

29 March 2019

Berten Pty Ltd  
1 Abbotsford Rd  
Picton NSW 2572

Via email: [kerrydunn@covegroup.com.au](mailto:kerrydunn@covegroup.com.au); [sidarber@outlook.com](mailto:sidarber@outlook.com);  
cc: [mart.rampe@harvestscientific.com.au](mailto:mart.rampe@harvestscientific.com.au); [reinwarry@bigpond.com](mailto:reinwarry@bigpond.com)

Dear Kerry/Neil,

**Re: Interim Advice 1 (IA1) – Review of Existing Information & Proposed Phase 2 Sampling Analysis and Quality Plan (SAQP)**

## 1 Introduction

Berten Pty Ltd (Berten) has appointed Rebeka Hall of Zoic Environmental Pty Ltd (Zoic), a NSW EPA Auditor accredited (No. 0802) under the Contaminated Land Management (CLM) Act 1997, to conduct a Site Audit of the property located at 1 Abbotsford Road, Picton, NSW (“the site”).

The aim of the engagement is to endorse a Phase 2 site assessment to enable a site audit statement (SAS) and associated site audit report (SAR) to be prepared that confirms the suitability of the site for the proposed residential subdivision or whether the site requires remediation.

The Audit is being conducted in accordance with the NSW EPA (2017) Contaminated Land Management Guidelines for the NSW Site Auditor Scheme (3<sup>rd</sup> edition).

## 2 Scope of Audit and Nature of Interim Advice

NSW EPA (2017) describes the site assessment and audit process as:

1. *Consultant is commissioned to assess contamination.* The contaminated site consultant designs and undertakes the site assessment and, where required, all remediation and validation activities to achieve the objectives specified by the owner or developer; and
2. *Site auditor reviews the consultant’s work.* The site owner or developer commissions the Auditor to review the consultant’s work. The Auditor then prepares a SAR and SAS at the conclusion of the review, which are given to the owner or developer.



Therefore, the contaminated land consultant and other relevant parties should be satisfied that the work to be conducted conforms to all appropriate regulations, standards and guidelines and is suitable based on the site history and the proposed land use.

It is understood that the Audit is not a statutory requirement. Once development approval is granted by Council, a condition of approval may require ongoing Auditor engagement at which point the Audit becomes statutory in nature and will require notification to NSW EPA.

### 3 Current Interim Advice

In preparing this interim audit (IA) advice, the Auditor has reviewed the following reports related to land contamination assessment:

- Harvest Scientific (2013) Contaminated Land Study proposed rezoning of land, at 1 Abbotsford Road, Picton, 201368; and
- Harvest Scientific (2019) 1 Abbotsford Road – Picton, Sampling Analysis Quality Plan (SAQP) for a Detailed Site Investigation (Phase 2 Environmental Assessment).

The purpose of the current IA is to document Auditor findings following the review of existing information related to site conditions and contamination status. This advice also outlines any data gaps identified in the existing information which should be addressed by the appointed consultant as either part of any further investigation works, or as part of any remedial or validation works that may be required at the site.

Zoic also conducted a site inspection, with Harvest, on 22 March 2019 with key findings included in this advice.

### 4 Summary of Proposed Detailed Site Investigation

The site identified as a portion of Lot 1 DP 1086066 and occupies an area of 60 hectares approximately. The DSI will support a development application to be lodged with Wollondilly Shire Council for the subdivision of the site into 2 lots (Lots 101 and 102). Staged rural residential allotments ~4,000 m<sup>2</sup> are proposed within Lot 102. It is understood Lot 101 contains structures of heritage value, hence the proposed use of this area is unknown and requires clarification. It is anticipated the site audit boundary will consist of the staged residential zones within Lot 102.

Abbotsford Road borders the site to the north east. An unnamed creek is located on the northern aide of Abbotsford Road which flows into Stonequarry Creek.

The primary activity on the site comprised agricultural use inclusive of dairy farming with some evidence of pasture growth/cropping activities.

