# TASK ORDER #

# LibAMG performance, testing & porting improvements

This Task Order Agency analytics review and re-documentation (the “Task Order”), made effective as of 10th March, 2025 (the “Effective Date”) is entered into by and between **Morgan Stanley & Co. LLC, an Affiliate of** **Morgan Stanley & Co. International Plc** (“Morgan Stanley”) and **RiskCare Inc.** (“Consultant”) and is pursuant to and incorporates herein by reference the terms and conditions of the Short Form Framework Consulting Services Agreement, entered into as of the 21st October 2008 by and between Morgan Stanley UK Limited (successor by novation to Morgan Stanley & Co. International Plc) and Riskcare Limited (the “Agreement”). In the event any terms of this Task Order conflict with the terms of the Agreement, the terms of this Task Order shall govern. All capitalised terms used herein shall have the same meaning ascribed in the Agreement.

# Description of Services:

The Consultant will assist Morgan Stanley by improving LibAMG performance on the existing x86 architecture with SIMD optimization; port LibAMG code for more cost-efficient hardware, such as ARM; and upgrading the testing framework and build system to reduce execution time with shorter cycles, expand coverage, and ensure valuation consistency across platform / code variations during system optimization and transitions. The Consultant is to support the Morgan Stanley LibAMG team as per consultant proposal “LibAMG performance, testing and porting improvements v19Feb2025”. The Consultant is expected to perform the following activities:

1. Testing framework / platform and build system upgrade
2. LibAMG performance improvements & SIMD optimization
3. LibAMG code porting to ARM platform

# Project Deliverables

| **Deliverable** | **Description** | **Format** |
| --- | --- | --- |
| Project Initiation Document | Scope, success criteria and governance outline. | Document |
| Testing System Improvements | Cloud-based bulk tests, unit tests across builds, sampled regression tests. | Code |
| SIMD refactoring | Computation vectorization, memory allocation optimization, instruction set optimization. | Code |
| ARM target building process | Creates compile and deploy process of LibAMG on ARM platform, output reconciled with x86 results. | Code |
| Build System Upgrade | Migrate build system to Bazel and implement cloud-based scripts. | Code |
| Model Documentation Updates | Updates to existing model documentation to reflect new features and algorithms. | Document |

1. **Project Dates, Consulting Fees and Payment Schedule**

The project shall commence on 10th March 2025 and will finish on 31st March 2026, or as soon as possible thereafter.

This is a “time and materials” engagement. The consultant will perform and complete through Acceptance all Services and Deliverables under this Task Order for no more than the Maximum Fee, regardless of whether the work performed by the Consultant’s personnel at the applicable rates meets or exceeds the Maximum Fee amount set forth herein. Any changes to the scope or fees set forth in this Task Order shall be set forth in writing in the form of an addendum/amendment to this Task order.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Position (per rate card)** | **Consultant Name** | **Total # of Professional days** | **Daily Rate as per Rate Card** | **Total Cost ($) excl VAT** |
| Senior Quantitative Developer (UK) | Martin Kristensen /  Chris Sawyer | 480 | $1,690 | $811.200 |
| Senior Quantitative Developer (US) | Alan Cao / Rishi Bhatt | 480 | $1,450 | $696,000 |
| Senior Full-Stack Engineer (UK) | Francois-Xavier Girard / TBC | 240 | $1,495 | $358,800 |
| Quantitative Developer (US) | Andrew Bader | 240 | $1,250 | $300,000 |
| Senor Project Lead (US) |  | 150 | $1400 |  |
| **Total** |  |  |  | **$2,166,000** |

# Financial Control Information

|  |  |
| --- | --- |
| **Manager** |  |
| **Sr. Managers** | Derek Kilfedder, Volkan Aktas |
| **Cost Center** |  |
| **Start Date** | 10 March 2025 |
| **End Date** | 31 March 2026 |
| **Location** | New York City / London |
| **MER #** |  |
| **MD Sponsor** | Derek Kilfedder, Volkan Aktas |

1. **Authorized Morgan Stanley Employees**

The above personnel will accept direction only from the following **Morgan Stanley** employees or officers, or such other

**Morgan Stanley** personnel, as they designate: Derek Kilfedder

# Status Reports

Bi-weekly

# Insurance Certifications

Insurance certificates required under Section 13.2 of the Agreement are to be delivered to Morgan Stanley at the address set forth below prior to commencing any Services hereunder, and annually thereafter, and at least thirty (30) days prior to any expiration of each insurance policy: [cmsadmins@morganstanley.com](mailto:cmsadmins@morganstanley.com)

# Notices

|  |  |
| --- | --- |
| *If to Morgan Stanley:* | *If to Consultant:* |
| Morgan Stanley | Riskcare, Inc. |
| 1221 Avenue of the Americas, 35th Floor | 122 E. 42nd Street Suite 4705 |
| New York, NY 10020 | New York, NY 10168, USA |
| Attn: Technology Law Group | +1 646 625 5422 |
|  | ian.rebello@riskcare.com |

1. **Special Conditions** – (if any)

To the extent legally permitted by applicable laws and regulations, and only as necessary to perform the Services as set forth in this Order, Morgan Stanley may grant Consultant access to certain regulatory or agency information (including, examination reports, correspondence, and/or other documents relevant to the provision of the Services) defined as "confidential supervisory information" by the Federal Reserve and by the CFPB, "exempt records" by the FDIC, or "non-public OCC information" by the OCC. See 12 C.F.R. 261.2(b), 12 C.F.R. 1070.2(i), 12 C.F.R. 309.5(g)(8), 12 C.F.R. 4.32(b). All such information shall be collectively referred to herein as "CSI". Consultant shall use CSI to which it is granted access exclusively for the purpose of providing the Services under this Order and for no other purpose. Consultant will review all documents containing CSI on Morgan Stanley systems and shall not make, nor retain, any copies of any documents containing CSI. At all times, Consultant will take all necessary steps to protect the confidentiality of CSI. Consultant shall comply with all relevant disclosure restrictions (including but not limited to 12

C.F.R. 261.21(b) as promulgated by the FED, 12 C.F.R. 1070.42(b) as promulgated by the CFPB, 12 C.F.R. 309.6(b)(7) as promulgated by the FDIC, and 12 C.F.R. 4.37(b)(2) as promulgated by the OCC, as applicable) and shall not disclose CSI for any purpose without the prior written approval of the Federal Reserve, CFPB, FDIC and/or OCC (as applicable in each instance). At the conclusion of the engagement for which Consultant was provided access to CSI, Consultant shall return to Morgan Stanley, or certify the destruction of, all documents containing CSI.

# IN WITNESS WHEREOF, the parties have caused this Task Order to be executed by their duly authorized representatives.

**RISKCARE INC: MORGAN STANLEY & CO. LLC**

By: By:

Name: Ian Rebello Name:

Title: Director Title:

Date:

Date: