GOVERNO DO ESTADO
DO ESPÍRITO SANTO
Secretaria da Ciência, Tecnologia, Inovação e Educação Profissional

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GOVERNO DO ESTADO
DO ESPÍRITO SANTO

Public Management Strengthening Program

"ESPÍRITO SANTO MAIS INTELIGENTE"

Project P180462

BIRD Loan Agreement 9679 - BR

TERMS OF REFERENCE No. 006

Specialized Consulting Services for Data Center and Integrated Social Defense Center Projects

OBJECT: Hiring of a Multidisciplinary Consulting Firm with experience in *data center and integrated social defense center* projects to provide specialized and on-demand technical advisory services to **Project** Implementation Unit **1 (PRODEST)**, focusing on the preparation of technical specifications, requirements plans, studies, and projects that will support the future construction (**I) of *the* new ANSI/TIA-942-C RATED-3 Certified *Green Modular Data Center (DCMC-ES)*** and technical advisory services to **Project** Implementation Unit **3 (SESP)** in the preparation of the requirements plan and documents necessary for the contracting (**II)** ***of the Integrated Social Defense Center (CIDES)*** **of the State of Espírito Santo.**

September 2025

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GLOSSARY / LIST OF ACRONYMS

- **ANSI:** American National Standards Institute
- **BIRD:** International Bank for Reconstruction and Development
- **UIT:** International Telecommunication Union
- **CIDES:** Integrated Center for Social Defense
- **DCMC-ES:** ANSI/TIA-942-C RATED-3 Certified Green Modular Data Center in Espírito Santo
- **EVTEA:** Technical, Economic, and Environmental Feasibility Study
- **EIV:** Neighborhood Impact Study
- **GIS:** Geographic Information System
- **LGPD:** General Data Protection Law
- **NOC:** Network Operations Center
- **ODP:** Project Development Objectives
- **PRODEST:** Espírito Santo Institute of Information and Communication Technology
- **SECTI:** State Secretariat for Science, Technology, Innovation, and Professional Education
- **SEG:** State Government Secretariat
- **SESP:** State Secretariat for Public Security and Social Defense
- **SOC:** Security Operations Center
- **TDR:** Terms of Reference
- **TIA:** Telecommunications Industry Association
- **UGP:** Program Management Unit
- **UIP:** Project Implementation Unit
- **LEED:** Leadership in Energy and Environmental Design is a sustainable building certification program used worldwide https://www.usgbc.org/leed .
- **EDGE:** Excellence in Design for Greater Efficiency is a standard for sustainable buildings and an international certification system for sustainable buildings https://edge.gbci.org/ .

SUMMARY

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TERMS OF REFERENCE

Specialized Consulting on Data Center Projects and Integrated Social Defense Center

1. SUMMARY AND DEFINITIONS

Program Name	Public Management Strengthening Program "ESPÍRITO SANTO MAIS INTELIGENTE" **ESF**
Borrower	Government of the State of Espírito Santo.
Advisory and Deliberative Body - Senior Decision-Making Body	Program Steering Committee. Executive Secretariat. General Coordination of the Program.
Executive Bodies	State Secretariat for Science, Technology, Innovation, and Professional Education (SECTI). State Secretariat of Government (SEG). Espírito Santo Institute of Information and Communication Technology (PRODEST). State Secretariat for Public Security and Social Defense (SESP).
Program Implementation Deadline	Approximately five (5) initial years. Estimated Execution Period: five (5) years.
Amount	US$76.5 million, of which US$61.2 million is financed by the International Bank for Reconstruction and Development (BIRD) and US$15.3 million is contributed by the State of Espírito Santo.

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TITLE I - INTRODUCTION AND CONTEXT

2. PURPOSE OF THE CONTRACT

To hire a Multidisciplinary Consulting Firm with proven experience in data center and integrated social defense center projects to provide specialized and on-demand services.

This consultancy will provide technical advice to Project Implementation Unit 1 (PRODEST) and Project Implementation Unit 3 (SESP), focusing on the preparation of all necessary technical documentation (feasibility studies, requirements plans, technical specifications, basic and executive projects, detailed budgets, and others) that will support the future construction (I) of the new ANSI/TIA-942-C RATED-3 Certified Green Modular Data Center (DCMC-ES); and in the preparation of the conceptual design, requirements plan, and documents for the construction of the Integrated Social Defense Center (CIDES) in the state of Espírito Santo.

3. JUSTIFICATION

Hiring a specialized multidisciplinary consulting firm is essential for the success of Components 1 (Resilient Data Infrastructure and Digital Skills) and 3 (Modernization of the Emergency Management System) of the Smarter Espírito Santo Program.

The technical complexity involved in planning and designing a modern, resilient, secure, and environmentally sustainable Data Center, as well as in designing a comprehensive and effective Integrated Social Defense Center, requires multidisciplinary knowledge and experience that goes beyond the availability or internal technical capacity of the State Government, especially considering the level of detail and exclusive dedication that both projects demand.

Although institutional knowledge is present, extensive dedication will be required within a limited period to develop the strategies, requirements, and proposals necessary for contracting. Government units remain responsible for strategic decisions and will receive all the technical support necessary for a product of excellence.

Added to these factors are:

3.1. Need for Specialized Expertise: Certified data center projects (e.g., ANSI/TIA-942-C RATED-3) and large-scale social defense or command and control centers involve multiple engineering disciplines (civil, electrical, mechanical, telecommunications), IT architecture, physical and logical security, energy efficiency, and complex project management. The consultancy will bring

technical knowledge and practical experience in similar projects, ensuring the adoption of best practices and technologies.

3.2. **Quality Assurance and Compliance:** The consultant will be responsible for developing designs and specifications that meet strict national and international technical standards, as well as environmental and safety regulations and BIRD policies.

3.3. **Risk Mitigation:** Inadequate planning can result in delays, additional costs, and failures in the operation of future facilities. The consultant's experience will help identify and mitigate technical, financial, and operational risks from the early stages.

3.4. **Investment Optimization:** Through feasibility studies, cost-benefit analysis, and optimized design, the consultancy will assist the State in making more assertive decisions, ensuring the efficient use of public resources and BIRD financing.

3.5. **Focus of Internal Teams:** The contract will allow the technical teams at PRODEST and SESP, as well as other agencies involved, to focus on their core activities and on project management and oversight, while the consulting firm focuses on preparing specialized studies and projects.

3.6. **Achievement of Program Goals**: Specialized advice is crucial for the ambitious goals of modernizing the data infrastructure and emergency management system, as set out in the Smarter Espírito Santo Program, to be achieved within the established deadlines and budgets.

In view of the above, hiring consultants is a strategic and necessary step to ensure quality, efficiency, and success in the design and development of DCMC-ES and CIDES projects, contributing significantly to strengthening public management and improving services provided to the population of Espírito Santo.

4. CONTEXT

The state adopts Strategic Planning as its main tool to strengthen public management and align government strategies with the desired vision for the future. Between 2019 and 2020, the State Government promoted Strategic Planning Seminars, in which priorities for the coming years were discussed, with a long-term horizon until 2030.

With the priorities defined, the State has been improving its management model, guided by the principle of focusing on results. This involves the professionalization of civil servants and the reduction of bureaucracy in the administration, with a view to ensuring a more efficient allocation of resources and making the State increasingly prepared to fulfill its social function, always with the citizen at the center of public policies.

The Program to Support the Strengthening of Public Management - Espírito Santo Mais Inteligente (Smarter Espírito Santo), proposed with the support of the BIRD, fits into this context. Financing is provided through an Investment in Financing Projects (IPF) operation, with a total estimated cost of US$ 76,520,000.00, of which US$ 61,216,000.00 comes from an BIRD loan and US$ 15,304,000.00 from state counterpart funds. Implementation is planned for a total period of approximately five years.

The Espírito Santo Mais Inteligente Program has the Program Development Objectives (PDO) listed in the Summary and Definitions Table (Section 1).

It should also be noted that the program directly involves agencies such as SECTI, SEG, SESP, and PRODEST, and by promoting the digitization and modernization of public services, it generates benefits that extend to virtually the entire state public administration.

The project is structured around the following components, also detailed in item 1:

4.1. Component 1 – Resilient Data Infrastructure and Digital Skills

The PRODEST Data Center (DC-ES), which has been in operation since October 2010, is a mission-critical environment comprising a highly specialized, multidisciplinary, multifunctional, and fully integrated infrastructure. Designed for centralized hosting and the provision of essential data processing, transport, and storage services, DC-ES meets strict requirements for high speed, computational density, availability, scalability, information security, and operational reliability.

In continuous operation since its inauguration (in 2010), DC-ES plays a strategic and fundamental role in the context of the Information and Communication Technology (ICT) policies of the State of Espírito Santo, enabling the provision of digital services to the state's society in a structured manner. Its infrastructure, which complies with the Uptime Institute's TIER III certification specifications, is shared by various federal entities and houses critical assets and systems in areas such as public safety, health, education, the Department of Finance, DETRAN, BANESTES, TRE, TRT, the Legislative Assembly (ALES), the Court of Auditors (TCES), city halls, among others.

In addition, DC-ES hosts cross-cutting corporate systems that serve multiple state public administration agencies, promoting operational efficiency, resource optimization, and interinstitutional synergy.

PRODEST, as the executing agency, has established itself as a robust and reliable technological foundation for the state, assuming responsibility not only for meeting the growing demands of public agencies, but also for proactively anticipating their needs by delivering innovative, sustainable, and high-performance solutions.

Main technical characteristics of DC-ES:

• 106 racks in operation;

• 700 kVA of total installed load;

• 275 kVA critical load (ICT assets);

• N+1 redundancy in air conditioning systems and 2N redundancy in uninterruptible power infrastructure;

• Compliance with the Uptime Institute's TIER III certification requirements.

The creation of a second data center offers a robust solution to mitigate the risk of service interruptions, ensuring high availability and redundancy in critical processes. This new data center will act as a contingency environment that will not only enable operational continuity in the event of catastrophic failures, but also expansion to accommodate growing data processing and storage needs. The implementation of a second data center is an essential strategy to avoid single points of failure and ensure that data, systems, and applications are always available, even during maintenance periods or disasters.

