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Experience in the use of FIDIC contracts on rail infrastructure project

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Professional paper

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Experience in the use of FIDIC contracts on rail infrastructure projects

The use of FIDIC general conditions of contract in the realisation of rail infrastructure construction works is presented in the paper. Contract limitations are analyzed such as: minimum amount of interim certificates, advance payment, scheduling repayment of advance payment, guarantees and retention money, work contract procurement according to FIDIC Red Book, conditions of contract for works designed by the Employer without construction documents at the time of procurement, realisation of work under traffic, preliminary work, railway track closure, problems relating to interim certificates for additional work, and contract procedures.

Key words:

FIDIC contracts, minimum amount of interim certificate, advance payment, guarantees, retention money, additional work

Stručni rad

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Iskustva u primjeni FIDIC-ovih ugovora kod projekata željezničke infrastrukture

U radu se razmatra primjena FIDIC-ovih općih uvjeta ugovora u izvođenju radova na izgradnji željezničke infrastrukture. Analiziraju se ugovorna ograničenja kao što su: minimalni iznos situacije, predujam i dinamika vraćanja predujma, garancije i zadržana sredstva, ugovaranje izvođenja radova prema FIDIC-ovoj crvenoj knjizi, uvjeti ugovora za radove prema projektu naručitelja, bez izvedbene dokumentacije u doba ugovaranja, izvedba radova uz odvijanje prometa, priprema, zatvori pruge, problematika situiranja dodatnih radova, ugovorne procedure.

Ključne riječi:

FIDIC-ovi ugovori, minimalni iznos situacije, predujam, garancije, zadržana sredstva, dodatni radovi

Fachbericht

Edvin Bralić

Erfahrungen bei der Anwendung von FIDIC-Verträgen bei Eisenbahninfrastrukturprojekten

In der Abhandlung wird die Anwendung der allgemeinen Vertragsbedingungen von FIDIC bei der Ausführung von Bauarbeiten an der Eisenbahninfrastruktur wird im Papier vorgestellt. Vertragsbeschränkungen: Mindestbetrag der Abschlagsrechnung, Anzahlung und Rückzahlungsdynamik der Anzahlung, Garantien und einbehaltene Mittel, Vereinbarung der Ausführung von Arbeiten gemäß dem roten Buch von FIDIC, Vertragsbedingungen für Arbeiten gemäß dem Projekt des Auftraggebers, ohne Ausführungsdokumentation zum Zeitpunkt der Vereinbarung, Ausführung der Arbeiten mit Verkehrsfluss, Vorbereitung, Streckensperrung, Problematik der Berechnung von zusätzlichen Arbeiten, Vertragsverfahren.

Schlüsselwörter:

FIDIC-Verträge, Mindestbetrag der Abschlagsrechnung, Anzahlung, Garantien, einbehaltene Mittel, zusätzliche Arbeiten

1. Introduction

The FIDIC form of contract for the realization of works (FIDIC – Conditions of Contract for Construction for building and engineering works designed by the Employer, i.e. the so called Red Book) is an international standard for the procurement of building and engineering works that has been accepted as procurement model in Croatia, particularly for projects financed by the European Union. It has been widely used for a number of years, especially on public infrastructure projects. In the implementation of contracts according to the FIDIC international procurement standard, all participants in the project are faced with various problems during preparation and implementation of construction projects. Any contract concluded between two parties is the document by which the contracting parties regulate their relationships in order to achieve an expected contract implementation result that will meet in an optimum way the expectations of both contracting parties. Unfortunately, this is most often not achieved in practical situations. The reason for that are contracts themselves, their particular provisions, and especially the way in which they are subsequently interpreted by the parties. No contract has so far proven to be ideal or perfect in practical settings. This paper is an attempt to contribute to the improvement of procurement processes according to FIDIC contract documents during determination of particular conditions and this by providing comments and proposals for the change of some clauses of the contract.

It should be noted that some clauses of FIDIC General Conditions of Contract are commented on in this paper and, at that, every party that prepares contract documents is entitled to freely (within legal limitations) change the text of each clause of General Conditions of Contract and to adjust it to its own requirements.

