Review Gate Application Guide for Configuration Management

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1   Scope

This guide is intended to aid the identification and application of appropriate review gates when a configuration change affects TfNSW assets or asset interfaces.

The referenced review gates are defined within TS 01455 and are also associated with the content of the *Configuration Management Framework.*

The information in this guide is intended to assist with common configuration change project scenarios. The guidance may however not be suitable for every situation, in particular complex configuration changes, hence each configuration change must be considered on a case-by-case basis.

2   Application

This document is intended to be used by the following:

- asset custodians and asset stewards that set required asset assurance or asset deliverables on their service providers or third parties

- parties making changes to TfNSW transport assets or interfacing assets that seek to understand how relevant review gates are identified.

3   Referenced documents

The following documents are cited in the text. For dated references, only the cited edition applies. For undated references, the latest edition of the referenced document applies.

Transport for NSW standards

T MU AM 04001 PL *TfNSW Configuration Management Plan,* Version 6.0

TS 01455 *Configuration Management*

Other referenced documents

TfNSW, *Configuration Management Framework*

4   Terms, definitions and abbreviations

The following terms, definitions and abbreviations apply in this document.

asset an item, thing, or entity that has potential or actual value to an organisation (Source: ISO 55000:2014)

asset steward the entity responsible for the management and performance of assets (including asset condition, risk and reporting) on behalf of the asset custodian for the required life cycle stage and duration of the partner relationship (for example, contracted operators and maintainers)

configuration interrelated functional and physical characteristics of a product defined in configuration information

configuration baseline approved asset information that establishes the characteristics of a product or service at a point in time that serves as reference for activities throughout the life cycle of the product or service

configuration change a change to the baseline of a configuration item or set of configuration items

CM configuration management; a management activity that applies technical and administrative direction over the life cycle of an asset and service, its configuration identification and status, and related asset information

NAC network assurance committee; a governance entity that reviews proposed or progressing configuration changes and recommends if a configuration baseline be approved based on a presented assurance case. Also known as a configuration control board

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5   Background

Section 5 provides context and explains the principles of asset life cycle stages, configuration baselines and review gates. The general relationship between the three elements is shown in Figure 1. In some cases approval of the new baseline and passing the review gate may occur as one activity. The information provided is intended to help provide an understanding of the purpose of the requirements for each asset life cycle stage and the common review gates defined in TS 01455.
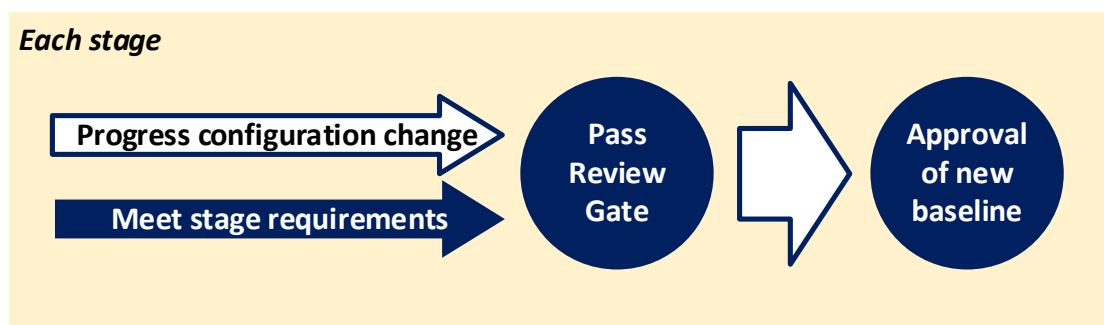

Figure 1 – Relationship of stage requirements, review gate and baseline

The flow charts in Section 6 provide additional assistance for identifying review gates that should be applied to each configuration change project, however, they should be used within the context provided in Section 5 and the requirements in TS 01455.

