Horsley Park Brickworks Plant 2 Upgrade Works Modification 1

Increase In Operational Throughput Capacity of Horsley Park Brickworks Plant 2
State Significant Development Modification Assessment (SSD-9601-Mod-1)

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Subtitle: Increase In Operational Throughput Capacity of Horsley Park Brickworks Plant 2
State Significant Development Modification Assessment

Glossary

Abbreviation	Definition
Applicant	Austral Brick Co Pty Ltd
BDAR	Biodiversity Development Assessment Report
Council	Fairfield City Council
Department	Department of Planning and Environment
EHG	Environment and Heritage Group of the Department
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development
LEP	Local Environmental Plan
Minister	Minister for Planning
Planning Report	Modification Application Planning Report, prepared by Willowtree Planning Pty Ltd, version 5, dated 5 November 2021
Planning Secretary	Secretary of the Department of Planning and Environment
SEPP	State Environmental Planning Policy
SSD	State Significant Development
RtS	Response to Submissions, prepared by Willowtree Planning Pty Ltd, dated 31 March 2022
TfNSW	Transport for NSW
WSA	Western Sydney Airport

Contents

1 Introduction

This report provides the NSW Department of Planning and Environment's (the Department's) assessment of an application to modify the State significant development (SSD) consent for the Horsley Park Brickworks Plant 2 upgrade works (SSD-9601). The modification application seeks consent to increase the throughput capacity of the Plant 2 facility from 80 million standard brick equivalents (SBE) to 130 million SBE per annum including amendments to exhaust scrubber, carparking and hardstand, access and extension of the on-site detention (OSD) basin.

The application was lodged on 29 November 2021 by the Austral Brick Co Pty Ltd (the Applicant) pursuant to section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.1 Background

The Applicant currently operates a brick manufacturing facility and extractive industry for clay and shale at 780 Wallgrove Road, Horsley Park in the Fairfield local government area. The site comprises 82 hectares (ha) of land located within the Wallgrove Precinct of the Western Sydney Parklands (WSP) and is legally described as Lot 7 DP 1059698 (see **Figure 1**). The site is located 32 kilometres (km) west of the Sydney CBD and adjoins Wallgrove Road to the west and Ferrers Road to the east.

Figure 1 | Regional Context Map

A major interchange between the M4 and M7 motorways is located three km north of the site, which connects the site to the Sydney CBD and western Sydney suburbs. The site is in private ownership and not owned or managed by the Western Sydney Parklands Trust (WSPT).

The site is unzoned, which is the case with all land in the Parklands, under State Environmental Planning Policy (Western Sydney Parklands) 2009 (Parklands SEPP). The site contains an existing quarry, brick manufacturing, brick display and sales facility (known as Austral Bricks, which is one of the brands of building materials manufactured by the Applicant) which has operated since the 1960s. The Plant 1 facility is located in the north-western part of the site and the Plant 2 facility is within the north-eastern part of the site (see **Figure 2**). In addition, the Horsley Park Waste Management Facility (WMF) is located directly to the south-west of the Plant 2 facility.

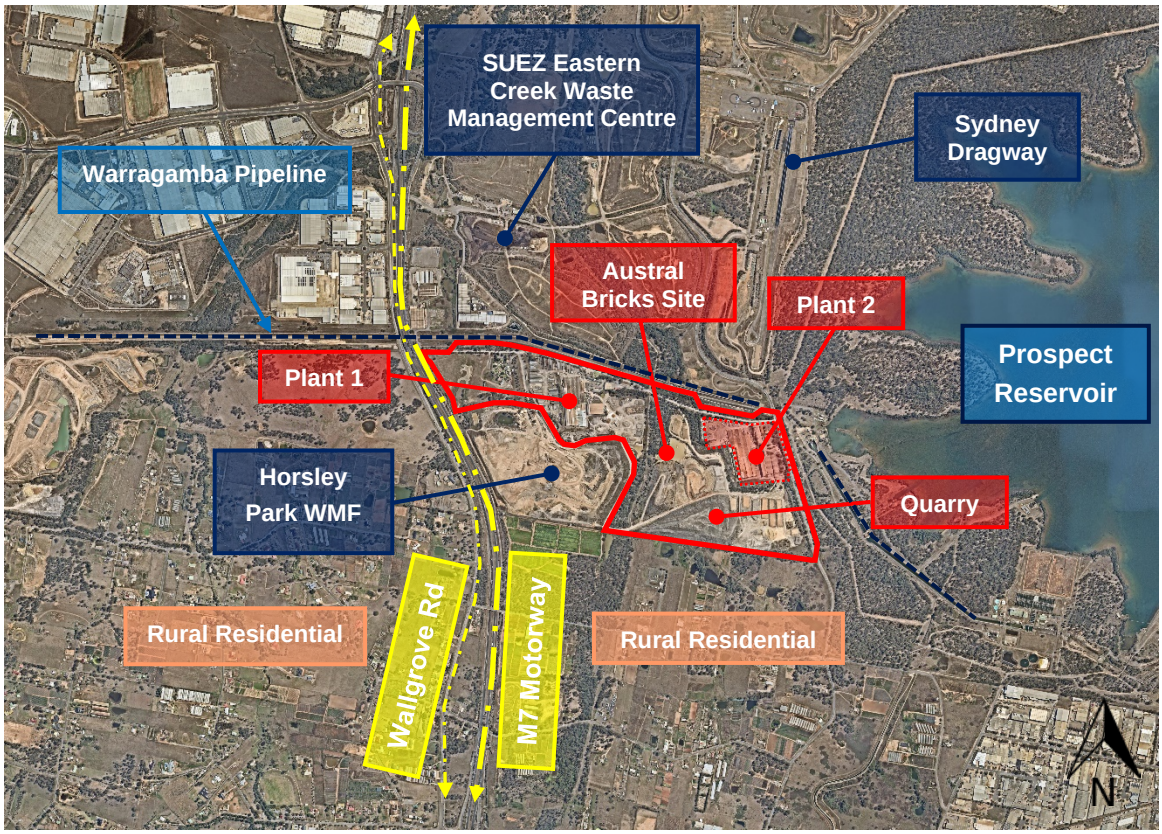

Figure 2 | Local Context Map

Eastern Creek flows through the centre of the site and is bound by riparian forest vegetation which is heavily impacted by weeds. Eastern Creek meets the Hawkesbury River approximately 25 km to the north. There are no known significant items of Aboriginal or European Heritage on the site. An electricity transmission line runs along part of the southern site boundary before deviating to the south-east away from the site.

The Plant 2 facility was required to be upgraded to improve the environmental and operational efficiency of the facility which has an operational throughput capacity of 80 million SBE per annum. These improvements have now presented the Applicant with an opportunity to increase the operational throughput capacity of the facility to 130 million SBE per annum.

1.2 Approval history

On 18 May 2020, development consent was granted by the then Executive Director, as delegate of the then Minister for Planning and Public Spaces for the development of the Horsley Park Brickworks Plant 2 Upgrade. The development consent permits the following works:

- partial demolition of existing Plant 2 facility and existing two kilns
- installation of a new kiln
- extension of existing production building
- stormwater detention basin
- internal fire access road

The subject modification application is the first occasion the development consent has been modified.

1.3 Other Development Approvals

The Applicant operates an existing brick manufacturing plant, including clay and shale extraction on the site. All development approvals on the site have been identified in **Table 1** below.