2. Minimum amount of interim certificate, advance payment and advance repayment scheduling, guarantees and retention money

According to FIDIC standard form of international conditions of contract for civil engineering works, i.e. its Red Book “Conditions of Contract for Construction for building and engineering works designed by the Employer”, first edition, 1999, a minimum amount of interim certificates can be agreed on by the parties by setting in the Appendix to Tender a minimum amount of interim certificate in form of a percentage of the accepted contract amount. This is additionally explained in Clause 14.6 of General Conditions of Contract.

It is quite obvious from the current practice that the employer most often uses this clause because of financing limitations, due to requests regarding the contractor’s financial capability, and/or for reducing administrative obligations.

A comparison of a simplified example of financial realisation on a project without limitation of a minimum interim certificate and with limitation, i.e. with minimum interim certificate set to 20 % of the accepted contract amount (it is most often 5 or 10 percent) is shown in Figure 1.

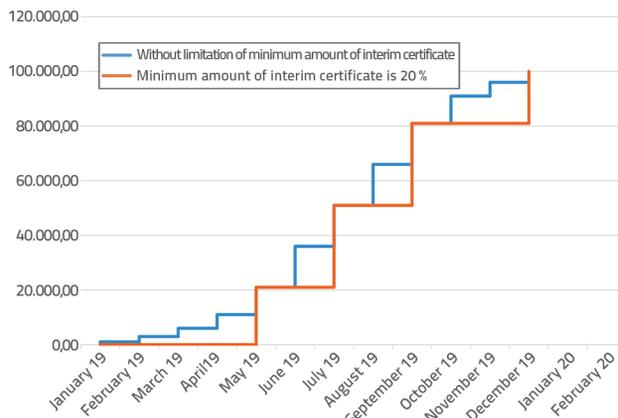


Figure 1. Financial realisation without limitation and with limitation

For the simplified example of interim payments without limiting the minimum of interim payment, the payments are scheduled as monthly payments. It can be seen in this comparison that, in the case a minimum amount of certificate is set, the contractor’s statements are mostly reduced to bi-monthly statements and, at the beginning and end of works, to statements covering several months. Thus the contractor’s distribution of work is not based on monthly income which puts him in an unfavourable situation as he has to obtain some additional work-financing mechanisms, which are a financing burden that is likely to hinder realisation of works. When we add to this the final payment to contractor, for which the time of 60 days is usually set in contracts, we come to the delay in payment of 4 to as many as 6 months, which in current situation constitutes a serious difficulty for the contractor. This often results in project disturbances. If the employer has at its disposal the funds needed for project financing, then it is not in its interest to specify a minimum amount of interim certificates and, even if this amount is specified, it should be as low as possible, because it is not in the employer’s interest to increase the price of the works but rather, in order to ensure financial stability of the contractor, it is in the employer’s interest to finance the completed work as soon as practicable.

The employer most often becomes aware of this fact only during realisation of the project. The following is specified in Clause 14.6 *Issue of interim payment certificates*, of FIDIC General Conditions of Contract [1]:

“However, prior to issuing the Taking-Over Certificate for the Works, the Engineer shall not be bound to issue an Interim Payment Certificate in an amount which would (after retention and other deductions) be less than the minimum amount of Interim Payment Certificates (if any) stated in the Appendix to Tender. In this event, the Engineer shall give notice to the Contractor accordingly”.

It is clearly stated in the above sub-clause that the Engineer is not required to issue an Interim Payment Certificate, but the possibility is left to him to make his own evaluation. In most cases, the Employer does not additionally expand this clause from FIDIC General Conditions of Contract by adding additional requirements, although this possibility is left to him, and so the Employer does not define in which cases the Engineer is allowed to issue an Interim Payment Certificate in the amount lower than the minimum amount.

