AMERICAN UNIVERSITY OF BEIRUT

THE RENDERING OF CONSULTATIONS AND A FAIR DETERMINATION BY THE ENGINEER UNDER CONSTRUCTION CONTRACTS

by
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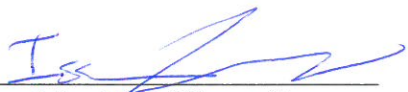

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AN ABSTRACT OF THE THESIS OF

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Construction is a thriving industry filled with outstanding projects shaping and redefining our world as we know it. That being the bright side of the story, the industry is also packed with disputes worth millions of dollars. Any chance of reconciling interests as well as bridging the gap between parties would be beneficial for a more peaceful and dispute free work environment.

The 1999 FIDIC Red Book manages the Employer-Contractor relationship in construction contracts. The Engineer, an Employer's personnel under the contract, consults with both parties in an attempt to reach an agreement on Contractor claims under sub-clause 3.5 [Determinations] and makes a fair determination in case an agreement could not be reached. Reaching an agreement is favorable as that prevents the claim from escalating into a dispute.

The aim of this thesis is to devise a protocol for carrying out consultations and investigating the constituents of a fair determination to be rendered by the Engineer. This promotes an early window on the FIDIC claim/dispute progression timeline for attempting amicable settlement, preserving healthy relationships between parties and avoiding costly consequences.

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CHAPTER 1

BACKGROUND & PROBLEM STATEMENT

1.1. Background

Construction is a complex process that requires the coordinated effort of a temporarily assembled multiple-member organization of many discrete groups, each having different goals and needs and expecting to maximize its own benefits (Cheung and Suen, 2002). This difference in goals and needs leads to conflicts between the parties, namely the owner, the consultant and the contractor. The owner has a contractual relationship with each of the other two parties, who in turn have no formal contract guiding their relationship, except as per the role prescribed for the consultant under the construction contract.

Claims arise in construction contracts as a result of exercising an alleged right for extra compensation or time extension. As such, claims should be properly managed by the consultant, as they can quickly turn into disputes, the ultimate shape disagreements might take. The Engineer, under the fourth edition of FIDIC forms of contract, is “required to exercise his discretion by giving a decision, opinion or consent or expressing his satisfaction or approval on a matter, or determining value...” (Lina, 1997). This impartiality attribute of the Engineer can be hard to implement, as he/she is torn by a resulting conflict of interest. That is, on one hand, the Engineer is an advisor of the owner and a safe keeper to his interests. On the other hand, he/she should act as a mediator between the employer and contractor. To this effect, this impartiality requirement has been removed in the newer

version 1999 Red Book, but that does not mean that the Engineer should act in a partial manner. Under the latter version, the Engineer is referred to as being part of the employer's personnel, where it is argued by some that observing impartiality is not required by the Engineer except when requested to make a determination under sub-clause 3.5 (Ndekugri, Smith & Hughes,2007). Under this sub clause, consultation between both conflicting parties should be carried out by the Engineer. Although many interpretations of such consultation hold, its context in terms of the entity of the Engineer and the protocol followed remains unclear.

The named engineer will be first required to administer the contract as an agent of the employer, and at the same time carry out functions of 'decision maker' under the contract. The function of the named engineer should be done with impartiality and fairness between the employer and the contractor (Brewer, 2006). The whole structure of the contract, and especially its pricing, is built upon the premise that the employer and the decision-making entity were separate entities. However, this is not generally the case. The party acting as a judge for the disputes that arise throughout the timeline of the project is generally protected under common law from the liability of the decisions rendered, subject to certain conditions (Stein and Hiss, 2003). Any other job that the entity has contracted itself in, such as design works or administration of the contract does not have the same protection. This does not mean that the party acting as judge can exploit this quasi – judicial immunity and render decisions causing harm to the conflicting entities. For the decision to be immune against liability there must be a dispute unless otherwise stated in the contract. The decision must also be rendered in good faith and impartiality. If courts can prove that the decision was rendered otherwise, the party responsible for that decision

would be faced with a claim for tortious interference with the contract or defamation. The weight given to the party's decision is also applicable to an extent to any other form of determination or opinion that the party can be asked to give, as the same principles and logic should be accompanied by the same entity in every case.

The absence of a contractual relationship between the contractor and the named engineer, with the latter generally being the design professional responsible for the design, has also given immunity to the named engineer from the contractor's claims for purely economic damages stemming from alleged design errors and omissions (McKeeman and Rossetti, 2007). The economic loss rule barring such claims states that the party who suffers only economic harm may recover damages for that harm based upon a contractual claim and not on a tort theory, such as negligence or strict liability (Bianco, 2007). Such a concept has lessened in power over the years. In order to uphold the integrity of the engineering profession, engineers should conform to the code of ethics (ASCE, 2008). The code of ethics states that engineers should provide any service only under their scope of expertise. Doing otherwise leads to acts outside the standard of ethics and care. They should also act in an objective and truthful manner. It is also important for engineers to act professionally for employers and clients and as faithful trustees, for avoidance of any conflict of interest that might incur. Such virtues and characteristics are interrelated and interdependent (Robinson and Dixon, 1997). In addition to the moral domain of ethical decisions, one should also have knowledge in the legal domain (Sinha, Thomas & Kulka, 2007). The legal domain includes liability and professional standards, as well as contract relations and interpretations. Any act of negligence or liability should be avoided.

1.2. Problem Statement

The FIDIC conditions of contract have changed over the years. The condition of impartiality of the Engineer, which was once stated as a requirement in these general conditions, has been removed in the 1999 Red Book. On the other hand, the Engineer is referred to as being part of the Employer's personnel, and a new concept of a fair determination by the Engineer has been introduced. Under this mission to give a fair determination, numerous questions as to the way the Engineer as an entity should act, in terms of impartiality and independence with respect to the Employer, remain to be answered. It is also unclear what the steps of the protocol of consultation, which precedes having to give a fair determination, are to ideally be.

1.3. Objective

The aim of this thesis is twofold: (1) devising a protocol for carrying out consultations and (2) investigating the constituents of a fair determination to be rendered by the Engineer in the case where conducted consultations fail to result in achieving agreement between the employer and contractor. The entity appointed as the Engineer is sculpted uniquely from one project to the other. It is therefore important to find common grounds based on which such an entity can effectively manage the consultation process or render a fair determination.

1.4. Methodology

The methodology, to be adopted for addressing the above-stated objectives, includes:

- Reviewing the archived literature pertaining to the engineer's authority in connection with the administration of the construction contract and, more specifically, in handing contractors' claims;
- Identifying the common traits that the Engineer is expected to conform to;
- Drawing concept maps showing the interrelationships among the Engineer's desirable traits and those between the said traits and the Engineer's role under the contract; and
- Devising a protocol for consultations by studying the different scenarios that the Engineer would confront.

1.5. Significance of the Research Work

The Engineer's role in conducting consultations is crucial as part of an early window on the FIDIC claim/dispute progression timeline for attempting an amicable settlement. If achieving such desired agreement is not possible, a truly 'fair determination' can help avoid having a claim escalate into a dispute, the resolution of which can end up being very costly and has the effect of worsening the relationship between the parties to the construction contract.

CHAPTER 2

LITERATURE REVIEW

2.1. Introduction

Ever since 1996, FIDIC contracts which are the base to which this thesis is based, have put steps into action to try to protect the consulting industry from corruption (Boyd and Padilla, 2009). It is addressed that "corruption is wrong because it undermines the values of society, breeds cynicism and demeans the individuals involved". The fight against corruption will need the joined effort of every party involved in the projects. This culture of preserving the integrity of the consulting nature makes it trustable that the language of the conditions of contract set by FIDIC insures that the Engineer would work for the welfare of both parties and would fight corruption along the way.

As mentioned in the previous chapter, the aim of this study is to set a consultation protocol for the Engineer to consider while requested to make a determination under sub clause 3.5 of the 1999 FIDIC Red Book version.

To have a good background on the subject, several publications that discuss and present different subjects in relation to the Engineer's capacity, characteristics and roles, both in the old and newer versions of the FIDIC contracts, will be cited.

Several analogies between the role of the Engineer under sub clause 3.5 with each of the roles of Mediators and Arbitrators are drawn in later chapters; hence several articles relating to the latter roles are also cited.

2.2. The Engineer in the 1987 FIDIC Red Book Conditions of Contract

The Engineer is defined by the FIDIC conditions of contract as "the person appointed by the Employer to act as the engineer for the purposes of the contract etc."

From the definition of the Engineer, it can be inferred that he/she is the Employer's agent (Lina, 1997). Under the 4th edition of the FIDIC contract and specifically under sub clause 2.6, "the Engineer is required to exercise his discretion by giving a decision, opinion or consent or expressing his satisfaction or approval on a matter, or determining value, or taking action…" Such discretion should be exercised impartially.

Chen Lina discusses the conflict of interest that makes the Engineer torn between being an advisor of the owner and a safe keeper to the latter's interests, and between acting as a kind mediator between the employer and contractor. This matter makes it hardly believable that the engineer can exercise proper impartiality and fairness when it comes to deciding matters between the employer and contractor.

As a matter of fact, studies have shown that on occasions, professional responsibilities in relation to conflict of interest, unveiling confidential information and environmental damage have been breached by construction professionals, with conflict of interest being the most violated one, as a study involving South Africa showed (Bowen, Pearl, and Akintoye,2007).

However, with reference to Chen Lina's research article, efficiency of the dual role of the Engineer remains underscored, being acknowledged and emphasized by both the employer and the contractor, as there is "no one more suitable than the Engineer to perform

decision-making function speedily so as to avoid delays, because the engineer has detailed day-to-day knowledge" (Lina, 1997).

The author of the paper suggested a neutral position of the engineer from the beginning to the end of the work.

2.3. Assumed Independence of the Engineer – Not Always the Case

The named engineer will be first required to administer the contract as an agent of the employer, and at the same time will be required to carry out functions of 'decision maker' under the contract (Brewer, 2006). The author states that the latter function should be done with impartiality and fairness between the employer and the contractor.

A case study is presented where a developer of a project (St James Homes), under a construction management arrangement, revealed to the appointed contractor (Scheldebouw) the termination of the appointment of the construction manager. The developer, in effect, would undertake all the roles and responsibilities of the construction manager giving effect to the owner's wishes and carrying out instructions. St James Homes would also be making decisions on matters where the employer and contractor had opposing interests. The contractor objected due to the fact that it entered the contract under the assumption of an independent and impartial third party would be carrying out the construction management duties. The issue escalated to a dispute and was settled in court with the judge denying the right of the developer of appointing itself as its own construction manager as the "whole structure of the contract was built upon the premise that the employer and the construction manager were separate entities".

Any case where the employer would be taking the responsibility of the certifier and the decision maker at the same time would be initially taken into account in the pricing of the contract by the contractor appointed to carry on with the works.

Brewer's article stresses on the requirement for impartiality and independence of the decision maker under construction contracts, even though such decision makers such as engineers, architects and construction managers would be required to carry out a dual function.

The impartiality of the Engineer has been greatly researched. In a study of the roles of the Engineer under the 1999 FIDIC Red Book, where 33 roles under 99 sub-clauses mentioning the word "Engineer" were explored, 67% of these roles exhibited the need of an independent professional to have them done. This emphasizes the importance of impartiality (Abdul Malak and El Masri, 2016).

2.4. The Capacity of the Engineer as a Judge – One of the Several Duties

The design professional has the capacity to perform several duties on a construction project (Stein and Hiss, 2003). It is stated that the design professional could act as an independent contractor responsible and legally liable for the design delivered. The design professional could also act as the owner's representative for the project, with them being liable for their acts as well.

On the other hand, the design professional could act as a judge for the disputes that can arise throughout the timeline of the project. This role requires the design professional to step into the role of judge or arbiter of disputes which generally leads to their protection by

the common law from the liability for the decisions rendered, subject to certain conditions (Stein and Hiss, 2003).

Stein and Hiss continue to express that it is common for the design professional of the project to be the named Engineer/architect by the owner, taking into consideration that the party responsible for the design would be able to efficiently supervise the construction process as they are fully aware of the design and can administer the contract at the same time.

This gives an idea about the atmosphere that the Engineer is immersed in and his/her distribution of interests. The named Engineer would be dealing with disputes over extra compensation or extra time between the owner and the contractor about issues that may concern faults in their design, creating an inescapable conflict of interest, as mentioned earlier.

The strength of the judge of disputes is backed up by the immunity generally granted by the common law, subject to certain conditions. Courts usually have recognized immunity, since the ability of the dissatisfied party to sue the judge or arbiter would lead to a never-ending series of litigation. In addition to that, the decision of judges and arbiters would be influenced by the fear of a resulting lawsuit rather than by what he/she believes in based on the facts and evidence (Stein and Hiss, 2003).

This kind of immunity is known as quasi-judicial. However, it does not apply to every decision. First, there must be an actual dispute, unless otherwise stated in the contract. Second, the decision must be rendered in good faith and impartiality. The latter condition seems reasonable and easily accomplished (Stein and Hiss, 2003).

The study expresses however, that in reality, the condition is not that easy to fulfill. When determining whether the decision maker of the dispute acted in good faith, courts generally search for any "fraud or willful and malicious intent to injure the owner or the contractor". Failing to act in good faith and impartiality will make the entity deciding the dispute subject to liability, and likely be faced with a claim for tortious interference with the contract or defamation. Tortious interference is the" intentional and improper interference with the performance of a contract or a prospective contract relation". Defamation, on the other hand, is a "communication that tends to harm or lower the reputation of another in the estimation of the community or to deter a third person from associating or dealing with that person (Stein and Hiss, 2003).

Unlike courts that have recognized immunity, the Engineer acting as a judge should be careful when it comes to the contractor's interest. The Engineer can't do any harm to the contractor and get away with it that easily. This forms the basis for the Engineer to act fairly giving right to the rightful party, be it his employer or the contractor.

In order to underscore what was previously stated regarding the immunity of the Engineer not always protecting the latter, a Polish example is referenced. In the absence of contractual basis for the Engineer's liability to the Contractor, general law provisions provide the Contractor with the right to pursue claims against the Engineer (Drynkorn, 2015). Article 415 of the Polish Civil Code provides grounds for the Engineer's tort liability by stating that "any person who through his fault causes injury to another person is obligated to redress the injury".

The Engineer thus has a commitment; not just for the Contractor but also for the law that protects all parties in case of any harm or injury.

2.5. Absence of Contract between Engineer & Contractor – Evolution of the Immunity of the Engineer

The immunity given to the party deciding on the outcome of disputes between the owner and contractor is also dependent on another factor. The absence of a contractual relationship between the contractor and the named engineer/architect, with the latter generally being the design professional responsible for the design, has historically protected the engineer from the contractor's claims for purely economic damages stemming from alleged design errors and omissions (McKeeman and Rossetti, 2007).