Table 1 | Development Approvals

Development	Description	Consent Authority	Date
DA No. 145/20/33	Manufacture of bricks and the extraction of clay and shale	Blacktown Shire Council	17 November 1960
DA No. 104/83	Factory extensions	Blacktown City Council	8 August 1983
DA No. 577/97	Use of the site for the purpose of a solid waste landfill with a capacity of 430,000 tpa	Blacktown City Council	8 December 1998
DA No. 708/2005	Extensions to the existing sales office of Austral Bricks	Blacktown City Council	12 July 2005
DA No. 1431/2005	Construction of a single storey administration building for the Austral Brick Company	Blacktown City Council	24 March 2006
DA No. 880/2006	Alterations and additions to Austral Bricks' Sales Office	Blacktown City Council	13 December 2006
DA No. 1510.1/2008	Demolition of a portable building and covered pergola and alterations and additions to an existing office building for Austral Bricks	Blacktown City Council	20 October 2009

DA No. 1373.1/2009	Erection of a brick display panel with dimensions 10 m x 10 m.	Blacktown City Council	16 April 2010
DA No. 286.1/2012	Installation of a gas pipeline for the delivery and use of captured landfill gas in the brick manufacturing process	Blacktown City Council	12 November 2013

In addition, the site has an Environment Protection Licence (EPL) 546 issued by the Environment Protection Authority. The EPL allows for the production of up to 200,000 tonnes of 'ceramics' and the 'crushing, grinding or separating' of up to two million tonnes of material annually. A variation to the EPL is likely to be required, if the modification to the development is approved.

2 Proposed modification

The Applicant lodged a modification application under section 4.55(2) of the EP&A Act to modify SSD-9601. The modification is described in full in the Statement of Environmental Effects (SEE) included in **Appendix A**, is summarised in **Table 2** and illustrated in **Figure 3** and **Figure 4**.

Table 2 | Component of Modification

Modification Aspect	Description
Operation	• Increase of capacity from 80 million SBE to 130 million SBE per annum.
Plant & Equipment	• Upgrade kiln stack scrubber to Twin Tower Scrubber
Access and Car Parking	• New vehicle access point for Plant 2 • Additional 15 car parking spaces • Installation of new gatehouse
Stormwater	• Extension of existing On-site Detention (OSD) basin.
Employment	• Additional 12 staff for night shift operations

Plant 2 Facility Operations

The modification application includes the proposed increase to the existing operational throughput capacity of the Plant 2 facility from 80 million SBE to 130 million SBE. The Applicant proposes to maximise utilisation of the Plant 2 facility by implementing a 'continuous shift' operating model. The continuous shift model involves the addition of a night shift to enable the Plant 2 facility to operate 24/7 in line with the 24/7 operations of the broader site.

The continuous shift model would remove inefficiencies in the facility's production cycle, particularly energy consumption during kiln start-up and cool-down phases of the production cycle. The Applicant has identified the continuous shift operation of the facility would improve the energy efficiency of the development by 10% per each SBE produced.

In addition, the continuous shift operation model would remove bottlenecks within the production cycle including delays in kiln car loading, unloading and commencement of kiln firing. The Applicant has identified the facility only operates at peak efficiency at the mid-point of the production cycle however, the continuous shift operation would allow the facility to operate efficiently continuously. The Applicant has demonstrated the comparison in operational efficiency between the existing 'batch shift' operation model and the proposed continuous shift operation model in **Figure 3**.

"Batch Shift" Operating Model - Day and afternoon shifts only

Production Cycle	Start of Cycle	Mid Cycle	Mid Cycle	Mid Cycle	End of Cycle
Efficiency	Less than efficient production	Less than efficient production	Efficient production	Efficient production	Less than efficient production
Setting	Waiting for cars to be unloaded to be able to start setting	Setting at optimal capacity			
Firing	Waiting for cars to be loaded to start firing		Firing at optimal capacity		
Unloading	Unloading - at capacity	Unloading at optimal capacity			Waiting for cars to unload

"Continuous Shift" Operating Model - day, afternoon and night shifts

Production Cycle	Continuous Cycle	Continuous Cycle	Continuous Cycle	Continuous Cycle	Continuous Cycle
Efficiency	Efficient production				
Setting	Setting at optimal capacity				
Firing	Firing at optimal capacity				
Unloading	Unloading at optimal capacity				

Figure 3 | Operating Model Comparison

Furthermore, the Applicant identified the improvement in operational efficiency would enable the facility to operate continuously throughout the year and accumulate stock during off-peak sales periods to be available during peak seasonal sales demand periods of the year. The modification application subsequently proposes to increase the hardstand area of the Plant 2 facility by 3.5 ha to accommodate additional storage of brick product (see **Figure 4**).

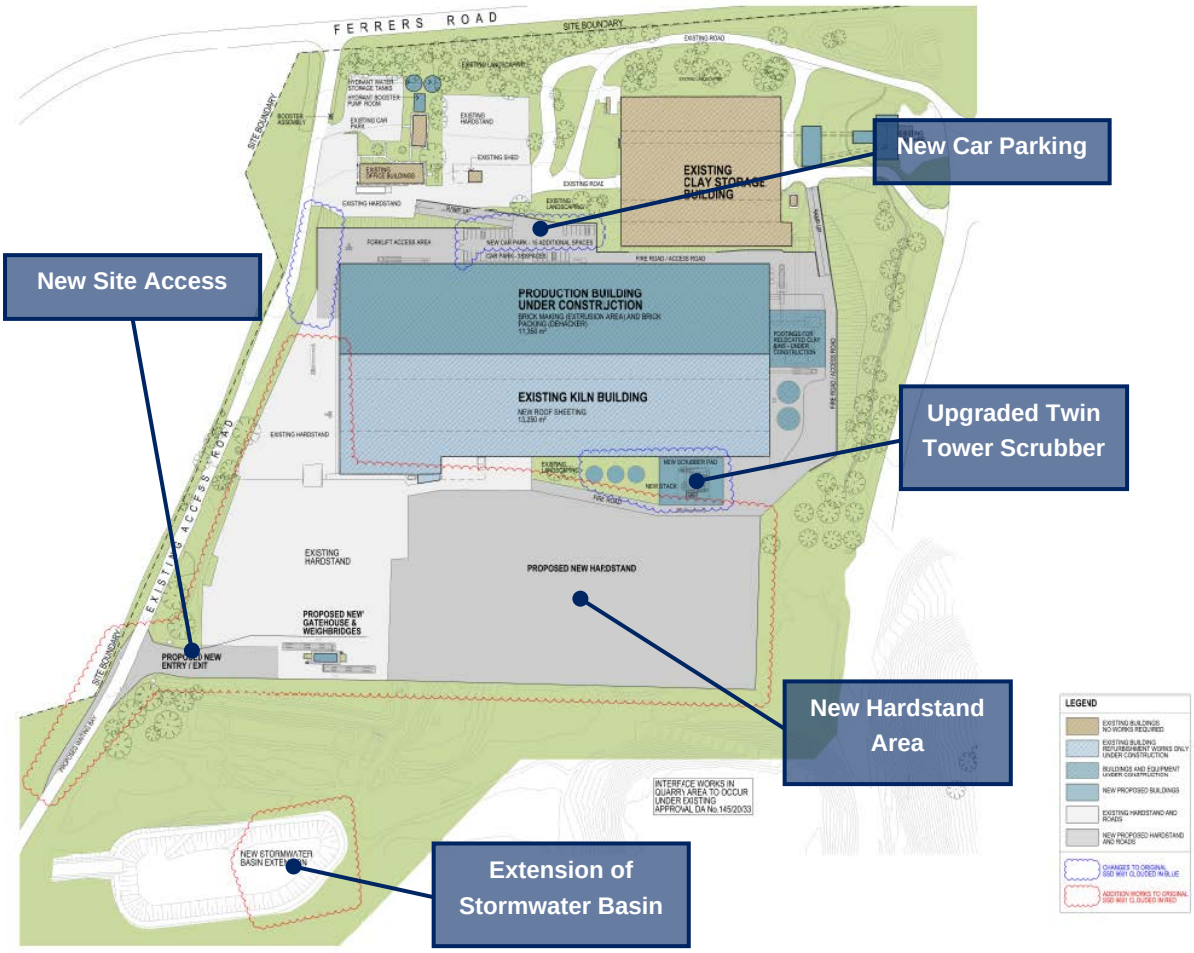

Figure 4 | Modification Site Plan

2.1 Applicant's Justification for the Proposed Modification

The Applicant has identified the modification application is in response to increasing demand for product within the Sydney Construction industry and to improve the operational efficiency of the facility. The Applicant had detailed the justification for the proposed modification as follows:

