

**Project Controls Expo – 13<sup>th</sup> Oct 2015**  
**Emirates Stadium, London**

**Delay Claims and Analysis Based on FIDIC**  
**Forms of Contract**

# About the Speaker

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Ewen is an experienced expert in the field of programming; delay and disruption; and associated prolongation costs in relation to construction and engineering projects. In particular, he has worked for both international consultants and contractors and has first-hand experience of assisting and representing clients in litigation, arbitration, mediation and adjudication, both for the claimant and respondent. He has prepared numerous expert witness reports; drafted standard forms of contract and lectured on various commercial and contractual subjects within the construction industry. Ewen has also acted in commercial negotiations and settlements, resolving potential disputes as well as providing advice on contract procurement.

Ewen is well versed in many of the standard forms of construction contract including the NEC, JCT, ICE, FIDIC, GC Works Conditions as well as bespoke forms of contracts including PFI contracts and has worked on contracts that span, inter alia, major building, civil engineering, oil and gas, energy, mechanical and electrical, pharmaceutical, infrastructure including highways and rail as well as fit-out works.

# Structure

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1. What Do We Mean by Delay and Disruption?
2. Definitions in Delay and Disruption Analysis
3. Delay Analysis and its Methodologies
4. FIDIC Claims and Extension of Time Provisions
5. Scenario - Delay Analysis In Action

# 1. What Do We Mean By Delay and Disruption?

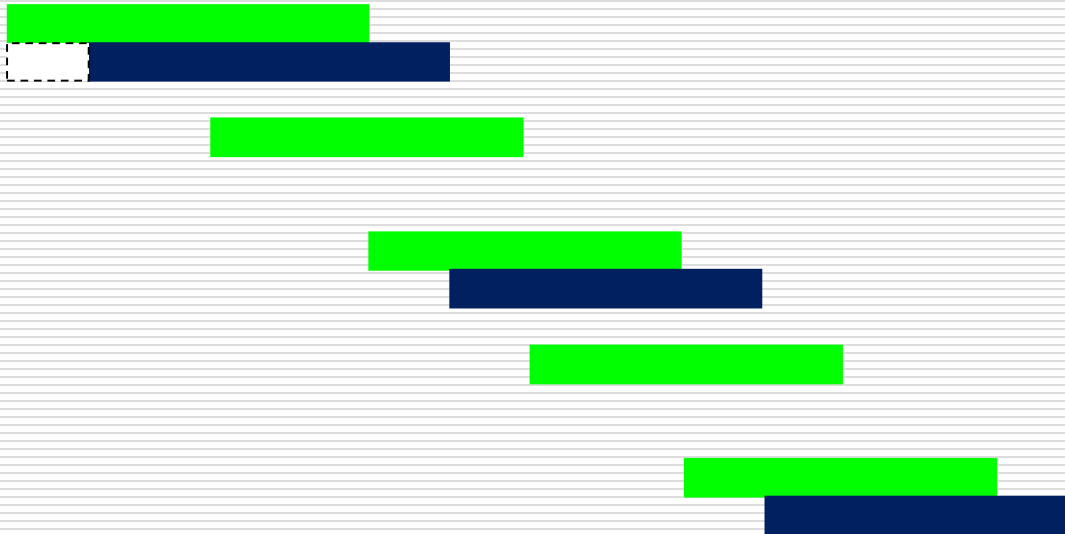
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## □ Delay

- Delay to completion which is a delay which will cause a contract completion date not to be met.

# Delay and its consequences

## □ Delay to completion



- Contractor liable to employer for liquidated damages
- Contractor incurs cost of maintaining resources and site establishment for longer
- Employer may suffer from loss of revenue & negative publicity

# What Do We Mean By Delay and Disruption?

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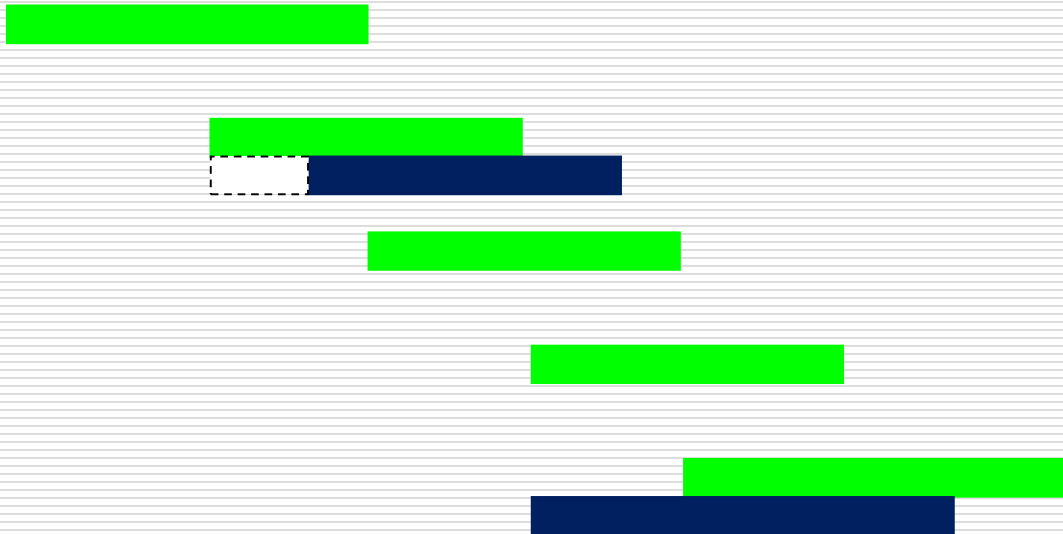
## □ Disruption

- Delay to progress which is a delay which will merely cause delay to the Contractor's progress without causing a contract completion date not to be met.
- Disruption (as distinct from delay) is disturbance, hindrance or interruption to a Contractor's normal working methods, resulting in lower efficiency. If caused by the Employer, it may give rise to a right to compensation either under the contract or as a breach of contract.

(SCL Delay and Disruption Protocol at page 9)

# Delay and its Consequences

## □ Delay to progress



- Disturbance of regular progress of the work
- Non-critical delay
- Additional costs associated with local disturbance to progress

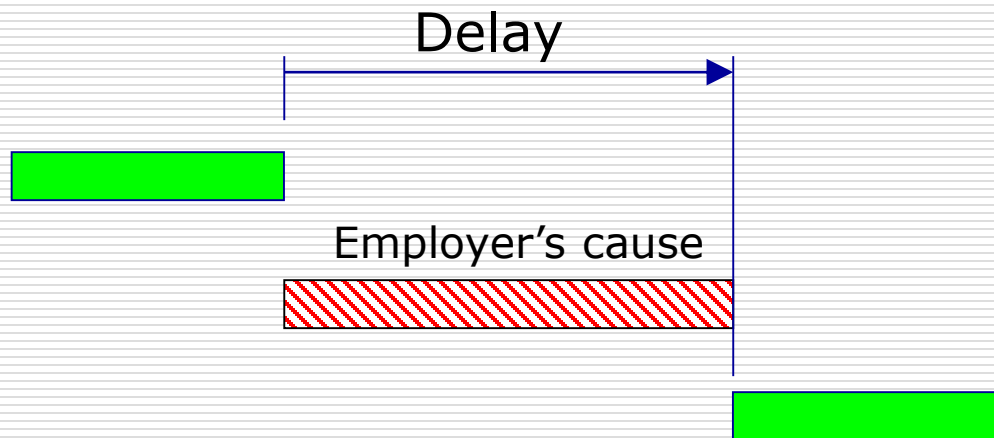
# Types of Delay and Purpose of Extension of Time Clause

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- Types of delay
  - Employer default / responsibility
  - Contractor default / responsibility
  - “Neutral” cause
  
- Purpose of EOT clause:
  - Risk allocation
  - Common EOT clause: any cause for which E responsible

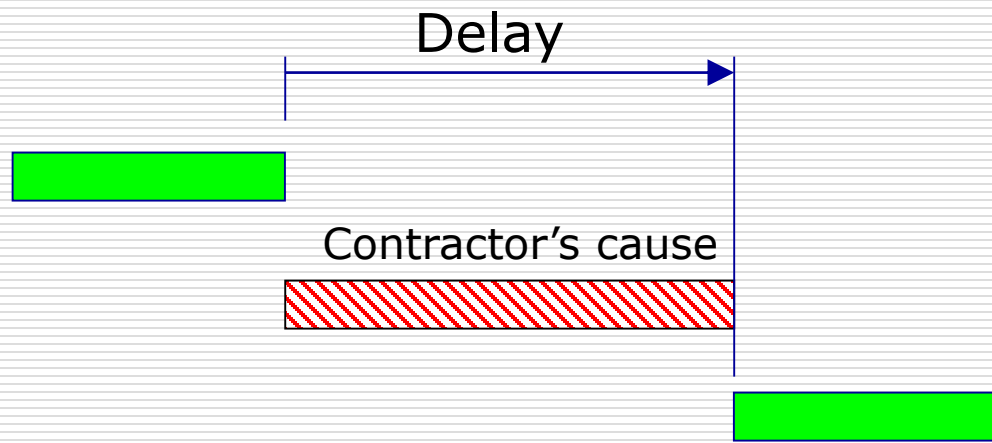


# Employer Delay



**= EoT and money**

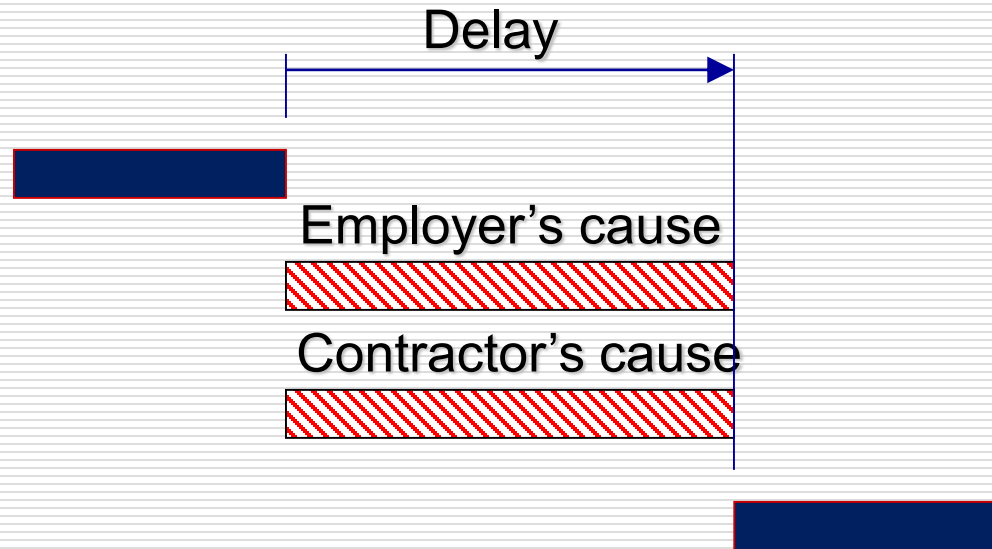
# Contractor Delay



**= No EoT and no money**

# Concurrency

- Both events must be effective causes of delay to critical path



**EoT but, no prolongation money**

## 2. Definitions in Delay and Disruption Analysis

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- Prospective v retrospective analysis of delay
- The Critical Path
- Float
- Causation

# Prospective vs. Retrospective Delay

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- Prospective:
  - Refer to the future and seek to determine the likely impact of actual progress or a particular event(s) on project completion
  - During currency of project
  - Per SCL Protocol
  - Contract requirement (e.g. NEC)
  - Avoid disputes

# Prospective vs. Retrospective Delay

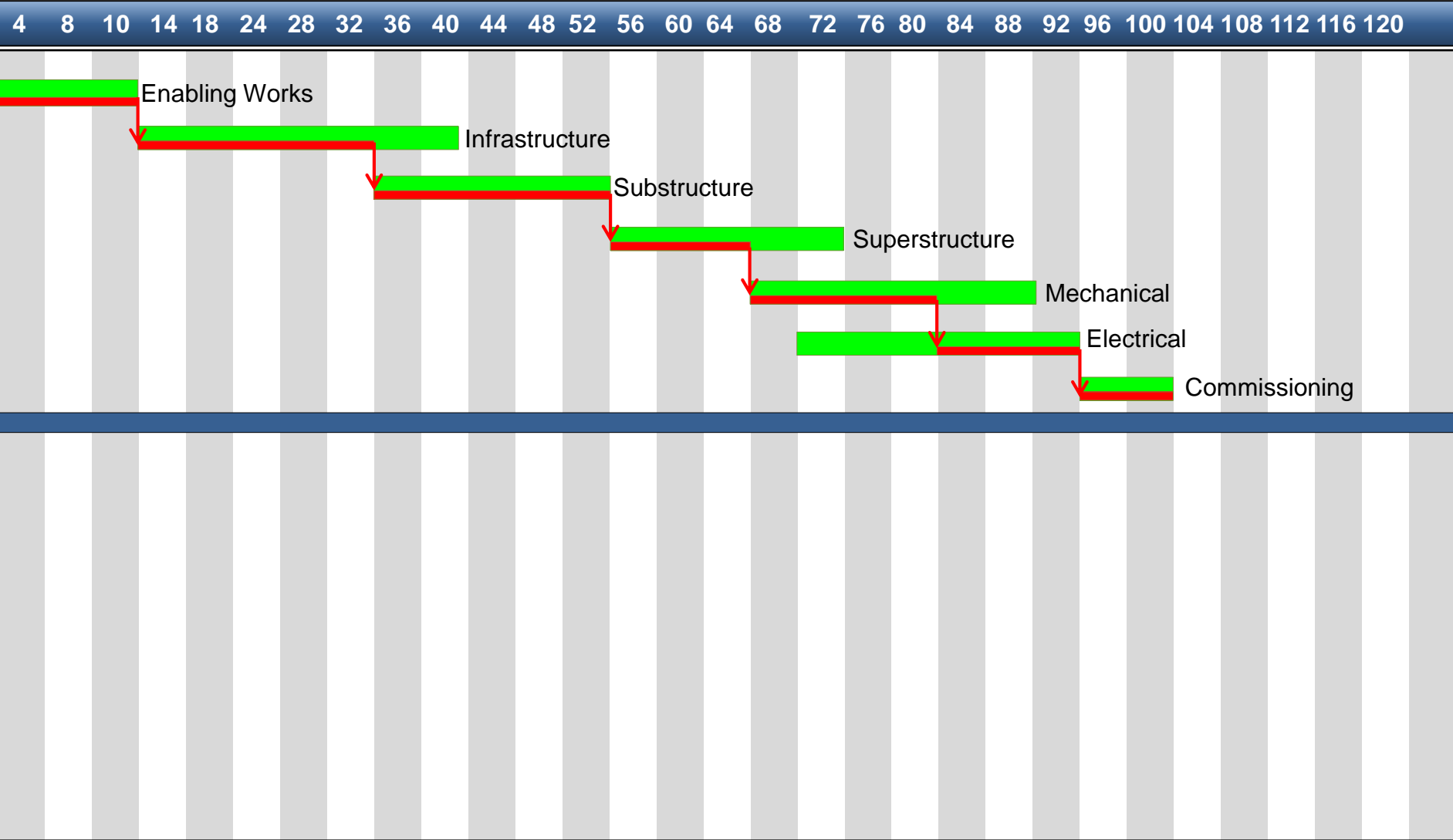
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- Retrospective:
  - Refer to the historic and usually seek to determine the actual impact of events upon progress and completion
  - During currency of project (after the event)
  - Claim preparation
  - Dispute resolution (expert analysis)

# Critical Path

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- ❑ The critical path is the path or sequence of activities, which represents the longest total time required to complete the project.
- ❑ A delay in any activity on the critical path causes a delay in the completion of the project.
- ❑ There may also be more than one critical path depending upon the logical dependencies between activities.
- ❑ Additionally, the critical path is not fixed for any particular project, but may change as activities are either delayed or able to progress ahead of programme.





# Float

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*‘The time available for an activity in addition to its duration’*  
(BS4335)

Or

The period by which a task can be delayed without affecting other tasks or the project end date.

# Types of Float

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- ❑ 'Free float - the period by which a task can be delayed or extended without affecting any other tasks, or the completion of the project.
- ❑ Total float - the period by which a task can be delayed or extended without delaying the completion of the project.
- ❑ Terminal Float: the float between the planned completion date and the date for completion in the contract
- ❑ Who owns the float?

