

Tees CCPP Project

The Tees Combined Cycle Power Plant Project

Land at the Wilton International Site, Teesside

Implications of Requested Change on the EIA



CONTENTS

| | | |
|-------|--|----|
| 1.1 | INTRODUCTION | 1 |
| 1.2 | CHANGES TO THE PROJECT DESCRIPTION AND BASIS OF THE ENVIRONMENTAL IMPACT ASSESSMENT | 1 |
| 1.2.1 | <i>Air Quality</i> | 2 |
| 1.2.2 | <i>Noise and Vibration</i> | 3 |
| 1.2.3 | <i>Landscape and Visual Amenity</i> | 4 |
| 1.2.4 | <i>Cultural Heritage</i> | 11 |
| 1.2.5 | <i>Health</i> | 12 |
| 1.2.6 | <i>Other Effects</i> | 12 |
| 1.3 | CONCLUSIONS | 12 |
| | <i>Annex A Extracts from the PEIR and ES</i> | |
| | <i>Annex B Revised Photomontages</i> | |

1 *IMPLICATIONS OF REQUESTED CHANGE ON ENVIRONMENTAL IMPACT ASSESSMENT*

1.1 *INTRODUCTION*

1.1 The Applicant is currently engaged in a tendering process with a number of contractors, with one to be selected once the Proposed Development is consented, prior to construction. Since submission of the Application in November 2017, one of the contractors has identified that it may be necessary to increase the maximum height of the turbine hall and Heat Recovery Steam Generator (HRSG) buildings in order to house its components. This has therefore necessitated the need to request a change to the maximum heights stated in the Application.

1.2 On this basis, a change to the building heights for the gas turbine buildings from 25 m to 32 m and the HRSG buildings from 44 m to 45 m is sought.

1.3 This document summarises the Applicant's request for a change to the potential maximum heights of the turbine buildings and the HRSG buildings as currently set out in the draft Development Consent Order (DCO) (Documents APP-005) and the potential impact that this may have in terms of relevant chapters of the submitted Environmental Statement (ES) (Documents APP-041 to APP-081).

1.2 *CHANGES TO THE PROJECT DESCRIPTION AND BASIS OF THE ENVIRONMENTAL IMPACT ASSESSMENT*

1.4 The Environmental Impact Assessment (EIA) for the Project takes account of the potential environmental effects of the Project and presents the likely significant effects of these where appropriate. Assessments are based on an evaluation of the realistic 'worst case scenario', which is described under the 'Basis of Assessment including Realistic Worst Case Scenario' of each technical chapter.

1.5 Table 1.1 below sets out whether the requested change to the building heights alters the basis of assessment for each environmental topic. As can be seen in Table 1.1 the requested change to the maximum heights to the gas turbine buildings and the HRSG buildings is relevant to the basis of assessment and development of a Rochdale Envelope for five topics: air quality, noise, visual impact, cultural heritage (asset setting only) and human health.

1.6 A review of the new worst case set of parameters (i.e. with the increased building heights) for each of these topics has therefore been undertaken and is set out in the following sections.

Table 1.1 Identified implications on basis of assessment for Environmental Statement of the requested change

| Topic | Basis of Assessment | Further consideration of change required? |
|---|---|--|
| Contaminated land, water resources and flood risk | Topic impacts relate to land-take and assessment is not influenced by building heights. | N. |
| Air quality | Topic impacts take into account building heights within the air quality modelling. | Y. |
| Noise | Topic impacts take into account building heights within the noise modelling. | Y. |
| Ecology | Ecology impacts relate to land-take and stack height in regards to pollutant emission dispersal and associated on off-site areas of nature conservation value. The assessment is not materially influenced by other Project component building heights. | N. (as confirmed by the amended assessment of air quality impacts) |
| Habitats Regulations Assessment - operation | Impacts at European Protected Sites relate to stack height in regards to pollutant emission dispersal and associated on off-site areas of nature conservation value. The assessment is not materially influenced by other project component building heights. | N. (as confirmed by the amended assessment of air quality impacts) |
| Landscape and Visual - construction | Topic impacts take into account heights of proposed buildings in regards impacts on landscape and visual effects on nearby receptors. | Y. |
| Cultural heritage setting effect on cultural heritage assets only | Topic impacts take into account heights of proposed buildings in regards nearby cultural heritage receptors and the impact on their setting. | Y. |
| Traffic and Transport | Assessment takes into account employment levels of project and assessment is not influenced by other Project component building heights. | N. |
| Socio-economic characteristics | Assessment takes into account employment levels of project and assessment is not influenced by other Project component building heights. | N. |
| Human health | The human health chapter draws upon the findings of the socio-economic, traffic, noise, air quality and visual assessments. | Y. |
| Major Accidents | Assessment takes into account risks and hazards of the Project and assessment is not influenced by other Project component building heights. | N. |