5.1   Asset life cycle stages

TfNSW has defined the asset life cycle with five broad stages. The stages have been further divided with the inclusion of several project stages to aid practical application in a project environment. Figure 2 shows the life cycle stages.
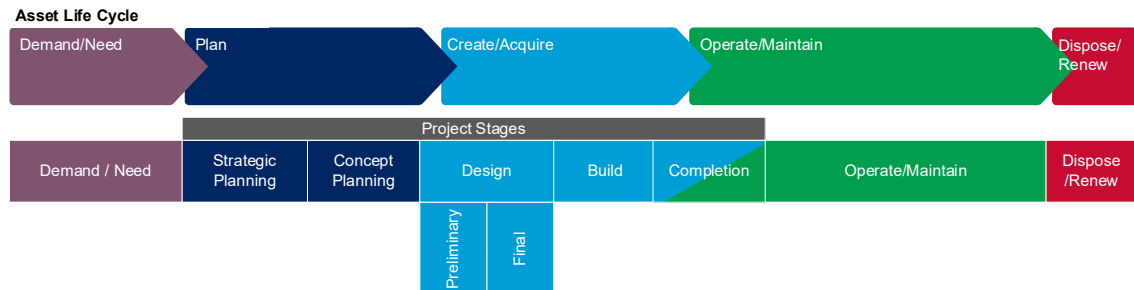

Figure 2 – Asset life cycle diagram

Projects that arise as part of a collection of maintenance or minor improvement works will normally be described in a set of annual works plans or equivalent documentation. In this case the approved documentation describing the planned works usually covers both the reason for pursuing a change as well as a high-level definition of what the change will be. As a result the individual projects would normally begin from the concept planning stage or even the design stage depending on how complete the original definition is.

Projects proposed by third parties such as private developers or utility owners will often have a developed proposed solution prior to engaging with TfNSW. Depending on the maturity of the proposed solution from TfNSW's perspective the project also often begins meeting TfNSW's configuration management requirements from the concept planning stage or design stage onwards.

5.2   Stage requirements

TS 01455 sets principle based assurance requirements against each asset life cycle stage. The requirements within the configuration management standard are set on TfNSW and its asset stewards. TfNSW however often relies on its external service partners or third parties to help fulfill some of the assurance requirements by meeting specific deliverables defined in agreements. The requirements set on service providers or third parties are set by the asset custodian within TfNSW or an asset steward that may be TfNSW or a specific entity engaged by TfNSW to manage assets for TfNSW.

5.3   Configuration baselines

Configuration baselines, sometimes referred to as just baselines, are the documented and approved representations of the final asset solution. A new baseline is not established until approved.

The baseline may consist of any of the documentation that describes the final asset, for example the documented requirements, design, asset registers, maintenance plans and operating manuals. The components of the configuration baseline are usually developed and matured progressively throughout a project but at each point they are approved they form a baseline that further work or changes are based on.

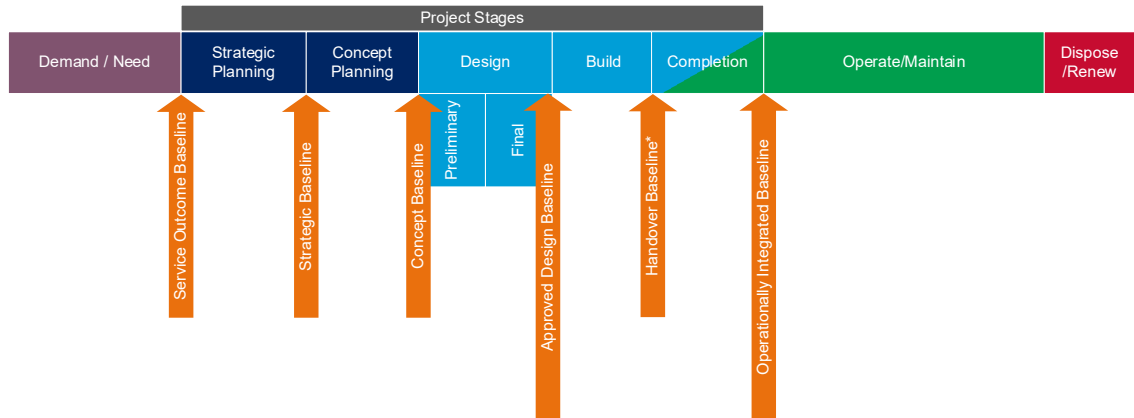The commonly referred to baselines are shown as vertical arrows in Figure 3.

