Consultation 2026

east west RAIL

Cambridge Eastern Train Care Centre

April 2026

Context for this report

Facilities to stable and maintain trains are essential to the operation of a reliable, punctual and high-quality railway. With the preferred location of our train maintenance depot near Bletchley towards the western end of the EWR route, a smaller train care centre is required towards the eastern end of the route to reduce the quantity of empty trains moving around the network. This facility would support the day-to-day operation of passenger services, including train stabling, cleaning, and routine preparation.

To select a preferred location for the train care centre we've carried out a detailed option selection process using a range of criteria known as Assessment Factors. They provide a consistent framework for decision-making on design options and a robust basis for identifying preferred options. The appraisal against these criteria is detailed in the following report, which identified a site near Fulbourn as the most likely location for the train care centre.

This options assessment considered the question of what infrastructure EWR would need to deliver suitable maintenance facilities without relying on facilities used by other operators. This is necessary to make sure the railway can function on a standalone basis. However, with the creation of Great British Railways there are more opportunities to collaborate with regional train operators to explore alternative solutions. This could include constructing a facility in an alternative location as well as making use of existing train care facilities.

We are exploring whether alternative solutions might reduce construction impacts on other regional services and enable better, more reliable services when EWR opens. If our ongoing collaboration with the wider rail industry produces a better solution, we will carry out further engagement on updated proposals for the train care centre later in 2026.

Contents

Tables

Figures

Executive summary

To support the efficient operation of passenger services on East West Rail (EWR), facilities will be required to stable and maintain the new passenger trains. The location of a Train Maintenance Depot (TMD) has been subject to a separate study which has identified a preferred location west of Bletchley. The TMD will contain the majority of the EWR passenger trains stabling provision and a workshop for undertaking heavy maintenance.

To reduce empty coaching stock (ECS) moves at the start and end of service a further facility will be required near to the eastern end of the route. This study is to identify the preferred location for this facility.

This facility, referred to as a Train Care Centre (TCC), will include train stabling and support cleaning and routine train preparation activities.

Due to the improvement works and introduction of a new platform at Cambridge Station, existing stabling infrastructure adjacent to the station will be permanently removed. Therefore, the TCC also makes provision for these displaced stabling roads.

Site layouts were developed to support the initial longlist search for locations. Multidiscipline reviews were then completed to determine the shortlist of locations to be appraised using Assessment Factors.

The purpose of this report is to summarise the outcome of the Assessment Factor process that was applied to determine the preferred location. The review was completed on a shortlist of two locations, with two possible design layout options considered at each location:

- CEA west of Wilbraham Road, near Fulbourn (with layouts CEA1 and CEA2)
- CSM west of Barrington Road, near Foxton (with layouts CSM1 and CSM2)

The result of the Assessment Factor appraisal was that the location CEA west of Wilbraham Road scored best with regards to the operational performance and network capability factors. This was considered against the environmental and planning factors for which CSM west of Barrington Road scored better. On balance it was deemed that CEA west of Wilbraham Road is the preferred location to ensure an efficient rail service for the future network.

With regards to the layout options considered at this location CEA1 scored marginally better than CEA2, however at this stage the layout will not be fixed to a single option. This will be confirmed following more detail design work and considering feedback from stakeholder consultation.

A summary of the differentiating factors is as follows:

- Cost – capital costs across the options are similar, but maintenance cost is a differentiator. The longer ECS moves to CSM west of Barrington Road would increase the wear on multiple S&C crossings between this location and Cambridge.
- Network Capability – the location of CEA west of Wilbraham Road, provides greater opportunities for extension of passenger services calling beyond the proposed Cambridge East Station towards Ipswich.
- Maintainability/Infrastructure Reliability – the CEA west of Wilbraham Road performs better in this category overall due to the improved track arrangement entering the site. There is also a lesser impact on the adjacent level crossings when compared to the impact on the Foxton level crossing. CEA west of Wilbraham Road also allows for more flexibility on the track layout geometry.
- Operational Resilience – There is currently insufficient capacity identified for all ECS between the CSM west of Barrington Road options and the proposed Cambridge East station. CSM west of Barrington Road ECS moves introduce operational resilience risks at more pinch points than CEA west of Wilbraham Road.
- Deliverability – the CEA west of Wilbraham Road options perform worse during the construction of the works but are better than the CSM west of Barrington Road options during operation. This is due to the access by road for construction traffic to CEA west of Wilbraham Road being more constrained. However, once operational, the safety risk at the CSM west of Barrington Road options increases due to the level of maintenance intervention required and proximity to a very busy level crossing.
- Environmental Assessment - it is considered that both CEA1 west of Wilbraham Road and CSM2 west of Barrington Road would be neutral to the baseline CEA2 west of Wilbraham Road and CSM1 west of Barrington Road would be a minor improvement. Therefore CSM1 west of Barrington Road would be the preferred option for Environment due to the significant decrease in GHG emissions, reduced agricultural land take, potential heritage impacts and indirect impact to community receptors.
- Consistency with Local plans – CSM west of Barrington Road scored better in this factor due to the positioning of CEA west of Wilbraham Road options within green belt land.

1. Abbreviations and Descriptions

Table 1: Abbreviations and Descriptions

AF	Assessment Factors
ALC	Accommodation Level Crossing
AQMA	Air Quality Management Area
BNG	Biodiversity Net Gain
BREEAM	Building Research Establishment Environmental Assessment Method
CAPEX	Capital Expenditure
CEMP	Construction Environmental Management Plan
CET	Controlled Emissions Toilet
CoCP	Code of Construction Practice
DCO	Development Consent Order
DOLB	Draft Order Limits Boundary
ECS	Empty Coaching Stock
EIA	Environmental Impact Assessment
EWR	East West Rail
FRTT6	Full Rout Time Table version 6
GA	Greater Anglia
GBR	Great British Railways
GHG	Greenhouse Gases
HER	Historic England Records
HGV	Heavy Goods Vehicle
KSA	Key Strategic Assumptions
LCA	Life Cycle Assessment

MOD	Ministry Of Defence
MRAO	Mullard Radio Astronomy Observatory
MWJV	Mott MacDonald WSP Joint Venture
NHL	National Heritage List
NR	Network Rail
OCS	Overhead Catenary System
PRoW	Public Right of Way
RRAP	Road Rail Access Point
S&C	Switches & Crossings
SCLP	South Cambridgeshire Local Plan
SO	Strategic Objective
SRN	Strategic Road Network
TCC	Train Care Centre
TMD	Train Maintenance Depot
TO	Task Order
TP	Technical Partner
WFD	Water Framework Directive

2. Scope

2.1 Introduction

The purpose of this report is to summarise the outcome of the Assessment Factor (AF) process that has been applied to determining the preferred location of the Train Care Centre (TCC) for East West Rail (EWR). It summarises the work that has been completed to date and identifies the preferred location and currently reviewed option.

The Assessment Factors are a set of topics which are aligned with the Project objectives and requirements to enable the relative performance of options to be compared against a design baseline or comparator. They provide a consistent framework for decision-making on design options and a robust basis for identifying preferred options.

Each Assessment Factor topic includes a number of supporting considerations. Each of these considerations is individually examined against a baseline/comparator by a suitably qualified and experience subject matter expert. These are then compiled into the overall assessment and considered by a multidisciplinary project team by means of a consistent approach and to develop a consensus as to the preferred option(s).

Further information about the Assessment Factor process can be found in our Assessment Factors factsheet, here: eastwestrail.co.uk/consultation2024/assessment-factors-factsheet.

To support the efficient operation of passenger services on East West Rail (EWR), facilities will be required to stable and maintain the new passenger trains. The location of a Train Maintenance Depot (TMD) has been subject to a separate study which has identified a preferred location west of Bletchley. This depot will contain the majority of the EWR passenger trains stabling provision and workshop for undertaking heavy maintenance. To reduce empty coaching stock (ECS) moves at the start and end of service a further facility will be required, near to eastern end of the route.

In addition to the new rolling stock serving EWR, due to the improvement works and introduction of a new platform at Cambridge Station, the current stabling in use by Operators for passenger trains adjacent to the station is affected and reduces the existing capacity for the equivalent of three 244m long trains. Provision for these facilities are allowed for within the TCC design.

2.2 Train Care Centre overview

This facility would provide stabling and servicing for six trains at 120m length and three trains at 244m length. It will be a dedicated 24-hour operational servicing facility operated seven days per week/365 days per year.

The site will contain the following facilities:

- An Automatic Vehicle Inspection System (AVIS)
- Train wash
- Train stabling
- Site lighting
- Roadways and walkways
- Fencing and security
- Office and welfare facilities
- Plant and equipment for train servicing including associated plant rooms.

These facilities and functions are described in more detail below:

2.2.1 Automatic Vehicle Inspection System (AVIS)

On entry, trains could pass through an automatic vehicle inspection system (AVIS). This facility could contain equipment to scan the trains to measure wheel diameters, brake pad thicknesses, pantograph wear and visual checks for damage. This would provide a nonintrusive verification of the train condition, safety and reliability to determine whether additional intervention would be required outside routine maintenance.

2.2.2 Train wash

This facility could be between approximately 20m (21 yards) and 60m (65 yards) in length. It houses washing equipment to clean the exterior of trains as they pass through. Cleaning of each train can take in the region of three to five minutes, and the facility is designed to provide water recycling. The associated plant room contains detergent tanks, recycled water tanks, control equipment and pumps.

2.2.3 Train stabling

The stabling sidings are where the trains would be stored for the night. Whilst stabled, staff can complete the routine servicing activities required. These activities would include:

- Screen wash replenishment – Dispensing locations would be provided along the stabling sidings for the replenishment of the screen wash tanks on the trains.
- Sanding replenishment – Dispensing locations would be provided to refill sand boxes on trains to enable later operational dispensation to improve traction between train wheels and track.
- Controlled emission toilet (CET) tanking and water replenishment – Toilets on the trains would need to be emptied on a regular basis and water tanks refilled. Stations would be located along the length of the stabling to enable this.
- Front end cleaning – There is a requirement to manually clean the front ends of trains so that the train driver's vision is not obscured during operation. Equipment would be provided to facilitate this.

- General interior cleaning – Trains would be cleaned internally by staff using the access provisions between stabling sidings.

The stabling sidings would be designed with walkways, lighting and platforms for safe access for staff. Adjacent to the sidings would be the associated plant rooms for the above-mentioned plant.

Other notable features

Site lighting appropriate for the different activities taking place on-site would be provided. It would be designed to limit light pollution outside of the site boundary. Highways and walkways would be provided to allow safe access to all areas of the site, including emergency access provision. Access to the site would be controlled, with fencing and CCTV provided for security. Office and welfare facilities would be provided on site for the staff located at this facility.

3. Stage 1 – Site Identification

3.1 Location identification

An extensive search of locations has been completed. This identified possible locations along the EWR route and intersecting rail lines.

An initial review of the longlist of locations was completed by technical specialists considering the following parameters:

- Do the site constraints make it feasible to contain the required facilities?
- Does the track geometry make a connection to the main line possible?
- Are there any environmental constraints considering the wider area impact?
- Does the surrounding road network provide suitable access to the site?
- Are there any clashes with utilities that would cause significant constraints?
- Are there any overlaps with known development allocations and/or planning permission or applications where decisions are pending?

The initial review and identification of locations was led by the environment team to ensure locations considered minimised the potential for environmental impacts.

The conclusion of the review, following the input provided by other technical disciplines, was to determine the shortlist of locations for taking through the Assessment Factors process.

3.2 Approach to analysis

The longlist of locations reviewed is detailed below in Table 2 along with the results of the initial discipline reviews.

Table 2: Longlist of TCC locations

Site	Location Description	Shortlisted	Commentary
CCA	Cambridge Station Siding	No	Not taken forward due to being an existing operational facility at full capacity.
CSA	North of Whittlesford Parkway Station	No	The site constraints do not allow for the required stabling sidings.
CSB	Whittlesford Up Siding	No	The site constraints do not allow for the required stabling sidings.

CSC	North of Merton Place	No	The site constraints do not allow for the required stabling sidings.
CSD	South of Merton Place	No	The site constraints do not allow for the required stabling sidings.
CSE	North of Nats Lane	No	The site constraints do not allow for the required stabling sidings.
CSF	West of London Road	No	The site constraints do not allow for the required stabling sidings
CSG	South of Rookery Lane	No	The site constraints do not allow for the required stabling sidings.
CSH	South of Widdington Road	No	The site constraints do not allow for the required stabling sidings.
CSI	East of North Hall Road	No	The site constraints do not allow for the required stabling sidings.
CSJ	West of Old Mead Road	No	Not taken forward due existing highway alignment constraints impacting the access route.
CSK	Letchworth Depot	No	Not taken forward due to being an existing operational facility at full capacity and not allowing for the required stabling sidings.
CSL	Hitchin Disused Siding	No	Sidings in use and not a viable location operationally due to the capacity on the main line and ability to add in the additional EWR empty coaching stock moves.
CSM1	West of Barrington Road	Yes	Taken forward.
CSM2	West of Barrington Road	Yes	Taken forward.
CSN	West of Barrington Road	No	Not taken forward due to tight radius track required connecting to existing trackwork.
CNA	North of Main Street	No	The site constraints do not allow for the required stabling sidings.
CNB	East of Lynn Road	No	The site constraints do not allow for the required stabling sidings.

