2.0 PAST GEOTECHNICAL INVESTIGATIONS

The results of Butler Partners Pty Ltd's (Butler Partners) previous geotechnical investigations conducted on the overall site and which include the Stage 2 portion of the overall site, are given in the following reports, which should be read in conjunction with this Technical Note, as they contain additional information that is relevant to site development:

- *Preliminary Geotechnical Investigation*
  Former Oxley Secondary College
  Blackheath Road, Oxley
  Project No.: 018-118A
  Dated: 16 May 2018
- *Updated Report Additional Slope Stability Assessment*
  Oxley PDA – Stage 2
  Blackheath Road, Oxley
  Project No.: 018-118B
  Dated: 23 April 2021

The layout (from the Stage 2 geotechnical investigation report of 23 April 2012) of bores drilled, and groundwater monitoring wells installed, over the Stage 2 site is indicated in Figure 2 for convenience; the development layout indicated in Figure 2 is not the most up to date Stage 2 layout.

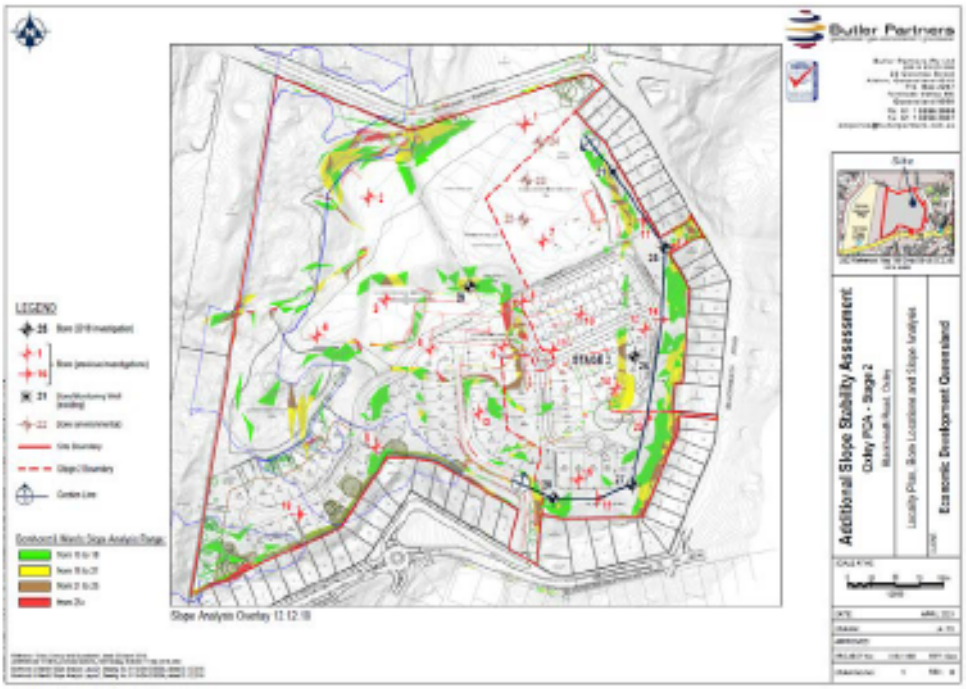

Figure 2: Existing bore and well locations on Stage 2

3.0 PROPOSED FILLING WORKS

The proposed fill stockpile works are indicated in the following KN Group Pty Ltd's (KN Group) design drawings:

> *Oxley Secondary College, Stage 2, Imported Fill Works Drawing Nos. 21-118-01 Rev B, 21-118-02 Rev B and 21-118-03 Rev A, all of June 2021.*

The design location, extent and proposed fill stockpile profile are given in Figure 3 and Figure 4.