- improvement to the site's production efficiency performance
- improve the site's sustainability performance
- need to improve the site's environmental performance, particularly air quality impacts, heat loss and energy consumption
- reduction of specific work health and safety risks at the site
- increased need for employment opportunities in the Sydney Metropolitan Area and Western Sydney Region.

The modification is proposed to achieve improved operational efficiency through the following changes:

- increasing the number of full-time employee equivalents by introducing a night shift with limited additional outdoor activities and compliant noise levels

- removal of process bottlenecks by processing fired cars during the night shift with limited additional outdoor activities and compliant noise levels
- enable approved upgraded equipment to be used at design capacity rather than restricted levels due to limited employee labour hours
- upgrade of approved scrubber to a Twin Tower Scrubber to ensure air emissions are reduced to meet approved emission concentration levels.

3 Strategic context

3.1 Greater Sydney Region Plan

In March 2018, the Greater Sydney Commission released the 'Greater Sydney Region Plan: A Metropolis of Three Cities' (the Plan). The Plan is built on a vision of three cities, the Western Parkland City, the Central River City and the Eastern Harbour City. The 40-year vision to 2056 brings new thinking to land use and transport patterns to boost Greater Sydney's liveability, productivity and sustainability by spreading the benefits of growth. The development site is located within the Western Parkland City District.

3.2 Western Sydney Parklands Plan of Management 2030

The Western Sydney Parklands Plan of Management 2030 (POM) sets the strategic direction to guide the operation and the development of the parklands towards 2030. The POM provides defining principles for the Parklands as follows:

- protect natural environmental values
- respond to the needs of new and existing communities
- build a strong identity
- respect cultural heritage
- provide educational opportunities
- enhance community health
- co-locate complementary land uses
- be accessible to visitors
- be financially and operationally sustainable
- contribute to the economic development of Western Sydney
- adopt a partnership approach

Pursuant to the POM, the site is located within the Wallgrove Precinct identified as Precinct 6 (see **Figure 5**).

The development remains consistent with the principles for the Parklands as the modification will further improve the operational and environmental efficiencies of the facility. In addition, the increased efficiencies and employment generation will contribute to the economic development of Western Sydney.

Figure 5 | Wallgrove Precinct Map (source: Western Sydney Parklands Plan of Management 2030)

4 Statutory context

4.1 Scope of modifications

The Department has reviewed the scope of the modification application and considers that the application can be characterised as a modification.

The Department has considered the scale of the proposed changes (see **Section 6.1** of this report) and is satisfied the proposed modification is within the scope of section 4.55(2) of the EP&A Act and does not constitute a new development application (DA).

Accordingly, the Department considers that the application should be assessed and determined under section 4.55(2) of the EP&A Act rather than requiring a new DA to be lodged.

4.2 Consent authority

The Minister for Planning (the Minister) is the consent authority for the application under section 4.5(a) of the EP&A Act. Under the Minister's delegation of 9 March 2022, the Director, Industry Assessments, may determine the application under delegation as:

- the application has not been made by a person who has disclosed a reportable political donation under section 10.4 of the EP&A Act
- there are less than 15 public submissions (other than a council) in the nature of objections, and
- Council has not made a submission by way of objection under the mandatory requirements for community participation listed under Schedule 1 of the EP&A Act.

4.3 Mandatory matters for consideration

The Department undertook a comprehensive assessment of the application against the mandatory matters for consideration as part of the original assessment of SSD-9601. This modification application does not result in significant changes that would alter the Department's consideration of the mandatory matters for consideration under section 4.15(1) of the EP&A Act and conclusions made as part of the original assessment.

4.4 Legislative Amendments

The Department notes that since the lodgement of the modification application, the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation 2000) has been repealed by the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation 2021). Under Schedule 6(3) of the 'savings, transitional and other provisions' of the EP&A Regulation 2021, the 2000 Regulation continues to apply (instead of the new EP&A Regulation 2021) to applications made but not finally determined before 1 March 2022. As the application was lodged on 29 November 2021, the application has been assessed having regard to the requirements of the EP&A Regulation 2000.

5 Engagement

5.1 Department's engagement

In accordance with clause 10 of Schedule 1 to the EP&A Act and clause 118 of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation), the Department exhibited the application for 14 days from 3 December 2021 to 16 December 2021. Notice of the application was published on the Department's website.

No public submissions were received on the original SSD application and therefore no submitters were required to be notified. However, surrounding landowners and occupier were notified of the modification application and invited to make a submission. The modification application was also referred to the EPA, Environment, Energy and Science Group, now Environment and Heritage Group (EHG), Transport for NSW (TfNSW), Sydney Water, Water NSW, Western Sydney Airport (WSA) and Fairfield City Council and Blacktown City Council.

5.2 Summary of submissions

During the exhibition period, the Department received no public submissions.

Advice was received from six State government authorities including EPA, EHG, TfNSW, Sydney Water, Water NSW and WSA along with advice received from Fairfield City Council and Blacktown City Council. A summary of this advice is provided below.

EPA raised no issues with the modification application and provided recommended conditions regarding emission design requirements and post-commissioning emissions verification and monitoring of the proposed scrubber stacks.

EHG reviewed the Planning Report and the accompanying Biodiversity Assessment Report (BDAR) and advised further information was required to be provided including the biodiversity assessment method (BAM) calculator and supporting GIS files. In addition, EES noted the BAM had not been correctly applied for identifying candidate species for surveying and required further justification for vegetation clearing.

TfNSW raised no issues with the modification application and noted the additional traffic generated by the modification can be accommodated by the existing road network.

Sydney Water raised no issues with the modification application but noted further information would be required as part of the Section 73 application for water usage and discharge.

WaterNSW raised no issues with the modification application and advised the modification was expected to have a negligible impact to WaterNSW lands such as the Warragamba Pipelines corridor.

Fairfield City Council reviewed the modification application and requested additional information regarding traffic and access including information on vehicle loading, swept path analysis for heavy vehicles and engineering detail on proposed driveway access. In addition, Council provided recommended conditions regarding compliance monitoring, environmental auditing, landscaping and stormwater.

Blacktown City Council raised no issues.

WSA reviewed the modification application and raised concern the Applicant had not addressed the provisions of the Industry and Employment SEPP relating to Airspace Operations. Furthermore, the WSA requested confirmation that plume rise dispersion velocity did not obstruct the Obstacle Limitation Surface (OLS) of the WSA. In addition, WSA noted further assessment on the potential for the expanded OSD basin to attract wildlife that could pose a risk to the OLS.