1.2.1 Air Quality

1.7 The air quality assessment for the Project has taken into account the height of all the proposed structures as the dispersion of stack emissions can be influenced by tall buildings greater than 1/3rd stack height due to downwash effects. A gas turbine buildings height of 31 m and HRSG buildings height of

45 m were considered in the air quality dispersion model (see Table 7.6 in Document APP-049). The requested change for the gas turbine buildings height to be increased up to a maximum of 32 m is therefore considered in this section and an amended version of Chapter 7 of the ES has been produced.

1.8 The potential maximum height of the amended gas turbine building (i.e. an increase of 1 m from that modelled for the ES as originally submitted) will not materially alter the air quality model output as presented in Section 7.4.3 of Chapter 7. This is demonstrated through a comparison of the modelling results presented in the Preliminary Environmental Impact Report ('PEIR') with those presented in Section 7.4.3 (relevant information has been reproduced in Annex A of this document for ease of comparison purposes). At the PEIR stage, the heights for the gas turbine buildings and HRSG buildings were modelled at 21.3 m and 33.6 m respectively based on preliminary design information that was subsequently updated. For the ES, the gas turbine buildings and HRSG buildings have been modelled at 31 m and 45 m, increases of circa 10 m and 11 m respectively. This relatively large differences in heights allows a 'sensitivity test' of how the modelling results are influenced by building heights. These relatively large increases do not lead to any differences in the modelling results (see PEIR Table 7.15 and Table 7.15 of the ES reproduced in Annex A of this document).

1.9 Given that the requested change is only a minor change (1 m increase) from the air quality basis of assessment modelled inputs for the EIA, it can be concluded with a high level of certainty that this will not materially alter the outcome of the modelling in the ES and demonstrates the assessment still represents the worst case scenario for air quality impacts. Another reason for this high level of confidence is that all but one of the identified effects are 'not significant' in terms of the effects on human health and are below the thresholds for an insignificant contribution at sensitive ecological receptors. The one exception is an effect of moderate significance for short-term NO₂ concentrations at a receptor location characterised by agricultural land use and which is still within the standards designed to protect human health.

1.10 The conclusions on the significance of effects within the air quality assessment presented in the ES (Chapter 7, Section 7.5) are therefore unaffected by the requested change to maximum building heights.

1.2.2 *Noise and Vibration*

1.11 The noise assessment for the Project took into account the height of all the proposed structures, as surrounding structures influence the screening of noise and the dissipation of noise from the source. A gas turbine building height of 30.1 m and HRSG building height of 45.6 m were considered in the noise prediction model included in Chapter 8 of the ES (Document APP-050).

1.12 The most important potential impacts from the operation of the Project are due to noise from fixed equipment. These impacts have been mitigated by careful early layout of the site including placing key external sources such as

the cooling towers as far from receptors as possible, the retention of a noise barrier which provides noise reduction to residents in Lazenby and the provision of a noise barrier on the western site boundary to reduce noise at Grangetown. All these mitigation measures are equally relevant for the requested change. On-plant mitigation such as placing key items in buildings or enclosures has also been employed, with such buildings or enclosures including suitable acoustic cladding. The precise specifications for acoustic enclosure and cladding will be determined based on a selected design with the objective of design noise levels at the nearest sensitive receptors being no higher than those predicted in the ES. As a result of these mitigation measures the resulting predicted noise levels as a consequence of the requested change will not result in noise effects that are different from those predicted in the ES.

- 1.13 The amended building heights of 32 m for the gas turbine and 45 m for the HRSG buildings will not materially affect the conclusions on noise effects presented in Chapter 8 of the ES (Document ref APP-050).