This concept has been substantially lessened in power over the years where design professionals protect themselves against contractor claims for purely economic damages by the fact that these claims are barred by the Economic Loss Rule. This rule states that a party who suffers only economic harm may recover damages for that harm based only upon a contractual claim and not on a tort theory, such as negligence or strict liability (Bianco, 2007).

McKeeman and Rossetti state, in their legal brief, that the limitation of the liability of design professionals have been questioned over the years by jurisdictions across the United States using a tort cause of action. It was then determined that a cause of action is valid provided the damages were foreseeable.

This issue was dealt with in a case presented by McKeeman and Rossetti, where McElwee, a general contracting company, and Spotts, Stevens & McCoy (SSM), a design professional company, entered into two respective contracts with the owner, the Municipal Authority of the Borough of Elverson in Pennsylvania (MABE). SSM represented imprecise information to the contractor, by giving the latter faulty plans showing that 100

tons of sludge was required to be removed, while in reality the actual amount is in excess of 4400 tons. The contractor relied on these faulty plans, with SSM knowing that this would happen, causing economic damages to the contractor.

The reality is that protection once given by the barring of contractor claims is diminishing and it is essential for design professionals and parties deciding on disputes to owe a duty of care to contractors as the liability would be set upon them.

In order to further show the importance of a contractual relationship between parties, several studies are referenced.

The construction industry has been always based on the presence of contract between the parties involved so that rights can be protected, and obligations defined clearly (Cheung, Yiu and Chim, 2006). In this manner, “it is difficult to have wholehearted cooperation unless a supportive platform like an appropriately devised contractual framework is in place”. This underscores the importance of a contractual relationship mentioned earlier. It also depicts a kind of unusual relationship between the Engineer and Contractor that is, unlike all other relationships, not contractual. The authors continue to address the “relational” trait of construction contracts which gives greater attention to the “desirability of fairness, cooperation, and short-term self -interest.” Not only is a contract defining the relationship between parties important to the welfare of the parties’ rights but having a relational contract is necessary for an effective overall result of the project. This shows how much the absence of contract between the Engineer and Contractor would have negative downsides.

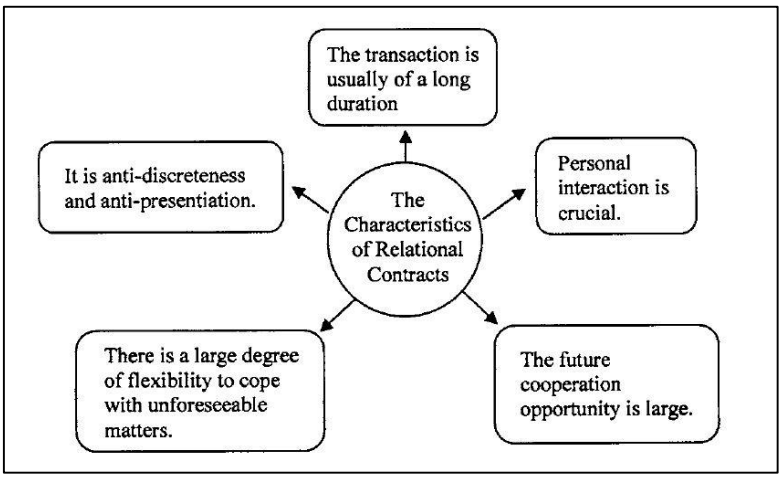

Figure 1: Characteristics of Relational Contracts (Stein and Hiss, 2003).

Figure 1 above, as referenced from Stein and Hiss's article, shows the characteristics of relational contracts. What is of interest is the large degree of flexibility to cope with unforeseeable matters which forms a sound and effective collaboration between all the parties of the project, without having the Engineer turn against the Contractor under the tables and lessening the value of the Engineer's role.

Contractual behavioral norms are present to some extent in every transaction and contractual exchange (Harper and Molenaar,2014). This leads to thinking that, in the absence of contract between the Engineer and the Contractor, such norms have no weight or measure. It is as if without a contract between the parties, no relationship can be built or improved as there are no norms forming a base to the relationship.

Several norms have been studied, including role integrity, reciprocity, flexibility, contractual solidarity, reliance and expectations, restraint of power, property of means and harmonization of conflict (Macneil 1985; 1980) (Harper and Molenaar,2014). Figure 2 below, referenced from Harper and Molenaar's article, shows word search queries for each of the eight behavioral norms in 11 different contract types including American Institute of

Architects (AIA), Associated General Contractors (AGC) ConsensusDOCS, the Engineers Joint Contract Documents Committee (EJCDC) and the Design Build Institute of America (DBIA).

Primary Nodes	Child Nodes
Role Integrity	achieve project goals, in the best interest of the project, benefit the project, perform with integrity, align individual interest
Reciprocity	mutually acceptable, jointly, joint agreement, share equally, fairness, good faith, reach consensus
Flexibility	without invalidating the agreement, modifications, incorporating changes, amending the contract
Contractual Solidarity	cooperate, cooperation, collaboration, collaborative environment, working together, getting along, assist, assisting, interaction(s), interacting
Reliance and Expectations	promise(s), rely on, reliable, reliability, reliance, sharing of information, expectations of others, commitments, obligations
Restraint of Power	authorization, authority, limitations of control over, power to, direct
Propriety of Means	means and methods, effort, skills and knowledge, expertise, experienced, expert, standard of care, competent, allocate resources
Harmonization of Conflict	good faith direct discussion, waiver of claims/damages, dispute resolution, mitigation, mediation, arbitration

Figure 2: Content Analysis Primary and Child Nodes (Harper and Molenaar,2014)

2.6. Duality of the Engineer's role – Evolution with the 1999 FIDIC Red Book

The Engineer as an entity in a construction project has developed in its capacity and characteristics with the issuance of newer versions of construction contracts over the years.

The traditional role of the Engineer in the 1987 FIDIC Red Book has been continuously criticized for the duality of this role as the employer's agent and as an independent third party holding the balance fairly between the employer and the contractor (Ndekugri, Smith & Hughes, 2007).

Being an agent of the employer, any default by the engineer can be treated by the contractor as a default by the employer. Ndekugri, Smith & Hughes continue that the engineer also

has duties applied as a third independent and neutral party such as assessment of claims, valuation of variations, measurement and valuation for payment. While the failure to perform these duties is considered as an employer's breach of contract, the engineer's wrong performance or negligence in doing such duties is not.

Although the old Red Book expressed in sub clause 2.4 the independence of the engineer which required the latter to be impartial in exercising professional discretion in decision making, there remains many factors that create an unavoidable conflict of interest. (Ndekugri, Smith & Hughes, 2007). This matter has been stated earlier.

The newer 1999 FIDIC Red Book version introduced a new perspective to this role. There would appear no direct requirement for the Engineer to "act impartially". However, a new duty to make "fair determinations" has been defined under sub clause 3.5. This means that the duality of the role of the Engineer has not been deleted completely and the Engineer is contractually stated as the employer's agent except when requested to make a determination under sub clause 3.5 (Ndekugri, Smith & Hughes,2007). This is the point where the Engineer probably moves from being the Employer's agent or personnel to becoming an independent consultant to both Employer and Contractor (Lee,2008). The FIDIC "guide" states that the Engineer is not supposed to be of a whole impartial intermediary, although he is deemed to act for the Employer under the language of the contract.

Carrying on with Ndekugri, Smith & Hughes' paper, it is stated that 'impartial' is defined as by the Oxford English Dictionary as 'not favoring one party or side more than another; unprejudiced; unbiased; fair; just; equitable'. The same dictionary defines 'fair' as

‘free from bias, fraud, or injustice; equitable; legitimate’, which shows the considerable overlap between the two terms ‘impartial’ and ‘fair’.

The authors of the paper state that while the older 1987 Red Book version aimed at regulating the process of making the decision to be impartial, the newer 1999 Red Book version required the decision itself to be fair.

Under sub clause 3.5 of the 1999 FIDIC Red Book, the engineer is required to ‘consult with each party in an endeavor to reach agreement’. A possible interpretation of the consultation is making a provisional determination, presenting it to both parties and implementing the outcome agreed to by both parties (Ndekugri, Smith & Hughes,2007).

Otherwise, in case of failing agreement, the engineer makes and implements a final determination taking into account the parties’ comment on their interests. The part of the sub clause ‘endeavor to reach agreement’ suggests a proactive role of the engineer, where by the definition of proactive by the Cambridge Dictionary, means that he/she should “take action by causing change and not only reacting to change when it happens”. (Ndekugri, Smith & Hughes,2007).

Another interpretation of sub clause 3.5 to that the engineer is to act as a sort of mediator or conciliator, but not acting in a neutral manner and resulting in a binding determination pending the decision of a DAB or an arbitration tribunal, as opposed to a mediator’s or conciliator’s recommendation which is not binding (Ndekugri, Smith & Hughes,2007).

The FIDIC “guide” states that the consultation can be done either separately &/or jointly. It also states that the fair determination of the Engineer is not required to be made impartially. This puts the reader in some sort of confusion. First, no clear process of

consultation is proposed. Second of all, the meaning of a fair determination is not clear, knowing that the Engineer is not obligated to have it made impartially.

Putting aside the confusion behind the contractual language of the general conditions of contract and its guide, the entity of the Engineer has always been meddled with through the particular conditions or under the table agreements. Several levels of meddling by the Employer with the Engineer's authority and power have been shed light upon. The levels of meddling are impartial, challenged, limited and transferred, stated in increased degree of meddling with the Engineer's authority (Abdul-Malak & Naeem, 2018). These levels of meddling are dwelled into in Chapter 3.

2.7. Engineer's Code of Conduct – What should the Engineer conform to?

A study by Sinha, Thomas & Kulka addressed the framework that the Engineer has to follow to come up with ethical decisions. In order to accomplish that, one should follow a framework that requires knowledge of two domains, the legal one and the moral one (Sinha, Thomas, & Kulka, 2007).

First of all, one should abide by the legal area and must apply it beforehand as there is no choice but to abide by the law. The legal domain is stated to involve statutes and regulations, liability and professional standards, professional registration and regulations, contract relations and interpretations, as well as policies. Statutes are laws by legislative bodies. Regulations are formulated by agencies to objectify the statutes and have the same legal impact. These regulations specify what professionals can and cannot do. Professional standards should be followed to avoid any act of negligence or liability that could result. Contract relations uphold voluntary duties between parties that have been voluntarily

agreed to in a contract. Tort law, however, upholds duties imposed by law between parties and is not dependent on any contract between them. Lastly policies are written directives that define how a company, department, agency will conduct its business affairs. They do not carry the same legal weight as laws and regulations.

Moving on to the moral domain, the authors stated that it would involve professional code of ethics, professional standards, obligation to the employer, societal values, and moral behavior. The Professional Engineering Code of Ethics requires the services by engineers to be based on honesty, impartiality, fairness, and equity. Engineers also have an obligation towards their profession, their employer and the public to raise and seek resolution of issues in a professional manner. (Sinha, Thomas, & Kulka, 2007).

The Code of Ethics adopted by the American Society of Civil Engineers on September 2, 1914 and amended on July 23, 2006 is referenced stating the most important principals and canons that the Engineer should conform to. Fundamental principles were set for engineers to uphold and advance the integrity, honor, and dignity of the engineering profession. Some of these principles are, first of all, that engineers should use their knowledge and skill for the enhancement of human welfare. Second of all, they should be honest and impartial and serve with fidelity their employers. This shows the importance of implementing such principles in the named Engineer/Architect's role.

The Code of Ethics also states several fundamental canons to respect. First of all, Engineers shall perform service only in areas of their competence. In relation to the Engineer's determination, making one outside the field of expertise of the Engineer would lead to an act outside the standard of ethics and care. Second of all, engineers shall issue public statements only in an objective and truthful manner. They shall act accordingly in

professional reports, statements, or testimony. Third of all, engineers shall act in professional matters for each employer or client as faithful agents or trustees and shall avoid conflicts of interest. In case there is any business association, interest or circumstance that could influence the quality of their services, engineers shall promptly inform their employees or clients. Forth of all, engineers shall act in such a manner as to uphold and enhance the honor, integrity, and dignity of the engineering profession and shall act with zero tolerance for bribery, fraud and corruption.

A lot of other studies researched the requirements of the Engineer. Refenced is one of which, which states that the Engineer should be responsible towards the public, the profession, the Employer and himself (Bray, 1986).

The trait of "being professional" is studied by an on-demand career and management learning consultancy called Mind Tools, which was awarded the Queen's Award for Enterprise, the United Kingdom's top business award. "Being professional" involves several attributes such as specialized knowledge, competency, honesty and integrity etc. These attributes are discussed in Chapter Four.

Good faith is also studied. It is compared to its counterpart for a better understanding (Summers,1968) (Cheung, Yiu and Chim,2006) This is shown in Figure 3.

Forms of bad faith conduct	Good faith meanings
A consultant concealing information in his possession.	Fully disclosing material facts.
Builder purposely failing to perform in full, despite otherwise substantially performing.	Substantially performing without knowingly deviating from specifications.
Builder abusing bargaining power to coerce an increase in the contract price.	Refraining from the abuse of bargaining power.
Paying no attention to mitigating the other party's damages.	Acting diligently.
Arbitrarily and capriciously exercising a power to terminate a contract.	Acting with some reason.
Adopting an overreaching interpretation of contract requirements.	Interpreting contract language fairly.
Nonperformance despite repeated assurances of performance.	Accepting adequate assurances.

Figure 3: List of Bad Faith vs Good Faith Conduct (Summers 1968) (Cheung, Yiu and Chim,2006)

2.8. The characteristics of different Alternate Dispute Resolution Techniques

The Engineer could have several duties including supervising the work by the contractor, an advisor to the Employer, and an impartial and independent mediator capable of looking at issues between parties in an objective way (Drynkorn, 2015). Thus, what that means to this thesis is that the Engineer could benefit from the characteristics of those parties involved in alternative dispute resolution (ADR) methods. Skills that are used in dispute resolution "should be part of the toolkit of any practitioner in a managerial position" (Cheung and Suen, 2002).

Starting with mediation, it is defined in the article of Cheung and Suen as a "non-binding process in which a neutral party, known as a mediator, helps to guide the parties towards a mutually beneficial resolution". It is also delineated that the aim of mediation is to "come to an agreement as to how that dispute is to be settled" (Harmon,2006). This sheds the light on the notion of an agreement, that forms a great part of the consultation

phase led by the Engineer under sub clause 3.5. For mediation to be successful, the mediator should not be interested in the outcome of the settlement but only in a successful settlement (Didonato, 1993). Harmon addressed the skills of an effective mediator to "assist the parties in moving forward, crafting a sustainable settlement as well as leave the disputing parties satisfied with the result". These skills will be dwelled into in the following chapters and include credibility, ethics, impartiality and neutrality, engaging personality and behavior, rapport, suspending judgement, problem solving, patience and perseverance etc. All such goals are in line with the goal of consultation. This gives us a glance on the importance of benefiting from the skills of ADR practitioners.

