Execution Version

SCHEDULE 13

CRUISE PIER IMPROVEMENT PROJECTS

AND

DESIGN AND BUILD STANDARDS

[*See Attached*]

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INTRODUCTION AND BACKGROUND

This Schedule 13 to this Agreement describes the purpose of the design and build standards for all Cruise Pier Improvement Projects and Modifications (the "Design and Build Standards"), the Design and Technical Specifications and their approval mechanism.

For the purposes of this Schedule 13, where Approval from the Authority is required, such Approval shall be limited to and shall follow the procedures set forth in Section 1.17, Section 4.5 and Section 4.8 of this Agreement, as applicable.

DEFINITIONS

The definitions related to this Schedule 13 are in Appendix N. Capitalized terms not defined in Appendix N are defined in Section 1.1 of this Agreement.

SECTION 1. PURPOSE OF THE DESIGN AND BUILD STANDARDS

The purpose of this Schedule 13 is to provide the minimum standards and requirements the Concession Company shall meet in the design and construction of the Cruise Pier Improvement Projects and Modifications pursuant to this Agreement, and the process for remedying any deficiencies of performance under this Agreement.

SECTION 2. DESIGN AND BUILD STANDARDS OVERVIEW

(a) Objectives

This Schedule 13 provides guidance as to the development of a design and build plan that will ensure that the minimum Design and Build Standards are met or exceeded (the "Design and Build Plan"), ensuring that the Cruise Pier Improvement Projects and Modifications are of the quality level required under this Agreement.

(b) Organizational Structure

This Schedule 13 provides the Concession Company with the minimum Design and Build Standards for the development and implementation of the Design and Build Plan for each of the Cruise Pier Improvement Projects and Modifications undertaken at the Cruise Port Facility.

The Design and Build Plan must include specifications for all facilities and systems affected by the Cruise Pier Improvement Projects and Modifications, as well as reporting requirements for the same, as follows:

(i) Cruise Pier Improvement Projects and Modifications (Section 7)

(ii) Authority's Review Process and Closeout Requirements (Section 8)
(iii) Minimum Performance Standards (Section 9)
(iv) Specifications for the Cruise Pier Improvement
(v) Design Criteria for Design and Build (Section 10)
(vi) Testing (Section 11)
(vii) Construction Management (Section 12)
(viii) Holding Fee (Section 13)

This document also includes 15 appendices as follows:

A. Available Guidance and Standards
B. Scheduled Completion Dates and Milestones of Initial Investment Projects and Expansion Investment Projects
C. Expansion Investment Projects Trigger Event, Phase Two Trigger Event and Maximum Cruise Port Capacity
D. Return Condition Works and RC Works Program
E. General List of Authorizations and Related Governmental Authority Requirements
F. Guidelines for Integrating Cruise Port Facility with San Juan
G. Pan American Piers Wharf Structure Budget
H. Pier 3 EPIC Repairs
I. Pier 3 Duty Free Building
J. Expansion Investment Projects, Phase Two Projects, Additional Cruise Port Facilities and Modifications Concession Mortgage Debt Criteria
K. Design Criteria
L. 30% Design and Technical Specifications
M. Liquefaction
N. Definitions
O. Environmental Reports

(c) Coordination with Other Agencies

At a minimum, the Concession Company shall coordinate as appropriate with the Authority and the following entities:

United States Coast Guard (USCG)

Customs and Border Protection (CBP)

Puerto Rico Fire Department (PRFD)

Municipality of San Juan

Puerto Rico Department of Natural and Environmental Resources (DNER)

Persons operating in San Juan Bay whose operations affect the Cruise Port Facility

United States Environmental Protection Agency (USEPA)

United States Army Corps of Engineers (USACE)

Puerto Rico Planning Board

Puerto Rico Permit Management Office (or OGPe by its Spanish acronym)

Puerto Rico Central Office of Recovery, Reconstruction and Resiliency (COR3)

Federal Emergency Management Agency (FEMA)

United States Department of Housing and Urban Development (HUD)

United States Department of Homeland Security – Office of the Inspector General (DHS-OIG)

United States Department of Housing and Urban Development - Office of the Inspector General (HUD-OIG)

Puerto Rico Department of Housing (PRDOH)

The Authority shall use its Reasonable Efforts to assist the Concession Company in coordinating with the aforementioned entities and obtaining the cooperation of such entities.

(d) Required Reports

This Schedule 13 requires a number of reports to be generated in connection with the Cruise Pier Improvement Projects and Modifications. The Concession Company Design and Build Plan will be consistent with the Asset Management Plan provided to the Authority pursuant to Section 3.4 of this Agreement and Schedule 12 to this Agreement.

SECTION 3. DESIGN AND BUILD STANDARDS SUBJECT TO THE AGREEMENT

The interpretation of the Design and Build Standards and the Concession Company's compliance with the Design and Build Standards shall be subject to the provisions set forth in Section 4 of this Schedule 13 and this Agreement.

SECTION 4. RELATIONSHIP TO DOCUMENTS REQUIRED BY LAW

To the extent the Concession Company's compliance with any provision of the Design and Build Standards can be demonstrated by reference to any other document required by Law to be maintained by the Concession Company, the Concession Company's compliance with the relevant provisions of the Design and Build Standards may be demonstrated by cross-referencing any other such documents and providing such documents to the Authority.

To the extent that any term or provision of the Design and Build Standards conflicts with any term or provision otherwise specified in applicable Law then such specific term or provision of the Design and Build Standards shall be revised by construing it flexibly in light of their objectives while also ensuring that it complies with applicable Law and as so revised shall govern and shall supersede any such conflicting term or provision of the Design and Build Standards.

The Concession Company's obligation to comply with the USCG and USACE's guidance or regulations extends only to USCG and USACE guidance and regulations for which the USCG and the USACE has made compliance mandatory on port facilities operators. To the extent that any USCG guidance or regulations are not mandatory, the Concession Company is not obligated to comply (by virtue of such USCG and USACE's guidance or regulation),but may do so in its discretion.

To the extent that the Design and Build Standards refer to any particular law, regulation, ordinance, order, directive, USCG or USACE guidance or regulation, the reference is to the then-current version of the same, as it may have been amended, revised, replaced or succeeded from time to time.

SECTION 5. LEGAL REQUIREMENTS

The provisions of the Design and Build Standards and of the Design and Build Plan and the Design and Technical Specifications established under them shall comply with all applicable Law. For convenience, applicable Law, including the standards, guidance, Authorizations and requirements set forth in Appendix A and Appendix E to this Schedule 13 are referred to as "Legal Requirements" throughout this Schedule 13.

SECTION 6. PLAN SUBMISSION AND REVISIONS; COMPLIANCE WITH BEST INDUSTRY PRACTICES

The Design and Build Plan, each of its component sections and any modifications thereto shall be designed to comply in all material aspects with Good Industry Practice and shall be developed by the Concession Company, and the Concession Company may in its discretion consult with the Authority with respect thereto.

The Design and Build Plan and each of its component sections shall be prepared separately for the Initial Investment Projects, the Expansion Investment Projects after the Expansion Investment Projects Trigger Event and the Phase Two Projects after the Phase Two Trigger Event.

Simultaneously with the submission of the Concession Company Annual Report required pursuant to Schedule 12 of this Agreement, the Concession Company shall submit any proposed modification to the Design and Build Standards to the Authority. Any changes to the Design and Build Standards or this Schedule 13 are subject to the requisite approvals required under this Agreement.

The Concession Company is responsible for becoming familiar with and complying with future standards and Legal Requirements that may be applicable during the Term, including Good Industry Practice, that apply to the design, operation, upkeep, and maintenance of the Cruise Port Facility, subject to the provisions of this Agreement.

Any Cruise Pier Improvement Projects or Modifications that may be funded in whole or in part through Government Contributions (which, for the avoidance of doubt, would not include the Initial Investment Projects, except for the Pan American Piers Wharf Structure Project, if applicable) shall be designed to comply in all material aspects with Good Industry Practice and the applicable Legal Requirements for such Government Contributions. For the purposes of submitting work for funding in whole or in part through Government Contributions, the Concession Company will work with the Authority and the Independent Engineer to ensure that the Design and Build Plan for such works conforms to the requirements applicable to projects funded in whole or in part through Government Contributions, including ensuring that the Design and Build Plan is prepared in conformity with the applicable Legal Requirements for hazard-resistant designs for the purposes of protecting the health, safety, and general welfare of the Cruise Port Facility's users against disasters (including floodplain management and hazard mitigation criteria required under the Coastal Barrier Resources Act (16 U.S.C. 3501 et seq.), and to meet the definition of resilient as may be developed by FEMA.

SECTION 7. CRUISE PIER IMPROVEMENT PROJECTS AND MODIFICATIONS

The Initial Investment Projects, Expansion Investment Projects and Phase Two Projects are as follows and as described in more detail in Appendix L to this Schedule 13 and in the 30% Design and Technical Specifications:

- **INITIAL INVESTMENT PROJECTS**

  Each to be carried out in accordance with the 30% Design and Technical Specifications Approved by the Authority as a condition to Closing prior to the Closing Date.

  - **Pier 1 Project**
    - Pier 1 – Wharf
      - Limited operational repairs to Pier 1 deck that include, but are not limited to:
        - Concrete resurfacing and painting
    - Pier 1 – Cruise Pier Building
      - Repairs or replacement, including but not limited to:
        - Fire protection system in the Cruise Pier Building on Pier 1

- Escalator and one elevator in the Cruise Pier Building on Pier 1
- Floor, wall and ceiling finishes in the public areas of the Cruise Pier Building.

The scope of repairs will be finalized between the Parties prior to Closing.

- **Pier 3 Project**

  - Pier 3 EPIC Repairs.

    - Replace missing fender on Pier 3

  The Pier 3 EPIC Repairs will be performed by the Authority, subject to Section 4.14 of this Agreement.

- **Piers 1-4 Walkway Project**

  - Repairs or improvements to the Piers 1-4 Walkway including:

    - Repairs to Piers 1-4 Walkway surface and balustrade along the edge of the Piers 1-4 Walkway from Pier 1 to Pier 4
    - Providing a new canopy (without lighting) between Pier 3 and Pier 4;
    - Providing new low-level landscaping between Pier 3 and Pier 4.

    For the avoidance of doubt, if the construction of the Pier 3 Duty Free Building is underway at the time of Closing and/or within the deadline for this project as per Table 7-1 the construction by the Concession Company of the portion of walkway in front of Pier 3 will be deferred until after completion of the Duty Free Building construction.

- **Pan American Pier 1 Project**

  - Repairs or replacement to Cruise Pier Building on Pan American Pier 1, including but not limited to:

    - Floor, wall and ceiling finishes in the public areas of the Cruise Pier Building on Pan American Pier 1
    - Toilets and sewer systems in the Cruise Pier Building on Pan American Pier 1

    The Scope of repairs will be finalized between the Parties prior to Closing.

- **Pan American Pier 2 Project**

  - Repairs or replacement to Cruise Pier Building on Pan American Pier,

including but not limited to:

- Floor, wall and ceiling finishes in the public areas of the Cruise Pier 2 Building
- Toilets and sewer systems in the Cruise Pier Building Pier 2 Building

The scope of repairs will be finalized between the Parties prior to Closing.

- **Pan American Piers Wharf Structure Project**

  - Subject to satisfaction of conditions to Closing as provided in Section 2.4(c)(ix) of this Agreement,

    - New sheet pile wall measuring 1,518 ft (Pan American Pier 1 and Pan American Pier 2 combined) with 110 injected tie rods along the new sheet pile wall for the length of the such Cruise Piers
    - New bulkhead and bollards along the length of the such Cruise Piers
    - Berth surface repairs maintaining existing platform height of such Cruise Piers

- **Rehabilitation Pier 4 Wharf**

  - Subject to satisfaction of the conditions to Closing regarding Pier 4 provided in Section 2.4(c)(viii) of this Agreement, improvements will include repairs or replacement as required,

    - To maintain the live load of 165 psf (see paragraph (f) of Appendix K).
    - To maintain the berthing of Category 2 vessels in Section 9(b) of this Schedule 13 by the construction of either mooring dolphins or an optimized technical solution according to result of the on-going survey and studies.

- **EXPANSION INVESTMENT PROJECTS**

- **Piers 11 – 12 Project**

  - The Expansion Investment Projects are subject to and to be implemented in accordance with Section 3.25 and Section 4.13 of this Agreement.

  - Piers 11-12 – Wharf

    - Construction of new bulkhead along such Cruise Piers in front of existing wall measuring approximately 1,350 ft in accordance with the 30% Design and Technical Specifications Approved by the Authority as a condition to Closing prior to the Closing Date.

  - Piers 11-12 – Cruise Pier Building

- Construction of a cruise terminal for Home Port operations in accordance with the 30% Design and Technical Specifications Approved by the Authority prior to the Date of this Agreement.

- Piers 11-12 – Uplands

  - Constructing a ground transport area, and commercial, tourism and related services and offerings (including Public Information Centers), including but not limited to:

    - The provision of car parking and expanded ground transport staging and traffic flow areas for the cruise terminal facility in Pier 13 as marked in Schedule 1 Figure 6A in accordance with the 30% Design and Technical Specifications Approved by the Authority as a condition to Closing prior to the Closing Date.

- **Conversion of Pier 4 into a Port of Call facility**

  - Repairs and replacement as required to convert the Pier 4 operations to Port of Call including but not limited to:

  - Floor, wall and ceiling finishes in the public areas of the terminal building when required.
  - Changing of passenger flow to suit Port of Call operations.

- **PHASE TWO PROJECTS**

- **Piers 13-14 Project**

  - Pier 13 and Pier 14 - Wharf

    - Subject to and in accordance with the provisions of Section 3.24 and Section 4.12 of this Agreement, improvements will include repairs or replacement as required, including but not limited to:

      - Construction of new seawall and bulkhead at the Pier 13 and Pier 14 in front of existing wall measuring approximately 1,115 ft.
      - Construction of a new mooring dolphin on the west of the Piers 11-12 to allow a total berthing length for two 1,375 ft long (Cat 3) berths in sequence (totaling of 2,750 ft) for Cruise Piers 11 to 14.
      - The length of berth available will be reviewed at the time of the Phase Two Trigger Event or at the time the Piers 13-14 Wharf Project is implemented as provided in Section 4.12(e), if earlier.

  - Pier 13 and Pier 14 – Cruise Pier Building

- To be implemented by the Concession Company in accordance with Section 3.24 and Section 4.12 of this Agreement.

- Pier 13 and Pier 14 – Uplands

  - To be implemented by the Concession Company in accordance with Section 4.12 of this Agreement.

The funding responsibility and Scheduled Completion Date for the Cruise Pier Improvement Projects consisting of the Initial Investment Projects, the Expansion Investment Projects and the Phase Two Projects are summarized in the table below. For the avoidance of doubt, funding responsibility of the Concession Company for the Expansion Investment Projects and the Phase Two Projects is subject to the conditions set forth in Section 10.1 of this Agreement.

Table 7-1

Phase	Cruise Pier Improvement Project	Scheduled Completion Date (Funding or Financing Responsibility with Concession Company)	Scheduled Completion Date (Funding or Financing Responsibility with Government Contributions)
Pier 4 Reconstruction	Pier 4 Reconstruction	N/A	To be negotiated in good faith between the Parties following receipt of the notice from the Authority (pursuant to Section 4.12(c)) that the Government Contributions Authorization has been received or, if the Government Contributions are insufficient to pay a portion of the Cruise Pier Improvement Projects Cost or are delayed or denied, following issuance of Concession Mortgage Debt for the shortfall pursuant to Section 4.12(c).
Initial	Rehabilitation Pier 4 Wharf	9 months from Closing	N/A

Investment Projects	Pan American Pier 1 Project	12 months from completion of Rehabilitation Pier 4 Wharf.	NA
	Pan American Pier 2 Project	12 months from completion of Rehabilitation Pier 4 Wharf.	NA
	Pan American Piers Wharf Structure Project	12 months from completion of Rehabilitation Pier 4 Wharf	12 months from receipt of the notice from the Authority (pursuant to Section 4.12(c)) that the Government Contributions Authorization has been received plus 180 days, unless the Government Contributions are insufficient to pay a portion of the Cruise Pier Improvement Projects Cost or are delayed or denied, in which case the Scheduled Completion Date shall be 12 months from issuance (if applicable) of Concession Mortgage Debt for the shortfall pursuant to Section 4.12(c).
	Pier 1 Project	6 months from Closing	NA
	Pier 3 Project	To be completed no earlier than 12 months from Closing and no later than 6 months from the completion of the Pier 3 EPIC Repairs.	NA
	Piers 1-4 Walkway Project	12 months from Closing	NA
Expansion Investment Projects	Piers 11-12 Project	31 months from the Expansion Investment Projects Trigger Event (provided the Expansion Investment Projects Requirements are satisfied) plus 180 days (as may be adjusted pursuant to Section 3.25(g) of this Agreement)	31 months from receipt of the notice from the Authority (pursuant to Section 3.25(i)) that the Government Contributions Authorization has been received plus 180 days t, unless the Government Contributions are insufficient to pay a portion of the Cruise Pier Improvement Projects Cost or are delayed or denied, in which case the Scheduled Completion Date shall be 31 months from issuance (if applicable) of Concession Mortgage Debt for the shortfall pursuant to Section 3.25(i)
	Conversion of Pier 4 into a Port of Call facility (if applicable)	12 months from the Piers 11–12 Project Completion	12 months from the Piers 11–12 Project Completion, subject to the Government Contributions and Concession Mortgage Debt issued in accordance with Section 3.25(i) being sufficient to pay the Cruise Pier Improvement Projects Cost
Phase Two Projects	Piers 13-14 Project (subject to Pier 14 constituting part of the Cruise Port Facility and the Concession as provided in Section 2.1(a) of this Agreement and to the conditions set forth in Section 3.24 of this Agreement)	31 months from the Phase Two Trigger Event plus 180 days (as may be adjusted pursuant to Section 3.24 (i) of this Agreement)	For the Piers 13-14 Wharf Project, 31 months from receipt of the notice from the Authority (pursuant to Section 4.12(d) or Section 4.12(e)) that the Government Contributions Authorization has been received plus 180 days, unless the Government Contributions are insufficient to pay a portion of the Cruise Pier Improvement Projects Cost or are delayed or denied, in which case the Scheduled Completion Date shall be 31 months from issuance (if applicable) of Concession Mortgage Debt for the

shortfall pursuant to Section 4.12(d) (and subject to Section 3.24(d), provided that the Phase Two Trigger Event and the Phase Two Rate of Return Test shall not apply with respect to the construction of the Piers 13-14 Wharf Project if the Piers 13-14 Wharf Project is constructed using 100% Government Contributions, as provided in Section 4.12 and Section 3.24(f)).

SECTION 8. AUTHORITY'S REVIEW PROCESS AND CLOSEOUT REQUIREMENTS

(a) General

The Authority and the Concession Company shall designate the following parties

- The Authority shall designate the Designated Person or other Representative to act as a single point of contact related to the Cruise Pier Improvement Projects and each Modification. If the Designated Person or other Representative materially breaches its obligations under this Agreement, the Concession Company, acting reasonably, shall have the right to require replacement of the Designated Person or Representative. The appointed Designated Person or Representative shall have full authority to represent, bind and act for the Authority with respect to matters arising under this Agreement, and to execute the orders or directions on behalf of the Authority without causing a delay to the Concession Company and its Contractors and shall be present at or within a reasonable distance from the Cruise Port Facility at all times during the periods while Cruise Pier Improvement Projects and Modifications are in progress.

- The Authority and the Concession Company will prior to Closing jointly appoint the Independent Engineer in accordance with the terms of this Agreement. The Independent Engineer shall be an international firm of consulting engineers with substantial experience in the business of port construction and equipment verification, similar in size and scope to the Cruise Pier Improvement Projects, and able to deploy suitably qualified and experienced personnel, with appropriate civil, mechanical and electrical engineering qualifications and specific experience in the commissioning of port installations. The Parties shall comply with their respective duties arising from the Independent Engineer terms of appointment. Neither Party shall without the other Party's consent terminate, cancel or vary the terms of the Independent Engineer terms of appointment. In the event the Independent Engineer terms of appointment terminates otherwise than for full performance, the Parties shall liaise and cooperate with each other to appoint a replacement consultant to act as Independent Engineer as soon as reasonably practical.

- The Concession Company shall designate a Representative as the project manager for the Cruise Pier Improvement Projects and each Modification ("Project Manager"). All of the programming, design and construction activities shall be under the direction of the Project Manager, who shall be the principal contact between the Concession Company, the Authority and the Independent Engineer.

- The Authority may order internal review processes as deemed necessary with the Independent Engineer or other third-party experts or personnel with the knowledge of systems and facilities.

The Authority shall have the right to require replacement of the key members of the management and technical staff supporting the Project Manager, if the Authority determines, acting reasonably, that such person is in material breach of the Concession Company's obligations under this Agreement. The Project Manager shall have full authority to represent, bind and act for the Concession Company with respect to matters arising under this Agreement, and to execute the orders or directions of the Authority without delay. The Project Manager or his or her authorized representative shall be present at the Cruise Port Facility at all times while Cruise Pier Improvement Projects and Modifications are in progress. Arrangements for responsible supervision, acceptable to the Authority, shall be made for periods when the Project Manager cannot be present at the Cruise Port Facility.

Besides the Milestone Inspection performed by the Independent Engineer, the Authority may carry out, at its own cost and discretion, an independent review of the Concession Company's design documents by a separate architect, engineer, and contractor or cost estimator under contract or employed by the Authority. Such independent review shall be performed in a timely manner in accordance with Section 4.5(b) of this Agreement, or such other schedule agreed between the Authority and the Concession Company, and shall not delay the orderly progress of the Cruise Pier Improvement Projects and Modifications. Any failure of the Authority (including any such separate architect, engineer, contractor or cost estimator) to respond to any design document within the period provided in Section 4.5(b) of this Agreement shall constitute Authority approval of the relevant design document provided in Section 4.5 (c) of this Agreement.

The scope of services listed below is intended to convey the Authority's requirements for the design and construction of the Cruise Pier Improvement Projects and any Modifications. Conditions may arise which will necessitate revisions in the types of services required. While the Authority has attempted in this Schedule 13 to define its expectations for the Cruise Pier Improvement Projects and any Modifications, the scope of services listed below is not intended to be all inclusive of the work to be performed. The Concession Company's experience should allow it to amplify on the scope as provided below.

Cruise Pier Improvement Projects and Modifications performed under this Agreement shall include the following items:

- Architecture
- Civil engineering
- Structural engineering
- Landscape architecture
- Traffic engineering
- Mechanical and electrical engineering
- Plumbing engineering
- Fire protection engineering
- Electronic and information technology systems engineering, excluding operational information technology and communications systems of the cruise lines

- Security access control and closed-circuit television (CCTV) design, excluding operational information technology and communications systems of the cruise lines
- Telecommunications and public address system design, excluding operational information technology and communications systems of the cruise lines
- Baggage claim device design (if any)
- Surveying
- Geotechnical investigation
- Permitting
- Materials testing (as per required by building codes applying to the construction).
- Scheduling
- Environmental impact and Pollution Controls/Mitigation for the construction of the works
- Health and safety for the construction of the works
- Quality assurance and quality control for the construction of the works
- Construction
- Construction inspection and special inspection (as necessary)

All other planning, design, coordination, construction activities and services as required to complete the applicable Cruise Pier Improvement Project or Modification shall be compatible with the long-term development of the Cruise Port Facility, including the Operating Standards, which will be provided by the Concession Company as a part of the Design and Build Plan.

(b) Review Guidelines

Prior to any planning and execution of Cruise Pier Improvement Projects and Modifications, various project documents shall be submitted to the Authority, at pre-agreed milestones (which milestones shall be no less than those provided in Section 8(c)(i), (ii) and (iii) of this Schedule 13), for review and Approval, as part of the Design and Build Plan to the extent Approval is required under this Agreement. The review will include submissions for compliance with design intent, systems specifications, materials, standard of performance, and other criteria identified in this Schedule 13. This review is a requirement that is intended for the benefit of the execution of the Cruise Pier Improvement Projects and Modifications and does not eliminate or reduce the Concession Company's responsibility to review the documents for compliance with all applicable Legal Requirements.

Written review comments will be returned to the Concession Company for each review effort. The designated Project Manager and the Representative will agree in the final agreement to a schedule of submission due dates and designated review periods based upon the Concession Company's proposed schedule and the Authority's schedule objectives.

The Project Manager is responsible for documenting minutes of all the review meetings if any, while the Representative will supply specific comments. The Representative shall provide timely,

detailed and coordinated responses to all submitted design and construction submittals.

The Authority's review and Approval with respect to each Cruise Pier Improvement Project and Modification includes the following:

(i) Cruise Pier Improvement Port Master Plan (CPIMP)
(ii) Architectural Building Design Concept
(iii) Design Criteria Document
(iv) Design Documents and Specifications, including Design Drawings and Calculations
(v) Overall Project Schedule

(i) Cruise Pier Improvement Port Master Plan (CPIMP)

The objective of the CPIMP is to provide the Authority and other relevant stakeholders with an overview of the proposed Cruise Pier Improvements for the Initial Investment Projects prior to the Closing Date and for the Expansion Investment Projects after the Expansion Investment Projects Trigger Event that will be implemented and how it forms part of the overall CPIMP; including the projected uses or changes in the organization, phasing and use of the Cruise Pier(s) included in a specific Cruise Pier Improvement Project. The CPIMP shall provide the basis for its implementation, in particular how for the Initial Investment Projects and for the Expansion Investment Projects after the Expansion Investment Projects Trigger Event the proposed Cruise Pier Improvement Projects and Modifications contribute to maintain the Operating Standards and will ensure continuity in the level of service to the Cruise Lines and Other Shipping Lines. The CPIMP shall incorporate layers showing improvements to be completed by other such as USACE San Juan Harbor Improvement, and Bahia Urbana (PRCDA) when (in the case of Bahia Urbana) provided by the Authority.

The Concession Company shall prepare the CPIMP:

(i) with respect to the Initial Investment Projects prior to the Closing Date in connection with the satisfaction of the condition to Closing provided in Section 2.4(b)(vi) of this Agreement;

(ii) with respect to the Expansion Investment Projects no later than one-hundred and twenty (120) days after the Expansion Investment Projects Trigger Event or one-hundred and twenty (120) days after the receipt of notification from the Authority that the Government Contributions Authorization has been achieved for Government Contributions in an amount sufficient to pay at least fifty million dollars ($50,000,000) of the Cruise Pier Improvement Projects Cost of the Piers 11-12 Wharf Project, based on the original Port Master Plan referred to in Appendix L to this Schedule 13, for Approval by the Authority;

(iii) with respect the Phase Two Projects, no later than one hundred and eighty (180) days after the Phase Two Trigger Event or one hundred and eighty (180) days after the receipt of notification from the Authority that the Government Contributions

Authorization has been received for Government Contributions to pay the Cruise Pier Improvement Projects Cost of the Piers 13-14 Wharf Project (subject to Section 3.24(d), as qualified by the last sentence of Section 3.24(f)), based on its original Port Master Plan referred to in Appendix L to this Schedule 13, for Approval by the Authority.

Any changes in the CPIMP shall be submitted to the Authority for Approval.

The CPIMP shall as a minimum include:

- A narrative description of the proposed CPIMP (Initial Investment Projects, Expansion Investment Projects, Phase Two Projects and other Cruise Pier Improvement Projects) explaining the concept and how their plan/design addresses the items mentioned in Section 8(a) of this Schedule 13 and:
    - How the proposed Initial Investment Projects, Expansion Investment Projects, Phase Two Projects and other Cruise Pier Improvement Projects enhances the relation of the waterfront, piers and terminals to the direct urban context (Old San Juan, Puerta de Tierra, and Convention Center District / other nearby properties.), consistent with the guidelines set forth in Appendix F of this Schedule 13.
    - How the Initial Investment Projects, Expansion Investment Projects, Phase Two Projects and other Cruise Pier Improvement Projects will manage the traffic and circulation of vehicles, shuttles, taxis, parking, etc., and improve the connectivity with the public transportation system and potentially integrate a multimodal transportation system.
    - How the Initial Investment Projects, Expansion Investment Projects, Phase Two Projects and other Cruise Pier Improvement Projects promotes the incorporation of other activities (commercial, recreational, cultural, etc.), and amenities related to the visitors/passenger experience and services.
    - How the Initial Investment Projects, Expansion Investment Projects, Phase Two Projects and other Cruise Pier Improvement Projects provides for additional benefits in the development, growth, maintenance and sustainability of San Juan Bay cruise terminals and piers.
- Proposed site plans (to scale and in clearly legible format) with main dimensions showing the premises of the Cruise Pier Improvement Projects.

(ii) Architectural Building Design Concept

The Concession Company shall prepare a narrative description of the architectural concept, materials and design with focus on innovation and compliance with LEED Silver level of certification (it being understood that no certification is required).

- Design embarkation/disembarkation Passenger capacity (in mean and peak numbers / hr) and areas provided (ft^2)
- General Arrangement drawing (to scale and in clearly legible format)
- Views of each side of the building
- High level 3D perspective images (minimum 3 images)
- Embarkation/Disembarkation passenger flow

(iii) Design Criteria Document

The Concession Company shall prepare a design criteria document which includes the basis of design/design criteria for each Cruise Pier Improvement Project and Modification (the "Design Criteria Document") and shall request the Authority's Approval of the Design Criteria Document before commencing preliminary design activities. The Concession Company shall further expand the Design Criteria Document and maintain the same during the execution of the Cruise Pier Improvement Projects and Modifications. The Concession Company will request the Authority's Approval of the Design Criteria Document at agreed development stages, including, as provided above, prior to Closing.

The design criteria in Appendix K to this Schedule 13 constitute the initial Design Criteria Document relating to the Cruise Pier Improvement Projects and any Modifications, except to the extent the paragraphs of Appendix K specifically refer to the Piers 11-12 Project or the Rehabilitation Pier 4 Wharf (these specific paragraphs constituting design criteria relating only to the Piers 11-12 Project or the Rehabilitation Pier 4 Wharf). If the 30% Design and Technical Specifications for one or more of the Initial Investment Projects and the Expansion Investment Projects are not included in Appendix L to this Schedule 13 as of the Date of this Agreement, then in connection with the Approval of the 30% Design and Technical Specifications for the Initial Investment Projects and the Expansion Investment Projects, the Concession Company shall amend if need be the Design Criteria Document consisting of Appendix K for such Cruise Pier Improvement Projects for Approval of the Authority before preparing the 30% Design and Technical Specifications for such Initial Investment Projects and Expansion Investment Projects. A similar amendment or expansion of the Design Criteria Document shall be made by the Concession Company for Authority Approval for other Cruise Pier Improvement Projects and any Modifications before the Concession Company begins preliminary design activities.

(iv) Design Documents and Specifications including Design Drawings and Calculations

The Concession Company shall prepare Design Documents and Specifications covering as a minimum the items mentioned above and repeated below;

- Architecture
- Civil engineering
- Structural engineering
- Landscape architecture
- Traffic engineering
- Mechanical and electrical engineering

- Plumbing engineering
- Fire protection engineering
- Electronic and information technology systems engineering, excluding operational information technology and communications systems of the cruise lines
- Security access control and closed-circuit television (CCTV) design, excluding operational information technology and communications systems of the cruise lines
- Telecommunications and public address system design, excluding operational information technology and communications systems of the cruise lines
- Baggage claim device design (if any)
- Surveying
- Geotechnical investigation
- Permitting
- Materials testing (as per required by building codes applying to the construction).
- Scheduling
- Environmental impact and Pollution Controls/Mitigation for the construction of the works
- Health and safety for the construction of the works
- Quality assurance and quality control for the construction of the works
- Construction
- Construction inspection and special inspection (as necessary)

(v) Overall Project Schedule

The Concession Company shall prepare an overall project schedule for all construction works including a breakdown of these works for each structure (pier/wharf or building) as follows:

- Survey, design, procurement and permitting works
- Total time period of structure being out of service for existing operational piers/ wharfs or buildings
- Demolition works (not part of the refurbishment/ building works below)
- Refurbishment/ building works

(c) Design Submittal

The Concession Company shall provide comprehensive, multi-discipline design packages that include design documentation for project elements, fully developed to the design stage indicated. The stages that will require the Authority's review and Approval are below.

(i) 30% preliminary design development ("30% Design") – to be provided by the Concession Company, Approved by the Authority:

- before Closing for the Initial Investment Projects and as provided in Section

2.4(b) of this Agreement;

- as of the Date of this Agreement for the portion of the Piers 11-12 Project identified in this Schedule 13 as Piers 11-12 – Cruise Pier Building (but not for the portion of the Piers 11-12 Project identified in this Schedule 13 as Piers 11-12 – Wharf or Piers 11-12 – Uplands);

- to be provided by Concession Company no later than the Closing Date (and the Concession Company to use Reasonable Efforts to provide and to facilitate Authority Approval no later than ninety (90) days after the Date of this Agreement) for the portion of the Piers 11-12 Project identified in this Schedule 13 as Piers 11-12 – Wharf and Piers 11-12 - Uplands;

- to be provided by Concession Company (and Parties to use Reasonable Efforts to facilitate Authority Approval) no later than one-hundred and eighty (180) days after the Expansion Investment Projects Trigger Event for the Expansion Investment Projects (other than the portion of the Piers 11-12 Project identified in this Schedule 13 as Piers 11-12 – Cruise Pier Building, which was Approved by the Authority as of the Date of this Agreement;

- to be provided by Concession Company (and Parties to use Reasonable Efforts to facilitate Authority Approval) not later than 270 days after the Closing Date for the Piers 13-14 Wharf Project;

- to be provided by Concession Company (and Parties to use Reasonable Efforts to facilitate Authority Approval) within one-hundred and eighty (180) days from the date of the Phase Two Trigger Event for the Phase Two Projects (other than the portion of the Piers 13-14 Project identified in this Schedule 13 as Pier 13 and Pier14 – Wharf).

(ii) 60% design development ("60% Design")

(iii) 100% final design ("100% Design")

For the avoidance of doubt the 30% Design constitutes the 30% Design and Technical Specifications and the 100% Design constitutes the Design and Technical Specifications, as the terms 30% Design and Technical Specifications and Design and Technical Specifications are used in this Agreement.

The 30% Design will be Approved by the Authority or agreed by the Authority and the Concession Company, as the case may be, as provided in paragraphs (A), (B), (C), (D) and (E) below.

The development and incorporation into this Agreement of the 60% Design and the 100% Design shall be reviewed by the Authority and the Independent Engineer as provided in Section 4.5 of this Agreement. In connection with the development by the Concession Company of the 60% Design

and the 100% Design, the Concession Company may submit to the Authority and the Independent Engineers for their review pursuant to Section 4.5 of this Agreement design document packages that represent a discrete part of the applicable Cruise Pier Improvement Project or Modification, and each such design document package shall be reviewed pursuant to, and subject to the provisions of, Section 4.5 of this Agreement. For the avoidance of doubt, each discrete design document package shall include the items listed in Section 8(b)(i) to (v) of this Schedule 13 that are applicable to such design document package. Promptly following the Approval by the Authority of the 30% Design, the Authority and the Concession Company, acting reasonably, shall agree on discrete parts of the 60% Design of the applicable Cruise Pier Improvement Project or Modification for which design document packages may be submitted separately to the Authority and the Independent Engineer for review pursuant to Section 4.5 of this Agreement. Promptly following the Approval by the Authority of the 60% Design, the Authority and the Concession Company, acting reasonably, shall agree on discrete parts of the 100% Design of the applicable Cruise Pier Improvement Project or Modification for which design document packages may be submitted separately to the Authority and the Independent Engineer for review pursuant to Section 4.5 of this Agreement.

30% Design for each Cruise Pier Improvement Project and Modification shall include the items listed in Section 8(b)(i) to (v) of this Schedule 13, which for the avoidance of doubt, are the CPIMP; Architectural Building Design Concept; Design Criteria Document; Design Documents and Specifications including Design Drawings and Calculations; and Overall Project Schedule.

(A) The 30% Design for the Initial Investment Projects, and their Approval by the Authority, are conditions precedent to Closing, as provided in Section 2.4(b)(vi) of this Agreement, and upon Approval by the Authority shall become part of this Agreement as though set forth herein and shall be attached hereto or incorporated herein as part of Appendix L.

(B) The 30% Design for the Piers 11-12 Project identified in this Schedule 13 as Piers 11-12 – Cruise Pier Building (but not the portion of the Piers 11-12 Project identified in this Schedule 13 as Piers 11-12 – Wharf or Piers 11-12 – Uplands) have been provided to and Approved by the Authority as of the Date of this Agreement, and are part of this Agreement as though set forth herein and shall be attached hereto or incorporated herein as part of Appendix L.

(C) The 30% Design for Piers 11-12 Project identified in this Schedule 13 as Piers 11-12 – Wharf and the Piers 11-12 – Uplands of the Expansion Investment Projects shall be prepared by the Concession Company, using Reasonable Efforts, for Authority Approval not later than ninety (90) days after the Date of this Agreement and, in any case, are required to be prepared by the Concession Company and Approved by the Authority in connection with the satisfaction by the Concession Company of Section 2.4(b)(vi) of this Agreement, and upon Approval by the Authority shall become part of this Agreement as though set forth herein and shall be attached hereto or incorporated herein as part of Appendix L.

(D) The 30% Design for the Phase Two Projects identified in this Schedule 13 as the Pier 13 and Pier 14 – Wharf (but not the portion of the Piers 13-14 Project identified in this Schedule 13 as the Pier 13 and Pier 14 - Cruise Pier Building or the Pier 13 and Pier14 - Uplands) shall be prepared by the Concession Company for Authority Approval no later than 270 days after the Date of this Agreement.

(E) The 30% Design for the Phase Two Projects identified in this Schedule 13 as the Pier 13 and Pier 14 - Cruise Pier Building and the Pier 13 and Pier 14 - Uplands shall be prepared by the Concession Company for Authority Approval no later than one hundred and eighty (180) days following the Phase Two Trigger Event.

(F) The 30% Design for each Modification shall be agreed by the Authority and the Concession Company in the negotiations with respect to the Modification provided in Section 5.1 of this Agreement.

(d) Close Out Submittals

(i) After requesting the Completion Inspection, the Concession Company shall prepare and submit digital files and 10 hard copies of the complete closeout packages. Not less than 7 Business Days before any Milestone Inspection and the Completion Inspection for the applicable Cruise Pier Improvement Project or Modification the Concession Company will notify the Independent Engineer and the Authority of the date for the Milestone Inspection or Completion Inspection, as the case may be, and will provide them with such documents and information as they reasonably request in connection with such Milestone Inspection or Completion Inspection. At a minimum, the following items are to be included in the Close Out Submittals package no later than sixty (60) days after the Completion Inspection for the applicable Cruise Port Improvement Project or Modification:

(A) Project record documents: AutoCAD 2019 drawings, submit hard copies and electronic format.
(B) Operating and maintenance data and instruction for all equipment and all finishes.
(C) Warranties and bonds.
(D) Spare parts and maintenance material.
(E) Evidence of undisputed payment and releases of liens, including payments to subcontractors and employees.
(F) Certification of generator test, HVAC test, elevator and escalator certificate, fire sprinkler and fire alarm system.
(G) Commissioning report.
(H) Material inventory and final color list.
(I) Temporary Certificate of Occupancy.
(J) Pollution Control Plans such as Spill Prevention, Control and Countermeasure Plans (SWPPP) and Storm Water Pollution Prevention Plans (SWPPP-Operation)

(K) Payment of all permit fees and cost

Completion Inspection will follow the procedures set forth in Sections 4.7 and 4.8 of this Agreement.

All the Authorizations and documents listed above in this paragraph (i) of Section 8(d) of this Schedule 13, shall be delivered with the Officer's Certificate to the Authority prior to the occurrence of Completion pursuant to Section 4.8(e) of this Agreement together with other Authorizations and documents required with such Officers Certificate.

(ii) The following shall be provided to the Authority within one hundred twenty (120) days following the completion of the Completion Inspection:

(A) Project record documents
(B) HVAC balancing reports
(C) Final Punch List

(iii) The following shall be provided to the Authority within one hundred and eighty (180) days following the completion of the Completion Inspection:

(A) Evidence of compliance with requirements of Governmental Authorities and construction documents
(B) Final Certificate of Occupancy
(C) Evidence of releases of Encumbrances other than Permitted Concession Company Encumbrances.

For the avoidance of doubt, the documents above to be provided to the Authority within one hundred twenty (120) and one hundred and eighty (180) days following the Completion Inspection, as set forth in paragraphs (ii) and (iii) above, shall not be considered as a required document or Authorization under Section 4.8(e) of this Agreement for the purpose of achieving Completion under this Agreement.

SECTION 9. MINIMUM PERFORMANCE STANDARDS

(a) Design-vessels categories

The Cruise Pier Improvement Projects and Modifications are defined by the following design-vessel categories:

- Category 1 (CAT 1) under 2,000 passengers and less than 900 ft. length overall (LOA)
- Category 2 (CAT 2) from 2,000 passengers to 6,000 passengers, equal to or less than 1,100 ft. length overall (LOA)
- Category 3 (CAT 3) over 6,000 passengers with 1,200 ft. length overall (LOA)

(b) Cruise Piers Usage

The table below summarizes current and future use of each Cruise Pier.

	Current Capacity		Planned Capacity		
Cruise Piers	**Use**	**Current Capacity**	**Use**	**Design Capacity**	**Design Vessel**
Pier 1 (E and W)	PoC/HP	1 HP: CAT 1 or 2 PoC: CAT 1	PoC/HP	1 HP: CAT 1or 2 PoC: CAT 1	CAT 1
Pier 3 (E and W)	PoC	1 PoC: CAT 3 and 1 PoC: CAT 1 or 2 PoC: CAT 2	PoC	1 PoC: CAT 3 and 1 PoC: CAT 1 or 2 PoC: CAT 2	CAT 3
Pier 4 (E and W)	PoC/HP	1 HP: CAT 2 or 2 PoC: CAT 2	PoC	2 PoC: CAT 2	CAT 2
Piers 11 - 12	NA	NA	HP	CAT 3	CAT 3
Piers 13 - 14	NA	NA	HP	CAT 3	CAT 3
Pan American Pier 1	HP	CAT 1	HP	CAT 1	CAT 1
Pan American Pier 2	HP	CAT 3	HP	CAT 3	CAT 3

Key
- PoC = Port of Call
- HP = Home Port
- NA = (currently) Not Available for operations

*Design vessel for Piers 13-14 may be downgraded in case the overall berthing length of Piers 11-14 is insufficient for two CAT 3 vessels.

(c) Cruise Piers Design Vessels

For design of Cruise Pier Improvement Projects and Modifications related to the Cruise Piers, the following design-vessel specifications shall be used:

- Pier 1 (E and W): Cat 1 (as is)
- Pier 3 (E and W): Cat 3 (as is)
- Pier 4 (E and W): Cat 2 (as is)
- Pan American Pier 1: Cat 1
- Pan American Pier 2: Cat 3
- Piers 11 – 12: Cat 3
- Piers 13 – 14: Cat 3 (the Design vessel for Piers 13-14 may be downgraded in case the overall berthing length of Piers 11-14 is insufficient for two CAT 3 vessels)

When Cruise Piers are to be used for Port of Call operations, the pier or wharf structure shall be designed to handle minimum passenger throughput as per the means of egress requirements included in the International Building Code ("IBC") and the 2018 Puerto Rico Building Code

standards.

The Piers 11-12 Project, the Piers 13-14 Project and any other Cruise Pier Improvement Project (excluding, for the avoidance of doubt, the Pan American Piers Wharf Structure Project) or Modification that consists of or includes a new pier/wharf structure will be designed to allow for future provisioning of shore power facilities.

The Pier 1-4 Walkway described or shown on Schedule 1 to this Agreement shall not have a fence or other barrier that separates such walkway from the public road or pathway abutting such walkway.

(d) Cruise Pier Buildings

Any new Cruise Pier Building to be constructed for the Home Port operations shall be designed with the minimum following peak-passengers throughput levels:

- CAT 1 — 500 passengers per berth per hour
- CAT 2 — 1,500 passengers per berth per hour
- CAT 3 — 2,000 passengers per berth per hour

Design and Technical Specifications of the new Cruise Pier Building to be constructed at Piers 11-12, Pier 13 and Pier 14 and any other new Cruise Pier Building shall comply with the following guidelines:

- The design should comply with all applicable zoning and land use Legal Requirements, including but not limited to the Municipality of San Juan Territorial Ordainment Plan (Plan de Ordenamiento Territorial), Municipality of San Juan's Zoning Maps, the Joint Regulation for the Evaluation and Issuance of Permits related to Development, Land Use and Business Operations of the Puerto Rico Planning Board, Regulation 9081 dated May 8, 2019, as these may be amended or superseded.
- The design shall respond to the urban, architectural and cultural condition of the Old San Juan and Puerta De Tierra area.
- The new construction should not obstruct or hinder the view from Cataño (or south of the bay) to the Old San Juan, and vice versa.
- New construction buildings at Old San Juan should be kept within the existing historic buildings height. Particularly considering the U.S. Customs building, adjacent to Pier 1.
- No metal buildings using exterior wall construction material similar to that used on the Cruise Pier Buildings on Pan American Pier 1 and 2 (steel structure is accepted)

The design of any new Cruise Pier Building that is part of any Cruise Pier Improvement Project which includes a terminal building must include the following minimum number of covered path(s) from each terminal building to the Cruise Line Vessel:

- CAT 1 — minimum one movable covered pathway

- CAT 2 minimum two movable covered pathways
- CAT 3 minimum two movable covered pathways

(e) Customer Services and Amenities

The Concession Company shall provide the following services and amenities integrated in the design of relevant Cruise Port Facility functional components:

- WiFi with a minimum download speed of 50 Mbps
- USB charging stations for cell phones
- Drink water fountains

(f) Security

- The Concession Company shall comply with the requirements set out by the USCG and the CBP.
- The Concession Company shall cause the Cruise Port Facility to be serviced by adequate law enforcement, perimeter security and firefighting, including law enforcement officers support as may be required by applicable Law.
- The Concession Company may coordinate with the Puerto Rico Police Department and other Governmental Authorities and shall to the extent reasonably required engage Contractors for private security and emergency service in order to meet its security requirements.
- The Concession Company will build its own security surveillance room. The Concession Company will ensure connectivity with the Authority's control security facilities, located within the PRPA's main office, at the Authority's request.

SECTION 10. DESIGN CRITERIA FOR DESIGN AND BUILD

An initial set of design criteria is included in Appendix K to this Schedule 13 for the design and build of the Cruise Pier Improvement Projects and any Modifications (the "Design Criteria"). The purpose of the Design Criteria is to establish standards (including aesthetic objectives) that will ensure the new and existing structures meet the quality level set by the Authority and that new codes and other Legal Requirements require, while allowing the Concession Company to make its own choices in designing and building the Cruise Pier Improvement Projects and Modifications, that those meet these requirements in the most cost-effective way.

The Concession Company will update and expand the Design Criteria as the 30% Design are developed between the Date of this Agreement and Closing, and, following Approval by the Authority, at Closing the Design Criteria in Appendix K to this Schedule 13 will be replaced by the Design Criteria Approved by the Authority that are consistent with the 30% Design.

The Concession Company shall ensure at all times that during the design and construction of the Cruise Pier Improvement Projects or Modifications (i) all Cruise Line Vessels and Other Shipping

Lines will continue to be accommodated at the Cruise Port Facility without interruption in Cruise Port Facility Operations and (ii) the Cruise Pier Improvement Projects and Modifications will limit interference to the maximum extent reasonably practicable with ongoing, normal Cruise Port Facility Operations.

It is the Concession Company's responsibility to follow, interpret and expand the Design Criteria in order to conform and comply with all Governmental Authorities having jurisdiction, updated codes of construction and other Legal Requirements. The Cruise Pier Improvement Projects and Modifications performed by the Concession Company will be subjected to evaluation by the Authority.

The Design Criteria and the Design and Technical Specifications for the Cruise Pier Improvement Projects and Modifications shall:

- Meet schedule, budget, and quality goals while projecting an image befitting San Juan as cruise leader of the region and a major tourist destination.
- Be compatible with the surrounding architectural style and context of the areas where the Cruise Port Facility is located without being obtrusive or overly ostentatious.
- Incorporate traditional, low maintenance, sustainable materials and use diversity of massing, material, texture, colour and scale to create a sequence of experiences.
- Reflect creative and innovative design and construction techniques, tempered by specific maintenance and life-cycle cost considerations.
- Function in an efficient manner, providing the appropriate levels of differentiation of space and support required for pedestrian and vehicle flows, as well as operational and security functions.
- Promote the efficient and effective implementation of access control and accountability measures for vehicles, personnel, passenger luggage, and vessel stores commensurate with the operational security requirements at each maritime security level.
- Have built-in flexibility to accommodate different types and sizes of cruise vessels, as well as future changes in organizational and departmental work processes.
- Comply with all applicable Legal Requirements.

SECTION 11. TESTING

During construction, the Concession Company shall use the testing services of an independent testing company approved by the Authority to perform tests for concrete and soil density tests. The Concession Company will employ Contractors and pay for these testing services. Failed tests shall be retested at the Concession Company's expense. All test reports shall be submitted to the Authority and Independent Engineer for review and record retention.

Special inspections, if required by the Legal Requirements, shall be performed by an independent inspection company approved by the Authority for conducting these inspections. The Concession Company will employ Contractors and pay for these inspection services. Re- inspections shall be at the Concession Company's expense. All inspection reports shall be submitted to the Authority

and Independent Engineer for review and record retention.

SECTION 12. CONSTRUCTION MANAGEMENT

In those circumstances where this Agreement provides that the Concession Company will act as a construction manager for the Authority, the Concession Company shall, in performing its functions as a construction manager for the Authority, act in accordance with Good Industry Practice in performing the function of construction manager and shall furnish efficient construction, administration, management services and supervision; furnish at all times an adequate supply of workers and materials; and perform its obligations in an expeditious and economical manner consistent with the Authority's interests and the standards set forth in this Agreement. The relationship of the Concession Company, acting as the construction manager, to the Authority shall be that of an independent contractor. Nothing contained in this Agreement shall be deemed or construed to (a) make the construction manager, the agent, servant, representative or employee of the Authority, or (b) create any partnership, joint venture, or other association between the construction manager and the Authority. Without limiting the generality of the foregoing, the Concession Company, acting as the construction manager, shall perform the following functions as construction manager:

(i) The Concession Company, acting as the construction manager, shall (A) advise the Authority on proposed site use and improvements, selection of materials, and building systems and equipment; and (B) provide recommendations consistent with the project requirements to the Authority on constructability, availability of materials and labor, time requirements for procurement, installation and construction; and factors related to construction cost including but not limited to, costs of alternative designs or materials, preliminary budgets, life cycle data, and possible cost reductions.

(ii) The Concession Company, acting as the construction manager, shall prepare and periodically update a project schedule for the Authority's acceptance.

(iii) The Concession Company, acting as the construction manager, shall provide recommendations with regard to accelerated or fast track scheduling, procurement, or phased construction.

(iv) The Concession Company, acting as the construction manager, shall prepare preliminary and periodically updated estimates of the cost of the work or the cost of program requirements using area, volume or similar conceptual estimating techniques for the Authority's approval.

(v) The Concession Company, acting as the construction manager, shall develop bidders' interest in the project.

(vi) The Concession Company, acting as the construction manager, shall prepare bid documents (including Design and Technical Specifications and a form of construction contract Approved by the Authority) obtain from qualified bidders no

less than three (3) construction price proposals for the Authority's review and acceptance and, at the request of the Authority, recommend a preferred bidder.

(vii) The Concession Company, acting as the construction manager, shall record the progress of the project. On a monthly basis, or otherwise as agreed to by the Authority, the Concession Company shall submit written progress reports to the Authority, showing percentages of completion and other information required by the Authority.

(viii) The construction price is subject to additions and deductions as provided in the construction contract and the Scheduled Completion Date shall be subject to adjustment as provided in the construction contract.

(ix) The Concession Company's fee for acting as construction manager shall be Approved by the Authority, and shall be consistent with construction management fees for similar or comparable projects and services, and in no event shall be greater than 12% of the construction price under the construction contract. In no event where Government Contributions are used to pay for the costs of any Cruise Pier Improvement Project or Modification shall the fee for acting as construction manager exceed the amount allowed by applicable Legal Requirements, including the conditions or requirements for the Government Contributions.

(x) The Concession Company, acting as construction manager, shall not amend any terms of any construction contract, including consenting to any changes in the scope of work under any construction contract, or waive any default under any construction contract, in each case without the prior written approval of the Authority.

(xi) If any non-performance by a Contractor under any construction contract constitutes a default under the construction contract, the Concession Company shall, at the request of the Authority, take all actions reasonably necessary to enforce the Authority's rights under the construction contract; provided, however, that the Concession Company shall not be obligated to exercise and enforce rights and remedies under any construction contract through arbitration or other dispute resolution provided in the construction contract, as applicable; provided, further, that the Concession Company shall provide assistance and support to the Authority as the Authority reasonably requires in order to exercise and enforce its rights and remedies under any construction contract.

SECTION 13. HOLDING FEE

As provided in Section 3.25(e) of this Agreement if the Concession Company elects to exercise the extension rights contained therein it shall, as a condition precedent for such exercise, pay the fee determined in accordance with this Section 13 of Schedule 13 to the Authority ("Holding Fee"). The Holding Fee will be determined separately for each extension option by appraisal of

the fair market value of a one-year option to purchase the land lots occupied by Piers 11-12, subject to the following terms and conditions:

1. The amount of the Holding Fee shall be determined by a fair market value appraisal (the "Holding Fee Appraisal") by any of the following appraisers selected by the Parties by mutual agreement: (A) McKloskey & Bonin Valuation Group, P.S.C./Vallejo & Vallejo; (B) Pedro A. Pons, P.S.C.; (C) ODV Appraisal Group P.S.C.; and (D) any other independent third party appraiser. Any appraiser designated or selected in accordance with this subsection 1 must have an MAI designation, be duly licensed in the Commonwealth and meet the requirements of FIRREA.

2. The Holding Fee Appraisal shall be prepared in accordance with the requirements of FIRREA and shall consist of the fair market value of a one-year option to purchase the land lots occupied by Piers 11-12 using a comparison approach coupled with a highest and best use analysis, and discounted to take into account the temporary nature of the extended Term granted to the Concession Company with respect to Piers 11-12 if the Concession Company elects to exercise its extension right pursuant to Section 3.25(e) of this Agreement as opposed to acquiring fee simple title thereto.
3. Not later than ninety (90) days before each date on which the Concession Company may exercise the extension right set forth in Section 3.25(e) of this Agreement, the Parties shall engage the appraiser selected in accordance with subsection 1 of this Section 13 (the "First Appraiser"). The Holding Fee Appraisal shall be rendered by the First Appraiser no later than 60 days prior to the date the Concession Company may exercise the extension right set forth in Section 3.25(e) of this Agreement, and shall be final and binding on the Parties, unless either Party objects to such Holding Fee Appraisal by written notice to the other Party within ten (10) days from the date the objecting Party receives such Holding Fee Appraisal, in which case the Parties shall negotiate in good faith to agree a Holding Fee. If an objection is raised and the Parties cannot agree the amount of the Holding Fee within ten (10) days of such objection, the objecting Party may require a second Holding Fee Appraisal, in which case the Parties shall by mutual agreement, within a further five (5) days, appoint another appraiser in accordance with subsection 1 of this Section 13 to conduct a second Holding Fee Appraisal. If the objecting Party does not require a second Holding Fee Appraisal (and the Parties are unable to agree the amount of the Holding Fee through the aforementioned good faith negotiations), the Holding Fee determined by the First Appraiser shall be the final and binding Holding Fee to be paid by the Concession Company to the Authority if the Concession Company elects to exercise its extension right pursuant to Section 3.25(e) of this Agreement. If a second Holding Fee Appraisal is conducted, then once the second Holding Fee Appraisal is rendered (to be not less than ten (10) days prior to the date the Concession Company may exercise the extension right set forth in Section 3.25(e) of this Agreement), the amounts of the first and second Holding Fee Appraisals shall be added together and their total divided by 2; the resulting amount shall be the final and binding Holding Fee to be paid by the Concession Company to the Authority if the Concession Company elects to exercise its extension right pursuant to Section 3.25(e) of this Agreement.

4. The cost of the first Holding Fee Appraisal shall be paid by the Concession Company and the cost of the second Holding Fee Appraisal, if applicable, shall be paid by the objecting Party referred to in subsection 3 of this Section 13.

APPENDIX A: AVAILABLE GUIDANCE AND STANDARDS

The following is a list of standards and guidance which constitute a part of the Legal Requirements and with which the Concession Company must comply at a minimum, as applicable. This list is not intended to be all-inclusive. The Concession Company will be responsible for identifying and meeting all applicable Legal Requirements, guidance and standards.

SCHEDULE 13 CRUISE PORT FACILITY - D&B GUIDANCE DOCUMENTS		
#	**Number**	**Title**
General Reference: Local Guidance and Regulations		
1.	Act No. 42-2018	as amended, known as the "Local Construction Contractors and Suppliers Preference Act"
2.	Act 70 of September 18, 1999	as amended (titled "Act for the Reduction of Solid Wastes in Puerto Rico")
3.	Act No. 109 of July 12, 1985	as amended, known as the "Construction Materials Manufactured in Puerto Rico Act"
4.	Act 161-2009	as amended, known as the Act for the Reform of the Permits Process
5.	Act No 173 of August 12, 1988	as amended, known as the "Board of Examiners of Engineers, Architects, Surveyors and Landscape Architects Act of Puerto Rico"
6.	Act 241 of August 15, 1999	as amended (titled "New Wildlife Act of Puerto Rico")
7.	Act 267 of September 11, 1998	To create the Center for the Coordination of Excavation and Demolitions
8.	Public Law No. 107–295)(46 U.S. Code Chapter 701)	Maritime Transportation Security Act of 2002
9.	Planning Board Regulation No. 13	Special Flood Hazard Areas Regulation, 2010
10	Regulation 9081or Regulation 7951 (whichever is in effect)	Puerto Rico Planning Board's ("PRPB") Joint Regulation for the Evaluation and Issuance of Permits Related to Development, Land Use and Business Operations or Joint Regulation for Permits for Construction Works and Land Use, dated November 29, 2010, as may be in effect. (All applicable provisions of this regulation should be met, including but not limited to the tree cutting, pruning and reforestation requirements and requirements for development of or in historical buildings and zones, among others.)
11	Regulation 5300	EQB's (now DNER) Regulation for the Control of Atmospheric Pollution, as amended

SCHEDULE 13 CRUISE PORT FACILITY - D&B GUIDANCE DOCUMENTS		
#	Number	Title
12	Regulation 5717	EQB's (now DNER) Non-Hazardous Solid Waste Management Regulation, as amended
13	Regulation 6765	DNER Regulation Governing the Conservation and Management of Wildlife, Exotic Species and Hunting, as amended
14	Regulation 6825	DNER's and Puerto Rico Solid Waste Authority's ("SWA") Regulation for the Reduction, Reuse and Recycling of Solid Wastes in Puerto Rico, as amended
15	Regulation 7245	Puerto Rico Public Service Commission's ("PSC") Regulation for the Creation and Functioning of the Center for Coordination of Excavations and Demolitions, as amended
16	Regulation Number 7364	Puerto Rico Fire Department's Puerto Rico Code for Human Safety and Protection against Fires, as amended
17	Regulation Number 8732	EQB's (now DNER) Puerto Rico Water Quality Standards Regulation, as amended
18	Regulation 8695	OGPe's , Planning Regulation No. 34, "Reglamento de Lotificación y Urbanización" dated February 26, 2016, if in effect.
19	Regulation 9035	EQB's (now DNER) Underground Storage Tank Control Regulation, as amended
20		Plan de Ordenación Territorial del Municipio de San Juan", March 13, 2003
21		Puerto Rico Building Code 2018
22		Rules and Regulations for the Design Standards Puerto Rico Aqueducts and Sewer Authority (PRASA), 1984
23		Codes of the Puerto Rico Electric and Power Authority (PREPA)
Additional Reference Documents		
24	World Association for Waterborne Transport Infrastructure (PIANC) Report no 33: Guidelines for the Design of Fender Systems (2002-2004), MarCom WG 33 dated 22 November 2002	
25	World Association for Waterborne Transport Infrastructure (PIANC) Report no 152: Guidelines for Cruise Terminals (2016), MarCom WG 152 dated 8 July 2016	
26	World Association for Waterborne Transport Infrastructure (PIANC) Report no 158: Masterplans for the Development of Existing Ports (2014), MarCom WG 158 dated 8 September 2014	
27	LEED - Leadership in Energy and Environmental Design	

SCHEDULE 13 CRUISE PORT FACILITY - D&B GUIDANCE DOCUMENTS		
#	Number	Title
Federal Regulations and Orders		
28	29 CFR Part 1917 OSHA Labor on Marine Terminals	
29	46 CFR 44.01-13, Heavy weather plan and USCG Sector San Juan Heavy Weather Plan	
30	19 CFR Chapter I, Custom and Border Patrol	
31	14 CFR Part 77.9 FAA- Notice of Proposed Construction or Alteration	
32	15 CFR Part 390, Coastal Zone Management Act of 1972, Section 307, as amended, 16 U.S.C. §1456	
33	23 CFR Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise	
34	29 CFR Part 1926 (Originally CFR Part 1518) Safety and Health Regulations for Construction of the Williams Steiger Occupational Safety and Health Act of 1970 (Federal, OSHA)	
35	29 Code of Federal Regulations (CFR) Parts 1910	
36	29 CFR Part 1926, Construction Safety and Health Regulations	
37	29 CFR 1926.62, Lead Exposure in Construction	
38	33 CFR Part 6 Protection of Security of Vessels, Harbors and Waterfront Facilities	
39	33 CFR Part 101 is a regulation that generally establishes the rules for all maritime operations. (USCG Area Maritime Security Committee, Ships, Facilities, etc.)	
40	33 CFR Part 105 [Maritime Security: Facilities] (establishes the standards, specifically concerning safety at maritime facilities. It establishes that it is necessary to designate areas and procedures for the inspection of: people (facility staff, passengers, crew and visitors), the different types of luggage, vehicles, delivery trucks for supplies (stores), cargo, etc)	
41	33 CFR Part 126, Handling of Dangerous Cargo at Waterfront Facilities	
42	33 CFR Part 320, Rivers and Harbors Act of 1899, Section 10, as amended, 33 U.S.C. §403	
43	Clean Water Act, Section 401, as amended, 33 U.S.C. §1342 National Pollutant Discharge Elimination System	
44	33 CFR Part 323, Clean Water Act, Section 404, as amended, 33 U.S.C. §1344	
45	33 CFR Part 324, Marine Protection, Research and Sanctuaries Act of 1972, Section 103, as amended, 33 U.S.C. §1413	
46	33 CFR §165.758 Security Zone; San Juan, Puerto Rico	
47	36 CFR Part 800, NHPA of 1966, Section 106, as amended	
48	40 CFR Part 61 Subpart M, National Emission Standards for Hazardous Air Pollutants for Asbestos	
49	40 CFR Part 122 Clean Water Act, Section 402, 33 U.S.C. §1342	
50	40 CFR Part 280, Technical Standards and Corrective Action Requirements for Owners and	

SCHEDULE 13 CRUISE PORT FACILITY - D&B GUIDANCE DOCUMENTS		
#	Number	Title
	Operators of Underground Storage Tanks (USTs)	
51	40 CFR 763 Asbestos	
52	40 CFR Part 1500 to 1508 National Environmental Policy Act of 1969, as amended, 42 U.S.C. §§ 4321 et seq	
53	41 USC secs. 8301-8305, Buy American Act, as applied according to the Federal Acquisition Regulations in their version applicable at the date the PPPA is signed.	
54	42 USC Section 112, Clean Air Act National on Emission Standards for Hazardous Air Pollutants (NESHAP)	
55	49 US.C Section 44718 Structures interfering with air commerce or national security	
56	50 CFR Part 402, ESA, Section 7, as amended, 16 U.S.C. §1536	
57	50 CFR Part 600, Magnuson-Stevens Act, Section 305, as amended, 16 U.S.C. §1855	
58	Americans with Disabilities Act of 1990	
59	Comprehensive Environmental Response and Compensation and Liability Act (42 US.C. '9601 et seq.)	
60	Council of Environmental Quality regulations on compliance with the National Environmental Policy Act of 1969, as amended	
61	Emergency Planning and Community Right-to-Know Act (42 U.S.C. §11001 et seq.)	
62	Executive Order No. 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," 59 Fed. Reg. 7629, Feb. 16, 1994	
63	Federal Insecticide Fungicide and Rodenticide Act (7 U.S.C. Sec 136, et seq.)	
64	Occupational Safety and Health Act of 1970 (29 U.S.C § 651 et seq.)	
65	OSHA's lead-in-construction rule, (29 CFR 1926.62)	
66	National Fire Protection Administration Code for Passenger Terminal	
67	National Electrical Code (NFPA 70)	
68	Resource Conservation and Recovery Act of 1976 (42 US.C. § 6901 et seq.)	
69	Safe Drinking Water Act (42 U.S.C §300f)	
70	Toxic Substances Control Act of 1976 (15 U.S C. § 2601 et seq.) 8261	
71	US. DOT regulations, "Environmental Impact and Related Procedures," 23 C.F.R. Part 771 and 49 C.F.R. Part 622	
72	US. DOT statutory requirements on environmental matters at 49 U.S.C § 5324(b)	
73	U.S. EPA regulations, Conformity to State or Federal Implementation Plans of Transportation Plans, Programs, and Projects Developed, Funded or Approved Under Title 23 US.0	
74	Worker's Compensation Act	

SCHEDULE 13 CRUISE PORT FACILITY - D&B GUIDANCE DOCUMENTS		
#	Number	Title
75	Asbestos Hazard Emergence Response Act, 15 US.C. §82641	

Note: Several of the guidance and standard documents contained on this list are applicable to the operation and maintenance (O&M) phase of the project and are included in Schedule 12 to this Agreement.

APPENDIX B: SCHEDULED COMPLETION DATES AND MILESTONES OF INITIAL INVESTMENT PROJECTS AND EXPANSION INVESTMENT PROJECTS

The Concession Company shall maintain a project schedule for each Cruise Pier Improvement Project in the critical path method (CPM), including monthly progress reports and schedule updates. The schedule shall identify project milestones incorporated into the base line schedule.

The Concession Company will be required to conduct weekly progress meetings with the Authority addressing progress to date, critical path activities and problems that require immediate action.

Since the Cruise Pier Improvement Projects are located on an active marine terminal, the Concession Company shall coordinate construction with existing operations to minimize disruptions or down time to adjacent passenger and cargo operations. The Concession Company shall identify on the construction schedule each factor which constitutes a potential interruption to operations.

The completion dates and milestones set forth in Section 7 of this Schedule 13 shall be incorporated into the base line schedule.

The dates for the Milestone Inspections for the Initial Investment Projects will be agreed by the Concession Company and the Authority in connection with the approval by the Authority prior to closing of the Construction Contract for such Cruise Pier Improvement Projects. With respect to the Expansion Investment Projects, the dates for the Milestone Inspection shall be agreed with the Concession Company and Authority no later than one hundred and eighty (180) days (as may be adjusted pursuant to Section 3.25 (g) of this Agreement) following the occurrence of the Expansion Investment Projects Trigger Event (except that if the Piers 11-12 Wharf Project is implemented using Government Contributions then the Milestone Inspections will be agreed during the process of negotiating the construction contract for the Piers 11-12 Wharf Project). With respect to the Phase Two Projects, Additional Cruise Port Facilities and any Modifications, the dates for Milestone Inspections will be agreed by the Concession Company and the Authority in connection with the development of the applicable 30% Design and Technical Specifications.

APPENDIX C: EXPANSION INVESTMENT PROJECTS TRIGGER EVENT, PHASE TWO TRIGGER EVENT AND MAXIMUM CRUISE PORT CAPACITY

For purposes of this Agreement, the following terms have the following meanings:

"Expansion Investment Projects Trigger Event" means (i) the date during the period starting from the Closing Date when the cumulative Passenger Movements, as defined in Schedule 15, for the prior twelve (12) month period is equal to or greater than 1,800,000 and (ii) the date during the period starting from the Closing Date when the cumulative Passenger Movements, as defined in Schedule 15, for the prior twelve (12) month period is equal to or greater than 2,000,000. For the purposes of this definition, Passenger Movements regarding passengers embarking and disembarking at the Cruise Port Facility for any trip which begins and ends at the Cruise Port Facility (that is, a "round-trip") shall be counted only once (for the disembarkation Passenger Movement only). The Concession Company shall on the first anniversary of the Closing Date and on each month thereafter (each, a "Expansion Investment Projects Trigger Event Date") determine the number of Passenger Movements for the preceding twelve (12) months period at the Cruise Port Facility (each such calculation being a "Expansion Investment Projects Demand Threshold Calculation"). If on one Expansion Investment Projects Demand Threshold Calculation the Passenger Movements are (i) equal or greater than 1,800,000 or equal to or greater than 2,000,000 then, in each case, the Expansion Investment Projects Trigger Event shall have occurred. The Expansion Investment Projects Demand Threshold Calculation shall be based upon the Passenger Manifest for Cruise Line Vessels and Other Shipping Lines berthing at the Cruise Port Facility during the applicable twelve-month period before each Expansion Investment Projects Demand Threshold Calculation. As provided in Schedule 15 of this Agreement, the Concession Company shall provide the Authority each Passenger Manifest for each Cruise Line Vessel and Other Shipping Line immediately upon the arrival of each Cruise Line Vessel and Other Shipping Line at the Cruise Port Facility. The Concession Company shall provide the Authority with such additional information as the Authority reasonably requests and, at the request of the Authority, shall meet with the Authority to discuss each Expansion Investment Projects Demand Threshold Calculation. The Expansion Investment Projects Trigger Event shall with respect to the Expansion Investment Projects be applied in conjunction of the provisions of Section 3.25 of this Agreement. For the avoidance of doubt, the Expansion Investment Projects Trigger Event consists of cumulative Passenger Movements equal to or greater than 1,800,000 or equal to or greater than 2,000,000 and, accordingly, reaching either of those numbers will constitute the occurrence of the Expansion Investment Projects Trigger Event.

"Phase Two Trigger Event" means the earlier of (i) the twelfth anniversary of the Closing Date or (ii) the occurrence of two (2) consecutive Phase Two Demand Threshold Calculations where the number of Cruise Calls over six (6) months cumulatively is equal to or greater than 725. For the purposes of this definition, a "Cruise Call" is each use within one calendar day of the Cruise Port Facility by each Cruise Line Vessel or Other Shipping Line , and, for the avoidance of doubt, for any trip which begins and ends at the Cruise Port Facility (that is, a "round-trip") the use of the Cruise Port Facility at the start and the end of the round trip shall each count separately as a Cruise Call. The Concession Company shall on May 1st which follows the second anniversary of the

Closing Date and on each May 1st thereafter (each, a "Phase Two Calculation Date") determine the number of Cruise Calls for the preceding six (6) months period (beginning of November until end of April) (each such calculation being a "Phase Two Demand Threshold Calculation"). If on two consecutive Phase Two Calculation Dates the Phase Two Demand Threshold Calculation is equal or greater than 725 Cruise Calls then the Phase Two Trigger Event described in clause (ii) above shall have occurred. The Phase Two Demand Threshold Calculation shall be based upon the Passenger Manifest for Cruise Line Vessels and other Shipping Lines berthing at the Cruise Port Facility during the applicable six-month period before each Phase Two Calculation Date. As provided in Schedule 15 of this Agreement, the Concession Company shall provide the Authority each Passenger Manifest for each Cruise Line Vessel and Other Shipping Line immediately upon the arrival of each Cruise Line Vessel and Other Shipping Line at the Cruise Port Facility. The Concession Company shall provide the Authority with such additional information as the Authority reasonably requests and, at the request of the Authority, shall meet with the Authority to discuss each Phase Two Demand Threshold Calculation. The Phase Two Trigger Event shall with respect to the Phase Two Projects be applied in conjunction of the provisions of Section 3.24 of this Agreement.

"Maximum Cruise Port Capacity" means

(a) before the Completion of the Expansion Investment Projects, the occurrence of the 2,000,000 Passenger Movements Expansion Investment Projects Trigger Event, and
(b) after the Completion of the Expansion Investment Projects and before the Completion of the Phase Two Projects, the occurrence of the demand trigger part of the Phase Two Trigger Event set forth in clause (ii) of the definition of Phase Two Trigger Event, and
(c) after Completion of the Phase Two Projects, the Concession Company shall on the May 1st immediately following the Completion of the Phase Two Projects and on May 1st of each year thereafter (each, a "Calculation Date") determine the number of Cruise Calls for the preceding six (6) month period (beginning of November until end of April) by Cruise Line Vessels or Other Shipping Lines at the Cruise Port Facility (each such calculation being a "Demand Threshold Calculation"). The occurrence of two (2) consecutive Calculation Dates for which the Demand Threshold Calculations show Cruise Calls by Cruise Line Vessels or Other Shipping Lines using the Cruise Port Facility which are equal to or greater than 820 during the six-month period from November through April preceding each such Demand Threshold Calculation shall constitute the Maximum Cruise Port Capacity for this clause (c).

APPENDIX D: RETURN CONDITION WORKS PROGRAM

No later than the first anniversary of the Closing Date, the Concession Company shall prepare and deliver to the Authority a plan in reasonable detail to be implemented upon the expiration of the Term (as part of the Return Condition Works Program) or the earlier termination of this Agreement. The Concession Company plan shall include all major transition activities to be performed and the anticipated schedule for each such activities, the key transition team leaders and contact information, plan for the transfer of contracts or cancellation thereof and related records (which contracts shall be assumed or cancelled by the Authority in its absolute discretion without cost or penalty to the Authority and the contracts shall provide so), plan for transition of ongoing capital projects and maintenance activities, plan for public outreach and coordination with government entities with respect to the operation and management of the Cruise Port Facility, plan for completing inventory of assets to be handed back, and all other activities typically included in a handback plan pursuant to best practices. Such plan shall be updated by the Concession Company every three (3) years during the Term so that it contains current information as of each such date, and each such updated plan shall be promptly provided to the Authority. The initial plan and each updated plan shall be Approved by the Authority.

APPENDIX E: GENERAL LIST OF AUTHORIZATIONS AND RELATED GOVERNMENTAL AUTHORITY REQUIREMENTS

The following is a list of Authorizations and related Governmental Authority requirements with which the Concession Company must comply at a minimum, as applicable, each of which is a part of the Legal Requirements. This list is not intended to be all-inclusive. Except as otherwise specifically provided in Schedule 17, the Concession Company will be responsible for identifying, securing and complying with all applicable Authorizations and meeting all related Governmental Authority requirements.

PRE-CONSTRUCTION / ZONING	
	Pre-Consulta de Edificabilidad / Buildable Pre-Consultation
	Consulta de Construction / Construction Consultation
	Environmental Document – Environmental Assessment (EA) for Environmental Recommendation and Determination (REA and DEA) – Compliance with Article 4 (B)3 of the Puerto Rico Public Environmental Policy Act (Law #413)
	SRI – Infrastructure (PREPA, PRASA, PRTB, DNER, PRHTA/DTOP) Recommendations
	SRS – Fire Department & Department of Health Recommendations
	SRM- Environmental Recommendations
	SRA- Archaelogical and Historical Resources Recommendations
	Habitat Certification
	USACE Nationwide or Section 404 Single Permit (and related agency consultations)
	PRPB Federal Coastal Zone Consistency Certification (through JPA)
	Water Quality Certificate (through JPA)
	Strategic Project status, or Municipality Endorsement
CONSTRUCTION	
	Construction Permits
	Demolition Permit
	Single Incidental Operational Permit (Permiso Unico Incidental Operacional (PUI)) or Consolidated General Permit, Incidental Activity Permit, and Authorization to Cut, Prune, Transplant and Plant Trees, depending on regulation in effect
	Compliance with EPA 2017 CGP-NPDES Program
	DTOP / Municipality Road Construction Permit
	Management of Traffic Plan / Access Control Office Endorsement
	Recycling Plan for Construction
	• Asbestos and Lead Mitigation Plan
	Underground Injection Permit for Septic Tanks (UIC)

	Underground Storage Tank (UST) Construction Permit
OPERATIONS	
	Single Permit (or Occupancy Permit, Fire Department Certification and Health Department Sanitary License, depending on the regulation in effect)
	Emergency Generator General Permit
	UIC Operation Permit
	UST Operation Permit
	Spill Prevention Control and Countermeasure Plan
	Compliance with EPA 2015 MSGP-NPDES Program
	Emergency and Contigency Plans
	USCG Endorsements/ Permits

APPENDIX F: GUIDELINES FOR INTEGRATING CRUISE PORT FACILITY WITH SAN JUAN

1. GENERAL

The Port Master Plan and the development and execution of a construction plan shall respond to the opportunities and challenges of the Cruise Port Facilities location at Old San Juan as a historical and tourism landmark as well as the commercial activity and residential growth characteristic of the "Puerta de Tierra" and the Puerto Rico Convention Center District areas.

The Port Master Plan and construction plan should address:

1.1 Issues related to the pedestrian and vehicular circulation, vessels embarking and disembarking, vehicular traffic and security constraints involving the tourist charter vehicles, taxis, shuttle buses and public or private transportation during construction and operation of the Cruise Port Facilities.

1.2 Enhancement of the relation of the waterfront, piers and terminals to the direct urban context and other Authority's properties.

1.3 Implementation of adequate signage and mapping (wayfinding) for visitors in the disembarking areas which effectively inform visitors of, and promotes the relation of the terminals with local touristic, cultural and commercial offerings of the businesses in Old San Juan and all other areas surrounding the Cruise Terminals, including Condado, Puerta de Tierra, Cataño, the Convention Center District and Miramar.

1.4 Management of traffic and circulation of vehicles, shuttles, taxis, etc., and improvement to connectivity with the public transportation system and potential integration of a multimodal system. Identify staging areas for these purposes.

1.5 Incorporation of other activities (commercial, recreational, cultural, etc.), amenities related to the visitors/passenger experience and services.

1.6 Additional benefits to the development, growth, maintenance and sustainability of San Juan Bay cruise terminals and piers.

1.7 Plan for the collaboration and integration of local businesses (culinary, cultural, retail, etc.) for services and touristic offerings at the Cruise Port Facility for the cruise lines, shipping agents and passengers. This plan shall be developed by the Concession Company after the Date of this Agreement for the Approval of the Authority before the Closing Date. After Closing, this plan shall be updated from time to time taking into account the feedback from the Steering Committee and stakeholder working groups to be established as provided in Schedule 15.

2. GUIDELINES FOR THE DEVELOPMENT OF PIERS 11 – 14 UPLANDS

Project design and architecture shall be consistent with the Bahia Urbana architectural guidelines provided to the Concession Company and which were originally contained in the Data Room for the procurement of the Concession Company, in order to ensure cohesive aesthetics and integration of key elements of the wider master plan for the area.

2.1 The Concession Company shall follow the "Guidelines for the Development of Piers 11-14 Uplands" – June 20, 2019, included as *Attachment 1* to this Appendix F to the extent compatible with the 30% Design for the Piers 11-12 Project identified in this Schedule 13 as Piers 11-12 – Cruise Pier Building (but not the portion of the Piers 11-12 Project identified in this Schedule 13 as Piers 11-12 – Wharf or Piers 11-12 – Uplands) as Approved by the Authority prior to the Date of this Agreement.

3. PROPOSAL

3.1 The Concession Company shall follow the holistic approach illustrated in the '*Port Master Plan*' and '*Presentation of the new Homeport Terminal At Piers 11-12*' , included as *Attachment 2* to this Appendix F.

ATTACHMENTS 1 – 2 TO APPENDIX F

(Attachment 1 – Guidelines for the Development of Piers 11-14 Uplands contains 17 pages & Attachment 2 - Port Master Plan and Presentation of the new Homeport Terminal at Piers 11-12 contains 44 pages)

Execution Version

Attachment 1 to Appendix F

Guidelines for the Development of Piers 11 – 14 Uplands

December 2020

GUIDELINES FOR THE DEVELOPMENT OF PIERS 11 – 14 UPLANDS

The Concession Company has developed a high-level Port Master Plan, as further described in this Schedule 13, including Attachment 2 to this Appendix F. This high level Port Master Plan generally meets the minimum required parameters as included below and will be used as a basis for the development of the CPIMP for the Initial Investment Projects prior to Closing and for the Expansion Investment Projects and the Phase Two Projects prior to implementation. The Port Master Plan/CPIMP, including each update of it, shall ensure that it: (1) strengthens the connection of the waterfront, piers and terminals with the urban context (Old San Juan, Puerta de Tierra, and Convention Center District / other Authority's properties "Surrounding Communities"), (2) promotes the incorporation of other activities, services and amenities in the Surrounding Communities (commercial, recreational, cultural, etc.) for the passengers/visitors to have a comprehensive "Puerto Rico Experience"; (3) provides for additional benefits in the development, growth, maintenance and sustainability of San Juan Bay cruise terminals and piers and, (4) facilitates easy and safe access of passengers/visitors to the surrounding communities with pedestrian and vehicle circulation connecting the new piers and terminals to the East towards the Bahía Urbana development and to the West towards Old San Juan.

The Puerto Rico Convention Center District Authority (PRCCDA) has provided the Authority with the Bahía Urbana urban design guidelines (See attachment Bahía Urbana Urban Design Guidelines – June 17, 2019). These shall be considered in the development of the required Port Master Plan. The goal is to promote a coordinated design and development of these projects and future initiatives in a way that they integrate aesthetically with the context and visitors and residents can maximize their interaction, use and enjoyment of the facilities.