As part of contaminated land study and preparation of the SAQP ten areas of environmental concern (AECs) were identified by Harvest including:

#### **Lot 101**

- AEC1 – Old Abbotsford residence and surrounds (Lot 101)
  - During the site inspection it was advised the structures are heritage listed, with the requirement to investigate the area unknown at present. The structures were noted to be in a dilapidated state with refuse observed across the ground surface. Subsurface structures (water or septic tank) were also noted in this area of the site. If investigation of this area is required a more detailed SAQP will be necessary.



- AEC3- Waste stockpile – potential metal sheeting
- AEC4 – Footings of old farm building

### **Lot 102**

- AEC2 - Dairy and milking area and immediate surrounds. Probable use of farm machinery fuels and chemicals. Asbestos roofing and walls:
  - Asbestos roofing observed, potential for degradation of roof via weathering to generate asbestos fibres or bundles. Highest areas of risk in the immediate vicinity of site buildings should be targeted as part of the assessment. A raised concrete hardstand area was noted to the east of the milking shed. The material beneath the hardstand was entombed and will require assessment as this may consist of fill material.
- AEC5 – Driveway – fill used for road base
  - A driveway was also noted in lot 102. Any linear sampling regime will require justification
- AEC6 – Cattle yards and shed
  - An AST (likely used for storage of fuel) was observed adjacent to the northernmost cattle yards
- AEC7 – Cattle feeding shed – asbestos roofing
  - Asbestos roofing observed, potential for degradation of roof via weathering to generate asbestos fibres or bundles. Highest areas of risk in the immediate vicinity of site buildings these areas should be targeted as part of the assessment. An area of hardstand was noted to the west of milking and should be assessed.
- AEC8 - Potential disturbed areas north and south of the feeding shed
- AEC9 – Cultivated paddocks
- AEC10 – Drainage discharging from dairy infrastructure
  - A number of drainage lines were noted leading towards farm dams in Lot 101 and effluent from milking sheds discharging on to the ground surface.

The proposed Phase 2 investigation (as outlined in the Harvest (2019) SAQP) comprises the following:

- Site inspection and sampling at between 110-120 locations
- Test pitting and observations across the AECs up to 1m below ground level.
- Collection of soil samples for laboratory analysis
- Preparation of a Phase 2 assessment report

Details of the sampling and analysis plan and associated methodologies proposed by Harvest in conducting the Detailed Site Investigation are summarised in Table 1.

### **Table 1: Sampling and Analysis Plan**



Sampling Item	EPA Guidelines	Consultant Consideration	Auditor Comments
Data Quality Objectives (DQOs)	“Data Quality Objectives: Outline of the DQO Process” in Schedule B2 of NEPM (2013).	<p>The 7 step DQOs for <b>investigation</b>, as summarised in Section 4.2 by Harvest (2018), are as follows:</p> <ul style="list-style-type: none"> <li>• Step 1: Preliminary investigation indicated that potentially contaminated media exists on the property.</li> <li>• Step 2: Decisions are: is there any unacceptable health risk to future receptors on site? Are there any unacceptable ecological risks posed by the site? Are there any aesthetic issues at the site? Evidence of potential migration of contaminants from the site? Is a site management strategy required?</li> <li>• Step 3: Inputs are laboratory data; field observations / measurements; assessment criteria; data quality indicators.</li> <li>• Step 4: Boundaries are the Site.</li> <li>• Step 5: Decision rules are meeting NEPM (2013) criteria; not being asbestos contaminated; materials suitable for use; waste classification?</li> <li>• Step 6: Decision error limits based on 95% compliance with data quality indicators.</li> <li>• Step 7: Design for optimising data collection by sampling as per SAQP.</li> </ul>	<p>The Auditor considers the DQOs for <b>investigation</b> works to be appropriate</p> <p><b>Step 3 development plans should also be considered as an input is developing the sampling strategy</b></p> <p><b>Step 4 should include investigation depth and the project timelines as a boundary</b></p>
Sampling Pattern Rationale	The EPA (1995) Sampling Design Guidelines (Section 2.3) provides details on judgmental, random, systematic and stratified sampling pattern.	Section 4.1 and 4.3 in Harvest (2019) stated a combined grid and targeted regime will be adopted.	<p><b>The Auditor notes the following additional areas of concern should also be considered based on site inspection findings:</b></p> <ul style="list-style-type: none"> <li>• Any areas of disturbance (e.g. stockpiles, remnant wastes)</li> <li>• Drainage lines</li> <li>• Dam and sediments</li> </ul>
Sampling Density Rationale:	EPA (1995) Sampling Design Guidelines	Sections 4.1 and 4.2.7 in Harvest (2019) stated a minimum 110 sampling locations will be completed.	<p><b>Based on the site inspection and past/present landuses, the Consultant is requested to re-evaluate the sampling density required and approach the site based on development stages.</b></p> <p><b>Relevant AECs for targeted investigation could be based upon the findings of a detailed site inspection.</b></p> <p><b>The Auditor would not be opposed to a more targeted sampling design concentrating locations in the vicinity of buildings with a reduction in density away from structures.</b></p>



