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TECHNICAL BIDDING SPECIFICATIONS  
PES200157

SPECIFIC TECHNICAL TERMS FOR THE RENOVATION WORK ON THE RAILS IN THE PERTÚS  
RAILWAY TUNNEL MANAGED BY LÍNEA FIGUERAS PERPIGNAN S.A.

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## 1 INTRODUCTION

The company Línea Figueras Perpignan S.A. (hereinafter, LFP S.A.) is a company incorporated under Spanish law, with its registered office in Madrid, whose two 50/50 shareholders, ADIF and SNCF Réseau, are responsible for the maintenance and operation of the International Section of the High-Speed Line between Figueras and Perpignan. The services of an external company that has the necessary technical and human resources for the renovation of the rails in the Pertus Railway Tunnel, are needed.

These bidding conditions will be considered to have the legal status of a document forming an integral part of the contracts in the order of priority that is defined in the following Condition, and by signing the contract, the CONTRACTOR agrees to comply fully with its entire content. It shall form part of the contract and a signed copy shall be kept in the offices of LFP S.A.

## 2 DEFINITION OF THE CONTRACT TERMINOLOGY

**Contractor:** This is the individual or legal entity whose purpose or activity is directly related to the object of the contract, as per its statutes or bylaws, for whom it has been duly shown that they have the capacity to act, are financially solvent, and have the required technical and professional means, as established in the SD, and have therefore been awarded the contract.

**Contractor's delegate:** Representative of the successful bidder and the person with overall responsibility for the contracted work.

**Contract Director:** The person appointed by the contracting party to oversee the work, and who will supervise its implementation, make decisions and give the necessary instructions in order to ensure the proper execution of the agreed service, in accordance with the powers vested in them.

**Contracting party's delegate:** The person appointed by the Contract Director to coordinate the work covered by this contract, and to monitor it on a daily basis.

## 3 PURPOSE OF THE CONTRACT

As a result of the high humidity inside the tunnel and the ingress of small amounts of water through the joints between the arch stones, the rail that forms part of the track superstructure has been affected by atmospheric oxidation.

The aim of these conditions is to define the technical specifications required to execute the renovation work on the rails of the main tracks inside the Pertús tunnel on the International Section of the High-Speed Perpignan-Figueras Line, consisting of:

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- Preparatory work (topographic studies, surveying, marking of sections to be changed, etc.)
- Manufacture of long welded rails (LWR) by means of arc welding in a permanent workshop
- Supply, transport and storage of the rails at the facilities located at either of the tunnel mouths at La Jonquera or at Montesquieu des Albères
- Removal, transport and storage of the removed rails at the facilities at the tunnel mouths
- Installation of the new rails
- Refitting of the Rheda 2000 system for fixing rails to sleepers, comprising SKL-15 tension clamps, sleeper screws, baseplates, angled guide plates, rail pads, and so on, for sections that have been affected by corrosion phenomena
- Homogenisation and release of tension operations, where necessary
- Final check, topographical survey and inventory
- Supply of fuel and logistics of all the materials needed for the execution of the work, as well as the conservation and maintenance of all vehicles and resources at the disposal of the contract
- Preparation of the final work report
- Participation in technical meetings with LFP S.A. personnel
- Other activities related to the provision of the contracted service. In particular, this shall include the preparatory assessment work, measurement of units and on-site monitoring of the work being undertaken

These activities shall be carried out by the CONTRACTOR, without any additional cost to LFP S.A.

## 4 CHARACTERISTICS OF THE TRACK AND THE TUNNEL ON THE INTERNATIONAL SECTION

The International Section is a high-speed line consisting of a double track between Figueras and Le Soler (near Perpignan), measuring approximately 44.36 km (19.77 km in Spain and 24.59 km in France), and its connections with the conventional Perpignan railway line, which was commissioned in 2010.

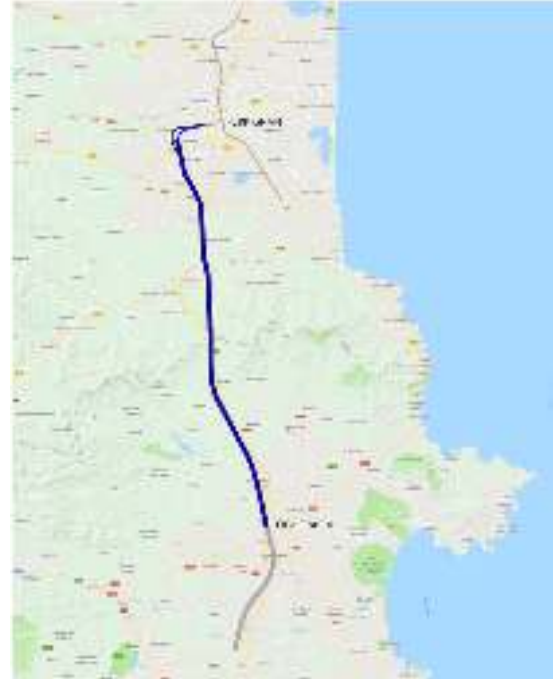
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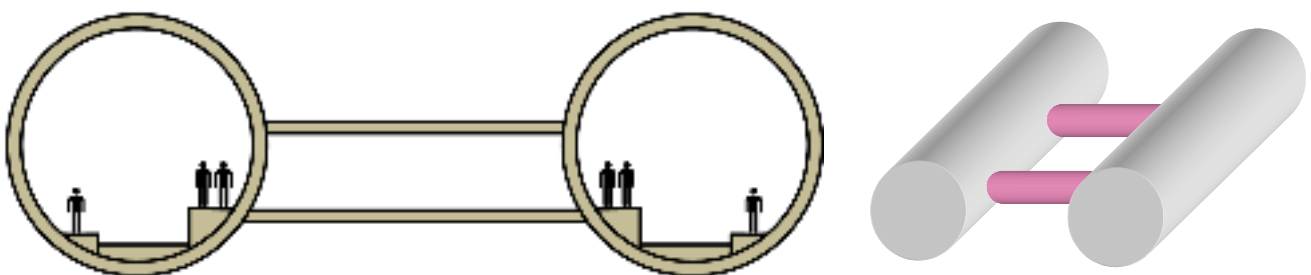
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The maximum permissible speed is 300 km/h, and the design speed of the line is 350 km/h.

The tunnel lies on a north-south bearing. The northern mouth of the tunnel is located in the town of Montesquieu-des-Albères, in French territory, while the southern mouth is located in Spanish territory, in the town of La Jonquera.

The tunnel consists of two single-track tubes. The two tubes are interconnected by transverse tunnels (or "branches"), with doors monitored remotely from the Control Centre (see diagram below).



The general characteristics of the track and the tunnel on the International Section of the High-Speed Perpignan-Figueras Line, where the work is to be carried out, are as follows:

- Nominal track width: 1,435 mm
- Rail type: 60 E1 long welded rails, grade 260 (carbon manganese), prime quality "Class A" suitable for high-speed tracks
- Rail inclination: 1/20

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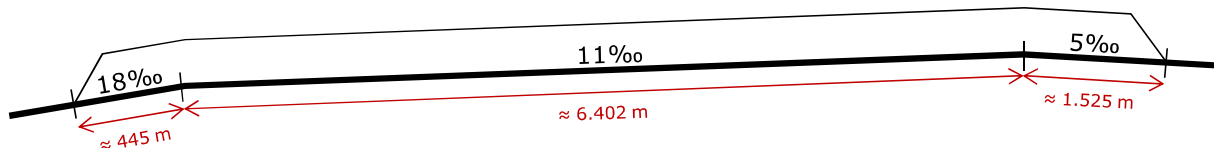
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- **Cross-border** tunnel comprising two single-track tubes with slab track measuring 16.6 km in total. (From PK 17+000 to PK 25+600, where PK means no. of kilometres from Perpignan). Border between Spain and France located at PK 24+580 approx.
- Tunnel diameter: 9.50 m; tunnel evacuation and maintenance platforms; Evacuation branches between tubes every 200 m
- Minimum radius inside the tunnel: 8,000 m
- Length:
  - Track 1: 8,405 m
  - Track 2: 8,385 m
- Longitudinal profile in "roof" form
  - Maximum slope: 18‰ for 445 m
  - Longest slope: 11‰ for 6,402 m



- 100% mixed traffic line  $\Rightarrow$  commercial trains can be:
  - High-speed passenger trains travelling at 300 km/h
  - Freight trains travelling at 100 km/h
- The transport of **Dangerous Goods** by freight trains is **authorised**
- Axle load: **22.5 t/axle**
- Rolling highway loading gauge and gauge GC
- Maximum cant gradient of the line is 135 mm (120 mm inside the tunnel)
- Slab track: Inside the tunnel, the technology of the slab track (ballastless track) is Rheda 2000, whose main features are:
  - Foundation or base, which consists of a supporting concrete structure in the tunnel.
  - Hydraulic concrete subbase with a width of 3.80 m, whose surface serves to support the alignment and levelling elements of the track.
  - Reinforced concrete slabs 3.20 m in width. This is supported by the previous layer and serves as a seat for prefabricated sleepers, which are embedded therein and overlap with the longitudinal slab framework.
  - Concrete sleepers: system of bi-block sleepers embedded in reinforced concrete, 65 cm apart between their axes.
  - Fasteners: The Vossloh 300-1 fastening system, which enables additional parts to be inserted to correct possible movements of the track in addition to the transmission and distribution of tensions.
- Adjoining rail platforms: At each of the tunnel mouths there is an adjoining rail platform, 35 m in length, which are used for maintenance purposes. They enable road-rail vehicles to join the main track, which can operate both on rail tracks and roads.
- Tunnel cross-section is shown below:

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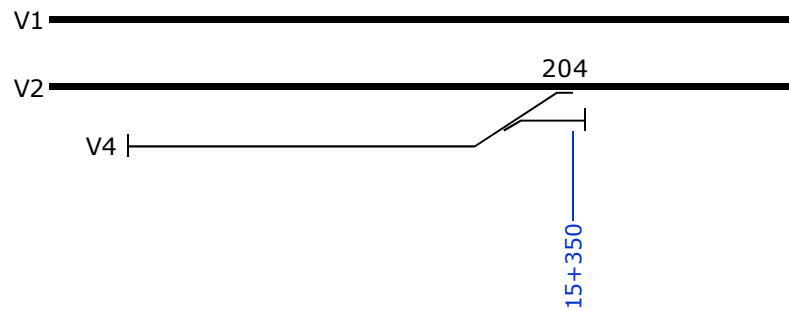
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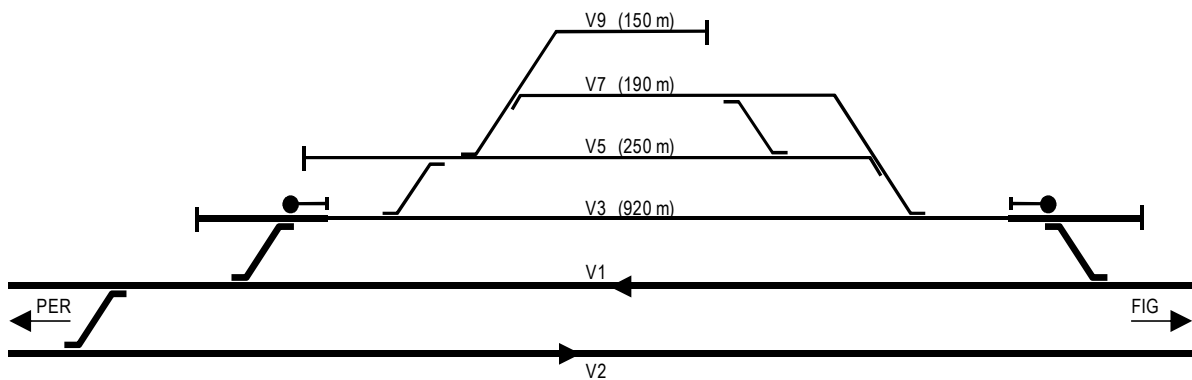


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- Sidings at PK 15+350 and at the maintenance yard at PK 42+535



Siding, PK 15+350



Track network at Maintenance Yard, PK 42+353

- Three (3) independent lighting circuits:
  - Normal lighting on the passenger evacuation platform
  - Emergency lighting on the passenger evacuation platform
  - Lighting on the service platform (for maintenance personnel)



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- Communication, intercom systems: All evacuation tunnels have intercoms enabling communication with the LFP Control Centre.
- Fire detection system (Spanish initials: DIT) based on two independent systems:
  - A linear heat detector (fibrolaser) throughout each tube
  - Opacimeters that detect the presence of smoke and which are located at regular intervals along the tunnel
- Fire-fighting system (Spanish initials: EIT) consisting of a pressurised water conduit, and hydrants located on the evacuation platform, near the evacuation tunnel doors (Spanish initials: RCE).
- Complete ventilation system that enables smoke to be removed from a damaged tube and the unaffected tube to be over-pressured, in order to enable the evacuation of travellers in total safety. Ventilation is reversible, which enables venting in the most suitable direction depending on the train's direction of movement and the atmospheric conditions (wind, pressure, humidity, temperature).



All alarm signals are transmitted to the Control Room by means of the tunnel remote control (Control Centre, Spanish initials: PCT).

Outside the tunnel, the track is laid on ballast.

The CONTRACTOR shall explicitly indicate in its bid any limitation arising from the nature of the track, otherwise, it shall be understood that there is no restriction to the execution of its work.

## 5 MATERIALS – SUPPLY

### 5.1 UIC60 Rails

#### 5.1.1 GENERAL INFORMATION

The rails are one of the interoperability components defined in the Technical Specifications for Interoperability (TSI) and as such, they have to comply with the stipulations contained therein.

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The rails shall be supplied as basic rail pieces, **laminated in the steel works**, in two different lengths:

- 36 m
- 108 m

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These rail pieces are either used alone, or are welded together to form long welded rails (LWR). The following table indicates the use of each type of basic rail piece depending on the length of the area affected by oxidation.

Basic Rail Pieces Length (m)	Short Affected Areas of < 20 m	Moderate Affected Areas between 20 m and 50 m	Long Affected Areas between 50 m and 90 m	Very Long Affected Areas between 90 m and 900 m
36 m	1	2 (welded together)	N/A	N/A
108 m	N/A	N/A	1	2 or + (welded together)

The manufacture of 108-metre basic rail pieces by welding three (3) 36-metre basic rail pieces together is not authorised.

The CONTRACTOR shall provide the basic rail pieces as shown in

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Annex No. 2: Location of Rail to be Renewed.

All rails must be manufactured in accordance with an overall factory production control system, which should ensure compliance with the finished product.

Manufacturers shall provide documentary evidence to prove continued compliance with the control system required for factory production.

Manufacturers that have a factory production control system as per **UNE-EN ISO 9001** are deemed to meet the minimum requirements specified in this chapter.

It is imperative that rail production is carried out solely in the plant that the TENDERER proposes in its offer. As regards any amendment to these conditions, the TENDERER must request the authorisation of LFP S.A., which will then analyse whether or not to give its approval.

During the production process, in order to ensure the traceability of the rails and facilitate their monitoring, the TENDERER must provide LFP S.A., in digital form, with the specific data of the manufactured material required under these conditions.

LFP S.A. reserves the right to verify some of the execution methods and aforementioned data at the factory.