# Causation

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- Part of legal requirement to demonstrate that event was causal of the delay or loss (cause and effect)

# Delay Analysis

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- Components
  - Programme
  - Events
  - Progress Records/As-built
  - Contract requirements
  - Other supporting evidence

# Programme

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- The objectives of a programme:
  - to determine the earliest date upon which completion can be achieved;
  - to show the interrelationship of activities
  - to show the rationale of the sequence of site operations;
  - to identify the time constraints imposed by labour, plant and materials.

# Programme as basis of delay analysis

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- Complete and reliable
- Accurate and reasonable activity durations
- Logical relationships between activities
- Plant and equipment delivery dates
- Milestone dates
- Includes all work to be carried out by sub-contractors
- Includes all public holidays
- Includes all employer constraints
- Makes appropriate allowances for seasonal weather conditions
- Compliant with conditions of contract/specification

# Master/Baseline Programme

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- Allows comparison of what would have happened with what actually happened
  
- Needs to:
  - Meet contract requirements
  - Be a workable management tool
  - Be current
  - Be shared

# Progress records

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- Allow comparison of what would have happened with what actually happened
  
- Need to:
  - Meet contract requirements
  - Be expressed by reference to a programme
  - Be quantitative
  - Be accurate
  - Be regularly kept
  - Be public
  - Be consistent
  - Record context



# Records

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## Minimum requirements:

- Meet contract requirements
- Start and finish
- Degree of completion
- Labour resources
- Plant resources
- Key procurement activities

## Consider:

- Marked up drawings
- Photographs
- Videos
- More sophisticated techniques

## 3. Delay Analysis and its Methodologies

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### □ Common Methods of Delay Analysis

- As-planned vs As-built
- Impacted as-planned
- Collapsed as-built
- Time impact analysis

# Parameters

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- Relevant conditions of contract
- Nature of causative events
- Value of the dispute
- Time available
- Records available
- Programme information available
- Programmer's skill level

## A. As-planned vs As-built

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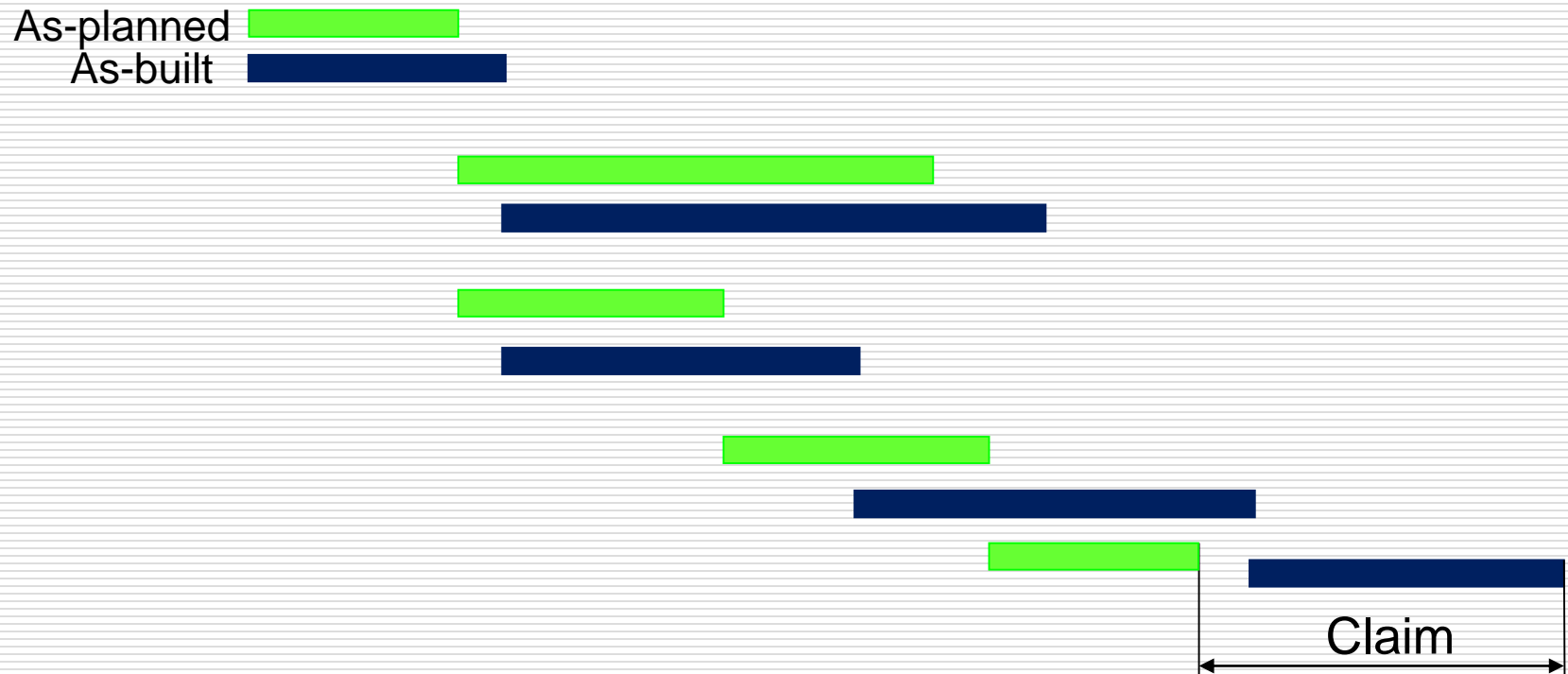
### □ Essentials

- Good base programme (ideally agreed at start)
- Programme as closely as possible reflects project logic
- As-built information to establish as-built comparison
- May be chosen where issues are simple and liability is clear
- No CPA required

### □ Steps

- Determine baseline programme
- Determine as-built programme and plot against planned

# A. As-planned vs As-built



## A. As-planned vs As-built

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- 'As-planned' vs 'As-built'
  - Only retrospective
  - No cause and effect
  - Takes no account of concurrency
  - Assumes fault lies with others
  - Unreliable in dispute resolution

## B. Impacted 'As-planned'

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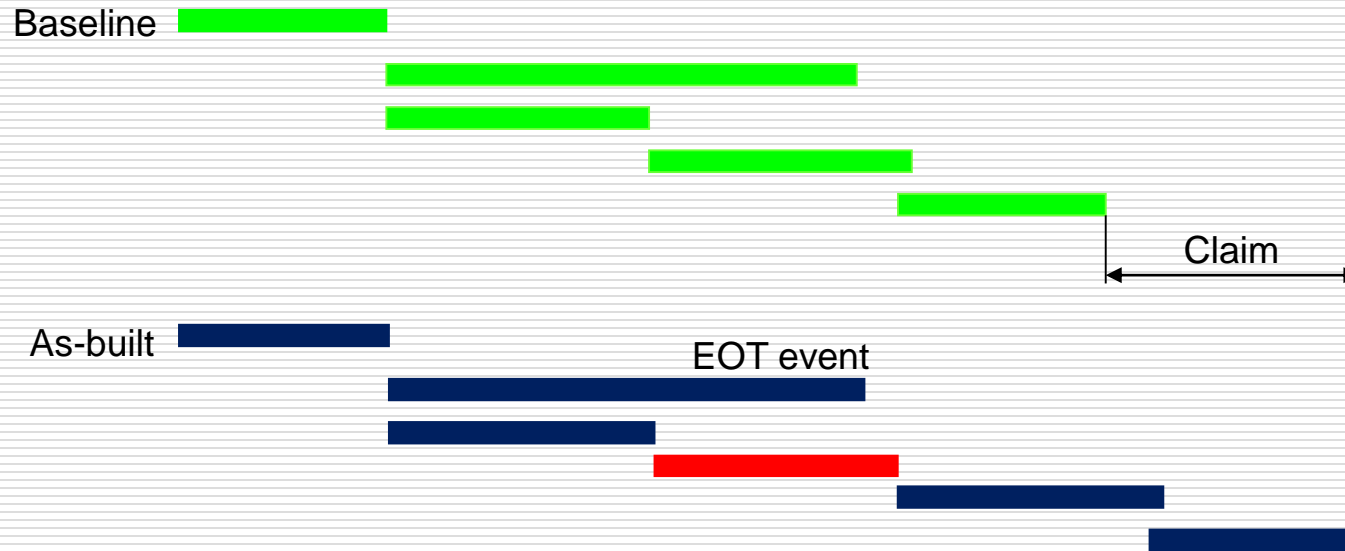
### Essentials

- Good base programme (ideally agreed at start)
- Programme reflects project logic
- Likely choice where programme not updated and limited/no as-built information available

### Steps

- Impact all events on planned programme
- Can be done in steps of time intervals - cross checked with key as-built milestones

## B. Impacted 'As-planned' - illustrated





## B. Impacted 'As-planned'

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- Impacted 'As-planned'
  - Prospective/Retrospective
  - Limited cause and effect
  - Takes no account of:
    - Progress
    - Resources
    - Changing logic
  - Unreliable in dispute resolution

## C. Collapsed 'As-built'

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### Essentials

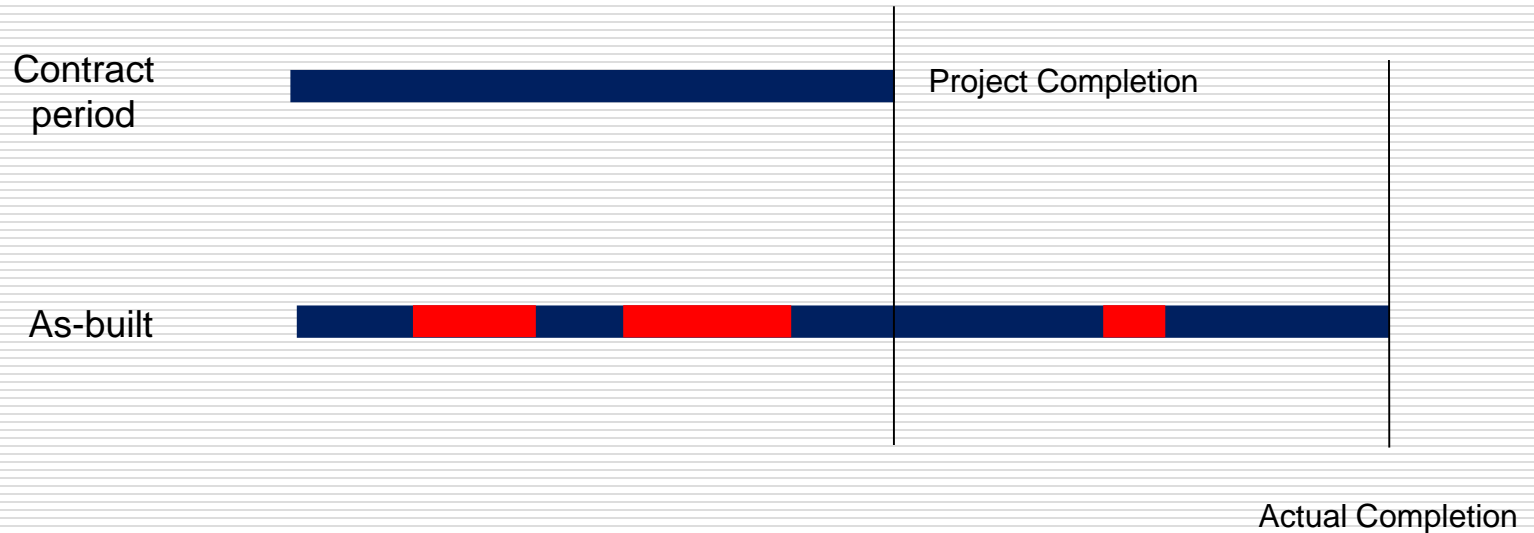
- Detailed as-built records
- Detailed understanding of construction logic
- Access to site team
- Basis for measuring and identifying the extent of delays

### Steps

- Reconstruct As-built programme & determine Logic
- Identify delay periods & responsibility for delays
- Carry out delay analysis
- Explain approach and results

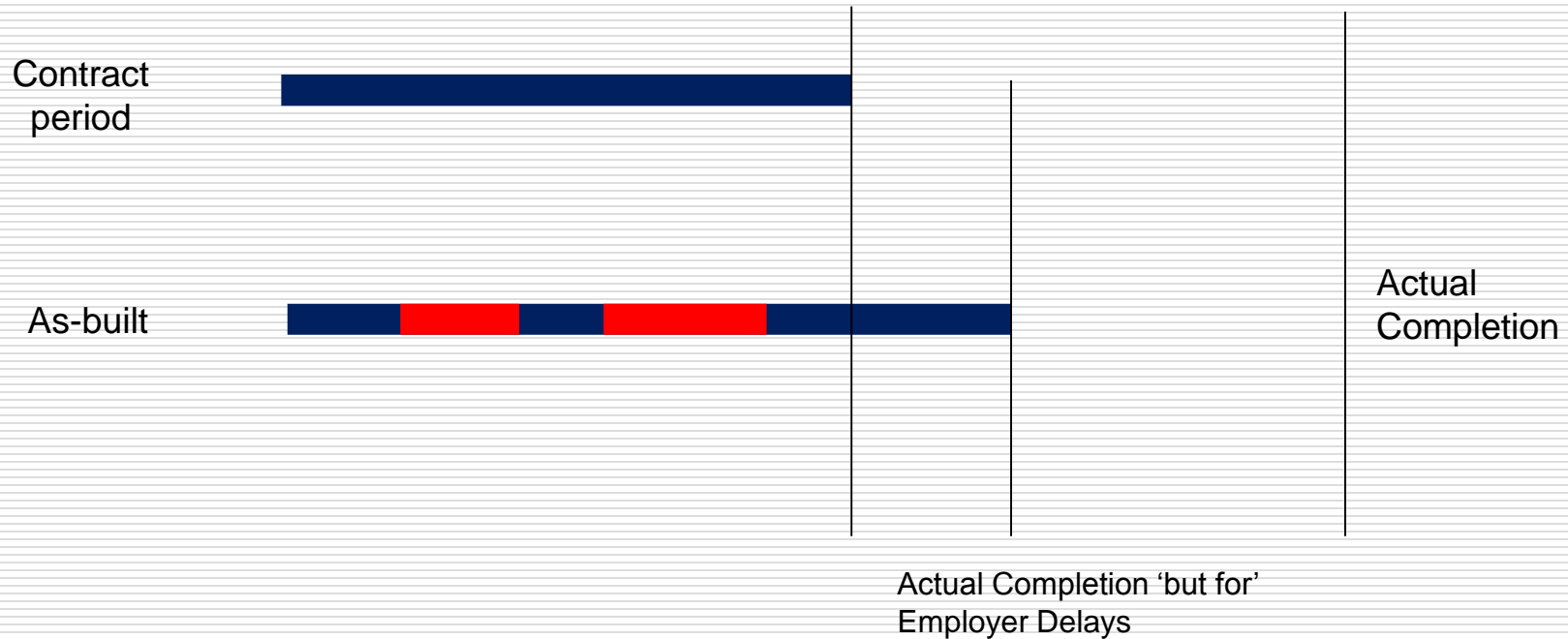
## C. Collapsed 'As-built'