Sampling Item	EPA Guidelines	Consultant Consideration	Auditor Comments
			<p>Harvest will need to provide justification for any deviation in sampling density (to the minimum density presented in NSW EPA 1995).</p> <p>The following should be considered: site setting, past uses, disturbed nature of site and proposed future use.</p>
Locations Shown on Site Plan:	The OEH (2011) Guidelines for Consultants reporting on Contaminated Sites requires that sampling locations are shown on a site plan.	The proposed locations are shown on plan 3 in section 4 of Harvest 2019.	It is requested an updated proposed sampling plan be provided to reflect a revised plan on the basis of items discussed onsite and contained within this advice.
Sampling Depths	The OEH (2011) Guidelines for Consultants Reporting on Contaminated Sites requires information on the depths of samples that were collected. NEPM (2013) Schedule B2.	Section 3.2 of Harvest (2019) stated test pits will be completed to 1.0 metre below ground level.	Based on the site inspection any impact would most likely be at the surface. Harvest should consider sampling the surface/shallow horizon and if fill is present, the test pit should go deeper into the natural ground.
Selection of Samples for Analysis:	The OEH (2011) Guidelines for Consultants Reporting on Contaminated Sites. NEPM (2013) Schedule B2	Table 1 displays potential contaminants per AECs.	PAHs should be considered for any areas of fill material
Sample Splitting Techniques and Statement of QA/QC Sample Frequencies	NEPM (2013) Schedule B3 EPA (2017) Guidelines for the NSW Site Auditor Scheme OEH (2011) Guidelines for Consultants Reporting on Contaminated Sites	Section 4.4.1 states 1 duplicate and triplicate sample are to be collected as part of the works.	<p>The Auditor notes no rinsates/trip blanks/spikes planned as part of the investigation.</p> <p>No information was provided with regard to sample splitting techniques.</p> <p>The QA/QC sampling frequencies for the investigation do not comply with NEPM (2013) requirements (i.e. 1 in 20).</p>
Analytical Methods:	EPA (2017) Guidelines for the NSW Site Auditor Scheme	Section 4.4.2 of Harvest (2019) states soil samples will be analysed at NATA accredited laboratories.	The Auditor considers the analytical methods to be appropriate.