Mediation agreements is the result of the parties' discussions (Sgubini, Prieditis and Marighetto, 2004). The Italian Civil Code considers a mediation agreement as a transactional contract with the dispute being resolved and finalized between both parties. The same contract could resolve related issues in the future.

Conciliation is another ADR method, having the same goal as mediation, but a different procedure, which will be talked about in later chapters (Sgubini, Prieditis and Marighetto, 2004). There is also facilitation that like conciliation uses a different and less neutral concept and procedure to reach the settlement between the two parties (Bauer and Chemnitz, 2016).

Another alternate dispute method to litigation is arbitration, which the Engineer can also benefit from in the consultation process. Arbitration is considered as "a contractually-mandated binding form of dispute resolution" (Harmon, 2004). However, Harmon adds that it is meant to be a flexible process considering the needs of the parties and strict rules and procedures are not necessarily applied. Arbitration is effective due to its

consensual and willful nature, in addition to its economic and commercial efficiency (Seifert, 2005). Studies have shown that arbitration is the fundamental dispute resolution technique in case disputants fail to reach amicable settlement (Besaiso, Fenn and Emsley, 2018).

In an attempt to understand mediation and arbitration, some variables between the two procedures are stated. Mediation clauses, unlike those of arbitration, are not "vexatious clauses" or "unconscionable" as known in the United States (Sgubini, Prieditis and Marighetto, 2004). This means that, as stated in the authors' paper, if the parties undergoing mediation don't reach an agreement, they don't lose their right to go to arbitration or litigation. Binding arbitration, however, may be appealed only under exceptional circumstances (Hester, Kuprenas and Randolph Thomas, 1987). These circumstances include having the award procured by fraud or undue means, the arbitrators being evidently partial, proceedings being prejudiced by one of the parties, or having the arbitrators exceed their power. Hester, Kuprenas and Randolph Thomas also state that Arbitration sometimes shows problems of unfairness where the arbitrators consider themselves to be technical experts rather than being decision makers conducting a fair and impartial hearing.

The processes of mediation and arbitration are different and require different skills (Silberman, 1997). In addition to that, Silberman adds that the ways the parties relate and engage with the neutrals is also different. Mediators, for example often meet separately with each party in sessions called caucuses in order to assess each party's position and prioritize their needs. On the other hand, Silberman continues that, unlike for mediators, it is not appropriate for arbitrators to do the same. The author expresses that meeting

separately, in the case of arbitration, would be a violation to the impartiality of the arbitrator and the neutrality of the process. A study made by a legal firm called Belden Advocates and Solicitors also showed the differences between Arbitration and Mediation. The two procedures are different in terms of time, costs, formalities, remedies, degree of satisfaction with the outcome, effect of relationship on partners and certainty of achieving settlement (Belden Advocates and Solicitors, 2007).

An interesting procedure came across in the literature review and considered to be a sort of alternate dispute resolution is mediation/arbitration. This sort of ADR is not arbitration and is closer to be considered as mediation or binding mediation (Gnaedinger, 1987). Gnaedinger follows to state that the selection of a mediator/arbitrator is dependent on several criteria. The mediator/arbitrator should be knowledgeable on the subject of the contract, free of any conflict of interest, have a sense of justice and urgency, and be available to serve. The American Arbitration Association has cited at least one case in the Chicago region, which was successful at the end, where the parties after engaging in the mediation process asked the mediator to serve as the arbitrator to arbitrate all unresolved matters.

CHAPTER 3

THE ENGINEER'S ROLE

3.1. Introduction

The Engineer as an entity plays a vital role in the construction project, which can help either improve or deteriorate the relationship between the employer and the contractor. The right principle-based and guided interaction with both parties result in a smoother and less costly flow of work.

The Engineer is responsible of conducting consultation between the conflicting parties in order to reach a fair determination under sub clause 3.5 of the 1999 FIDIC general forms of contract. Before dwelling on the consultation process and its possible scenarios, it is important to understand the Engineer's role under the contract.

3.2. Role of the Engineer under the 1999 FIDIC Red Book edition

3.2.1. The Contractual Definition of the Engineer

The 1999 Red Book forms of contract defines the Engineer as "the person appointed by the Employer to act as the Engineer for the purposes of the Contract and named in the Appendix to Tender, or other person appointed from time to time by the Employer and notified to the Contractor under Sub-Clause 3.4 [Replacement of the Engineer]."

This is the legal definition stated in the general forms of contract under sub clause 1.1.2. The guide further includes that all parties enlisted under the latter sub-clause including the Engineer are legal persons "who could be firms, corporations or other legal entities".

3.2.2. The Capacity of the Engineer under Clause 3 of the 1999 Red Book edition

Clause 3 of the general conditions of contract highlights some of the aspects that sculpt the entity of the Engineer. That being said, it is clear that such an entity differs from one project to the other. The Engineer in every construction project is unique in characteristics and authority.

The first sub clause 3.1, to start with, expresses the Engineer's duties and the authority entitled to the latter by the contract. By contract, the party named by the Employer in the Appendix to Tender is to act as the Engineer of the construction project.

The second sub clause of Clause 3 deals with the ability of the Engineer to assign duties and hence delegate authority to assistants. However, an assistant's determination under sub clause 3.5 is invalidated under sub clause 3.2, unless such a matter is agreed upon by both parties.

Sub clause 3.5, which is the main concern of this thesis, deals with the consultation process that should be undertook by the Engineer to reach a fair determination. Such a fair determination has a heavy weight and should be dealt with accordingly.

3.2.3. The Evolution of the Engineer's Capacity with the 1999 Red Book and its Effects

Under the stated sub clause 3.1, the Engineer is deemed to act for the Employer. The FIDIC guide further adds to this idea that the role of the Engineer is not stated as a

wholly impartial intermediary, unless such a role is specified in the particular conditions of contract.

This impartial quality of the Engineer has been of great interest to dwell into, especially with its removal from the general conditions of contract in the newer 1999 Red Book edition. The removal of such a quality affecting greatly the type of relationship between the Engineer and the parties of the project does not mean that the Engineer should act in a partial manner.

This has a lot of implications regarding the power of the Engineer in exercising a specific authority with or without the approval of the Employer beforehand. The sub-clause also underscores the importance of the Engineer carrying out his duties and exercising his authority in a professional manner, with suitably qualified engineers and other professionals.

3.2.4. The Authority of the Engineer as per the 1999 Red Book edition

Table 1 below summarizes the attributes of the prescribed authority as directly adopted from the text included under the relevant general conditions sub-clause (Sub-Clause 3.1) (Abdul-Malak and Naeem, 2018). It also lists the clarifications offered under the "guide" version.

Attribute	Described Authority	FIDIC Guide's Clarifications
Extent of Duties	The Employer shall appoint the Engineer who shall carry out the duties assigned to him in the Contract.	The Engineer does not represent the Employer for all purposes.
Amending Contract	The Engineer shall have no authority to amend the Contract	The Engineer is not authorized to amend the Contract, but he is deemed to act for the Employer.
Specified or Implied Authority	The Engineer may exercise the authority attributable to the Engineer as specified in or necessarily to be implied from the Contract.	
Stipulated Limitation of Authority	If the Engineer is required to obtain the approval of the Employer before exercising a specified authority, the requirements shall be as stated in the Particular Conditions.	If the Employer wishes to impose constraints on the Engineer's authority, these constraints must be listed in the Particular Conditions, so as to avoid having to seek the Contractor's agreement to further constraints
Condition on Further Limitation of Authority	The Employer undertakes not to impose further constraints on the Engineer's authority, except as agreed with the Contractor.	
Exercising Authority	Whenever the Engineer exercises a specified authority for which the Employer's approval is required, then (for the purposes of the Contract) the Employer shall be deemed to have given approval.	The Employer's approval shall be in writing and shall not be unreasonably withheld or delayed. However, when the Contractor receives an Engineer's communication for which the Employer's prior approval was required, the Contractor is not entitled to query whether it was approved.
Engineer's Capacity	Except as otherwise stated in these Conditions, whenever carrying out duties or exercising authority, specified in or implied by the Contract, the Engineer shall be deemed to act for the Employer.	The role of the Engineer is thus not stated to be that of a wholly impartial intermediary, unless such a role is specified in the Particular Conditions.
Authority to Relieve	Except as otherwise stated in these Conditions, the Engineer has no authority to relieve either Party of any duties, obligations or responsibilities under the Contract.	The main exception is the authority to instruct Variations, because they may include omission of any work.

Table 1: *1999 FIDIC's Prescribed Engineer's Authority (Abdul-Malak and Naeem, 2018)*

The Engineer's role under sub-clause 3.5 enabling the latter to make a determination is also examined as shown in the Table 2 below, which shows a summary of four attributes

identified as characterizing this determination-related role (Abdul-Malak and Naeem, 2018). The clarifications offered under the "guide" version are also shown.

Attributes	**Described Roles**	**FIDIC Guide's Clarifications**
Consultation	Whenever these conditions provide that the Engineer shall proceed in accordance with this Sub-Clause 3.5 to agree or determine any matter, the Engineer shall consult with each Party in an endeavor to reach agreement.	The Engineer first consults with each Party, **separately and/or jointly**, and endeavors to achieve the agreement of both Parties.
Fair Determination	If agreement is not achieved, the Engineer shall then make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances.	If agreement of both Parties is **not achieved within a reasonable time**, the Engineer shall then make a "fair determination in accordance with the Contract". Determinations shall be **in writing** and shall not be unreasonably withheld or delayed. Unless otherwise agreed by both the Employer and the Contractor, the Engineer **shall not delegate** the authority to determine any matter in accordance with sub-clause 3.5. The Engineer's determination is **not required to be made impartially**, unless such a requirement is stated in the Particular Conditions. However, he should carry out this duty in a professional manner, utilizing his "suitably qualified engineers and other professionals".
Notification	The Engineer shall **give notice** to both Parties of each agreement or determination, **with supporting particulars**.	The Engineer is then required to notify both parties of his determination, which is **binding upon them** unless and until revised under the dispute resolution procedures in Clause 20.
Binding Agreement or Determination	Each party shall **give effect** to each agreement or determination unless and until revised under Clause 20.	

Table 2: 1999 FIDIC's Prescribed Engineer's Determination (Abdul-Malak and Naeem, 2018)

3.3. Meddling with the Authority of the Engineer – What may happen?

3.3.1. Overview

The general conditions of contract have been written to have a somehow balance of risk between the parties of the contract. However, it seldom occurs not to add to the general conditions some particular conditions of contract. That being done, the balance of risk in the contract is often shaken and most often to the advantage of the owner of the project.

Depending on the level of interfering by the Employer in the Engineer's authority through the language of the contract or otherwise, will lead to understanding who the Engineer is and to what degree the Engineer can play a constructive role in the consultation process required of him by sub clause 3.5 of the 1999 Red Book conditions of contract.

3.3.2. The Forms of Meddling

Several levels of meddling by the Employer with the Engineer's authority and power have been shed light upon. The levels of meddling are impartial, challenged, limited and transferred, stated in increased degree of meddling with the Engineer's authority (Abdul-Malak & Naeem, 2018).

3.3.2.1. Impartial Authority

Starting with the lowest, impartial authority is stated as an ideal contractual relationship between the Employer and the Engineer where the latter has the total power to exercise his authority in an impartial manner. This is an ideal situation and is often almost always not the case, as there is rarely no interference with the authority of the Engineer.

3.3.2.2. Challenged Authority

Another level of meddling is the challenged authority, where the Engineer is supposed to take the Employer's opinion first in the consultation process leading to a fair determination under sub clause 3.5 of the conditions of contract, or possibly any other task required by the Engineer, which interests the knowledge of the Employer. This degree of authority is not contractual and hence no written policy exists for such a relationship between the Employer and the Engineer.

However, in such a case, the Employer often knows from the Engineer the truth of the incident and might try to sell the case otherwise to his own benefit. In other words, the Employer might try to force an Engineer's opinion and hence interfere and affect the outcome of the consultation process. The Employer causes the Engineer to go biased because of his influence. Under the contract the Engineer is supposed to act under sub clause 3.5 but in reality the case is different.

3.3.2.3. Limited Authority

Moving on the authority degree classification, limited authority of the Engineer comes next. In such a case, the Engineer is required to obtain the prior explicit approval of the Employer in terms of any determinations and instructions.

Unlike the case of challenged authority, this kind of meddling by the Employer is backed up the contract. Such a case will definitely affect the way the Engineer would proceed with the consultation process, as will be shown later on. If the Employer has to approve what the Engineer issues as a determination or instruction, then it might be feasible

to say that the Engineer should commence the consultation process with the contractor at first and then afterwards carry the result to the Employer for approval or otherwise.

3.3.2.4. Transferred Authority

The case of limited authority is followed by transferred authority with the latter having an increased degree of meddling or reducing the Engineer's authority. This kind of meddling is also entitled to contractually. The Employer maintains to himself through the explicit contract language the right to decide on final determinations and instructions to the Contractor.

The Engineer in this case does not commence consultations, but rather advises the Employer by giving him some perspective. The Engineer would not be the leader of the consultation process but rather only a part of it.

3.3.3. Effect of a Challenged or Limited Authority on the Engineer's Role

After expressing the different forms of meddling stated in Abdul Malak & Naeem, it can be deduced that both challenged and limited authority of the Engineer minimize the importance and gravity of the consultation process under sub clause 3.5, and moreover the role of the Engineer as well.

If the Employer is to decide on any matter concerning time extension and/or addition in payment, the consultation of the Engineer would become of less value if not completely worthless. The Engineer in this case does not have any effective role in the process, but instead would only be considered as a doll in the hands of the Employer who is sculpting the Engineer as an entity too his own benefit and within his own frame.

This interferes with sub clause 3.5 stating that the Engineer himself would reach a fair determination after due consultation with both parties, and hence the explicit intention of the general conditions of contract have enormously been altered and changed in the content initially written and established for.

CHAPTER 4

THE ENGINEER'S TRAITS

4.1. Expected Engineer Traits

This section of the thesis sheds the light upon the required common traits that the Engineer is normally expected to conform to. The chosen common traits are Objectivity, Impartiality, Due Diligence, Professionalism and Standard of Care.

The chosen traits give a deeper understanding of the manner the Engineer is required to act while carrying his duties under sub-clause 3.5. Each Engineer is each project implements different levels of the chosen said traits which also leads to a different sculpting of the entity of the Engineer.

It would be beneficial to dwell into the sub-traits that form the chosen said traits, as well as study the interconnections between them and the relationships of the chosen traits with the roles of the Engineer stipulated under the conditions of contract, as well.