### □ Identify Employer Delays



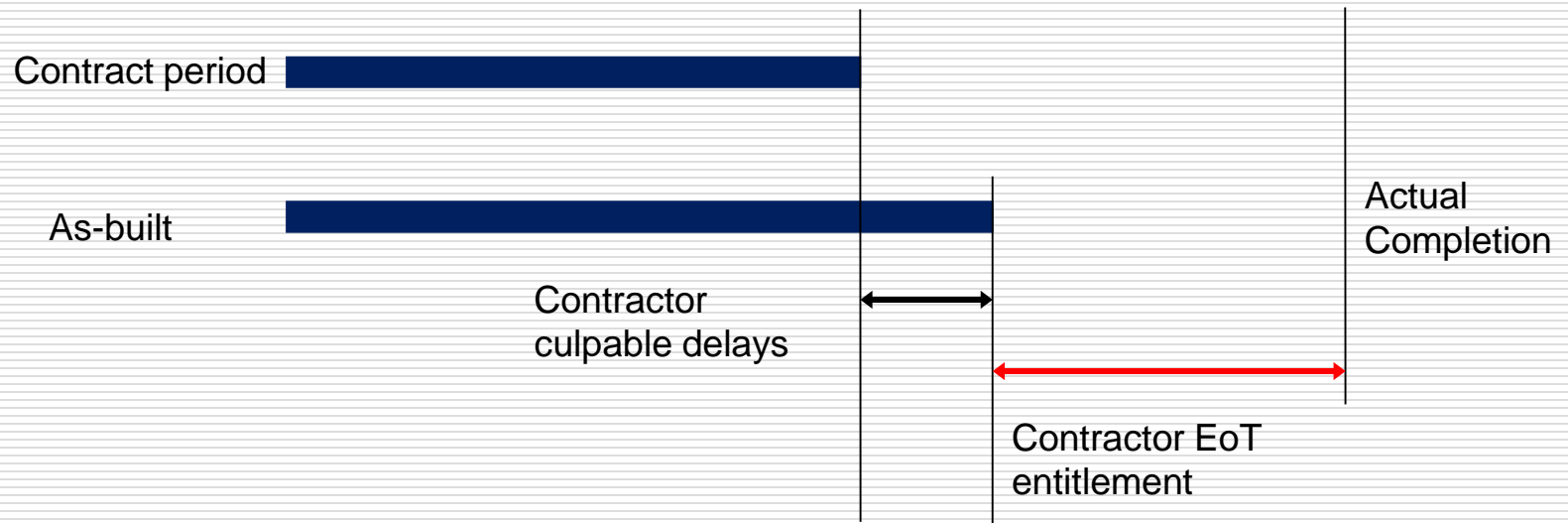
## C. Collapsed 'As-built'

### Zero the Employer Delays



## C. Collapsed 'As-built'

### □ Entitlement



## C. Collapsed 'As-built'

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- Collapsed 'As-built'
  - Retrospective (limited Prospective)
  - Factually based
  - If done properly:
    - Demonstrates cause and effect
    - Takes account of concurrency
  - Relatively quick
  - Reliable in dispute resolution

## D. Time Impact Analysis

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### Essentials

- Good base programme (ideally agreed at start)
- Programme reflects project logic
- Reliable and consistent progress data, in sufficient detail and at small enough intervals to make the analysis meaningful

## D. Time Impact Analysis

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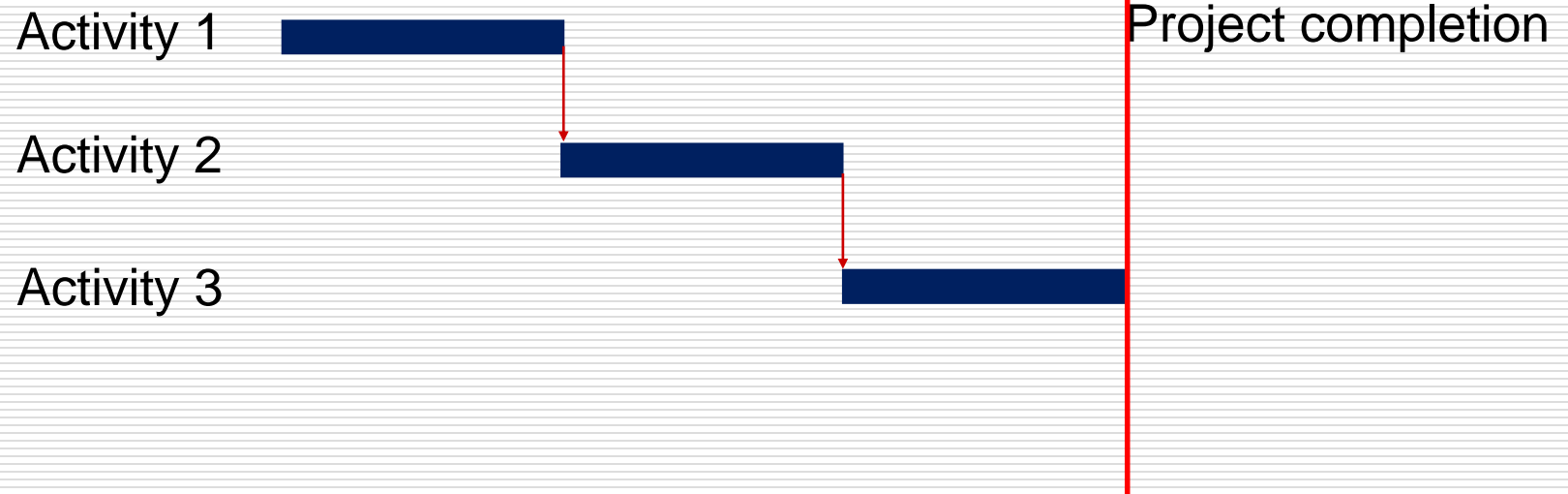
### □ Steps

- Verify base programme and correct for errors
- Identify delay events and periods
- Input progress up to start of first window period or first delay
- Reschedule and check completion
- Impact delay and record any logic changes to deal with mitigation
- Reschedule and check completion and record any further delay



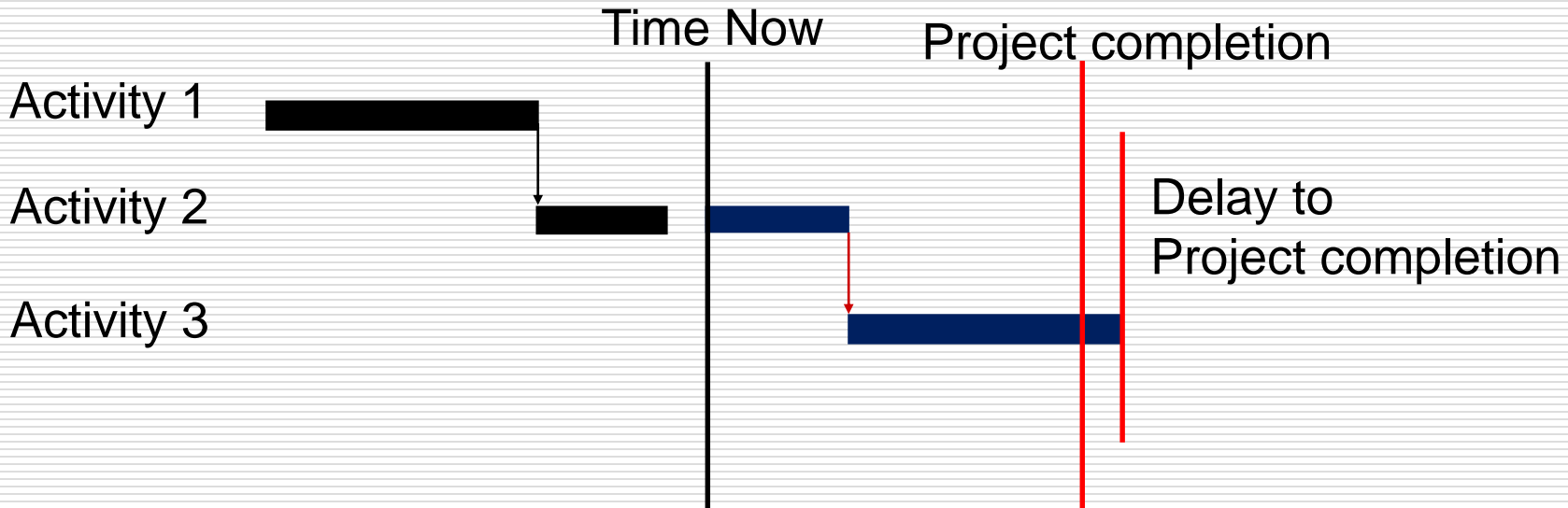
## D. Time Impact Analysis

### □ Master Programme



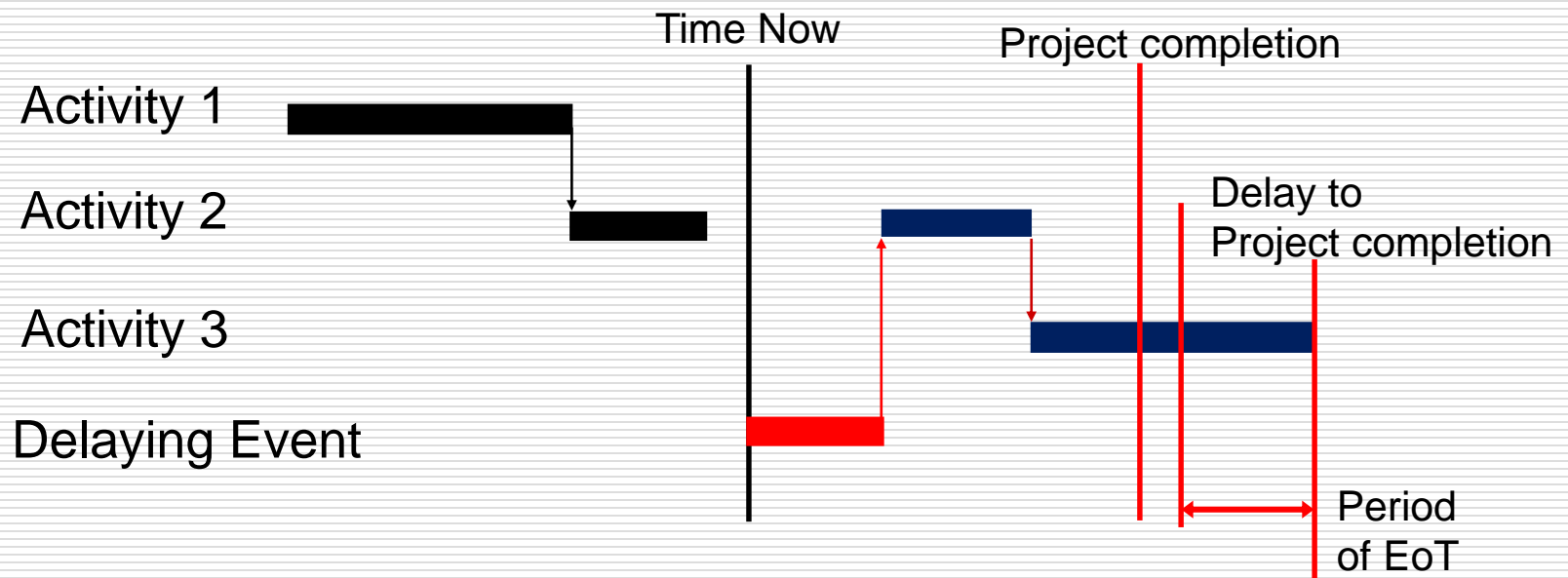
## D. Time Impact Analysis - illustrated

- Step 2, Enter progress & record effect



## D. Time Impact Analysis - illustrated

- Step 3, Analyse the delaying event



## D. Time Impact Analysis

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- Time Impact analysis
  - Prospective/Retrospective
  - Cause and Effect
  - Takes account of Progress/Resource/Logic
  - Reliable in Dispute Resolution
  - Preferred method of SCL Protocol
  - Complicated (and therefore slow)
  - Difficult to communicate (*Skanska v Egger* [2004])

# FIDIC Claims and Extensions of Time

Claims Under the Yellow Book				
Clause	EoT	Costs	Profit	
1.9 (Errors in the Employer's Requirements)	✓	✓	✓	
2.1 (Right of Access to the Site)	✓	✓	✓	
4.7 (Setting Out)	✓	✓	✓	
4.12 (Unforeseeable Physical Conditions)	✓	✓		
4.24 (Fossils)	✓	✓		
7.4 (Testing)	✓	✓	✓	
8.4 (a) (Extension of Time for Completion) - Variations	✓			
8.4 (c) (Extension of Time for Completion) - Exceptionally Adverse Climatic Conditions	✓			
8.4 (d) (Extension of Time for Completion) - Unforeseeable shortages caused by Epidemic or Government Actions	✓			
8.4 (e) (Extension of Time for Completion) - Delay, Impediment by Employer or his Agents or Contractors	✓			
8.9 (Consequences of Suspension)	✓	✓		
10.2 (Taking Over of Parts of the Works)		✓	✓	
10.3 (Interference with Tests on Completion)	✓	✓	✓	
12.2 (Delayed Tests)		✓	✓	
12.4 (Failure to Pass Tests after Completion)		✓	✓	
13.7 (Adjustment for Changes in Legislation)	✓	✓		
16.1 (Contractor's Entitlement to Suspend Work)	✓	✓	✓	
17.4 (Consequences of the Employer's Risks)	✓	✓	✓	
18.1 (General Requirements for Insurances)		✓	✓	
19.4 (Consequences of Force Majeure)	✓	✓		

For the Silver Book, see Sub-Clauses 2.1, 4.24, 7.4, 8.4, 8.9, 10.3, 12.2, 12.4, 13.7, 16.1, 17.4, 18.1 and 19.4.

## 4. FIDIC Claims and Extensions of Time

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- Contractor's obligations (Yellow Book)
  - to commence the design and execution of the Works as soon as reasonably practicable after the Commencement Date &
  - to proceed with the Works with due expedition and without delay – Sub-clause 8.1
  - to complete within the Time for Completion – Sub-clauses 8.2
  - to submit a programme and revised programmes: Sub-clause 8.3
  
- NB Clause 9 for other FIDIC Gold Book

## 4. FIDIC Claims and Extensions of Time

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- Entitlement to an extension of time – Sub-clause 8.4 (Yellow Book)

*“The Contractor shall be entitled subject to Sub-Clause 20.1 [Contractor’s Claims], to an extension of the Time for Completion if and to the extent that completion... is or will be delayed by any of the following causes:”*

- Delay must be due to a cause listed in Sub-clause 8.4
  - A Variation, Sub-clause, adverse climatic conditions, unforeseeable shortages; and an Employer default
- Contractor must give notice pursuant to Sub-clause 20.1
- “is or will be delayed” indicates that an entitlement can arise prior to the effects of the delay having ceased
- Once awarded, the EOT cannot be decreased

## 4. FIDIC Claims and Extensions of Time

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- Employer's right to delay damages – Sub-clause 8.7 (Yellow Book)
  - Right under Sub-clause 8.7
  - At rate and to the maximum stated in the Appendix to Tender
  - Subject to requirements to sub-clause 2.5 – notice to the Contractor

*“If the Contractor fails to comply with Sub-Clause 8.2 [Time for Completion], the Contractor shall, subject to Sub-Clause 2.5 [Employer's Claims], pay delay damages to the Employer for this default. These delay damages shall be the sum stated in the Appendix to Tender, which shall be paid for every day which shall elapse between the relevant Time for Completion and the date stated in the Taking Over Certificate. However, the total amount due under this Sub-Clause shall not exceed the maximum amount of delay damages (if any) stated in the Appendix to Tender.”*



## 4. FIDIC Claims and Extensions of Time

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- ❑ Claims, Disputes and Arbitration
- ❑ Sub-clause 20.1 Contractor's Claims (Yellow Book - Notices)

*“If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Engineer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 28 days after the Contractor became aware, or should have become aware, of the event or circumstance.”*

*“If the Contractor fails to give notice of a claim within such period of 28 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged from all liability in connection with the claim...”*

## 4. FIDIC Claims and Extensions of Time

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- Sub-clause 20.1 Contractor's Claims (Yellow Book – Contemporary Records)

*“The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Engineer. Without admitting the Employer's liability, the Engineer may, after receiving any notice under this Sub-Clause, monitor the record-keeping and/or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Engineer to inspect all these records, and shall (if instructed) submit copies to the Engineer.”*

## 4. FIDIC Claims and Extensions of Time

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- Sub-clause 20.1 (Yellow Book - Details and particulars )

*“Within 42 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim, or within such other period as may be proposed by the Contractor and approved by the Engineer, the Contractor shall send to the Engineer a fully detailed claim which includes full supporting particulars of (the basis of the claim and of the extension of time and/or additional payment claimed. If the event or circumstance giving rise to the claim has a continuing effect:*

## 4. FIDIC Claims and Extensions of Time

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- Sub-clause 20.1 (Yellow Book - Details and particulars )

*“If the event or circumstance giving rise to the claim has a continuing effect:*

*(a) this fully detailed claim shall be considered as interim;*

*(b) the Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed, and such further particulars as the Engineer may reasonably require; and*

*(c) the Contractor shall send a final claim within 28 days after the end of the effects resulting from the event or circumstance, or within such other period as may be proposed by the Contractor and approved by the Engineer.*

## 4. FIDIC Claims and Extensions of Time

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### □ Sub-clause 20.1 (Yellow Book- Engineer's Response )

*“Within 42 days after receiving a claim or any further particulars supporting a previous claim, or within such other period as may be proposed by the Engineer and approved by the Contractor, the Engineer shall respond with approval, or with disapproval and detailed comments. He may also request any necessary further particulars, but shall nevertheless give his response on the principles of the claim within such time.”*