The interpretation of this contract clause, and action to be taken in cases it is applied, is specified in the FIDIC Contracts Guide issued by the International Federation of Consulting Engineers (FIDIC) in 2000 [2] where the following is stated on page 245:

“Under CONS or P&DB, the Engineer may decline to issue an Interim Payment Certificate in an amount which would be less than a “minimum amount of Interim Payment Certificates” which may be stated in the Appendix to Tender. However, the Engineer should not regard his duty as being to endeavour to minimise certification, and therefore declining to certify whenever he is entitled to do so. Withholding of certification may be of benefit to neither Party.”

In addition, FIDIC publicly commented on this issue of understanding and interpretation of sub-clause 14.6 on its web pages <http://fidic.org/node/923> [3] where it reconfirmed its above-mentioned viewpoint that in such situations the Engineer should not regard his duty as being to endeavour to minimize certification, and therefore declining to certify whenever he is entitled to do so. Withholding of certification may be of benefit to neither Party.

After the Ministry of Economy, Entrepreneurship and Crafts was asked to give its opinion on the implementation of the Public Procurement Act (Official Gazette, 120/2016) and the mentioned contract limitation, the Ministry answered as follows [4]:

“In that respect, we consider as well-founded the interpretation according to which the Engineer can, although it is not obliged to, i.e. it has the discretionary power to, issue an interim certificate in the amount of less than the minimum amount specified in the contract, and that such action would not constitute a significant change of a public procurement contract in the sense of Article 321 of the Public Procurement Act passed in 2016”.

When asked to provide its opinion, the *Central Finance and Contracting Agency of EU Projects* submitted the following interpretation of the above mentioned contract limitation [5]:

“According to harmonised opinion given by the Central Finance and Contracting Agency of EU Projects (PT2) and the Ministry of Regional Development and EU Funds (UT), the minimum amount of interim certificate from the minimum amount specified in the Appendix to Tender also constitutes the contractor’s guarantee that it has the capacities needed for the realization of contract-based works.

In this respect, such a provision constitutes an initial requirement that has been published and is known to all potential tenderers, and the change of such requirement would undoubtedly influence the tendering process and is considered significant, except in case when it can be justified by extraordinary objective circumstances that were unknown at the time the contract was signed, all in compliance with the provisions of the Public Procurement Act by which significant changes to the contract are regulated.

In the light of the above, it is considered that the Engineer can use its discretionary right from sub-clause 14.6 only in exceptional cases that are justified by objective circumstances, when it has to be proven why in such a particular case it is necessary to deviate from the contract-specified minimum amount and why is it necessary to issue the interim certificate in a lower amount.

Based on the above opinions, everyone agrees with the interpretation of the contract sub-clause that the Engineer can issue the interim certificate in the amount that is lower than the minimum one, but

it is not clearly specified in which particular cases the Engineer can act in this way. The statement that the Engineer “is allowed to use its discretionary right from sub-clause 14.6 only in exceptional cases justified by objective circumstances, and that it has to be proven why was in necessary, in such a particular case, to deviate from the contract-based minimum amount and issue an interim certificate in a lower amount” is in fact not based on contract provisions, and therefore we consider that the Engineer does not have to respect it. In our opinion, in this case the Employer has allowed the Engineer via contract clauses to act freely in implementation of the said contract clause, without additional limitations. On the other hand, this does not necessarily mean that the Engineer has to apply the said clause in this way and so, it can be expected that, before making his decision, the Engineer will consult with the Employer so as to define a mutually agreed course of action.

In such an instance, it is quite obvious that, during the tendering process, the Employer has failed to clearly define to the contractors the meaning of the sub-clause 16.6 of the Contract with regard to the certification of interim certificates in the amount lower than the minimum one and, on the other hand, by submitting their tenders, the contractors have in fact agreed on such wording of the sub-clause.

According to current practice, in the statement through with the contractor asks for the approval of the interim payment certificate in the amount lower than the minimum amount set in the Appendix to Tender, such contractor’s request is most often justified by unfavourable cash flow, by the need to return the advance payment at an accelerated rate, and by high level of the minimum amount. However, such reasons are certainly not something that has been unknown to the contractor at the time of tender submittal.