4.2. Component 3 – Modernization of the Emergency Management System

The state of Espírito Santo provides urgent and emergency services through the Integrated Center for Social Defense Operations (CIODES), created in 2004 and housed in a single physical and logical structure, where organizations such as the Military Police, Civil Police, Military Fire Department, Municipal Civil Guard of Vitória, Department of Justice, and Federal Highway Police carry out their continuous, round-the-clock work.

The idea behind the creation of this structure, even at that time, was to leverage the great potential of joint work and integration between institutions. As a result, CIODES has become a benchmark for integration and operational efficiency, contributing to the improvement of various processes in the areas of public safety and social defense, justice, and civil protection and defense in the state.

In 2010, as a result of the expansion of this Integrated Center, CIODES SUL was implemented in the municipality of Cachoeiro de Itapemirim, which operates with the same methodology, using similar material and technological resources for service, including the same Emergency Call Center - 190 as CIODES SEDE. However, the separate structures prevent the full integration of services.

In addition to providing immediate assistance, CIODES also aims to record, store, and centralize information that supports the planning of future crime prevention and control actions. CIODES' responsibilities are: Emergency Call Center Service; Incident Registration; Incident Classification; Operational Resource Location; Operational Resource Dispatch; Team Deployment; Incident Response; and Service Audit.

The main technological resources used are: the Call and Dispatch Registration System (e-Cops); Operational Resource Monitoring; Integrated Emergency Call Monitoring System; and Motor Vehicle License Plate Reading.

Services such as Intelligent Surrounding and Embedded Computing are in the implementation phase, and new technologies are being studied for future contracts, which should be carried out separately and later integrated into the current system.

CIDES will house the current Integrated Center for Social Defense Operations (CIODES), expanding its service capacity, in addition to hosting the entire administrative structure of the State Secretariat for Public Security and Social Defense (SESP). It will be responsible for coordinating and integrating actions in ordinary and extraordinary situations, incorporating activities in the management of major events and highly complex crises, also using various technologies. The goal is to ensure that the response to emergencies is more effective, better coordinated, and supported by a continuous and efficient flow of information, involving multiple agencies, integrating public security agencies, as well as entities such as traffic agencies, essential services, and assistance to vulnerable groups; resulting in the integration of public safety and social defense for all spheres and enabling the improvement of emergency response protocols.

It is estimated that CIDES accommodates a fixed population of approximately 507 people and a floating population of 217 people.

Image 1 – Aerial view of the site for the construction of CIDES

The area designated for the construction of CIDES is located at Avenida Leitão da Silva, nº 1950, in the Itararé neighborhood, in Vitória/ES. The land has an approximate area of 14,715 m², with easy access and well-developed urban infrastructure.

The design and construction of CIDES will be carried out in an integrated manner by a single engineering company or consortium of contractors, hired to execute all stages of the project. This contract will cover everything from the preparation of the legal, basic, executive, and complementary design to the complete execution of the civil works and the installation of all systems necessary for the full operation of the center. These systems include electrical infrastructure, telecommunications, air conditioning, electronic security, access control, data networks, and video surveillance.

The company that will be hired to design and build CIDES will also be responsible for purchasing, supplying, and installing all technical and corporate furniture, operational

equipment, and support infrastructure—including audiovisual and videoconferencing systems—ensuring that the project is delivered fully completed and ready for operation.

It should be noted, however, that this contract **will not cover** THE PURCHASE, SUPPLY, AND INSTALLATION of technology equipment, such as data centers, servers, and other components related to CIDES, which will be the subject of a separate, specific, and independent contract, as these are consulting services.

5. SCOPE OF WORK AND LIMITS

The consulting services cover two main areas of activity, which are crucial for the modernization of the technological and security infrastructure of the State of Espírito Santo, within the scope of the Espírito Santo Mais Inteligente (Smarter Espírito Santo) Program.

The consultancy must deliver a set of products that demonstrate the progress and completion of the activities described in the scope. All products must be presented in editable digital format (e.g., DOCX, XLSX, DWG, PDF, BCF/BIM) and in physical copies, if requested, their technical quality must comply with current legislation and standards, as exemplified in **ANNEX I.** The language must be clear, objective, and in Brazilian Portuguese.

5.1. New Certified Green Modular Data Center (DCMC-ES)

The consultancy will work on the design and detailing of the project for the state's new Data Center. This infrastructure is vital to ensure the resilience, security, and data processing and storage capacity necessary to support the digital transformation of public services and government operations. The contextualization of this area involves the analysis of the current infrastructure, future demand projections, the sustainability requirements of a Green Data Center, a solution compliant with EDGE, LEED, or other appropriate certification, considering costs and the Green Data Centers guide published by the BIRD and UIT, and compliance with internationally recognized technical standards, such as ANSI/TIA-942-C RATED-3, as well as the standards in force in the country, as exemplified in ANNEX I.

The general scope of the DCMC-ES project includes the following activities to be carried out by the Consultant:

I. **Prepare technical, economic, legal, and environmental feasibility** studies—including the Neighborhood Impact Study (EIV), to be approved by the City Hall—to support the implementation of the DCMC-ES.
II. **Develop a detailed requirements plan**, including capacity projections, physical and logical infrastructure requirements, security, and contingency plans.

III. **Produce complete technical specifications** for all DCMC-ES subsystems (power, air conditioning, connectivity, physical security, monitoring, among others), in accordance with the ANSI/TIA-942-C RATED-3 standard and best sustainability practices applicable to Green Data Centers.

IV. **Prepare the basic and executive** architectural and engineering **designs** for the construction and installation of the DCMC-ES, in full compliance with the relevant national and international technical standards.

V. **Prepare a detailed budget estimate** and **physical-financial schedule** for the implementation of the DCMC-ES, to be used as a reference in the bidding process and in the execution planning.

VI. **Provide technical advice** on the analysis of proposals and the process of contracting the construction/integration company for the DCMC-ES, when requested by the contractor.

5.2. New Integrated Social Defense Center (CIDES)

The second area of activity for the consultancy will consist of supporting the preparation of the conceptual design, the requirements plan, and the technical documentation necessary for the construction of the Integrated Social Defense Center. CIDES aims to modernize and integrate public safety and social defense operations, expanding emergency response capacity, crisis management, and coordination of major events through the use of various technologies and improved response protocols.

The general scope of the CIDES project includes the following activities to be carried out by the Consultant:

I. **Develop the** CIDES **Requirements Program**, consolidating functional, operational, and technological requirements.

II. **Define sustainability and energy efficiency requirements**, considering good environmental practices and applicable international standards.

III. **Develop a preliminary architectural study**, considering technical and functional solutions aligned with the requirements plan.

IV. **Prepare the Neighborhood Impact Study (EIV)**, present it to the Vitória City Hall, and adapt it until the necessary approvals are obtained.

V. **Prepare the technical specifications** necessary for contracting CIDES in the *Design and Build* modality, as well as the specifications for the acquisition of equipment and services for transferring SESP systems to the Data Center in its new location.

VI. **Prepare a detailed budget estimate** to be used as a reference in the construction contracting process and in planning the implementation of CIDES.

VII. **Develop suggestions for qualification and technical evaluation criteria** for analyzing proposals submitted by *Design and Build* companies.

VIII. **Produce technical and functional specifications** for CIDES systems, physical infrastructure, and technology, ensuring compliance with established norms and standards.

IX. **Prepare the necessary technical** documentation—including basic designs, preliminary designs, descriptive reports, budget estimates, and other essential documents—to support the contracting process, in compliance with or in line with the standards highlighted in Annex I.

X. **Provide technical advice** on the analysis of proposals and the contracting process for the implementation of CIDES, when requested by the contractor.

5.3. Form of presentation of products

I. All documentation and technical and legal processes necessary to support the future construction of the new DCMC-ES must be formatted in accordance with current technical and engineering standards, as exemplified in ANNEX I, as well as the technical and legal regulations of the BIRD, and must favor broad market competition, the best technique, and the best price.

II. The products must be delivered in Portuguese, in the form of reports, on A4 paper and in a format suitable for drawings (A4 to A0), duly numbered and bound, in three printed copies and one electronic copy, in their original formats: ".doc", ".xls", ".jpeg", ".png", ".ppt", ".dwg", ".rvt", ".skp", ".bcf" (BIM Collaboration Format), and in ".pdf" format.

III. The documentation resulting from the review and detailing of the DCMC-ES and CIDES requirements will be accepted upon signature of the Acceptance Agreement by the CONTRACTING PARTY, confirming compliance with the criteria below:

- **Non-ambiguity:** all specifications should, ideally, have a single interpretation.
- **Clarity:** the description of requirements and use cases should be clear to both laymen and technicians.
- **Completeness:** the specification must contain every significant and relevant aspect of the system and must include details at the level of abstraction appropriate to the project.
- **Consistency**: there should be no contradictions in the specification.

IV. The Products, in the form of Reports, must be presented in accordance with the visual identity and other information related to the "ES MAIS INTELIGENTE" Program.

Titles II and III below deal with the products and implementation schedules for projects involving DMCM-ES and CIDES, listed separately to facilitate understanding of

each one. However, these are part of a single contract and will be implemented concurrently.

TITLE II - PREPARATION OF PROJECTS RELATED TO DMCM-ES

6. EXPECTED RESULTS AND PRODUCTS

6.1. Expected benefits

- High Availability and Resilience: With the creation of a redundant environment, the IT infrastructure gains robustness. In the event of failures, traffic and operations can be automatically redirected to the second data center, without significant impact on users or critical company services.
- Data Redundancy and Real-Time Backup: Data replication between the two data centers ensures that, even in the event of a failure in one of the environments, information will be secure and available in real time, minimizing the risk of data loss.
- Performance Optimization: Distributing workloads between the two data centers can reduce latency and improve service response times, especially for customers in different regions, resulting in a more efficient user experience.
- Scalability for Future Growth: Infrastructure expansion becomes more agile and cost-effective, with the ability to distribute workload and allocate resources more efficiently as demand for processing and storage increases.
- Advanced Security: With the implementation of state-of-the-art security solutions in both data centers, protection against cyber threats and denial-of-service (DDoS) attacks, for example, becomes more effective. Physical and logical redundancy provides an additional layer of security, preventing vulnerabilities in one data center from compromising the entire operation.
- The reliability of the solution provided by the consulting firm is one of the crucial factors for the success of the implementation. The choice of consulting firm, as well as the technologies and equipment provided, must ensure that the new IT environment is built to the highest standards of quality, security, and availability.
- The solution to be adopted should be designed to ensure high availability (with an SLA of 99.95% or higher) of replicated critical services, rapid recovery in case of failure, and state-of-the-art security at all levels, from physical protection to encryption of data in transit and at rest.