### 5.1.2 TECHNICAL SPECIFICATIONS

Following the guidelines set out in point 4 of **UNE-EN 13674-1**, "Information to be supplied by the purchaser", the basic material data to be provided is given below:

- UIC 60-E1 rail profiles
- Rail hardness (grade) R260
- Profile class X
- Straightness (correctness) class A
- Basic rail pieces, **laminated in the steel works**, in two different lengths:
  - 36 m
  - 108 m
- Offloading requirements: to be set by the TENDERER. In the event they are supplied with drilled holes in the ends, these shall be removed using a rail cutting machine before they are installed.
- Rail ends fastened in accordance with table 8 of **UNE-EN 13674-1**, **UNE-EN 13674-4** and diagram P16.5252.00.
- The rails shall be identified as per **UNE-EN 13674-1**. See section 5.1.2.5.
- Identification of welds as stipulated in section 7.6.
- Specific protection against oxidation. See section 5.1.2.6.

#### 5.1.2.1 Geometric Aspects

The figure below shows the geometric specifications of the rail profile to be used, taken from annex K2 of the TSI.

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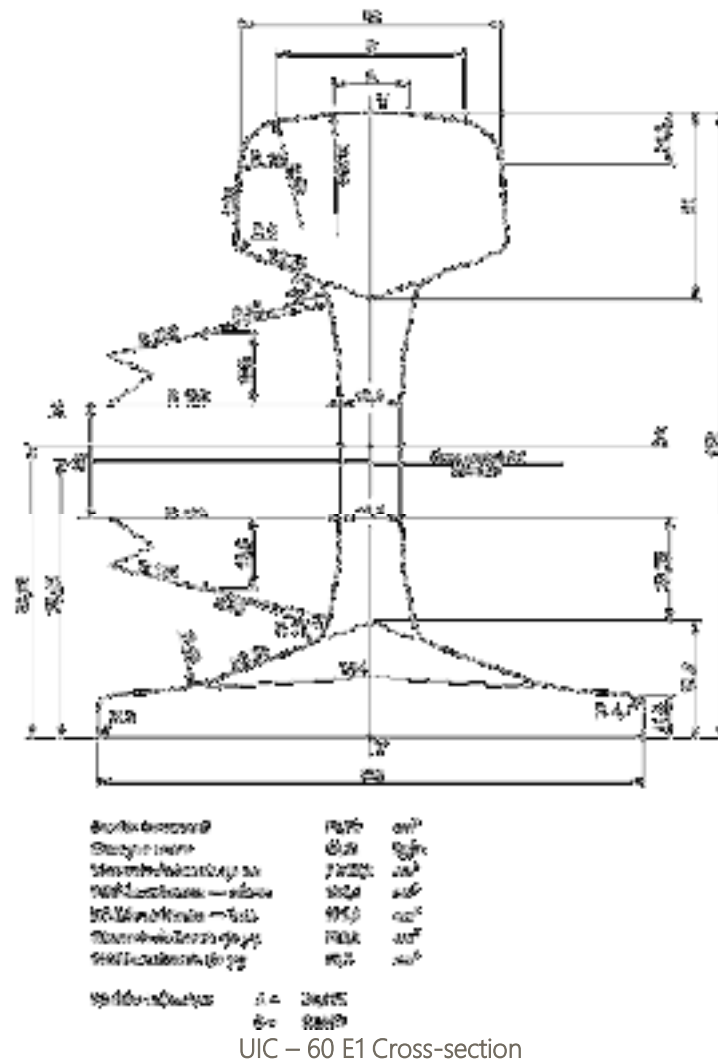
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The differences between the actual dimensions of a rail and its nominal dimensions should not exceed the stipulations in Table 8 of UNE-EN 13674-1.

The straightness, surface flatness and twist tolerances are given in Table 9 of UNE-EN 13674-1.



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#### 5.1.2.2 Mechanical Properties

- R260 Hardness
- Tensile Strength > 880 N/mm<sup>2</sup>, as per EN 10002-1 using test bars with a diameter of 10 mm. Tensile strength has to meet the requirements of EN 13674-1. During loading/unloading the stress to which the rail shall be subjected shall not exceed 20 N/mm<sup>2</sup>
- Elongation > 10%.
- The rail head profile shall comprise a lateral tilting of the side of the head of 1/20.
- The thermal expansion coefficient has to be between 11 µm/m ± 0.25 at a temperature of 20°C. The TENDERER shall provide the appropriate certificates from the rail provider concerning the thermal expansion coefficient measurements between -25°C and +70°C, and shall calculate the value of this coefficient at 20°C using said measurements.

This information shall be certified by the manufacturer for all supplies.

#### 5.1.2.3 Chemical Composition

The stipulations of UNE-EN 13674-1 to 4.

#### 5.1.2.4 Residual Stresses

The residual stresses in the rail foot shall be determined as set out in Annex C of UNE-EN 13674-1.

The maximum longitudinal residual stress in the foot must be less than 220 MPa.

#### 5.1.2.5 Branding

Brand marks shall be rolled in relief on one side and in the middle of the web (see annex A of UNE-EN 13674-1) of each rail, once every 4 m. The brand marks on the rails must be clearly legible and must have the following dimensions:

- Height: from 20 mm to 25 mm
- Thickness: between 0.6 mm and 1.3 mm

The length of the branding lines denoting the steel grade must be 50 mm for long branding lines and 25 mm for short ones.

Branding in relief must include:

- The identification of the mill
- The steel grade
- The last two figures of the month and year of manufacture
- The rolling direction
- The manufacture method

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## 5.1.2.6 Specific Protection Against Oxidation

Given the environmental characteristics of the Pertús Tunnel, the TENDERER shall propose one or more systems to protect the rail against corrosion phenomena. These may consist of a coating that acts as a barrier to protect against atmospheric oxidation reactions, or a covering that acts as a sacrificial anode.

This protection shall take welded joints into account, as well as the potential repairs of defects caused during transport or installation of the rail.

## 5.2 Fasteners (Tension Clamps)

The supply of fasteners, whether they are complete or partial sets, is the responsibility of LFP.

The CONTRACTOR is responsible for:

- The removal and storage of the old fasteners
- The fitting of the new fasteners supplied by LFP
- The adjusting (loosening and tightening) of the new fasteners during the rail laying, stress dispersion and final tightening phases

## 5.3 Welding Equipment

All materials, kits and equipment needed to perform welding, must be supplied by the CONTRACTOR.

## 5.4 Special Tools

The CONTRACTOR must have all special tools, machinery and equipment needed for:

- Loading and unloading materials
- Material handling (cranes, consoles)
- Transport on tracks:
  - locomotives
  - work trains
  - wagons
  - wagonettes
- The removal and laying of rails:
  - cranes
  - gantry cranes
  - pads for moving rails
  - gauge bars
  - track-laying machine
  - knees
- small machinery
  - grinder

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- nailer
  - rail cutting machine
  - whetter
  - power drill
  - deburring machine
  - welding burr cutter (scissors)
  - rail tensor
  - rail de-stressing machine
- Measuring equipment

*(List for information purpose – not exhaustive)*

All special tools, machinery and equipment must be in perfect working order, and have the CE marking.

The heavy machinery can be refuelled with diesel at the Maintenance Yard belonging to LFP in Llers, located at PK 42+500. Corresponding fuel costs shall be deducted from the payments made by LFP to the CONTRACTOR.

## 6 MATERIALS – TRANSPORT AND STORAGE

### 6.1 Transport and Unloading

The CONTRACTOR shall perform the necessary transport, loading and unloading, both from the factory to the welding workshop, and from the welding factory or workshop to the installation site, within the period stipulated in the work schedule.

The CONTRACTOR shall ensure that the transport is carried out in the most appropriate way, using any vehicles and means needed to ensure that the rails do not suffer damage during transit. Otherwise, it will be the responsibility of the successful tenderer to replace the damaged rails.

The CONTRACTOR shall be responsible for returning and restoring any tracks or roads that it uses for transport to their original state, where necessary. In addition, it shall manage, at its own expense, all auxiliary resources, security measures, permits and authorisations that may be required.

The transport, loading and unloading system shall be subject to the approval of the Technical Contract Management.

All rolling stock used in rail transport must comply with the authorisation conditions set out in ORDER FOM/233/2006. In addition, railway staff appointed for that purpose shall have the authorisations stipulated in ORDER FOM/2872/2010. The CONTRACTOR shall be responsible for compliance with the two orders mentioned above, whether it performs the work itself or outsources it to third parties.

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Should maritime transport be used, the rails must be stowed below deck and a salinity test will be conducted after offloading them in the port. Under no circumstances may they be transported on deck.

The rails shall be handled in the factory yard, in the welding workshop or in storage areas, using gantry cranes with a system that prevents excessive bending, which may give rise to permanent deformations.

The gantry cranes to be used for lifting the rails shall have a maximum distance of 14 m between them, leaving a maximum of 4 m at each end.

The rails shall preferably be unloaded by mechanical means, and shall be held at the points shown. When manual handling is necessary, the rails are slid onto beams or sleepers that are situated to the side of the transport platform and shall be well greased and sloping at less than 30°.

The rails may be transported using rail-carrying trains directly from the mill to the point where they are unloaded at the installation site, if so determined by the TENDERER in the descriptive report, and once authorised by the Contract Director. In this regard, the stipulations of section 7.6 shall be taken into account.

## 6.2 Material Storage

The CONTRACTOR shall have the use of the following facilities, where it may store the rails, if necessary, until they are fitted to the track:

- Facilities at the North Technical Centre at the northern mouth of the Pertús tunnel (Spanish initials: CTN), located at Chemin de Balmourène, 66740, Montesquieu des Albères (France)
- Facilities at the Southern Technical Centre (Spanish initials: CTS) at the southern mouth of the Pertús tunnel, located at Carretera nacional II, Km 777.2 – 17700, La Junquera, Girona (Spain)
- Facilities at the Maintenance Yard in Llers, located at Carretera de Llers a Hostalets, GIP 5107 Km1 – 17730 Llers, Girona (Spain)

These storage areas are described in detail in Annex 4.

The CONTRACTOR shall be responsible for preparing the chosen storage area, as well as for auxiliary elements to aid in the storage of the rails, such as intermediate elements to be placed between layers of rail, levelling rails for the storage base, if necessary, and so on.

The CONTRACTOR shall explicitly indicate in its bid any limitation arising from the aforementioned facilities. Should it not do so, it shall be understood that there is no restriction to the execution of its work, and this shall be taken as its express approval of the conditions of said storage areas.

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## 7 PERFORMANCE OF THE OPERATIONS

### 7.1 Scope of the Contract

The scope of the CONTRACT includes:

- The supply of materials specified in section 5
- The transport services to the Pertús Tunnel referred to in section 6
- The material loading, unloading and storage services referred to in section 6
- The removal of the rails to be replaced
- The operation of the work trains (driver, training agents, manoeuvring agents)
- The laying of the rails, including geometric adjustments and the stress dispersion
- The welding work, on site or in the workshop, to manufacture the LWR from the basic rail pieces referred to in section 5.1.1
- Final topographical surveying
- The correction of any geometrical defect, prior to the acceptance of the work by LFP
- Supervision of the work
- Etc.

The CONTRACT excludes:

- The overall management of the work in coordination with commercial rail transport
- The management of the operation of work trains
- The safety of the work area (power outage, earthing of the overhead distribution, electrical lockout, interception of tracks, placement of stop signs)
- The lighting inside the tunnel
- Safety management and the implementation of safety and emergency plans in the event of incidents or accidents
- The establishment of a communication network inside the tunnel
- The allocation of time slots on the track for work trains

These tasks are the responsibility of LFP and shall be carried out by LFP without cost to the CONTRACTOR.

### 7.2 General Schedule for Execution of the Work

The work must be carried out between **12/09/2021** and **30/11/2021**, depending on the times of manufacture and delivery of the rails defined by the steel mill.

Execution terms shall not exceed **30 calendar days**. The work term shall begin to be counted from the day of closure of the first tunnel until the restitution of both tracks to nominal operating conditions.

The CONTRACTOR must prepare a general plan and a detailed plan of work, based on the actual dates of manufacture and delivery of materials to the Pertús Tunnel.

See section 7.4.3.

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### 7.3 Responsibilities of the Contractor

The CONTRACTOR shall be responsible for:

- The proper functioning and suitability of the equipment and machinery to be used for the execution of the assigned work
- Safety during loading and unloading of materials
- The safety of the work trains (general condition, use of chocks for immobilisation and immobilisation brake during long stops)
- Safety during rail replacement activities: removal of the old rails, laying of the new rails, welding, stress dispersion, etc.
- Calibration and tuning of equipment
- Compliance, by personnel working under the contract, with current safety regulations concerning rail traffic and work on the track and in its vicinity, to the extent that it applies to them
- Appropriate compliance with the established instructions regarding entry to the track protection zone on the part of its staff
- Compliance with the established regulations regarding the use of common spaces, access to restricted areas, etc.
- The appropriate behaviour of its personnel
- The correct compliance with working days by personnel
- The personnel's knowledge of the current, up-to-date regulations required for the proper execution of the work
- Compliance with the Health and Safety Plan, where appropriate
- Compliance on the part of the rolling stock used in rail transport (whether they are own resources or outsourced to third parties), with the approval conditions set out in ORDER FOM/233/2006
- Its own rolling stock or that which it uses to travel on the track, ensuring that it has passed the relevant tests, that it is authorised to travel on the track and that it has the necessary documentation, security features and equipment
- The timely delivery of technical documentation and participation in assessment tasks required in accordance with these conditions
- Compliance with environmental requirements
- Quick and appropriate action when incidents occur
- Reporting any problem with the human and material resources immediately to LFP S.A so that it can take appropriate action.
- Discretion regarding the duty of confidentiality with respect to the actions taken and the decisions made by LFP S.A.

IMPORTANT (1) The Pertús Tunnel is located in two countries: **Spain** and **France**. Therefore, the CONTRACTOR must ensure that all its personnel have their national identification documentation (Spanish initials: DNI) or current passport, and that, during the period of execution of the work, their activities are covered by the Social Security in both countries.

IMPORTANT (2) The work of replacing the rails will be carried out on stretches of track where the slopes are between **11** and **18‰**. Therefore, the CONTRACTOR must pay special attention to its work

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trains and adopt all the necessary measures in order to avoid excessive wear of brakes and any consequential accidents (use of anti-drift chocks and parking brakes).

## 7.4 Service Provision Working Time Slot

### 7.4.1 WORKING DAY

For every day of activity, the CONTRACTOR shall place work teams and their human resources and materials at the disposal of LFP S.A. for a period of at least 16 consecutive hours, divided into two shifts of eight hours.

Workers shall rest for a period of at least 12 hours between two successive shifts.

In addition, other working periods may be established by mutual agreement between the CONTRACTOR and LFP S.A., depending on the progress and type of work.

### 7.4.2 WORKING TIME SLOTS, ACTUAL WORKING HOURS AND EFFECTIVE WORKING HOURS

LFP S.A. will ensure a **Working Time Slot**, in which the track will be available for carrying out the work, the beginning of which shall be understood to be the time when vehicles or work teams are authorised to access the track, and the end being the time at which the track shall be left clear for commercial rail travel:

- 24 hours a day
- a maximum of 14 days

The **Actual Working Hours** period starts at the time when the engineering train (Spanish initials: TTx) leaves its parking area, or alternatively, when the work team leaves the assembly point indicated by LFP S.A., ready to start work. The actual working hours end when the engineering train or work team returns to said place.

For practical purposes, **Effective Working Hours** are defined as the duration of work carried out by work teams when performing their specific task.

The CONTRACTOR shall make a note of each of the aforementioned three times in the daily work order referred to in section 8.2.