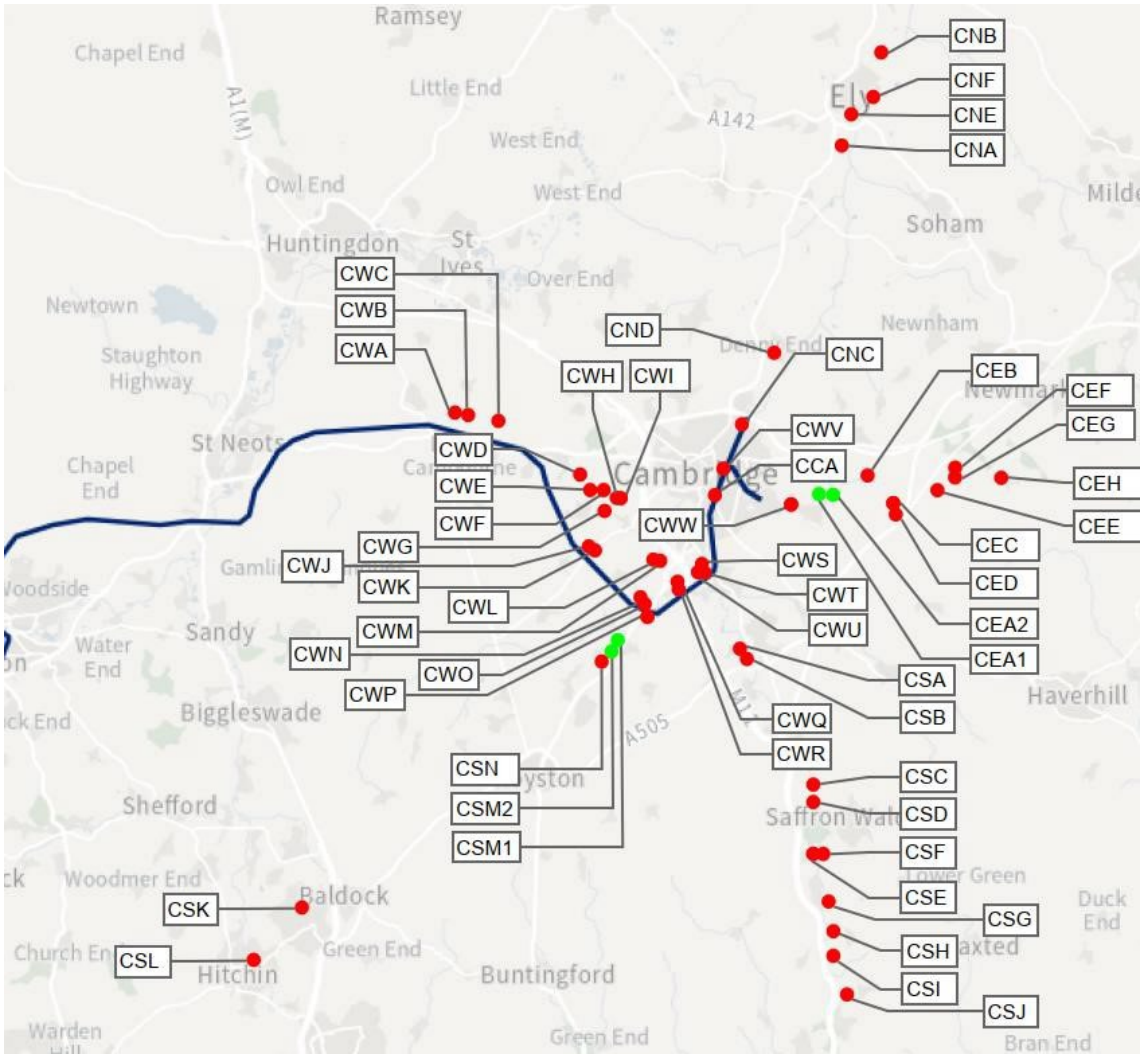
CNC	Chesterton Sidings	No	Not taken forward due to capacity constraint over Chesterton level crossing.
CND	South of Clayhithe Road	No	Not taken forward due to environmental and consents constraints.
CNE	South of Ely Station	No	Not taken forward due to environmental constraints.
CNF	Ely Potters Sidings	No	Not taken forward due to environmental constraints and operational capacity impacts
CEA1	West of Wilbraham Road	Yes	Taken forward.
CEA2	West of Wilbraham Road	Yes	Taken forward.
CEB	West of Mill Road	No	The site constraints do not allow for the required stabling sidings.
CEC	East of Mill Road	No	Not taken forward as the site is not located in an electrified area of the railway and so significant works would be required to provide power from existing electrification assets.
CED	East of Mill Road	No	The site does not allow for the required stabling sidings and is not located in an electrified area of the railway and so significant works would be required to provide power from existing electrification assets.
CEE	North of Brinkley Road	No	The site does not allow for the required stabling sidings and is not located in an electrified area of the railway and so significant works would be required to provide power from existing electrification assets.
CEF	West of Westley Bottom Road	No	Not taken forward as the site is not located in an electrified area of the railway and so significant works would be required to provide power from existing electrification assets.

CEG	West of Westley Bottom Road	No	Not taken forward as the site is not located in an electrified area of the railway and so significant works would be required to provide power from existing electrification assets.
CEH	West of Dullingham Station	No	The site does not allow for the required stabling sidings and is not located in an electrified area of the railway and so significant works would be required to provide power from existing electrification assets
CWA	North of St Neots Road	No	Not taken forward due to overlap with proposed development.
CWB	North of St Neots Road	No	Not taken forward due to overlap with proposed development.
CWC	North of St Neots Road	No	Not taken forward due to overlap with proposed development.
CWD	West of Main Street	No	Not taken forward as the site is not located in an electrified area of the railway and so significant works would be required to provide power from existing electrification assets.
CWE	West of Main Street	No	Not taken forward as the site is not located in an electrified area of the railway and so significant works would be required to provide power from existing electrification assets.
CWF	West of Main Street	No	Not taken forward as the site is not located in an electrified area of the railway and so significant works would be required to provide power from existing electrification assets.
CWG	East of Hardwick Road	No	Not taken forward as the site is not located in an electrified area of the railway and so significant works would be required to provide power from existing electrification assets.

CWH	East of Hardwick Road	No	Not taken forward as the site is not located in an electrified area of the railway and so significant works would be required to provide power from existing electrification assets.
CWI	East of Hardwick Road	No	Not taken forward as the site is not located in an electrified area of the railway and so significant works would be required to provide power from existing electrification assets. The site is also located within the MRAO restricted area
CWJ	North of Haslingfield Road	No	Not taken forward as the site is not located in an electrified area of the railway and so significant works would be required to provide power from existing electrification assets. The site is also located within the MRAO restricted area.
CWK	North of Haslingfield Road	No	Not taken forward as the site is not located in an electrified area of the railway and so significant works would be required to provide power from existing electrification assets. The site is also located within the MRAO restricted area.
CWL	South of Haslingfield Road	No	Not taken forward as the site is not located in an electrified area of the railway and so significant works would be required to provide power from existing electrification assets. The site is also located within the MRAO restricted area.
CWM	South of Haslingfield Road	No	Not taken forward as the site is not located in an electrified area of the railway and so significant works would be required to provide power from existing electrification assets. The site is also located within the MRAO restricted area.
CWN	South of Haslingfield Road	No	Not taken forward due to main line track gradient in the area requiring large earthworks and presence of Chapel Hill tunnel.

CWO	South of Haslingfield Road	No	Not taken forward due to main line track gradient in the area requiring large earthworks and presence of Chapel Hill tunnel.
CWP	South of Station Road	No	The site constraints do not allow for the required stabling sidings.
CWQ	East of Station Road	No	The site constraints do not allow for the required stabling sidings.
CWR	North of Shelford Road	No	The site constraints do not allow for the required stabling sidings.
CWS	West of Cambridge Road	No	Not taken forward due to challenging highway access due to existing planning consents.
CWT	East of Cambridge Road	No	The site constraints do not allow for the required stabling sidings.
CWU	West of Granham's Road	No	The site constraints do not allow for the required stabling sidings.
CWV	Coldhams Depot	No	The site constraints do not allow for the required stabling sidings.
CWW	South of Coldhams Lane	No	The site constraints do not allow for the required stabling sidings.

Figure 1: TCC longlist locations map



3.3 Final shortlisted locations

The final shortlist of locations taken forward for Assessment Factors included:

- Site CEA west of Wilbraham Road
- Site CSM west of Barrington Road

These options were judged to have a suitable piece of land available that meet the parameters listed in section 3.1.

Two options have been developed for these locations based on feasible layouts, each of which have been reviewed using the Assessment Factors process.

4. Stage 2 – Assessment Factors

The Assessment Factors process has been completed by reviewing each of the options for the TCC locations against the baseline to identify a preferred location. High level layout options detailing track and highways concepts have been completed and were included within the pack of information available to reviewers. These were produced to demonstrate possible layouts for each location utilising different parcels of land, as the ultimate layout for the site will be developed in more detail as the project progresses.

The following provides an overview of each of the options developed for the locations along with the results of the Assessment Factors review.

4.1 General Overview

The principles of the early TCC layout development used for this assessment factor follow the EWR requirements for the site (Section 0) along with design best practice from knowledge of other systems.

4.2 Indicative Site Layouts

4.2.1 CEA2 west of Wilbraham Road (baseline)

This site is located to the west of Wilbraham Road and to the north of the existing Newmarket Line rail corridor. This option places the TCC layout close to the mainline and provides a connection from the main line at the east of Teversham level crossing.

This was selected as the baseline as it has the closest connection to Cambridge Station, at the end of the proposed EWR route.

Figure 2: CEA2 west of Wilbraham Road (baseline)

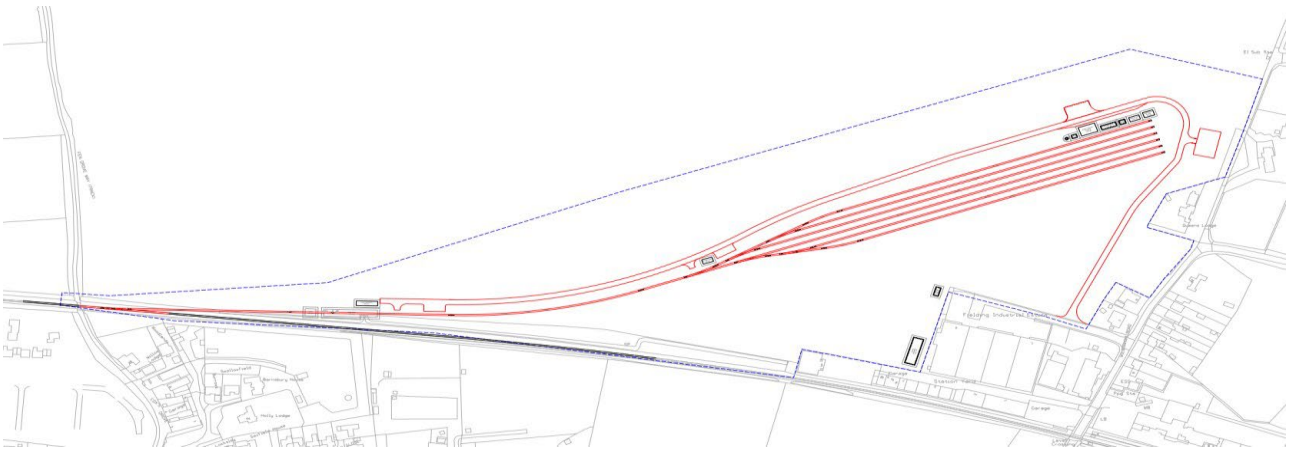
Key areas of consideration for this location include:

- The presence of priority habitat deciduous woodland 200m south west of the site, and tree preservation order to the south west boundary.
- Impact on level crossings on approach to the location.
- Good road access to/from assumed traincrew location at Cambridge station.
- Overhead Line electrification would require extension from Cherry Hinton highway level crossing to the TCC.

4.2.2 CEA1 west of Wilbraham Road

This site is located in the same region as CEA2 west of Wilbraham Road but uses a different parcel of land within the same location. This option leaves the main line at Coxs Grove level crossing and so pushes the layout further east.

Figure 3: CEA1 west of Wilbraham Road



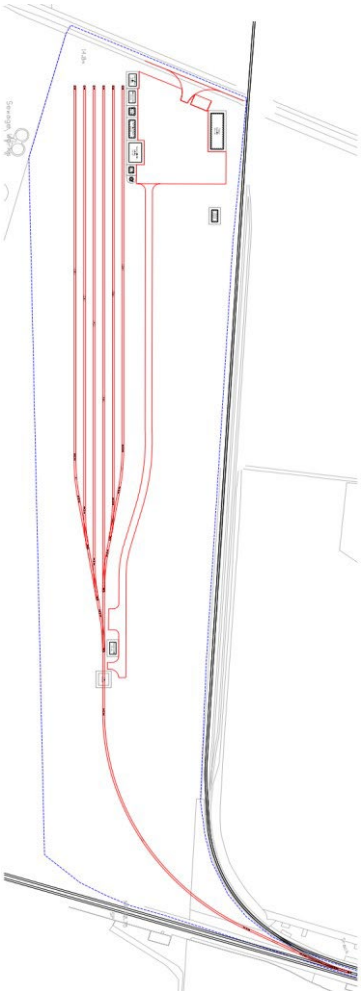
Key areas of consideration for this location include:

- Proximity to residential properties on Wilbraham Road.
- Tree preservation order to the south west boundary.
- Impact on level crossings on approach to the location.
- Good road access to/from assumed traincrew location at Cambridge station.
- Overhead Line electrification would require extension from Cherry Hinton highway level crossing to the TCC.

4.2.3 CSM1 west of Barrington Road

This site is located to the west of Barrington Road and follows the alignment orientation of the existing Barrington Siding.

Figure 4: CSM1 west of Barrington Road



Key areas of consideration for this location include:

- Adjacent to area of priority deciduous woodland habitat and flood zones 2 and 3.
- Tree preservation zones around the edges of site boundary.
- Located within an electrified area of the railway.
- Barrington line has a restriction in place which limits the number of train movements per day and hours of operation.
- Impact on adjacent Foxton highway level crossing.
- Good road access to/from assumed traincrew location at Cambridge. Staff may also be able to use trains to/from Foxton.

4.2.4 CSM2 west of Barrington Road

This site is located west of Barrington Road and follows the direction of the main line rail corridor.

Figure 5: CSM2 west of Barrington Road

Key areas of consideration for this location include:

- Access to site as designed currently within Flood Zones 2 and 3. (The road in this location could be realigned to avoid this minor area).
- Located within an electrified area of the railway.
- Impact on adjacent Foxton highway level crossing.
- Presence of overhead power cables requiring diversion.
- Good road access to/from assumed traincrew location at Cambridge. Staff may also be able to use trains to/from Foxton.

4.3 Option Evaluation – eastern TCC locations

This section provides an overview of the assessment factor appraisal which was completed.

4.3.1 Assessment Factor 1: transport user benefits

This factor considers the benefits to transport users including journey time, crowding and quality compared to current journey as well as modal shift.

Table 3: Assessment Factor 1 judgements

Factor	Baseline – CEA2 west of Wilbraham Road	CEA1 west of Wilbraham Road	CSM1 west of Barrington Road	CSM2 west of Barrington Road
Transport user benefits – Overall judgement	Neutral	Neutral	Neutral	Neutral

Overall, there are no impacts on user benefits as there are no changes in journey times, frequency of service or interchanges based on the site locations. Travel to and from the facility does not impact the service provision.

4.3.2 Assessment Factor 2: potential to unlock economic growth

This factor considers the potential for wider employment and productivity benefits of improved east-west connectivity and the opportunity for stations served by EWR to support housing growth within their catchment areas.

Table 4: Assessment Factor 2 judgements

Factor	Baseline – CEA2 west of Wilbraham Road	CEA1 west of Wilbraham Road	CSM1 west of Barrington Road	CSM2 west of Barrington Road
Overall judgement based on supporting considerations:	Neutral	Neutral	Neutral	Neutral

Factor	Baseline – CEA2 west of Wilbraham Road	CEA1 west of Wilbraham Road	CSM1 west of Barrington Road	CSM2 west of Barrington Road

Potential to unlock economic growth	Neutral	Neutral	Neutral	Neutral
Strategic alignment	Neutral	Neutral	Neutral	Neutral

The proposals at both locations are not expected to materially influence economic development outcomes relative to the baseline CEA2 west of Wilbraham Road. Proposed TCC location options do not enable housing growth, nor do they materially affect employment accessibility, productivity or regeneration outcomes. Overall, economic development impacts are assessed as neutral against the baseline CEA2 west of Wilbraham Road.

4.3.3 Assessment Factors 3, 4 and 5: cost and affordability

These factors consider the cost to bring the project to full service, including land acquisition, construction and any adaptation and mitigation works, including risk. Alongside consideration of overall affordability based on potential income and other benefits identified in factors 1 and 2.

Table 5: Assessment Factors 3, 4 and 5

Factor	Baseline – CEA2 west of Wilbraham Road	CEA1 west of Wilbraham Road	CSM1 west of Barrington Road	CSM2 west of Barrington Road
Capital cost	Neutral	Neutral	Neutral	Neutral
Operating cost	Neutral	Neutral	Neutral	Neutral
Life cycle	Neutral	Neutral	Neutral	Neutral
Maintenance cost	Neutral	Neutral	Major Worsening	Minor Worsening
Income	Neutral	Neutral	Neutral	Neutral

Factor	Baseline – CEA2 west of Wilbraham Road	CEA1 west of Wilbraham Road	CSM1 west of Barrington Road	CSM2 west of Barrington Road
Cost Opportunity	Neutral	Neutral	Neutral	Neutral

Capital cost – Capital costs are considered neutral to the baseline, with only small percentage variations calculated. CEA1 west of Wilbraham Road has a betterment over the baseline of 6.9%, CSM1 west of Barrington Road has a betterment of 4.3% and CSM2 west of Barrington Road is an increase of 1% against the baseline.

Operating and Life Cycle Cost – CEA1 west of Wilbraham Road has the lowest overall Whole Life Costs and Life Cycle costs, but this was not a significant differentiator and was considered neutral to the baseline.

Maintenance costs – For CEA1 west of Wilbraham Road there is less track to maintain, when compared to the baseline, and all S&C are standard. CSM1 west of Barrington Road is comparatively a higher maintenance cost due to the tight curve on entry to the TCC (increased wear, lubrication and renewals), travel distance and multiple S&C crossings for ECS moves. CSM2 west of Barrington Road would also have a comparatively higher maintenance costs due to travel distance and multiple S&C crossings for ECS moves from Cambridge.

Overall, CEA1/2 west of Wilbraham Road would be the preferred location from a maintenance cost perspective.

4.3.4 Assessment Factor 6 – 10: Network capability

These factors consider the following:

- Journey time between housing centres and employment hubs.
- Impact on the interchange-to-interchange station journey times.
- Ease of interchange with main line rail services e.g. platform-to-platform distance, level change/accessibility, stopping frequency, timetable alignment.
- Strategic consideration of the extent to which EWR facilitates long distance passenger services beyond Oxford to Cambridge.
- Potential to meet freight demand, as anticipated by the freight industry, through active provision for freight paths.

Table 6: Assessment Factors 6-10 judgements

Factor	Baseline – CEA2 west of Wilbraham Road	CEA1 west of Wilbraham Road	CSM1 west of Barrington Road	CSM2 west of Barrington Road
Short distance connectivity to support commuting travel into key employment hubs (current and future)	Neutral	Neutral	Neutral	Neutral
Short distance passenger services	Neutral	Neutral	Neutral	Neutral
Rail passenger connectivity to existing main lines	Neutral	Neutral	Neutral	Neutral
Long distance passenger services	Neutral	Neutral	Minor Worsening	Minor Worsening
Satisfying existing and future freight demand	Neutral	Neutral	Neutral	Neutral

For factors 6, 7 and 8 no differentiators were identified.

Long distance passenger service – the location of CEA1/2 west of Wilbraham Road on the Newmarket line provides some advantages if EWR passenger services were ever to be extended, beyond the proposed Cambridge East station, towards Ipswich. CSM1/2 west of Barrington Road is in the wrong operational direction for EWR train movements which would affect efficiency of ECS moves and also capacity getting to/out of Cambridge (pathing and platform availability). Therefore both CSM1 and CSM2 west of Barrington Road are a minor worsening for this factor.

Satisfying existing and future freight demand – No differentiators have been identified assuming Barrington branch line freight traffic will have ceased by the time the TCC is live, and there is negligible freight on the Newmarket line.

4.3.5 Assessment Factor 11 and 12: Railway operations

These factors consider the ability of the railway to provide a service that meets or exceeds customer, stakeholder and industry expectations as well as the extent to which the EWR takes account of potential future changes to the wider railway strategy/infrastructure.

Table 7: Assessment Factors 11 and 12 judgements

Factor	Baseline – CEA2 west of Wilbraham Road	CEA1 west of Wilbraham Road	CSM1 west of Barrington Road	CSM2 west of Barrington Road
11 – Performance and Reliability				
Maintainability	Neutral	Minor Improvement	Major Worsening	Minor Worsening
Rolling stock reliability	Neutral	Neutral	Neutral	Neutral
Infrastructure reliability	Neutral	Minor Improvement	Major Worsening	Major Worsening
Operational resilience of EWR	Neutral	Neutral	Major Worsening	Major Worsening

Operational resilience of wider rail network	Neutral	Neutral	Minor Worsening	Minor Worsening
12 – Alignment with wider railway strategy/infrastructure				
Technology and customer experience	Neutral	Neutral	Neutral	Neutral
Wider rail	Neutral	Neutral	Neutral	Neutral

Factor	**Baseline – CEA2 west of Wilbraham Road**	**CEA1 west of Wilbraham Road**	**CSM1 west of Barrington Road**	**CSM2 west of Barrington Road**
Wider rail network strategy	Neutral	Neutral	Neutral	Neutral
Flexibility to adapt to future changes in passenger demand.	Neutral	Neutral	Neutral	Neutral
Flexibility to adapt to future changes in freight	Neutral	Neutral	Neutral	Neutral

Maintainability

CEA1 west of Wilbraham Road is marginally better than the baseline due to using standard S&C for the main line connection. There is also 1km less track to inspect (on foot).

CSM1 west of Barrington Road would increase passage over the adjacent level crossing and so access to maintain the level crossing would be difficult. Additional lubrication and maintenance would be required for tight radius curve on entry to the TCC. Additional maintenance would also be needed on the S&C in the congested approach route to Cambridge station.

CSM2 west of Barrington Road would also increase passage over the adjacent level crossing impacting access for maintenance. Additional maintenance would also be needed on the S&C in the congested approach route to Cambridge station.

Infrastructure reliability

CEA1 west of Wilbraham Road would be a marginal betterment due to using standard S&C for the main line connection. There are the same number of level crossings on the approach to this location as the baseline but the impact on the barrier downtime increases are less than for the CSM1/2 west of Barrington Road options.

CSM1 west of Barrington Road would impact the level crossing reliability due to the increase in barrier downtime on an already high barrier downtime level crossing, along with reducing the reliability of the multiple S&C in the congested approach route to Cambridge station. There is also a high-risk asset introduced by having such a tight radius curve into the TCC.

CSM2 west of Barrington Road would also impact the level crossing reliability due to the increase in barrier downtime on an already high barrier downtime level crossing, along with reducing the reliability of the multiple S&C in the congested approach route to Cambridge station.

Overall the impact on the Foxton level crossing barrier downtime due to the TCC is significantly worse than at CEA1/2 west of Wilbraham Road.

Operational resilience – There is currently insufficient capacity identified for all ECS between the CSM1/2 West of Barrington Road options and the proposed Cambridge East station. CSM1/2 west of Barrington Road ECS moves introduce operational resilience risks at more pinch points than CEA1/2 west of Wilbraham Road, including increased train movements over Foxton level crossing, and potential junction conflicts at Shepreth Branch Junction and Coldhams Lane Junction (for EWR), along with platforming constraints at Cambridge station.

Wider rail network strategy - CSM1/2 west of Barrington Road is restricted in terms of space and capability (limited ability for a train wash). The position of CEA1/2 west of Wilbraham Road aligns with industry aspirations for increased service levels on the Newmarket line and in and out of Cambridge with other local services, however, would not cater for a further increase beyond the proposed allocation due to the main line capacity. Overall both locations are neutral from a wider rail network perspective due to their limitations.

Flexibility to adapt to future changes in passenger demand – An increase in passenger demand may require more trains or longer trains on the network, so expandability should be considered. All options considered would not be expandable for the reasons noted above with regards to the restrictions on the sites themselves and also capacity of the main line.

Overall, CEA1/2 west of Wilbraham Road would be the preferred location from an AF11 perspective while both locations are neutral for AF12.

4.3.6 Assessment Factor 13: Deliverability

This factor considers the risk of harm to workforce and public during construction, operations and maintenance as well as the complexity of the delivery programme or maintenance requirements on efficiently achieving the desired infrastructure state.

Table 8: Assessment Factor 13 judgements

Factor	Baseline – CEA2 west of Wilbraham Road	CEA1 west of Wilbraham Road	CSM1 west of Barrington Road	CSM2 west of Barrington Road
Complexity of delivery	Neutral	Neutral	Neutral	Neutral
Complexity of maintenance	Neutral	Minor improvement	Minor worsening	Neutral
Safety risk (construction)	Neutral	Neutral	Minor improvement	Minor improvement
Safety risk (operations)	Neutral	Neutral	Minor worsening	Minor worsening
Programme schedule and early benefits enabled	Neutral	Neutral	Minor improvement	Minor improvement

Complexity of delivery

CEA2 west of Wilbraham Road can be largely constructed in a high street environment away from the operational railway environment. The site is large with no complex access or interfacing complexity in the area associated with EWR. The connection to the existing railway on the Newmarket line will require possessions access. Access to the site for HGV's is a concern, as the road access in either direction is via smaller B roads (agricultural HGV's are accessing the area). Construction traffic numbers may be a concern, with the routes going along residential roads. Nearest access to the SRN is the A11. Further traffic and transport analysis of impacts will be required.

CEA1 west of Wilbraham Road is largely similar to CEA2 west of Wilbraham Road. There will be a small difference in the volume of earthworks on the site due to the different orientation of the layout, with a slight difference in the overall volume of HGVs to support construction.

CSM1 west of Barrington Road and CSM2 west of Barrington Road can be largely constructed in a high street environment away from the operational railway environment.
The site is large with no complex access or interfacing complexity in the area associated with EWR. There are some utilities crossing the site, but detailed information is currently unknown and subject to C2/C3 process. The connection to the existing railway will require possession access, installation of the single lead is not a complex piece of work but possession access to there will be more limited due to the overall utilisation of the railway compared to CEA1/2 west of Wilbraham Road. The overall construction of the TCC is not complex. Access to the site for HGV's is a concern, with smaller roads used before access to the SRN. Construction traffic numbers may be a concern, with the routes going along residential roads. The HGV traffic routing is a shorter length from the site to the SRN than the baseline option.

Overall, complexity of delivery is similar and therefore scored as neutral for all options.

