ANNEX 1

BOOK OF OBLIGATIONS

1 Scope

1.1 This Book of Obligations has as scope to define the Annual Monitoring Report (RAA), the Investment Plan, the Minimum Technical Specifications and the Complementary Obligations, which are mandatory for the Concessionaire, in order to ensure the adequate operation of the infrastructure and provision of the rail transport service, the preservation of the granted or leased assets, as well as the reduction and mitigation of social and environmental impacts.

1.2 The Investment Plan consists of the interventions to be performed by the Concessionaire, as detailed in Appendix A:

i. Fixed-Term Investments;

ii. Demand-Driven Investments.

1.2.1. Non-compliance with the Investment Plan will not result in the Concessionaire being held accountable, provided that it is beyond its control, without prejudice to the application of the Concession Addendum.

1.3 The Minimum Technical Specifications consist of:

i. Technical Parameters for the operation of the rail infrastructure, as detailed in Appendix B:

a. Technical Parameters of the rail Infrastructure;

b. Technical Parameters of the rail Superstructure;

c. Technical Parameters of the Level Crossings – PNs; and

d. Technical Parameters of the Support Facilities.

ii. Indicators for rail transport service provision, as detailed in Appendix C:

a. Severe Rail Accident Index (IAFG);

b. Average Travel Speed (VMP); and

c. Maximum Age of the Locomotive Fleet (IMFL).

1.4 The Complementary Obligations consist in determinations essential to the adequate provision of the rail transport service, as detailed in Appendix D.

2 Glossary

2.1 For the purposes of this Book of Obligations, and without prejudice to other definitions set forth in the Concession Agreement, the expressions are defined as follows:

i. **ABNT:** Brazilian Association of Technical Standards.

ii. **AMV:** Switches and Crossings. It is an equipment formed by a set of parts that allows the passage of a Railway Vehicle from one Railway to another.

iii. **Urban Area:** area within the urban perimeter, instituted by municipal law.

iv. **Environmentally Sensitive Areas:** areas that contain natural or cultural characteristics of great value for the functioning of ecosystems and that can be negatively affected by human activities.

v. **Gauge:** is the distance between the internal faces of the Rail Tops, taken in the normal line to these faces, that is, 16 (sixteen) millimeters below the level constituted by the upper surface of the Rail Top.

vi. **Rail Top:** upper part of the Track, on which the wheels of the Railway Vehicles slide.

vii. **Control Car:** Railway Vehicle that assists in the planning of the Predictive and Preventive Maintenance of the Permanent Way, capable of gauging the geometric conditions of the Railway.

viii. **Operational Control Center - CCO:** Physical installation, systems and equipment for traffic control on the railway network.

ix. **Locomotive Onboard Computer - CBL:** on-board equipment that assists in driving the Trains, presenting information on licenses and permits, on the **Permanent Railway** and on the **Locomotive** itself.

x. Derailment Detector: a device installed along a Railway Section capable of detecting a derailment of a Railway Vehicle.

xi. **Hot Box and Hot Wheel Detector:** device located on the side of the Permanent Way that has the objective of detecting over or underheated wheelsets and bearings.

xii. **Drainage Devices:** set of structures and installations that aim at intercepting, capturing and draining surface and/or underground waters, in order to destine them to adequate drainage points.

xiii. **Tie:** piece of concrete, steel, polymeric compounds, wood or other material that presents appropriate characteristics to support the railway stress. It is installed in the transversal direction to the Railway on which the Tracks are fixed. Its function is to transmit to the Ballast part of the forces produced by the Railway Vehicles and to hold the Gauge of the Permanent Way.

xiv. **Right-of-way:** strip of land destined to accommodate the Railway.

xv. **Main Fleet:** these are the Locomotives and wagons owned by the Concessionaire that carry out the remunerated transport of cargo. The Locomotives and wagons used specifically to support the Railway's Maintenance services, and also those acquired or mobilized exclusively for maneuvering, or those immobilized by alienation or loss due to accidents, are not considered of the Main Fleet.

xvi. **FIOL I: Railway section,** located between the municipality of Ilhéus / BA and Caetité / BA, divided between areas 01F, 02F, 02FA, 03F and 04F.

xvii. **Infrastructure:** lower part of the Railway structure that holds the Superstructure. It includes earthworks, Drainage Devices, current structures and Special Structures – OAEs.

xviii. **Support Facilities:** real estate of the Concession.

xix. **Frog:** AMV piece that helps in the direction of the wheels of the vehicles from one Railway Line to another.

xx. **Ballast:** part of the railway Superstructure consisting of a layer of gravel seated on the platform intended to support the Ties.

xxi. **Adjacent Connection:** consists of a work on the reorganization of roadways that border the Railway without crossing it.

xxii. **Railway:** set of Tracks on Ties, separated by a certain distance, plus fixing accessories, AMVs and switches, where the Railway Vehicles circulate.

xxiii. **Locomotive:** Railway Vehicle with traction.

xxiv. **Area 01F:** construction lot referring to the section located between the Ilhéus Terminal (Km 1496,629) and the Rio Preguiça (Km 1371,137), with 126,316 km in length, according to projects submitted by the Sub-Granting Intervener.

xxv. **Area 02F:** construction lot referring to the section located between the Preguiça River (Km 1371,137) and the Riacho Jacaré (Km 1253,260), with 116,153 km in length, according to projects presented by the Sub-Granting Intervener.

xxvi. **Area 02FA:** construction lot referring to the OAE Jequié Tunnel (Km 1315,860 to Km 1316,640), located in Lot 02F, with 0.780 km in length, according to projects presented by the Sub-Granting Intervener.

xxvii. **Area 03F:** construction lot referring to the section located between the Riacho Jacaré (Km 1253,260 = Km 1253,240) and the Rio de Contas (Km 1137,885), with 115,464 km in length, according to projects submitted by the Sub-Granting Intervener.

xxviii. **Area 04F:** construction lot referring to the section located between the Rio de Contas (Km 1137.885 = Km 1145.885) and the Riacho Barroca (Km 968.440), with 177.445 km in length, according to projects submitted by the Sub-Granting Intervener.

xxix. **Maintenance**: set of activities and resources applied to the systems, equipment and physical structures, aiming to guarantee the continuity of their functions within adequate parameters of performance, availability, quality and lifespan.

xxx. **Special Art Work - OAE:** defined as a work that must be the subject of a specific project, especially Tunnels, Bridges, Viaducts and Pedestrian Walkways.

xxxi. **Complementary Works:** acquisition of materials and execution of services for the completion of the construction of the Railway that were not agreemented by the Sub-Granting Intervener.