## 4. FIDIC Claims and Extensions of Time

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### □ Sub-clause 20.1 (Yellow Book- Engineer's Response )

*“Each Payment Certificate shall include such amounts for any claim as have been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the particulars supplied are sufficient to substantiate the whole of the claim, the Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate. The Engineer shall proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 8.4 [Extension of Time for Completion], and/or (ii) the additional payment (if any) to which the Contractor is entitled under the Contract.*

*The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-clause in relation to any claim, any extension of time and/or additional payment shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second paragraph of this Sub-Clause.”*

## 4. FIDIC Claims and Extensions of Time

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### □ Sub-clause 2.5 (Employer's Claims) (Yellow Book)

*"If the Employer considers himself to be entitled to any payment under any Clause of these Conditions or otherwise in connection with the Contract, and/or to any extension of the Defects Notification Period, the Employer or the Engineer shall give notice and particulars to the Contractor..."*

*The notice shall be given as soon as practicable after the Employer became aware of the event or circumstances giving rise to the claim... A notice relating to any extension of the Defects Notification Period shall be given before the expiry of such period. The particulars shall specify the Clause or other basis of the claim, and shall include substantiation of the amount and/or extension to which the Employer considers himself to be entitled in connection with the Contract. The Engineer shall then proceed in accordance with Sub-Clause 3.5 [Determinations] to agree or determine (i) the amount (if any) which the Employer is entitled to be paid by the Contractor, and/or (ii) the extension (if any) of the Defects Notification Period in accordance with Sub-Clause 11.3 [Extension of Defects Notification Period]."*

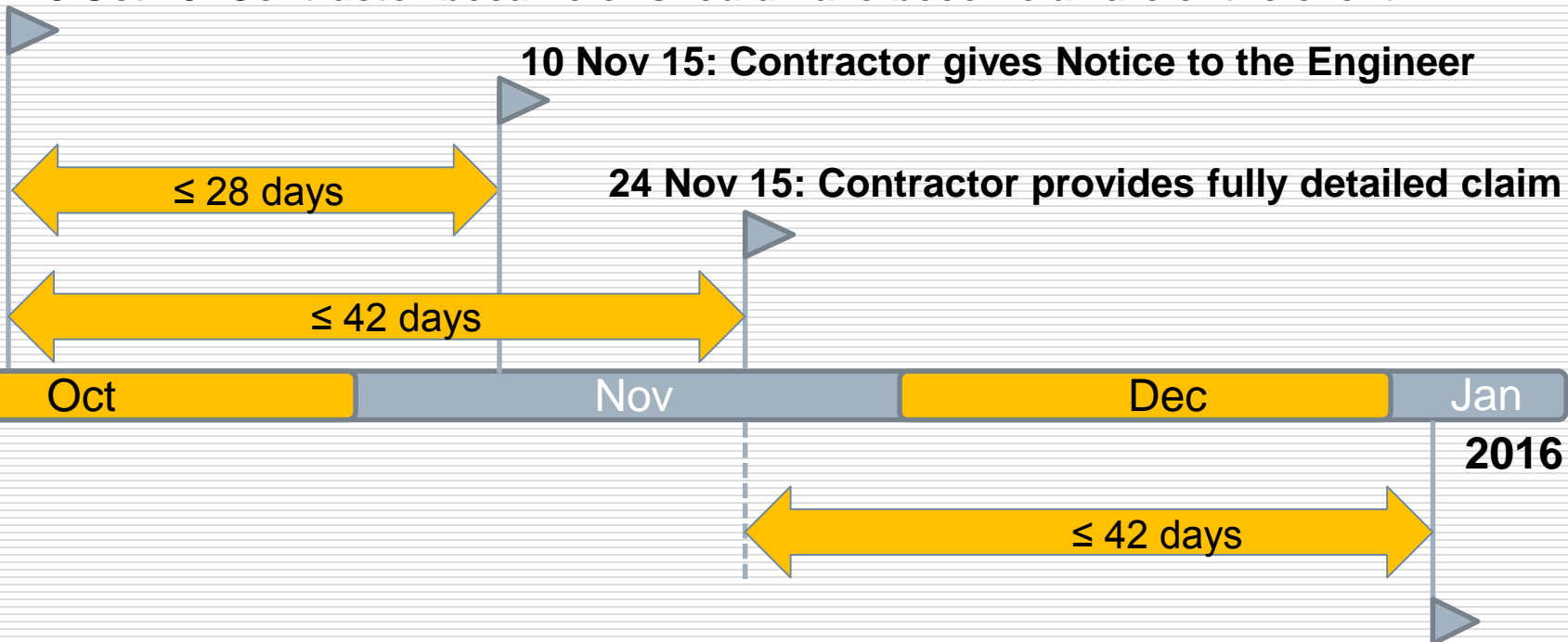
## 4. FIDIC Claims and Extensions of Time

13 Oct 15: Contractor became or should have become aware of the event

10 Nov 15: Contractor gives Notice to the Engineer

24 Nov 15: Contractor provides fully detailed claim

05 Jan 16: Engineer's Response





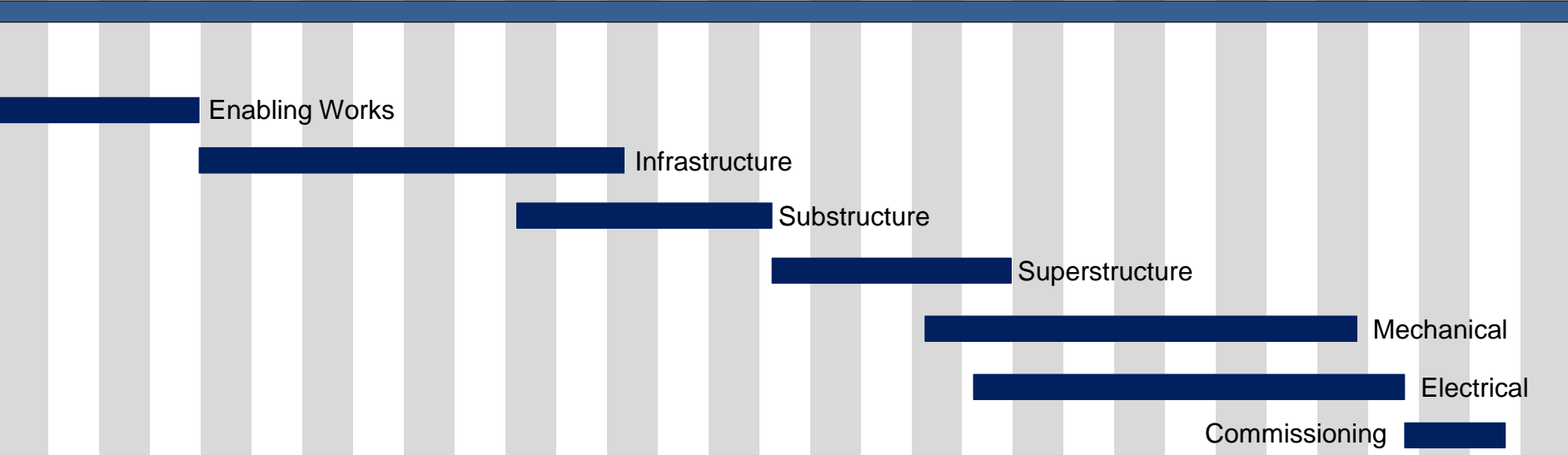
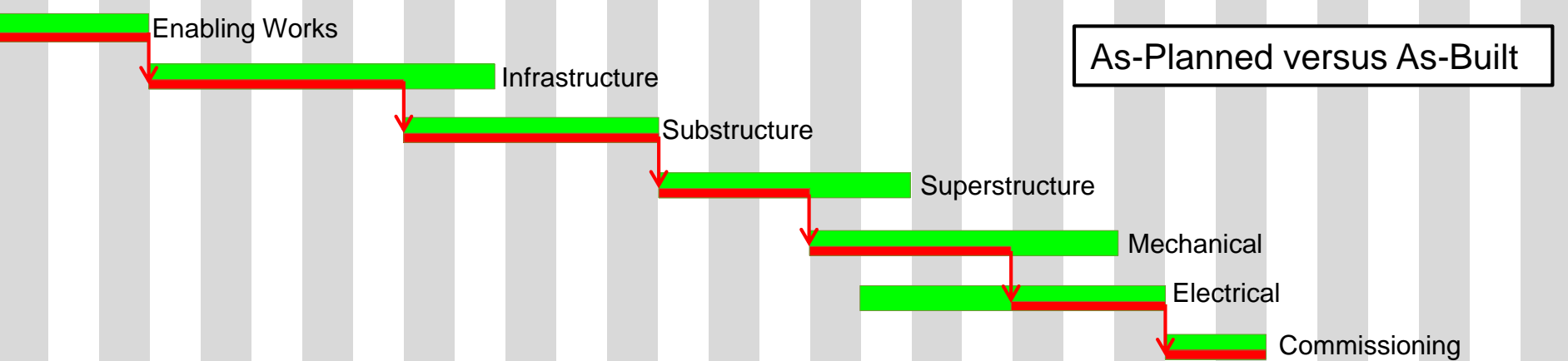
## 5. Scenario

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- Delay Analysis In Action!

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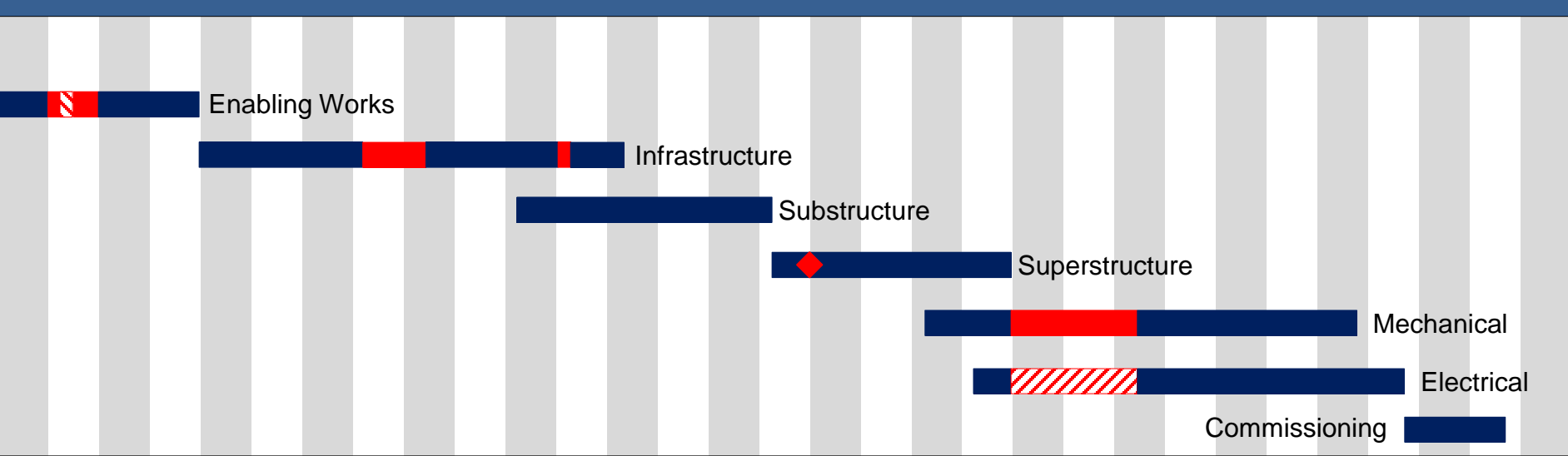
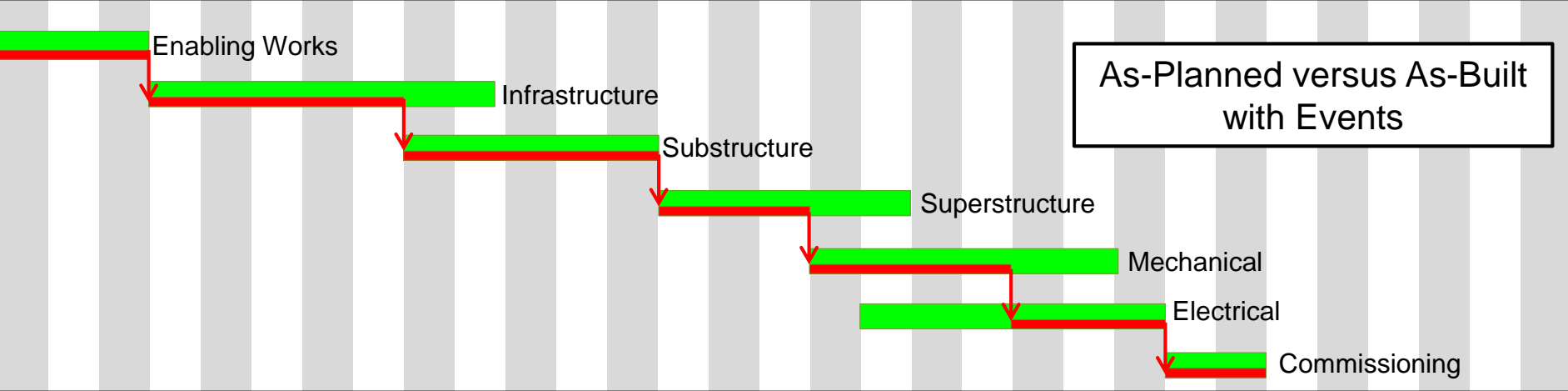
As-Planned versus As-Built



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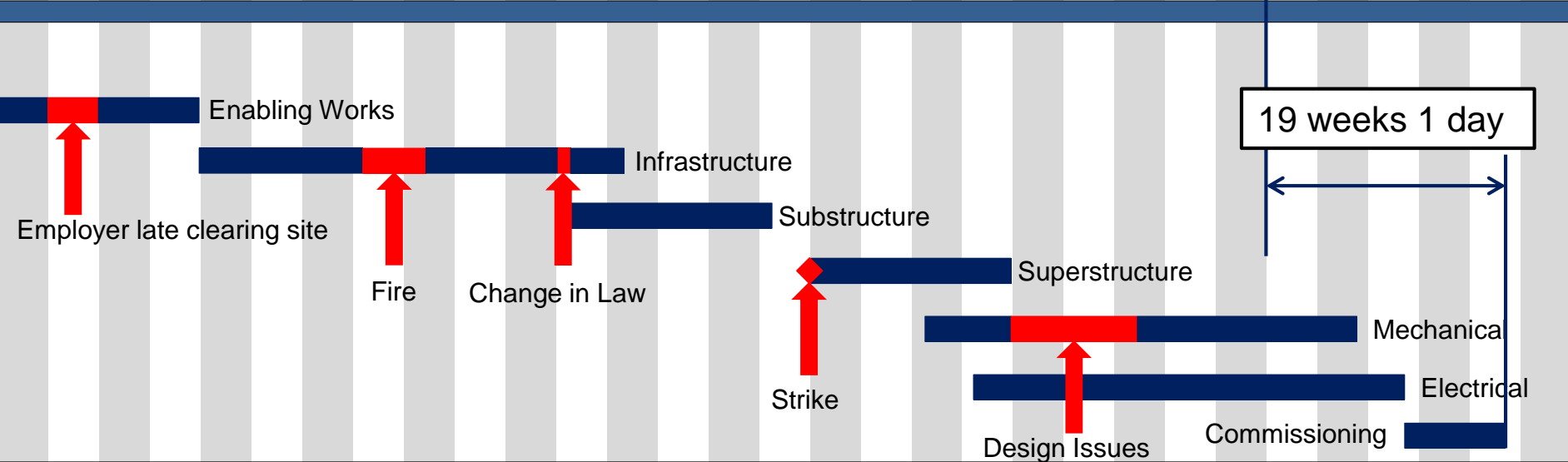
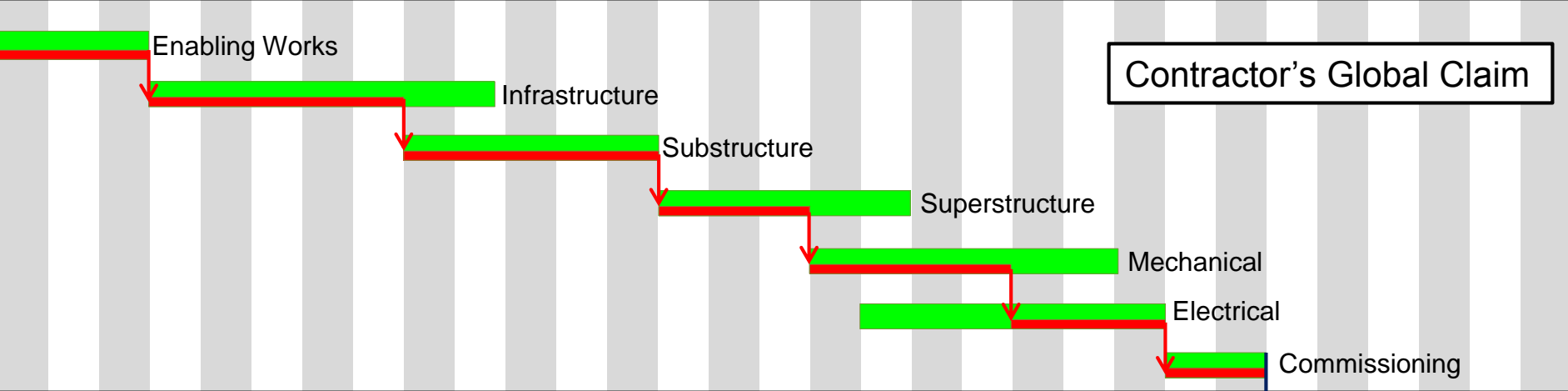
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As-Planned versus As-Built with Events