Complexity of maintenance

CEA1 west of Wilbraham Road shows a marginal betterment over the baseline due to using standard S&C on the main line connection.

CSM1 west of Barrington Road shows a minor worsening due to accessibility of level crossing and Cambridge approach S&C being more challenging, but all S&C are standard. The tight radius curve also requires more monitoring and management. The tight radius curve introduces a high-risk asset.

CSM2 west of Barrington Road is neutral as it performs slightly better than CSM1 west of Barrington Road based on its orientation but still has the issues related to accessibility of the level crossing and maintenance of the Cambridge approach S&C is more challenging, but all S&C are standard.

Safety risk (construction)

Overall construction of the TCC at CEA1/2 west of Wilbraham Road would use standard railway industry construction techniques that provide no additional safety risks that a competent contractor would not be able to manage within the overall site. Construction could take place in a high street environment with the contractor able to control and manage site safety. Safety risk issues are around the traffic routing associated with the construction HGVs to site. The routes to the SRN (A11) are via rural/residential roads and lanes where interaction with the public is unavoidable. Installation of the OCS extension

would likely be delivered as part of the works to Cambridge East Station and would be planned around those works.

Construction of the TCC at CSM1/2 west of Barrington Road also would use standard railway industry construction techniques that provide no additional safety risks that a competent contractor would not be able to manage within the overall site. Construction could take place is a high street environment with the contractor able to control and manage site safety. Safety risk issues are around the traffic routing associated with the construction HGVs to site. The route to the SRN (A10) is via Foxton/Barrington Road which is relatively short distance with limited residential housing along the route and therefore limiting the public interaction.

Safety risk (operations)
CEA1 west of Wilbraham Road has no significant change compared to the baseline CEA2 west of Wilbraham Road. However there will be an impact on the level crossings on approach to both options.

CSM1/2 west of Barrington Road is seen as a minor worsening due to increased level crossing barrier downtimes and the increased risk to the infrastructure maintainer due to more difficult access to maintain the critical level crossing.

Programme schedule and early benefits enabled

The delivery programme for CEA1 west of Wilbraham Road will be non-complex. The programme to build the TCC layout in the self-contained site will be similar in all options. The complex programme integration aspects will be associated with the Possession Access to install the connection to NR and connections to utilities in the area. The site is self-contained and remote from the rest of EWR so should be self-determining.

The delivery programme for either CSM1 west of Barrington Road or CSM2 west of Barrington Road will also be non-complex and broadly similar for both. The complex programme integration aspects will be associated with the Possession Access to install the connection to NR, including the extension of the OCS in the area and connections to utilities. The site is self-contained and remote from the rest of EWR so should be self-determining.

All options could be delivered early following the grant of development consent as they are not directly integrated into the EWR scheme and could therefore be delivered as standalone that are not dependent on other elements of the project.

Overall, both options are relatively comparable from an AF13 perspective with CSM1/2 west of Barrington Road scoring slightly better from a programme perspective but worse from a maintenance and operations safety risk perspective which would outweigh the programme benefits.

4.3.7 Assessment Factor 14: Environmental impact and opportunities

This factor considers the impacts on and opportunities to improve local, national and global environment, and local and regional socio-economic conditions not considered in other factors.

AF14 comprises 17 topics that are evaluated against existing baseline conditions. Evaluations also take account of committed developments forming the future baseline and, where applicable, planning applications that are yet to be committed.

Table 9: Assessment Factor 14 judgements

Factor	Baseline-CEA2 west of Wilbraham Road	CEA1 west of Wilbraham Road	CSM1 west of Barrington Road	CSM2 west of Barrington Road
Overall Judgement	Neutral	Neutral	Minor Improvement	Neutral
Environmental assessment considerations (see 17 supporting considerations below)	Neutral	Neutral	Minor Improvement	Neutral
14.1 Agriculture, forestry and soils	Neutral	Neutral	Minor Improvement	Minor Improvement
14.2 Air quality	Neutral	Minor Improvement	Minor Worsening	Minor Worsening
14.3 Carbon	Neutral	Neutral	Minor Improvement	Major Improvement
14.4 Community	Neutral	Neutral	Minor Improvement	Minor Improvement

14.5 Ecology and biodiversity	Neutral	Neutral	Neutral	Minor Worsening
14.6 Electromagnetic interference	Neutral	Neutral	Neutral	Neutral
14.7 Equalities	Neutral	Neutral	Neutral	Neutral
14.8 Health	Neutral	Neutral	Neutral	Neutral
14.9 Historic environment	Neutral	Minor worsening	Minor improvement	Neutral
14.10 Land quality	Neutral	Neutral	Neutral	Neutral
14.11 Landscape and visual	Neutral	Minor Worsening	Minor Worsening	Minor Worsening
14.12 Major accidents and natural disasters	n/a	n/a	n/a	n/a
14.13 Noise and vibration	Neutral	Neutral	Minor Improvement	Minor Improvement
14.15 Socioeconomics	Neutral	Neutral	Neutral	Neutral
14.16 Traffic and transport	Neutral	Neutral	Neutral	Neutral
14.17 Waste and materials	Neutral	Neutral	Neutral	Neutral
14.18 Water resources and flooding	Neutral	Neutral	Neutral	Neutral

BREEAM considerations and EWR Co's Sustainability Strategic Objectives (where not specifically Considered)	Neutral	Neutral	Minor Improvement	Neutral

Overall Judgement

On balance, between Environmental Assessment Considerations and Strategic Objectives (SO) considerations, it is considered that both CEA1 west of Wilbraham Road and CSM2 west of Barrington Road would be neutral to the baseline CEA2 west of Wilbraham Road, and CSM1 west of Barrington Road a minor improvement. Therefore CSM1 west of Barrington Road is the preferred option for Environment due to the significant decrease in GHG emissions, reduced agricultural land take, potential heritage impacts and indirect impact to community receptors, whilst presenting a minor improvement for BREEAM and wider EWR sustainability strategic objectives.

Environmental assessment considerations

CEA1 west of Wilbraham Road compared to the CEA2 west of Wilbraham Road would be a minor improvement for air quality due to the reduced number of construction vehicles required and due to the odour producing activities moving further from the surrounding receptors. Conversely, CEA1 west of Wilbraham Road would be a minor worsening for historic environment due to the additional intrusive works required at this option and the potential impacts on buried archaeology; and landscape and visual due to extending rail infrastructure, lighting and disturbance to tranquillity further into the landscape. CEA1 west of Wilbraham Road would be neutral compared to CEA2 west of Wilbraham Road for all other environmental considerations, although CEA2 west of Wilbraham Road would be better for this factor on the basis that CEA1 west of Wilbraham Road would extend further into the field (rural landscape) and its close proximity to the rear of residential receptors.

CSM1 west of Barrington Road compared to CEA2 west of Wilbraham Road would be a minor improvement for agriculture due to less agricultural land taken, Carbon due to a 40% decrease in GHG emissions; communities due to significantly fewer residential receptors in the vicinity; historic environment due to the increased distance to potential buried archaeological remains not directly associated with the Roman site N of Brown Spinney Scheduled Monument; and noise and vibration due to being in a less noise sensitive area.

Conversely, CSM1 west of Barrington Road would be a minor worsening for landscape and visual due to extending rail infrastructure as the TCC would be offline, and air quality due to the potential queuing at the level crossing and close proximity of construction traffic to sensitive receptors, despite fewer HGV numbers. CSM1 west of Barrington Road is neutral compared to CEA2 west of Wilbraham Road for all other environmental considerations.

CSM2 west of Barrington Road compared to CEA2 west of Wilbraham Road would be a major improvement for carbon due to a 53% decrease in GHG emissions. Additionally, CSM2 west of Barrington Road would be a minor improvement for agriculture due to less agricultural land taken; communities due to significantly fewer residential receptors in the vicinity; and noise and vibration due to being in a less noise sensitive area. Conversely, CSM2 west of Barrington Road would be a minor worsening for air quality due to the potential queuing at the level crossing and close proximity of construction traffic to sensitive receptors, despite fewer HGV numbers; ecology and biodiversity due to the potential disruption of the functional connectivity with the River Rhee; and landscape and visual due to extending rail infrastructure and widening of rail corridor; proximity to River Cam tributary. CSM2 west of Barrington Road is neutral compared to CEA2 west of Wilbraham Road for all other environmental considerations.

Overall, CEA1 West of Wilbraham Road and CSM2 west of Barrington Road are assessed as neutral compared to CEA2 west of Wilbraham Road. CSM1 west of Barrington Road is assessed as a minor Improvement to CEA2 west of Wilbraham Road due to the significant decrease in GHG emissions, reduced agricultural land take, lesser potential heritage impacts and lesser indirect impacts to community receptors.

The justifications from the environmental Assessment Factor for each supporting consideration are provided below.

14.1 Agriculture, forestry and soils

There is no ALC post 1988 data available for any of the options, however provisional ALC data suggests no option would directly impact any Grade 1 (excellent quality land) or Grade 3 (good to moderate quality) agricultural land.

The provisional ALC data suggests all options would impact Grade 2 (very good quality) agricultural land, with CEA1 west of Wilbraham Road affecting more than CEA2 west of Wilbraham Road, and both CSM1/2 West of Barrington Road significantly less than CEA2 west of Wilbraham Road.

The impact on soils would be similar across all options.

Data on farm holdings is limited but both CEA1/2 west of Wilbraham Road options would be likely to affect a single holding; the CSM1/2 west of Barrington Road would also likely affect a single holding. In terms of area, CEA2 west of Wilbraham Road affects approximately 16ha of farm holdings, while CEA1 west of Wilbraham Road affects the most at approximately

17ha. CSM1 west of Barrington affects approximately 10ha, and CSM2 west of Barrington Road affects around 12ha, which is lower than the baseline CEA2 west of Wilbraham Road.

There would be no impacts on commercial forestry for any option.

Overall, both CSM1/2 west of Barrington Road are minor improvements compared to CEA2 west of Wilbraham Road with CSM1 west of Barrington Road preferred from all agricultural perspectives. CEA1 west of Wilbraham Road is neutral compared to CEA2 west of Wilbraham Road for this consideration.

14.2 Air quality

Construction Dust: Dust emissions for all options are assumed to be controlled through Code of Construction Practice (CoCP)/Construction Environment Management Plan (CEMP) measures to avoid significant air quality effects. Construction dust would therefore not be a differentiator.

Operational air quality: Trains using EWR will be electrically powered, either by full battery or by discontinuous electrification. All scenarios would therefore result in no combustion emissions to air from the operation of the train fleet. All options would therefore be considered neutral in this respect. The operations at these locations are assumed to be restricted to train cleaning and other light maintenance works, therefore although there are receptors close by, there would likely be no adverse impacts associated with operation at these sites.

CEA1 west of Wilbraham Road

Construction Traffic

CEA1 west of Wilbraham Road is located on the outskirts of Cambridge. The site is located near to a built-up area, where access for proposed construction vehicles would be required via Wilbraham Road. Overall construction traffic numbers would be reduced by approximately 18% compared to CEA2 west of Wilbraham Road. No new or different significant effects are predicted as a result of this option.

It should be noted that the current HGV assessment assumes that all material would be taken off site and not reused, and does not consider the potential to use the existing railway to remove (and deliver) materials by train.

Operational Odour

The operations at this location are assumed to be restricted to train cleaning and other light maintenance works, including emptying of the controlled emission toilets. Although this process will be controlled and sealed, the close proximity of the residential properties may give rise to potential odour impacts from fugitive releases at initial transfer to surrounding receptors. Waste is to be stored on site and then removed via road tanker on a periodic

basis. Such activities would also be required for CEA2 west of Wilbraham Road, however the distance to the nearest receptors is increased for the CEA1 west of Wilbraham Road overall, as there is a greater distance between the more densely built-up area of Fulbourn and TCC infrastructure than for CEA2 west of Wilbraham Road.

Overall, CEA1 west of Wilbraham Road would be considered to be a minor improvement, in comparison to CEA2 west of Wilbraham Road, due to the reduced number of construction vehicles required for construction, compared to the CEA2 west of Wilbraham Road option and due to the odour producing activities moving further from the surrounding receptors.

CSM1/2 west of Barrington Road

Construction Traffic

Both CSM1/2 west of Barrington Road would be located outside any urban centres and would not be located within or adjacent to any Air Quality Management Areas (AQMA).

There would be no human health or ecological receptors within 200m of either of the options, however there would be a number of sensitive receptors within 200m of Barrington Road and within Foxton Village which are predicted to have an increase in predicted construction traffic numbers, as access to these options would likely be via an access route off Barrington Road. Foxton also has a level crossing, located within Foxton, to the west of the current station. This level crossing could result in additional queuing which would result in increased emissions at sensitive receptors close to the Foxton level crossing. Although additional HGV movements are predicted, they are unlikely to result in a significant effect due to the low background concentrations. Anticipated HGV numbers are lower for these options, with CSM1 west of Barrington Road 51% and CSM2 Parallel to Mainline 70% lower than those at CEA2 west of Wilbraham Road.

It should be noted that the current HGV assessment assumes that all material would be taken off site and not reused, and does not consider the potential to use the existing railway to remove (and deliver) materials by train.

Operational Odour

The operations at this location are assumed to be restricted to train cleaning and other light maintenance works, including emptying of the Controlled Emission Toilets. Although this process will be controlled and sealed, there is the potential for odour impacts from fugitive releases. As there are no surrounding receptors, this impact at these locations would be neutral. Also of note, there is a sewage treatment works, within 50m of these options. Material from the controlled emissions toilets could be fed directly to this facility, without the need for on-site storage or additional road tanker deliveries during operation.