5.3 Response to submissions

On 6 April 2022, the Applicant submitted a Response to Submissions (RtS) report responding to the issues raised in submissions. The RtS was made publicly available on the Department's website and referred to EES, WSA and Council for comment. The RtS included:

- updated Architectural Plans
- updated Civil Engineering Drawings
- updated BDAR
- Traffic Statement
- Acoustic Emissions Criteria
- Plume Rise Assessment

EES reviewed the RtS and advised that all previous matters raised in its original advice had now been addressed through the updated BDAR.

Council reviewed the RtS and provided additional comments on the modification in regard to heavy vehicle movements on the site.

WSA reviewed the Plume Rise Assessment and confirmed the modified development presented an acceptable level of safety for the WSA and recommended conditions regarding the requirement of further approvals.

On 31 May 2022, the Applicant provided an addendum response to Council to address outstanding comments raised in regard to traffic and heavy vehicle movements.

Council reviewed the addendum response and provided advice on internal signage and line marking. Council additionally provided recommended conditions including requirements for an Operational Traffic Management Plan (OTMP).

The Applicant provided a consolidated Response to Submissions (RtS) document on 22 June 2022 which included all formal responses to agencies to date. The RtS also included a response to WSA's outstanding comments including a Plume Rise Assessment.

6 Assessment

The Department has assessed the merits of the proposed modification. During this assessment, the Department has considered the:

- Modification Report and RtS provided to support the proposed modification (see **Appendix A**)
- documentation and Department's assessment report for the original DA (see **Appendix A**)
- advice from State and Federal government authorities and Councils (**Appendix A**)
- relevant environmental planning instruments, policies and guidelines
- requirements of the EP&A Act, including the Objects of the EP&A Act.

The Department considers the key assessment issues are an evaluation of whether the development, as modified, is substantially the same as what was consented to, as well as potential air quality and biodiversity impacts.

The Department's assessment of other issues is provided in **Table 4**.

6.1 Substantially the Same Development

The proposed modification includes the increase in operational throughput capacity of the Plant 2 facility however, careful consideration must be given to whether the development consent SSD-9601 is the applicable planning approval to modify. This is because the Applicant did not seek development consent under SSD-9601 to change its existing operational throughput capacity of the Plant 2 facility nor did it seek to alter existing operations of the Plant 2 facility. Even where SSD-9601 is the applicable planning approval, consideration must be given as to the scale of the increase in throughput capacity.

The Department has undertaken a quantitative and qualitative comparison of the proposed modification and the approved development within their respective contexts (and as per the findings of Moto Projects (no 2) Pty Ltd V North Sydney Council [1999] NSWLEC 280) to determine if the development as modified would be substantially the same development as approved under SSD-9601.

Quantitative comparison

The proposed modification would increase the operational throughput capacity of the Plant 2 facility from the existing operational capacity of 80 Million SBE per annum to 130 Million SBE per annum (an increase of 62.5%).

The Department notes the Plant 2 facility operates under DA No. 145/20/33 issued for the entire Austral Brickworks site by the then Blacktown Shire Council on 17 November 1960 for the manufacture of bricks and the extraction of clay and shale. Furthermore, the Department notes that no operational limit regarding the manufacturing of bricks was imposed on DA No. 145/20/33. In granting development consent to SSD-9601, the Minister imposed a limit of consent, restricting the development to the manufacture of no more than 248,000 tonnes of ceramics (80 Million SBE), as this was specified in the site's EPL and is the basis upon which the impacts of SSD-9601 were considered.

The Applicant has noted that even if the proposed modifications are considered to be significant, the modifications may still be considered substantially the same as the whole development (Tyagrah Holdings V Byron Bay Shire Council [2008] NSWLEC 1420).

While the increase in throughput capacity is significant in isolation, the Department notes the approved development of an upgraded Plant 2 facility for the purposes of manufacturing 80 million SBE per annum does not materially change, as modified. Furthermore, the Department considers although the description of the development in SSD-9601 did not expressly reference or approve the existing operational capacity of the development, nor was it the intention, a limit of consent was imposed restricting the operational capacity of the development for the reasons described above. As such, this condition implicitly limits the capacity of the facility. In order to enable the increase in operational throughput capacity, it must be modified.

The Department has also undertaken a comprehensive assessment of the potential environmental impacts associated with the proposed modification (see below) and is satisfied it would not significantly increase the impacts of the development.

Consequently, the Department is satisfied the proposed modification would not result in a 'radical transformation' from a quantitative perspective, when compared to the approved development.

Qualitative comparison

The Applicant has advised the proposed modification is a result of the improvement to operational efficiencies of the Plant 2 facility that the approved development provided and the proposed modification will provide further improvements to the operational efficiency of the Plant 2 facility.

Furthermore, the Applicant has noted the original development application granted consent to the upgrade of a brick manufacturing facility. The modification application provides further upgrades to the Plant 2 facility including an upgraded twin tower scrubber and additional product storage area.

The Applicant has therefore argued the character of the development, being an upgraded brick manufacturing facility, will remain substantially the same, as modified.

The Department notes no concerns were raised by Council in its advice regarding the modification application being substantially the same as the original development.

The Department has considered the Applicant's assessment and is satisfied the modification application would not alter the character and purpose of the original development being an upgraded brick manufacturing facility and can therefore be considered substantially the same from a qualitative perspective.

Consequently, the Department is satisfied the proposed modification would not result in a 'radical transformation' from a qualitative perspective.

Conclusion

The Department has reviewed the modification from both a quantitative and qualitative perspective and is subsequently satisfied the modification can be categorised as 'substantially the same' as the original development. The Department has recommended modifying existing conditions of consent to limit the development operations to the manufacturing of 130 million SBE per any one calendar year.

The Department's assessment concludes the modification is within the scope of section 4.55(2) of the EP&A Act and would not significantly increase the environmental impacts of the development as approved subject to the recommended and existing conditions of consent.

6.2 Air Quality

The Plant 2 facility was upgraded to replace the existing two kilns with a new modern kiln and associated plant and equipment. The approved upgrade works were intended to improve the environmental efficiency of the brickworks facility by reducing pollutant concentrations, particularly Hydrogen Fluoride (HF) concentrations, being the primary pollutant. The proposed increase in annual throughput capacity including the implementation of a continuous shift operating model, could impact on the upgraded Plant 2 facility's ability to maintain environmental efficiency and emissions performance.

The modification application includes the increase in operational throughput capacity of the Plant 2 facility from 80 million SBE per annum to 130 million SBE per annum and an upgrade of the approved cascade scrubber to a twin cascade scrubber to mitigate HF discharge concentrations.

The Applicant provided an Air Quality Impact Assessment Report (AQIA) to demonstrate the predicted pollutant emissions of the development as modified in comparison to the approved development. The Report adopted the same assessment methodology applied in the Report for the original SSD approval including meteorological modelling, background concentrations, dispersion modelling and the identification of sensitive receivers to be assessed.

The Report modelled the predicted incremental impacts of HF at all sensitive receivers which demonstrated the development, as modified would remain compliant for all assessment averaging periods. The Report's modelling results of other pollutants of the development such as particulate matter, Nitrogen Dioxide (NO_2), Sulfur Oxides (SO_2) and sulfuric acid (SO_3) indicated the development would retain compliance well below the incremental impact assessment criteria for each pollutant at each sensitive receiver.

Subsequently, as the increase in incremental concentrations of the development as modified were minimal, the Report's modelling of cumulative pollutant impacts also demonstrated the modifications would retain compliance with the relevant impact assessment criteria for all pollutants at all sensitive receivers. In particular, the modification would result in an increase of HF by a maximum of 2% against the assessment impact criteria as identified in **Table 3** below.