1. MINIMUM REQUIRED PARAMETERS

1.1. Fernández Juncos Avenue shall be enhanced for pedestrian circulation providing for a continuous linear path "Paseo" between Old San Juan, Puerta de Tierra and Bahía Urbana. Proponent must follow the typical street section provided in Bahía Urbana Urban Design Guidelines, for the Fernández Juncos Avenue.

1.2. Create public spaces adjacent to the waterfront. These public spaces shall be located at the west side of pier 11, aligned with San Andrés street extension and at the east side of pier 14, aligned with Martin Fernández street extension.

1.3. Any proposed street network shall follow the existing Puerta de Tierra street network. Refer to the Typical Street Sections described in the Bahía Urbana Urban Design Guidelines, for each street type design, dimensions and character.

1.4. To the extent possible, provide pedestrian-public access to all site areas. Even if the site security perimeter does not allow access to visitors, it shall allow the visibility of the cruise terminal building, facilities and surrounding areas.

1.5. If any building is to be developed facing the Fernández Juncos Avenue, it shall respond to the urban context (scale, height, etc.) and incorporate the use of arcades at the street level to provide for a covered pedestrian pathway. Refer to Bahía Urbana Urban Design Guidelines.

1.6. Building use must be compatible with the existing zoning. Commercial activity shall be located facing a public street and access.

1.7. Design shall consider the potential impacts of sea level rise and extreme weather events.

END OF DOCUMENT

Exhibit

BAHIA URBANA
URBAN DESIGN GUIDELINES

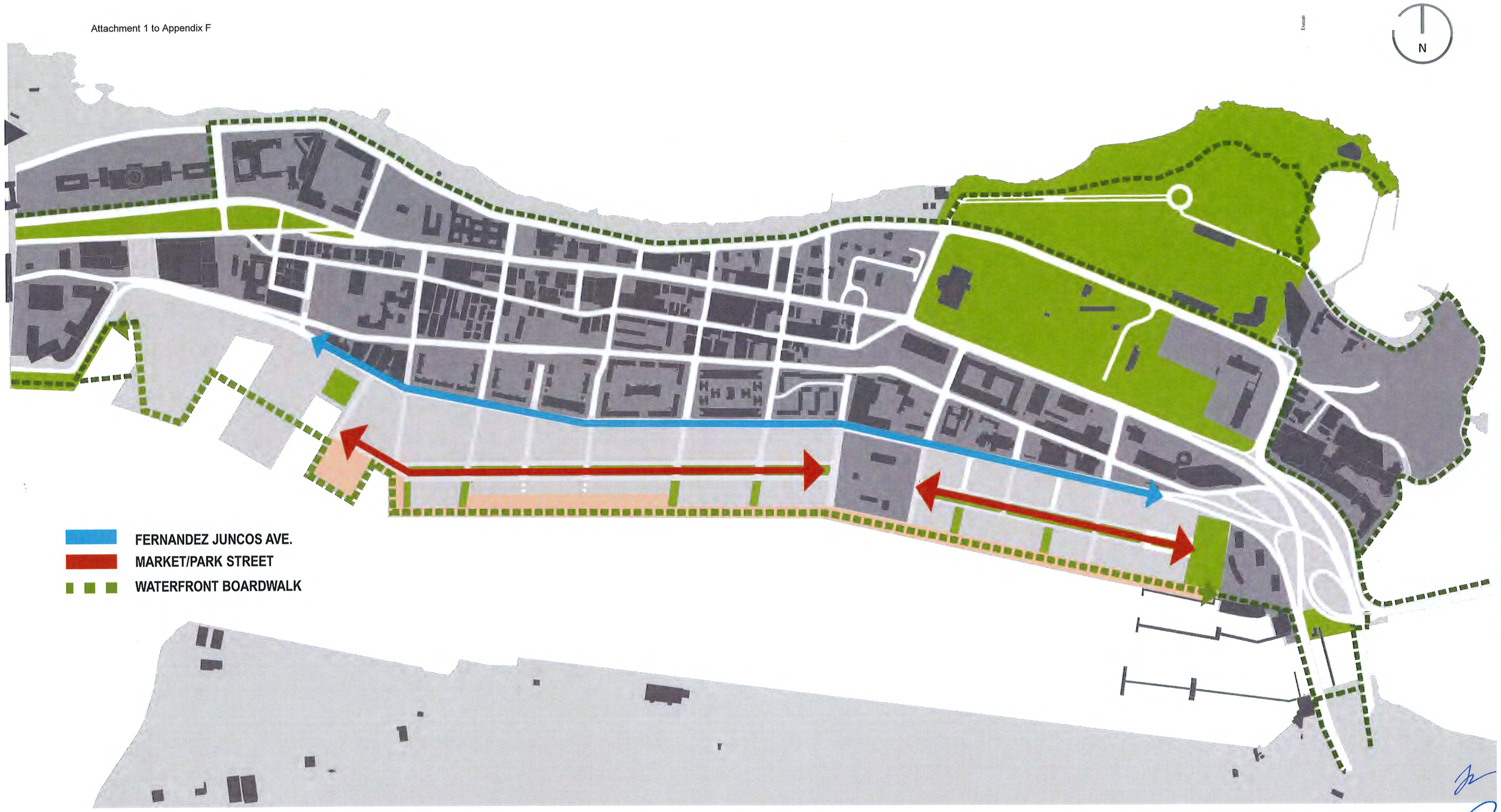
JUNE 17, 2019

PRCCDA
San Juan, PR

Master Plan

BAHIA URBANA | URBAN DESIGN GUIDELINES

G001



Master Plan | East-West Connections

BAHIA URBANA | URBAN DESIGN GUIDELINES

G002

Master Plan | North-South Connections

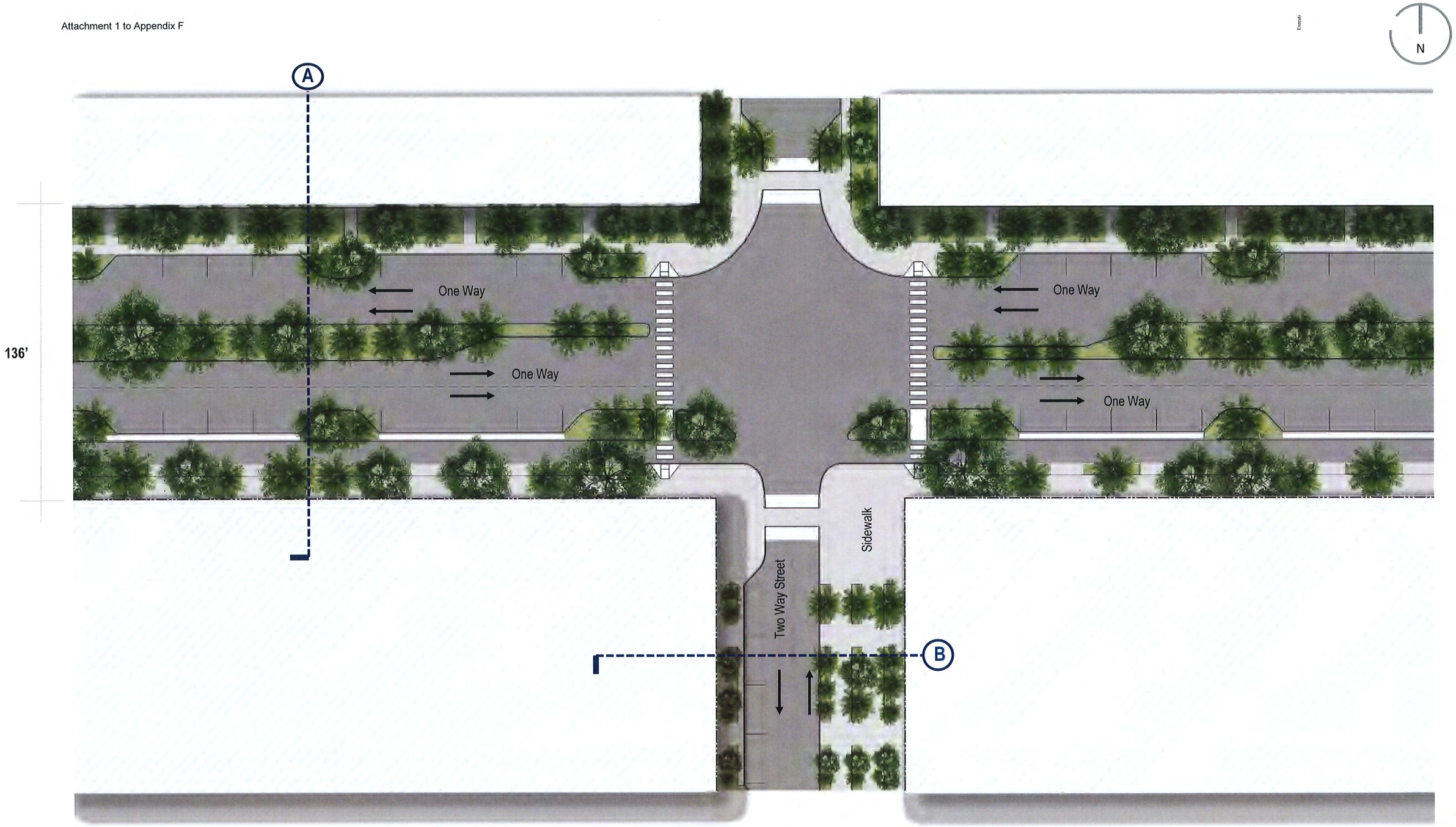
BAHIA URBANA | URBAN DESIGN GUIDELINES

G002

Master Plan | Typical Sections

BAHIA URBANA | URBAN DESIGN GUIDELINES

G003



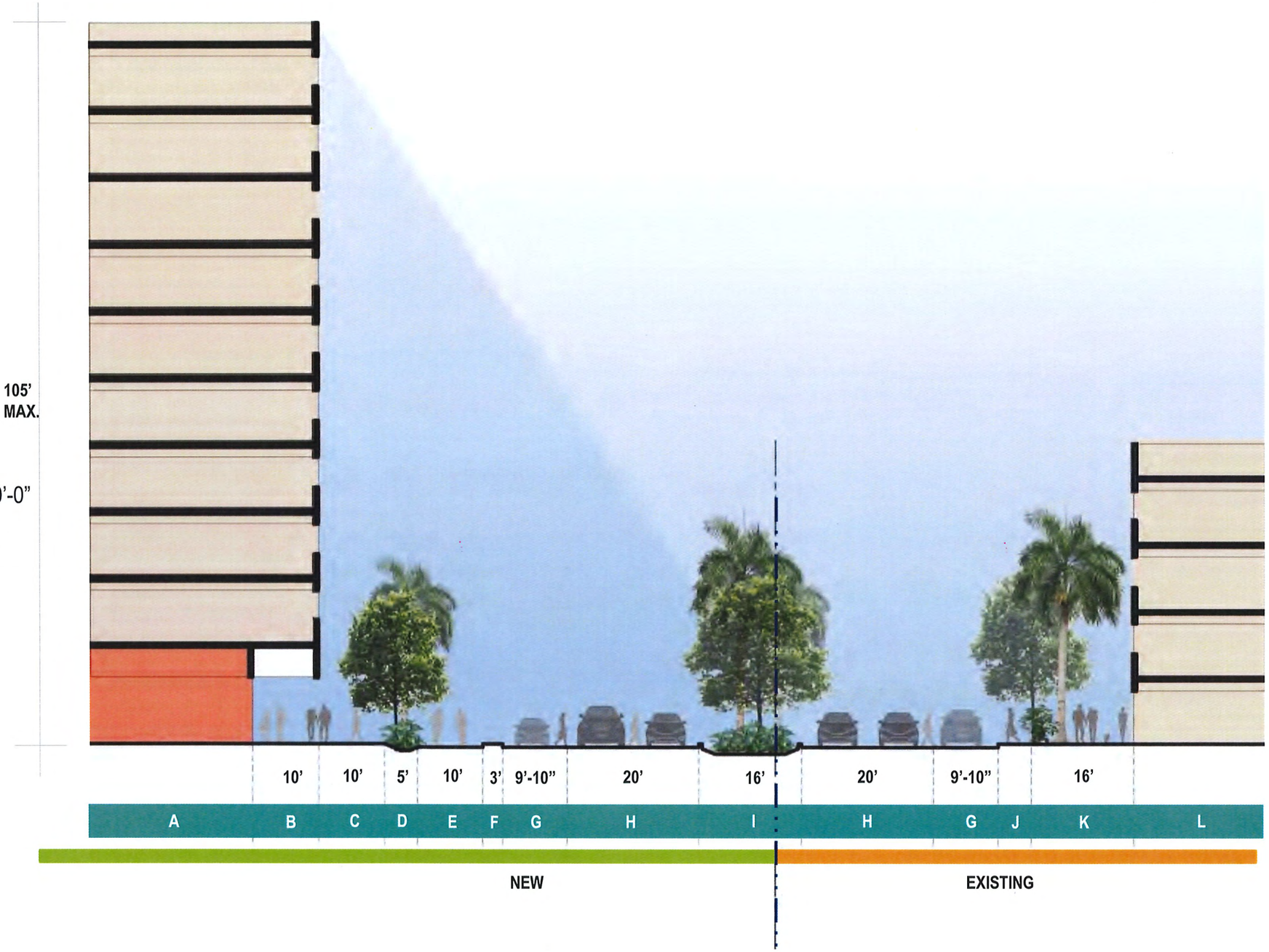
Conceptual Plan | Fernandez Juncos Ave.

BAHIA URBANA | URBAN DESIGN GUIDELINES

A001

LEGEND

- **A** New Building
- **B** Gallery | 10'-0"
- **C** Sidewalk | 10'-0"
- **D** Planting Area (Bioswale) | 5'-0"
- **E** Two-Way Bike Lane | 10'-0"
- **F** Buffer | 3'-0"
- **G** Parallel Parking | 9'-10"
- **H** Double Lane One-Way Street | 20'-0"
- **I** Planting Area (Bioswale) | 16'-0"
- **J** Existing Sidewalk
- **K** Existing Planting Area
- **L** Existing Buildings



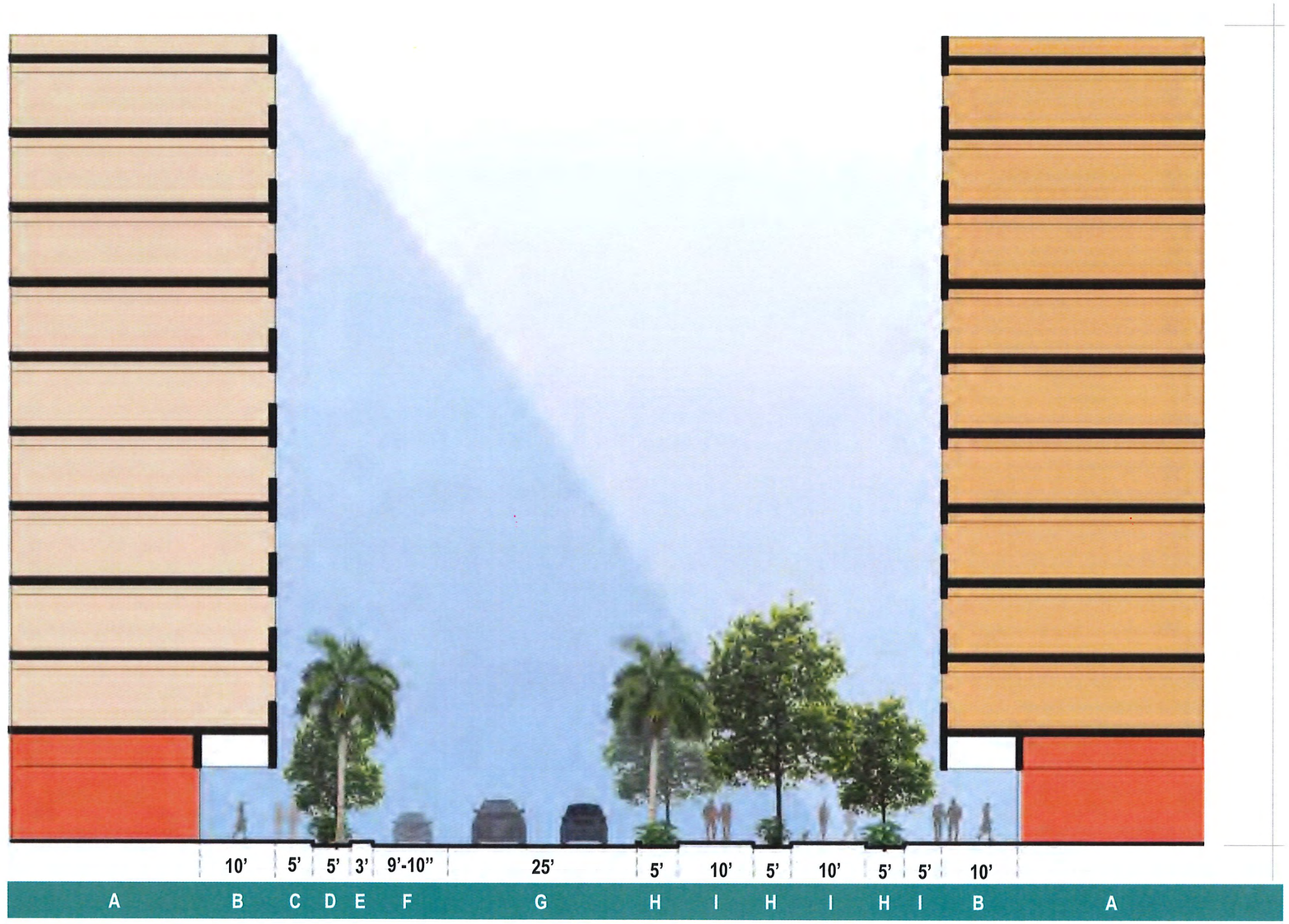
Fernández Juncos Ave. | Section A

BAHIA URBANA | URBAN DESIGN GUIDELINES

S001

LEGEND

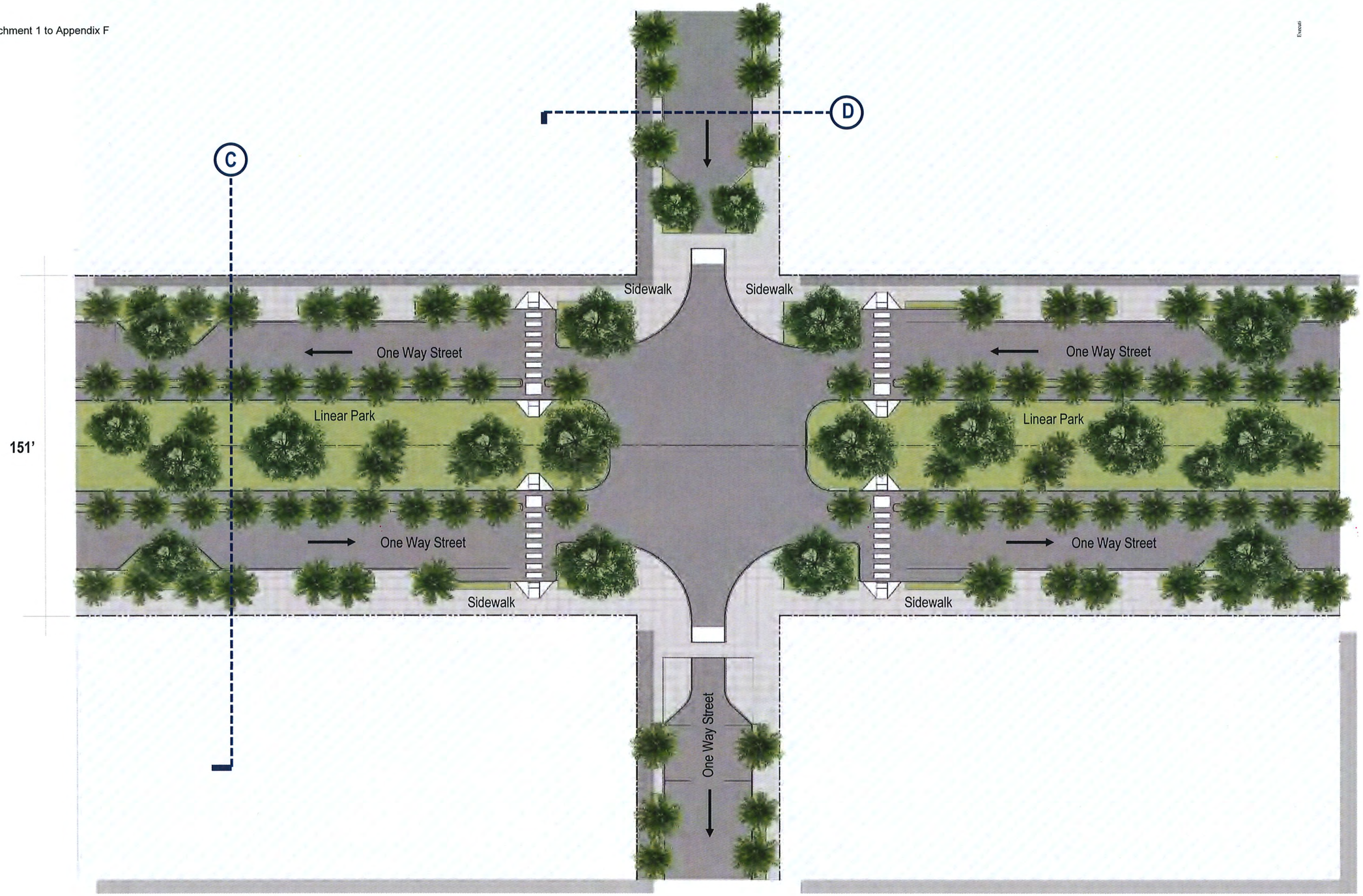
- **A** New Buildings
- **B** Gallery | 10'-0"
- **C** Sidewalk | 5'-0"
- **D** Planting Area (Bioswale) | 5'-0"
- **E** Buffer | 3'-0"
- **F** Parallel Parking | 9'-10"
- **G** Two-Way Street | 25'-0
- **H** Planting Area (Bioswale) | 5'-0"
- **I** Sidewalk | 10'-0



North-South Connection Green Street | Section B

BAHIA URBANA | URBAN DESIGN GUIDELINES

S002



Conceptual Plan | Market / Park Street

BAHIA URBANA | URBAN DESIGN GUIDELINES

A002

LEGEND

- **A** New Buildings
- **B** Gallery | 10'-0"
- **C** Sidewalk | 10'-0"
- **D** Planting Area (Bioswale) | 5'-0"
- **E** Buffer | 3'-0"
- **F** Parallel Parking | 9'-10"
- **G** One-Way Street | 12'-0"
- **H** One Way Bike Lane | 5'-0"
- **I** Linear Park | 35'-0"

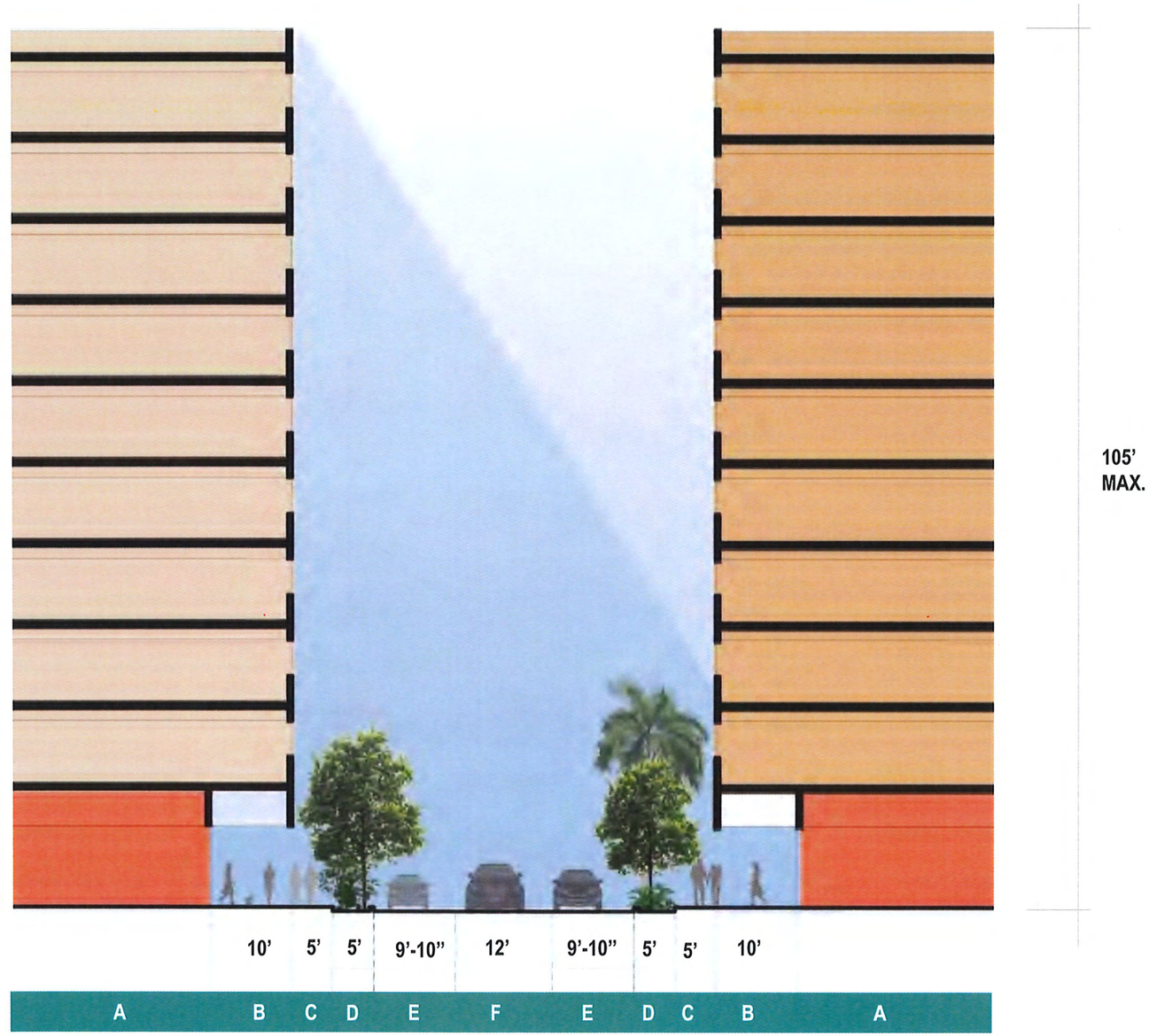
Market / Park Street | Section C

BAHIA URBANA | URBAN DESIGN GUIDELINES

S003

LEGEND

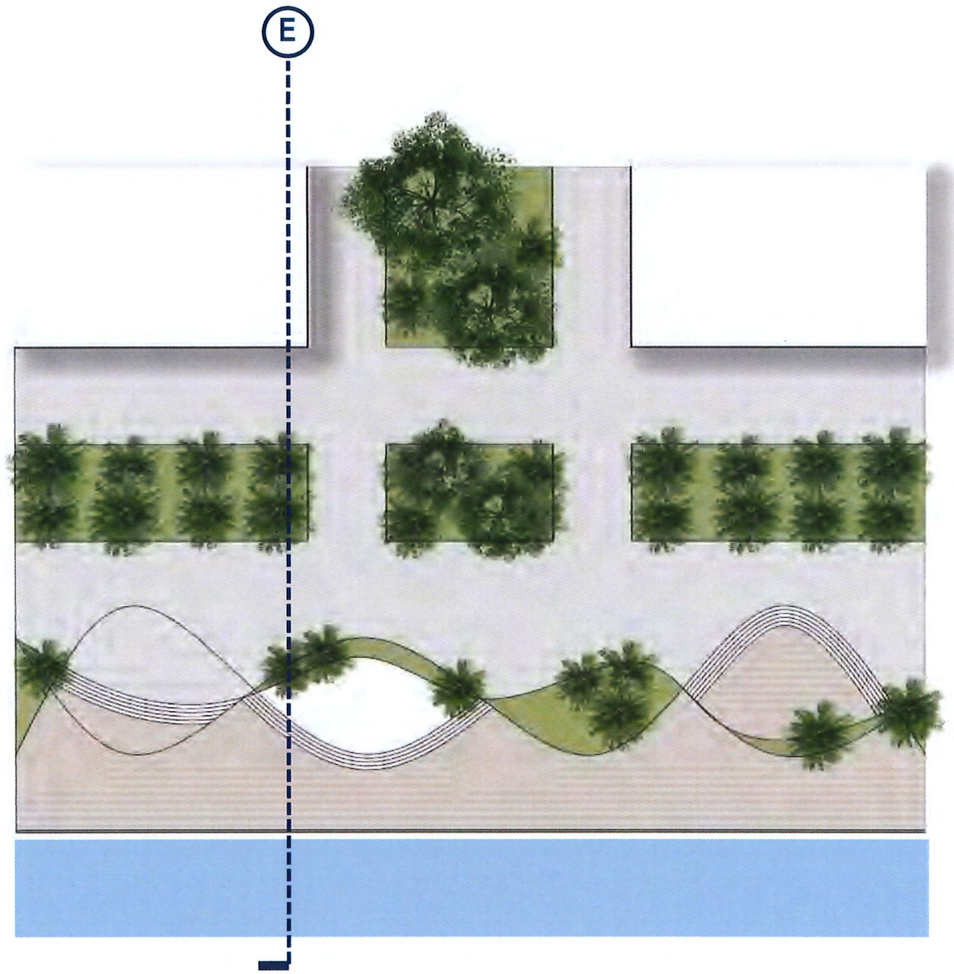
- **A** New Buildings
- **B** Gallery | 10'-0"
- **C** Sidewalk | 5'-0"
- **D** Planting Area (Bioswale) | 5'-0"
- **E** Parallel Parking | 9'-10"
- **F** One-Way Street | 12'-0

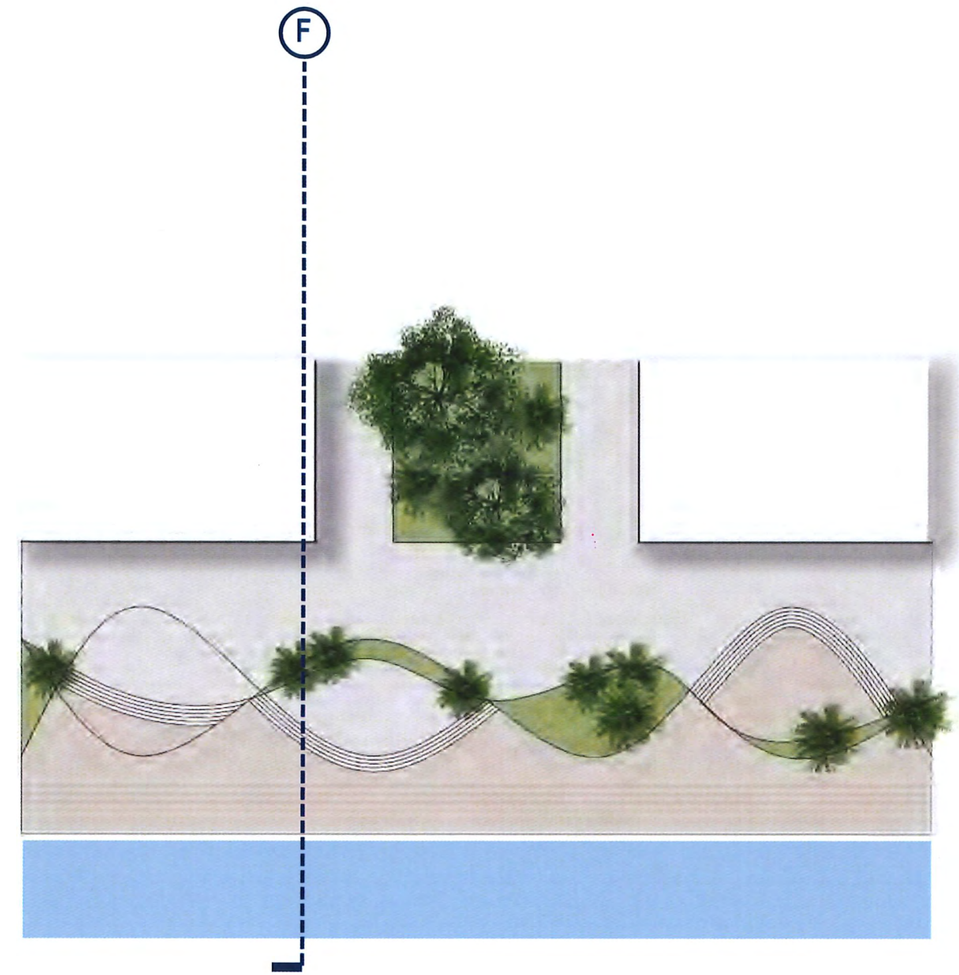


North / South Connection Typical Street | Section D

BAHIA URBANA | URBAN DESIGN GUIDELINES

S004





Conceptual Plan | Waterfront Boardwalk

BAHIA URBANA | URBAN DESIGN GUIDELINES

A003

LEGEND

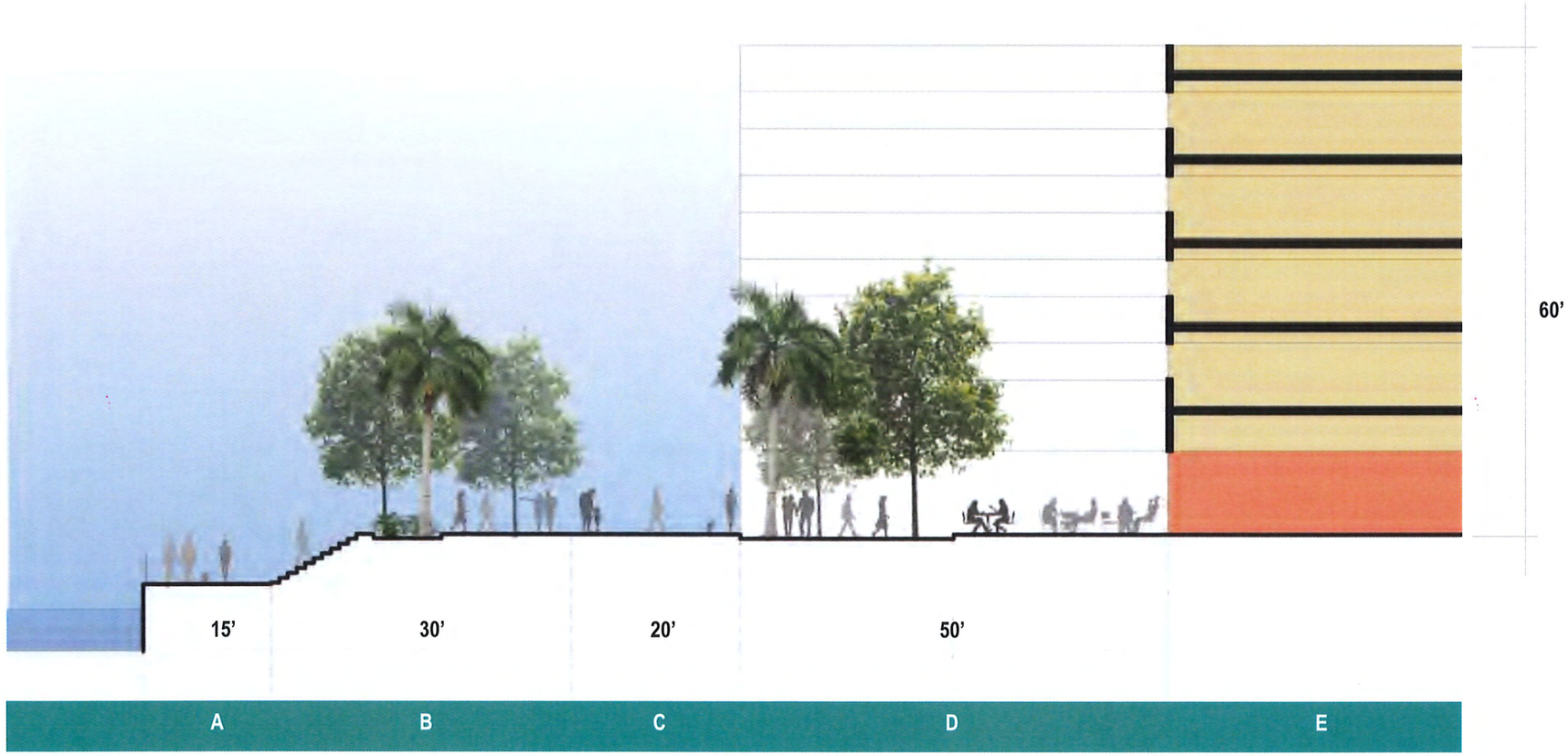
A Boardwalk | 15'-0"

B Planting Areas & Level Transitions | 30'-0"

C Boardwalk | 20'-0"

D Plaza | 50'-0"

E New Building



Waterfront Boardwalk + Plaza | Section E

BAHIA URBANA | URBAN DESIGN GUIDELINES

S005

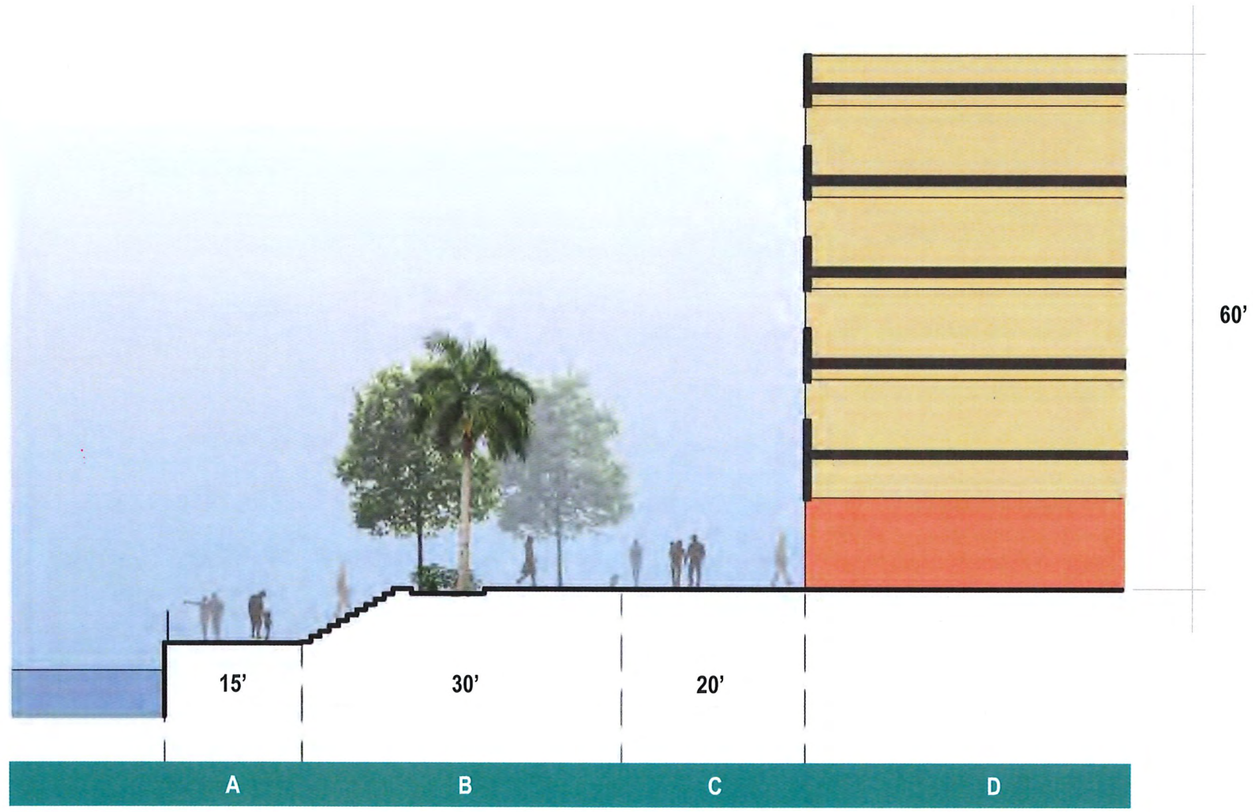
LEGEND

A Boardwalk | 15'-0"

B Planting Areas & Level Transitions | 30'-0"

C Boardwalk | 20'-0"

D New Building



Waterfront Boardwalk | Section F

BAHIA URBANA | URBAN DESIGN GUIDELINES

S006

Executive

BAHIA URBANA | PRCCDA

San Juan, PR

San Juan Cruise Project

GLOBAL PORTS HOLDING

- Port Master Plan
- Presentation of the new Homeport Terminal At Piers 11-12
- Compliance with Appendix F Schedule 13

09 December 2020

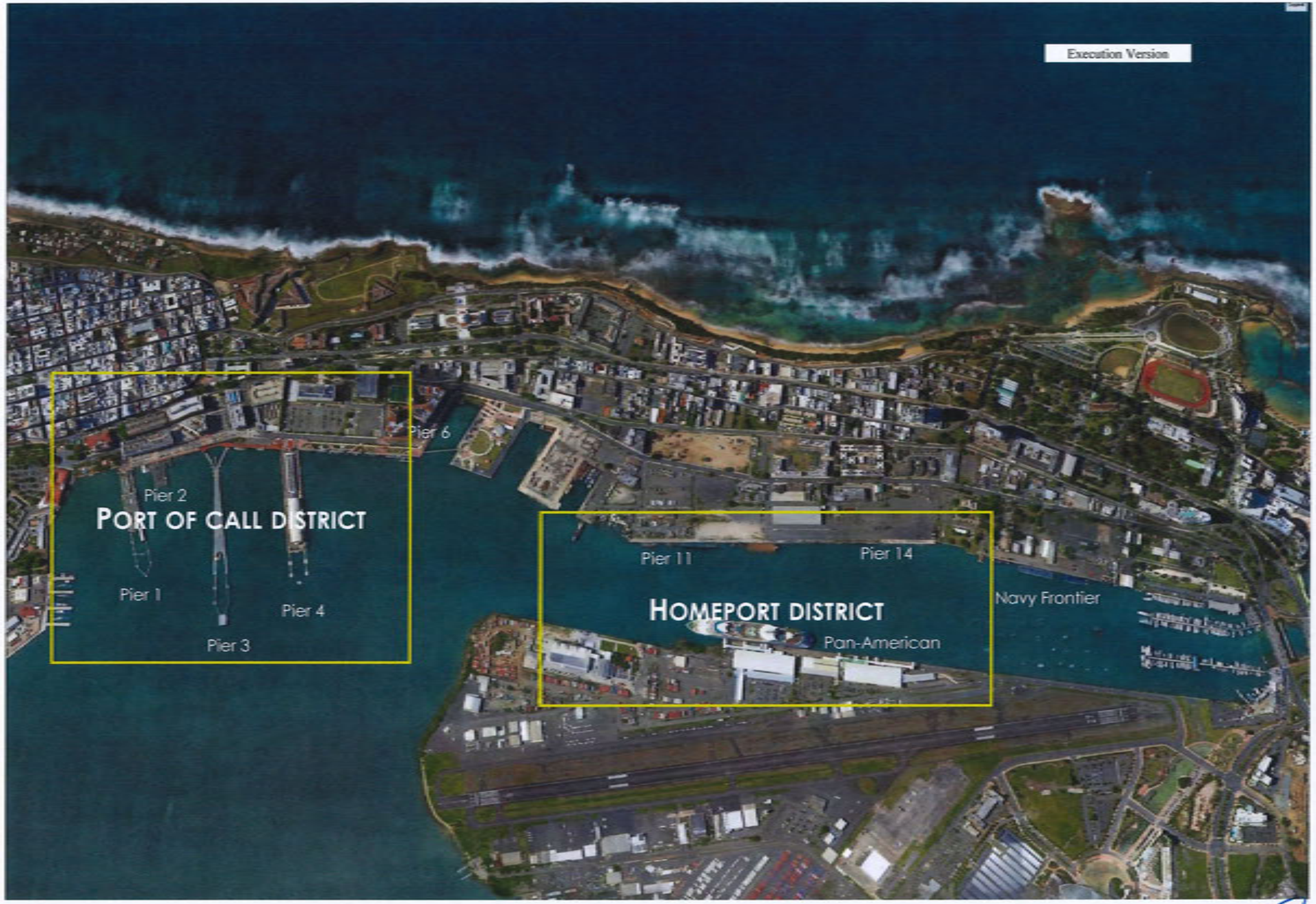
CONFIDENTIAL

San Juan vision

GLOBAL PORTS HOLDING

Attachment 2 to Appendix F

Port Master Plan Long Term Vision



Execution Version

NARRATIVE DESCRIPTION OF THE PROPOSED PORT PLAN – MASTER PLAN OVERVIEW

The Consortium appreciates that the development plan of the San Juan Cruise Port that is, the Cruise Port Facility referred to in this Agreement must address the following issues mentioned by Authority:

- Current condition of the existing facilities.
- Increase of the San Juan Cruise Port capacity in relation to the foreseen increase of traffic.
- Expand capacity of the San Juan Cruise Port for homeporting.
- Improving the connection and relation between the key areas the Old San Juan, the "Puerta de Tierra" and the Convention Center District.

The key element of the proposed port master plan for the San Juan Cruise Port is the re-development of the Piers 11-14 providing additional berthing and homeporting capacities.

The creation of pleasant public spaces along the Avenue Fernandez Juncos will bring improved means of connection and will initiate a dynamic of development, redeveloped urban areas for the Old San Juan, the Puerta de Tierra and the Convention Center District. The proposed master plan for the San Juan Cruise Port comprises also improved/retrofitted marine infrastructure.

These benefits outlined herein are achieved in several detailed phases. Each of the phases will result in a large growth of tourism through local touristic cultural and commercial offerings bringing higher employment, an increase in total generated revenue, optimized transportation, and an urban regeneration in the city of San Juan.

With this upgraded marine infrastructure, the San Juan Cruise Port will be fully utilized and the Consortium will be able to drive the growth and increase cruise capacity in San Juan. These marine improvements will also assist in further enhancing the connection between the existing districts of Old San Juan, Puerta De Tierra, and the Convention Centre District.

The proposed plan/project achieves the following; each of which is described in greater detail below.

- Regenerated Urban Context
- Enhanced Connectivity
- Positive Economic Impact
- Improved Visitors' Experience
- Enhanced Traffic Management
- Incorporation of Other Activities

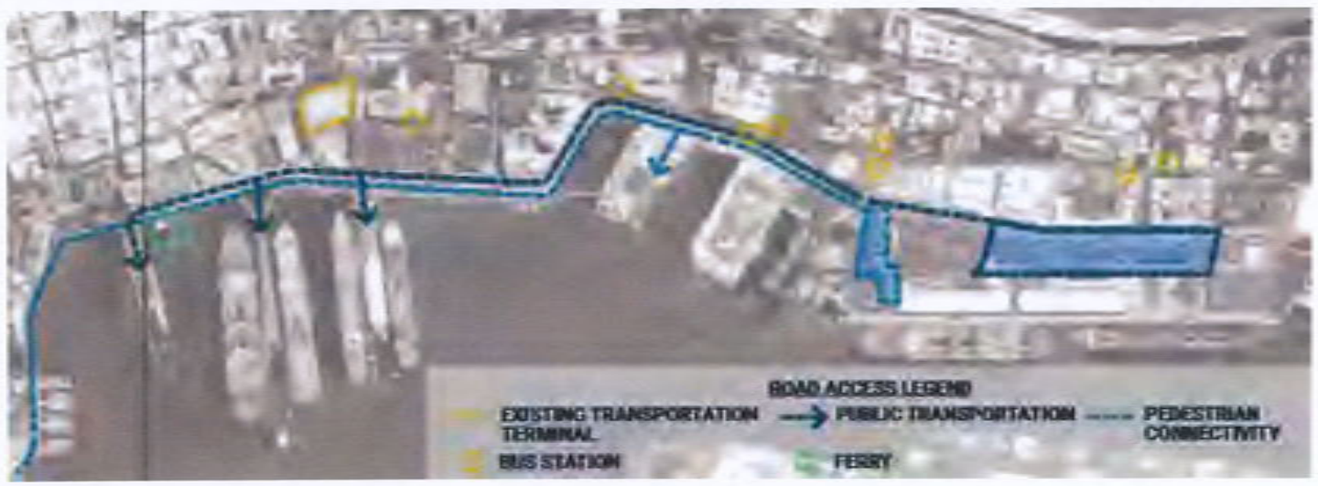
Regenerated Urban Context

The proposed re-development of Piers 11-14 will serve as a catalyst for urban regeneration in San Juan, providing jobs and an attractive environment for developers. The proposed location of the new terminal building and pier (highlighted in Blue below) will help regenerate the connectivity between the waterfront and piers along the San Antonio Channel to the further Bahai Urbana Master Plan.

Enhanced Connectivity

To preserve the frontage along Piers 11-14, the Consortium proposes to re-develop this frontage within the spirit of Bahia Urbana . Re-development will include the extension of linear parks and attractive commercial uses that can be absorbed as the market returns to San Juan. These linear parks create pedestrian connectivity from the piers along the waterfront and into Old San Juan.

The ground transportation facilities developed at Piers 11-14 will enhance bus and taxi traffic management not only for the new terminal at Piers 11-14 but also at Piers 1 to 4. The bus and staging area created at Piers 11-14 will reduce drastically traffic congestion in the Old San Juan area without impact on the traffic on the Puerta de Tierra area.



Positive Economic Impact

It is anticipated that during the construction period, the project will create more than 400 local jobs. The growth in cruise passenger demand will also mean a large economic impact on the existing land uses and on employment in various sectors of the economy such as: commercial services, tourism, hotels, transportation, etc.

The improvement of the traffic, connectivity and quality of the spaces along Piers 11-14 will increase the attractiveness of the surrounding areas.

Improved Visitors' Experience

A well-defined network of linear parks and landscaped areas improve the pedestrian experience along the waterfront between Old San Juan, connecting to Piers 11-14. These new features will create a clearly identifiable corridor for the visitors to move from one part of the San Juan Cruise Port to another.

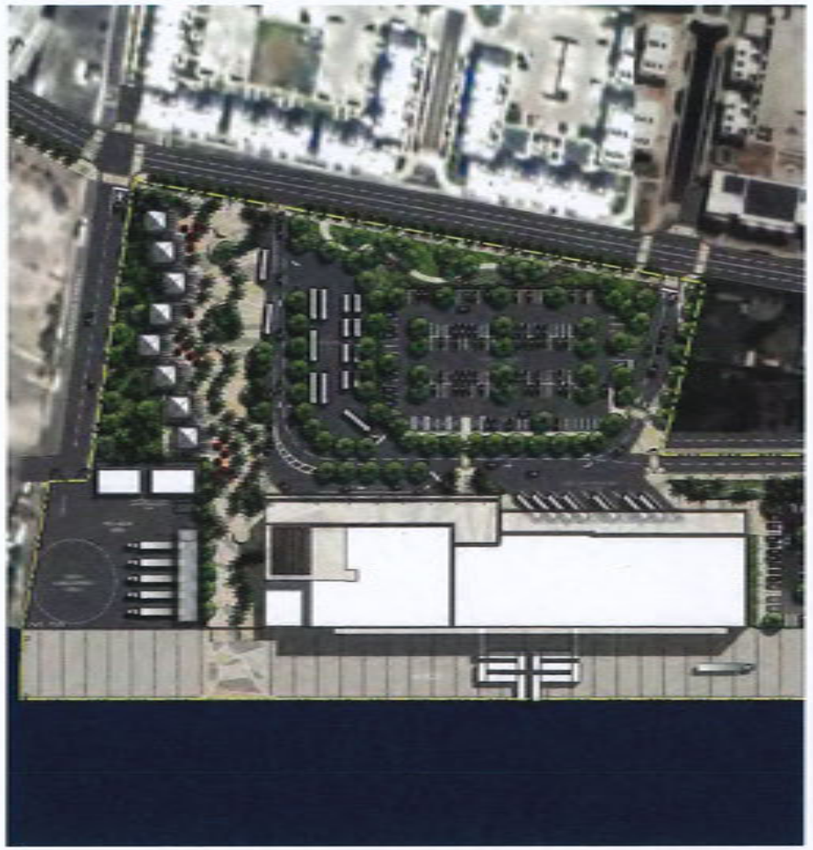
In addition to this, the Consortium will develop a communication strategy targeting the visitors by developing information kiosks at each of the piers to promote activities and tourist experiences on the island.

Enhanced Traffic Management

The Consortium will implement a traffic management plan during Pier 11-12 (Phase 1) improvements, in order to reduce existing congestion in Old San Juan and manage the traffic generated by bus, shuttles and taxis related to the Cruise business.
First and foremost, the provision of ample carpark, bus staging and taxi stand-by areas on the Piers 11-14 re-development will allow the operation of the new cruise terminals without any impact of the local traffic. All the traffic and vehicle staging will be within the Concession Area and not on the public network.

Second, the Consortium will implement a proactive traffic management system and operations using the staging areas provided at the Piers 11-14. It will utilize the current 400 dedicated parking spaces in Old San Juan for Cruises, which will minimise the traffic impact in the area by containing those vehicles that do not require access to Old San Juan. The ground transportation hub at Piers 11-14 manages and curtails the amount of bus traffic movement and congestion in the Old San Juan area.

In addition to the new surface parking areas, staging areas, and curb side pick-up/drop-off areas, the new ground transportation hub will also include a rental car area for the tourist's convenience. The new curb side areas directly adjacent to the homeport terminal and port of call terminal will alleviate street side traffic from Old San Juan Pier's 1 to 4 as well as allow for a larger capacity and organized differentiation between taxis, personal vehicles, and ride-share vehicles (Uber, Lyft). These transportation improvements will make the passenger and tourist experience much more efficient and enjoyable and are the foundation for the possibility of a future multi-modal center that could be several levels high to facilitate a much greater traffic capacity.



Incorporation of Other Activities

The master plan may include the development of a small commercial village adjacent to Piers 11-12, opened to both the local community and the visitors. This commercial village may house commercial, recreational and cultural activities. To accommodate these activities, the Consortium intends to provide ground infrastructure (power, data, plumbing, drainage) only, should the commercial village be included.

1

7

Execution Version

New Homeport Terminal At Piers 11-12

GOAL

- PROVIDE A WORLD CLASS HOMEPORT TERMINAL CAPABLE OF HANDLING THE WORLD'S LARGEST SHIPS
- PROVIDE AN EXCEPTIONAL OPERATIONAL AND GUEST EXPERIENCE
- DESIGNED TO ENHANCE THE IMAGE OF SAN JUAN, ARCHITECTURAL, ENVIRONMENTAL, SOCIAL
- INTEGRATE INTO THE TOURISM INFRASTRUCTURE OF SAN JUAN
- PROMOTE PEDESTRIAN MOVEMENT TO AND FROM OLD SAN JUAN
- BE COMPATIBLE WITH THE APPROPRIATE ELEMENTS LEFT OVER FROM "BAHIA URBANA" INCLUDING
  - STREET DESIGN
  - CONNECTIVITY TO WATER
  - ALLOW PUBLIC ACCESS TO WATERFRONT (WHEN SHIPS ARE NOT IN)
  - PROVIDE FOR FUTURE EXPANSION

Attachment 2 to Appendix F

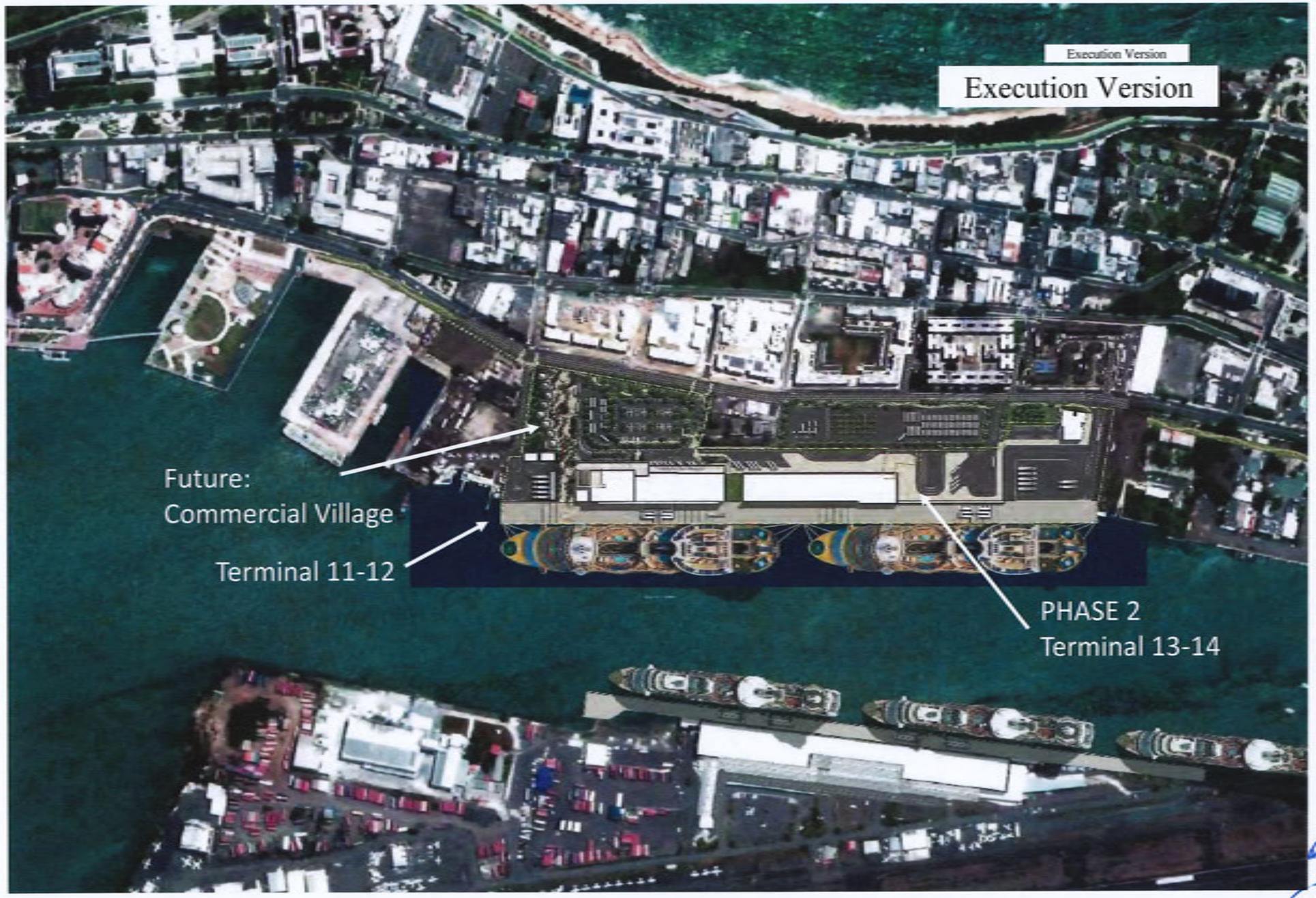
Pier 11-12

The Plan

2

Attachment 2 to Appendix F

Pier 11-12 and Pier 13-14



7

Attachment 2 to Appendix F
New Terminal
Pier 11-12
Design site frontage to accommodate "Bahia Urbana" street cross section
Landscaped public space along frontage
Execution Version
Limit of work
By others
Provide for the continuation of the sidewalk to Old San Juan (by others)
Public access – north south park with potential for local vendors (future)
Gate system to allow public access to waterfront when no ships are in
Execution Version

Connection to the waterfront

Attachment 2 to Appendix F

Execution Version

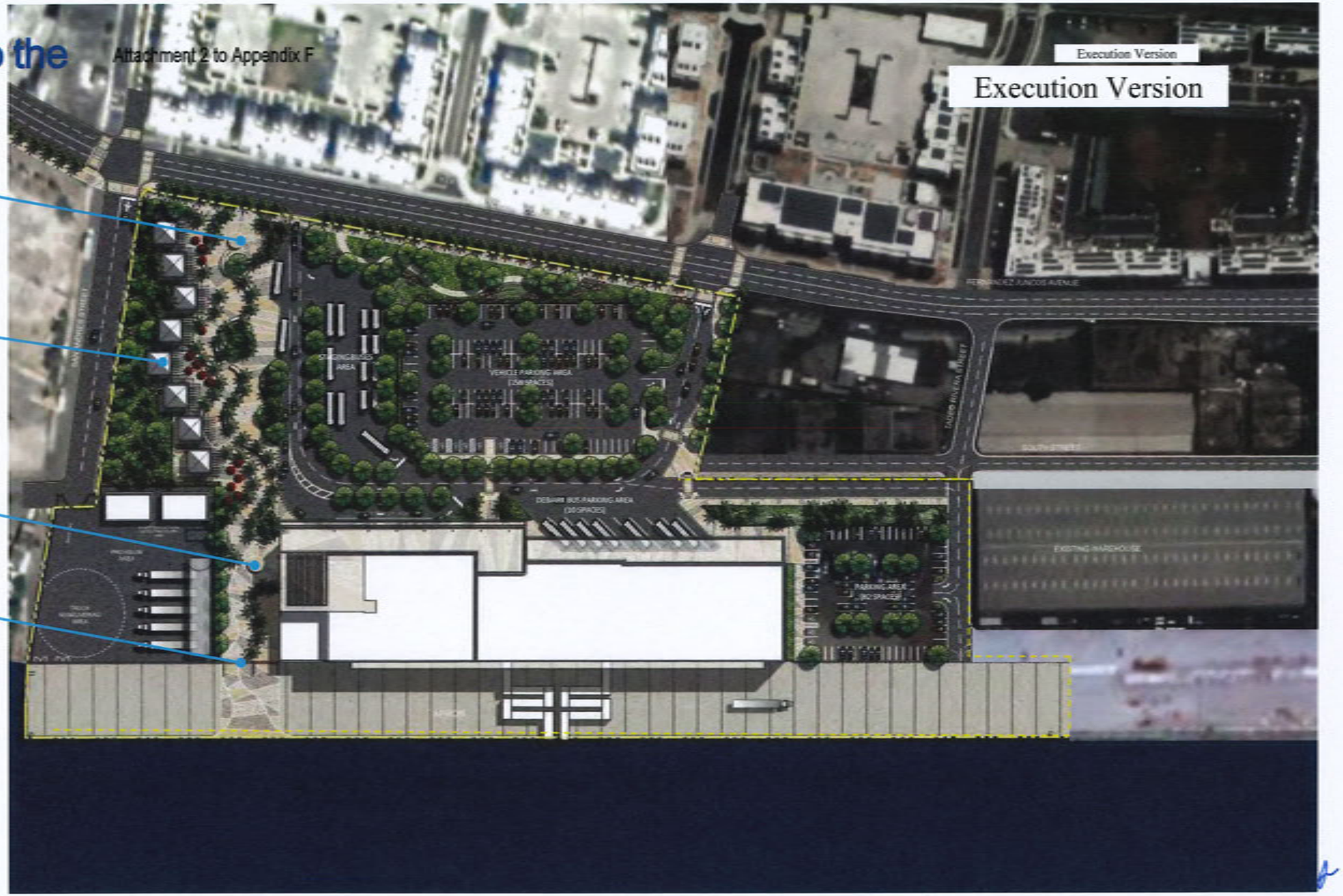
Execution Version

PUBLIC PLAZA / PARK

FUTURE RETAIL AREA IN THE PUBLIC PLAZA FOR FUTURE LOCAL VENDORS TO SHOWCASE SAN JUAN

ARRIVAL PLAZA / GARDEN

GATE SYSTEM TO ALLOW PUBLIC ACCESS TO WATERFRONT WHEN NO SHIPS ARE IN

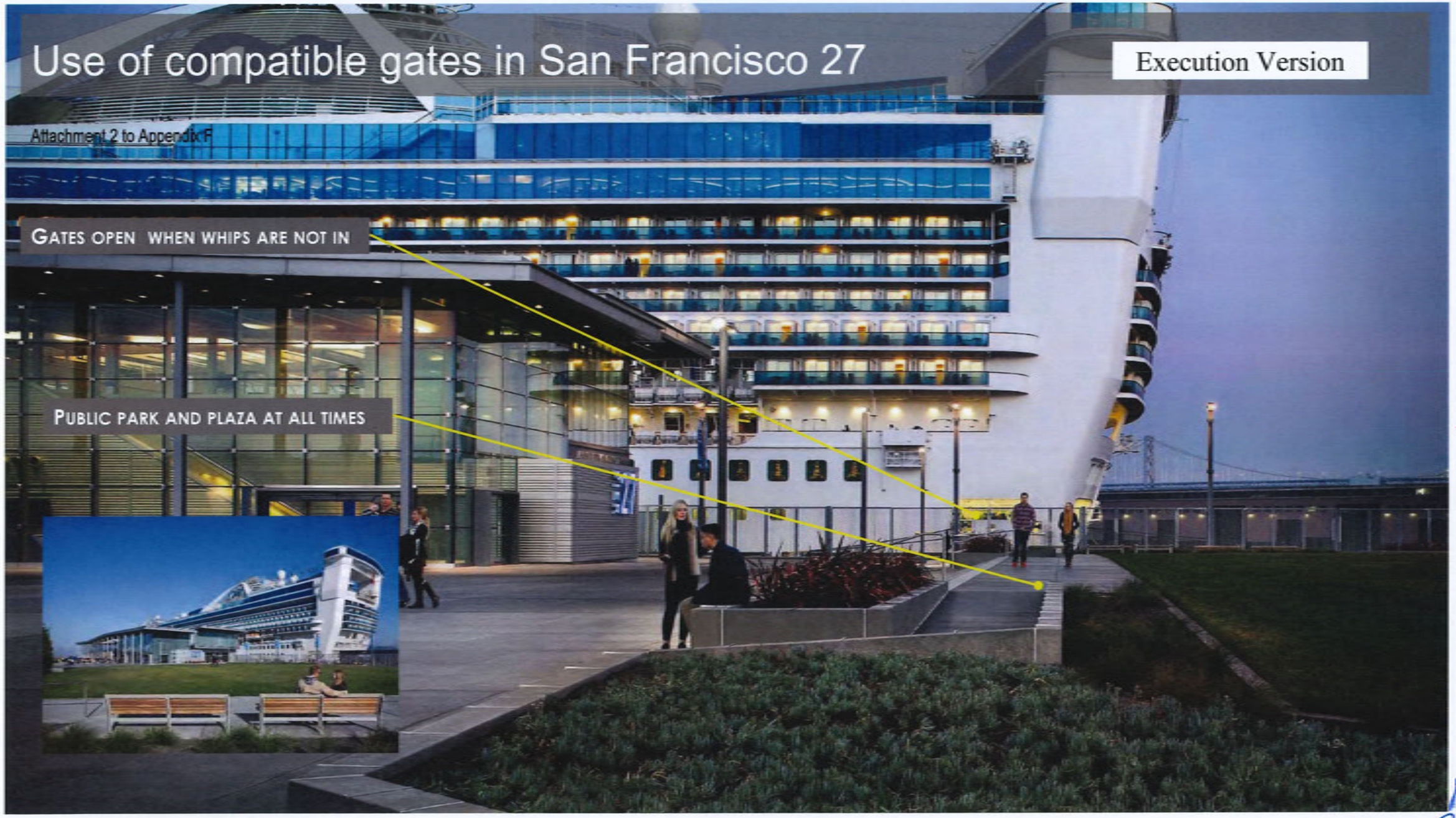


7

Use of compatible gates in San Francisco 27

Execution Version

Attachment 2 to Appendix F

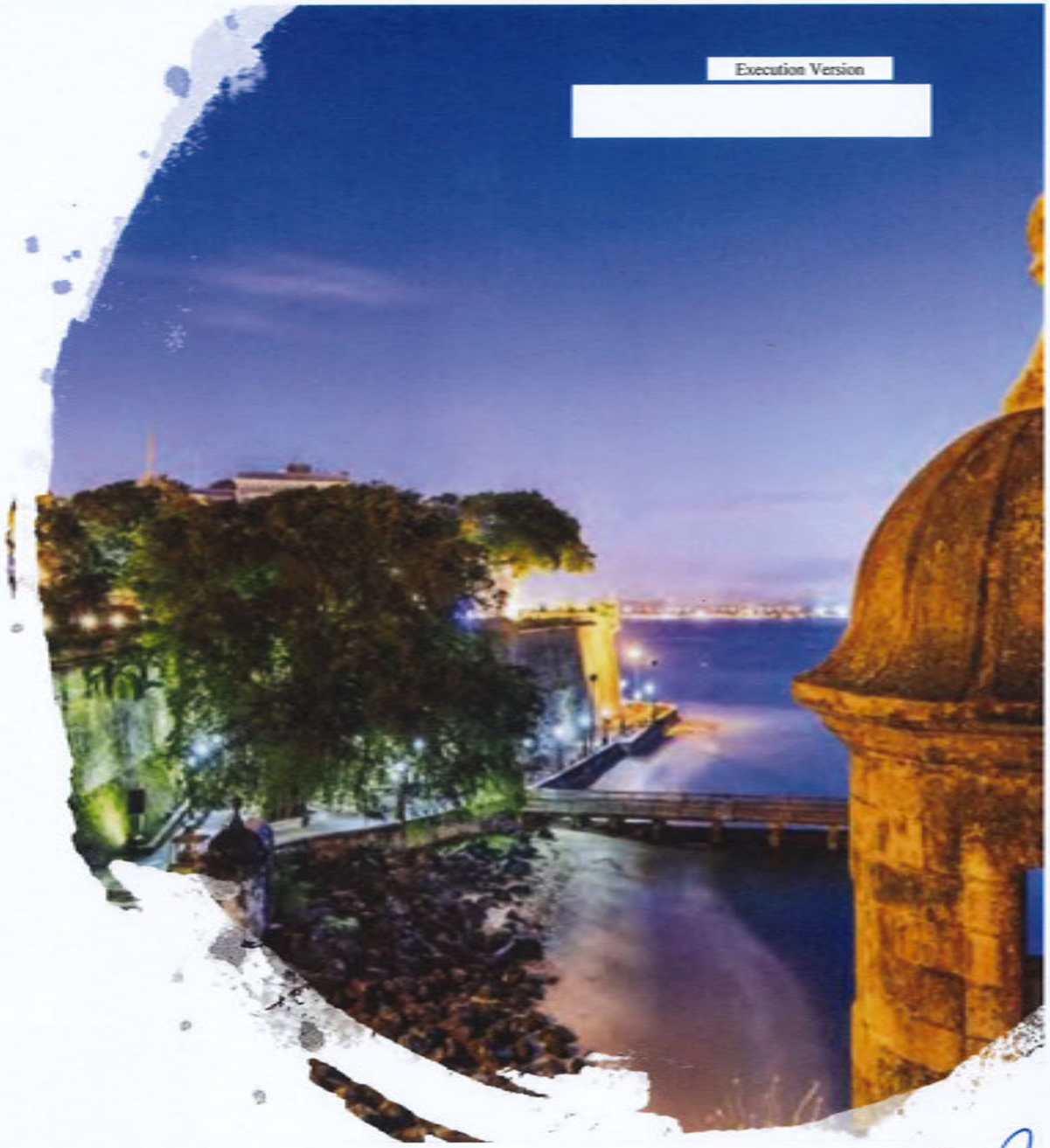


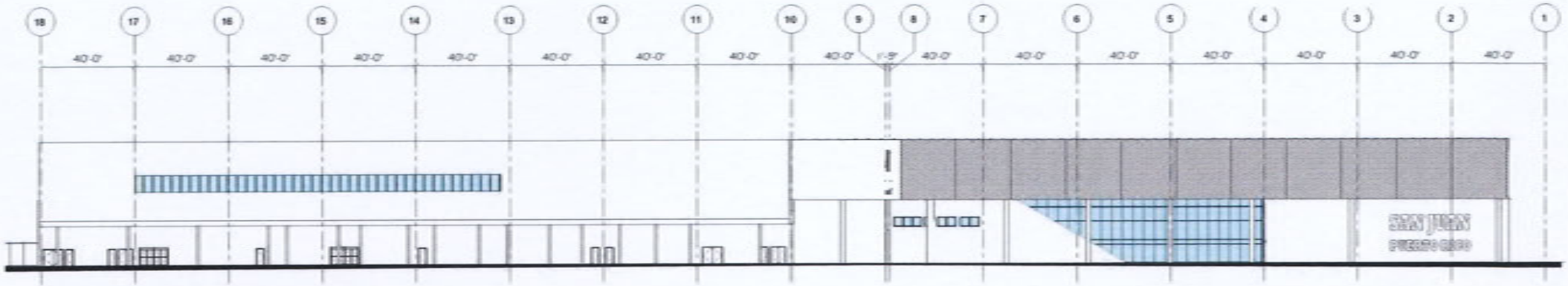
Disappearing fence option

Execution Version

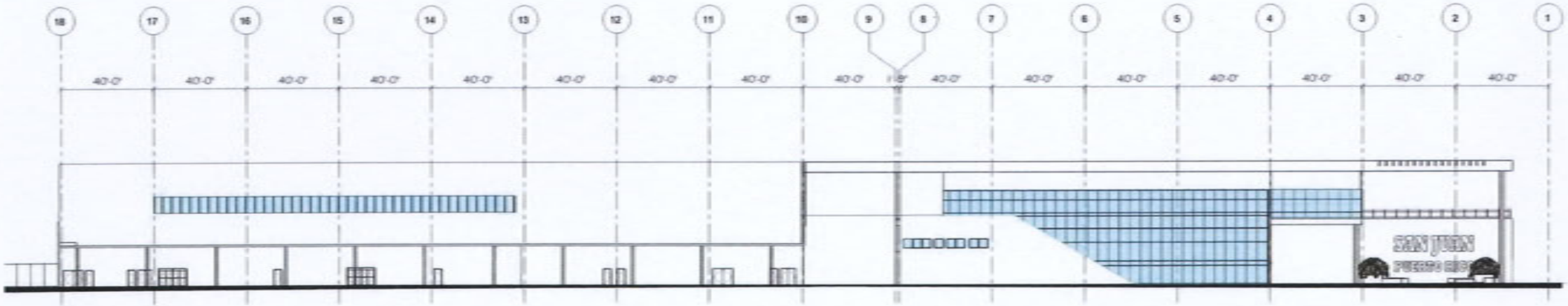
THE TERMINAL

- DESIGN REFLECTIVE OF SAN JUAN
- EMBRACES THE TROPICAL WEATHER AND ATMOSPHERE
- WARM AND FUN DESIGN INDICATIVE OF THE START AND END OF A VACATION
- INTUITIVE FLOWS
- FLEXIBLE RETAIL AREA WITHIN THE TERMINAL BUILDING FOR LOCAL VENDORS (500 SQ.M)
- EFFICIENT
- WORLD CLASS OPERATION CREATING A WORLD CLASS DESTINATION





NORTH ELEVATION - CANOPY VIEW



NORTH ELEVATION

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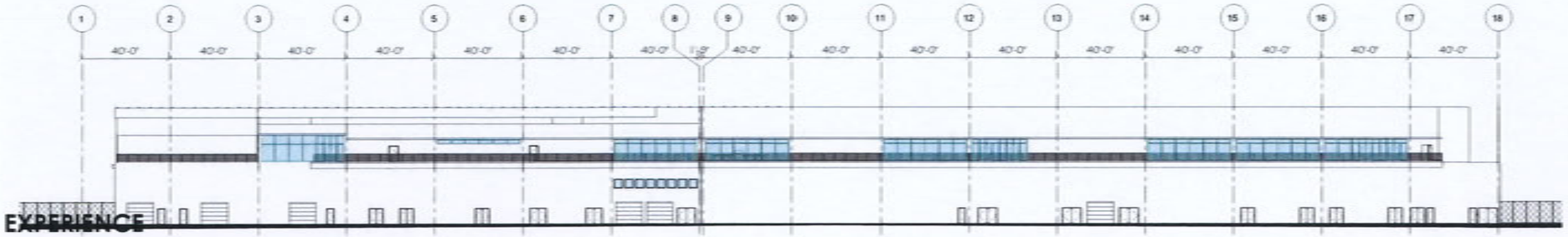
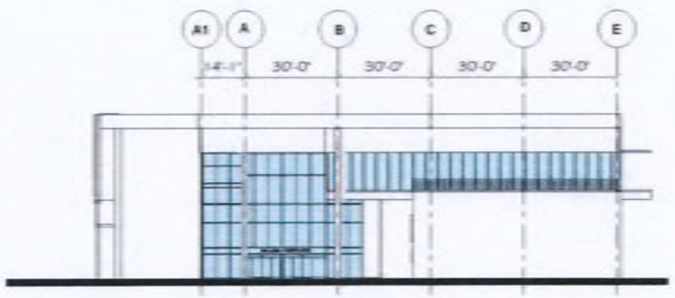