4.1.1. The Subdivision of the Chosen Traits

The subdivision of these traits into what forms them would give a more precise characteristic of what an effective Engineer should represent and conform to. To accomplish this outcome, several definitions of each of the aforementioned traits are researched. Three sources of definitions are used.

The first source is The Law Dictionary featuring Black's Law Dictionary Free Online Legal Dictionary 2nd Edition. The second source is Merriam-Webster legal online dictionary while the third source is the online Your Dictionary with the Webster's New World Law Dictionary being a resource of the latter.

In order to be precise through this process all definitions are of legal nature and from reliable sources.

4.1.1.1. Objectivity

Starting with objectivity, the Law Dictionary defines the adjective objective as "Neutral: An unbiased attitude or opinion that is based on factual evidence", while the second source Merriam –Webster defines objective as "Expressing or dealing with facts or conditions as perceived without distortion by personal feelings, prejudices, or interpretations". The third source, however, defines the mentioned trait as "without bias or prejudice; detached".

4.1.1.2. Impartiality

Moving on to another important trait, which has been debated hugely throughout the years of construction contract evolvement, especially in FIDIC contracts. This debated trait is impartiality. The reason why this trait is highly debated is due to its removal from the 1987 Red Book version which required the Engineer to be impartial throughout the course of the project while managing the relationship between the contractor and the

employer. Such a requirement has been eliminated in the newer 1999 Red Book version that doesn't have impartiality mentioned in the conditions of the contract.

However, as mentioned earlier in Chapter Two, the absence of the term impartiality in the newer 1999 Red Book conditions of contract does not mean that the Engineer should act in a partial manner and act unjustly towards the contractor. The consequences of the Engineer harming the Contractor would lead the Engineer to facing consequences, as referenced in the second chapter of this thesis. If that was the case taking place, the whole consultation process lessens of importance and weight. The contractor would not have any reason to trust the attempt of the Engineer to reconcile interests.

Looking into the legal definitions of impartiality, our first source the Law dictionary defines it as "unbiased, fair and unprejudiced". The second source, however, defines Merriam –Webster impartiality as "not partial or biased; treating or affecting all equally". The third source, in addition, defines impartiality as "not favoring one side or opinion more than another; treating all parties, rivals, or disputants equally; not partial; not biased; fair".

As can be noticed, the term fair can be found integrated in the legal definitions of the word "impartiality". Regardless of the fact that impartiality is not stated in the conditions of contract, this shows that it is important that the Engineer remains impartial while conducting the consultations under sub clause 3.5 of the conditions of contract. It is crucial that the Engineer in no way acts partial towards the Employer, for the authenticity of the process.

4.1.1.3. Due Diligence

Moving on to due diligence, the first source the Law Dictionary defines it as "measure of prudence, activity or assiduity, as is properly to be expected from and ordinarily exercised by a reasonable and prudent man under particular circumstances, not measured by any absolute standard, but depending on the relative facts of the special case". Prudence, by the same source is defines as "carefulness, precaution, attentiveness, and good judgment as applied to action or conduct; that degree of care required by the circumstances under which it is to be exercised; This term, in the language of law, is commonly associated with "care" and "diligence" and contrasted with "negligence"". The second source Merriam –Webster, defines due diligence as "the care that a reasonable person exercises to avoid harm to other persons or their property".

4.1.1.4. Professionalism

Another important trait that is studied that plays an important role sculpting the entity of the Engineer is professionalism. A professional under the first source the Law Dictionary is "a person who is a member of a professional body due to the education qualification and follows the prescribed moral and professional code of conduct; a person who has mastered a high level of expertise in a subject, notion on field". The Professional code of conduct stated in the previous definition is defined by the same source as "the accepted manner in which a professional will act". The code of conduct has the same meaning as both the code of practice and the code of ethics in the Law Dictionary source. The latter defines it as "written guidelines of ethical standards given by an official body or

a professional association to its members to help them comply with these standards." The second source Merriam –Webster, however, defines the professional trait as "characterized by or conforming to the technical or ethical standards of a profession". The third source used in this study defines professional as "of, engaged in, or worthy of the standards of a profession; conforming to the standards of a profession".

An on-demand career and management learning consultancy called Mind Tools made a study portraying what does "being professional" actually mean. It is important to note that Mind Tools is a reputable firm that offer a wide range of useful career skills as well as new and useful management and career technique. It is trusted by many global organizations to increase productivity, improve management and leadership skills. It has also been awarded many awards. One of which is the Queen's Award for Enterprise, the United Kingdom's top business award. The study of what "being professional" means involves several attributes. To start with, specialized knowledge is an important one, with a deep personal commitment to developing and improving skills. Competency is another attribute in order to get the job done in a reliable and trustworthy manner where promises are kept. Another attribute is honesty and integrity which entitles professionals to keep their word and not change their values which means that they will do the right thing even when it is more difficult to do. Accountability is also another attribute which basically means taking responsibility for their thoughts, words and actions. To professional also means being self-regulated which makes professionals stay professional even under pressure.

4.1.1.5. Standard of Care

Another trait that shapes the entity of the Engineer is the standard of care portrayed by the latter. Our first source, the Law Dictionary, defines standard of care as "degree of care a prudent and reasonable person will exercise under the circumstances". A reasonable person within the same source is defines as "an ordinary person who exercises care while avoiding extremes of boldness and carefulness". The second source Merriam – Webster defines standard of care as "the degree of care or competence that one is expected to exercise in a particular circumstance or role". The third source, however, defines the term as "the degree of prudence that a reasonable man (or person) may be expected to exercise when caring for something".

4.1.2. Interconnections between the Traits

Figures 6 and 7 below represent concept maps showing the connections between the traits and their sub-traits forming them as well as the interconnections between the different traits themselves. The sub-traits have been gathered and jotted in the concept maps using the definitions and the components of each trait which has been dwelled into using the different dictionaries and sources earlier.

Figure 6 conveys a concept map showing the connections between Professionalism, Standard of Care and Due Diligence. Figure 7, however, represents a concept map showing the connections between Impartiality and Objectivity. No obvious connections have been drawn between the five desirable traits all together.

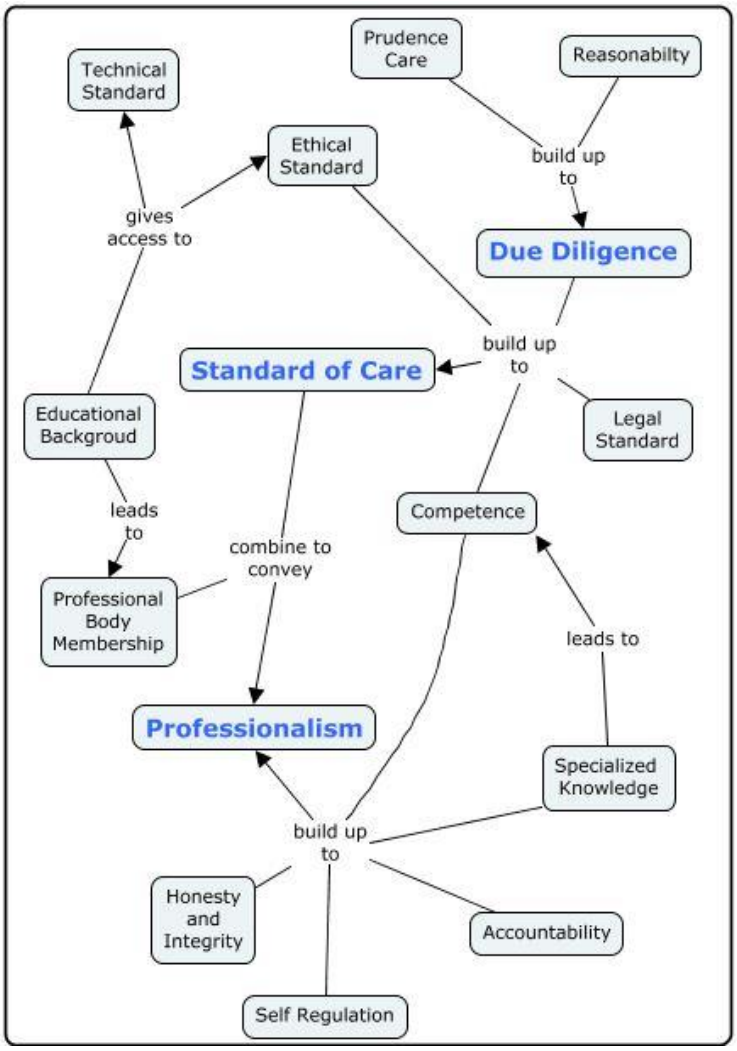

Figure 4: Professionalism, Due Diligence and Standard of Care

Professionalism, Due Diligence and Standard of Care have shown various connections between each other. What is interesting is that Due Diligence forms a base, mixed with other characteristics, to form the Standard of Care. The Standard of Care, in turn, combines with other characteristics as well to form Professionalism. Hence Due Diligence is the base of Standard of Care which in turn forms the base of Professionalism.

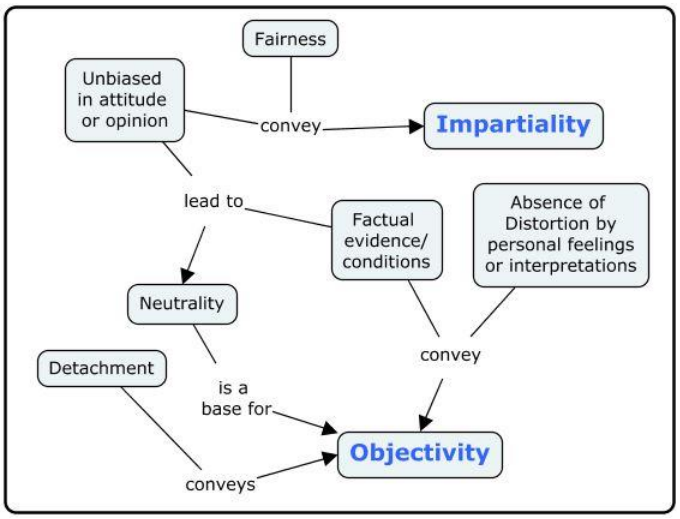

Figure 5: Impartiality and Objectivity

Impartiality and Objectivity have shown relationships between each other's sub-traits. Being unbiased in attitude or opinion, combined with factual evidence forms neutrality which is a base of Objectivity. Hence, being unbiased forms a base of Objectivity. On the other hand, being unbiased combined with fairness also forms a base of Impartiality. This leads us to conclude that both Impartiality and Objectivity have mutual components forming their bases.

4.1.3. Relationship between the chosen Traits and the roles of the Engineer under the Contract

4.1.3.1. Overview

The Engineer's role under sub-clause 3.5 as stipulated in the conditions of the contract is divided into three main stages: Consultation, Fair Determination and Notification. This is shown in section 3.2.4 of this thesis.

It is interesting to know when the chosen traits (Objectivity, Impartiality, Due Diligence, Professionalism and Standard of Care) will really be delineated by the Engineer in each role of the Engineer (Consultation, Determination and Notification) stipulated under the contract.

4.1.3.2. Consultation – Related Traits

Starting with Consultation, the Engineer in this stage would give the parties a chance at first in an endeavor to reach an agreement on their own. The most focused traits used by the latter in this stage are objectivity and impartiality.

Starting with objectivity, the Engineer at this stage would have received the substantiation from the contractor covering the claimed quantum. Being objective is a blend of being unbiased in attitude or opinion, relying on factual evidence and not being distorted by personal feelings or interpretations (as shown in the concept map "Impartiality and Objectivity"). In order to form an opinion of the contractor's claim to make it a base for the consultation process, the Engineer must put aside any personal feelings or interpretations so that to have an opinion based only upon the factual evidence that is delivered by the substantiation of the contractor. This process should not be affected by any biased point of view, or else it would lose its authenticity to judge using only the factual evidence presented. The Engineer should keep this objective state of mind throughout the consultation process making the parties trust him/her.

Besides objectivity, the Engineer would show elevated impartial attitude towards the conflicting parties in order to let them come closer in opinion. An impartial frame of mind is shown by both an unbiased attitude and opinion as well as an adopted sense of

fairness. The Engineer listens to the conflicting points of view and might even convey an unbiased opinion without taking any sides in order to shorten the gap between the parties and direct the process towards a fruitful outcome conveyed by an agreement.

The three other traits would not be used in the same heighted manner of impartiality and objectivity. They would be focused on more in the other two roles of the Engineer.

4.1.3.3. Fair Determination – Related Traits

Moving on to the next phase of the roles of the Engineer, the latter would be responsible to come up with a determination on the basis of the parties not being able to reach an agreement on their own. The most focused traits used by the Engineer in this stage are impartiality, due diligence and standard of care.

Starting with impartiality, the Engineer in this stage would listen thoroughly to the parties in an impartial manner having not taking sides. After not reaching an agreement, the Engineer would have already gone through the factual evidence and conditions in a detached emotional state. The Engineer can assess in a fair manner the opinions of both parties and come up with a determination in an impartial manner

Moving on to due diligence and standard of care. The Engineer should be prudent, careful and reasonable in making a fair determination, making sure that neither of the parties would be affected and harmed with effects of the determination made. The due diligent state of mind merged with being guided by the legal and ethical standards and combined with competence lead to a practiced standard of care that goes hand by hand with

due diligence and a part of professionalism. The overall use of these traits should help the Engineer make a fair determination

4.1.3.4. Notification – Related Traits

After reaching an agreement or determination, the Engineer shall need to notify the two parties with supporting particulars. This phase needs the professional trait of the Engineer to be emphasized. The supporting particulars must be accountable and coming from a competent background. The context of the notification must be clear, portraying the impacts of the determination in a way that facilitates work after.

4.1.3.5. Recap – Relationship between Engineer's Role and the Chosen Traits

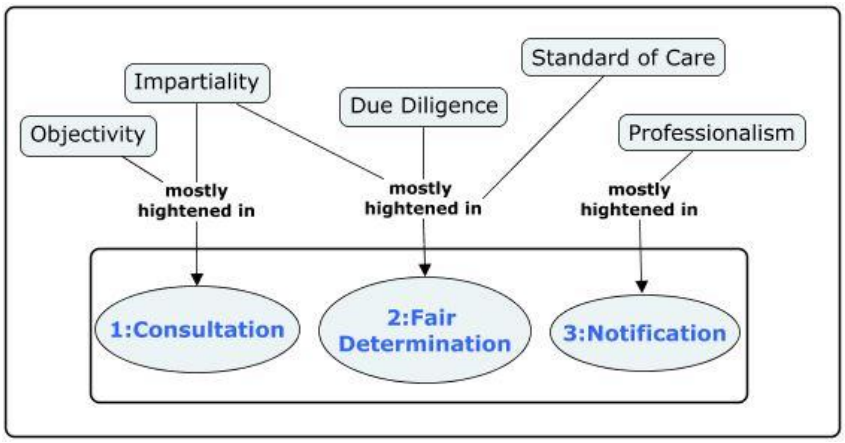

Figure 6: Heightened traits in each Engineer Role

4.2. Analogy between the Role of the Engineer with each of Mediators and Arbitrators in the Consultation Process

4.2.1. Overview

As mentioned earlier, the Engineer should commence consultations in order to reach an agreement between both parties. If no agreement is reached, then the Engineer's job would be to make a determination under sub-clause 3.5 having a fair nature.