xxxii. **Remaining Works:** acquisition of materials and execution of services to complete the construction of the Railway already agreemented by the Sub-Granting Intervener, which, however, are still pending execution in their entirety.

xxxiii. **Ombudsman:** it is the means of communication with the Concessionaire and it has the objective of receiving, registering, analyzing, making decisions and responding to complaints and suggestions.

xxxiv. **Technical Parameters:** element or characteristic used as reference for compliance with the Minimum Technical Specifications established for the operation of the rail infrastructure.

xxxv. Cattle Crossing - PG: consists of a structure designed to allow the transposition of fauna under the Railway Line.

xxxvi. Level Crossing - PN: it consists of the crossing of the Permanent Way with another road or pedestrian traffic lane, on the same level.

xxxvii. Lower Crossing - PI: consists of OAE designed to allow the transposition of the Railway Line under a public road or road.

xxxviii. Vehicle Crossing - PV: consists of a gallery-shaped structure designed to allow the crossing of the public road or road under the Railway Line.

xxxix. Pedestrian Crossing: consists of OAE designed to allow the crossing of pedestrians on the Railway Line.

xl. **Crossing Yard:** Secondary Railways intended for the crossing of Trains.

xli. **Interconnection Yard:** Railroad system that, in addition to functioning as a Train Yard, is used to connect Railway Stretches belonging to different Concessions or Subconcessions.

xlii. **Train Formation and Reception Yard:** set of Secondary Lines that are destined to the activities of expedition and reception of compositions, sorting of wagons and train formation, besides allowing the crossing of compositions.

xliii. **Polygon of the Port of Ilhéus:** area delimited by Decree No. 13,918, of April 13, 2012, of the Government of Bahia, used as the limit of the Railway Section to be subconceded.

xliv. **Railway Bridge:** consists of OAE that allows the crossing of the railway line over watercourses.

xlv. **Rail Segment:** extension of the Railway, comprised between two consecutive Crossing Yards.

xlvi. **Telecommunication System:** system responsible for the exchange of information, and data necessary for the operation of the Railway.

xlvii. **Track Licensing and Signaling System:** systems used in the Railway to perform dispatch and the circulation of Railway Vehicles safely.

xlviii. **Railway Systems:** group of systems that work together to promote communication among the participants involved and to guarantee the efficiency and safety of the operation.

xlix. **Superstructure:** upper part of the Railway Line structure that directly supports the efforts of the Railway Vehicles and transmits them to the Infrastructure, composed of Tracks, fastening accessories, AMVs, Ties and Ballast.

l. **Terminal:** structure and facilities for loading, unloading, intermodal transfer and storage of products: general cargo; solid agricultural bulk; and liquid bulk.

li. **Railway Section or Section:** a defined extension of the Railway Line, comprised by a set of Railway Segments.

lii. **Train:** composition formed by Railway Vehicles with, at least, one traction or self-propelled vehicle.

liii. **Track:** long metal piece with cross section similar to double T and with characteristics of beam, which is seated and fixed on Ties and connected or butt-welded with other equal parts, which form parallel rows that support and guide the wheels of the Railway Vehicles and constitute the rolling surface of the Railway Line.

liv. **Railway Tunnel:** consists of OAE, with an underground passage, to enable the connection between two sections of the Railway Line.

lv. **Railway Vehicle:** Vehicle, self-propelled or not, suitable for traveling on a Railway Line.

lvi. **Permanent Way:** Set of Railway Lines existing in the Railway's Right-of-way.

lvii. **Railway Viaduct** - VF: consists of OAE designed to allow the transposition of the Railway Line over a public road.

lviii. **Road Viaduct** - VR: consists of OAE designed to allow the transposition of the public road or road over the Railway Line.

3 Annual Monitoring Report (RAA) of the Concession

3.1 The Concessionaire shall submit to the ANTT the Annual Monitoring Report (RAA), with a reference period of 01 (one) year from the day and month of signature of the Agreement.

3.2 The deadline for submission of the RAA each year shall be up to 90 (ninety) days counted from the date of signature of this Agreement.

3.3 The RAA shall assure the ANTT and other interested parties that the Concessionaire has carried out the appropriate planning and executed the corresponding actions for the fulfillment of the obligations set forth in this Book of Obligations and other agreementual rules.

3.4 The Concessionaire is responsible for selecting, hiring and paying an independent specialized company to carry out the surveys, information gathering, research and calculation of the items described in the Appendices of this Book of Obligations, as well as to prepare the RAA. The name and qualification of the company must be submitted for prior authorization by the ANTT.

3.5 The RAA must include:

i. Investment Plan Monitoring Report (RAPI);

ii. Technological Development Resources Monitoring Report (RADT);

iii. Resources for Preservation of Railway Patrimony Monitoring Report (RAMF);

iv. Railway Saturation Level Monitoring Report (RASF);

v. Rail Infrastructure Monitoring Report (RAIF); and

vi. Provision of the Railway Service Monitoring Report (RAPS).

3.6 The Investment Plan Monitoring Report (RAPI) shall contain at least the following information:

i. A description of the investments made, separated by group and intervention, as provided in Appendix A; and

ii. The expenditures made by the Concessionaire, for each intervention, as well as the physical progress of the works.

3.7 The Technological Development Resources Monitoring Report (RADT) shall contain at least the following information:

i. Description of the projects carried out, with their scope and the achieved results;

ii. The expenditures made by the Concessionaire for each project.

3.8 The Resources for Preservation of Railway Patrimony Monitoring Report (RAMF) shall contain at least the following information:

i. Description of the interventions carried out, with the description of the asset, location and the achieved results;

ii. The expenditures made by the Concessionaire for each intervention.

3.9 The Railway Saturation Level Monitoring Report (RASF) shall contain at least the following information:

i. Form for obtaining and verifying the data necessary to calculate the following indicators, the details of which are set out in Appendix A:

a. The Railway Segments Saturation Level (NSSF); and

b. Railway Saturation Index (ISF).

ii. The result obtained for the NSSF of each Railway Segment, which makes up the Railway; and

iii. NSSF and ISF calculation memory.

3.10 The Rail Infrastructure Monitoring Report (RAIF) shall include the following elements of the Railway:

i. Regarding the Rail Infrastructure:

a. Drainage Devices;

b. Special Structures (OAEs);

c. Cut slopes and embankments;

d. Right-of-Way; and

e. Permanent Way Platform.

ii. Regarding the Rail Superstructure:

a. Ballast;

b. Ties;

c. Tracks; and

d. AMVs.

iii. Railway Line geometry inspection results;

iv. Level Crossings - PNs; and

v. Support Facilities.