SOUTH ELEVATION



WEST ELEVATION

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Attachment 2 to Appendix F

Plans

Execution Version

Attachment 2 to Appendix F

Pier 11-12
Site plan

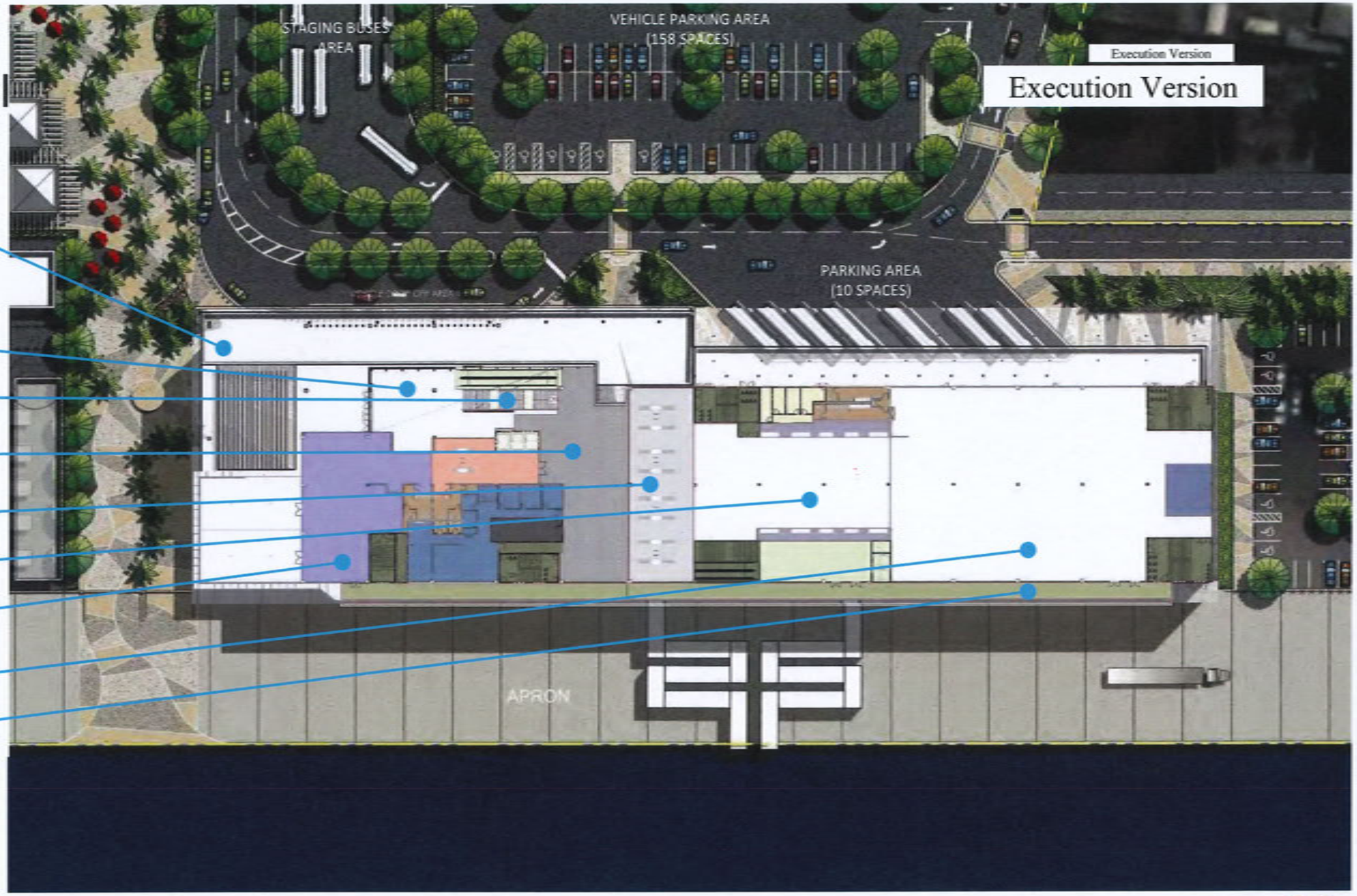
Attachment 2 to Appendix F

Ground Level

Execution Version

Attachment 2 to Appendix F

Upper level



Execution Version

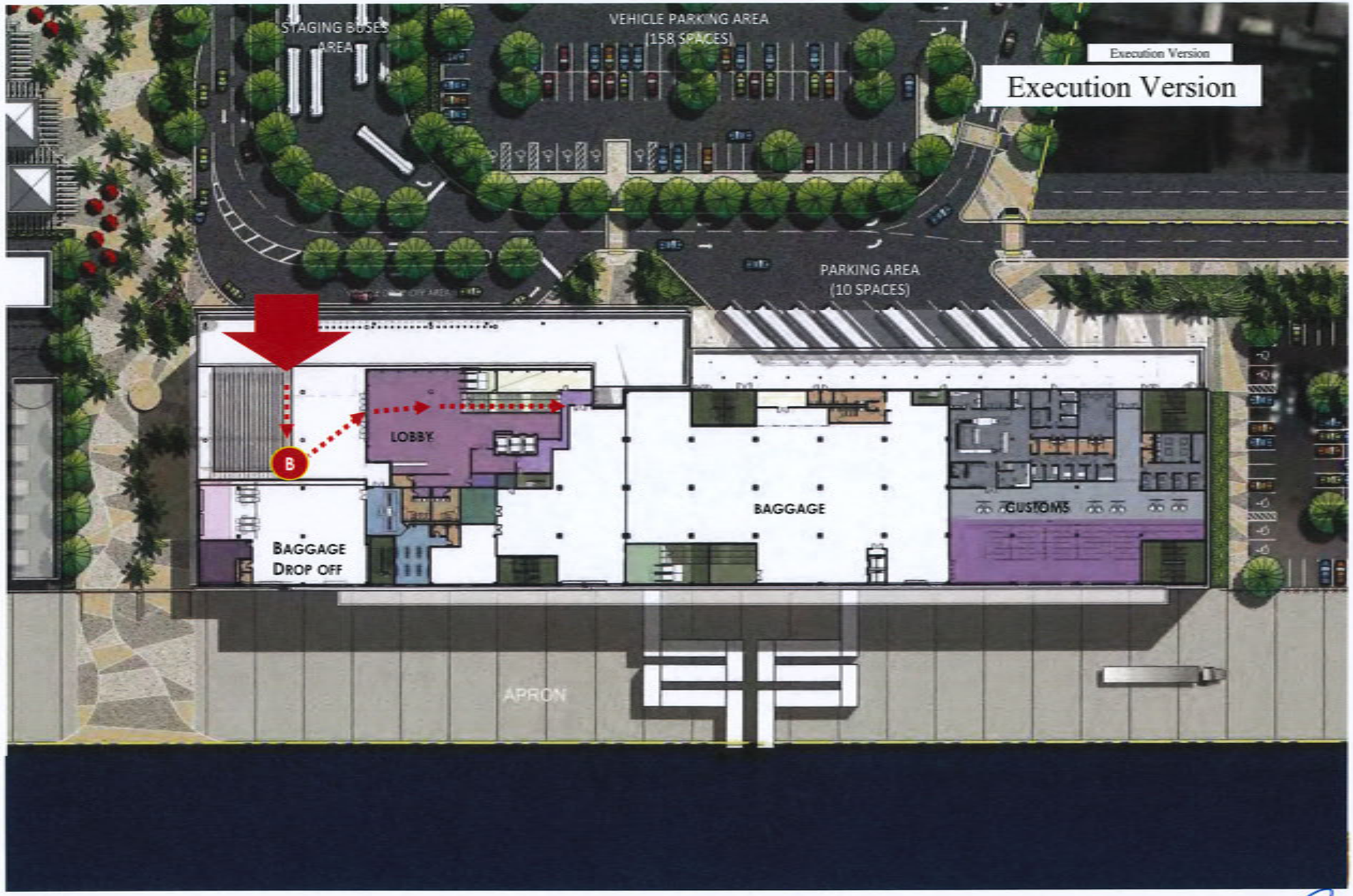
GLOBAL PORTS HOLDING

Execution Version

Passenger flows

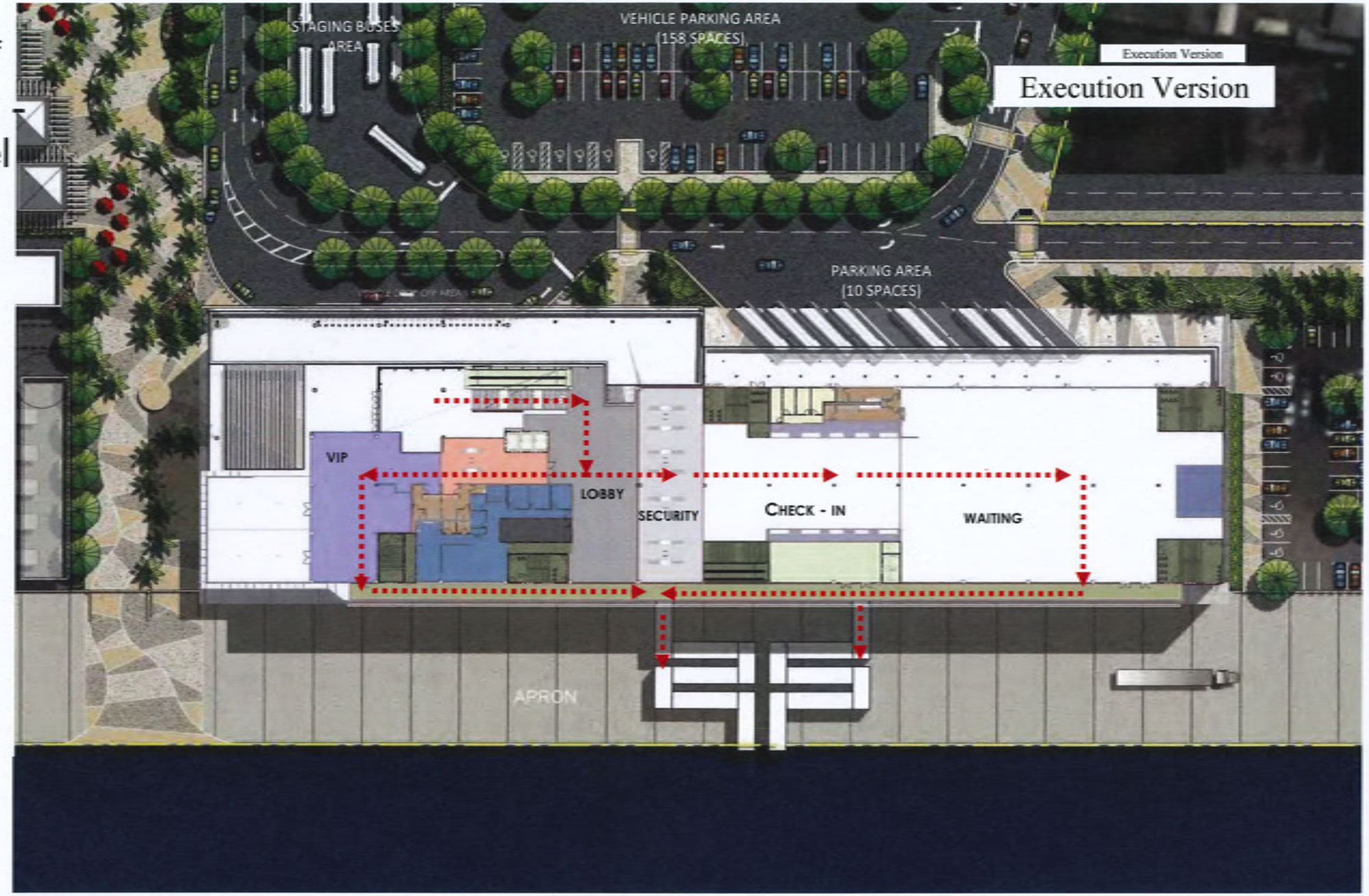
Attachment 2 to Appendix F

Embarking-Ground Level



Attachment 2 to Appendix F

Embarking - Upper level

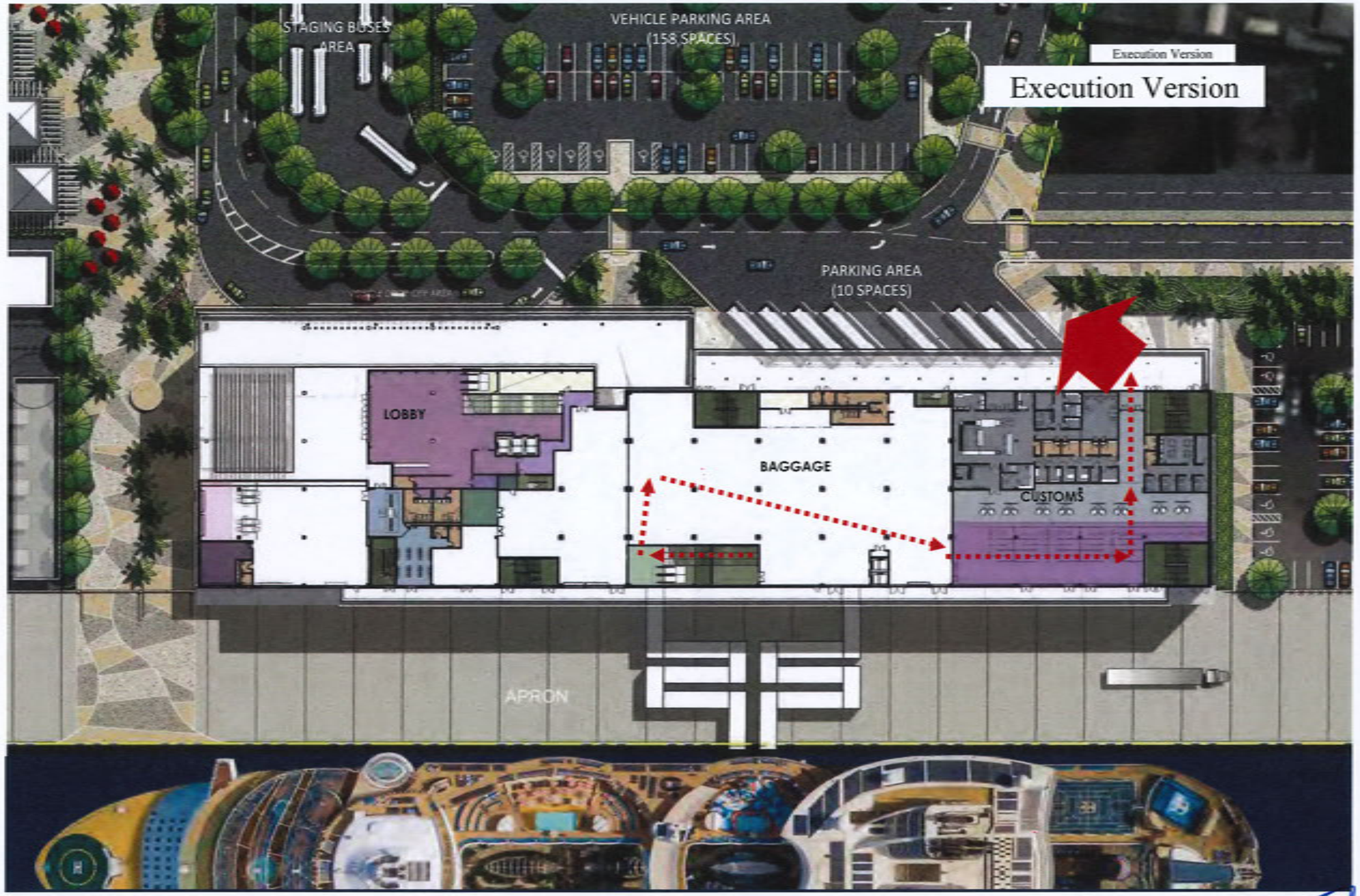


Attachment 2 to Appendix F

Disembark-Upper level

Attachment 2 to Appendix F

Disembark Ground Level



Strategies to achieve public and economic integration

- **Creation of Steering Cruise Committee and Working Groups**
- **Transforming Cruise Terminals into a promotion platform for local businesses**
  - Guest Information Center
  - Space for local artists to show their works
  - Theme days Customized packages/offer
  - Consignee area for luggage
  - Advertising spaces
  - Retail areas in the Terminal and Public Plaza showcasing local vendors and products
  - Friendly signage showing distances to each neighborhood
  - Promotion of local supplies

- **Transport**
  - Shuttle bus to the different neighborhoods which are far away from the terminal
  - Transfer service to the airport
  - Alternative transport modes: bikes, tourist carts, segways,..with a map to discover the destination
  - Water taxi to Cataño
- **Communication with the local community**
- **Transforming the cruise area into a new space for locals**
  - Charity events
  - Exhibitions
  - Visits for schools/universities to show them how a cruise terminal works.
  - Street markets
  - Organize open days for the general public
  - Corporate events

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Execution Version

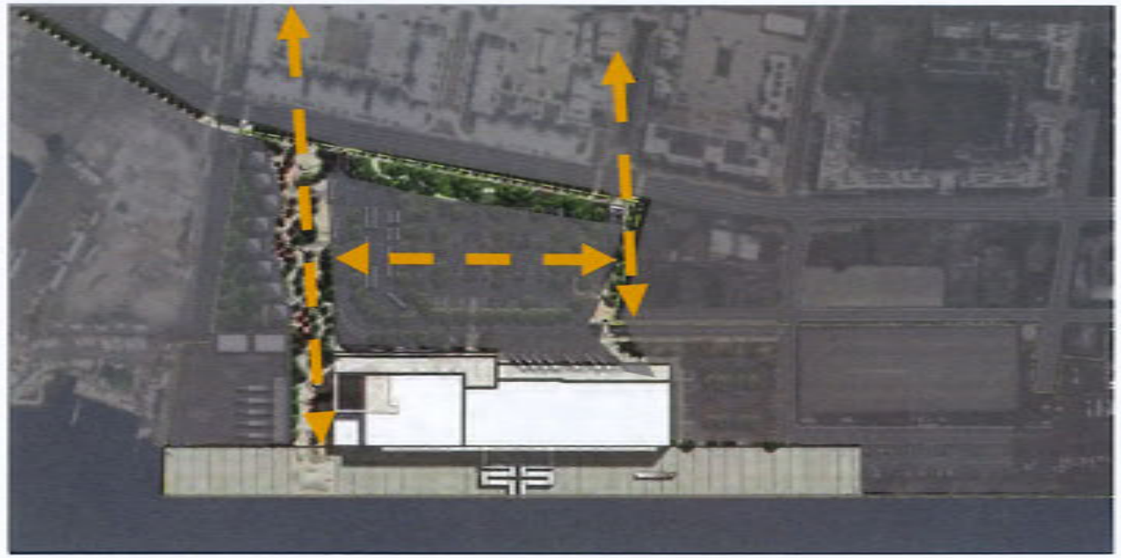
Appendix F – Schedule 13

Guidelines Development of Pier 11-14 Uplands

The Concessionaire shall develop a Master Plan that :

(1) Strengthens the connection of the waterfront, piers and terminals with the urban context (Old San Juan, Puerta de Tierra, and Convention Center District / other Authority's properties "Surrounding Communities")

- The planning of new berth and terminal building and ground transport areas engages and reinforces local urban context and connectivity providing safe and direct route and access to the waterfront and landscaped open space at the Park Plaza for the local community during non-cruise times.
- Connectivity to Old San Juan, Puerta de Terra, Convention Centre District and the Authorities properties is fully integrated in the planning and design of the new berth and terminal building and ground transport areas at the perimeter boundary access points of the Phase One-A project to ensure that there is a seamless integration.



Execution Version

Appendix F – Schedule 13

Guidelines Development of Pier 11-14 Uplands

The Concessionaire shall develop a Master Plan that :

(2) Promotes the incorporation of other activities, services and amenities in the Surrounding Communities (commercial, recreational, cultural, etc.) for the passengers/visitors to have a comprehensive "Puerto Rico Experience"

Creation of Steering Cruise Committee and Working Groups - Transforming Cruise Terminals into a promotion platform for local businesses

Guest Information Center
Space for local artists to show their works
Theme days Customized packages/offer
Consignee area for luggage
Advertising spaces
Retail area with local products
Friendly signage showing distances to each neighborhood
Promotion of local supplies

Transport

Shuttle bus to the different neighborhoods which are far away from the terminal
Transfer service to the airport
Alternative transport modes: bikes, tourist carts, segways,..with a map to discover the destination
Water taxi to Cataño

Communication with the local community - Transforming the cruise area into a new space for locals

Charity events
Exhibitions
Visits for schools/universities to show them how a cruise terminal works.
Street markets
Organize open days for the general public
Corporate events

Execution Version

Appendix F – Schedule 13

Guidelines Development of Pier 11-14 Uplands

The Concessionaire shall develop a Master Plan that :

(3) Provides for additional benefits in the development, growth, maintenance and sustainability of San Juan Bay cruise terminals and piers

- Development and Growth: The repairs of the existing facilities and the addition of a new state-of-the art Cruise terminal in pier 11-14 will allow San Juan to receive more Ships in one day and give service to the the biggest ships, both in transit and Turnaournd operations.

- Maintenance: the concessionaire is committed to keep the Cruise piers and facilities in good conditions and, thanks to its knowledge of the industry, to improve the facilities, infrastructure and operations constantly to adapt them to the needs of the Cruise lines.

- Sustainability: the Project contemplates two separate areas. Piers located in Old San Juan will be dedicated mainly to transit calls and luxury brands (pier 1). Piers Panamerican and 11-14, with more space for logistics, will be for Ships in homeport operations.
The open Access regime will allow to diversify the clientele, give opportunities to other type of guests and benefit the local community

Execution Version

Appendix F – Schedule 13

Guidelines Development of Pier 11-14 Uplands

The Concessionaire shall develop a Master Plan that :

(1) Facilitates easy and safe access of passengers/visitors to the surrounding communities with pedestrian and vehicle circulation connecting the new piers and terminals to the East towards the Bahía Urbana development and to the West towards Old San Juan

- The design of new berth and terminal building and ground transport areas provides safe and direct route and access to the waterfront and ample landscaped open space for the local community during non-cruise times and for cruise passengers during berthing.
- Pedestrian connectivity to Old San Juan, Puerta de Terra, Convention Centre District and the Authorities properties is fully integrated in the planning and design of the new berth and terminal building and ground transport areas at the perimeter boundary access points of the Phase One-A project to ensure that there is a seamless integration.
- Ample area has been provided within the ground transport area to facilitate safe, smooth and seamless vehicle circulation with connections to Old San Juan, Convention Centre District, Luis Muñoz Marín Airport and important culturally interesting and visitor destinations in San Juan.

Execution Version

Appendix F – Schedule 13

Guidelines Development of Pier 11-14 Uplands

1.1. Fernández Juncos Avenue shall be enhanced for pedestrian circulation providing for a continuous
linear path "Paseo" between Old San Juan, Puerta de Tierra and Bahía Urbana. Proponent must follow the typical street section provided in Bahía Urbana Urban Design Guidelines, for the Fernández Juncos Avenue *at the interface boundary within the Concession Site Area.*

→ *Fernandez Juncos Avenue by others*

1.2. Create public spaces adjacent to the waterfront. These public spaces shall be located at the west
side of pier 11, aligned with San Andrés street extension and at the east side of pier 14, aligned with Martin Fernández street extension.

→ *The Park + Plaza => provided*

1.3. Any proposed street network shall follow the existing Puerta de Tierra street network. Refer to the Typical Street Sections described in the Bahía Urbana Urban Design Guidelines, for each street type design, dimensions and character *at the interface boundary within the Concession Site Area.*

→ *No street network*
But Hardscape in same spirit

1.4. To the extent possible, provide pedestrian-public access to all site areas. Even if the site security
perimeter does not allow access to visitors, it shall allow the visibility of the cruise terminal building, facilities and surrounding areas.

→ *Full Access Granted*
(during non-berthing)

1.5. If any building is to be developed facing the Fernández Juncos Avenue, it shall respond to the urban context (scale, height, etc.) and incorporate the use of arcades at the street level to provide for a covered pedestrian pathway. Refer to Bahía Urbana Urban Design Guidelines.

→ *Building lower than 60 ft*
(except @ Roof stair acccess)

1.6. Building use must be compatible with the existing zoning. Commercial activity shall be located facing a public street and access.

→ *Compliant with Zoning*
(on December 2019)

1.7. Design shall consider the potential impacts of sea level rise and extreme weather events.

→ *Taken into Account*
(Bldg at 7,5Ft above Sea Level)

[Presentation of the new Homeport Terminal at Piers 11-12 on File – Initialed Copies too large to scan. Identical Execution copies to follow]

The following artistic renderings show the concept design for the purpose of illustration only – the renderings will be updated to conform to the 30% Design Drawings in Schedule 13 Attachment 2 of Appendix L - for complete detailed design reference please refer to the 30% Design Drawings in Schedule 13 Attachment 2 of Appendix L.

’This artistic rendering shows the concept design for the purpose of illustration only – it will be updated to conform to the 30% Design Drawings in Schedule 13 Attachment 2 of Appendix L.

Execution Version

Attachment 2 to Appendix F

'This artistic rendering shows the concept design for the purpose of illustration only – it will be updated to conform to the 30% Design Drawings in Schedule 13 Attachment 2 of Appendix L.

Execution Version

Attachment 2 to Appendix F

'This artistic rendering shows the concept design for the purpose of illustration only – it will be updated to conform to the 30% Design Drawings in Schedule 13 Attachment 2 of Appendix L.
Execution Version
SAN JUAN
Attachment 2 to Appendix F

'This artistic rendering shows the concept design for the purpose of illustration only – it will be updated to conform to the 30% Design Drawings in Schedule 13, Attachment 2 of Appendix L.

Execution Version

Attachment 2 to Appendix F

'This artistic rendering shows the concept design for the purpose of illustration only – it will be updated to conform to the 30% Design Drawings in Schedule 13 Attachment 2 of Appendix L.
Attachment 2 to Appendix F

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Execution Version
Attachment 2 to Appendix F

'This artistic rendering shows the concept design for the purpose of illustration only – it will be updated to conform to the 30% Design Drawings in Schedule 13 Attachment 2 of Appendix L.
Execution Version
Attachment 2 to Appendix F

Execution Version

GLOBAL PORTS
HOLDING

APPENDIX G: PAN AMERICAN PIERS WHARF STRUCTURE BUDGET

(USD)	Quantity	Cost breakdown
Fixed costs (Engineering, single mob demob, equipments...)	LS	5 609 103
Security, office and admin costs, installations, other costs ...	LS	3 496 148
Demolition	LS	1 908 927
Sheet pile wall	1556 T	9 715 806
Injected Tie backs	110 Units	7 138 327
New bulkhead and bollards	2600 CY	5 952 345
Surfacing (slab repairs, pavement ...)	LS	324 469
Pier Fill	2500CY	1 135 643
Seabed rock fill	1500 CY	1 541 230
Total		**36 822 089**
Municipal fee		184 110
Construction exercise tax		1 841 104
Business to Business tax (from CBNA to 3PV)		515 509
Grand Total		**39 362 812**

Note: Any determination of the cost of the Pan American Piers Wharf Structure Project for purposes of determining whether the condition to Closing set forth in Section 2.4(c)(ix) of this Agreement is satisfied will not include any cost of financing or any Taxes, except for the Tax line items set forth above, and all indirect costs will be reasonably allocated and not exceed the allocation, if any, set forth in the Pan American Piers Wharf Structure Budget.

APPENDIX H: PIER 3 EPIC REPAIRS

Reconstruction of two collapsed mooring dolphins at the east side of Pier 3 through the installation of 20 new steel pipe piles (10 piles per dolphin) of 30 inches in diameter and 120 feet in length on former dolphin footprints and 2 new reinforced concrete pile caps (7' H X 17' W X 21' L) (1 concrete pile cap per dolphin). Pile installation is expected to be at a rate of 1 pile per day; re-installation of 2 new steel bollards and 2 fender systems. Re-installation of 3 aluminium catwalks of approximately 5" H X 4'-5" W X 98'-103' L. Removal from maritime bottom of collapsed structures (such as: breasting dolphins, concrete piles, steel boards, fenders and aluminium catwalks), and pile cutting at approximately 12" above seabed.

For purposes of the Excluded Liabilities of the Authority relating to the Pier 3 EPIC Repairs and described in clause (xii) of Section 3.2(c) of this Agreement, the portion of Pier 3 that is affected by the Pier 3 EPIC Repairs is that space adjacent to the east side of Pier 3 where the two collapsed mooring dolphins were located, which is now open water with submerged mooring dolphin structures.

The Concession Company acknowledges receipt of the design drawings and documents prepared by the Authority described herein.

a. Nationwide Permit Application letter dated October 23, 2019 with attachments

b. Response Letter from the USACE – Joint Permit Application (JPA-1678), dated November 20, 2019

c. Emergency Repairs to Pier 3 design drawings prepared by Integra Design Group, Date Issued – October 22, 2019

d. Construction Cost Estimate by CIMP, dated February 18, 2019

e. Design-Build Services for the Emergency Repairs of Pier 3, San Juan Puerto Rico / Bid Number 10-90/published 01-22-2020

f. Repairs for Pier No. 3, Bay of San Juan / Information Documents Feb 12 – May 15, 2019 (Original Assessment Report and Documents) by CIPM

g. Bid Book: Contract Documents and Technical Specifications Design – Build Services Emergency Repairs of Pier 3, Bid No. 10-90/2020

   (i) Puerto Rico Ports Authority – Underwater Debris Removal and Disposal and Emergency Repairs to Pier 3, San Juan Bay, Puerto Rico

   (ii) Emergency Repairs to Pier 3 design drawings prepared by Integra Design Group, date Issued Bid Set – October 22, 2019

   (iii) Addendum No. 1 – February 18, 2020

(iv) Addendum No. 2 – March 3, 2020

(v) Addendum No. 3 – March 5, 2020

(vi) Addendum No. 4 - March 6. 2020

(vii) Addendum No. 5 – March 12, 2020

(viii) Addendum No. 6 – March 16, 2020

(ix) Addendum No. 7 – June 3, 2020

(x) Proposal Design Build Services Emergency Repairs of Pier 3 – Del Valle Group, S.P. – June 18, 2020

(xi) Notice of the Award to Del Valle Group, S.P. – July 2020

h. Pier 3 EPIC Repairs Contract

100% Design drawings

APPENDIX I: PIER 3 DUTY FREE BUILDING

Pursuant to the Pier 3 Duty Free America Agreement between the Authority and DFA to design, develop, construct, finance a building complex and structural improvements, the Pier 3 Duty Free Building consists of the following:

(1) A Passenger Building Complex defined as the construction of a 2-floor building complex at the entrance of Pier 3 which will house a main check point and security processing facility; DFA's duty free/duty pay store and public restroom facilities at the first floor, among others. The second floor will provide an approximate 17,000 square feet of leasable space.

The main gates at the first floor of the building will be the exclusive entrance and exit ways for passengers, crewmembers, cruise ship personnel embarking and disembarking the cruise ships docked at Pier 3, including the Authority's personnel.

(2) The Structural Improvements entail the installation of two (2) new bollards at the Pier 3 facility pursuant to the OASIS positioning and mooring evaluation for the west berth at Pier 3 and an OASIS mooring Plan prepared by Sandra D. Rice, PE and approved by the Authority and Royal Caribbean Cruises Ltd. Structural improvements cannot limit the use of Pier 3 to ships presently using the facility.

The Concession Company acknowledges receipt of the design drawings and documents prepared by the Authority described herein. The further obligations of the Authority and the Concession Company in relation to the design and documents related to such Pier 3 Duty Free Building are set out in Section 4.15 of this Agreement.

(a) 40% Preliminary Drawing – Improvements to Pier No. 3, dated March 31, 2016 by Iglesias Vazquez and Associates

(b) Technical Specifications – Improvements to Pier No. 3, by Iglesias Vazquez and Associates

(c) Improvements to Pier No. 3 by Iglesias Vazquez and Associates / Full Set 100%

(d) USACE Permit (to be shared once provided by PRPA)

APPENDIX J: EXPANSION INVESTMENT PROJECTS, PHASE TWO PROJECTS AND ADDITIONAL CRUISE PORT FACILITIES AND MODIFICATIONS CONCESSION MORTGAGE DEBT CRITERIA

A. General.

As provided in Section 10.1 of this Agreement, the Concession Company shall be responsible for obtaining financing for the performance of its obligations under this Agreement, except to the extent provided in such Section 10.1. With regard to any Cruise Pier Improvement Project or Modification constituting a capital improvement project, the Concession Company responsibility for obtaining financing shall consist of the Concession Company's use of Reasonable Efforts to obtain a binding commitment from Institutional Lenders for the issuance of Concession Mortgage Debt subject to the terms set forth below and in an amount sufficient to pay the applicable Cruise Pier Improvement Projects Cost ("New Debt"), and to cause the issuance of such Concession Mortgage Debt (provided that the Concession Company's obligation for providing financing for the Initial Investment Projects shall not be limited by its use of Reasonable Efforts and shall be an unqualified obligation of the Concession Company notwithstanding anything else in this Agreement to the contrary).

In connection with the issuance of New Debt, the Concession Company shall not be required to take any action that would cause the Concession Company to violate the terms of the Concession Mortgage Debt.

B. Additional Limitations on the Requirement to Issue Concession Mortgage Debt for the Expansion Investment Projects.

The Concession Company shall only be required to issue Concession Mortgage Debt for the Expansion Investment Projects upon the occurrence of the Expansion Investment Projects Trigger Event; provided, however, that the Concession Company shall issue Concession Mortgage Debt for the Expansion Investment Projects as provided in and subject to Section 3.25(i). The additional test with respect to the internal rate of return as a requirement to issue Concession Mortgage Debt for the Phase Two Projects and Modifications set forth below shall not apply to the issuance of New Debt for the Expansion Investment Projects.

C. Additional Limitations on the Requirement to Issue Concession Mortgage Debt for the Phase Two Projects and Modifications.

In respect of the Phase Two Projects and Modifications only, the Concession Company shall be required to provide financing for any Cruise Pier Improvement Project or Modification (except to the extent provided in Section 10.1 of this Agreement), only if the Concession Company is able to raise New Debt such that the addition of the New Debt, when considered with (i) any additional equity contribution of any Equity Participant or other Person, (ii) the incremental Cruise Port Revenues forecast to be generated by the applicable Cruise Pier Improvement Project or Modifications, (iii) the inclusion of any Government Contributions funding, (iv) the change in the cost and expense of Cruise Port Facility Operations associated with the applicable Cruise Pier Improvement Project or Modification, and (v) the extension of the Term, if applicable, results in

an internal rate of return at least equal to the internal rate of return in the Concession Company's bid model provided to the Authority in July 2019 ("Bid Model").

In respect of Phase Two Projects this test shall be known as the "Phase Two Rate of Return Test" and shall be applied even if no New Debt is required for the Phase Two Projects (that is, even if Government Contributions are sufficient to cover the project costs), provided that the Phase Two Trigger Event and the Phase Two Rate of Return Test shall not apply with respect to the construction of the Piers 13-14 Wharf Project if the Piers 13-14 Wharf Project is constructed using Government Contributions, as provided in Section 4.12(e) and the last sentence of Section 3.24(f), except that the Phase Two Rate of Return Test may apply as provided in clause (B) of the last sentence of Section 3.24(f).

For the avoidance of doubt:

- The internal rate of return shall be assessed as at the same date (31 March, 2020) as in the Bid Model.
- The New Debt, any additional equity contribution, the incremental Cruise Port Revenues, and the change in the cost and expense of Cruise Port Facility Operations associated with the applicable Cruise Pier Improvement Project or Modification shall be the only changes permitted to the Bid Model for the purpose of this calculation.
- The Bid Model shall not be updated for actual performance of the Concession Company or the Cruise Port Facility Operations.

APPENDIX K: DESIGN CRITERIA

(a) General Criteria for new constructions

1.1.1. Water Levels

The tidal range throughout San Juan Bay is uniform and microtidal. Tidal data computed from NOAA Tide Station 9755371 and referenced to Mean Sea Level (MSL) and Puerto Rico Vertical Datum 2002 (PRVD02) indicate the mean tide range is 1.11 ft and the spring tide range is 1.57 ft.

The San Juan Bay feasibility study and environmental assessment states an expected 0.34 ft rise in sea level during a 50-year period for a low sea level rise scenario.

1.1.2. Geotechnical

Reference is made to the U.S. Geological Survey (USGS) survey map of the San Juan Quadrangle, 1977, Map 1-1010, and the below Geotechnical Survey reports;

- Kaderabek & Barreiro Consultants, INC. - Report of Geotechnical Engineering Expansion of Cruise Terminal Nos. 3 & 4, July 1998
- GeoCim – Luis O. Garcia & Associates - Preliminary Report on Foundation Recommendations for the Proposed Improvements to Pier 3 Terminal, February 22, 2013
- Soil Tech Consulting Engineers - Geotechnical Investigation Job No. 87143 Subsoil Investigation for Pier No. 4, San Juan, Puerto Rico, March 8, 1988
- Jaca & Sierra Testing Laboratories - Report of Geotechnical Exploration proposed reconstruction and improvements Pier 11, January 4, 1989
- Geo Engineering Consulting Engineers - Geotechnical Evaluation for Warehouse Building at Pier No. 13, May 3, 2002
- GeoConsult - Geotechnical Report Reconstruction of Wharves Along Piers 11 to 14, December 10, 2003
- GeoConsult - Geotechnical Report Reconstruction of Wharves Along Piers 11 to 14 – Addendum 1, January 30, 2004
- GeoConsult - Geotechnical Report Reconstruction of Wharves Along Piers 11 to 14 – Addendum 2, June 18, 2004
- GeoConsult - Geotechnical Report Reconstruction of Wharves Along Piers 11 to 14 – Addendum 3, April 29, 2005

- Carlos A. Ortiz Suares - Subsoil Exploration Report Job No. 1492 Extension of P.R. 14 San Juan Dock Area, June 23, 1987
- GeoConsult - Recomendaciones de Cimentación Para la Reconstrucción de los Muelles 12, 13 y 14 San Juan, Puerto Rico, November 28, 1992
- AMEC E&E Caribe, LLP - Preliminary Geotechnical Report, October 31, 2007
- AMEC E&E Caribe, LLP - Preliminary Dredge Materials Assessments Report, December 20, 2008
- GEO Engineering - Geotechnical Evaluation for Proposed Pan American Terminal at Isla Grande dated July 24, 2000
- GEO Engineering - Geotechnical Evaluation for Proposed Pan American Terminal II at Isla Grande dated March 11, 2002
- Vazquez Agrait, Vazquez Castillo & Assoc. - Report Subsoil Exploration Isla Grand Wharf, June, 1987
- US Army Corps of Engineers - San Juan Harbor Maintenance Dredging, 30 foot Project, and Mitigation Project, July 8, 2016
- US Army Corps of Engineers - Existing Geotechnical Investigations for San Juan Harbor (Borings), April 2017

1.1.3. Seismic

Compliance with the International Building Code/Puerto Rico Building Code 2018.

1.1.4. Design Life

Design life for the various aspects of the Cruise Pier Improvement Projects and Modifications are provided in the relevant sections below.

1.1.5. Design Codes

The standards and codes that apply or may apply to the Cruise Pier Improvement Projects and Modifications are included in Appendix A of this Schedule 13.

(b) Terminal Planning for new constructions

1.1.1. General

The guidelines as included in Section 5 of the PIANC REPORT N° 152 – Guidelines for Cruise Port Facility, 2016 shall be used in designing the ground transportation areas. The ground transportation areas will also allow sufficient space to manoeuvre a forklift to

provision a cruise vessel.

(c) Pier/Wharf (General) for new constructions

1.1.1. General

The minimum design life of new pier and wharf structures is 50 years.

1.1.2. Loads

The new pier/wharf structures at Piers 11-12 Project should be designed for each of the following load conditions, at a minimum, in order to meet the service requirements of typical vessel loading:

- Uniform loading — 250 psf
- Truck loads — for provisioning of the cruise vessels truck access should be considered in the design
- Point loads from cranes:
  - All Piers — the design should allow for the T 340-1 and / or T 340-1 XL crane 100 tons

When designing new pier and wharf structures of Piers 11-12 Project, and any Modification that requires major repairs of the pilings of any of the piers, the following maximum design wind conditions shall be considered:

- Vessel shall leave the berth when a tropical storm system is coming. Tropical storm wind speeds are greater than > 39 miles per hour

1.1.3. Other

The Concession Company will design a utility network (potable water, sewage, electricity, communication, storm water drainage) which will connect to the existing utility network. The Concession Company will connect to the existing road and walkway paths of the existing network.

(d) Piers 11-12

1.1.1. Design Depth

The design depth is 36 feet.

(e) New Cruise Pier Buildings

1.1.1. General

The design life of the new Cruise Pier Buildings is minimum 50 years.

1.1.2. Other

- Cruise Pier Building design will comply with U.S. Customs and Border Patrol regulations.
- Consider climate change forecast.

(f) Rehabilitation Pier 4 Wharf repairs

The repairs to pier/wharf structures at Pier 4 should be designed for each of the following load conditions, at a minimum, in order to meet the service requirements of typical vessel loading:

- Rehabilitation of Pier 4 Wharf 165psf in accordance with Section 2.4(c)(viii) of this Agreement.

(g) Existing buildings

Repairs in accordance with the Puerto Rico Building Code 2018.

APPENDIX L: 30% DESIGN AND TECHNICAL SPECIFICATIONS

Except as provided in Section 4.5(f) of this Agreement, the 30% Design and Technical Specifications of the Initial Investment Projects and the Expansion Investment Projects will be developed after the Date of this Agreement and prior to Closing (other than the Piers 11-12 Project – Cruise Pier Building 30% Design and Technical Specifications, which have been Approved by the Authority as of the Date of this Agreement), and, upon their Approval by the Authority prior to Closing, will be included in this Appendix L at Closing to supplement the information on each Cruise Pier Improvement Project constituting a part of Initial Investment Projects.

Basis of Design - Building Terminal 11-12: Included in this Schedule as *Attachment 1* to this Appendix L.

Design Drawings – Building Terminal 11-12: These are included in this Schedule as *Attachment 2* to this Appendix L.

As of the Date of this Agreement, the design drawings for the portion of the Piers 11-12 Project identified in this Schedule 13 as Piers 11-12 – Cruise Pier Building (but not the portion of the Piers 11-12 Project identified in this Schedule 13 as Piers 11-12 – Wharf or Piers 11-12 – Uplands) have been provided to and Approved by the Authority. The portion of the Piers 11-12 Project identified in this Schedule 13 as Piers 11-12 – Wharf and Piers 11-12 – Uplands) will be developed by the Concession Company and provided to the Authority in sufficient time so that the Authority can Approve them no later than the Closing Date.

ATTACHMENTS 1: BASIS OF DESIGN – BUILDING TERMINAL 11-12

This Attachment 1 includes the Basis of Design for the Piers 11-12 Project – Cruise Pier Building referred to in Section 7 of this Schedule 13. This basis of design and related material are dated March 27 2020 and issued on April 2020.

ATTACHMENT 2: DESIGN DRAWINGS – BUILDING TERMINAL 11-12

This Attachment 2 includes the design drawings and related material for the Piers 11-12 Project – Cruise Pier Building referred to in Section 7 of this Schedule 13. These design drawings and related material are dated March 27 2020.

SAN JUAN CRUISE TERMINAL

GLOBAL PORTS
HOLDING

ORIGINATOR

GPH

TITLE

Basis of Design - Building Terminal 11-12

	Name	Date
PREPARED	**BA INTEGRA**	Apr-1, 20
ENDORSED	**GPH**	Apr-1, 20
APPROVED	**GPH**	Apr-1, 20

N/A	For Approval
SCALE & FORMAT	PROPOSED STATUS
April 2020	SJCT - Basis Of Design - 30%
DATE OF 1ST ISSUE	FILE NAME

30%	GPH	BOD	T	NA	GN	00001	0
STAGE	ISSUER	TYPE	AREA	FLOOR	TRADE	SEQUENCE INDEX	REV.

Basis of Design Narrative
30% Design Submittal
March 27, 2020

1. Architectural outline

1.1. Scope of work.

The design build team has been tasked with the redevelopment of various piers in the San Juan Port, Located in Puerta de Tierra Ward in the Municipality of San Juan, as part of the Expansion Investment Project (EIP) of the redevelopment, a new home port terminal will be built which shall accommodate a Category 3 (CAT 3) vessel, which has a capacity of over 6,000 passengers with 1,350 ft. length overall (LOA), and the operations shall be designed with the minimum peak-passengers throughput of 2,000 passengers per berth per hour.

The Piers are currently abandoned berth and adjacent land that has been previously used for general cargo in San Juan. The proposed Home Port will use berth Pier 11-12 outlined in green as shown on (Image 2: Location of Piers 11-14)

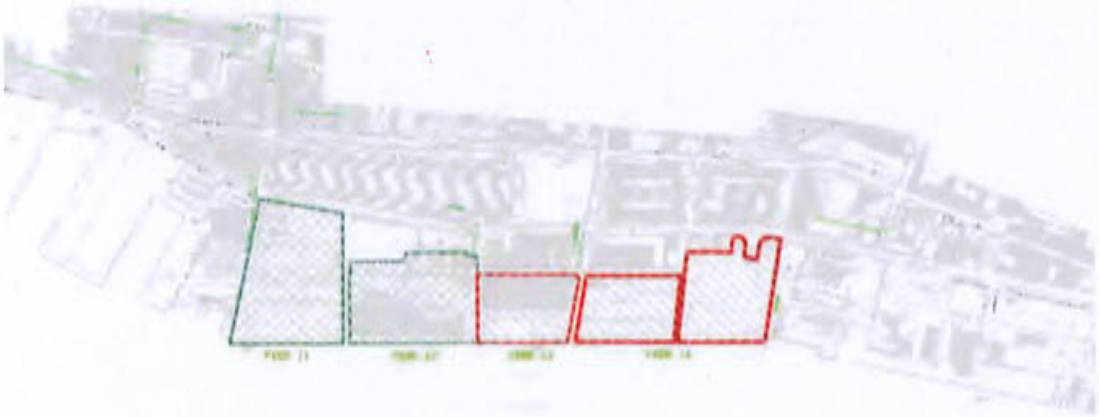
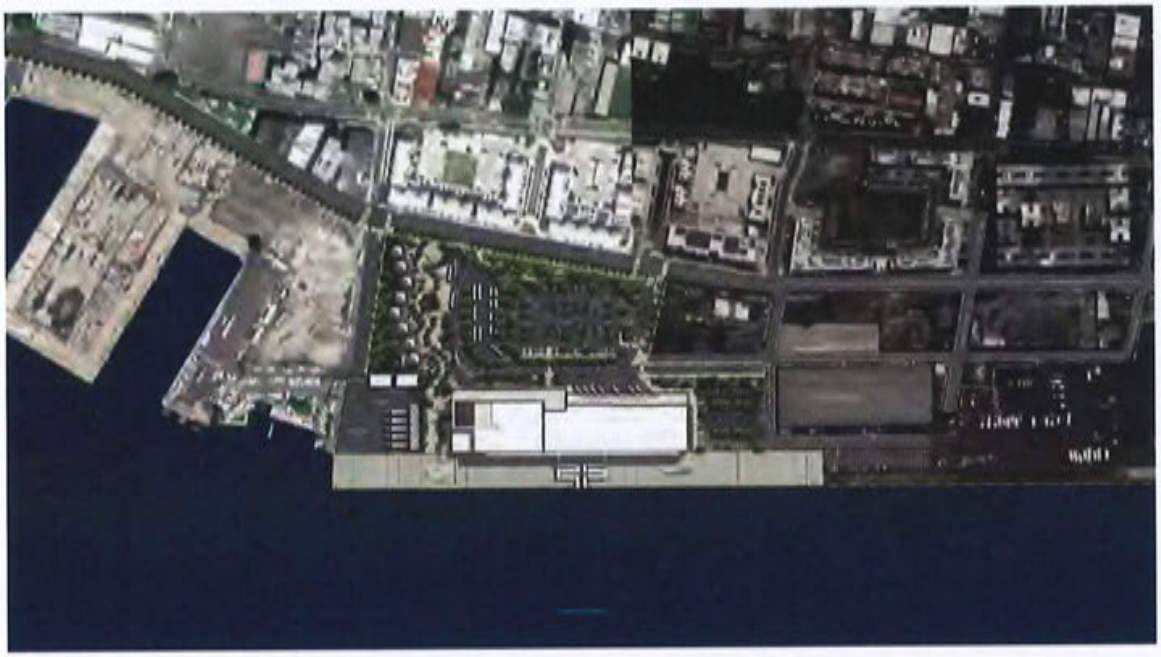


Image 2: Location of Piers 11-14

The home port will provide a strong connection to the local community and enhance the overall port experience by tying into the Bahia Urbana master plan initiative.



2. Codes

2.1 Applicable Codes

Building Code

- IBC: International Building Code, 2018 Edition
- PRBC: Puerto Rico Building Code, 2018 Edition

Fire Prevention/Life Safety Code

- IFC: International Fire Code, 2018 Edition
- NFPA 101: The Life Safety Code, 2018 Edition

Electrical Code

- NFPA 70: National Electrical Code® (NEC), 2017 Edition

Mechanical Code

- IMC: International Mechanical Code, 2018 Edition

Plumbing Code

- IPC: International Plumbing Code, 2018 Edition

Major NFPA Standards

- NFPA 10: Standard for Portable Fire Extinguishers, 2018 Edition
- NFPA 13: Standard for the Installation of Sprinkler Systems, 2016 Edition

- NFPA 14: Standard for the Installation of Standpipe and Hose Systems, 2016 Edition
- NFPA 20: Standard for Installation of Stationary Fire Pumps for Fire Protection, 2013
- Edition.
- NFPA 72: National Fire Alarm and Signaling Code®, 2016 Edition
- NFPA 110: Standard for Emergency and Standby Power Systems, 2016 Edition

2.2 Local Agencies

- Puerto Rico Ports Authority (the Authority)
- US Coast Guard (USCG)
- Customs and Border Protection (CBP)
- Puerto Rico Fire Department (PRFD)
- Municipality of San Juan
- Puerto Rico Department of Natural and Environmental Resources (DNER)
- San Juan Port other Lessees and/or concessionaires
- United States Environmental Protection Agency (USEPA)
- United States Army Corps of Engineers (USACE)
- Puerto Rico Planning Board
- Permit Management Office (or OGPe by its Spanish acronym)
- Puerto Rico Central Office of Recovery, Reconstruction and Resiliency (COR3)
- Federal Emergency Management Agency (FEMA)
- United States Department of Housing and Urban Development (HUD)
- United States Department of Homeland Security – Office of the Inspector General (DHS-OIG)
- United States Department of Housing and Urban Development - Office of the Inspector General (HUD-OIG)
- Puerto Rico Department of Housing (PRDOH)

3. Architectural Narrative:

Besides providing a world class homeport terminal capable of handling the world's largest cruise ships with a strong connection to the local community and enhanced traveler experience, the terminal has to respond to the demands of performing in a Caribbean hurricane zone. The terminal will also be designed to meet the sustainable goal of achieving LEED Silver level as a minimum through LEED BD BD+C V4.1 certification. The selection of systems, materials and operations described in the following narratives follow these stated goals.

3.1 Metals:

3.1.a - Metal Railing – galvanized steel at exterior locations, aluminum at interior locations

- Type 1 : Means of egress stairs - guard railing
- Type 2: Means of egress stairs - Hand rail
- Type 3 : Hand rail of Feature stair in main lobby
- Type 4 : Guard rail on concourse with integrated swinging gates

- Type 5 : Guard rail on VIP Terrace

3.1.b - Decorative Formed Metal
- Escalator Enclosure
- Column Covers in main lobby and covered patio
- Perforated Aluminum Metal Screen – at main entrance

3.1.c – Metal Pan Stairs
- All Stairs

3.1.d – Metal Roof Deck
- Bus drop off canopy
- Concourse canopy
- At provisioning area

3.2 Wood, Plastics and Composites

3.2 a - Interior Architectural Woodwork
- Main Lobby – information desk
- CBP Area – various locations – as required by CBP

3.3 Thermal and Moisture Protection

3.3a-Cold Fluid-applied Waterproofing

3.3c-Thermal insulation
- Polyisocyanurate _ exterior walls - R=11
- Polyisocyanurate _Roof - R=20 min
- Tapered insulation Polyisocyanurate _Roof - R=20

3.3d-Vapor Retarders

3.3e-TPO Roofing - single ply
- Thickness: 60 mils (1.5 mm), nominal.
- Exposed Face Color: White.

3.3f - Sheet Metal Flashing and Trim
- Applicable for entire roof surfaces and parapets.

3.3g - Roof Specialties
- Applicable for entire Roof : Copings, Roof-edge, Roof-edge drainage systems, Reglets and counterflashings.
- Anchor points and life lines.

3.3h - Applied Fireproofing

- Sprayed Fire-resistive materials on structure.
- No applied fire proofing for roof structure higher than 20' above finish floor level.

3.3i - Penetration Firestopping

3.3j - Joint Firestopping

3.3k - Joint Sealants

3.3l - Acoustical Joint Sealants

3.3m - Interior Expansion Joint cover assemblies

3.3n - Exterior Expansion Joint cover assemblies

3.4 Openings

3.4 a - Hollow Metal Doors and Frames

Hollow Metal Doors:

- 1-3/4 inch doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8 and ANSI/NAAMM HMMA 867
- Exterior Doors: Face sheets fabricated of commercial quality hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60.
- Interior Doors: Face sheets fabricated of commercial quality cold rolled steel that complies with ASTM A 1008/A 1008M.
- Hollow Metal Frames –comply with ANSI A250.8/SDI 100.
- Exterior Frames: Fabricated of hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60.
- Interior Frames: Fabricated from cold-rolled steel sheet that complies with ASTM A 1008/A 1008M.
- Fire rated frames: Fabricate frames in accordance with NFPA 80, listed and labeled by a qualified testing agency, for fire-protection ratings indicated.
- Metal Louvers: Door manufacturer's standard metal louvers

3.4 c - Access Door and frames

- Wall and ceiling units

3.4 d - Overhead Coiling Doors

- Doors in Galvanized steel 12'-00" x 10'-00"(H) – non insulated 22 ga.

3.4 e - Detention Doors and Frames

- Doors of the hold rooms CBP

3.4 f - Aluminum-framed entrances and storefront

- Main Lobby - glazed sliding doors + means of egress

- Exit doors at CBP
- Second floor : access to the concourse - glazed sliding doors
- Ground floor : Sliding doors to CBP Primary

3.4 g - Glazed aluminum curtain walls
- Main Lobby -north and west façade

3.4 h - Aluminum windows
- Windows on Intermediate Floor and Second Floor

3.4 i - Door Hardware
- All interior and exterior doors, except detention Door hardware

3.4 j - Detention Door Hardware
- Door hardware for holdrooms and interview rooms Secondary CBP

3.4 k - Mirrors
- Bathrooms
- Hold rooms and restrooms CBP secondary

3.4 l - Security Glazing
- CBP primary and secondary

3.5 Finishes

3.5 a - Gypsum Board Shaft Wall Assemblies
- Fire-resistance-rated vertical shaft and horizontal enclosures, including metal framing.

3.5 b - Non-Structural Metal Framing
- Steel framing for gypsum board and plaster partitions.
- Steel framing for gypsum board and plaster ceilings

3.5 c - Gypsum Plastering
- Gypsum plaster on expanded metal-lath, unit masonry, and concrete

3.5 d - Cement Plastering
- Portland Cement plaster (Stucco) on metal-lath, unit masonry, and concrete; exterior

3.5 e - Gypsum Board
- Interior Gypsum Board, exterior gypsum board for ceilings and soffits, and tile backing boards.

3.5 f - Ceramic Tiling
- Ceramic Tiles – sizes vary
    - Checking and waiting area
    - Floors in restrooms

- Walls in restrooms

3.5 g - Acoustical Tile Ceilings

- Mineral-base tile with concealed suspension systems.
  - all offices and CBP secondary.

3.5 i - Resilient Base and Accessories

- Resilient base and molding accessories - height 6"" - Style - Cove / Outside and inside Corners: Preformed. Provide in areas in all locations without ceramic tiles and stone tiles and except CBP.
- CBP AREA: extended cove bases, 8" high; rubber round cap strip and rubber fillet strip with a minimum radius of ¾" at the perimeter and fixed vertical interruptions to the flooring. Provide inside and outside corner protectors of plastic approved by the flooring manufacturer.

3.5 j - Resilient Tile Flooring

- Vinyl composition floor tile : in offices, CBP offices
- Static-Control Resilient Flooring
- Static-Dissipative, Solid Vinyl Floor Tile in CBP Area – Data Room: ASTM F1700, Class I (monolithic), Type A (smooth surface).

3.5 m - Exterior Painting

- All areas

3.5 n - Interior Painting

- All areas

3.5 o - Elastomeric Coatings

- Pigmented, water-based, elastomeric coating for use over concrete, masonry and Stucco.

3.6 Specialties

3.6 a - Wayfinding / Signage

- Wayfinding inside the terminal.
- Wayfinding at the exterior side of the terminal.
- Wayfinding on the site: bus parking, staging, drop-off zone, parking lot, provisioning area,...

3.6 b - Room-identification Panel Signage

- Panel signs and sign systems used specifically for room identification; sometimes called 'ADA signs'.
- Rooms CBP primary and secondary
- Rooms in offices GPH
- Rooms in operations offices
- Technical rooms, restrooms, stairs, elevators, level-indications,...
- Means of egress panel signage

3.6 c - Phenolic Core Toilet Compartments

- Phenolic-core toilet enclosures - all restrooms
- Phenolic-core urinal screens - all restrooms

3.6 d - Wire Mesh Partitions

- Standard and heavy duty partitions, ceilings railing insert panels, and equipment barriers - CBP secondary.

3.6 e - Wall and door protection

- Wall and column corners - 4'-00""high

3.6 g - Toilet, Bath, and Laundry Accessories

- Standard commercial units.
- Detention Toilet Accessories

3.6 h - Fire protection

- Fire-protection cabinets
- Recessed fire-protection cabinets in gypsum walls.
- Security fire-protection cabinets
- Portable fire extinguishers.

3.6 i - Metal lockers

- CBP : standard double stack (36"h x 12"w x 18"d)
- Cylinder locks.
- Locker Benches.
- CBP : changing bench(es)

3.7 Equipment

3.7 a - Parking Control Equipment

- Power and data provision for 3 access control to be provided by Operator.

3.7 b - Detention Gun Lockers

- Secure compartment for fire arms. - CBP Secondary.

3.7 c - Unit kitchens

- Standard wood types and plastic-laminate.
- Kitchen unit CBP ; with lockable cabinets
- Kitchen unit offices GPH
- Kitchen unit Operations offices

3.7 d - Detention Gun Lockers

- Rifle-rated Clearing Barrel Weapon cleaning room CBP

3.8 Furnishings

3.8 a - Manufactured wood-veneer-faced Casework

- Information desk in main lobby

3.8 b - Manufactured Plastic-Laminate-Clad Casework

- 40 Check-in counters on second floor
- CBP primary : 16 counters
- CBP secondary : podium
- Small kitchens
- Agriculture lab CBP

3.8 c - Entrance Floor Mats and frames

- Main entrance lobby
- Debarkation entrance
- Embarkation doors to the concourse
- Main entrance CBP
- Exit secondary CBP
- Exit Primary CBP

3.8 d - Audience seating

- Waiting area

3.9 Conveying Equipment

3.9 a - Machine Room-Less Electric Traction Passengers Elevators

- Main Lobby 3 elevators 5.000 lb (1 elevator with higher ceiling)
- Debarkation 2 elevators 5.000 lb

3.9 b - Escalators

- Main Lobby: 2 escalators 40" wide
- Debarkation: 2 escalators 40" wide

1 Structural Work Narrative

1.1 Applicable Codes

- 2018 International Building Code (IBC 2018)
- 2018 Puerto Rico Building Code (PRBC 2018)
- ASCE 7-16: Minimum Design Loads and Associated Criteria for Buildings and other Structures, 2016
- ANSI/AISC 360-16: Specification for Structural Steel Buildings
- ACI 318-14: Building Code Requirements for Structural Concrete

1.2 Wind Loading Criteria

- Risk Category: III
- Basic Wind Speed: 180 MPH (Per PRBC 2018)
- Wind Exposure Category: D
- Methods of Analysis:

  - Main Wind Force Resisting System (MWFRS): *Directional Procedure for building, building appurtenances and parapets.*

  - Components and Claddings: *Directional Procedure*

1.3 Seismic Design Criteria

- Seismic Design Category: D
- Occupancy Category: III
- Seismic Importance Factor: 1.25
- Site Class: E (Building Period Limited to 0.5 s)
- 0.2 Second Spectral Response Coef. S_S 1.0 g (Risk Targeted Max Considered Earthquake, MCE_R)
- 1.0 Second Spectral Response Coef, S_1 0.397
- Site Coefficient, short period, F_a 1.3
- Site Coefficient, long period, F_v[1] 2.4
- 0.2 Second Design Spectral Acceleration, S_{DS} 0.86
- 1.0 Second Design Spectral Acceleration, S_{D1}[1] 0.64

- Lateral Force Resisting System[2]:

- Special Reinforced Concrete Shear Walls
- Shear Walls to be designed to take 100% of the seismic Load
- Moment Frames to be designed for Deflection Compatibility and detailed as Intermediate Moment Frames for additional ductility and Redundancy.
- Building Period Limited to 0.5 sec.

- Response Parameters[2]:
  - Response Modification: $R = 5.0$
  - Overstrength Factor (Omega) $\Omega = 2.5$
  - Deflection Amplification Factor $C_d = 5.0$
- Method of Analysis
  - Linear Static Equivalent Force Procedure
  - Linear Dynamic Response Spectrum Analysis.
- Precast Panels
  - Designed for deflection compatibilities as non-structural elements.
- Methods of Analysis
  - Linear Static (Equivalent Load Procedure)
  - Linear Dynamic (Modal Response Spectrum Analysis)

1.4 Material Definition:

1.4.1 Structural Steel

- WF Shapes (Columns and Beams): $F_y = 50$ ksi, $F_u = 65$ ksi (ASTM A992)
- Rectangular HSS: $F_y = 46$ ksi, $F_u = 58$ ksi (ASTM A500, Gr B)
- Round HSS: $F_y = 42$ ksi, $F_u = 58$ ksi (ASTM A500, Gr B)
- Other Steel Shapes, (unless noted otherwise): $F_y = 36$ ksi, $F_u = 58$ ksi (ASTM A36)

1.4.2 Concrete

- Normal Weight Concrete
- Compressive Strength of Concrete:
  - Exterior Walks and Curbs: $F'_c = 3$ ksi
  - Grade Slabs $F'_c = 4$ ksi
  - Pre-Cast Piles $F'_c = 5$ ksi
  - Pile Caps and Grade Beams $F'_c = 4$ ksi
  - Mezzanine and Second Floor Slabs $F'_c = 4$ ksi

1.4.3 Reinforcing Steel

- Specified Yielding Stress: F_y = 60 ksi

1.4.4 Foundations

- 12" Round Precast Concrete Piles[3]
- Allowable Axial Compressive Service Capacity: 80 Tons[2]
- Allowable Axial Tension Service Capacity: 25 Tons[3]
- Applicable Load Tests: ASTM D1143
ASTM D3689
ASTM D3966
Pile Driver Analyzer (PDA)

1.4.5 Loading Criteria

- Roof
  - Roof Live Load: 30 PSF (Minimum as per PRBC 2018)
  - Roofing: 5 PSF
  - Superimposed Dead load: 15 PSF (Ceilings, MEP piping…)

- Second Floor Dead Loads
  - Partition dead Load: 40 PSF
    (Considers full height Gypsum partition walls and Floor Finish. To be included in seismic mass)
  - Superimposed Dead Load: 15 PSF
    (Ceiling, MEP piping, Lighting…)

- Second Floor Live Loads
  - VIP Area (Assembly): 100 PSF
  - VIP Terrace: 100 PSF
  - Check in and Waiting Areas: 100 PSF
  - Lobbies and Corridors: 100 PSF

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[2] Based on recommendations by Geotechnical Engineer.

- Mezzanine Floor
  - Office Spaces: 50 PSF
  - Corridors: 100 PSF
  - MEP Room: 80 PSF
    (Includes Air Handling Units, Chillers and heavy equipment are on utility room on the exterior of the building)

- Ground Floor
  - Lobbies and Corridors: 100 PSF
  - Offices: 50 PSF
  - Bag Processing, laydown, staging and other assembly areas: 100 PSF
  - CBP areas: 100 PSF

- Seismic Weight:
  - Elements' self-weight, precast walls weight, superimposed dead and partition loads to be included in seismic weight.

1.4.6 Structural System description

1.4.6.1 Roof

Roof is composed of a composite deck resting on open web steel joist system. Composite deck is made of a Type B, gage 20 steel deck with 2 layers of 2-1/2" rigid insulation board and a single ply membrane roofing system. Live loads on roof will be reduced based on prescription contained in ASCE 7-16 and IBC 2018 standards.

1.4.6.1.1 Roof Components & Claddings Design for Wind Uplift

Deck, Open Web Joists, and beams will be designed for design wind pressures as component and claddings and specific fastening patterns will be specified for the different wind pressure roof zones.

1.4.6.1.2 Roof Diaphragm Design

Roof deck structure will be designed as a flexible diaphragm using fasteners/spot welds as the main shear transfer mechanism along with horizonal braces within the plane of the diaphragm as chords and collectors. Design of diaphragm will be performed using amplified seismic loads per code.

1.4.6.2 Second Floor

Second Floor system is composed of a composite deck resting on an Open Web Joist system which in turn rest on steel wide flange shaped girders. Deck is composed of a 5-1/2" normal weight concrete slab and Type B gage 20 corrugated metal deck. Additional bridging will be provided using angle shaped steel members.

1.4.6.3 Slab on Grade & Foundation System

Slab on grade will be an elevated reinforced concrete floor system composed of a uniform grid of grade beams connecting all the pile caps on both orthogonal axes. Grade beams and slab will be designed to act together.

Foundations are made of multiple pile groups under each column. Deep foundation design will be based on final recommendations from the geotechnical engineer. Driven Piles or drilled piles could be used. Both alternatives will be evaluated in coordination with the geotechnical engineer and the most cost-effective and functional alternative will be chosen.

1 Civil (Site External) Work Narrative

1.1 EARTHWORK

1.1.1 Clearing and grubbing

The removal of all loose debris and vegetation within 6 inches (0.15m) below the existing grade is contemplated. Grubbing will include the excavation and complete removal of trees stumps and all other plant life including root structures. All removed organic material will be disposed off-site.

1.1.2 General Earthwork

The grading for the development will be according to proposed elevations. Topographic survey and Proposed Grading drawings will be used as basis for the natural terrain elevation and for grading development.

1.1.3 Excavation cut and fill

Earth excavation will include new fill material where required and compacted as recommended on geotechnical report. All topsoil and earth cut material will not be used as backfill. The removed material can be temporarily stockpiled on-site on designated areas and then disposed off-site.

Earth excavation will include the removal and transportation of all excavated materials other than blasted or ripped rock, whether wet or dry, from the point of excavation to designated areas of disposal. Earth excavation is further classified as common excavation, trench excavation, and foundation excavation for structures as described in the following paragraphs.

- Common excavation is general site excavation and grading to the appropriate lines, grades and dimensions, including the removal of any unsuitable surface soil and contained plant life root structures at specified work areas, and the disposal of all unsuitable and surplus materials at prescribed locations.
- Trenching for underground piping, drain lines, duct banks, culverts and their appurtenant structures will conform to the following:
    - Excavations for trenches will conform to the depths and requirements specified on the drawings.
    - Underground piping, culverts and their appurtenant structures will be installed in open cut trenches.
    - Trench width will be sufficient to provide free working space for bedding and jointing operation and allow a thorough tamping of the bedding and backfill materials under and around the pipe or conduit.

- Trench width, at the bottom, will not be greater than the pipe's outside diameter plus 24 inches (0.60m).
- Sheeting, bracing and shoring or excavations with minimum sloped sides at (1.5:1) (horizontal: vertical) will be used for personnel safety and for the protection of the work in trenches where the depth exceeds 5 feet (1.52 m) in order to ensure stability of the excavation. Excavation operations must comply with the Occupational Safety and Health Administration's (OSHA) Excavation standards, 29 Code of Federal Regulations (CFR) Part 1926, Subpart P.
- Surplus and unsuitable materials will be transported to designated spoil areas.
- Foundation excavations will be kept free of water until either a seal slab or the foundation is placed, and the excavation backfilled.

1.1.4 Fill

Fill material will only be acceptable from outside sources. Restrictions in the use of specific types of fill are as follows:

- Only cohesionless material will be used where deposition is in water.
- Fill material shall be classified as AASHTO A-1-a, A-2-4 or better, as recommended by geotechnical engineer.
- Fill material will be free from roots or other organic material.
- Fill material will not contain rocks over 2 inches (0.06m) diameter in size when within 12 inches (0.30m) of culverts, underground piping or electrical ducts.

1.1.5 Fill Material Sources

Fill material will be obtained from suitable borrow sources from off-site borrow sources. The fill material will be screened, blended, or otherwise processed as necessary to conform to the gradation requirements of the desired material classification.

Placement of fill to the specified lines, grades and dimensions will be as follows:

- All fill will be placed in loose lifts not to exceed the maximum allowable thickness, 12 inches (0.30m) and compacted, or as indicated by the geotechnical engineer.
- Fill will not be placed against walls until the mortar or concrete has attained sufficient strength to support the load.
- Sufficient fill will be placed to allow for settlement where a lesser degree of applied compaction is required to avoid damage to buried piping or structures.

1.1.6 Backfill

Backfill is placement of fill adjacent to walls, structures or foundations, or over piping or other underground facilities, to the appropriate grades, generally the same grade as that of the surrounding area.

Two classifications of backfill apply to trenches, as follows:

- Initial backfill, which includes the placing of suitable soil, free of stones and foreign materials, in uniform compacted layers until a 12-inch (0.30-m) cover is obtained over the top of the pipe.
- Final backfill, which includes the placing of fill in uniform compacted layers to completely fill the excavation.

Bedding material will be placed to provide uniform bearing and support for each section of the pipe or conduit along its length except where it is necessary to excavate for bell-holes and the proper sealing of joints. Bell-holes and depressions will be dug after the bedding has been placed.

Pipes and conduits will be placed on compacted bedding material. For pipe or conduit over 6 inches (0.15m) nominal diameter, the bedding surface will be shaped to fit the lower quadrant of the pipe or conduit.

1.1.7 Material Placement and Compaction

Fill will be placed in 12 inches (0.30m) maximum lifts (loose thickness) and compacted to 95-percent maximum modified density or as indicated by geotechnical engineer.

Bedding material will be placed in 12 inches (0.30m) maximum (loose thickness) lifts and compacted to 80-percent Proctor density or as indicated by geotechnical engineer.

For all materials compacted, the moisture content will be controlled between 3 percentage points below and 2 percentage points above the laboratory optimum water content during compaction.

1.1.8 Testing

Tests will be performed for every 250 cubic meters (327 cubic yards (c.y.)) of the material compacted in-situ.

The in-place density of the compacted soils will be as specified above. Each lift will be tested in a 40-meter (131 feet) by 40-meter (131 feet) grid system. At least one test will be made for each lift and whenever there is suspicion of a change in the quality of moisture control or the effectiveness of compaction.

Records in-place density tests results will be done prior to placing the next lift. Records will be detailed enough to identify lift and locate test point within 2-meters (6.5 feet). Areas not meeting compaction requirement according to the in-place density tests will be recompacted and retested.

1.2 DRAINAGE & STORM SEWER

1.2.1 Definitions

Storm Sewer System - that collects surface runoff and discharges it to either to an off-site storm sewer system or discharge at open sea after passing through a grease and sediment separator complying with EPA regulations.

Manholes - Inspection chambers - used in sewer mains at junction points to provide access for maintenance and inspection.

Catch Basins – Inlet- collection structure designed to catch excess rain and ground water from paved streets, parking lots, sidewalks, and roofs.

Grease and sediment separator – collection structure before each outfall which separates grease and sediment from the water, in order to comply with EPA regulations for discharge at the San Juan Bay.

1.2.2 Design Codes and Regulations

The sewer design shall comply with State and Federal regulations regarding the discharge of runoff into water bodies. Quantity and quality of runoff must be addressed. The following requirements, standards and regulations shall apply:

- LEED Certification Requirements: Rainwater management with Best Management Practices (BMP's) such as retention ponds, bio swales and rainwater catchment for reuse. The bio-retention facilities incorporated into the site design are soil- and plant-based filtration systems that receive runoff from the developed site areas.
- Section 402 of the Clean Water Act: National Pollutant Discharge Elimination System (EPA-NPDES).
- PR Planning Board- Storm Sewer Design Standards (Junta de Planificación-Normas de Diseño para Sistemas de Alcantarillado Pluvial): Since the Project is less than 150 acres and considering the land use, the average rain frequency recurrence interval to be used is 25 years.

1.2.3 Pipes

Sewer piping material will be corrugated High Density Polyethylene (HDPE) Plastic Pipe with smooth interior and bell and spigot rubber gasket joint.

Selection criteria for pipe strength will be as follows:

- Minimum earth cover will be not less than 2 feet (0.60m) below finished grade.
- Superimposed wheel loads will include an allowance for impact. (Exceed AASHTO LRFD structural design requirements for earth and live loads.)

• Load factor, converting crushing strength of pipe to field supporting strength will be determined by the type of bedding selected.

• Pipe crushing strength will be determined by the three-edge-bearing method.

• A factor of safety of 1.5 will be used to establish safe supporting strength (design load) of pipe.

1.2.4 Manholes

Manholes will be located per the following:

• At Junctions

• At change in direction and/or slope.

• Manhole locations will not exceed intervals of 278 feet (85 m).

Materials for manholes and other drainage facilities will be:

- Construction shall be prefabricated concrete
- Covers and Frames: Cast Iron

Manholes will be sized for cleaning with a minimum inside diameter of 4 feet (1.22m) and a minimum height of 3 feet (0.91m).

1.2.5 Catch Basins

Catch basins will be located per the following:

• At low points

At runoff collection points

• At change in direction and/or slope.

•Materials for catch basins will be:

- Construction shall be prefabricated concrete
- Grates and Frames: Galvanized cast Iron

Catch basins will be sized for cleaning with a minimum inside length and width of 4 feet (1.22m) and a minimum height of 3 feet (0.91m).

1.2.6 1.2.5 Best Management Practices (BMP's)

To comply with stormwater quality and quantity control, the following measures shall be implemented:

- Infiltration: Measures can include infiltration trenches, basins and dry wells that allow water to percolate from the surface into the soil below.
- Vegetated Swells and Natural Depressions: Vegetation, usually grass, lines the swell and removes sediments from runoff, allowing it to better infiltrate into subsurface soil.

- Modified catch basins to include a sump to collect sediments and an outlet hood to collect floating debris.
- Modified catch basins to include interior oil/grit/water separator baffles

1.2.7 Backflow prevention

The storm drainage systems will discharge thru openings on the apron wall into the San Juan Bay. In order to prevent backflow at outlets, check valves must be installed. It is recommended to install rubber or neoprene in-line check valves such as Red Valve Tideflex Series 37G or similar.

1.2.8 Sewer testing and inspection

As required by the Puerto Rico Aqueducts and Sewers Authority (PRASA), sewer lines and appurtenances will be hydro-tested. The sewer lines may be tested by a dedicated CCTV inspection as an option, if required by the PRASA or Concession Company. System tests will be performed after completion and before backfilling of the sewer and appurtenances. Fill the line with water and establish a head above the top of the pipe equal to the level of the top of the lowest manhole or catch basin in the system. Allow suitable time for water absorption and then refill to the required test head and measure leakage loss over a timed test period.

1.3 SANITARY SEWER

1.3.1 Definitions

Sanitary Sewer System - that collects wastewater from its source to a point of treatment and disposal. The wastewater may be domestic sewage or industrial sewage. For his project the goal is to develop a gravity sewer system that will discharge into a public trunk sewer on State Road PR-1, (Muñoz Rivera Avenue). No sewage pumping/force line is expected unless required for a special purpose within the facilities below the proposed building floor elevations.

Manholes - Inspection chambers - used in sewer mains at junction points to provide access for maintenance and inspection.

1.3.2 Design Codes and Regulations

The potable water system shall be designed in accordance with:

- PR Aqueduct and Sewer Authority Design Regulations ("Normas de Diseño")
- 2018 PR Building Code
- 2018 International Plumbing Code

1.3.3 Pipes

Gravity Sewer piping material will be PVC SDR-35 (ASTM D3034) Plastic Pipe with smooth interior and bell and spigot rubber gasket joint.

Selection criteria for pipe strength will be as follows:

- Minimum earth cover will be not less than 2 feet (0.60m) below finished grade.
- Superimposed wheel loads will include an allowance for impact. (Exceed AASHTO LRFD structural design requirements for earth and live loads.)
- Load factor, converting crushing strength of pipe to field supporting strength will be determined by the type of bedding selected.
- Pipe crushing strength will be determined by the three-edge-bearing method.
- A factor of safety of 1.5 will be used to establish safe supporting strength (design load) of pipe.

1.3.4 Manholes

Manholes will be located per the following:

- At Junctions
- At change in direction and/or slope.
- Manhole locations will not exceed intervals of 278 feet (85 m).

Materials for manholes and other drainage facilities will be:

- Construction shall be prefabricated concrete
- Covers and Frames: Cast Iron

Manholes will be sized for cleaning with a minimum inside diameter of 4 feet (1.22m) and a minimum height of 3 feet (0.91m).

1.3.5 Sewer testing and inspection

Sewer lines and appurtenances will be hydro-tested. System tests will be performed after completion and before backfilling of the sewer and appurtenances. Fill the line with water and establish a head above the top of the pipe equal to the level of the top of the lowest manhole or catch basin in the system. Allow suitable time for water absorption and then refill to the required test head and measure leakage loss over a timed test period.

1.4 WATER DISTRIBUTION

1.4.1 Definitions

- Potable Water supply lines from public street main connection to storage tank and facilities. For this project the goal is to develop a water network that will be served from a new dedicated line with metering to be connected to an existing public main line on State Road PR-1, (Muñoz Rivera Avenue).
- Potable water supply connection with metering for cruise ships located on the apron.

1.4.2 Design Codes and Regulations

The potable water system shall be designed in accordance with:

- PR Aqueduct and Sewer Authority Design Regulations ("Normas de Diseño")
- 2018 PR Building Code
- 2018 International Plumbing Code

1.4.3 Pipes

Pressure water piping material will be PVC DR 14 (AWWA C900), Pressure Class 305 psi, Plastic Pipe with smooth interior and bell and spigot rubber gasket joint.

Selection criteria for pipe strength will be as follows:

- Minimum earth cover will be not less than 2 feet (0.60 m) below finished grade.
- Superimposed wheel loads will include an allowance for impact. (Exceed AASHTO LRFD structural design requirements for earth and live loads.)

1.4.4 Valves

All water main valve shall be Gate valves type. Valves shall be epoxy coated iron-body, resilient wedge non-rising stem gate valves. The wedge shall be cast iron completely encapsulated in an elastomer covering with polymer guide bearing caps on each side.

The valves shall have a full diameter waterway with no grooves or recesses at the valve seat location. Flanges, where required, shall be 125 pound, full faced, drilled per ANSI B 16 .1.

Valves shall be tested and certified by the manufacturer for shut-off at a working pressure of 200 psi and a minimum test pressure of 300 psi.

In-ground valves will be located in a valve box accessible to the operator for operation and maintenance.

1.4.5 Mechanical Joint (MJ) Fittings

All fittings shall be mechanical joint (MJ) type. All tees, crosses, elbows, reducers, adapters, combinations thereof, and other miscellaneous fittings 4-inches through 24-inches in diameter shall be ductile iron compact fittings in conformance with A WW A C153. The minimum working pressure for all MJ cast iron or ductile iron fittings 4-inches through 24-inch in diameter shall be 350 psi.

1.4.6 Fire Hydrants

All fire hydrants shall conform to the following:

- All fire hydrants shall be improved, dry barrel, 5114-inch compression Puerto Rico type valve, traffic model, painted yellow.
- Fire hydrants shall be equipped with two 2Y2-inch hose ports (NST), one 4Y2-inch pumper port (NST) with Storz adapter as specified, 112-inch pentagon nut, and barrel drains.

1.4.7 Storage Tanks

•Potable Water supply regulations from the PR Aqueduct and Sewer Authority requires the storage of ½ of the daily average demand for the facility. An above ground storage tank with a pump system shall be provided.

•Firefighting lines for the building require a dedicated storage tank and pumping system.

1.4.8 Installation and Testing

Pipe will be kept clean during laying operations by plugging or other approved method. Pipe will not be laid when it is raining or when trench is muddy, soft, or contains standing water.

Water pipe will not be laid closer than 3 meters (10 ft.) horizontally from sanitary sewer in parallel installations. Joints will not be located at cross-over closer to sanitary sewer than 3 meters (10 ft.) from cross-over point. In either case, water pipe will be above the elevation of adjacent sewer.

Newly laid piping or valved section will be subjected to inspected pressure test.

Exposed pipe, joints, fittings, and/or valves will be carefully examined during pressure test. Joints showing visible leakage will be tightened or remaked. Cracked or defective pipe, fittings and valves will be replaced and retested.

1.4.9 Disinfection

System disinfection will be performed as follows: After testing, entire distribution system will be disinfected with 50mg/l chlorine solution. Isolate a maximum length

of 300 meters (or 1000 ft.) of piping from the rest of the system for disinfection. Thoroughly flush lines before introducing chlorine solution.

After a contact period of not less than 24 hours, flush system with clean water until residual chlorine content is not greater than 1 mg/l. Open and close all valves in lines being sterilized several times during contact period.

Samples for bacteriological analysis will be collected to check efficiency of disinfection procedures. Take minimum on one sample for each 300 meters (or 1000 ft.) of completed water main. Repeat disinfection process and sample collection if tests show that contamination persists.

1.5 ROADWAYS, PARKING LOTS. PATHWAYS AND OTHER PAVEMENTS

1.5.1 Roadway geometry codes and regulations

Roadway geometry including accesses, lanes and parking areas dimensions and layout shall comply with current regulations including:

- AASHTO Geometric Design of Highways and Streets (2018 Green Book)
- PR Highway and Transportation Authority Design Manual
- Regulation for the Public Roads Access Controls (PR Dept. of Public Works)
- American with Disabilities Act (ADA)

1.5.2 Pavement Structures

Roadway and parking lot structures will consist of:

- Asphalt pavement designed in accordance with the current AASHTO Guide for the Design of Pavement Structures (AASHTO Design Guide)

Loading areas will consist of:

- Rigid cement concrete pavement designed in accordance with the current AASHTO Guide for the Design of Pavement Structures (AASHTO Design Guide)

1.5.2.1 Asphalt Pavement (flexible)

The minimum requirements for asphalt pavements will be:

- Performance Criteria:
  - Initial Serviceability Index (P_o)=4.2 (flexible pavement)
  - Terminal Serviceability Index (P_t)=2.25 (commercial streets)
- Analysis Period: 20 yrs.
- Design Traffic: Equivalent Single Axle Loads (ESAL's) to be determined by traffic study or analysis
- Reliability (R): 80% (local streets)
- Overall Standard Deviation (S_o): 0.45 (flexible pavement)

- Soil Strength: Resilient Modulus (M_R) or CBR to be provided by geotechnical engineer
- Layer Coefficients:
  - Surface=0.44 (hot mix asphalt)
  - Base course=0.44 (hot mix asphalt)
  - Sub-base course=0.05 (soil-aggregate)
- Asphalt Surface course – 2" (0.05m) minimum surface course hot mix asphalt concrete, (subject to design)
- Asphalt Base course - 4" (0.10m) minimum base course hot mix asphalt concrete, (subject to design)
- Aggregate base course: 6" (0.15m) minimum, crushed stone, (subject to design)
- Sub-base course: subject to geotechnical recommendations

1.5.2.2 Cement Concrete Pavement (rigid)

The minimum requirements for concrete pavements will be:

- Performance Criteria:
  - Initial Serviceability Index (P_o)=4.5 (rigid pavement)
  - Terminal Serviceability Index (P_t)=2.25 (commercial streets)
- Analysis Period: 20 yrs.
- Design Traffic: Equivalent Single Axle Loads (ESAL's) to be determined by traffic study or analysis
- Reliability (R): 80% (local streets)
- Overall Standard Deviation (S_o): 0.35 (rigid pavement)
- Soil Strength: Resilient Modulus (M_R) or CBR to be provided by geotechnical engineer
- Rigid pavement – 8" (0.20m) minimum thickness, (subject to design)
- Aggregate base course: 6" (0.15m) minimum, crushed stone, (subject to design)

1.5.3 Roadway grading

Grading of the roadway and related work will include the removal and/or satisfactory placement of all materials necessary for the construction and preparation of embankment, slopes, drainage works and connections to the required alignment, grade and cross-section shown on the drawings.

Embankment, when necessary, will be constructed by depositing, shaping and compacting acceptable excavated materials in accordance with established lines and grades.

Subgrade preparation will be performed if the subgrade deteriorates due to weather, traffic, etc. between the completion of grading and start of surfacing.

The subgrade surface will be compacted to an average of 98% density with no test result less than 95% of Maximum Modified Proctor Dry Density (MMPDD) or according to recommendations by geotechnical engineer.

Sub-base course will consist of imported aggregate (conform to the standard) placed in layers upon a prepared surface, compacted and finished.

Asphalt concrete pavement will consist of crushed aggregates, blend sand material and asphalt cement, combined in a hot mix plant, placed and compacted on a prepared surface. The equipment utilized will produce an end product complying with the requirements of this narrative. The mixing plant will be calibrated to produce a uniform mixture in accordance with the job mix formula.

Aggregate and asphalt will be combined to produce a uniform mixture of specified gradation at an asphalt content in accordance with the approved job mix formula and in which all particles of aggregate are uniformly coated. The maximum mixing temperature for all grades of asphalt will be 155 °C (310 °F). Rollers will be reversible and self-propelled with compaction capability to match plant production rates. Asphalt mix will be placed only on dry surfaces in a single lift when the design compacted total thickness is 50 mm. All asphalt mix will be thoroughly compacted, and after final rolling, the finished surface of the mat will be free from segregation, waves, hairline cracks, and other obvious defects. Compaction will be completed within 24 hours of placement. After final rolling is complete, the finished mat will be cooled for a minimum period of 2 hours before opening the section to traffic.

The interlocking concrete blocks will be laid on a fine sand layer 30mm thick. Pre-cast or cast in place concrete curbs (150 x 250 x 1000 mm) will be installed for roads edging.