Agreement and determination constitute the main two ideas of the previous statement. One of these two results should occur while pursuing sub-clause 3.5. Either help the two parties reach an agreement or make a fair determination in case an agreement could not be reached.

It is noticeable that while working on paving the road for the two parties to reach an agreement, the Engineer would be acting like a mediator, whose job is to bridge the gap between two conflicting parties to reach a satisfactory settlement. It is also noticeable that while working on making a fair determination after no agreement has been reached, the Engineer would be acting like an arbitrator.

For those two reasons, mediation and arbitration are studied in order to understand how the Engineer can benefit from their traits for a better consultation process.

4.2.2. Analogy between the Role of the Engineer and Mediators in the Consultation Process

4.2.2.1. Definition of Mediation

Starting with Mediation, it is a "voluntary, non-binding process in which a neutral party, known as a mediator, helps to guide the parties towards a mutually beneficial resolution. The mediator plays a facilitative role in the resolution process by assisting the

parties to decide for themselves whether to settle and on what terms" (Cheung & Suen, 2002).

4.2.2.2. Alternative Methods to Mediation – Some Differences

There are other types of methods like mediation such as facilitation and conciliation that could also be used for the analogy.

Conciliation also involves building a positive relationship between the participants of the dispute (Sgubini, Prieditis and Marighetto, 2004). It is typically employed in civil law countries like Italy. The conciliator, the conciliator plays a direct role in the resolution of a dispute and can make proposals for settlement. He/she is regarded as the neutral party responsible for finding the best solution to the problem and is usually the one who develops and proposes the terms of the settlement. This is different from mediation, in terms that the mediator should always exhibit impartiality and neutrality. This is an important factor leading to choosing mediation as the style that the Engineer can benefit from while aiming to have the parties reach an agreement under sub clause 3.5 of the conditions of contract. Another difference between mediation and conciliation is the less structured feature that the latter offers where the conciliator usually administers the conciliation process as a traditional negotiation.

Facilitation is another alternate dispute resolution method which, unlike mediation, does not involve the involvement of a true "neutral" to carry on the procedure and reach a settlement (Bauer and Chemnitz, 2016). The process of facilitation is based on a credible settlement envoy working in a diplomatic manner in an iterative process of negotiation.

The unnecessary presence of the neutral factor present in the mediation process leans to a clear and obvious lean towards the latter in the analogy used in this study.

4.2.2.3. Skills used by a Mediator

An effective mediator uses a set of skills in order to help the parties move forward for them to reach a sustainable settlement and have a sense of satisfaction about the process and the results it would incur (Harmon, 2006).

The study of the mediator's skills is of great benefit as the latter's role is to act as a neutral that reconciles differences between the two parties. The Engineer's role in a general manner and in the consultation process specifically can be influenced deeply by applying the skills of an effective mediator.

An effective mediator is a third party that listens with no prior judgment to the issue in hand (Harmon,2006). It is stated that each case, while having similar properties is considered to be unique and dealt with a fresh first-time perspective. Harmon continues that the effective mediator would acknowledge the parties' voices and concerns of the conflicting issue, while offering and suggesting possible alternatives to the manner the conflict is viewed by the parties.

This shows how understanding an effective mediator should act to try and bridge or shorten the gap between the two parties involved. The causes for which there is a gap between the parties should be resolved by the mediator in order to enhance problem solving and hence reach a settlement.

Moving on to other skills that the Engineer should be equipped with as an effective mediator would be, being ethical is a very important one. An effective mediator is a third

party that should confront the parties with any kind of bias, prejudice or partiality that he/she has with respect to any of the two parties before accepting conducting the process (Harmon,2006).

Harmon continues to express that a mediator should also convey an engaging personality, empathy, and rapport and that he/she should be able to identify underlying problems and needs of the parties involved and act accordingly.

Patience and perseverance are also keys to an efficient reconciling of interests, as well as practicing mindfulness in a sense of having an open mind towards any ideas or concerns that might come up throughout the process (Harmon,2006).

A mediator's duty is also to convey impartiality and neutrality to both sides of the parties (Zerhusen 1992, p. 1169) (Harmon,2006). Harmon states that such traits are vital for the authenticity of the process and that it is not possible to have a satisfactory outcome or course of the mediation process if any of the parties feel that the third party is acting to the benefit and interest of the other party. The mediator uses his negotiation skills within his/her ability that is "skilled in reading nonverbal clues to detect impasses and keep the parties moving forward" (Harmon,2006). It is also stated in Harmon's research article that creativity is possible when using mediation that permits the parties to resort to creative remedies that shifts attention to problem solving rather than blaming each other. The remedies used in the mediation process are wide ranging, giving the participants the freedom to leave behind strict legal remedies and use creative ones (Belden Advocates and Solicitors, 2007).

4.2.2.4. Expertise of a Mediator

Alongside those mentioned earlier, the mediator is equipped with very important skills making him/her able to conduct the process between the conflicting parties, with credibility (Harmon,2006). That is shown by the expertise that he/she holds.

Expertise is a combination of education, training, and experience (Arnold and O'Connor 1999; Kolb 1985) (Harmon,2006). Harmon states that for a mediator reconciling interests of parties in the construction interest, it would be efficient if he/she has working knowledge in the construction industry and law. Experience and training in the standards and procedures used in projects would give the mediator important tools to know the time pressures of both the contractors and owners in the field (Harmon,2006).

4.2.2.5. Approaches used by a Mediator

The mediator's job has two approaches. In order to have a good start with the process of mediation, the mediator should act as a facilitator that "challenges a position or argument without offering an opinion on the merits" (Picker, 2002) (Harmon,2006). Harmon continues that the mediator, in order to gain an effective outcome, should try to remove strategic barriers such as lack of trust and failure in communication. It is also important to try as much as possible to create an atmosphere of productive exchanges and adjoining of interests between the two parties. (Mnookin at al. 2000) (Harmon,2006)

The second approach used by the mediator is when things worsen and somehow a difficult or dead-end path has been reached. In such a case the mediator should evaluate the process by delivering an objective and unbiased third-party evaluation. (Harmon,2006)

4.2.2.6. Analogy Recap

Figure 4 below shows the different skills and characteristics in relation to the mediator's capacity that can be used by the Engineer whose aim is to help the two conflicting parties reach an agreement while conducting his/her duties under sub clause 3.5. This comes before giving a fair determination which occurs at the point of no agreement reached.

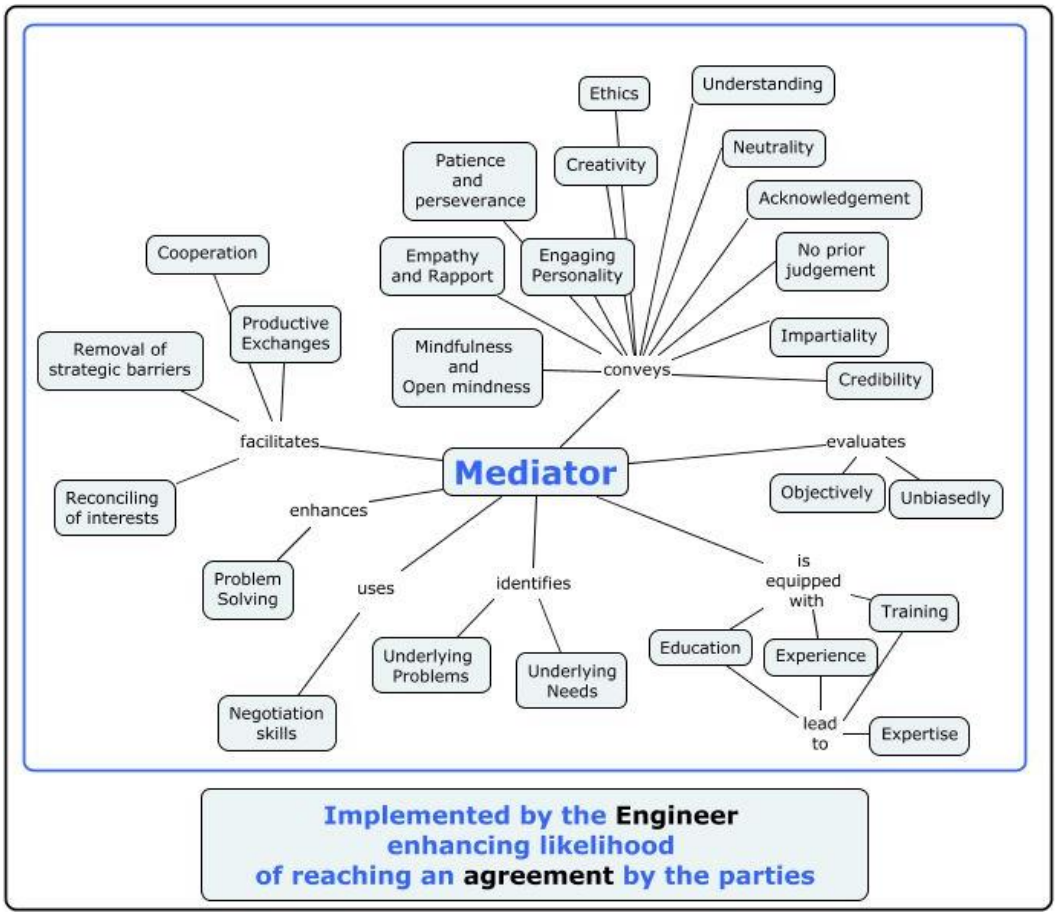

Figure 7: The Characteristics of the Mediator implemented by the Engineer

4.2.3. Analogy between the Role of the Engineer and Arbitrators in the Consultation Process

4.2.3.1. Definition of Arbitration

Arbitration is a very different process than that of mediation (Silberman, 1997). Arbitration is a "procedure for the settlement of disputes under which the disputants agree to be bound by the decision of an arbitrator whose decision is final and enforced by the law" (Cheung & Suen, 2002).

4.2.3.2. Alternative Methods to Arbitration – Some Differences

Its counterpart Adjudication has a similar approach to conflict management, but with few differences. Unlike Arbitration, Adjudication would be used for the issuance of a binding interim decision that could be refused to be enforced by the court or even substituted by a final arbitral award or court judgment (Belden Advocates and Solicitors, 2007). It is less formal than arbitration, but like the latter strict rules of evidence do not apply. Adjudication has a low degree of parties' satisfaction with outcome in comparison with arbitration that leads to a medium degree (Belden Advocates and Solicitors, 2007).

The parties have slight differences with respect to the followed procedure and concepts used. The use of either one of the two throughout this thesis was possible.

4.2.3.3. Arbitration & Mediation – Comparing Apples to Apples

An Arbitrator is not as loose as a mediator. The whole process of arbitration requires a different and stricter approach. Unlike Meditation, the arbitration process involves legal procedural rules that may be based on institutional rules (Belden Advocates

and Solicitors, 2007). The same study reveals that arbitrators has full authority to control the content of the proceedings as well as the outcome. It also expresses a significant difference between going through mediation or arbitration, where the arbitrator would after finishing of the process render a decision that is binding. The study also shows that this powerful trait makes arbitration a risky procedure as there will be a win lose result in the end with one of the parties evidently not satisfied with the outcome. This kind of outcome is guaranteed not to occur in mediation processes seeking reconciling of the parties' interests and hence a satisfactory ending to the process (Belden Advocates and Solicitors, 2007).

Mediation, however, is close to arbitration with respect to "intervening" in a dispute that has already surfaced and need the help of "professional" assistance (Sgubini, Prieditis and Marighetto, 2004). This gives us more trust in the choice of mediation and arbitration for the Engineer to benefit from throughout the consultation process, as there seems to be a link between the two. This helps the Engineer from taking off the hat of the mediator and wearing that of the arbitrator and come up with the fair determination required by the Engineer under sub-clause 3.5.

Mediation is nonjudgmental meaning that the mediator cannot render a reward or a decision (Didonato, 1993). This is not the case for arbitration resulting in a binding decision and/or award. It is stated by Didonato that mediation is settlement oriented and can end successfully in a written agreement, while arbitration provides for a final award with no appeal.

4.2.3.4. Skills of an Arbitrator

Knowing the difference between the roles of each of the mediator and the arbitrator, it is important to shed a bit of light on the traits of an arbitrator. An arbitrator, like the mediator should convey neutrality (Silberan, 1997). The Law Dictionary defines neutral as "impartial; not engaged on either side; not taking an active part with either of the contending states". The arbitrator is thus impartial; this trait has been discussed in Silberman's commentary "Mediation is not Arbitration". The party taking off the hat of the mediator and putting on the hat of the arbitrator should be entirely impartial (Silberman, 1997); the arbitrator should render a judgment based on the facts and evidence presented by the parties. Impartiality is defined under the Law Dictionary as "unbiased, fair and unprejudiced". Thus, the arbitrator is unbiased and fair, in addition he/she conveys no prior judgement.

"Arbitrators bring expertise in the subject matter, and it is that insight that is so valuable to the parties, particularly when the issues in dispute are complex" (Silberman, 1997). The choice of arbitrators is made while seeking an individual that possesses particular legal skills, knowledge and competence (Sgubini, Prieditis and Marighetto, 2004). This requirement for the arbitrator is due to the fact that the arbitrator determines the outcome of the dispute, so he/she must be highly knowledgeable in the relevant area of law. The expertise of the arbitrator that is portrayed by his/her education, training and experience is hence underscored (Arnold and O'Connor, 1999; Kolb 1985) (Harmon,2006). Having expertise, the arbitrator is hence described as having credibility (Harmon, 2006).

While conducting arbitration, the arbitrator unlike the mediator, shares a more formal relationship with the parties that result in a win lose situations for the parties

involved (Belden Advocates and Solicitors, 2007). When conducting mediation, the atmosphere of the process calls for bridging whatever underlying issues and gaps between the parties, which is an important essence not found in its counterpart. It is important to note that the arbitrator in the process of rendering a decision does not have a lot of creativity included as he/she is bounded to procedural rules (Belden Advocates and Solicitors, 2007).

4.2.3.5. Analogy Recap

Some of the skills of the arbitrator are shown in figure 5 below. These skills would be used in the part of the consultation where the Engineer wears the hat of the arbitrator.