6.2. Key Aspects

- Redundancy and Automatic Failover: The solution must be fully redundant, with critical devices and components duplicated to ensure that in the event of a disk

or network port failure, or even an entire data center failure, the system recovers quickly without compromising service continuity.

- Proactive and Automatic Monitoring: The implementation of real-time monitoring tools capable of identifying problems before they become critical will be essential. Monitoring should encompass the health of network equipment, servers, storage, and security.
- Security Management: The solution must incorporate the best security standards in the industry, with next-generation firewalls, intrusion detection and prevention systems (IPS/IDS), robust access control, and encryption of stored and in-transit data. Protection against cyberattacks, such as DDoS and intrusion attempts, must be a priority.
- Proactive Support and Maintenance: The Consulting Company must provide highly skilled technical support, with immediate response times and clear policies for maintenance, firmware updates, and security patches. Continuous support ensures that any problems are quickly resolved before they affect operations.
- Sustainability: The data center will be low-carbon and climate-resilient, which implies the use of technologies and practices that significantly reduce energy consumption. Special attention should be paid to the energy efficiency index (PUE - Power Usage Effectiveness), which is essential for optimizing the use of electricity. Construction will be guided by international sustainability principles and standards, including the choice of sustainable materials and construction practices with less environmental impact. Waste management should be promoted, with specific measures for solid waste (common and hazardous) and effluents. The application of a modular data center approach should be studied, which facilitates future expansions without wasting resources or energy. The project should include rigorous environmental assessments and mitigation plans for negative impacts, in addition to promoting positive impacts such as reducing greenhouse gases and improving public digital infrastructure.
- Expanded Benefits: In addition to serving the state government, the data center will have colocation capacity for other public agencies and municipalities, promoting efficiency in the use of public infrastructure.

6.3. Products

6.3.1. Delivery 1 DCMC-ES - Preliminary Studies and Planning

I. **Product 1.1 DCMC-ES:** Requirements and Needs Survey Report to identify the demands of the Appointed and Qualified Technical Team, including processing capacity, storage, connectivity, and security requirements, analysis of sustainable building and construction certifications (such as LEED and EDGE), and their costs of adaptation and acquisition.

II. **Product 1.2 DCMC-ES:** Risk Analysis Report.

III. **Product 1.3 DCMC-ES:** Technical, Economic, Legal, and Environmental Feasibility Study (EVTEA).
IV. **Product 1.4 DCMC-ES:** Report defining data center evolution modules, defining critical and essential systems for implementation and subsequent evolution.
V. **Product 1.5 DCMC-ES:** Data Center Master Plan.

This delivery is estimated to require at least one (1) face-to-face meeting to discuss the work related to product 1.1 and one (1) face-to-face meeting to present product 1.5.

6.3.2. Delivery 2 DCMC-ES - Designs and Specifications

I. **Product 2.1 DCMC-ES**: DCMC-ES Conceptual Design.
II. **Product 2.2 DCMC-ES:** Complete Basic Design (Architectural, Civil, Electrical, Mechanical, Hydraulic, Telecommunications, Physical and Logical Security, Automation, and Structured Cabling), including plans, sections, descriptive reports, and calculations.
III. **Product 2.3 DCMC-ES:** Complete and detailed Executive Design for all disciplines, and three-dimensional digital representation, based on the basic conceptual design, with sufficient detail to demonstrate the volume, layout of the environments, integration of spaces, and the main architectural and urban solutions proposed. Allowing realistic visualization from different angles and scales, including simulations of lighting, finishes, and landscaping elements, in order to facilitate understanding of the project by managers, technicians, and other stakeholders.
IV. **Product 2.4 DCMC-ES:** Detailed technical specifications for all equipment, furniture, materials, and systems.
V. **Product 2.5 DCMC-ES:** Bill of Materials (BoM) and Detailed Budget (budget spreadsheets with unit cost breakdown).
VI. **Product 2.6 DCMC-ES:** Detailed Executive Schedule for implementation;
VII. **Product 2.7 DCMC-ES:** Commissioning and Testing Plan.
VIII. **Product 2.8 DCMC-ES:** Draft Technical Documents for the bidding process (Terms of Reference for contracting the DCMC-ES solution/implementation, purchase of equipment and services for the DCMC-ES data center, and supervision and monitoring of the work, specifications for the call for bids, evaluation criteria, etc.).

This delivery is estimated to require at least one (1) in-person meeting for the delivery and approval of product 2.6.

6.3.3. Delivery 3 DCMC-ES - Contracting Support

I. **Product 3.1 DCMC-ES:** Technical opinions on bidding documents.
II. **Product 3.2 DCMC-ES:** Technical analysis reports on proposals.

6.3.4. Delivery 4 DCMC-ES - Preparation of the EIV

I. **Product 4.1 DCMC-ES:** Neighborhood Impact Study Report with its provisions, and technical studies to obtain environmental licenses (such as the Environmental Feasibility Study, EVA), and monitoring of the approval processes.

6.4. Specifications

6.4.1. Development of the Modular Data Center Project (DCMC-ES).

The Specification of this TDR for the **DCMC-ES** will be the Conceptual Design and Basic Design, considering:

I. **Experience and Technical Capacity:** Description of the qualifications required of the Consulting Company, including previous experience in the implementation of large data centers, relevant certifications, and client portfolio; Quality Assurances: Details of the performance, safety, and reliability guarantees of the products and solutions provided.
II. **Total Cost of Ownership (TCO):** Analysis of total cost, including acquisition, implementation, training, and ongoing support.

6.4.2. Conceptual Design

In this initial delivery, the focus is on defining the general guidelines for the Data Center, considering operational, security, and service continuity needs. The activities in this delivery include, at a minimum:

I. **Requirements Survey:** Identification of the demands of the Appointed and Qualified Technical Team, including processing capacity, storage, connectivity, and security requirements.
II. **Architecture Definition:** Development of the general design of the Data Center, including preliminary layout of technical areas, equipment layout, electrical distribution, and air conditioning.
III. **Functional and Operational Characteristics:** Definition of the Data Center's functionalities and operational requirements, covering:
IV. **Architecture and Civil Engineering:** Determination of technical, structural, and support areas, including requirements for raised floors, retaining walls, accessibility, and structural safety.
V. **Air Conditioning Systems:** Definition of air conditioning systems, such as precision air conditioning, adequate air flow, and humidity control, ensuring energy efficiency and thermal stability.
VI. **Electronic Systems:** Specification of monitoring, access control, physical and logical security systems, including CCTV, alarms, temperature and humidity sensors, and building automation.

VII. **Redundancy and Availability Levels:** Determination of criteria to ensure high availability, minimizing the risk of failures and service interruptions.

VIII. **Sustainability and Energy Efficiency:** Consideration of technologies and practices that optimize energy consumption and reduce environmental impacts.

6.4.3. Basic and Executive Design

Based on the definitions established in the Conceptual Design, the Basic Design details the main technical aspects of the infrastructure, providing input for executive delivery. Activities include:

I. **Civil Infrastructure:** Definition of the final layout of the Data Center areas, considering technical spaces, accessibility, and physical security.

II. **Power Systems:** Specification of primary and secondary power sources, including generator sets, uninterruptible power supply (UPS) systems, and electrical distribution.

III. **Air Conditioning Systems:** Definition of the cooling solution, considering the need for precise thermal control to ensure equipment efficiency.

IV. **Network Infrastructure and Connectivity:** Planning of structured cabling and definition of requirements for connection to external networks.

V. **Physical and Logical Security:** Specification of solutions for access control, camera monitoring, intrusion detection and prevention, as well as cybersecurity.

VI. **Expansion Plan:** Consideration of strategies for future expansions, ensuring the scalability of the Data Center.

VII. **Equipment Specification:** Definition of technical requirements for servers, storage, switches, routers, and other critical infrastructure components, including but not limited to:

- **Data Center Switches:** Detail performance, portability, redundancy, and scalability requirements. Example: 10/25/40/100Gbps switches, with support for Virtual Extensible LAN (VXLAN), high availability, and support for protocols such as BGP, OSPF, and MPLS.

VIII. **Network Equipment:** Description of other necessary equipment, such as routers, firewalls, and load balancers.

IX. **Network Topology:** Definition of network topology (e.g., spine-leaf), aiming for performance and resilience.

X. **Firewalls and Intrusion Prevention Systems (IPS/IDS):** Details of models, features, and performance requirements to ensure traffic security.

XI. **Access Control and Identity Management:** Definition of systems for user authentication, access policy management, and protection against unauthorized access.

XII. **Security Monitoring:** Definition of real-time monitoring tools, such as SIEM (Security Information and Event Management), for incident detection and response.

XIII. **Physical and Virtual Servers:** Specification of models, with processing characteristics (CPUs, RAM, etc.), to meet expected workload requirements.

XIV. **Virtualization and Containers:** Details of solutions such as VMware, Hyper-V, or KVM for virtualization, as well as support for containers (e.g., Docker, Kubernetes).

XV. **Primary Storage:** Description of SAN (Storage Area Network) or NAS (Network Attached Storage) solutions for production data storage.

XVI. **Secondary Storage and Backup:** Details of cloud and/or local backup solutions, with disaster recovery requirements, RPO (Recovery Point Objective), and RTO (Recovery Time Objective).

XVII. **Backup Strategy:** Description of backup solutions for critical data, including incremental, differential, and full backups, with encryption and redundancy.

XVIII. **Disaster Recovery Plan:** Comprehensive data recovery strategy, including backup frequency, retention policies, and periodic recovery testing.

XIX. **Performance and Redundancy:** Definition of performance goals for the network, such as latency, throughput, and availability.

