1. Introduction

This section presents the preliminary engineering and related studies on the lease area named **SUA05**, located at the Governador Eraldo Gueiros Industrial Port Complex – Suape Port, in the municipality of Ipojuca, State of Pernambuco, Brazil, for the implementation of an project for the movement and storage of container cargo, within the scope of the Federal Government planning.

2. Description of the Operational Structure

The **SUA05** lease area will be used for the storage and movement of container cargo from cabotage and long-haul navigation, for loading and unloading.

The total surface area is **268,967m²** (two hundred sixty-eight thousand, nine hundred and sixty-seven square meters), including the pier and retro area, with a road connection to the Metropolitan Region of Recife.

The area is characterized as green field, that is, there is no existing infrastructure. Therefore, the project will be executed on operationally unexplored terrain[1].

The future lessee must carry out all investments in infrastructure, facilities, and equipment required for operation, including dredging works for berths and access canal, construction of port structures, paving and earthmoving of the retro area, construction of administrative and operational buildings (container cranes, RTG cranes, among others), and other characteristic features of port terminals.

The capacity calculation in each operation subsystem is presented in more detail in the chapter "Compatibility of the Future Capacity of the Project". For more operational details, see Section D – Operational.

2.1. Waterway Loading/Unloading System

The **SUA05** lease area has the berths of Pier 6 and Pier 7 of the Suape Port, to be built by the future lessee.

Currently, the operations of waterway loading/unloading of container ships are carried out in the berths of Pier 2 and Pier 3 (leased) and in the Public Use Berth of Pier 1, whose characteristics and operating conditions are described in Section A – Presentation.

Regarding Pier 6 and Pier 7, they were scaled in this study based on the fleet profile expected in the contract duration, considering the potential of Suape Port as a cargo and port hub, and in the references of "minimum distances between docked vessels" from the ABNT publication NBR 13.246/2017. **Thus, the minimum length of pier infrastructure calculated to adequately meet two berths is 770 meters.** The ships considered were as follows:

[1] There is record that the area destined to **SUA05** has been used for the dumping of dredged material. For more details, see Section F – Environmental.

Section C – Engineering

Ship	*New Panamax*	*6th generation Post-Panamax*
Size (TEU)	12,500	8,063
Length (m)	366	323
Width (m)	49	42.8
Maximum draft (m)	15.2	14.5

Table 1: Project ships for Pier 6 and Pier 7 at the Suape Port
Source: Own Elaboration.

To estimate the pier operation, the historical data of the Suape Port for the 2012-2017 period were used as parameters, which were extracted from the Statistical Yearbook of ANTAQ[2]; in addition, international references for container terminal sizing were also used[3].

The berth occupancy rate adopted for two berths was 50%, based on acceptable levels of waiting time at container terminals. According to the adopted bibliographic reference (PIANC), the best approach to estimate berth capacity is Queue Theory: "In the case of container terminals, a 10% relation between waiting time and service time is generally accepted". Thus, based on Table IX of UNCTAD ("Erlang distributions for waiting and service times"), it can be observed that the berth limit occupation based on the 10% service level rate is 30%, 50%, and 60% for one, two, and three berths, respectively.

The areas corresponding to Pier 6 and Pier 7 are included in the lease area, so there is no provision for the shared use of these structures with other port operations.

The general average productivity, which corresponds to the average ratio of cargo moved by the total berth period, was estimated at approximately **60 units per hour**, considering the average consignment observed in 2017 of 538 units per ship (highest in the 2012-2017 period), the expected 2 hours of non-operating time per mooring (average time for start of operation and average time to undock), and the operational productivity of 80 units per hour, with three container cranes per berth.

The reference for the establishment of the operational productivity, that is, the hourly productivity of container loading/unloading on the ship, is the average of the three Brazilian Terminals best positioned in this area[4], in 2015, 2016, and 2017.

All container cranes must be able to meet the largest ship of the indicated design (New Panamax).

For unit conversion purposes, the average adopted was that observed in the Suape Port (2012-2017 period) of 1.6 TEUs per container unit.

[2] National Waterway Transport Agency (http://web.antaq.gov.br/Anuario/).
[3] PIANC Publication, Report No. 135/2014 – Design Principles For Small And Medium Marine Container Terminals.
[4] Embraport Terminals (current DP World Santos), Santos Brasil (Tecon Santos), and Brazil Port Terminal – BTP.

Finally, considering the reported data on the number of berths, berth occupancy rate, and general average productivity, **the annual dynamic capacity of the loading/unloading system of the Terminal was calculated at 840,000 TEUs.**

2.2. Storage System

It will be up to the future Lessee to carry out earthworks, paving, (administrative and operational) building construction, and to implement the equipment and systems necessary for the operation of the Terminal.

In view of the characteristics of the cargo, the storage system in this case is a large open paved yard, with markings for ground slots and spaces for the movement of equipment.