1.2.3 *Landscape and Visual Amenity*

- 1.14 The landscape and visual assessment for the Project took into account the height of all the main proposed structures and the visual effects, including effects due to change or loss of landscape elements and/or introduction of new elements, considering effects upon views experienced by potential viewers/viewing groups and on general visual amenity. A gas turbine building height of 23 m and HRSG building height of 44 m were considered in photomontages produced for the landscape and visual assessment, together with a stack height of 90 m. The amended building heights have therefore been considered in this section.

- 1.15 A revised set of photomontages has been prepared as appended in Annex B of this document. These show the amended heights for the turbine buildings and HRSG buildings (32 m and 45 m respectively). In order to allow a ready comparison, for each viewpoint the annex presents: the existing view; the Project as presented in the ES; and the Project including the requested change. Chapter 11 of the ES (Document APP-053) has been amended based on an assessment of the requested change.

- 1.16 Effects on landscape character as a result of the requested change have been considered and these remain unchanged from the assessment presented in Chapter 11, Table 11.5 of the ES.

- 1.17 Effects on visual amenity as a result of the requested change have been considered on the basis of the updated photomontages and the assessment is presented in Table 11.6 of the amended Chapter 11, which is reproduced on the following page as Table 2.1.

- 1.18 Table 2.1 details the assessment of the requested change at each viewpoint considered in the EIA. As can be seen within the table, the magnitude of impacts at the viewpoints ranges from negligible to medium and the

significance of effects from not significant to minor. As can be seen in the photomontages, whilst there is a perceptible difference in the visibility of portions of the building structures (together with a reduction in prominence of the stacks) from the ES photomontages, the overall change is not sufficient to lead to an increase in the rating of the impact magnitude which is still largely dictated by the visibility of the stacks as the tallest structures visible from all viewpoints.

- 1.19 The conclusions on the significance of effects presented within the landscape and visual assessment of the ES are therefore unaffected by the requested change.

Table 2.1 Updated landscape and visual viewpoint assessment following height alterations

| Viewpoint | Sensitivity | Construction Phase Effects | Magnitude of Change | Significance of Effect | Operational Phase Effects | Magnitude of Change | Significance of Effect |
|-----------------------------|-------------|--|---------------------|------------------------|---|---|------------------------|
| VP1- view from allotments | Medium H/R | Scrub vegetation and trees to the south and southeast of Project site will restrict views towards lower construction activities. Taller construction equipment such as cranes will, however, be visible. Considering the temporary nature of the construction activities and the visual dominance of existing infrastructural elements, the magnitude of change is considered to be small. | Small | <i>Not Significant</i> | Scrub vegetation and trees to the south of site will restrict views towards lower Project components. The main bulk of taller components like the heat recovery steam generator and turbine hall will be barely visible through the vegetation. The stacks and the upper portions of the HRSG buildings and a small part of one gas turbine buildings (albeit against the backdrop of the larger HRSG buildings) will be visible above the trees and hedgerows. | The stacks' and the upper portions of the HRSG buildings will be visible and will be seen alongside the Ensus plant and other stacks and electricity Pylons. The magnitude of change is therefore considered to be <i>Small</i> . | <i>Minor</i> |
| | | At night construction lighting will be barely perceptible in the background of the view. Existing operational and security lighting around Ensus Plant as well as lights along A1053 will be dominant. Therefore, the magnitude of change is considered to be negligible. | Negligible | <i>Not Significant</i> | At night, operational and security lighting associated with the Project will be perceptible in the background of the view especially at higher levels and on stacks. This will be seen alongside existing lighting around Ensus Plant, the magnitude of change is considered to be small. | <i>Small</i> | <i>Minor</i> |
| VP2- view from Pasture Lane | Medium H/R | Effects very similar to VP1. | Small | <i>Not Significant</i> | Effects very similar to VP1. However views from Pasture Lane are restricted due to orientation of | <i>Small</i> | <i>Minor</i> |