XX. **Security:** Security requirements, such as encryption of data in transit and at rest, protection against DDoS attacks, and other security risks.

XXI. **Scalability:** Ensuring that the solution is scalable to support future data center growth, with the addition of more servers, switches, storage, etc.

XXII. **Furniture:** Technical descriptions and dimensions of the furniture needed to carry out activities within the data center, including tables, chairs, sofas, and basic decorative items.

XXIII. **Sustainability**: Review the project in accordance with the Green Data Centers reference guide and framework, link in ANNEX I, presenting compliance and improvements, as well as their additional costs.

XXIV. The Basic Project will serve as a reference for the executive detailing and implementation stage, ensuring that the Data Center infrastructure is built in accordance with the technical and operational requirements developed.

6.5. Premises of the new DCMC-ES

6.5.1. The new DCMC-ES shall:

I. Be supported by rational, robust, scalable, sustainable, and modular construction and technological solutions in order to increase its efficiency and reduce its implementation (CAPEX) and operating (OPEX) costs.

II. Be designed with infrastructure that promotes sustainability, including the reuse of rainwater, the use of appropriate sources of electricity for the facilities, and

the installation of solar panels to supply electricity to coworking areas, also complying with the premises described in the AAS - Environmental and Social Assessment document, PEPI - Plan for Stakeholder Engagement and PGMO - Workforce Management Procedures of the "ES Mais Inteligente" program, available on the website: (https://secti.es.gov.br).

III. Have a PUE (Power Usage Effectiveness) with standards that qualify it as a sustainable solution, preferably ranging from 1.2 to 1.4, with cost studies for PUE reduction required. In addition, it must consider the use of clean and renewable energy in its operation.

IV. Have redundant critical physical infrastructure that enables concurrent maintenance and operation, without a single point of failure (SPF) to ensure high availability. It must also meet the minimum requirements of the ANSI/TIA-942-C-2024 international technical standard for its physical infrastructure, including at least the disciplines of Architecture, Electrical, Mechanical, Telecommunications, Security, Fire Detection and Suppression, and Facility Monitoring. In addition, it must be RATED-3 certified by a certification body accredited by the Telecommunications Industry Association (TIA).

V. Strive for standardization, operational excellence, and full compliance with the most rigorous and up-to-date versions of the main applicable technical and environmental standards.

VI. Strive for the acquisition of materials and infrastructure with a better ecological footprint, more durable with long life cycles.

VII. Prioritize user comfort and quality of life.

VIII. Prioritize the health and safety of workers and surrounding communities.

IX. Consider aspects of digital inclusion.

X. Pay attention to the requirements set forth in the Environmental and Social Assessment (AAS), Stakeholder Engagement Plan (PEPI), and Workforce Management Procedures (PGMO).

XI. Consider the following operational and implementation requirements:

- **Definition of a detailed schedule for all project deliveries:** acquisition, installation, configuration, and testing.
- **Training and Capacity Building:** Definition of the training required for the Technical Team Appointed and Qualified to operate the network and infrastructure systems.
- **Post-Implementation Support:** Description of support and maintenance conditions, including SLA (Service Level Agreement), response times, and problem escalation procedures.

- **Technical Documentation:** The Consulting Company shall provide complete technical documentation, including network diagrams, security topologies, operating manuals, and backup procedures.
- **Land:** The data center will be built on an area of approximately 50 m x 50 m (front x back), totaling approximately 2,500 m².
- **Location:** Municipality of Serra, in the metropolitan region of Greater Vitória, within a radius of approximately 10 km from the current data center in operation located at PRODEST headquarters. The analysis of the characteristics of the chosen site must also consider, at the conceptual stage, the recommendations of technical standard ANSI/TIA-942-C-2024 and/or ANSI/BICSI-02, with the aim of reducing additional construction costs and mitigating possible risks to its future operation.
- **Certification:** ANSI/TIA-942-C RATED-3 Design and Construction.
- **Data Hall Area:** With sufficient space to progressively and gradually accommodate the maximum number of server racks in the final phase of occupancy, in addition to all facilities, hot and cold aisles, and spaces for maneuvering and maintenance.
- **Secure Room:** Data Hall consisting, at a minimum, of a secure room airtight cell: Compartment with features to protect electronic equipment and magnetic media against fire, gases, water, magnetic fields, unauthorized access, and certified by ABNT/NBR 10636.
- **Rack capacities in the Data Hall:** Approximately 100 racks in the final phase of occupancy, but with a study presentation and Data Hall scaling adapted to the initial technical survey and its planning in two or three expansion cycles.
- **Air conditioning:** Forecast study for the use of continuous cooling, liquid cooling technologies, chillers, direct perimeter expansion, and INROW.
- **Telecommunications Room:** One (01) Telecommunications Room (TC) for shared use between the Appointed and Qualified Technical Team and Operators (MMR), with two environments separated by cages, with sufficient area to house at least 20 racks.
- **Technical and on-site operation areas:** Mechanical spaces, electrical spaces, docks, internal Network Operations Center (NOC), generator spaces, spaces for overhead and underground piping, fuel storage spaces, laboratory and storage spaces, security room and guardhouse, reception, meeting room, coworking spaces for approximately 30 users on-site, kitchen, bathrooms, decompression room, parking lots, bicycle rack, among others (all segregated). At this stage, attention should be paid to compliance with the provisions of the Environmental and Social

Assessment. For workspaces that will accommodate local technical teams, all equipment, furniture, and utensils to support on-site work must be provided.

- **Expansion Phases:** The hosting of computer assets and the respective energy demands will be divided into phases of operationalization of the **DCMC-ES** solution to be previously studied by the Appointed and Qualified Technical Team. Because it is supported by modular technologies, the new **DCMC-ES** can be occupied in a staggered manner throughout its useful life cycle, thus ensuring high efficiency. The Modularity defined here is not restricted to concepts of prefabricated data centers, for example.
- **Risk Resilience:** The new **DCMC-ES** should be designed with requirements that can mitigate the risks of vandalism, accidents, power outages, disasters **(floods and fires)**, intrusions, communication failures, system failures, human errors, sabotage and espionage, water shortages, and electromagnetic interference. **The technical aspects of ANSI/TIA-942-C-2024 RATED-3 or ANSI/BICSI-02 should be considered.**

7. EXECUTION DEADLINE AND PHYSICAL-FINANCIAL SCHEDULE

The total estimated timeframe for the execution of consulting services is **18 (eighteen) months,** counted from the signing of the Service Order. The detailed schedule, with the start and end dates for each delivery, must be included in the Work Plan to be presented by the consulting company, to be adjusted and approved by the UGP.

Below is a macro structure of phases and estimated deadlines to assist the consulting firm in its planning.

DELIVERABLES	PRODUCTS	DELIVERY DEADLINE (in DAYS)					
		UP TO 90	UP TO 120	UP TO 180	UP TO 240	UP TO 360	UP TO 540
Delivery 1 DCMC-ES - Preliminary Studies and Planning	**Product 1.1 DCMC-ES:** Requirements and Needs Survey Report for Identifying the demands of the Appointed and Qualified Technical Team, including processing capacity, storage, connectivity, and security requirements.	X					

DELIVERABLES	PRODUCTS	DELIVERY DEADLINE (in DAYS)					
		UP TO 90	UP TO 120	UP TO 180	UP TO 240	UP TO 360	UP TO 540
	Product 1.2 DCMC-ES: Risk Analysis Report.	X					
	Product 1.3 DCMC-ES: Technical, Economic, Legal, and Environmental Feasibility Study (EVTEA).	X					
	Product 1.4 DCMC-ES: Report on the definition of data center evolution modules, defining critical and essential systems for implementation and subsequent evolution.	X					
	Product 1.5 DCMC-ES: Data Center Master Plan.	X					
Delivery 2 DCMC-ES - Designs and Specifications	**Product 2.1 DCMC-ES:** DCMC-ES Conceptual Design.		X				
	Product 2.2 DCMC-ES: Complete Basic Design (Architectural, Civil, Electrical, Mechanical, Hydraulic, Telecommunications, Physical and Logical Security, Automation, and Structured Cabling), including plans, sections, descriptive reports, and calculations.		X				
	Product 2.3 DCMC-ES: Complete and detailed Executive Design for all disciplines, and three-dimensional digital representation.		X				
	Product 2.4 DCMC-ES: Detailed technical specifications for all equipment, materials, and systems.		X				
	Product 2.5 DCMC-ES: Bill of Materials (BoM) and Detailed Budget (budget		X				

DELIVERABLES	PRODUCTS	DELIVERY DEADLINE (in DAYS)					
		UP TO 90	UP TO 120	UP TO 180	UP TO 240	UP TO 360	UP TO 540
	spreadsheets with unit cost breakdown).						
	Product 2.6 DCMC-ES: Detailed Executive Schedule for implementation.		X				
	Product 2.7 DCMC-ES: Commissioning and Testing Plan.			X			
	Product 2.8 DCMC-ES: Draft Technical Documents for the bidding process (Terms of Reference for contracting the DCMC-ES solution/implementation, purchasing equipment and services for the DCMC-ES data center, and supervising and monitoring the work, specifications for the public notice, evaluation criteria, etc.).			X			
Delivery 3 DCMC-ES - Contracting Support	**Product 3.1 DCMC-ES:** Technical opinions on bidding documents.			X	X	X	X
	Product 3.2 DCMC-ES: Technical analysis reports on proposals.			X	X	X	X
Delivery 4 DCMC-ES - Preparation of the EIV	**Product 4.1 DCMC-ES:** Neighborhood Impact Study Report with its provisions.		X	X	X		