Figure 3 – Common baselines

5.4   Review gates

Review gates are points within the project life cycle where a formal review is conducted on the assurance evidence developed by a project. Review gates may be used to support a decision to approve a new baseline.

Common review gates are identified in TS 01455 as shown in Figure 4.
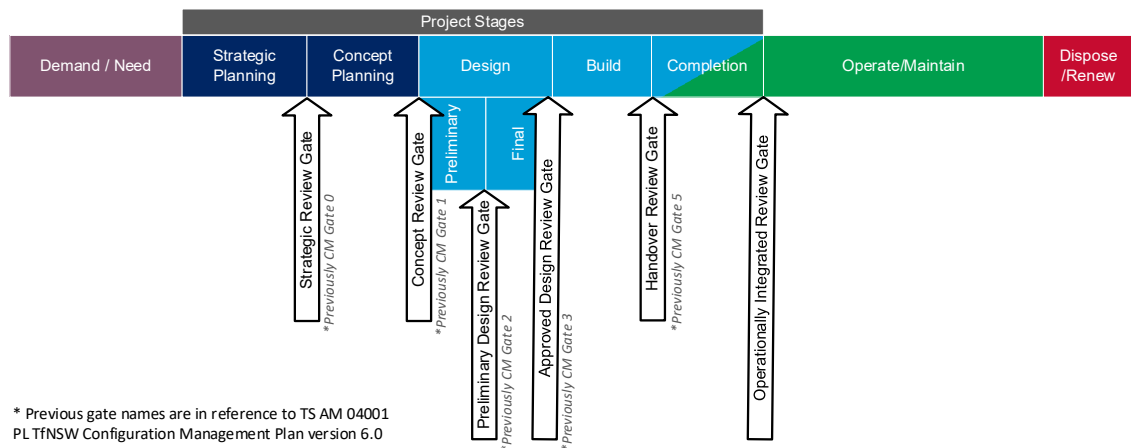
Figure 4 – Review gates

Fewer or more review gates may be applied depending on the nature of the project, with less complex configuration changes typically requiring fewer review gates. Section 6 provides guidance on how appropriate review gates are identified. Final determinations on which review gates are required is normally done by a NAC or the TfNSW asset custodian's representative.

5.4.1 Legacy terminology for review gates

Legacy terminology based on T MU AM 04001 PL may still be used in situations where legacy processes have not been transitioned out or where agreements were established when T MU AM 04001 PL was current. To aid clarity, Figure 4 includes references to the previous gate naming. The previous CM gate 4 is not shown in Figure 4, however may still be applicable.

6 Guide to identifying appropriate review gates

Section 6 provides two flow charts that can be used to help identify when and how many review gates may be appropriate for a project to implement a configuration change. This section is however only a guide and although it may be suitable as is for most projects, each project should consider the circumstances specific to the project.

6.1 Configuration change projects managed by TfNSW or asset stewards

Figure 5 and the notes in Table 1 are for configuration changes managed by TfNSW or its asset stewards. It provides a guide to identify when each review gate may be appropriate. The guide is best used at the beginning of a project to identify and plan for the necessary review gates.