Overall, CSM1 west of Barrington Road and CSM2 West of Barrington Road would be considered to be a minor worsening in comparison to CEA2 west of Wilbraham Road, due to the potential queuing at the level crossing and close proximity of construction traffic to sensitive receptors (this is despite the lower numbers of HGVs for both CSM1/2 west of Barrington Road compared to CEA2 west of Wilbraham Road).

14.3 Carbon

CEA2 west of Wilbraham Road would account for an estimated 1,150tCO2e. The vast majority of these emissions are caused by the earthworks required with an associated impact of 628tCO2e. A secondary source of emissions is the 5,276m of OLE and 3,076m of track contributing 354tCO2e and 68tCO2e respectively. An 815m access road is required for this option, leading to an additional 41tCO2e. Additionally, 2700m of 25kV feeder cables and 20 Signal Equivalent Units (SEUs) have a respective impact of 48tCO2e and 11tCO2e.

CEA1 west of Wilbraham Road would account for an estimated 1,104tCO2e, a decrease of 4% compared to CEA2 west of Wilbraham Road. This would result in a neutral judgment compared to the baseline. A significant cause of these emissions is the 5,590m of OLE and 3,090m of track required, resulting in 375tCO2e and 68tCO2e respectively. There is a significant amount of earthworks required for this option, accounting for approximately 515tCO2e. 20 SEUs are included within CEA1 west of Wilbraham Road, the same number as CEA2 west of Wilbraham Road, and 2,800m of 25kV feeder cable which contributes an estimated 11tCO2e and 50tCO2e respectively. Finally, a 1,040m access road is required for this option, leading to an additional 58tCO2e, and six buffer stops with an impact of 25tCO2e.

CSM1 west of Barrington Road would account for an estimated 684tCO2e, a decrease of 40% against CEA2 west of Wilbraham Road. This would result in a minor improvement compared to the baseline. A significant cause of these emissions reductions are the 2,910m of additional OLE and track required, resulting in 195tCO2e and 64tCO2e respectively. There is a moderate amount of earthworks required for this option, accounting for approximately 316tCO2e. 12 SEUs are included within CSM1 west of Barrington Road option, eight fewer than in the baseline, which contribute an estimated 6.6tCO2e and 500m of 33kV feeder cable which contributes an estimated 9tCO2e. Finally, an 815m access road is required for this option, leading to an additional 82tCO2e and six buffer stops with an impact of 25tCO2e.

CSM2 west of Barrington Road would account for an estimated 542tCO2e, a decrease of 53% against CEA2 west of Wilbraham Road. This would result in a major improvement compared to the baseline. A significant cause of these emissions are the approximately 3,100m of additional OLE and track required, resulting in 207tCO2e and 68tCO2e respectively. There is a moderate amount of earthworks required for this option, accounting for approximately 192tCO2e. 12 SEUs are included within CSM2 west of Barrington Road option, eight fewer than in CEA2 west of Wilbraham Road, which contribute an estimated

6.6tCO2e and 500m of 33kV feeder cable which contributes an estimated 9tCO2e. Finally, an 930m2 access road is required for this option, leading to an additional 38tCO2e and six buffer stops with an impact of 25tCO2e.

Note: This assessment is based on high-level information and only considers construction carbon. Operational carbon is currently not considered as these assets will not increase or decrease the energy usage of the scheme and replacement emissions will be proportional across the options.

Carbon thresholds for context:

- *Major improvement: if the option identified has a potential decrease in carbon emissions of more than 45% compared to the baseline option.*
- *Minor improvement: if the option identified has a potential decrease in carbon emissions of more than 5% compared to the baseline option.*
- *Neutral: neutral against the baseline.*
- *Minor worsening: if the option identified has a potential increase in carbon emissions of more than 5% compared to the baseline option.*
- *Major worsening: if the option identified has a potential increase in carbon emissions of more than 45% compared to the baseline option.*

14.4 Community

No residential properties would be directly affected by any option.

CEA2 west of Wilbraham Road option would indirectly affect the most residential properties (approximately 260) based on the proposed location adjacent to the railway. This is approximately 2.1 times as many residential properties as CEA1 west of Wilbraham Road, 4 times as many residential properties as CSM1 west of Barrington Road and 4.4 times as many residential properties as CSM2 west of Barrington Road. However, the majority of the residential properties within 250m of CEA2 west of Wilbraham Road would be located on the opposite side of the railway and although CEA2 west of Wilbraham Road has 2.1 times as many residential properties that it would indirectly impact compared to CEA1 west of Wilbraham Road, CEA1 west of Wilbraham Road would be closer to the residential properties to the east.

CEA2 west of Wilbraham Road would not intersect with any PRoW, as would be the case for CEA1 west of Wilbraham Road and CSM1 west of Barrington Road. CSM2 West of Barrington Road would intersect Foxton footpath (FP) 5, although given the minimal overlap (~10m) and need for the boundary only to align with the highway in this location it is assumed that the Order Limits could be amended to avoid any impact to the footpath.

Both CSM1 west of Barrington Road and CSM2 west of Barrington Road intersect with the red line boundary of the proposed future pedestrian and cycle link to Foxton Station, as part

of the committed development of 23/03177/S73. However, the cycle route is proposed to run on the east side of the railway, so there would be no direct impact from either option.

Overall, CEA1 west of Wilbraham Road is considered neutral to CEA2 west of Wilbraham Road, because although CEA2 west of Wilbraham Road option has 2.1 times as many residential properties that would be indirectly impacted, CEA1 west of Wilbraham Road would be closer to properties to the east of the proposed options. Both CSM1/2 west of Barrington Road would be minor improvements when compared to CEA2 west of Wilbraham Road because of the significantly lower number of residential properties indirectly affected (this is despite the air quality outcome of minor worsening for both CSM1/2 west of Barrington Road, as the additional queuing which would result in increased emissions at sensitive receptors close to the Foxton level crossing is not considered to be material in the context of communities given it is unlikely to result in a significant effect).

14.5 Ecology and biodiversity

CEA1/2 west of Wilbraham Road

**Note: For both of the CEA1/2 west of Wilbraham Road options it has been assumed that existing vegetation south of the track within the dashed boundary will be retained.*

Both CEA1/2 west of Wilbraham Road options would be located adjacent to the rail line within a managed agricultural field. Deciduous priority habitat woodland would be 200m south-west and on the opposite side of the alignment. Both options would be adjacent to a Tree Preservation Order (TPO) north-west and further TPOs directly south of the alignment of the proposed TCC. This location falls within the Impact Risk Zones for three SSSIs (Fulbourn Fen, Wilbraham Fen and Great Wilbraham Common), each located to the east of the TCC. The fenland habitats are water dependent, and hydrological modelling will be required to determine the scale and nature of any potential negative effects on these sites. Desk study records include typical farmland species, raptors (march harrier) and breeding passerines. No surveys have been carried out for this area. It is assumed that there would be no hydrological impacts on the SSSI, however, data would need to be provided to confirm this assumption. No national inventory habitats or protected sites would be directly affected by either option. Both options bisect field drains to the west, with connectivity to Fulbourn Road watercourse. Overall, CEA1 west of Wilbraham Road would be neutral compared to CEA2 West of Wilbraham Road.

CSM1/2 west of Barrington Road

As with CEA2 west of Wilbraham Road, both CSM1/2 west of Barrington Road options would be located adjacent to the rail line within a managed agricultural field.

CSM1 west of Barrington Road has limited data but consists of an agricultural field with no known ecological receptors. Its northern edge coincides with watercourse EWR-HYD-WTCSAD-2371. This is a field drain with no direct overland connectivity with the River Rhee

Corridor to the north, but which should be avoided. There is the possibility of loss of a low number of trees in the north if these cannot be avoided. Overall CSM1 west of Barrington Road option is considered neutral in comparison with CEA2 west of Wilbraham Road.

CSM2 West of Barrington Road supports small blocks of woodland which abut each end of the site. At the western end the TCC would be bordered by trees and a watercourse (Wardington Bottom) with direct connectivity to the River Rhee catchment to the north. The watercourse is directly connected to the River Cam/Rhee catchment further north, which forms part of the wider network of blue infrastructure supporting water vole, a variety of bird species and HPI (coastal and flood plain grazing marsh and deciduous woodland). Water vole records are present within the catchment suggesting the presence of at least a low density population within the Wardington Bottom watercourse as part of a wider metapopulation.

Priority deciduous woodland habitat is located 250m east of the proposed TCC location on the opposite side of the track alignment. The wider landscape supports barbastelle bats and is within 10km of the Eversden and Wimpole SAC for which barbastelle bats is a qualifying feature. There would be opportunity for landscape design to enhance connectivity between woodlands known to support barbastelle bats (interlinked with each other and the SAC) in this location. Overall, CSM2 west of Barrington Road is considered a minor worsening compared with CEA2 west of Wilbraham Road, given the potential to disrupt functional connectivity with the River Rhee.

**Note: the ecology and biodiversity assessment has used aerial photography and other third-party coverage as no field surveys have been carried out in this area.*

BNG:

At the time the AF was undertaken all options were located outside of the existing DOLB; therefore, no baseline habitat survey data was available. Desk based, open-source data was used to complete this assessment factor for the BNG discipline. A precautionary approach has been applied to habitat type where there was insufficient desk-based data.

No irreplaceable habitat was identified within any of the option boundaries or within a 30m buffer. Potential high distinctiveness native species rich hedgerow with trees is present at all options. Where possible, hedgerows should be retained with a 5m buffer either side.

Compared to CEA2 west of Wilbraham Road, CEA1 west of Wilbraham Road appears to impact a greater area of low distinctiveness cropland. However, CEA2 west of Wilbraham Road would include medium distinctiveness scrub (or possibly recently planted woodland, high distinctiveness), individual tree and watercourse habitats and a greater length of hedgerow with trees (potentially high distinctiveness habitat) than CEA1 west of Wilbraham Road (due to extending further to the west) and therefore CEA1 west of Wilbraham Road would be considered a minor improvement compared to CEA2 west of Wilbraham Road.

Compared with CEA2 west of Wilbraham Road, the CSM1 west of Barrington Road option appears to impact a similar area of low distinctiveness cropland. However, CEA2 west of Wilbraham Road would include medium distinctiveness scrub/trees and watercourse habitats. Both CEA2 west of Wilbraham Road and the CSM1 west of Barrington Road option have a similar length of hedgerow with trees (potentially high distinctiveness habitat). Therefore, the CSM1 west of Barrington Road option would be considered to be a minor improvement compared to CEA2 West of Wilbraham Road.

CSM2 west of Barrington Road option is assumed to have at least a 10m offset buffer from the bank top of the tributary to the River Cam to the west of the option boundary (direct and indirect impacts to this watercourse should be avoided and where possible a 50m buffer be designed to align with the local nature recovery strategy). Similar to CEA2 west of Wilbraham Road, this option impacts potential medium distinctiveness other neutral grassland and a length of potential species rich native hedgerow with trees (high distinctiveness). Therefore, the CSM2 west of Barrington Road option would be considered to be neutral compared to CEA2 west of Wilbraham Road. If construction works were to be undertaken within 10m of the river bank this option would be considered minor worsening compared to CEA2 west of Wilbraham Road.

Both CEA1/2 west of Wilbraham Road options would lie within or directly adjacent to areas mapped in the local nature recovery strategy for traditional orchard creation and tree and woodland planting. The CSM2 west of Barrington Road option would lie within an area mapped in the local nature recovery strategy: Establish natural or semi-natural buffer zones 50 metres wide adjacent to all rivers and streams to improve river water quality, and consequently their biodiversity value and ecological functionality. If possible, this buffer should be observed if the option were to be progressed. Currently the option design does not observe this target and the proposed road appears to lie c.10m from the river bank. Both CSM1/2 west of Barrington Road would also be located near an area mapped for wet woodland creation. The opportunity to create mitigation that links or extends these areas should be considered. For all options the wider fields appear to be arable land, there would be an opportunity to increase carbon sequestration potential by planting BNG habitats if suitable and appropriate for farming stakeholders. The locations would also be close to residential areas, so there could be an opportunity for increasing community engagement with nature.

14.6 Electromagnetic interference

There would be no sensitive receptors located within 100m of any of the options.

Overall, CEA1 west of Wilbraham Road and both options at CSM1/2 west of Barrington Road are considered neutral compared to CEA2 west of Wilbraham Road.

14.7 Equalities

None of the options would affect neighbourhoods (Lower Super Output Areas) which are considered to be in the most deprived decile.

Both CSM1/2 west of Barrington Road options would have less impact on local residents than CEA2 west of Wilbraham Road, as there would be fewer community receptors within 250m when compared to CEA2 west of Wilbraham Road. CEA1 west of Wilbraham Road would be similar to CEA2 west of Wilbraham Road.

CEA2 west of Wilbraham Road would not intersect with any PRoW and this would be the same for CEA1 west of Wilbraham Road and CSM1 west of Barrington Road. CSM2 west of Barrington Road would partially intersect Foxton FP 5, although given the minimal overlap (~10m) and need for the boundary only to align with the highway in this location it is assumed that the DOLB could be amended to avoid direct impacts.

Overall, CEA1 west of Wilbraham Road and the options CSM1/2 west of Barrington Road would be considered to be neutral compared to CEA2 west of Wilbraham Road for this consideration due to the similar limited number of community receptors in the vicinity and amenity impacts are likely to affect the same equality groups.