| Viewpoint | Sensitivity | Construction Phase Effects | Magnitude of Change | Significance of Effect | Operational Phase Effects | Magnitude of Change | Significance of Effect |
|---|--------------|--|-------------------------|--|--|---|---|
| | | Impacts due to lighting are similar to VP1. | Negligible | <i>Not Significant</i> | residential areas, tree cover and footpath. Impacts due to lighting are similar to VP1 | <i>Small</i> | <i>Minor</i> |
| VP3-view from edge of village, private path | Medium R | Effects very similar to VP1. At night construction lighting will be perceptible in the background of the view. Existing operational and security lighting around Ensus Plant will be dominant as the construction lights will be mainly at ground level. Therefore, the magnitude of change is considered to be negligible. | Small Negligible | <i>Not Significant</i> <i>Not Significant</i> | Effects very similar to VP1. At night, operational and security lighting associated with the Project will be perceptible in the background of the view. This will be seen alongside existing lighting around Ensus Plant due to angle of view. As there will be more lighting during the operational phase than during construction, the magnitude of change is considered to be small. | Very similar to VP1. Magnitude of change is considered to be <i>Small</i> . <i>Small</i> | <i>Minor</i> <i>Minor</i> |
| VP4- view from High Street , Lazenby | High H, R, T | Views to site are restricted due to intervening residences. Taller construction equipment such as cranes will be barely visible. | Negligible | <i>Not Significant</i> | Views to site are restricted due to intervening residences. The two stacks and the upper portions of the HRSG buildings are the only visible components of the Project and will be seen alongside other taller components within the industrial area. | Magnitude of change is considered to be <i>Small</i> . | <i>Minor to Moderate</i> . Given the fact that there are other tall industrial components in the skyline, like the Ensus plant and pylons, the range of effect is more towards <i>Minor</i> . |

| Viewpoint | Sensitivity | Construction Phase Effects | Magnitude of Change | Significance of Effect | Operational Phase Effects | Magnitude of Change | Significance of Effect |
|---|----------------|---|---------------------|------------------------|--|--|------------------------|
| VP5-view from Rosedene Cattery | Medium H | Effects very similar to VP1. | Small | <i>Not Significant</i> | Scrub vegetation and trees to the south of site will restrict views towards lower Project components. As well as the stacks, upper parts of the taller components (the heat recovery steam generator and gas turbine hall) will be visible alongside the Ensus Plant, electricity pylons, A1053 and industrial area in the backdrop. | Magnitude of change is considered to be Small considering the large electric substation in the foreground and industrial area in the background. | <i>Minor</i> |
| | | Impacts due to lighting are similar to VP1 | Negligible | <i>Not Significant</i> | Impacts due to lighting are similar to VP1 | <i>Small</i> | <i>Minor</i> |
| VP6- view from Birchington Avenue | Medium H, R, T | Views to the site are restricted due to intervening vegetation in the green infrastructure corridor. Taller construction equipment such as cranes will be barely visible. | Negligible | <i>Not Significant</i> | Intervening vegetation in the green infrastructure corridor will restrict views of the Project. The only visible elements of the Project will be of the two stacks seen alongside the stack of Ensus plant, together with the upper portions of the HRSG buildings. | Magnitude of change is considered to be <i>Small</i> . | <i>Minor</i> |
| | | Impacts due to lighting are similar to VP1 | Negligible | <i>Not Significant</i> | Impacts due to lighting are similar to VP1. | <i>Small</i> | <i>Minor</i> |
| VP7-view from recreational park/Millennium Park | High R | Views to site are restricted due to intervening vegetation in the green infrastructure corridor. Taller construction equipment such as cranes will be barely visible. | Negligible | <i>Not Significant</i> | Intervening vegetation in the green infrastructure corridor will restrict views of the Project. | Magnitude of change is considered to be <i>Negligible</i> . | <i>Not Significant</i> |

