**AIR TRAFFIC AND NAVIGATION SERVICES SOC. LTD**

**REPUBLIC OF SOUTH AFRICA**



**REQUEST FOR PROPOSAL: ATNS/EP/RFP054/22.23/CAFSAT VSAT TERMINAL**

**APPOINTMENT OF A SERVICE PROVIDER FOR DESIGN, SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF VSAT TERMINAL AT THE NEW LUANDA AIRPORT.**

**VOLUME 4**

**LOGISTIC SUPPORT REQUIREMENTS**

**NOVEMBER 2022**

**The information contained within this document is confidential to ATNS in all respects and it is hereby acknowledged that the information as provided shall only be used for the preparation of a response to this document. The information furnished will not be used for any other purpose than stated and that the information will not directly or indirectly, by agent, employee or representative, be disclosed either in whole or in part, to any other third party without the express written consent by the Company or its representative**

|  |
| --- |
| TABLE OF CONTENTS |

TABLE OF CONTENTS 2

ABBREVIATIONS 3

GLOSSARY OF TERMS 5

1 INTRODUCTION 6

1.1 Overview of the Logistics Support implementation phases 6

1.2 Table 1 – LS Required Documentation/plans 7

2 LOGISTICS MAINTENANCE AND SUPPORT CONCEPT 8

2.1 Three-Tiered Support Model 8

2.2 Support Resources 9

3 GENERAL INSTRUCTIONS TO BIDDERS 10

4 PHASE 1: DEVELOPMENT PHASE 11

4.1 System Performance Requirements 11

5 SUPPORT CONCEPT 12

5.1 Logistic Support Implementation Strategy 12

5.2 Logistic Support Plan (LSP) 13

5.3 Training Plan (TP) (Including provision of training) 15

5.4 Spares Plan (SP) 17

5.5 Test Equipment Plan (TEP). 19

5.6 Documentation Plan (DP) 20

5.7 Package Handling Storage and Transport Plan (PHS&TP) 23

5.8 Configuration Management Plan (CMP) 24

5.9 Total LRU Repair Costs (over the System Lifespan) 26

5.10 System Lifespan 26

6 PHASE 2: IMPLEMENTATION PHASE 27

7 PHASE 3 - VALIDATION PHASE 27

7.1 WARRANTY 27

7.2 Verification 30

7.3 Update 31

 32

|  |
| --- |
| ABBREVIATIONS |

ATA ATNS Training Academy

ATC Air Traffic Control

ATNS Air Traffic and Navigation Services State Owned Company Limited

ATNS HO Air Traffic and Navigation Services State Owned Company Limited Head Office