3.11 The evaluation of the elements that make up the RAIF shall contain the classification of the elements, according to the categories described in Table 1

Table 1: Categories for the characterization of the infrastructure operation elements

Category	Description
Excellent	No functional deficiencies, above the Minimum Technical Specifications.
Good	No functional deficiencies, at the limit of the Minimum Technical Specifications.

Category	Description
Reasonable	Small functional deficiencies, with most of the Minimum Technical Specifications met, but with the need for occasional corrective actions.
Bad	Significant functional deficiencies, with most of the Minimum Technical Specifications compromised and the need for comprehensive corrective actions.
Critical	Functionality compromised, without meeting the Minimum Technical Specifications and the need for general corrective actions

3.12 The Provision of the Railway Service Monitoring Report (RAPS) must contain at least the following information:

i. How to obtain and verify the data necessary to calculate the following indicators, the details of which are contained in Appendix D:

a. Severe Rail Accident Index (IAFG);

b. Average Travel Speed (VMP); and

c. Maximum Age of the Locomotive Fleet (IMFL).

ii. The result of the indicators, accompanied by the respective calculation log; and

iii. Ownership, or that of third parties, and technical characteristics of each unit of the entire fleet of Wagons and Locomotives.

APPENDIX A

Investment Plan

4 The Investment Plan consists of Fixed-Term Investments and Demand-Driven Investments. The investments must be made based on the current technical standards, on this Book of Obligations and on the other provisions of the Notice, the Agreement and its Annexes.

Chapter I

Fixed-Term Investments

4.1 The interventions related to Fixed-Term Investments are of a mandatory nature and must be fully operational, provided with all its functional elements, within the period stipulated in this Book of Obligations.

i. Execution and conclusion of the remaining works;

ii. Execution and conclusion of the Complementary Works;

iii. Installing Derailment Detectors;

iv. Installation of Railway Systems;

v. Terminal execution and completion.

4.1.1. Investments for the execution and conclusion of the Remaining Works consist of the completion of the implementation of 03 (three) construction areas of the Railway, Area 01F, Area 02F and Area 04F, as detailed below:

i. The Sub-Concessionaire must execute and complete, within the period of 05 (five) years, counted from the signing of this Sub-Concession Agreement, the Remaining Works of Area 01F, contemplating all the materials and services necessary for its execution according to the projects presented by the Sub-Granting Intervener. The Remaining Works of Area 01F include the following items:

a. Execution of works of preliminary services, Infrastructure, paving, complementary services and Superstructure;

b. Construction of Crossing Yards, with a minimum length of 2000 m and distant from each other at most every 50 km. The number of Crossing Yards must be sufficient to guarantee the ISF below 90%, as provided in Chapter II of this Investment Plan;

c. Implementation of 01 (one) Interconnection Patio, located at the end of Area 01F to the Port of Ilhéus Polygonal, which should serve as a connection between the Railway and the Ilhéus Port Terminal, and must have all the necessary facilities to meet the flow of trains with origin and destination at the referred Port Terminal;

d. Relocation of high, medium and low voltage transmission lines located along Area 01F;

e. Implementation of 14 (fourteen) OAEs, shown in Table 2. The locations presented are referential klometers, obtained from the projects prepared by the Sub-Granting Intervener, so that this information may vary depending on the greater detail of the project to be presented by the Sub-Concessionaire.

Table 2: OAEs included in the Remaining Works of Area 01F

Name	Location
Ponte – Rio Preguiça	Km 1372+756
Viaduct (VF) – BA 650	Km 1383+133
Ponte – Rio da Onça	Km 1384+693
PI – Mineração Mirabela	Km 1389+965
Ponte – Rio do Peixe	Km 1391+099
Viaduct (VF) – BA 120	Km 1416+346
Ponte – Rio Gongogi II	Km 1426+191
Ponte – Rio Gongogi I	Km 1426+514
Ponte – Rio do Banco	Km 1433+696
PI – BR 030	Km 1434+699
PI – BR 101	Km 1470+513
Ponte – Rio Mocambo	Km 1479+085
PI – BA 262	Km 1483+124
Ponte – Rio Almada	Km 1490+175

ii. The Sub-Concessionaire must execute and complete, within the period of 05 (five) years, counting from the signing of this Sub-Concession Agreement, the Remaining Works of Area 02F, contemplating all the materials and services necessary for its execution, according to the projects presented by the Sub-Concession Party. The remaining works of Area 02F include the following items:

a. Execution of works of preliminary services, Infrastructure, paving, complementary services and Superstructure;

b. Construction of Crossing Yards, so that the distance between the ends of consecutive Crossing Yards is a maximum of 50 km and their length is sufficient to allow the crossing of Trains up to 1,880 m. The number of Crossing Yards must be sufficient to guarantee the ISF below 90%, as provided in Chapter II of this Investment Plan;

c. Relocation of high, medium and low voltage transmission lines located along Area 02F;

d. Implementation of 7 (seven) OAEs, shown in Table 3. The locations presented are referential klometers, obtained from the projects prepared by the Sub-Granting Intervener, so that this information may vary depending on the greater detail of the project to be presented by the Sub-Concessionaire.

Table 3: OAEs included in the remaining works of Area 02F

Name	Location
Ponte – Riacho Gentil	Km 1258+220
Ponte – Lago Barragem de Pedra I	Km 1267+904
Ponte – Riacho de Fogo	Km 1271+358
Ponte – Lago Barragem de Pedra II	Km 1294+055
Viaduct (VF) – BR 116	Km 1310+842
Ponte – Rio Jiboia	Km 1338+203
Ponte – Rio Vieira	Km 1348+141

iii. The Sub-Concessionaire must execute and complete, within the period of 05 (five) years, counted from the signing of this Sub-Concession Agreement, the Remaining Works of Area 04F, contemplating all the materials and services necessary for its execution according to projects presented by the Sub-Granting Intervener. The remaining works of Area 04F include the following items:

a. Execution of works of preliminary services, Infrastructure, paving, complementary services and Superstructure;

b. Construction of Crossing Yards, so that the distance between the ends of consecutive Crossing Yards is a maximum of 50 km and their length is sufficient to allow the crossing of Trains up to 1,880 m. The number of Crossing Yards must be sufficient to guarantee the ISF below 90%, as provided in Chapter II of this Investment Plan;

c. Implementation of 01 (one) Interconnection Yard, located between the beginning of Area 04F and the intermodal Terminal to be implemented in the municipality of Caetité / BA, which should serve as a connection between the Railway and the Terminal, and must have all the necessary facilities for meet the flow of trains with origin and destination to said Terminal;

d. Relocation of high, medium and low voltage transmission lines located along Area 04F;

e. Implementation of 15 (fifteen) OAEs, shown in Table 4. The locations presented are referential klometers, obtained from the projects prepared by the Sub-Granting Intervener, so that this information may vary depending on the greater detail of the project to be presented by the Sub-Concessionaire.