Considering the local conditions and having as a parameter the paving projects carried out by the port in nearby areas[5], the pavement with reinforced concrete flooring throughout the retro area was chosen for this study.

In order to dimension the storage capacity of the **SUA05** area, it is initially necessary to choose the handling systems in the Terminal to subsidize the organizational arrangement of the yard and the stacking density. The systems selected from the profile and size of the Terminal were:

- RTG crane for stacking operations. They involve moving containers in and out of container stacks; and

- Tractor-trailer sets for the horizontal movement of containers inside the Terminal.

For this Study, it was established the amount of 16 RTGs, of 6+1 container height and 6 container cross section, and 30 tractor-trailer sets for one 40-foot container or two 20-foot containers.

It should be noted that the amount and technical specifications of the yard equipment should be established by the future lessee in order to be compatible with the reference productivity of the container loading/unloading on the ship.

According to the technical literature, for operational reasons, containers should be stacked parallel to the pier wall as the ideal layout of stacks operated with RTGs.

Thus, the organizational arrangement of the yard was established with the ground slot positions, as presented in Annex C-1, amounting to 4,584 TEUs.

[5] Paving project of public yards in the retro area of Pier 4.

The average stacking height, defined according to the specification of the selected RTGs, was arbitrated in 4.5 TEUs.

The static capacity of the Terminal, which is calculated by multiplying the ground slots by the average stacking height, amounts to 20,268 TEUs.

The average dwell time of the cargo in the Terminal is 7.72 days, calculated based on the adopted periods of 10 days for import and 7 days for export and cabotage, weighted by the expected demand in the contract duration.

Considering that the Terminal will operate 24 hours a day, 365 days a year, the estimated turnover is 47 times a year.

As a precautionary measure, it was also considered a monthly peak factor in the year, which evaluates the month of greatest movement in relation to the annual average. Historical data from the Suape Port, between 2012 and 2017, indicate an average of 14%.

Finally, considering the reported data of static capacity, annual turnover, and monthly peak factor, **the dynamic capacity of the annual storage system of the Terminal was calculated at 860,000 TEUs.**

It should be noted that the layout of the Terminal and the design of the storage system is the prerogative of the winner of the auction, observing the contractual conditions. For more details on terminal sizing, see Section B – Market Studies.

It should be noted that the presented engineering solution, as well as its associated values, is used to measure maintenance and insurance costs detailed in Section D - Operational.

Annex C-1 presents the layout of the Terminal and the delimitation of the area and Annex C-2 shows the details of the unit and quantitative values.

2.3. Land Dispatch/Reception System

Land access to this area occurs only by road, through the internal roads of the port. These routes connect to the BR-101, BR-232, PE-060, PE-009, and PE 028 highways.

This Study provided for one (1) single road access, located near the southeastern end of the Terminal. However, it is the prerogative of the future lessee to establish the number and location of the accesses to the Terminal, respecting the streets planned in the common areas of the Port.

In order to calculate the capacity of the land reception/dispatch system, it was estimated 24 hours of operation, 7 days per week, average cargo of 1.6 TEU per truck, and 4 minutes of truck driving time.

As a precautionary measure, it was established that the system occupancy rate will be 60% at maximum.

Finally, **the dynamic capacity of the annual road reception/dispatch system of the Terminal was estimated at 880,000 TEUs, considering the use of seven gates.**

Annex C-2 shows the detailing of values and amounts.

2.4. Other Operational Structures

To enable terminal operations, it was also provided for the installation of two (2) operating sheds, with a total area of 4,241.56 m², for filling, emptying, fumigation, and other services.

The area estimates of the operational buildings were from the study elaborated within the scope of the Department of Ports of the Presidency of the Republic – SEP/PR[6].

The reference to estimate the corresponding unit costs was the project obtained from ABNT NBR 12.721/2007 (sheds).

2.5. Other Non-Operating Structures

The following buildings were considered non-operational structures:

- ✓ Administrative areas, of 2,180 m² - five-story building for administrative areas, offices, and the Federal Revenue Office.
- ✓ Cafeteria and locker room, of 752 m².

The area estimates of the operational buildings were from the study elaborated within the scope of the Department of Ports of the Presidency of the Republic – SEP/PR.

The reference to estimate the corresponding unit costs was the *Caixa Econômica Federal* project, extracted from the "SINAPI Project Catalog"[7].

3. Possible Terminal Expansion (Phase 2)

According to the expected demand of the Terminal, the estimated peak demand for the **SUA05** Terminal in the trend scenario in 2044 is 455,496 TEUs. However, it is interesting to note that this same demand rises sharply to 1,132,498 TEUs in the optimistic scenario.

Considering the range observed between the trend and optimistic scenarios of the demand and the need to order in advance the possible expansion of the **SUA05** Terminal, the dimensions of the pier and retro area for Phase 2 of the Terminal were calculated, when necessary.