The expression “justified objective circumstances” implies project changes or, exceptionally, project disturbances that can result in the stoppage or interruption of the project. However, if the Employer has obtained financing that is sufficient for the realisation of the project, and if it has given its approval, then the Engineer has to approve the interim certificate in the amount lower than the minimum one in all cases in which the contractor asks for such approval, provided that such measure is not a permanent measure but rather a temporary measure that can be used no more than once or twice a year, and also, provided that the contractor has duly fulfilled all other obligations under the contract.

Other justifications that could not have been anticipated at the time of public procurement for the works to be realized on the project, such as the increase in the price of raw materials and lack of labour, can additionally assist in making such a decision. Such justifications are also not based on the contract, or are specified in sub-clause 13.8 of FIDIC General Conditions of Contract. Nevertheless, we consider that the Engineer has to justify/explain to the Employer his discretionary right regarding non-application of sub-clause 14.6 for certification of interim payment certificates.

As for future contracts, we would advise employers not to apply the contract clause regarding minimum amount of interim certificates in cases when they have secured funding for the project, as the application of this clause would increase the price of works, i.e. we propose that this provision be omitted from the Particular Conditions

of Contract. However, if such provision is applied, it should be expressed as percentage not greater than the estimated or expected average monthly value of the works, which is specified in Particular Conditions of Contract.

According to General Conditions of Contract, contractors are to be provided with an advance payment so that they can get initial funds for purchase of materials and start of works in the period when the interim payment certification has not yet been initiated. In this way the employer, in case it has ensured funding that is sufficient for project financing, would reduce the total price of works as in this case the contractor will not be required to provide initial financing for the works. According to sub-clause 14.2 of General Conditions of Contract relating to advance payments, the contractor is to start repaying the advance payment after it has received 10 % of the accepted contract amount, and the deductions shall be made at the amortisation rate of 25 % of the amount of each Payment Certificate. As, according to sub-clause 14.6 of General Conditions of Contract, the minimum amount of certificate is calculated after repayment of retention and other deductions, in some cases the non-certification of interim certificates in the amount lower than the minimum one is unfavourable for the contractor benefitting from advance payment, as compared to payments based on interim certificates without advance payment and without limitation of minimum amount.

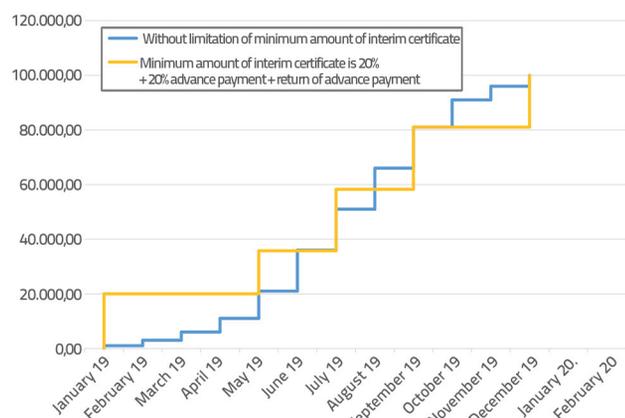


Figure 2. Comparison of payment instruments without limitation and with limitation

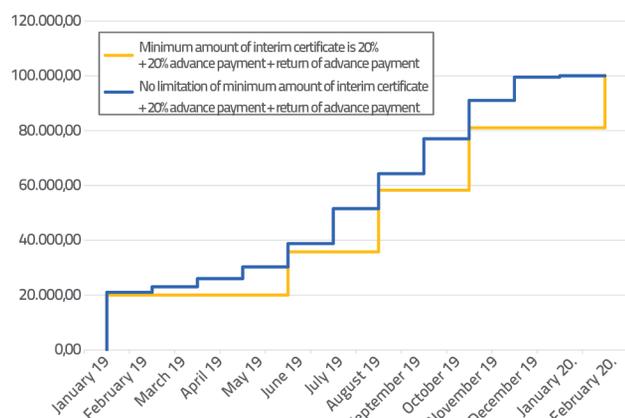


Figure 3. Comparison of payment alternatives without limitation and with limitation

Figure 2 shows a simplified example of financial situation on the project without limitation of minimum amount of certificates and without advance payment, as compared to the application of minimum amount of certificates and with advance payment. It is obvious that in the first case the cash flow situation will be more beneficial for the contractor in the second part of the project.