7.1. From the Physical-Financial Schedule

ENTREGAS	PRODUTOS	% do total do escopo	% do escopo	PRAZO DE ENTREGA até 540 dias até 360 dias até 240 dias até 180 dias até 120 dias até 90 dias	mês1	mês2	mês3	mês4	mês5	mês6	mês7	mês8	mês9	mês10	mês11	mês12	mês13	mês14	mês15	mês16	mês17	mês18
Entrega 1 DCMC-ES - Estudos Preliminares e Planejamento	**Produto 1.1 DCMC-ES:** Relatório de Levantamento de Requisitos e Necessidades para Identificação das demandas da Equipe Técnica Nomeada e Qualificada, incluindo capacidade de processamento, armazenamento, conectividade e requisitos de segurança.	10%	15%																			
	Produto 1.2 DCMC-ES: Relatório de Análise de Riscos.		10%																			
	Produto 1.3 DCMC-ES: Estudo de Viabilidade Técnica, Econômica, Legal e Ambiental (EVTEA).		10%																			
	Produto 1.4 DCMC-ES: Relatório de Definição de módulos de evolução do datacenter, definindo sistemas críticos e essenciais para a implementação e suas posteriores evoluções.		30%																			
	Produto 1.5 DCMC-ES: Plano Diretor do Data Center.		35%																			
Entrega 2 DCMC-ES - Projetos e Especificações	**Produto 2.1 DCMC-ES:** Projeto Conceitual do DCMC-ES.	35%	17%																			
	Produto 2.2 DCMC-ES: Projeto Básico completo (Arquitetura, Civil, Elétrica, Mecânica, Hidráulica, Telecomunicações, Segurança Física e Lógica, Automação e Cabeamento Estruturado), incluindo plantas, cortes, memoriais descritivos e cálculo.		20%																			
	Produto 2.3 DCMC-ES: Projeto Executivo completo e detalhado para todas as disciplinas; e representação tridimensional digital		17%																			
	Produto 2.4 DCMC-ES: Especificações técnicas detalhadas para todos os equipamentos, materiais e sistemas.		20%																			
	Produto 2.5 DCMC-ES: Lista de Quantidades (Bill of Materials - BoM) e Orçamento Detalhado (planilhas orçamentárias com composição de custos unitários).		8%																			
	Produto 2.6 DCMC-ES: Cronograma Executivo Detalhado para implantação.		5%																			
	Produto 2.7 DCMC-ES: Plano de Comissionamento e Testes.		5%																			
	Produto 2.8 DCMC-ES: Minutas de Documentos Técnicos para o processo licitatório (Termo de Referência para contratação da solução/implementação do DCMC-ES, compra de equipamentos e serviços do datacenter DCMC-ES e fiscalização e monitoramento da obra, especificações para edital, critérios de avaliação e etc.).		8%																			
Entrega 3 DCMC-ES - Apoio à Contratação	**Produto 3.1 DCMC-ES:** Pareceres técnicos sobre documentos de licitação.	3%	50%																			
	Produto 3.2 DCMC-ES: Relatórios de análise técnica de propostas.		50%																			
Entrega 4 DCMC-ES - Elaboração do EIV	**Produto 4.1 DCMC-ES:** Relatório do Estudo de Impacto da Vizinhança com seus provimentos.	2%	100%																			

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TITLE III - PREPARATION OF PROJECTS RELATED TO CIDES

8. EXPECTED RESULTS AND OUTPUTS

8.1. Products

The following describes the products and reports that must be prepared and presented by the Consultant in a concise, objective manner consistent with the scope of CIDES:

8.1.1. Delivery 1 CIDES - Preliminary Studies and Planning

I. **Product 1.1 - CIDES:** Report on functional and operational characteristics. Survey of Requirements and Needs of Security and Social Defense Agencies.

II. **Product 1.2 CIDES:** Process Mapping (AS-IS and TO-BE) for integrated operations, considering legacy systems and operating model with modernization of information systems.

III. **Product 1.3 CIDES:** Risk and Vulnerability Analysis Report for CIDES, considering critical systems, points of failure, and future operating scenarios.

IV. **Product 1.4 CIDES:** Technical, Economic, and Operational Feasibility Study for CIDES, presentation of scenarios, and support in conducting decision-making processes.

V. **Product 1.5 CIDES:** Consolidation of the CIDES Requirements Plan Report on technical specifications required for contracting under the "Design and Build" modality.

VI. **Product 1.6 CIDES:** CIDES Conceptual Architecture (technological, functional, and physical).

This delivery is estimated to require at least one (1) face-to-face meeting to discuss the work related to product 1.1 and one (1) face-to-face meeting to present product 1.6.

8.1.2. Delivery 2 CIDES - Specifications and Documents for Contracting

I. **Product 2.1 CIDES:** Technical and Functional Specifications for Command and Control systems, Unified Communications, Intelligent Video Monitoring, Analysis and Intelligence Platforms, Legacy Systems Integration, etc.

II. **Product 2.2 CIDES:** Detailed requirements for physical infrastructure (crisis rooms, operation centers, NOC, SOC) and technological infrastructure (voice, perimeter security, dedicated power and air conditioning systems) considering state of the art, financial availability, and strategic decisions made based on previous studies.

III. **Product 2.3 CIDES:** Preliminary designs or basic designs for the physical infrastructure of CIDES (architecture and complementary elements) and a three-dimensional digital representation, based on the basic conceptual

design, with sufficient detail to demonstrate the volume, layout of the environments, integration of spaces, and the main architectural and urban solutions proposed. This allows for realistic visualization from different angles and scales, including simulations of lighting, finishes, and landscaping elements, in order to facilitate understanding of the project by managers, technicians, and other stakeholders.

IV. **Product 2.4 CIDES:** Descriptive reports on systems and technological infrastructure.

V. **Product 2.5 CIDES:** Estimated budgets aligned with the surveys conducted for the implementation of CIDES.

VI. **Product 2.6 CIDES:** Draft Technical Documents for the bidding process (Terms of Reference for contracting the CIDES solution/implementation, purchase of equipment and services for the CIDES data center, supervision and monitoring of the work, specifications for the call for bids, evaluation criteria, etc.).

This delivery is estimated to require at least one (1) face-to-face meeting to discuss the work related to product 2.3.

8.1.3. Delivery 3 CIDES - Procurement Support

I. **Product 3.1 CIDES:** Technical opinions on bidding documents for CIDES.

II. **Product 3.2 CIDES:** Technical analysis reports on proposals for CIDES.

8.1.4. Delivery 4 CIDES - Preparation of the EIV

I. **Product 4.1 CIDES:** Neighborhood Impact Study Report with its provisions and monitoring of the approval process with the Vitória City Hall, until its approval.

8.2. Specifications for CIDES

8.2.1. Product 1.1 - Report on the Functional and Operational Characteristics of CIDES

Description: Technical document containing a survey of the operational requirements and needs of the security and Program ial defense agencies that will be part of CIDES. It may include results from interviews, participatory workshops, suggestions, questionnaires, and document analysis.

Objective: To identify the demands and expected functionalities of CIDES, in line with the institutional strategies of the agencies involved.

Expected Results:

- Inventory of needs by participating agency;
- Table of functional and non-functional requirements;
- Description of the main interfaces and information flows.

8.2.2. Product 1.2 – Process Mapping (AS-IS and TO-BE)

Description: Study of current processes ("AS-IS") and proposal for target processes ("TO-BE") for integrated operations at CIDES, with analysis of legacy systems and proposal for modernization.
Objective: To optimize operational flows, ensure interoperability, and propose improvements aligned with information and communication technology.
Expected Results:

- BPMN diagrams of existing and proposed processes;
- Identification of operational bottlenecks;
- Process and systems transition plan.
- Identification of technical incompatibilities between legacy systems and new data center architecture.

8.2.3. Product 1.3 – Risk and Vulnerability Analysis Report

Description: Technical document analyzing technical, operational, and security risks for CIDES operations. It should include future operating scenarios and define critical points.
Objective: Anticipate threats to the efficient and secure operation of CIDES, supporting architecture and investment decisions.
Expected Results:

- Risk matrix;
- Identification of critical systems and points of failure;
- Mitigation proposals and contingency plan.

8.2.4. Product 1.4 – Technical, Economic, and Operational Feasibility Study

Description: Detailed study with implementation alternatives, cost-benefit analysis, and recommendations to support decision-making by the UIPs and Program Management Committee.
Objective: Validate the feasibility of CIDES across multiple dimensions, with robust technical justification.
Expected Results:

- Comparison of implementation scenarios;
- Evaluation of direct and indirect costs;
- Recommendation of a contracting model (e.g., Design and Build).

8.2.5. Product 1.5 – CIDES Requirements Plan

Description: Consolidated document with all functional, operational, and technological technical specifications that will form the basis for future *Design*

and Build contracting.

Objective: To establish the technical basis for the integrated contracting of CIDES.

Expected results:

- Requirements Plan document;
- Detailed specifications table;
- Appendices with *performance* and quality requirements.

8.2.6. Product 1.6 – CIDES Conceptual Architecture

Description: Integrated representation of the technological, functional, and physical architectures of CIDES, with conceptual and reference models for future executive modeling.

Objective: To provide a clear and integrated reference model for the development of the basic project.

Expected results:

- 2D/3D conceptual diagrams and models;
- Modeling of systems architecture (IT), infrastructure, and functional *layout*;
- Integration with environmental guidelines, sustainability, accessibility, and occupational and community safety (consider the Program's socio-environmental standards)

8.2.7. Product 2.1 – Technical and Functional Specifications of the Systems

Description: Comprehensive document with technical and functional specifications of the systems to be integrated and implemented in CIDES: Command and Control, Unified Communications, Intelligent Video Monitoring, Analysis and Intelligence Platforms, and Legacy Systems Integration.

Objective: To ensure clarity and technical accuracy in the future acquisition and integration of systems essential to the operation of CIDES.

Expected Results:

- Tables and descriptions with performance, compatibility, and security requirements;
- Interoperability standards between new and legacy systems;
- Considerations regarding scalability, usability, and maintenance.

8.2.8. Product 2.2 – Detailed Physical and Technological Infrastructure Requirements

Description: Technical document detailing the requirements for physical facilities (crisis rooms, NOC, SOC, technical rooms) and technological assets

(servers, networks, power, air conditioning), based on feasibility studies and previous strategic **decisions**.

Objective: To establish the parameters for the design and implementation of the CIDES infrastructure, ensuring adherence to international technical standards and financial feasibility.

Expected results:

- List of requirements divided by physical environment and technological subsystem;
- Considerations regarding availability, redundancy, resilience, and sustainability;
- Indication of recommended technologies (state of the art).