### 7.4.3 WORK PLANNING

In the bid submitted, the CONTRACTOR shall include a **general work schedule**, which shall serve as the basis for the drafting by the CONTRACTOR of the **specific, detailed work schedule**. This detailed schedule shall be submitted at least 15 days before the start of the work and shall be subject to the approval of the Contract Director.

The general planning principle consists of **condensing** the work provided under this contract as far as possible. Therefore, there will be:

A daytime work schedule (commercial rail transport hours)

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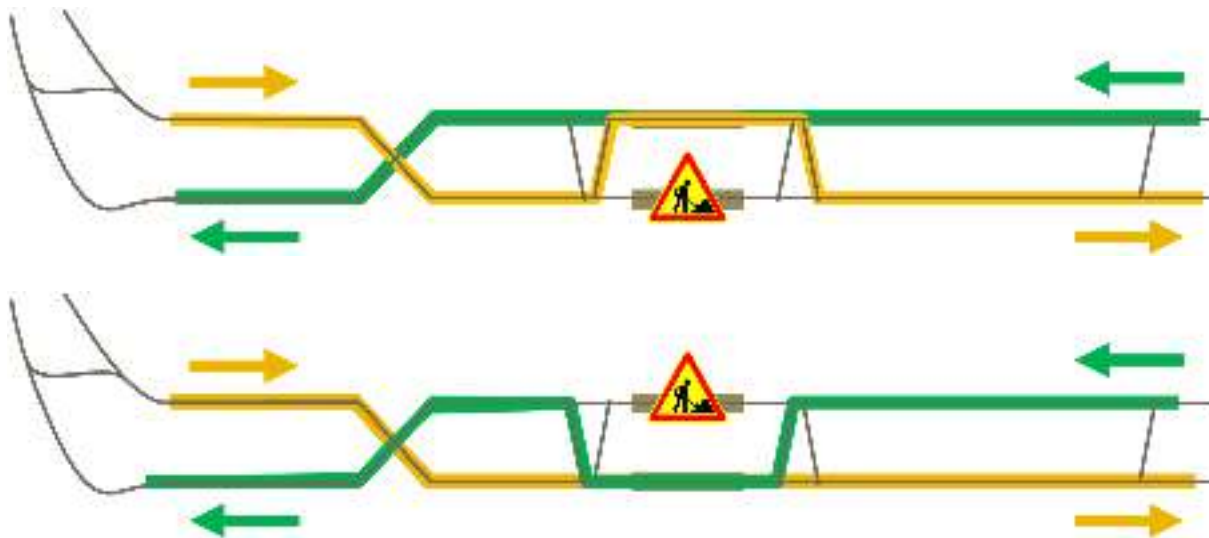
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- One tunnel will be closed for work, while the other will be in commercial use: while work is ongoing, all commercial rail transport shall go through the adjacent tunnel
- Commercial services on a single track (see diagrams)



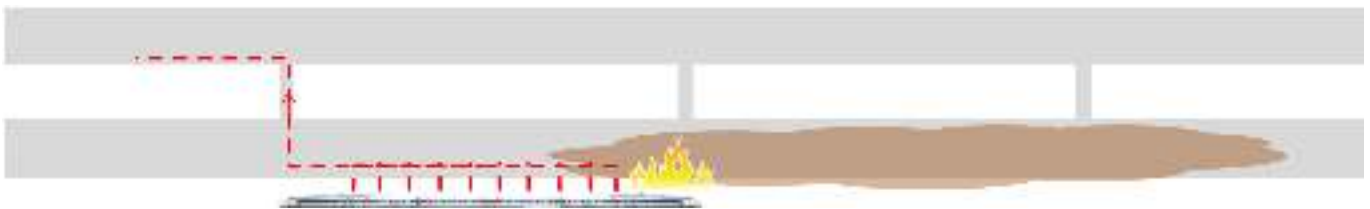
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## 7.4.4 KINEMATICS OF THE WORKS

With regard to the kinematics of the works, all the parameters that come into play with regard to passenger safety in the event of evacuation and incident management must be taken into account, namely:

- The principle of passenger evacuation and the reaching of a safe location in the unaffected tunnel (see diagram below)



Principle of Passenger Evacuation and the Reaching of a Safe Location in the Unaffected Tunnel

- The presence of evacuation tunnels every 200 m that enable travellers to move from one tube to the other
- The modi operandi of LFP's First Response Group
- The modi operandi of LFP's evacuation vehicle
- The modi operandi of the emergency services (bilateral emergency relief plan)

Therefore, the CONTRACTOR must opt for a kinematic or logistical work system with a work zone concentrated in an area that always goes in the same direction (either North→South or South→North), allowing for the fact that there may be several "small" work areas in different locations.

This method allows:

- Access to the precise location of an incident through the tunnel under renovation at least from one side, which may be the northern or southern mouth
- Access to the location of an incident through the tunnel under renovation from the other side of the tunnel (the northern or southern mouth)



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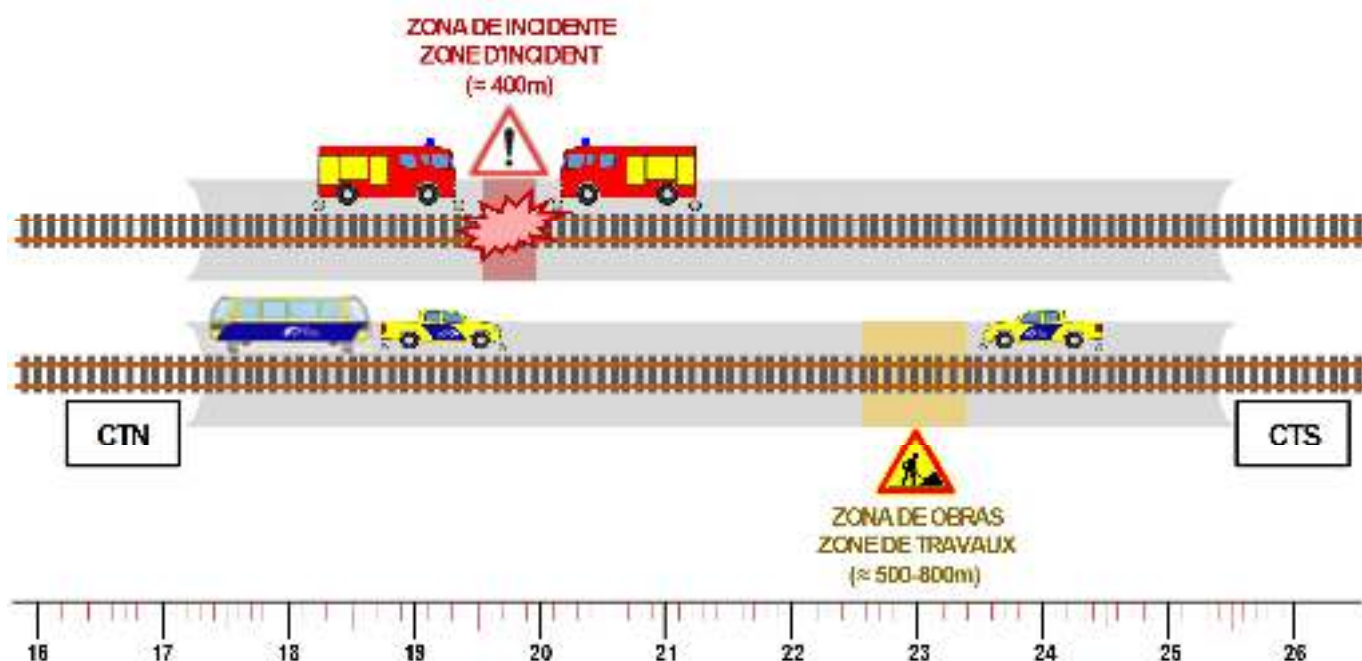
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The following diagrams indicate the general intervention principle in the event of a commercial train incident, while the CONTRACTOR's work is under way.



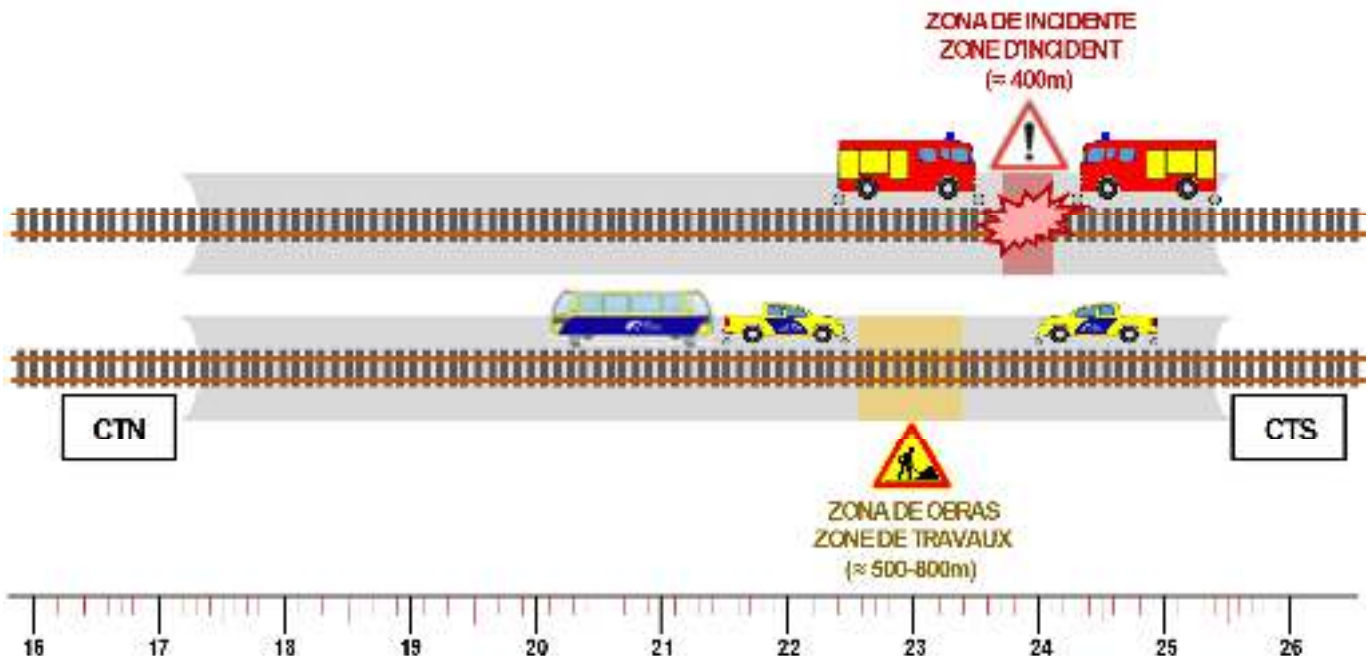
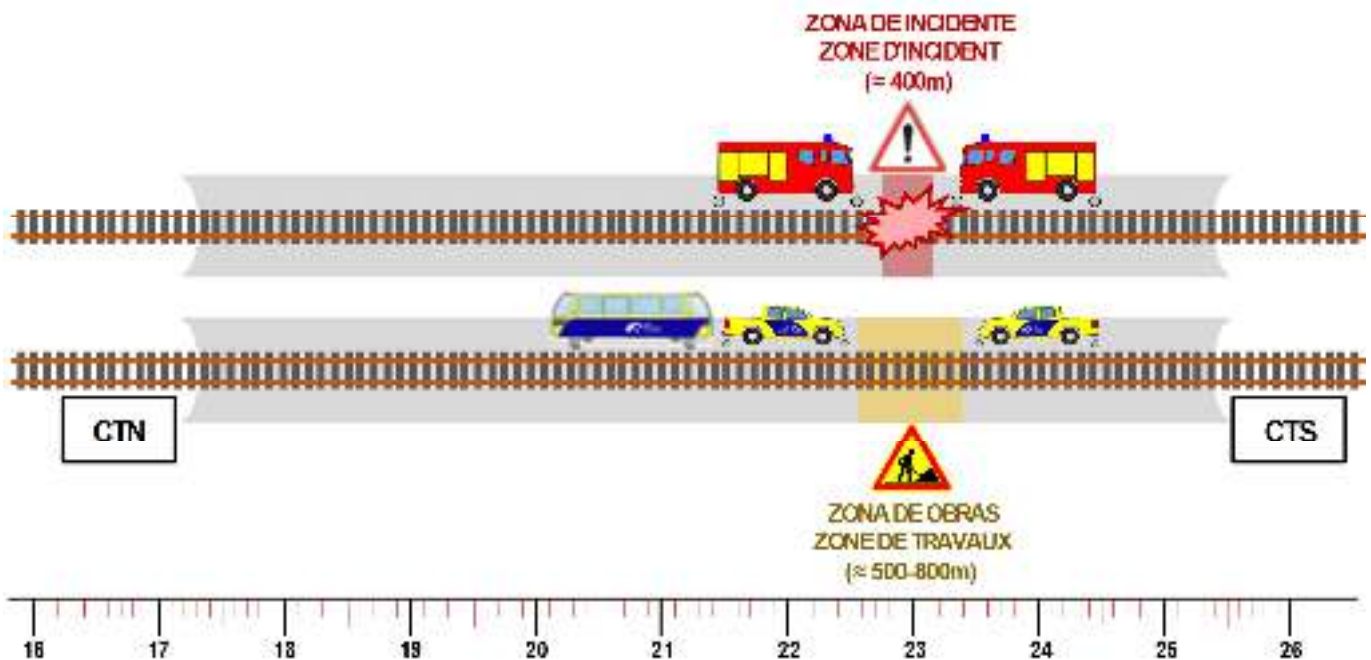
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For all of the reasons mentioned above, the work schedule shall take into account the following factors:

- It will not be possible to carry out work simultaneously in both tunnels, since one of the two tubes needs to remain open for commercial train travel

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- In the event of an incident in the tunnel in commercial use, the tunnel that is closed for renovation shall be used for the evacuation and the access of the emergency services
- The work is to be scheduled in such a way that the emergency services can **ALWAYS** access any of the interconnecting branches between tunnels through at least one of the mouths of the tunnel under renovation
- The CONTRACTOR must avoid any storage or accumulation of material on the evacuation platform (high platform) that may constitute an obstacle to passenger evacuation after an incident
- In the event of an incident or accident, the CONTRACTOR must immediately stop its work and move its personnel. If necessary, the Control Point could ask the CONTRACTOR to exit the tunnel with or without its trains and machinery
- In any case, the CONTRACTOR's work personnel must comply with the guidelines received from the Control Room and LFP's Work Supervisor



It is expressly agreed that the CONTRACTOR has no responsibility or action to take in the event of an incident or accident of a commercial train inside the tunnel.

## IMPORTANT

Because of the concurrence of the work and commercial rail transport, the CONTRACTOR's personnel may not, under any circumstances, access the track in operation using the evacuation branches (tunnels) that connect the two tunnel tubes.

There may be no exception to this rule.

Before undertaking the work, the CONTRACTOR must duly inform its employees of the specific conditions for executing the work in the Pertús Tunnel and the prohibition of access by the CONTRACTOR's personnel to the tunnel in commercial use.

LFP S.A. reserves the right to make changes to the schedule as a result of:

- Incidents occurring in the International Section or adjoining sections
- Project execution considerations
- Safety and public order considerations

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- Cases of force majeure

## 7.5 Definition of the Areas to be Renovated

The areas in which the rails must be replaced are given in Annex No. 2: Location of Rails to be Replaced.