ATS Air Traffic Services

ATSU Air Traffic Services Unit

BITE Built in Test Equipment

CAA Civil Aviation Authority

CDRL Contract Data Requirement List

CMP Configuration Management Plan

CSCI Computer Software Configuration Item

COTS Commercially off-the shelf

EAM Enterprise Asset Management

DP Documentation Plan

DME Distance Measuring Equipment

ET Engineering Technician

FABL Bloemfontein Control Centre

FACT Cape Town Control Centre

FAOR Johannesburg Control Centre

FAPE Port Elizabeth Control Centre

FAT Factory Acceptance Test

FIR Flight Information Region

FRC Fault Reporting Centre

HAT Hardware Acceptance Test

ICAO International Civil Aviation Organization

ICD Interface Control Document

ILS Integrated Logistic Support

LAN Local Area Network

LCC Life Cycle Costing

LRU Line Replacement Unit

LS Logistic Support

LSA Logistic Support Analysis

LSAP Logistic Support Analysis Plan

LSIP Logistic Support Implementation Plan

LSP Logistic Support Plan

LSPP Logistic Support Program Plan

MAS Minimum Acceptable Service

MDT Mean Down Time

MMS Maintenance Management System

MTBF Mean Time Between Failures

MTTR Mean Time To Repair

OEM Original Equipment Manufacturer

OJT On the Job Training

OJTI On-the-Job Training Instructor

PC Personal Computer

PHS&T Packaging, Handling, Storage and Transportation

RAM/RMA Reliability, Availability and Maintainability

RAMPP Reliability, Availability and Maintainability Program Plan

RCMS Remote Control and Monitoring System

RF Radio Frequency

RFT Request For Tender

SAAF South African Air Force

SAT Site Acceptance Test

SAN Storage Area Network

SLA Service Level Agreement

SME Subject Matter Expect

SP Spares Plan

SSR Software Support Report

SSS System Support Suite

TEP Test Equipment Plan

TP Training Plan

URS User Requirement Statement

WAN Wide Area Network

|  |
| --- |
| GLOSSARY OF TERMS |

Availability

The measure of a hardware or software system, subsystem or equipment operational time represented by a ratio of total actual functional time over the total time it is required or expected to function. The availability will be measured and expressed as a percentage.

MTBF

A measure of the reliability of repairable hardware or software system, subsystem or equipment items, represented by the number of functional life units measured in hours, during which all hardware or software system, subsystem or equipment perform within their specified limits in a given period of time.

MTTR

A measure of the maintainability, of repairable hardware or software system, subsystem or equipment items, represented by the average (mean) time measured in hours to repair or restore a failed component of a hardware or software system, subsystem or equipment.

Reliability

It is the ability of a hardware or software system, subsystem or equipment to consistently perform according to its specifications over a specified period of time. Reliability is determined by the measure of how often an item fails in a given period of time expressed in terms of (MTBF).

# INTRODUCTION

This document defines the basic and minimum integrated logistic support (ILS) requirements for the supply, installation and commissioning of the CAFSAT VSAT Terminal/System that will be deployed in Angola, Luanda, at the new Luanda airport - Dr. Antonio Agostinho Neto Internacional Airport.

## Overview of the Logistics Support implementation phases

The Integrated Logistics Support implementation will run over a course of three (3) phases, that is, Development phase 1A (Submission of Tender); Development phase 1B (Contract award); Implementation phase 2 and Warranty phase 3.

In responding to this tender, Bidders are required to deliver all the documents/plans listed in column 1 of Table1 [Phase 1A – Development column (Submission of Tender)].

The deliverables of each phase will result in the achievement of the following milestones:

Phase 1A – Submission of Tender

Phase 1B – Contract award

Phase 2 – Site Acceptance Test

Phase 3 - Final System Acceptance

## Table 1 – LS Required Documentation/plans

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | PHASE 1A -DEVELOPMENT (Submission of Tender) | PHASE 1B - DEVELOPMENT (Contract award) | PHASE 2 – IMPLEMENTATION (SAT) | PHASE 3 - EVALUATION/2-Year Warranty (Final System Acceptance) |
|  | * Terminal/System Performance Requirements Plan - Draft
* System Installation Manual(s) - Draft
* System Maintenance Manual(s) - Draft
* System Operation Manual(s) – Draft
* As-Built Documentation – Draft
* PHS&T Plan – Draft
* CMP – Draft
 | Review and First Publication (Issue 1) of the following documents, before Contract award:* Terminal Performance Requirements Plan – Issue 1 System Installation Manual(s) - Issue 1
* System Maintenance Manual(s) – Issue 1
* System Operation Manual(s) – Issue 1
* As-Built Documentation – Issue 1
* PHS&T Plan – Issue 1
* CMP – Issue 1
 | * Delivery of all Phase 1 Documentation
* Delivery of Spare Parts
 | * Terminal Performance (RAM) Verification
* Identification of Terminal Performance Deficiencies
* Correction of Terminal Performance Deficiencies
* Final updates; publication and acceptance of all Phase 1 Documentation
 |

# LOGISTICS MAINTENANCE AND SUPPORT CONCEPT

The Luanda (ENANA) Technical Personnel will continue maintaining this new CAFSAT VSAT Terminal in a similar manner as the current terminal at the “old Airport” (FNLU).