The review gates that are agreed to be necessary for each configuration change are determined by the asset custodian or NACs acting for the custodian.
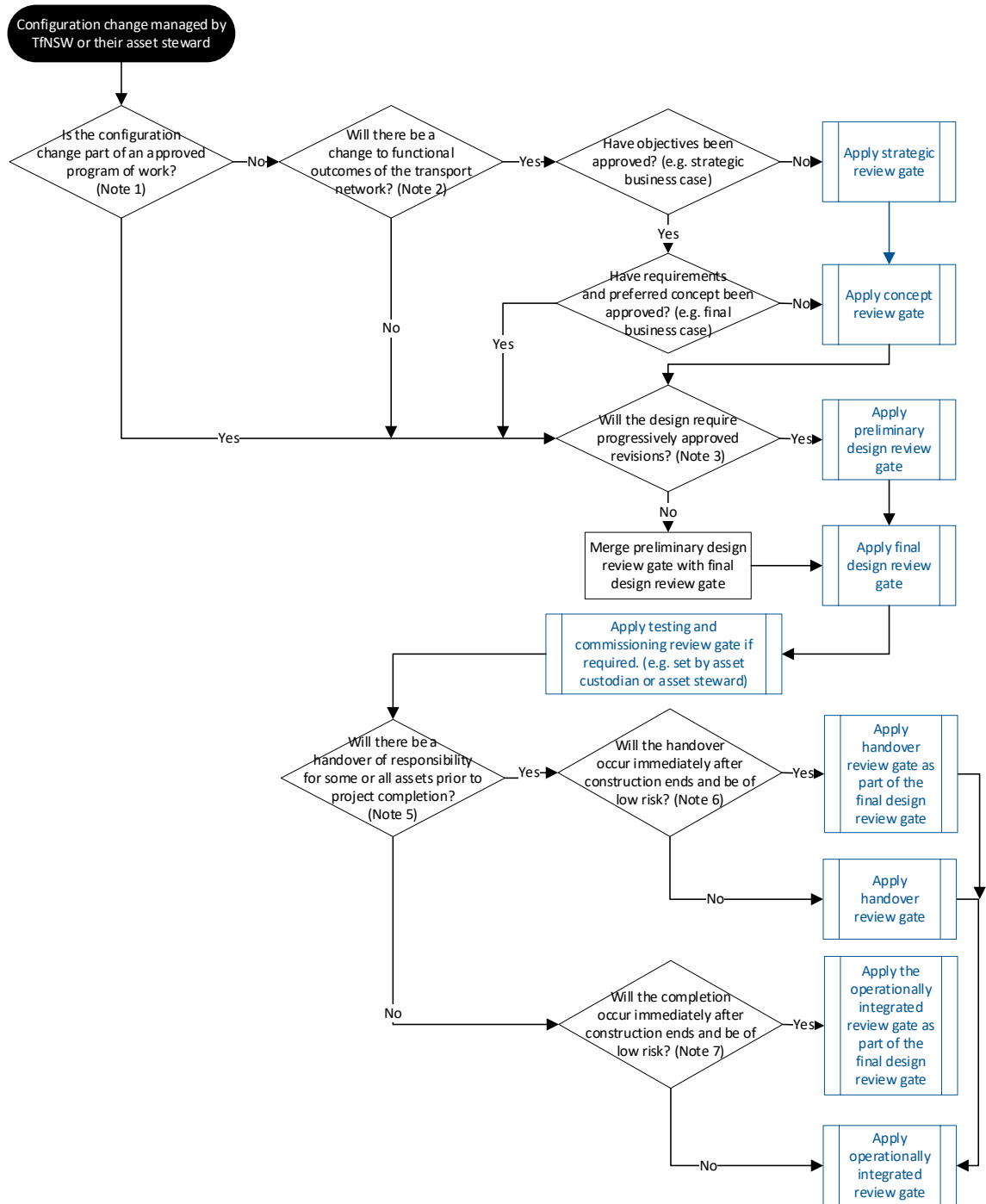
Figure 5 – TfNSW and asset steward managed projects

Table 1 – Notes for Figure 5

Note	Guidance and examples
1	This question refers to whether the proposed change has already been approved to be developed as part of a program of work with outcomes already defined. A program of work includes an annual works plan to conduct multiple projects to maintain or only slightly alter the transport network. A program of work may also be a series of defined projects, each with defined business requirements that have already been approved as a set and are being managed by a single asset steward.