Table 4: OAEs included in the remaining works of Area 04F

Name	Location
Viaduct (VF) – Brejinho I	Km 972+725
Viaduct (VF) – Brejinho II	Km 975+645
Viaduct (VF) – BA-156	Km 980+602
Bridge – Riacho da Faca	Km 988+555
Bridge – Riacho das Antas I	Km 1001+496
Bridge – Riacho das Antas II	Km 1009+011
PI – BA 617	Km 1011+911
Viaduct (VF) – BR 030 II	Km 1021+623
Viaduct (VF) – BA 940	Km 1026+494
Bridge – Rio Riachão	Km 1050+757
Bridge – Riacho da Cruz	Km 1079+012

Name	Location
Viaduct (VF) – BA 148	Km 1094+570
Bridge – Rio Brumado I	Km 1109+690
Bridge – Rio Brumado II	Km 1139+312
Viaduct (VF) – VFFLS (sobre FCA)	Km 1139+838

4.1.1.1 The completion of the Remaining Works of the areas must be in accordance with the current regulations and meet the following minimum specifications:

i. **Wide Gauge Railway;**

ii. Maximum ramp on the main line for export 0.60%, import for 1.45% and on secondary lines for 0.15%;

iii. Minimum radius of horizontal curves of 348 m;

iv. Earthmoving platform with a minimum width of 10.70 m in cutting section and 8.90 m in embankment section up to 12.00 m high;

v. Earthwork platform with 3% cross slope;

vi. Design speed of 80 km / h;

vii. Ballast with minimum height and shoulder width of 30 cm, and slope 3 (H): 2 (V);

viii. Sub-ballast with a minimum height of 20;

ix. Minimum load bearing capacity for the 320 kN Railway Line (TB-320) and 360 kN OAEs (TB-360);

x. Ties ~~with~~ made of material with a lifespan of more than 30 years and a spacing of 60 cm or less, with the exception of the AMV regions;

xi. Minimum rail profile of 60 kg / m with elastic fixation;

xii. Interview with a minimum width of 4.25 m;

xiii. AMVs with 1:14 aperture on the main line and 1: 8 on the secondary lines; and

xiv. Minimum vertical template of 8.90 m (from the top of the sub-ballast) and horizontal of 2.95 m (for each side of the axis of the Railway Line).

4.1.2. Investments for the execution of Complementary Works consist of the construction of 01 (one) Railway Segment, in Area 02F; the adaptation of side roads along Area 01F, Area 02F and Area 04F; and the implementation of OAEs in Area 01F, Area 02F and Area 04F, as detailed below:

i. The Sub-Concessionaire shall execute and complete, within the period of 05 (five) years, counted from the signing of this Sub-Concession Agreement, a Railway Segment with 16.687 km in length, located in Area 02F, between the OAE Bridge - Rio das Pedras - BA 130 and the end of this Area, contemplating all the materials and services necessary for its execution according to projects presented by the Sub-Granting Intervener.

ii. The Sub-Concessionaire must execute and complete, within the period of 05 (five) years, counted from the signing of this Sub-Concession Agreement, the side roads of Area 01F, Area 02F and

Area 04F, contemplating all the materials and services necessary for its execution according to projects submitted by the Sub-Granting Intervener. These interventions include 48 (forty-eight) road adaptations, implementation of 85 (eighty-five) Level Crossings, 14 (fourteen) Vehicle Crossings and 35 (thirty-five) Cattle Crossings, in the locations shown in Table 5, in Table 6 and in Table 7. The locations presented are referential klometers, obtained from the projects prepared by the Sub-Granting Intervener, so that this information may vary depending on the greater detail of the project to be presented by the Sub-Concessionaire.

Table 5: List of side roads to be changed in Area 01F

Km	Type of Interference	Km	Type of Interference	Km	Type of Interference
1377+280	Vehicle Crossing	1413+560	Cattle Crossing	1440+940	Vehicle Viaduct
1380+260	Level Crossing	1413+900	Cattle Crossing	1443+100	Level Crossing
1384+340	Level Crossing	1416+600	Level Crossing	1447+620	Level Crossing
1385+540	Level Crossing	1421+638	Vehicle Crossing	1451+740	Level Crossing
1387+400	Level Crossing	1422+730	Level Crossing	1453+470	Level Crossing
1390+720	Level Crossing	1426+360	Vehicle Crossing	1468+200	Level Crossing
1394+460	Level Crossing	1427+080	Level Crossing	1480+700	Cattle Crossing
1397+600	Level Crossing	1429+405	Level Crossing	1483+123	Inferior Crossing
1402+020	Inferior Crossing	1433+560	Level Crossing	1485+260	Level Crossing
1405+960	Level Crossing	1434+695	Inferior Crossing	1487+020	Level Crossing
1408+240	Level Crossing	1438+660	Level Crossing	1489+940	Side Connection
1410+860	Level Crossing				

Table 16: List of side roads to be changed in Area 02F

Km	Type of Interference	Km	Type of Interference	Km	Type of Interference
1255+700	Level Crossing	1276+920	Side Connection	1312+560	Vehicle Crossing
1257+000	Side Connection	1279+270	Cattle Crossing	1313+332	Level Crossing
1259+540	Level Crossing	1280+650	Side Connection	1315+150	Vehicle Crossing
1262+140	Level Crossing	1281+280	Side Connection	1317+245	Level Crossing
1262+840	Side Connection	1283+680	Side Connection	1322+440	Level Crossing
1264+713	Level Crossing	1285+220	Level Crossing	1325+260	Level Crossing
1266+140	Side Connection	1287+220	Vehicle Crossing	1332+150	Level Crossing
1269+120	Side Connection	1288+320	Level Crossing	1337+700	Level Crossing
1270+820	Level Crossing	1290+600	Side Connection	1347+840	Level Crossing
1273+000	Side Connection	1292+300	Side Connection	1349+970	Level Crossing
1274+400	Side Connection	1303+360	Level Crossing	1351+220	Vehicle Crossing
1275+900	Side Connection	1307+020	Level Crossing		