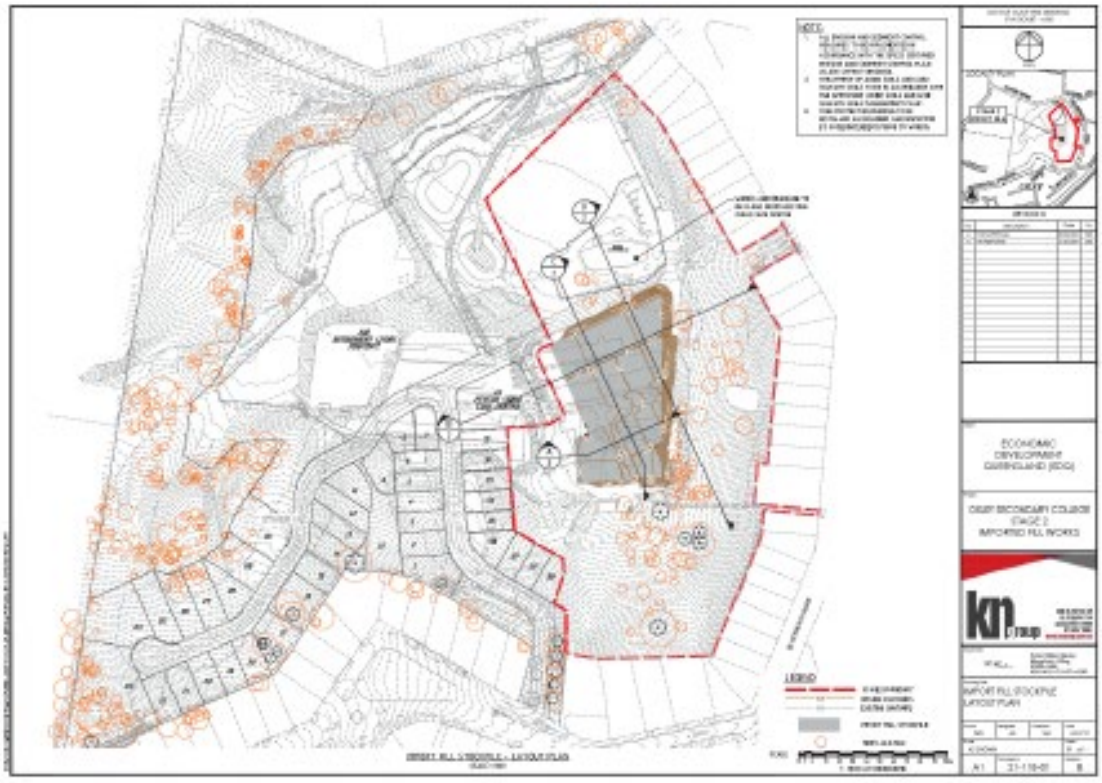

Figure 3: KN Group's fill stockpile design location

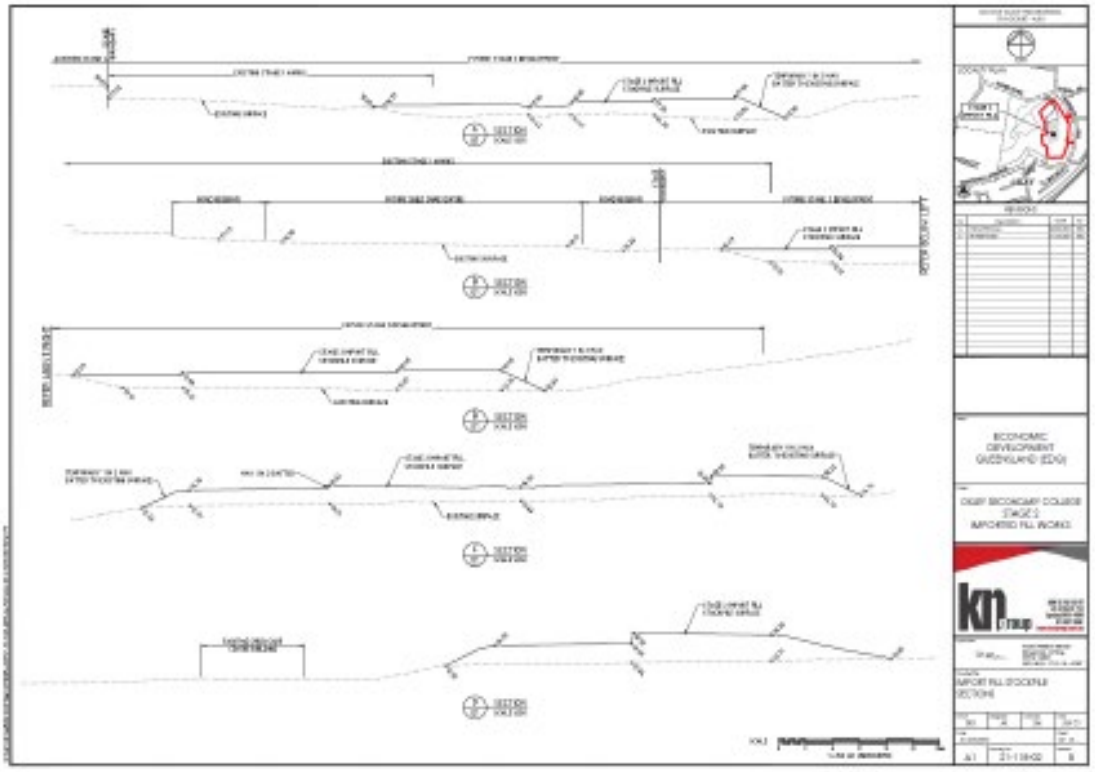

Figure 4: Stockpile cross sections (refer Figure 3 for locations)

4.0 REFERENCE DOCUMENTS

The following reference documents (by others) are relevant to the proposed fill stockpile works and should be referred to:

- Soil Dispersion Potential – Oxley PDA
  Letter Report by Construction Sciences
  Reference P914.20.gw01.Rev B of 16 September 2020

- Acidic Soils and Acid Sulfate Soil Management Plan
  Former Oxley Secondary College
  Report by Construction Sciences
  Reference P425 of 9 July 2020

- Erosion and Sediment Control Plan
  Oxley Secondary College Redevelopment Stage 1 and 2 (Fill)
  Report by TOPO
  Reference 20-0061/R1551, Version 1 of 8 June 2021

5.0 RESPONSES TO DSDTI'S FURTHER ISSUES LETTER – GEOTECHNICAL

The issues raised in DSDTI's letter of 5 May 2021 are indicated below, together with Butler Partners's responses.

Geotechnical –Section 4

Submit a geotechnical technical memo confirming there will be no impacts upon the future childcare centre or the eastern hillside slope zone, and that the scope of the works and methodology are compatible with the ultimate delivery of earthworks for the future Stage 2 development as per the below. This memo is required to address the below and other matters determined relevant by the RPEQ to demonstrate standards compliance and adequately mitigate risk.

Our responses follow:

a) Childcare Centre

Confirmation of any relevant offsets from the fill to the childcare centre property/building, and detail acceptable batter slopes, or requirements for benching or other measures required for stability.

The offset to the Child Care Centre site and the fill stockpile shown on KN Group's June 2021 design drawings (refer Figure 3 and Figure 4) are considered to be acceptable and are not considered to have any adverse effects on the Child Care Centre.