8.2.9. Product 2.3 – Preliminary Designs or Basic Designs for Physical Infrastructure

Description: Set of technical documents with architectural and complementary designs (structural, electrical, hydraulic, air conditioning, security, accessibility) for the physical infrastructure of CIDES.

Objective: To provide the basis for bidding on construction work and ensure that the physical project meets the defined technical and operational specifications.

Expected Results:

- Standard format plans (DWG/PDF/BCF), sections, and facades;
- Compatibility between disciplines;
- Compliance with BIRD social and environmental standards (accessibility, sustainability, compatibility with PEPI, occupational and community safety);
- List of materials and construction guidelines.

8.2.10. Product 2.4 – Descriptive Reports on Systems and Technological Infrastructure

Description: Detailed descriptive document of the systems to be implemented and the associated technological infrastructure (*hardware, software,* networks, security, support).

Objective: To complement the basic projects with a clear description of the elements that make up the CIDES technological solution, providing the basis for the subsequent acquisition of equipment.

Expected results:

- Separate reports for each system and subsystem;
- Technical justifications for the proposed solutions;
- Implementation, operation, and maintenance guidelines.

- Interoperability plan with API mapping, data standards (e.g., NIEM, XML, JSON), and integration testing with existing systems.

8.2.11. Product 2.5 – Estimated Budgets

Description: Detailed cost estimate for full implementation of CIDES, considering civil works, systems, equipment, and technical services.
Objective: To enable budget planning for contracting and to support the bidding process based on updated market costs.
Expected Results:

- Spreadsheets of quantities and unit costs;
- Reference quotes, compositions, and sources used;
- Calculation of contingencies and technical reserves.

8.2.12. Product 2.6 – Draft Technical Documents for Bidding

Description: Preparation of draft documents that will comprise the bidding notices for contracting the CIDES solution, including Terms of Reference, evaluation criteria, technical clauses, environmental and social technical specifications (PGMO/ETAS), and contractual requirements.
Objective: To ensure the clarity, legality, and technical feasibility of the bidding documents in accordance with BIRD standards and applicable national and h y legislation.
Expected results:

- Complete technical Terms of Reference CIDES design and construction;
- Complete technical terms of reference for the SESP-CIDES *data center* and systems transfer;
- Terms of reference for supervision and monitoring of the work;
- Specifications for public notices (including technical qualification criteria);
- Technical evaluation matrix.

8.2.13. Product 3.1 – Technical Opinions on Bidding Documents

Description: Issuance of specialized technical opinions on bidding documents prepared for contracting the implementation of CIDES, including any revisions to the Terms of Reference, notices, and annexes.
Objective: To ensure technical adherence, clarity, and compliance with the operational and regulatory requirements of the project and the BIRD.
Expected Results:

- Reports with technical and legal analyses of the documents;

- Recommendations for adjustments to align with international procurement best practices;
- Conclusive opinion for each document analyzed.

8.2.14. Product 3.2 – Technical Analysis Reports on Proposals

Description: Technical reports evaluating proposals received in bidding processes related to CIDES, based on pre-established technical criteria and evaluation **methodologies**.
Objective: To support the evaluation committee by ensuring technically sound and traceable decisions.
Expected Results:

- Technical evaluation matrix based on criteria defined in the tender notice;
- Individual technical opinion for each proposal;
- Consolidated technical classification report.

8.2.15. Product 4.1 – Neighborhood Impact Study (EIV) Report

Description: Complete preparation of the NIIS, in accordance with the requirements of Vitória-ES municipal legislation and BIRD regulations, with a survey of the social, urban, **environmental**, and infrastructure impacts related to the implementation of CIDES. The consultancy will also support the technical proceedings with the City Hall until its approval.
Objective: To obtain the legal approval necessary for the implementation of the project and mitigate any negative impacts on the neighborhood.
Expected Results:

- Technical report containing: diagnosis of the area (including the surrounding area, urban, social, and environmental characteristics), identification of areas (residential, commercial, sensitive institutions such as schools and hospitals), description of the project, identification and assessment of impacts (including social, environmental, urban mobility, and conflicts with the community), with mitigation proposals, record of the participatory process;
- Graphic material and thematic maps;
- Reports of technical meetings with the City Hall;
- Records of active listening activities and complaint mechanism with the surrounding community;
- Indication of additional legal requirements (such as specific environmental studies), if required by the state or municipal environmental agency;

- Submission protocol and partial and final approvals.

8.3. CIDES Desirable Technical Requirements

The following topics describe the summary data of the "DESIRABLE" technical requirements of CIDES to be analyzed (pay attention to the requirements set forth in the Environmental and Social Assessment - AAS, PEPI - Stakeholder Engagement Plan and PGMO - Labor Management Procedures), and subsequently rectified or approved by the Appointed and Qualified Technical Team, through analysis of current demands and medium- and long-term prospects:

I. **Location:** The area designated for the construction of CIDES is located at Avenida Leitão da Silva, nº 1950, in the Itararé neighborhood, in Vitória/ES. The land has an approximate area between 8,600 m² and 14,715 m², with easy access and well-developed urban infrastructure. Land regularization is an ongoing process and may influence the total availability of land for design and construction. The analysis of the characteristics of the chosen land must be considered at the conceptual stage, with the aim of reducing additional construction costs and mitigating possible risks to its future operation.

II. ***Data Hall* Area:** With sufficient space to progressively and gradually accommodate the maximum number of server *racks* in the final phase of occupancy, in addition to all *facilities,* hot and cold aisles, and spaces for maneuvering and maintenance.

III. **Secure Room:** *Data Hall* consisting, at a minimum, of a secure room with a watertight cell: Compartment with features to protect electronic equipment and magnetic media against fire, gases, water, magnetic fields, unauthorized access, and certified by ABNT/NBR 10636.

IV. **Risk Resilience:** CIDES must be designed to anticipate requirements that can mitigate the risks of vandalism, accidents, power outages, disasters (floods and fires), intrusions, communication failures, system failures, human errors, waste, air pollution, sabotage and espionage, water shortages, and electromagnetic interference.

9. EXECUTION DEADLINE AND PHYSICAL-FINANCIAL SCHEDULE

Considering a period of **18 (eighteen) months** from the signing of the Service Order. The detailed schedule, with the start and end dates for each delivery, must be included in the Work Plan to be presented by the consulting company, to be adjusted and approved by the UGP.

Below is a macro structure of phases and estimated deadlines to assist the consulting company in its planning.

DELIVERABLES	PRODUCTS	DELIVERY DEADLINE (in DAYS)					
		UP TO 90	UP TO 120	UP TO 180	UP TO 240	UP TO 360	UP TO 540
Delivery 1 CIDES - Preliminary Studies and Planning	**Product 1.1 - CIDES:** Report on the Survey of Requirements and Needs of Security and Social Defense Agencies.	X					
	Product 1.2 CIDES: Process Mapping (AS-IS and TO-BE) for integrated operations.	X					
	Product 1.3 CIDES: Risk and Vulnerability Analysis Report for CIDES.	X					
	Product 1.4 CIDES: Technical, Economic, and Operational Feasibility Study for CIDES.	X					
	Product 1.5 CIDES: Conceptual Architecture of CIDES (technological, functional, and physical).	X					
	Product 1.6 CIDES: Detailed Requirements Plan for CIDES.	X	X				
Delivery 2 CIDES - Specifications and Documents for Contract	**Product 2.1 CIDES:** Technical and Functional Specifications for Command and Control Systems, Unified Communications, Intelligent Video Monitoring, Analysis and Intelligence Platforms, Integration of Legacy Systems, etc.		X				

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DELIVERABLES	PRODUCTS	DELIVERY DEADLINE (in DAYS)					
		UP TO 90	UP TO 120	UP TO 180	UP TO 240	UP TO 360	UP TO 540
	Product 2.2 CIDES: Detailed requirements for physical infrastructure (crisis rooms, operation centers, NOC, SOC) and technological infrastructure (servers, storage, data and voice network, perimeter security, dedicated power and air conditioning systems).		X				
	Product 2.3 CIDES: Preliminary designs or basic designs for the physical infrastructure of CIDES (architecture and complementary elements) and three-dimensional digital representation.		X				
	Product 2.4 CIDES: Descriptive reports on systems and infrastructure.		X				
	Product 2.5 CIDES: Detailed estimated budgets for the implementation of CIDES.		X				
	Product 2.6 CIDES: Draft technical documents for the bidding process (terms of reference for contracting the CIDES solution/implementation, specifications for the call for bids, etc.).		X	X			
Delivery 3 CIDES -	**Product 3.1 CIDES:** Technical opinions on bidding documents for			X	X	X	X

DELIVERABLES	PRODUCTS	DELIVERY DEADLINE (in DAYS)					
		UP TO 90	UP TO 120	UP TO 180	UP TO 240	UP TO 360	UP TO 540
Support for Contracting	CIDES.						
	Product 3.2 CIDES: Technical analysis reports on proposals for CIDES.						
Deliverable 4 CIDES - Preparation of the EIV	**Product 4.1 CIDES:** Neighborhood Impact Study Report with its provisions.		**X**	**X**	**X**		