[6] Port Lease Program, of 2013.
[7] Reference project of the Social Assistance Reference Center (CRAS), MDS (Ministry of Social Development) standard.

Phase 2 was dimensioned considering as assumption the inclusion of a third berth in the Terminal plus corresponding retro area.

To this end, considering that this expansion would occur only in the long term, the largest container ship of today was considered, the **Maersk Triple E-class** ship of 18,000 TEUs, 400 meters long, 59 meters wide, and 16 meters of maximum draft.

Thus, considering the calculation assumptions initially reported in the Study, the minimum length of pier infrastructure calculated to adequately meet the three berths would be **1,200 meters**.

According to the international reference literature (PIANC), in the Terminal with three berths, the load factor of these berths rises from 50% to 60%.

Keeping the remaining elements of calculation, **the dynamic capacity of the annual loading/unloading system of the Terminal was calculated at 1,510,000 TEUs.**

The total area of the Terminal, considering that it would be parallel to the extension projection of the pier, would be 432,702 m². Keeping the same assumptions for equipment and yard organization from the initial phase, the number of ground slots would be 8,184 TEUs.

Keeping the other calculation elements, **the dynamic capacity of the annual storage system of the Terminal was calculated at 1,530,000 TEUs.**

Expanding the number of road gates to meet the new capacity of the Terminal, it is estimated that twelve gates would be needed.

Keeping the other calculation elements, **the dynamic capacity of the annual reception/dispatch system of the Terminal was calculated at 1,510,000 TEUs.**

The proposed expansion scenario aims to cover the best evolution of the **SUA05** Terminal if it exceeds the trend demand scenario, at the levels indicated by the optimistic scenario of expected demand.

Therefore, since the scenario covered may not occur within the contractual duration, investments were not calculated for its implementation. Such a scenario was also not considered in the financial spreadsheet that evaluates the viability of the project. It must necessarily be subjected to economic-financial contractual rebalancing if it is to be implemented in the future.

4. Compatibility of the Future Capacity of the Project

After analyzing the individual capacities of each subsystem of the production process of the project, it is time to estimate the capacity of the Terminal, which is generally defined by the lowest capacity: the

movement in the pier (loading/unloading system) or the storage of cargo. It was also assumed that the reception or dispatch capacity of the cargo on the ground will not limit the capacity of the facility.

The following table shows the total annual dynamic capacity of the project, established at **840,000 TEUs**.

In the possible scenario of expansion of the Terminal, the total annual dynamic capacity of the project would be 1,510,000 TEUs.

MICRO-CAPACITY CALCULATION					
Lease	**SUA05**	Container Terminal			
			Future		
	Unit	Base year	Phase 1	Phase 2	Notes
Beginning of the period		2017	2023	*[Expansion]*	
Loading/Unloading System					
Number of berths	#		2	3	1
Berth occupancy	%		50%	60%	2
Percentage of allocated berth time	%		100%	100%	
General Average Productivity	unit/h		60	60	3
TEU/unit factor	TEU/unit		1.6	1.6	
Annual capacity of berths	**1,000 TEUs**	**0**	**840**	**1,510**	
Storage system					
Ground slot	TEUs		4,584	8,184	
Average stacking height	TEUs		4.5	4.5	
Static capacity of the Terminal	TEUs		20,628	36,828	
Monthly peak factor in the year	%		14%	14%	4
Average dwell time	days		7.72	7.72	5
Inventory turnover/year	#/year		47	47	
Annual dynamic storage capacity	**1,000 TEUs**	**0**	**860**	**1,530**	
Land Reception/Dispatch System					
Road					
Number of gates	unit		7	12	
Hours of operation per day	h		24	24	
Cargo per truck	TEU		1.6	1.6	
Movement time per truck	min		4	4	
Working days per week	days		7	7	
Security occupancy rate	%		60%	60%	
Road Reception Capacity	**1,000 TEUs**	**0**	**880**	**1,510**	
LIMITING CAPACITY OF THE TERMINAL	**kt**	**0**	**840**	**1,510**	

Notes:

1 New berths for operation of the Terminal.

2 Occupancy rate of berths according to publication PIANC Report No. 135-2014 (Table 3.10, page 59)

3 Total average productivity assumed for three container cranes in each berth, with an average consignment observed in 2017 of 538 units/ship, 2 hours of non-operating docked time, and operational productivity of 80 unit/h.

4 Monthly peak factor in relation to the annual average, based on the history of the Suape Port in the 2012-2017 period.

5 Average dwell time calculated based on the adopted periods of 10 days for import and 7 days for export and cabotage, weighted by the expected demand in the contract duration.

Table 2: Capacity of the **SUA05** Project in the Suape Port

Source: Own Elaboration.

5. Sizing Parameters

Section C – Engineering

The Lessee will be responsible for the implementation and development of the infrastructure and will have to make the necessary improvements to achieve and keep the performance parameters.