14.8 Health

All options would be located within the top 10-20% least deprived neighbourhoods in England for overall deprivation and health and disability. However, it is assumed that vulnerable groups are likely to be distributed and present within the local area which may be less able to adapt to change. All options may indirectly impact residents due to an increase in noise, changes to air quality and visual amenity. Due to the location of CEA2 west of Wilbraham Road, it was identified that CEA2 west of Wilbraham Road is likely to indirectly affect more residents compared to CEA1 west of Wilbraham Road due to the number of residential properties within 50m (approximately 30 compared to 15 for CEA1 west of Wilbraham Road). Neither of the two CSM1/2 west of Barrington Road options would impact any residential properties within 50m. There are also fewer community receptors within 250m of the CSM1/2 west of Barrington Road. It was identified that the CEA1 west of Wilbraham Road and the two CSM1/2 west of Barrington Road options are likely to result in greater adverse landscape effects compared to CEA2 west of Wilbraham Road due to extending infrastructure further into the countryside, however, due to fewer residential and community receptors located in close proximity, health effects on the local community are not likely to be significant.

None of the options are anticipated to directly affect any PRoWs. CSM2 west of Barrington Road would intersect Foxton FP 5, although it is assumed that the DOLB could be amended to avoid any impact to the footpath.

Overall CEA1 west of Wilbraham Road and the two options CSM1/2 west of Barrington Road would be considered to be neutral compared to CEA2 west of Wilbraham Road for this consideration due to the similar limited number of community and residential receptors in the vicinity (this is despite the air quality outcome of minor worsening for both CSM1/2 west of Barrington Road options, as the additional queuing which would result in increased emissions at sensitive receptors close to the Foxton level crossing is not considered to be material in the context of health given it is unlikely to result in a significant effect).

14.9 Historic environment

For the purposes of this assessment, to ensure historic environment policy and best practice is followed direct impacts are defined as physical impacts to a heritage asset and indirect impacts are defined as impacts through changes to the setting of a heritage asset.

CEA1/2 west of Wilbraham Road

There would be no designated built heritage assets, registered parks and gardens, or historic battlefields within the TCC footprint; however, there would be four Grade II listed buildings within a 250m buffer (c.170-230m) of both the options, located along Station Road and on the other side of the existing railway line. In addition, there is one Conservation Area (Fulbourn) within 250m of the options. Setting impacts may arise and would need to be assessed, but given the distance and intervening infrastructure would be unlikely to result in a significant effect to these assets. There are no non-designated built heritage assets in the vicinity of these options.

There would be one scheduled monument: NHLE:1465057 Iron Age ritual enclosure containing a Bronze Age barrow, and Roman cemetery in proximity to these options, on the opposite side of the railway, along the northern fringe of Fulbourn. Aerial photographs mapped by Historic England indicate that several features directly associated with the scheduled monument extend to the north and into the proposed footprint of both options. Their extent and preservation are, however, poorly understood but could be considered by Historic England as being of equivalent national significance as the scheduled remains. The options also lie between two other scheduled monuments, both within 1km to the east and west, which suggests that there is likely to be substantial prehistoric archaeology in the area of these options. Further assessment of archaeological potential is required to understand archaeological risk of these options. Based solely on the extent of expected intrusive works associated with either option, CEA1 west of Wilbraham Road represents a greater risk (and minor worsening) when compared to CEA2 west of Wilbraham Road, as it would result in a greater extent of ground disturbance in this area of high archaeological potential. The impact to the setting of the scheduled monuments would need to be assessed - particularly the visibility of the TCC in key views from and to this group of monuments.

Both options would be situated within fields reclaimed from former fens and enclosed in the post-medieval period. Historic maps indicate that the fields were agglomerated in the mid-

19th century and field boundaries modified in the mid-20th century. While several elements of the medieval historic landscape survive in the vicinity, the fields in which the options are situated do not contribute to that legibility.

Overall, while both options would result in similar impacts to the built environment and historic landscape, the additional intrusive works of CEA1 west of Wilbraham Road means that it would result in a minor worsening compared to CEA2 west of Wilbraham Road due to additional impacts on the archaeological resource.

CSM1 west of Barrington Road

There would be no designated built heritage assets, registered parks and gardens, or historic battlefields within the CSM1 west of Barrington Road footprint; however, there is one Grade II listed building within a 250m buffer (NHLE: 1474142 Concrete Barn) c.30m from the CSM1 west of Barrington Road, on the other side of the existing railway line. The proposed TCC would not directly impact the asset but would introduce new rail infrastructure in the open fields to the north of the asset. However, given that the building was erected as a transit warehouse for the cement industry serviced by the railway, additional rail and stabling at this location would not detract from the significance of the asset. Foxton Conservation Area also lies just beyond the 250m buffer and impacts could arise; however, with the distance and the intervening road and rail infrastructure these are unlikely to result in significant effects. The only non-designated assets in proximity to this option are the extant Great Eastern Railway Branch railway and the former cement works rail sidings, both of which lie partially within the option. While the proposed TCC would directly affect these, the changes would not result in significant effects as the works would not alter the understanding or significance of the assets.

There would be no scheduled monuments within the CSM1 west of Barrington Road footprint or within a 250m buffer. Although there is limited archaeological information available for this area, the National Mapping Programme of aerial photographs indicates the presence of field systems, trackways, and several rectilinear enclosures within the footprint of the CSM1 west of Barrington Road. These likely relate to the extensive late prehistoric to Roman landscape which is known across the area and recorded on the HER as Iron Age to Roman enclosures. These remains are unlikely to be of national significance and therefore constitute a minor improvement over CEA2 west of Wilbraham Road, but would still constitute a risk to cost and programme.

CSM1 west of Barrington Road is located in an agricultural landscape composed of 19th century parliamentary enclosures, with dispersed settlements of medieval date connected by meandering minor roads. The railway and remnants of extensive cement works in the immediate vicinity are also markedly visible. This historic landscape is not considered particularly sensitive to change and additional rail infrastructure in this field would not result in significant effects.

Overall, despite limited impacts to built heritage or the historic landscape and more substantial impacts to archaeological remains, this option is considered a minor improvement over CEA2 west of Wilbraham Road only in that the archaeological remains are not directly associated with a scheduled monument. The archaeology is likely to be of a similar complexity and extent to the other sites, but this would be less likely to result in significant effects.

CSM2 west of Barrington Road

There would be no designated built heritage assets, registered parks and gardens, or historic battlefields within the CSM1 west of Barrington Road footprint; however there is one Grade II listed building within a 250m buffer (NHLE: 1474142 Concrete Barn) c.30m from the CSM2 west of Barrington Road, on the other side of the existing railway line. The proposed TCC would not directly impact the asset but would introduce new rail infrastructure in the open fields to the west of the asset. However, given that the building was erected as a transit warehouse for the cement industry serviced by the railway, additional rail and stabling at this location would not detract from the significance of the asset. Foxton Conservation Area also lies just beyond the 250m buffer and impacts could arise; however, with the distance and the intervening road and rail infrastructure these are unlikely to result in significant effects. The only non-designated asset in proximity to this option are the extant Great Eastern Railway Branch railway and the former cement works rail sidings, the former of which lies partially within the option. While the proposed TCC would have direct and indirect impacts, the changes would not result in significant effects as the works would not alter the understanding or significance of the assets.

There would be one scheduled monument (NHLE:1006873 Roman site north of Brown Spinney), located 25m to the south-west of the CSM2 West of Barrington Road (albeit on the other side of the railway). Iron Age/Roman enclosures and linear ditches have been recorded both east and west of the CSM2 west of Barrington Road; and linear ditches of an unknown date have been identified within the TCC site through aerial photographs. There is, therefore, a high potential for archaeological remains. The significance of these remains, if associated with the scheduled site, or of demonstrable equivalence, could be of national importance.

Given the similar agricultural context and the similar density of archaeological and historical assets in their vicinity, this option would have a similar impact to the historic landscape as CEA2 west of Wilbraham Road.

There is the potential to impact the setting of a scheduled monument as well as remains directly associated with it. The effects would need to be assessed but could result in significant effects. Nevertheless, this situation is very similar to CEA2 west of Wilbraham Road, which is also situated in proximity to a scheduled monument and risks directly

impacting associated remains. As such, this option is considered neutral compared to CEA2 west of Wilbraham Road.

Conclusions:

Overall, CEA1 west of Wilbraham Road would be a minor worsening compared to CEA2 west of Wilbraham Road for this consideration. CSM1 west of Barrington Road would be a minor improvement for buried archaeology because there are no remains associated with a scheduled monument within its footprint, and neutral for built heritage and historic landscape compared to CEA2 west of Wilbraham Road. CSM2 west of Barrington Road would be neutral for buried archaeology due to the close proximity of the scheduled monument in a situation similar to CEA2 west of Wilbraham Road, and neutral for built heritage and historic landscape compared to CEA2 west of Wilbraham Road.

14.10 Land quality

There would be no designated sites within 250m of CEA2 west of Wilbraham Road, CEA1 west of Wilbraham Road or CSM1 West of Barrington Road. There would be three historic landfills indirectly affected by the CSM2 west of Barrington Road (Searro - c.14m; Angle Lane - c.112m; Seearo Construction Ltd - Barrington Park Farm - c.16m), which is greenfield. However, these historic landfill sites are located on the opposite side of the watercourse to the west of CSM2 west of Barrington Road.

There would be no geodiversity sites within 250m of CEA2 west of Wilbraham Road or other options. This aspect is therefore considered to be neutral for all options.

CEA2 west of Wilbraham Road would be within approximately 16ha of safeguarded chalk. CEA1 west of Wilbraham Road would also be within approximately 18ha of safeguarded Chalk and approximately 0.5ha of safeguarded sand and gravel. CSM1 west of Barrington Road would be within approximately 10ha of safeguarded sand and gravel. CSM2 west of Barrington Road would be within approximately 10ha of safeguarded sand and gravel and approximately 2ha of safeguarded chalk.

For Mineral Safeguarded Area (MSA): CSM1 west of Barrington Road and CSM2 west of Barrington Road options would result in less MSA sterilisation, whereas CEA1 west of Wilbraham Road would lead to a greater level of MSA sterilisation when compared with CEA2 west of Wilbraham Road. Since all three options, as well as CEA2 west of Wilbraham Road, result in some sterilisation of MSA, none of the three options provide an improvement over CEA2 west of Wilbraham Road. Therefore, all three options would be neutral compared to CEA2 west of Wilbraham Road. Despite this, the aim would be to minimise the impact on the MSAs wherever possible.

Overall, CEA1 west of Wilbraham Road and both CSM1/2 west of Barrington Road would be neutral compared to CEA2 west of Wilbraham Road for this consideration.

14.11 Landscape and visual

**Note: For both of the CEA1/2 west of Wilbraham Road options it has been assumed that existing vegetation south of the track within the dashed boundary will be retained.*

CEA2 west of Wilbraham Road would be on a slight rise in the low-lying farmland on the edge of Fulbourn and in the Fulbourn Fen Edge Chalkland LCA. The TCC would be adjacent to a small industrial estate and the existing railway line, south of Fulbourn Fen and Little Wilbraham Fen. The landscape here has been affected by the expansion of Cambridge eastwards which has weakened its rural character. The existing railway line is currently screened from the wider landscape by lineside vegetation. The proposed TCC site would replace farmland with rail infrastructure and associated buildings and structures up to 7m high. Vegetation would be removed from the northern side of the railway line and the small field west of the TCC site. Activity and noise generated by the TCC would reduce tranquillity and lighting would reduce the darkness of the surrounding farmland.

The TCC would be screened from most residential properties in Fulbourn and on Teversham Road, Station Road and Wilbraham Road by hedgerows, garden vegetation and intervening buildings, but some residents at 22-26 Wilbraham Road and at Queens Lodge and Queens Farm would have filtered views of taller structures and lighting.

The taller elements in the TCC would be visible above intervening vegetation in filtered views from Fulbourn FP 15 where it runs along the Caudle Ditch and from the Harcamlow Way where it runs along the Little Wilbraham River. Where visible, the TCC would be a noticeable and uncharacteristic addition to the view, particularly in winter when deciduous vegetation is not in leaf. Lighting would introduce light into what are currently views over dark farmland.

CEA1 west of Wilbraham Road: Landscape effects would be worse compared to CEA2 west of Wilbraham Road because the proposed TCC would extend rail infrastructure, lighting and disturbance to tranquillity further into the landscape. Less existing vegetation would be removed under this option than in CEA2 west of Wilbraham Road, but the cut and fill required to create a flat site would introduce an uncharacteristic level change into the fenland landscape.

Visual effects would be worse compared to CEA2 west of Wilbraham Road because the TCC would be located closer to residential properties on Wilbraham Road, Queens Lodge and Queens' Farm. The TCC would be slightly elevated along the northern side and therefore it would be more noticeable in the view from these properties resulting in an increase in adverse visual effects compared to CEA2 west of Wilbraham Road. Views from Fulbourn, Fulbourn FP15 and Harcamlow Way would be similar to those of CEA2 west of Wilbraham Road.

CSM1/2 west of Barrington Road

The CSM1 west of Barrington Road site would be located on farmland in the Rhee Tributaries Lowland Farmlands LCA. The landscape here has a rural character and the trees lining the River Rhee and its tributaries and woodland belts have integrated the existing infrastructure of the area (including the railway line, adjacent rail sidings, sewage works and station) into the landscape. Road traffic and occasional trains detract from tranquillity but overall, the area is relatively tranquil.