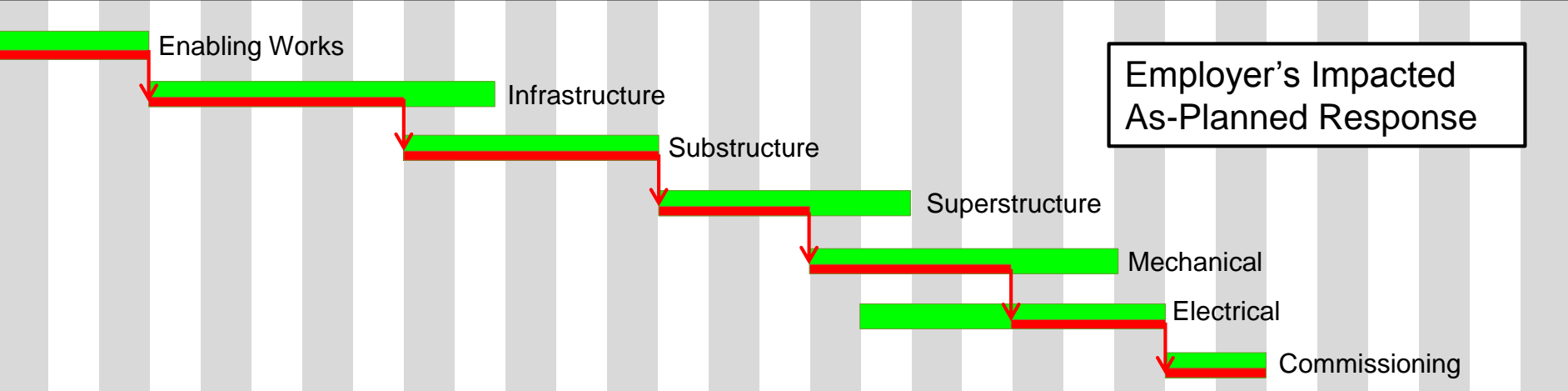
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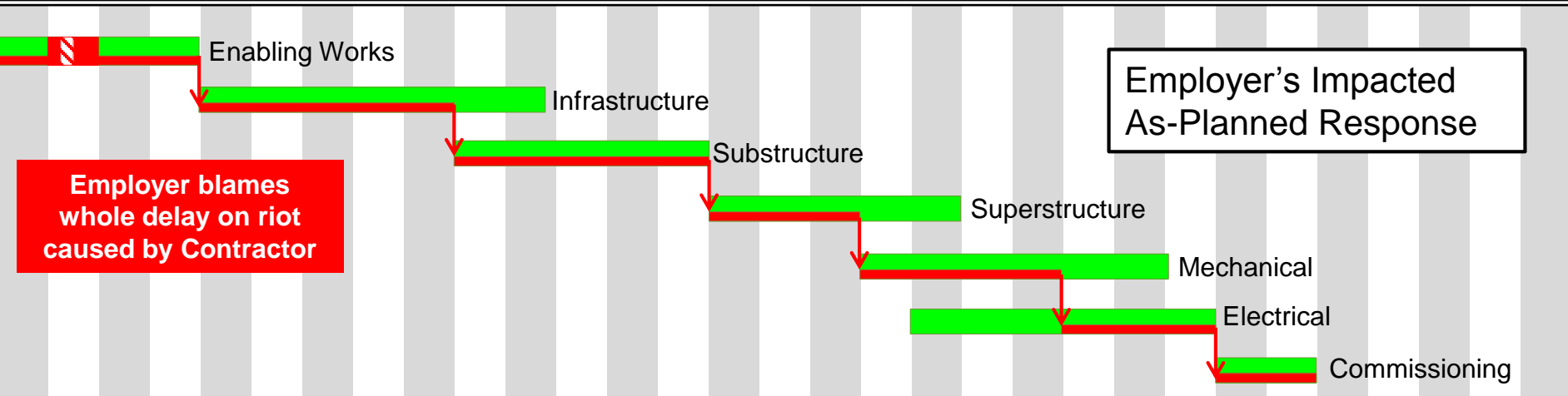
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Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-

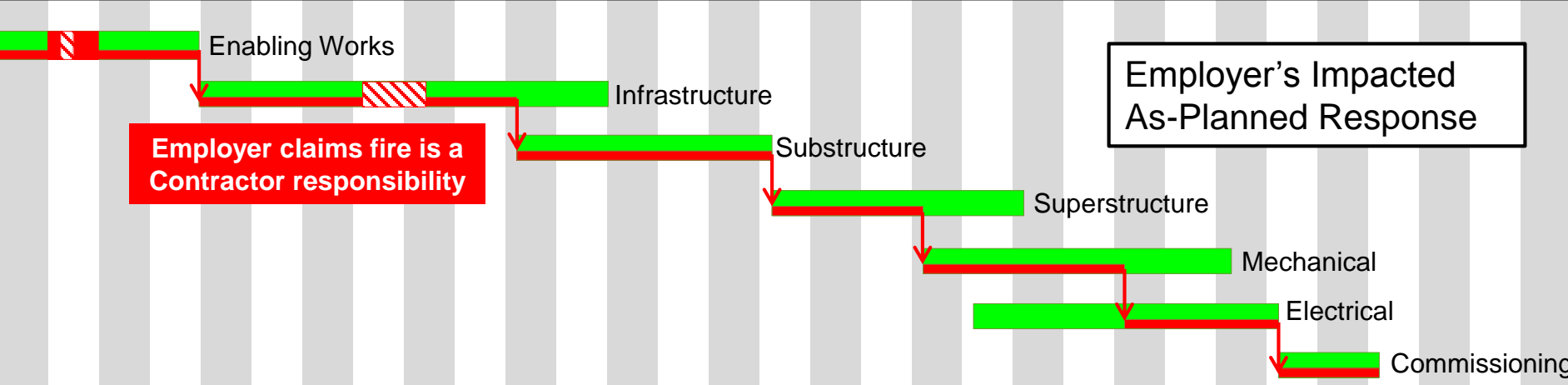
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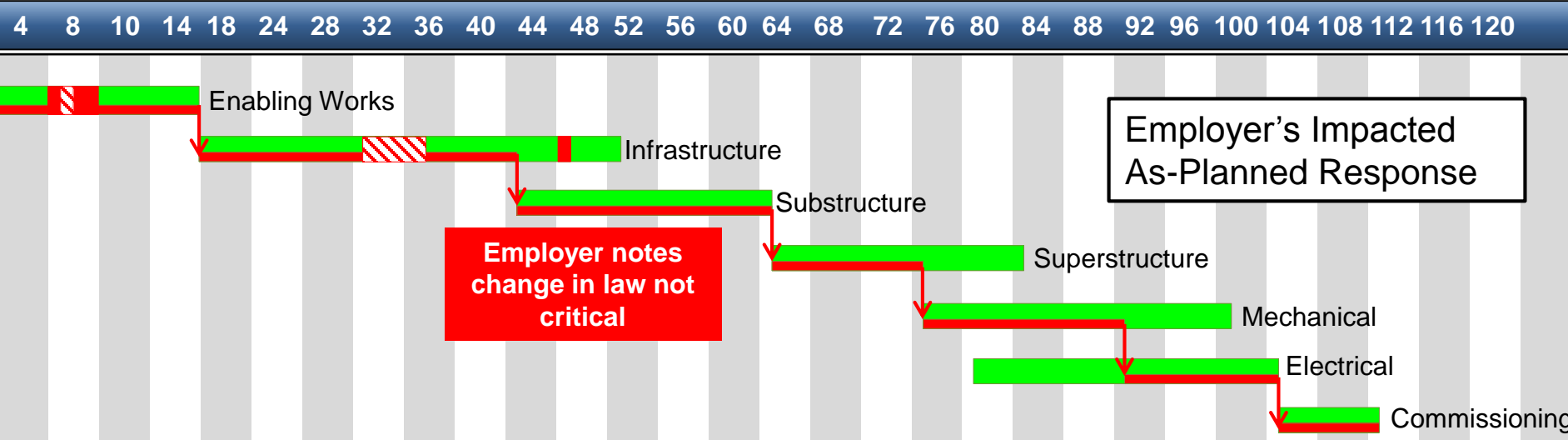
Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-
1 (Riot)	4 weeks	Contractor	100 weeks	0 weeks

4 8 10 14 18 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80 84 88 92 96 100 104 108 112 116 120



Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-
1 (Riot)	4 weeks	Contractor	100 weeks	0 weeks
2 (Fire)	5 weeks	Contractor	100 weeks	0 weeks

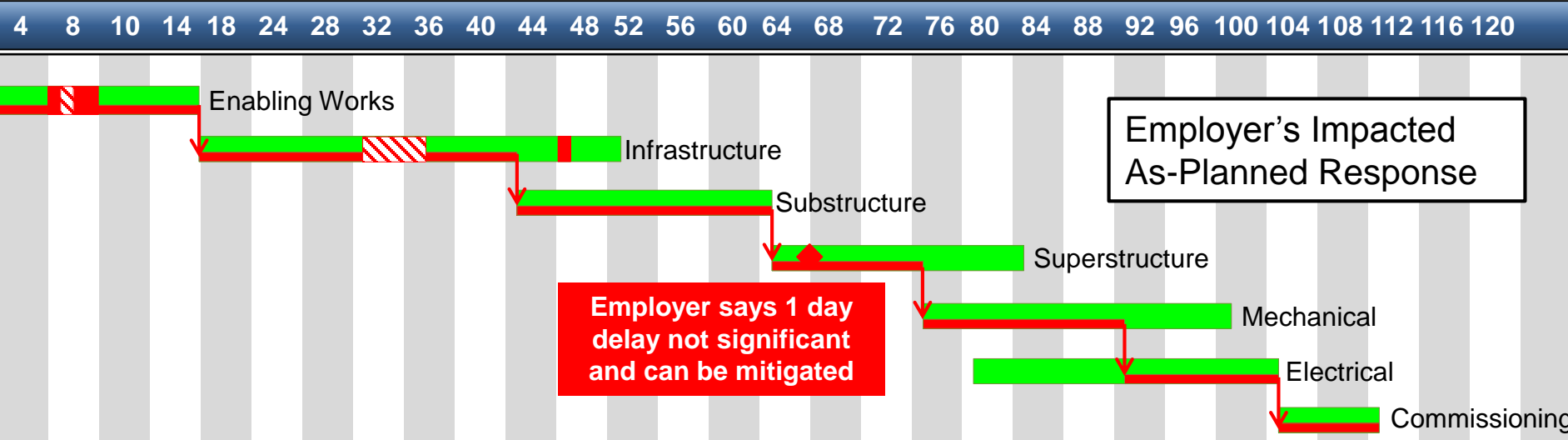
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Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-
1 (Riot)	4 weeks	Contractor	100 weeks	0 weeks
2 (Fire)	5 weeks	Contractor	100 weeks	0 weeks
3 (Change in Law)	1 week	Employer	100 weeks	0 weeks

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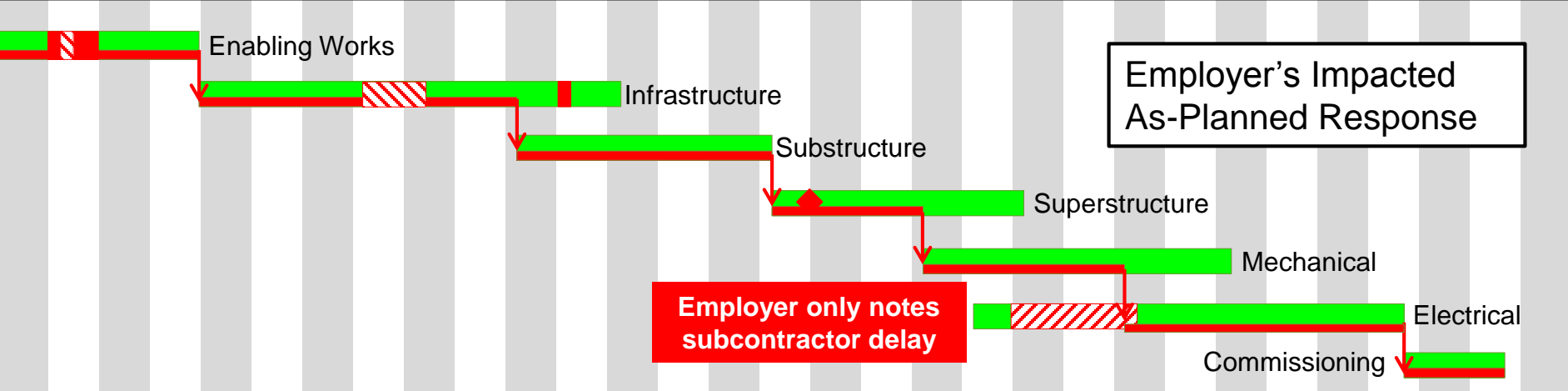




Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-
1 (Riot)	4 weeks	Contractor	100 weeks	0 weeks
2 (Fire)	5 weeks	Contractor	100 weeks	0 weeks
3 (Change in Law)	1 week	Employer	100 weeks	0 weeks
4 (Strike)	1 day	Force Majeure	100 weeks	0 weeks