Table 27: List of side roads to be changed in Area 04F

Km	Type of Interference	Km	Type of Interference	Km	Type of Interference
972+140	Vehicle Viaduct	1016+360	Cattle Crossing	1080+000	Level Crossing
973+960	Level Crossing	1017+430	Level Crossing	1081+300	Side Connection
976+540	Level Crossing	1017+840	Cattle Crossing	1083+780	Cattle Crossing
977+610	Vehicle Crossing	1018+920	Cattle Crossing	1084+610	Level Crossing
978+780	Cattle Crossing	1023+070	Level Crossing	1088+610	Inferior Crossing
981+580	Cattle Crossing	1023+840	Cattle Crossing	1092+760	Level Crossing
982+460	Vehicle Crossing	1025+132	Level Crossing	1094+160	Cattle Crossing
982+960	Side Connection	1027+640	Level Crossing	1096+100	Level Crossing
983+120	Side Connection	1030+300	Vehicle Crossing	1097+860	Side Connection
984+140	Level Crossing	1032+640	Level Crossing	1099+640	Level Crossing
985+280	Vehicle Viaduct	1035+140	Cattle Crossing	1103+550	Level Crossing
988+410	Level Crossing	1035+900	Level Crossing	1104+740	Side Connection
989+550	Cattle Crossing	1038+200	Level Crossing	1105+460	Side Connection
989+600	Side Connection	1038+860	Cattle Crossing	1106+340	Level Crossing
990+410	Side Connection	1040+920	Cattle Crossing	1108+460	Cattle Crossing
991+830	Side Connection	1043+200	Level Crossing	1109+820	Cattle Crossing
992+525	Inferior Crossing	1045+080	Level Crossing	1110+290	Level Crossing
993+910	Cattle Crossing	1048+840	Level Crossing	1110+800	Cattle Crossing
995+240	Vehicle Crossing	1050+500	Cattle Crossing	1112+680	Level Crossing
996+660	Cattle Crossing	1050+920	Level Crossing	1115+250	Level Crossing
999+870	Cattle Crossing	1053+280	Cattle Crossing	1115+800	Cattle Crossing
1000+730	Level Crossing	1054+580	Level Crossing	1118+040	Level Crossing
1003+260	Cattle Crossing	1056+550	Level Crossing	1119+160	Level Crossing
1003+740	Cattle Crossing	1058+980	Level Crossing	1121+100	Inferior Crossing
1004+020	Level Crossing	1059+940	Cattle Crossing	1121+360	Cattle Crossing
1005+370	Cattle Crossing	1063+920	Level Crossing	1124+960	Cattle Crossing
1007+660	Cattle Crossing	1064+320	Cattle Crossing	1128+980	Side Connection
1009+100	Level Crossing	1065+360	Level Crossing	1130+240	Level Crossing
1010+250	Vehicle Crossing	1067+180	Level Crossing	1133+160	Level Crossing
1010+700	Level Crossing	1070+640	Level Crossing	1134+030	Cattle Crossing
1011+600	Side Connection	1073+200	Level Crossing	1136+940	Level Crossing
1014+160	Vehicle Crossing	1076+120	Cattle Crossing	1139+100	Vehicle Crossing
1015+740	Level Crossing	1077+920	Level Crossing	1144+485	Level Crossing

iii. The Sub-Concessionaire must execute and complete, within 05 (five) years, counting from the signing of this Sub-Concession Agreement, the 13 (thirteen) OAEs presented in Table 8, contemplating all the materials and services necessary for its execution according to the projects presented by the Sub-Granting Intervener. The locations presented are referential klometers, obtained from the projects prepared by the Sub-Granting Intervener, so that this information may vary depending on the greater detail of the project to be presented by the Sub-Concessionaire.

Table 8: OAEs included in Complementary Works

Area	Name	Location
1F	PI – Fazenda Baviera (BA 647)	Km 1374+421
1F	PI – km 1402	Km 1402+020
1F	Viaduct (VR) – km 1440	Km 1440+940
1F	Viaduct (VR) – Pátio km 1492	Km 1492+853
2F	Bridge – Rio das Pedras – BA 130	Km 1354+591
2F	Viaduct (VF) – BA 558	Km 1357+683

Area	Name	Location
2F	Viaduct (VF) – BA 647	Km 1364+845
4F	Viaduct (VR) – Pátio Caetité	Km 972+138
4F	Viaduct (VR) – Serragem	Km 985+280
4F	PI – km 992	Km 992+526
4F	Represo Walkway	Km 1055+200
4F	PI – Itaquaraí	Km 1088+609
4F	PI – km 1121	Km 1121+100

4.1.3. Investments for the installation of Derailment Detectors consist of the acquisition and installation of detecting devices along the entire length of the Sub-Concession, as detailed below.

i. The Sub-Concessionaire shall install, within up to 05 (five) years, counted from the signing of this Sub-Concession Agreement, Derailment Detectors in Environmentally Sensitive Areas, at the entrance and exit of all OAEs and Crossing Yards.

4.1.4. Investments for the installation of Railway Systems cover the entire extension of the Sub-Concession, as detailed below.

i. The Sub-concessionaire shall install, within a period of up to 05 (five) years, counted from the signing of this Sub-concession Agreement, the Signaling, Licensing and Positioning Systems and Telecommunications System throughout the Sub-Concession Railway Section.

4.1.4.1 Railway systems must contain, at a minimum, the following elements and applications:

i. Locomotive Board Computer - CBL installed in all Locomotives to be acquired by the Sub-Concessionaire to meet the demand, which must be integrated with the CCO. It should be noted that investments for the installation of CBL must follow the schedule for the acquisition of Locomotives by the Sub-Concessionaire, so that they can occur after the 05 (five) years mentioned in item 4.1.4.i;

ii. Control of the authorization limits and speed of the Trains, so that the system acts directly on the Train in case of non-compliance;

iii. Train integrity control, through tail telemetric equipment, in all trains that travel on the Railway;

iv. Spring switch, circuit controller and dwarf light signal in all Crossing Yards;

v. Positioning of Railway Vehicles in the blocking sections, as well as their occupation and vacancy, by means of a detection system with axle counters or equivalent equipment to be installed in at least all Crossing Yards, 03 (three) units per AMV;

vi. Ability to operate with mobile logical interlocks, that is, to create virtual locking sections between dynamic or pre-configured limits;

vii. Telecommunications System capable of transmitting voice and data information along the entire Railway Section, integrating all components and systems;

viii. Hot Wheel and Rolling Detectors - Hot Box and Hot Wheel at critical altimetry points along the Railway;

ix. CCO designed to control the circulation of Railway Vehicles from synoptic panels, with the ability to plan and optimize circulation;

x. Ability to dispatch both freight trains equipped with CBL, as well as service trains and other railway vehicles without CBL;

xi. Interoperability capability for Trains coming from adjacent Railways.