Prior to installation, the CONTRACTOR, with the support of LFP S.A. personnel, shall perform an on-site topographical survey of the rails to be changed.

Under no circumstances shall rail sections shorter than **36 m** be installed.

## 7.6 Work Execution Conditions (Installation and Removal)

All work must be performed without interrupting the commercial railway traffic travelling through the tunnel adjacent to the tunnel under renovation and within the established work time slots, as explained in section 7.2. Works shall be scheduled and performed in such a way as not to interfere with commercial rail travel. The CONTRACTOR must not affect traveller safety, commercial train services or LFP S.A facilities, as a result of its work.

The specified schedule must be strictly complied with by the CONTRACTOR, who shall leave the track free of obstacles and in a suitable condition for train travel at a maximum speed of 350 km/h, at the end of the work in each of the tunnels.

The work in the second tunnel may not begin until the work in the first tunnel has been completed and the track has been left **free of obstacles and in a suitable condition for train travel at a maximum speed of 350 km/h**. This **not only includes the execution of works, but also the subsequent checks**.

The rails that are removed shall be stored at the southern mouth of the Pertús Tunnel in sections no greater than 9 m in length and in piles (whose layers are) separated by wooden sleepers with a maximum height of 4 rails. The rest of the material removed from the track, such as items used in the fastening system, shall also be collected in the facilities at the southern mouth of the tunnel, duly sorted and classified according to type, model and state of degradation.

The TENDERER shall submit a rail removal and installation protocol that guarantees the traceability of operations and takes into account the restitution of the track geometry. This Protocol shall be subject to the approval of the Contract Director before works begin.

### 7.6.1 UNLOADING AND POSITIONING THE RAILS ON THE TRACK

Prior to unloading and positioning the rails on the track, the CONTRACTOR must protect the equipment located beside the track, such as:

- Signals
- Traction return boxes

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- The collection boxes belonging to the dangerous substance recovery network.

The protection must be strong enough to bear the weight of any rails that rest on it, without damage to the track equipment.

The rails shall be lowered from the rail-carrying train, parallel to the surface on which they are to rest, with a smooth and uniform motion. It is mandatory to unload the rails by sliding them down well-greased rail pieces or metal bars, at an angle to the horizontal that does not exceed 30°.

The agent in charge of unloading shall explain to the driving team, in great detail and before beginning to unload, the sequence of operations to be performed.

Damage to the rails during the unloading process shall be avoided by preventing excessive bending, which may give rise to permanent deformations.

When two long rails need to overlap, the second rail to be unloaded must not be laid on the head of the first. This shall be shifted over enough to enable the second one to be placed on the ground, before starting to unload it.

When part or all of a rail turns over during the unloading operation, the rail should be placed in its work position, i.e. supported by its shoe.

When unloading the rails, special care shall be taken not to hit the sleepers.

Rails shall be positioned so that the joints are centred between two sleepers, in order to be able to weld the rails without having to move them.

Once the used rail has been removed and before laying the new one, the seating surfaces on each of the sleepers shall be cleaned, as well as the slab itself, to remove any residue.

#### **7.6.2 REPLACEMENT OF RHEDA 2000 FASTENERS**

Any components of the rail-sleeper fixing system that have some type of defect or show signs of wear, shall be replaced. Annex 3 provides data on those components.

In principle, all elements of the RHEDA 2000 mounting system will be renewed (SKL15 tension clamps, sleeper screws, rail pads Zw, baseplates Grp and elastic baseplate pads Zwp), with the exception of the angled guide plates Wfp. To this end, LFP S.A. internal procedures shall be followed.

If, at any time during the work, abnormal wear is observed on the angled guide plates Wfp, these must also be renewed.

LFP S.A. shall be in charge of supplying these components, and it shall deliver them to the CONTRACTOR at the facilities at the southern mouth or northern mouth of the tunnel.

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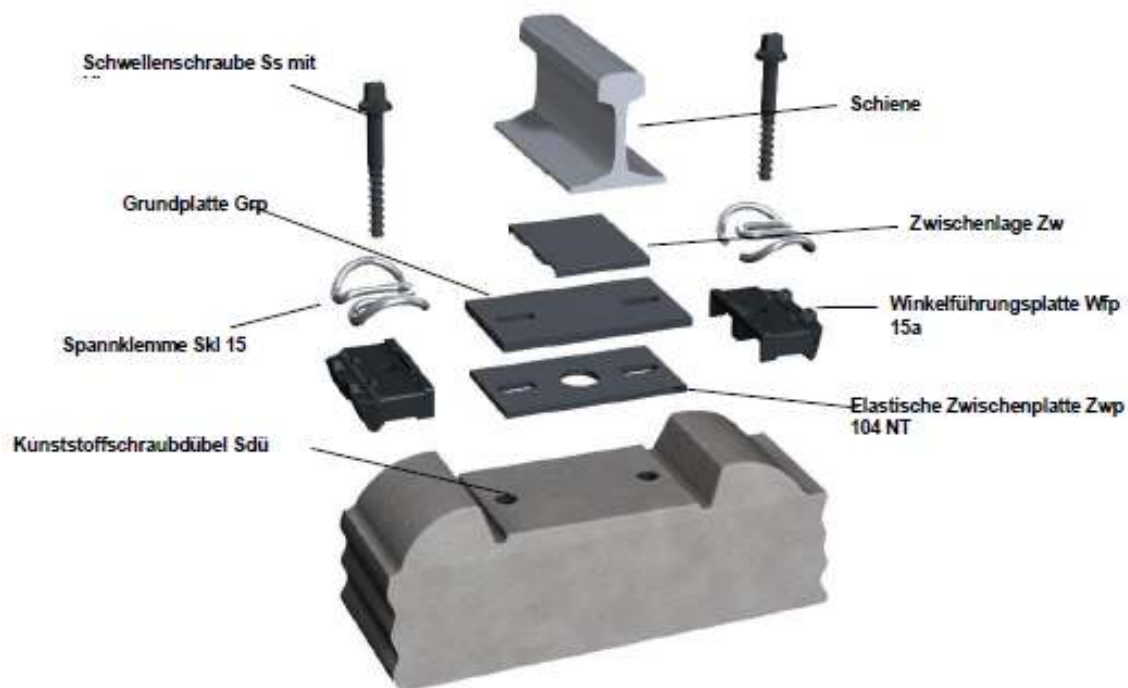
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The CONTRACTOR shall ensure it has the tools and implements required to extract any sleeper screws that may be damaged, as well as to repair ineffective dowels.

Sleeper screws shall be fitted using tools with tightening torque control, in accordance with the instructions given by LFP S.A.



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## **7.6.3 WELDS**

The CONTRACTOR will produce a report for each of the welds made, to which it will attach the quality control documents referred to in the following sections. Once the work is completed, it shall draft a complete list of welds that will guarantee traceability. It shall include this list in the final work report.

Traceability shall be established by mutual agreement between the Contract Director and the CONTRACTOR.

Welds that are not marked will not be accepted.

## **7.6.4 ALUMINOTHERMIC WELDING**

Aluminothermic welding is not allowed.

## **7.6.5 FLASH BUTT WELDING EXECUTED IN THE FIELD**

### **7.6.5.1 Conditions of Execution**

All welding shall be carried out using a certified automatic welding machine with a pre-programmed welding sequence.

The execution process shall comply with the latest version in force of EN 4587-2.

The welding parameters have to be recorded during the process, and should be identified for each weld. The following shall be recorded, at a minimum:

- Current intensity
- Pack pressure
- Movement
- Time
- Program identification and configuration details

All rails shall be welded in such a way that the identification mark on each rail is on the same side all along the welded rail.

The rails shall be aligned laterally and shall lie on a certain edge, either left or right, or on the centre line of the rail.

Mechanical or thermal alterations to the rail shall be avoided during deburring operations to remove the excess material produced by the fusion of the rails. This deburring shall always be carried out by automated means.

The surface of the deburred area must be free of cracks.

The welds may be ground, but damage shall not be caused to the rail or the weld, nor shall the original dimensions of the rail profile be reduced.

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A record shall be kept of the straightening values for each weld.

The grinding shall not cause mechanical, thermal or physical damage to the weld or the rail.

## 7.6.5.2 Identification of the Weld

The identification marking of the long welded rail, which shall be branded on the first rail, has to be carried out in such a way that it will be legible for a minimum period of five years.

The branding shall include at least the following information:

- Day the weld was performed Number of the month it was performed, from 01 to 12 The last two figures of the year it was performed
- The identification number of the weld
- The identification number of the welding equipment
- Two letters identifying the company that performed the weld



The identification of each weld shall enable their traceability in the records and information obtained during production.

## 7.6.5.3 Quality Control and Testing

The quality of the final product shall be verified by means of the inspections and manufacturing control tests in the process that the manufacturer shall carry out.

It is the CONTRACTOR's responsibility to maintain and ensure the quality of the product. The results of the quality controls shall be recorded by the manufacturer and delivered to the Contract Director.

Quality records shall be produced in accordance with the provisions of EN 14587-2. The CONTRACTOR will produce a report for each of the welds. The technical information contained in these weld reports shall include, at a minimum:

- Identification and location of the weld
- Identification of the welding equipment
- Record of the welding parameters
- Visual inspections
- Alignment and levelling of the weld.
- Result of the penetrative liquid test, as per EN 571-1.
- Result of the testing of joints welded using magnetic particles, as per EN 1290.

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- 
- Ultrasound test result
  - Incidents

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## **7.6.6 FLASH BUTT WELDING EXECUTED IN PERMANENT WORKSHOP**

### **7.6.6.1 Conditions of Execution**

The manufacturer of the LWR proposed by the TENDERER shall be previously authorised by the work management team, based on strict compliance and justification, pursuant to EN 14587-1.

The welding parameters have to be recorded during the process, and should be identified for each weld. The following shall be recorded, at a minimum:

- Current intensity
- Pack pressure
- Movement
- Time
- Program identification and configuration details

All rails shall be welded in such a way that the identification mark on each rail is on the same side all along the welded rail.

The rails shall be aligned laterally and shall lie on a certain edge, either left or right, or on the centre line of the rail.

Mechanical or thermal alterations to the rail shall be avoided during deburring operations to remove the excess material produced by the fusion of the rails. This deburring shall always be carried out by automated means.

The surface of the deburred area must be free of cracks.

The welds may be ground, but damage shall not be caused to the rail or the weld, nor shall the original dimensions of the rail profile be reduced.

A record shall be kept of the straightening values for each weld.

### **7.6.6.2 Identification of the Weld**

The identification marking of the long welded rail, which shall be branded on the first rail, has to be carried out in such a way that it will be legible for a minimum period of five years.

The branding shall include at least the following information:

- Day the weld was performed Number of the month it was performed, from 01 to 12 The last two figures of the year it was performed
- The identification number of the weld
- The identification number of the welding equipment
- Two letters identifying the company that performed the weld

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The identification of each weld shall enable their traceability in the records and information obtained during production.

### 7.6.6.3 Quality Control and Testing

The quality of the final product shall be verified by means of the inspections and manufacturing control tests in the process that the manufacturer shall carry out.

It is the CONTRACTOR's responsibility to maintain and ensure the quality of the product. The results of the quality controls shall be recorded by the manufacturer and delivered to the Contract Director.

Quality records shall be produced in accordance with the provisions of EN 14587-1. The CONTRACTOR will produce a report for each of the welds. The technical information contained in these weld reports shall include, at a minimum:

- Identification and location of the weld
- Identification of the welding equipment
- Record of the welding parameters
- Visual inspections
- Alignment and levelling of the weld.
- Result of the penetrative liquid test, as per EN 571-1.
- Result of the testing of joints welded using magnetic particles, as per EN 1290.
- Ultrasound test result
- Incidents

### 7.6.7 FINAL TOPOGRAPHICAL SURVEY

Once the rails have been installed, it shall be the responsibility of the CONTRACTOR to conduct the necessary checks before allowing commercial train travel at a rated speed (350 km/h). To that end, it shall carry out the following checks, at a minimum:

- There will be a temporary speed limit of 160 km/h, until:
  - at least 24 hours have elapsed since the completion of the last weld
  - the final grinding of the welds has been performed and it has been verified that the welds comply with the quality and control conditions set out in the preceding sections
- Visual inspection of the track geometry – no anomalies must be visible
- A check of the geometrical quality of the track; in particular, the following parameters shall be verified and recorded:
  - Track width

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- 
- Levelling
  - Alignment
  - Cant

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PARAMETER	RECORDING METHOD	DIFFERENCES (mm)	VARIATIONS (mm)
TRACK WIDTH	Manual measurement	-2 / +3	3 (every 5 m)
CANT	Manual measurement	-5 / +5	3 (every 5 m)
ALIGNMENT	Arrow with string measuring 20 m, every 5 m	3	3
LEVELLING	Topographical survey	-	4 (every 5 m)

The CONTRACTOR shall record these parameters, as well as the baseplate and rail pad models fitted on each sleeper in a work report similar to the following:



The report shall be completed once the rails have been installed and before the track is restored. This report shall be attached to the final work report.

For the final acceptance of the work on the part of LFP S.A., it will perform a geometric and dynamic control of the track using ADIF's Séneca inspection train. The CONTRACTOR will be responsible for correcting all of the defects that register outside the target values (Spanish initials: VO), at its own expense.

The target geometrical tolerances (to be achieved), as per **UNE EN-13848** and **UNE EN-14363**, are as follows:

- Width
  - $1433 \leq E \leq 1437$
  - $1434 \leq E_{med100m} \leq 1451$
- Longitudinal levelling
  - $D1 < 6$
  - $D2 < 12$
  - $0.7 < \text{Standard deviation}_{200m} < 1.0$
  - $QN1 < 4 (0.7)$

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- $QN2 < 6$  (1.0)
- Alignment (dressage)
  - $D1 < 4$
  - $D2 < 8$
  - $1.0 < \text{Standard deviation}_{200m} < 1.5$
  - $QN1 < 4$  (1.0)
  - $QN2 < 6$  (1.0)
- Transverse levelling (buckling)
  - $g3 < 3$

The target dynamic tolerances (to be achieved) are as follows:

- Lateral acceleration of the bogie
  - $3 \text{ m/s}^2$
- Vertical acceleration of grease box
  - $30 \text{ m/s}^2$
- Lateral acceleration of box
  - $0.8 \text{ m/s}^2$
- Vertical acceleration of box
  - $1 \text{ m/s}^2$

## 7.7 Human Resources

During the term of the contract, the CONTRACTOR shall have the human resources required to perform its assigned work, who shall comply with the minimum standards set out in these terms and conditions or with any higher standards that the CONTRACTOR may submit in its bid and which have been accepted by LFP S.A. at the time of the award, taking into account the requirements described above.

All personnel appointed to perform the work shall have the technical training and ability needed for each of the phases and specialised tasks forming part of the work, and the express authorisation from the CONTRACTOR to operate the machinery and perform all of the work assigned in these Conditions.

The workforce shall consist of technical and supervisory personnel, as well as the operators needed (and who are essential) to operate and maintain any equipment that the CONTRACTOR may use in carrying out the work performed under contract. Such personnel shall be provided with the relevant access authorisation, issued by LFP S.A., which reserves the right to check, at any time, that there is faithful and strict compliance with this requirement.

Each of the technical and supervisory teams shall have a team member who is able to converse in Spanish and/or French (at least level B1).

The technical personnel that feature in the tender, who perform the work covered by the contract directly, may not be replaced without the express written permission of the Contract Director or his delegate. The replacement request shall include justification, as well as the professional background of prospective new personnel.