Note	Guidance and examples
2	This question relates to how the configuration change affects transport outcomes. If new or altered business requirements or client requirements are being defined, there is likely to be a change to transport outcomes. Factors such as changing network capacity, services offered, service levels or resilience targets are examples of changed outcomes. The need for a strategic business cases (SBCs) for the configuration change project is often, though not always, an indicator that there will be a change to transport outcomes.
3	This question is to identify if a design is relatively simple and hence likely to reach a final design without preliminary designs being developed.
4	This question is to prompt consideration for the value of additional reviews during delivery that may be unique to a project. Examples include prior to testing new fleet or other assets within an environment where incidents during testing may directly affect the normal operation of the transport network.
5	This question is to identify when there is a transfer of responsibility for assets between one asset steward and another, typically from the deliverer to the maintainer. Except where the maintainer is also the deliverer a handover will occur. It may occur at multiple times during a project and may apply to the same asset more than once such as when an asset is returned by a project to the normal maintainer for a period of time before later taking back control to add more changes.
6	This question is to identify situations where relatively low risk assets handover events occur and it is impractical or unreasonable to apply a separate handover gate. A common example is the overnight handover of assets that have been altered that same night.
7	This question is to identify situations where relatively low risk assets handover events occur at the same time a project is completed and it is impractical or unreasonable to apply a separate handover gate. A common example is the overnight handover of assets that have been altered that same night.

6.2   Configuration change projects proposed by third parties

Figure 6 and the notes in Table 2 are for configuration changes proposed by third parties. Examples of third party projects include unsolicited proposals, council works, developments that interface with TfNSW and services or utilities on or crossing TfNSW land or structures. It provides a guide to identify when each review gate may be appropriate. The guide is best used at the beginning of a project to identify and plan for necessary review gates.
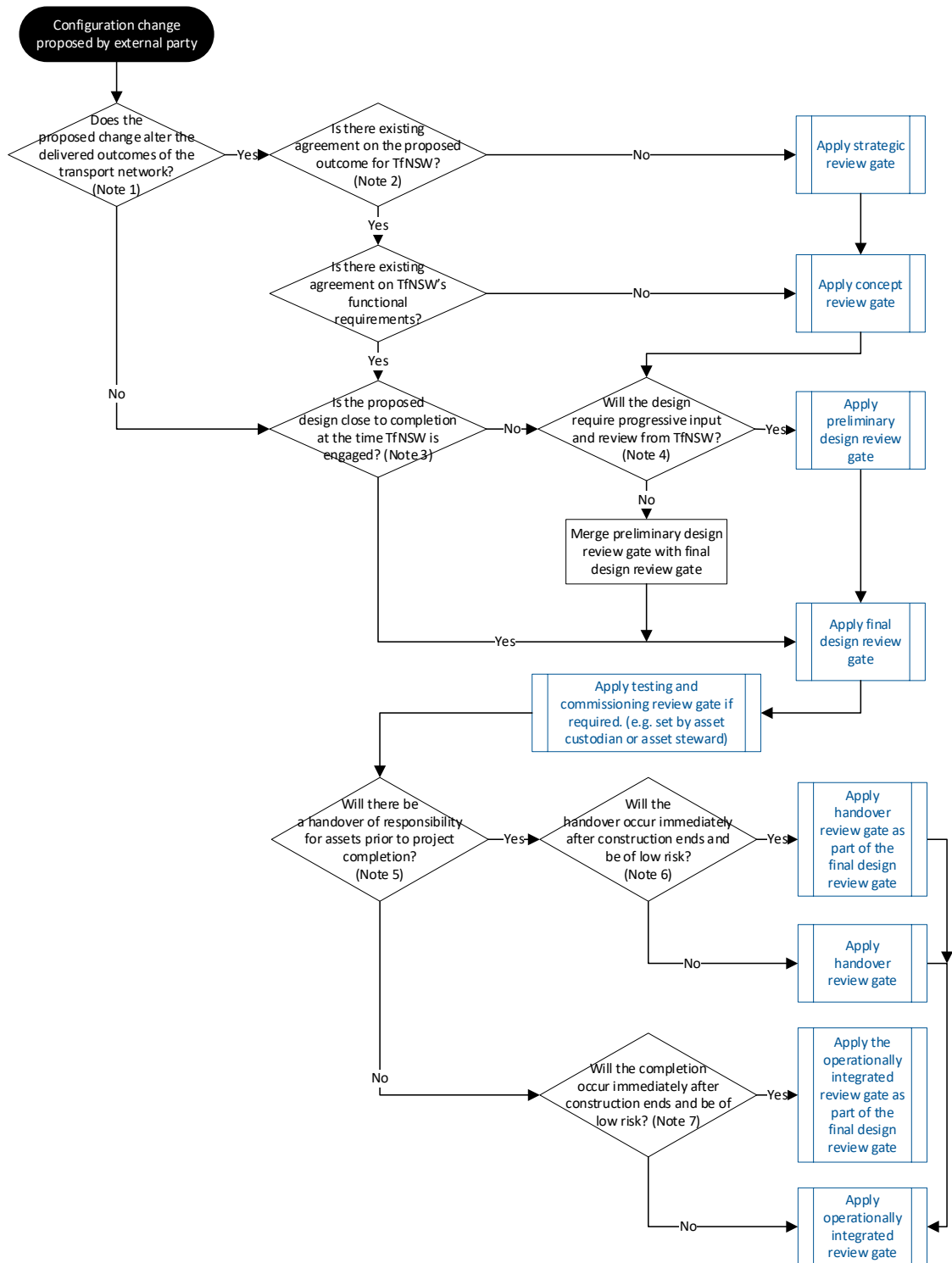
Figure 6 – Third party proposed projects