4.1.5. Investments for the execution and completion of the Terminal consist of the implantation of 01 (one) intermodal Terminal, located in the municipality of Caetité / BA, as detailed below: The Investments for the installation of Railway Systems cover the entire extension of the Subconcession, as detailed below .

i. The Sub-Concessionaire must execute and complete, within 05 (five) years, counting from the signing of this Sub-Concession Agreement, 01 (one) Terminal, located in the municipality of Caetité / BA, contemplating all the materials and services necessary for its execution and operation. This investment includes the physical structure, facilities and equipment for loading, unloading, intermodal transfer and handling capacity of 8.6 million tons / year for general cargo, agricultural solid bulk and liquid bulk.

Chapter II

Demand-Driven Investments

4.2 The Demand-Driven Investments consist of interventions to be carried out by the Concessionaire to adjust the Railway's operational capacity to the demand for rail cargo transport, in order to keep the Railway Saturation Index (ISF) always below 90% (ninety percent).

4.2.1. The Demand-Driven Investments shall not result in the economic and financial rebalancing of the Concession Agreement.

4.2.2. The ISF is the indicator of Railway capacity saturation, obtained from the Railway Segments Saturation Level (NSSF).

4.2.3. The Railway Segment's NSSF (i) consists of the quotient between capacity used (CAP_UTIL) and installed capacity (CAP_INST), for the calculation period.

$$NSSF, i = \frac{CAP\_UTIL, i}{CAP\_INST, i}$$

Where:

CAP_INST, i = Installed capacity, in accordance with the ANTT's specific regulations, of Railway Segment i; and

CAP_UTIL, i = Capacity used, in accordance with the ANTT's specific regulations, of Railway Segment i.

4.2.4. The NSSF's calculation periodicity is annual.

4.2.5. The Railway Saturation Index (ISF) is understood as the highest value of NSSF obtained for each Railway Segment that makes up the Railway.

$$ISF = [Max(NSSF, i)]$$

Where:

ISF = Railway Saturation Index; and

Max (NSSF, i) = The highest value of the Saturation Levels of the set of Railway Segments that compose the Railway.

4.2.6. The ISF's calculation periodicity is annual.

APPENDIX B

Minimum Technical Specifications - Technical Parameters

5 The assumptions, reference values and other parameters stipulated in this Appendix, an integral part of the Obligations, are valid for the assessment of the proper operation of the railway infrastructure. The Minimum Technical Specifications refer to the Technical Parameters of Railway Infrastructure, Railway Superstructure, Level Crossings (PNs) and Support Facilities.

5.1 The Technical Parameters for the operation of the Railway's infrastructure refer to the following Infrastructure elements:

i. **Drainage Devices;**

ii. **Special Works of Art (OAEs);**

iii. **Cut slopes and embankments;**

iv. **Right-of-Way; and**

v. **Permanent Way Platform.**

5.2 The Technical Parameters for the Drainage Devices establish that these must be maintained:

i. In perfect conditions, without ruptures, cracks or defects that compromise its functioning, with consequent occurrences of deformations, landslides or erosions of the embankments;

ii. Under conditions suitable for the effective achievement of its essential purpose of capturing, draining and draining surface, subsurface or groundwater; and

iii. Free of sediment or siltation that compromises its flow capacity.

5.3 The Technical Parameters for OAEs establish that they must be maintained with their structural and functional characteristics preserved, in order to guarantee the operational safety of the Railway and of the people who travel on the roads that they cross, as well as the environmental preservation of rivers, streams and valleys located under these works.

5.4 The Technical Parameters for the cut slopes and embankments establish that they must be kept stable, without evidence of slipping or destabilization phenomena and, when contemplated by erosion processes initiated or already consolidated, that these are under control through a monitoring and stabilization plan. , so that they do not evolve or compromise the integrity of the embankments and the operational safety of the Railway.

5.5 The Technical Parameters for the Domain Range establish that it must be maintained:

i. With vegetation control so as not to compromise the visibility and safety of the Railway's operation, minimize the degradation of the Permanent Way, guarantee the free flow of surface water, allow the safe access of the Maintenance and inspection teams, as well as prevent concealment materials that are unnecessary for the operation of the Railway and that may cause risks to the safety of track workers, the environment and public health;

ii. With control of deposition of garbage, debris or materials unnecessary for the operation of the Railway and which may cause risks to the environment and public health, such as scrap of rails, fixings and ties;

iii. With control of actions against vandalism and sabotage on the Permanent Way and Domain Range;

iv. Free from unauthorized occupations (invasions); and

v. Integral along the entire Railway and with security control in the extension that intercepts Urban Areas. It is up to the Sub-concessionaire to implement an improvement solution that fits the characteristics of each municipality.

5.6 The Technical Parameters for the Permanent Way platform establish that it must be maintained:

i. Clean and free of garbage and debris;

ii. Free of water pockets;

iii. Free of vegetation in the railway superstructure and in the width of the platform up to the Drainage Devices;

iv. Free from erosion processes; and

v. Free of obstructions in the Drainage Devices by materials that compromise its good functionality.

5.7 The Technical Parameters of the railway superstructure refer to the following infrastructure elements:

i. Ballast;

ii. Ties;

iii. Rails;

iv. AMVs; and

v. Railroad Geometry.

5.8 The parameters for the Ballast establish that it must be maintained:

i. Without evidence of pumping fines from the subballast or from the granular base, problems of visual non-conformity regarding its granulometric aspects or non-compliance with the geometric parameters recommended in Table 16, resulting from clogging, contamination or deficiency in Ballast Maintenance;

ii. Height, whose minimum dimension considered under the bottom side of the ties, must follow the values recommended in Table 9; and

iii. Shoulder width according to the limits established in Table 10.

Table 9: Parameters for Ballast height

Description	Up to 20 t / axis	Greater than 20 t / axis
Minimum Ballast Height	25 cm	30 cm

Table 10: Parameters for Ballast shoulder width - Wide Gauge

Ballast Integrity	Ballast shoulder width (grid anchoring)> = 0.30 m.

5.9 Ties must be maintained in order to:

i. Guarantee Gauge, through the support of the rails fixation devices, and the structural capacity to transmit efforts from the rails to the ballast;

ii. Ensure leveling and allow tamping services at its base;

iii. Not show signs of decay, in the case of wooden ties;

iv. Not show cracks, or cracks that go beyond the limits of the current rules or that make the fixings ineffective, in the case of wooden ties;

v. Not show cracks or breaks in the central part or in the fixation region, in the case of concrete ties;

vi. Not show cracks or breaks that cause partial parting of the piece, in the case of steel ties; and

vii. Not have defects that may cause the reduction of their useful life or the guarantee of Gauge, generated by the wheels of wagons or Locomotives in the event of derailments.

5.10 Ties are considered unserviceable when they do not guarantee the parameters provided for in the current rules regarding the requirements “5.9.i” to “5.9.vii” applicable to Item 5.9.