Table 3 | Comparison Summary of HF Cumulative Concentrations

Model Predicted Maximum (100th Percentile) HF Cumulative Concentrations (µg/m³)				
Agricultural Land Use Sensitive Receivers				
Averaging Period	**90-days**	**30-days**	**7-days**	**24-hours**
Impact Assessment Criteria (µg/m³)	0.25	0.4	0.8	1.5
Approved Maximum of Impact Assessment Criteria	0.16 (64%)	0.17 (43%)	0.25 (31%)	0.49 (33%)
Proposed Maximum of Impact Assessment Criteria	0.16 (66%)	0.18 (45%)	0.26 (32%)	0.53 (35%)

Model Predicted Maximum (100th Percentile) HF Cumulative Concentrations (µg/m³)				
Differential	Nil	+2%	+1%	+2%
General Land Use Sensitive Receivers				
Averaging Period	**90-days**	**30-days**	**7-days**	**24-hours**
Impact Assessment Criteria (µg/m³)	0.5	0.84	1.7	2.9
Approved Maximum of Impact Assessment Criteria	0.17 (34%)	0.21 (25%)	0.33 (19%)	0.72 (25%)
Proposed Maximum of Impact Assessment Criteria	0.17 (35%)	0.22 (26%)	0.35 (21%)	0.73 (25%)
Differential	Nil	+1%	+2%	Nil

However, the modelling did indicate the modified development would be close to exceeding the impact assessment criteria for PM2.5 at two sensitive receivers when modelled against the 24-hour averaging period reaching 99.9% of the criteria. The Report included a source contribution analysis which demonstrated that 96.7% of the PM2.5 pollutant concentrations were a result of elevated ambient concentrations (background levels) within the locality as the Plant 2 facility would only contribute 0.6% to PM2.5 concentrations. Furthermore, the incremental increase of PM2.5 pollutant concentrations over the 24-hour averaging period from the approved concentrations was identified to be 0.12%. The incremental concentrations modelled using the annual averaging period remains unchanged.

The EPA reviewed the modification application including the AQIA and raised no issues with the proposed modification. The EPA provided recommended conditions regarding the concentration design of the twin cascade scrubber, post-commissioning monitoring, testing and verification requirements.

The Department has reviewed the AQIA and is satisfied the air quality impacts associated with the proposed modified development's operation remain below the relevant impact assessment criteria prescribed by the *Protection of the Environment Operations Act 1997* (POEO Act) for both incremental and cumulative emissions concentrations at all identified sensitive receivers. Furthermore, the Department considers the proposed twin cascade scrubber is effective in mitigating the emissions concentrations of the development as the increase in emissions concentrations are minimal in comparison to the development, as approved despite the overall increase in annual throughput production.

The Department additionally notes the modified development would continue to have a negligible contribution of particulate matter contributions as the Applicant has adequately demonstrated high pollutant concentration levels are a result of elevated ambient background concentrations from external sources.

The Department considers the existing conditions of consent requiring the Applicant to prepare and implement an Air Quality Management Plan and undertake post-commissioning emission verification

report to ensure the development is compliant with the relevant emissions criteria and provide contingency measures, remain applicable to the development and recommends updating the existing conditions to capture the modifications to the development. In addition, the Department recommends imposing additional conditions of consent recommended by the EPA to ensure final exhaust stack design can accommodate testing and verification requirements and the requirement for emissions testing to be undertaken during operation at full capacity.

The Department's assessment concludes the proposed emissions control measures and technology will be effective in mitigating the pollutant emissions concentrations generated by the increased throughput capacity of the development. The Department considers the increase in pollutant emissions concentrations to be negligible compared to the original approval and therefore retains compliance with the relevant impact assessment criteria at all sensitive receivers. The Department is satisfied the Applicant's assessment was undertaken in accordance with the relevant EPA guidelines and the POEO Act and represents a robust assessment of the predicted air quality impacts associated with the modified development operations.

6.3 Biodiversity

The modification application proposes the removal of an additional 1.36 hectares (ha) of vegetation surrounding the Plant 2 facility to accommodate additional hardstand for product storage area. The vegetation clearing presents a significant increase in vegetation removal compared to the 0.62 ha of vegetation removed under the original approval, consisting of 0.14 ha of native vegetation which required the retirement of three ecosystem credits.

The proposed modification will include the removal of both native and exotic vegetation. The Applicant has provided a Biodiversity Assessment Report (BDAR) prepared by ecologique to support the modification application in accordance with the *Biodiversity Conservation Act 2016* (BC Act). The BDAR has identified the vegetation to be removed will consist of 0.9 ha of exotic vegetation and 0.46 of native vegetation including Cumberland riverflat forest (PCT 835), Cumberland shale plains woodland (PCT 849) and Cumberland Swamp Oak riparian forest (PCT 1800) as identified in **Figure 6**.