# GENERAL INSTRUCTIONS TO BIDDERS

The Bidder shall submit all responses, diagrams, project management documentation and drawings according to the GENERAL INFORMATION AND INSTRUCTIONS TO BIDDERS document and in the English language.

To assist Bidders only, each paragraph or article has been appended throughout with the letters “(M)”, “(D)”, “(O)” or “(I)”, to indicate whether the requirement is **M**andatory, **D**esirable, **O**ptional or for **I**nformation only.

**ALL RESPONSES TO THE REQUIREMENTS IN THIS DOCUMENT SHALL BE PROVIDED AS FOLLOWS:**

BIDDERS SHALL RESPOND IN FULL TO EACH ITEM IN THE FORMAT PROVIDED AND REFERENCES (CHAPTER, SECTION, PAGE NUMBER, PARAGRAPH NUMBER) TO DOCUMENTS AND RELEVANT INFORMATION SUPPORTING THE RESPONSES SHALL BE INDICATED IN THE SPACE PROVIDED. THIS INFORMATION WILL BE THE **ONLY RESPONSE USED FOR THE EVALUATION AND ASSESSMENT**.

Responses, provided in the space allowed, that are not clear or inadequate or the lack thereof shall be interpreted as **“Not Compliant”** even though the compliance column is declared as “Comply” and/or the Bidder’s offer meets the requirement. Bidder’s shall ensure that each response correctly addresses the requirement stated. Responses not addressing the requirement of the specific paragraph shall be interpreted as **“Not Compliant”**.

Bidder’s shall declare their compliance to each and every paragraph of this document in the column labelled “Compliance”. Bids will be evaluated as follows:

C: fully compliant = 2 points:

PC: partly compliant = 1 point;

NC: not compliant = 0 points.

Noted: Noted and accepted (applicable to paragraphs marked as “I”, not containing requirements)

Bidder’s shall, for paragraphs declared “PC” or “NC”, include a statement as to the nature of the variation and may additionally supply supporting information in the space provided to demonstrate how the proposal meets the needs of ATNS.

**Paragraphs marked “(M)”**, indicates that the requirement is mandatory and proposals that do not comply with the requirement shall be disqualified for further evaluation.

**Paragraphs marked “(D)”**, indicates that the requirement is desirable, and the Bidder is expected to declare their level of compliance, formal response and reference supporting documents.

**Paragraphs marked “(I)”**, indicates that the requirement is for information, however the Bidder is still expected to respond and provide information if requested. Any information gathered herein may form part of the contractual terms.

**Paragraphs marked “(O)”**, indicates that the requirement is optional, and the Bidder may decide how to respond.

# PHASE 1: DEVELOPMENT PHASE

During this first phase, the overall support programme and most of the support elements shall be developed and documented. (I)

## Terminal/System Performance Requirements

1. [ANNUAL TERMINAL AVAILABILITY] - Using the inherent individual component Reliability statistics, for all series/parallel combinations of the overall CAFSAT VSAT Terminal, the Bidder shall indicate their proposed System Availability figure [%], over a period of a year. The Bidder shall clearly indicate all their calculations. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. [MAXIMUM NUMBER OF TERMINAL FAILURES PER ANNUM] – Using the inherent individual component Reliability statistics, the Bidder shall indicate their proposed maximum number of terminal failures, over a period of a year. The Bidder shall clearly indicate all their calculations. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. [TERMINAL/SYSTEM PERFORMANCE REQUIREMENTS PLAN] – The Bidder shall provide this document, detailing how both the 4.1 [A] & [B] requirements above shall be fully achieved, for a minimum of three (3) years. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

# SUPPORT CONCEPT

To achieve the system performance requirements stated in Section 4.1 above, the Bidder shall provide a detailed proposal covering the following.