5.11 The Technical Parameters for the Ties are related to their conservation and Gauge limits, which are presented in Table 12 and Table 13, respectively, while Table 11 presents the different line groups.

Table 11: Line group according to gross tonnage limits traveled per day

Line group	Limits (TBT / Day)
1	T > 120.000
2	120.000 > T > 70.000
3	70.000 > T > 40.000
4	40.000 > T > 25.000
5	25.000 > T > 12.500
6	12.500 > T > 6.000
7	6.000 > T > 3.000
8	3.000 > T > 1.500
9	T < 1.500

Table 12: Parameters for Ties - Conservation

Line group equivalence	Rail type (TR / UIC)	Axle load (ton)	% Permissible damaged ties		
			Tangent	R>=350	250<R<350
1,2,3	TR 68	30	20%	20%	15%
	TR 57 / UIC 60	30	10%	10%	5%
Other Groups	TR 57 / UIC 60	< 30	15%	15%	10%

Table 13: Parameters for Ties - Limits for Wide Gauge

Parameter Description	Freight Train Speed - Km / h			
	Class I (0 - 15 km/h)	Class II (16 - 40 km/h)	Class III (41 - 64 km/h)	Class IV (65 - 96 km/h)
Open Gauge Limit (mm)	1635	1632	1632	1625

Closed Gauge Limit (mm)	1587	1587	1587	1587

5.12 Unserviceable ties will not be admitted for the following locations:

i. At AMV entries, in the region from the tip of the needles to the recoil and at the intersection, in the region of Coração / Jacaré;

ii. In Railway Tunnels, Railway Viaducts and Railway Bridges; and

iii. For sections with transport of dangerous products, the Sub-Concessionaire must follow specific ANTT regulations.

5.13 The Technical Parameters for the Rails are divided into two types of railways:

i. Railways that do not perform re-profiling and grinding services for Large Equipment (EGPs) and do not have equipment for recording geometric track parameters, including wear reading, laser, for Rails; and

ii. Railroads that perform re-profiling and grinding services for Large Equipment (EGPs) and have equipment to record geometric track parameters, including wear reading, laser, for Rails.

5.14 The parameters for Rails, in the case of Item “5.13.i”, establish that these must be kept within the limits shown in Table 14.

Table 14: Parameters for horizontal and vertical wear of the rails - No re-profiling and grinding services

Rail type (TR and UIC)	Annual gross tonnage	Total maximum wear (mm)	Maximum vertical wear (mm)
TR 68	>14	11	-
	2 to 14	13	-
	up to 2	16	14
TR 57 and UIC 60	>14	10	10
	2 to 14	12	10
	up to 2	15	10

5.15 The Parameters for Rails, in the case of Item “5.13.ii”, establish that these must be kept within the limits shown in Table 15.

Table 15: Parameters for horizontal and vertical wear of the rails - With re-profiling and grinding services

Limit Parameter				
Profile	**Tqual to or greater than 25 ton / axis**			
	Billet loss (%) Head loss (with grinding and monitoring)	**Vertical wear limit (mm)**	**Lateral wear limit (mm)**	**Maximum total wear limit (mm)**
TR57/UIC 60	37%	15	14	22
TR68	54%	20	16	28

5.16 AMVs must be maintained in order to:

i. Safely perform the transposition of Railway Vehicles; and

ii. Have no signs of fracture in its main components, such as window frames, frogs and needles.

5.17 The parameters for AMVs state that they must be maintained:

i. Exempt from spliced ties to achieve the required length or dimensionally non-compliant with standard designs;

ii. Arranged with all screws and fixings mainly in the region of the window frames and the Frog;

iii. Exempt from unserviceable sleepers in sequence, mainly in the Jacaré region and the key machine in which the dormentation must present correct and uniform spacing and in perfect square.

iv. Free from geometry problems such as unevenness in relation to the skid plates and back rails that may compromise operational safety;

v. Free of components and rails with signs of fatigue, warping, cracks, fractures, damage and excessive wear that may compromise operational safety;

vi. Free of breaks, bends or dents in the needle tip that may compromise the perfect fit to the back track; and

vii. In compliance with current ABNT rules regarding wear of metallic components, related to the limits of safeguard quotas. The sub-concessionaire may request inspection reports to verify the limits.

5.18 The Technical Parameters for the splice joints of the Rails establish that these must be maintained, in order to:

i. Have them located in a region whose 2 (two) posterior sleepers and the 2 (two) anterior ones are serviceable;

ii. Have them be fixed by at least 4 (four) screws, of which 2 (two) must be applied to each Rail;

iii. Have them have a difference in transverse leveling at the base of 2.0 m (two meters) in line with the speed range in Table 16; and

iv. Have e no connecting joints with a spacing of less than 6.0 m (six meters) in the same row of Rails.

5.19 The Technical Parameters for the geometry of the Railway Line establish that it must be maintained within the limits shown in Table 16.

Table 16: Parameters for the Geometry of the Railway - Wide Gauge

Description of the track geometry parameter		Authorized speed ranges - Wide gauge				
		Class I (0 - 15 km/h)	**Class II (16 - 40 km/h)**	**Class III (41 - 64 km/h)**	**Class IV (65 - 96 km/h)**	**Class V (96 - 128 km/h)**
Cross Leveling	**Variation of cross leveling in tangent or circular curve** Warp - Warp (mm)	76	51	44	32	25
	Variation of the transverse leveling every 10 m in the entrance or exit curves of curves Twist - Twist (mm)	51	44	32	25	19
Alignment	**Curve misalignment in 10 m** Maximum variation of the horizontal arrow in relation to the average of the arrows - 10m rope (mm) (mm)	NA	NA	31	25	12
	Tangent alignment defect Maximum horizontal arrow variation in relation to the tangent - 20m rope (mm) (mm)	128	76	44	36	19
Curvature	**Excess superelevation on tangent or circular curve** Regarding the zero level or the superelevation (X) projected for the circular curve (mm)	X + 76	X + 51	X + 45	X + 32	X + 25

5.20 The Sub-concessionaire must carry out, at least, once a year, inspection of the geometry of the railway line, using equipment with a permanent track geometry monitoring system and parameter analysis.

5.21 The parameters for PNs refer to their elements, such as:

i. Functional and structural characteristics;

ii. Road pavement (adjacent and between the tracks);

iii. Signaling devices (active, passive and auxiliary protections); and

iv. Sidewalks.

5.22 The PNs must have asphalt or concrete pavement in the area located on the Ballast, with the objective of reducing the risk of locking or retention of road vehicles between the Rails.

5.23 The level of the pavement must be the same as the rolling surface of the rows of rails and must allow road traffic without slowing down, without shock or skidding.