CSM1 west of Barrington Road: Landscape effects would be worse compared with CEA2 west of Wilbraham Road because the proposed TCC is situated offline of the existing mainline railway and would therefore extend railway infrastructure further into the rural landscape and result in a loss of farmland. Although the TCC would be adjacent to the disused Barrington Cement Works line and sewage works, these features are relatively incidental in the landscape and have been well-integrated by existing vegetation, which would be retained as part of the mitigation proposals in this area. Tranquillity would also be reduced by the activity and noise generated by the TCC and lighting, because the landscape is largely unlit in this location.

Visual effects would be comparable to CEA2 west of Wilbraham Road. Intermittent vegetation along the river, railway line, disused Barrington Cement Works line and Barrington Road would partially filtered views of the TCC from the A10, residential properties on Barrington Road, Foxton FP5 and the cycle path along the Barrington Cement Works line and in distant, elevated views from a few properties in Barrington and Barrington FP4. The TCC would be more noticeable in winter and lighting would be introduced into views over currently dark farmland.

CSM2 west of Barrington Road: Landscape effects would be worse compared to CEA2 west of Wilbraham Road because the proposed TCC would result in widening of the rail corridor and would extend rail infrastructure further into the landscape in close proximity to a tributary of the River Cam which is a key feature of this landscape character area.

Tranquillity would be reduced by the activity and noise generated by the TCC and lighting, because the landscape is largely unlit in this location.

Visual effects would be comparable to CEA2 west of Wilbraham Road and the CSM1 west of Barrington Road option. Intermittent vegetation along the river, railway line, disused Barrington Cement Works line and Barrington Road would partially filter views of the TCC from the A10, from residential properties on Barrington Road, from Foxton FP5 and the cycle path along the Barrington Cement Works line and in distant, elevated views from a few properties in Barrington and Barrington FP4. The TCC would be more noticeable in winter and lighting would be introduced into views over currently dark farmland.

Overall, CEA1 west of Wilbraham Road would be a minor worsening compared to CEA2 west of Wilbraham Road as it would extend infrastructure further into the countryside and be more visible to residential receptors on Wilbraham Road. Both CSM1/2 west of Barrington Road would also be considered a minor worsening compared to CEA2 west of Wilbraham Road as the landscape here has a stronger rural character than at the CEA1/2 West of Wilbraham Road location. The CSM1/2 west of Barrington Road options would have more adverse effects on landscape character than CEA1 west of Wilbraham Road, albeit all three options would be a minor worsening.

14.12 Major accidents and natural disasters

There would be no COMAH sites within 250m of any of the options.

At this stage, there is insufficient detail to complete an assessment for the major accidents and natural disasters consideration, however given the proposed location of each site and the nature of the activities and structures proposed it is unlikely that this would be a differentiator for any of the sites.

14.13 Noise and vibration

All options would be located in rural areas which support residential properties and all options would experience existing railway noise (transient in nature). For all options the introduction of noise from the TCC is expected to result in a change in the character of the noise climate, especially at night. It may be possible to incorporate mitigation into the design, such as acoustic barriers, to limit the spread of noise towards residential areas.

CEA2 west of Wilbraham Road would indirectly affect the most residential properties within 50m (approximately 30), almost twice as many as CEA1 west of Wilbraham Road (approximately 15). Neither CSM1/2 west of Barrington Road options would impact any residential properties within 50m.

Similarly where there are no noise barriers, the number of residential dwellings within 75m that would be potentially subjected to LAeq or Lmax SOAEL exceedances would be the highest for CEA2 west of Wilbraham Road (approximately 50), more than twice as many as CEA1 west of Wilbraham Road (approximately 20). Both CSM1/2 west of Barrington Road options would impact only one residential dwelling.

Overall, CEA1 west of Wilbraham Road would be neutral compared to CEA2 west of Wilbraham Road and both CSM1/2 west of Barrington Road options would be a minor improvement compared with CEA2 west of Wilbraham Road for this consideration. In all options, care would be needed in siting and mitigating noise impacts associated with the traction substation (forming part of the TCC), which is a continuous source of tonal noise.

14.15 Socio-economics

For this consideration, direct impacts are defined as demolition or land take to businesses.

There would be no business resources directly affected by any of the options.

Overall, CEA1 west of Wilbraham Road and both CSM1/2 west of Barrington Road options would be neutral compared to CEA2 west of Wilbraham Road for this consideration.

It is assumed that CEA2 west of Wilbraham Road and three options would be similar in terms of the workforce required for construction and maintenance.

14.16 Traffic and transport

Compared to CEA2 west of Wilbraham Road, CEA1 west of Wilbraham Road would require approximately 18% fewer HGV movements, CSM1 west of Barrington Road approximately 51% fewer and CSM2 west of Barrington Road approximately 70% fewer. The difference between the HGV movements is largely a result of the difference in cut and fill requirement for each option. This assessment does not consider reuse of materials within the site and does not consider the potential to use the existing railway to remove (and deliver) materials by train.

CEA2 west of Wilbraham Road would cross one minor road where as CSM1 west of Barrington Road would cross two and CSM2 west of Barrington Road would cross four. CEA1 west of Wilbraham Road would not cross any roads.

CEA2 west of Wilbraham Road would not cross any PRoW. Both CEA1 west of Wilbraham Road and CSM1 west of Barrington Road would not cross any PRoWs. However, CSM2 west of Barrington Road would intersect Foxton FP5, although given the minimal overlap (~10m) and need for the boundary only to align with the highway in this location it is assumed that the DOLB could be amended to avoid any impact to the footpath. Both CSM1 west of Barrington Road and CSM2 west of Barrington Road intersect with the red line boundary of the proposed future pedestrian and cycle link to Foxton Station, as part of the committed development of 23/03177/S73. However, the cycle route is proposed to run on the east side of the railway, so there would be no direct impact from either option.

With regard to waterways and canals, no navigable watercourses would be crossed for any option.

No queue length data is available for all impacted level crossings where an increase in barrier down times occur therefore, it is assumed that due to the additional downtimes being predominantly off peak the impact to driver delay would be minor. This needs to be assessed to provide evidence to this assumption. It is assumed that there would be no AIL movements during the operation phase, but it is assumed that some HGV movements may take place and that these would be off peak.

Overall, CEA1 west of Wilbraham Road, CSM1 west of Barrington Road and CSM2 west of Barrington Road would be considered to be neutral in comparison to CEA2 west of Wilbraham Road.

Operational Phase

During the operational phase for the CSM1/2 west of Barrington Road options, there would be an increase in the barrier down time of the adjacent level crossing. For both locations, it is assumed that additional barrier down times would occur outside of the peak period and therefore the impact on vehicular traffic would be minimised. This will need to be assessed further to understand the queue length impacts of the traffic to provide evidence to this assumption, however from a rail use perspective the increase is likely to take the barrier down time at CSM1/2 west of Barrington Road to over 50%. As the traffic data is required for a full analysis, the overall rating for this location versus CEA1/2 west of Wilbraham Road is judged to be neutral at present as all options will impact level crossings on approach but the full picture of the impact is to be determined.

14.17 Waste and materials

CEA2 west of Wilbraham Road would require the most cut/fill import and export material (approximately 143,000m3). CEA1 west of Wilbraham Road would require approximately 116,500m3 import/export material whereas both CSM1/2 west of Barrington Road options would require significantly less than CEA2 west of Wilbraham Road, with CSM1 west of Barrington Road requiring approximately 68,500m3 and CSM2 west of Barrington Road requiring approximately 43,000m3.

There would be minimal demolition material generated for all options (i.e. existing pylons within fields), this has therefore not been considered further.

The mass haul, in which material from the scheme would potentially be transferred along the scheme starts to the north east of Bedford and continues to Cambridge. Despite this, both CEA1/2 west of Wilbraham Road and CSM1/2 west of Barrington Road are unlikely to be able to link in with other works relating to the development of the Proposed Scheme, as they are remote from the main construction works. As a result, these schemes have been assessed individually.

If the design element is to be considered on its own and not part of an overall scheme cut/fill assessment, then the design element has to be considered against the remaining landfill capacity for the region. Where waste generation leads to >1% reduction or alteration in the regional capacity of landfill as a result of accommodating waste from a project, the scheme is considered to have a moderate impact. The regional inert landfill capacity is >30Mm3, whilst the inert landfill capacity in Cambridgeshire is ~5.2Mm3. The reduction of material potentially disposed of to inert landfill is <0.1% of the regional capacity for CEA1 West of Wilbraham Road, ~0.25% for CSM1 West of Barrington Road and ~0.33% for CSM2

west of Barrington Road. These percentage reductions would therefore be viewed as a "slight" impact.

Each of the options would fall under the same significance category and therefore cannot be defined as a major or minor improvement (remain neutral). However, material management and the requirement to dispose of greater quantities of material should be avoided if possible. Therefore, both of the CSM1/2 west of Barrington Road options would be the most preferable options from a material management viewpoint, as fewer materials would need to be managed, and CEA1/2 west of Wilbraham Road would also be preferable compared to CEA2 west of Wilbraham Road for the same reason.

14.18 Water resources and flooding

Water resources

None of the options would be required to cross any watercourses or water bodies. Trains would need to utilise existing rail infrastructure to access the TCC for all four options (at both CEA1/2 west of Wilbraham Road and CSM1/2 west of Barrington Road) which cross over watercourses; however these would sit outside of the EWR footprint. New infrastructure at these crossings is not assumed to be required.

A minor watercourse (Wardington Bottom) would border the western edge of the CSM2 West of Barrington Road option.

Flooding

CSM1 west of Barrington Road and CEA1 west of Wilbraham Road would not be located in Flood Zones 2 or 3 so would be free from fluvial flooding. There would be isolated areas of surface water risk within the CSM1 west of Barrington Road footprint. As currently drawn CSM2 west of Barrington Road would include a minor incursion into Flood Zone 2 and 3 in the north western corner. However, the proposed access track, which the flood zone overlaps with, could be realigned to avoid this minor area.

There would be isolated areas of surface water risk within the CSM1 west of Barrington Road footprint and CSM2 west of Barrington Road footprint, with a larger area of surface water flooding for the CSM1 west of Barrington Road site however, this would be manageable within the drainage design. There would be no surface water flood risk within CEA1 west of Wilbraham Road but for CEA2 west of Wilbraham Road, due to the layout extending further west, there would be an area of surface water flood risk in the location of the existing drain.

Groundwater

All options would be located within a WFD groundwater body: Cam and Ely Ouse chalk. CEA2 West of Wilbraham Road and CEA1 west of Wilbraham Road would be located within the source protection zone 3 (SPZ3) of Anglian Water public water supplies, so would have greater possible interaction with sensitive receptors (noting that the Fulbourn source related

to SPZ1/2 in this area is thought to no longer exist). Both CSM1/2 west of Barrington Road options would be a minor improvement over CEA2 west of Wilbraham Road for this reason from a groundwater perspective.

Water Framework Directive (WFD)

CSM1 west of Barrington Road would involve construction work within 50m of a watercourse, with the potential for indirect impacts during the construction phase, however it should be possible to manage these with the implementation of construction best practice.

Overall, CEA1 west of Wilbraham Road and CSM1 west of Barrington Road and CSM2 west of Barrington Road are considered neutral to CEA2 west of Wilbraham Road.

Overall, CSM1/2 west of Barrington Road would be the preferred options from an AF14 perspective.

BREEAM considerations and EWR Co's sustainability Strategic Objectives (SO)

CEA2 west of Wilbraham Road primarily detracts from the sustainability SOs, only seen to support the circular economy SO. Risks include being within the impact zone for three SSSIs, potential impact to high distinctiveness and priority habitats, archaeological risk due to close proximity to a scheduled monument, and indirect impacts to a high number of residential receptors. This option would also be the most carbon intensive.

CEA1 west of Wilbraham Road and CSM2 west of Barrington Road are considered neutral in impact in comparison to CEA2 west of Wilbraham Road, although they present dissimilar risks and benefits. CSM1 west of Barrington Road is considered a minor improvement in comparison to CEA2 west of Wilbraham Road.

CEA1 west of Wilbraham Road would avoid some impact to the natural environment SO through impacting less distinctive habitats, as well as avoiding air quality impact to the people and community SO due to less HGV movements and impact from operational odours. However, it would increase the risk to the historic environment and landscape SO due to greater ground disturbance, extending the railway infrastructure further into the landscape, as well as introducing an uncharacteristic level change into the fenland landscape. This is alongside greater noise impact concerning the people and community SO, due to closer proximity to residential receptors.

CSM2 west of Barrington Road would avoid impact to the carbon and climate resilience SOs through substantial carbon reduction and less excavated materials, as well as reducing noise impact for the people and community SO by decreasing the number of residential receptors in close proximity. However, negative effects negate these improvements, such as the additional air quality impacts from queueing at the level crossing during construction that would detract from the people and community SO. CSM2 west of Barrington Road would also increase risk to the natural environment SO due to potential disruption to the functional

connectivity of the River Rhee. Additional risk is also presented to the historic environment and landscape SO due to the potential impact to the setting and remains relating to a scheduled monument and from extending the railway infrastructure further into the landscape.

CSM1 west of Barrington Road is likely to be the option that supports the sustainability SOs to the greatest extent. While it does still risk air quality impacts from queueing at the level crossing during construction and may cause negative landscape effects to the rural landscape, the benefits arguably outweigh the risks in comparison to CEA2 west of Wilbraham Road. CSM1 west of Barrington Road would offer a decreased risk to ecology and biodiversity, a 40% carbon reduction, avoid significant archaeological impacts by the absence of scheduled monuments in the locality, decrease the excavated material significantly, and indirectly impact fewer residential receptors.

4.3.8 Assessment Factor 15: Consistency with Local Plans (adopted and emerging)

This factor considers impacts on and opportunities to support development allocations and consistency with the development plan.