## Spare Parts

1. The Bidder shall ensure that all Spare Parts listed in the Equipment List (Volume 2) shall be provided in their proposal. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. Based on their expertise, the Bidder shall identify Spare Parts that are excluded in the Equipment List (Volume 2) and shall ensure that such additional Spare Parts are provided in their proposal, such that all the Terminal components are catered for. The Bidder shall recommend quantities of these additional Spare Parts, such that they shall support the Terminal for about 3 years. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. Some Terminal components (plus their associated Spare Parts) may be obsolete or possess inferior Reliability statistics. The Bidder is required to propose alternate newer components that are of superior Reliability/performance and are backward compatible. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

## Documentation

1. The Bidder shall deliver System Installation Manual(s). (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. The Bidder shall deliver System Maintenance Manual(s). (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. The Bidder shall deliver System Operation Manual(s). (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. The Bidder shall provide any other relevant VSAT Terminal documents that they propose. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. The Bidder shall, prior to the commencement of the warranty, ensure that all documentation reflects the true configuration of the As-Built CAFSAT VSAT System/Terminal. the serial numbers of all the system components/LRUs must be recorded on the terminal As-Built document(s). (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. The Bidder shall supply a full AS-Built documentation consisting of the following as a minimum:
2. Equipment Specification/ Data Sheets. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. Device and system verification sign-off sheets (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. OEM and COTS Documentation [to be provided on all relevant equipment] (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. Software and Firmware configurations (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. Design drawings (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. Power consumptions (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. List of cables and markings (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. Interface(s) documentation with drawings (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

## Package Handling Storage and Transport Plan (PHS&TP)

1. The Bidder shall deliver a Package Handling Storage and Transport Plan that addresses the requirements for the shipping and dispatch of items for supply, installation and repair between end-user and the supplier, as well as special storage and handling requirements. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. The Bidder shall be responsible for the provision of all PHS&T instructions, procedures and initial packaging material. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. All Packaging material shall be re-usable or recyclable. All Preservation material required shall be included here. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

## Configuration Management Plan (CMP)

1. The Bidder shall deliver a Configuration Management Plan to identify the configuration and control actions and procedures necessary for the configuration management of the equipment and documentation for the VSAT Terminal/System(D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. The CMP shall make provision of the procedures and ensure that there are backups of all the changes implemented during the Warranty. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. The Bidder shall remain responsible for the system configuration management until the end of the Warranty. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. Any changes to the repaired units shall be recorded and client be formally advised of the new configuration status. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. At the end of the Warranty, the client will take over the responsibility of Configuration management on the installed system. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

# PHASE 2: IMPLEMENTATION PHASE

The provision of the deliverables mentioned below must be provided in this phase. (D)

1. Delivery of all Phase 1 Documentation
2. Delivery of Spare Parts

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

# PHASE 3 - VALIDATION PHASE

## WARRANTY

1. The warranty shall start from the successful SAT date, ending two (2) years after the SAT.. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. The warranty shall cover all system repairs and replacements/upgrade of hardware, software and firmware corrections and/or modifications (including those of the complete turnkey solution). The warranty shall also cover the correction of any other system failures/errors not detected during FAT & SAT. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. During the warranty, the Angola/ENANA technical personnel (assisted by the ATNS VSAT Department) will maintain the system as per the Phases 1 and 2 deliverables, but, under the accountability of the Contractor. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. All the Phase 1 and 2 deliverables shall be validated by both ATNS and the Contractor. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. During the warranty, any identified deficiencies on the Phase 1 and 2 deliverables, shall be corrected at the cost of the Contractor. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. During the warranty, the Contractor shall produce final updates and publication of all Phase 1 documentation. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. During the two (2) year warranty period, the Contractor shall measure the system/terminal performance (availability/reliability), as stipulated in requirements “4.1 [A], [B] & [C]” above. The Contractor shall provide a detailed report on the system performance requirements, monthly.. (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

1. As per requirement “7 [D]” above, the Contractor shall evaluate the system/terminal failures reports monthly (during the 2-year warranty), identify deficiencies, and implement corrective measures. . (D)

|  |  |
| --- | --- |
| **COMPLIANCE (C/PC/NC/NOTED)** |  |
| [INSERT FULL RESPONSE FOR EVALUATION HERE] |
| [INSERT REFERENCE TO ADDITIONAL INFORMATION HERE] |

**--- END OF VOLUME 4 ---**