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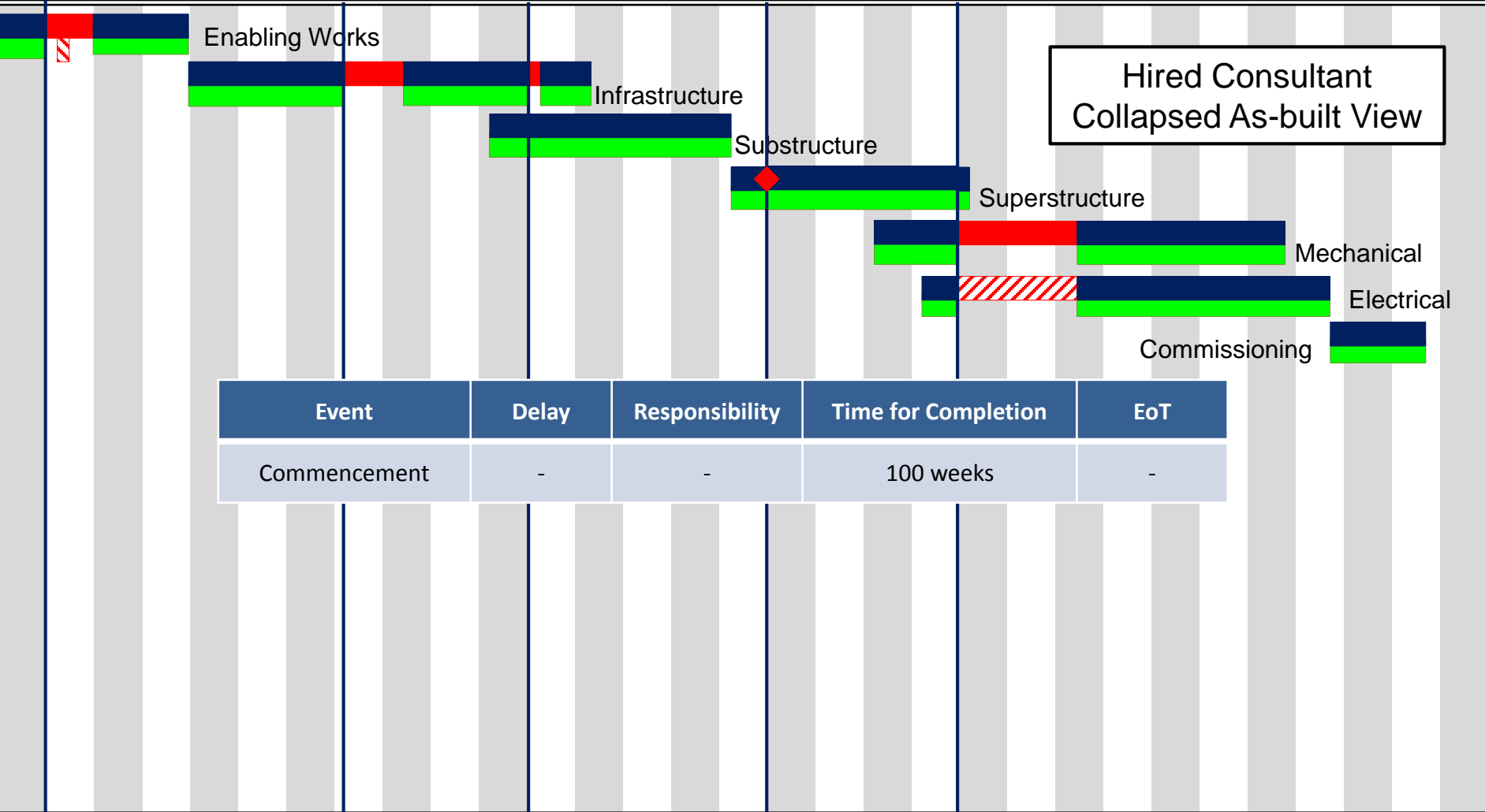
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Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-
1 (Riot)	4 weeks	Contractor	100 weeks	0 weeks
2 (Fire)	5 weeks	Contractor	100 weeks	0 weeks
3 (Change in Law)	1 week	Employer	100 weeks	0 weeks
4 (Strike)	1 day	Force Majeure	100 weeks	0 weeks
5 (Subcontractor)	10 weeks	Contractor	100 weeks	0 weeks

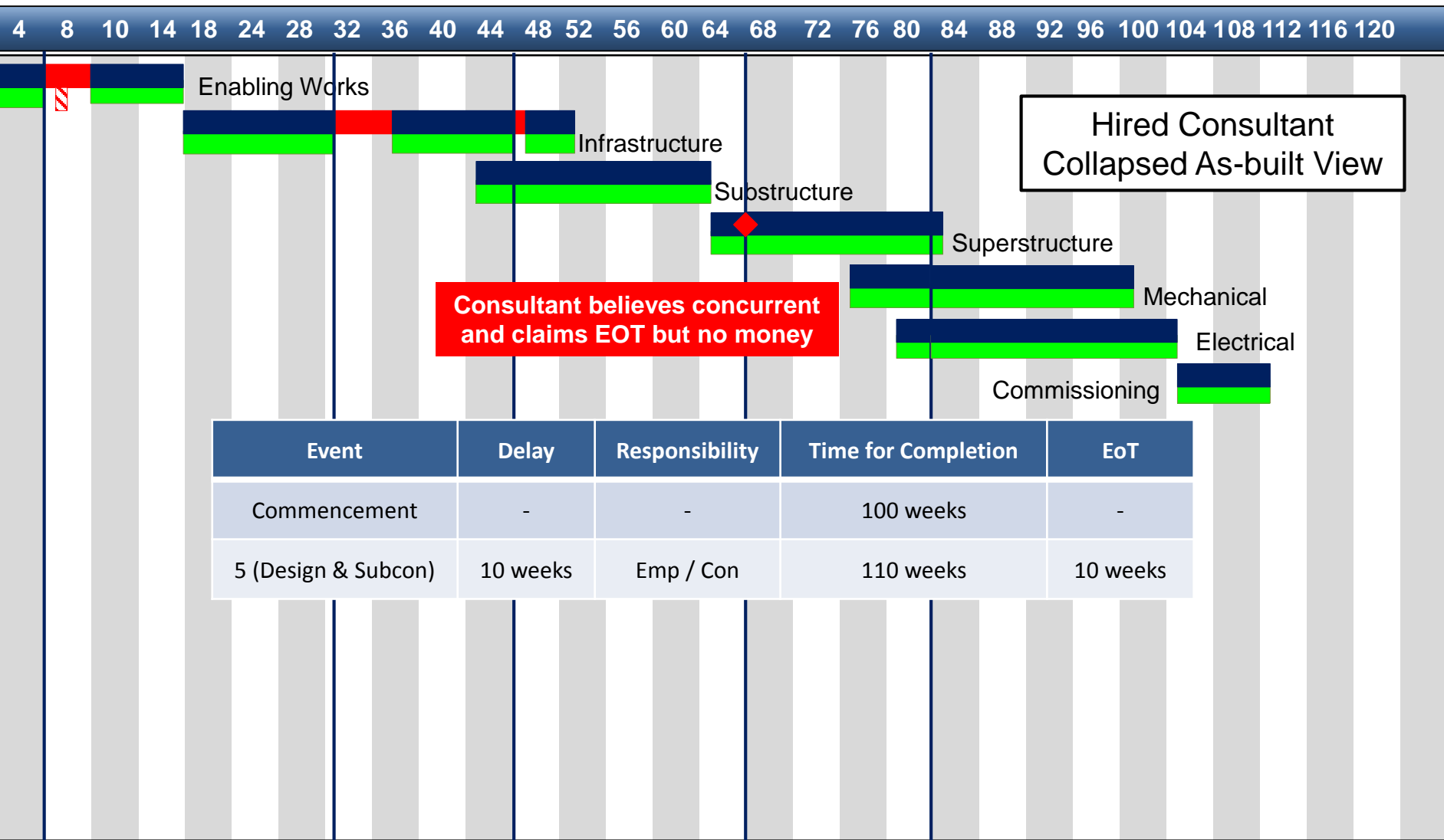
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Hired Consultant  
Collapsed As-built View

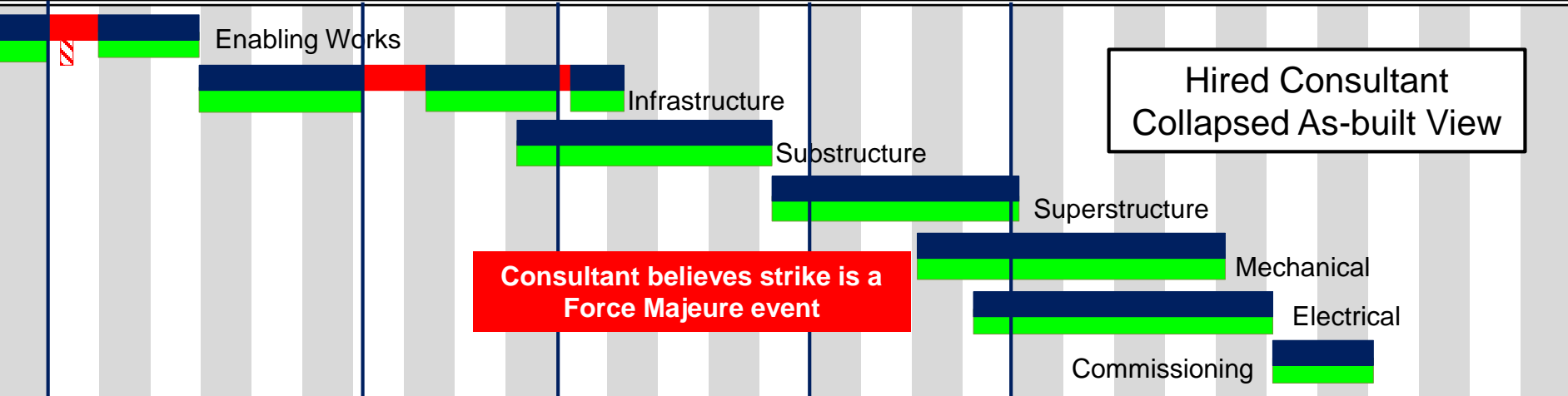
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Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-
5 (Design & Subcon)	10 weeks	Emp / Con	110 weeks	10 weeks

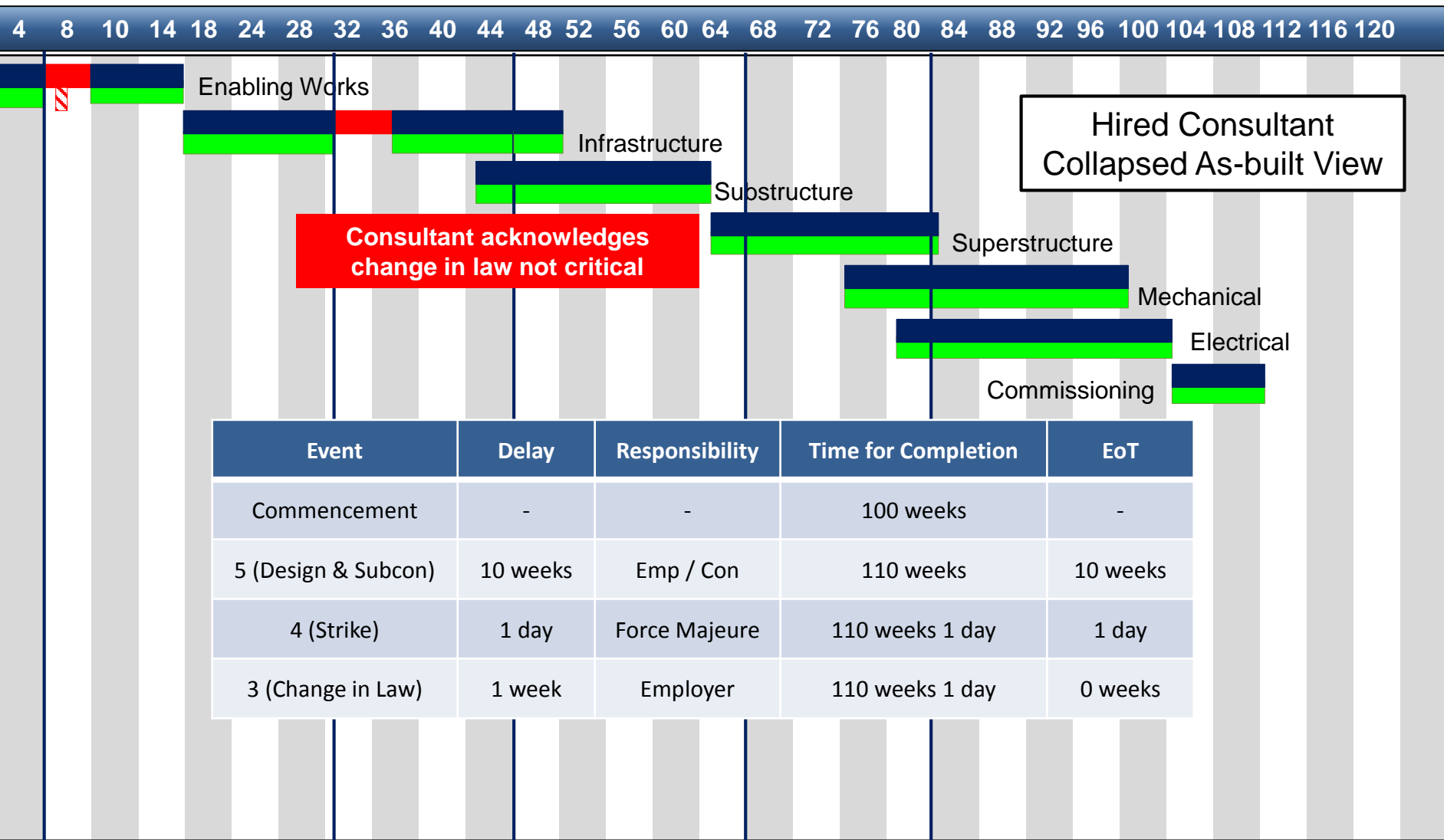
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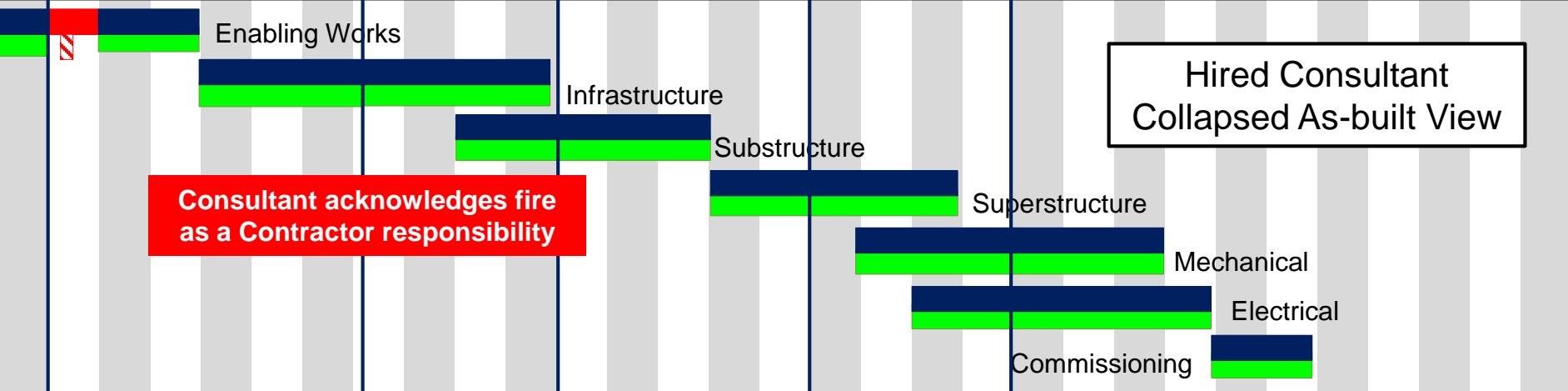


Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-
5 (Design & Subcon)	10 weeks	Emp / Con	110 weeks	10 weeks
4 (Strike)	1 day	Force Majeure	110 weeks 1 day	1 day

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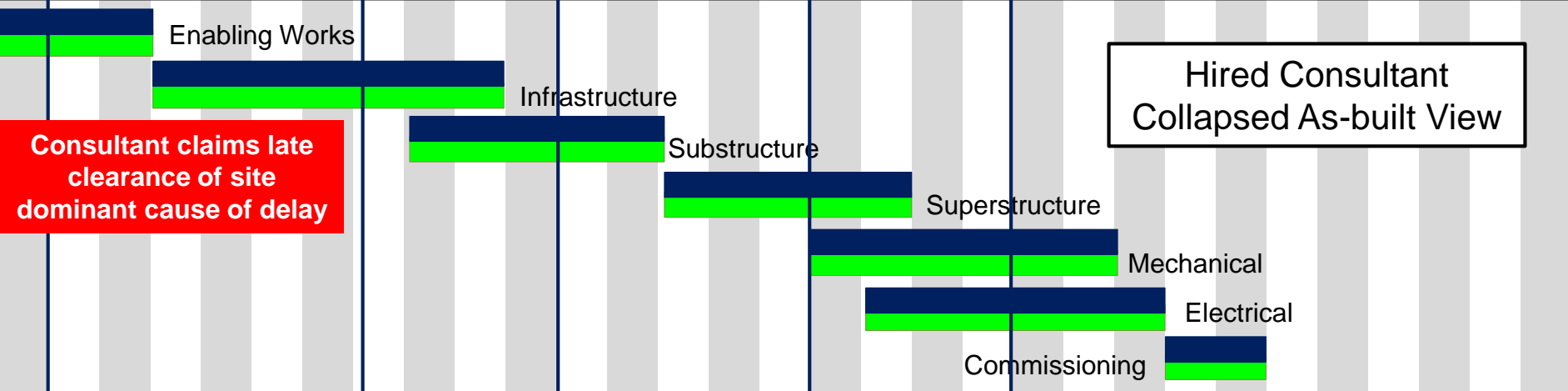