| Viewpoint | Sensitivity | Construction Phase Effects | Magnitude of Change | Significance of Effect | Operational Phase Effects | Magnitude of Change | Significance of Effect |
|--------------------------------|-------------|---|---------------------|------------------------|--|---|------------------------|
| VP8- view from entrance road | Low T | Direct views to the site. Construction equipment will be visible in the backdrop of Ensus Plant. Lower level views screened due to shrubs along entrance road. | Small | <i>Not Significant</i> | The Project will be clearly visible from the entrance road alongside the Ensus plant. | Magnitude of change is considered to be <i>Medium</i> . | <i>Minor</i> |
| | | At night construction lighting will be perceptible in the foreground and middle ground of the view. Existing operational and security lighting around the operational Ensus Plant will be dominant along with existing street lights on the A1053. Therefore, the magnitude of change is considered to be negligible. | Negligible | <i>Not Significant</i> | At night, operational and security lighting associated with the Project will be dominant in foreground and middle ground. In the background of the view, existing lighting around Ensus Plant will also be visible. The magnitude of change is considered to be medium | Magnitude of change is considered to be <i>Medium</i> . | <i>Minor</i> |
| VP9- View from old Lackenby | Medium H | Partial long medium distance views to the site and the Teesside industrial area are available. Taller and bulkier construction equipment such as cranes and large machinery will be barely visible due to distance and intervening vegetation. | Negligible | <i>Not Significant</i> | The Project will be partially visible due to intervening vegetation alongside the Ensus Plant and in the backdrop of the Teesside industrial area. | Magnitude of change is considered to be <i>Small</i> . | <i>Minor</i> |
| VP10- View from Eston Nab(SAM) | Medium R | Long medium distance views to the site and the Teesside industrial area are available. Construction equipment will be visible although it will be in the backdrop of a very large industrial area. | Negligible | <i>Not Significant</i> | The Project will be visible alongside the Ensus Plant and in the backdrop of the Teesside industrial area. | Magnitude of change is considered to be <i>Small</i> . | <i>Minor</i> |
| | | At night construction lighting will be visible at distance. | | <i>Not Significant</i> | | | |

| Viewpoint | Sensitivity | Construction Phase Effects | Magnitude of Change | Significance of Effect | Operational Phase Effects | Magnitude of Change | Significance of Effect |
|-------------------------------------|-------------------|--|---|------------------------|---|---|------------------------|
| | | However operational lights within the Wilton International Area and along main transportation corridors will dominate in the views | Magnitude of change is considered to be Negligible. | | At night, operational and security lighting associated with the Project will be seen alongside the Ensus plant. In the background of the view, existing lighting within the Wilton International area will still be a dominant feature due to its vast scale. | Magnitude of change is considered to be <i>Small</i> | <i>Minor</i> |
| VP11- View from Wilton Castle | High H, R | Very limited long-medium distance views available thru gaps in trees. Only the taller components of the existing industrial facilities visible in the skyline. | Negligible | <i>Not Significant</i> | The taller components of the project will be an added feature in the skyline but will be difficult to differentiate from existing stacks/infrastructure. | Magnitude of change is considered to be <i>negligible</i> . | <i>Not Significant</i> |
| VP12- View from Kirkleatham village | High H, R | Given the distance and a narrow strip of woodland east of Kirkleatham, views of the Project site and construction equipment are unlikely. | Negligible | <i>Not Significant</i> | It is unlikely that the Project will be visible from the village edge due to intervening vegetation. | Magnitude of change is considered to be <i>negligible</i> . | <i>Not Significant</i> |
| VP13- View from Yearby village | Medium R, H, T | Given the distance and intervening vegetation and woodland, views of the Project site and construction equipment are unlikely. | Negligible | <i>Not Significant</i> | Very limited long distance views of the Project will be visible from the village and foot path due to intervening vegetation. Only the taller elements will be visible and it will be difficult to differentiate from existing stacks and viewing distance. | Magnitude of change is considered to be <i>negligible</i> . | <i>Not Significant</i> |
| VP14- View from Dormanstown | Medium R, H, T | Given the distance and due to intervening vegetation and other industrial facilities, views of the Project site and construction equipment are unlikely. | Negligible | <i>Not Significant</i> | Only the taller elements will be visible and it will be hard to differentiate due to existing stacks/other factories and viewing distance. | Magnitude of change is considered to be <i>negligible</i> . | <i>Not Significant</i> |