Figure 3 shows a simplified example of financial situation on the project without limitation of minimum amount of certificates and with advance payment, as compared to the application of minimum amount of certificates and with advance payment. It is obvious that in the second case the cash flow situation would be less favourable for the contractor throughout the realisation of the project.

In our opinion, the employer should, in addition to adopting (or not adopting) the minimum amount of interim certificates, also pay attention to the provisions contained in sub-clause 14.2 of the FIDIC General Conditions of Contract which are related to advance payments. According to this sub-clause the deductions will be made at the amortisation rate of 25 % of the amount of each payment certificate, which can in some cases be highly unfavourable for the contractor, as it can annul the benefits initially gained through advance payment.

The employer must, before harmonising General Conditions of Contract with his expectations and limitations, understand that an advance payment is a project financing instrument, and that its role is to ensure a stable development of the project. In simple terms, this means that the return of advance payment must follow the progress of works, provided that the actual progress of works is in accordance with schedule, or is even ahead of schedule.

Additional measures for employer’s insurance and application of General Conditions of Contract: the retention money and insurance funds for the fulfilment of contract constitute an additional financial burden from the tenderer/contractor, and they thus additionally increase the price of works. Therefore, the employer should consider this issue quite carefully so as to obtain the best possible price of works and accept an optimum amount of risk.

3. Procurement of work according to FIDIC Red Book without working design documentation

In the scope of a construction contract, the contractor is required to build, based on a relevant design, a certain building/structure within a specified time, while the employer is required to pay to the contractor a certain sum of money as a compensation for this work. The contracts based on unit prices are usually related to the works based on the employer’s design and are covered by the FIDIC Red Book. A bill of quantities is typical for such contracts.

According to contract provisions, the employer can allow the contractor to prepare the working design documentation or any other part of design documentation. In this case, based on the main design, the employer prepares a bill of quantities in which, based on the data contained in the main design, he estimates the quantities of the work. The way in which the working design must be prepared is defined in Article 74 of the Building Act [6].

- The detailed design develops the technical solution laid down by the main design.
- The detailed design must be developed in compliance with the main design.
- The detailed design shall be developed:
 - for the construction of construction works in group 1
 - if that is specified in the main design
 - if the employer and the contractor agreed so in a building contract.

The interim and final payment certificates are prepared based on measurement of actually realized works, using unit rates from the contract-based Bill of Quantities.

In case the contractor prepares the bill of quantities based on the main design, it has to predict the quantities of works according to assumptions given in the main design. In these predictions, the contractor has to rely on the design experience and its own experience from previous similar projects as, for some types of works, design quantities of works can not be accurately defined without preparation of a detailed design in which design solutions from the main design are further elaborated. Thus, some quantities of works can be wrongly estimated and this in the end may affect the total price of works specified in the contract. This may consequently result in a significant difference between the price of works agreed on in the contract, and the actual total price of works, which in some cases can greatly complicate implementation of the project.

According to relevant regulatory framework, the public contracting authority (employer) is limited by the percentage of allowable increase in price during realization of public procurement contracts, i.e. when such percentage is exceeded a new public procurement procedure must be initiated. If such increase in the price of work, i.e. an increase in excess of the allowed one, is not identified on time, there is a danger that the further implementation of the contract might be prevented at some point, most often close to the end of the works, which is extremely unfavourable for the contracting authority (employer). To make sure that they will be able to recognise on time possible increase in the total price of the contract, and to be able to define the amount of this increase, employers are required during realization of works to continuously check and look for any deviations of real quantities from planned ones in case of significant disturbances to the project, especially as related to approval of additional and extra work. In this respect, the employer must require the contractor to prepare tables of approximately realized works in which all remaining work quantities will be estimated based on currently available data. Current practice shows that most examples of quantities that have been wrongly estimated based on main design involve wrong estimate of the quantity of reinforcement due to inexperience of the designer, wrong estimate of the quantity of earthworks due to incomplete/inaccurate topographic survey, wrong estimate of the quality of foundation soil and, finally, poor scheduling of work phases which may have a significant impact on actual quantities. Based on experience, it can reasonably be

stated that the quantities of works can not be accurate by more than 90 %, unless their calculation is based on detailed design. In order to reduce or completely remove the risk of increase in contract price, the following options can be used by the employer, instead of the FIDIC Red Book, during implementation of project in the case the works are to be realised without detailed design documents:

