint.
- Facility Description formulated to aid with Concept design.
- KA offered comparative / alternative designs based on existing layouts for review.
- The Site Reconnaissance and Assessment provided the following:
  - a) Coordinated collaboration and communication protocols with end users and stakeholder groups prior to commencement of Works.
  - b) Identified safety and security issues for project personnel.
  - c) Identified any possible environmental issues.
  - d) Identified any hazards.
  - e) Reviewed for suitability and compliance with statutory codes and construction methodology.
  - f) Assessed possible constraints that might impact Contractor.
- Investigation of site condition will be essential work for carrying out the efficient management of the project including design, construction as well as maintaining the current International Terminal building's function during construction of the new Terminal Building.
- Site Investigations of the following were undertaken in conjunction with NACO:
  - a) Investigation of flight operation condition and cycle time in apron
  - b) Investigation of ALS-Approach Light System, Apron Ground Lights
  - c) Safe facilities investigation (NAVAIDS)
  - d) Parking situation and demand in parking lot and drainage facilities in parking lot over the last five years
  - e) Investigation of existing road around airport which will be used for transportation of construction material
  - f) Investigation of facilities around the airport to prevent damage during construction

#### *PROJECT RISK ASSESSMENT & QUALITY MANAGEMENT*

- A risk register, and risk assessment plan were produced after a risk workshop with key parties. They were revised and amended accordingly throughout the project.
- Kramer Ausenco's in-house Quality Assurance (QA)/Quality Control (QC) system has been third party certified to conform to the requirements of AZ/NZS ISO 9001. Our Quality Policy is based on the Quality Management Principles as outlined in ISO 9004:2000 'Quality Management Systems – Guidelines for Performance Improvements'. Our in-house QA/QC systems hosts all the quality management forms, registers, checklists, and other plans and sub-plans necessary for managing quality.

#### *HEALTH, SAFETY, ENVIRONMENT AND COMMUNITY MANAGEMENT*

- Personnel health, safety and security is a very critical part of everything we do at Kramer Ausenco. This safety, health and security emphasis is underpinned by one of our core company values – "Safety in all we do". Kramer Ausenco's Safety Policy has been developed to promote the safety culture we have today, and to bring "safety consciousness" to centre stage in everything we do as a company.
- Kramer Ausenco's Health & Safety Management Plan and Environment & Community Plan outlines the procedures and processes we follow on the job, both in the office and out on the field. We review these plans with the Contractor to make sure all parties are aware and aligned with the HSEC expectations to be adopted for this project. We will also make appropriate changes so that the plans for this Project meets health, safety, environment and community needs specific to this Project.
- Kramer Ausenco Health & Safety and Environment & Community Management Plans implemented the following:
  - a) Implemented appropriate safety and security measures prior to commencement of construction.
  - b) Reviewed the Contractor's Health, Safety, Environment and Community Plan for the Project.
  - c) Communicated the Health, Safety, Environment and Community measures to be undertaken on the Project to the all stakeholders.
  - d) Ensured the Health, Safety, Environment and Community measures comply with Workplace Health and Safety Regulations.
  - e) Ensured all project works are performed in a safe and secure manner, and that any activity relating to the Project does not compromise the health, safety and security of project personnel, visitors, bystanders, environment or the community in which project activities comes into contact with; and
  - f) Ensured Zero (0) Lost Time Injury (LTI) is achieved on the Project.

#### *DESKTOP ANALYSIS AND REVIEW OF PREVIOUS STUDIES*

- Reviewed all previous studies to find out any problems or improvements in view of the technical and economic justification

especially in connection with the existing facilities and newly constructed facilities.

- The review of studies included all the airport facilities and covered;
- Functional Brief by NACO and previous studies
  - a) Review adequacy of flight demand in previous studies
  - b) Review Design Standard in previous studies
  - c) Review size of airport facilities suggested in previous studies
  - d) Review the construction quantities and construction costs.

#### DESIGN PHASE

- The design took into consideration cost factors to achieve a balance between capital cost and durability/ quality in space, material and fittings. Initial capital cost expenditure or savings were be rationalised against operational & maintenance costs.
- Passenger and staff safety and security were a prime consideration. They were integrated into all aspects of design, finishes and equipment selection, construction, procedures, maintenance and operations.
- Throughout the process KA provided:
  - a) Review preparation of designs for code compliance, safety in design, sustainability in design, and constructability;
  - b) Ensured designs are fit-for-purpose and met its functionality requirements;
  - c) Conducted value engineering on the designs.
  - d) Verified Required Permits:
- After review of the project drawings and specifications, KA supplied documentation suitable for obtaining the necessary construction permits from the local authorities concerned.
- All documentation was presented in a clear, concise format to ensure comprehension and minimize ambiguity. Drawings contain extensive explanatory notations. Signage, finishes and fittings were described with detailed schedules and specifications presented in clear descriptive language.

#### CONSTRUCTION PHASE

- KA undertook an independent Review of the Contractor's requirements to verify that the documents comply with the obligations of the specifications included in the Contract documents.
- Specialist attention was given to the following:
  - a) Airport specific fire protection and fighting system & lightning protection system.
  - b) Baggage handling automated system
  - c) Electronic communications system
- Constructability reviews
  - a) Adequacy of construction time.
  - b) Scope of work and quality control of the field work.
  - c) Work difficulties.
  - d) Assess application of new construction methods and their risk.
- KA conducted Value Engineering (VE) to maintain the quality of the work and complete the work within the approved project costs and time, perform the value engineering and make reports and recommendations to CCECC.

#### CONSTRUCTION SUPERVISORY & CONTRACT MANAGEMENT SERVICES

- Construction of this project is currently in the mobilisation phase. A Design & Construct project model is the preferred vehicle to deliver the New Terminal Building and associated works.
- In recognition of this KA's Construction Services - as agreed with the Client - is limited to the following scope –
  - Perform Site Inspections of the project to determine generally if the design intent of the engineering and architectural documents is being upheld. In addition to the above KA will review the site works to ascertain if the works are being performed in accordance with the contract documents and good construction practice. These inspections will be undertaken by the Solomon Islands staff unless travel restrictions are lifted.
  - Advise the contractor immediately of any concerns.
  - Respond to all consultants, contractor RFI's, and address all related queries. Liaise with the contractor as required to ensure design intent is always satisfied if alternate built solutions are proposed subject to agreed exclusions.
  - Review and comment on contractor's shop drawings, product data samples and other submissions as required.
- Practical completion and Post Practical completion services are excluded. Such services were left to the discretion of the Client to consider in future if required