Sampling Item	EPA Guidelines	Consultant Consideration	Auditor Comments
Sample Container Selection:	NEPM (2013) Schedule B2 and B3	Section 4.4.1 of Harvest (2019) stated samples were collected into glass jars.	The Auditor considers the sample container selection to be appropriate.
Sampling Devices / Techniques	NEPM (2013) Schedule B2 and B3	Section 4.4.1 of Harvest (2019) states samples are to be collected by hand from side walls or directly from the center of the excavator bucket.	The Auditor considers the sampling devices / techniques adopted to be generally appropriate with the exception of asbestos for comparison to HSLs as per NEPM..
Decontamination Procedures:	Australian Standard AS4482.1 – 2005 NEPM (2013) Schedule B2 and B3	Section 4.4.1 of Harvest (2019) notes decontamination procedures included use of new nitrile gloves	The Auditor considers the decontamination procedures to be appropriate. For shallow samples, if a trowel or hand auger is used, than it should be appropriately decontaminated.
Sample Handling and Preservation Procedures:	NEPM (2013) Schedule B3 AS4482.1 and AS 4482.2	Section 4.4.1 of Harvest (2019) states samples were collected in laboratory supplied jars before preservation in ice chests prior to transport to the laboratory.	The Auditor considers these procedures to be appropriate.
Field Calibration and Screening Protocols	NEPM (2013) B2	No equipment proposed	No comment.

## 5 Auditor Comments

The Auditor has reviewed the Harvest Contaminated Land study (2013) and SAQP (2019) against relevant guidelines made or approved by NSW EPA. The Auditor provides the following comments for Harvest to consider in finalising the SAQP for the detailed site investigation into land contamination status of the property:

1. Please address the items identified in bold of Table 1
2. A detailed site inspection will be required at a minimum across the entire area subject to audit to ensure areas not sampled are at least visually inspected for contamination, and to confirm site conditions are similar to those described in the 2013 contaminated land study.
3. Please confirm the area/portion of the site subject to the site audit.
4. It is suggested to Harvest to consider sampling locations based on each development stage. Relevant AECs for investigation could be based upon the findings of a detailed site inspection. The Auditor would not be opposed to a more targeted sampling design concentrating locations in the vicinity of buildings, disturbed ground, potential infilled drainage channels, stockpiles with a reduction in density away from such structures and features.
5. To allow for assessment against asbestos screening levels as per NEPM 2013 consider conducted asbestos sampling compliance with NEPM. This includes
  - a. collection of a 10L sample sieving or spreading/raking through a 7mm aperture,
  - b. inspection and if ACM suspect, sampling/weighing of >7mm fraction



- c. collection of 500ml subsample from sieved or raked material for AF/FA laboratory analysis.
- d. Interpretation of laboratory analysis and calculation of w/w% in accordance with NEPM 2013.

Particular for areas immediately around structures with super six roofing where a risk of bonded and friable Asbestos exists.

6. Based upon the site inspection other areas of potential concern which would need to be addressed/investigated include:
  - a. Drainage lines/areas,
  - b. areas of effluent runoff from milking sheds,
  - c. Dams (water quality) and sediment quality
  - d. An AST located adjacent the cattle yards (visual inspection of site surface at minimum)
7. COCs for water quality would need to consider Nutrients (associated with historical fertiliser use) and biological contaminants in addition to soil COCs
8. Some PAH analysis should be considered in areas of past use of fuels/oils and access roadway.
9. Footprints of structures not able to be accessed during the DSI would be considered to represent data gaps may require assessment at a later stage or clearance during demolition works.
10. The DSI Report is to be prepared in accordance with NSW OEH 2011 and it is to include discussion on CSM and present SPR linkages

We request that Harvest provide responses to the above comments, together with an amended copy of the SAQP, as appropriate.

This interim advice does not constitute a SAS or a SAR, but rather is provided to assist the Client in the assessment and management of contamination issues at the site. The information provided herein should not be considered pre-emptive of the final Audit conclusions. It represents the Auditor's opinion based on the review of currently available information.

Should you have any queries or wish to discuss any points, please do not hesitate to contact the undersigned.

Yours sincerely,

**Rebeka Hall**  
**NSW EPA Accredited Site auditor (No. 0802)**  
**Zoic Environmental Pty Ltd**

**Matthew Rendell**  
**Senior Audit Assistant**  
**Zoic Environmental Pty Ltd**