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The CONTRACTOR shall be directly responsible for all of the payments to be made to or on behalf of personnel, including social security, overtime, food allowances and taxes required by law at the present time or those which are approved during the term of the contract.

Personnel performing the work set out in this contract for tender shall have no relationship or employment link or official link with LFP S.A., but shall be part of the company that is awarded the contract. This shall not affect the authority of LFP S.A. to give specific orders to these personnel and assign them specific tasks.

Under no circumstances shall LFP S.A. assume any employment or corporate responsibilities of any kind with regard to personnel who perform work in accordance with these conditions. All employment obligations imposed by law, collective agreement or individual agreement in respect of personnel assigned to this service provision, shall be assumed by the CONTRACTOR.

Any of the CONTRACTOR's employees who provide their services in the offices of the contracting company, shall be obliged to comply with all of the health and safety and social security regulations stipulated by their own company, as well as any LFP S.A. regulations transmitted by the Contract Director, the head of Occupational Hazard Prevention and Risks or other personnel in positions of responsibility.

Every effort shall be made to ensure the same personnel remain for the duration of the contract, except for any necessary changes due to illness, accidents, and so on, in which case, the company awarded the contract shall replace the personnel in question immediately and notify the contracting company with as much advance notice as possible.

The Contract Director or his Delegate may, at any time and as many times as is necessary, order the replacement of the CONTRACTOR's personnel and/or teams whose behaviour, performance or ability it does not consider satisfactory.

In the event of a workers' strike, of which the CONTRACTOR becomes aware through the competent authority, it shall undertake to negotiate with LFP S.A., a sufficient length of time in advance, the necessary minimum services permitted by employment legislation.

During these strike periods, LFP S.A. shall only pay the proportion corresponding to the minimum services agreed, and shall deduct the proportion corresponding to the services not provided. In the event of non-compliance, LFP S.A. reserves the right not to pay the successful tenderer the proportion of the total fee for the period during which there has been no service.

The CONTRACTOR shall be responsible for the board and lodging of its personnel, as well as for transport from the work area to the staff accommodation, and vice versa. The costs involved shall be deemed to be included in their entirety in the price per operating day quoted in the bid, without recourse to any additional claim in this regard.

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## 7.8 Technical Resources

All systems, equipment and components shall comply with ADIF or SNCF Technical Standards and Specifications, and shall have been approved as such.

In order to carry out the work described in these conditions, the CONTRACTOR shall have the material resources needed for the provision of the service. These shall comply with the requirements set out in section 12.2.4.

This includes not only the on-board and portable equipment, and its auxiliary mechanical, electronic and IT equipment, but also the vehicles where it will be installed and the power supply, where necessary.

All other complementary resources required for compliance with the provisions of the corresponding contract, in terms of equipment operability, and the upkeep, calibration and maintenance thereof, shall be provided at the CONTRACTOR's own expense.

In any case, the upkeep, monitoring, repair and/or replacement of the items that comprise the equipment provided by the CONTRACTOR, shall be the sole responsibility thereof.

The CONTRACTOR shall never receive reimbursement for the machinery, tools and auxiliary resources it uses for the execution of the work, since this has already been taken into account when calculating the budget, and it is understood that, even if some or all of these items are not specifically mentioned in the Tables, all of them shall be deemed to be included in (the budget for) the corresponding work unit.

The auxiliary resources that guarantee the safety of operators are the sole responsibility and shall be provided at the expense of the CONTRACTOR.

## 7.9 Breakdowns

The CONTRACTOR shall perform regular maintenance on its machines and equipment, in accordance with its maintenance plan and/or corresponding manuals, in order to avoid interruptions in the work schedule, as far as possible.

The CONTRACTOR shall make the aforementioned documents available to the Contract Director whenever required.

If the availability of machinery or equipment were to be affected by a breakdown, the CONTRACTOR shall submit a proposal to make up for lost time caused by the breakdown as soon as possible.

If a breakdown were to cause delays or situations affecting commercial train travel or work on the track, the CONTRACTOR shall pay the corresponding amount for the damages caused.

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## 7.10 Resources Provided by LFP S.A.

LFP S.A. shall provide the railway protection personnel required for the execution of the work, such as a Work Manager, Co-driver, Electrical Lockout Manager, and so on, as required in each case. The train travel protection personnel will also be responsible for coordination in the field between the CONTRACTOR and LFP S.A. The Co-driver will be necessary for the various service provision phases. Furthermore, all costs associated with the rail transport personnel needed within the International Section shall be the responsibility of LFP S.A.

LFP S.A. shall supply any replacement RHEDA 2000 fastening system components that need to be installed. The supply of this material shall be carried out at one of the tunnel mouths, as agreed with the CONTRACTOR.

In addition, in order to optimise the progress made on the days worked, LFP S.A. shall prioritise the work that is covered by these conditions over other work, and shall coordinate the best use of the available time with the Control Centre.

## 7.11 Submission of Results

The CONTRACTOR shall submit, to the Contract Director or his delegate, a full report once the work is completed, detailing the activities conducted and their effectiveness, in accordance with the QAP.

All documentation produced, including the final report and others delivered throughout the execution of the contract, shall be drafted in Spanish and/or French. Three copies of each document shall be made:

- a paper copy
- a copy in digital PDF format
- an editable copy (Word, Excel, Autocad, etc.)

Other formats may be approved by the Contract Director upon request and justification by the CONTRACTOR.

# 8 QUALITY CONTROL

## 8.1 Quality Assurance Plan

The CONTRACTOR shall submit a Quality Assurance Plan (QAP), **specifically** written for the execution of the work comprising the bid.

LFP S.A. may periodically check the effectiveness of the quality assurance plan, carrying out the necessary operational audits for each section thereof.

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Should it ascertain that the quality assurance plan for the service covered by this ITT is not effective, or has not been applied correctly, it may halt the execution of the contract until the CONTRACTOR has corrected the operational shortcomings, without this constituting justification for the modification of contractual deadlines.

## 8.2 Work Checks, Inspections and Guarantees

All teams may be inspected at any time by the Contract Director or his delegate, who may order their replacement in the event of poor performance.

On a daily basis, at the end of the day's work, the CONTRACTOR shall deliver, to the contracting party's delegate or the LFP S.A. personnel in the field (Work Supervisor, Co-driver, etc.), a daily work report which shall be signed by both parties, including at a minimum:

- Date
- Description of work carried out
- Operators (name and identification)
- Hours (work time slot, actual and effective working hours)
- Others

The CONTRACTOR shall conduct all the inspections needed to verify the results obtained for the work carried out.

The work guarantee period must be specifically included.

## 9 OCCUPATIONAL HAZARD PREVENTION

The CONTRACTOR shall be responsible for adopting the specific measures which, pursuant to the current Occupational Health and Safety legislation in the two states (Spain and France) in which the work is to take place, must be introduced to prevent any harm to the workers, whether they are employees or subcontractors, who are to carry out the hired service. LFP S.A. may, at any time, inspect the health and safety measures adopted by the CONTRACTOR, who shall take into account any comments that LFP S.A. may make regarding Occupational Hazard Prevention and Risks (Spanish initials: PRL).

In addition, the CONTRACTOR shall adopt the measures needed to ensure the protection of third parties during the execution of the assigned work, and it shall be wholly liable for compensation for any losses or damages that may occur as a result of any action or neglect, of which it is found to be guilty, pursuant to current laws and regulations.

Once the contract is awarded, and before work begins, the Health and Safety report referred to in section 12.4 shall be adapted to the actual work to be carried out (topographical survey). To that end, it shall be important to take into account the instructions given by LFP S.A.'s head of PRL, or the person appointed by them, with whom a joint, preliminary visit shall be made in order to establish the specific measures to be adopted, in

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particular concerning collective and individual protective equipment and the machines, tools and auxiliary resources to be used for working at height. Moreover, all the documentation required by the head of PRL for compliance with the Coordination of Business Activities law (R.D. 171/2004 in Spain and its equivalents in French law, depending on where the work is to be carried out) shall be submitted.

## 10 ENVIRONMENTAL MANAGEMENT

The CONTRACTOR must know, and assume as its own, LFP S.A. Management's environmental policy, and it is obliged to know and apply the national, regional and local legislation in force at the time and place where the work covered by these Conditions is to be performed.

The CONTRACTOR shall assume the costs arising in connection with compliance with any environmental standards, procedures and requirements that may apply to the provision of its services.

The CONTRACTOR shall pay special attention to the following requirements:

- Correct packaging, storage, identification and management of hazardous waste. The CONTRACTOR shall have a specific waste management procedure and shall adopt appropriate measures with regard to this matter during the time of the service provision.
- Correct storage and use of oils and hydrocarbons in vehicles and machinery.
- The CONTRACTOR shall be obliged to ensure that any machinery used in the performance of the work complies with current regulations, especially as regards noise emissions and pollutant gas emissions.
- The placing of waste that may be classed as urban waste in municipal containers.
- LFP S.A. reserves the right to request that the CONTRACTOR provide as many documents as it deems necessary to verify compliance on the part of the latter.

## 11 REGULATORY FRAMEWORK

The CONTRACTOR is obliged to comply with any official provisions, ordinances, and regulations that apply to the work set forth in these Conditions, even if they may not have been mentioned in the clauses herein, and to accept any Spanish, French and/or European instruction, regulation or standard.

The materials and complementary items (fasteners, rails etc.) shall comply with the requirements laid down by current European and national regulations and those of the aforementioned authorities in Spain and France, both in their composition, geometry, manufacturing processes and control, as well as in established assembly regulations, verification records and tolerances, in addition to the provisions set out in these Conditions.

The Technical Regulations in force in Europe at the time of commissioning the works shall apply. In particular, the standards or instructions in the following list are to be observed, including any additions and modifications that may occur up to that date:

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- Technical Specifications for Interoperability (TSI)
- International Union of Railways (UIC) leaflets and standards, as well as all ADIF and SNCF standards in force related to the works.
- EN, ENV and prEN standards
- Standards and/or specifications that apply in both countries, namely, the railway standards:
  - In Spain
  - In France

The CONTRACTOR shall be responsible for knowing and complying with them, and under no circumstances shall any claim that it has not been explicitly informed of this matter be accepted.

CE marking shall be required for all track material.

The CONTRACTOR shall assume the costs arising in connection with compliance with any environmental standards, procedures and requirements that may apply to the provision of its services.

- UIC 860-0
- UIC 861
- EN ISO 9002: Quality systems Model for quality assurance in production and installation.
- ISO 4968: Steel. Macrographic examination by sulphur print (Baumann method).
- DIN 50602: Microscopic examination of special steels using standard diagrams to assess the content of non-metallic inclusions.
- EN 10003-1: Metallic materials. Brinell hardness test.
- ISO 1099: Metals. Fatigue under axial load test.
- EN 10002-1: Metallic materials: Tensile test.
- EN 10163: Delivery requirements for the surface condition of hot-rolled steel plates, wide flats and sections.
- BS 6835: Method for the determination of fatigue crack growth rates in metallic materials.
- EN 14730-1: Railway applications. Track. Aluminothermic welding of rails. Part 1: Approval of the welding process.
- EN 14730-2: Railway applications. Track. Aluminothermic welding of rails. Part 2: Degree of skill of aluminothermic welders, approval of contractors and acceptance of welds.
- EN 14587-1: Railway applications. Track. Flash butt welding of rails. Part 1: New rails of class R220, R260, R260Mn and R350HT in a permanent installation.
- EN 14587-2: Railway applications. Track. Flash butt welding of rails. Part 2: Welding of new class R220, R260, R260Mn and R350HT rails using mobile welding machines at sites other than permanent installations.

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## 12 DOCUMENTATION TO BE SUBMITTED AS PART OF THE TECHNICAL BID – ASSESSABLE REQUIREMENTS AND TECHNICAL RELIABILITY.

### 12.1 Content of the Technical Bid

The technical bid shall be drafted in accordance with the following guidelines:

- It shall be ordered in accordance with the **points made** in these Conditions
- In addition to the cover page, which shall feature a statement of the technical bid in question, an **index** of documents submitted shall be included
- It shall be written entirely in **Spanish and/or French**
- There will be a brief **description** of the systems and methodologies, **giving the reasons for the choice** thereof
- It will demonstrate how compliance **with the requirements** described in these Conditions shall be achieved

The technical document shall include at least the following chapters:

- Descriptive report and work schedule
- Quality Assurance Plan
- Health and Safety
- Environmental Action Plan
- R&D&i Technology
- Commitment letters, certificates and annexes

### 12.2 Descriptive report and work schedule

The TENDERER shall submit a **technical report** of the work to be carried out in which, in a clear and concise manner, it shall explain its proposal on the content and performance of said work (methodology), in order to outline the scope of work and demonstrate knowledge of the challenges involved in the work to be done. The technical improvements and commitments included, which go beyond the stipulations of these Conditions, shall be highlighted. They shall be described in reference to the partial deadlines proposed with regard to the phases to be carried out.

The technical report shall specifically refer to the following points:

- Description of the **overall plan** for the activities to be performed
- Description of **complementary activities**
- **Organisation chart and human resources**
- **Technical resources and work teams**
- **Materials**
- **Control methodology** and its documentation system

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- List of the activities to be **outsourced**
- Technical and professional **reliability**
- Work schedule
- **Submission of results** – Model of the final report on the work carried out

IF THE BID SUBMITTED DOES NOT INCLUDE THE REQUIRED CONDITIONS AND CONTENT DESCRIBED IN THIS SECTION, THE TENDERER WILL BE EXCLUDED FROM THE PROCEDURE.

#### 12.2.1 OVERALL WORK PLAN

A detailed description of each and every one of the activities that are part of the rail substitution procedure shall be given, which shall guarantee the traceability of operations and take into account the restitution of the track geometry, paying special attention to:

- Procedure for rail supply, loading, transport and unloading at the work location Detailed description of the protocols for quality control and receipt of rails in the unloading phase
- Procedure for rail renewal on the track
- Weld execution and control procedure
- Track geometry control procedure

The CONTRACTOR shall give reasons for the choice of procedure and equipment to be used, outlining the main criterion or criteria on which the choice is based Effectiveness and efficiency criteria shall also be mentioned

Each of the procedures shall be subject to the approval of the Contract Director before works begin.

#### Assessment

For each proposal, an assessment will be made of the content, the detailed description and justification of the methodology proposed for the execution of the work, its relevance and adaptation to the needs of LFP S.A., degree of knowledge of the challenges to be overcome and, where appropriate, of the area where the service will be provided, and of any other external factors. The description of the regulations and how they apply specifically to the work to be performed in both Spain and France will also be assessed.

In addition, all the improvements proposed in respect of procedures and records will be assessed positively, and the method for monitoring the activity shall also be assessed.

In the event that the service provision method does not take into account the needs of the work covered by these Conditions, the TENDERER will be excluded from the procedure.

#### 12.2.2 COMPLEMENTARY ACTIVITIES

This shall consist of a description of all the complementary activities needed for the execution of this contract, with special attention to materials logistics and the supply of the rail. The procedures for the provision and

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storage of materials, tools and/or products shall also be described. List of suppliers. Logistics concerning personnel, means of transport, accommodation, etc.

### Assessment

For each proposal, an assessment will be made of the content and the detailed description and justification of the complementary activities to be carried out in the execution of the main activity.

### **12.2.3 ORGANISATION CHART AND HUMAN RESOURCES**

Together with the technical report, an **organisation chart** shall be provided detailing the authority and accountabilities of each member of the team, and clearly indicating the responsibilities entrusted to each of its members in the context of the main activities described in the work plan and report, in accordance with the requirements specified in these Conditions.