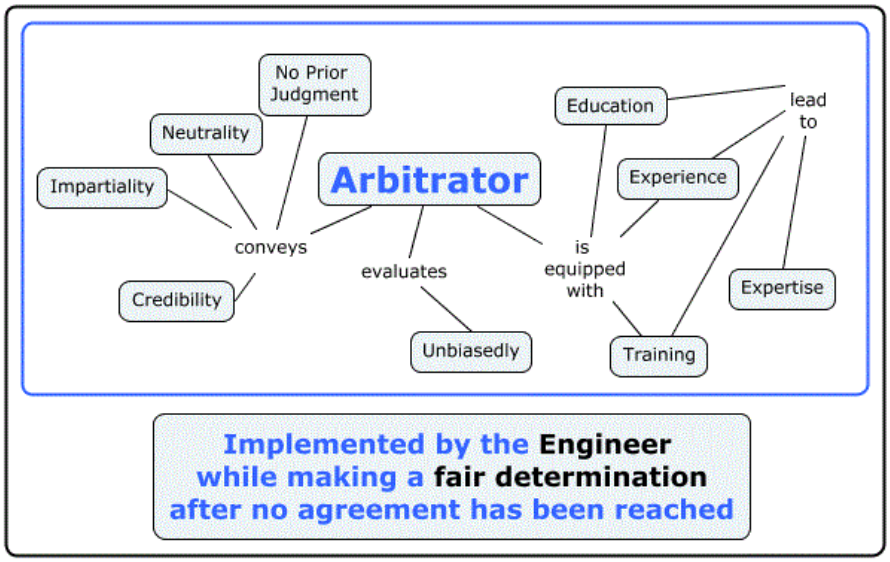

Figure 8: The Characteristics of the Arbitrator Implemented by the Engineer

CHAPTER 5

THE CONSULTATION PROTOCOL

5.1. Introduction

This section of the thesis dwells into the protocol that can be adopted by the Engineer while conducting consultations for the sake of having the parties reach an agreement under sub-clause 3.5 of the 1999 FIDIC conditions of contract.

5.2. A General Overview – From a Claim to an Agreement or Determination

Figure 9 below shows a general detailed overview of the phases from the initiation of the claim process by the event giving rise to the claim leading up to the notification of the parties of the agreement reached or the determination made.

The Engineer under sub-clause 20.1 [Contractor's Claims] of the 1999 FIDIC Red Book is requested to proceed under sub-clause 3.5 [Determinations]. The latter sub-clause states that "the Engineer shall consult with each Party in an endeavor to reach agreement. If agreement is not achieved, the Engineer shall make a fair determination in accordance with the Contract, taking due regard of all relevant circumstances." The Phases after the Claim Submittal Process in Figure 9 are a representation of sub-clause 3.5.

The difference in time bars in the 1999 and the 2017 FIDIC Red Books are also shown in Figure 9. Consultation to reach agreement has been given greater importance in the newer suite of contracts, as it has been separated in the contractual language.

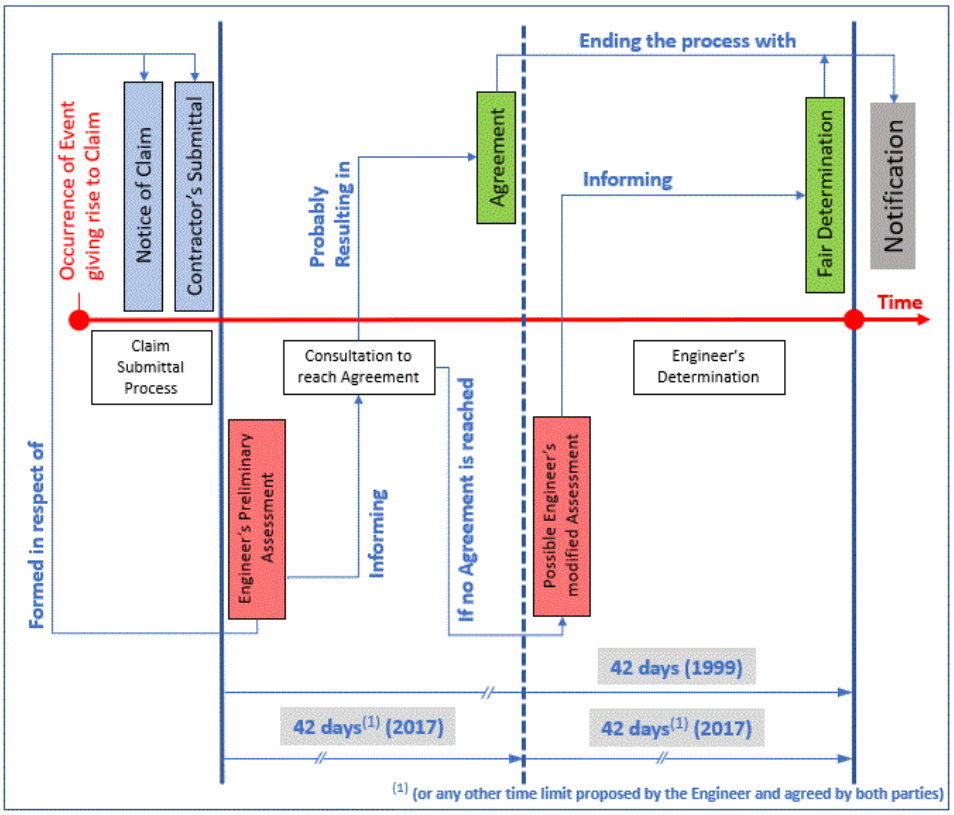

Figure 9: A general Overview – From Claim to an Agreement or Determination

5.2.1. The Different Phases

Three consecutive phases are shown in Figure 9 above. Starting with the "Claim Submittal Process" initiated by the occurrence of an event giving rise to the claim, it includes the Contractors notice of the claim and afterwards a fully detailed claim. Those two interactions from the side of the contractor would contribute to the formation of an Engineer's preliminary Assessment. The receipt of the Contractor's fully detailed claim represents the end of this process and the start of the following one which is the "Consultations to reach agreement" phase.

During the second phase, The Engineer would have formed a preliminary assessment in respect to the contractor's opinion presented in the previous process. This

preliminary assessment would inform the consultation process which will be dwelled into later in this chapter. The outcome of this phase is either reaching an agreement which would end the contractual obligation of the Engineer under sub-clause 3.5 with a notification to both parties of the reached agreement or would open the door for the third phase where the Engineer would make a fair determination having a possibly modified assessment resulting from previous consultations.

Moving on to the third phase, the "Engineer's Determination" presented on the timeline of Figure 9, which starts from the point of failure to reach an agreement between the parties. The Engineer would have formed a possible modified assessment which informs the fair determination, ending the Engineer's contractual obligation under sub-clause 3.5 with a notification of the determination to both parties.

5.2.2. Time bar Difference between 1999 and 2017 FIDIC Conditions

Regarding the duration of the phases, there is a difference between the 1999 and the 2017 FIDIC Red Book conditions of contract. As shown in Figure 9 above, the 2017 FIDIC version has given reaching an agreement more focus and importance in comparison to its predecessor. The updated conditions of contract separated the steps of reaching an agreement from the determination, which is not present in the 1999 FIDIC conditions of contract. In the latter conditions, the duration of the entire process to reach a fair determination is 42 days including the time for consultations to reach agreement. Thus, the time for each stage is not specified. However, the updated conditions of contract have given each stage 42 days.

5.2.3. Engineer's Assessment

Engineer's Assessment	Principle of Claim	Quantum of Claim
General Acceptance	✓	✓
Partial Acceptance	✓	✗
Rejection	✗	✗

Table 3: Types of Engineer's Assessment

As shown in the Table 3 above, the Engineer's assessment is based on the evaluation of both the principle and the quantum of the contractor's claim.

A general acceptance of the claim is considered as acceptance on the principle and quantum, with a possible slight modification of the quantum. A partial acceptance of the claim, however, is considered as acceptance on the principle but not on the quantum attached, which remains negotiable. A rejection, lastly, is self-defining with disapproval of the principle which automatically means rejection of the quantum as well.

5.3. Detailed Phase Explanation

After showing a general detailed overview of the entire process starting with the occurrence of the event giving rise to the claim leading up to notification of both parties of an agreement or determination, each phase will be dwelled into furthermore. It is important to note that the figures explaining each phase are based on the 1999 version conditions of contract, as the thesis is based upon the latter. The consultation protocol, however can be implemented in both versions of the FIDIC Conditions of Contract.

5.3.1. Detailed Overview of the Claim Submittal Process

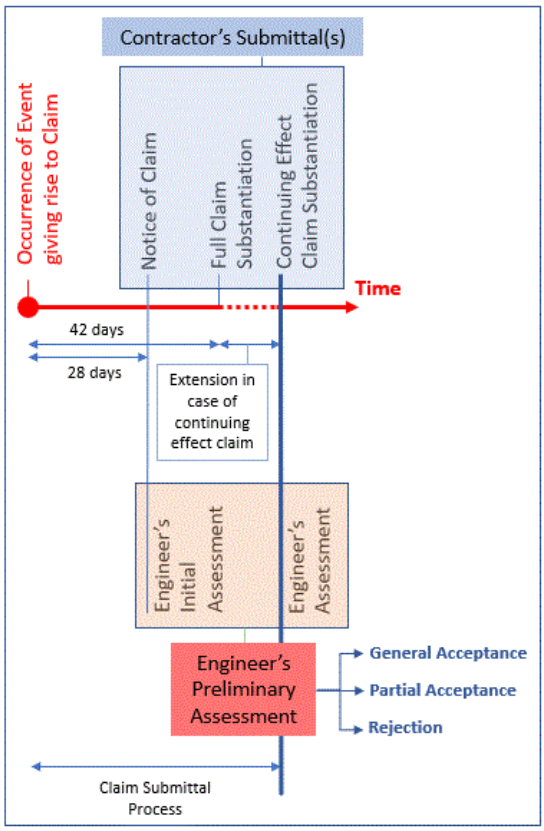

Figure 10: Claim Submittal Phase

The contractor sends a notice of the claim within 28 days of the occurrence of the event giving rise to the claim and sends after that, no later than 42 days from the event's date, a full claim substantiation. In case of a continuing effect claim, the duration is extended till after the effect of the claim has ended.

The phase of the Claim Submittal Process ends with the contractor fully submitting what is required of him under the terms of the contract.

The Engineer's Initial Assessment can be initiated starting from the receipt of the notice as shown in Figure 10. After the contractor substantiates his claim, the Engineer would assess the claim more clearly based on the substantiation and would form a

Preliminary Assessment that could be either General Acceptance, Partial Acceptance or Rejection. This assessment forms a basis that informs the following phases and ends the current one.

5.3.2. Consultations to Reach Agreement

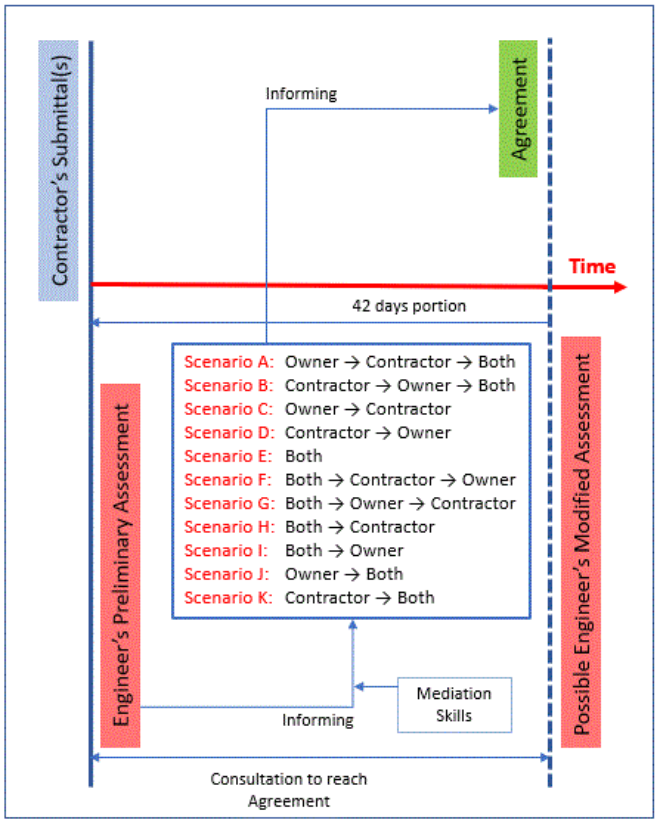

Figure 11: Consultation to reach agreement phase

Moving on to the "consultation to reach agreement" phase. The Engineer's preliminary assessment would be used as a base for this phase informing the consultation process that has several possible scenarios. These scenarios have stemmed from the FIDIC guide which clarifies the consultation attribute of sub-clause 3.5 by stating that "the Engineer first consults with each Party, separately and/or jointly, and endeavors to achieve

the agreement of both Parties." Eleven scenarios represent the combinations conforming to the "separately and/or jointly" criteria. The outcome of these scenarios would be either to reach agreement or move on to the Engineer's Determination phase with a possible Engineer's modified assessment as a base.

The mediation skills that the Engineer can benefit from, discussed in Chapter 4, could be implemented in these possible scenarios to effectively lead the parties towards the desirable goal of reaching an agreement.

Taking into consideration that the Engineer's authority is not meddled with, may it be on a contractual level or otherwise as discussed in Chapter 3, the Engineer would initiate whichever scenario he/she finds most convenient.

The most convenient scenario to embark upon is related to the Engineer's preliminary assessment formulated based on the contractor's submittal. As stated earlier, the Engineer's assessment can be either General Acceptance, Partial Acceptance or Rejection. Each of these three possible assessments are studied in respect to the scenarios applicable to each.

5.3.2.1. Consultations in case of General Acceptance

Starting with a "General Acceptance" Engineer's Preliminary Assessment, the Engineer would probably consult with the owner at first as he/she has no problem with neither the principle nor the quantum of the contractor's claim. It is important to note that the General Acceptance on quantum does not necessarily mean full acceptance, but close to that.