1.5.4 Pathway structures (sidewalks and pedestrian walkways)

Pathways structures will consist of:

- Portland cement concrete sidewalks
  - Ready mix concrete with a strength of 3,500 psi
  - Broom finish surface
  - Transverse dummy joints shall be constructed at a longitudinal spacing equal to the width of the walk but not over 5 feet apart; or to match adjoining walk.
  - Wire mesh reinforcing shall be placed4 inches below the required finished grade
  - Minimum thickness:
    - 4 inches (0.10 m)- where there will be no vehicle loading
    - 5 inches (0.13 m)- where vehicle loading (such as maintenance vehicles) are expected
  - Aggregate base: 5 inches (0.13 m) minimum thickness

1.5.5 Pavement Marking and stripping

Pavement marking and stripping will be applied on all vehicular traffic areas

- All parking stalls will be lot markings will be a strip of white traffic paint 4 inches (0.10 m) width.
- All handicapped parking areas will be marked with blue traffic paint 4 inches (0.10 m) width complying with ADA requirements.
- All other markings such as direction arrows, lane lines and other markings as required will be painted according to the current Manual on Uniform Traffic Devices (FHWA-MUTCD) regulations (yellow or white traffic paint)
- Emergency fire lane (red traffic paint)

1.5.6 Signage

Roadway regulatory signs will be installed on all roadway and parking areas. Signs shall be in accordance with the current Manual on Uniform Traffic Devices (FHWA-MUTCD) regulations and the PR Department of Transportation and Public Works Standards.

Standard dimensions, sizes, symbols and colors will be used.

All signs will be made of aluminum sheets with reflectorizing film and attached to galvanized steel U-channel posts with theft deterrent bolts.

The steel posts will be secured in a concrete base.

1.5.7 Wheel Stops

All parking stalls will include the installation of a plastic or recycled rubber wheel stops 6 feet (1.83m) long.

1.5.8 Fences and Gates

All new perimeter fence will be provided on the apron. The perimeter fence will consist of a Perimeter fencing should also enclose the areas around cargo handling and storage facilities.

The fence shall have the following characteristics:

Chain link fence height: 7'-0" with barbed wire (3 wires)

Chain link fabric: 6 Gauge galvanized x 2" mesh

Posts: Galvanized HF40 tubing

Terminal Posts (End Corner): Gate' Posts - 3" OD (2-7/8" actual) for 7' and 8' High

Line Posts (Intermediate): 2-1/2" OD (2-3/8" Actual) for 7' and 8' High

Top/Bottom Rail: 1-5/8" OD (1-5/8" Actual)

All vehicular access gates shall be also chain link fence type manual operated sliding gates.

1 Electrical Work Narrative

1.1 Applicable Codes and Standards

- NFPA 70 National Electrical Code 2020
- NFPA 70E Standard for Electcial Safety in the Workplace 2019
- NFPA 101 Life Safety Code 2018
- NFPA 307 Standard for the Construction and Fire Protection of the Marine Terminals, Piers, and Wharves 2021
- NFPA 780 Standard for the Installation of Lightning Protection System 2020
- International Building Code 2018
- Puerto Rico Building Code 2018
- Puerto Rico Electrical Power Authority (P.R.E.P.A.) Norms and Standards
- ASHRAE 90.1-2016
- Illuminating Engineering Society of North America (IESNA), The Lighting Handbook 10th Edition

1.2 Scope of work

The scope of work will include the design of the following system

- P.R.E.P.A. point of connection electrical requirements.
- Offsite underground primary feeders to point of connection.
- Transformer's substation, primary GIS switch and protection.
- 400 KW Stand-By Emergency generation WITH 800 Amps ATS to serve critical loads
    - The critical loads will include, around 20% of general lighting exit and emergency lights, UPS's for IT and Data Rooms, A/C Units for IT and CPB data rooms, Fire alarm systems, video surveillance and intrusion system, xray machines (7 each) , one escalator, two elevators and the Fire jockey pump.
    - Diesel tank with capacity for 48 hrs operation at 75% of load.
- Main distribution switchboards for normal and emergency loads.
- Distribution panelboards
- Receptacles and lighting panelboards.
- Power and Lighting Distribution
- Lightning Protection system
- Secondary electrical Feeders to Panelboard.
- Electrical feeders to mechanical equipment.
- Grounding Systems
- Power for general and dedicated receptacles and for lighting.
- Telecommunication site facilities
- Lighting control

- Fire alarm system
- CCTV system
- Intrusion Detection System
- Paging and Sound System
- Access control
- Data, video and telephone distribution

1.3 Primary Off Site requirements

Off Site electrical point of connection and requirements shall be determined by P.R.E.P.A. For this stage of the design criteria, it is considered FOUR sets of 3 – 1C-800 KCMIL 46KV primary feeders in 8" PVC schedule 40 conduits from the substation area to a PREPA facilities located at the north of the terminal facilities and two 8" spare conduits.

1.4 HV and LV General Requirements

A detached electrical room will be provided at a location outside of the terminal for the protection of the transformer and the secondary main distribution systems.

The electrical room is divided in two separate spaces.

- Transformer's Room for the 38 KV transformer described below:
  - Primary Voltage – 38KV delta
  - Secondary Voltage- 480/277V wye
  - Windings: aluminum
  - Capacity : 3000 KVA ONAN/ONAF
  - Oil Type: FR3

- Primary GIS breaker and Secondary Distribution Room for the following equipment:
  - Gas Insulated Indoor Switchgear 42 KV, 2000 KVBIL consisting of a three section with: 42 KV, 200KV BIL, SF6 Gas Insulated Switchgear with 36 KV with a 1250 A. , 40KA, 42 KV Vacuum Circuit Breaker with 36K lighting arresters and protection relays.
  - Battery bank for GIS operation.
  - GIS control panel
  - Main distribution Switchboard 4000 Amps.
  - Main Distribution Panel MDP-1
  - Main Distribution Panel MDP-2
  - MCC for Chiller and mechanical pumps, AHU's, supply and exhaust fans and pumping stations at the electrical and mechanical yard area.
  - Emergency Main Distribution Panel EMDP

- Inside the cruise terminal 480/277V and 120/208V panel boards and dry type transformers are located across the building and the mechanical rooms for the connections of AHU's, supply and exhaust fans, ceiling fans, FCU's Split Units and any other mechanical equipment required for the facilities.

PRELIMINARY LOAD ANALISYS

1.5 Load schedule

DESIGN LOAD CALCULATION				
AREA	QTY	SQFT	W/SQFT	LOAD KVA
TERMINAL	1	161000	25	4025
PARKING	1			5
CONCESSIONARIES	10	100	40	40
TOTAL LOAD CONNECTED				4070
DESIGN DEMAND FACTOR	75%			3053
DESIGN DIVERSITY FACTOR	1.15			2654
TOTAL LOAD WITH DEMAND AND DIVERSITY FACTOR				**2654**
TRANSFORMER CAPACITY				**3000**

- T
  The facilities transformer's Load calculation to be finalized at Design Development stage is based on a load of 25 W/SQFT for lighting/power

1.6 *Main distribution*

1.6.1 *Metering*
One common primary side meter shall be provided for the Terminal Building Facilities to be located at the main electrical room.

1.6.2 *Voltage*
Lighting will be connected at 277V.

Large Motors will be connected at 480V.

Receptacles will be connected at 120V.

1.6.3 *Cables*
Primary cables shall be 46KV TRXLP.

Secondary cables shall be thermoplastic heat and water resistant nylon, 90º.

1.6.4 Feeders

Feeders will be copper cables.

Underground raceways shall be PVC schedule 40.

Exterior conduits shall be Rigid Galvanized steel.

Interior exposed conduit will be Rigid Galvanized steel conduit in accordance to NEC or as indicated.

Interior concealed conduit shall be EMT unless otherwise indicated.

1.6.5 Branch Circuit

The minimum size of conduit will be ¾" diameter.

Branching distribution shall be done by means of Electric Metallic Conduit (EMT) unless otherwise indicated.

Conduits in floor slab in contact with earth shall be PVC schedule 40. Conduits inside concrete walls shall be PVC schedule 40.

Rigid Galvanized Conduits shall be installed bellow 8' from ceiling in areas subject to physical damage.

1.7 Outlets

All receptacles outlets shall be 20 A-125 V duplex type Ivory Color with stainless steel plates.

Duplex ground fault receptacles to be provided in bathrooms, kitchen counters and at the building exterior.

Lighting switches will be 20 A - 277 V, single pole, 3 and 4 ways with stainless steel cover.

1.8 Lighting

For the interior of the Building the following illumination levels will applied:

Area	Minimum illumination levels (lux)	Area	Minimum illumination levels (lux)
First Floor		**Second Floor**	
Embarkation & Disembarkation		Check in queuing area, security screening area and check in zone	200
Lobby and circulation	200	Check in counters	250 + task Light
Elevators Lobby	200	Waiting areas	200
Offices	250 +task lighting	Duty Free and Food and Beverage Area	400
Baggage Laydown Area	200	Terrace	200
BOH Storage	150	Cruiselines rooms	150
Rest rooms	100	Corridor	150
Janitors	150	Debark Lobby	200
Customs and Inmigration		Security Operations	250 + task Light
Inmigration screening	200	Office Work stations	250 + task Light
Inmigration inspectors desks	200	Corridor	150
Corridors	150	Copy room	250
Secondary exam Podium	200	Storage	150
Referal passenger waiting area	200	Breakroom	200
agricultural lab	250 + task Light	Restrooms	100
cashier Station	250 + task Light	Communication room	150
Public rest rooms	150	Janitor	150
Command center	250 + task Light	Entrance Stair and Disembark Stair	200
Detainee baggage storage	150	All other stairs	150
Hold, interview and search rooms	400	Escape Corridor	150
Weapons cleaning	250 + task Light		
Secured Storage and file storage	200		
CPB Corridor, supply storage and storage	150		
Officer's operational support work area	250 + task Light		
Staff Offices	250 + task Light		
Breakroom	200		
Staff Rest Rooms	100		
Building Mechanical systems			
Recycling & refuse room, MEP room, Communication, LAN/telecom and elevator computer room	150		

Vertical Circulation			
Staircases	150		

All luminaires shall be considered with integral light emitting diode (LED) lamps at 4000° K color. Illumination level for the parking area will be a minimum of 50 lux, Canopy and entrance area will be illuminated with a minimum of 10 fc.

The following lighting fixtures are considered in the project unless otherwise required by the Architects and/or owner:

PARTIAL LIGHTING SCHEDULE			
DESIGNATION	**DESCRIPTION**	**MODEL**	**SERIES**
L-1	4' UTILITY LED WRAPAROUND	WNLED	METALUX
L-2	2'x2' CRUZE - TROFFER LED MODULE	22CZ	METALUX
L-3	2'x4' CRUZE - TROFFER LED MODULE	24CZ	METALUX
L-4	6" LED RECESSED NARROW, MEDIUM, OR WIDE BEAM DOWNLIGHT	LD6B	PORTFOLIO
L-4A	6" LED RECESSED NARROW, MEDIUM, OR WIDE BEAM DOWNLIGHT	LD6B	PORTFOLIO
L-5	2'x4' CRUZE - TROFFER LED MODULE	24CZ2	METALUX
L-6	2'x4' FLUORESCENT CONFINEMENT OR CORRECTIONAL LAMP	FSR24	FAIL SAFE
L-7	18"X14" LED LINEAR HIGH BAY LUMINARY	VHB LED	METALUX
L-8	18"X14" LED LINEAR HIGH BAY LUMINAIRE	VHB LED	METALUX
L-9	8' LINEAR WAVESTREAM LED	WSL LED	METALUX
L-10	18" TT TOP TIER SOLID STATE LED	TT TOP TIER LED	MC GRAW-EDISON
L-11	4' SURFACE & LED	SWLED	METALUX
L-12D	DOUBLE LIGHT GLEON 1-10 LIGHT SQUARE SOLID STATE LED IN 40' POLE	GLEON-AF-10	MC GRAW-EDISON
L-13	SINGLE LIGHT GLEON 1-08 LIGHT SQUARE SOLID STATE LED IN 40' POLE	GLEON-AF-08	MC GRAW-EDISON
L-13D	DOUBLE LIGHT GLEON 1-08 LIGHT SQUARE SOLID STATE LED IN 40' POLE	GLEON-AF-08	MC GRAW-EDISON
L-14	LXS LUXESCAPE COLLECTION	LXS LUXESCAPE	INVUE
L-15	18" TT TOP TIER SOLID STATE LED	TT TOP TIER LED	MC GRAW-EDISON
L-17	4' INDUSTRIAL LED	VAPORTITE LED	METALUX
L-18.1	1-10 Light Squares - LED	GLEON-1A	MC GRAW-EDISON
L-19.3	8' INDUSTRIAL LED"	VAPORTITE LED	METALUX
L-21	9"X5" HORIZONTAL EYELID LED	B95 LD4 LED	FAIL SAFE

1.9 Panelboard

Panelboards for 480/277V, dry type transformers and 208/120V panelboards for normal and emergency distribution will be provided at the first, mezzanine and second floor.

1.10 UPS

THREE UPSs (estimated) are considered for the project.

- Terminal operation UPS with a capacity of 30 KVA (estimated)for:
  - IT Server rooms
  - Security and access control
  - Communication room
  - CCTV
  - Fire alarm panel
- Custom and Border Patrol UPS with a capacity of 15 KVA
  - Lan/ Telecomm(CBP IT Room)

It is assumed that individual computers will be provided with their own UPS

1.11 Lightning Protection

Lightning protection will be provided with copper wires and lightning tips on roof in accordance to codes and standards and will be connected to the building grounding system. Master label will be required.

1.12 Grounding

A ground system will be provided in accordance to standards around each structure (main building, mechanical and electrical room). The system includes bare copper cables around the structures with grounding rods every 20'. The steel columns will be connected to the grounding mat. Ground bars shall be provided at the electrical rooms. The overall resistant shall be 5 ohms or less.

1.13 Emergency lighting

Emergency lights with emergency backup will be provided to comply with the means of egress. Exit lights shall be provided at each exit door and shall be provided with battery backup.

1.14 Data,Video and Telecommunication

Data and voice outlets shall be provided at the service counters and office spaces per Workstation list. A Cat 6 cables shall be installed for each telephone and data cable. Voice outlets will be provided for emergency and courtesy phones. Video outlets shall be provided to each monitor location. Fiber optics cables may be used upon required depending the maximum distances from the servers areas and telephone facilities to the outlets.

Patch panels for Cat 6 similar to Panduit DP-6 PLUS with spare capacity for future expansion will be provided as part of the facilities. Conduits shall run in EMT conduit and wire mesh type cable trays.

Site telecommunications design will include underground facilities for telephone and cable TV as per NETPR requirements going from the telecommunication

1.15 Access control

The access control will be designed with intercom, proximity readers or keypads, emergency push bottom for egress and magnetic locks. All wiring shall be protected in EMT conduit unless otherwise indicated.

1.16 Sound and Paging system

A digital sound and paging speaker system shall be provided with amplifiers to provide the facilities (A total of 40 speakers and one microphone). Wire will be installed in EMT conduits for protection.

1.17 CCTV

An IP camera system will be provided for closed caption to the server room. Led type monitors and video storage will be provided at the security area.

1.18 Intrusion detection System

An intrusion detection system for the protection of the building shall be included. The system will include access, exit doors and roll up doors sensors, glass sensors, key and/or magnetic pads.

1.19 Fire Alarm System

Document included in Fire Detection BOD.

1 Fire Detection

1.1 Codes

Applicable codes and Standards to which the fire Alarm system must comply

The equipment and installation shall comply with the current provisions of the following codes and standards:

- Authority having jurisdiction (AHJ)
- NFPA 70 – National Electric Code 2020
- NFPA 72 – National Fire Alarm and Signaling Code 2019
- NFPA 90A – Standard for the installation of Air Conditioning Systems and ventilation 2018
- NFPA 101 – Life Safety Code 2018
- UL 268 – smoke detectors for fire protective signaling systems
- UL 521 heat protection for Fire protective Signaling Systems
- UL 464 Audible Signaling Appliances
- UL 38 Manually Actuated Signaling Boxes for Use with fire-Protective Signaling Systems
- UL 1971 – Signaling Devises for Hearing-Impaired
- UL 1981 – Power Supplies for Fire Protective Signaling Systems

1.2 Fire Detection System description

The functional addressable fire alarm system consists of a non-coded, UL Listed intelligent analog addressable fire alarm system with multiplexed signal transmission and utilizes independently addressed, input/output modules, and power supply(s). The system programing, as well as quantity and location of fire and notification of the building occupants even in this smoke free environment.

The system shall comply in respects with all the pertinent codes, rules, regulations and laws of the local Jurisdiction Having Authority (AJH). The System shall also comply in all respects with the requirements of the specification, manufacturer's recommendations and Underwriters Laboratories (UL) Listings

The system Shall Consist of:

- Fire Alarm Control Panel and annunciators located as shown in the drawings
- Manual Pull Stations located as shown in the drawings

- Area smoke detectors located as shown in the drawings
- Area heat detectors located as shown in the drawings
- Audible notification appliances located as shown in the drawings
- Synchronized visual notification appliances located as shown in the drawings
- Smoke beam detectors for high bay areas
- Duct smoke detectors
- Fire Risers Tamper and flow switches

1.2.1 Sequence of operations

On the alarm activation of any area smoke detector, heat detector, manual pull station, duct detector or flow switch the following functions shall automatically occur:

1.2.1.1.1 The internal audible device shall sound at the control panel and remote annunciator.

1.2.1.1.2 The LCD display shall indicate all applicable information associated with the alarm conditions including device type, device location and time/date.

1.2.1.1.3 All system activity/ events shall be documented in system history

1.2.1.1.4 Any remote or local annunciator LCD/LED's associated with the alarm shall be illuminated.

1.2.1.1.5 Activation of notification audible appliances.

1.2.1.1.6 Activation of visual strobes notification appliances.

1.2.1.1.7 Notification via telephone call or email to relevant personnel. In the event of a trouble, supervisory or alarm condition, these signals will be transmitted via Ethernet connection of DACT to an offsite central location, as determined by client.

1.2.1.1.8 Elevators recall

1.2.1.1.9 AHUs stop command

1.2.2 Computer components

The fire alarm control panel shall include the following features:

- Ability to download or upload site applications and system diagnostics remotely through an Ethernet connection, or DATC.
- Provide electronic addressing of analog/addressable devises. Rotary and dip switch addressing shall not be equal.
- Provide an operator interface display that shall include functions required to annunciate, command and control system functions.
- Provide and internal audible signal with deferent programable patterns to distinguish between alarm, supervisory

- Provide system reports that provide detailed description of the status of the system parameters for corrective actions or for preventive maintenance programs. Reports shall be displayed by the operator interface of capable of being printed on a printer.
- Provide an authorized operator with the ability to operate or modify system functions like system time, date passwords, restart the system and clear control panel event history file.
- Provide an authorized operator to perform test functions withing the installed system.

The circuit requirements are the following:

- Signaling line circuits for intelligent Analog Addressable loop
  - Class B (style 4) Class A (style 7)
- Notification Appliance Circuits:
  - Class B (style Y) Class A (style Z)
  - Maximum Circuit loading to 2.5 amps for notification appliances circuits
- Activation of alarm notification appliances, elevator recall, and other functions shall occur within 3 seconds after the activation of an initiating device

Power as follows:

- Primary power 24 v dc obtained from 120-v service and power supply module. Initiating devices, notifications devices, signaling lines, trouble signals, shall be powered by nominal 24-v dc source.
- Secondary Power: the system comes standard with secondary power supply, which provides24 hour supervisory and 5 minutes of alarm with batteries automatic battery charger and automatic transfer switch.
- Alarm current draw of entire fire-alarm system shall not exceed 80 percent of the power-supply module rating.

1.2.3 Initiating devises components

Manual pull station will comply with UL38. Boxes shall be finished in red with molded, raised-letter operating instructions in contrasting color, shall show visible indication of operation; and shall be mounted on a recessed outlet box. If indicated as surface mounted. Provide manufacturers surface back box.

Double action mechanism requiring two action to initiate the alarm, pull-lever type, with integral addressable module arranged to communicate manual station status (normal, alarm or trouble) to fire-alarm control unit.

The manual pull station will have an intelligent module integral of the unit

Station reset key operated switch shall match the control panel key.

Manual pull Stations that initiated an alarm condition by opening unit are not acceptable.

Manual pull station will be located withing 60 inches from the exit doorways from the building, with no two adjacent manual pull stations being further than 200 ft from each other, measured horizontally along the floor

Manual pull stations located in detention rooms will have a vandal proof covers installed.

Provide analog/addressable ionization smoke detectors at any locations shown in the drawings. The system shall have the ability to uniquely set the sensibility and alarm verification values of each detector of the circuit.

Non-volatile memory: permanently stores serial number, and type device. Automatically updates historic information including operation hours, last maintenance date, number of alarms, and troubles, time of last alarm and analog signal patterns for each sensing element just before last alarm.

Digital filters remove signal patterns that are not typical of fires

The system shall have an environmental compensation algorithm. The detector's sensing element reference point shall automatically adjust, compensating background environmental conditions such as dust, temperature and pressure.

Vandal proof smoke detectors will be installed in detention rooms.

Provide fixed temperature heat detectors at the locations shown in the drawings. They shall continually monitor the temperature of the air in its surroundings to minimize thermal lag to the time requited to process the alarm.

The integral processor shall determine if an alarm condition exists and initiate and alarm based on the analysis of the data.

Systems using central intelligence for alarm decisions shall not be acceptable

The heat detector shall have a nominal alarm point rate of 135oF (57oF)

All appliances shall be of the same manufacturer as the Fire alarm Control Panel specified to ensure absolute compatibility between the appliances and the control panels, and to ensure that the application of the appliances is done in accordance with the single manufacturer's instructions.

Written proof of their compatibility for the purpose intended. Such proof shall be in the form of the documentation from all manufacturers which clearly states that their equipment (as Submitted) are 100% compatible with each other for the purposes intended. All Appliances shall be UL Listed Fire Protective Service and shall be UL 1971

1.2.4 *Signal Devises Components*

Provide low wall mount horn/strobes at the locations shown in the drawings

The horn/strobe shall provide and audible output of 95 dBA at 10 ft when measured in reverberation room per UL-64

Strobes shall provide synchronized flash outputs. The strobe output shall be determined as required by its specific location and application from a family 15cd, 30cd, 60dc and 110cd devices.

The horn shall have a selectable steady or synchronized temporal output. In and out screw terminals shall be provided wiring.

Vandal proof smoke horn/strobe appliances will be installed in detention rooms.

1.2.5 *System Installation*

Comply with NFPA72 for installation fire alarm equipment

- Smoke detector Spacing:
  - Comply with NFPA72" Smoke-Sensing Fire Detectors" Section in the Initiating Devices" Chapter, for smoke detector spacing.
  - Comply with NFPA72" Heat-Sensing Fire Detectors" Section in the Initiating Devices" Chapter, for heat detector spacing.
  - Smooth Ceiling spacing shall not exceed 30 ft.
  - Spacing detector for irregular areas, irregular ceiling construction, and for high ceiling areas shall be determined according to Appendix A (or Appendix B) in NFPA 72.
  - Lighting Fixtures: locate detectors not closer than 12 inches from any part of a light fixture
- Notification Appliance Devices: Install between 80 to 96 inches on the wall.
- Fire-Alarm control unit: surfaces mounted, with tops of cabinets not more that 72 inches above the finished floor.

All devices shall be installed with flush finished on the wall and ceiling surfaces.

1.2.6 System commissioning

Upon Completion of installation of the system, the system shall be tested and commissioned by factory certify contractor with customer representative and AHJ.

Training of the Operator and maintenance personnel to adjust, operate, and maintain fire-alarm system shall be performed by contractor's factory certified technician.

1 Air Conditioning and Ventilation Narrative

1.1.1 Applicable Codes and Standards

- Puerto Rico Building Code 2018
- International Building Code – 2018 edition, as amended by the Commonwealth of Puerto Rico
- NFPA Standard No. 101 -2018 – Life Safety/Code
- International Mechanical Code – 2018 edition, promulgated by the International Code Council, Inc. and as amended by the Commonwealth of Puerto Rico.
- International Plumbing Code – 2018 edition, promulgated by the International Code Council, Inc. and as amended by the Commonwealth of Puerto Rico.
- ANSI/ASHRAE 62.1- 2019 Ventilation for Acceptable Indoor Air Quality
- ANSI/ASHRAE 90.1-2019 Energy Standard for Buildings Except Low-Rise Residential buildings
- NFPA Standard No. 90A- 2018 – Installation of Air Conditioning and Ventilation Systems
- SMACNA – HVAC Duct Construction Standards – Metal and Flexible – 2006.

1.1.2 Design Criteria

1.1.2.1 Outdoor Design Conditions

The outdoor conditions shall be based on ASHRAE Handbook Fundamentals - 2013 – (Climatic Design Conditions)

Outdoor Conditions:

Dry Bulb (DB) Temperature = 91°F

Wet Bulb (WB) Temperature = 77.7 °F

1.1.2.2 Indoor Design Conditions

The HVAC system for the project will be designed in accordance with the standards and guidelines. The guidelines will be followed at a minimum and additional conditions will be followed to meet code requirements.

The room design parameters are as follows:

<u>Entrance – Lobby – Offices – Primary/Custom Processing – Hold Rm's areas</u>:

1	Dry bulb temperature	72.5°F to 78.0°F
2	Relative humidity	40% to 60%
3	People Sensible/Latent Heat	230/120 Btu/Hr

Secondary Exam Podium – Referral Passenger Waiting areas

1	Dry bulb temperature	71.5°F to 77°F
2	Relative humidity	40% to 60%
4	People Sensible/Latent Heat	230/120 Btu/Hr

Mechanical -Electrical - Communication areas

1	Dry bulb temperature	82.0°F to 88.0°F

1.1.2.3 SYSTEMS DESCRIPTION

AHU-100, 200 (17,000 CFM Nominal Capacity) Serves the 2nd Floor Embark Waiting Areas

AHU-300, 400 (20,850 CFM Nominal Capacity) Serves the 2nd Floor Embark Areas (Queuing Area, Security Screen Zone & Check-In Zone)

AHU-500 (15,100 CFM Nominal Capacity) Serves the 1st Custom Border Protection (CBP Primary)

AHU-600 (8,500 CFM Nominal Capacity) Serves the Global Port Holdings @ Mezzanine

AHU-700 (4,700 CFM Nominal Capacity) Serves the 2nd Floor Security Port Operation

AHU-800 (9,000 CFM Nominal Capacity) Serves the 1st Custom Border Protection (CBP Secondary)

AHU-900 (3,000 CFM Nominal Capacity) Serves the 1st Floor Crew Area

AHU-1000 (17,400 CFM Nominal Capacity) Serves the 1st Floor Lobby Area

AHU-1100 (18,500 CFM Nominal Capacity) Serves the 2nd Floor Star Class Lobby/Waiting Area

The Bag Laydown Areas will be forced ventilated with exhaust fans discharging at the south wall, fresh air intake will be provided by means of intake louvers at the terminal north wall, air recirculation will be provided by roof fans.

The units will have the following components and controls:

- Mixing box section with return and outside air connections.
- Pre-filters section with MERV 8 (ASHRAE 25-30% eff.) filters and secondary filter bank section with MERV 11 (ASHRAE 60-65% eff.) filters.
- Chilled water cooling and dehumidification coil with two-way modulating control valve.

- Supply fan with variable frequency drive to constantly deliver the required airflow quantity.
- Supply and return duct smoke detectors to de-energize the AHU supply fan motors, alarm the BAS, and alert the fire alarm system upon detection of smoke in the air stream.
- Supply and return air flow measuring stations to monitor the main supply and return air streams.

The AHU-100 thru 1,100 sequence of operation is as follow:

- The control panel will receive the signal of an electronic temperature transmitter located in the unit cooling coil discharge to position the coil chilled water pneumatic control valve to maintain a constant leaving temperature. An additional electronic temperature transmitter located in the upstream side of the cooling coil will monitor the condition.
- Differential pressure gages/switch will indicate each filter bank air pressure drop at the unit local panel door face. The control panel will receive the signal from the switch to alarm when setting is reached.
- Smoke detectors located on the air handling unit supply and return ducts will be interlocked with the unit supply fan in order to stop the fan operation if smoke is sensed. The smoke detector will send a digital signal to the DDC panel and to the fire alarm system.
- The unit supply fan will be under the control of the system time scheduling program. Digital and analog signals from the unit variable frequency drives will be sent to the control panel to monitor the fans status.
- A static pressure transmitter located on the air handling unit main supply duct will monitor the pressure to adjust the unit supply fan variable frequency drive to maintain a constant supply pressure.
- Door interlock switches located on the air handling unit supply fan doors will be interlocked with the unit fan in order to stop the fan operation if door is opened.
- The DDC panel will receive the signal of electronic flow transmitters sensing the signal of the airflow measuring stations located on the air handling unit supply and return ducts to monitor the air flow.
- Whenever the temperature or humidity are below or above the set limits alarm signals in the DDC panel will indicate alarm conditions.

It is estimated that the new units load will be about 360 tons of refrigeration. All the air handling units will be housed in a mechanical equipment mezzanine to be built between column lines 5-7, B-C and between column lines 14-16, A-B. The units will be factory assembled, double wall, custom type with coil section; fan section(s); the appropriate filter(s) and access sections.

All Non-Air Conditioned areas such as toilets, bathrooms, washrooms, janitor, storage room will be provided with mechanical air extraction including: ductwork / air side equipment like grilles, dampers, fire dampers / extract fans. The air compensation is through door gaps or opened windows.

All ducts and plenums shall be constructed of galvanized sheet metal of gauges and reinforced as per SMACNA requirements of the SMACNA "HVAC Duct Construction Standards - metal and flexible - 2006" and ductmate proprietary duct connection systems; those constructed using ductmate shall be in accordance with manufacturer guidelines. Ducts construction shall be using G-60 or better galvanized steel (ASTM A653) LFQ (Lock Forming Quality) with chemical treatment. longitudinal seams shall be pittsburgh lock I-1 sealed with duct sealant 3m #800 or approved equal. Transverse joints shall be as per SMACNA standards gauges and reinforcement shall be for the operating pressures or for 2" w.g. neg. or pos. whichever is higher. Cross break all rectangular ducts larger than 12" in. larger dimension, for stiffening access doors shall be provided for service of dampers or other equipment.

Air distribution ductwork concealed above ceilings will be insulated galvanized steel construction with aluminum or stainless steel air devices. Exposed ceiling at public areas will be with fabric ductwork with the applicable suspension system.

2 Chilled Water Narrative

2.1.1 Applicable Codes and Standards

- Puerto Rico Building Code 2018
- International Building Code – 2018 edition, as amended by the Commonwealth of Puerto Rico
- International Mechanical Code – 2018 edition, promulgated by the International Code Council, Inc. and as amended by the Commonwealth of Puerto Rico.
- ASME Code for Building Services B31.9

2.1.2 SYSTEMS DESCRIPTION

The chilled water for the building will supplied from a new centralized chilled water plant with a dedicated set of primary pumps that will circulate the chilled water across the chiller units. A dedicated set of secondary chilled water pumps that take suction from the primary loop will be provided to serve the loads of the Air Handling Units (AHUs) located in the building.
The entire chilled water production equipment including chiller, pumps, auxiliary equipment such as compression tank and air separator will be enclosed in a separated building, the required air cooled cooling towers will be located at the roof of this building.

2.1.2.1 Chiller 1 & 2 (CH-1 and CH-2) - Trane model RTHD, 266 Tons nominal capacity, equipped with Variable Frequency Drive (VFD, Voltage @ 460, 3 Phase, 60 Hz.

2.1.2.1.1 Evaporator Conditions :

- Evaporator Flow = 530 Gpm (450 Gpm minimum)
- Evaporator Fluid Entering Temperature = 55°F
- Evaporator Fluid Leaving Temperature = 43°F
- Evaporator Delta T = 12°F

2.1.2.1.2 Primary Chilled Water Pumps – three primary pumps for recirculation at the chiller primary loop, 2 (ea) for normal operation + 1 (ea) for spare will be provided, these will be connected at the available Voltage @ 460, 3 Phase, 60 Hz. The design flow capacity will be 530 Gpm, and the expected Horsepower capacity is 7.5 Hp. The final selection and capacity will be refined during the Design Development phase.

2.1.2.1.3 Secondary Chilled Water Pumps – three secondary pumps for recirculation at the Air Handling Units (AHUs), 2 (ea) for normal operation + 1 (ea) for spare will be provided, these will be connected at the available Voltage @ 460, 3 Phase, 60 Hz. The design flow capacity will be 530 Gpm, and the expected Horsepower capacity is 7.5 Hp. The final selection and capacity will be refined during the Design Development phase.

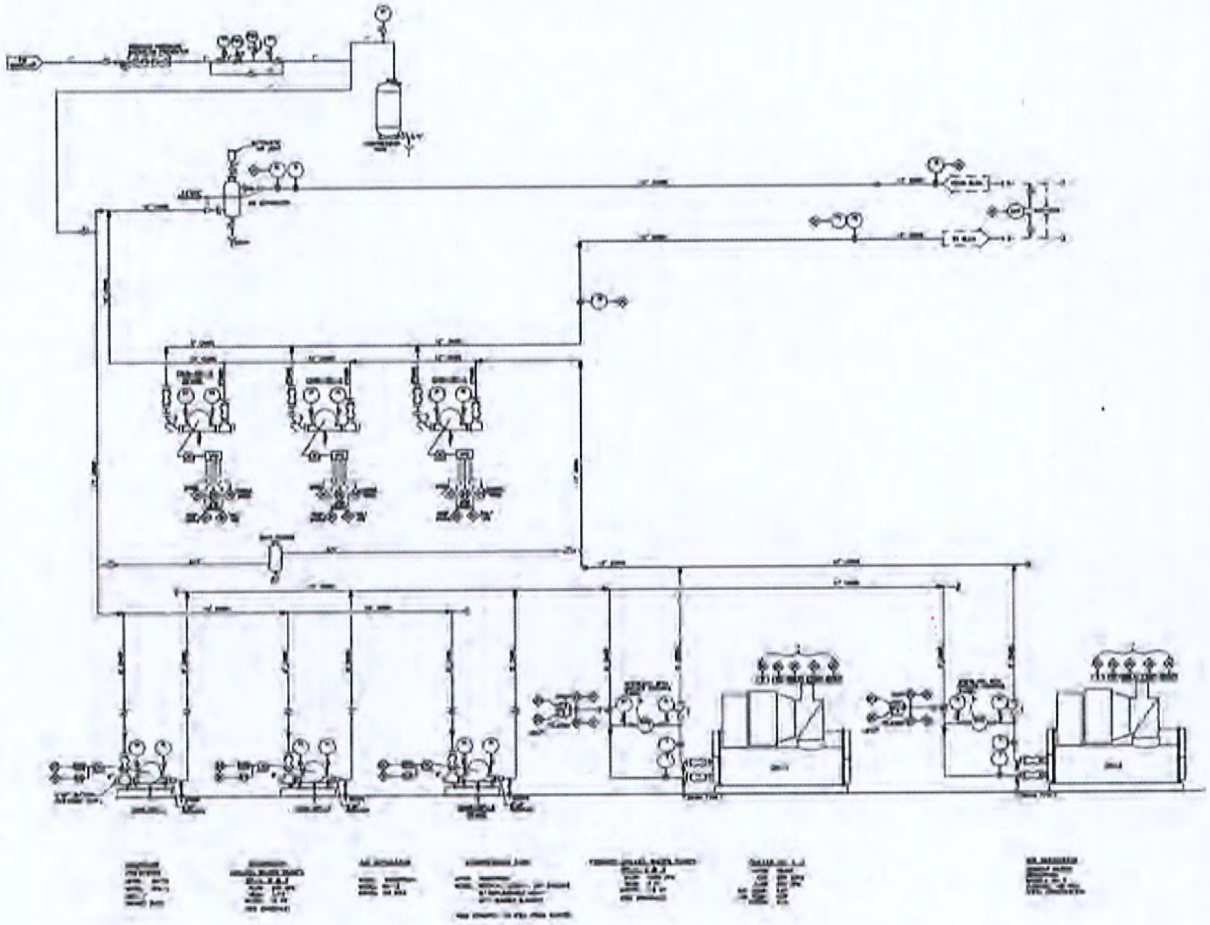
2.1.2.1.4 Chilled Water Piping - New chilled water piping distribution will be provided from the proposed new chiller building to the Air Handling Units (AHUs) located at the mechanical mezzanines. A temperature rise of 12 deg. across the cooling coils based on the system's average supply temperature of 43°F and return temperature of 55°F will be the basis of air handling unit performance selection. The piping will run underground from the mechanical utilities room to the terminal building; from that point on, it will run hanged from the structure up to both AHU mechanical spaces.

Chilled Water Piping Outline Specifications:

Piping Materials of Construction:	Carbon steel Sch. 40 ERW
Pipe Joint Construction	2" and smaller threaded; larger butt welded
Valves	2" and smaller ball type, bronze 3-piece, full port, threaded 150#; 3" and larger butterfly type, cast iron

	body, aluminum disc, 200#
Insulation	Polyisocyanurate (Polyurethane)

A schematic of the proposed system is shown below



A building management system (BMS) will be provided to support the new HVAC and mechanical systems. It will be electronic DDC type controls, with electrical control at terminal devices. It will control and monitor the systems, provide alarm, status, and start/stop.

3 Cooling Tower Water Narrative

3.1.1 Applicable Codes and Standards

- Puerto Rico Building Code 2018

- International Building Code – 2018 edition, as amended by the Commonwealth of Puerto Rico
- International Mechanical Code – 2018 edition, promulgated by the International Code Council, Inc. and as amended by the Commonwealth of Puerto Rico.
- ASME Code for Building Services B31.9

3.1.2 SYSTEMS DESCRIPTION

The cooling towers will provide the condenser side water for the centralized chilled water plant with two (2) dedicated sets of pumps that will circulate the condenser water across the chiller units. Also a corrosion-biocide injection system along with a recirculating filtration system for the basin of the towers will be provided

3.1.3 Cooling Towers 1 & 2 (CT-1 and CT-2) –Ryowo Induced Draft Cross Flow Vertical Discharge Type , 250 Tons nominal capacity (ea)

3.1.3.1.1 Condenser Conditions:

- Condenser Flow = 750 Gpm (375 Gpm minimum)
- Condenser Fluid Entering Temperature = 95°F
- Condenser Fluid Leaving Temperature = 85°F
- Ambient Wet Bulb Temperature = 81°F
- Evaporator Delta T = 10°F

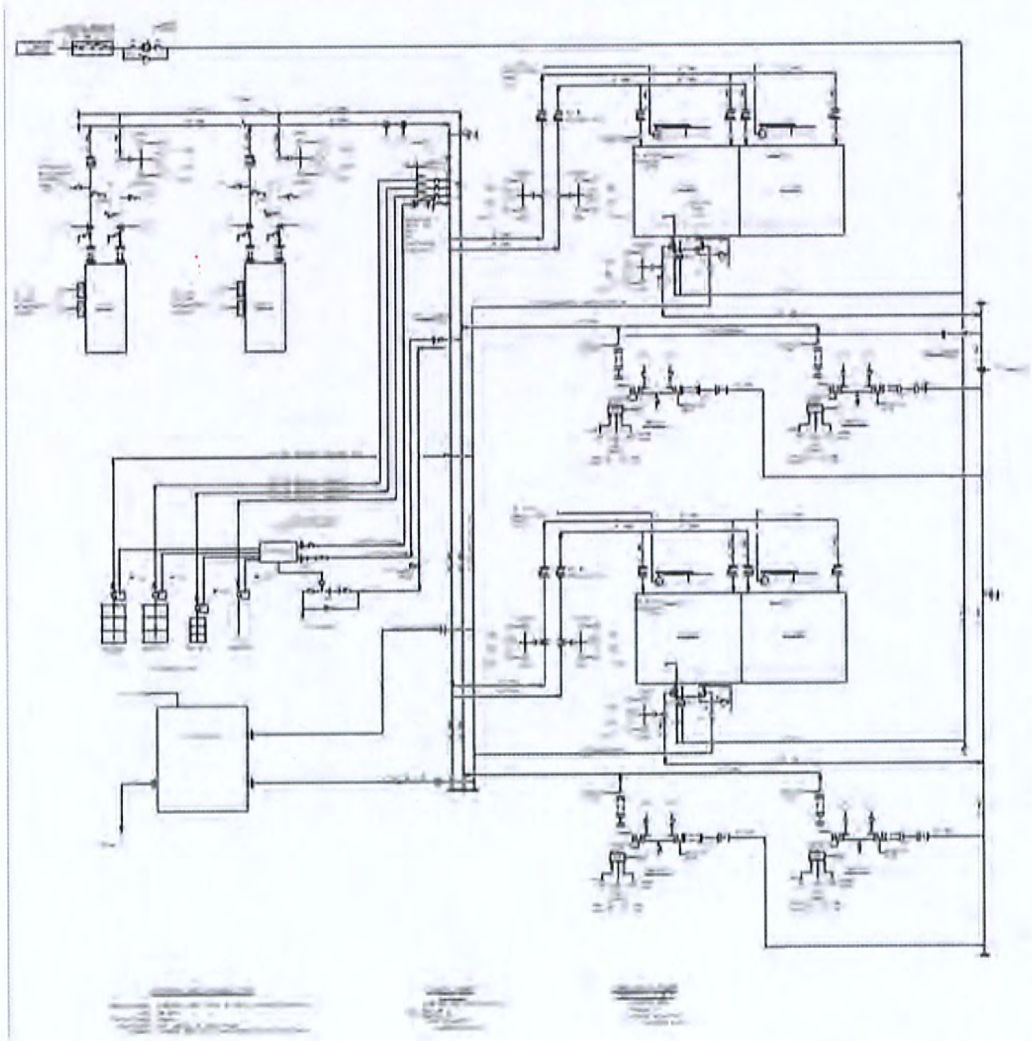
3.1.3.1.2 Condenser Water Pumps – four (4) in total (two 2 (ea) for each tower) pumps for recirculation at the condenser loop, for normal operation will be provided; these will be connected at the available Voltage @ 460, 3 Phase, 60 Hz. The design flow capacity will be 750 Gpm, and the expected Horsepower capacity is 15 Hp. The final selection and capacity will be refined during the Design Development phase.

3.1.3.1.3 Cooling Tower Water Piping - New piping distribution will be provided from the proposed new chiller building to the Cooling Tower (CT's) located at the roof of the mechanical equipment room A temperature rise of 10 deg. across the cooling tower based on the system's average supply temperature of 95°F and return temperature of 85°F will be the basis of towers unit performance selection.

Cooling Tower Water Piping Outline Specifications:

Piping Materials of Construction:	Carbon steel Sch. 40 ERW
Pipe Joint Construction	2" and smaller threaded; larger butt welded
Valves	2" and smaller ball type, bronze 3-piece, full port, threaded 150#; 3" and larger butterfly type, cast iron body, aluminum disc, 200#
Insulation	Polyisocyanurate (Polyurethane)

A schematic of the proposed system is shown below



4 Plumbing Narrative

4.1.1 Applicable Codes and Standards

- Puerto Rico Building Code 2018
- International Building Code – 2018 edition, as amended by the Commonwealth of Puerto Rico
- International Mechanical Code – 2018 edition, promulgated by the International Code Council, Inc. and as amended by the Commonwealth of Puerto Rico.
- International Plumbing Code – 2018 edition, promulgated by the International Code Council, Inc. and as amended by the Commonwealth of Puerto Rico.

4.1.2 Domestic Water

The extent of the works required due to the project implementation is to provide the required plumbing utilities for the proposed bathroom, janitor rooms, kitchenettes and hose stations; no additional process related usages have been defined so far.

New tie-ins, are required to the existing public potable water line at the road at the front of the project. The size of this tie-in is yet to be determined but it is estimated to be not less that 6 (six) inches in diameter. This new tie-in will also serve the fire protection water reservoir tank and if required new water meters for future concessionaries at the project site. Both connection, for the fire and domestic service will have independent water meters. Hose bibs with a lockable access doors will be located along the exterior walls separated at approximately 50-75 ft. for maintenance purposes, also hose bibs will be provided at the toilet rooms. The shower rooms will be provided with in-line water heaters

Also, potable water service will be provided for make-up/pressurization of the new chilled water system and hose bibs for air handling units cleanup; these to be provided at the mechanical equipment area. Back flow prevention devices will be used to protect from cross contamination as required by code.

Potable Water Piping Outline Specifications:

Piping Materials of Construction:	Seamless copper tubing type L hard temper
Pipe Joint Construction	Wrought copper, solder type
Valves	2" and smaller ball type, bronze 3-piece, full port, threaded 150#; 3" and 4" ball type, carbon steel, flanged ends, Class 150

4.1.3 Sanitary Water

The extent of the works required due to the project implementation is to provide the required sanitary utilities for the proposed bathroom, janitor rooms, kitchenettes, hose stations and Air Handling Units (AHUs) condensate disposal; no additional process related usages have been defined so far.

New sinks drains and floor drains, to collect AHU's condensate drip at the mechanical equipment area (1 per AHU), will be provided; these will be connected to the existing drainage lines within the building. Cleanouts will be located at the beginning of each line, each 50 ft of linear run, at each change of direction and at each waste stack. The sanitary vents will be extended up to the roof of the building.

The required potable water supply for the vessel has been estimated at 1,000 tons (265,000 gals) to be served in 11 hours, for this it will be required to make a consult to PRASA (Puerto Rico Aqueduct & Sewage Authority) to get their recommendations, determination and eventually approval if there is availability of that water volume and pressure requirements to serve the vessel.

The final sanitary discharge connection point will be as determined by the Puerto Rico Aqueduct & Sewer Authority (PRASA) but it is mostly to be at the existing sewer trunk at the front of the project. It is understood that the discharge will be by gravity, but this will be based on the final building elevation, site grading, and pipe slope and connection point existing elevation. If the existing connection point existing elevation doesn't suffice the design intent, then a lift station will be required.

4.1.4 Piping

a. Drainage and ventilation piping will be PVC with DWV type fittings
b. Potable Cold and Hot Water piping will be copper type "L".

4.1.5 Fixtures

a. General common areas fixtures will be wall mounted ceramic type
b. Holding rooms plumbing fixtures will be vandal proof, stainless steel fabrication institutional type fixtures.
c. Level operating fixtures such as lavatories will be single level, shower room level will be of single valve thermostatic type

5 Fire Protection Narrative

5.1.1 Applicable Codes and Standards

- Puerto Rico Building Code 2018
- International Building Code – 2018 edition, as amended by the Commonwealth of Puerto Rico
- International Mechanical Code – 2018 edition, promulgated by the International Code Council, Inc. and as amended by the Commonwealth of Puerto Rico.
- International Fire Code – 2018 edition, promulgated by the International Code Council, Inc. and as amended by the Commonwealth of Puerto Rico.
- NFPA 13 Standard for the Installation of Sprinkler Systems
- NFPA Standard No. 101 -2018 – Life Safety/Code
- NFPA 307 – 2016 - Standard for the Construction and Fire Protection of Marine Terminals, Piers, and Wharves

A wet type overhead sprinkler system will be provided to serve the project areas; the new system will be fed from a new 6" fire main adjacent to the project at ground level.

The new wet type overhead sprinkler system will consist of mains, branch lines, sprinklers, pipe supports and earthquake bracing; it will be provided to serve all areas.

Upright type sprinklers will be provided for exposed roof structure areas and pendent type for areas with hung ceiling.

Fire hose stations consisting of 1½", 100 ft. long fire hose with associated rack and panel will also be provided connected to the new mains.

The new sprinkler systems will be hydraulically calculated and sized to deliver the required design density as per the following table:

5.1.2 Fire Protection Design Criteria:

Area	***Sprinkler Occupancy hazard Classification***	***Sprinkler Density***	***Sprinkler Type***	5.1.2.1 Fire Hose ***Allowance***	***Residual Pressure***	***Seismic Restraints***
Entire Area	Ordinary Hazard Group 2	0.20 gpm/ft² over 1,500 ft² (minimum)	Upright ½" orifice	500 gpm	7 psi minimum	Required

The new overhead sprinkler piping system will be carbon steel, black, seamless, ASTM A-53 or electric-resistance welded, ASTM A-135 as per NFPA. Pipes will be joined using malleable iron, split bolted mechanical clamps for pipe's groove ends. Automatic sprinklers shall be standard spray-type, UL listed upright or pendent, brass except below suspended ceiling that will be chrome.

The fire protection system will be serviced by a new 100,000 gallons fire water storage tank and one 1,500 GPM at 125PSI diesel engine driven fire pump.

The exterior underground fire main is in a loop type distribution configuration. Each building's fire riser is connected to the loop with provisions for isolation using post indicating valves or riser control valves. Post indicating valves are also along the loop for isolation purposes when system impairments occur.

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I. INTRODUCTION

SLS Consulting, Inc. (SLS) has prepared this Fire Protection/Life Safety Narrative report for the San Juan Cruise Terminal project that is, the Piers 11-12 Project - Cruise Pier Building referred to in Section 7 of this Schedule 13 (herein referred to as the "San Juan Cruise Terminal Project") located in San Juan, Puerto Rico. The Fire Protection/Life Safety Narrative report is intended to address the following major requirements as they relate to the proposed project:

Construction Type;

Means of Egress (e.g., occupant loading, number of exits, egress capacity, etc.);

Fire Protection Systems (e.g., sprinkler protection, fire alarm, smoke control, firefighter communication, etc.);

Means of Egress Lighting and Markings;

Emergency Power Requirements;

It is noted that this report is not intended to be "all inclusive" of fire protection/life safety requirements, but rather is intended to address major code compliance requirements. This *Fire Protection/Life Safety Narrative* report has been prepared based on the architectural drawings dated July 1, 2019 and discussions with the project team regarding fire protection/life safety systems. This Narrative is intended to serve as a design validation tool and will be updated as the project design progresses to final design.

A. Project Description

The proposed San Juan Cruise Terminal project will be a mixed-used building composed of 2 stories in addition to a mezzanine between the Ground and Second Floors. The building has a primary use of Assembly (Group A-3) along with secondary occupancies such as Business (Group B) and Low Hazard Storage (Group S-2). It contains queuing areas, bag screening, CBP Primary CBP Secondary Lobby, debark core, and bag processing/baggage claim on the Ground Floor. The Mezzanine is mostly used for offices and mechanical rooms. The Second Floor has a VIP lounge, VIP terrace, security operations, security queuing, check in, waiting area, cruise line support and debark lobby.

The building will be protected throughout by automatic sprinklers designed in accordance with NFPA 13, Standard for the Installation of Sprinklers and an emergency-voice alarm communication system designed in accordance with NFPA 72, National Fire Alarm Code and Signaling Code.

Figure 1: Conceptual Rendering

B. Applicable Codes

The major applicable codes for the project include, but are not limited to, the following:

Building Code

- IBC: International Building Code, 2018 Edition
- PRBC: Puerto Rico Building Code, 2018 Edition

Fire Prevention/Life Safety Code

- IFC: International Fire Code, 2018 Edition
- NFPA 101: The Life Safety Code, 2018 Edition

Electrical Code

- NFPA 70: National Electrical Code® (NEC), 2017 Edition

Mechanical Code

- IMC: International Mechanical Code, 2018 Edition

Plumbing Code

- IPC: International Plumbing Code, 2018 Edition

Major NFPA Standards

- NFPA 10: Standard for Portable Fire Extinguishers, 2018 Edition
- NFPA 13: Standard for the Installation of Sprinkler Systems, 2016 Edition
- NFPA 14: Standard for the Installation of Standpipe and Hose Systems, 2016 Edition
- NFPA 20: Standard for Installation of Stationary Fire Pumps for Fire Protection, 2013 Edition.
- NFPA 72: National Fire Alarm and Signaling Code®, 2016 Edition
- NFPA 110: Standard for Emergency and Standby Power Systems, 2016 Edition

II. FIRE PROTECTION AND LIFE SAFETY CONCEPTS

A. Occupancy Classifications

The San Juan Cruise Terminal Project is designed as a *mixed-use* facility. As such, there will be several *occupancies and uses* within the building, as summarized by the table below.

Table 1: Occupancy Classifications

Occupancy Group Classifications (IBC)	Occupancy Classifications (NFPA 101)	Specific Use / Location
Use Group A-3, *Assembly* occupancies (IBC §303.4)	*Assembly* (Chapter 12)	Waiting Areas, Baggage Claim, Queuing Areas, Terrace, CBP Primary, CPB Secondary, Lobby
Use Group B, *Business* occupancies (IBC §304.1)	*Business* (Chapter 38)	Offices
Use Group S-2, *Low Hazard Storage* occupancies (IBC §311.3)	*Storage* (Chapter 42)	General Storage and M/E/P, Data, IT, BOH

B. Building Classification Approach & Mixed-Use Approach

As stated above, the San Juan Cruise Terminal project will consist of multiple occupancies. The design approach is *Non-Separated Mixed-Use Occupancy* in accordance with IBC Section 508.3. Therefore, fire rated separation is not required between the occupancies.

C. Construction Type

i. Fire-Resistance Rating Based on Building Elements (IBC Table 601)

Due to the proposed occupancies classifications, building height, and number of stories in the San Juan Cruise Terminal project, the construction type for the building must be Type IB Construction in accordance with IBC Tables 504.3, 504.4 and 506.2. The fire resistance rating requirements shown below for Type IB Construction are obtained from Table 601 of IBC. This construction type also meets Type II(222) per NFPA 101 Table 12.1.6.

Table 2: Fire-Resistance Ratings of Building Elements (Hours)

Building Element	Type IB
Primary Structural Frame	2[1]
Bearing Walls	
Exterior[5,6]	2
Interior	2[1]
Nonbearing Walls and Partitions	
Exterior	(Table 602)
Interior[4]	0
Floor Construction and Secondary Members	2
Roof Construction and Secondary Members	1[2,3]

[1]Fire-resistance ratings of primary structural frame and bearing walls are permitted to be reduced by 1 hour where supporting a roof only.
[2]Except in Group F-1, H, M and S-1 occupancies, fire protection of primary structural members shall not be required, including protection of roof framing and decking where every part of the roof construction is 20 feet or more above any floor immediately below. Fire-retardant-treated wood members shall be allowed to be used for such unprotected members.
[3]In all occupancies, heavy timber shall be allowed where a 1-hour or less fire-resistance rating is required.
[4]Not less than the fire-resistance rating required by other sections of the IBC.
[5]Not less than required by Table 602 of the IBC based on the fire separation distances (FSDs).
[6]Not less than the rating as referenced in IBC Section 704.10

ii. Exterior Wall Ratings and Allowable Openings (IBC Table 602 and Table 705.8)

The fire separation distance (FSD) is the distance measured from the building face to the closest interior lot line; centerline of a street, an alley or public way; or to an imaginary line between two buildings on the lot. The distance shall be measured at right angles from the face of the wall.

Table 3, below, illustrates the exterior wall ratings and allowable openings based on the FSD and occupancy for Type IB construction.

Table 3: Type IB Exterior Wall[1,2] Ratings and Allowable Openings

Fire Separation Distance = X (feet)	Allowable Opening Area	Fire-Resistance Rating (Group A, B, S-2)
X < 3	Not Permitted	1 hour
3 ≤ X < 5	15%	1 hour
5 ≤ X < 10	25%	1 hour
10 ≤ X < 15	45%	1 hour
15 ≤ X < 20	75%	1 hour
X ≥ 20	No Limit	0

[1]Where Table 705.8 permits nonbearing exterior walls with unlimited area of unprotected openings, the required fire-resistance rating for the exterior walls is 0 hours.
[2]Nonbearing.

Table 4: Exterior Wall Ratings & Openings Limitations (> 30 Feet)

Requirement	Allowed/Required Exterior Wall
Construction Classification	Type IB
Occupancy Classifications	A-3, B, S-2
Fire Separation Distance	> 30 Feet
Exterior Wall Fire Resistance Rating (IBC Table 602)	No Requirements
Exterior Wall Opening Protection (IBC Table 705.8)	No Limitations

Table 5: Exterior Wall Ratings & Opening Limitations (10 ≤ Feet X < 30 Feet)

Requirement	Allowed/Required North Exterior Wall
Construction Classification	Type IB
Occupancy Classifications	A-3, B, S-2
Fire Separation Distance	10 Feet ≤ X < 30 Feet
Exterior Wall Fire Resistance Rating (IBC Table 602)	1 hour
Exterior Wall Opening Protection (IBC Table 705.8)	10 Ft. to less than 15 Ft. = 45% Openings 15 Ft. to less than 20 Ft. = 75% Openings 20 Ft. to less than 30 Ft. = No limitations

Table 6: Exterior Wall Ratings & Opening Limitations (5 ≤ Feet X < 10 Feet)

Requirement	Allowed/Required North Exterior Wall
Construction Classification	Type IB
Occupancy Classifications	A-3, B, S-2
Fire Separation Distance	5 Feet ≤ X < 10 Feet
Exterior Wall Fire Resistance Rating (IBC Table 602)	1 hour
Exterior Wall Opening Protection (IBC Table 705.8)	5 Ft. to less than 10 Ft. = 25% Openings

Table 7: Exterior Wall Ratings & Opening Limitations (X < 5 Feet)

Requirement	Allowed/Required North Exterior Wall
Construction Classification	Type IB
Occupancy Classifications	A-3, B, S-2
Fire Separation Distance	X < 5 Feet
Exterior Wall Fire Resistance Rating (IBC Table 602)	1 hour
Exterior Wall Opening Protection (IBC Table 705.8)	Less than 3 Ft. = Not permitted 3 Ft. to less than 5 Ft. = 15% Openings

D. Fire Separation Requirements

The following table indicates the spaces within the San Juan Cruise Terminal project where fire resistance rated separations should be provided. This includes incidental accessory occupancies.

Table 8: Required Fire-Resistance Rated Spaces

Spaces	Required Rating[1]	Reference
Information technology equipment - Critical	1-hour *fire barriers*	NFPA 75 §5.1.3
Fire Alarm equipment	2-hour *fire barriers*	NFPA 72 Chapter 12
Electrical Rooms with dry-type Transformers > 112.5 kVa	2-hour *fire barriers(*)*	NFPA 70 §450.21
Transformer Vaults (oil-insulated)	3-hour *fire barriers*	NFPA 70 §450.42
Mechanical Shafts	2-hour fire/smoke *barriers*	IBC §713.4 & NFPA 101 §8.6.5
Stair Shafts[2,4]	2-hour fire/smoke *barriers*	IBC §1023.2 & NFPA 101 §7.1.3.2
Trash Collection Rooms	*Smoketight*	IBC T-509
Emergency Switchgear Room	2-hour *fire barriers*	NFPA 110 §7.2.1.1
Fire Pump Room	1-hour *fire barriers*	NFPA 20 §5.12.1.1 & IBC §913.2.1
Elevator Machine Rooms and Shafts [2,4]	2-hours *fire barriers*	IBC §713
Generator rooms (*inside bldgs.*)[3]	2-hours *fire barriers*	NFPA 110 §7.2.1.1

Note 1: Fire Barriers are rated walls that are continuous from floor slab to slab above. Fire partitions are rated walls that are continuous from floor to underside of the rated floor/ceiling assembly.
Note 2: All smoke control equipment (e.g., fans, VFDs, etc.) associated with stair and elevator pressurization is required to be enclosed in dedicated two (2) hour fire rated enclosures.
Note 3: Per NFPA 110, Section 7.11.4 Generators outside or on roof need lightning protection designed and installed in accordance with NFPA 780, Standard for the Installation of Lightning Protection Systems.
Note 4: In accordance with IBC 713.4, the shaft enclosure rating must not be less than the floor rating for the construction type.
(*) Code requires 1-hour, however 2-hours recommended by SLS to meet survivability requirements for cabling/equipment associated with FA or BDA systems.

For Assembly occupancies, NFPA 101 Section 12.3.2 states that rooms containing high-pressure boilers, large transformers, or other service equipment subject to explosion shall not be located directly under or abutting required exits.

i. Fire Separation Marking

Each new fire wall, fire barrier, fire partition, smoke barrier, smoke partition, or any other new wall required to have protected openings shall be permanently identified with signs or stenciling above any decorative ceiling and in concealed spaces with the wording, "FIRE AND/OR SMOKE BARRIER – PROTECT ALL OPENINGS". Such signs or stenciling shall be in 3-inch high letters, 3/8- inch stroke, and not more than 15 feet on

center. This requirement is mandated by both NFPA 101, Section 8.3.2.2.5 and IBC Section 703.7.

ii. Fire Barriers

Fire barriers shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above and be securely attached. Shafts, interior exit stairways, and ramps that do not extend to the underside of the roof sheathing, deck or slab of the building shall be permitted to be enclosed at the top with construction of the same fire-resistance rating as the topmost floor penetrated by the shaft, but not less than the fire-resistance rating required for the shaft enclosure.

In accordance with IBC Section 707.5.1, the supporting construction for a fire barrier shall be rated at least as much as the fire barrier it is supporting.

Openings in a fire barrier shall be protected in accordance with IBC Section 716 of IBC and NFPA 101 Section 8.3. Openings shall be limited to a maximum aggregate width of 25% of the length of the wall, and the maximum area of any single opening shall not exceed 156 sq.ft.

- Single opening limit of 156 sq.ft. does not apply, where adjoining floors are protected by an automatic sprinkler system.
- Single opening limit of 156 sq.ft. does not apply, where the opening protective is a fire door serving exit stairs, exit ramps, exit access stairs, or exit access ramps.
- Single opening limit of 156 sq.ft. does not apply, where the opening protective has been tested in accordance with ASTM E 119 or UL 263. The fire resistance rating of the opening must be equal to or more than the fire resistance rating of the wall.
- The 25% limit of the fire barrier does not apply, where the opening protective is a fire door serving exit stairs, exit ramps, exit access stairs, or exit access ramps.
- The 25% limit of the fire barrier does not apply, where the opening protective has been tested in accordance with ASTM E 119 or UL 263.

iii. Fire Partitions

Fire partitions shall extend from the top of the foundation or floor/ceiling assembly below to the underside of the floor or roof sheathing, slab or deck above, or to the fire-resistance-rated floor/ceiling or roof/ceiling assembly above and must be securely attached.

iv. Horizontal Assemblies

In accordance with IBC Section 711.2.4, horizontal assemblies and supporting structures require 2-hour fire-resistance rating as the building is Type IB construction. The roof construction and supporting assemblies are required to be 1-hour fire-resistance rated.

v. Opening Protection

All openings and penetrations on fire/smoke rated walls described above must be protected in accordance with IBC Chapter 7, *Fire and Smoke Protection Features*, NFPA 101, Chapter 8, *Features of Fire Protection*.

vi. Penetrations

The following sections of this report are applicable to penetrations through fire barriers, fire partitions, and horizontal assemblies.

a. Through Penetrations

Penetrations shall be installed as tested in an approved fire-resistance-rated assembly, or in an approved penetration firestop system tested in accordance with ASTME 814 or UL 1479. Where the penetrating items are steel, ferrous or copper pipes, tubes or conduits, the annular space between the penetrating item and the fire-resistance-rated wall is permitted to be protected via the following two scenarios:

- Holes with a maximum 6 in. diameter and 144 in² area are permitted to be protected with grout or mortar.
- The material used to protect the opening must pass ASTM E 119 or UL 263 test conditions.

b. Membrane Penetrations in Fire-Resistance-Rated Walls

Membrane penetrations must comply with IBC Section 714.4.2. Where walls or partitions are required to have a fire-resistance rating, recessed fixtures shall be installed such that the required fire resistance will not be reduced.

c. Horizontal Assemblies

Penetrations of a fire-resistance-rated floor, ceiling assembly, or ceiling membrane must comply with IBC Sections 714.5.1. through 714.5.4

Through penetrations must be installed as tested in the approved fire-resistance-rated assembly, or they must be protected by an approved through-penetration firestop system installed and tested in accordance with ASTM E814 or UL 1479 with

an F rating/T rating of not less than 1 hour but not less than the required rating of the floor penetrated.

Penetrations of nonfire-resistance-rated floor or floor/ceiling assemblies or the ceiling membrane of a nonfire-resistance-rated roof/ceiling assembly shall meet the requirements of IBC Section 713 or shall comply with Section 714.6.1 or 714.6.2.

- Noncombustible penetrating items, connecting not more than five stories are permitted, provided that the annular space is filled to resist the free passage of flame and the products of combustion with an approved noncombustible material or with a fill, void or cavity material that is tested and classified for use in through-penetration firestop systems.
- Penetrating items that connect not more than two stories are permitted, provided that the annular space is filled with an approved material to resist the free passage of flame and the products of combustion.

E. Vertical Opening Code Compliance Approach

Several vertical openings anticipated within the San Juan Cruise Terminal project are protected by fire-resistance rated construction in accordance with NFPA 101 Section 8.6 and IBC Section 712.

i. Shafts

Shaft enclosures in the project must be designed in compliance with IBC Section 713. The shaft enclosures shall have a fire resistance rating of not less than 2 hours and not less than the floor assembly penetrated but need not exceed 2 hours. The construction shall be as fire barriers in accordance with IBC Section 707.

ii. Elevators

Per IBC Section 3006.2, elevator hoistway door openings must be protected where the elevator hoistway connects more than three stories, is required to be located in a shaft enclosure.

NOTE: The Terminal Building is less than three (3) stories, therefore, the lobbies are not required. However, elevators used as part of the accessible means of egress may still require the lobby as indicated in the Accessibility Section of this report.

iii. Escalators

There are two (2) escalator groups (1A/1B and 2A/2B) creating vertical openings in the building. These openings must be protected in accordance with IBC Section 712 and NFPA 101 Section 8.6.9.7.

Per IBC 712.1.3.1, the escalators shall be protected by a draft curtain and closely spaced sprinklers in accordance with NFPA 13 where the area of the vertical opening between stories does not exceed twice the horizontal projected area of the escalator. This is limited to openings that do not connect more than four stories in a Group A building. The sprinkler protection around the vertical opening must comply with NFPA 13. Draft stops (18-inch deep) shall be located immediately adjacent to the opening made of noncombustible material that will stay in place before and during sprinkler operation. In addition, sprinkler heads are spaced 6 feet apart and placed 6-12 inches from drafts top on side away from opening.

Another option is to protect the vertical opening by approved shutters at every penetrated floor shall be permitted. The shutters shall be of noncombustible construction and have a fire-resistance rating of not less than 1.5 hours. The shutter shall be so constructed as to close immediately upon the actuation of a smoke detector installed in accordance with IBC §907.3.1 and shall completely shut off the well opening. Escalators shall cease operation when the shutter begins to close. The shutter shall operate at a speed of not more than 30 feet per minute and shall be equipped with a sensitive leading edge to arrest its progress where in contact with any obstacle, and to continue its progress on release there from (IBC 712.1.3.2).

iv. Atrium

If there is an atrium, it must comply with IBC Section 404 and NFPA 101 Section 8.6.7.

- The atrium requirements in IBC and NFPA 101 are as follows:
- The atrium must be separated from the adjacent spaces by fire barriers with not less than a 1-hour fire resistance rating. Any number of levels shall be permitted to open directly to the atrium without enclosure based on a smoke control engineering analysis.
- Glass walls and inoperable windows shall be permitted in lieu of the fire barriers where all the following are met:
    - Automatic sprinklers are spaced on both sides of the glass wall at 6 ft intervals.
    - The sprinklers are located between 4 inches to 12 inches away from the glass.
    - The glass wall is of tempered, wired, or laminated glass held in place by a gasket framing system to deflect without breaking the glass before sprinklers operate.
    - The sprinkler heads are not required on the atrium side of the glass wall where there is no walkway or other floor area on the atrium side above

main floor level.

  - Doors in the glass walls are of glass or other material that resists the passage of smoke.
  - Doors in the glass walls are self-closing or automatic-closing upon detection of smoke.
  - The glass is continuous vertically, without horizontal mullions, window treatments, or other obstructions that would interfere with the wetting of the entire glass surface.

- Access to exits is permitted to be within the atrium. Exit discharge is permitted to be within the atrium.
- The occupancy within the atrium meets the specification for classification as low or ordinary hazard contents.
- The entire building is protected by approved, supervised automatic sprinkler system.
- An engineering analysis is performed that demonstrates that the building is designed to keep the smoke layer 6 ft. above the highest floor level of exit access open to the atrium for a period of 20 minutes or 1.5 times the calculated egress time, whichever is greater.
- The smoke control system described above is activated by sprinkler system and manual controls accessible to the fire department.
- Smoke control system is required and shall be connected to standby power
- The interior finish of walls and ceiling of the atrium shall not be less than Class B with no reduction in class for sprinkler protection. (IBC)
- In floors above the lowest level, the portion of exit access travel distance within the atrium space shall be not greater than 200 feet. (IBC)

v. Convenience Openings

Convenience openings" in accordance with all criteria in NFPA 101 Section 8.6.9.1 and IBC 712.1.9 are provided in the following table.

Table 9: IBC and NFPA 101 Convenience Opening Requirements

IBC Section 712.1.9 Summary of Requirements/Analysis	NFPA 101 Section 8.6.9.1 Summary of Requirements/Analysis
(1) Does not connect more than two (2) stories.	(1) Such openings shall connect not more than two adjacent stories (one floor pierced only).
(2) Does not penetrate a horizontal assembly that separates fire areas or smoke barriers that separate smoke compartments.	(2) Such openings shall be separated from unprotected vertical openings serving other floors by a barrier complying with 8.6.5.
(3) Is not concealed within the construction of a wall or a floor/ceiling assembly.	(3) Such openings shall be separated from corridors.
(4) Is not open to a corridor in Group I and R occupancies.	(4) Such openings shall be separated from other fire or smoke compartments on the same floor.
(5) Is not open to a corridor on non-sprinklered floors.	(5) Convenience opening shall be separated from the corridor referenced in 8.6.9.1(3) by a *smoke partition*, unless Chapters 11 through 43 require the corridor to have a fire resistance rating.
(6) Is separated from floor openings and air transfer openings serving other floors by construction conforming to required shaft enclosures.	(6) Such opening shall not serve as a required means of egress.

A convenience stair is permitted in Assembly occupancies per NFPA 101 Section 12.3.1(4) if all the following are met (NFPA 101 Section 8.6.9.2):

(1) The convenience stair shall not serve as a means of egress.

(2) The building is protected throughout with an approved supervised automatic sprinkler system.

(3) The convenience stair openings are protected with the protection of vertical openings per NFPA 13.

(4) The floor opening shall not exceed twice the horizontal projected area of the stairway.

(5) Such openings shall not connect more than 4 contiguous stories.

F. Interior Finish Requirements

Interior finishes within the San Juan Cruise Terminal project are designed to comply with the requirements of the IBC and NFPA 101. The major interior finish requirements for the project are summarized in the table below (IBC Table 803.13 and NFPA 101 Table A.10.2.2). The sprinkler system reduction allowed by code has been applied.

Table 10: Interior Finish Requirements

Occupancy Classifications	Floor Finish Requirement	Interior Wall and Ceiling Finish Requirements (IBC and NFPA 101)
Assembly	Exits: **Class II** Corridors: **Class II** Spaces not separated from corridor: **Class II**	Exit Enclosure: **Class B** Corridors & Exit access stairs: **Class B** Rooms & Enclosed Spaces: **Class C** Lobbies: **Class C** Assembly Rooms: **Class C** Screens: **Class C** **See Note 1**
Business	Exits: **Class I or II**	Exit Enclosure: **Class B** Corridors & Exit access stairs: **Class C** Rooms & Enclosed Spaces: **Class C** Other Spaces: **Class C** **See Note 2**
Storage	Exit: **Class II**	Exit Enclosure: **Class C** Corridors & Exit access stairs: **Class C** Rooms & Enclosed Spaces: **Class C** Other Spaces: **Class C**

Note 1: The ratings shown are from IBC, which has the most stringent requirements
Note 2: The ratings shown are from NFPA 101, which has the most stringent requirements

- All combustible materials used as interior wall, ceiling, and floor finishes must have proper documentation indicating that the finishes comply with the requirements above.
- It is recommended that the design for unique or custom interior finishes (e.g., wood finishes, textile wall coverings, foam finishes, material applied to fire doors, etc.) within the project be identified early in the design/construction process. Interior finishes consisting of unique materials or assembly of different materials will have to be tested by a nationally recognized laboratory.

- Interior wall and ceiling trim and incidental finishes must be identified by the project team and must be included for assessment. Interior floor trim material used as wall base or decorative border would also be included and tested as a wall finish or floor finish.
- Interior wall and ceiling finishes are normally tested as a single layer on noncombustible substrate. If the material is installed in any other manner, then the assembly of all materials must be tested in accordance with the standards above.
- Wood interior finish (e.g., millwork, wood lockers, etc.) must be tested as an assembly of all the components exactly how it will be installed including the adhesives, lacquers, glazings, etc.
- It is noted that normally the authority having jurisdiction will not accept the application of a flame-retardant treatment or coating in order to achieve the proper rating for new interior finishes.
- Depending on the occupancy classification, the furnishings in common areas, such as upholstered furniture, must also be evaluated before the furniture is installed in the facility.
- The fire department may require a Third (3rd) Party Evaluation of the interior finishes to ascertain compliance with above rating.

G. General Means of Egress Requirements

i. Maximum Allowable Travel Distances:

As a building protected throughout by automatic sprinklers, the following maximum allowable travel distances are applicable to the San Juan Cruise Terminal project as required by IBC Table 1006.2.1, IBC Table 1017.2, IBC Section 1020.4, and NFPA 101 Table A.7.6.

Table 11: Travel Distance Requirements

Occupancy Group Classifications (IBC)	Occupancy Classifications (NFPA 101)	Distances
Use Group A, *Assembly* occupancies	*Assembly*	**Max Travel Distance:** 250 feet **Max Dead End Distance**: 20 feet **Max Common Path Distance**: 20/75 feet[1]
Use Group B, *Business* occupancies	*Business*	**Max Travel Distance**: 300 feet **Max Dead End Distance:** 50 feet **Max Common Path Distance:** 100 feet
Use Group S-2, *Low Hazard Storage* occupancies	*Storage - Low*	**Max Travel Distance** • *Storage:* 400 feet (IBC) **Max Dead End Distance** • *Storage:* 50 feet (IBC) **Max Common Path Distance** • *Storage:* 100 feet (IBC)

[1]Assembly use spaces with an occupant load of 50 or more, shall have its common path of travel distance limited at 20-feet. If the occupant load is less than 50, then the common path of travel distance shall be limited at 75-feet.

ii. Number of Required Exits Per Floor

Each floor of the building is provided with the following minimum number of exits as required by IBC Section 1006.2.1.1 and NFPA 101 Section 7.4.1.2.

Table 12: Number of Exits Requirements

Floor Occupant Load	Number of Exits Required
0-500 occupants	2 Exits
501-1,000 occupants	3 Exits
>1,000 occupants	4 Exits

iii. Electrical Room Exit:

Electrical rooms with equipment rated 1200 Amps or more, and 6 feet wide that contain overcurrent devices, switching devices or control devices shall have two (2) exit access doors (one at each end of the working space). The doors must swing in the direction of egress and must be equipped with panic hardware or fire exit hardware (IBC Section 1010.1.10).

Electrical rooms with equipment used in circuits over 600 volts with switchgear and control panels exceeding 6 feet in width shall have two (2) exit access doors (one at each end of the working space). The doors must swing in the direction of egress and must be equipped with panic hardware or fire exit hardware (NFPA 101 Section 7.4.2.2 and NFPA 70, Article 110.33(A)).

iv. Boiler Rooms or Furnace Rooms:

Two (2) exits are required in boiler rooms where the area is over 500 sq.ft. and any fuel-fired equipment exceeds 400,000 Btu. The two exit doors must be remotely separated by a distance equal to one-half the diagonal dimension of the room (IBC Section 1006.2.2.1).

v. Mechanical Equipment Rooms:

Mechanical equipment rooms including boiler rooms, furnace rooms, and similar spaces shall be arranged to limit common path of travel to a distance not exceeding 100 feet for building protected by sprinkler system. Stories used for mechanical equipment rooms (including the roof) shall be permitted to have a single means of egress where the travel distance to an exit on that story does not exceed the common path of travel (NFPA 101 Section 7.13).

vi. Exit Access Remoteness Requirements:

Where two (2) exit doors or exit access doors are required to be provided, the exits must be designed in order to be remote from one another in accordance with IBC §1007.1.1 *Exception* 2 and NFPA 101 §7.5.1.3.3. The exits must be separated by more than one-third of the maximum diagonal distance of the floor, space, or area served.

vii. Exit Discharge Configurations:

All the exits must discharge to the outside in accordance with NFPA 101 §7.7.1 and IBC Section 1028.1. The exit discharge must comply with remoteness requirements of one-third of the maximum diagonal distance of the building. However, the Codes allow for a maximum of 50% of the number and 50% of the capacity of exits to discharge through the interior of the building provided that the following criteria are met:

- *Exterior Exit Visibility:* The exit enclosure discharges to a free and unobstructed path of travel to an exterior exit door and such exit is readily visible and identifiable from the point of termination of the exit enclosure in accordance with IBC §1028.1 *Exception 1.1* and NFPA 101 §7.7.2.
- *Floor Separation:* The entire area of the level of exit discharge is separated from areas below by construction having a two (2) hour fire resistance rating per IBC §1028.1 *Exception 1.2* and NFPA 101 §7.7.2).
- *Sprinkler Protection:* The egress path is protected throughout by automatic sprinklers (IBC §1028.1 *Exception 1.3* and NFPA 101 §7.7.2).

NOTE: The exit discharge for this building must comply with the remoteness requirement (1/3 diagonal of the building) all along the discharge. Exit discharge cannot be to vehicular driveways without dedicated walkway. **Currently, there all stairs discharge directly to the exterior of the building except Stair 1 and Stair 9. Stair 1 is an exit access stair discharging on the Ground Floor Lobby. Stair 9 discharges to the exterior through a 2-hour fire rated exit passageway.**

viii. Stair Re-Entry:

Interior exit stairway doors must be designed to allow re-entry into the building at each floor in accordance with NFPA 101 §7.2.1.5.8. If the doors are normally locked to prevent access into the floors, then the doors must automatically unlock upon initiation of the fire alarm system in accordance with NFPA 101 §7.2.1.5.8.

ix. Door hardware requirements:

Panic hardware (*or fire exit hardware for fire doors*) must be installed in all doors serving rooms or spaces with an occupant load of 50 persons or more in a Group A occupancy per IBC Section 1010.1.10. NFPA 101 has a similar requirement for assembly occupancies where the occupancy load is 100 or more. Therefore, the IBC has the more stringent requirement and must be implemented. Panic hardware must be installed in electrical rooms as stated in other section of this report.

x. Occupant Load Factors:

The following occupant load factors have been used to calculate the occupant load of the spaces within the San Juan Cruise Terminal project as required by IBC Table 1004.5 and NFPA 101 Table 7.3.1.2.

Table 13: Occupant Load Factors

Use of Space	Occupant Load Factors [ft²/occupant]
Offices, CBP Secondary	100 gross
Assembly –Concentrated (Queuing, screening, Lobby, CBP Primary)	7 net
Assembly – Unconcentrated Tables & Chairs (Waiting areas, Conference rooms)	15 net
Locker Rooms	50 gross
Baggage Claim	20 gross
Baggage Handling/Sorting	100 gross
Storage Areas, BOH, Mechanical Spaces	300 gross

NOTE: Per life safety drawings, CPB Primary and Crew Area have been calculated with an occupant load factor of 100 gross sq.ft./occ. Confirm AHJ approval.

xi. Spaces with One Means of Egress Requirements:

Spaces with one (1) means of egress within the San Juan Cruise Terminal project shall comply with the following means of egress requirements as required by IBC T-1006.2.1 and NFPA 101 §7.4.1.1.

Table 14: One Means of Egress

Occupancy	Maximum Occupant Load	Maximum Exit Access/Common Path of Travel Distance (feet)
Assembly	49	75 feet
Business	49	100 feet
Storage and Mechanical	29	100 feet

The number of *accessible means of egress* from a space shall equal the number required for the means of egress or two (*whichever is less*), in accordance with NFPA 101 Section 7.5.4 and Chapter 11 of the IBC.

xii. Egress Capacity Factors:

The egress capacity for the means of egress must be designed using the capacity factors indicated in the table below. In addition, the minimum width of the means of egress components must also be considered in the design. The minimum width is specified for each occupancy classification as stated in NFPA 101 Table 7.3.3.1 and IBC §1005.3.

If the building is provided with an automatic sprinkler system and emergency/voice communication system, the following table applies.

Table 15: Egress Capacity

Occupancy	Egress Component	Egress Capacity Factor [inches/occupant]	
		NFPA 101	IBC
Assembly, Business, Storage	Stairways < 44 inches	0.3	0.2
	Stairways > 44 inches	Refer to Note 1	0.2
	Level Components	0.2	0.15

[1]-For stairways in the referenced occupancies that are wider than 44 in., the capacity is permitted to be increased using the following equation:

$$C = 146.7 + \frac{Wn-44}{0.218}$$

Where:
C = capacity, in persons, rounded to the nearest integer
Wn = nominal width of the stair [inches]

NOTE: If smoke-protected assembly seating is provided, egress capacity factors may be reduced per IBC T-1029.6.2 and NFPA 101 T-12.4.2.3. A life safety evaluation study complying with NFPA 101 shall be provided.

xiii. Stair Width Requirements:

Stairs must have a minimum width of 44 inches. If the cumulative occupant load assigned to a stair is over 2,000 persons, the stair must have a minimum width of 56 inches per NFPA 101 Section 7.2.2.2.1.2.

xiv. Corridor Width:

The minimum clear width is 44 inches and must be increased to accommodate the occupant load (IBC T-1020.2).

xv. Assembly Seating Arrangement:

Furniture layout in meeting rooms and ballrooms must comply with aisle width and aisle accessway width requirements as stated in NFPA 101 Sections 12.2.5.7 and 12.2.5.8. Seating NOT at tables must comply with NFPA 101 Sections 12.2.5.5 and 12.2.5.6. Seating at tables must comply with NFPA 101 Section 12.2.5.7.