5.24 It is not allowed to place soil or other material on the Ballast that may reduce its elastic and draining capacity or that hinder the passage of vehicles due to irregularities on the surface of the PNs.

5.25 Access routes to the PNs must follow the existing road pattern.

5.26 In Urban Areas, PNs must ensure pedestrians traffic without vehicle interference, in accordance with current Brazilian technical standards.

5.27 All PNs must be implemented in accordance with current Brazilian technical standards.

5.28 **Table 17 shows the Technical Parameters for the Support Facilities.**

Table 17: Parameters for Support Facilities

Classification	Physical Conditions	Characteristics
Great	Does not undergo or require repairs	New building or with substantial general repair, less than two years old, that shows only signs of natural wear of the external paint.
Very Good		New building or with substantial general repair, less than two years old, which only needs a light coat of paint to restore its appearance.
Good	**Requires / received minor repairs**	Semi-new building or with general and substantial repair between 2 to 5 years, whose general condition can be recovered only with repairs of any localized surface cracks and / or external and internal painting.
Intermediate		Semi-new construction or with general and substantial repair between 2 to 5 years, whose general condition can be recovered with repair of localized and superficial cracks and cracks and internal and external painting.
Regular	Requires simple repairs	Building whose general condition can be restored with internal and external painting, after repairs of generalized surface cracks and cracks, without recovery of the structural system. Eventually, overhaul of the hydraulic and electrical system.
Deficient		Building whose general state can be recovered with internal and external painting, after repairs of cracks and cracks, with stabilization and / or localized recovery of the structural system. Hydraulic and electrical installations can be restored by overhauling and eventually replacing some naturally worn parts. Eventually, it may be necessary to replace the floor and wall coverings in one or the other room. Review of waterproofing or replacement of roof tiles.
Bad	Requires major repairs	Building whose general condition can be recovered with internal and external painting, with replacement of masonry regularization cloths, repairs of cracks and cracks, with stabilization and / or recovery of a large part of the structural system. The hydraulic and electrical installations can be restored by replacing the exposed parts. The replacement of floor and wall coverings in most rooms is necessary. Important replacement or repairs to the waterproofing or roof.
Very Bad		Building whose general state can be recovered with stabilization and / or recovery of the structural system, replacement of masonry regularization, repairs of cracks and cracks. Replacement of hydraulic and electrical installations. Replacement of floor and wall coverings. Replacement of waterproofing or roof.
Demolition	Demolition value (residual)	Building in a state of disrepair.

5.29 The Railway Support Facilities must be maintained, at a minimum, in the regular classification.

APPENDIX C

Minimum Technical Specifications - Indicators for the Provision of the Rail Transport Service

6 The assumptions, reference values and other parameters stipulated in this Appendix, an integral part of the Obligations, are valid for the evaluation of the adequate provision of services. Refer to the Minimum Technical Specifications for the provision of the rail transport service: Serious Railway Accidents Index (IAFG); Average Travel Speed (VMP); and Maximum Age of the Locomotive Fleet (IMFL).

6.1 The Minimum Specifications for the provision of the rail transport service include the following Indicators:

i. Severe Rail Accident Index (IAFG);

ii. Average Travel Speed (VMP); and

iii. Maximum Age of the Locomotive Fleet (IMFL).

6.2 The IAFG, VMP and IMFL Indicators will be calculated in the sections that are open to rail traffic authorized by ANTT.

6.3 The Serious Railway Accident Index (IAFG) consists of the quotient between the number of serious railway accidents that occurred and the distance traveled by all Trains formed by the Sub-Concessionaire during the calculation period, in millions of kilometers. Its representation unit is accidents / million train x km.

$$IAFG = \frac{AFG}{\sum_{i=1}^{n} DIST_i}$$

Where:

= Total serious rail accidents that occurred in the investigation period, under the terms of the specific regulations of ANTT;

= Distance covered by each of the Trains formed by the Concessionaire in the calculation period, in millions of kilometers; and

= Total trains formed in the counting period.

6.4 The IAFG's calculation frequency is annual.

6.5 Table 18 presents the reference values for the IAFG.

Table 18: Serious Railway Accidents Index (IAFG)

Stage of the IAFG Subconcession Agreement	IAFG - Serious Railway Accidents Index
Signature date of the Subconcession Agreement up to the 5th year	<or equal to 2.65
6th year to last year	<or equal to 2.15

6.6 The Average Speed of Travel (VMP) consists of the relation between the sum of the distances covered, in kilometers, by all Trains formed during the counting period and the sum of the total transit times, in hours, spent between the entrance and the closure Trains in the network. Its representation unit is km / h.

6.7 The VMP will be determined by the Average Travel Speed Indicator (IVMP):

$$IVMP = \frac{\sum_{i=1}^{n} DIST_i}{\sum_{i=1}^{n} T_i}$$

Where:

= Distance traveled by each of the Trains formed during the counting period, in kilometers;

= Transit time of each of the Trains formed in the counting period, in hours; and

= Total trains formed in the counting period.

6.8 The calculation period for the VMP is annual.

6.9 Table 19 presents the reference values for the IVMP.

Table 19: Parameters of the Average Travel Speed Index (IVMP)

Stage of the IAFG Subconcession Agreement	**IVMP** (km / h)
Signature date of the Subconcession Agreement up to the 5th year	> or equal to 31.98
6th year to last year	> or equal to 36.12

6.10 For Locomotives, the Maximum Age of the Locomotive Fleet (IMFL) indicator will be used.

6.11 The IMFL consists of the highest age value of the Main Fleet Locomotives.

6.12 The Main Locomotive Fleet includes those that are available to traffic, in use or not, except those unavailable due to total losses caused by accidents.

6.13 The IMFL is counted annually.

6.14 The Sub-Concessionaire must have an IMFL of less than 40 (forty) years during the entire term of the Sub-Concession Agreement.

APPENDIX D

Complementary Obligations

7 The Complementary Obligations, described in this Appendix D, consist of essential obligations for the proper provision of the rail transport service, an integral part of the Obligations.

7.1 The Sub-Concessionaire must implement, within 12 (twelve) months after the date of signature of the Sub-Concession Agreement, Ombudsman Service.

7.2 The Sub-Concessionaire must respond and seek a solution for all communications made through the Ombudsman service.

7.3 The Sub-concessionaire must provide logistical support for carrying out ANTT's inspection activities.

APPENDIX E

Obligations of the Sub-Granting Intervener

8 The Sub-Granting Intervener must transfer to the Sub-Concessionaire, within 30 (days), counting from the signing of the Sub-Concession Agreement, all superstructure materials already acquired to be implanted in FIOL I.