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Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-
5 (Design & Subcon)	10 weeks	Emp / Con	110 weeks	10 weeks
4 (Strike)	1 day	Force Majeure	110 weeks 1 day	1 day
3 (Change in Law)	1 week	Employer	110 weeks 1 day	0 weeks
2 (Fire)	5 weeks	Contractor	110 weeks 1 day	0 weeks

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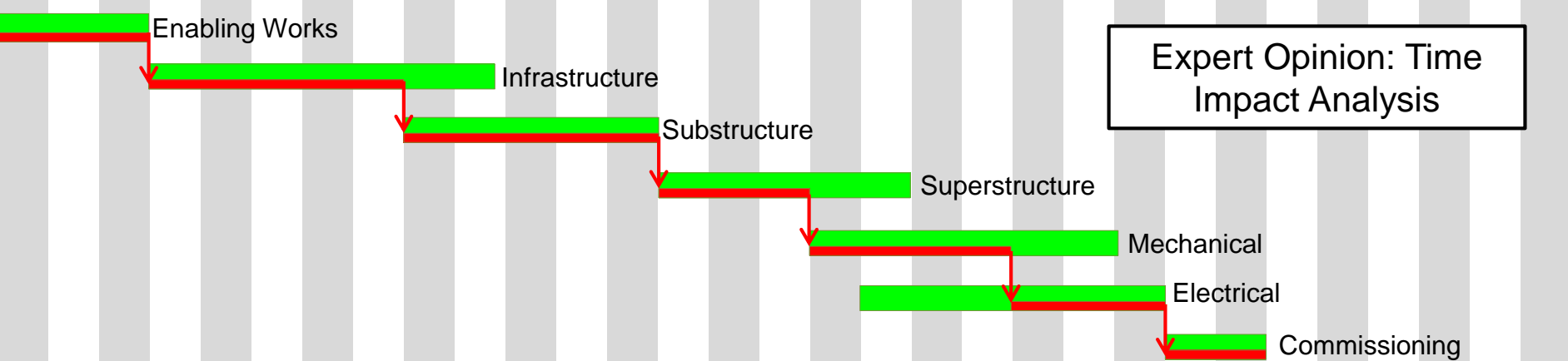


Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-
5 (Design & Subcon)	10 weeks	Emp / Con	110 weeks	10 weeks
4 (Strike)	1 day	Force Majeure	110 weeks 1 day	1 day
3 (Change in Law)	1 week	Employer	110 weeks 1 day	0 weeks
2 (Fire)	5 weeks	Contractor	110 weeks 1 day	0 weeks
1 (Late Clear & Riot)	4 weeks	Employer	114 weeks 1 day	4 weeks

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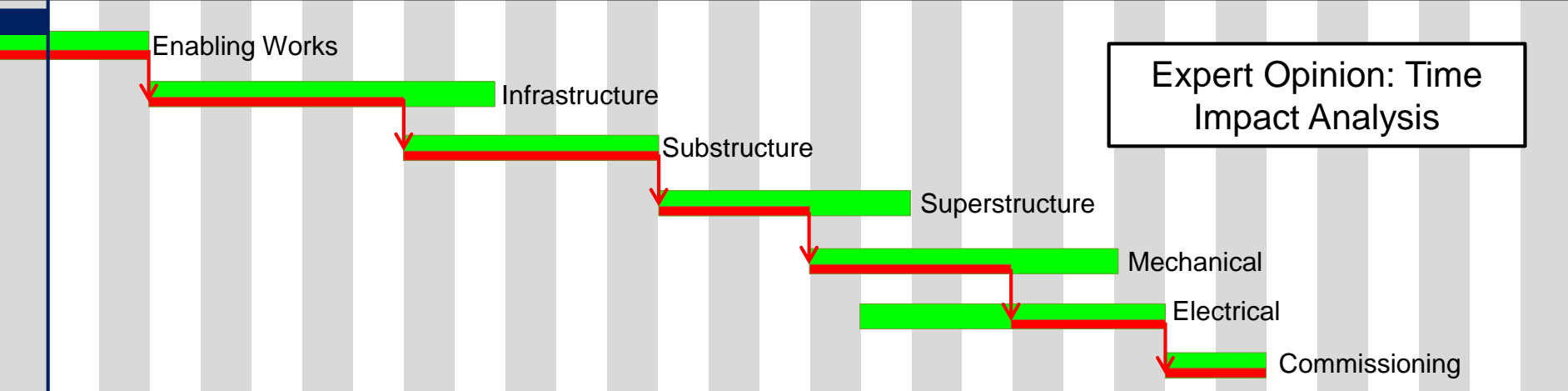


Expert Opinion: Time Impact Analysis

Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-

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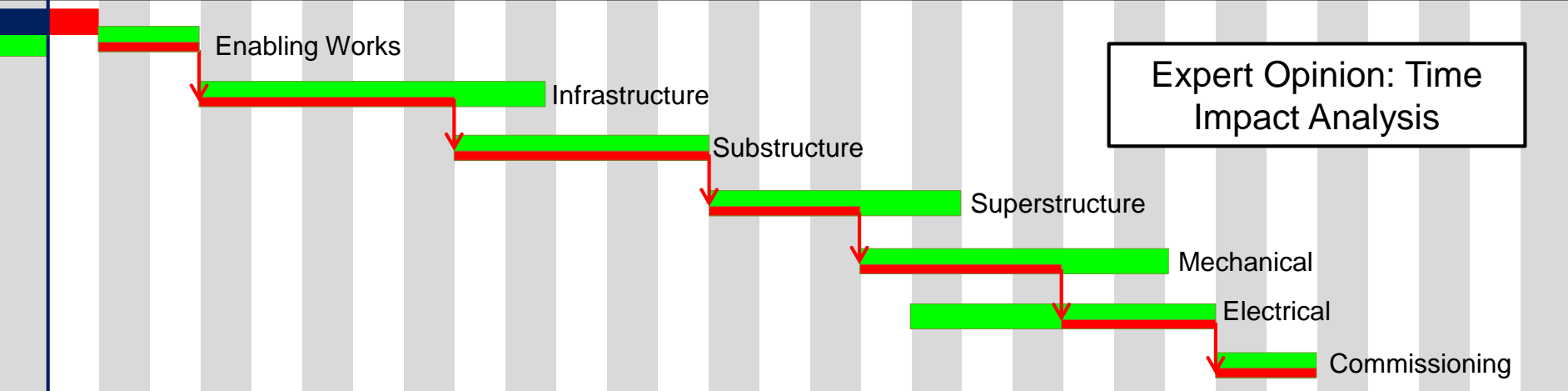


Expert Opinion: Time Impact Analysis

Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-

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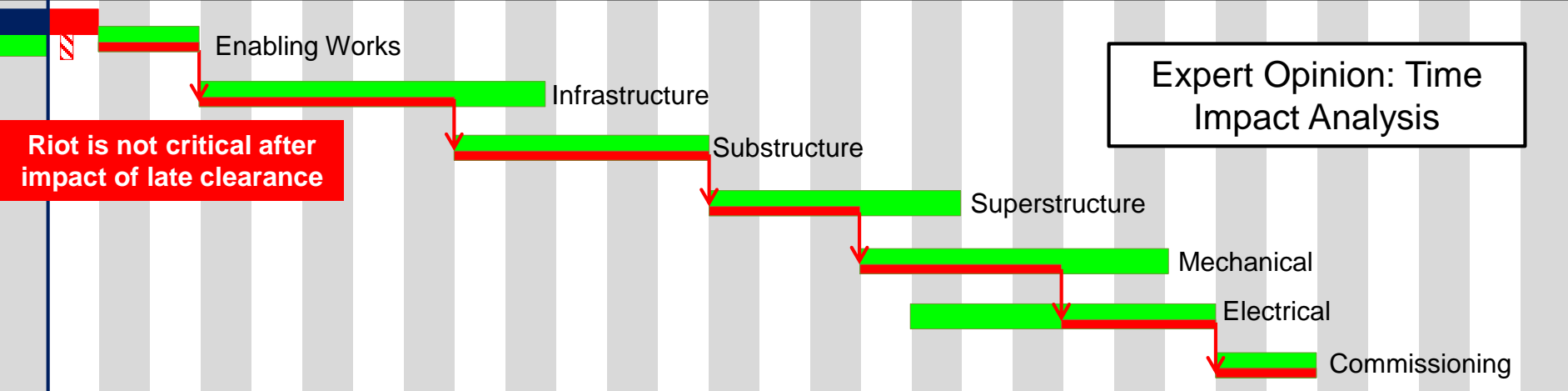


Expert Opinion: Time Impact Analysis

Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-
1a (Late Clearance)	4 weeks	Employer	104 weeks	4 weeks

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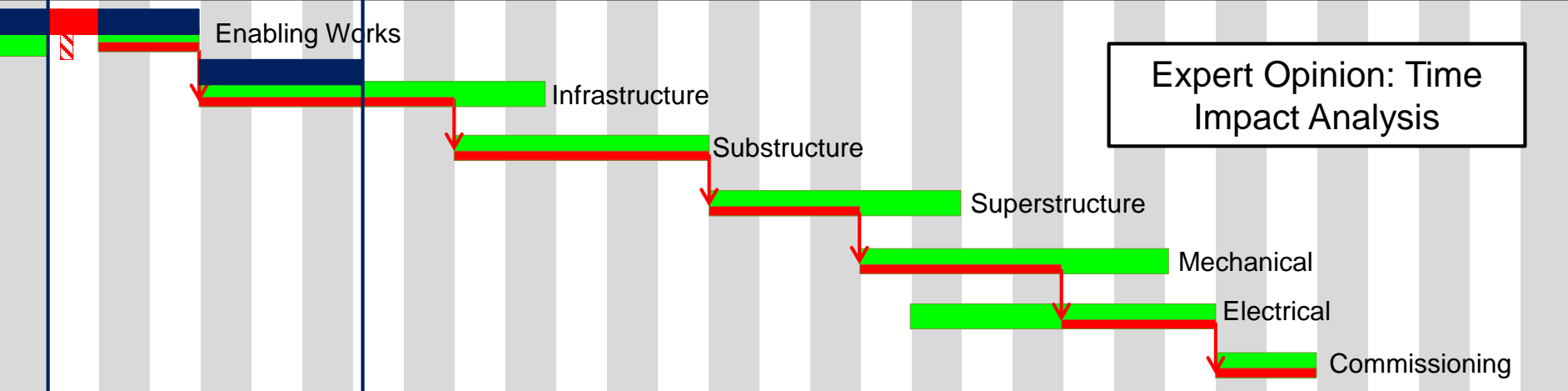
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Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-
1a (Late Clearance)	4 weeks	Employer	104 weeks	4 weeks
1b (Riot)	1 week	Contractor	104 weeks	0 weeks

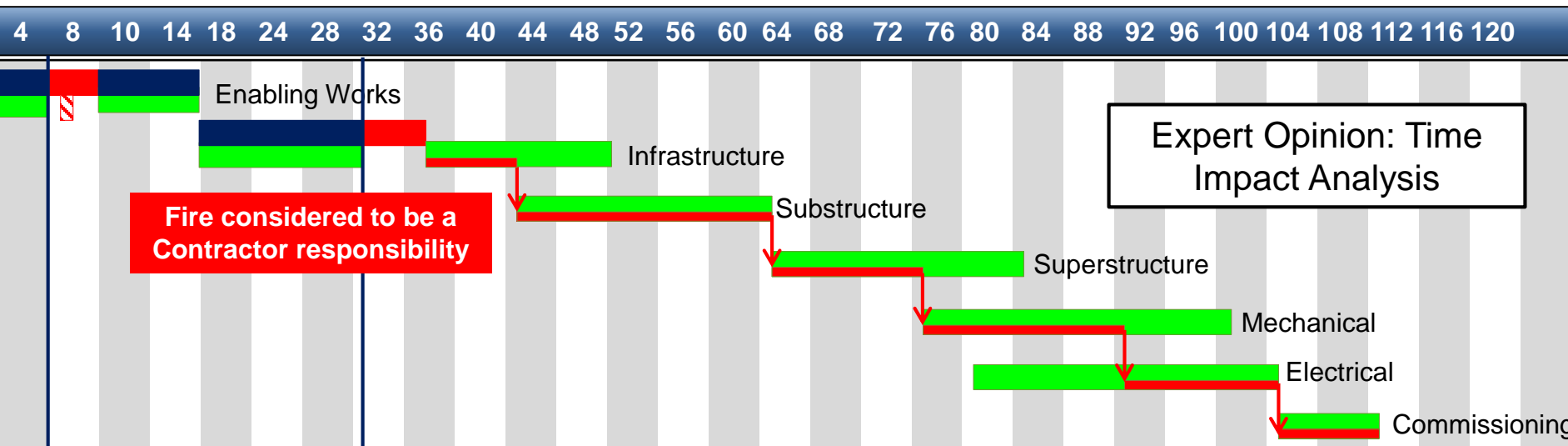
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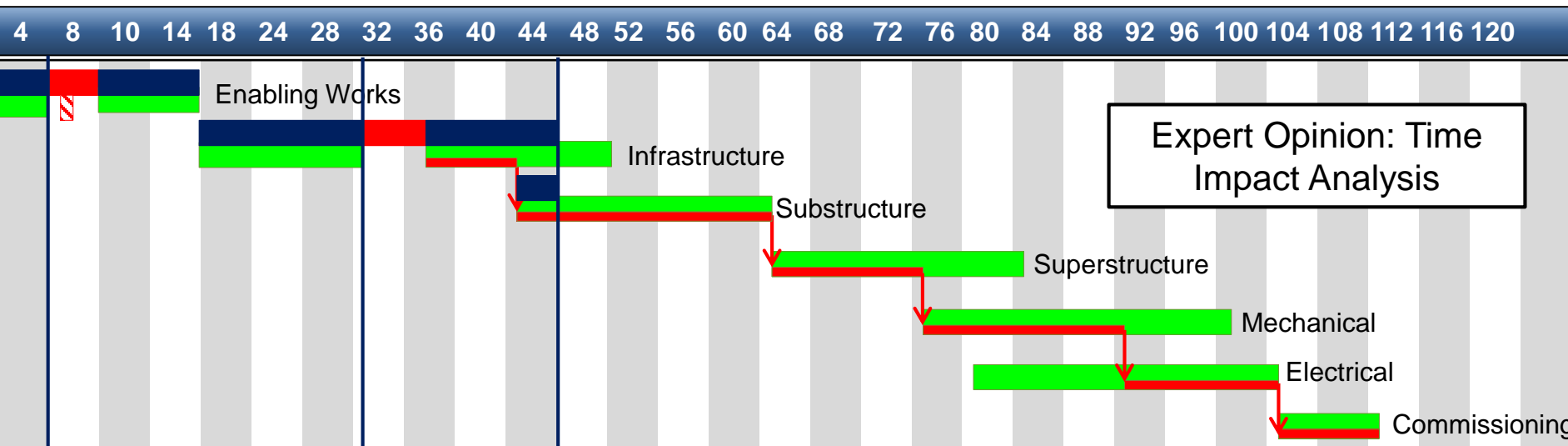
Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-
1a (Late Clearance)	4 weeks	Employer	104 weeks	4 weeks
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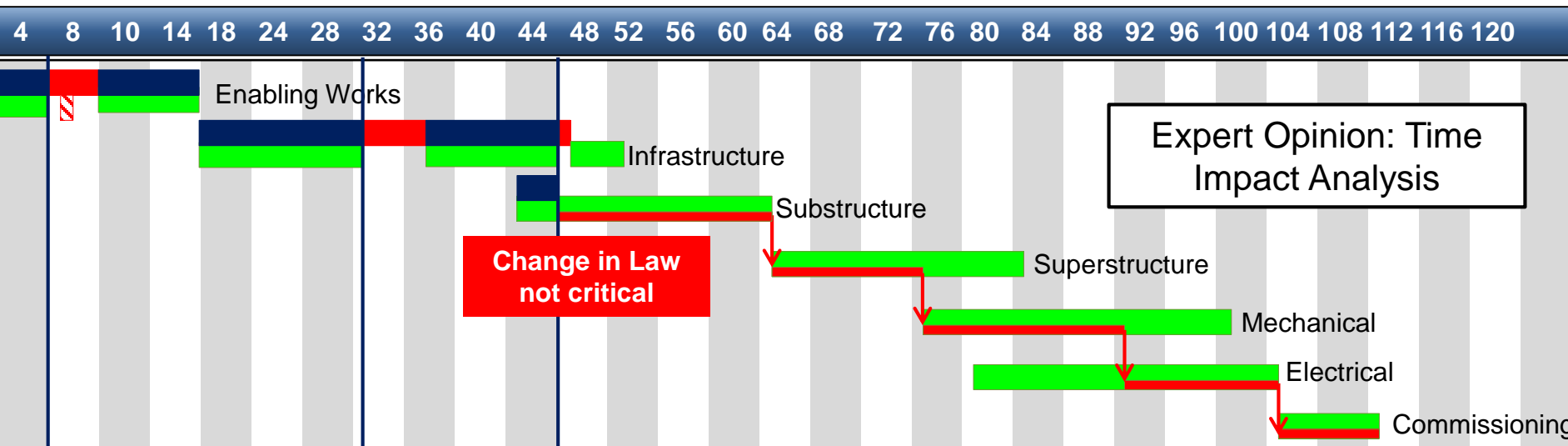
Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-
1a (Late Clearance)	4 weeks	Employer	104 weeks	4 weeks
1b (Riot)	1 week	Contractor	104 weeks	0 weeks
2 (Fire)	5 weeks	Contractor	104 weeks	0 weeks