NFPA 101 Section 12.7.9.1 states that seats accommodating more than 200 persons shall be securely fastened to the floor, except where fastened together in groups of not less than three.

xvi. One Exit Unavailable Analysis:

The means of egress must be designed with adequate width and capacity such that the loss of one exit leaves the other exits available to handle at least 50% of the occupant load (IBC Section 1005.5 and NFPA 101 Section 7.3.1.1.2).

xvii. Exit Signage:

Exit signs are required at all exit doors and directional signs are required within the means of egress where the path of egress is not apparent. Exit sign placement shall be such that no point in the exit access corridor is more than 100 feet from the nearest exit sign (IBC Section 1013).

xviii. Means of Egress Lighting:

Normal lighting must be designed to provide a minimum of 1 ft-candle measured at the floor within exit access routes, exits, and the exit discharge routes. In the stairs, the minimum illumination shall be at least 10 ft-candle measured at the walking surface. The elevator code requires adequate lighting (10 ft-candle) at the landing sill of elevators measured with doors open/closed (IBC Section 1008, NFPA 101 Sections 7.8 and 7.9).

Additionally, lighting is required to be arranged such that the failure of a single lighting unit does not reduce illumination levels to less than 0.2 ft-candle as required by NFPA 101 Section 7.8.1.4.

Emergency lighting is required for this occupancy per NFPA 101 Section 12.2.9. The emergency lighting must provide an average of 1 ft-candle measured at the floor throughout the means of egress with a minimum of 0.1 ft-candle at any point. The illumination of 10 ft-candle for the elevator threshold is still required under emergency lighting conditions.

It is noted that the FDPT Fire Department and San Juan Building Department strictly enforce the reliability of emergency lighting and require that the system be arranged to provide the required illumination automatically in the event of interruption of normal lighting due to any of the following as required by NFPA 101 Section 7.9.2.3:

- Failure of a public utility or outside electrical power supply;

- Opening of a circuit breaker or a fuse;
- Manual acts including accidental opening of a switch controlling normal lighting

As per standard practice, it is recommended that the project team ensure that battery back-up lighting is provided in the following locations: emergency generator room, fire pump room, and the emergency responder radio coverage room (if provided).

Emergency lighting must be provided in mechanical rooms and electrical rooms as required in NFPA 70, Articles 110.26(D) and 700.16.

Emergency lighting is required on the egress side of delayed egress door and access control doors when provided in the building in accordance with NFPA 101 Section 7.2.1.6.

H. Major Life Safety Accessibility Requirements Overview

The San Juan Cruise Terminal Project must comply with all the applicable accessibility requirements mandated for each occupancy. The complete review of accessibility code compliance is outside the scope of this Narrative Report and outside the expertise of SLS Consulting, Inc. The items listed below are not all inclusive of the requirements in the IBC and NFPA 101. However, the list below provides a quick reference of some basic requirements related to fire and life safety that may be missed during the design.

i. Accessible Means of Egress

Two accessible means of egress must be provided whenever two exits are required from the space, floor, or building. If one means of egress is permitted by the Code, then only one accessible means of egress needs to be provided. Travel distance and common path of travel limits must be followed equal to the required means of egress. Each accessible means of egress shall be continuous from each accessible occupied space to a public way or area of refuge (NFPA 101 Section 7.2.12.2.2). Required portions of an area of refuge shall have access to a public way via *a) an exit or b) an elevator* without requiring return to the building spaces through which travel to the area of refuge occurred.

a) Exit stair must comply with clear width of landings and stair of 48 inches measured between handrails.

b) Elevators must comply with firefighters' emergency operations, power supply shall be protected against interruption, and must be in a smokeproof enclosure (NFPA 101 Section 7.2.12.2.4).

ii. Area of Refuge

An area of refuge as part of the accessible means of egress shall meet the requirements of NFPA 101 Section 7.2.12.3.

iii. Area of Refuge: Communication

Each story as mentioned above must comply with the following requirements for a two-way communication in accordance with NFPA 101 Section 7.2.12.1:

- Each elevator landing shall be provided with a two-way communication system to communicate between the elevator landing and a central point approved by the fire department.
- Directions for the use of the two-way communication system; instructions for summoning assistance; and written identification of the location shall be posted adjacent to the two-way communication system.
- The two-way communication system shall include both audible and visible signals.

iv. Exit Door Signage

Tactile signage shall be provided to meet all the following criteria in accordance with NFPA 101 Section 7.10.1.3: a) tactile signs shall be located at each exit door requiring an exit sign; b) tactile sign shall read EXIT; and c) tactile signs shall comply with ANSI A117.1, *American National Standard for Accessible and Usable Buildings and Facilities*.

I. Fire Protection and Life Safety Systems Overview

i. Equipment Locations / Flood Zone

All fire protection and life safety equipment are required to be located above the base flood elevation. Equipment cannot be located below flood level even if the story is protected with flood proofing systems (IBC Section 1612.3).

ii. Sprinkler Systems

Per IBC §903.2.1 and NFPA 101 §12.3.5, sprinkler protection designed in accordance with NFPA 13 shall be installed throughout the building. This building will have the protection system connected to the city water supply.

a. Sprinkler Supervision and Alarms

The following water supply control valves are required to be electrically supervised by a listed fire alarm control unit per IBC Section 903.4:

- Automatic sprinkler systems
- Pumps
- Tanks
- Water levels and temperatures
- Critical air pressures
- Water-flow switches on all sprinkler systems
- Exception: Jockey pump control valves sealed and locked in the open position, control valves to commercial kitchen hoods, valves controlling the fuel supply to fire pump engines that are sealed or locked in the open position

One exterior approved audible alarm located on the exterior of the building shall be connected to each sprinkler system. They should activate upon flow through the sprinkler system equivalent to the smallest orifice sprinkler head installed in the system being discharged.

b. Monitoring

Alarm supervisory and trouble signals shall be distinctly different and shall be automatically transmitted to an approved supervising station, or, where approved by the fire code official, shall sound an audible signal at a constantly attended location.

c. Site Water Supply Systems

The site water supply for fire protection systems shall be provided in accordance with the requirements of NFPA 13.

d. Standpipe Systems

Per IBC §905.3.1, a standpipe system is not required for the San Juan Cruise Terminal project since the building is less than 4 stories and the highest occupiable floor is located less than 30 feet above the lowest level of fire department access.

iii. Fire Pump:

This building may require a fire pump to supply the sprinkler and standpipe systems. The installation of the fire pump shall be designed and installed in accordance with NFPA 20, *Standard for the Installation of Stationary Pumps for Fire Protection*. The fire pump room must be accessed directly from the exterior. The fire pump room that is not directly accessible from the outside shall be accessible through an enclosed passageway from an enclosed stairway or exterior exit. The enclosed passageway shall have a fire-resistance rating not less than the fire-resistance rating of the fire pump room (2-hours) (NFPA 20 §4.12.2.1).

iv. Fire Department Connections:

Fire department connections shall be located so that fire apparatus and hose connected to supply system will not obstruct access to the buildings for other fire apparatus. The location must be approved by the fire code official (IBC Section 912.2). Fire department connections shall be located on the street side of buildings or facing approved fire apparatus access roads, fully visible and recognizable from the street, fire apparatus access road or nearest point of fire department vehicle access or as otherwise approved by the fire code official (IBC Section 912.2.1).

v. Fire Extinguishers:

Fire extinguishers must be provided throughout the building as required by the IFC and IBC Section 906. The fire extinguishers must be installed in accordance with NFPA 10, *Standard for Portable Fire Extinguishers*. The table below provides a brief overview of the installation requirements.

Table 16: Fire Extinguishers

Hazard Area	Minimum Size and Type	Maximum Travel Distance to Extinguisher [ft]	Maximum Floor Area per Unit of A [ft²]	Maximum Floor Area per Extinguisher [ft²]
Low Hazard (Assembly Areas, Office Spaces)	2A:10B:C Increase rating based on limits	75	3,000	11,250
Moderate Hazard (Storage)	2A:20B:C Increase rating based on limits	75	1,500	11,250

J. Fire Alarm & Emergency Responder Radio Systems

i. Fire Alarm Systems

In accordance with IBC §907.2.1.1 and NFPA 101 §12.3.4.3.3, an emergency / voice communication fire alarm system shall be provided. The fire alarm system must be designed and installed in accordance with NFPA 72. Audible and visual appliances must be installed in accordance with IBC and NFPA 101. Selective evacuation signal is permitted where general evacuation is impractical due to building configuration per NFPA 101 Section 9.6.3.6.2.

The fire alarm system must be designed to interface or monitor other life safety systems in the building such as automatic sprinkler system, fire pump, smoke control system, generator, etc.

ii. Remote Annunciator Panel

As per usual practice with the Fire Department, a remote fire alarm annunciator panel and remote generator annunciator panel should be provided at an approved location such as the main lobby.

iii. Fire Alarm Monitoring:

The fire alarm system of the San Juan Cruise Terminal shall be monitored by a central station in accordance with NFPA 101 Sections 12.3.4.2.2 and 12.3.4.3.7.

iv. Carbon Monoxide Alarms:

Carbon monoxide detection shall be provided in accordance with the requirements of the IBC Section 915 and NFPA 101 Section 12.3.4.4. Carbon monoxide detectors are required in buildings having fuel burning appliances, a fireplace, an attached garage, or other element that emits carbon monoxide as a byproduct of combustion. Carbon Monoxide detection shall be installed in accordance with NFPA 720, *Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment*.

v. Smoke Detection System:

IBC Section 903.2.1 Exception states that smoke detection shall be provided in the following spaces that are not protected by sprinkler system: mechanical equipment, electrical transformer, telephone equipment, or similar room. In addition, smoke detection must be provided in each elevator machine room.

K. Emergency and Standby Power Systems

i. Emergency Power Systems:

The emergency power systems shall be designed in accordance with the following (IBC §2702 and NFPA 101 §7.9):

- NFPA 70, National Electrical Code (NEC)
- NFPA 110, Standard for Emergency and Standby Power Systems
- NFPA 111, Standard on Stored Electrical Energy Emergency and Standby Power Systems.

The standby system shall have the capacity to supply the following:

- Elevators used as accessible means of egress elevators (IBC §2702.2.2);
- Electrical generator and main switchgear room lighting circuits (NFPA 110);
- Fire pump room lighting circuit (NFPA 20);
- Smoke control systems (IBC §2702.2.16);
- Horizontal sliding doors (IBC §2702.2.17);
- Elevators (IBC §3003.1)

The emergency system should have the capacity to supply the following:

- Exit Signs (IBC §2702.2.6);
- Means of Egress Lighting (IBC §2702.2.13);
- Emergency Voice/Alarm Communication System (IBC §2702.2.4)

Elevator machine room ventilation and/or air conditioning should be connected to the Building's standby power source. Where more than one (1) elevator is provided, all elevators should be provided with standby power and return to the designated level. After this point, one (1) elevator should remain operable from the standby power source (IBC §3003.1.3).

L. Smoke Control Systems Overview

Currently, it is not anticipated the building will have a smoke control system designed in accordance with IBC Section 909.

The plans reviewed do not show any unprotected vertical openings requiring smoke control system protection.

M. Hazardous Materials Approach

The quantities of hazardous materials will be below the exempt amounts / maximum allowable quantities (MAQ's) and no Use Group H, High Hazard occupancies are proposed. It is noted that the fuel located within vehicles are exempted by the IBC, NFPA 101, and NFPA 30. All rooms containing hazardous materials within the San Juan Cruise Terminal project (e.g. fuel storage room/emergency generator room, etc.) should be provided with an NFPA 704 Hazmat placard.

N. Fire Department Access

i. Site Access/Set-Up Sites:

The site must comply with IFC Chapter 5 for the minimum fire department site access requirements.

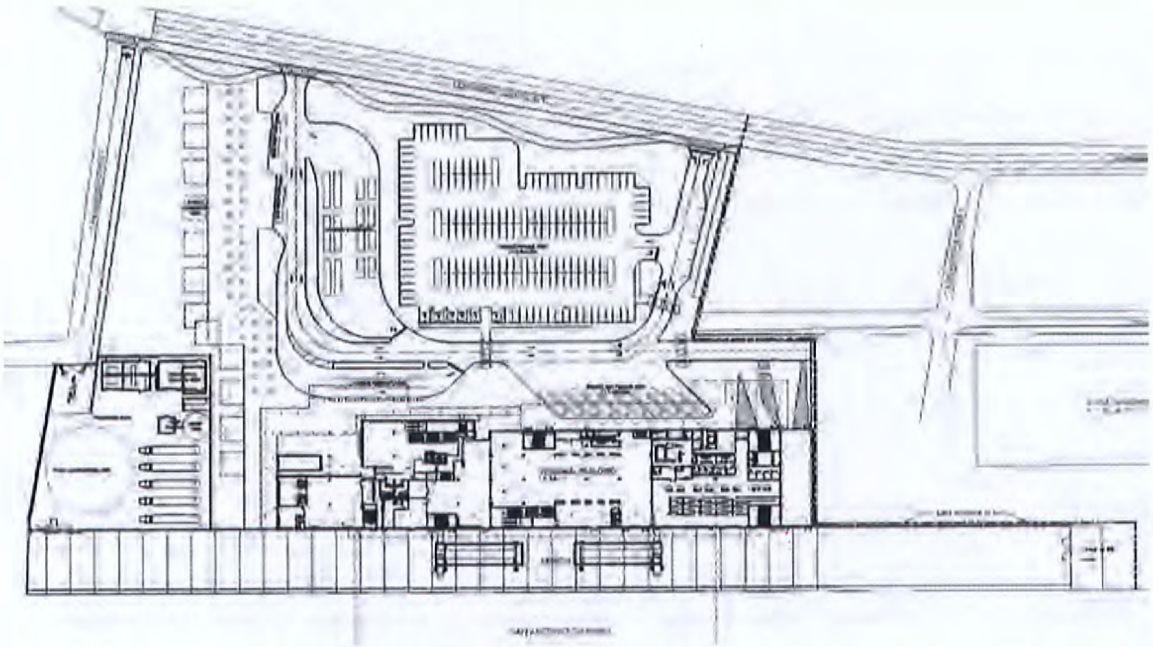

Figure 2: Site Access

O. Seismic Design Category

Each building and structure shall be assigned a risk category in accordance with IBC Table 1604.5 reproduced in Table 17, below. Where a building or structure is occupied by two or more occupancies not included in the same risk category, either the entire building shall be designed as a single unit and shall be assigned the highest risk category corresponding to the various occupancies, or it shall be structurally separated, and each portion shall be separately classified.

Where a separated portion of a building or structure provides required access to, required egress from or shares life safety components with another portion having a higher risk category, both portions shall be assigned to the higher risk category. Where the design team chooses to maintain separate risk categories in structurally separate structures, the lower risk category structure shall not provide required access to, required egress from or share life safety components with a higher risk category structure.

This project is classified as seismic risk category III.

Table 17: Seismic Risk Category

Risk Category	Nature of Occupancy
I	Represent a low hazard to human life in the event of failure: • Agricultural facilities. • Certain temporary facilities. • Minor storage facilities.
II	Buildings and other structures except those listed in Risk Categories I, III, and IV.
III	Represent a substantial hazard to human life in the event of failure: • Primary occupancy is public assembly with an occupant load greater than 300. • Group E occupancies with an occupant load greater than 250. • Containing educational occupancies for students above the 12th grade with an occupant load greater than 500. • Group I-2 occupancies with an occupant load of 50 or more resident care recipients but not having surgery or emergency treatment facilities. • Group I-3 occupancies. • Any other occupancy with an occupant load greater than 5,000[1]. • Power-generating stations, water treatment facilities for potable water, wastewater treatment facilities and other public utility facilities not included in Risk Category IV. • Buildings and other structures not included in Risk Category IV containing quantities of toxic or explosive materials that exceed maximum allowable quantities per control area as given in IBC Table 307.1(1) or 307.1(2) or per outdoor control area in accordance with NFPA 101 and are sufficient to pose a threat to the public if released[2].

[1]For the purposes of occupant load calculation, occupancies required by IBC Table 1004.1.2 to use gross floor area calculations shall be permitted to use net floor areas to determine the total occupant load.

[2]Where approved by the building official, the classification of buildings and other structures as Risk Category III or IV based on their quantities of toxic, highly toxic, or explosive materials is permitted to be reduced to Risk Category II, provided it can be demonstrated by a hazard assessment in accordance with Section 1.5.3 of ASCE 7 that a release of the toxic, highly toxic or explosive materials is not sufficient to pose a threat to the public.

III. SUMMARY AND CONCLUSION

As noted in this report, there are design features that need further clarification and analysis. SLS Consulting, Inc. is available to discuss items with the appropriate project team member. Additional documents may be necessary, such as alternative methods or equivalencies, and will be developed as the design progresses and code issues are resolved.

Submitted by:

SLS Consulting, Inc.

Michael Sheehan, P.E.
Principal/Fire Protection Engineer

[30% Design Drawings on File - Initialed Copies too large to scan. Identical Execution copies to follow]

Attachment 2 of Appendix L

Execution Version

SAN JUAN CRUISE TERMINAL 11-12

AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

PORT DRAWING NO. / FOLIO NO.

AUTORIDAD de los PUERTOS de PUERTO RICO

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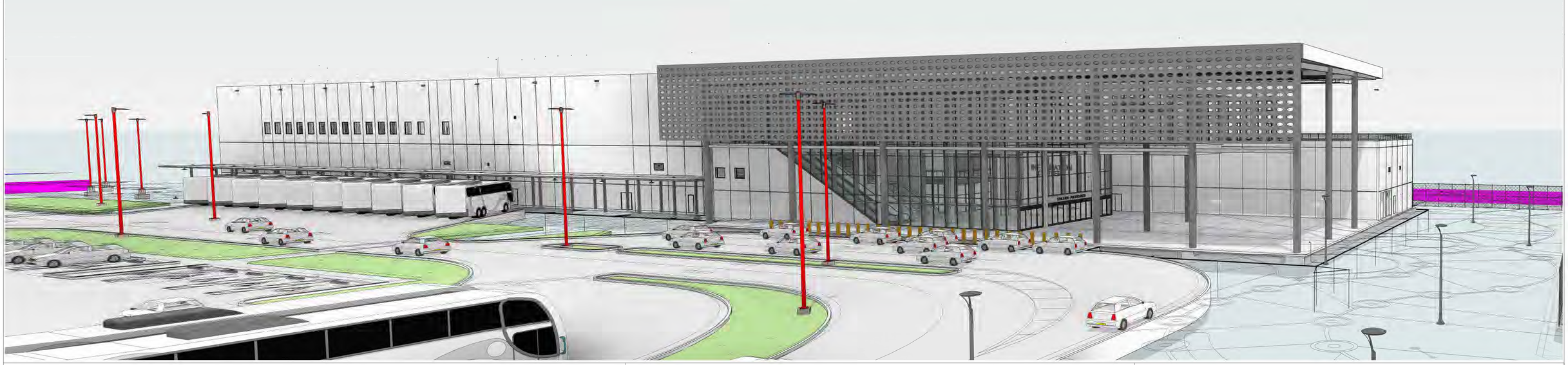
30% DESIGN

MARCH 27, 2020



OWNER	URBAN DESIGN AND PLANNING, ARCHITECTURE, INTERIOR DESIGN, LANDSCAPE ARCHITECTURE, CIVIL ENGINEERING, MARINE ENGINEERING	MEP-FP / STRUCTURAL / CIVIL ENGINEER
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Attachment 2 of Appendix L

OCCUPANCY CLASSIFICATIONS AND USE DESIGNATION

TERMINAL - IBC 2018 - CHAPTER 3
IBC SECTION 311.3 - GROUP S-2

Classifications Occupancy Group Classifications (IBC)	Table 1: Occupancy	Specific Use / Location
Assembly Group A-3	(IBC)	All public (waiting) areas All accessory storage spaces ((IBC)
Assembly Group B, - Accessory Occupancy - Non Separated Occupancy	(IBC) (IBC) (IBC)	- Operations Offices - CBP Offices

CONSTRUCTION TYPE (IBC - CHAPTER 5)

Due to the proposed occupancies classifications, building height, and number of stories in the Terminal, the construction type for the Terminal Building is: TYPE IB

The Building will be sprinklered

Fire Resistance Rating Requierments For Building Elements IBC Table 601

Building Element	Fire Resistance Rating IB
All primary structural members (non)	**2 hours**
All primary and secondary structural members supporting a roof only	**1 hour**
All bearing walls exterior and interior	**2 hours**
All primary structural members or portion there of located 20 feet or more above floor level immediately below	**No Rating (Table 602)**
All secondary structural members associated with floor construction	**2 hours**
All secondary structural member associated with roof construction	**1 hour**

REQUIRED FIRE RESISTANCE RATED SPACES

The following table indicates the spaces within the Terminal A project where fire resistance rated separations should be provided. This includes incidental accessory occupancies.

Table 3: Fire Resistance Ratings

Summary of Required Fire Resistance Rated Spaces		
Spaces Required	**Rating**	**Reference**
Information technology equipment - Critical	1-hour fire barriers	IBC
Fire Alarm equipment	2-hour fire barriers	IBC
Electrical Rooms with dry-type Transformers > 112.5 kVa	2-hour fire barriers	IBC
Transformer Vaults (oil-insulated)	3-hour fire barriers	IBC
Mechanical Shafts Enclousures	2-hours	IBC §713 and NFPA 101 Section 8.6.5
Interior Rail Stairways	2- hour / fire barriers	IBC §1023 *Note 4
Trash Collection Rooms	Smoketight	IBC Table 509
Emergency Switchgear Room	2-hour fire barriers	IBC
Fire Pump Room	1-hour fire barriers	IBC Section 913.2.1 and NFPA 20 Section 5.12.1.1
Generator rooms (inside Bldg..)3	2-hours fire barriers	IBC
Note 1 Fire Barriers are rated walls that are continuous from floor slab to slab above. Fire partitions are rated walls that are continuous from floor to underside of the rated floor/ceiling assembly.		
Note 2 All smoke control equipment (e.g., fans, VFDs, etc.) associated with stair & elevator pressurization is required to be enclosed in dedicated (2) hr fire rated enclosures.		
Note 3 Per NFPA 110, Section 7.11.4 Generators outside or on roof need lightning protection designed and installed in accordance with NFPA 780, Standard for the Installation of Lightning Protection Systems.		
Note 4 In accordance with IBC 713.4, the shaft enclosure rating must not be less than the floor rating for the construction type.		

For Assembly occupancies, Section 12.3.2 of NFPA 101 states that rooms containing high-pressure boilers, large transformers, or other service equipment subject to explosion shall not be located directly under or abutting required exits. .

Each new fire wall, fire barrier, fire partition, smoke barrier, smoke partition, or any other new wall required to have protected openings shall be permanently identified with signs or stenciling above any decorative ceiling and in concealed spaces with the wording, "FIRE AND/OR SMOKE BARRIER – PROTECT ALL OPENINGS". Such signs or stenciling shall be in 4 inch high letters, ½ inch stroke, and not more than 15 feet on center. This requirement is mandated by both the IBC SECTION 703.7 and NFPA 101 SECTION 8.3.2.2.5

All openings and penetrations on fire/smoke rated walls described above must be protected in accordance with IBC, Chapter 7, *Fire and Smoke Protection Features*, FFPC, NFPA 1, Chapter 12, *Features of Fire Protection*, and FFPC, NFPA 101, Chapter 8, *Features of Fire Protection*.

LOT LINE ANALYSIS – EXTERIOR WALL RATINGS & ALLOWABLE OPENINGS

The fire separation distance is measured to the property line or to the centerline of the public street

Vertical Openings

The vertical openings anticipated within the Terminal project are listed below:

Per NFPA 101, Occupancy Classifications are Assembly (Chapter 12), Business (Chapter 38) and Storage (Chapter 42)

Two vertical openings are proposed on the Terminal building, each are a group of stairs and escalators located on the west and east of the building

Vertical openings shall be protected in accordance with IBC 712, NFPA 101 Section 12.3.1. (3). Assembly occupancies protected throughout by automatic sprinkler system installation shall be allowed to have unprotected vertical openings between any two floors, provided that such openings are separated from unprotected vertical openings serving other floors by barriers complying with 8.6.5.

Escalators

There are two (2) escalator groups creating vertical openings in the building. These openings must be protected in accordance with IBC, Section 712, NFPA 101, Section 8.6.9.7 (2).

The sprinkler protection around the vertical opening must comply with Section 8.15.4 of NFPA 13. Draft stops (18-inch deep) shall be located immediately adjacent to the opening made of noncombustible material that will stay in place before and during sprinkler operation. In addition, refer to narrative on escalator protection.

INTERIOR FINISH REQUIREMENTS

Interior finishes within the Terminal B project are designed to comply with the requirements of the IBC. The major interior finish requirements for the project are summarized in the table below (IBC Table 803.13 and NFPA 101 Table A.10.2.2)

Table 8: Interior Finish

Occupancy Classifications	Floor Finish Requirement	Interior Wall and Ceiling Finish Requirements (IBC)
Assembly (Sprinklered)	Exits: **Class II** Corridors: **Class II** Spaces not separated from corridor: **Class II** Exits: Class II	Exit Enclosure: **Class B** Corridors & Exit access stairs: **Class B** Rooms & Enclosed Spaces: **Class C** Lobbies: **Class C** Assembly Rooms: **Class C** Screens: **Class C** screening
Business	Exits: **Class II**	Exit Enclosure: **Class B** Corridors & Exit access stairs: **Class C** Rooms & Enclosed Spaces: **Class C** Other Spaces: **Class C**
Storage	**Class II**	Exit Enclosure: **Class C** Corridors & Exit Access Stairs: **Class C** Rooms & Enclosed Spaces : **Class C** Other Spaces: **Class C**
Atrium		

All combustible materials used as interior wall, ceiling, and floor finishes must have proper documentation indicating that the finishes comply with the requirements above.

It is recommended that the design for unique or custom interior finishes (e.g., wood finishes, textile wall coverings, foam finishes, material applied to fire doors, etc.) within the project be identified early in the design/construction process. Interior finishes consisting of unique materials or assembly of different materials will have to be tested by a nationally-recognized laboratory. The testing standard and passing criteria varies depending on the material.

Interior wall and ceiling trim and incidental finishes must be identified by the project team and must be included for assessment. Interior floor trim material used as wall base or decorative border would also be included and tested as a wall finish or floor finish.

Interior wall and ceiling finishes are normally tested as a single layer on noncombustible substrate. If the material is installed in any other manner, then the assembly of all materials must be tested in accordance with the standards above.

Wood interior finish (e.g., millwork, wood lockers, etc) must be tested as an assembly of all the components exactly how it will be installed including the adhesives, lacquers, glazing, etc.

It is noted that normally the authority having jurisdiction will not accept the application of a flame retardant treatment or coating in order to achieve the proper rating for new interior finishes

Depending on the occupancy classification, the furnishings in common areas, such as upholstered furniture, must also be evaluated before the furniture is installed in the facility.

The fire department may require a Third (3rd) Party Evaluation of the interior finishes to ascertain compliance with above ratings.

GENERAL MEANS OF EGRESS REQUIREMENTS

Maximum Allowable Travel Distances: As a building protected throughout by automatic sprinklers, the following maximum allowable travel distances are applicable to the Terminal B project as required by IBC Table 1006.2.1, Table 1017.2, Section 1020.4 NFPA 101 Table A.7.6

Table 9: Travel Distances

Occupancy Group Classifications (FBC)	Occupancy Classifications (FFPC)	Distances
Use Group A, *Assembly* occupancies	*Assembly*	**Max Travel Distance:** 250 feet **Max Dead End Distance:** 20 feet **Max Common Path Distance:** 20/75 feet[1]
Use Group B, Business occupancies	*Business*	**Max Travel Distance:** 300 feet **Max Dead End Distance:** 50 feet **Max Common Path Distance:** 100 feet
Use Group S-2, Low Hazard Storage	*Accessory Storage*	**Max Travel Distance:** 400 feet **Max Dead End Distance:** 50 feet **Max Common Path Distance:** 100 feet
Note 1: Assembly use spaces with an occupant load of 50 or more, shall have its common path of travel distance limited at 20-feet. If the occupant load is less than 50, then the common path of travel distance shall be limited at 75-feet.		

Number of Required Exits Per Floor: Each floor of the building is provided with the following minimum number of exits (as required by IBC 1006)

Table 10: Number of Exits

Floor Occupant Load	Number of Exits Required
0-500 occupants	2 Exits
501-1,000 occupants	3 Exits
>1,000 occupants	4 Exits

The number of exits designed for this project comply with the table above. There are several scissors stairs that are counted as one stair as mandated by code.

• Electrical Room Exit: Electrical rooms with equipment rated 1200 Amps or more, and 6 feet wide that contain overcurrent devices, switching devices or control devices shall have two (2) exit access doors (one at each end of the working space). The doors must swing in the direction of egress and must be equipped with panic hardware or fire exit hardware.

Electrical rooms with equipment rated 800 Amps or more that contain overcurrent devices,switching devices or control devices, and the exit door is less than 25 feet from the working space, the door shall swing in the direction of egress and must be equipped with panic hardware or fire exit hardware. NFPA 101, Section 7.4.2 and NFPA 70, Article 110.26.(C)(2). IBC, Section 1007

Electrical rooms with equipment used in circuits over 600 volts with switchgear and control panels exceeding 6 feet in width shall have two (2) exit access doors (one at each end of the working space). The doors must swing in the direction of egress and must be equipped with panic hardware or fire exit hardware. NFPA 101, Section 7.4.2 and NFPA 70, Article 110.33(A).

• Exit Access Remoteness Requirements: Where two (2) exit doors or exit access doors are required to be provided, the exits must be designed in order to be remote from one another in accordance with IBC§1007.1.1 The exits must be separated by more than one-third of the maximum diagonal distance of the floor, space, or area served.
• Exit Discharge Configurations: All the exits must discharge to the outside in accordance with IBC Section 1028.1 and NFPA 101 Section 7.7.2 The exit discharge must comply with remoteness requirements of one-third of the maximum diagonal distance of the building. However, the Codes allow for a maximum of 50% of the number and 50% of the capacity of exits to discharge through the interior of the building provided that the following criteria are met
  o Exterior Exit Visibility: The exit enclosure discharges to a free and unobstructed path of travel to an exterior exit door and such exit is readily visible and identifiable from the point of termination of the exit enclosure (in accordance with IBC Section 1028.1 and NFPA 101 Section 7.7.2)
  o Floor Separation: The entire area of the level of exit discharge is separated from areas below by construction having a two (2) hour fire resistance rating (IBC Section 1028.1 and NFPA 101 Section 7.7.2)
  o Sprinkler Protection: The egress path is protected throughout by automatic sprinklers (IBC Section 1028.1 and NFPA 101 Section 7.7.2)
• Stair Re-Entry: Interior exit stairway doors must be designed to allow re-entry into the building at each floor If the doors are normally locked to prevent access into the floors, then the doors must automatically unlock upon initiation of the fire alarm system (NFPA 101 Section 7.2.1.5.8)
• Door hardware requirements: Panic hardware (or fire exit hardware for fire doors) must be installed in all doors serving rooms or spaces with an occupant load of 50 persons or more in a Group A occupancy per IBC, Section 1010.1.10. Panic hardware must be installed in electrical rooms as stated in other section of this report.

Table 11: Occupant Load IBC and NFPA 101

Use of Space	Occupant Load Factors
Offices	100 gross ft^2 per occupant
Assembly –Concentrated	7 net ft^2 per occupant
Assembly –Standing space Unconcentrated (tables and chairs)	15 net ft^2 per occupant
Storage Areas	300 gross ft^2 per occupant (IBC)
Baggage Claim	20 gross ft2 per occupant (IBC)
Baggage Handling	100 gross ft2 per occupant (IBC)
Mechanical Spaces	300 gross ft2 per occupant (IBC)
Concourse waiting area	15 gross ft2 per occupant (IBC)

Spaces with One Means of Egress Requirements: Spaces with one (1) means of egress within the Terminal B project shall comply with the following means of egress requirements as required by IBC T-1006.2.1 and NFPA 101 Section 7.4.1.1

Table 12: One Means of Egress		
Occupancy	**Maximum Occupant Load**	**Maximum Exit Access/Common Path of Travel Distance (feet)**
Assembly	49	75 feet
Business	49	100 feet
Storage	29	100 feet

Egress Capacity Factors: The egress capacity for the means of egress must be designed using the capacity factors indicated in the table below. In addition, the minimum width of the means of egress components must also be considered in the design. The minimum width is specified for each occupancy classification as stated in IBC Section 1005.3 and NFPA 101 T-7.3.3.1.

Table 13a: Egress Capacity NFPA 101		
Occupancy	**Stairways (in/occ)**	**Doors, Ramps & Other Horizontal Egress Components (in/occ)**
Occupancies in this project	0.3 inches per occupant	0.2 inches per occupant
Stairways wider than 44 inches	Wn-44 / .218 + 146.7	

Table 13b: Egress Capacity IBC		
Occupancy	**Stairways (in/occ)**	**Doors, Ramps & Other Horizontal Egress Components (in/occ)**
If Bldg is equipped with sprinkler system and voice evac fire alarm system	0.2 inches per occupant	0.15 inches per occupant
All other buildings	0.3 inches per occupant	0.2 inches per occupant

• Stair Width Requirements: Normally, the clear width is 44 inches, but if occupant load is over 2,000 persons cumulative assigned to one stair then increase width at that level to 56 inches NFPA 101, Section 7.2.2.

• Corridor Width: The minimum clear width is 44 inches and must be increased to accommodate the IBC T-1020.2 occupant load.

• Assembly Seating Arrangement: Furniture layout in meeting rooms and ballrooms must comply with aisle width and aisle access way width requirements as stated in Sections 12.2.5.7 and 12.2.5.8. Seating NOT at tables must comply with Sections 12.2.5.5 and 12.2.5.6. Seating at tables must comply with Section 12.2.5.7. NFPA 101, Section 12.7.9 states that seats accommodating more than 200 persons shall be securely fastened to the floor, except where fastened together in groups of not less than three.
• One Exit Unavailable Analysis:
The means of egress must be designed with adequate width and capacity such that the loss of one exit leaves the other exits available to handle at least 50% of the occupant load. Analysis and calculation must be shown on plans. IBC, Section 1005.5 and NFPA 101 Section 7.3.1.1.2
• Exit Signage: Exit signs are required at all exit doors and directional signs are required within the means of egress where the path of egress is not apparent. Exit sign placement shall be such that no point in the exit access corridor is more than 100 feet from the nearest exit sign. IBC Section 1013
• Means of Egress Lighting: Normal lighting must be designed to provide a minimum of ft-candle measured at the floor within exit access routes, exits, and the exit discharge routes. In the stairs, the minimum illumination shall be at least 10 ft-candle measured at the walking surface. The elevator code requires adequate lighting (10 ft-candle) at the landing sill of elevators measured with doors open/closed.
NFPA 101, Sections 7.8 and 7.9 and ASME A17.1, Section 2.11.10.2.

Additionally, lighting is required to be arranged such that the failure of a single lighting unit does not reduce illumination levels to less than 0.2 ft-candle as required by NFPA 101, Section 7.8.1.4 and IBC, Section 1008.2.1

Emergency lighting is required for this occupancy per NFPA 101, Sections 12.2.9 and 42.8.2.9. The emergency lighting must provide an average of 1 ft-candle measured at the floor throughout the means of egress with a minimum of 0.1 ft-candle at any point. The illumination of 10 ft-candle for the elevator threshold is still required under emergency lighting conditions.

It is noted that the Fire Department and Building Department strictly enforce the reliability of emergency lighting and require that the system be arranged to provide the required illumination automatically in the event of interruption of normal lighting due to any of the following as required by, NFPA 101, Section 7.9.2.3:
o Failure of a public utility or outside electrical power supply;
o Opening of a circuit breaker or a fuse;
o Manual acts including accidental opening of a switch controlling normal lighting

As per standard practice, it is recommended that the project team ensure that battery back-up lighting is provided in the following locations; emergency generator room, fire command centers, fire pump room, and the emergency responder radio coverage room (if provided).

Emergency lighting must be provided in mechanical rooms and electrical rooms as required in NFPA 70, Articles 110.26(D) and 700.16.

Emergency lighting is required on the egress side of delayed egress door and access control doors when provided in the building in accordance with NFPA 101, Section 7.2.1.6.

Execution Version

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30% DESIGN
MARCH 27, 2020
NOT FOR CONSTRUCTION

REVISIONS		
REV. #	REVISION DESCRIPTION	REV. DATE
0	1st Subm. 30% Design	2020-02-14
1	30% Design Subm. to PRPA	2020-03-27

AUTORIDAD de los PUERTOS de PUERTO RICO

Yo ____________, ___licencia___, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos o Corporaciones Públicas con jurisdicción. Certifico, además, que en la preparación de estos planos y especificaciones se ha cumplido cabalmente con lo dispuesto en la "Ley Núm.14 de 8 de enero de 2004, según enmendada, conocida como la "Ley para la Inversión por la Industria Puertorriqueña" y con la Ley Núm 319 de 15 de mayo de 1938, según enmendada; Ley Núm. 96 de 6 de julio de 1978, según enmendada. Reconozco que cualquier declaración falsa o falsificación de los hechos que se haya producido por desconocimiento o por negligencia ya sea por mí, mis agentes o empleados o por otras personas con mi conocimiento, me hacen responsable de cualquier acción judicial y disciplinaria por la OGPe.

DRAWINGS ARE PROPERTY OF BERMELLO AJAMIL & PARTNERS

PROJECT NAME:
SAN JUAN CRUISE TERMINAL 11-12

PROJECT ADDRESS:
AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

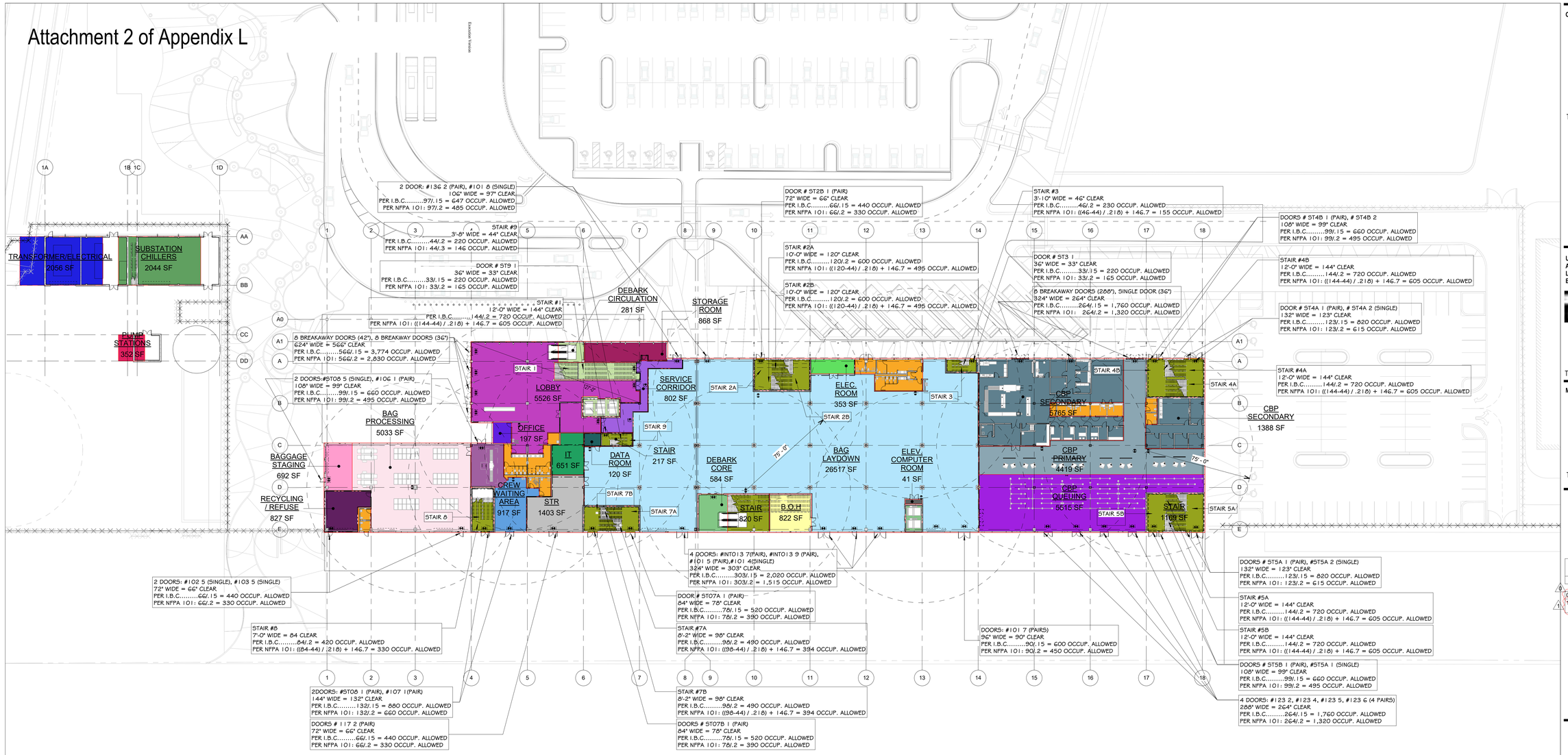
BA. PROJECT NUMBER:
19070

SHEET NAME
LIFE SAFETY AND FIRE PROTECTION

SHEET NO.
LS-000

Attachment 2 of Appendix L

Execution Version



1 LS-101 GROUND FLOOR PLAN LS

1" = 30'-0"

OCCUPANCY LOAD ANALYSIS

LEVEL	DESCRIPTION OF SPACES	ZONE	GROSS FLOOR AREA (S.Q. F.T.)	OCCUPANCY LOAD FACTOR (IBC 2017)	UNIT	OCCUPANCY LOAD (PERSONS)	AREAS PER NFPA 101 & IBC ANALYSIS REFER TO CHART ON LS-000
L1	CBP PRIMARY	ZONE 8	4,407	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	45	ZONE 8 854 OCCUPANTS TOTAL
L1	CBP SECONDARY	ZONE 8	5,602	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	57	
L1	CBP SECONDARY	ZONE 8	1,342	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	14	
L1	CBP QUEUING	ZONE 8	5,375	ASSEMBLY W/O FIXED SEATING (7 NET PER OCCUPANT)	7	768	

TOTAL OCCUPANT LOAD ZONE 8

OCCUPANT LOAD	DOORS: 4 PAIRS OF DOORS USED AT CBP QUEUING, 8 BREAKAWAY DOORS, 1 SINGLE DOOR
	DOORS EGRESS CAPACITY PER I.B.C DOORS EGRESS CAPACITY PER NFPA 101
884	3,520 OCCUPANTS 2,640 OCCUPANTS

L1	BAG LAYDOWN	ZONE 9	26,121	TERMINAL BAGGAGE CLAIM (15 NET PER OCCUPANT)	20	1,307	ZONE 9 1,366 OCCUPANTS TOTAL
L1	DATA ROOM	ZONE 9	116	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	2	
L1	IT ROOM	ZONE 9	651	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	7	
L1	B.O.H	ZONE 9	822	ACCESSORY STORAGE/MECH ROOM (300 GROSS PER OCCUPANT)	300	3	
L1	STR	ZONE 9	1,321	ACCESSORY STORAGE (300 GROSS PER OCCUPANT)	300	5	
L1	DEBARK CORE	ZONE 9	584	TERMINAL BAGGAGLE CLAIM (15 NET PER OCCUPANT)	15	39	
L1	ELECTRICAL ROOM	ZONE 9	353	ACCESSORY STORAGE/ MECH ROOM (300 GROSS PER OCCUPANT)	300	2	
L1	ELEV. COMPUTER ROOM	ZONE 9	41	ACCESSORY STORAGE/ MECH ROOM (300 GROSS PER OCCUPANT)	300	1	

TOTAL OCCUPANT LOAD ZONE 9

OCCUPANT LOAD	DOORS: 2 SINGLE DOOR AND 4 PAIRS OF DOORS @ BAG LAYDOWN, 1 PAIR OF DOORS @ STORAGE ROOM
	DOORS EGRESS CAPACITY PER I.B.C DOORS EGRESS CAPACITY PER NFPA 101
1,366	3,267 OCCUPANTS 2,450 OCCUPANTS

L1	OFFICE	ZONE 10	197	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	2	ZONE 10 1,433 OCCUPANTS TOTAL
L1	LOBBY	ZONE 10	5,526	ASSEMBLY W/O FIXED SEATING (7 NET PER OCCUPANT)	7	808	
L1	STORAGE ROOM	ZONE 10	868	STORAGE ROOMS (100 GROSS PER OCCUPANT)	100	9	
L1	SERVICE CORRIDOR	ZONE 10	802	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	9	
L1	2ND FLOOR LOAD FROM STAIR 1	ZONE 10	-		-	605	

TOTAL OCCUPANT LOAD ZONE 10

OCCUPANT LOAD	DOORS: 16 BREAKAWAY DOORS AND 1 PAIR DOORS
	DOORS EGRESS CAPACITY PER I.B.C DOORS EGRESS CAPACITY PER NFPA 101
1,433	4,214 OCCUPANTS 3,160 OCCUPANTS

L1	CREW AREA	ZONE 11	1,625	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	17	ZONE 11 76 OCCUPANTS TOTAL
L1	BAG PROCESSING	ZONE 11	4,859	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	49	
L1	BAG STAGING	ZONE 11	637	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	7	
L1	RECYCLING REFUSE	ZONE 11	765	ACCESSORY STORAGE (300 GSF / OCC)	300	3	

TOTAL OCCUPANT LOAD ZONE 11

OCCUPANT LOAD	DOORS: 2 PAIRS OF DOORS, 3 SINGLE DOORS
	DOORS EGRESS CAPACITY PER I.B.C DOORS EGRESS CAPACITY PER NFPA 101
76	1,540 OCCUPANTS 1,155 OCCUPANTS

LIFE SAFETY LEGEND

- 1 HR FIRE RATED
- 2 HR FIRE RATED
- 3 HR FIRE RATED
- SMOKE RATED
- FE — FIRE EXTINGUISHER 2A 10BC 75' MAX DISTANCE / 75' MAX. DISTANCE LOW HAZARD (PASSENGER WAITING AREAS, OFFICE SPACES)
- DEAD-END LIMIT FOR BUSINESS OCCUPANCY & PARKING GARAGE (MODERATE HAZARD) (SPRINKLERED) = 50'- 0"
- DEAD-END LIMIT FOR ASSEMBLY A3 OCCUPANCY (SPRINKLERED) = 20'- 0"
- 250'-0" MAX. TRAVEL DISTANCE (NFPA 101- 2018 TABLE A 7.6) WITH SPRINKLER SYSTEM FOR ASSEMBLY OCCUPANCY
- 300'-0" MAX. TRAVEL DISTANCE (NFPA 101- 2018 TABLE A 7.6) WITH SPRINKLER SYSTEM FOR BUSINESS OCCUPANCY
- EXIT LIGHT - DIRECTIONAL ARROWS AS INDICATED

FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

IN ACCORDANCE WITH IBC 2018, TABLE 601

ALL PRIMARY STRUCTURAL MEMBERS (UON)	2 HOURS
ALL PRIMARY + SECONDARY STRUCTURAL MEMBERS SUPPORTING A ROOF ONLY	1 HOUR
ALL PRIMARY STRUCTURAL MEMBERS OR PORTIONS THEREOF LOCATED 20 FEET OR MORE ABOVE FLOOR LEVEL IMMEDIATELY BELOW	NO RATING
ALL SECONDARY STRUCTURAL MEMBERS ASSOCIATED WITH FLOOR CONSTRUCTION	2 HOURS
ALL SECONDARY STRUCTURAL MEMBERS ASSOCIATED WITH ROOF CONSTRUCTION	1 HOUR
ALL SECONDARY STRUCTURAL MEMBERS OR PORTIONS THEREOF LOCATED 20 FEET OR MORE ABOVE FLOOR LEVEL IMMEDIATELY BELOW	NO RATING

PUERTO RICO BUILDING CODE 2018 & IBC 2018 - NFPA 101 (2018 EDITION)

A. OCCUPANCY CLASS: ASSEMBLY A3 PER I.B.C. / ASSEMBLY PER NFPA 101
CRUISE PASSENGER TERMINAL

B. OCCUPANCY LOAD BASED ON CHAPTER 10 - MEANS OF EGRESS SECTION 1004.(I.B.C.)
NUMBER OF OCCUPANTS DETERMINED BY USING TABLE 1004.1.2 -MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT.
OCCUPANCY LOAD:

I. WAITING AREAS (UNCONCENTRATED) = 15 SQ. FT. / OCCUPANT
I.a WAITING AREAS (CONCENTRATED) = 7 SQ.FT. / OCCUPANT
II. BAGGAGE CLAIM = 20 SQ. FT. / OCCUPANT
III. BAGGAGE HANDLING = 300 SQ. FT. / OCCUPANT
IV. OFFICES = 100 SQ. FT. / OCCUPANT

C. OCCUPANCY LOAD BASED ON NFPA 101 CHAPTERS 12 AND 7

GENERAL NOTES

1. REFER TO SHEET LS-000 FOR LIFESAFETY AND FIRE PROTECTION GENERAL NOTES.

2. THIS BUILDING IS PROTECTED THROUGHOUT BY AN APPROVED, SUPERVISED AUTOMATIC SPRINKLER SYSTEM AND WITH AN EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM PER I.B.C. 1005.3

3. THIS IS A BUILDING TYPE I-B IN ACCORDANCE WITH I.B.C. TABLE 503

4. AREAS OF REFUGE ARE PROVIDED WITHIN THE STAIR F.R. ENCLOSURES AND SHOULD MEET THE REQUIREMENTS OF NFPA 101., SECTION 7.2.12:

- ONE WHEELCHAIR SPACE (30"x48") PER 200 OCCUPANTS
- EACH AREA OF REFUGE SHOULD BE PROVIDED WITH A TWO-WAY COMMUNICATION SYSTEM TO COMMUNICATE BETWEEN THE AREA OF REFUGE AND THE FIRE COMMAND CENTER.
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- THE TWO-WAY COMMUNICATION SYSTEM SHALL INCLUDE BOTH AUDIBLE AND VISIBLE SIGNALS.

Execution Version

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MARCH 27, 2020

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REVISIONS

REV. #	REVISION DESCRIPTION	REV. DATE
0	1st Subm. 30% Design	2020-02-14
1	30% Design Subm. to PRPA	2020-03-27

AUTORIDAD DE PUERTOS de PUERTO RICO

Yo _____, licencia ____, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos o Corporaciones Públicas con jurisdicción. Certifico, además, que en la preparación de estos planos y especificaciones se ha cumplido cabalmente con los dispuesto en la "Ley Núm.14 de 8 de enero de 2004, según enmendada, conocida como la "Ley para la Inversión por la Industria Puertorriqueña" y con la Ley Núm 319 de 15 de mayo de 1938, según enmendada; Ley Núm. 96 de 6 de julio de 1978, según enmendada. Reconozco que cualquier declaración falsa o falsificación de los hechos que se haya producido por desconocimiento o por negligencia ya sea por mí, mis agentes o empleados o por otras personas con mi conocimiento, me hacen responsable de cualquier acción judicial y disciplinaria por la OGPe.

DRAWINGS ARE PROPERTY OF BERMELLO AJAMIL & PARTNERS

PROJECT NAME:
SAN JUAN CRUISE TERMINAL 11-12

PROJECT ADDRESS:
AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

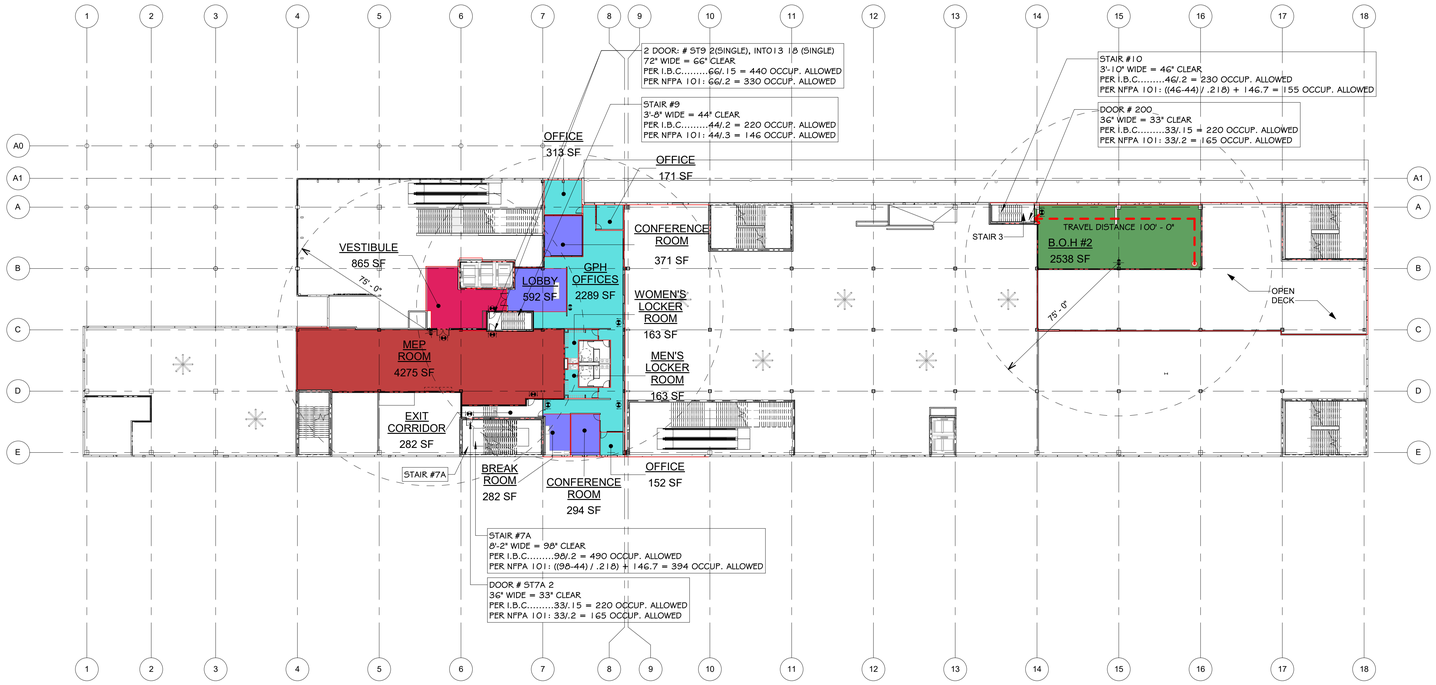
BA. PROJECT NUMBER:
19070

SHEET NAME
LIFE SAFETY GROUND FLOOR PLAN

SHEET NO.
LS-101

Attachment 2 of Appendix L

Execution Version



1 LS-150 MEZZANINE LIFE SAFETY PLAN
1" = 30'-0"

FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

IN ACCORDANCE WITH IBC 2018, TABLE 601

ALL PRIMARY STRUCTURAL MEMBERS (UON)	2 HOURS
ALL PRIMARY & SECONDARY STRUCTURAL MEMBERS SUPPORTING A ROOF ONLY	1 HOUR
ALL PRIMARY STRUCTURAL MEMBERS OR PORTIONS THEREOF LOCATED 20 FEET OR MORE ABOVE FLOOR LEVEL IMMEDIATELY BELOW	NO RATING
ALL SECONDARY STRUCTURAL MEMBERS ASSOCIATED WITH FLOOR CONSTRUCTION	2 HOURS
ALL SECONDARY STRUCTURAL MEMBERS ASSOCIATED WITH ROOF CONSTRUCTION	1 HOUR
ALL SECONDARY STRUCTURAL MEMBERS OR PORTIONS THEREOF LOCATED 20 FEET OR MORE ABOVE FLOOR LEVEL IMMEDIATELY BELOW	NO RATING

OCCUPANCY LOAD ANALYSIS

LEVEL	DESCRIPTION OF SPACES	ZONE	GROSS FLOOR AREA (S.Q. F.T.)	OCCUPANCY LOAD FACTOR (IBC 2018)	UNIT	OCCUPANCY LOAD (PERSONS)	AREAS PER NFPA 101 & IBC ANALYSIS REFER TO CHART ON LS-000
I	G.P.H OFFICES	ZONE 6	3,251	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	33	ZONE 6 160 OCCUPANTS TOTAL
I	CONF. ROOM, BREAKROOM AND LOBBY	ZONE 6	1,538	BUSINESS AREA / ASSEMBLY (15 GROSS PER OCCUPANT)	15	103	
I	VESTIBULE	ZONE 6	865	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	9	
I	MEP ROOM	ZONE 6	4,275	ACCESSORY STORAGE/ MECH ROOM (300 GROSS PER OCCUPANT)	300	15	

TOTAL OCCUPANT LOAD ZONE 6

OCCUPANT LOAD	STAIRS: 7A (UTILIZING 8% OF TOTAL CAPACITY, 9 (UTILIZING 100% CAPACITY)	
	DOORS EGRESS CAPACITY PER I.B.C	STAIRS EGRESS CAPACITY PER I.B.C
	DOORS EGRESS CAPACITY PER NFPA 101	STAIRS EGRESS CAPACITY PER NFPA 101
160	660 OCCUPANTS 495 OCCUPANTS	710 OCCUPANTS 559 OCCUPANTS

I	B.O.H # 2	ZONE 7	2,538	ACCESSORY STORAGE/ MECH ROOM (300 GROSS PER OCCUPANT)	300	9	ZONE 7 9 OCCUPANTS TOTAL

TOTAL OCCUPANT LOAD ZONE 7

OCCUPANT LOAD	STAIR: 10	
	DOORS EGRESS CAPACITY PER I.B.C	STAIRS EGRESS CAPACITY PER I.B.C
	DOORS EGRESS CAPACITY PER NFPA 101	STAIRS EGRESS CAPACITY PER NFPA 101
9	220 OCCUPANTS 165 OCCUPANTS	230 OCCUPANTS 155 OCCUPANTS

LIFE SAFETY LEGEND

- 1 HR FIRE RATED
- 2 HR FIRE RATED
- 3 HR FIRE RATED
- SMOKE RATED
- FE — FIRE EXTINGUISHER 2A 10BC 75' MAX DISTANCE / 75' MAX. DISTANCE LOW HAZARD (PASSENGER WAITING AREAS, OFFICE SPACES)
- DEAD-END LIMIT FOR BUSINESS OCCUPANCY & PARKING GARAGE (MODERATE HAZARD) (SPRINKLERED) = 50'- 0"
- DEAD-END LIMIT FOR ASSEMBLY A3 OCCUPANCY (SPRINKLERED) = 20'- 0"
- 250'-0" MAX. TRAVEL DISTANCE (NFPA 101- 2018 TABLE A 7.6) WITH SPRINKLER SYSTEM FOR ASSEMBLY OCCUPANCY
- 300'-0" MAX. TRAVEL DISTANCE (NFPA 101- 2018 TABLE A 7.6) WITH SPRINKLER SYSTEM FOR BUSINESS OCCUPANCY
- EXIT LIGHT - DIRECTIONAL ARROWS AS INDICATED

PUERTO RICO BUILDING CODE 2018 & IBC 2018 - NFPA 101 (2018 EDITION)

A. OCCUPANCY CLASS: ASSEMBLY A3 PER I.B.C. / ASSEMBLY PER NFPA 101
CRUISE PASSENGER TERMINAL

B. OCCUPANCY LOAD BASED ON CHAPTER 10 - MEANS OF EGRESS SECTION 1004.(I.B.C.)
NUMBER OF OCCUPANTS DETERMINED BY USING TABLE 1004.1.2 -MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT.
OCCUPANCY LOAD:

I. WAITING AREAS (UNCONCENTRATED) = 15 SQ. FT. / OCCUPANT
I.a WAITING AREAS (CONCENTRATED) = 7 SQ.FT. / OCCUPANT
II. BAGGAGE CLAIM = 20 SQ. FT. / OCCUPANT
III. BAGGAGE HANDLING = 300 SQ. FT. / OCCUPANT
IV. OFFICES = 100 SQ. FT. / OCCUPANT

C. OCCUPANCY LOAD BASED ON NFPA 101 CHAPTERS 12 AND 7

GENERAL NOTES

1. REFER TO SHEET LS-000 FOR LIFESAFETY AND FIRE PROTECTION GENERAL NOTES.

2. THIS BUILDING IS PROTECTED THROUGHOUT BY AN APPROVED, SUPERVISED AUTOMATIC SPRINKLER SYSTEM AND WITH AN EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM PER I.B.C. 1005.3

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PROJECT NAME:
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PROJECT ADDRESS:
AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

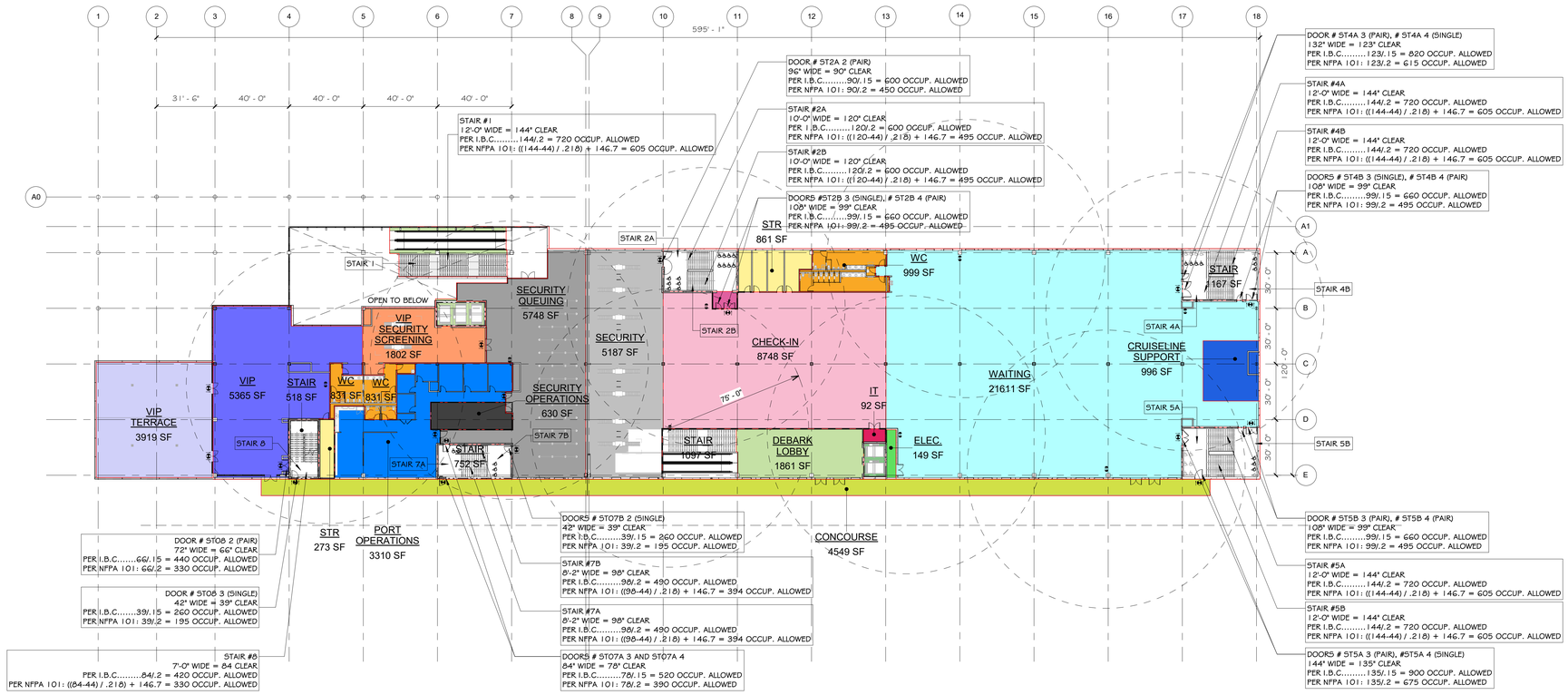
BA. PROJECT NUMBER:
19070

SHEET NAME
LIFE SAFETY INTERMEDIATE FLOOR PLAN

SHEET NO.
LS-150

Attachment 2 of Appendix L

Execution Version



1
LS-200

SECOND LIFE SAFETY FLOOR PLAN

1" = 30'-0"

OCCUPANCY LOAD ANALYSIS

LEVEL	DESCRIPTION OF SPACES	ZONE	GROSS FLOOR AREA (S.Q. F.T.)	OCCUPANCY LOAD FACTOR (IBC 2017)	UNIT	OCCUPANCY LOAD (PERSONS)	AREAS PER NFPA 101 & IBC ANALYSIS REFER TO CHART ON LS-000
L2	V.I.P.	ZONE 1	5,365	ASSEMBLY W/O FIXED SEATS (15 NET PER OCCUPANT)	15	358	ZONE 1 640 OCCUPANTS TOTAL
L2	V.I.P. TERRACE	ZONE 1	3,919	ASSEMBLY W/O FIXED SEATS (15 NET PER OCCUPANT)	15	262	
L2	V.I.P. SECURITY SCREENING	ZONE 1	1,802	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	19	
L2	STORAGE ROOM	ZONE 1	273	STORAGE (300 GROSS PER OCCUPANT)	100	1	

TOTAL OCCUPANT LOAD ZONE 1

OCCUPANT LOAD	STAIRS: 29% OF STAIR 1, 22% OF STAIR 7A, 22% OF STAIR 7B, 100% OF STAIR 8	
	DOORS EGRESS CAPACITY PER I.B.C DOORS EGRESS CAPACITY PER NFPA 101	STAIRS EGRESS CAPACITY PER I.B.C STAIRS EGRESS CAPACITY PER NFPA 101
640	808 OCCUPANTS 670 OCCUPANTS (NOTE: STAIR #1 HAS NO DOORS)	845 OCCUPANTS 679 OCCUPANTS

L2	PORT OPERATIONS	ZONE 2	3,310	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	34	ZONE 2 41 OCCUPANTS TOTAL
L2	SECURITY OPERATIONS	ZONE 2	630	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	7	

TOTAL OCCUPANT LOAD ZONE 2

OCCUPANT LOAD	STAIR: 7A (UTILIZING 37% OF TOTAL CAPACITY)	
	DOORS EGRESS CAPACITY PER I.B.C DOORS EGRESS CAPACITY PER NFPA 101	STAIRS EGRESS CAPACITY PER I.B.C STAIRS EGRESS CAPACITY PER NFPA 101
41	260 OCCUPANTS 195 OCCUPANTS	182 OCCUPANTS 146 OCCUPANTS

L2	SECURITY QUEUING	ZONE 3	5,740	ASSEMBLY (7 NET PER OCCUPANT)	7	820	ZONE 3 872 OCCUPANTS TOTAL
L2	SECURITY	ZONE 3	5,187	BUSINESS TRANSACTION AREA (100 GROSS PER OCCUPANT)	100	52	

TOTAL OCCUPANT LOAD ZONE 3

OCCUPANT LOAD	STAIRS: 71% OF STAIR 1, 100% OF STAIR 2A, 33% OF STAIR 7A, 100% OF STAIR 7B	
	DOORS EGRESS CAPACITY PER I.B.C DOORS EGRESS CAPACITY PER NFPA 101	STAIRS EGRESS CAPACITY PER I.B.C STAIRS EGRESS CAPACITY PER NFPA 101
872	1,457 OCCUPANTS 1,139 OCCUPANTS (NOTE: STAIR #1 HAS NO DOORS)	1,763 OCCUPANTS 1,448 OCCUPANTS

L2	CRUISELINE SUPPORT	ZONE4	996	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	10	ZONE 4 2,771 OCCUPANTS TOTAL
L2	WAITING	ZONE4	21,611	WAITING/ASSEMBLY (15 NET PER OCCUPANT)	15	1,441	
L2	CHECK-IN	ZONE4	8,748	ASSEMBLY (7 NET PER OCCUPANT)	7	1,250	
L2	DEBARK LOBBY	ZONE4	1,861	BUSINESS AREA (100 GROSS PER OCCUPANT)	100	19	
L2	STR	ZONE4	861	STORAGE (300 GROSS PER OCCUPANT)	300	3	
L2	ELECT. ROOM	ZONE4	149	ACCESSORY STORAGE/ MECH ROOM (300 GROSS PER OCCUPANT)	100	2	
L2	CONCOURSE	ZONE 5	4,549	TERMINAL CONCOURSE (100 GROSS PER OCCUPANT)	100	46	

TOTAL OCCUPANT LOAD ZONE 4

OCCUPANT LOAD	STAIRS: 2B, 4A, 4B, 5A, 5B	
	DOORS EGRESS CAPACITY PER I.B.C DOORS EGRESS CAPACITY PER NFPA 101	STAIRS EGRESS CAPACITY PER I.B.C STAIRS EGRESS CAPACITY PER NFPA 101
2,771	3,700 OCCUPANTS 2,775 OCCUPANTS	3,480 OCCUPANTS 2,915 OCCUPANTS

EXIT CAPACITY FROM LOBBY STAIR (#1) - 50% RULE (NFPA 101-12.3.6)

EXITS		EXIT WIDTH	NFPA FACTOR	EGRESS CAPACITY	TOTAL ALLOWED OCCUPANCY LOAD BASED ON 2X LOBBY STAIR CAPACITY	TOTAL OCCUPANTS IN ZONE 3
1	STAIR #1	144"	NFPA 101 7.3.3.2	605	1,210	874

FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS)

IN ACCORDANCE WITH IBC 2018, TABLE 601

ALL PRIMARY STRUCTURAL MEMBERS (UON)	2 HOURS
ALL PRIMARY & SECONDARY STRUCTURAL MEMBERS SUPPORTING A ROOF ONLY	1 HOUR
ALL PRIMARY STRUCTURAL MEMBERS OR PORTIONS THEREOF LOCATED 20 FEET OR MORE ABOVE FLOOR LEVEL IMMEDIATELY BELOW	NO RATING
ALL SECONDARY STRUCTURAL MEMBERS ASSOCIATED WITH FLOOR CONSTRUCTION	2 HOURS
ALL SECONDARY STRUCTURAL MEMBERS ASSOCIATED WITH ROOF CONSTRUCTION	1 HOUR
ALL SECONDARY STRUCTURAL MEMBERS OR PORTIONS THEREOF LOCATED 20 FEET OR MORE ABOVE FLOOR LEVEL IMMEDIATELY BELOW	NO RATING

LIFE SAFETY LEGEND

- 1 HR FIRE RATED
- 2 HR FIRE RATED
- 3 HR FIRE RATED
- SMOKE RATED
- FIRE EXTINGUISHER 2A 10BC 75' MAX DISTANCE / 75' MAX. DISTANCE LOW HAZARD (PASSENGER WAITING AREAS, OFFICE SPACES)
- DEAD-END LIMIT FOR BUSINESS OCCUPANCY & PARKING GARAGE (MODERATE HAZARD) (SPRINKLERED) = 50'- 0"
- DEAD-END LIMIT FOR ASSEMBLY A3 OCCUPANCY (SPRINKLERED) = 20'- 0"
- 250'-0" MAX. TRAVEL DISTANCE (NFPA 101- 2018 TABLE A 7.6) WITH SPRINKLER SYSTEM FOR ASSEMBLY OCCUPANCY
- 300'-0" MAX. TRAVEL DISTANCE (NFPA 101- 2018 TABLE A 7.6) WITH SPRINKLER SYSTEM FOR BUSINESS OCCUPANCY
- EXIT LIGHT - DIRECTIONAL ARROWS AS INDICATED

PUERTO RICO BUILDING CODE 2018 & IBC 2018 - NFPA 101 (2018 EDITION)

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CRUISE PASSENGER TERMINAL

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II. BAGGAGE CLAIM = 20 SQ. FT. / OCCUPANT
III. BAGGAGE HANDLING = 300 SQ. FT. / OCCUPANT
IV. OFFICES = 100 SQ. FT. / OCCUPANT

C. OCCUPANCY LOAD BASED ON NFPA 101 CHAPTERS 12 AND 7

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4. AREAS OF REFUGE ARE PROVIDED WITHIN THE STAIR F.R. ENCLOSURES AND SHOULD MEET THE REQUIREMENTS OF NFPA 101., SECTION 7.2.12:

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- THE TWO-WAY COMMUNICATION SYSTEM SHALL INCLUDE BOTH AUDIBLE AND VISIBLE SIGNALS.

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MARCH 27, 2020

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PROJECT NAME:
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PROJECT ADDRESS:
AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

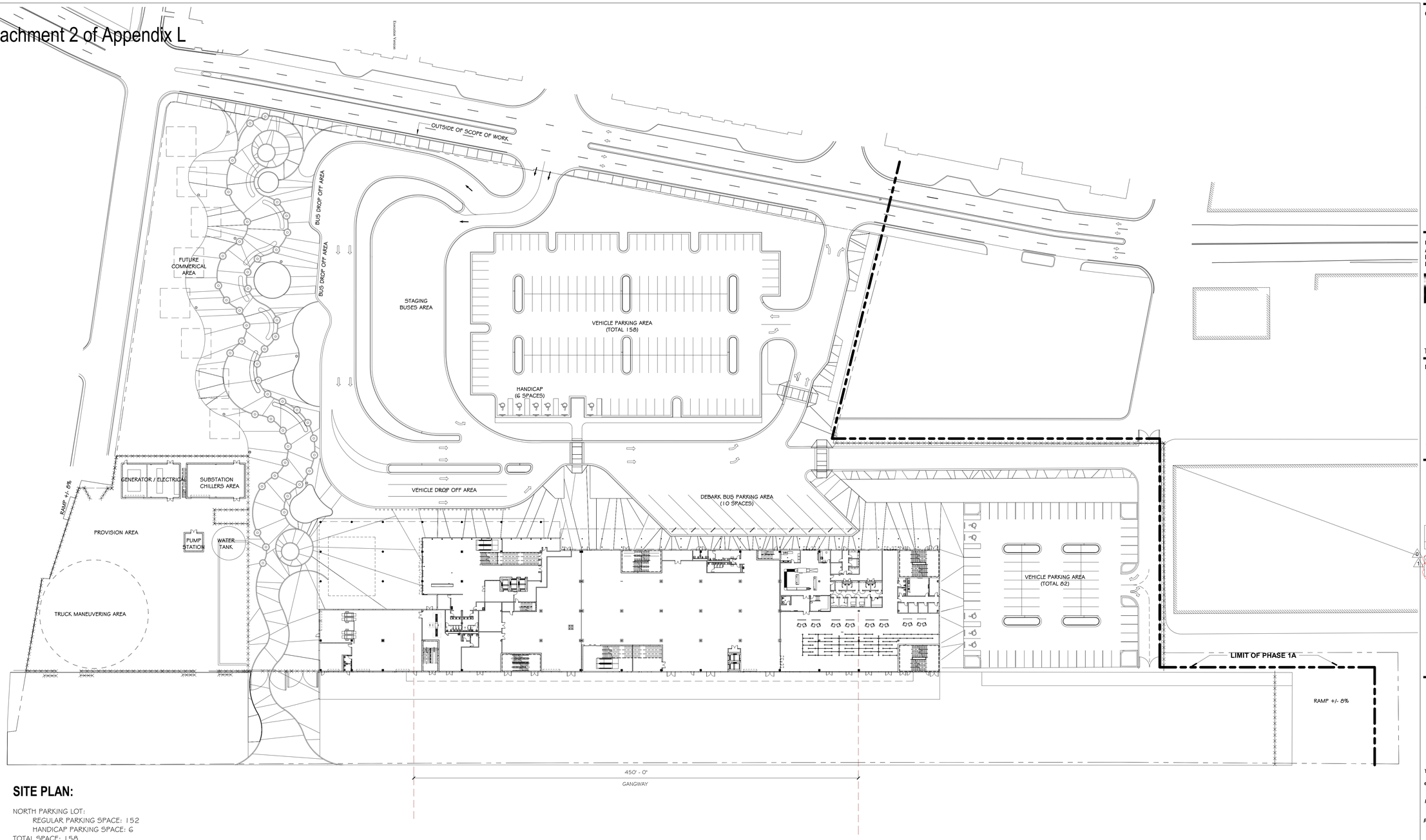
BA. PROJECT NUMBER:
19070

SHEET NAME
LIFE SAFETY SECOND FLOOR PLAN

SHEET NO.
LS-200

Attachment 2 of Appendix L

Execution Version



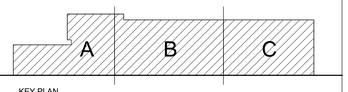
SITE PLAN:

NORTH PARKING LOT:
REGULAR PARKING SPACE: 152
HANDICAP PARKING SPACE: 6
TOTAL SPACE: 158

EAST PARKING LOT:
REGULAR PARKING SPACE: 77
HANDICAP PARKING SPACE: 5
TOTAL SPACE: 82

OVERALL PARKING SPACE: 240

1 / AS-100 — 00 OVERALL_Site Plan
1" = 40'-0"



KEY PLAN

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1	30% Design Subm. to PRPA	2020-03-27

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PROJECT NAME:

SAN JUAN CRUISE TERMINAL 11-12

PROJECT ADDRESS:
AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:
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SHEET NAME

SITE PLAN

SHEET NO.

AS-100

File Location:BIM 360://19070.000 San Juan Terminal 11-13/SAN JUAN TERMINAL (V20).rvt

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Attachment 2 of Appendix L

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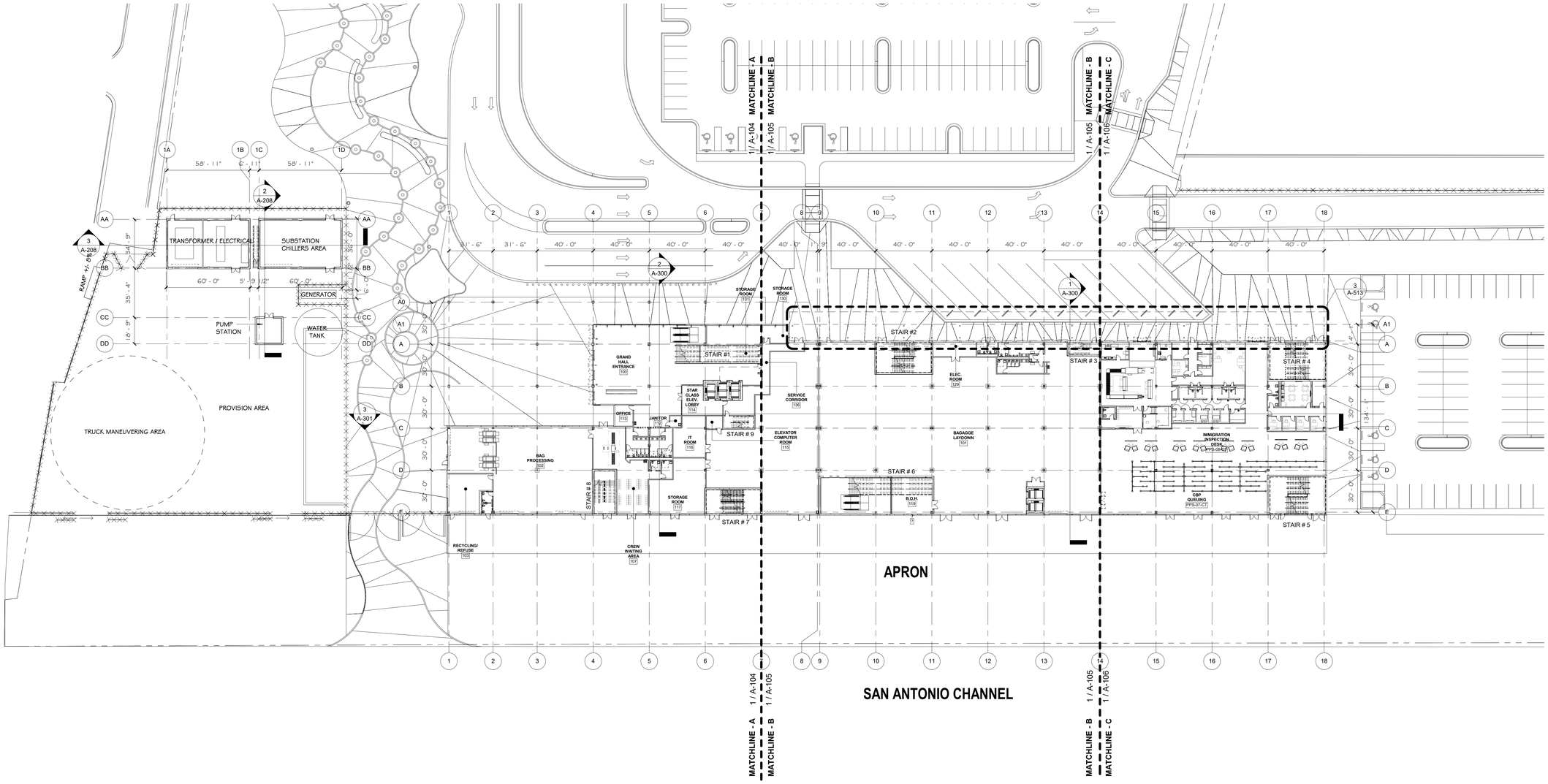

1 A-100 00_OVERALL_Ground Floor Plan
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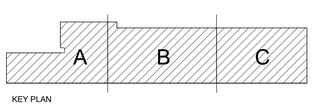

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PROJECT NAME:

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PROJECT ADDRESS:

AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:

19070

SHEET NAME

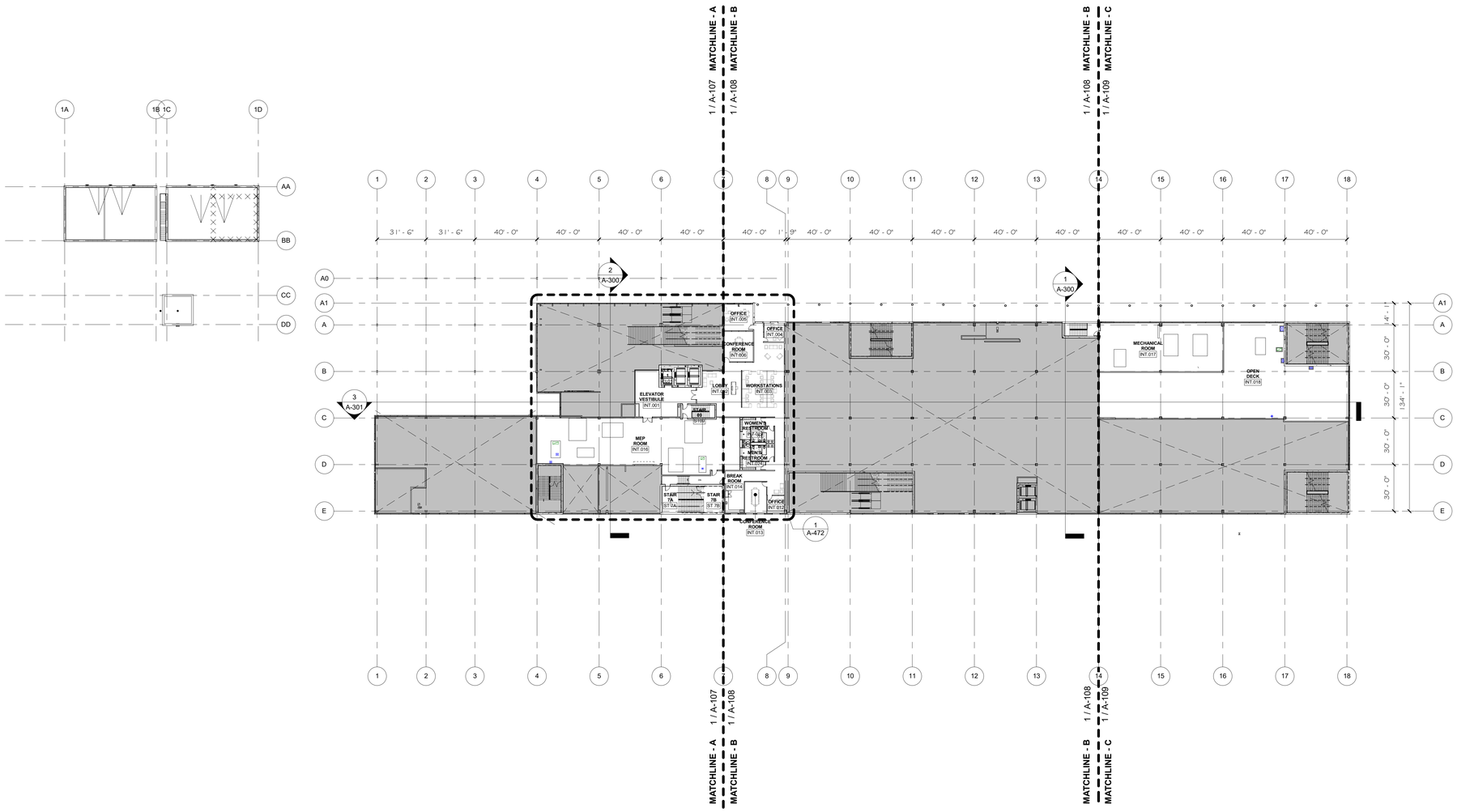
OVERALL GROUND FLOOR PLAN

SHEET NO.