The Lessee will undertake and be solely responsible for all technical studies, including, but not limited to, field investigations, feasibility studies, conceptual and final projects, planning documents, and bidding/construction documents regarding the proposed improvements.

At its own expense and with appropriate notice to the Lessee, the Port Authority reserves the right to hire independent consultants to monitor the quality of the construction.

The terminal implementation project will obey all applicable local, state, and federal codes and regulations, as well as the project standards indicated by the organizations below (note that the Brazilian standards and codes will be the main standards/codes of the project; in the case of conflict with other international standards, the more restrictive code will be applied):

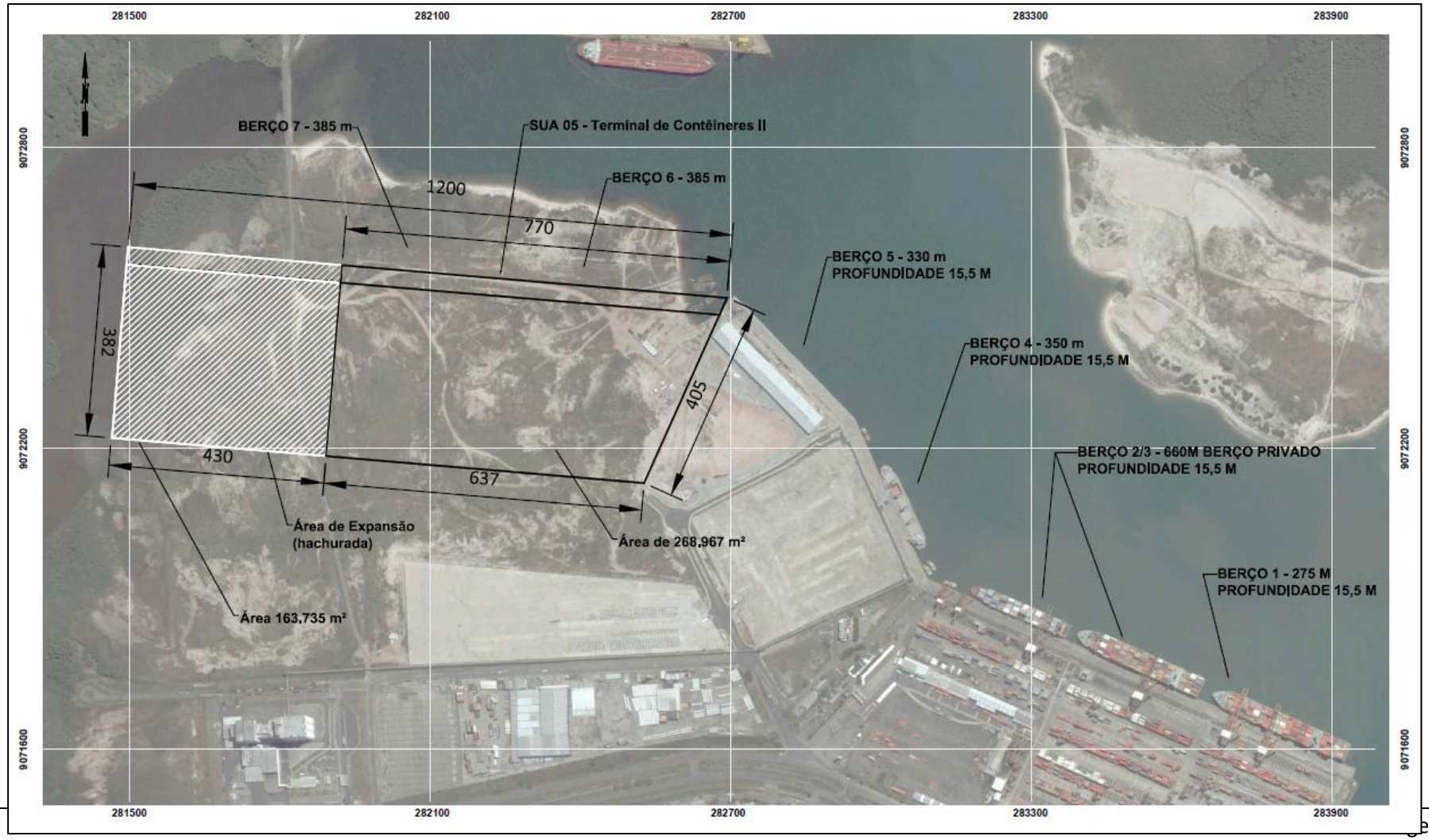
- ABNT, or when these are not available, appropriate and internationally recognized standards, including those listed above under the heading "Project Requirements";
- ISO;
- IMO;
- MARPOL;
- Port Authority;
- Local Fire Department;
- External Suppliers of Public Services, in accordance with national and international Building and Construction Codes;
- PIANC.

The annexes are presented below.

