

Introduction and Development of Performance-Based Road Maintenance on
Serbian National Road Network

Project: 12SER01/11/251

Introduction and Development of Performance-Based Road Maintenance on Serbian National Road Network

Contractor Briefing Meeting 02 February 2017

**Part 4: Content of the Contract (Works part),
payments and risks**

This presentation:

- Content of the Contract (Works part of Contract);
 - F. Road Maintenance Works;
 - G. Bridge and Tunnels Maintenance Works;
 - H. Pavement Preservation;
 - I. Dayworks.
- Gradual achievement of Service Levels;
- Payments for works and services;
- Payment reductions;
- Advance payment;
- Retention money;
- Price difference calculation;
- Some of the Contractor's risks.

F. Road Maintenance Works

Cover the works in roadway, on slopes, asphalt pavements, crushed stone and gravel pavements, traffic signs, horizontal markings and road furniture, guardrails and other.

The majority of items corresponds to routine maintenance works, but there is a small number of added items implemented on the request from the Employer, considering the road network and necessary works (cobblestone road works, for example).

G. Bridge and tunnel Maintenance Works

Cover the works on pavement and walkways, protective fence, corrosion protection and erosion protection

These are work items which are not requiring engagement of specialized companies for works on bridges and tunnels.

H. Pavement Preservation

Cover investigation works and designing services (also executed by the Contractor) double surface dressing and pavement resurfacing.

Investigation works and designing services cover for all technical services, including surveying and testing, for preparation of pavement preservation design and preparation of bill of quantities and technical specifications, after Employer's consent.

Design for pavement preservation works should be prepared by an authorized designer, engaged by the Contractor with previous consent from the Employer.

The exact scope and type of the necessary investigation works shall be determined by the Contractor depending on the case. The purpose of these investigation works is to:

- Collect data on section from archive and other materials;
- Collect data by field inspection;
- Suggest type of works on pavement preservation and estimate costs for selected works and quantities for those works;
- Consider spatial limitations and economic justification of proposed measures;
- Make a report on the road section condition, which represents the base for preparation of Terms of Reference.

H. Pavement preservation

The Contractor shall prepare a design in form required by the Employer, in time period mentioned in work order for investigation works, issued by Project Manager.

Measurement shall be in road length with both lanes where investigation works were performed in km.

Payment is made per km¹, where investigation works were executed and a design was prepared, including all works and services, equipment and material, and everything necessary for execution of this work item.

Payment shall be made after the Employer approves the design.

Contractor should determine the price of works for this item based on the assumed engagement of equipment, men power and materials.

I. Dayworks

Include pricelist of resources (equipment, work power and materials) in cases of emergency works and extreme weather events. Dayworks are paid according to the actual engaged resources, for which they will need a proof.

Extreme weather events

During the extreme weather events, registered by RWIS, the Contractor will use all his available resources for snow and ice clearance in order to achieve specified performance standards for certain road categories over normal weather conditions (no rainfall), i.e:

- A category roads, specified performance standards need to be achieved within 24 h after extreme weather events;
- B category roads, specified performance standards need to be achieved within 48 h after extreme weather events;
- C category roads, specified performance standards need to be achieved within 72 h after extreme weather events;

I. Dayworks

Preventive and combined treatments on sections not covered by RWIS

As already mentioned, the majority of combined and preventive treatments is executed based on RWIS data, and those treatments are executed on sections with the same or similar weather conditions as registered by RWIS (i.e. sections are covered by RWIS).

However, bearing in mind the locations and number of RWIS stations, and different field type of the project road network, certain number of sections is under different weather conditions than the ones registered by RWIS, for which reason these sections will be paid as Dayworks, during Winter Service, with proof on engaged resources.

Gradual harmonization with Service Levels

Contractors are given time postponement for application of demerit points, i.e. „grace periods“ during which no demerit points will be given, so they would have time to bring the road condition up to a certain level for which a certain service level may be required. In the Specifications, certain road operation services (C) and bridge and tunnel operation services (D) have time postponement for demerit points application at the beginning of the Contract.

Service	Description	Postponement
C. Road Operation Services		
C.1.4	Vegetation control within the Roadside	5 months
C.1.5	Height and width clearances in the Roadway	3 months
C.2.2	Function of lined side drains and channels	5 months
C.2.4	Function of pipe culverts, inlets and outlets	3 months
C.2.5	Function of box culverts, inlets and outlets	3 months
D. Bridges and tunnels Operation Services		
D.1.2	Vegetation control around bridges	7.5 months
D.1.3	Flow clearance	3 months

Payment for contracted Works and Services

Management Services (B), Road Operation Services (C) and Bridge and Tunnel Operation Services (D)

- Paid per fixed lump sum rates, for month in which Service was predicted.
- Lump sum Services should include all fixed and variable costs necessary for achieving of Service Levels, regardless of the actual quantities of works. Each item should include costs for procurement of necessary resources, transport and all activities necessary for achieving of service level.
- The Contractor is required to make an estimate for all the resources he will need for achieving of the required Service Level.
- Lump sums stay fixed until the end of the Contract.
- If the Contractor does not achieve required service level, or does not correct failures inspected during mutual inspection in determined time period (response time), payment reductions apply, by **application of demerit points**.