A-100

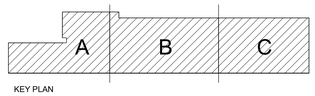
Attachment 2 of Appendix L

Execution Version



1 A-101 00_OVERALL_Intermediate Floor Plan

1/32" = 1'-0"



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1	30% Design Subm. to PRPA	2020-03-27

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PROJECT NAME:

SAN JUAN CRUISE TERMINAL 11-12

PROJECT ADDRESS:

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BA. PROJECT NUMBER:

19070

SHEET NAME

OVERALL INTERMEDIATE FLOOR PLAN

SHEET NO.

A-101

Attachment 2 of Appendix L

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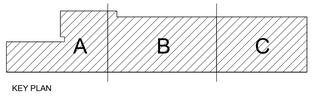
1 A-102 00_OVERALL_Second Floor Plan
1/32" = 1'-0"



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1	30% Design Subm. to PRPA	2020-03-27

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BA. PROJECT NUMBER:

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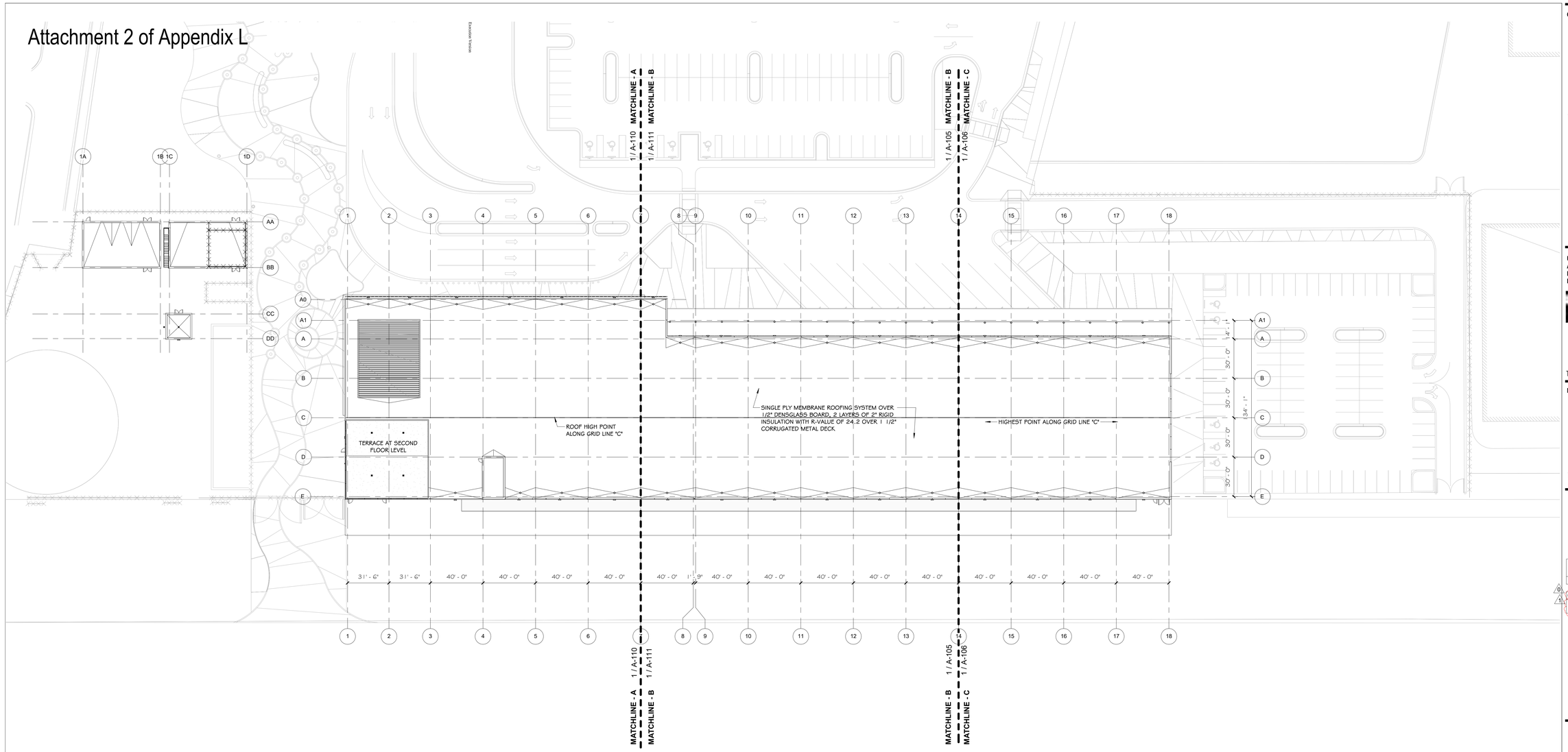
SHEET NAME

OVERALL SECOND FLOOR PLAN

SHEET NO.

A-102

Attachment 2 of Appendix L

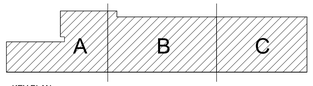


1 A-103 OVERALL _ Roof Plan
1/32" = 1'-0"

ROOFING SYSTEM GENERAL NOTES:

ROOF DRAINAGE / STORM DRAINS - 2018 I.P.C. / I.B.C. -2ND PRINTING / BUILDING & PLUMBING

- SECTION 1106.1 = 100 YEAR, 1 HOUR RAINFALL = 5 INCHES.
- SECTION 1106.4 = VERTICAL WALLS INCLUDING PARAPETS AT 50% OF AREA.
- TABLE 1106.2(1) = SIZE OF CIRCULAR VERTICAL CONDUCTORS
- OVERALL ROOF AREA HAS BEEN SUBDIVIDED INTO SMALLER QUADRANTS, WHICH ARE INDIVIDUALLY DRAINED BY 8" Ø ROOF DRAINS THAT ARE ALSO OVERSIZED FOR THE AREAS BEING DRAINED.
- PARAPET WALL SCUPPERS ARE USED FOR SECUNDARY (EMERGENCY OVERFLOW) ROOF DRAINAGE THE QUANTITY, SIZE, LOCATION AND INLET ELEVATION OF SCUPPERS SHALL BE CHOSEN TO PREVENT THE DEPTH OF PONDING WATER ON THE ROOF FROM EXCEEDING THE MAXIMUM WATER DEPTH THAT THE ROOF WAS DESIGNED FOR AS DETERMINED BY SECTION 1611.1 OF THE I.B.C.
- THE SECONDARY EMERGENCY OVERFLOW SCUPPERS ARE 8"H x 16"L (168 SQ. IN. EACH) AND LOCATED ALONG THE PERIMETER PARAPET WALLS AND MEETING THE INTENT OF SECTION 1108 AND THE I.B.C. SECTION 1502.2
- DESIGN AND INSTALLATION OF ROOF DRAINAGE SYSTEMS SHALL COMPLY WITH SECTION 1502 & 1503 OF I.B.C. AND 1106 & 1108 OF I.P.C. 2018.
- ROOF DECKS AND ROOF COVERINGS SHALL BE DESIGNATED FOR WIND LOADS IN ACCORDANCE WITH CHAPTER 16 AND SECTIONS 1504.2, 1504.3 AND 1504.4 OF I.B.C. 2018



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1	30% Design Subm. to PRPA	2020-03-27

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PROJECT NAME:
SAN JUAN CRUISE TERMINAL 11-12

PROJECT ADDRESS:
AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:
19070

SHEET NAME
OVERALL ROOF PLAN

SHEET NO.
A-103

Attachment 2 of Appendix L

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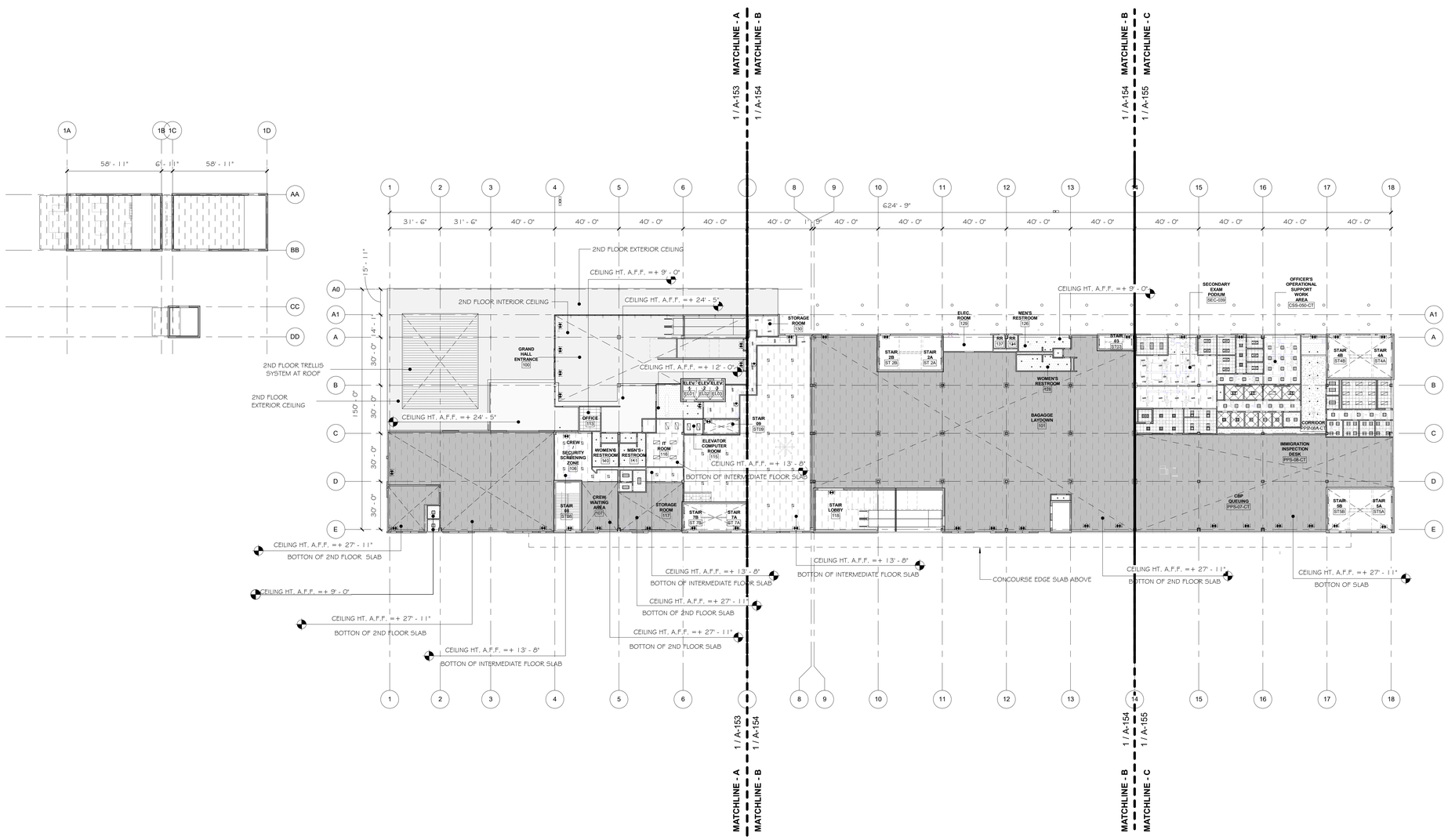


1 / A-150 — 01 OVERALL_RCP Ground Floor Plan

1" = 30'-0"

REFLECTED CEILING PLAN LEGEND

CEILING SYMBOLS

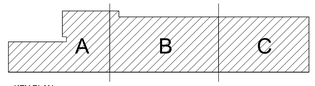
- CEILING MATERIAL
- C# #'-#" — CEILING HEIGHT A.F.F.
- AIR SUPPLY DIFFUSER (REFER TO MECH DWGS)
- AIR RETURN DIFFUSER (REFER TO MECH DWGS)
- CEILING ACCESS PANEL
- CEILING ACCESS PANEL SECURITY. SAP-1
- EXIT LIGHT - DIRECTIONAL ARROWS AS INDICATED
- 2' x 4' RECESSED LED
- WALL MOUNTED INDUSTRIAL LAMP
- CEILING FAN
- RECESSED DOWNLIGHT
- SUSPENDED LIGHT
- LINEAR PENDANT

CEILING MATERIALS

	EXPOSED STRUCTURE	C2	2'X4' ACOUSTICAL CEILING PANELS, TYPE APC. SEE DETAILS FOR SUSPENDED GRID REQUIREMENTS
C1	SECURITY CBP- SEE " CEILING DETAILS ON DRAWINGS"	C3	2'X2' ACOUSTICAL CEILING PANELS, TYPE APC. SEE DETAILS FOR SUSPENDED GRID REQUIREMENTS
C6	GYPSUM BOARD CEILING		

CEILING NOTES

1. SEE MECHANICAL, ELECTRICAL FIRE PROTECTION AND FIRE ALARM FOR ADDITIONAL DEVICES AND FIXTURES NOT INDICATED.
2. CENTER CEILING GRID IN ROOMS U.O.N. CENTER LIGHT FIXTURES IN G.W.B. CEILINGS U.O.N.
3. NO CUT CEILING TILES LESS THAN 6" ALLOWED.
4. CENTER SMOKE DETECTORS, THERMAL DETECTORS, SPRINKLER HEADS, MECH. DIFFUSERS, LIGHT FIXTURES IN CEILING TILES.
5. ALL CEILING SUSPENSION SYSTEMS SHALL HAVE SEISMIC RESTRAINTS PER LOCAL BUILDING CODES AND ORDINANCES.
6. PROVIDE 2'-0"X2'-0" MIN. ACCESS PANELS IN G.W.B CEILINGS, AS REQUIRED TO PROVIDE ACCESS TO ALL MECH., ELEC., PLUMB. FIRE-PROTECTION UTILITIES. FRONT OF HOUSE/ PUBLIC AREAS TO RECEIVE BEST ACCESS DOORS BA-GRG ACCESS PANEL OR APPROVED EQUAL. CO-ORDINATE WITH MECH & ELEC, FIRE ALARM, INTERIOR DESIGN & FIRE PROTECTION.
7. DOUBLE HEIGHT SPACES, CEILING HEIGHT GIVEN IS FROM FINISH FLOOR OF PLAN ON WHICH IT IS DRAWN.
8. FOR FINISHES AND DETAILS REFER TO INTERIOR DESIGN PACKAGE FOR FINISH SCHEDULE AND MORE INFORMATION.



KEY PLAN

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PROJECT NAME:

SAN JUAN CRUISE TERMINAL 11-12

PROJECT ADDRESS:

AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:

19070

SHEET NAME

OVERALL GROUND REFLECTIVE CEILING PLAN

SHEET NO.

A-150

Attachment 2 of Appendix L

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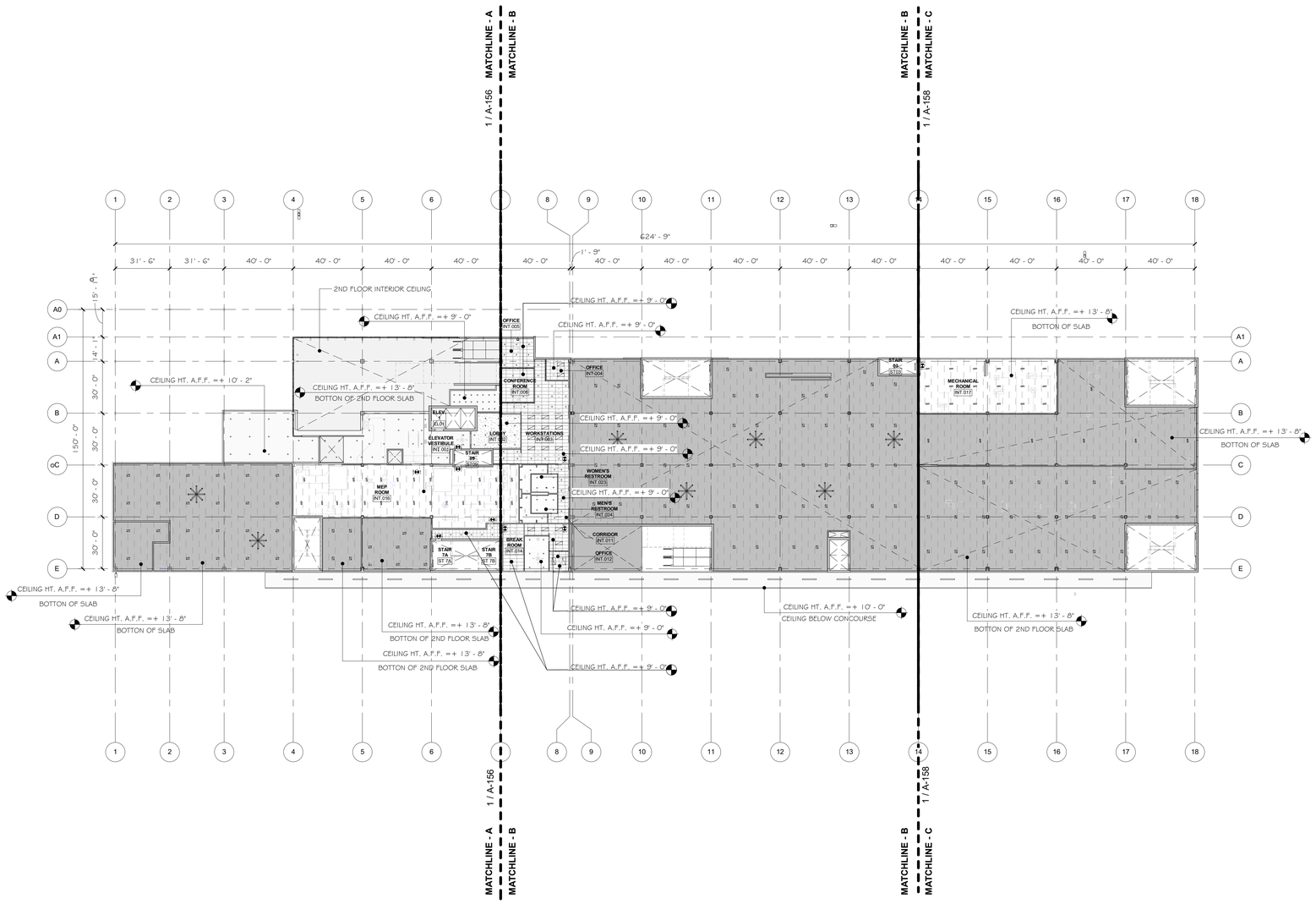

1 A-151 02_OVERALL_ RCP Mezzanine Floor Plan
1" = 30'-0"

REFLECTED CEILING PLAN LEGEND

CEILING SYMBOLS

- CEILING MATERIAL
- C# 8'-8" — CEILING HEIGHT A.F.F.
- AIR SUPPLY DIFFUSER (REFER TO MECH DWGS)
- AIR RETURN DIFFUSER (REFER TO MECH DWGS)
- CEILING ACCESS PANEL
- CEILING ACCESS PANEL SECURITY. SAP-1
- EXIT LIGHT - DIRECTIONAL ARROWS AS INDICATED
- 2' x 4' RECESSED LED
- WALL MOUNTED INDUSTRIAL LAMP
- CEILING FAN
- RECESSED DOWNLIGHT
- SUSPENDED LIGHT
- LINEAR PENDANT

CEILING MATERIALS

- EXPOSED STRUCTURE
- C1 — SECURITY CBP- SEE " CEILING DETAILS ON DRAWINGS"
- C6 — GYPSUM BOARD CEILING
- C2 — 2'X4' ACOUSTICAL CEILING PANELS, TYPE APC, SEE DETAILS FOR SUSPENDED GRID REQUIREMENTS
- C3 — 2'X2' ACOUSTICAL CEILING PANELS, TYPE APC, SEE DETAILS FOR SUSPENDED GRID REQUIREMENTS

CEILING NOTES

1. SEE MECHANICAL, ELECTRICAL FIRE PROTECTION AND FIRE ALARM FOR ADDITIONAL DEVICES AND FIXTURES NOT INDICATED.
2. CENTER CEILING GRID IN ROOMS U.O.N. CENTER LIGHT FIXTURES IN G.W.B. CEILINGS U.O.N.
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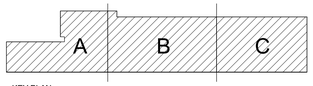

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REVISIONS			
REV. #	REVISION DESCRIPTION	REV. DATE	
0	1st Subm. 30% Design	2020-02-14	0
1	30% Design Subm. to PRPA	2020-03-27	1

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PROJECT NAME:
SAN JUAN CRUISE TERMINAL 11-12

PROJECT ADDRESS:
AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

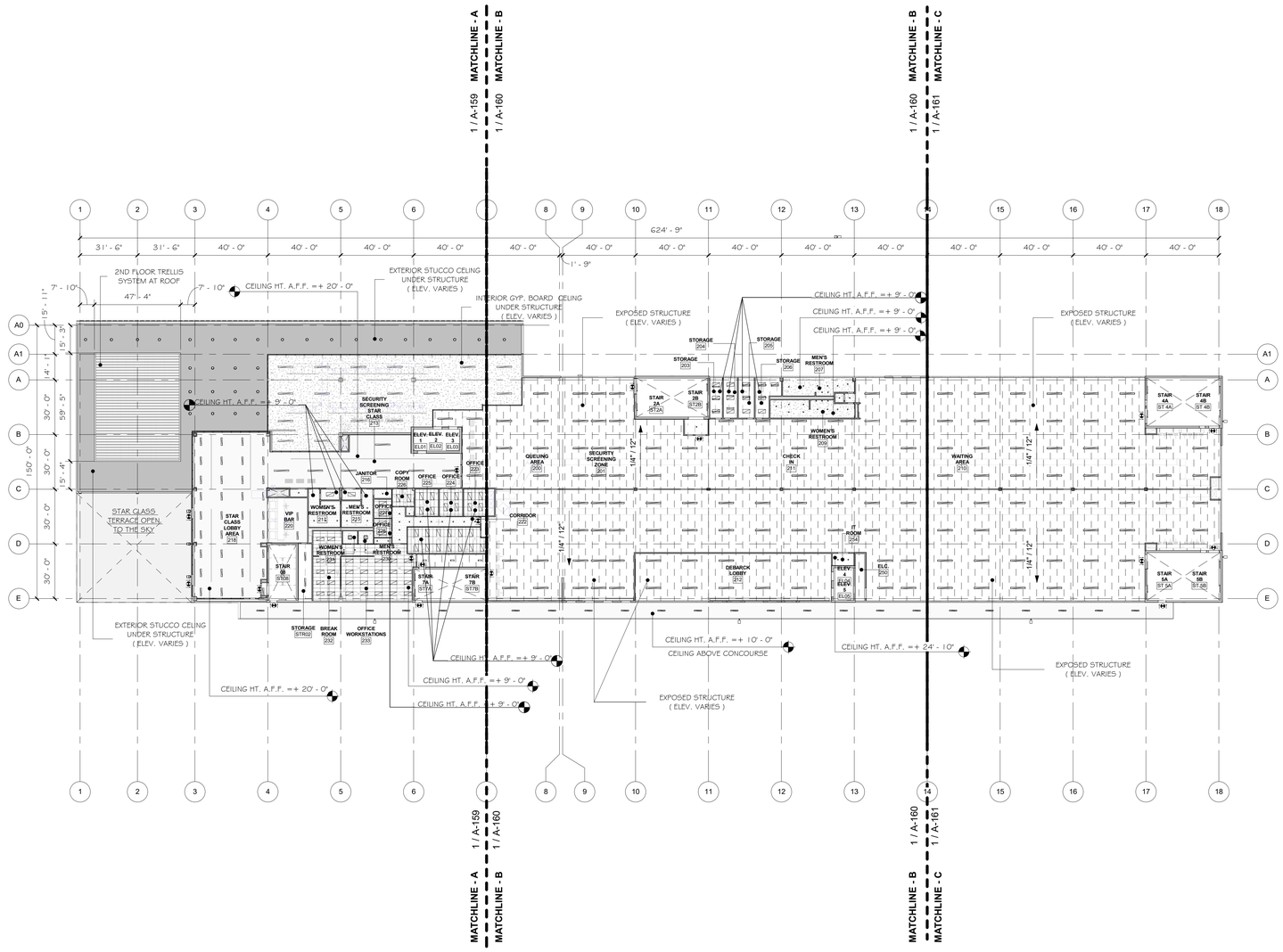
BA. PROJECT NUMBER:
19070

SHEET NAME
OVERALL INTERMEDIATE REFLECTED CEILING PLAN

SHEET NO.
A-151

Attachment 2 of Appendix L

Execution Version



1 / A-152 — 03_OVERALL_RCP Second Floor Plan

1" = 30'-0"

REFLECTED CEILING PLAN LEGEND

CEILING SYMBOLS

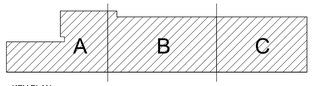
- CEILING MATERIAL
- C# 8'-8" — CEILING HEIGHT A.F.F.
- AIR SUPPLY DIFFUSER (REFER TO MECH DWGS)
- AIR RETURN DIFFUSER (REFER TO MECH DWGS)
- CEILING ACCESS PANEL
- CEILING ACCESS PANEL SECURITY. SAP-1
- EXIT LIGHT - DIRECTIONAL ARROWS AS INDICATED
- 2' x 4' RECESSED LED
- WALL MOUNTED INDUSTRIAL LAMP
- CEILING FAN
- RECESSED DOWNLIGHT
- SUSPENDED LIGHT
- LINEAR PENDANT

CEILING MATERIALS

	EXPOSED STRUCTURE	C2	2'X4' ACOUSTICAL CEILING PANELS, TYPE APC, SEE DETAILS FOR SUSPENDED GRID REQUIREMENTS
C1	SECURITY CBP- SEE 1 CEILING DETAILS ON DRAWINGS'	C3	2'X2' ACOUSTICAL CEILING PANELS, TYPE APC, SEE DETAILS FOR SUSPENDED GRID REQUIREMENTS
C6	GYPSUM BOARD CEILING		

CEILING NOTES

1. SEE MECHANICAL, ELECTRICAL FIRE PROTECTION AND FIRE ALARM FOR ADDITIONAL DEVICES AND FIXTURES NOT INDICATED.
2. CENTER CEILING GRID IN ROOMS U.O.N. CENTER LIGHT FIXTURES IN G.W.B. CEILINGS U.O.N.
3. NO CUT CEILING TILES LESS THAN 6" ALLOWED.
4. CENTER SMOKE DETECTORS, THERMAL DETECTORS, SPRINKLER HEADS, MECH. DIFFUSERS, LIGHT FIXTURES IN CEILING TILES.
5. ALL CEILING SUSPENSION SYSTEMS SHALL HAVE SEISMIC RESTRAINTS PER LOCAL BUILDING CODES AND ORDINANCES.
6. PROVIDE 2'-0'X2'-0" MIN. ACCESS PANELS IN G.W.B CEILINGS, AS REQUIRED TO PROVIDE ACCESS TO ALL MECH., ELEC., PLUMB. FIRE-PROTECTION UTILITIES. FRONT OF HOUSE/ PUBLIC AREAS TO RECEIVE BEST ACCESS DOORS BA-GRG ACCESS PANEL OR APPROVED EQUAL. CO-ORDINATE WITH MECH & ELEC, FIRE ALARM, INTERIOR DESIGN & FIRE PROTECTION.
7. DOUBLE HEIGHT SPACES, CEILING HEIGHT GIVEN IS FROM FINISH FLOOR OF PLAN ON WHICH IT IS DRAWN.
8. FOR FINISHES AND DETAILS REFER TO INTERIOR DESIGN PACKAGE FOR FINISH SCHEDULE AND MORE INFORMATION.



KEY PLAN

Execution Version

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BA. PROJECT NUMBER:

19070

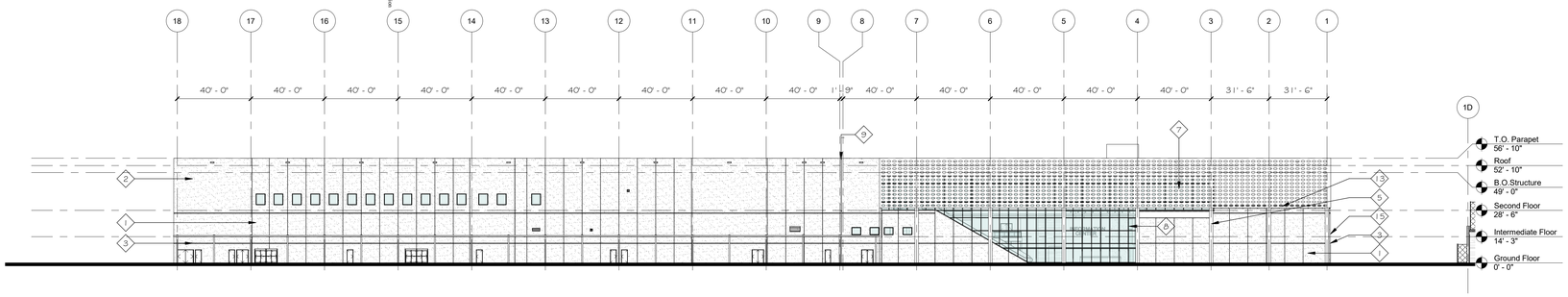
SHEET NAME

OVERALL SECOND FLOOR REFLECTED CEILING PLAN

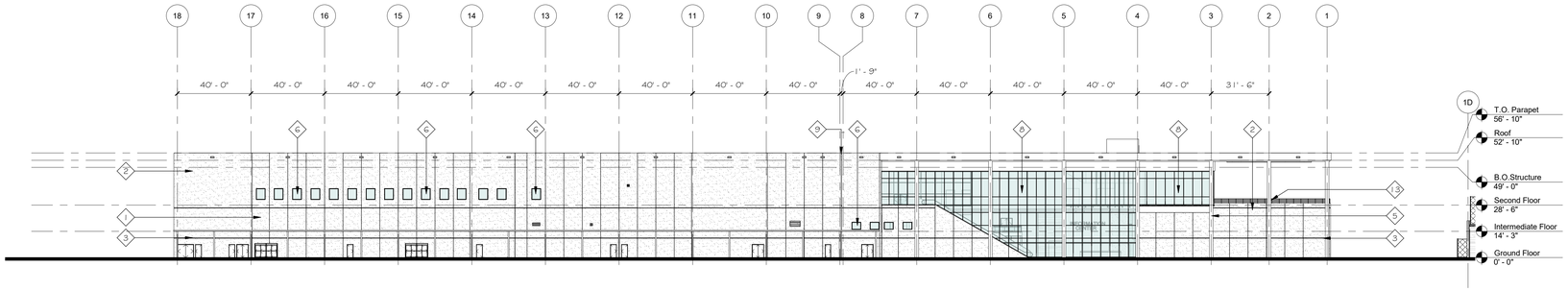
SHEET NO.

A-152

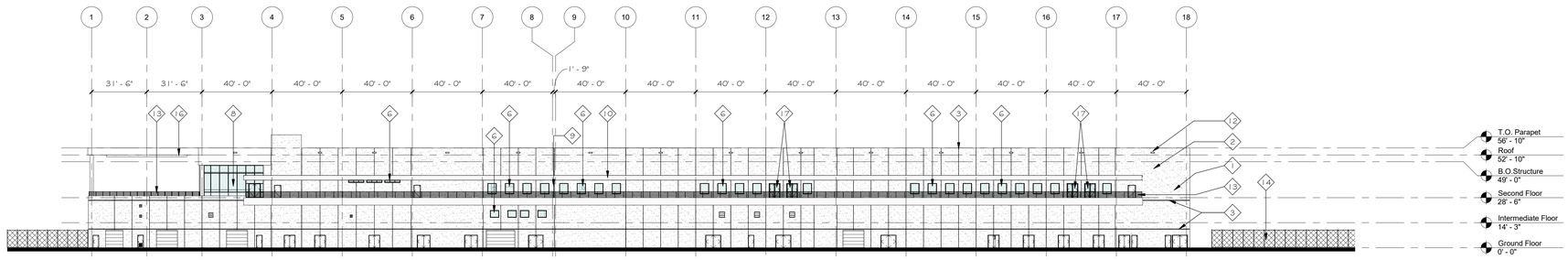
Execution Version



1 A-200 OVERALL NORTH ELEVATION
1/32" = 1'-0"



2 A-200 OVERALL NORTH ELEVATION GLASSING FACADE
1/32" = 1'-0"



3 A-200 OVERALL SOUTH ELEVATION
1/32" = 1'-0"

ELEVATION - KEY NOTES:

1. INSULATED PRECAST WALLS - SMOOTH FINISH - PAINTED
2. CAST IN PLACE WALLS - SMOOTH FINISH TO MATCH PRECAST WALLS - PAINTED
3. 3/4" WIDTH VERTICAL OR HORIZONTAL REVEALS
4. 5/8" THICK SMOOTH STUCCO FINISH OVER BONDING AGENT COMPOUND AROUND BEAMS - PROVIDE TYPICAL DRIP EDGE DETAIL - PAINTED
5. 2 COAT + FINAL SPRAY COAT, WELL CURED 5/8" TEXTURED STUCCO FINISHED OVER METAL LATH AND METAL STUD FRAMMING - AT COLUMNS - PAINTED
6. ALUMINUM FRAME SYSTEM WITH IMPACT-RESISTANT GLAZING
7. PERFORATED ALUMINUM PANEL ATTACHED TO AN ALUMINUM FRAME
8. ALUMINUM CURTAIN WALL FRAME SYSTEM WITH IMPACT-RESISTANT GLAZING
9. 2" EXPANSION / SEISMIC JOINT
10. METAL CANOPY SYSTEM
11. METAL GUTTER
12. METAL SCUPPERS
13. 42" HT. GUARDRAILING SYSTEM - GALVANIZED STEEL
14. HIGH SECURITY FENCE
15. TEXTURED PRECAST PANEL - PAINTED
16. METAL LOUVERS
17. ALUMINUM STOREFRONT SYSTEM WITH IMPACT RESISTANT GLASS DOORS

Execution Version

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BA. PROJECT NUMBER:
19070

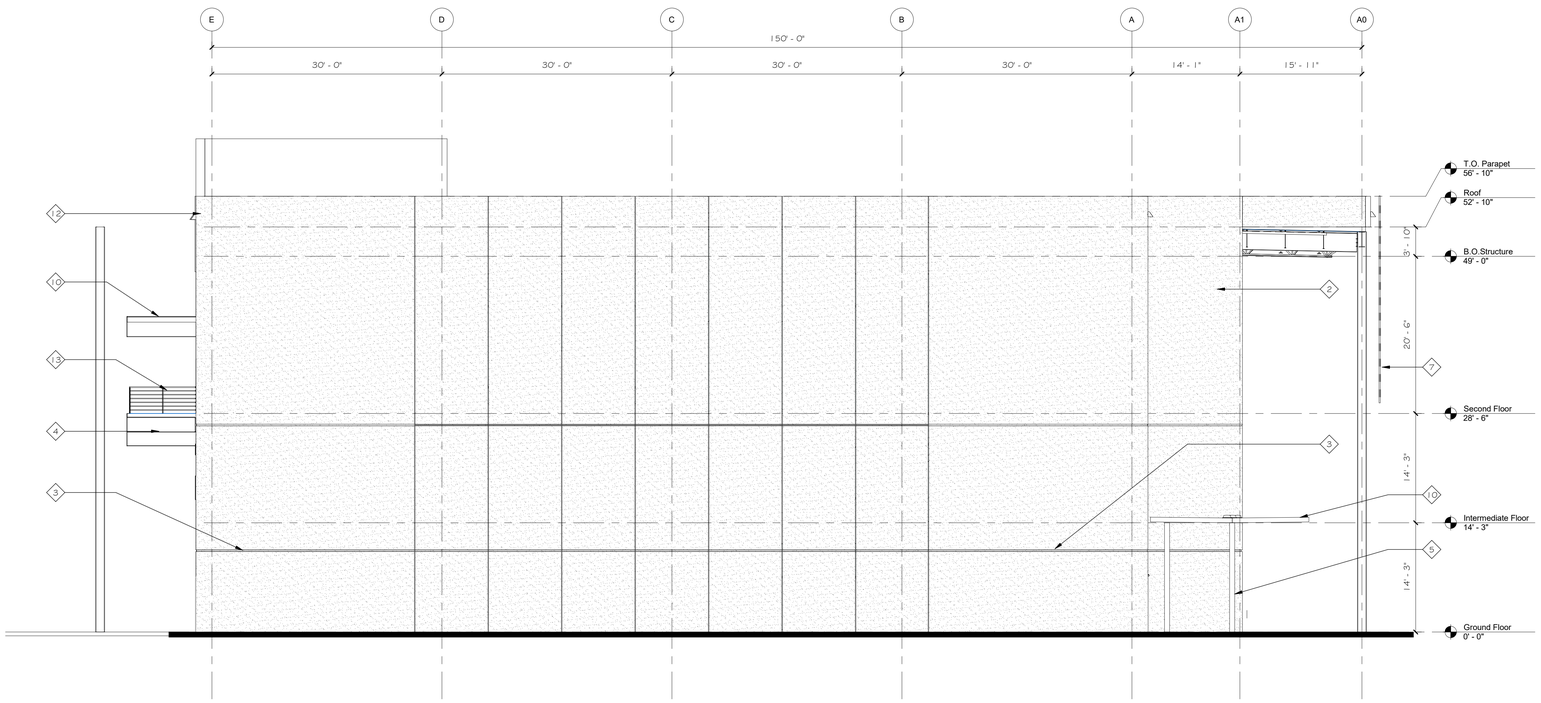
SHEET NAME
OVERALL NORTH & SOUTH ELEVATION

SHEET NO.
A-200

Attachment 2 of Appendix L

Execution Version

2 A-201 OVERALL WEST ELEVATION
1/8" = 1'-0"



1 A-201 EAST ELEVATION
1/8" = 1'-0"

ELEVATION - KEY NOTES:

1. INSULATED PRECAST WALLS - SMOOTH FINISH - PAINTED
2. CAST IN PLACE WALLS - SMOOTH FINISH TO MATCH PRECAST WALLS - PAINTED
3. 3/4" WIDTH VERTICAL OR HORIZONTAL REVEALS
4. 5/8" THICK SMOOTH STUCCO FINISH OVER BONDING AGENT COMPOUND AROUND BEAMS - PROVIDE TYPICAL DRIP EDGE DETAIL - PAINTED
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BA. PROJECT NUMBER:

19070

SHEET NAME

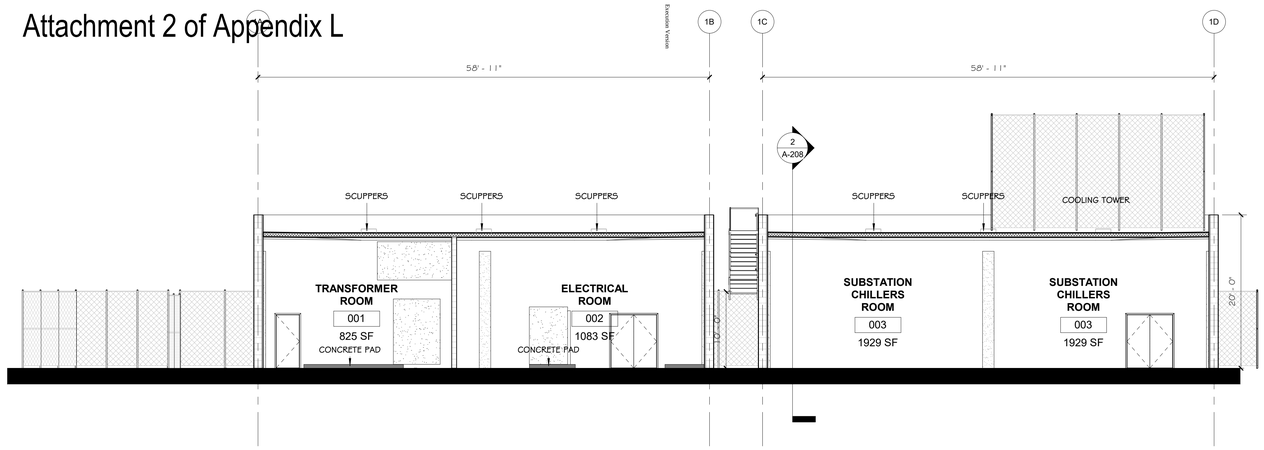
OVERALL EAST & WEST ELEVATION

SHEET NO.

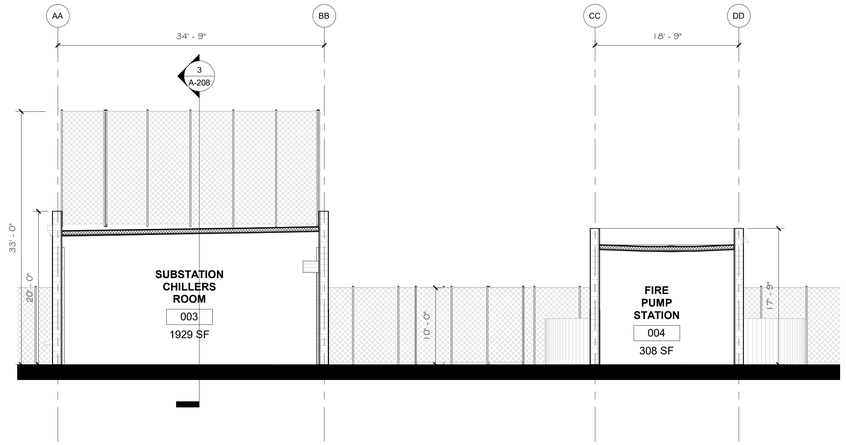
A-201

Attachment 2 of Appendix L

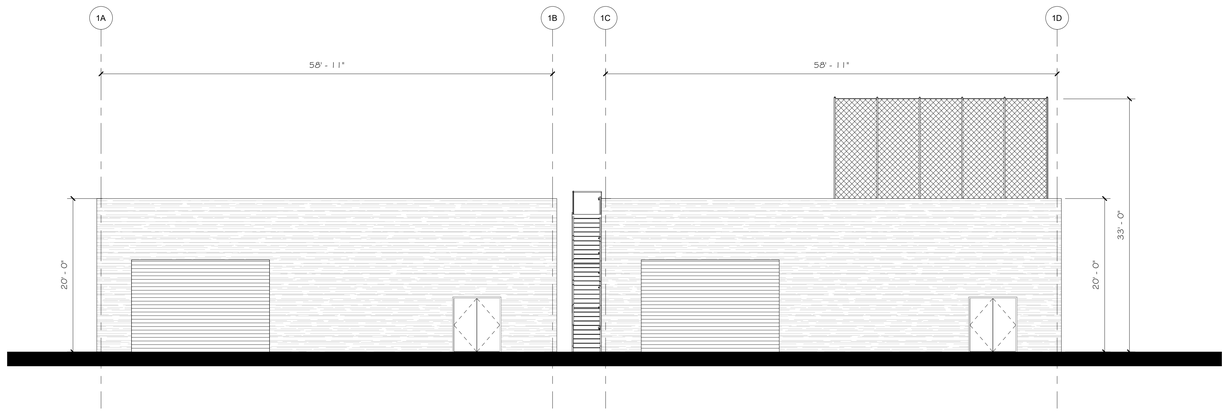
Execution Version



3 A-208 TRANSFORMER ROOM AND CHILLERS BUILDING SECTION
1/8" = 1'-0"



2 A-208 CHILLER ROOM AND FIRE PUMP STATION BUILDING SECTION
1/8" = 1'-0"



1 A-208 TRANSFORMER ROOM AND CHILLERS BUILDING ELEVATION
1/8" = 1'-0"

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19070

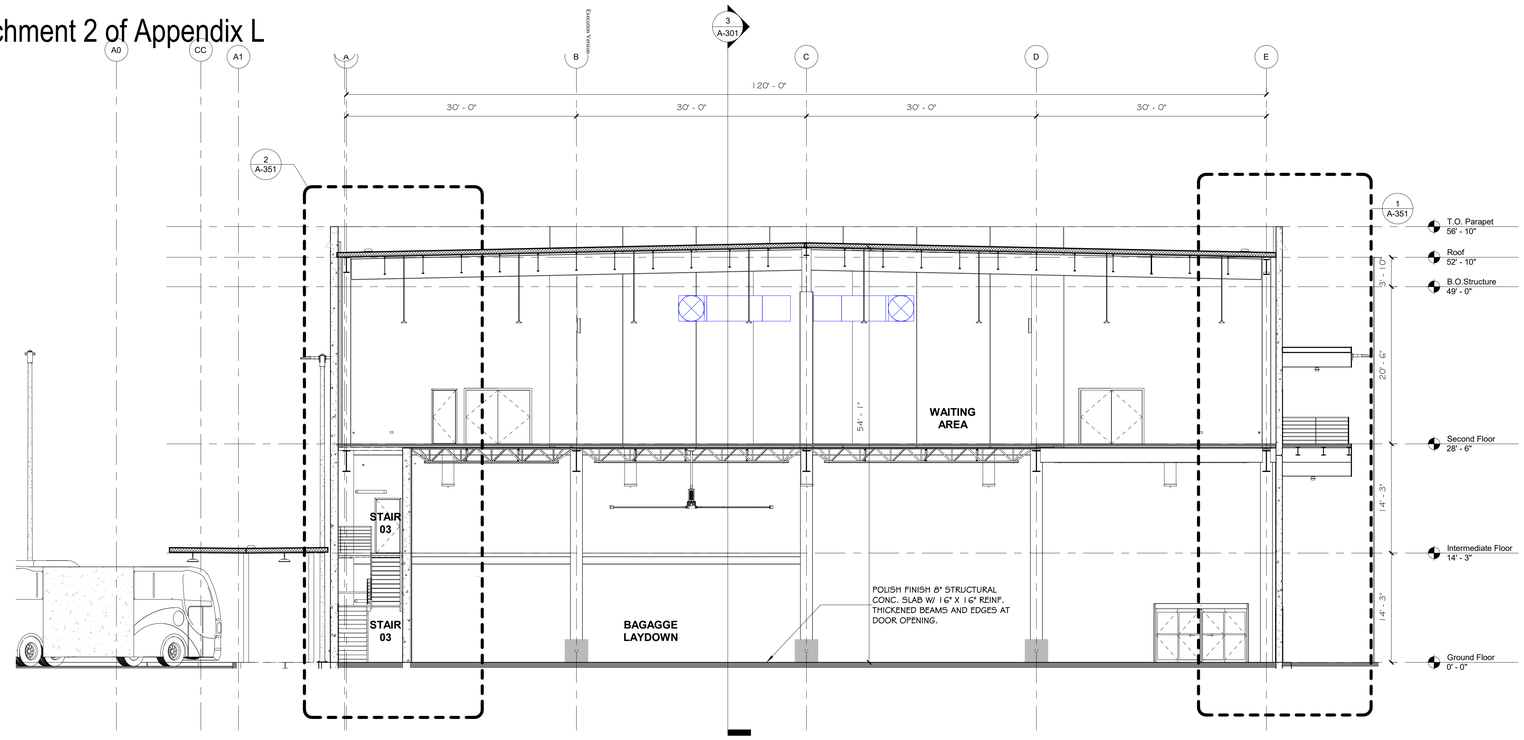
SHEET NAME

ENLARGED ANNEX BUILDINGS ELEVATIONS

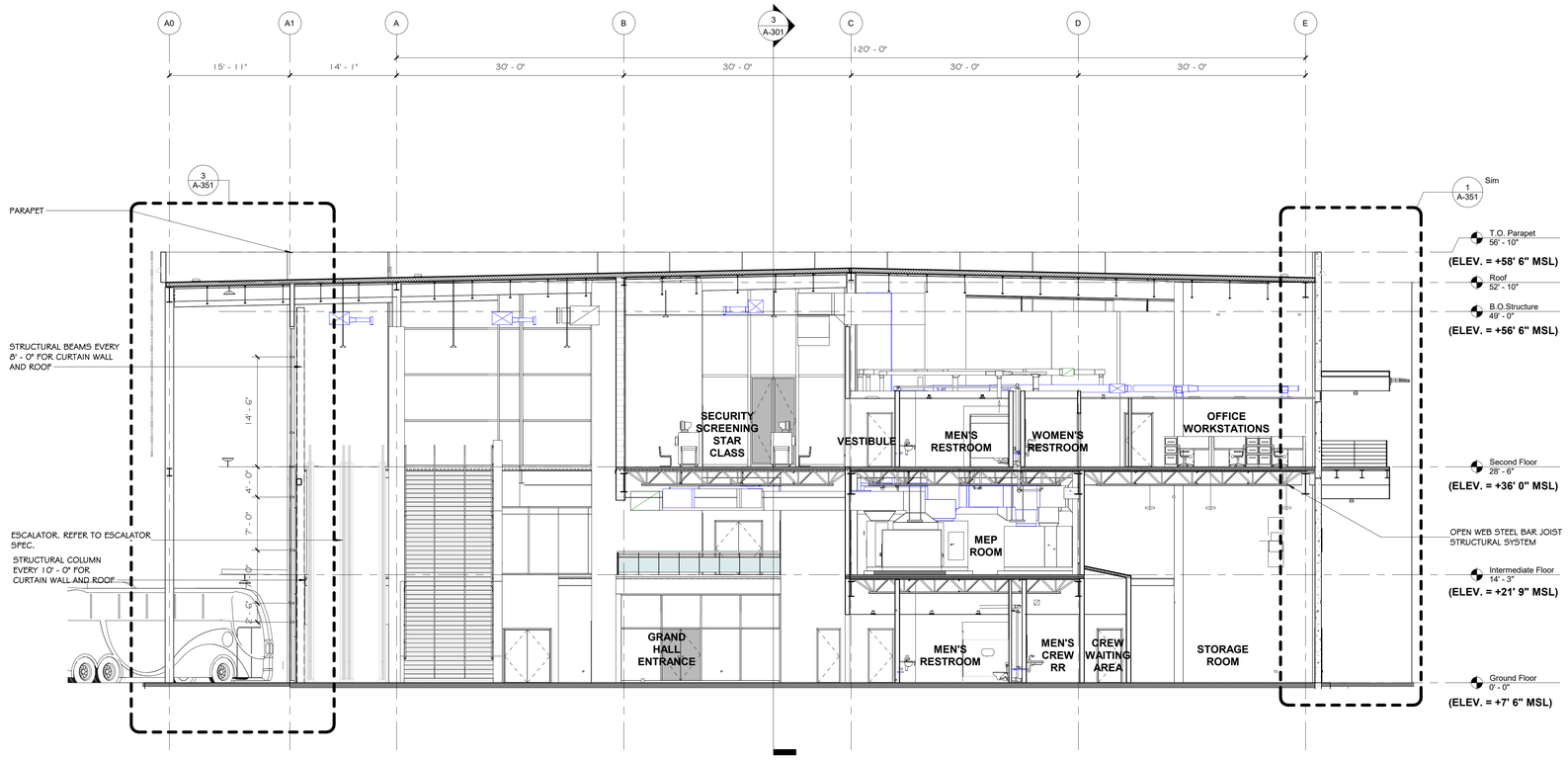
SHEET NO.

A-208

Attachment 2 of Appendix L



1 A-300 Terminal Section2
1/8" = 1'-0"



2 A-300 Terminal Section
1/8" = 1'-0"

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BA. PROJECT NUMBER:

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SHEET NAME

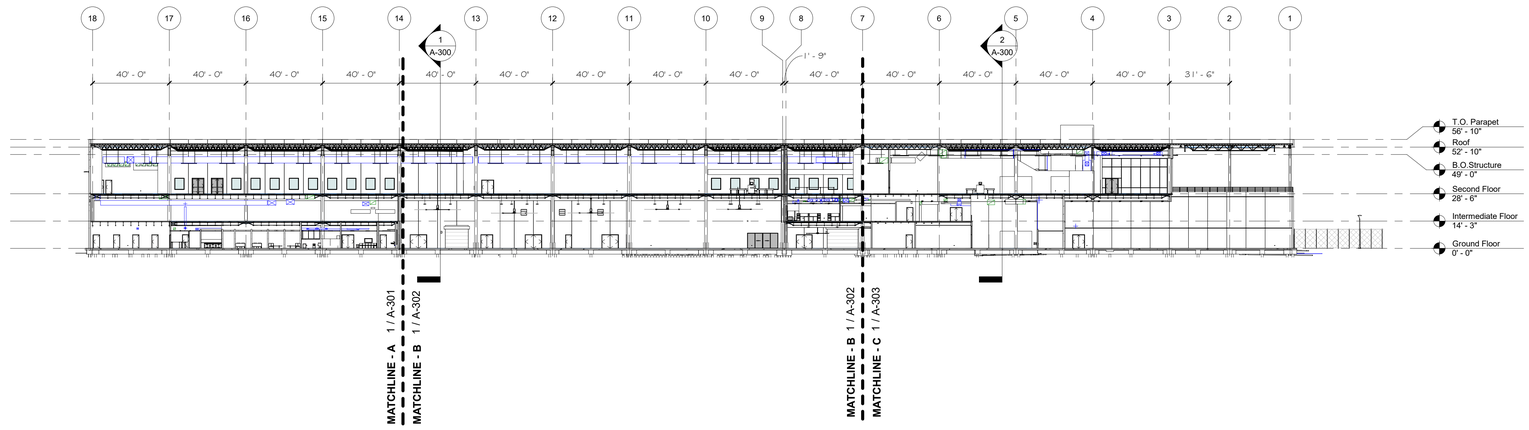
BUILDING SECTIONS

SHEET NO.

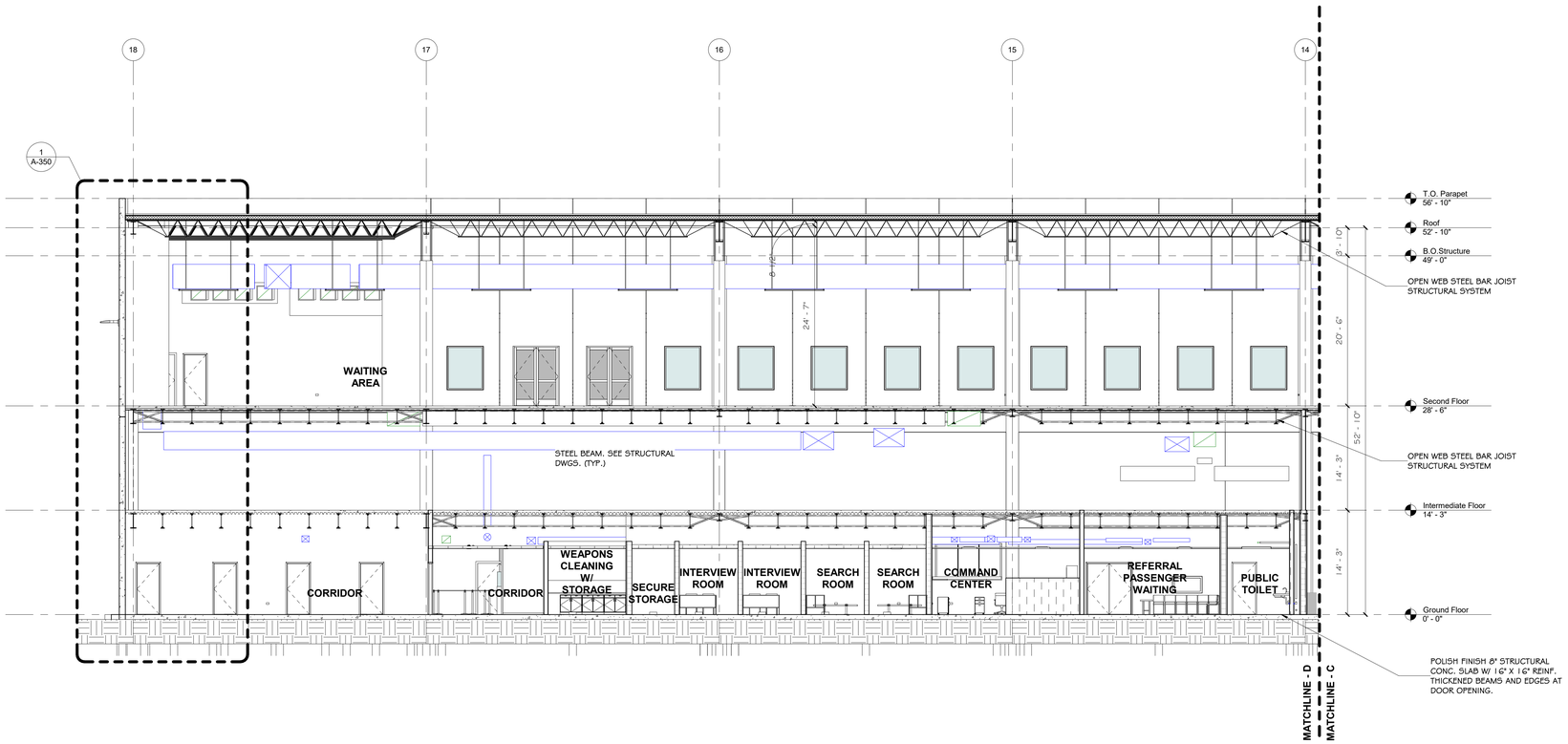
A-300

Attachment 2 of Appendix L

Execution Version



3 A-301 BUILDING SECTION 1 - OVERALL
1/32" = 1'-0"



1 A-301 BUILDING SECTION 1 - PARTIAL A
1/8" = 1'-0"

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MARCH 27, 2020

NOT FOR CONSTRUCTION

REVISIONS

REV. #	REVISION DESCRIPTION	REV. DATE
0	1st Subm. 30% Design	2020-02-14
1	30% Design Subm. to PRPA	2020-03-27

AUTORIDAD DE PUERTOS de PUERTO RICO

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DRAWINGS ARE PROPERTY OF BERMELLO AJAMIL & PARTNERS

PROJECT NAME:

SAN JUAN CRUISE TERMINAL 11-12

PROJECT ADDRESS:

AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:

19070

SHEET NAME

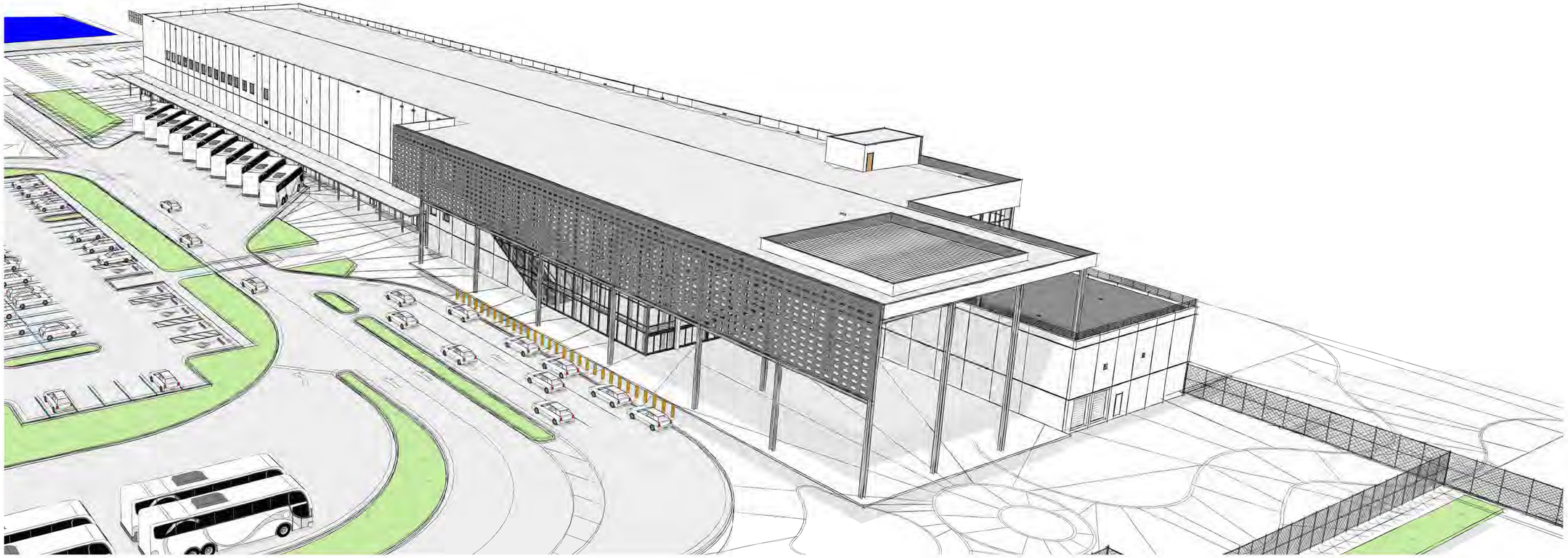
BUILDING SECTIONS

SHEET NO.

A-301

Attachment 2 of Appendix L

Execution Version



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SHEET NAME

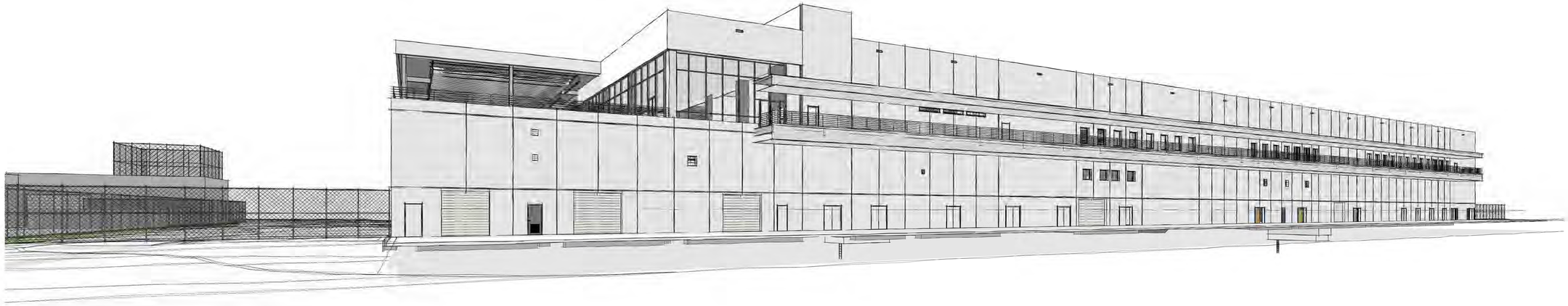
OVERALL 3D PERSPECTIVES

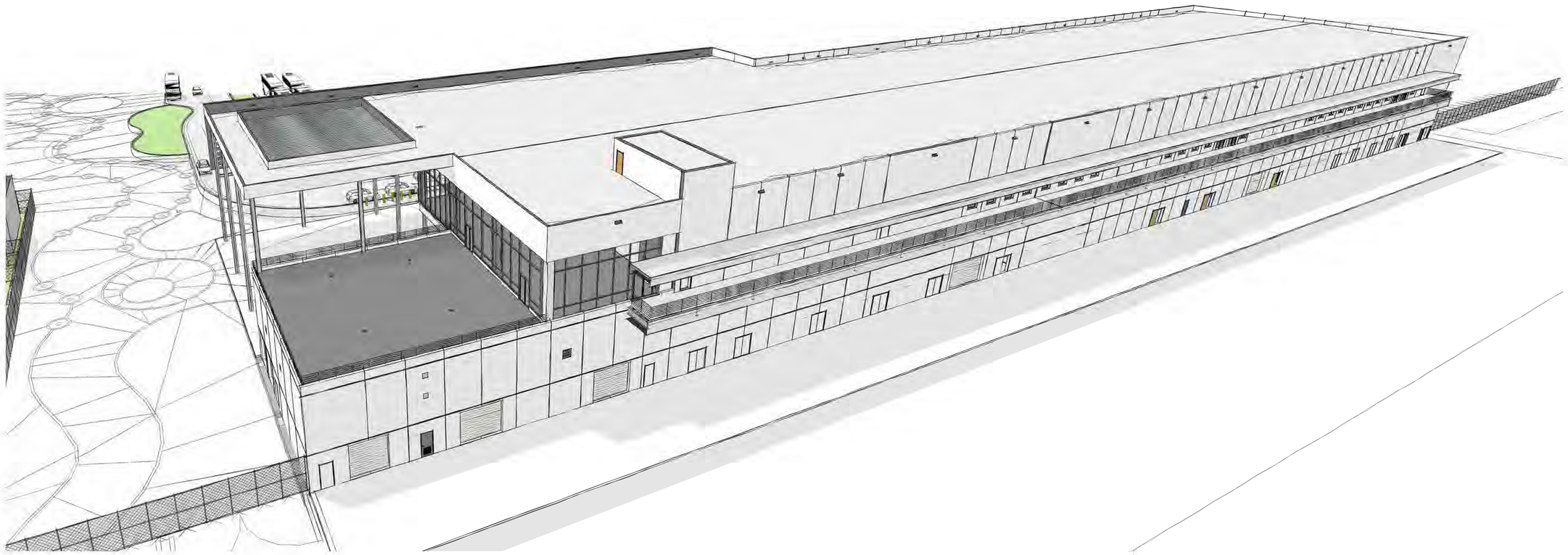
SHEET NO.

A-900

Execution Version

Attachment 2 of Appendix L





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AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:

19070

SHEET NAME

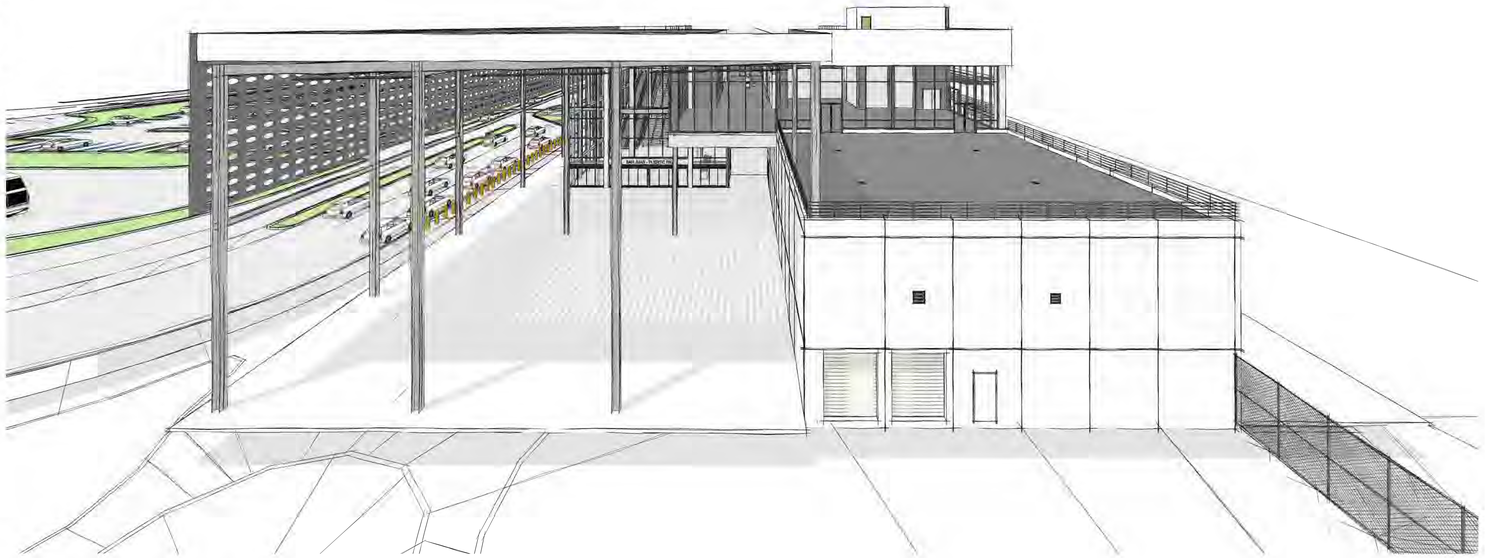
OVERALL 3D PERSPECTIVES

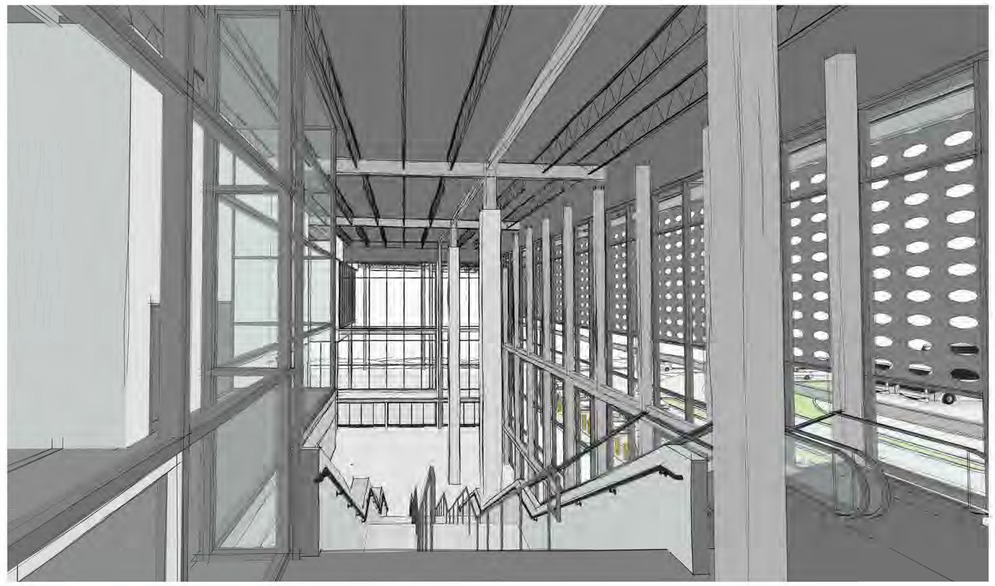
SHEET NO.

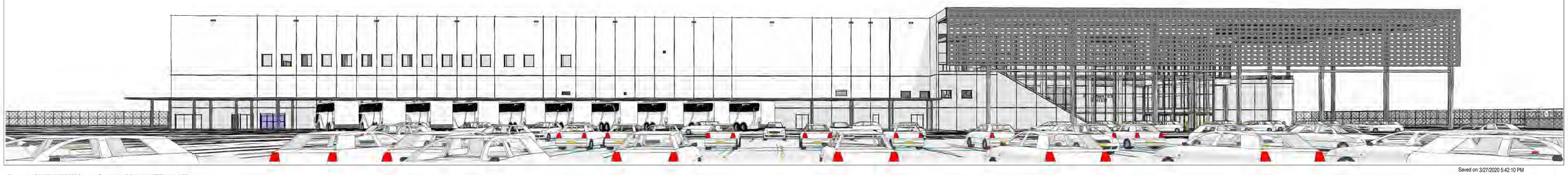
A-901

Attachment 2 of Appendix L

Execution Version







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SAN JUAN CRUISE TERMINAL 11-12

PROJECT ADDRESS:

AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:

19070

SHEET NAME

OVERALL 3D PERSPECTIVES

SHEET NO.

A-902

File Location:BIM 360://19070.000 San Juan Terminal 11-13/SAN JUAN TERMINAL (V20).rvt

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Attachment 2 of Appendix L

GENERAL NOTES:

1. THESE GENERAL NOTES SUPPLEMENT THE PROJECT SPECIFICATIONS. REFER TO THE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. SPECIFICATIONS NOTED ON THESE DRAWINGS SHALL BE OF THE LATEST REVISION.
3. STRUCTURAL DRAWINGS ARE INTENDED TO BE USED WITH ARCHITECTURAL, ELECTRICAL AND MECHANICAL DRAWINGS. CONTRACTOR IS RESPONSIBLE FOR COORDINATING SUCH REQUIREMENTS INTO THEIR SHOP DRAWINGS AND WORK.
4. NO OPENINGS, OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS, SHALL BE MADE IN ANY STRUCTURAL MEMBER WITHOUT THE WRITTEN APPROVAL OF THE STRUCTURAL ENGINEER.
5. NO CHANGE IN SIZE OR DIMENSION OF STRUCTURAL MEMBERSHIP SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.
6. OPENINGS 1'-4" AND LESS ON A SIDE ARE GENERALLY NOT SHOWN ON THE STRUCTURAL DRAWINGS. REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR SUCH OPENINGS.
7. THE CONTRACTOR IS RESPONSIBLE FOR LIMITING THE AMOUNT OF CONSTRUCTION LOAD IMPOSED UPON STRUCTURAL FRAMING. CONSTRUCTION LOADS SHALL NOT EXCEED THE DESIGN CAPACITY OF THE FRAMING AT THE TIME THE LOADS ARE IMPOSED.
8. HORIZONTAL MOVEMENT OF ANY HEAVY EQUIPMENT OVER STRUCTURAL FLOORS OR ROOF AND ITS TEMPORARY AND/OR DEFINITE LOCATIONS MUST BE PREVIOUSLY APPROVED BY THE ENGINEER SO AS NOT TO OVERLOAD THE STRUCTURE OR IN ANY OTHER WAY IMPAIR THE STRUCTURE. SAME PRECAUTION SHALL BE TAKEN FOR THE PILING OF CONSTRUCTIONS MATERIALS.
9. THE STRUCTURE IS DESIGNED TO FUNCTION AS A UNIT UPON COMPLETION. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL TEMPORARY BRACING AND/OR SUPPORT THAT MAY BE REQUIRED AS THE RESULT OF THE CONTRACTOR'S CONSTRUCTION METHODS AND/OR SEQUENCES. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
10. ALL STRUCTURES HAVE BEEN DESIGNED ACCORDING TO FINAL BEHAVIOR AND CONDITIONS. HOWEVER, DURING ERECTION OF SAME, CERTAIN CONDITIONS CAN ARISE FOR WHICH THE BEHAVIOR OR THE STRUCTURE HAS NOT BEEN CONTEMPLATED. THEREFORE, THE CONTRACTOR SHOULD PROVIDE AT ALL TIME ADEQUATE SHORING AND RESTORING UNTIL THE DESIGN CONDITIONS HAVE BEEN MET. IF THERE IS ANY DOUBT DURING ANY PHASE OF THE CONSTRUCTION, PLEASE CONSULT AND/OR NOTIFY THE STRUCTURAL ENGINEER.
11. DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALES SHOWN ON DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN ON STRUCTURAL DRAWINGS.
12. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
13. CONTRACTOR'S CONSTRUCTION AND/OR ERECTION SEQUENCES SHALL RECOGNIZE AND CONSIDER THE EFFECTS OF THERMAL MOVEMENTS OF STRUCTURAL ELEMENTS DURING THE CONSTRUCTION PERIOD.
14. THE CONTRACTOR SHALL INFORM THE ARCHITECT/ENGINEER IN WRITING OF ANY DEVIATION FROM THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL NOT BE RELIEVED OF THE RESPONSIBILITY OF SUCH DEVIATION BY THE PROFESSIONAL OF RECORD REVIEW OF SHOP DRAWINGS, PRODUCT DATA, ETC., UNLESS THE CONTRACTOR HAS SPECIFICALLY INFORMED THE PROFESSIONAL OF RECORD OF SUCH DEVIATION AT THE TIME OF SUBMISSION, AND THE PROFESSIONAL OF RECORD HAS GIVEN WRITTEN APPROVAL TO THE SPECIFIC DEVIATION.
15. WHERE "OWNER" IS MENTIONED IN PLANS IT IS TO BE UNDERSTOOD EITHER OWNER OR HIS AUTHORIZED REPRESENTATIVE.
16. CONTRACTOR SHALL SUBMIT FOR OWNERS APPROVAL LOCATION AND DETAILS OF CONSTRUCTION JOINTS IN SLABS AND BEAMS, AND IN ANY OTHER STRUCTURAL MEMBERS.
17. CONTRACTOR MUST VERIFY ALL DIMENSIONS ON STRUCTURAL PLANS AGAINST THE DIMENSIONS ON ARCHITECTURAL PLANS BEFORE LAYING OUT THE WORK.
18. CONTRACTOR MUST VERIFY ALL DIMENSIONS AND EXISTING FIELD CONDITIONS PRIOR TO STARTING CONSTRUCTION. IF ANY DISCREPANCY ARISES IN THE STRUCTURAL AND ARCHITECTURAL PLANS. THE ARCHITECTS AND ENGINEERS SHALL BE NOTIFIED IMMEDIATELY.
19. CONTRACTOR MUST PROVIDE, SET AND VERIFY DIMENSIONS AND LOCATION OF ALL ANCHORS, INSERTS BOLTS, SLEEVES, CONDUITS, ETC., SHOWN OR NOTED IN ARCHITECTURAL AND/OR MECHANICAL AND PLUMBING PLANS BEFORE THE CONCRETE IS POURED.
20. PROVISIONS FOR DETAILS NOT SPECIFICALLY DRAWN SHALL BE MADE BY THE CONTRACTOR IN ACCORDANCE WITH THE LATEST VERSION OF THE ACI BUILDING CODE AND/OR AISC SPECIFICATIONS AND CLARIFIED WITH THE STRUCTURAL ENGINEER.
21. ALL DETAILS, SECTIONS AND NOTES SHOWN ON DRAWINGS AND INTENDED TO BY TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS ELSEWHERE UNLESS NOTED OTHERWISE.
22. IN CASE OF DOUBT IN THE INTERPRETATION OF ANY ASPECT OF THESE STRUCTURAL DRAWINGS AND/OR SPECIFICATIONS, THE STRUCTURAL ENGINEER SHALL BE CONSULTED.
23. NOTIFY THE STRUCTURAL ENGINEER IN ADVANCE OF CONDITIONS NOT SHOWN OR OMITTED ON THE DRAWINGS.