- FIDIC Yellow Book – the contractor is responsible for the design documents and the total contract price is a lump sum, while payments are made according to a predefined payment schedule, instead of being based on the measurement of work quantities.
- FIDIC Silver Book – is used for the realisation of works according to the turnkey principle. The contractor is responsible for the design and it also assumes responsibility and risks related to the scope of contract-related work.

It should be noted that the employer will receive from the contractor a tender with the lowest possible price if the quantity and quality of works is clearly specified at the tendering stage. An accurate bill of quantities must be prepared for this purpose. If the employer becomes aware that it can not submit an accurate bill of quantities on time, then it can transfer the risk to the contractor and, in this case, every reasonable contractor will add this risk to the price of works.

4. Rail infrastructure projects - realisation of work without interruption of rail traffic

When infrastructure works are carried out without interruption of rail traffic, the employer and other participants in the project will sometimes be faced with situations in which some works requiring closure of rail traffic will be realized rather rapidly. In such instances, the employer will provide for temporary interruption of rail traffic. During the work that involves closure of rail traffic, the contractor's priority must be to realize the work in accordance with time schedule and to proper quality standards. Otherwise the time of traffic closure could be extended or the work might have to be repeated with the corresponding traffic closure, which can eventually result in high costs for the employer due to unplanned closures of rail traffic. Unlike road infrastructure, possibilities for building temporary bypasses are very limited in the case of rail infrastructure.

In order to enable good-quality realisation of work under traffic, employers will most often organise continuous daily seven-hour closures of rail traffic. In exceptional cases, depending on the technology and requirements set for realisation of some works, the employer will permit rail traffic closure for 12/24/48/72 hours (usually on weekends, from Friday to Monday). To enable proper realisation of work during rail closures, it is important to minutely plan all activities that have to be realized and, in that respect, a detailed plan of necessary resources must be made while, for critical activities, standby resources must also be provided for.

For railway works in the zone in which rail traffic is operated, the employer will require the contractor to prepare the Transport Technology Report and the Works Realisation Schedule. For the

preparation of these documents, the employer will specify a detailed content of such documents so that the employer can gain a full insight into the contractor's time schedule for the realisation of works, contractor's resources, and transport plan (for on-site and out of site transport) during the closure of rail traffic, and prior to and after such closure of traffic. On the basis of these documents, the employer will issue approval to the contractor to temporarily interrupt rail traffic during realisation of works. It is important to plan movements of the rail and on-site machines that are needed for specific railway works and that move along the railway itself, and this before and after its closure, as well as during closure of rail traffic.

In order to minimise traffic costs arising from rail traffic closure due to realisation of works, the employer is required to announce this closure to all carriers (transport companies) and is also required to advise them about the time period in which the rail traffic will be closed. To achieve all this and besides preparation of a detailed time schedule, the contractor must be certain that all planned works will be realised regardless of weather conditions and limitations that might arise during the works.

In addition, the work technology must be fully adjusted to the deadlines, while possible limitations must be anticipated taking into account requirements for the realisation of works. The greatest unknown is the success in the achievement of proper quality of works in a particular phase of works, which is the precondition for the subsequent phase of works. This "unknown" is defined according to design assumptions.