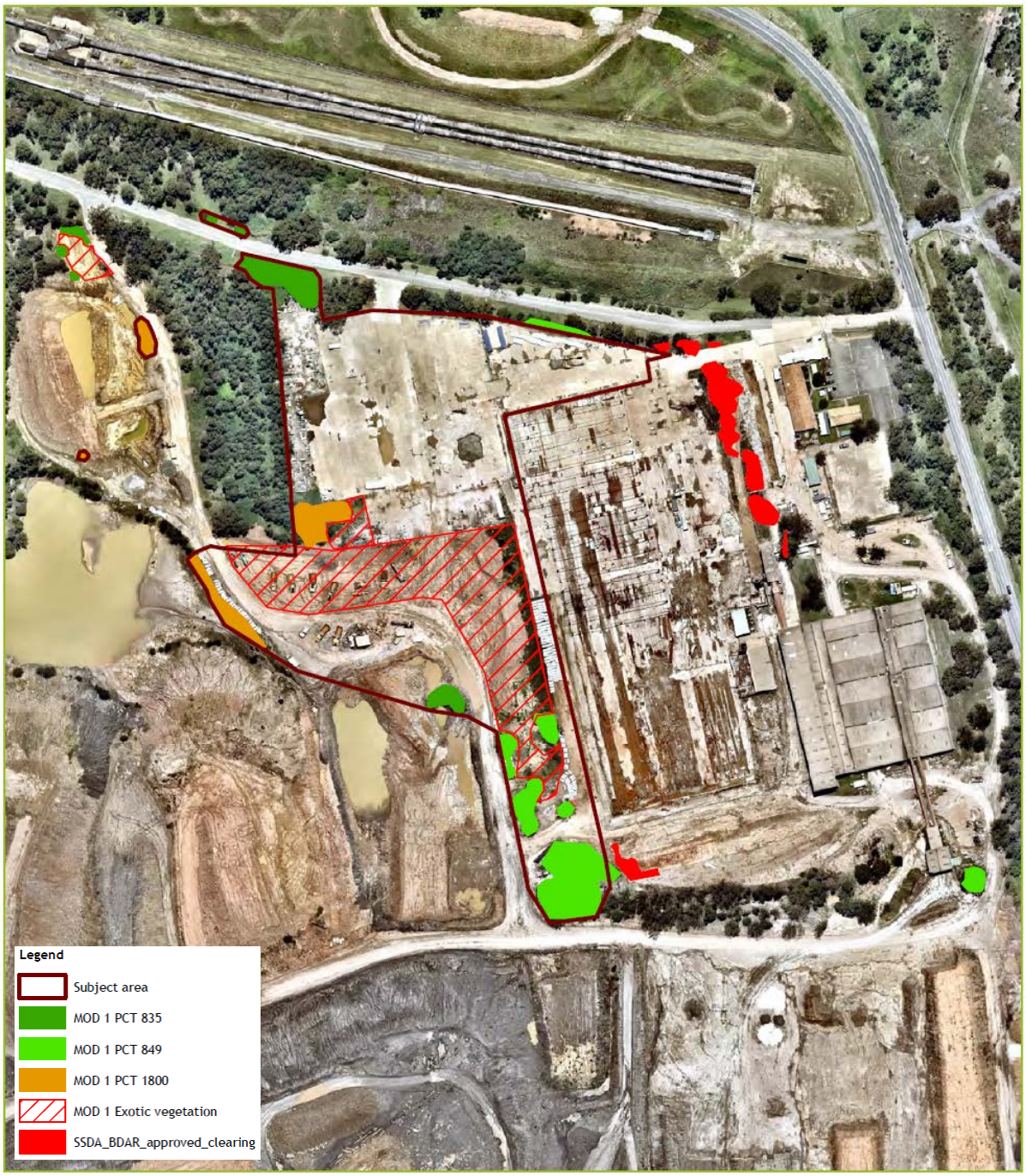

Figure 6 | Approved and proposed vegetation clearing

The BDAR additionally identified the Cumberland Plain Land Snail being a threatened species, has potential to inhabit the vegetation removal area. The BDAR noted active searches for the fauna species were undertaken in 2018 and 2019 as part of the BDAR for the original SSD application in which its presence was not identified. An active search was again undertaken by ecologique in the preparation of the BDAR which concluded with no snail species being present within the vegetation removal area. Therefore, no threatened fauna species were identified to be present on the site.

The BDAR calculated the vegetation integrity score of the identified PCTs using the Biodiversity Assessment Method (BAM). The BDAR recorded low to moderate vegetation integrity scores of 22.3 for PCT 835, 36.2 for PCT 849 and 44.7 for PCT 1800.

The BDAR additionally identified PCT 849 to be a serious and irreversible impact (SAII) entity requiring an assessment of impact thresholds in accordance with the BAM. The assessment included an assessment of the actions and measures taken to avoid the direct and indirect impacts on the PCT, the current status of the PCT, the impact on the geographic extent of the PCT and the extent of proposed impacts to contribute to environmental degradation.

The BDAR stipulated the modification would incorporate measures to limit the clearing of low condition areas to within the operational area of the facility such as artificial earthen bund walls and easements. Standard protection measures such as screening is proposed to be implemented during construction works. The BDAR has demonstrated a reduction in the geographic distribution of the PCT within the locality and a reduction in ecological function of the PCT as a result of the invasion of exotic species, increase shrub layer and general degradation of habitat due to human intervention.

The assessment concluded the PCT 849 comprised of a vegetation integrity score below the benchmark of the BAM. Subsequently, the BDAR concluded the modification will require the offset of ecosystems credits due to the clearance of native vegetation in accordance with the BAM. The BDAR identified one ecosystem credit will be required for the impact to 0.1 ha of PCT 1800, two ecosystem credits for the impact to 0.1 ha of PCT 835 and five ecosystem credits for the impact to 0.2 ha of PCT 849.

The Modification Report and BDAR was referred to the Environment and Heritage Group (EHG) for review. EHG advised although the BAM had generally been applied correctly, EHG required clarification regarding the application of the BAM for listing candidate species for targeted surveying. EHG additionally requested further justification on whether further vegetation clearing could be minimised. The Applicant subsequently provided an updated BDAR which clarified the extent of the study area for targeted surveying of candidate species and affirmed that vegetation removal is unavoidable to facilitate improved access to the site, stormwater basin and plant/storage yard. EHG reviewed the updated the BDAR and advised all previous issues raised by EHG had been adequately addressed and noted the scale of impact on biodiversity by the modification to be small.

The Department has considered the extent of vegetation to be removed to be minimal and consideration for avoiding vegetation clearing had been undertaken where practical. The Department also considered the vegetation to be degrading in integrity and ecological function. The Department additionally notes the Plant 2 facility is an existing disturbed site that has been operational since the 1960s.

The Department considers the Applicant's BDAR has satisfactorily applied the BAM by assessing the direct and indirect impacts the development would have on native flora and fauna. The Department is satisfied the removal of vegetation will have a minimal impact on biodiversity values as the extent of vegetation is minimal and isolated from surrounding native vegetation clusters.

In addition, the Department is satisfied with the mitigation measures referenced in the BDAR for mitigating impacts on native vegetation during construction and operation of the modified development including relocation of flora and fauna where practical. The Department recommends updating the existing conditions of consent to require the Applicant to purchase and retire an additional eight ecosystems credits to offset the removal of vegetation specified in accordance with the BAM.

The Department's assessment concludes the Applicant has considered all practical methods to avoid, mitigate and offset vegetation clearing and the modification will subsequently have an acceptable impact on biodiversity and can be appropriately offset through the purchasing and retirement of ecosystems credits.

6.4 Other issues

Table 4 | Assessment of Other Issues

Assessment	Recommendations
Greenhouse Gas Emissions	
• The modification proposes to improve the overall energy efficiency of the Plant 2 facility's operations through the implementation of a continuous cycle to eliminate energy loss from kiln start-up and process bottlenecks. • The AQIA provided an assessment of GHG emissions. The AQIA identified the modified development is projected to consume 683,728.19 gigajoules (GJ) of natural gas per annum, representing a consumption rate of 5.25 MJ per SBE produced. • The AQIA noted the modified development would provide an improvement in gas consumption per SBE of 12% compared to the consumption rate of the original approval. • The AQIA also identified the modified development is projected to consume 18,646.06 megawatt hours (MWh) of electricity per annum which would provide an improvement in energy efficiency compared to the approved electricity consumption (13,560.77 MWh) of approximately 15%. • The AQIA demonstrated the modified development would generate 50,806.3 of carbon dioxide equivalent (CO2-e), an increase in total CO2-e of 15% compared to the original approval of 43,226.8 CO2-e. • Furthermore, the modified development would contribute to 0.04% of NSW's annual CO2-e emissions and 0.01% of the national annual CO2-e emissions, representing an increase of state and national contributions of 0.01% and 0.002%, respectively. • The AQIA concluded that despite the net increase in CO2-e emissions in response to the proposed increased production throughput, the modification would improve the energy efficiency of the Plant 2 facility compared to existing operations. • The Department notes no submissions were received on the modification application and that no issues were raised in the advice provided by the EPA. • The Department notes although the modified development would increase overall CO2-e emissions by approximately 15%, the original approval reduced GHG emissions by approximately 49% compared to the previous operations of the site and the modification will further improve the GHG emissions per SBE. • Therefore, the Department is satisfied the modification would retain an overall net reduction in GHG emissions, consistent with the	• N/A