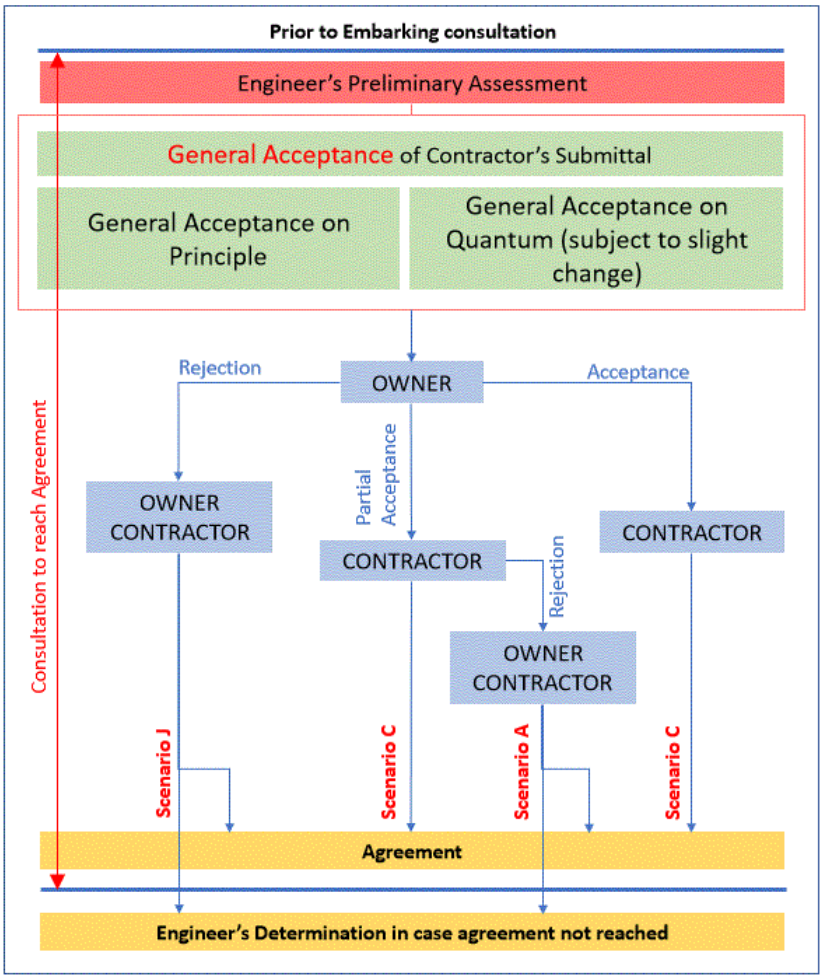

Figure 12: Scenarios in case of General Acceptance Engineer Assessment

In case the Owner accepts the Engineer's position, the Engineer would then consult with the contractor to satisfy the contractual language under sub-clause 3.5 that mandates consultation with both parties, hence resulting in an agreement via Scenario C.

In case the Owner partially accepts the Engineer's position, the Engineer would then consult with the Contractor. If the Contractor accepts the partial acceptance of the Owner, an agreement would be reached via Scenario C as well. If the Contractor, however, rejects the partial acceptance of the Owner, the Engineer would then consult jointly with both parties. This results in consultation Scenario A which might lead to either an

agreement if the parties, while jointly consulted, patch matters up or might lead to the Engineer's Determination in case an agreement could not be reached.

In case the Owner rejects the Engineer's assessment, which is unlikely considering the general acceptance of the Engineer, the Engineer consults jointly with both parties via Scenario J. This scenario might also lead to either an agreement or an Engineer's determination.

5.3.2.2. Consultations in case of Partial Acceptance

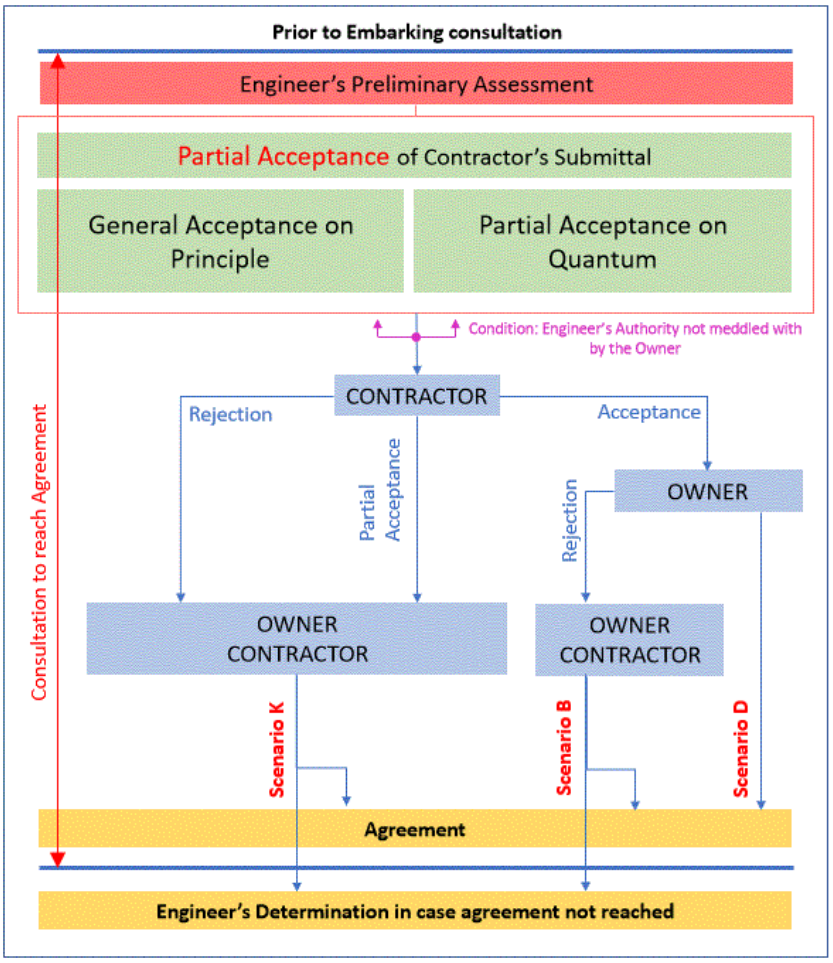

Figure 13: Scenarios in case of Partial Acceptance Engineer Assessment

Moving on to a “Partial Acceptance” Engineer Preliminary Assessment, the latter would probably first consult with the Contractor as his substantiated quantum is somehow far from what the Engineer believes to be rightful. The Engineer would try to defend his point of view to reach common grounds with the Contractor. It is important to know that the Owner already knows the Contractor’s opinion as the Owner is also copied when the Contractor submits the claim’s substantiation.

However, as shown in Figure 13 in purple, starting consultations with a party other than the Owner has a pre-requirement or condition concerning the Engineer’s authority which should not be meddled with by the Owner.

After consulting with the Contractor, the latter might accept the partial acceptance of the Engineer. In that case, the Engineer would then consult with the Owner to explain the Contractor’s partial entitlement. If the Owner agrees with the Engineer, an agreement would be reached via Scenario D. In case the Owner rejects the Engineer’s position, the latter would consult jointly both parties which might lead to either an agreement if the two parties patch matters up or an Engineer’s Determination in case no agreement could be reached. The Scenario used in this case would be Scenario B.

In case the Contractor partially accepts or rejects the Engineer’s assessment, the latter would consult jointly both parties which gives the Contractor a chance to defend his point of view and at the same satisfy the contractual language under sub-clause 3.5 that mandates the consultation of both parties by the Engineer. The Scenario implemented in such a case would be Scenario K.

5.3.2.3. Consultations in case of Rejection

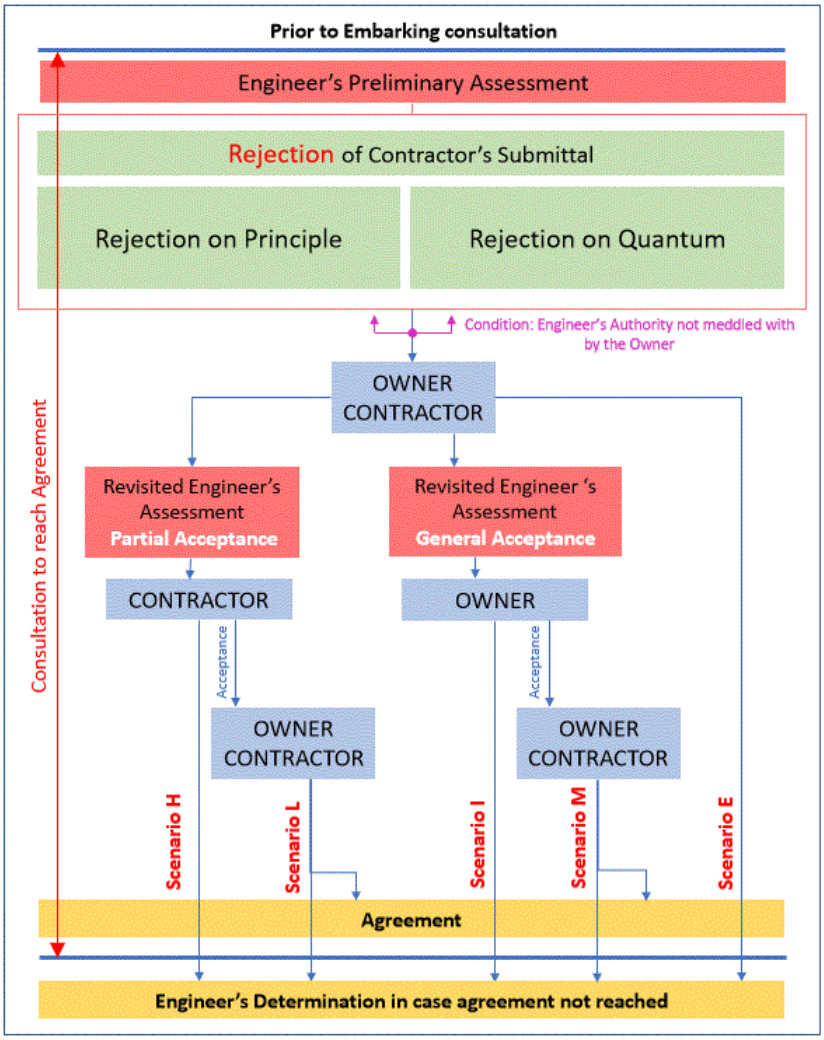

Figure 14: Scenarios in case of Rejection resulting from Engineer Assessment

In case the Engineer's Preliminary Assessment is Rejection, the Engineer would consult jointly both parties. Any scenario not starting with firstly consulting separately the Owner would need the same pre-requirement as in case of Partial Acceptance of the Engineer's Assessment i.e. having the authority of the Engineer not meddled with by the Owner.

In case joint consultation did not lead to change in the initial position of the Engineer and Owner regarding the Contractor's submittal, attempting to reach agreement would have failed and hence the Engineer's determination would be demanded. The scenario in this case would be Scenario E.

Another course of action would be if the Contractor is able to defend his claim and convince the Engineer and Owner otherwise. The Engineer would then have a revisited Assessment with either Partial or General Acceptance.

If the Engineer adopts after the joint consultation a Revisited General Acceptance approach, the latter would consult separately with the Owner to discuss the possible general right of the Contractor to the claim. If the Owner rejects the Engineer's revisited position, the consultation process would be over via Scenario I. On the other hand, if the Owner accepts the Engineer's position, the latter would consult the parties jointly to convey to the Contractor acceptance and to discuss the rightful quantum. This could lead to either an agreement or a determination via a new Scenario M, not found within the list of possible scenarios in Figure 11.

If the Engineer adopts a revisited partial acceptance position, the latter would consult the Contractor separately to discuss the rightful quantum that he/she finds reasonable. If the Contractor rejects the Engineer's position, this leads to the end of the consultation process via Scenario H. In case the Contractor accepts the Engineer's position, the latter would consult jointly both parties to discuss the rightful quantum. This new Scenario L, also not found within the list of possible scenarios in Figure 11, might lead to either an agreement or determination.

5.3.2.4. Scenarios and all possible outcomes

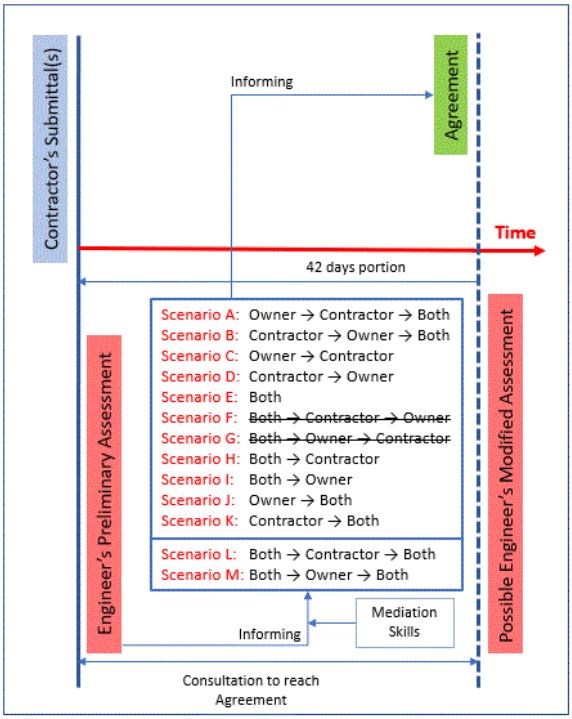

Figure 15: All possible scenarios

Figure 15 above shows all possible scenarios that have been come across. Scenarios F and G were not put to action, while two new ones L & M were.

				Possible Outcome	
Possible Scenarios	**Participants (in order)**			**Agreement**	**Determination**
Scenario A	Owner	Contractor	Both	x	x
Scenario B	Contractor	Owner	Both	x	x
Scenario C	Owner	Contractor		x	
Scenario D	Contractor	Owner		x	
Scenario E	Both				x
Scenario F	Both	Contractor	Owner	Not Applicable	
Scenario G	Both	Owner	Contractor	Not Applicable	
Scenario H	Both	Contractor			x
Scenario I	Both	Owner			x
Scenario J	Owner	Both		x	x
Scenario K	Contractor	Both		x	x
Scenario L	Both	Contractor	Both	x	x
Scenario M	Both	Owner	Both	x	x

Figure 16: Outcomes of all scenarios

The outcome and order of participants in each consultation scenario is summarized in Figure 16 above.

5.3.3. Engineer's Determination

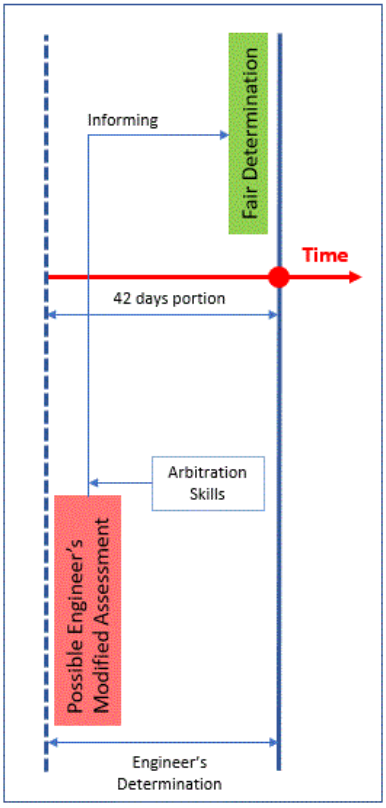

Figure 17: Engineer's Determination

In case consultation to reach agreement via the consultation scenarios mentioned earlier was not successful, the Engineer would carry on with a possible modified assessment that informs the determination to be made. Making a fair determination marks the end of the process after notifying both parties.