Table 2 – Notes for Figure 6

Note	Guidance and examples
1	This question is to identify if the proposed change affects outcomes that TfNSW will deliver. Example aspects relating to outcomes include operating and maintaining assets to current plans and at current cost, safety providing expected transport services, delivering community amenity and meeting sustainability objectives. Examples of configuration changes that are usually less likely to affect TfNSW outcomes include underground service crossings and minor structures such as communication towers fixed to TfNSW assets. Examples of changes that likely affect TfNSW outcomes include developments that affect customer access or amenity, changes that affect the ability of TfNSW to operate or maintain assets to current targets.
2	This question identifies if there is prior agreement by TfNSW or NSW Government that establishes expectations for what the changed outcomes are for TfNSW. Unsolicited proposals are examples of projects that often have progressed substantially and received in principle support from NSW Government prior to being able to present assurances to TfNSW at review gates. Although the first review gate may apply later it does not mean assurance of activities leading up to it do not need to be demonstrated.
3	This question is to assess the maturity of the proposed solution. Some proposed configuration changes may have already reached a mature design when presented to TfNSW. If TfNSW is required to provide substantial input it likely indicates that the design is not yet mature.
4	This question is to identify if a design is relatively simple and hence likely to reach a final design without input from TfNSW progressively during the design process. TfNSW may need to review the proposal to determine the level of input required as some configuration changes may initially appear simple but in fact have complex implications.
5	This question is to identify when there is a transfer of responsibility for assets from the third party to TfNSW or its asset steward occurs. This will occur where a third party delivers assets that will be owned or managed by TfNSW, or returns control of TfNSW assets that the third party managed during the project.
6	This question is to identify situations where the handover arrangements can be fully planned and agreed to before construction occurs. This is often associated with the handover of less complex assets where it may also be impractical or unreasonable to apply a separate handover gate. A common example is the overnight handover of assets that have been altered that same night.
7	This question is to identify situations where relatively low risk assets handover events occur at the same time a project is completed and it is impractical or unreasonable to apply a separate handover gate. A common example is the overnight handover of assets that have been altered that same night.