objectives of the original SSDA while increasing productivity and operational efficiencies. • The Department considers the existing conditions of consent requiring the implementation of an AQMP to be sufficient in ensuring emissions reduction measures are maintained for the operation of the development to be sufficient for the proposed modification. Therefore, no additional conditions are recommended in respect to GHG emissions. • The Department's assessment concludes the modification will further improve the operational efficiencies of the Plant 2 facility by reducing energy consumption per SBE and retaining and overall net reduction in GHG emissions for the Plant 2 facility.	
Traffic	
• The proposed increase in production capacity including operation during a nightshift period, will increase the traffic generation of the site by 12 light vehicles and 10 heavy vehicles per day. • The additional light vehicles are proposed to occur between 10 PM and 6 AM, being a result of additional employee movements operating night shifts. • The additional 10 heavy vehicles per day are required due to increased throughput capacity production and will result in approximately 2-3 heavy vehicle movements per hour including 2-3 heavy vehicle movements within the AM and PM peak hours. • The Applicant provided a Traffic Report prepared by Ason Group Pty Ltd, which assessed the modification's impacts on existing intersection performance. • The Traffic Report undertook SIDRA intersection modelling for the Ferrers Road/Access Road intersection. SIDRA modelling identified the existing Level of Service (LoS) of the intersection performed at an E rating during the AM peak period and an F rating during the PM peak period. • The Traffic Report noted the poor performance of the intersection identified in the SIDRA modelling was due to right turn movements from the Access Road to Ferrers Road which is considered to be a limitation of SIDRA modelling. • Nonetheless, the Traffic Report undertook SIDRA analysis of the intersection against two operating scenarios. Scenario 1 assessed the existing intersection performance with the proposed operations as a worst-case scenario in which existing and proposed vehicle movements all turn right from Access Road to Ferrers Road. • Scenario 2 assessed vehicle movements avoiding the delayed intersection by turning left from Access Road to Ferrers Road or alternatively using the Wallgrove Road/Access Road intersection.	• Require the Applicant to prepare and implement an OTMP including a DCC, in consultation with Council.

• Modelling of Scenario 1 demonstrated the modification would incur significant delays to the intersection by 26.3 seconds (sec) and 760.4 sec in the AM and PM peak hours, respectively. • Modelling of Scenario 2 demonstrated the modification would result in minor increases to the average delay of the intersection by 0.6 sec and 1.4 sec in the AM and PM peak hours, respectively. • The Traffic Report concluded the Scenario 2 operations would not materially impact the existing operation of the Ferrers Road/Access Road intersection. • TfNSW reviewed the Traffic Report and advised the Department should be satisfied the additional traffic can be accommodated within the road network. • The Department reviewed the Traffic Report and acknowledged the limitations of SIDRA analysis modelling for intersections operating at capacity. • The Department considers the Scenario 2 model would have a negligible impact on the existing intersection performance during peak hours. • The Department recommends a condition be implemented requiring the preparation of an Operational Traffic Management Plan (OTMP) which includes a Driver Code of Conduct with the provision of left turn only for heavy vehicles at the Ferrers Road/Access Road intersection. • The Department's assessment concludes the operational traffic of the modified development would not have adverse impacts on the local road network and can be appropriately managed through conditions of consent.	
Access and Site Manoeuvrability	
• The modification application includes a new entry and exit access point for heavy vehicles onto the existing access road to the west of the Plant 2 facility (see **Figure 4**). All existing heavy vehicle movements related to the Plant 2 facility's operations will be directed to the new site access point with light vehicle access retained at the existing access point. • The new access will include a right-turn entry queuing bay on the existing access road to prevent impacts on road users. In addition, the modification includes additional hardstand area for product storage and loading. • The Applicant provided SWEPT path analysis diagrams to demonstrate 26 m B-Double vehicles could enter and exit the site sufficiently through the proposed new entry point. • Additionally, the analysis demonstrated one-way flow of heavy vehicle movements have capacity to safely circulate and manoeuvre	• Require the Applicant to prepare and implement an OTMP including details of on-site heavy vehicle movements, on-site signage and queuing bay procedures, in consultation with Council.

through the proposed new hardstand area for loading and unloading activities. • Council reviewed the modification application including the SWEPT path analysis and raised no objections to the modification. However, Council required further clarification on the use of the queuing bay during peak hour operations. In addition, Council requested details on the types and frequency of vehicles that service the site daily. • The Applicant provided a Traffic Statement in response to Council's comments which identified that internal procedures would be implemented including informing site security upon arrival to the queuing bay and the installation of monitoring cameras to ensure procedures are adhered to. • Council advised that plans should be amended to identify the location of on-site one-way signs and line markings and procedures for non-compliance issues related to queuing bay usage. Council additionally provided recommended conditions of consent requiring on-site movements to be detailed in an OTMP. • The Department reviewed the modification application and Council's advice and considered the Applicant has sufficiently demonstrated the site can accommodate the internal one-way vehicle movements of heavy vehicles up to B-Double vehicles. • The Department considers Council's requirements for on-site signage and queuing bay procedures can be appropriately addressed as part of the Applicant's preparation of an OTMP in consultation with Council. • The Department recommends conditions of consent requiring on-site heavy vehicle movements and queuing bay procedures to be detailed in the OTMP. • The Department's assessment concludes the proposed new site access point and hardstand area can sufficiently accommodate heavy vehicle movements required for the development's operational activities.	
Noise Impacts	
• Noise generated by the proposed increase in operational throughput capacity has the potential to impact on local amenity. • The Applicant provided a Noise Impact Assessment (NIA) prepared by Benbow Environmental Pty Ltd to assess the impacts of the proposed modification and demonstrate retained compliance with the existing noise limits of the site's EPL at the 12 identified noise receivers. • The NIA noted the project noise criteria specified in the EPL includes a limit of 50 dB(A) during day and evening periods and 40 dB(A) during night time periods when assessed against the L_{A10} average.	• N/A

• The NIA provided a modelling scenario consistent with the existing operations of the development include both internal noise sources such as the kiln, extruder and crusher, and external noise sources such as conveyor, front end loader and truck loading. • The modelling additionally considered both neutral weather conditions and source-to-receiver winds to demonstrate noise compliance during adverse weather conditions. • The NIA demonstrated the modified development would retain compliance with the EPL project noise criteria at all sensitive receivers assessed. In addition, the NIA predicted the modified development would retain compliance with the EPL project noise criteria during adverse weather conditions being 1 dB(A) below the night time criteria. • The EPA reviewed the NIA and raised no issues in its advice and provided no additional conditions. • The Department has reviewed the NIA and considers the Applicant has adequately demonstrated the operations of the modified development would remain compliant with the project noise criteria established in the site's EPL. • In addition, the Department considers the existing conditions of consent remain applicable to the development as modified and therefore no additional conditions are required to be imposed. • The Department's assessment concludes the modification will have a minimal impact on noise amenity, consistent with the impacts assessed under the original development.	
Obstacle Limitation Height	
• The Plant 2 facility is located within the boundary of the Western Sydney Airport's (WSA) protected airspace being the Obstacle Limitation Surface (OLS). The proposed production increase and upgraded twin stack scrubber may generate an emissions velocity that encroaches the OLS. • WSA reviewed the modification and advised the development is below the OLS, however required further information be provided in regard to plume rise effects to determine if dispersion velocity obstructed the OLS. • The Applicant subsequently provided a plume rise assessment which identified the velocity of stack emissions would be unchanged in comparison to the original approval. Therefore, the plume rise assessment concluded the modified development would not impede on the OLS of the WSA. • WSA reviewed the plume rise assessment and referred the plume rise assessment to the Australia Federal Government Civil Aviation Safety Authority (CASA). WSA and CASA confirmed the modified	Require the Applicant to: • obtain further approval from CASA in the event the development obstructs the OLS.