Section C – Engineering

Annex C-1: Figure 1 – Area Delimitation

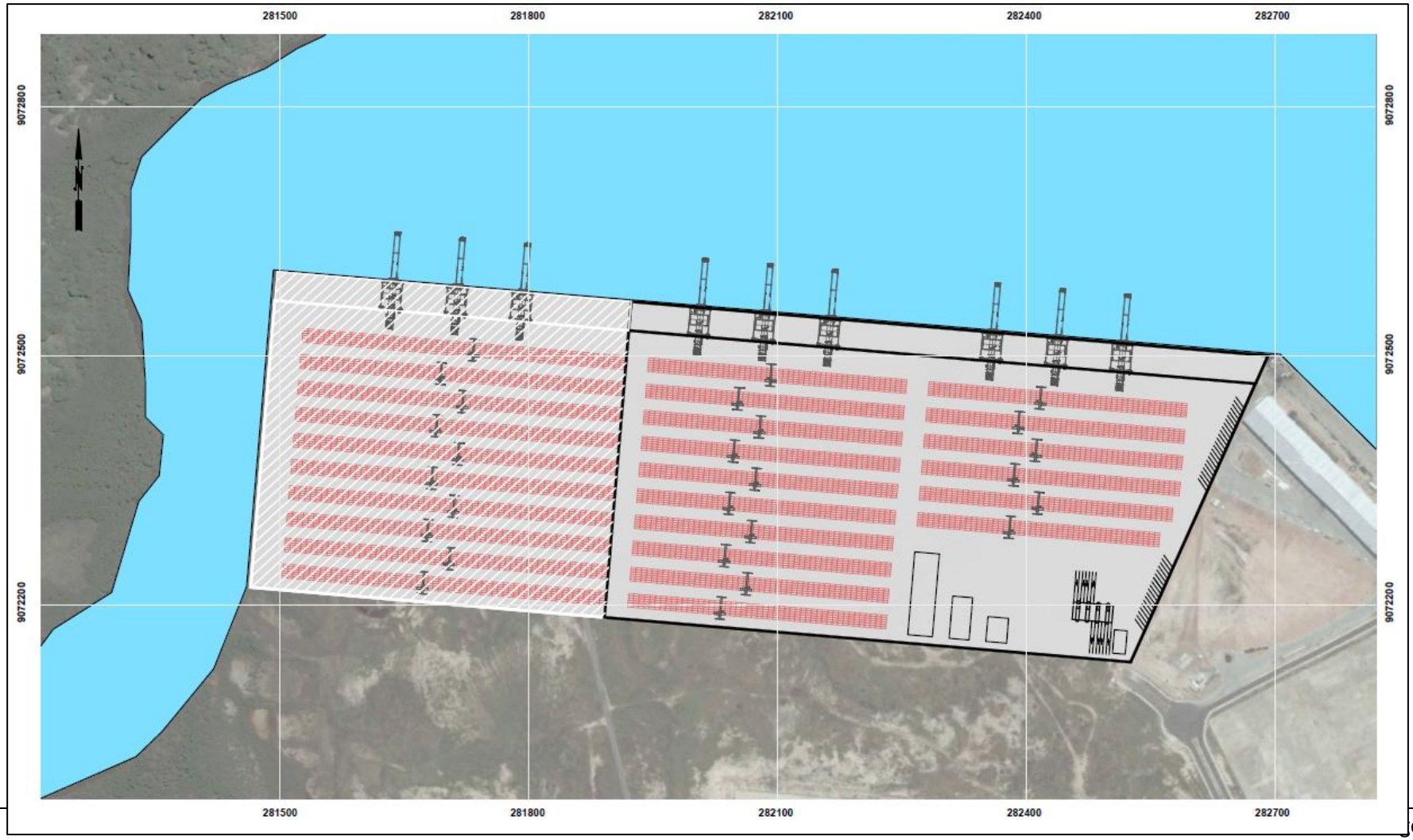
Section C – Engineering



Section C – Engineering

Annex C-1: Figure 2 – General layout

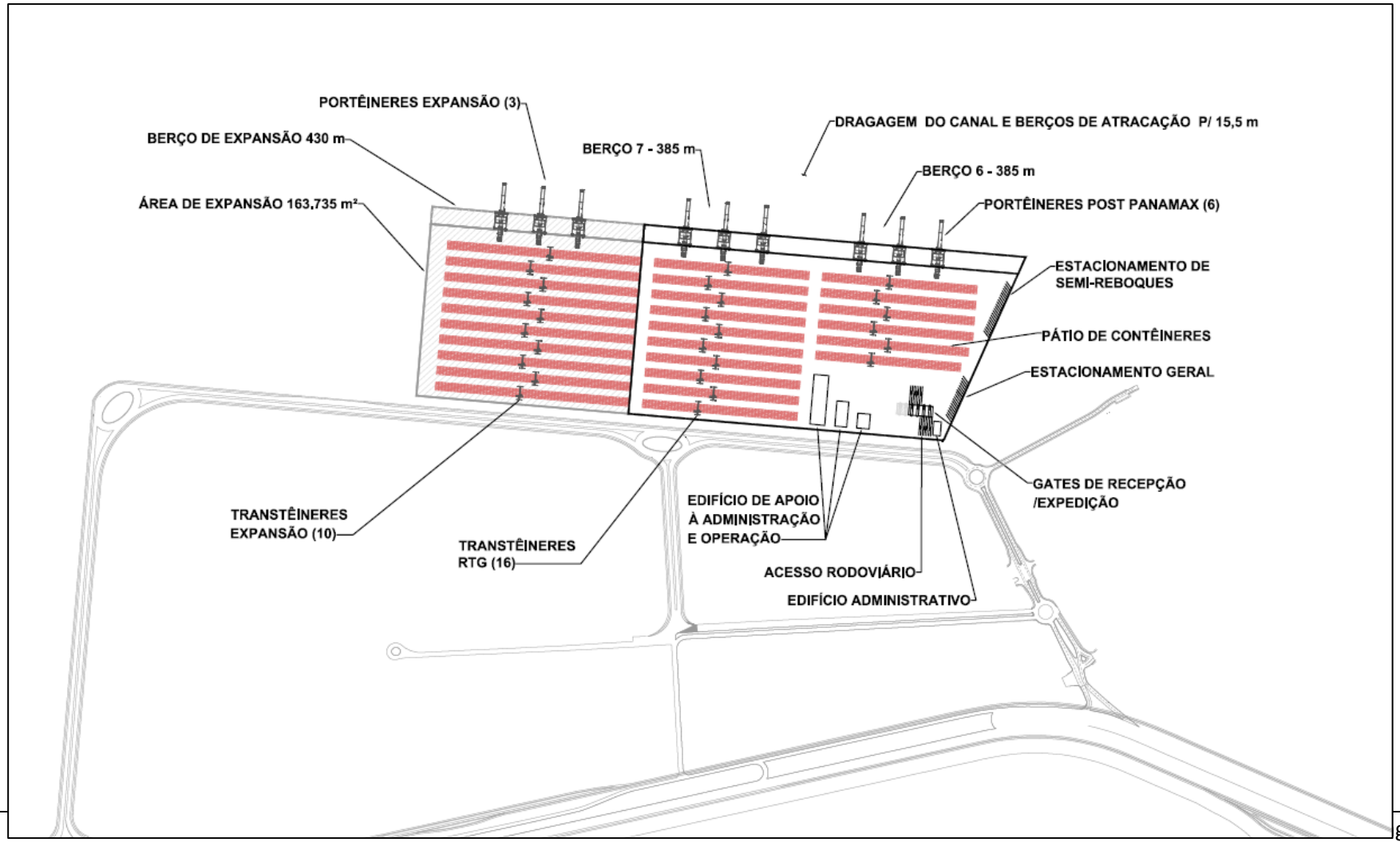
Section C – Engineering



Section C – Engineering

Annex C-1: Figure 3 – Conceptual Quantitative Illustration

Section C – Engineering



Section C – Engineering

Annex C-2 – Expected Investments

Section C – Engineering

Novo Investimento (SUA05)

Sumário de Custos	Novo Investimento			
Item	Custo bruto de aquisição (k R$)	Priv (1=sim)	Eq (1=sim)	Infra priv = 1; pub=2
1. Dragagem e Aterramento [fs.1]	254.413	-	-	1
2. Estrutura Marítma [fs.1]	321.341	-	-	1
3. Desenvolvimento do Terminal [fs.1]	93.933	-	-	1
4. Edificações [fs.1]	10.207	-	-	1
5. Principais Equipamentos - Local [fs.1]	3.849	-	1	3
6. Principais Equipamentos - Importado [fs.1]	346.428	-	1	3
7. Renovação de Equipamentos (50% do custo orig. dos equip.)	175.000	-	1	3