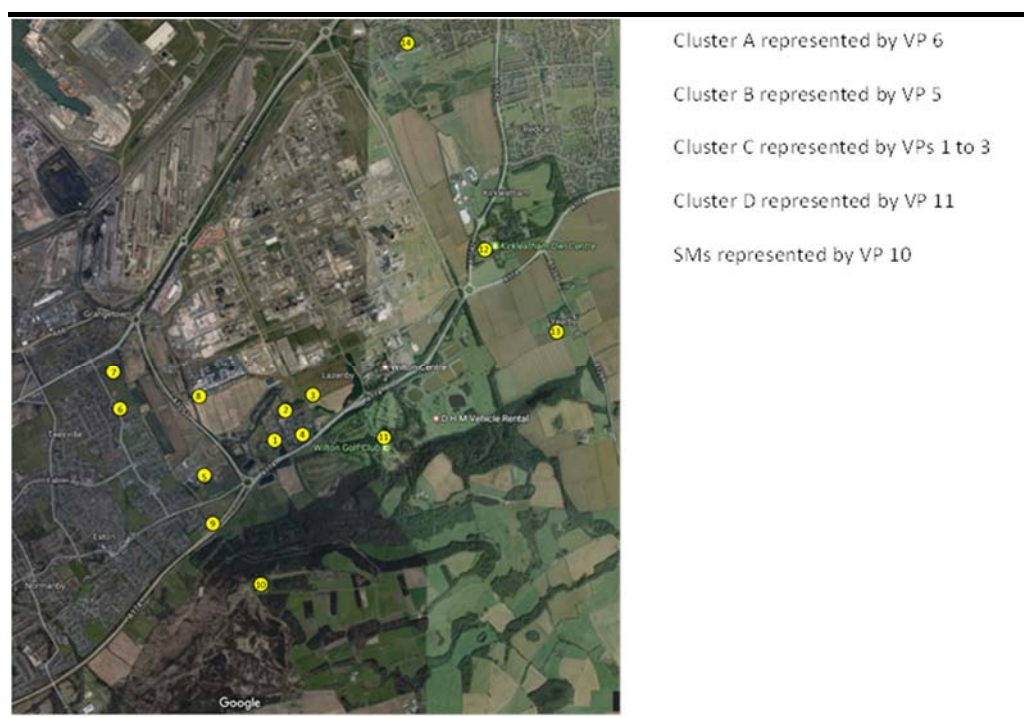
1.2.4 Cultural Heritage

1.20 The cultural heritage assessment (Document APP-054) for the Project took into account the heights of all the proposed structures and the potential adverse impacts upon the setting of cultural heritage assets. The requested change to building heights has therefore been considered in this section.

1.21 In general terms the landscape of the area of Teesside to the west of Redcar, where the Project Site is situated, has been transformed with the construction of the ICI facility (now called the 'Wilton International Site') after WWII. The setting of the various heritage assets in the vicinity of Wilton International Site is therefore already very substantially affected by its presence.

1.22 The designated assets as described in the ES have been grouped into four 'clusters' as shown on Figure 1 below. These clusters are broadly represented by some of the viewpoints ('VP') used in the landscape and visual impact assessment, namely: cluster A represented by VP 6; cluster B represented by VP 5; cluster C represented by VPs 1 to 3; cluster D represented by VP 11; and the two Scheduled Monuments represented by VP 10.

Figure 1 Viewpoints (VP) Corresponding to Clusters A to D and Scheduled Monuments



1.23 As can be seen in Table 2.1 earlier in this document, the landscape and visual assessment of the requested change does not alter the magnitude of impact or significance of effects at any viewpoint. This includes for example the viewpoint 10 Eston Nab Scheduled Monument where the requested change will be most visible since the Project will not be screened as in the closer views. However, from this long distance view the Project will be viewed in

the context of the industrial setting with the Project's main stacks and larger buildings still dominating the overall visual effect.

1.24 The conclusions within the cultural heritage assessment of the ES are therefore unaffected by the proposed building height alterations.

1.2.5 *Health*

1.25 The health assessment for the Project took into account the key findings of relevant technical assessments including noise and air quality. The building height alteration has therefore been considered.

1.26 On the basis that the above sections for noise, air quality and landscape and visual have all demonstrated that the assessments of these topics within the ES are unaffected by the proposed amendments, the conclusions within the health assessment of the ES also remain unchanged.

1.2.6 *Other Effects*

1.27 As shown in Table 1.1 a review of the other environmental aspects covered in the ES has been undertaken and the proposed height amendment does not change their basis of assessment and therefore no further analysis is required.

1.3 *CONCLUSIONS*

1.28 A review of the relevant topics and impacts assessed in the submitted ES has been undertaken with regards to the Applicant's request for a change to the potential maximum height of the gas turbine buildings and the HRSG buildings. The review identified that five topic assessments: air quality, noise, visual impact, cultural heritage (asset setting only) and human health are potentially affected by the requested change. These topics have been reviewed and their basis of assessment updated taking account of the proposed building height amendments. This review has demonstrated that there are no changes to the conclusions presented in the ES and the building height change does not materially alter the overall findings of the EIA in as much as the conclusions on the significance of effects remain unchanged.