In order to reduce the said risk, it is necessary to check, prior to the start of works, the level of harmony between design assumptions and real on-site situation, and this on similar locations or types of materials (for instance: by making trial excavations as close as possible to the site of future works). The work technology is a very significant factor for reducing the risk of realisation of works at a low level of quality. It can significantly reduce the said risk through the design of prefabricated structures based on assembly of precast elements. Such elements can be fabricated at other locations and then assembled on the site during closure of rail traffic. This practice also minimises possible impact of adverse weather conditions. In order to reduce to minimum the risk of unsuccessful realisation of works during closure of rail traffic, we would advise employers to require in their construction contracts the implementation of typical solutions, depending on the time of traffic closure. These typical solutions should involve accurate definition of time schedule, resources, and technology for all activities, all based on previous experience.

For critical phases of work, it is necessary to plan procedures that must be carried out in case positive or negative results are achieved during control tests, which are the precondition for the acceptance of individual phases of work, and for the approval of realisation of a subsequent stage of works. In this way, the employer will greatly reduce the possibility of adverse effects on traffic, which will in turn considerably reduce the risk of unplanned additional costs. The technology for the realization of works must be thoroughly and optimally developed in the design documentation. The best example for this is the traffic signs infrastructure. In order to realize a new track along the existing one, the traffic signs infrastructure needed

for operation of traffic along the existing track must be temporarily rearranged, and it can be deactivated only after construction of the new track and after the new traffic signs infrastructure is put in place. It is better to plan and develop work technology already at the design stage, even though it might be subsequently modified by the contractor, as this is the only way for the designer to clearly consider and take into account all stages of the works and hence to correctly and properly prepare the design documentation, which is the basis for establishment of contractual relationships.

An accurate bill of quantities must be prepared for all contracts for the realisation of works according to the design prepared by the employer, and for all contracts for the realisation of works according to the FIDIC Red Book. This preparation of the bill of quantities must be preceded by preparation of a good quality design documentation that should include the works technology in which specific features of each particular project have been properly addressed.

5. Payment certificates for additional works, contract procedures

Contracts for the realisation of works on infrastructure projects always include instructions on the procedures to be applied for processing and accepting additional works. These instructions are usually formulated as follows:

Additional works are the works that are not included in the bill of quantities, but have to be carried out. If additional works can not be regulated using unit rates that have been agreed upon, the members of the committee for the analysis of prices and additional-work requests are required to determine whether the contractor/service provider has proposed the rates that are consistent with unit rates from the bill of quantities, i.e. with the prices currently applied on the market for similar work conditions. Subsequent requests for the acceptance of additional work that has already been realised, or services that have been provided, but without the conduct of procedure described in these instructions, shall not be accepted by appropriate decision of the company's management. The exception is however made for the works that are absolutely necessary:

- to provide for proper stability of the building
- to protect life and health of people, to protect the environment, nature, other structures and objects, or to ensure stability of soil on the surrounding sites
- to prevent damage that could be caused by the occurrence of such events
- according to the order of relevant public authorities.

It is only in such situations that the subsequent procedure for the acceptance of additional work will be permitted and, at that, all circumstances that have led to the occurrence of such events will have to be described and explained by the engineer and the person in charge. The instructions regarding additional work are internal documents of the employer and should be applied in all parts in which they are not contrary to the particular and general conditions of FIDIC based contracts. The sub-clause 13.1 of the FIDIC Red Book [1] defines *variations* which, *inter alia*, can include variations

of quantities of any work item covered by the Contract, and any additional, i.e. unforeseen works, ... Unforeseen works are regulated in articles 623 and 624 of the Civil Obligations Act (Official Gazette, issues 41/08 and 125/11).

According to the mentioned sub-clause, all variations can be initiated by the engineer either by ordering or requiring the contractor to submit its bid. Subsequent procedure for *Variations* is defined in sub-clause 13.3 of the contract. However, as employers in most cases limit the engineer's powers via the corresponding clauses of particular conditions of FIDIC contracts, the engineer is required, according to the aforementioned, to request the employer's approval prior to issue any instructions to the contractor that could result for instance in the change of quantities or in the realisation of additional works. In case of additional works, but not in cases of increase or decrease of work, this previous approval by the employer will be provided in accordance with the corresponding internal instruction of the acceptance of unforeseen works. Deadlines are not specified in this instruction, nor are they specified in the particular and general conditions of FIDIC contracts. However, the employer will in any case act in such a way not to disturb the scheduled progress of work but, in practical situations, he is not always successful in this respect. After obtaining approval from the employer, the engineer can issue the instruction to the contractor, and the latter will perform the additional work in a regular way. The decision about the time when an appropriate addendum to the contract will be entered into is most often defined by the employer in Particular Conditions of Contract (FIDIC) for each additional work separately, or for several works, according to the employer's estimate, and in accordance with the Public Procurement Act.