FASE 1

Estimativa de Custo - ordem de magnitude

Item	Unidades de medida	Quantidade	Custo unitário, R$	Total, R$	Local / Importado	Eng. / Admin	Contingências	II/IPI	Total (k R$)
Investimentos						5%	5%	14,00%	
Dragagem e Aterramento									
Dragagem de Aprofundamento	m3	3.956.106,39	58	231.284.966	Local	11.564.248	11.564.248	-	254.413
Estrutura Marítma						-	-	-	-
Pier/Cais sobre Estacas	m2	26.779,00	10.909	292.128.102	Local	14.606.405	14.606.405	-	321.341
Desenvolvimento de Terminal						-	-	-	-
Demolição e Preparação de Site	Ha	24,22	142.649	3.454.783	Local	172.739	172.739	-	3.800
Pavimentação Leve	Ha	24,22	2.276.237	55.127.729	Local	2.756.386	2.756.386	-	60.641
Distribuição Elétrica e de Iluminação	Unid.	1,00	13.708.898	13.708.898	Local	685.445	685.445	-	15.080
Água e Esgoto	Unid.	1,00	13.042.729	13.042.729	Local	652.136	652.136	-	14.347
Cercamento & Segurança	m	1.424,00	42	59.472	Local	2.974	2.974	-	65
Edificações						-	-	-	-
Geral - Admin, Operações, Manutenção,	m2	2.942,00	1.626	4.783.225	Local	239.161	239.161	-	5.262
Galpões/Estações	m²	5.250,00	856	4.495.429	Local	224.771	224.771	-	4.945
Equipamentos principais						-	-	-	-
Guindaste p/ Conteiner Pós-Panamax	Each	6,00	28.325.515	169.953.087	Imported	8.497.654	8.497.654	23.793.432	210.742
Guindaste de Pórtico sobre Pneus	Each	16,00	5.311.034	84.976.544	Imported	4.248.827	4.248.827	11.896.716	105.371
Empilhadeira de Conteiner	Each	6,00	94.863	569.176	Local	28.459	28.459	-	626
Scanner	LS	1,00	4.517.221	4.517.221	Imported	225.861	225.861	632.411	5.601
Balanças Rodoviárias	Each	2,00	74.333	148.666	Imported	7.433	7.433	20.813	184
Equipamento para movimentação de contêiner/Reach Stacker	Each	2,00	1.239.241	2.478.483	Imported	123.924	123.924	346.988	3.073
Spreader Portêiner	Each	6,00	625.461	3.752.768	Imported	187.638	187.638	525.388	4.653
Spreader Transtêiner	Each	16,00	330.105	5.281.674	Imported	264.084	264.084	739.434	6.549
Empilhadeira contêiner vazío	Each	3,00	631.794	1.895.382	Imported	94.769	94.769	265.354	2.350
Semi-Reboque	Each	36,00	68.500	2.466.000	Local	123.300	123.300	-	2.713
Cavalo Mecânico	Each	30,00	212.441	6.373.241	Imported	318.662	318.662	892.254	7.903
Sistemas	Unid.	1,00	464.002	464.002	Local	23.200	23.200	-	510
Engenharia e Administração			5,0%	45.048.079	Local				
Contingência			5,0%	45.048.079	Local				1.030.171
Custo de Capital Total Estimado		**Base**	**Alíquota**	**991.057.735**					-
Tributos s/ Equipamentos Importados		279.377.066	14,00%	39.112.789					
Custo de Capital Total Estimado c/ Impostos				**1.030.170.524**					

Section C – Engineering

Annex C-2 – Depreciation and Amortization

Section C – Engineering

Previsão de Gastos de Capital (Investimentos)		Ano 1	Ano 2	Ano 3	Ano 4	Ano 5	Ano 6	Ano 7	Ano 8	Ano 9	Ano 10	Ano 11	Ano 12	Ano 13	Ano 14	Ano 15	Ano 16	Ano 17	Ano 18	Ano 19	Ano 20	Ano 21	Ano 22	Ano 23	Ano 24	Ano 25
Entrada para as Demonstrações Financeiras (DemFin)		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Depreciação		-	-	-	54.983	54.983	54.983	54.983	54.983	54.983	54.983	54.983	54.983	54.983	28.046	28.046	45.546	45.546	45.546	45.546	45.546	45.546	45.546	45.546	45.546	45.546
Amortização		-	-	-	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268
Gastos de Capital (Investimentos)																										
Outros pré-operacional		5.178	2.629	2.689	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Novos Gastos de Capital, Líquido	1.061.380	295.460	295.460	295.460	-	-	-	-	-	-	-	-	-	-	87.500	87.500	-	-	-	-	-	-	-	-	-	-

Investimentos e Dep & Amort (SUA05)