Table 10: Assessment Factor 15 judgements

Factor	Baseline – CEA2 west of Wilbraham Road	CEA1 west of Wilbraham Road	CSM1 west of Barrington Road	CSM2 west of Barrington Road
Consistency with Local Plans (adopted and emerging) – Overall judgement	Neutral	Neutral	Major Improvement	Major Improvement
Impacts on and opportunities to support adopted Local Plans	Neutral	Neutral	Major Improvement	Major Improvement

Impacts on and opportunities to support the emerging Local Plans	Neutral	Neutral	Major Improvement	Major Improvement

Overall judgement

There are no differentiators identified between CEA2 west of Wilbraham Road and CEA1 west of Wilbraham Road, and therefore CEA1 west of Wilbraham Road is judged to be neutral overall. CEA2 west of Wilbraham Road and CEA1 west of Wilbraham Road are both within the Cambridge green belt under the adopted and emerging Local Plans. Whilst it may be possible for CEA2 west of Wilbraham Road to be designed to accord with green belt policy, on the basis of the information currently available, this represents a significant constraint and potential conflict with the adopted and emerging Local Plans. As such, the CSM1/2 west of Barrington Road options, which avoid the green belt and are not subject to any other differentiating factors are judged to be major improvements over CEA2 west of Wilbraham Road.

Impacts on and opportunities to support adopted Local Plans

The assessment considers consistency with the South Cambridgeshire Local Plan (SCLP) (2018), the Cambridgeshire and Peterborough Minerals and Waste Local Plan (M&WLP)

(July 2021), the Fulbourn Neighbourhood Plan (2023) and the Foxton Neighbourhood Plan (2021).

CEA2 west of Wilbraham Road and CEA1 west of Wilbraham Road are almost wholly within the Cambridge green belt designated under Policy S/4 of the SCLP. Government attaches great importance to green belts. Paragraph 154(h)(iii) of the National Planning Policy Framework (December 2024) notes that engineering operations and local transport infrastructure, which can demonstrate a requirement for a green belt location, may not be inappropriate development in the green belt provided they preserve its openness and do not conflict with the purposes of including land within it.

The land required for the CSM1 West of Barrington Road option intersects with part of the Barrington railhead, which is being used for the restoration of Barrington Quarry, and is designated as a Waste Management Area (WMA) and Transport Infrastructure Areas (TIA) under policies 10 and 15 of the M&WLP. The CSM2 west of Barrington Road option is adjacent to this WMA and TIA. Both options fall within the consultation areas for the WMA and TIA under Policy 16. These policies seek to ensure that development would not prejudice the existing or future use of the railhead, including through the loss or reduced

capacity of this infrastructure. It is assumed that the CSM1/2 west of Barrington Road options would be compatible with the railhead and would not impact the transportation of waste by rail to the Barrington Quarry site, which is due to finish by 31 December 2033. This is therefore not considered to be a differentiating factor.

Land associated with the proposed access for the CSM2 west of Barrington Road option conflicts with Foxton Water Recycling Centre (WRC), whilst the CSM1 west of Barrington Road option is adjacent to the WRC. The WRC is a designated Water Recycling Area (WRA). Both options fall within the consultation areas for the WRA under Policy 16, which seeks to ensure that development would not prejudice the existing or future use of the WRC. As the proposed access itself for the CSM2 west of Barrington Road option avoids the WRC, it is assumed that the design of this TCC option can be refined to avoid prejudicing the existing or future use of this important facility. It assumed that the CSM1 west of Barrington Road option would also avoid impacting the facility. This is therefore not considered to be a differentiating factor.

There are no differentiators identified between CEA2 west of Wilbraham Road and CEA1 west of Wilbraham Road, and therefore CEA1 west of Wilbraham Road is judged to be neutral. Whilst it may be possible for CEA2 west of Wilbraham Road to be designed to accord with green belt policy, on the basis of the information currently available, this represents a significant constraint and potential conflict with the adopted Local Plan. As such, the CSM1/2 west of Barrington Road options, which avoid the green belt and are not subject to any other differentiating factors, are judged to be major improvements over CEA2 west of Wilbraham Road.

The following local designations are also relevant:

- Other than slivers of CEA2 west of Wilbraham Road and CEA1 west of Wilbraham Road which are within the Fulbourn settlement, all of the options are within the countryside where the SCLP seeks to restrict inappropriate development (Policy S/7: Development Frameworks).
- CEA2 west of Wilbraham Road and CEA1 west of Wilbraham Road are both wholly within the Mineral Safeguarding Area (MSA) for chalk. CEA1 west of Wilbraham Road is also partly within the MSA for sand and gravel, with approx. 4,800m2 of the site within the MSA. CSM1 west of Barrington Road and CSM2 west of Barrington Road are both wholly within the MSA for sand and gravel. CSM2 west of Barrington Road is also partly within the MSA for chalk. Policy 15 of the M&WLP would not automatically preclude development taking place, but it would need to be demonstrated that there is an overriding need for the development where prior extraction is not feasible, that the mineral can be extracted prior to the development taking place, or that the mineral concerned is not of current or future value.

- CEA2 west of Wilbraham Road and CEA1 west of Wilbraham Road are adjacent to land covered by Policy FUL/03 “Creating a Network of Green Infrastructure” of the Fulbourn Neighbourhood Plan, which seeks to encourage and facilitate appropriate development proposals that will consolidate and extend the network of green Infrastructure in the settlement. Figure 13 of the plan identifies land along the existing railway line as a potential green Infrastructure corridor.

These local designations would not preclude development of any of the above options although specific policy requirements may need to be met. For this reason, the designations are not considered differentiating factors for the purposes of reaching a judgement for AF15 but are material considerations in taking the options forward.

AF14 assesses the potential environmental impact of the proposed options on:

- Landscape character, protected by SCLP Policy NH/2 and Foxton Neighbourhood Plan Policy FOX/5;
- the setting of listed buildings, Foxton, Shrepreth and Fulbourn Conservation Areas, and the Roman Site north of Brown Spinney and Iron Age ritual enclosure containing a Bronze Age barrow ad Roman cemetery scheduled monuments, protected by SCLP Policy NH/14; and
- Biodiversity features, which are protected by SCLP Policies NH/4 and NH/5.

For this reason, these matters are not considered as part of this assessment.

Impacts on and opportunities to support emerging Local Plans

The assessment of each option considers consistency with the draft Greater Cambridge Local Plan (Regulation 18) (December 2025).

The review process for the Cambridgeshire and Peterborough Minerals and Waste Local Plan (July 2021) has not commenced, and there are no relevant emerging Neighbourhood Plans.

The emerging Greater Cambridge Local Plan (GCLP) (Regulation 18) was published for consultation from December 2025 to January 2026. Whilst the draft plan is only at the Regulation 18 stage, it includes draft policies and allocations, and is therefore considered to be sufficiently advanced for a judgement to be made regarding the consistency of the TCC options with it.

The GCLP proposes to carry forward the designation of the Cambridge green belt under Policy S/GB. The policy states that new development in the green belt will only be approved in accordance with green belt policy in the National Planning Policy Framework, and having regard to the Cambridge green belt purposes, which are to:

- Preserve the unique character of Cambridge as a compact, dynamic city with a thriving historic centre.
- Maintain and enhance the quality of its setting; and

- Prevent communities in the environs of Cambridge from merging into one another and with the city.

CEA2 west of Wilbraham Road and CEA1 west of Wilbraham Road would remain in the green belt under the emerging GCLP, whilst the CSM1/2 west of Barrington Road options would remain outside of it. Whilst it may be possible for CEA2 west of Wilbraham Road to be designed to accord with green belt policy, on the basis of the information currently available, this represents a significant constraint and potential conflict with the emerging Local Plan. As such, the CSM1/2 west of Barrington Road options, which are not subject to any other differentiating factors, are judged to be major improvements over CEA2 west of Wilbraham Road in terms of consistency with the emerging Local Plan.

4.4 Stakeholder feedback

As part of the 2024 consultation, undertaken between November 2024 and January 2025, the Technical Report prepared as part of the consultation materials included a map indicating the search areas for stabling siding locations.

Network Rail also provided feedback on the CEA1/2 west of Wilbraham Road location:

- Concerns have been raised with regards to the single-track corridor on the Newmarket Line between Cherry Hinton and Fulbourn and its ability to operate the required ECS moves to and from the proposed TCC. A capacity assessment has been completed looking at the single line section which demonstrates that the single line works on the assumption the required headways can be met. Further evaluation will need to be completed as the project and timetable develops.

Public engagement has not yet been undertaken for the TCC, however an issue has been raised about depot locations in general by Cambridge City Council:

- Concerned that the project's assessment framework does not explicitly account for the historic environment, even though several potential depot locations are identified along the Harston–to–Cambridge South section, an area containing highly sensitive heritage receptors. As a result, the depot, fencing, earthworks, construction compounds, access roads, and lighting all have the potential to harm the historic landscape and views, requiring detailed assessment and robust, heritage-focused mitigation in the EIA.

4.5 Outcome of the Assessment Factor process

A summary of the judgements against the Assessment Factor review is provided in the table below. Factors where the judgement is neutral for all options have been excluded for clarity.

Table 11: Outcome of the Assessment Factors review

Factor	Baseline CEA2 west of Wilbraham Road	CEA1 west of Wilbraham Road	CSM1 west of Barrington Road	CSM2 west of Barrington Road
Cost and Affordability – Maintenance Cost	Neutral	Neutral	Major Worsening	Minor Worsening
Long distance passenger services	Neutral	Neutral	Minor Worsening	Minor Worsening
Performance – Maintainability	Neutral	Minor Improvement	Major Worsening	Major Worsening
Performance – Infrastructure Reliability	Neutral	Minor Improvement	Major Worsening	Major Worsening
Performance - Operational Resilience of EWR	Neutral	Neutral	Major Worsening	Major Worsening
Performance - Operational Resilience of Wider Rail Network	Neutral	Neutral	Minor Worsening	Minor Worsening
Deliverability – Complexity of Maintenance	Neutral	Minor Improvement	Minor Worsening	Neutral
Deliverability – Safety Risk (Construction)	Neutral	Neutral	Minor Improvement	Minor Improvement

Deliverability – Safety risk (operations)	Neutral	Neutral	Minor Worsening	Minor Worsening
Deliverability – Programme and schedule	Neutral	Neutral	Minor Improvement	Minor Improvement
Environment and Society (inc BREEAM)	Neutral	Neutral	Minor Improvement	Neutral
Consistency with Local Plans (Adopted and Emerging)	Neutral	Neutral	Major Improvement	Major Improvement

5. Assessment Factor conclusion

Following the identification of a longlist of options for a possible TCC along the EWR route and adjoining rail corridors in the east, the resulting shortlist of locations was the subject of the TCC East Assessment Factors. These locations noted below each considered two possible layout options.

- CEA west of Wilbraham Road, near Fulbourn (with layouts CEA1 and CEA2)
- CSM west of Barrington Road, near Foxton (with layouts CSM1 and CSM2)

The result of the Assessment Factor appraisal was that the location CEA west of Wilbraham Road scored best with regards to the operational performance and network capability factors. This was considered against the environmental and planning factors for which CSM west of Barrington Road scored better. On balance it was deemed that CEA west of Wilbraham Road is the preferred location to ensure an efficient rail service for the future network, noting that environmental impacts could be mitigated, for example with screening.

With regards to the layout options considered at this location CEA1 scored marginally better than CEA2, however at this stage the layout will not be fixed to a single option. This will be confirmed following more detail design work and considering feedback from stakeholder consultation.

A summary of the differentiating factors is as follows:

- Cost – capital costs across the options are similar, but maintenance cost is a differentiator. The longer ECS moves to CSM 1/2 west of Barrington Road would increase the wear on multiple S&C crossings between this location and Cambridge.
- Network Capability – the location of CEA 1/2 west of Wilbraham Road, provides greater opportunities for extension of passenger services calling beyond the proposed Cambridge East Station towards Ipswich.
- Maintainability/Infrastructure Reliability – the CEA 1/2 west of Wilbraham Road location performs better in this category overall due to the improved track arrangement entering the site. CEA 1/2 west of Wilbraham Road has a lesser impact on the adjacent level crossings when compared to the impact of CSM 1/2 west of Barrington Road on the Foxton level crossing which would restrict access for maintenance. Location CEA 1/2 west of Wilbraham Road also allows for more flexibility on the track layout geometry.
- Operational Resilience – There is currently insufficient capacity identified for all ECS between the CSM west of Barrington Road options and the proposed Cambridge East station. CSM 1/2 west of Barrington Road ECS moves introduce operational resilience risks at more pinch points than CEA west of Wilbraham Road.

- Deliverability – the CEA west of Wilbraham Road options perform worse during the construction of the works but improve on the CSM west of Barrington Road options during operation. This is due to the access by road for construction traffic to CEA west of Wilbraham Road being more constrained. Once in operation however, the risk at the CSM west of Barrington Road options increases due to the level of maintenance intervention required and proximity to a very busy level crossing.
- Environmental Assessment - it is considered that both CEA1 west of Wilbraham Road and CSM2 west of Barrington Road would be neutral to the baseline CEA2 West of Wilbraham Road and CSM1 west of Barrington Road would be a minor improvement. Therefore CSM1 west of Barrington Road would be the preferred option for environment due to the significant decrease in GHG emissions, reduced agricultural land take, potential heritage impacts and indirect impact to community receptors.
- Consistency with Local Plans – CSM west of Barrington Road is more favourable in these factors due to the positioning of CEA West of Wilbraham Road options within green belt land.