



Project: 45298.03
STE: mh
17 September 2008

Lachlan Project Development
c/- CRI Australia Pty Ltd
Level 2, 76 Berry Street
NORTH SYDNEY NSW 2060

Attn: Mr. Andrew Harb

Dear Sirs

**RE: PROPOSED COCHLEAR GLOBAL HEADQUARTERS DEVELOPMENT
MACQUARIE UNIVERSITY (MP08_0032) –RESPONSE TO COMMENTS**

We refer to the letter from Department of Environment and Climate Change on the Submission on Environmental Assessment for the proposed Cochlear Global Headquarters development at Macquarie University, and would be pleased to provide the following clarifications on DECC's comments on contamination issues.

1. Contamination Assessment

It should be noted that following the Phase 1 Contamination Assessment, a Phase 2 Contamination Assessment was undertaken for the above site in June 2008 and the results presented in DP's report entitled *Report on Phase 2 Contamination Assessment, Stage 1 – Proposed Cochlear Global Headquarters Project, Macquarie University Campus, South Precinct*. The Phase 2 Contamination assessment included additional soil and groundwater contamination assessment in accordance with the NSW EPA (1995) "Sampling design guidelines" to confirm the site's suitability for the proposed development. The report also provided an *in-situ* waste classification of the materials encountered.

In regard to the Phase 1 soil contamination assessment criteria, it should be noted that whilst the assessment was undertaken in line with provisions of National Environment Protection Measures (NEPM) and NSW EPA *Contaminated Sites Guidelines for the NSW Site Auditor Scheme* (2nd Edition) (2006), other relevant guidelines were also considered.

In this regard, the NSW DEC (2005) *Guidelines for Assessing Former Orchards and Market Gardens* [Orchard and Market Gardens Guideline] has been taken into account due to the former market garden use of part of the site. In addition, impacts due to other historical sources of contamination, including the use of the site for poultry farming and the placement of filling over the site, also need to be accounted for.

As a result, a range of contaminants have been included in the analytical regime adopted for the assessment of the site in addition to the analytes required by the Orchard and Market Gardens Guideline (e.g. pesticides, lead, mercury and zinc). The DP Phase 1 Contamination Assessment analytical regime also included potential contaminants such as arsenic, cadmium, chromium, copper, nickel, PAH, TRH, BTEX, VOCs, Phenols and Asbestos.

Of the 12 test bores drilled in the Phase 1 Contamination Assessment, four of the test bores (viz. Bores 2A, 7A, 9A 10A, 15) encountered stiff to very stiff residual clays at shallow depths, with no signs of the former topsoils. This observation suggests that the former topsoil could have been removed as a result of the development of Macquarie University. [Note: contrary to DECC's comments, the stiff clays are residual soils rather than the tilled topsoils of the former market gardens.]

Similarly, former topsoils were not encountered in Bores 12, 16 and 17. The filling encountered in these bores comprised mainly sandstone fragment, and was not considered to be related to the former market gardens.

Of the remaining five bores, four samples from the "filling (possible natural) horizon" representing the former topsoils or soil/clay interface (3a/0.8-1.0, 7a/3.6-3.9, 11/0.8-1.0 and 13/2.9-3.0) were analysed for the suite of common contaminants including the analytes required by the Orchard and Market Gardens Guideline. Levels of organochlorine pesticides (OCPs) and heavy metals were low in all these samples, with all OCP levels below or close to the Practical Quantitation Limit.

Noting the consistently low levels of OCP and heavy metals in all samples analysed, and the noted absence of topsoil in some of the bores, it is considered that the potential for contamination associated with the former market garden use of the site is insignificant.

The Phase 2 Assessment therefore focused on the contamination potential associated with the filling placed over the site. Assessment of groundwater and surface water were also included in the assessment.

Nevertheless, as part of the Phase 2 Contamination Assessment one filling sample (19/0.6-0.7) and two samples from natural material (29/0.1-0.2 and 30/0.2-0.3) were analysed for OCPs. All these check samples again reported levels of OCPs below the Practical Quantitation Limit.

As the OCP results were consistently low in both the first and second phase of investigation the potential for pesticides contamination resulting from previous uses was considered to be low. In addition, the disturbance of the site associated with the development of Macquarie University and time lapse since the previous agricultural uses ceased operation is likely to have reduced the overall impact.

DP noted that DECC agreed that "the likelihood of potential contamination of the site is reasonably low". DECC recommended that an additional Phase 2 investigation is required to confirm that the site's suitability for the proposed development. This additional assessment has already been undertaken. Based on the findings of the Phases 1 & 2 Contamination Assessments the potential for contamination is confirmed to be low. This is supported by the consistently low level of contaminants in all soil samples analysed. There were no exceedances of the Site Assessment Criteria (SAC) and Provisional Phototoxicity Investigation Levels (PPIL) used for the fill material and the published background levels for the underlying natural clay material.

Groundwater laboratory results for cadmium, chromium, copper, nickel and zinc exceeded the Investigation Levels (IL). However, the detected levels were not

considered to be significant as the chromium, copper and cadmium exceedances are only marginal, whereas nickel and zinc (as well as the other metals) are commonly detected at levels above the ANZECC (2000) Guidelines in groundwater, particularly in urbanised areas, and it is considered that the elevated concentrations do not represent significant contamination risk and are representative of the background concentrations of the area

On the basis of the Phases 1 and 2 Assessments, it is considered that the site is suitable for the proposed development of the Cochlear Global Headquarters.

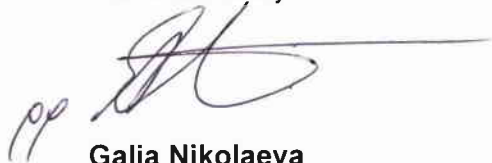
As at the time of the Phases 1 and 2 Contamination Assessment the NSW EPA *Environmental Guidelines: Assessment Classification and Management of Liquid and Non- Liquid Wastes* (2004) were valid, the preliminary waste classification assessment for the site was done in accordance with these guidelines. As 'Inert Waste' is excluded from the new NSW DECC (2008) *Waste Classification Guidelines*, at present the material would be classified as General Solid Waste. A letter confirming this classification can be issued by DP if required.

2. Auditing

In view of the consistently low levels of contaminants detected in both phases of assessment, and noting the proposed commercial land use, it is considered that a site audit is not warranted.

If you have any queries regarding this letter please contact me on 88780607.

Yours sincerely



Galia Nikolaeva
Environmental Scientist

Reviewed By



Ronnie Tong
Principal