development would retain an acceptable degree of safety and that no mitigation measures were required. • In addition, WSA recommended a condition be included in the consent that separate approvals would be required to be obtained from CASA in the event the development obstructs the OLS. • The Department considers the plume rise assessment to satisfactorily demonstrate the modified development will not intrude the OLS and therefore not impact upon aircraft safety above the site. • The Department recommends the inclusion of a conditions of consent requiring the Applicant to obtain further approvals from CASA in the event the development obstructs the OLS. • The Department's assessment concludes the modified development would not cause the development operations to obstruct the OLS of the WSA and therefore not impact upon aircraft safety above the site.	
Stormwater	
• The modification includes the construction of a new storage yard and the redevelopment of the existing storage yard comprising of 3.5 ha of hardstand. The additional hardstand will subsequently require the extension of the existing stormwater OSD basin to manage the site's stormwater. • The Applicant has proposed an additional four catchment areas to service the hardstand expansion. Two of the catchments will discharge stormwater to the OSD basin while the other two catchments will discharge treated water in accordance with the site's existing EPL requirements to Eastern Creek using the existing basin outlet arrangements. • The Applicant provided a Stormwater Management Plan and Civil Engineering Design Report prepared by AT&L Pty Ltd to demonstrate the OSD Basin extension is designed in accordance with Council's Stormwater Management Policy. • The Report identified the OSD basin will have a total storage capacity of 7,300 m^3, providing a net increase of 1,300 m^3 to the approved OSD basin. The basin will also include stormwater improvement devices such as gross pollutant traps, sediment basin and filtration device focused on removing sediments and particles. • The Report included DRAINS hydraulic modelling to assess the modification's capacity to accommodate storm events including the 1% AEP. The Report also included MUSIC water quality modelling to evaluate pre and post-development pollutant loads of stormwater discharge. • The Report demonstrated the proposed OSD basin extension provides sufficient capacity to accommodate the increased impervious surface area of the site. In addition, modelling predicted	• N/A

the modified development would have a beneficial effect on water quality by reducing annual pollutant loads. • The Report concluded the modified development would be able to contain and manage stormwater flows. Additionally, the Report has recommended quarterly maintenance inspections of the OSD basin or after significant storm events. • Council, Sydney Water and WaterNSW reviewed the modified development and raised no concerns in its advice. Particularly, Sydney Water noted the modified development did not pose a risk to the Warragamba Pipeline asset adjoining the site to the north. • The Department reviewed the Stormwater Management Plan and Civil engineering report in conjunction with the advice received from relevant government agencies. • The Department considers the Applicant has adequately demonstrated the proposed OSD basin extension is capable of accommodating the increased stormwater runoff associated with the increase of impervious hardstand area on the site. • Furthermore, the Department considers satisfactory pollutant control measures will be implemented to ensure a beneficial water quality outcome is met. • The Department notes existing conditions of consent requiring final stormwater drainage plans and the implementation of a stormwater management system. The Department considers the existing conditions of consent to be sufficient in addressing and managing the impacts of the modification in regard to stormwater. Therefore, no additional conditions of consent are recommended. • The Department's assessment concludes the adequate measures have been proposed to accommodate the additional stormwater load of the modified development and can be appropriately managed through existing conditions of consent.	
Car Parking	
• The modification application includes the provision of an additional 15 car parking spaces and an additional unmarked car parking area for parking overflow to accommodate the additional 12 employees required for night shift operations. • The Plant 2 facility currently has approval for 18 car parking spaces and an unmarked car parking area with the capacity to accommodate up to 63 cars. • The Traffic Report has undertaken a first-principles approach consistent with the Traffic Report for the original SSD approval. The first-principles approach assesses the development against the car parking demand instead of gross floor area (GFA).	• Require the Applicant to prepare an OTMP which includes safety management measures for overflow parking

- The Traffic Report stipulates the development as modified, would have a maximum demand of 35 car parking spaces at any one time due to the maximum number of staff being 35.
- The Traffic Report concluded the modification would provide a total of 33 car parking spaces and additional unmarked car parking area to accommodate staff and any potential visitors to the site.
- Council reviewed the modification application and raised no concerns regarding car parking.
- The Department notes the site is currently serviced with 18 car parking spaces to accommodate 35 staff members at any given time. The Department considers the increase in car park spaces to be substantial given the existing provision and operations.
- The Department is satisfied the Applicant has provided sufficient car parking to accommodate the additional night shift staff and has made adequate provisions for overflow car parking.
- The Department recommends safety management measures for the overflow car parking area be provided as part of the OTMP.
- The Department's assessment concludes the modified development has provided sufficient car parking capacity to accommodate the additional staff numbers required for the additional night-time shift of the development's operations.

7 Evaluation

The Department has reviewed the Planning Report and all agency and Council advice, taking into consideration the relevant matters under section 4.15 of the EP&A Act and the objects of the EP&A Act.

The Applicant is proposing to modify the consent to increase the throughput capacity of the Plant 2 facility from 80 million standard brick equivalents (SBE) to 130 million SBE per annum including amendments to exhaust scrubber, carparking and hardstand, access and extension of the on-site detention basin.

The Department exhibited the modification application for 14 days from 3 December 2021 to 16 December 2021. No public submissions were received on the modification application during the exhibition period. Council requested additional information in relation to traffic and access engineering details and EHG requested further information to be provided in the BDAR. In general, no concerns with the proposed modifications were raised by State or Federal government agencies and Council as the modification was considered to remain compliant with existing environmental performance limits.

The Department's assessment considered air quality and biodiversity to be the key matters for consideration.

The Department's assessment concludes the modification is appropriate on the basis that it would:

- improve the operational output and efficiency of the development
- improve the environmental and energy efficiency of the development per SBE produced
- not significantly increase the environmental impacts of the development beyond those assessed under the original development application.

Consequently, the Department is satisfied the modification application should be approved, subject to the recommended modifying conditions of consent.

8 Recommendation

It is recommended that the Director, as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report
- **determines** that the application for the Horsley Park Brickworks Modification 1 falls within the scope of section 4.55(2) of the EP&A Act
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to approve the modification
- **agrees** with the key reasons for approval listed in the draft notice of decision
- **modify** the consent SSD-9601
- **signs** the attached approval of the modification (**Appendix B**).

Recommended by:

12 August 2022

Shaun Williams
Senior Environmental Assessment Officer
Industry Assessments

Recommended by:

12 August 2022

Joanna Bakopanos
Team Leader
Industry Assessments

9 Determination

The recommendation is **Adopted** by:

19/08/2022

Chris Ritchie
Director
Industry Assessments

as delegate of the Minister for Planning

Appendices

Appendix A – List of referenced documents

The Department has relied upon the following key documents during its assessment of the proposed modification:

Planning Report

- Modification Application Planning Report titled Section 4.55(2) Modification to SSD 9601 – Proposed Plant 2 Upgrade Works – MOD 1, prepared by Willowtree Planning Pty Ltd, dated 4 November 2021.

Submissions & Agency Advice

- All submission and advice received from relevant public authorities.

Response to Submissions

- Response to Submissions: Proposed Plant 2 Upgrade Works – SSD 9601 MOD 1, prepared by Willowtree Planning Pty Ltd, dated 22 June 2022.

Department's Assessment Report for SSD-9601

- https://pp.planningportal.nsw.gov.au/major-projects/projects/horsley-park-brickworks-plant-2-upgrade

All documents relied upon by the Department during its assessment of the application may be reviewed at: https://pp.planningportal.nsw.gov.au/major-projects/projects/horsley-park-brickworks-plant-2-mod-1

Appendix B – Notice of Modification

The recommended modification instrument is available on the Department's website at:
https://pp.planningportal.nsw.gov.au/major-projects/projects/horsley-park-brickworks-plant-2-mod-1

Appendix C – Consolidated Consent

The consolidated consent for SSD-9601 is available on the Department's website at:
https://pp.planningportal.nsw.gov.au/major-projects/projects/horsley-park-brickworks-plant-2-mod-1