Quality control, environmental management and health and safety roles shall be highlighted.

The organisation chart shall specify the professional qualifications and/or accreditation, role and experience of **each member of the team**. A distinction shall be made between the TENDERER's own personnel and those provided by subcontractors, indicating the role of each one.

Any replacement of a proposed team member that needs to be made subsequently shall be proposed by the CONTRACTOR to the Contract Director, attaching the professional history of the person to be appointed, prior to its acceptance.

The work team shall consist of **technical and supervisory personnel**, as well as the operators who are essential for the operation and maintenance of the equipment used in carrying out the work performed under contract.

#### **12.2.3.1 Supervisory Personnel**

The active participation of at least **two (2) technicians** assigned the roles described below is required. One person can perform several roles.

- The TENDERER is required to appoint a **PROJECT MANAGER/HEAD OF SERVICE** who will be the interlocutor with the Contract Director.
- **COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS:** AN ENVIRONMENTAL SCIENCE GRADUATE or person with an equivalent qualification with specific knowledge in this field, and with at least three years' experience in environmental management. This shall be verified by means of their CV prior to signing the contract.
- **TECHNICIAN IN OCCUPATIONAL HAZARD PREVENTION:** A GRADUATE WITH A MASTER'S DEGREE IN OCCUPATIONAL HAZARD PREVENTION or equivalent qualification with specific knowledge in this field, with at least three years' experience in preventive management. This shall be verified by means of their CV prior to signing the contract.
- **QUALITY CONTROL MANAGER**

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- **SUPERVISION, PLANNING AND MANAGEMENT OF WORK TEAMS** (operation, maintenance, performance, etc.): a TECHNICAL ENGINEER, or person with equivalent qualifications, who has specific knowledge in this field, with at least five years' experience in railway construction and/or maintenance. This shall be verified by means of their CV prior to signing the contract.

#### 12.2.3.2 Technical Personnel

To work on this project, the TENDERER shall at least appoint:

- **WORKS MANAGER:** Competent engineer with at least five years' experience as a works manager, having worked as such during that period on at least two projects of a similar type. They shall work on the project full-time.
- **A QUALIFIED TECHNICIAN TO ACT AS GENERAL WORK SUPERVISOR:** They shall have at least 5 years' experience in multidisciplinary works of a similar type to the works subject to ITT.
- **A QUALIFIED TECHNICIAN IN CHARGE OF SURVEYING WORK:** They shall have at least 5 years' experience in works of a similar type.
- **OPERATORS:** The TENDERER shall appoint operators with at least one year's experience in jobs with similar characteristics to the work in this contract.
- **Rail Manoeuvre Worker:** For the coupling and uncoupling of rolling stock, one (1) operator qualified as a "Train Operations Assistant" shall be assigned to the contract. This role may be performed by the supervisor, or another specialised operator.

Certification shall be provided to show that all technical staff have received training in the following:

- Knowledge of track materials and equipment.
- Specific training in PRL relevant to the role they are to perform, as well as the corresponding refresher courses, with a certificate issued by an accredited employment body.
- Workplace assessment and information concerning the preventive measures to be adopted, where applicable.

#### Assessment

The description of the overall organisation of the company will be assessed with regard to its robustness, the degree of detail and simplification of the **organisation chart specific to** the team that is assigned to the execution of the work covered by these Conditions, their professional training, experience, qualifications and the adaptation thereof to the requirements of the work covered by these Conditions.

#### 12.2.4 WORK EQUIPMENT AND RESOURCES

The CONTRACTOR shall have the material resources needed for the provision of the service, as set out in section 5.4. The bid shall contain a list of the equipment/tools and work trains needed to perform the work covered by these Conditions, as well as a description of the features thereof.

#### Assessment

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An assessment will be made of the compliance with the parameters required in section 7, the description thereof and the reliability of the plan not to damage the rails during transport and installation operations. The adaptation of the proposed equipment to the needs and conditions of the work shall also be assessed, as well as the guarantees that the execution of the work will not affect commercial train transport schedules.

All the improvements submitted in terms of technical specifications and estimated performance for the proposed work will be assessed, including a detailed explanation of the operation of transport and rail-laying equipment, with clear descriptions of their characteristics, benefits and performance.

In the event that the equipment does not take into account the needs of the work covered by these Conditions, the TENDERER will be excluded from the procedure.

## **12.2.5 MATERIALS**

The rails supplied shall be certified, as indicated in section 5.

The TENDERER shall mention the manufacturer of the rails and their manufacturing plant in its bid, as well as the maximum length of the long welded rails to be provided. The length of the basic rail pieces that comprise the LWR shall also be given, as well as the workshop where the welding is to take place, if different from the manufacturing plant.

The bid shall contain a detailed description of the type of anti-corrosion protection proposed by the TENDERER for the rails. Several types of anti-corrosion protection may be proposed.

### Assessment

An assessment will be made of the compliance with the parameters required in section 5, the description of the anti-corrosion protection proposed, the benefits of said protection, and the guarantees regarding the degree of compliance with the stipulations laid down in these Conditions. The adaptation of the proposed equipment to the needs and conditions of the work shall also be assessed.

A higher score will be awarded to a protection system that provides verified references in this regard.

In the event that the materials do not take into account the needs of the work covered by these Conditions, the TENDERER will be excluded from the procedure.

## **12.2.6 VERIFICATION METHOD**

The technical report shall include a procedure with a detailed mention of the checks to be carried out before the restitution of the track for commercial train transport, as indicated in section 7.6.7. This procedure shall include the personnel in charge of the checks, the equipment to be used in the taking of data and a model work report and/or verification report.

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This section shall also include a description of the checks to be performed on each weld before acceptance.

#### Assessment

All the improvements proposed in respect of procedures and records will be assessed positively, and the method for monitoring the activity shall also be assessed.

The degree of detail of the quality criteria proposed for the work performed will be assessed.

#### **12.2.7 OUTSOURCING**

The TENDERER shall expressly state in its bid whether it plans to do all the work by its own means, or whether it plans to outsource or subcontract any part of it.

The maximum percentage of outsourcing allowed is 50% of the contract tender budget. In order to calculate this percentage, the cost of manufacturing the rails (basic rail pieces and LWR) shall not be taken into account.

If parts of the contract are subcontracted or outsourced, those parts shall be expressly identified and the written documentation certifying the corresponding commitment shall be included, giving the name of the subcontractors or outsourcers, including their references and specifying the percentage of the budget as a whole that each job to be carried out by third parties represents.

#### Assessment

The decision not to outsource work will be assessed positively.

#### **12.2.8 TECHNICAL AND PROFESSIONAL RELIABILITY**

Technical and professional reliability shall be assessed in light of technical know-how, efficiency, experience and reliability, which shall be evidenced by means of the following sections.

#### **12.2.9 LIST OF MAIN JOBS UNDERTAKEN**

The tenderer shall include a list of the main jobs of the same kind or nature as that covered by the contract, in the course of the past five years.

Details such as the amount charged, dates, public or private beneficiaries thereof and degree of subcontracting, shall be included.

If the works referred to were carried out by the company in conjunction with other companies, its participation percentage shall be given, as well as the percentage of such work or work units it performed directly.

As regards joint ventures (Spanish initials: UTE), assessment of this section of technical and professional reliability shall be performed by calculating the sum of the reliability of each of the members of the UTE.

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The company (or UTE) shall provide documentary evidence of the work carried out. The annual amount of revenue received in its most fruitful year must be equal to or greater than €1,000,000.

In the case of UTEs, the amount allotted in accordance with the percentage of participation in the UTE, and the total amount earned, shall be counted.

#### **12.2.10 WORK SCHEDULE**

The TENDERER shall draw up a general work schedule, in which the planned duration and dates for the execution of the work shall be given.

The general work schedule shall be drawn up in accordance with the following instructions:

- Each TENDERER shall formally express the number of working days that it expects, according to its work schedule, will be needed for the execution of one of the tasks that is part of the work procedure. The work schedule shall comply with the provisions of section 16.
- The TENDERER shall formulate a plan, taking into account the available work time slot, as well as the work teams and materials included in the bid and attached to each of the activities described in the report, and shall justify the expected average progress that guarantees the time-scale quoted, the kilometres of track to be renovated each day, and the planned locations for the transport of equipment to the inside of the tunnel.
- The TENDERER shall indicate the measures adopted so that, in the event of an incident in the adjacent tunnel under commercial use, the conditions indicated in section 7.4.3 shall be complied with.

This schedule shall be submitted in the form of a diagram or graphical representation that clearly defines the activities to be carried out, their duration and their critical path.

#### **Assessment**

The contents and level of detail of the work schedule proposed by the TENDERER will be assessed, including, where applicable, the guarantee of compliance with the proposed time-scale and with the aforementioned evacuation conditions.

Reductions in the number of workdays will be assessed positively.

#### **12.2.11 SUBMISSION OF RESULTS**

As part of its bid, the TENDERER shall include a model of the final report of the work carried out, identifying the activities performed and their effectiveness, in accordance with the QAP, which shall include at a minimum:

- Objective
- Description of the work carried out
- Description of the human and material resources used
- Description of the materials used; List of materials; Suppliers; Product sheets

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- Final outcome of the work; Measurements
- List of welds and weld reports
- Inventory and geometry records
- Daily work reports
- Other documentation produced in the course of contractual compliance

### Assessment

The content of each proposal will be marked, as will the description of the proposed model and its relevance and adaptation to the needs of LFP S.A.

In addition, all the improvements proposed will be assessed positively, and the method for monitoring the activity shall also be assessed.

## 12.3 Quality Assurance Plan

Only companies with sufficient experience in projects of this nature may submit tenders (they shall provide a summary of services provided to UIC entities), and those who are ISO 9001 certified.

The bidder shall submit a dossier on its work processes, covering the following aspects:

- Location and conditions of manufacture
- Material and human resources in service
- Production standards and stock management
- Quality control standards
- Certification verifying compliance with the concepts of product integrity, blooms and rails, as defined in sections 7.1, 7.2 and 7.3 of UNE EN 13674-1.

In addition to the above, and in compliance with the initial conditions set out in paragraph 8.1 of UNE EN 13674-1, the TENDERER shall demonstrate the ability of its supplier in the manufacture of these products, by providing:

- Fracture toughness or resistance values that meet the stipulations of Table 2 in UNE EN 13674-1.
- Fatigue crack growth rates (according to Table 3 in UNE EN 13674-1).
- Fatigue resistance, determined by testing in accordance with ISO 1099. The results must be greater than the provisions of section 8.4.4 of UNE EN 13674-1.
- Residual stress values that comply with the provisions of point 8.5.4 of UNE EN 13674-1.
- Predictive equations relating tensile strength and elongation to chemical composition, and resulting values in accordance with the provisions of sections 8.7.2 and 8.7.3 of UNE EN 13674-1.

The presentation of proposals by the TENDERER shall be taken as unconditional acceptance of the clauses contained herein and as a responsible statement that it meets each and every one of the conditions required to enter into a contract with LFP S.A.

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The TENDERER shall submit a Quality Assurance Plan (QAP) specifically written for the work covered by the bid. Once the contracting process has been completed, the CONTRACTOR shall adapt the QAP submitted in accordance with the criteria defined by the Contract Management team appointed by LFP S.A., in a period not exceeding 15 days.

That plan shall include the following aspects, at a minimum:

- Skills, roles and responsibilities of personnel in the execution of the work.
- Procedures: the continuous improvement of the procedures to be followed during the execution of the contract will be based on the knowledge provided by studying the information contained in the databases corresponding to each of the tasks described in these Conditions.
- Identification of materials and products covered by the QAP. As regards this point, the standardisation and accreditation criteria for both materials and tools, vehicles and services, shall be taken into account.
- Applicable laws and regulations.
- Inspection of the work at the end of the project.
- Organisation devoted to quality control.
- Delays caused by breakdowns: all breakdowns, and especially those that have led to delays to commercial trains using the line.
- Document control with regard to the changes produced therein, control of the editions in force and controlled distribution of copies.
- System for correcting the measuring equipment and guarantee of its reliability, by means of the corresponding inventory lists, history of the equipment, calibration certificates, review schedules, and so on.

LFP S.A. may periodically check the effectiveness of the QAP, by carrying out the necessary operational audits for each section.

Should it ascertain that the QAP for the service covered by this ITT is not effective, or has not been applied correctly, it may halt the execution of the contract until the CONTRACTOR has corrected the operational shortcomings, which shall not constitute justification for the modification of contractual deadlines.

### Assessment

For each proposal, an assessment will be made of the quality to be obtained when executing the work, the procedures proposed for quality certification, as well as the planned quality controls to be conducted when executing the work.

## 12.4 Health and Safety

The TENDERER shall submit a safety and risk prevention report which shall give an explanation of the prevention and safety system while executing the work, participation systems for contractor and subcontractor personnel, the training and information processes to be implemented, the analysis of possible emergency situations and a risk management system. An annex shall be attached to this report with certifications that demonstrate that an internal employment safety system for the TENDERER and the proposed subcontractors has been established, with an indication of its content.

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The safety and risk prevention report must demonstrate that the TENDERER is in compliance with its responsibilities, which are included in this document. It shall also include any measures proposed by the TENDERER in addition to those already required as regards worker health and safety. In particular, reference shall be made to:

- The **specific** regulations in respect of occupational risk prevention that apply to the work to be performed
- The organisation of the prevention and safety department while work is ongoing: organisation chart, preventive resources, roles, coordination with sub-contractors and self-employed workers
- List of personnel assigned to occupational hazard prevention tasks, including:
  - Qualifications
  - Experience in the railway industry
  - In outsourced tasks: details and references from the subcontractor
- Details of proposed additional preventive measures
- Details of the documentation system applied
- The training and information processes to be implemented
- Analysis of possible emergency situations: measures to be adopted, relationships to organise with external services to ensure their speed and efficiency

An annex shall be attached to this report with certifications that demonstrate that an internal employment safety system for the TENDERER and the proposed subcontractors has been established, with an indication of its content.

## 12.5 Report on Environmental Measures

Bidding companies shall submit a report covering environmental measures, within the framework of UNE-EN ISO 14001 or similar, in which a waste management plan is clearly specified. The report shall include a chapter that outlines the environmental regulations that apply specifically to the work that is to be performed.

Once the tendering process has concluded, the awarding company shall update the report on environmental measures, and deliver it in its final form within less than a fortnight.

It shall be borne in mind that the existing waste management legislation is extensive, whether it be European, national or regional, so the legislation that applies in each case shall be complied with, depending on the territory where the work is to be carried out and the type of waste generated. The CONTRACTOR shall be responsible for signing individual contracts with entities for the management of waste generated, as well as the costs arising from those contracts. A copy of the documentation created as a result of waste treatment and transport management must be delivered upon conclusion of the contract.

The CONTRACTOR shall manage waste in accordance with the instructions of the management company it hires – separating the waste according to its composition (hazardous waste, non-hazardous waste, recyclable, non-recyclable materials, etc.).

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The dumping of waste in LFP's recycling bins located in the Maintenance Yard, Southern Mouth or the Northern Technical Centre, without express permission from the Environmental Manager, or the person they appoint, is expressly prohibited.

#### Assessment

The proposed environmental management measures to be taken into account while work is ongoing will be assessed, with inclusion of environmental certification procedures to be applied during said works. In particular, accurate identification of work units that can have impacts, as well as their corrective or compensatory measures, will be assessed.