To enable application of the said contractual procedure, and so as not to compromise the planned time schedule for the realization of works, it is important to detect additional work on time and to carry out the required procedure.

The procedure requires rapid reaction of all contractual parties. In practical situations, the contractor's requests are in most cases incomplete, the engineer takes too much time to complete the documentation, and the employer's approval procedure always lasts a long time, most often due to hierarchy in the decision making process. All things considered, the strict compliance with these contract provisions most often results in interruption of the work phases that are to be preceded by additional work, and in the contractor's justified request for additional payments, which creates in the end unforeseen additional costs for the employer.

As to an acceptable additional work for which the contractor is not responsible and that has to be conducted urgently as it usually affects

continuation of work and is not anticipated in the contract, it would be in the interest of the employer to impose implementation of an accelerated procedure in the scope of which the engineer would be enabled to give orders for additional works, i.e. the variation orders based on an accelerated procedure using FIDIC contract provisions (sub-clause 12.3 *Evaluation*):

"Until such time as an appropriate rate or price is agreed or determined, the Engineer shall determine a provisional rate or price for the purposes of Interim Payment Certificates" [1].

In order to accelerate the procedure, previous approval can be given by the project manager or some other employer's representative who is permanently involved in the project. Any procedure of greater complexity would not enable timely decision making. All this has to be achieved in order to avoid additional costs and extension of contract time. In case an additional work - that has been temporarily approved for payment to the contractor based on a temporary unit rate - is proven unacceptable during a subsequent analysis, then this amount can be deducted from a subsequent interim payment. The risk of that occurring is negligible but acceptable, as it prevents the occurrence of influences that would slow down the progress of works.

6. Conclusion

The international standard for the procurement of building and engineering works, FIDIC, has been accepted in the Republic of Croatia as a suitable procurement model that has significant qualities and, as such, it should continue to be used in the realization of construction works. However, it should be adjusted to requirements and limitations of individual projects, and to relevant regulations, through wise and appropriate application of Particular Conditions of Contract. The attention is drawn in the paper to some project situations that are not adequately considered in contracts for the realisation of works, although they bear influence on successful realisation of projects and, consequently, on their final result.

The future revised approach to the shaping of contractual relationships in the realization of infrastructure projects, based on sensitive understanding of requirements for the respect of the interests of others, with the balance of responsibilities for the success of the project, will be of decisive influence on the success of such projects. In fact, the success of a construction project involves satisfaction of all participants in the project. In case of FIDIC contracts for the realisation of works, this first of all means success of the employer/client and success of the contractor. The success of the former is the precondition for the success of the latter, and vice versa.

REFERENCES

- [1] Međunarodni standard ugovaranja za građevinske inženjerske radove FIDIC "Uvjeti ugovora o građenju za građevinske i inženjerske radove po projektima naručitelja", prvo izdanje 1999.
- [2] The FIDIC Contracts Guide First Edition 2000
- [3] FIDIC International Federation of Consulting Engineers, The Global Voice of Consulting Engineers, <http://fidic.org/node/923>
- [4] Dopis "Ovjera situacija Izvođača" broj: 1256/19 od 13.2.2019., Ministarstvo gospodarstva, poduzetništva i obrta
- [5] Dopis "Odgovor na dopis "Ovjera situacija izvođača"" KLASA: 910-01/17-01/125, URBROJ: 358-10-02-01-17-89, Zagreb, 21. ožujka, 2019., Središnja agencija za financiranje i ugovaranje programa i projekata Europske unije
- [6] Zakon o gradnji ("Narodne novine" broj 153/13, 20/17, 39/19)