Previsão em kR$. Todos os valores em termos Real

		Total (k R$)		Ano 1	Ano 2	Ano 3	Ano 4	Ano 5	Ano 6	Ano 7	Ano 8	Ano 9	Ano 10	Ano 11	Ano 12	Ano 13	Ano 14	Ano 15	Ano 16	Ano 17	Ano 18	Ano 19	Ano 20	Ano 21	Ano 22	Ano 23	Ano 24	Ano 25
				2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044
Novo Investimento																												
NC1	1. Dragagem e Aterramento [fs.1]	230.880	1	76.960	76.960	76.960	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NC2	2. Estrutura Marítma [fs.1]	291.617	1	97.206	97.206	97.206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NC3	3. Desenvolvimento do Terminal [fs.1]	85.244	1	28.415	28.415	28.415	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NC4	4. Edificações [fs.1]	9.262	1	3.087	3.087	3.087	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NC5	5. Principais Equipamentos - Local [fs.1]	3.493	3	1.164	1.164	1.164	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total privado	1.061.380	14	295.460	295.460	295.460	-	-	-	-	-	-	-	-	-	-	87.500	87.500	-	-	-	-	-	-	-	-	-	-
	Total público	0	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total	1.061.380		295.460	295.460	295.460	-	-	-	-	-	-	-	-	-	-	87.500	87.500	-	-	-	-	-	-	-	-	-	-
Depreciação dos novos Investimentos																												
NC1	1. Dragagem e Aterramento [fs.1]			-	-	-	10.495	10.495	10.495	10.495	10.495	10.495	10.495	10.495	10.495	10.495	10.495	10.495	10.495	10.495	10.495	10.495	10.495	10.495	10.495	10.495	10.495	10.495
NC2	2. Estrutura Marítma [fs.1]			-	-	-	13.255	13.255	13.255	13.255	13.255	13.255	13.255	13.255	13.255	13.255	13.255	13.255	13.255	13.255	13.255	13.255	13.255	13.255	13.255	13.255	13.255	13.255
NC3	3. Desenvolvimento do Terminal [fs.1]			-	-	-	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875	3.875
NC4	4. Edificações [fs.1]			-	-	-	421	421	421	421	421	421	421	421	421	421	421	421	421	421	421	421	421	421	421	421	421	421	421
NC5	5. Principais Equipamentos - Local [fs.1]			-	-	-	349	349	349	349	349	349	349	349	349	349	-	-	-	-	-	-	-	-	-	-	-	-	-
	Total			-	-	-	54.983	54.983	54.983	54.983	54.983	54.983	54.983	54.983	54.983	54.983	28.046	28.046	45.546	45.546	45.546	45.546	45.546	45.546	45.546	45.546	45.546	45.546
Itens amortizáveis																												
	taxa inicial de arrendamento			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Garantia, Seguros & Impostos (periodo construção)			-	-	-	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
	Custos Ambientais dur. Construção (k R$)			-	-	-	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163	163
	Total			-	-	-	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268

	Total																											
Total Depreciação	1.061.380	-	-	-	54.983	54.983	54.983	54.983	54.983	54.983	54.983	54.983	54.983	54.983	28.046	28.046	45.546	45.546	45.546	45.546	45.546	45.546	45.546	45.546	45.546	45.546
Total Amortização	5.887	-	-	-	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268
Depreciação do Capex Público	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Depreciação dos novos Investimentos

Tipo de Ativo	REIDI (Infra.)	REPORTO (Maquinas e Equipamentos)

	Descrição de Ativo	Custo (k BRL)	Depre.	Vida útil	Uso de depre. (1=No)	Ano do gasto	Valor Bruto	Depre. Anual	Início da Depreciação	Anos de Depreciação		Gasto durante (anos)	Benefício Fiscal (REIDI ou REPORTO)	1=REIDI, ou 2=REPORTO	REIDI Taxa Benefício (PIS/COFINS)	REPORTO Total Taxa Benefício	REPORTO Taxa Benefício (PIS/COFINS)	II ou IPI Benefício	Investimentos: 0=Doméstico 1=Importado	II taxa benefício)*	IPI taxa benefício		BNDES Capex
NC1	1. Dragagem e Aterramento [fs.1]	230.880	S/L	25	0	Ano 1	**254.413**	10.495	Ano 4	22	0	Ano 3	23.533	1	23.533	23.533	23.533	0	0	35.618	0		230.880
NC2	2. Estrutura Marítma [fs.1]	291.617	S/L	25	0	Ano 1	**321.341**	13.255	Ano 4	22	0	Ano 3	29.724	1	29.724	29.724	29.724	0	0	44.988	0		291.617
NC3	3. Desenvolvimento do Terminal [fs.1]	85.244	S/L	25	0	Ano 1	**93.933**	3.875	Ano 4	22	(0)	Ano 3	8.689	1	8.689	8.689	8.689	0	0	13.151	0		85.244
NC4	4. Edificações [fs.1]	9.262	S/L	25	0	Ano 1	**10.207**	421	Ano 4	22	0	Ano 3	944	1	944	944	944	0	0	1.429	0		9.262
NC5	5. Principais Equipamentos - Local [fs.1]	3.493	S/L	10	0	Ano 1	**3.849**	349	Ano 4	10	0	Ano 3	356	2	356	356	356	0	0	539	0		3.493
NC6	6. Principais Equipamentos - Importado [fs.1	265.883	S/L	10	0	Ano 1	**346.428**	26.588	Ano 4	10	(0)	Ano 3	80.544	2	32.045	80.544	32.045	48.500	1	48.500	0		0
NC7	7. Renovação de Equipamentos (50% do custo	175.000	S/L	10	0	Ano 14	**175.000**	17.500	Ano 16	10	-	Ano 2	0	2	0	0	0	0	1	0	0		0
	Total	**1.061.380**					**1.205.171**	**72.483**					**143.791**		**95.291**	**143.791**	**95.291**	**48.500**		**144.224**	**0**		**620.497**

Section C – Engineering