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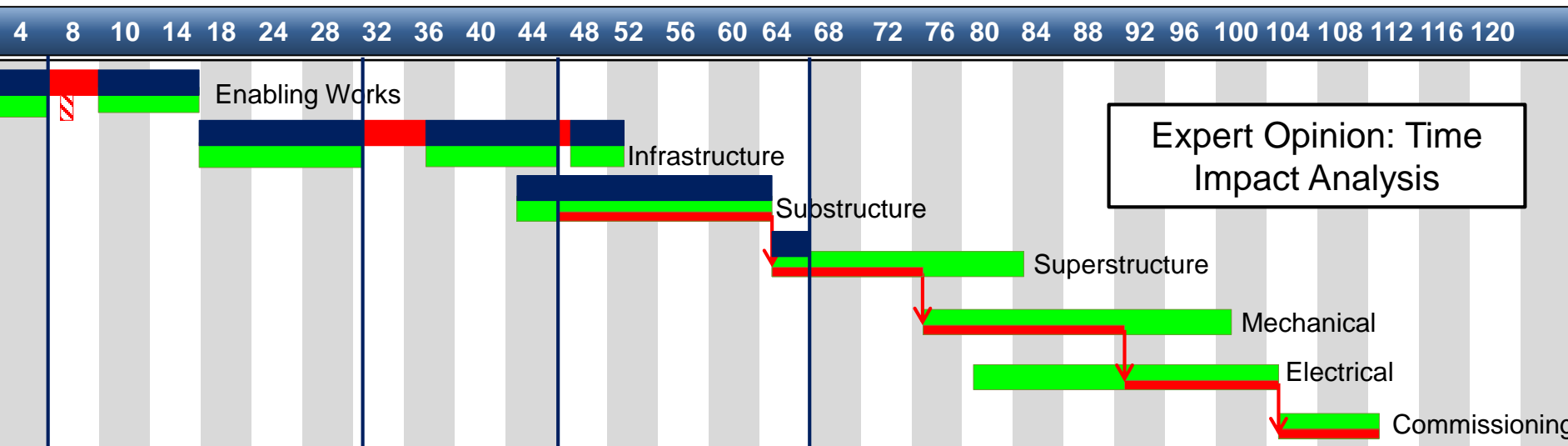
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Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-
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2 (Fire)	5 weeks	Contractor	104 weeks	0 weeks
3 (Change in Law)	1 week	Employer	104 weeks	0 weeks

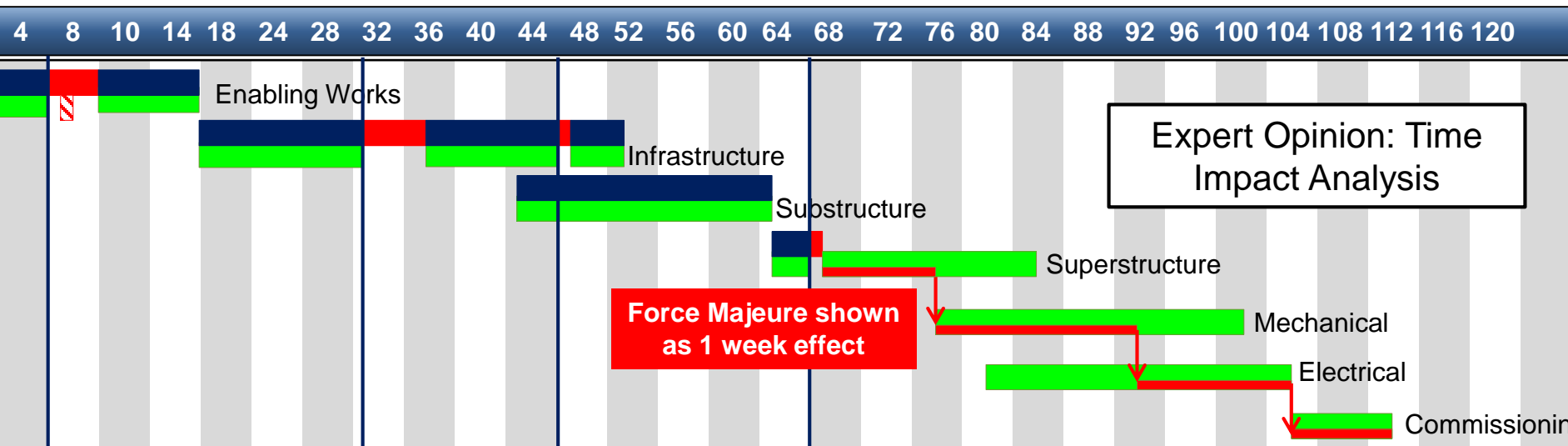
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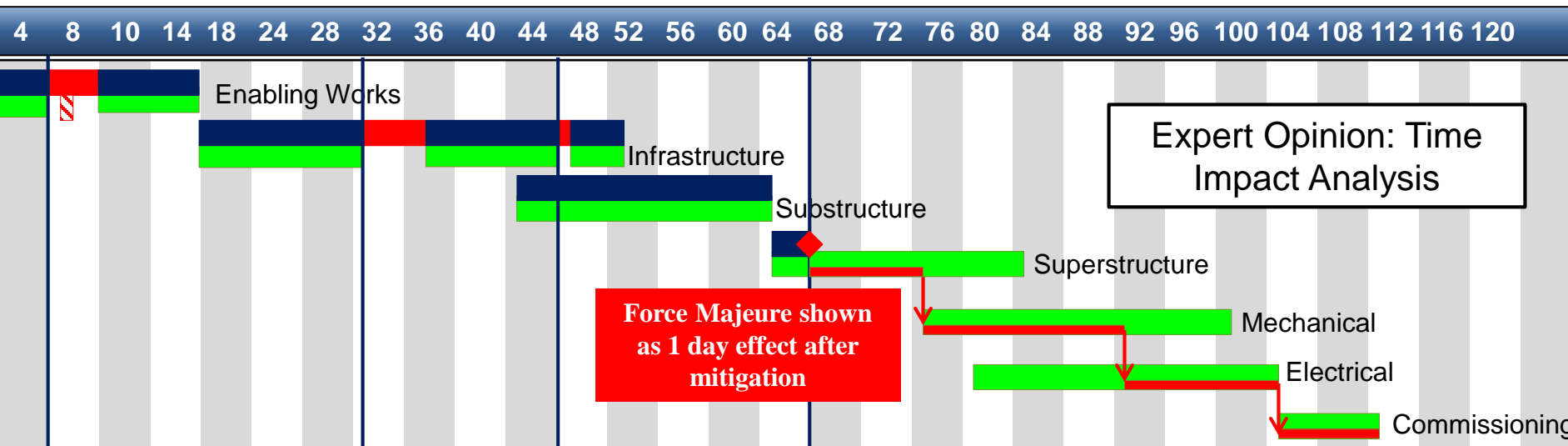
Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-
1a (Late Clearance)	4 weeks	Employer	104 weeks	4 weeks
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2 (Fire)	5 weeks	Contractor	104 weeks	0 weeks
3 (Change in Law)	1 week	Employer	104 weeks	0 weeks

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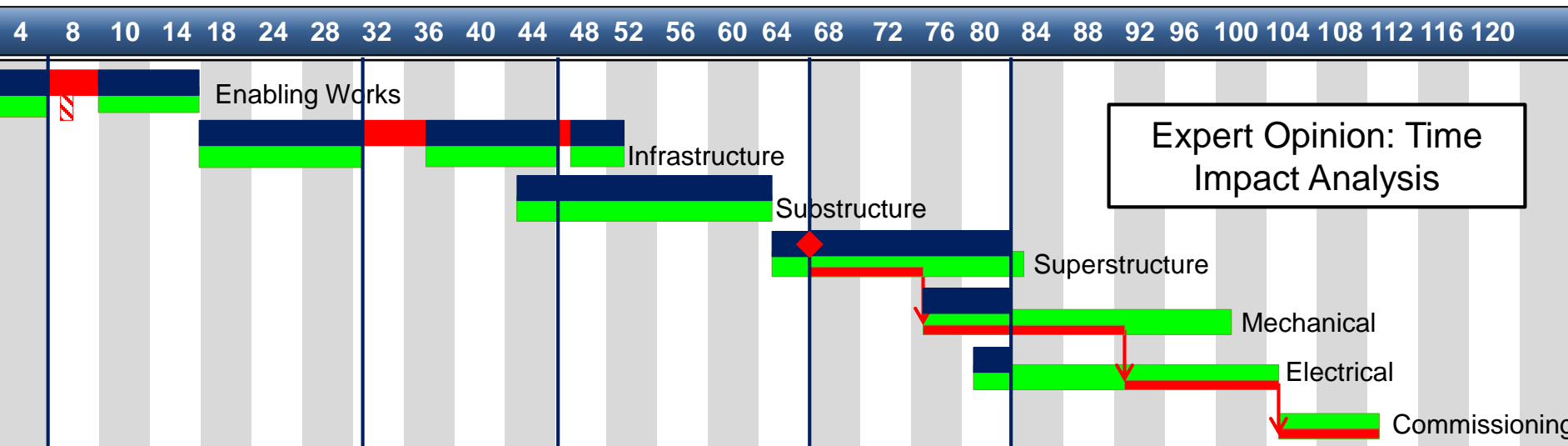
Event	Delay	Responsibility	Time for Completion	EoT
Commencement	-	-	100 weeks	-
1a (Late Clearance)	4 weeks	Employer	104 weeks	4 weeks
1b (Riot)	1 week	Contractor	104 weeks	0 weeks
2 (Fire)	5 weeks	Contractor	104 weeks	0 weeks
3 (Change in Law)	1 week	Employer	104 weeks	0 weeks
4 (Strike)	1 week	Force Majeure	Mitigation	Mitigation

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3 (Change in Law)	1 week	Employer	104 weeks	0 weeks
4 (Strike)	1 day	Force Majeure	104 weeks 1 day	1 day

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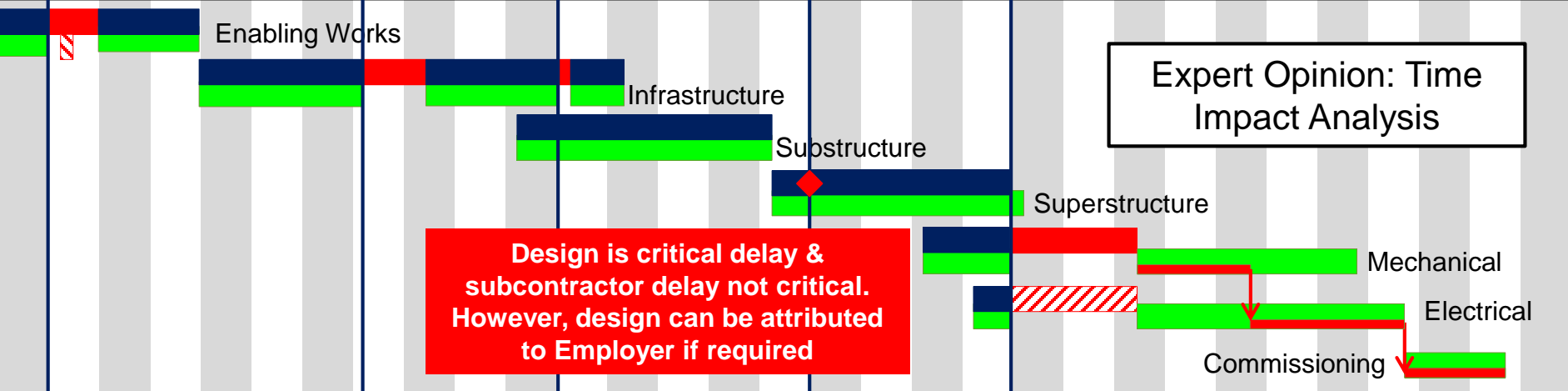


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Expert Opinion: Time Impact Analysis

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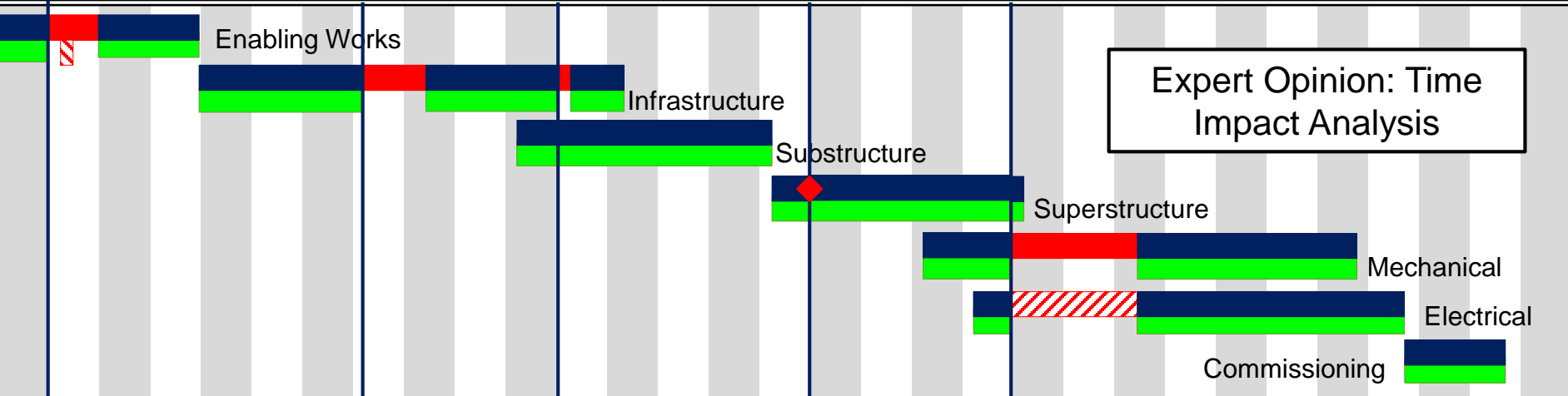
Expert Opinion: Time Impact Analysis

Design is critical delay & subcontractor delay not critical. However, design can be attributed to Employer if required

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Commencement	-	-	100 weeks	-
1a (Late Clearance)	4 weeks	Employer	104 weeks	4 weeks
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2 (Fire)	5 weeks	Contractor	104 weeks	0 weeks
3 (Change in Law)	1 week	Employer	104 weeks	0 weeks
4 (Strike)	1 day	Force Majeure	104 weeks 1 day	1 day
5 (Design & Subcon)	10 weeks	Contractor	104 weeks 1 day	0 weeks

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Expert Opinion: Time Impact Analysis

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# Summary of Extension of Time Claims

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1. Contractor's claim: 19 weeks and 1 day
2. Employer's Response: 00 weeks
3. Hired Consultant's View: 14 weeks 1 day
4. Expert Opinion: 04 weeks 1 day

# Why the Difference?

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1. The Contractor's claim was global and did not consider progress, concurrency, culpable delay or criticality.
2. The Employer's Response was one sided and did not consider progress, concurrency, valid claims and actual criticality.
3. Hired Consultant's view did not fully adjust for progress, concurrency or actual criticality.
4. Expert Opinion considered progress, concurrency, liability and criticality.



# Delay Analysis Conclusions

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- Meet contract requirements
- Focus upon what has to be established
- Review the available records
- Select the method accordingly
- Record at each stage
- Do it properly
- Do it accurately!