Payment for contracted Works and Services

Winter Service (E) covers for the following payments:

- Establishment of Winter Service, paid according to fixed monthly lump sum rates, during winter period (4.5 months);
- Winter Service treatment on those sections with same weather conditions as registered by RWIS – paid in unit lump sum per kilometer, for certain treatment type (A, B or C maintenance category).
- Winter Service treatment on sections with different weather conditions from the ones registered by RWIS – paid as Dayworks, in accordance with engaged resources, with corresponding proof on engaged resources, verified by Project Manager.
- Winter Service interventions during the extreme weather events – paid as Dayworks, in accordance with engaged resources, with corresponding proof on engaged resources, verified by Project Manager.
- If the Contractor does not achieve required Service Level, or does not correct failures recorded during Mutual Inspection timely (response period), **demerit points apply**, which will cause payment reductions.

Payment for contracted Works and Services

Road Maintenance Works (F), Bridge and Tunnel Maintenance Works (G) and Pavement Preservation (H)

- Paid in unit price for actual quantities of works of required quality.
- If the Contractor does not execute the works in time, payment reduction applies through **liquidated damages**.

Payment for contracted Works and Services

Dayworks (I)

- Used for payment of works not included in unit price work items. Cover payment of emergency works, winter service preventive and combined treatments on sections with different weather conditions from the ones registered by RWIS and the ones during Winter service extreme weather events works.
- Dayworks are paid in line with engaged resources (equipment and machines, labour and materials), proven by the Contractor and according to prices determined by the Pricelist of Dayworks from the Contract. These are executed on the work order from the Project Manager.
- If the Contractor does not achieve required Service level on preventive and combined treatments or extreme weather events works, or does not correct failures recorded during mutual inspection, payment reduction is applied through **liquidated damages**.
- If the Contractor fails to execute emergency works timely, payment reduction is applied through **liquidated damages**.

Payment reductions

Payment mechanism for Services

- Demerit points apply for Services for which Service Level was not achieved.
- Number of demerit points applicable if a Service was not executed is defined in Specifications.
- Value for one demerit point is mentioned in Contract conditions. Each demerit point has its own value.
- Amount obtained by summary of demerit points values is deducted from the Contractor's monthly payment for services, at the end of the month.
- If Contractor continuously fails to achieve the required service level, during several months, demerit points number is proportionally increased, as described in Specifications.
- Payment reductions in line with demerit points is irrevocable and permanent, i.e. after achieving service levels, the Contractor has no right to refund, as required in the Specifications.
- Demerit points are applicable to Management Services (B), Road Operation Services ©, Bridge and Tunnel Operation Services (D) Winter Service (E) and preventive and combined treatments and extreme weather event interventions.

Payment reductions

Payment mechanism for works

Payment mechanism for works which are not executed timely is reduced by application of liquidated damages.

If measurements, testing or inspection results are not meeting the required quality from Specifications, works will not be accepted, and those works will not be paid until the required quality is proven.

Payment reductions through application of liquidated damages is permanent and irrevocable, i.e. the Contractor is not allowed to a refund after executing the works of corresponding quality.

Liquidated damages are applicable to Road Maintenance Works (F), Bridge and Tunnel Maintenance Works (G), Pavement Preservation (H) and emergency works.

Contractors pay attention to Contract Conditions, in case total summary of reductions through demerit points and/or liquidated damages is ten percent (10%), this will be regarded as permanent incapacity of the Contractor to finish the Contract, for which reason the Employer is entitled to terminate the Contract immediately.

Advance payment

Advance payment

- In line with Contract conditions, Contractor may ask for an advance payment of 10% of the Contract value, after he submits Advance Payment Refund Guarantee in line with Contract conditions.
- Employer shall make the advance payment to the Contractor in time period predicted by the law, after he agrees with the guarantee form.
- The Contractor shall pay for the advance payment in accordance with Contract conditions.
- The Contractor may use advance payment exclusively for procurement of equipment, materials and mobilization costs related to this Contract.

Retention money

Retention money

- Retention money is applicable and calculated in monthly certificates exclusively for maintenance works and pavement preservation works.
- Maintenance works: retention money is applicable only to work item „F.4.8 Resurfacing in full (250 m) or half widths (500 m) in hot asphalt with paver “
- Pavement preservation works: retention money is applicable to items „H.2.1 Double seals in 8/11 and 4/8 mm crushed aggregate “ and „H.3.2 Asphalt resurfacing with paver“.
- Guarantee deposit is kept in the amount of 10% from the value of executed works.
- First half of retention money is paid back to the Contractor after handover of works and issuance of Handover certificate, while the other half is returned after 12 months from completion of works and issuance of defects liability certificate in accordance with the Contract.

Calculation of price variation

Calculation of price variation

Works and services are subject to price variation in accordance with Contract conditions.

Some of the Contractor's risks

- Increase of Contractor's costs due to unpredicted work conditions (in services part, one month's expenditures are higher than income, in the following they are lower)
- Additional (repeated) costs until achievement of required service level
- All the works are executed exclusively by working order from Project Manager, whereas the Employer reserves the right to make a re-allocation of quantities of unit price work items during the Contract, when necessary – bear in mind that unit prices need to be balanced and sufficient.
- Fiercer or milder winter than the average, as opposed to contractor's expectations and offered prices
- Contractor's lack of experience in usage and application of RWIS data
- Responsibility issues, the Contractor is now responsible for some issues that were under PERS jurisdiction as Road Manager (centralized salt procurement and other winter service materials)
- Harmful actions in road body and usage of roadway – support needed from Road Manager in obtaining proofs, efficient action of inspection in solving cases filed by the Contractor, otherwise, the Contractor incurs damages for disturbance of works, correction of failures he did not make, bears costs of administrative dispute.