In this phase, the Engineer would benefit from some of the skills of an arbitrator mentioned earlier in Chapter 4.

5.3.4. Detailed General Overview

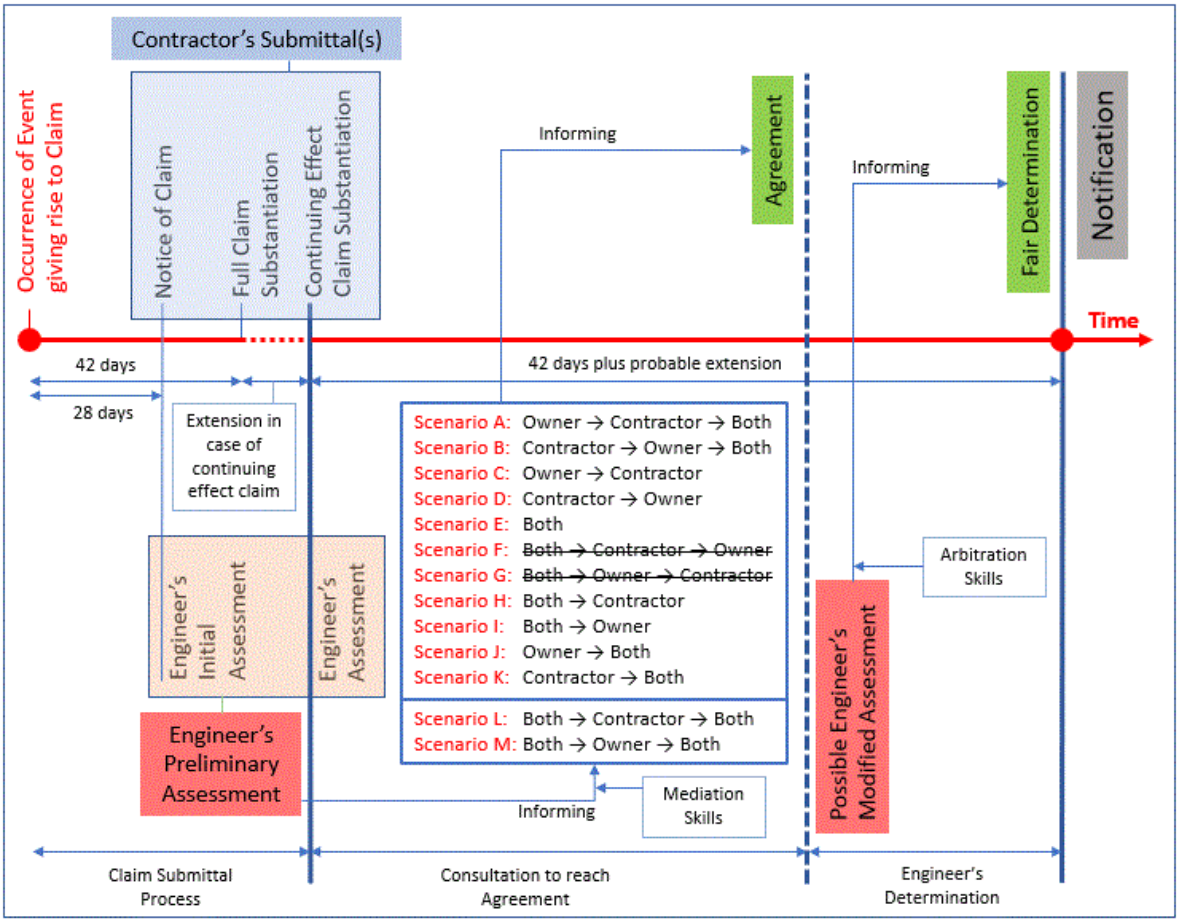

Figure 18: Detailed General Overview

Figure 18 shows a complete overview of all phases leading up to notification of the parties, marking the end of the Engineer's obligations under sub-clause 3.5 of the conditions of contract.

5.3.5. Relation of Chosen traits with the Engineer's Role

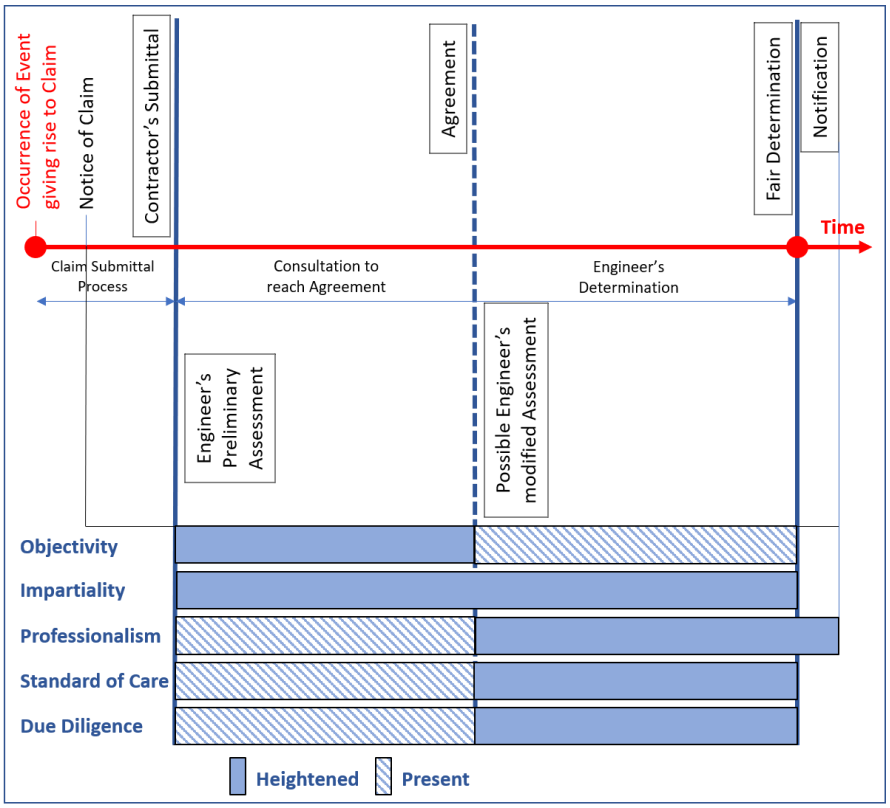

Figure 19: Heightened Traits in Each of the phases

Figure 19 above shows where the Engineer's traits that he/she is expected to conform to, dwelled into earlier in Chapter 4, are heightened in each of the three phases.

Starting with impartiality, its definition as shown in Figure 7 combines being unbiased and depending on factual evidence. This is what the Engineer would be doing while conducting consultations with both parties in an endeavor to reach agreement.

Moving on to impartiality, the Engineer would benefit from the skills of mediators in the consultation phase and from those of arbitrators in the determination phase. Both mediators and arbitrators are required to be impartial. That being said, impartiality would be heightened in both phases.

As for professionalism, the definition of the latter as per Figure 6 combines accountability, self-regulation, honesty, integrity and competence. All these traits are heightened while having a fair determination made under sub-clause 3.5. Professionalism is also elevated while notifying as a notification is supported by particulars. The particulars should address the final outcome in a professional way for both parties to truly understand the position of the Engineer and carry on based on it.

Standard of care and Due diligence form a base to Professionalism as per figure 6. The two traits would thus be heightened in the determination phase as well.

5.4. Participants around Table of Consultations

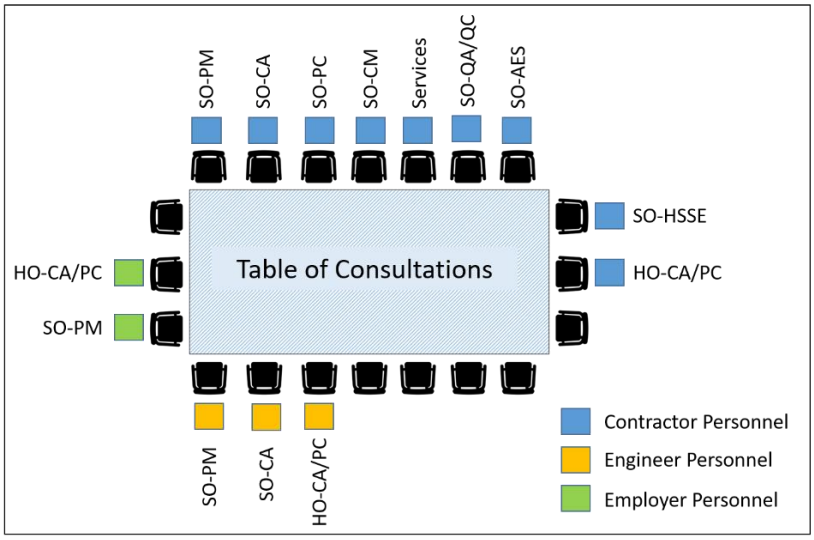

Figure 20: Participants around the Table of Consultations

The figure above shows the possible participants around the table of consultations. SO refers to the site offices personnel, while HO refers to those at the head office. The

factors deciding who will be on the table are: the type of claim, the nature of discussions being about principle &/or quantum, and availability of personnel.

Probable personnel at the table of consultations are:

- Project Manager PM should be present as reaching an agreement has a lot of weight and involves an addition to the contract. That being the case, the PM would have the authority, given by the company top management, to sign an agreement.
- Contract Administrator CA would be present to discuss the right to the claim, in terms of principle, backed up by the conditions of contract.
- Construction Manager CM would be present in case he/she have knowledge of the event giving rise to the claim. An example to that is a differing site conditions claim.
- Project Controls PC/Quality Control & Assurance QA-QC/ Architectural and Engineering Services/ Health, Safety, Security and Environment HSSE/ Intermittent Services would be present based on the type of claim, for discussing claim quantum.
- Head Office Personnel would be present in case site management does not have full authority to sign agreements or in case backup is needed.

5.5. Place and Record of Consultations

The place of consultations should be the Engineer's offices. In order to maintain a truly neutral characteristic of the consultation process by the Engineer, it would best to take place at the latter's offices.

As for the recording of the consultations, this matter has been already added in the 2017 FIDIC Red Book. This serves to have the position of both parties saved in an official document for any future reference. It also serves to have the position copied to the parties in case of separate consultations.

CHAPTER 6

SUMMARY & CONCLUSION

6.1. Summary of Research Work

Construction is an industry having participants with conflicting interests. Each of the Employer, Engineer and Contractor have different objectives and circumstances in each project. This is one of the reasons where the construction industry is home to multi-million-dollar disputes that have severe monetary and timely consequences.

This thesis studies the Engineer's role under sub-clause 3.5 of the 1999 FIDIC conditions of contract, which requires the Engineer to consult with both parties in an endeavor to reach agreement and, in case that was not successful, to make a fair determination. The role of the Engineer is important, as it forms a helping hand to solve matters amicably, before the escalation of a claim into a dispute.

The entire process starting from claim submittal till reaching an agreement between the parties or having a determination made by the Engineer is studied in this thesis, with an emphasis on the consultation phase. The Engineer is provided with a protocol that could be followed benefiting from skills of Mediators and Arbitrators.

6.2. Conclusions

Deconstruction of sub-clause 3.5 and formation of a protocol for consultation clarifies the contractual clause which reduces conflict, preserves healthy relationships

between the parties and saves time and money on disputes. The Engineer would be able to go through the process with a better understanding of his role and ability.

The role of the Engineer to make a fair determination in case an agreement could not be reached is not shown to be clear as the FIDIC 1999 guide states that the fair determination is not required to be of a whole impartial intermediary. The term "impartial" is a combination of the being unbiased in attitude or opinion as well as being fair. In other words, in order to be fair, it is crucial to be impartial as well. To address how an Engineer should act, several traits were chosen that the Engineer is expected to conform to such as Objectivity, Impartiality, Professionalism, Due Diligence and Standard of Care. The traits shed the light on the Engineer's role.

6.3. Research contributions

Having a clearer idea of the constituents of sub-clause 3.5 makes it more understandable for drafting particular conditions of contract under the latter clause. Clarifying the role of the engineer and the steps followed for consultation would result in a better use of available time and a more effective outcome enhancing the probability of reaching an agreement settlement between the parties.

The thesis also shed the light on the misleading language of sub-clause 3.5, which on one hand, requires the Engineer to make a fair determination and on the other hand states in the guide clarification of the sub-clause that the determination is not supposed to be made in an impartial manner.

The Engineer's ability to benefit from the skills of mediators while conducting consultations and from the skill of arbitrators while rendering a determination has been

discussed which would increase the effectiveness of consultations and determinations of the Engineer.

6.4. Recommendations

For the Engineer to be able to benefit from the protocol stated for the consultation process, the Engineer should have full authority to exercise his impartiality in conducting the process. The full authority of the Engineer gives the consultation process a chance for a sense of authenticity and impartiality that ensures a smooth flow of the process.

On the other hand, an Engineer's "fair" determination in the case of failure to have an agreement after consultation should be properly defined. This thesis sheds the light on some important traits that the Engineer is expected to conform to. As the contractual language mentioning the trait "fair" in sub-clause 3.5 and its guide clarification of not necessarily being impartial is misleading, it should be taken into consideration while drafting particular conditions under sub-clause 3.5 giving way for an impartial attitude by the Engineer implemented in his role while consulting or afterwards while having a determination made.

6.5. Limitations

This study revolves around the role of the Engineer under sub-clause 3.5 of the 1999 FIDIC conditions of contract. A fair determination of the Engineer is required. The definition of "impartial" includes being "fair". Hence in order to have fair determination made, it is crucial to be impartial unlike the guide clarifies. However, the Engineer under the conditions of contract is the Employer's agent who is pays the former. This forms a

conflict of interest that has been present ever since the predecessor conditions of contract of the 1987 FIDIC. The 2017 FIDIC Red Book has requested the Engineer under the determination sub clause 3.7 to act neutral and not to be considered as the Employer's agent. However, as the Engineer will always get paid by the Employer, the conflict of interest will always be present.

That being sometimes the case, the authenticity of whatever consultation or determination of the Engineer under FIDIC contracts can always be questioned.

In addition to the issue of conflict of interest, another limitation to the effectiveness of rendering of consultations and a fair determination of the Engineer is the Employer's meddling with the authority of the Engineer stated in Chapter 3. The inability of the Engineer to exercise his authority in a true impartial manner caused by the Employer's meddling, may it be contractual or not, lessens the value of consultations.

6.6. Potential future work

The FIDIC suite of contracts is the most widely used form of contracts throughout the world, which is approved for projects funded by the World Bank. What comes to attention is the continuing conflict of interest that the contracts are built on. This issue keeps on showing in all versions of the Red Book. It would be interesting to dwell into the reasons for why such contracts have always been characterized in the same manner.

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