REFERENCES:

DESIGN, FABRICATION & CONSTRUCTION WORK SHALL COMPLY WITH THE REQUIREMENTS AND PROVISIONS OF THE FOLLOWING CODES AND SPECIFICATIONS THEIR COMMENTARIES AND THE STANDARDS REFERENCED THEREIN:

1. AMERICAN CONCRETE INSTITUTE, 2014 (ACI)
2. INTERNATIONAL BUILDING CODE, 2018 (IBC)
3. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
4. CONCRETE REINFORCING STEEL INSTITUTE (CRSI)
5. AMERICAN WELDING SOCIETY (AWS)
6. AMERICAN INSTITUTE OF STEEL CONSTRUCTION, 2016 (AISC)
7. STEEL DECK INSTITUTE (SDI)
8. STEEL JOIST INSTITUTE (SJI)
12. AMERICAN LUMBER STANDARDS COMMITTE (ALSC)
13. PUERTO RICO BUILDING CODE, 2018 (PRBC)
14. MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES (ASCE/SEI 7-16)
15. NATIONAL ASSOCIATION OF CORROSION ENGINEERS (NACE)
16. SOCIETY FOR PROTECTIVE COATINGS (SSPC)

LOADING CRITERIA:

1. DEAD LOAD:
   CONCRETE SELF WEIGHT .... 150 PCF
   PARTITION DEAD LOAD .... 40 PSF
   ROOF SUPERIMPOSED DEAD LOAD: .... 10 PSF
   FLOOR FINISH DEAD LOAD: .... 15 PSF
2. LIVE LOAD:
   ASSEMBLY AREAS& CORRIDORS.......... 100 PSF
   ROOF LIVE LOAD.......... 30 PSF
   OFFICE SPACES.......... 50 PSF
   MEP ROOMS.......... 80 PSF
3. SEISMIC LOADS:
   PER IBC 2018 & PRBC 2018,
   SITE CLASS E
   S_s=1.0
   S_1=0.39
   SEISMIC DESIGN CATEGORY D
   OCCUPANCY CATEGORY: III
   IMPORTANCE FACTOR: 1.25
   LATERAL FORCE RESISTING SYSTEM: SPECIAL REINFORCED CONCRETE SHEAR WALLS
   RESPONSE MODIFICATION COEFFICIENT: R = 5.0
   OVERSTRENGTH FACTOR (OMEGA) = 2.5
   DEFLECTION AMPLIFICATION FACTOR: Cd = 5.0
4. WIND LOADS:
   PER ASCE 7-16
   V=180 MPH
   EXPOSURE TYPE D
   RISK CATEGORY III

A) FOUNDATIONS	4,000 PSI
B) SLAB ON GRADE	4,000 PSI
C) STRUCTURAL SLAB	4,000 PSI
D) BEAMS	4,000 PSI
E) WALLS	4,000 PSI

PORTLAND CEMENT SHALL CONFORM TO ASTM C-150, TYPE II.

2.

3. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
   ALL REINFORCING BARS SHALL BE HIGH TENSILE DEFORMED
4. MEETING ASTM A-615 GRADE 60, UNLESS NOTED OTHERWISE ON

   SPECS AND/OR DRAWINGS.
   CONCRETE MASONRY UNITS SHALL BE NORMAL WEIGHT BLOCK
5. CONFORMING TO ASTM C-90, GRADE N, TYPE 1, AND SHALL

   HAVE COMPRESSIVE STRENGTH OF 1900 PSI.
6. MORTAR SHALL CONFORM TO ASTM C-270.
7. MASONRY GROUT SHALL CONFORM TO ASTM C-476.
8. CONTINUOUS WIRE REINFORCING (JOINT REINFORCING) SHALL BE GALVANIZED TRUSS TYPE FABRICATED UNITS WITH A SINGLE PAIR OF 9 GAUGE SIDE RODS AND 9 GAUGE CONTINUOUS DIAGONAL CROSS RODS FABRICATED FROM COLD-DRAWN STEEL WIRE COMPLYING WITH ASTM A-82.
9. STEEL SHALL CONFORM TO THE FOLLOWING GRADES:

A) ROLLED STEEL SHAPES, PLATES AND BARS (UNO)	ASTM A-36
B) STRUCTURAL TUBE (Fy=46 Ksi)	ASTM A-500
C) STEEL PIPE (Fy=35 Ksi)	ASTM A-53
D) ANCHOR BOLTS AND UNFINISHED BOLTS	ASTM A-307
E) BOLTS, NUTS AND WASHERS	ASTM A-325
F) WELDING ELECTRODES (E333, CLASS E7018XX)	ASTM A-223
G) OUTRIGGERS (Fy = 50 ksi)	ASTM A-572

10. METAL STUDS SHALL CONFORM TO ASTM A-108.
11. WOOD MUST COMPLY WITH THE FOLLOWING MINIMUM ALLOWABLE DESIGN STRESSES:
    A) Fb =1,750 psi
    B) Ft =1,150 psi
    C) Fv = 90 psi
    D) $Fc_{\perp}$ = 565 psi
    E) $Fc_{\parallel}$ =1,350 psi
    F) E =1,700,000 psi

SURFACED DRY. USED @ 19% MAX. MOISTURE CONTENT.

FOUNDATIONS:

1. THE FOUNDATION SYSTEM HAS BEEN USED FOR THE DESIGN OF THIS PROJECT IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE SUBSOIL EXPLORATION REPORT JOB. NO. _______, IN _______, PUERTO RICO, DATED ____ __, 20__ BY ________________. CONTRACTOR SHALL REVIEW THE DOCUMENT AND IMPLEMENT ANY RECOMMENDATION REGARDING SOIL CAPACITY/IMPROVEMENT OR REHABILITATION. IF ADDITIONAL INFORMATION IS NEEDED, CONTRACTOR SHALL CONTACT THE GEOTECHNICAL ENGINEER OR THE STRUCTURAL ENGINEER.
2. FOOTINGS MAY BE POURED INTO AN EARTH-FORMED TRENCH IF SOIL CONDITIONS PERMIT.
3. ALL BEARING MATERIALS SHALL BE APPROVED BY THE ENGINEERING OR WITH THE APPROPRIATE SUBMITTAL AND SHALL BE INSPECTED BY THE ENGINEERING INSPECTION TEAM PRIOR TO CONCRETE PLACEMENT. THE INDEPENDENT INSPECTOR SHALL BE THE SOLE JUDGE AS TO THE SUITABILITY OF THE BY OF THE BEARING MATERIAL. FOOTING ELEVATIONS SHALL BE ADJUSTED AS PROVIDED OR REQUIRED IN CONSTRUCTION DRAWINGS. THE INSPECTOR SHALL BE THE OWNER'S REPRESENTATIVE AT THE PROJECT SITE, AND AS SUCH WILL BE RESPONSIBLE TO HIM.
4. FOUNDATION WALLS THAT RETAIN EARTH SHALL BE BRACED AGAINST BACKFILLING PRESSURES UNTIL FLOOR SLABS AT TOP AND BOTTOM ARE IN PLACE.
5. WHERE FOUNDATION WALLS ARE TO HAVE EARTH PLACED ON EACH SIDE, PLACE FILL SIMULTANEOUSLY SO AS TO MAINTAIN A COMMON ELEVATION ON EACH SIDE OF THE WALL.
6. FOUNDATION WORK SHALL BE SUBJECT TO QUALITY ASSURANCE TESTING AND INSPECTION, AS PER TECHNICAL SPECIFICATIONS FOR THE PROJECT.
7. ALL BACKFILL SHALL BE COMPACTED TO 95% OF MODIFIED PROCTOR DENSITY.
8. ALL EXCAVATIONS AND BACKFILLS SHALL BE INSPECTED FOR COMPLIANCE WITH THE SUBSOIL REPORT RECOMMENDATIONS.
9. CONTRACTOR SHALL PROVIDE FOR PROPER DEWATERING OF EXCAVATIONS FROM SURFACE WATER, GROUND WATER, SEEPAGE, ETC. SUCH ACTIVITIES SHALL NOT DAMAGE ADJACENT STRUCTURES.
10. CONTRACTOR SHALL PROVIDE FOR THE INSTALLATION AND DESIG OF ALL CRIBBING, SHEATHING AND SHORING REQUIRED TO SAFELY AND ADEQUATELY RETAIN EXCAVATIONS, EARTH BANKS ANY EXISTING STRUCTURES.
11. FOOTINGS SHALL BE PLACED ACCORDING TO DEPTH SHOWN IN THE STRUCTURAL DRAWINGS. ALL FOUNTATION BASES SHALL BE INSPECTED WHEN THE DEPTH INDICATED HAS BEEN ACHIEVED. THE GEOTECHNICAL ENGINEER WILL DETERMINE THE SUITABILITY OF THE SOIL AT THIS LEVEL FOR THE PROPOSED IMPOSED LOADS AND MAY INSTRUCT FURTHER EXCAVATION UNTIL A SUITABLE BEARING SURFACE IS ATTAINED. THE GEOTECHNICAL ENGINEER SHALL GIVE THE FINAL APPROVAL FOR ANY CHANGES IN FOOTING DEPTH, AND SHALL GIVE WRITTEN NOTIFICATION TO THE ARCHITECT AND ENGINEER. NO FOOTING SHALL BE CAST WITHOUT THE GEOTECHNICAL ENGINEER.

CAST IN PLACE REINFORCED CONCRETE:

1. CONTRACTOR SHALL SUBMIT, PRIOR TO INSTALLATION ALL REINFORCING STEEL SHOP DRAWINGS. SHOP DRAWINGS SHALL BE SEALED & SIGNED BY A PROFESSIONAL ENGINEER LICENSED IN PUERTO RICO.
2. CONCRETE ITEMS AND REINFORCEMENT SHALL BE ERECTED IN STRICT ACCORDANCE WITH OWNER APPROVED SHOP AND ERECTION DRAWINGS FOLLOWING THE DETAILS SHOWN ON PLANS.
3. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PRODUCE CORRECTLY ALIGNED CONCRETE CONSIDERING AMONG OTHER THINGS, THE ELASTIC DEFORMATION OF THE STRUCTURAL MEMBERS.
4. AT HORIZONTAL JOINTS IN WALLS AND COLUMNS, THE LOWER SURFACE SHALL BE THROUGHLY CLEARED AND ALL WEAR OR LOOSE CONCRETE REMOVED FROM THERE BEFORE POURING THE UPPER CONCRETE(SEE SPECS. FOR ADDITIONAL REQUIREMENTS). NO JOINT SHALL BE COVERED WITH PLASTER OR OTHERWISE WITHOUT A VISUAL EXAMINATION AND APPROVAL BY THE INSPECTOR.
5. NO DEFECTIVE CONCRETE SHALL BE CORRECTED OR COVERED WITH MORTAR, PLASTER ETC. WITHOUT THE INSPECTORS' APPROVAL.
6. SLUMP OF CONCRETE SHALL NOT EXCEED 4" UNLESS A HIGHRANGE WATER-REDUCING ADMIXTURE IS USED. THE SLUMP OF CONCRETE PRIOR TO ADDITION OF A HIGH RANGE WATER-REDUCING ADMIXTURE SHALL NOT EXCEED 4". THE SLUMP OF CONCRETE CONTAINING A HIGH RANGE WATER-REDUCING ADMIXTURE SHALL NOT EXCEED 10".
7. CONCRETE SHALL BE NON-AIR ENTRAINED. AIR CONTENT SHALL BE BETWEEN 0 AND 3.5 PERCENT.
8. THE NOMINAL MAXIMUM AGGREGATE SIZE SHALL BE OF 3/4".
9. CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGNS FOR REVIEW WELL IN ADVANCE OF CONCRETE PLACEMENT. CONCRETE MIX DESIGN SHALL INCLUDE ALL STRENGTH DATA NECESSARY TO SHOW COMPLIANCE WITH THE PROJECT SPECIFICATIONS FOR EITHER THE TRIAL BATCH OR FIELD EXPERIENCE METHOD AND SHALL BE CERTIFIED BY A REGISTERED LICENSED ENGINEER. PHYSICAL TESTS RESULTS FOR COARSE AND FINE AGGREGATES SHALL ALSO BE SUBMITTED CERTIFIED BY A REGISTERED ENGINEER.
10. MINIMUM CONCRETE COVER, UNLESS NOTED OTHERWISE:

UNFORMED SURFACE IN CONTACT WITH THE GROUND	3 IN.
FORMED SURFACES EXPOSED TO EARTH OR WEATHER:	
#6 BARS AND LARGER	2 IN.
#5 BARS AND SMALLER	1-1/2 IN.
FORMED SURFACES NOT EXPOSED TO EARTH OR WEATHER:	
BEAMS, GIRDERS, AND COLUMNS	1-1/2 IN.
SLABS, WALLS AND JOISTS:	
#11 BARS AND SMALLER	3/4 IN.
#14 AND #18 BARS	1-1/2 IN.

11. ALL REINFORCING SHALL BE DETAILED, FABRICATED AND PLACED, IN ACCORDANCE WITH ACI DETAILING MANUAL (SP-66) AND "THE MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION" BY THE CRSI.
12. ALL REINFORCING SHALL BE SUPPORTED IN FORMS USING STEEL CHAIRS, SPACED WITH NECESSARY ACCESSORIES AND SHALL BE SECURELY WIRED TOGETHER, IN ACCORDANCE WITH CRSI "MANUAL OF STANDARD PRACTICE".
13. ALL SLAB AND CORRESPONDING BEAMS, CURBS, OR APRONS SHALL BE POURED MONOLITHICALLY.
14. BASE PLATES, ANCHOR BOLTS, SUPPORT ANGLES, ETC., BELOW GRADE SHALL BE COVERED WITH A MINIMUM OF 3" OF CONCRETE.
15. CONCRETE WORK SHALL BE SUBJECT TO QUALITY ASSURANCE TESTING AND INSPECTIONS. SEE QUALITY ASSURANCE GENERAL NOTES AND PROJECT SPECIFICATIONS.
16. ALL SYMBOLS AND STRESSES AS WELL AS CONCRETE WORK SHALL CONFORM TO THE STANDARD OF THE LATEST VERSION OF THE ACI BUILDING CODE.
17. ALL REINFORCING, SLEEVES, CONDUITS, INSERTS AND BOLTS SHALL BE WELL SECURED AND IN PLACE BEFORE CONCRETE IS POURED.
18. FOR CONSTRUCTION JOINTS IN STRUCTURAL MEMBERS A VERTICAL BULKHEAD AND KEY JOINT MUST BE PROVIDED.
19. LAP SPLICES SHALL BE IN ACCORDANCE WITH THE TABLE IN THIS SHEET.
20. ALL OPENINGS IN CONCRETE WALLS SHALL BE REINFORCED AROUND WITH 2 #5 BARS PLACED AT 2 INCHES FROM THE FACE AND EXTENDING 24 INCHES BEYOND CORNERS, UNLESS OTHERWISE SPECIFIED IN PLANS.
21. TEMPERATURE REINFORCEMENT SHALL BE PROVIDED IN ALL ONE WAY SLAB NORMAL TO THE PRINCIPAL REINFORCEMENT IN ACCORDANCE WITH LATEST VERSION OF THE ACI BUILDING CODE.
22. ALL ONE WAY SLAB TEMPERATURE REINFORCEMENT SHALL BE AS FOLLOWS; (UNLESS NOTED OTHERWISE) 0.18% OF SECTIONAL AREA (INCLUDING INTEGRAL TOPPING).
23. MINIMUM LAP OF WELDED WIRE FABRIC SHALL BE 6 INCHES OR ONE FULL MESH, WHICHEVER IS GREATER.
24. SLAB ON GROUND, AS INDICATED ON DRAWINGS.
25. FOR CONCRETE FORMWORK, SURFACE FINISHING, BEVELED CORNERS AND DRIPS, SEE ARCHITECTURAL PLANS.
26. PLACEMENT OF CONCRETE SHALL CONFORM TO ACI STANDARD 304 AND PROJECT SPECIFICATIONS.
27. PROVIDE DOWELS IN PEDESTAL AND/OR WALL FOOTINGS EQUAL IN GRADE, SPACING, SIZE AND NUMBER TO VERTICAL REINFORCEMENT, EXTENDING A TENSION SPLICE LENGTH INTO THE PEDESTAL AND/OR WALL AND 40 BAR DIAMETER INTO FOOTING. (THE LATERAL EMBEDMENT SHALL BE EXTENDED AS NECESSARY TO PROVIDE A MINIMUM HORIZONTAL LEG RESTING ON FOOTING REINFORCEMENT EQUAL TO THE CORRESPONDING "G" LENGTH FOR THE BAR SIZE.)
28. CONCRETE SHALL NOT BE DROPPED THROUGH REINFORCING STEEL SO AS TO CAUSE SEGREGATION OF AGGREGATES IN SUCH CASES, HOOPERS OR VERTICAL CHUTES OR TRUNKS SHALL BE USED. THE FREE UNCONFINED FALL OF CONCRETE SHALL NOT EXCEED THE ABOVE REQUIREMENTS.
29. THE SIZE OF NAILS AND SIMILAR FASTENERS DRIVEN INTO CONCRETE SHALL BE SUCH, AS NOT TO CRACK OR IMPAIR IT. NEVERTHELESS, IF THE CONCRETE IS DAMAGED, IT SHALL BE PROPERLY REPAIRED AFTER REMOVING THE DAMAGED PORTION AND SUITABLE JOINT SURFACE ARE PROVIDED.
30 ALL CAST IN PLACE REINFORCED CONCRETE STRUCTURAL MEMBERS SHALL BE PROPERLY CURED IN ACCORDANCE WITH THE LATEST VERSION OF THE ACI CODE, CHAPTER V AND ACI 308.
31. ALL LAPPING, BENDING AND PLACING OR REINFORCEMENT SHALL BE DONE IN ACCORDANCE WITH THE LATEST VERSION OF THE ACI BUILDING CODE.
32. ALL REINFORCING BAR BENDS SHALL BE MADE COLD.
33. ALL NEGATIVE REINFORCEMENT (TOP REINF.) AND POSITIVE REINFORCEMENT (BOTTOM REINF.) IN SLABS AND BEAMS SHALL BE EXTENDED BEYOND THE CENTER LINE OF THE END SUPPORTS IN ACCORDANCE WITH THE LATEST VERSION OF THE ACI BUILDING CODE, UNLESS OTHERWISE SPECIFIED.
34. WELDING OF REINFORCEMENT SHALL BE WITH LOW HYDROGEN ELECTRODES IN CONFORMANCE WITH "REINFORCING STEEL WELDING CODE" AND "RECOMMENDED PRACTICES FOR WELDING REINFORCING STEEL" BOTH BY THE AWS (AWS D12.1. & AWS D1.4 RESPECTIVELY).
35. ALL FORMWORK FOR FLEXURAL MEMBERS SHALL BE BUILT WITH A CAMBER CORRESPONDING TO ITS WON DEFORMATION PLUS THE STRUCTURE DEAD LOAD DEFORMATIONS. IN DETERMINING THE AMOUNT OF CAMBER, THE CONTRACTOR SHALL HAVE THE ASSISTANCE OF THE DESIGNER WHERE SO REQUESTED.
36. NO JOINT, OPENING, SLOT OR GROOVE OTHER THAN THAT SHOWN ON DRAWINGS SHALL BE PERMITTED WITHOUT PREVIOUS APPROVAL BY THE ENGINEER. ALL CONSTRUCTION JOINT SURFACES SHALL BE CLEANED AND ROUGHENED IMMEDIATELY BEFORE CONCRETING AND TREATED AS INSTRUCTED IN THE "ACI MANUAL OF CONCRETE PRACTICE".
37. CONDUIT OF PIPE SIZE (O.D.) SHALL NOT EXCEED 30 PERCENT OF TOTAL SLAB THICKNESS AND SHALL BE PLACED BETWEEN THE TOP & BOTTOM REINFORCEMENT, UNLESS SPECIFICALLY DETAILED OTHERWISE. CONCENTRATIONS OF CONDUITS OR PIPES SHALL BE AVOIDED EXCEPT WHERE DETAILED OPENINGS ARE PROVIDED.
38. PROVIDE SLEEVES FOR PLUMBING AND ELECTRICAL OPENINGS IN CONCRETE BEFORE PLACING. DO NOT CUT ANY REINFORCEMENT BAR WHICH MAY CONFLICT. CORING IN CONCRETE IS NOT PERMITTED U.N.O.
39. WATER-CEMENT RATIO REQUIREMENTS FOR DIFFERENT COMPRESSIVE STRENGHTS OF CONCRETE.

COMPRESSIVE STRENGHT AT 28 DAYS, psi	WATER-CEMENT RATIO BY WEIGHT	
	NON-AIR ENTRAINED CONCRETE	AIR ENTRAINED CONCRETE
7,000	0.33	--
6,000	0.41	0.32
5,000	0.48	0.40
4,500	0.50	0.42
4,000	0.55	0.45
3,500	0.58	0.50
3,000	0.62	0.56
2,500	0.72	0.66

REINFORCED MASONRY

1. REINFORCED CONCRETE MASONRY SHALL HAVE A MINIMUM DESIGN COMPRESSIVE STRENGTH, FM, OF 1500 PSI. VERIFICATION OF THE DESIGN STRENGTH SHALL BE BY THE UNIT TEST METHOD.
2. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF VERTICAL CONTROL JOINTS. HORIZONTAL BOND BEAM AND LINTEL REINFORCING SHALL BE CONTINUOUS ACROSS VERTICAL CONTROL JOINTS. JOINT REINFORCING SHALL BE STOPPED EITHER SIDE OF VERTICAL CONTROL JOINTS.
3. ALL REINFORCED CELLS, ALL CELLS BELOW GRADE AND ALL CELLS BELOW FINISH FLOOR SHALL BE GROUTED SOLID.
4. WHEN A FOUNDATION DOWEL DOES NOT LINE UP WITH A VERTICAL BLOCK CORE, IT SHALL NOT BE SLOPED MORE THAN ONE (1) HORIZONTAL IN SIX (6) VERTICAL, DOWELS MAY BE GROUTED INTO A CELL IN VERTICAL ALIGNMENT, EVEN THOUGH IT IS IN AN ADJACENT CELL TO THE VERTICAL WALL REINFORCING.
5. REINFORCING STEEL SHALL BE SECURED IN PLACE BEFORE GROUTING STARTS.
6. SPLICED REINFORCING SHALL BE LAPPED 48 BAR DIAMETERS OR 24 INCHES, WHICHEVER IS GREATER. SPLICED BARS SHALL BE WIRED TOGETHER.
7. VERTICAL BARS SHALL BE HELD IN POSITION AT TOP AND BOTTOM AND AT INTERVALS NOT EXCEEDING 192 DIAMETERS OF THE REINFORCING BAR, NOR 10 FEET.
8. VERTICAL REINFORCING BARS SHALL HAVE A MINIMUM CLEARANCE OF 3/4 OF AN INCH FROM THE MASONRY AND NOT LESS THAN ONE BAR DIAMETER BETWEEN BARS.
9. VERTICAL CELLS THAT WILL BE GROUTED SHALL HAVE A VERTICAL ALIGNMENT TO MAINTAIN A CONTINUOUS UNOBSTRUCTED CELL AREA NOT LESS THAN 2-1/2 x 3".
10. GROUTING SHALL BE STOPPED 1-1/2" BELOW THE TOP OF A COURSE SO AS TO FORM A KEY AT THE POUR JOINT.
11. GROUTING OF MASONRY BEAMS OVER OPENINGS SHALL BE DONE IN ONE CONTINUOUS OPERATION.
12. ALL BOLTS, ANCHORS, ETC., INSERTED IN THE WALLS, SHALL BE GROUTED SOLID INTO POSITION.
13. REINFORCED MASONRY HAS BEEN DESIGNED USING VALUES FOR CONSTRUCTION WITH SPECIAL INSPECTION.
14. REINFORCED MASONRY WORK SHALL BE SUBJECT TO QUALITY ASSURANCE TESTING AND INSPECTIONS. SEE QUALITY ASSURANCE GENERAL NOTES AND PROJECT SPECIFICATIONS.
15. CONCRETE MASONRY UNITS SHALL BE LAID WITH FULL MORTAR BEDDING.
16. CONCRETE MASONRY UNITS SHALL BE LAID IN A RUNNING BOND PATTERN.
17. ALL BLOCK WALLS SHALL BE ANCHORED TO THE FLOOR GROUND SLAB BY MEANS OF #3 BARS HOOKED A MINIMUM OF 6 INCHES INTO THE SLAB AND SPACED A MINIMUM OF 16 INCHES OR #4 BARS HOOKED A MINIMUM OF 8 INCHES INTO THE SLAB AND SPACED A MINIMUM OF 32 INCHES.
18. HORIZONTAL JOINT REINFORCEMENT SHALL BE INSTALLED IN THE TWO JOINTS IMMEDIATELY BELOW AND ABOVE WINDOW AND DOOR OPENING AND EVERY OTHER COURSE SPLICED 1' WITH CORRESPONDING DOWELS INTO THE STRUCTURE.
19. FOR STRUCTURAL OR ARCHITECTURAL CONCRETE ELEMENTS WHICH DIMENSIONS OR REINFORCEMENT ARE NOT SHOWN ON STRUCTURAL DRAWINGS, THE CONTRACTOR SHALL ASSUME THE DIMENSIONS SHOWN ON ARCHITECTURAL DRAWINGS FOR THOSE, AND UTILIZE THE MINIMUM REINFORCEMENT REQUIRED BY ACI-318 BUILDING CODE FOR THE TYPE OF ELEMENT CONSIDERED FOR ESTIMATING PURPOSE.
20. GROUT SHALL BE PLACED BY THE LOW LIFT METHOD; MAXIMUM HEIGHT OF LIFT WITHOUT CLEANING OUT SHALL BE 4 FEET.
21. JOINT REINFORCING SHALL BE SPACED AT 16" O.C. VERTICALLY IN ALL MASONRY WALLS.
22. PROVIDE A MINIMUM OF 1/2 IN. GROUT BETWEEN MAIN REINFORCEMENT AND MASONRY UNITS.
23. FLY ASH MAY BE USED IN CONCRETE MIXES. THE FLY ASH SHALL CONFORM TO ASTM C618, CLASS F AND SHALL NOT EXCEED 15% OF THE CEMENT WEIGHT.

STRUCTURAL STEEL

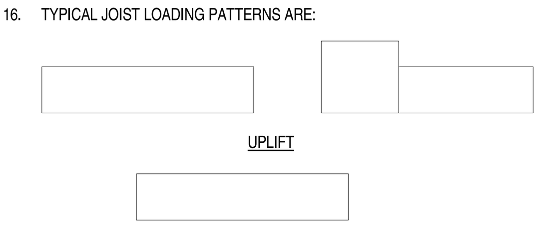
1. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST VERSION OF THE AISC CODE OF STANDARD PRACTICE. EXCEPT AS MODIFIED IN THESE NOTES ANDTHE PROJECT SPECIFICATIONS AND/OR DRAWINGS.
2. THE STEEL STRUCTURE IS A PARTIAL-SELF-SUPPORTING STEEL FRAME AND IS DEPENDENT UPON DIAPHRAGM ACTION OF THE METAL ROUGH DECK AND ATTACHMENT TO THE EXISTING MASONRY AND CONCRETE WALLS FOR STABILITY AND FOR RESISTANCE TO WIND AND SEISMIC FORCES. PROVIDE ALL TEMPORARY SUPPORTS REQUIRED FOR STABILITY AND FOR RESISTANCE TO WIND AND SEISMIC FORCES UNTIL THESE ELEMENTS ARE COMPLETED AND ARE CAPABLE OF PROVIDING THIS SUPPORT.
3. THE FABRICATOR IS RESPONSIBLE FOR THE SHOP DRAWINGS OF ALL CONNECTIONS. CONNECTION DETAILS INDICATED ON THE DRAWINGS SHALL BE INCORPORATED INTO FABRICATOR'S CONNECTION SHOP DRAWING. ALL SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY THE FABRICATOR'S ENGINEER WITH THE ENGINEER'S SEAL.
4. SPLICING OF STEEL MEMBERS, UNLESS SHOWN ON THE DRAWING,IS PROHIBITED WITHOUT WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.
5. UNLESS NOTED OTHERWISE, BEAMS SHALL BEAR 8" MINIMUM ON CONCRETE OR MASONRY. UNLESS NOTED OTHERWISE, ANCHOR BEAMS TO MASONRY WITH TWO (2) 3/4" DIAMETER ANCHOR BOLTS WITH 4" HOOK AND 1'-4" EMBEDMENT.
6. STRUCTURAL STEEL WORK SHALL BE SUBJECT TO QUALITY ASSURANCE TESTING AND INSPECTIONS. SEE QUALITY ASSURANCE GENERAL NOTES AND PROJECT SPECIFICATIONS. AISC, ASTM & AWS SPECIFICATIONS WILL GOVERN ALL STRUCTURAL STEEL WORKS.
7. DESIGN AND CONSTRUCTION SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION STANDARD PRACTICE.
8. STRUCTURAL STEEL WELDING SHALL BE PERFORMED BY A CERTIFIED WELDER AND IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY, (AWS), REQUIREMENTS.
9. ALL INSPECTION AND TESTING OF WELDING SHALL BE DONE IN ACCORDANCE TO SECTION 501 THRU 607 OF THE AWS CODE FOR WELDING IN BUILDING CONSTRUCTION.
10. ALL CONNECTIONS SHALL BE BEARING TYPE UNLESS OTHERWISE SPECIFIED ON PLANS.
11. VERTICAL BRACING CONNECTIONS SHALL DEVELOP THE TENSION CAPACITY OF THE CONNECTED MEMBER.
12. MOMENT CONNECTIONS SHALL BE DESIGNED TO DEVELOP THE PLASTIC MOMENT CAPACITY OF THE BEAM U.N.O.
13. SHOP DRAWINGS FOR ALL STRUCTURAL STEEL FABRICATION AND ERECTION SHALL BE SUBMITTED TO THE DESIGNER FOR APPROVAL WELL IN ADVANCE OF CONSTRUCTION.
14. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE ENGINEER FOR REVIEW AND APPROVAL OR REJECTION, PRIOR TO REMEDIAL OR CORRECTIVE ACTION TO BE IMPLEMENTED.
15. UNLESS OTHERWISE NOTED, THE FOLLOWING MINIMUMS SHALL APPLY:

A) WELD SIZE	3/16"
B) BOLT DIAMETER	3/4"
C) PLATE THICKNESS	3/8"
D) CLIP ANGLE THICKNESS	5/16"
E) BOLTS/ANGLE LEG	2"

16. ONE BOLT ASSEMBLY SHALL CONSIST OF:
    A) A HEAVY HEX STRUCTURAL BOLT
    B) A HEAVY HEX NUT
    C) A HARDENED STEEL WASHER
17. COLUMN STIFFENERS SHALL BE PROVIDED AS REQUIRED TO DEVELOP THE PLASTIC MOMENT CAPACITY OF THE CONNECTED BEAM U.N.O.
18. FRAMED BEAM CONNECTIONS SHALL BE OF A TYPE SIMILAR TO AND OF EQUAL CAPACITY AS THOSE SHOWN IN TABLES II , III AND IV OF THE AISC MANUAL, AND SHALL DEVELOP THE SHEAR CAPACITY (Wc/2L) GIVEN IN THE UNIFORM LOAD CONSTANTS TABLE.
19. CONNECTIONS SHALL BE DESIGNED AS SLIP CRITICAL, WITH BOLT LENGTH AS PER BEARING TYPE X.
20. HORIZONTAL BRACING CONNECTIONS SHALL DEVELOP THE COMPRESSION CAPACITY OF THE CONNECTED MEMBER.

STEEL JOIST:

1. STEEL JOISTS SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR OPEN WEB STEEL JOISTS, "K-SERIES" OF THE STEEL JOIST INSTITUTE (SJI).
2. STEEL JOISTS SHALL BE DESIGNED BY THE MANUFACTURER. THE MANUFACTURER'S ENGINEER SHALL BE RESPONSIBLE FOR THE DESIGN. ADEQUACY AND SAFETY OF ALL STEEL JOISTS. ALL SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY THE MANUFACTURER'S ENGINEER WITH THE ENGINEER'S SEAL.
3. UNLESS OTHERWISE NOTED, STEEL JOISTS SHALL BE DESIGNED AS SIMPLY SUPPORTED, UNIFORMLY LOADED TRUSSES WITH THE TOP CHORD BRACED AGAINST LATERAL BUCKLING. THE UNIFORM DESIGN LOAD SHALL BE THE TOTAL SAFE UNIFORMLY DISTRIBUTED LOAD AS SHOWN IN THE SJI STANDARD LOAD TABLE.
4. WHEN NET UPLIFT FORCES DUE TO WIND ARE SHOWN ON THE DRAWINGS, THE MANUFACTURER SHALL DESIGN THE JOISTS FOR THE NET UPLIFT. A SINGLE LINE OF BOTTOM CHORD BRIDGING MUST BE PROVIDED NEAR THE FIRST BOTTOM CHORD PANEL POINTS WHENEVER UPLIFT DUE TO WIND FORCED IS SHOWN ON THE DESIGN DRAWINGS.
5. WHEN NONUNIFORM OR CONCENTRATED LOADS ARE SHOWN ON THE DRAWINGS, THE MANUFACTURER SHALL DESIGN THE JOISTS IN ACCORDANCE WITH PARAGRAPH 4.1 OF THE STANDARD SPECIFICATION FOR OPEN WEB STEEL JOISTS, K-SERIES.
6. STEEL JOIST BRIDGING SHALL BE PROVIDED IN ACCORDANCE WITH THE SJI SPECIFICATION. ALL BRIDGING AND BRIDGING ANCHORS SHALL BE PLACED AND STEEL JOIST ENDS FIXED PRIOR TO THE APPLICATION OF ANY LOADS. LOGGING THAT TERMINATES AT, OR IS INTERRUPTED BY, STRUCTURAL STEEL BEAMS MASONRY WALLS OR CONCRETE WALLS SHALL BE ATTACHED THERE TO. COORDINATE BRIDGING LOCATIONS TO AVOID INTERFERENCE WITH ALL MECHANICAL, ELECTRICAL AND FIRE PROTECTION EQUIPMENT.
7. MINIMUM BEARING REQUIREMENTS, UNLESS NOTED OTHERWISE.
   2-1/2" ON STRUCTURAL STEEL
   4" ON STEEL BEARING PLATES OVER MASONRY OR CONCRETE
8. UNLESS NOTED OTHERWISE, STEEL JOISTS SHALL BE ATTACHED TO SUPPORTING STEEL WORK OR STEEL BEARING PLATES WITH (2) 3/16" FILLET WELD (ONE EACH SIDE) 3" LONG, OR WITH (2) 1/2" DIAMETER BOLTS.
9. STEEL JOISTS AT COLUMN CENTER LINES SHALL BE BOLTED TO STRUCTURAL STEEL WITH (2) 1/2" DIAMETER BOLTS. WHERE STEEL JOISTS DO NOT SPACE TO COLUMN CENTER LINES, USE BOLTED CONNECTIONS FOR THE STEEL JOIST CLOSEST TO THE CENTER LINE.
10. HOLES IN STEEL JOIST CHORDS WILL NOT BE PERMITTED, EXCEPT FOR BOLTED CONNECTIONS AT THE BEARING END OF THE STEEL JOIST.
11. ALL ITEMS SUCH AS MECHANICAL EQUIPMENT, DUCT WORK, PIPE, CEILING, FIXTURES, ETC. THAT ARE TO BE SUPPORTED OR HUNG FROM THE STEEL JOIST SHALL BE FRAMED WITH AUXILIARY FRAMING TO THE PANEL POINTS OF THE STEEL JOIST. METHODS OF FRAMING THAT INDUCE BENDING TO THE STEEL JOIST CHORDS OR WEB MEMBERS WILL NOT BE PERMITTED.
12. REPAIR OR REPLACE ALL DAMAGED STEEL JOISTS, THE PROFESSIONAL OF RECORD SHALL BE THE SOLE JUDGE AS TO WHETHER A JOIST CAN BE REPAIRED OR MUST BE REPLACED.
13. STEEL JOIST WORK SHALL BE SUBJECT TO QUALITY ASSURANCE TESTING AND INSPECTIONS. SEE QUALITY ASSURANCE GENERAL NOTES AND PROJECT SPECIFICATIONS. AISC, AJI, AWS & ASTM SPECIFICATIONS WILL APPLY.
14. ALL JOISTS ARE TO BE DESIGN FOR A NET UPLIFT LOAD OBTAINED FROM THE DESIGN LOADS, MINUS 10 psf.
15. ALLOWABLE STRESSES MAY BE INCREASED BY 1/3 FOR UPLIFT.
16. TYPICAL JOIST LOADING PATTERNS ARE:



UPLIFT

GRAVITY

METAL ROOF DECK:

1. METAL ROOF DECK SHALL COMPLY WITH THE REQUIREMENT OF THE STEEL DECK INSTITUTE SPECIFICATIONS AND COMMENTARY FOR STEEL ROOF DECK.
2. METAL ROOF DECK SHALL BE CONFIGURATION, DEPTH AND MINIMUM GAGE AS SHOWN ON THE DRAWINGS. ATTACHMENT TO THE SUPPORTING STRUCTURE SHALL BE AS SHOWN ON THE DRAWINGS AS A MINIMUM. SEE ROOF PLAN NOTES.
3. DO NOT HANG OR SUPPORT ANY LOADS FROM METAL ROOF DECK.
4. METAL ROOF DECK SHALL BE CONTINUOUS OVER A MINIMUM OF THREE SPANS.
5. METAL ROOF DECK WORK SHALL BE SUBJECT TO QUALITY ASSURANCE TESTING AND SPECIFICATIONS.
6. FOR USE S DIAPHRAGM, CONNECTION SHALL BE #12 SCREWS ON 30/6 PATTERN, WITH #10 STITCH SCREWS IN SIDELAPS.
7. UPLIFT CONNECTION SHALL BE CHECKED PER DESIGN LOADS ABOVE, AND SHALL PROVIDE A MINIMUM OF CLASS(1-90) ATTACHMENT, AS DEFINED BY FACTORY MUTUAL.

PAINT FOR NEW STRUCTURAL STEEL ELEMENTS

1. SURFACE PREPARATION: SSPC SP10 NEAR WHITE
2. CONTRASTING COLORS ARE RECOMMENDED BETWEEN COATS.
   - AMERCOAT 68HS @ 3.0 - 4.0 MILS DFT / FULL COAT
   - AMERLOCK 400 @ 4.0 - 5.0 MILS DFT / STRIPE COAT
   - AMERLOCK 400 @ 6.0 - 7.0 MILS DFT / FULL COAT
   - PSX 700 @ 3.0 - 4.0 MILS DFT / FULL COAT

NOTES:

1. PILES SHALL BE 12" DIAM. REINFORCED CONCRETE
2. PILE CAPACITY : 100 TONS. COMPRESSION
   30 TONS. TENSION
3. FOR APPROXIMATE PILE LENGTH AND FOUNDATION RECOMMENDATIONS SEE SUBSOIL INVESTIGATION REPORT
4. FOR PILE CAPS DETAILS SEE DWGS. S____ & S___
5. FOR WALLS REINFORCEMENT SEE ELEVATIONS AND SCHEDULE ON DWGS.
6. FOR COLUMNS REINFORCEMENT SEE DWG.
7. CONCRETE STRENGTH : f'c = 4,000 psi
8. TOTAL NUMBER OF PILES : ___

Execution Version

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30% DESIGN

MARCH 27, 2020

NOT FOR CONSTRUCTION

REVISIONS		
REV. #	REVISION DESCRIPTION	REV. DATE
0	1st Subm. 30% Design	2020-03-27

AUTORIDAD de los PUERTOS de PUERTO RICO

Yo _____________, ___licencia___, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos o Corporaciones Públicas con jurisdicción. Certifico, además, que en la preparación de estos planos y especificaciones se ha cumplido cabalmente con los dispuesto en la "Ley Núm.14 de 8 de enero de 2004, según enmendada, conocida como la "Ley para la Inversión por la Industria Puertorriqueña" y con la Ley Núm 319 de 15 de mayo de 1938, según enmendada; Ley Núm. 96 de 6 de julio de 1978, según enmendada. Reconozco que cualquier declaración falsa o falsificación de los hechos que se haya producido por desconocimiento o por negligencia ya sea por mi, mis agentes o empleados o por otras personas con mi conocimiento, me hacen responsable de cualquier acción judicial y disciplinaria por la OGPe.

DRAWINGS ARE PROPERTY OF BERMELLO AJAMIL & PARTNERS

PROJECT NAME:
SAN JUAN TERMINAL

PROJECT ADDRESS:

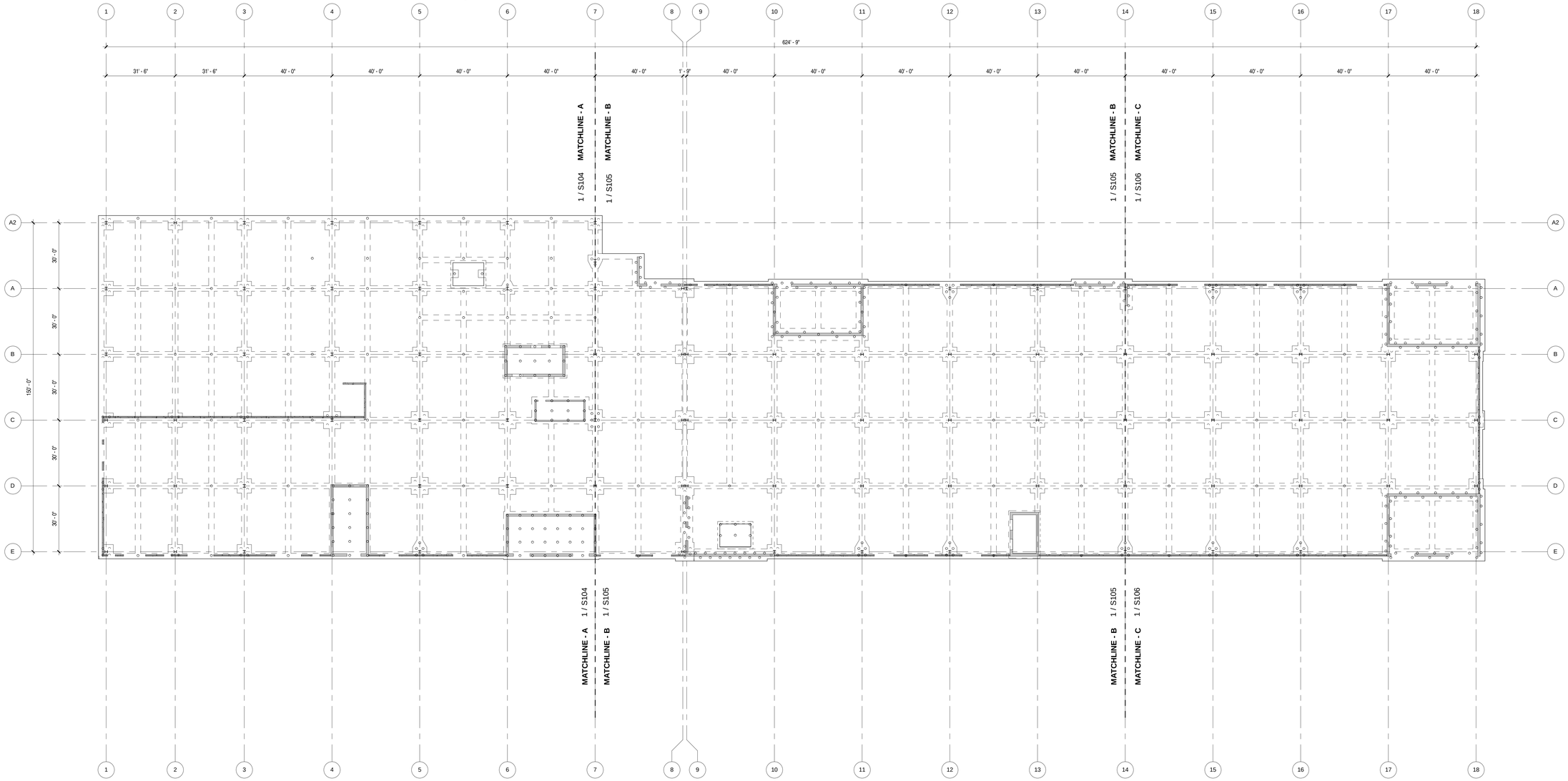
BA. PROJECT NUMBER:
17029

SHEET NAME
GENERAL NOTES

SHEET NO.
S000

Attachment 2 of Appendix L

Execution Version



1 / S100 OVERALL FOUNDATION PLAN

1" = 20'-0"

LEGEND:

	WALL OR COLUMN CONTINUOS
	WALL OR COLUMN BEGINS
	WALL OR COLUMN BELOW
	WALL PRECAST
	BOTTOM BARS
	TOP BARS
T=	SLAB THIKCNESS
(T & B)	TOP & BOTTOM
E.W.	EACH WAY
E.F.	EACH FACE
T.S.L.	TENSION SPLICE LENGTH

OWNER:

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PROJECT NAME:

SAN JUAN TERMINAL

PROJECT ADDRESS:

BA. PROJECT NUMBER:
17029

SHEET NAME

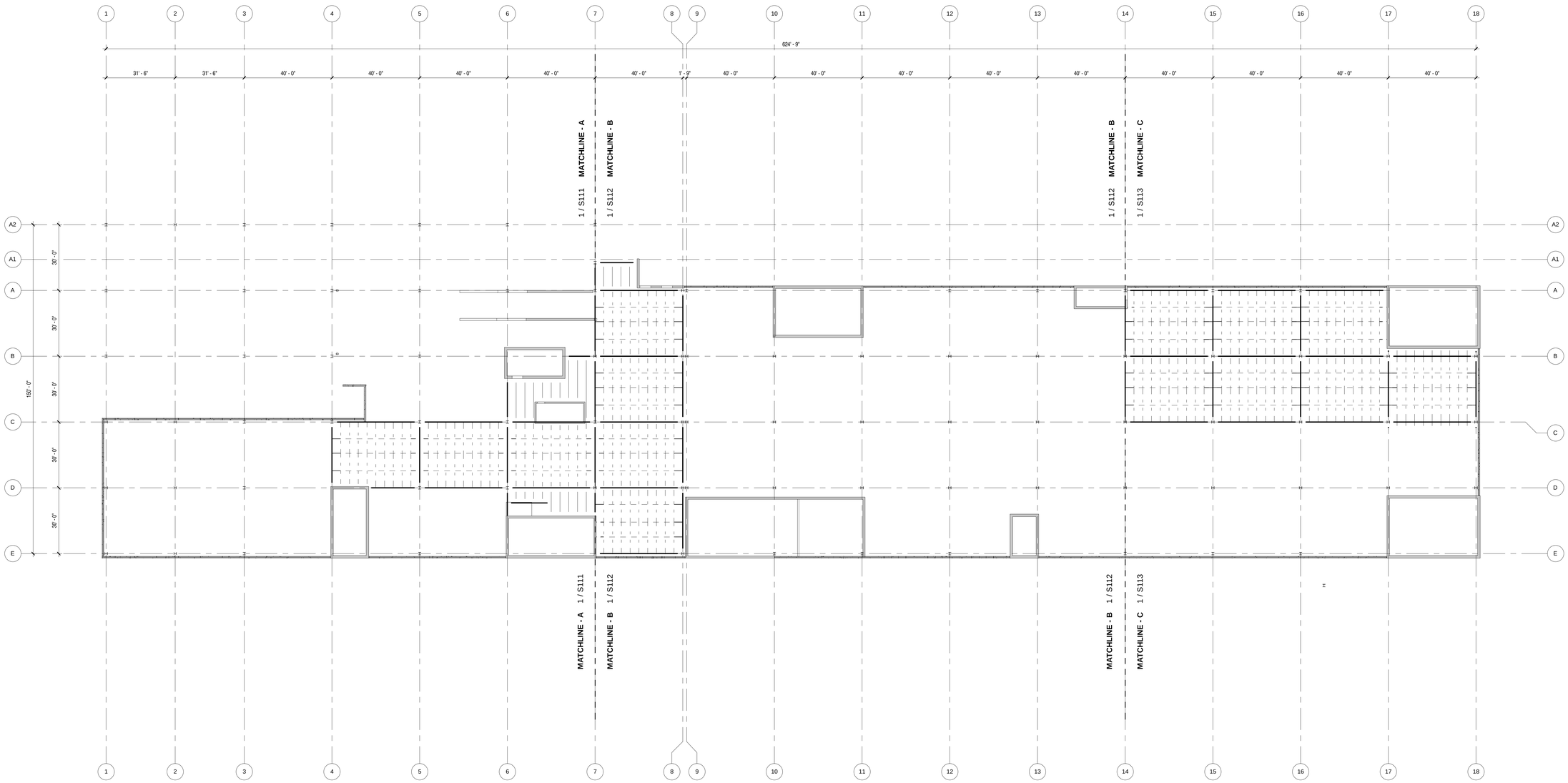
OVERALL FOUNDATION PLAN

SHEET NO.

S100

Attachment 2 of Appendix L

Execution Version



1 S101 OVERALL INTERMEDIATE FLOOR PLAN

1" = 20'-0"

LEGEND:	
	WALL OR COLUMN CONTINUOS
	WALL OR COLUMN BEGINS
	WALL OR COLUMN BELOW
	WALL PRECAST
	BOTTOM BARS
	TOP BARS
Ts	SLAB THIKCNESS
(T & B)	TOP & BOTTOM
E.W.	EACH WAY
E.F.	EACH FACE
T.S.L.	TENSION SPLICE LENGTH

Execution Version

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PROJECT NAME:

SAN JUAN TERMINAL

PROJECT ADDRESS:

BA. PROJECT NUMBER:

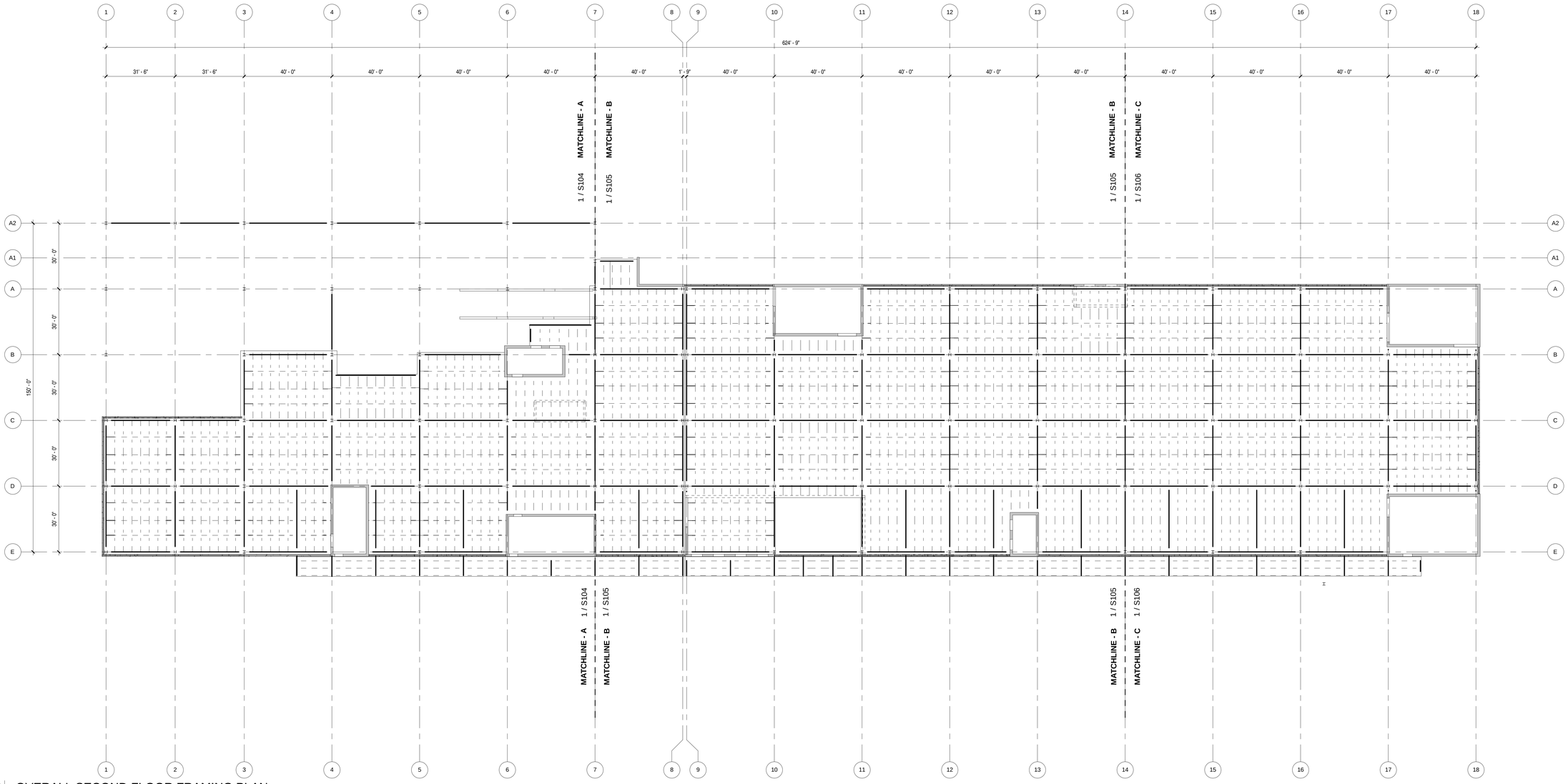
17029

SHEET NAME

OVERALL INTERMEDIATE FLOOR FRAMING PLAN

SHEET NO.

S101



1 S102 OVERALL SECOND FLOOR FRAMING PLAN

1" = 20'-0"

LEGEND:

	WALL OR COLUMN CONTINUOS
	WALL OR COLUMN BEGINS
	WALL OR COLUMN BELOW
	WALL PRECAST
	BOTTOM BARS
	TOP BARS
Ts	SLAB THIKCNESS
(T & B)	TOP & BOTTOM
E.W.	EACH WAY
E.F.	EACH FACE
T.S.L.	TENSION SPLICE LENGTH

Execution Version

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PROJECT NAME:

SAN JUAN TERMINAL

PROJECT ADDRESS:

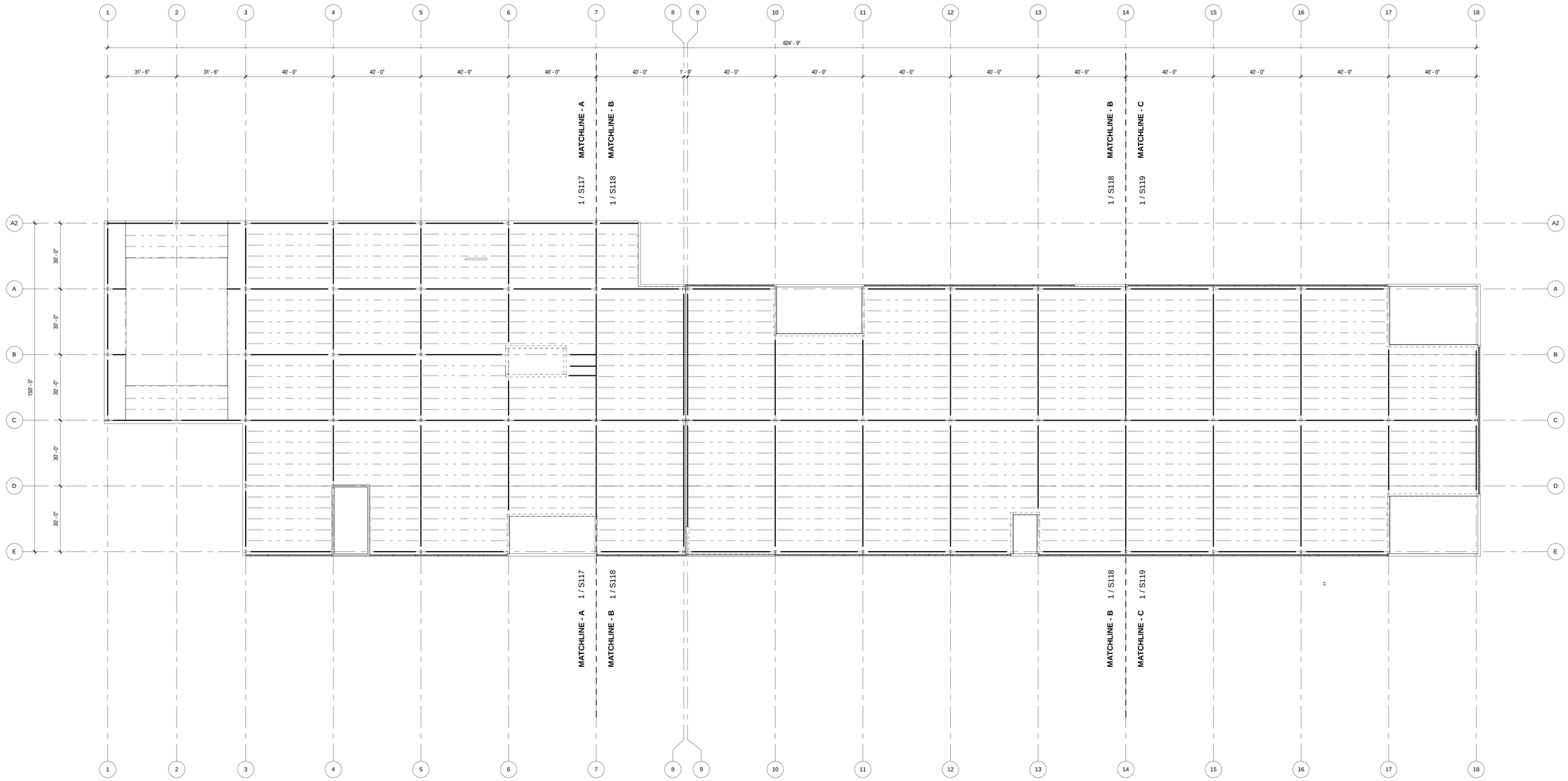
BA. PROJECT NUMBER:
17029

SHEET NAME

OVERALL SECOND FLOOR FRAMING PLAN

SHEET NO.

S102



1 S103 OVERALL ROOF FRAMING PLAN

1" = 20'-0"

LEGEND:	
	WALL OR COLUMN CONTINUOS
	WALL OR COLUMN BEGINS
	WALL OR COLUMN BELOW
	WALL PRECAST
	BOTTOM BARS
	TOP BARS
T=	SLAB THIKCNESS
(T & B)	TOP & BOTTOM
E.W.	EACH WAY
E.F.	EACH FACE
T.S.L.	TENSION SPLICE LENGTH

Execution Version

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1	30% Design Subm. to PRPA	2020-03-27

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PROJECT NAME:

SAN JUAN TERMINAL

PROJECT ADDRESS:

BA. PROJECT NUMBER:
17029

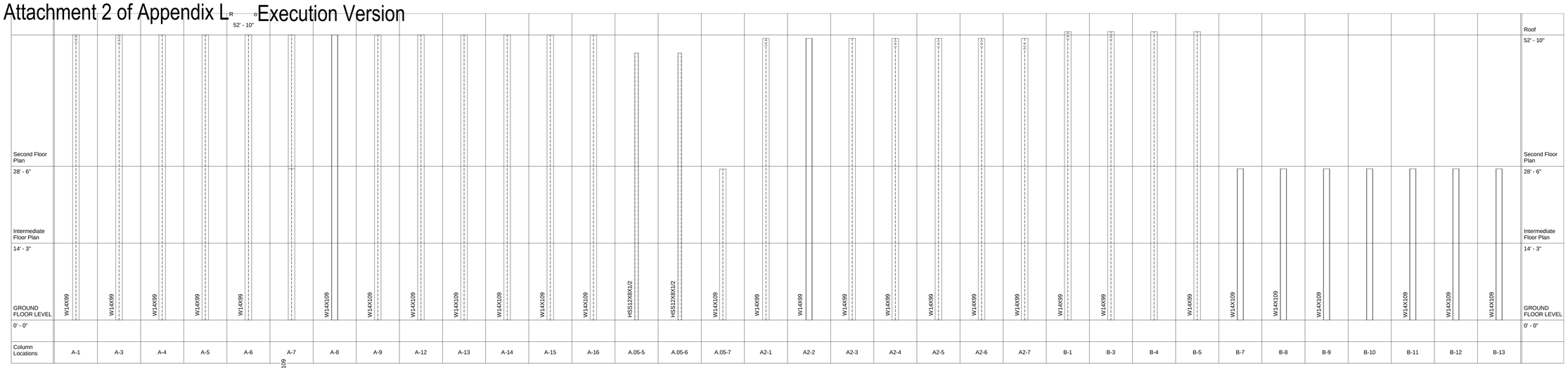
SHEET NAME

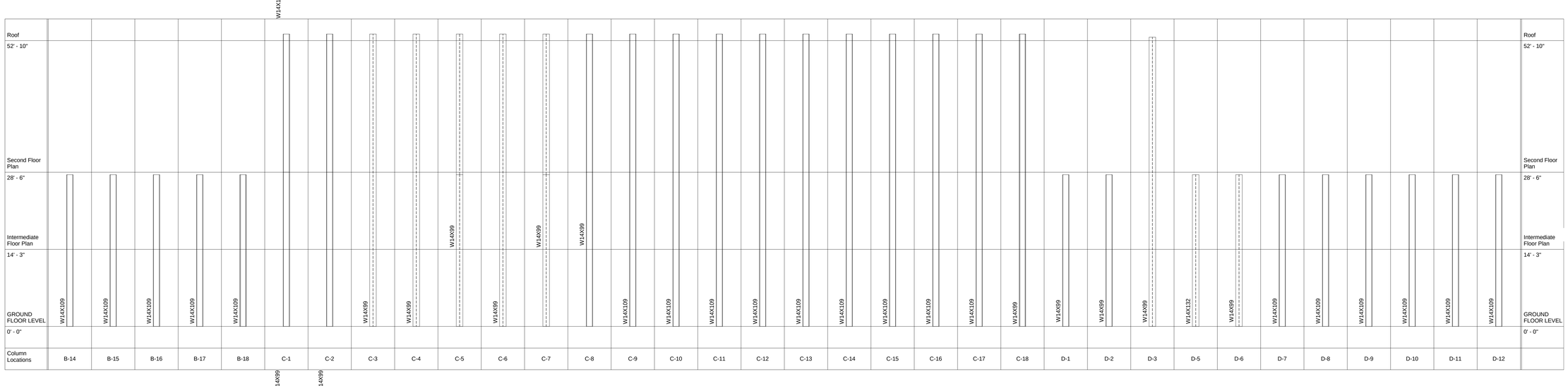
OVERALL ROOF FRAMING PLAN

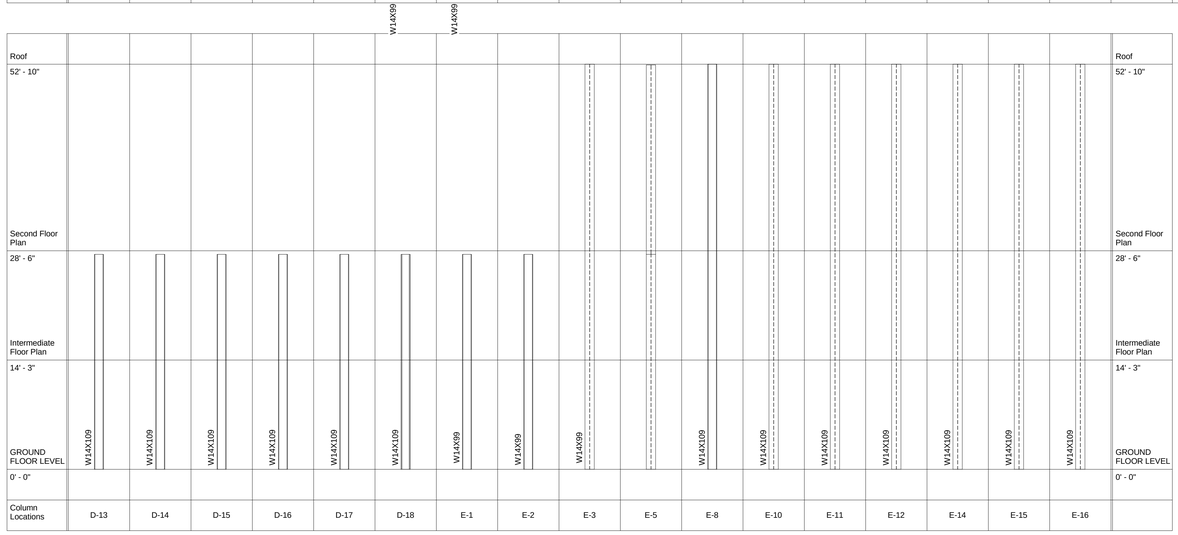
SHEET NO.

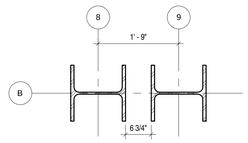
S103

Attachment 2 of Appendix L Execution Version









1 EXPANSION JOINT COLUMN
3/4" = 1'-0"

Execution Version

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1	30% Design Subm. to PRPA	2020-03-27

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PROJECT NAME:

SAN JUAN TERMINAL

PROJECT ADDRESS:

BA. PROJECT NUMBER:

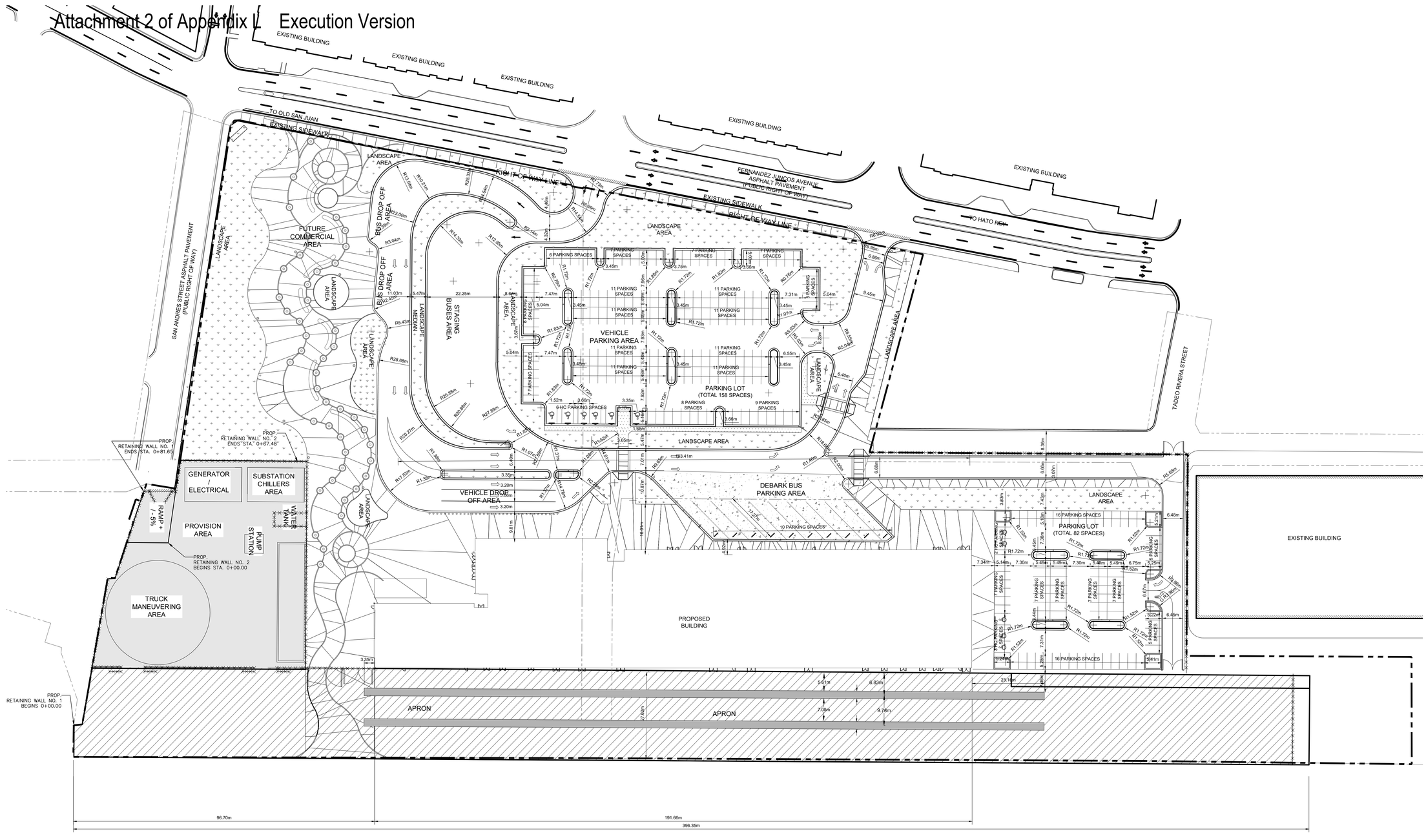
17029

SHEET NAME

COLUMN SCHEDULE

SHEET NO.

S600



PAVEMENT LEGEND

- PROPOSED CONCRETE SIDEWALK
- PROPOSED HEAVY DUTY CONCRETE PAVEMENT
- PROPOSED LIGHT DUTY CONCRETE PAVEMENT
- PROPOSED LANDSCAPE AREA
- PROPOSED ASPHALT PAVEMENT
- PROPOSED APRON ASPHALT

SITE SYMBOLS LEGEND

- (S) PROPOSED STOP SIGN
- (1) PROPOSED PARKING SPACE
- (P) PROPOSED PEDESTRIAN SIGN

GRAPHIC SCALE = 1:500

0 5 10 20 30 40

GENERAL SITE PLAN AND GEOMETRIC LAYOUT

SCALE: 1:500

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PROJECT NAME:

SAN JUAN CRUISE TERMINAL 11-12

PROJECT ADDRESS:

AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:

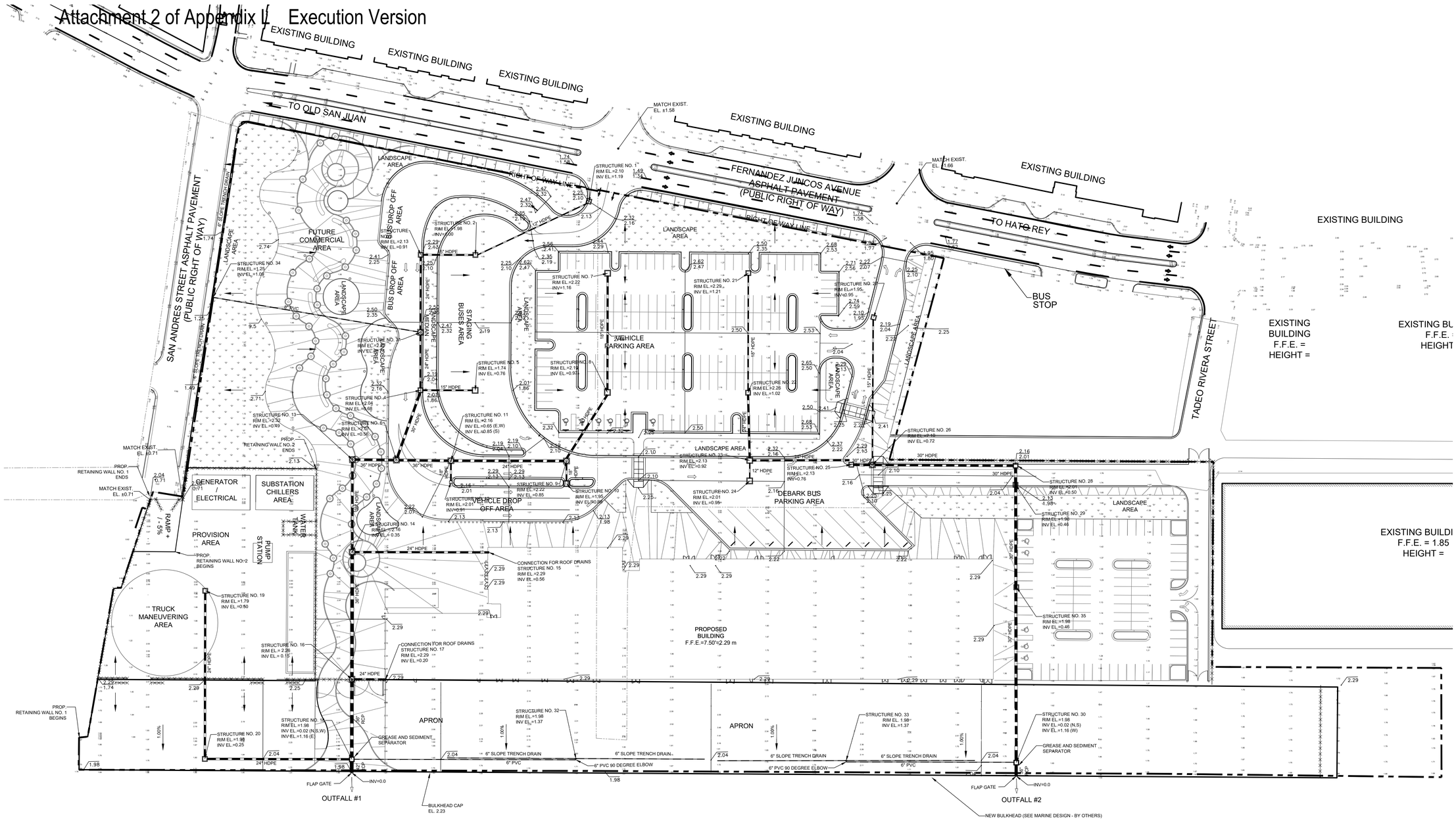
19070

SHEET NAME

GENERAL SITE PLAN AND GEOMETRIC LAYOUT

SHEET NO.

C300



PROPOSED STORM SEWER SYSTEMS NOTES

1. ALL DRAINAGE STRUCTURES, INCLUDING CLEAN-OUTS, SHALL BE INSTALLED WITH TRAFFIC BEARINGS GRATES, FRAMES, TOPS, RINGS AND COVERS, ETC, AS APPLICABLE.
2. ALL ELEVATIONS ARE EXPRESSED IN METERS, UNLESS OTHERWISE INDICATED.

PROPOSED EARTHWORK NOTES

1. CONTRACTOR SHALL FOLLOW EARTHWORK RECOMMENDATIONS ON GEOTECHNICAL PREPARED BY GEOCONSULT LLC.
2. STRUCTURES, FOUNDATIONS, UNDERGROUND UTILITIES REMOVAL AND CLEARING AND GRUBBING OPERATIONS SHOULD BE EXECUTED BEFORE ANY FURTHER WORK.
3. AFTER CLEARING AND GRUBBING PROCEDURES, THE EXPOSED GRADE SHALL BE COMPACTED AND PROOFED ROLLED.
4. THE FILL USED SHALL RESEMBLE THE CHARACTERISTIC OF AN A-2-4, OR BETTER TYPE OF SOIL AS AASHTO SOIL CLASSIFICATION SYSTEM.
5. THE FILL MATERIAL SHALL BE PLACED IN LAYERS NOT EXCEEDING TWELVE INCHES & COMPACTED TO 95% MAX DRY DENSITY.
6. CONTRACTOR SHALL PROVIDE CERTIFIED FILL COMPACTION TEST AND SOIL CLASSIFICATION TESTS.
7. A 12 INCHES LAYER OF FILL MATERIAL WITH CHARACTERISTICS OF AN A-2-4 OR BETTER TYPE OF SOIL AS AASHTO SOIL CLASSIFICATION SYSTEM WILL BE PLACED BELOW NEW BUILDINGS FLOOR SLAB.

SURVEY NOTES:

1. EXISTING ELEVATIONS SHOWN WERE OBTAINED DURING THE PERIOD OF DECEMBER 19, 2019 THROUGH FEBRUARY 1, 2020.

DRAINAGE SYMBOLS LEGEND

1.73	EXISTING ELEVATION (METERS)
INV EL.=4.5	PROPOSED ELEVATION (METERS)
→	PROP. FLOW DIRECTION
▬	PROP. STORM PIPE
□	PROP. CATCH BASIN
▬	PROP. RETAINING WALL

GRAPHIC SCALE = 1:500

0 5 10 20 30 40

GRADING AND STORM SEWER SYSTEM PLAN

SCALE: 1:500

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PROJECT NAME:

SAN JUAN CRUISE TERMINAL 11-12

PROJECT ADDRESS:

AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:

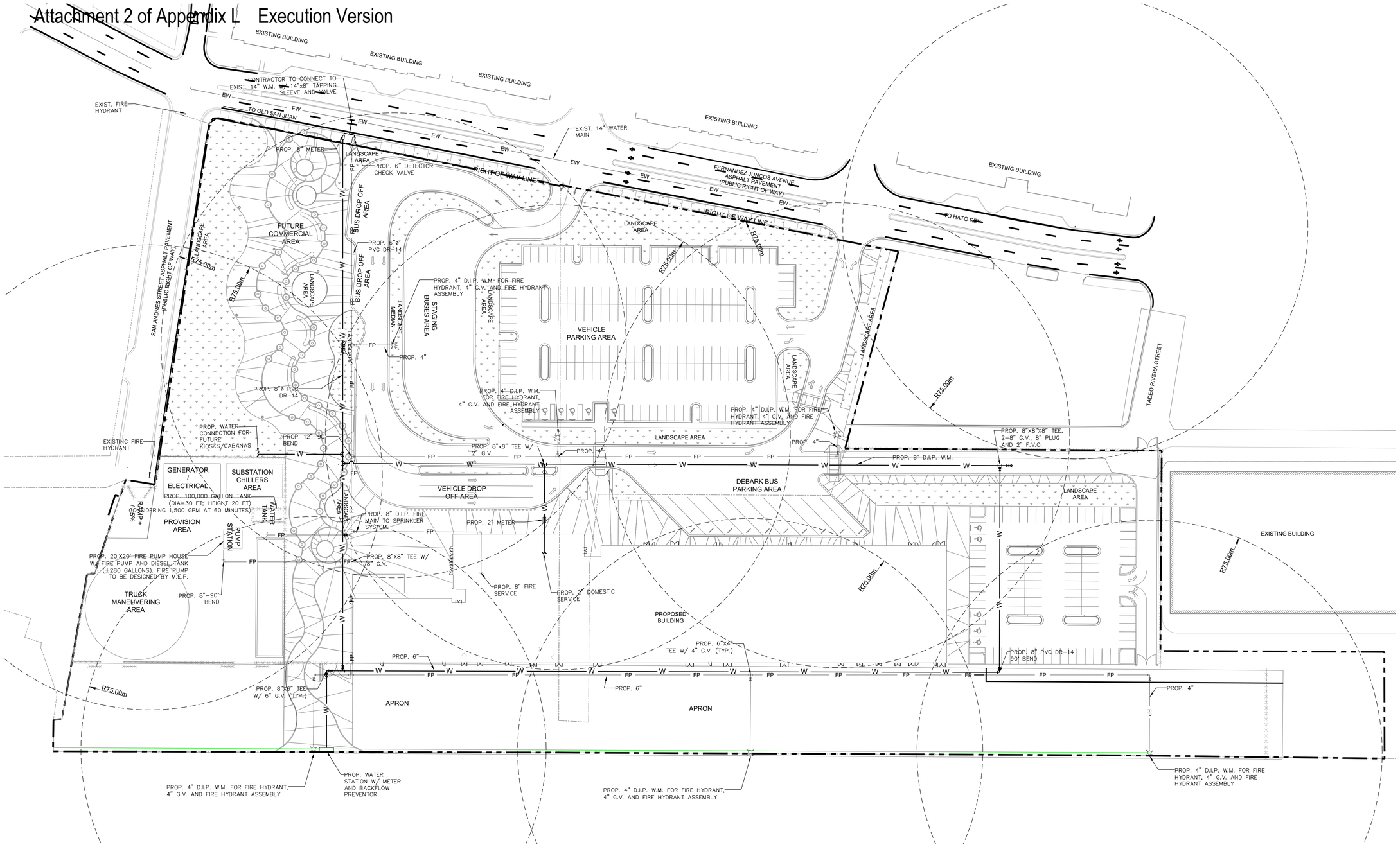
19070

SHEET NAME

GRADING AND STORM SEWER SYSTEM PLAN

SHEET NO.

C400



UTILITY SYMBOLS LEGEND

W	PROP. POTABLE WATER LINE
EW	EXIST. POTABLE WATER LINE (PVC DR-14)
FP	PROP. FIRE PROTECTION WATER LINE (PVC DR-14)
	PROP. FIRE HYDRANT
	PROP. VALVE
	FIRE HYDRANT COVERAGE RADIUS

NOTE A: WATER MAINS WILL BE CONTINUED ALONG APRON AND MAIN ACCESS ROADWAY FOR PHASE II TO PROVIDE A LOOP AROUND TERMINALS.

NOTE B: FOR HOSE BIBBS AROUND THE BUILDING, REFER TO DOMESTIC WATER DRAWINGS.