A fill batter face slope of 1V:2H has been nominated on KN Group's design drawings, however the final fill stockpile edge batter slope will depend on the fill material type(s) and uniformity and will require confirmation by ongoing inspections by an experienced geotechnical engineer during stockpile construction.

b) Slope Stability

Assessment of the slope stability of the proposed earthworks, and any measures required to mitigate potential impacts of the earthworks upon the stability of the eastern hillside zone is required.

i) *Acceptability of the proposed extents, depths and geometry of the placement of the fill, or any modifications required to the design.*

It is considered that the fill stockpile will have no adverse effect on the eastern hillside slopes, provided stormwater runoff is collected and rapidly removed from the zone between the stockpile toe and the toe of the eastern hillside (refer 4 ii).

ii) *Any offsets required from the toe of the hillside slope to the proposed fill to avoid unfavorable groundwater or stability effects.*

Provided that a catch drain to remove stormwater runoff is located between the toe of the fill stockpile and the toe of the eastern slopes there is no off set requirement for the temporary stockpile.

The catch drain must be maintained to ensure that stormwater flow from the eastern slopes is rapidly removed.

iii) *RPEQ to determine if geotechnical slope stability assessment is required (fill and/or hillside).*

I consider that a geotechnical slope stability assessment is not required for the proposed fill stockpile, other than to visually confirm (by an experienced geotechnical engineer) stable stockpile batter slopes at the time of placement.

iv) *Construction staging or methodology requirements from a geotechnical perspective.*

Construction staging is not considered to be relevant. Compaction will be required in and behind the batter faces of the stockpile to assist with maintenance of the stability of the stockpile batters.

v) *Pre/post fill construction management requirements.*

No construction management issues are envisaged provided adequate stormwater drainage is installed and maintained (refer 4 ii) and documented erosion and sediment control processes are employed (refer Section 4.0).

vi) *Determination if surface drainage or subsurface drainage works are required prior/post fill placement, including requirement for temporary swale drains and measures to prevent ponding/infiltration.*

Refer to 4 ii.

vii) *Specification of the zone of influence of the eastern hillside slope where stormwater ponding/infiltration is to be avoided.*

Refer to 4 ii.

c) Unsuitable Materials

Confirm if unsuitable materials are present which require removal prior to the placement of the fill, in order for the earthworks to be delivered in compliance with AS3798.

The subgrade to the stockpile should be assessed by an experienced geotechnical engineer, prior to stockpile placement, to determine if any zones of 'unsuitable' subgrade (that could adversely affect the stockpile batter stability) requires removal.

d) Acid Sulfate Soil

As the vegetation clearing and fill placement is being staged, confirm if additional methodologies are required for the treatment of acid sulfate soils. For example, further limiting the extents of the fill within the cleared vegetation zone, in order for insitu soil to be treated beyond the toe of the fill batter.

An Acid Sulfate Soil Management Plan (ASSMP) for the site has been prepared (refer Section 4.0) that must be followed during stockpile construction.

e) Dispersive Soils & Decommissioned Services

RPEQ or soil scientist to confirm if surface soil treatment required for dispersive soils or removal of decommissioned service is required prior to filling earthworks.

A soil dispersion assessment for the site has been prepared (refer Section 4.0) that should be referred to as part of stockpile construction.

f) Site Investigation

RPEQ to confirm if additional soil investigation is required to confirm the items above (or any other geotechnical considerations) prior to placement of fill.

An experienced geotechnical engineer should undertake the required inspections indicated above as part of the stockpile construction process.

Confirmation if further site investigation is required for the detailed design of Stage 2, prior to the placement of fill.

No additional site investigation is considered to be required prior to stockpile construction, provided that an experienced geotechnical engineer should undertake the required inspections indicated above as part of the stockpile construction process.

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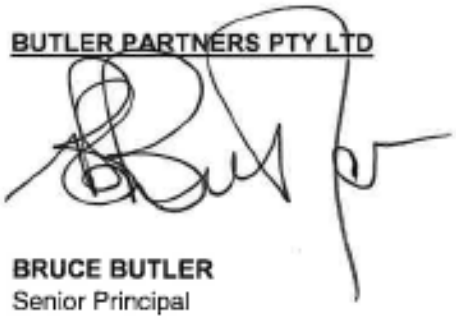

BRUCE BUTLER
Senior Principal
(RPEQ No. 1196)