9.1. From the Physical-Financial Schedule

ENTREGAS	PRODUTOS	% do total do escopo	% do escopo	PRAZO DE ENTREGA																		
				até 540 dias																		
				até 360 dias																		
				até 240 dias																		
				até 180 dias																		
				até 120 dias																		
				até 90 dias																		
				mês1	mês2	mês3	mês4	mês5	mês6	mês7	mês8	mês9	mês10	mês11	mês12	mês13	mês14	mês15	mês16	mês17	mês18
Entrega 1 CIDES - Estudos Preliminares e Planejamento	**Produto 1.1 - CIDES:** Relatório de Levantamento de Requisitos e Necessidades dos Órgãos de Segurança e Defesa Social.	10%	15%																			
	Produto 1.2 CIDES: Mapeamento de Processos (AS-IS e TO-BE) para operações integradas.		10%																			
	Produto 1.3 CIDES: Relatório de Análise de Riscos e Vulnerabilidades para o CIDES.		10%																			
	Produto 1.4 CIDES: Estudo de Viabilidade Técnica, Econômica e Operacional do CIDES.		10%																			
	Produto 1.5 CIDES: Arquitetura Conceitual do CIDES (tecnológica, funcional e física).		35%																			
	Produto 1.6 CIDES: Plano de Necessidades Detalhado do CIDES.		30%																			
Entrega 2 CIDES - Especificações e Documentos para Contratação	**Produto 2.1 CIDES:** Especificações Técnicas e Funcionais para os sistemas de Comando e Controle, Comunicações Unificadas, Videomonitoramento Inteligente, Plataformas de Análise e Inteligência, Integração de Sistemas Legados, etc.	30%	20%																			
	Produto 2.2 CIDES: Requisitos detalhados para a infraestrutura física (salas de crise, centros de operação, NOC, SOC) e tecnológica (servidores, storage, rede de dados e voz, segurança perimetral, sistemas de energia e climatização dedicados).		20%																			
	Produto 2.3 CIDES: Anteprojetos ou Projetos Básicos da infraestrutura física do CIDES (arquitetura e complementares); e representação tridimensional digital		20%																			
	Produto 2.4 CIDES: Memoriais Descritivos dos sistemas e da infraestrutura.		13%																			
	Produto 2.5 CIDES: Orçamentos Estimativos detalhados para implantação do CIDES.		13%																			
	Produto 2.6 CIDES: Minutas de Documentos Técnicos para o processo licitatório (Termo de Referência para contratação da solução/implementação do CIDES, especificações para edital, etc.).		14%																			
Entrega 3 CIDES - Apoio à Contratação	**Produto 3.1 CIDES:** Pareceres técnicos sobre documentos de licitação para o CIDES.	5%	50%																			
	Produto 3.2 CIDES: Relatórios de análise técnica de propostas para o CIDES.		50%																			
Entrega 4 CIDES - Elaboração do EIV	**Produto 4.1 CIDES:** Relatório do Estudo de Impacto da Vizinhança com seus provimentos.	5%	100%																			

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TITLE IV - TECHNICAL REQUIREMENTS AND PAYMENT

10. TECHNICAL QUALIFICATION

The consulting firm must have a qualified technical team, composed of professionals with solid academic backgrounds and proven experience in large and complex projects, especially in works related to the construction of Integrated Social Defense Centers, *Data Centers,* or other technological infrastructures.

The technical team will consist of a core group called the Key Team, made up of key professionals who will be directly responsible for carrying out the activities. These professionals will have their résumés evaluated and scored during the selection process and, after hiring, may not be replaced except for justified reasons and with the prior consent of the Contractor.

In addition to the key team, the contracted company may have a support team, whose duties will be defined according to the needs of the project, without requiring prior evaluation of the resumes of these support professionals.

The company must ensure that all contracted professionals, both key and support team members, work under decent, healthy, and safe working conditions, in accordance with the guidelines of the PGMO and the BIRD's Environmental and Social Standard NAS 2. Non-discrimination, equal opportunities, and respect for labor rights must be guaranteed. Furthermore, the consulting company must have women and members of groups considered to be Brazilian social minorities, such as people with disabilities, indigenous people, LGBTQIA+, among others, on its staff.

10.1. Requirements for Consulting Companies:

The company must be a Multidisciplinary Consulting firm with proven experience in large and complex projects, especially in the construction of Integrated Social Defense Centers and Data Centers, or other similar technological infrastructures.

10.2. Key team requirements.

The Consulting Firm must allocate a multidisciplinary technical team with proven experience and qualifications in the areas of knowledge necessary for the execution of the services. The Consulting Firm may propose additional staff or staff with higher qualifications.

The Technical Proposal must present the detailed resume of each member of the key team, proving the required qualifications and experience. The same professional may appear in more than one position in the key team, provided that experience and qualifications in the areas of knowledge necessary for the execution of the services are proven. The replacement of key team members during the execution of the contract will

only be permitted with the prior approval of the Appointed and Qualified Technical Team, by professionals with equal or higher qualifications.

The minimum team required and their qualifications are presented below:

10.2.1. Project Manager

I. **Education**: Degree in Engineering, Computer Science, Business Administration, or related fields.
II. **Experience**: Minimum of 5 years in complex IT and/or infrastructure project management, with a desirable built area volume of more than 10,000 m². Proven experience in Data Center and/or Integrated Social Defense or Command and Control Center projects.
III. **Certifications**: PMP or equivalent (desirable). The minimum requirement is a Master's degree in electrical or electronic engineering in topics related to efficiency, design, and management of *data centers* or specialized management and control centers.

10.2.2. Data Center Specialist (Technical Leader)

I. **Education:** Degree in Engineering (Electrical, Mechanical, Telecommunications) or Computer Science.
II. **Experience:** Minimum of 5 years in the design, implementation, and/or certification of Data Centers, preferably RATED 3 (or higher) by ANSI/TIA-942. Experience with Green Data Centers.
III. **Certifications:** CDCP, CDCS, ATD, or equivalent (**desirable**).

10.2.3. IT Solutions Architect

I. **Education:** Degree in Computer Science, Computer Engineering, or similar.
II. **Experience**: Minimum of 5 years in IT solutions architecture for complex environments, including infrastructure, networks, security, and systems.

10.2.4. Command and Control Center Specialist (Technical Leader)

I. **Education:** Degree in Engineering, Computer Science, Public Safety, or related fields.
II. **Experience:** Minimum of 5 years in the design and/or implementation of Integrated Command and Control Centers, preferably for public safety agencies.
III. **Knowledge:** C4ISR systems (Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance), systems integration, video surveillance, GIS, etc. (**Desirable**).

10.2.5. Architect

I. **Education:** Degree in Architecture.

II. **Experience:** Minimum of five (5) years of work experience as an architect, preferably with experience in projects with construction characteristics similar to CIDES.

III. **Knowledge**: Experience in project development on the Building Information Modeling (BIM) platform (**Desirable**).

10.2.6. Specialist Engineer(s) (Civil, Electrical, and Telecommunications)

I. **Education:** Degree in the respective engineering field.

II. **Experience**: Minimum of 5 years in critical infrastructure projects, preferably data centers or similar facilities.

III. **Knowledge**: Specialization in structural engineering (**Desirable**).

IV. Desirable professional experience of 10 years in consulting and project design or construction of data centers, with more than 15,000 structured cabling system points. 25,000 points is desirable considering the future demand of DCMC ES and CIDES.

10.2.7. Minimum dedication of the key team:

Interested companies must submit, along with their proposal, a detailed work plan that indicates, for each key team member, the minimum number of hours or percentage of dedication, ensuring the proper delivery of products. All planning and execution must be completed within a maximum period of 18 (eighteen) months, in accordance with the execution deadline described in Section 6 of this TOR. The dedication time of the key team may be used as a selection criterion.

10.3. About the support team

It is the responsibility of the CONSULTANCY to provide a support team, in the number and specialization necessary for the execution of the services and products provided for in this TOR. The duties of these support professionals will be defined by the consultancy according to the specific needs of the project.

The composition of the support team must be identified in the technical and financial proposals, but will not be evaluated for scoring purposes.

11. AVAILABLE INPUTS

11.1. To be made available by the UGP and UIPS for the consulting firm's work:

I. Air-conditioned space with furniture for meetings, interviews, and consultations with agencies.

II. Meeting room and internet access for team meetings, when meetings take place at the premises of SECT, SESP, or Prodest.

III. Videoconferencing system for remote meetings.

IV. Access to the construction site.

V. Floor plan of the site where the Prodest Data Center project will be built.
VI. Documents available at: https://secti.es.gov.br/es-mais-inteligente
VII. Project Appraisal Document (PAD).
VIII. Program Operating Manual (MOP).
IX. Loan Agreement.
X. Stakeholder Engagement Plan.
XI. Environmental and Social Commitment Plan.
XII. Procurement Plan.
XIII. Project Development Procurement Strategy (PDPS)
XIV. BIRD Procurement Regulations.
XV. Law No. 12,001/2023.
XVI. Decree No. 5682-R, dated April 17, 2024
XVII. PGMO – Labor Management Procedures
XVIII. Environmental and Social Commitment Plan (ESCP or ESF)
XIX. Soil testing and topographic survey of the land intended for DCMC-ES and CIDES, including the collection of geotechnical and planimetric data necessary to support project development

11.2. By the Specialized Consulting Company:

The Consulting Company is responsible for providing all other materials, tools, and supplies necessary for the proper provision of consulting services, within the scope of the intrinsic work covered by this TOR.

12. LOCATIONS FOR PERFORMING THE SERVICES

The services will be performed predominantly at the Consulting Company's facilities. However, it is established that, at least once every 30 days, face-to-face activities must be carried out at the facilities of the Appointed and Qualified Technical Team, which comprises PRODEST, SESP, and other agencies of the Government of the State of Espírito Santo, located in Vitória/ES or in other locations in the state, according to the addresses listed below.

This minimum frequency does not prevent more than one face-to-face activity from taking place in the same period, if the demands of the project so require. Face-to-face activities may include periodic meetings, technical inspections, presentations, or any other actions necessary for the smooth running of the work.

- Espírito Santo Institute of Information and Communication Technology – PRODEST, Av. João Batista Parra, 465 – Praia do Suá, CEP 29050-925 – Vitória/ES;

- Secretariat of Science, Technology, Innovation, and Professional Education (SECTI), Av. Fernando Ferrari, 1080 – Mata da Praia, CEP 29066-380 – Vitória/ES, Tel.: (27) 3636-1800;
- Secretariat of Public Security and Social Defense (SESP), Av. Marechal Mascarenhas de Moraes, 2355 – Bento Ferreira, CEP 29050-625 – Vitória/ES, Tel.: (27) 3636-1500 / 9924;
- Project location, Av. Leitão da Silva, 1950 – Itararé – Vitória/ES;
- Location of the project in the municipality of Serra/ES, Av. Marginal, Jardim Carapina, next to the Carapina Events Pavilion.

The **Technical Proposal** must present a detailed schedule of these activities, observing a minimum frequency of 30 days and providing, if necessary, for the possibility of multiple face-to-face meetings within the same month. The Consulting Company must be available to travel within the State of Espírito Santo in order to conduct surveys, hold meetings with stakeholders, and monitor activities related to the scope of services.