### 12.6 R&D&i Technology

The TENDERER shall explain the activity its company performs in the field of technological innovation **related to the scope of the contract**, indicating the following:

- Whether the company has an implemented and certified R&D&i management system based on the standard 166002:2006, or whether it has begun the activities for its implementation, providing relevant documentation: R&D&i plan, management manual, etc.
- Whether the company has developed products or processes which can be classed as "innovative" as regards railway technology.
- Whether, **specifically for this Contract**, the company proposes new maintenance procedures that have been developed under an R&D&i management system.

#### Assessment

R&D&i projects concerning technologies that **are to be applied in the execution of the work**, evidence for which can be provided, will be assessed.

### 12.7 Commitment letters, certificates and annexes

The TENDERER shall submit the following specific certifications gained in the performance of the activities described in these Conditions, issued by a certified body:

- The TENDERER shall have an ISO 9001 certified quality management system, or equivalent, in force. The ISO 9001 certificate, or similar, shall be provided, both on the part of the TENDERER and on the part of the rail supplier.
- The TENDERER shall have an ISO 14001:2004 certified environmental management system, or equivalent, in force. The ISO 14001 certificate, or similar, shall be provided.
- The TENDERER shall have an OHSAS 18001 certified occupational health and safety system, or equivalent, in force. The OHSAS 18,001 certificate, or similar, shall be provided.

For joint ventures, each and every one of its members shall have those certifications.

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The following human and/or material resources shall be assigned to execute the contract by means of the corresponding accreditation, an affirmation signed by the bid and/or commitment signatory, where applicable.

- Delivery of the **documentation and information** required by LFP S.A. in accordance with these Conditions
- **Confidentiality** and intellectual property
- Accept the **authority of LFP S.A. to carry out inspections** under the terms set forth in these Conditions
- Assignment of the resources detailed in section 12.2.4
- Compliance with the requirements referred to in section 5

As regards rails, the bid shall contain:

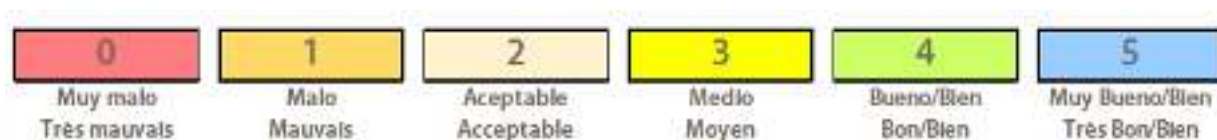
- Certification of SKL 15 tension clamps, sleeper screws and metal rail pads after testing in salt fog chamber for 700 hours, in accordance with EN ISO 9227
- The rails supplied shall be certified, as indicated in section 5.
- Certification concerning the thermal expansion coefficient measurements between -25°C and +70°C, and calculation of the value of this coefficient at 20°C using said measurements

## 13 ASSESSMENT OF THE TECHNICAL BID (MAXIMUM POINTS: 49)

The technical bids shall be assessed with strict adherence to the principles of equality of treatment, neutrality and non-discrimination.

Each parameter shall be assigned a score of 0 to 5, as a result of the detailed assessment of the tenders and by applying the following method.

The mark of 0 to 5 is based on a scale that goes from "very poor" to "very good", as shown in the following diagram.



The final mark will be the result of assessment of the various criteria of each parameter in accordance with the following table:

CONCEPT	FULL MARKS
DESCRIPTIVE REPORT AND WORK SCHEDULE	32

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QUALITY ASSURANCE PLAN	5
HEALTH AND SAFETY REPORT	5
ENVIRONMENTAL ACTION PLAN	3
R&D&i TECHNOLOGY	4
<b>TOTAL</b>	<b>49</b>

## 14 DOCUMENT OWNERSHIP

Both the final documentation, and any other produced over the course of executing the contract, is considered the property of LFP S.A. and may not be disseminated or transferred for use by third parties without its prior authorisation.

The work covered by these Conditions may not be used by the CONTRACTOR without the express permission of LFP S.A., and the originals of all documents must be delivered prior to the approval of contractual compliance.

In all cases, the CONTRACTOR shall be liable for any damages arising from the breach of the above conditions.

## 15 PENALTY SYSTEM

Two fundamental concepts shall serve as the basis for determining penalties during the course of the planned work:

- a) Effective performance

The contractor will submit a Report of Reasons and Corrective Measures in respect of any non-compliance with the agreed schedule of work for reasons attributable to the contractor. The director of the works will assess the report and if he or she should conclude that there has been a grave error that affects LFP S.A. or abandonment of the service to be provided, he or she will impose a sanction equal in value to the costs caused by the programme breach as well as a penalty for accumulated delay.

- 2.5% per week of delay, or fraction thereof, during the first two weeks
- 5% per week, or fraction thereof, from the 3rd to the 5th week
- Starting from week six, LFP S.A. may terminate the contract, with the requirement to pay a penalty bond, without prejudice to any legal action it may deem appropriate for any damages that may have been caused.

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b) The quality of the work carried out

Any work that cannot receive the approval of LFP S.A. shall not be certified and therefore will not be paid. Notwithstanding the foregoing, LFP S.A. reserves the right to apply the following penalties:

Cause of PENALTY	MAXIMUM %
Evidence of non-compliance with the quality of the work required in these Conditions	15% value of the annual service expenditure affected
Evidence of non-compliance with the agreed health and safety report	15% value of the annual service expenditure affected
Evidence of non-compliance with the environmental action plan referred to in these Conditions	15% value of the annual service expenditure affected

The submission of a Report of Causes and Corrective Measures shall be required. After analysing the above report, the works director shall determine whether the work in question should be repeated without cost to LFP S.A.

Should any work have to be repeated or an accusation of service deficiency is made, either of these concepts (performance and quality) may give rise to the rescission of the contract.

In the event of repeated breaches of the agreed service provision conditions, in addition to not approving the reception of the work, LFP S.A. may apply a maximum penalty of 30% of the cost of the work considered deficient, in accordance with the agreed price plan. This amount shall be deducted from the invoicing totals for approved work, work in the delivery phase or work in the invoicing phase.

Should a non-conformity in the results be confirmed, the potential tests to be conducted by LFP S.A. for verification shall be performed at the expense of the CONTRACTOR.

In the event of damage (for instance, breakage of sleeper heads) or incidents caused by the CONTRACTOR, the latter shall be responsible for remedying the breach as regards the damaged items and the associated costs.

The CONTRACTOR shall not be held liable for breaches attributable to third parties, such as inclement weather (for instance, heavy snow or frost) or natural disasters (fires, floods, earthquakes, etc.).

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## 16 EXECUTION DEADLINES AND CONTRACT TERM

The CONTRACTOR agrees to undertake the specific work it has been assigned in accordance with the established work schedule.

The work execution period shall be in compliance with the provisions of section 7.2.

All the documentation needed for the formalisation of the work, as detailed in section 7.11, shall be completed and delivered to the LFP S.A. Contract Director or their Delegate within a maximum period of three (3) weeks after the completion of the work.

## 17 ASSESSMENT OF THE CONTRACT

### 17.1 Evaluation of the Work

The work performed shall be paid by means of certificates approved by the LFP S.A. Contract Director or of their Delegate, once the relevant reports and other documentation arising from its execution has been received, and their amount shall be determined by assessment of the items, or proportion thereof, executed and received in the month referred to on the certificate, in accordance with the unit prices established in the contract.

The estimated value of the package of services included in the contract shall not be greater than (€), VAT EXCLUSIVE.

Signed:

Approved:

Francisco Guillermo SIERRA HERRERO  
Supply and Purchasing Manager  
*Responsable Approvisionnement et Achats*

Petros PAPAGHIANNAKIS  
CEO of Línea Figueras Perpignan S.A.  
*Directeur Général Línea Figueras Perpignan S.A.*

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## 17.2 Table of Unit Prices

The prices listed below are prices of material execution.

TABLE OF UNIT PRICES

REFERENCE NUMBER	UNIT	DESCRIPTION	UNIT PRICE (€)
P1	M	INSTALLATION OF NEW RAILS WITH ANTI-CORROSION TREATMENT, INCLUDING STORAGE, TRANSPORT, TREATMENT, REMOVAL OF OLD RAILS AND WELDING WORK, INSPECTIONS, QUALITY CONTROL AND TOPOGRAPHICAL SURVEYS.	235,00

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## 17.3 Budget

REFERENCE NUMBER	UNIT	DESCRIPTION	MEASUREMENTS	PRICE (€)	AMOUNT (€) CE
P1	M	INSTALLATION OF NEW RAILS WITH ANTI-CORROSION TREATMENT, INCLUDING STORAGE, TRANSPORT, TREATMENT, REMOVAL OF OLD RAILS AND WELDING WORK, INSPECTIONS, QUALITY CONTROL AND TOPOGRAPHICAL SURVEYS.	6.400,00	235,00	1.504.000,00

OVERALL BUDGET (CE) 1.504.000,00

## 17.4 Price revisions

Specific price reductions offered by tenderers shall remain fixed and unchanged for all work and activities executed during the term of the contract.

The revision of prices shall not apply to this contract.

Bids including budgets with unit prices higher than those given in these Conditions, or equal to zero euros, shall not be accepted.

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## 18 INDEX OF ANNEXES TO THE TECHNICAL ITT

The following annexes are included in this document:

- Annex No. 1: Schematic of the Tracks in the International Section of the High-speed Figueras-Perpignan Line
- Annex No. 2: Location of Rail to be Renewed
- Annex No. 3: Components of the Rheda 2000 Rail-sleeper Mounting System
- Annex No. 4: Material Storage

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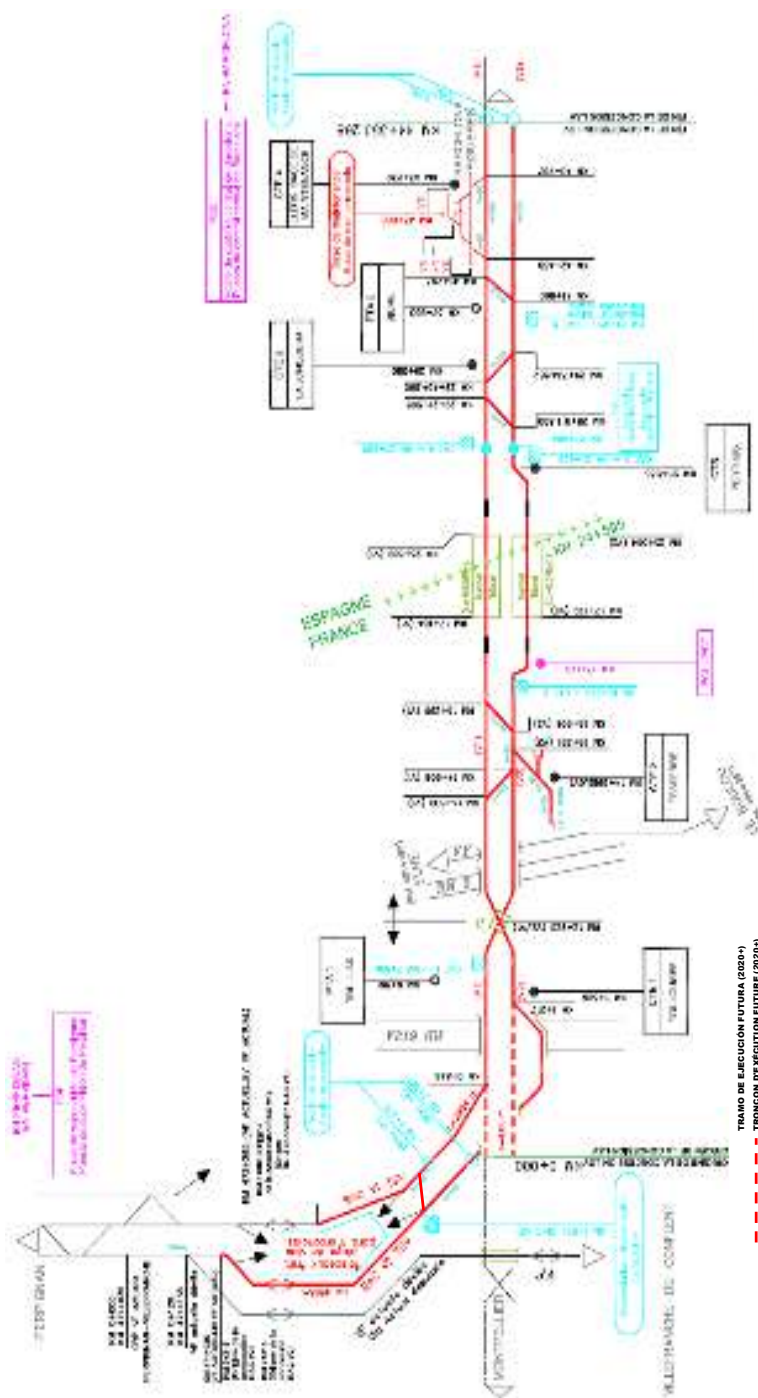
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## 18.2 Annex No. 2: Location of Rail to be Renewed