GRAPHIC SCALE = 1:500

0 5 10 20 30 40

WATER DISTRIBUTION SYSTEM PLAN

SCALE: 1:500

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2	30% Design Subm. to PRPA	2020-03-27

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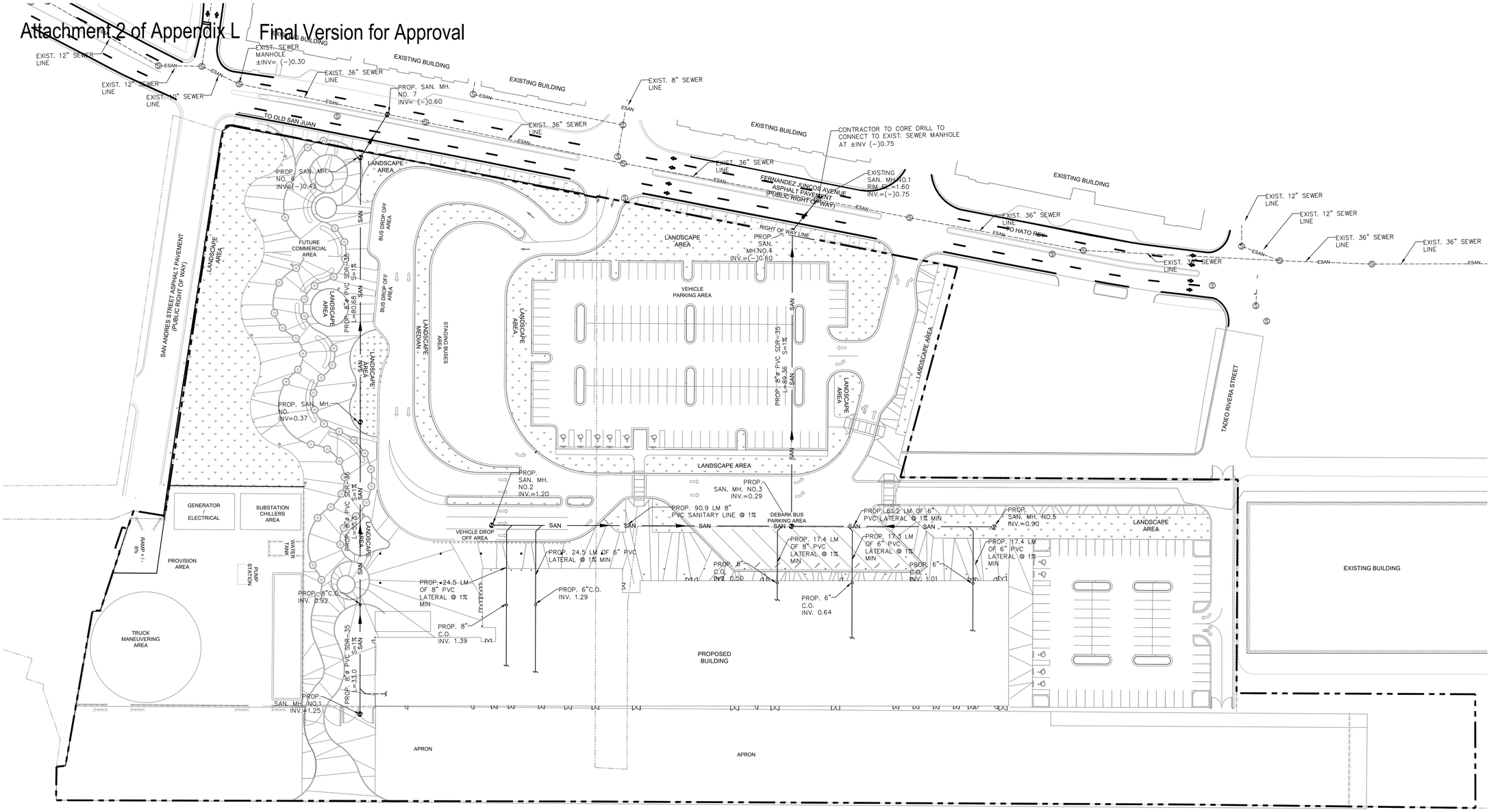
PROJECT NAME:
SAN JUAN CRUISE TERMINAL 11-12

PROJECT ADDRESS:
AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:
19070

SHEET NAME
WATER DISTRIBUTION SYSTEM PLAN

SHEET NO.
C500



PROPOSED STORM SEWER SYSTEMS NOTES

1. ALL ELEVATIONS ARE EXPRESSED IN METERS, UNLESS OTHERWISE INDICATED.

UTILITY SYMBOLS LEGEND

SAN	PROP. SANITARY SEWER LINE
E SAN	EXIST. SANITARY SEWER LINE
	PROP. SANITARY MANHOLE
	EXIST. SANITARY MANHOLE

GRAPHIC SCALE = 1:500

0 5 10 20 30 40

SANITARY SEWER SYSTEM PLAN

SCALE: 1:500

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REVISIONS

REV. #	REVISION DESCRIPTION	REV. DATE
0	1st Subm. 30% Design	2020-02-13
1	30% Design Subm. to PRPA	2020-03-27

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PROJECT NAME:

SAN JUAN CRUISE TERMINAL 11-12

PROJECT ADDRESS:

AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:

19070

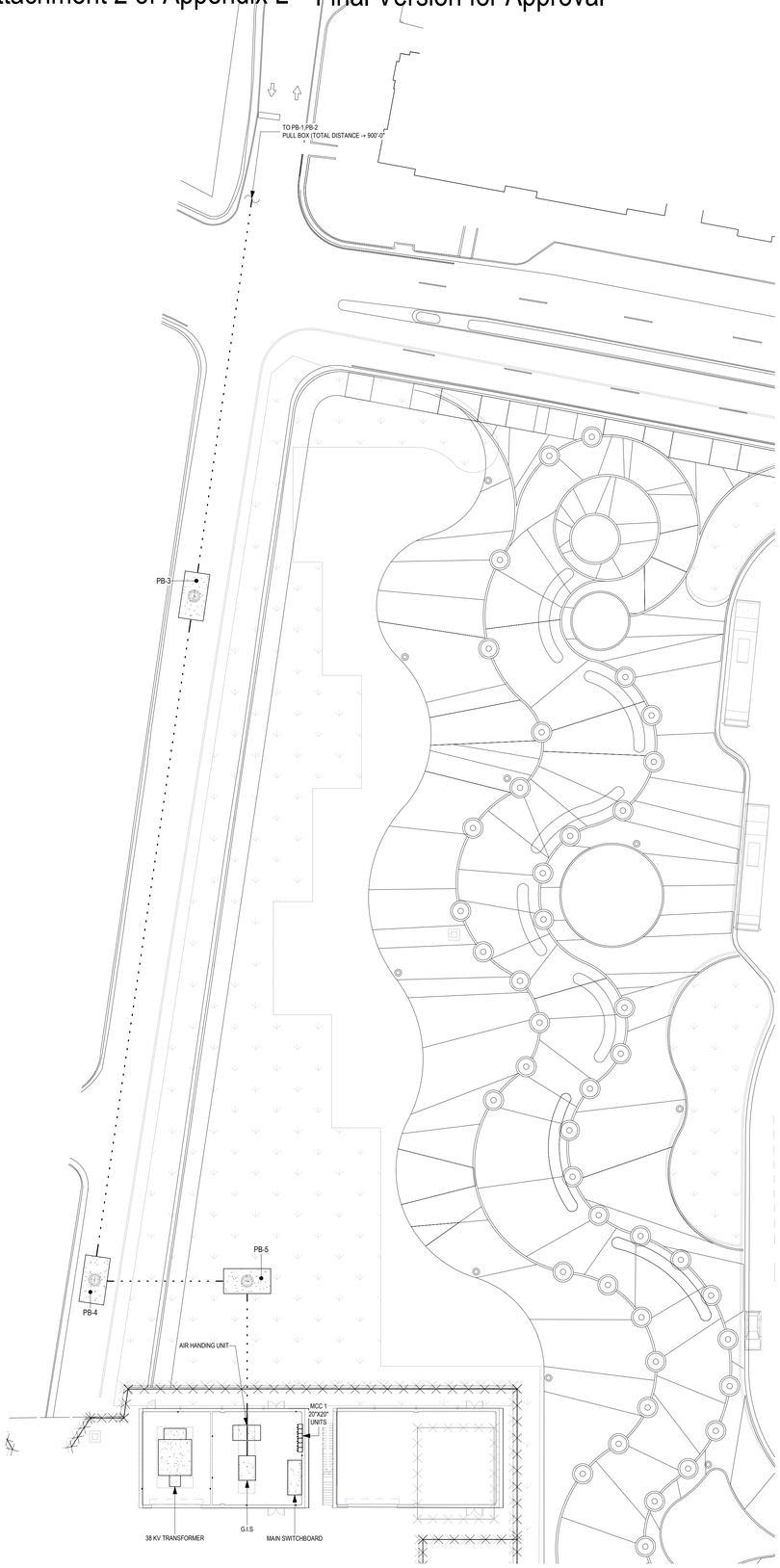
SHEET NAME

SANITARY SEWER SYSTEM PLAN

SHEET NO.

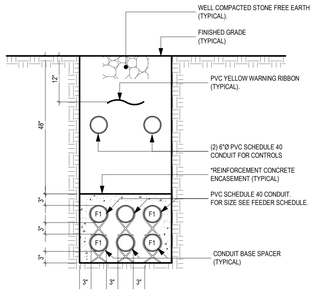
C600

Attachment 2 of Appendix L Final Version for Approval



1 ES-100 ELECTRICAL SITE POWER PLAN

3/64" = 1'-0"



2 ES-100 FEEDER DETAIL

3/4" = 1'-0"

NOTE:
CONCRETE ENCASEMENT TO BE USED ON ROAD OR STREET CROSSING AND ALSO ON OTHER UTILITIES CROSSING. OTHERWISE, USE WELL COMPACTED STONE FREE EARTH.

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PROJECT ADDRESS:

AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:

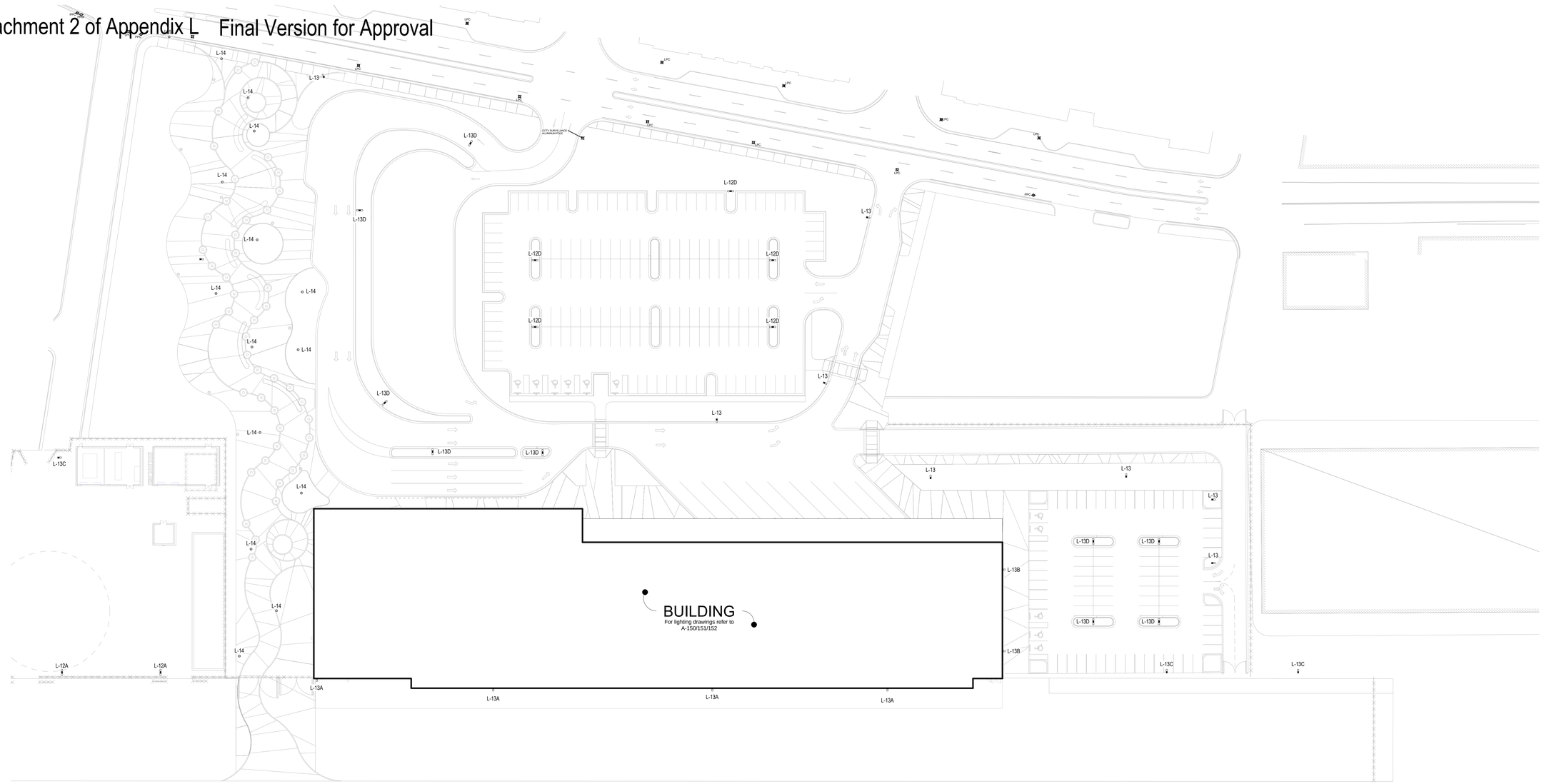
17029

SHEET NAME

ELECTRICAL SITE POWER PLAN

SHEET NO.

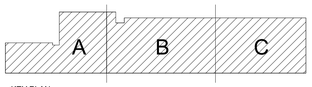
ES-100



1 ES101 ELECTRICAL SITE LIGHTING PLAN

1" = 40'-0"

EXISTING POLE LEGEND	
LPC OR LPC	EXISTING LIGHTING POLE CONCRETE
LPW OR LPW	EXISTING LIGHTING POLE WOODEN
PPC OR PPC	EXISTING POWER POLE CONCRETE
PPW OR PPW	EXISTING POWER POLE WOODEN
TELPW OR TELPW	EXISTING COMMUNICATION POLE



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PROJECT ADDRESS:

AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:

17029

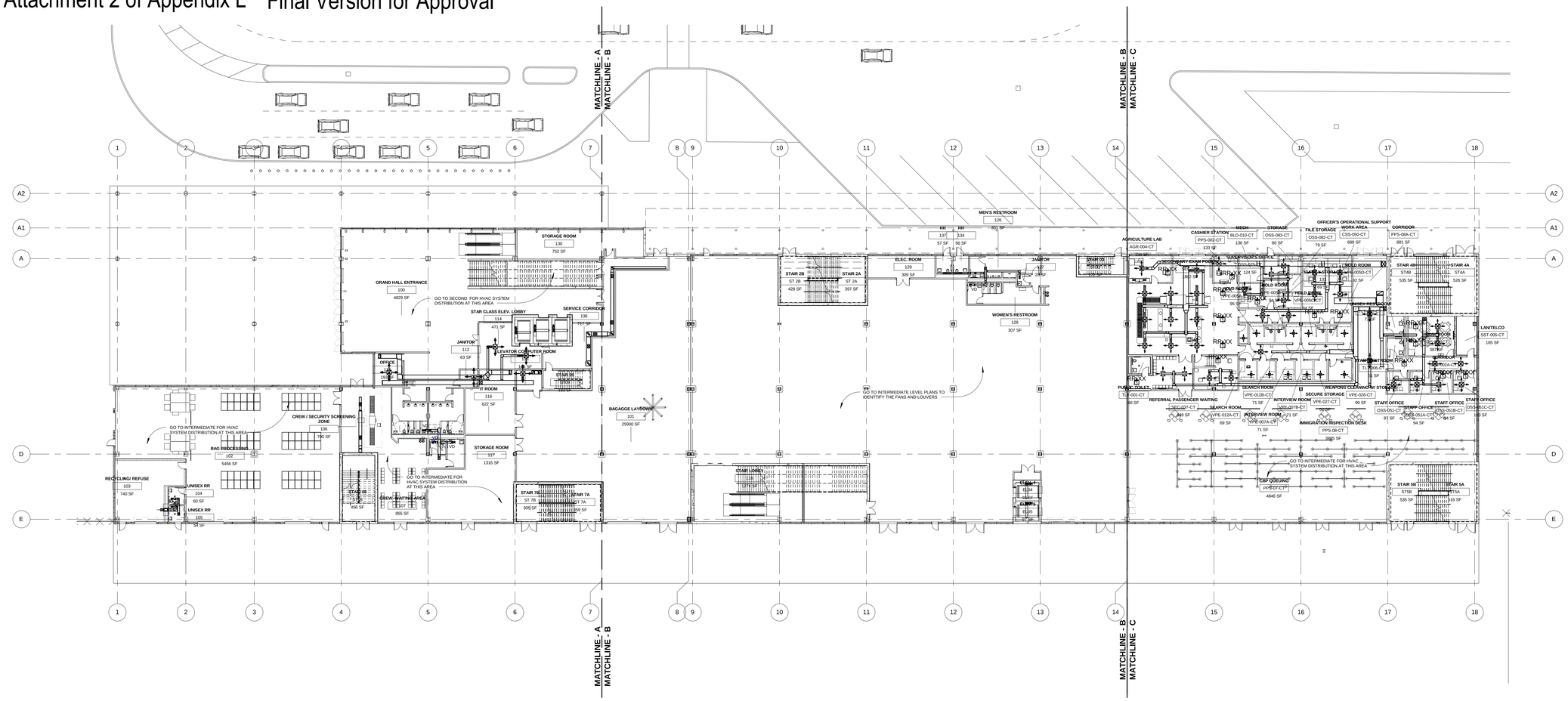
SHEET NAME

ELECTRICAL SITE PLAN PUBLIC LIGHTING

SHEET NO.

ES101

Attachment 2 of Appendix L Final Version for Approval



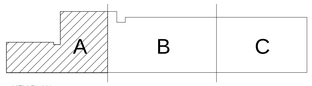
1 AC100 OVERALL HVAC GROUND FLOOR PLAN
3/64" = 1'-0"

MECHANICAL SYMBOLS - DUCTWORKS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DIRECTION OF FLOW		CEILING SUPPLY DIFFUSER		VERTICAL SUPPLY DUCT		CENTRIFUGAL FAN	FD	FIRE DAMPER
	CONCENTRIC REDUCER		CEILING RETURN DIFFUSER		VERTICAL RETURN DUCT		NEW DUCT	PCD	PRESSURE CONTROL DAMPER
B	EXHAUST FAN		CEILING EXHAUST DIFFUSER		VERTICAL EXHAUST DUCT	VD	VOLUME DAMPER	P	PRESSURE PROBE
	FLOW ARROW - AIR IN		LINEAR DIFFUSER		ROOF EXHAUST FAN	MD	MOTORIZED DAMPER		

ABBREVIATIONS -...

AC	AIR CONDITIONING
AHU	AIR HANDLING UNIT
BOD	BOTTOM OF DUCT
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
EF	EXHAUST FAN
ER	EXHAUST REGISTER
FD	FIRE DAMPER
FRPM	FAN RPM
HVAC	HEATING, VENTILATION, AND AIR-CONDITIONING
IL	INTAKE LOUVER
MD	MOTORIZED DAMPER
SR	SUPPLY REGISTER
TEF	TOILET EXHAUST FAN
TG	AIR TRANFER GRILL



KEY PLAN

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PROJECT NAME:

SAN JUAN CRUISE TERMINAL 11-13

PROJECT ADDRESS:

AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:

17029

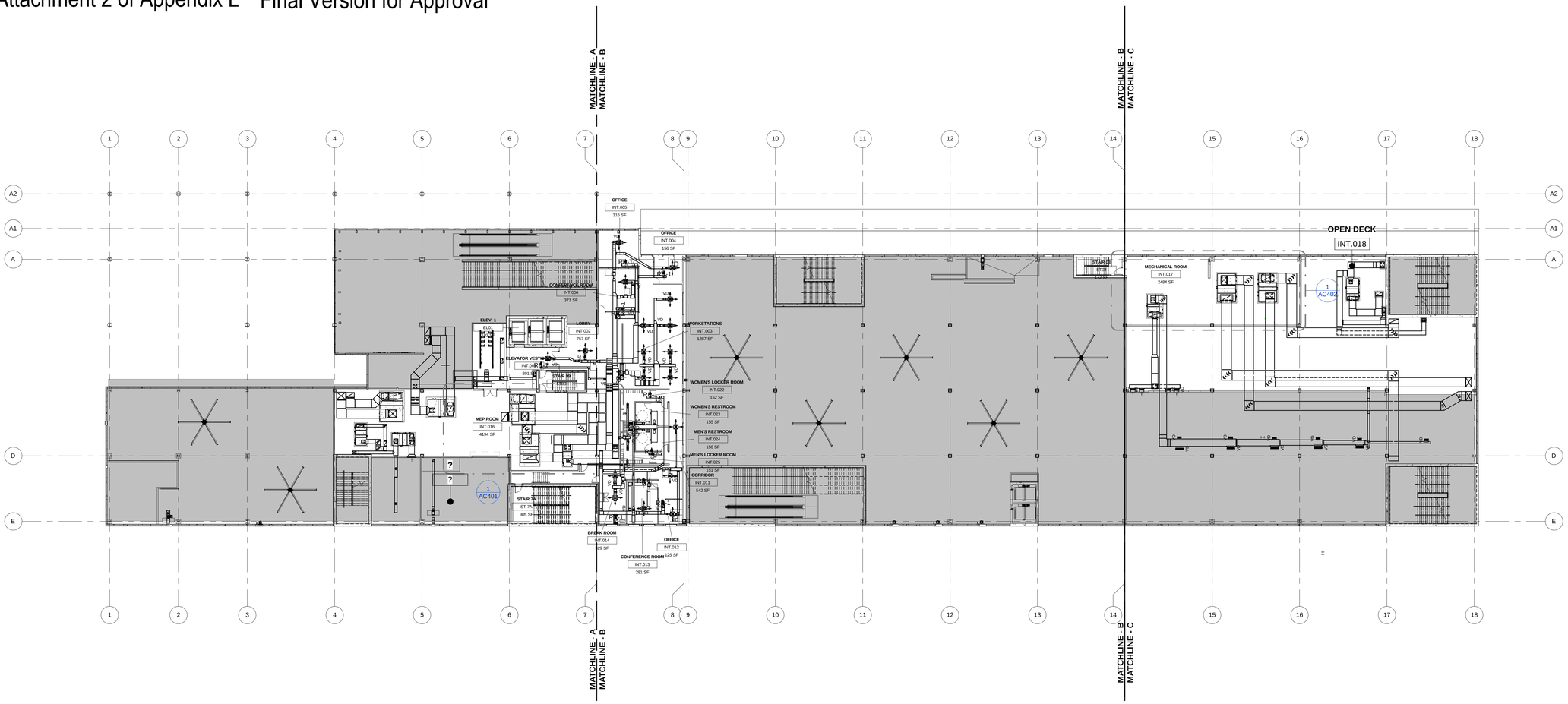
SHEET NAME

OVERALL HVAC GROUND FLOOR PLAN

SHEET NO.

AC100

Attachment 2 of Appendix L Final Version for Approval



1 AC104 OVERALL HVAC INTERMEDIATE FLOOR PLAN
3/64" = 1'-0"

ABBREVIATIONS -...

AC	AIR CONDITIONING
AHU	AIR HANDLING UNIT
BOD	BOTTOM OF DUCT
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
EF	EXHAUST FAN
ER	EXHAUST REGISTER
FD	FIRE DAMPER
FRPM	FAN RPM
HVAC	HEATING, VENTILATION, AND AIR-CONDITIONING
IL	INTAKE LOUVER
MD	MOTORIZED DAMPER
SR	SUPPLY REGISTER
TEF	TOILET EXHAUST FAN
TG	AIR TRANFER GRILL

MECHANICAL SYMBOLS - DUCTWORKS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DIRECTION OF FLOW		CEILING SUPPLY DIFFUSER		VERTICAL SUPPLY DUCT		CENTRIFUGAL FAN	FD	FIRE DAMPER
	CONCENTRIC REDUCER		CEILING RETURN DIFFUSER		VERTICAL RETURN DUCT		NEW DUCT	PCD	PRESSURE CONTROL DAMPER
EF	EXHAUST FAN		CEILING EXHAUST DIFFUSER		VERTICAL EXHAUST DUCT	VD	VOLUME DAMPER		
	FLOW ARROW - AIR IN		LINEAR DIFFUSER		ROOF EXHAUST FAN	MD	MOTORIZED DAMPER	P	PRESSURE PROBE

KEY PLAN

Execution Version

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PROJECT NAME:
SAN JUAN CRUISE TERMINAL 11-13

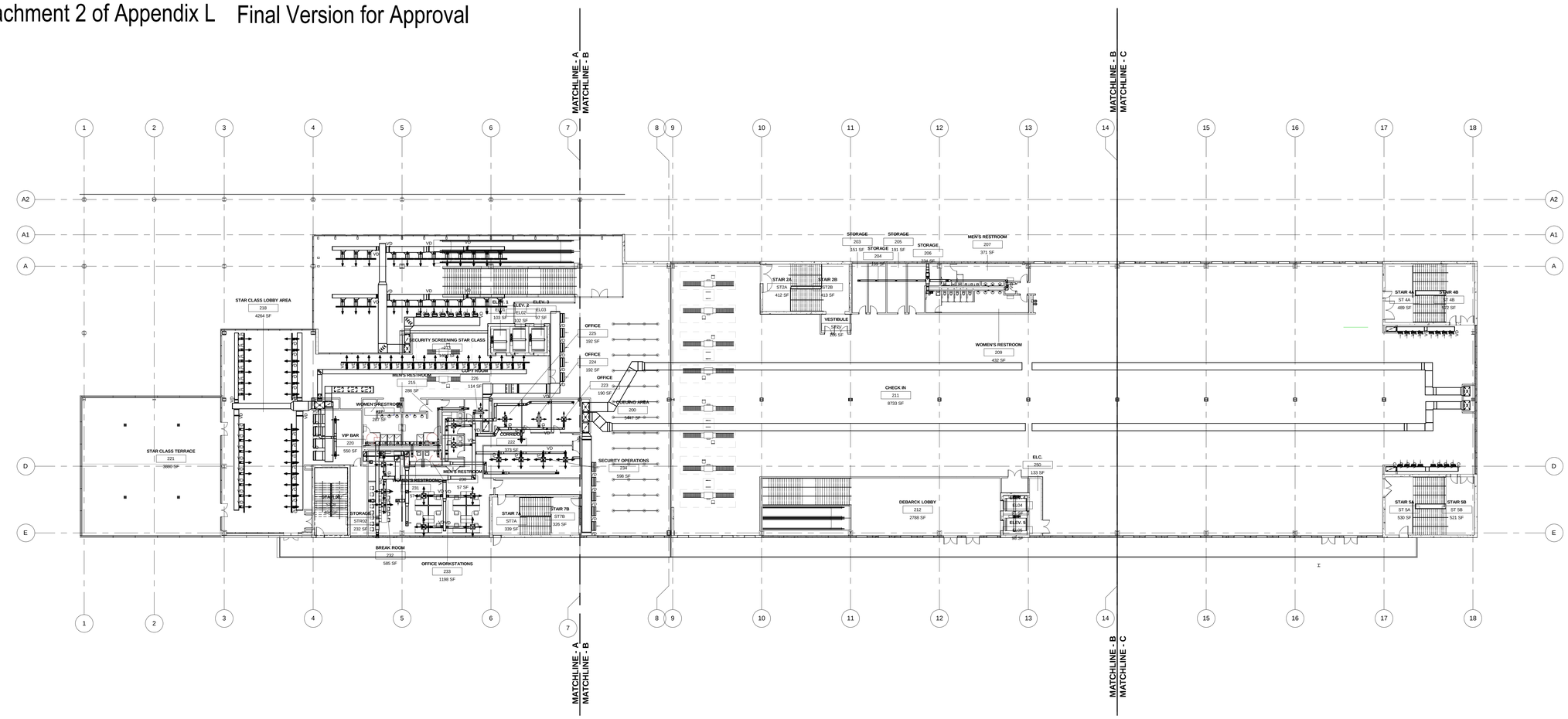
PROJECT ADDRESS:
AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:
17029

SHEET NAME
OVERALL HVAC INTERMEDIATE FLOOR PLAN

SHEET NO.
AC104

Attachment 2 of Appendix L Final Version for Approval



1 AC108 OVERALL HVAC SECOND FLOOR PLAN
3/64" = 1'-0"

MECHANICAL SYMBOLS - DUCTWORKS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	DIRECTION OF FLOW		CEILING SUPPLY DIFFUSER		VERTICAL SUPPLY DUCT		CENTRIFUGAL FAN	FD	FIRE DAMPER
	CONCENTRIC REDUCER		CEILING RETURN DIFFUSER		VERTICAL RETURN DUCT		NEW DUCT	PCD	PRESSURE CONTROL DAMPER
B	EXHAUST FAN		CEILING EXHAUST DIFFUSER		VERTICAL EXHAUST DUCT	VD	VOLUME DAMPER		
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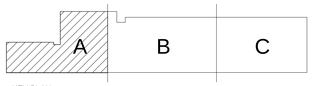

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BA. PROJECT NUMBER:

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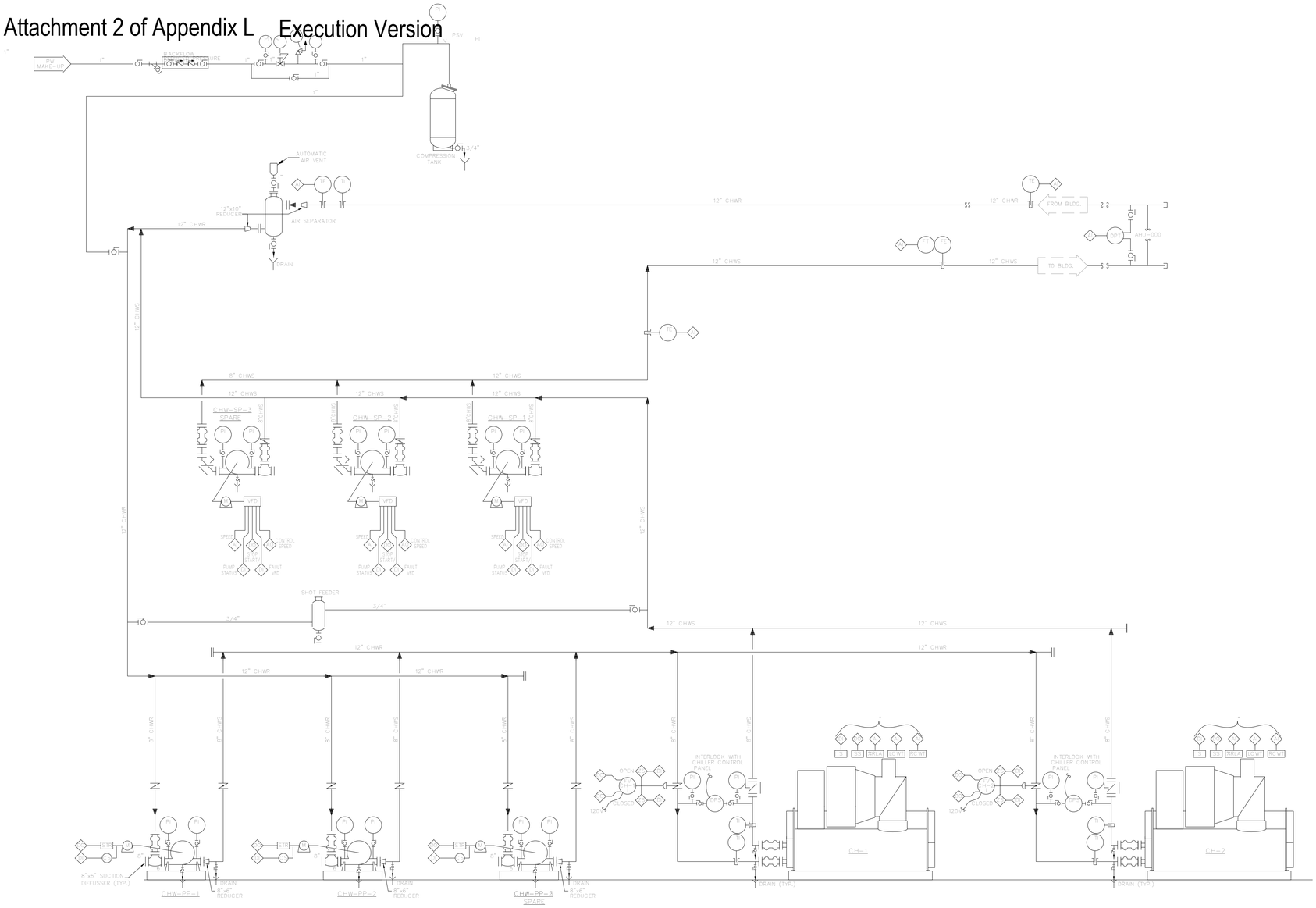
SHEET NAME

OVERALL HVAC SECOND FLOOR PLAN

SHEET NO.

AC108

Attachment 2 of Appendix L Execution Version



LEGEND:

- NEW PIPE
- BALL VALVE
- BUTTERFLY VALVE
- BALANCING VALVE
- CHECK VALVE
- FLEXIBLE CONN.
- PRESSURE GAUGE WITH COCK
- FLOW SHUT-OFF BUTTERFLY VALVE WITH
- TRIPLE DUTY VALVE
- SUCTION GUIDE STRAINER (LINE SIZE)
- SOLENOID VALVE
- FT — FLOW TRANSMITTER
- CT — CURRENT SENSOR (STATUS) HAWKEYE H908
- VS — VIBRATION SWITCH SUPPLIED BY COOLING TOWER VENDOR & INSTALLED BY CONTRACTOR
- LS — LOW LEVEL SWITCH GEMS ELS-1100
- DPT — DIFFERENTIAL PRESS. TANSMITTER ROSEMOUNT MOD. 3151
- VFD — VARIABLE FREQUENCY DRIVE
- MS — MOTOR STARTER
- S — STATUS SIGNAL
- SS — START/STOP SIGNAL
- %RLA — PERCENT LOAD
- LC WT — LEAVING CHILLED WATER TEMP.
- RC WT — RETURN CHILLED WATER TEMP.
- LTWC — LEAVING TOWER WATER TEMP.
- RTWT — RETURN TOWER WATER TEMP.
- TE — TEMPERATURE ELEMENT IN WELL
- TI — TEMPERATURE INDICATOR (GAUGE) IN WELL
- M — FLOW METER, DISPLACEMENT TYPE
- DPS — DIFFERENTIAL PRESSURE SWITCH
- FE — FLOW ELEMENT-ANNUBAR MODEL GMT FLO-TAP
- PRV — PRESSURE REDUCING VALVE SHALL BE FISHER TYPE 95L- 3/4" DIA.SET AT 30 PSIG.
- PSV — PRESSURE RELIEF VALVE SHALL BE CONSOLIDATED FIG. 1479, 1 1/4" DIA.- SET AT 40 PSIG.
- DO — DIGITAL OUTPUT FROM DDC PANEL
- DI — DIGITAL INPUT TO DDC PANEL
- AO — ANALOG OUTPUT FROM DDC PANEL
- AI — ANALOG INPUT TO DDC PANEL
- LS — LIMIT SWITCH

CHWS	CHILLED WATER SUPPLY
CHWR	CHILLED WATER RETURN
TWS	TOWER WATER SUPPLY
TWR	TOWER WATER RETURN
RHWS	REHEAT WATER SUPPLY
RHWR	REHEAT WATER RETURN
C.W.	POTABLE WATER
N.O.	NORMALLY OPEN
N.C.	NORMALLY CLOSED
*	SIGNALS TO BE TAKEN FROM UNIT CONTROL PANEL TO THE BUILDING MANAGEMENT SYSTEM.

NOTE:
APPROVED ALTERNATE FOR HYDRONIC SYSTEMS:
BELL & GOSSETT

BACKFLOW PREVENTER
MFGR: WATTS
MODEL: 909-S
SIZE: 1"
BRONZE BODY

SECONDARY CHILLED WATER PUMPS
SP-1, 2 & 3
FLOW:530 GPM
HEAD: X FT
MOTOR:10 HP
(SEE SCHEDULE)

AIR SEPARATOR
MODEL: ARMSTRONG
MODEL: VA-12
PRESS: 150 PSIG

COMPRESSION TANK
MFGR: ARMSTRONG
MODEL: VERTICAL, 1,000-L, 264 GALLONS
W/ REPLACEABLE HEAVY
DUTY RUBBER BLADDER
ASME STAMPED, 125 PSIG, PRIME POINTED

PRIMARY CHILLED WATER PUMPS
PP-1, 2 & 3
FLOW:530 GPM
HEAD: X FT
MOTOR:7.5 HP
(SEE SCHEDULE)

CHILLER NO. 1, 2
MFGR: TRANE
CAP:266 TONS
FLOW:530 GPM
ENT. TEMP.: 53.7 F
LVG. TEMP.: 43.7 F
OPTION: N/A

AIR SEPARATOR
(REHEAT WATER)
ARMSTRONG
MODEL: VA-4
FLANGED, 150 PSIG
STEEL CONSTRUCTION

1 M-110 CHILLED WATER SYSTEM FLOW DIAGRAM
NONE

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PROJECT NAME:

SAN JUAN CRUISE TERMINAL 11-13

PROJECT ADDRESS:

AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:

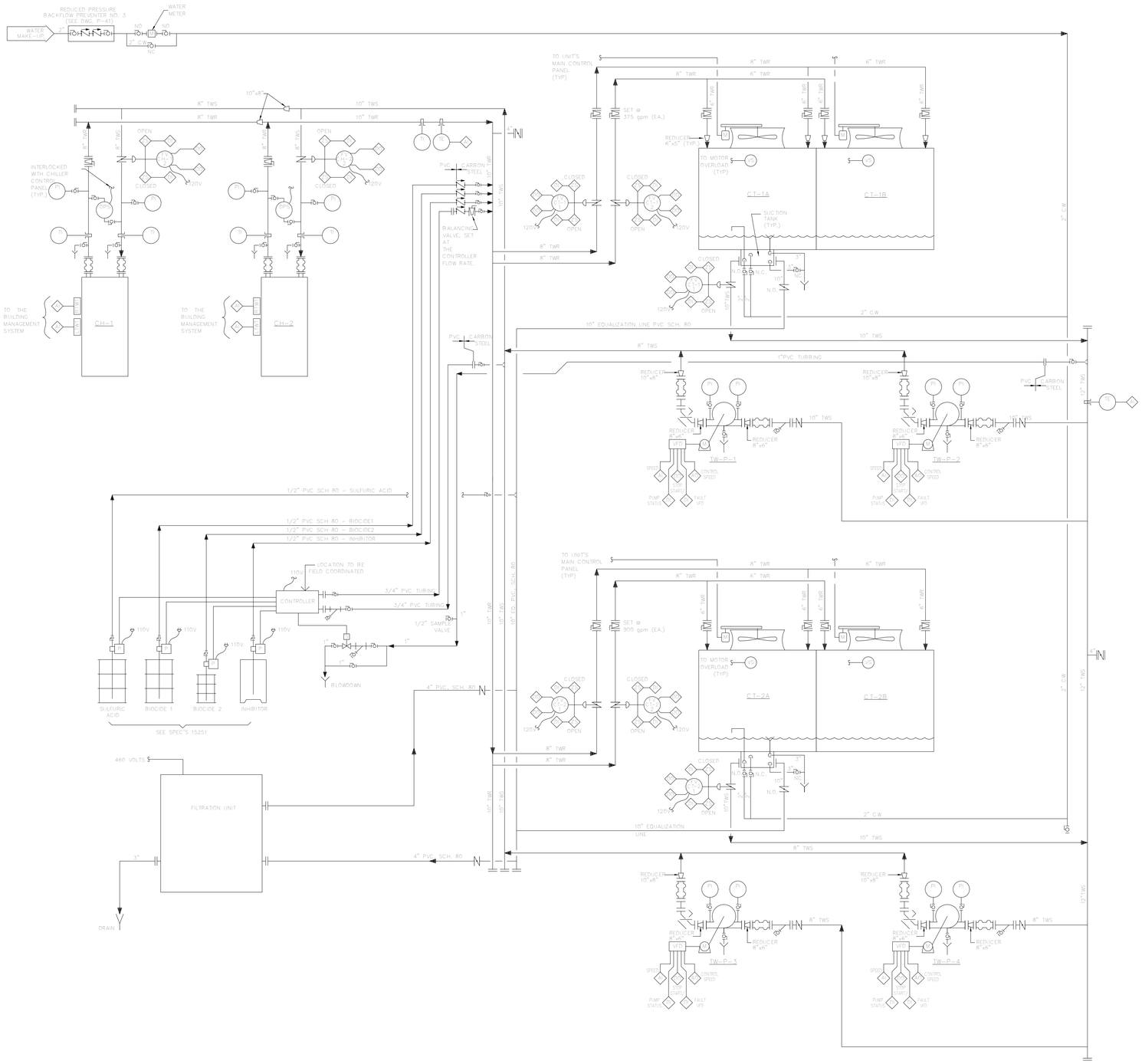
17029

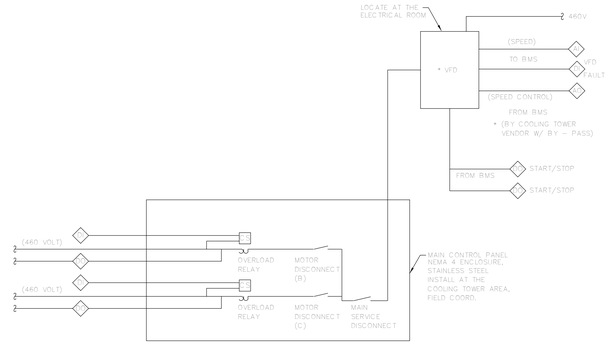
SHEET NAME

CHILLED WATER SYSTEM FLOW DIAGRAM

SHEET NO.

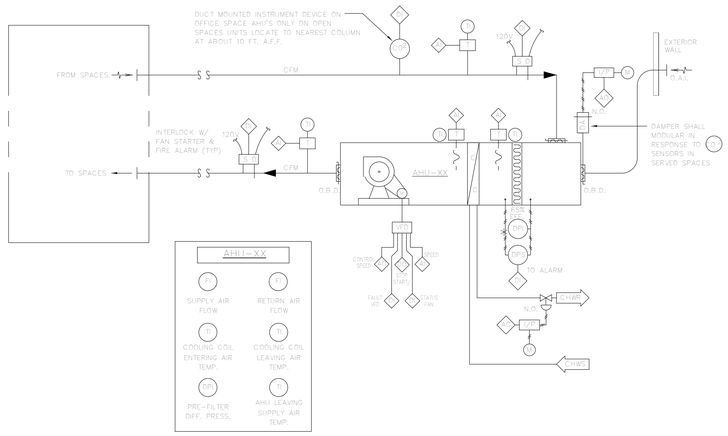
M110





COOLING TOWER MAIN CONTROL PANEL
(SEE NOTES BELOW)

NOTES:
1. ONE PER COOLING TOWER, BY VENDOR
2. CONTROL CONDUIT & WIRING BY CONTROL CONTRACTOR. LOCATION OF PANEL TO BE FIELD COORD. WITH OWNER.
3. VENDOR SHALL PROVIDE WIRING DIAGRAM & PANEL CONSTRUCTION DETAILS.



AHU LEGEND

CONTROL/MONITORING DEVICES

SYMBOL	DESCRIPTION	REMARKS	SYMBOL	DESCRIPTION	REMARKS
FI	FLOW INDICATOR	BY CONTROL CONTRACTOR	DPC	DAMPER ACTUATOR WITH POSITIONING RELAY & MOUNTING KIT (AS REQUIRED)	BY CONTROL CONTRACTOR
TI	TEMPERATURE INDICATOR	BY CONTROL CONTRACTOR	/CT	CURRENT TO PRESSURE TRANSDUCER	BY CONTROL CONTRACTOR
DPS	DIFFERENCIAL PRESSURE SWITCH	BY CONTROL CONTRACTOR	OBD	OPPOSED BLADE DAMPER	
DPI	DIFFERENTIAL PRESSURE INDICATOR	BY CONTROL CONTRACTOR	M	MAIN INSTRUMENT AIR	
VFD	VARIABLE FREQUENCY DRIVE	BY CONTROL CONTRACTOR		DIGITAL INPUT TO CONTROLLER	DDC CONTROLLER
SD	SMOKE DETECTOR	BY CONTROL CONTRACTOR		DIGITAL OUTPUT FROM CONTROLLER	
T	TEMPERATURE SENSOR BENDABLE AVERAGING (AHU)	BY CONTROL CONTRACTOR		ANALOG INPUT TO CONTROLLER	
				ANALOG OUTPUT FROM CONTROLLER	
			N.O.	NORMALLY OPEN	
			N.C.	NORMALLY CLOSED	

AHU'S CONTROL SCHEMATIC
TYPICAL FOR AHU 100 THRU 1000

FILTRATION UNIT (PACKAGE TYPE)

MANUFACTURER: PUROFLUX CORP., MODEL PF-3042, AUTOMATIC OPERATION.
RATE: 190 GPM
CONTROL PANEL: NEMA 4
PUMP MOTOR: 5HP, 460 VOLTS, THREE PHASE
REMARK: CARBON STEEL EPOXY LINED VESSEL, COATED STEEL BASE

COOLING TOWER
CT-1, 2
FLOW:750 GPM (375 GPM/CELL)
ENT. TEMP.:95° F
LVG. TEMP.:85° F
HP:5 HP MOTOR
INVERTER RATED

TOWER WATER PUMPS
TW-P-1, 2, 3 & 4
FLOW:750 GPM
HEAD:XX FT
MOTOR:15 HP MOTOR
INVERTER RATED

1 / M-111 TOWER WATER SYSTEM FLOW DIAGRAM
NONE

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PROJECT ADDRESS:
AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

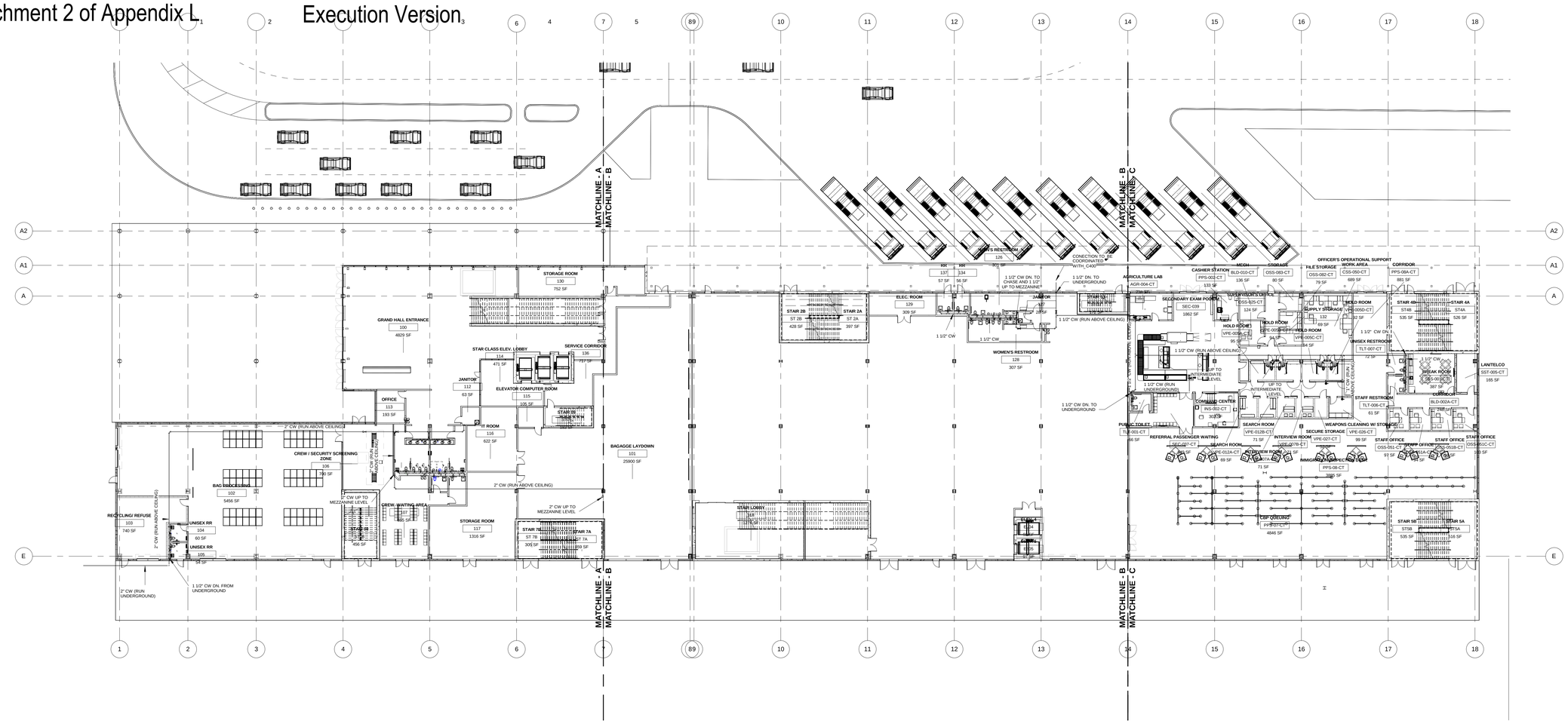
BA. PROJECT NUMBER:
17029

SHEET NAME
TOWER WATER SYSTEM FLOW DIAGRAM

SHEET NO.
M111

Attachment 2 of Appendix L

Execution Version



1 M102.1 OVERALL GROUND FLOOR DOMESCTIC WATER PLAN

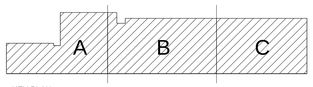
3/64" = 1'-0"

PLUMBING ABBREVIATIONS

(TYP.)	TYPICAL
CW	COLD WATER
EW	EYE WASH
HB	HOSE BIB
HW	HOT WATER
WH	WATER HEATER

PLUMBING LEGEND:

– – – – – – – – –	SANITARY VENTILATION LINE
— — — — — —	COLD POTABLE WATER LINE
— — — — — —	HOT POTABLE WATER LINE
———————	SANITARY SEWER LINE
P-1	INDICATES PLUMBING FIXTURE DESIGNATION SEE SCHEDULE
SS / X" ø	INDICATED SANITARY STACK DESIGNATION AND SIZE
WS / X" ø	INDICATED WASTE STACK DESIGNATION AND SIZE
WS / X" ø	INDICATED SANITARY VENTILATION STACK DESIGNATION AND SIZE



KEY PLAN

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PROJECT ADDRESS:

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BA. PROJECT NUMBER:

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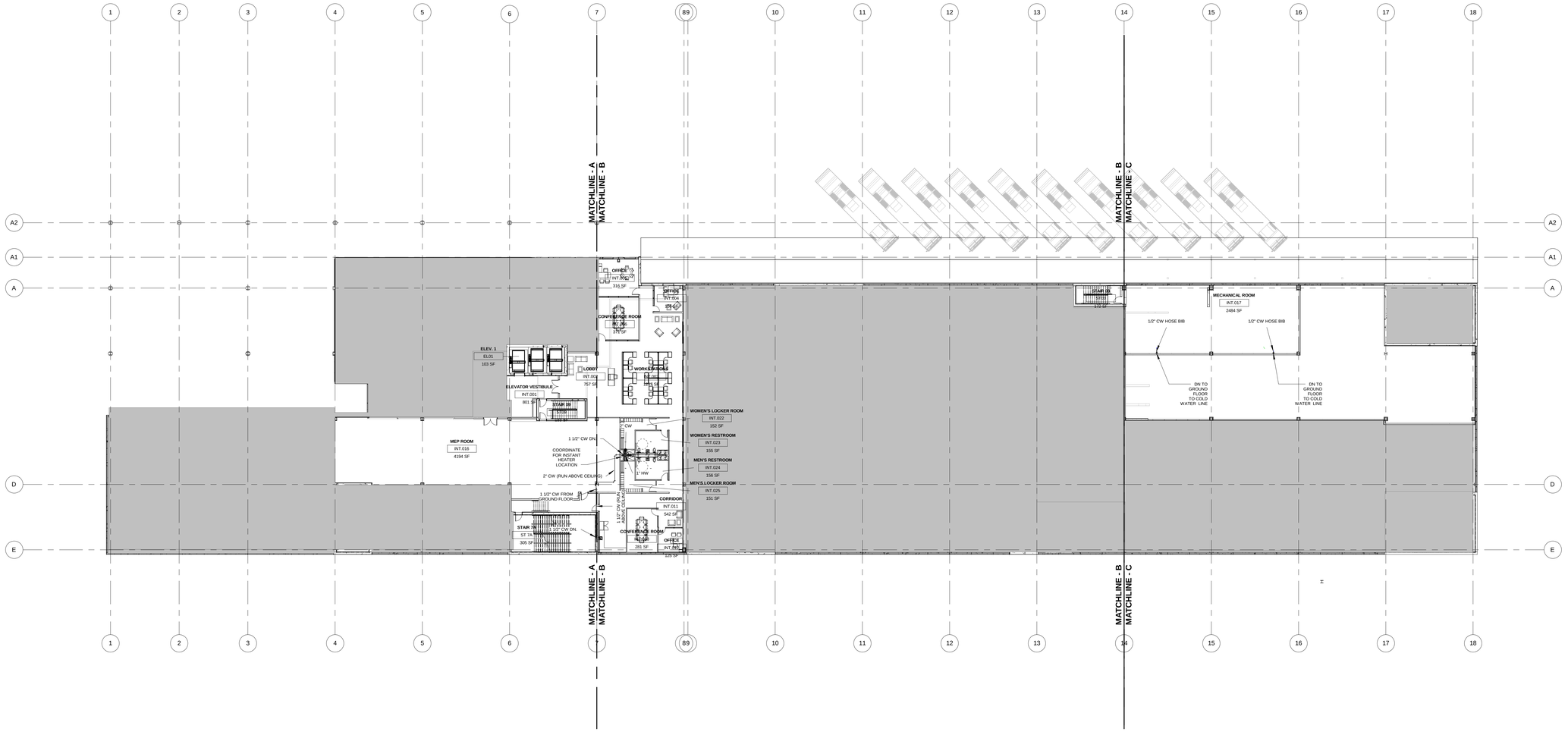
SHEET NAME

OVERALL GROUND FLOOR DOMESCTIC WATER PLAN

SHEET NO.

M102.1



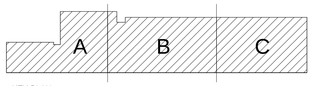
1 M105.1 ENLARGED INTERMEDIATE LEVEL DOMESCTIC WATER FLOOR PLAN
3/64" = 1'-0"

PLUMBING ABBREVIATIONS

(TYP.)	TYPICAL
CW	COLD WATER
EW	EYE WASH
HB	HOSE BIB
HW	HOT WATER
WH	WATER HEATER

PLUMBING LEGEND:

- SANITARY VENTILATION LINE
- COLD POTABLE WATER LINE
- HOT POTABLE WATER LINE
- SANITARY SEWER LINE
- **P-1** INDICATES PLUMBING FIXTURE DESIGNATION SEE SCHEDULE
- SS / X" ø — INDICATED SANITARY STACK DESIGNATION AND SIZE
- WS / X" ø — INDICATED WASTE STACK DESIGNATION AND SIZE
- WS / X" ø — INDICATED SANITARY VENTILATION STACK DESIGNATION AND SIZE



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PROJECT ADDRESS:
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BA. PROJECT NUMBER:
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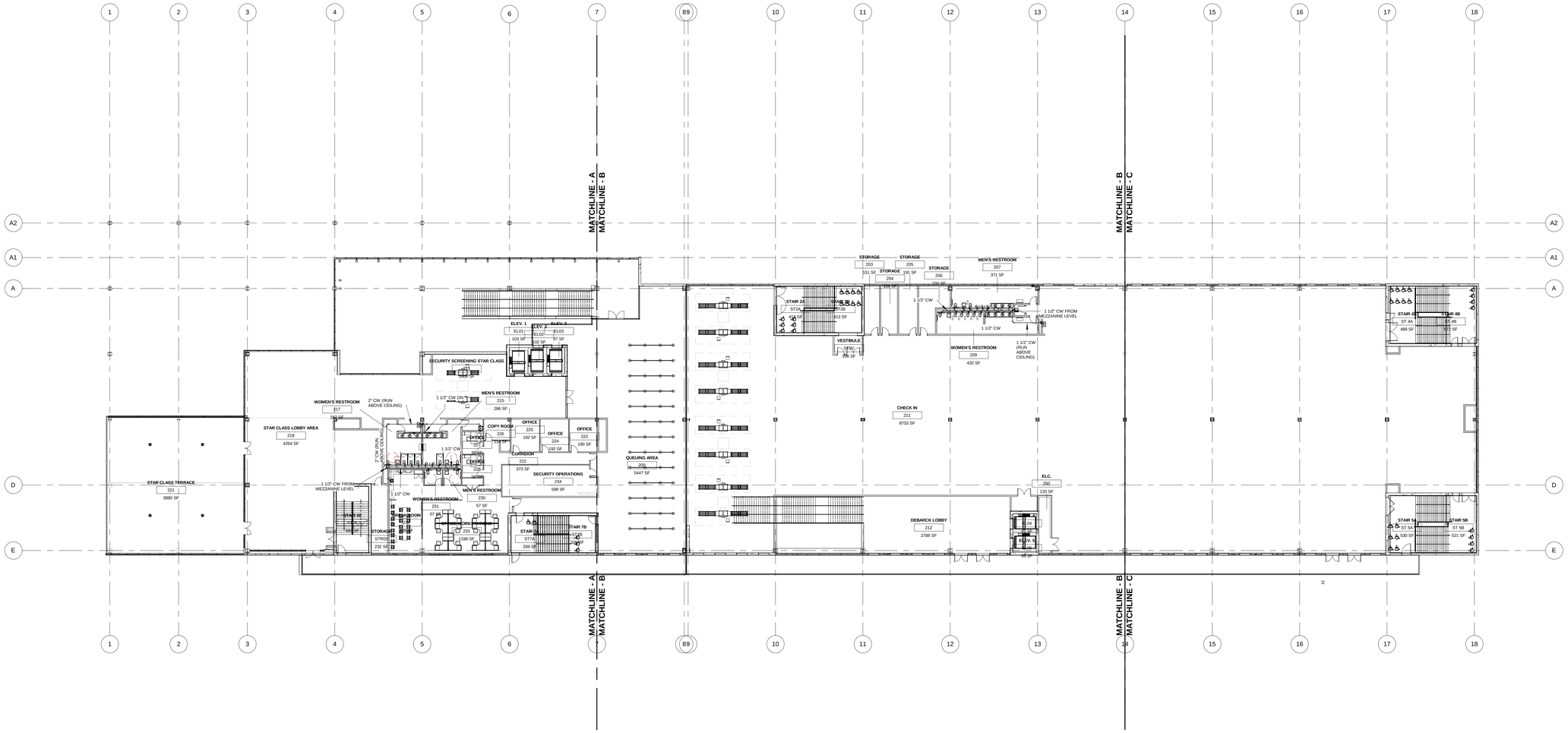
SHEET NAME
OVERALL INTERMEDIATE FLOOR DOMESCTIC WATER PLAN

SHEET NO.
M105.1



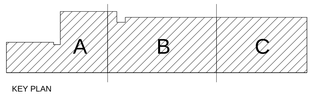
1 M108.1 OVERALL SECOND FLOOR DOMESCTIC WATER PLAN
3/64" = 1'-0"

PLUMBING ABBREVIATIONS

(TYP.)	TYPICAL
CW	COLD WATER
EW	EYE WASH
HB	HOSE BIB
HW	HOT WATER
WH	WATER HEATER

PLUMBING LEGEND:

- SANITARY VENTILATION LINE
- COLD POTABLE WATER LINE
- HOT POTABLE WATER LINE
- SANITARY SEWER LINE
- P-1 — INDICATES PLUMBING FIXTURE DESIGNATION SEE SCHEDULE
- SS / X" ø — INDICATED SANITARY STACK DESIGNATION AND SIZE
- WS / X" ø — INDICATED WASTE STACK DESIGNATION AND SIZE
- WS / X" ø — INDICATED SANITARY VENTILATION STACK DESIGNATION AND SIZE



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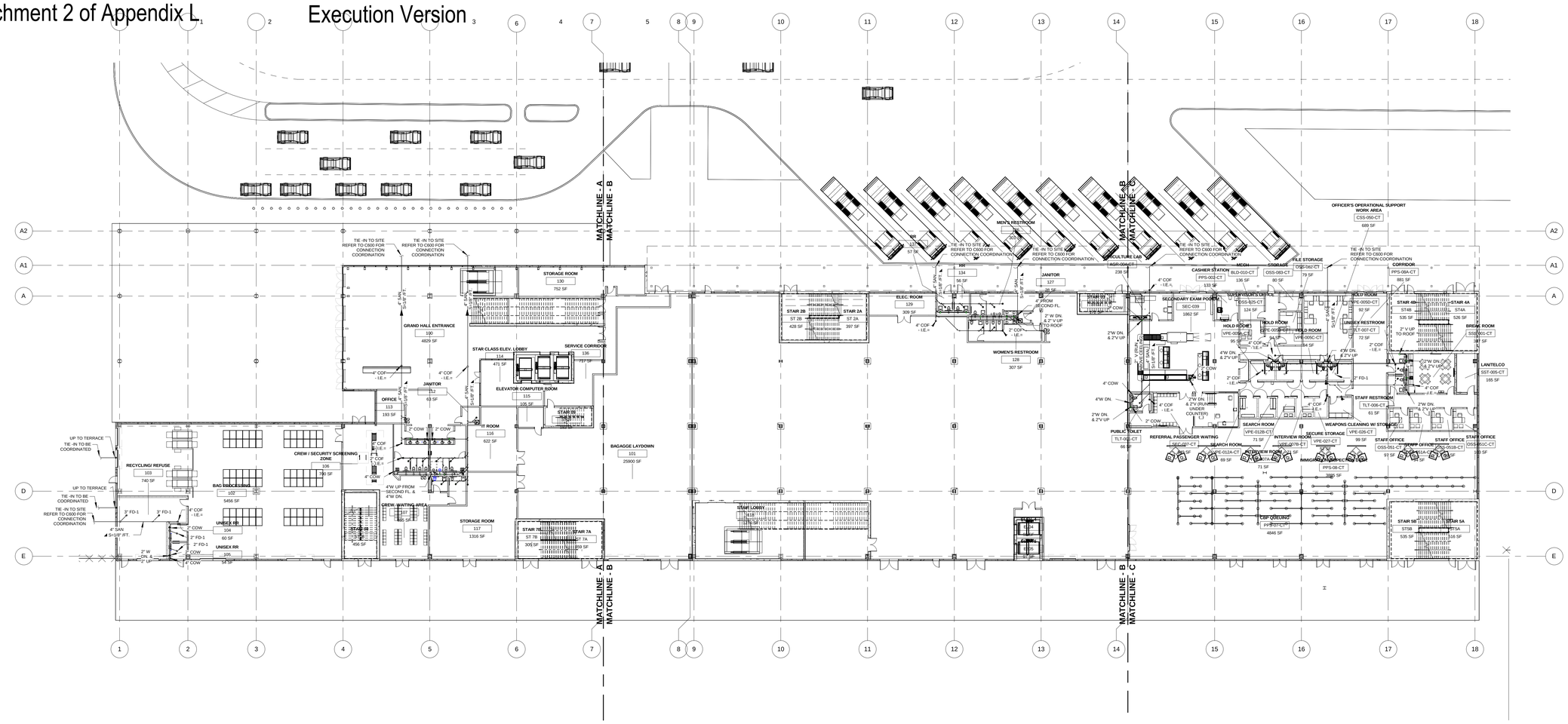
SHEET NAME
OVERALL SECOND FLOOR DOMESCTIC WATER PLAN

SHEET NO.
M108.1

Attachment 2 of Appendix L

Execution Version



1 P100 OVERALL GROUND FLOOR PLUMBING PLAN

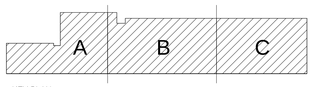
3/64" = 1'-0"

PLUMBING LEGEND:

SANITARY VENTILATION LINE	
COLD POTABLE WATER LINE	
HOT POTABLE WATER LINE	
SANITARY SEWER LINE	
P-1	INDICATES PLUMBING FIXTURE DESIGNATION SEE SCHEDULE
SS / X" ø	INDICATED SANITARY STACK DESIGNATION AND SIZE
WS / X" ø	INDICATED WASTE STACK DESIGNATION AND SIZE
WS / X" ø	INDICATED SANITARY VENTILATION STACK DESIGNATION AND SIZE

PLUMBING ABBREVIATIONS

(TYP.)	TYPICAL
CW	COLD WATER
EW	EYE WASH
HB	HOSE BIB
HW	HOT WATER
WH	WATER HEATER



KEY PLAN

Execution Version

OWNER:

GLOBAL PORTS HOLDING

Global Ports Holding
Rihtim Cad no 51 Karakoy Istanbul
34425 Turkey
https://www.globalportsholding.com/

T +90 212 244 44 40

URBAN DESIGN AND PLANING ARCHITECTURE, INTERIOR DESIGN, LANDSCAPE ARCHITECTURE, CIVIL ENGINEERING & MARINE ENGINEERING

Architecture Engineering Planning
Interior Design Landscape Architecture
2601 S Bayshore Dr #1000
Miami, FL 33133

T (305) 859-2050

MEP / STRUCTURAL / CIVIL ENGINEERING:

Integra Design Group PSC
576 Ave Arterial B, Ste 102
San Juan, Puerto Rico, 00918
www.integrapr.com

T 787-767-2111

30% DESIGN

MARCH 27, 2020

NOT FOR CONSTRUCTION

REVISIONS

REV. #	REVISION DESCRIPTION	REV. DATE
0	30% Design Subm. to PRPA	2020-03-27

AUTORIDAD DE PUERTOS de PUERTO RICO

Yo _____, licencia ___, certifico que soy el profesional que diseñó estos planos y las especificaciones complementarias. También certifico que entiendo que dichos planos y especificaciones cumplen con las disposiciones aplicables del Reglamento Conjunto y las disposiciones aplicables de los Reglamentos o Corporaciones Públicas con jurisdicción. Certifico, además, que en la preparación de estos planos y especificaciones se ha cumplido cabalmente con los dispuesto en la "Ley Núm.14 de 8 de enero de 2004, según enmendada, conocida como la "Ley para la Inversión por la Industria Puertorriqueña" y con la Ley Núm 319 de 15 de mayo de 1938, según enmendada; Ley Núm. 96 de 6 de julio de 1978, según enmendada. Reconozco que cualquier declaración falsa o falsificación de los hechos que se haya producido por desconocimiento o por negligencia ya sea por mí, mis agentes o empleados o por otras personas con mi conocimiento, me hacen responsable de cualquier acción judicial y disciplinaria por la OGPe.

DRAWINGS ARE PROPERTY OF BERMELLO AJAMIL & PARTNERS

PROJECT NAME:

SAN JUAN CRUISE TERMINAL 11-13

PROJECT ADDRESS:

AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:

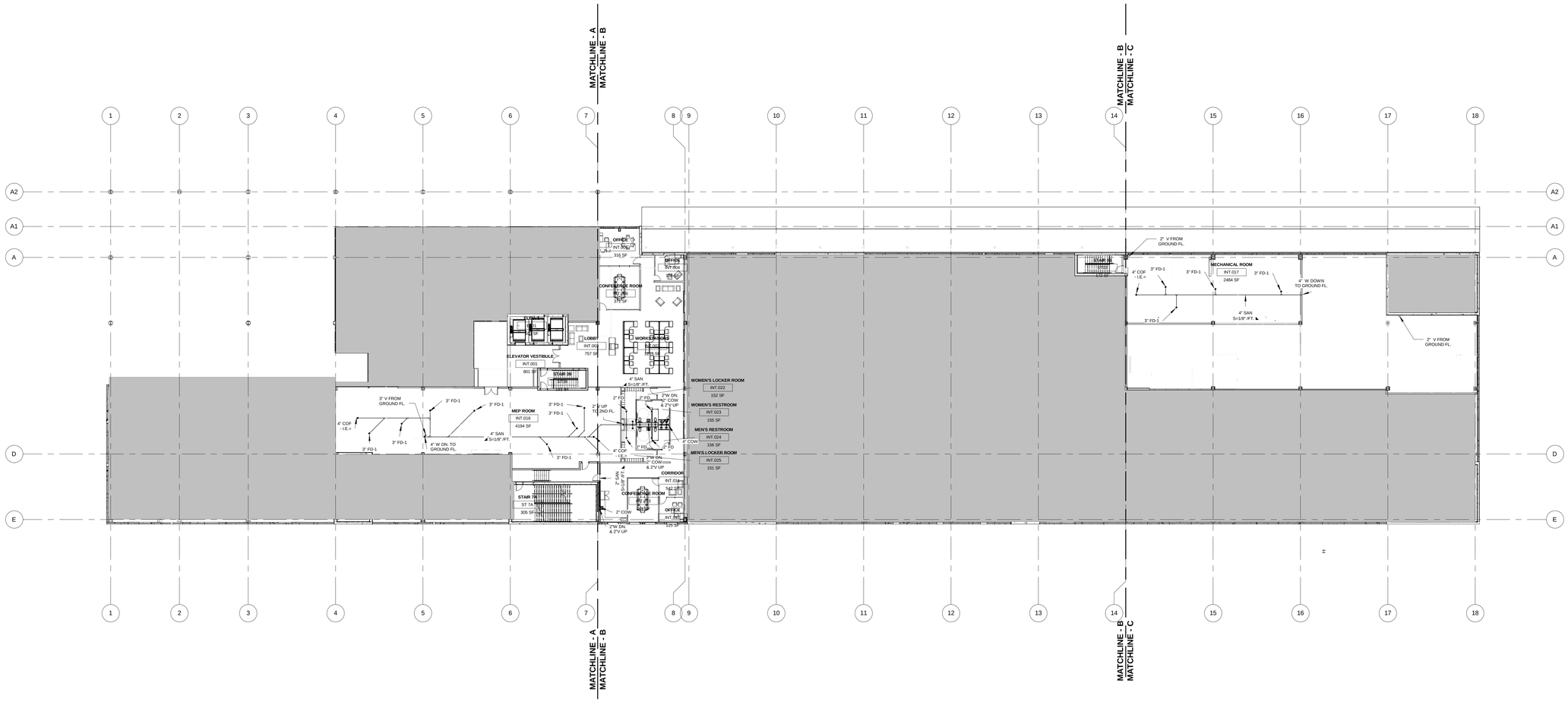
17029

SHEET NAME

OVERALL GROUND FLOOR PLUMBING PLAN

SHEET NO.

P100



1 P104 ENLARGED INTERMEDIATE LEVEL PLUMBING FLOOR PLAN - A

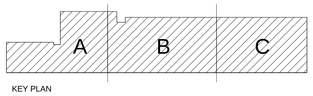
3/64" = 1'-0"

PLUMBING ABBREVIATIONS

(TYP.)	TYPICAL
CW	COLD WATER
EW	EYE WASH
HB	HOSE BIB
HW	HOT WATER
WH	WATER HEATER

PLUMBING LEGEND:

- SANITARY VENTILATION LINE
- COLD POTABLE WATER LINE
- HOT POTABLE WATER LINE
- SANITARY SEWER LINE
- P-1 — INDICATES PLUMBING FIXTURE DESIGNATION SEE SCHEDULE
- SS / X" ø — INDICATED SANITARY STACK DESIGNATION AND SIZE
- WS / X" ø — INDICATED WASTE STACK DESIGNATION AND SIZE
- WS / X" ø — INDICATED SANITARY VENTILATION STACK DESIGNATION AND SIZE



KEY PLAN

Execution Version

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BA. PROJECT NUMBER:

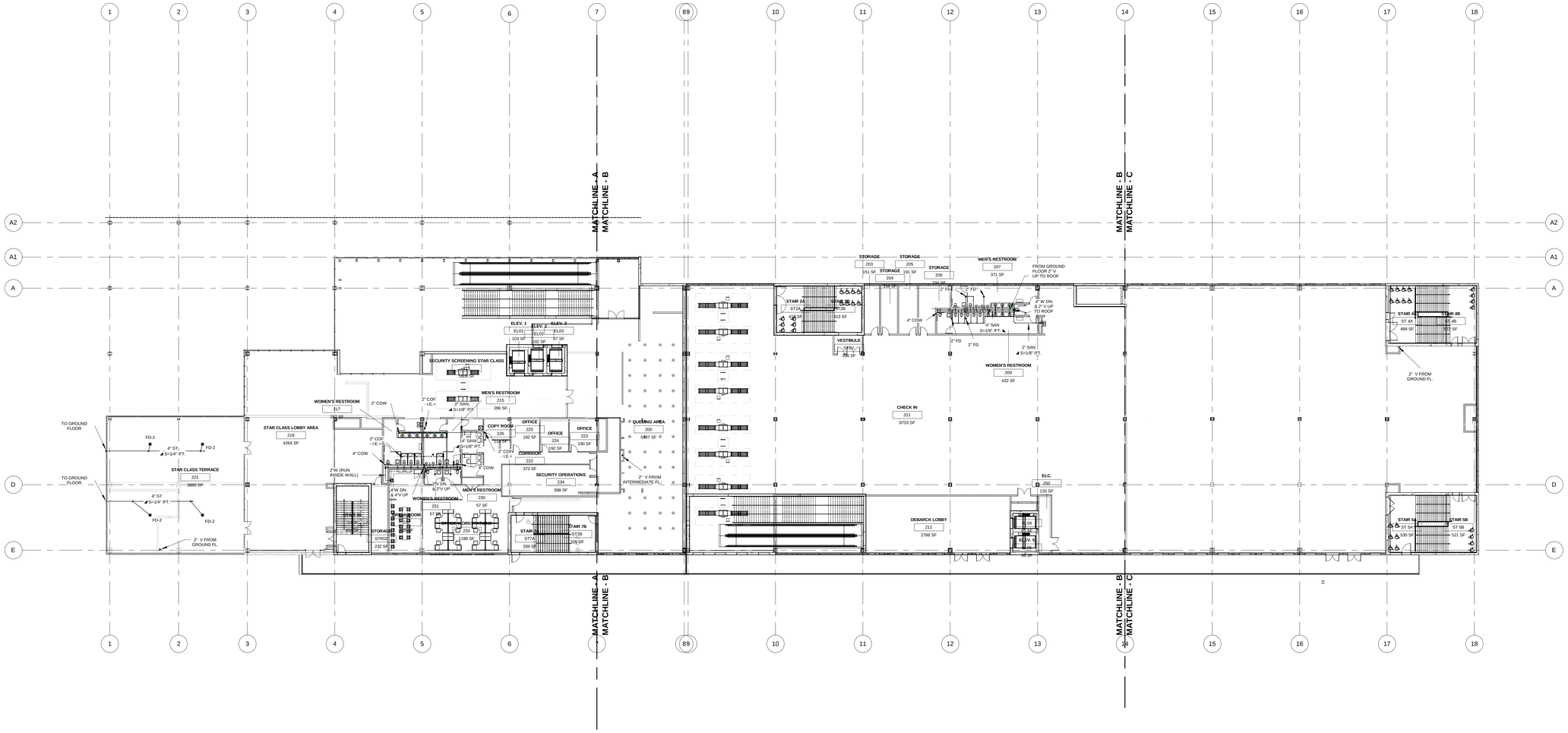
17029

SHEET NAME

OVERALL INTERMEDIATE FLOOR PLUMBING PLAN

SHEET NO.

P104



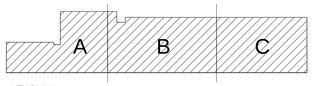
1 P108 OVERALL SECOND FLOOR PLUMBING PLAN
3/64" = 1'-0"

PLUMBING ABBREVIATIONS

(TYP.)	TYPICAL
CW	COLD WATER
EW	EYE WASH
HB	HOSE BIB
HW	HOT WATER
WH	WATER HEATER

PLUMBING LEGEND:

— — — — — — — —	SANITARY VENTILATION LINE
— — — — — —	COLD POTABLE WATER LINE
— — — — — —	HOT POTABLE WATER LINE
————————	SANITARY SEWER LINE
P-1	INDICATES PLUMBING FIXTURE DESIGNATION SEE SCHEDULE
SS / X" ø	INDICATED SANITARY STACK DESIGNATION AND SIZE
WS / X" ø	INDICATED WASTE STACK DESIGNATION AND SIZE
WS / X" ø	INDICATED SANITARY VENTILATION STACK DESIGNATION AND SIZE



KEY PLAN

Execution Version

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30% DESIGN

MARCH 27, 2020

NOT FOR CONSTRUCTION

REVISIONS

REV. #	REVISION DESCRIPTION	REV. DATE
0	30% Design Subm. to PRPA	2020-03-27

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PROJECT NAME:
SAN JUAN CRUISE TERMINAL 11-13

PROJECT ADDRESS:
AVENIDA FERNANDEZ JUNCOS, PUERTA DE TIERRA, SAN JUAN, PUERTO RICO

BA. PROJECT NUMBER:
17029

SHEET NAME
OVERALL SECOND FLOOR PLUMBING PLAN

SHEET NO.
P108

APPENDIX M: LIQUEFACTION

As provided in Section 4.13(a) of this Agreement, it shall be an Expansion Investment Projects Requirement that:

The geotechnical investigation report of GeoConsult LLC, San Juan, Puerto Rico (or any other Person Approved by the Authority) commissioned by the Concession Company with respect to the analysis of the physical properties and characteristics of the subsurface material at Piers 11-12, (the "Piers 11-12 Geotechnical Report") concludes that the classification of such subsurface material at Piers 11-12 is Class D (as such classification is defined by Codes ASCE/SEI 7-16 of the American Society of Civil Engineers) as was determined in the following reports;

- Interim Geotechnical Report Number 1 - Liquefaction Port of San Juan Piers 11 – 12 – 13, GeoConsult LLC, January 2020
- MEM CWI P11 MR 0001, Definition of Seismic Parameters for San Juan Bay Cruise Terminals: Piers 11 – 12, COWI, 23 December 2019*
- Preliminary Geotechnical Report, AMEC E&E Caribe, LLP, dated 31 Oct 2007
- Geotechnical Report Reconstruction of Wharves along Piers 11 to 14, GeoConsult, Dec 2003
- Addendum 1 - Geotechnical Recommendations Report Reconstruction of Wharves along Piers 11 to 14, GeoConsult, Jan 2004
- Addendum 2 - Geotechnical Recommendations Report Reconstruction of Wharves along Piers 11 to 14 (Additional Borings at Wharves 11 and 14), GeoConsult, Jun 2004
- Addendum 3 - Geotechnical Recommendations Report Reconstruction of Wharves along Piers 11 to 14, GeoConsult, Apr 2005

If the Piers 11-12 Geotechnical Report concludes that the site at Piers 11-12 is Class E or higher (as such classifications are defined by Codes ASCE/SEI 7-16 of the American Society of Civil Engineers) then the Expansion Investment Projects Requirements provided in Section 4.13(a) of this Agreement shall not be satisfied (except if Government Contributions are available with respect to the Expansion Investment Projects, as provided in Section 4.13(a) of this Agreement).

As per Section 3.25(i) of this Agreement, the Piers 11-12 Geotechnical Report shall be provided no later than sixty (60) days after the Date of this Agreement.

With respect to any good faith discussions between the Parties if this Expansion Investments Projects Requirement is not satisfied, the following documents shall be reference documents for

such negotiations:

- San Juan Cruise Terminals: Pier 11-12 Design Basis Report – COWI, January 2020*
- Interim Geotechnical Report Number 1 - Liquefaction Port of San Juan Piers 11 – 12 – 13, GeoConsult LLC, January 2020
- MEM-CWI-P11-MR-0001-1, Definition of Seismic Parameters for San Juan Bay Cruise Terminals: Piers 11 – 12, COWI, 23 December 2019*
- Preliminary Geotechnical Report, AMEC E&E Caribe, LLP, dated 31 Oct 2007
- Geotechnical Report Reconstruction of Wharves along Piers 11 to 14, GeoConsult, Dec 2003
- Addendum 1 - Geotechnical Recommendations Report Reconstruction of Wharves along Piers 11 to 14, GeoConsult, Jan 2004
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- Addendum 3 - Geotechnical Recommendations Report Reconstruction of Wharves along Piers 11 to 14, GeoConsult, Apr 2005

*There will be no warranty of the Concession Company and no recourse against the Concession Company for the Authority to use these documents in developing a new cruise port facility in case Piers 11-12 no longer constitute part of the Cruise Port Facility and the Concession.

APPENDIX N: DEFINITIONS

"Bid Model" has the meaning ascribed thereto in Appendix J of this Schedule 13.

"CBP" means the Customs and Border Protection, or any successor agency or department thereto.

"CPIMP" has the meaning ascribed thereto in Section 8(b) of this Schedule 13.

"Design and Build Plan" has the meaning ascribed thereto in Section 2(a) of this Schedule 13.

"Design and Build Standards" has the meaning ascribed thereto in the Introduction paragraph of this Schedule 13.

"Design Criteria Document" has the meaning ascribed thereto in Section 8(b)(iii) of this Schedule 13.

"DNER" means the Puerto Rico Department of Natural and Environmental Resources, or any successor agency or department thereto.

"Legal Requirements" has the meaning ascribed thereto in Section 5 of this Schedule 13.

"New Debt" has the meaning ascribed thereto in Appendix J of this Schedule 13.

"100% Design" has the meaning ascribed thereto in Section 8(c) of this Schedule 13.

"PRCDA" has the meaning ascribed thereto in Section 8(b)(i) of this Schedule 13.

"Project Manager" has the meaning ascribed thereto in Section 8(a) of this Schedule 13.

"60% Design" has the meaning ascribed thereto in Section 8(c) of this Schedule 13.

"30% Design" has the meaning ascribed thereto in Section 8(c) of this Schedule 13.

"USCG" means the United States Coast Guard, or any successor agency or department thereto.

"USACE" means the United States Army Corps of Engineers, or any successor agency or department thereto.

APPENDIX O: ENVIRONMENTAL REPORTS

NAME OF THE DOCUMENT	AUTHOR	DOCUMENT DATE
PIER 3		
1. Lead Based Paint Inspection Report (Dolphin & Rung)	Zimmetry Environmental Management Corp.	July 2019
PIER 4		
2. Informe de Inspección en Pintura de Plomo – Rehabilitación Puente Abordaje	Zimmetry Environmental Management Corp.	March 2012
PIER 11-14		
3. Subsoil Exploration Report	Carlos A Ortiz Suarez	June 23, 1987
4. Asbestos and Lead Based Paint Results Piers 8 thru 14	Analytical Environmental Services International	February 17, 2000
5. Phase 1 Environmental Property Site Assessment	ERTEC	August 28, 2003
6. Phase I & II Environmental Property Site Assessment Piers 11 to 14	ERTEC	October 17, 2003
PAN AMERICAN I & II		
7. Industrial Hygiene Assessment for Mold & Moisture Report – Pan American Pier 2	Zimmetry Environmental Management Corp.	June 2019
GENERAL		
8. Technical Memorandum Preliminary Executive Summary: ASTM E1527 Phase I Environmental Site Assessment San Juan Bay Cruise Ship	AG Environmental PSC	June 25, 2019
9. PHASE I ENVIRONMENTAL SITE ASSESSMENT ASTM-1527-13 San Juan Cruise Ship Ports	AG Environmental PSC	October, 2019