13. PAYMENT TERMS AND CONDITIONS

The consulting services will be provided under a Global Price contract, linked to the delivery of the previously agreed products, detailed in items 6 and 8 of this Term of Reference. The stages are detailed in items 7.1 and 9.1 of this Term.

Payment for the products resulting from each stage will be made upon approval of the same, within a maximum period of 30 (thirty) days and in accordance with the percentages specified, relative to the fixed price of the contract.

Interested companies are expected to submit detailed technical and financial proposals, demonstrating their ability and experience to meet the challenges and requirements presented herein.

13.1. Comments on the Schedules

13.1.1. The detailed schedules should provide for periodic follow-up meetings with the UIPs (PRODEST and SESP) and the UGP.

13.1.2. For periodic face-to-face meetings, a minimum of three (3) meetings is estimated for each piece of equipment, totaling six (6) face-to-face meetings. At least the manager and project leader are expected to participate in the face-to-face meetings.

13.1.3. The deadlines for approval of the products by the Appointed and Qualified Technical Team will be up to 30 business days after formal delivery by the consultancy.

13.1.4. The consulting firm must present a detailed work plan, including resource allocation and a schedule for all activities and deliveries.

13.2. Payment Method

Payments will be made in the currency of the submitted proposal. Each payment installment will be released after the presentation and formal approval of the corresponding delivery(ies), accompanied by the respective invoice (or equivalent document), and after verification and approval by the Appointed Technical Team (UIPs and UGP).

13.3. Reimbursable Expenses

Expenses incurred in the performance of the intrinsic work covered by this TOR will be borne by the contracted Consulting Company and will be considered during the contract negotiation procedures. Such expenses may include, for example, airfare, accommodation, transportation, meals, printing, among others, and shall be incorporated into the overall value for the provision of services.

14. ENVIRONMENTAL AND SOCIAL STANDARDS

In order to prepare feasibility studies, needs assessment plans, technical specifications, basic and executive designs, detailed budgets, and other documents, the consulting firm must be familiar with and prepare all deliverables in strict compliance with the environmental and social management requirements of the following specific Plans (Guidelines), all derived from the BIRD's Environmental and Social Framework (ESF), as well as applicable Brazilian environmental and social legislation:

- **AAS -** Environmental and Social Assessment of the Project

- **ETAS -** Environmental and Social Technical Specifications, chapter 7 of the AAS
- **PGMO -** Workforce Management Procedures (06/25/24), in particular items 2.3. Main risks - office environments (Administrative risks)
- **PCAS -** Negotiated Environmental and Social Commitment Plan - Unofficial Translation (04/18/2024)
- **PEPI -** Stakeholder Engagement Plan (06/25/24).
- Complaints and reporting mechanisms with the state ombudsman.
- Environmental and Social Management Plans of the consulting company itself.

In addition to these Plans, the consulting firm must be familiar with and understand the environmental and social commitments made by the State to the BIRD at the time the loan was signed, as set out in the Environmental and Social Commitment Plan (PCAS).

14.1. Considerations of the components:

14.1.1. For the DCMC-ES, special attention will be given to sustainability aspects (Green Data Center), including energy efficiency, use of materials with low environmental impact, waste management in construction and operation, and minimization of the carbon footprint. Feasibility studies and projects should incorporate an analysis of environmental and social impacts and propose appropriate mitigation measures.

14.1.2. For CIDES, the social impacts of implementation and operation should be considered, including data privacy issues, human rights in the context of monitoring and use of surveillance technologies, and the need for community engagement, if applicable.

The Consulting Firm shall ensure that the projects and technical specifications developed include all necessary measures to prevent, mitigate, or offset potential negative environmental and social impacts and to enhance positive impacts. If environmental impact studies (EIA/RIMA) or other specific licenses are required, the consulting firm shall detail these requirements and support the Appointed and Qualified Technical Team in obtaining them, if provided for in the scope.

15. FINAL CONSIDERATIONS

The CONSULTANT will act under the coordination of SECTI, which will appoint a Contract Oversight Committee to monitor the services and approve the products.

The contracted company shall indicate the communication system to be established between the company and SECTI so that the work is carried out within the proposed schedule and all obstacles are resolved in a timely manner. In this regard, the contractor shall inform the means, tools, and format to be implemented during the course of the work.

The Appointed and Qualified Technical Team seeks to establish a productive partnership with the Consulting Company to be selected, aiming to achieve the best results for the State of Espírito Santo and for Espírito Santo society.

Responsible for Preparation and Review:

(Signed Electronically)

ANNEX I

Normative References

Among other things, comply with legal and regulatory requirements, especially those related to best practices and necessary technical parameters, including, for example, the following:

1. Urban Master Plan of the municipalities where the Data Center and CIDES are located (Vitória and Serra), which defines parameters for land use and occupation;
2. Respective Building and Construction Code;
3. Green data centers - A practitioner's guide - BIRD publication with UIT on best practices for green data centers. Link: https://documents.worldbank.org/pt/publication/documents-reports/documentdetail/099112923171023760/p17859700914e40f60869705b924ae2b4e1
4. NBR 9050 - Accessibility standards;
5. NBR 13133 - Topographic survey execution;
6. NBR15492 - Standards for reconnaissance drilling for environmental quality purposes - Procedure;
7. NBR 6122 - Design and execution of foundations;
8. NBR 6118 - Concrete structure design;
9. NBR 6120 - Loads for the calculation of building structures;
10. NBR 15527 - Rainwater - use of roofs in urban areas for non-potable purposes;
11. NBR 5626 - Building cold water and hot water systems;
12. NBR 8160 - Building sanitary sewage systems. Design and execution;
13. NBR 5413 - Interior illuminance;
14. NBR 5101 - Public lighting - Procedure;
15. NBR 10898 – Emergency lighting system;
16. NBR 5473 – Building electrical installation;
17. NBR 5410 – Low voltage electrical installations;
18. NBR 17240 - Fire alarm and adaptation system - Design, installation, commissioning, and maintenance of fire detection and alarm systems - Requirements - 2010;
19. NR 8 - Establishes minimum basic requirements that must be observed in buildings to ensure safety and comfort for those who work in them;
20. NR 10 - Safety in electrical installations and services;

21. NR 17 - Ergonomics;
22. NR 23 - Fire protection;
23. NR 24 - Sanitary and comfort conditions in the workplace;
24. RDC No. 216 - Provides for technical regulations on good practices for food services-2004;
25. Environmental legislation, in particular, the provisions of State Decree No. 2,830-R of August 19, 2011.
26. **PGMO -** Workforce Management Procedures (06.25.24), in particular items 2.3. Main risks - office environments (Administrative risks)
27. **PCAS -** Negotiated Environmental and Social Commitment Plan - Unofficial Translation (04.18.2024)
28. **PEPI -** Stakeholder Engagement Plan (06.25.24)
29. **AAS** - Environmental and Social Assessment PRODEST - Component 1 (05.07.25)

This list is not exhaustive and is provided for clarification and reference purposes only.

COMPARISON OF INTERNATIONAL STANDARDS

Degree of equivalence (if "IDT" - identical, "MOD" - modified, or "NEQ" - not equivalent)

ABNT/NBR Standard	Summary topic/title	Equivalent ISO/International Standard	Degree of equivalence	Comments
NBR 9050	Accessibility	ISO 21542 / ISO 9386-1 and 9386-2	MOD / IDT	Adopts ISO 9386-1/2 (platforms); based on ISO 21542 for urban accessibility
NBR 13133	Topographic survey	ISO 17123-2, 17123-3, 17123-6	MOD	Adapts international topographic measurement methods
NBR 15492	Surveying for environmental quality	None	NEQ	Specific national standard, with no direct ISO equivalent

ABNT/NBR Standard	Summary topic/title	Equivalent ISO/International Standard	Degree of equivalence	Comments
NBR 6122	Design and execution of foundations	None	NEQ	Addresses national geotechnical practices
NBR 6118	Concrete structure design	ACI 318 (USA) / ISO references	MOD	Follows adapted international methodology; reference to ACI and ISO
NBR 6120	Loads for structural design	EN 1991-1-1 (Eurocode) / ISO concepts	MOD	Conceptual alignment with European standards
NBR 15527	Rainwater harvesting (non-potable)	ISO 46001	MOD	Related to efficient water management
NBR 5626	Building cold and hot water systems	None	NEQ	Brazilian standard with no direct international equivalent
NBR 8160	Building sanitary sewage systems	None direct / ISO 8772 (materials)	NEQ	Focus on Brazilian building design and execution
NBR 5413	Indoor illuminance	ISO/CIE 8995-1	IDT	Replaced by NBR ISO/CIE 8995-1
NBR 5101	Public lighting – Procedure	None	NEQ	Specific standard for the Brazilian urban context
NBR 10898	Emergency lighting system	IEC 60598-2-22 (without formal adoption)	NEQ	No formal recognition of equivalence

ABNT/NBR Standard	Summary topic/title	Equivalent ISO/International Standard	Degree of equivalence	Comments
NBR 5473	Building electrical installation	IEC 60364 (reference only)	NEQ	No formal equivalence; IEC practices may be consulted
NBR 5410	Low voltage electrical installations	IEC 60364	MOD	Strongly based on the international standard
NBR 17240	Fire detection and alarm system	ISO 7240 (referenced)	NEQ	Uses references, but with specific national application and requirements
NR 8	Minimum safety and comfort requirements in buildings	No direct ISO	NEQ	Specific national regulations for workplaces
NR 17	Ergonomics at work	ISO 6385:2016, ISO 26800:2011	MOD	Includes international approaches to general ergonomics
NR 23	Fire protection	No direct ISO; IEC/ISO 7240-... equivalents	NEQ	Brazilian fire safety regulations
NR 24	Sanitary conditions and comfort in the workplace	No direct ISO	NEQ	Specific Brazilian requirements for hygiene and comfort
RDC No. 216/2004	Good practices in food services	ISO 22000	MOD	Food safety management via ISO 22000

ABNT/NBR Standard	Summary topic/title	Equivalent ISO/International Standard	Degree of equivalence	Comments
State Decree No. 2,830-R/2011 (ES)	State environmental legislation	Brazilian environmental legislation and ISO 14001	NEQ	State regulation with no formal ISO equivalent due to its legal nature

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