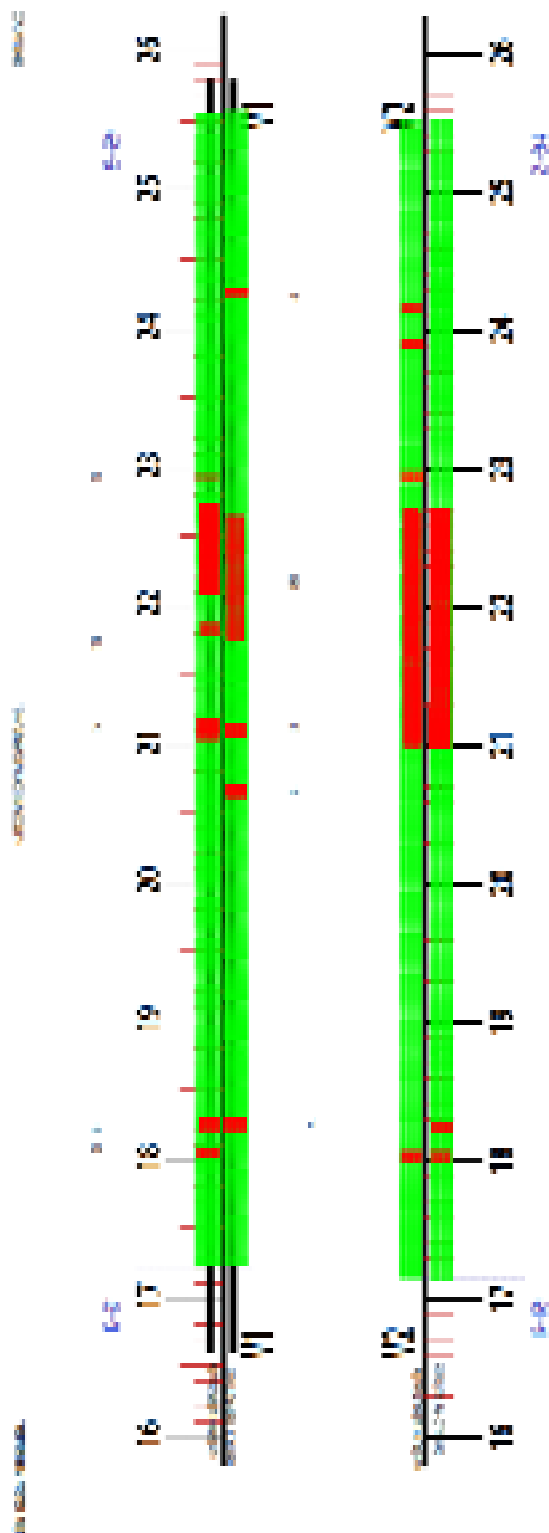
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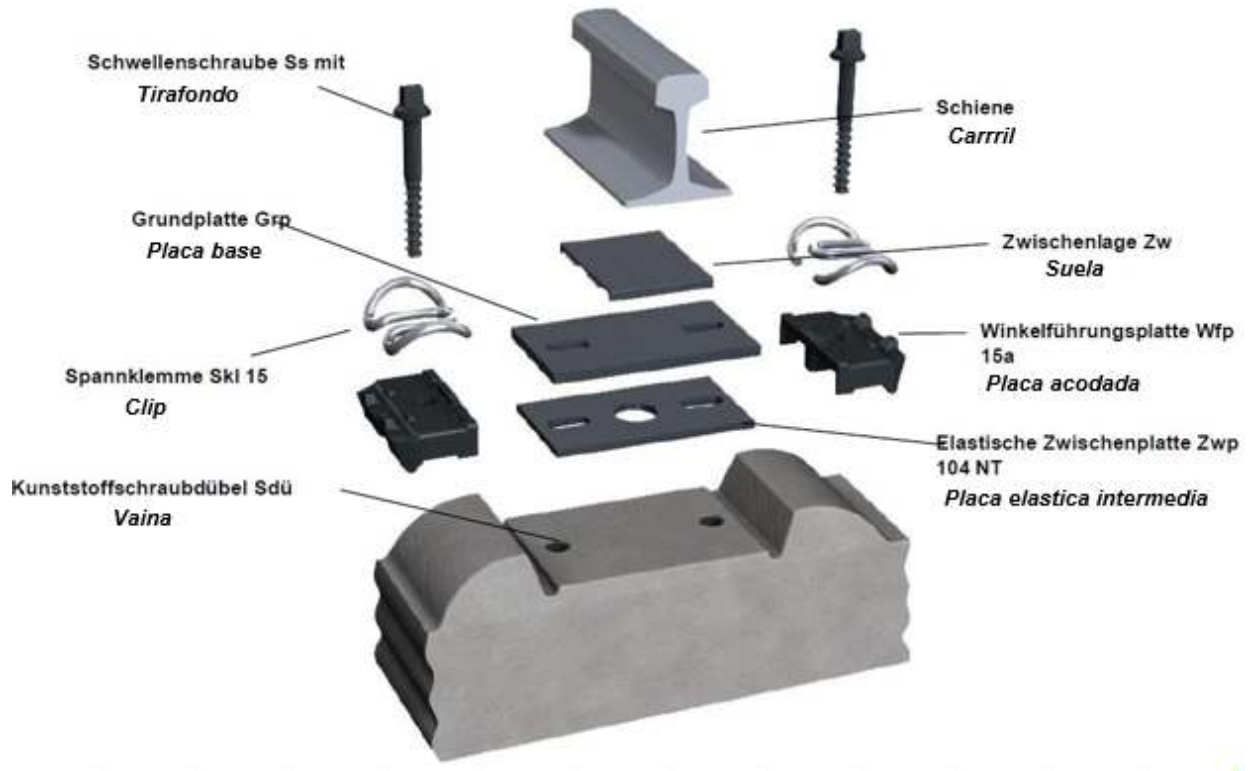
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## 18.3 Annex No. 3: Components of the Rheda 2000 Rail-sleeper Mounting System



- Tension clamp: SKL 15
- Sleeper screw: Ss 36 (from 230 to 290) with Uls 7 washer
- Rail pad: Zw 692<sup>-2</sup> to 692<sup>-12</sup>
- Intermediate elastic plates (elastic baseplate pads): Zw 104/150 NT
- Metallic baseplate: Grp 21/150
- Angled guide plate: Wfp 15 a (from -8 to +8)

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#### 18.4 Annex No. 4: Material Storage

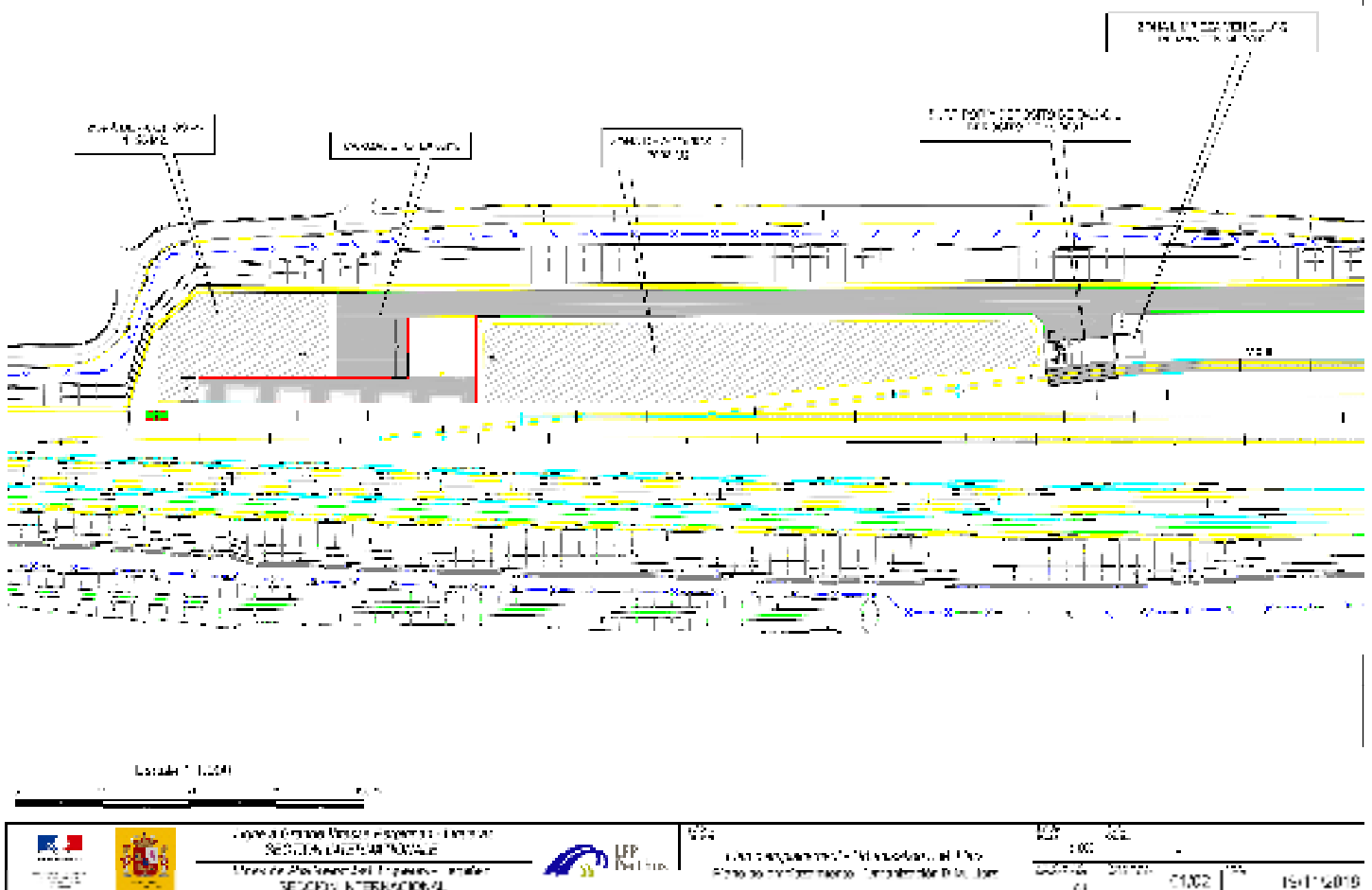
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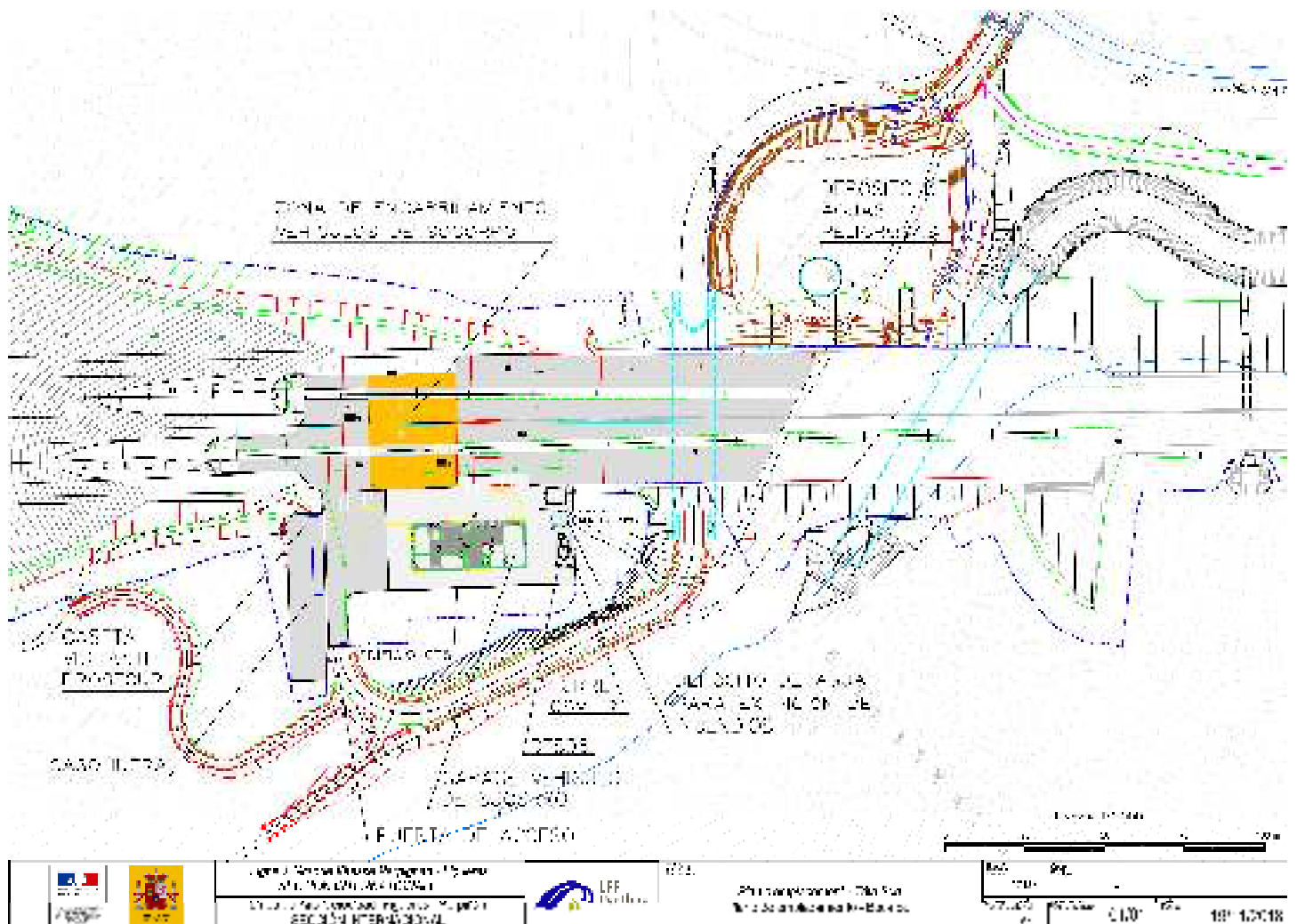
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PK 42+500  
Maintenance Yard

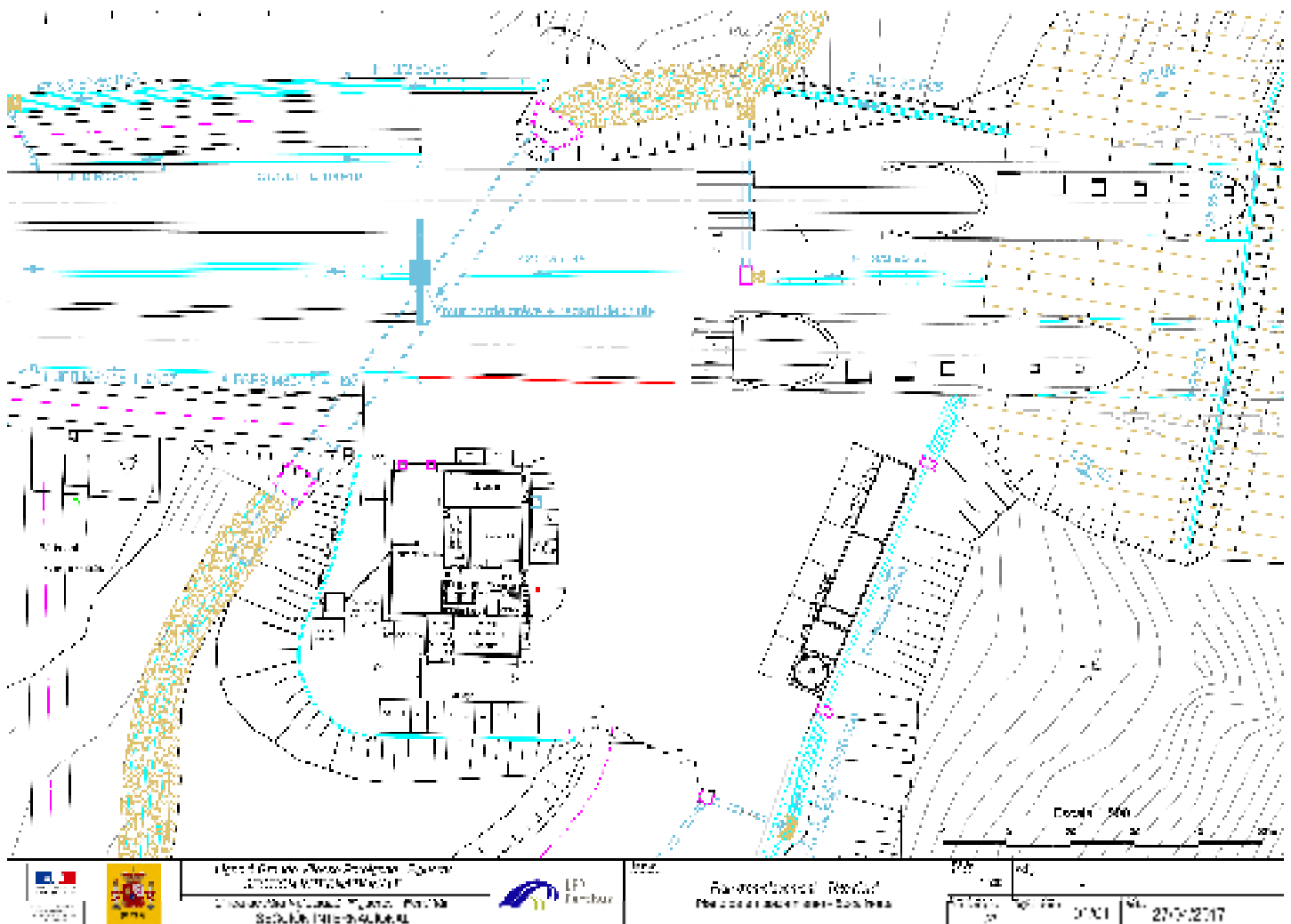
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PK 25+500  
Southern Mouth of Tunnel (CTS)





PK 17+200

Northern Mouth of Tunnel (CTN)

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