

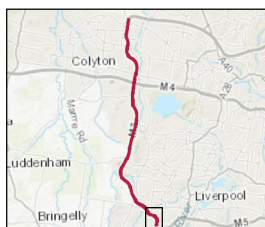
**FIGURE 7-112: POTENTIAL CONTAMINATING LAND USES AND SOURCES WITHIN STUDY AREA (SHEET 1 OF 16)**



**AECOM**

**Legend**

- Construction footprint
- Study area
- Current potentially contaminating land use
- Former potential contamination source from aerial photograph review
- Past M7 cut and fill section
- Test pit



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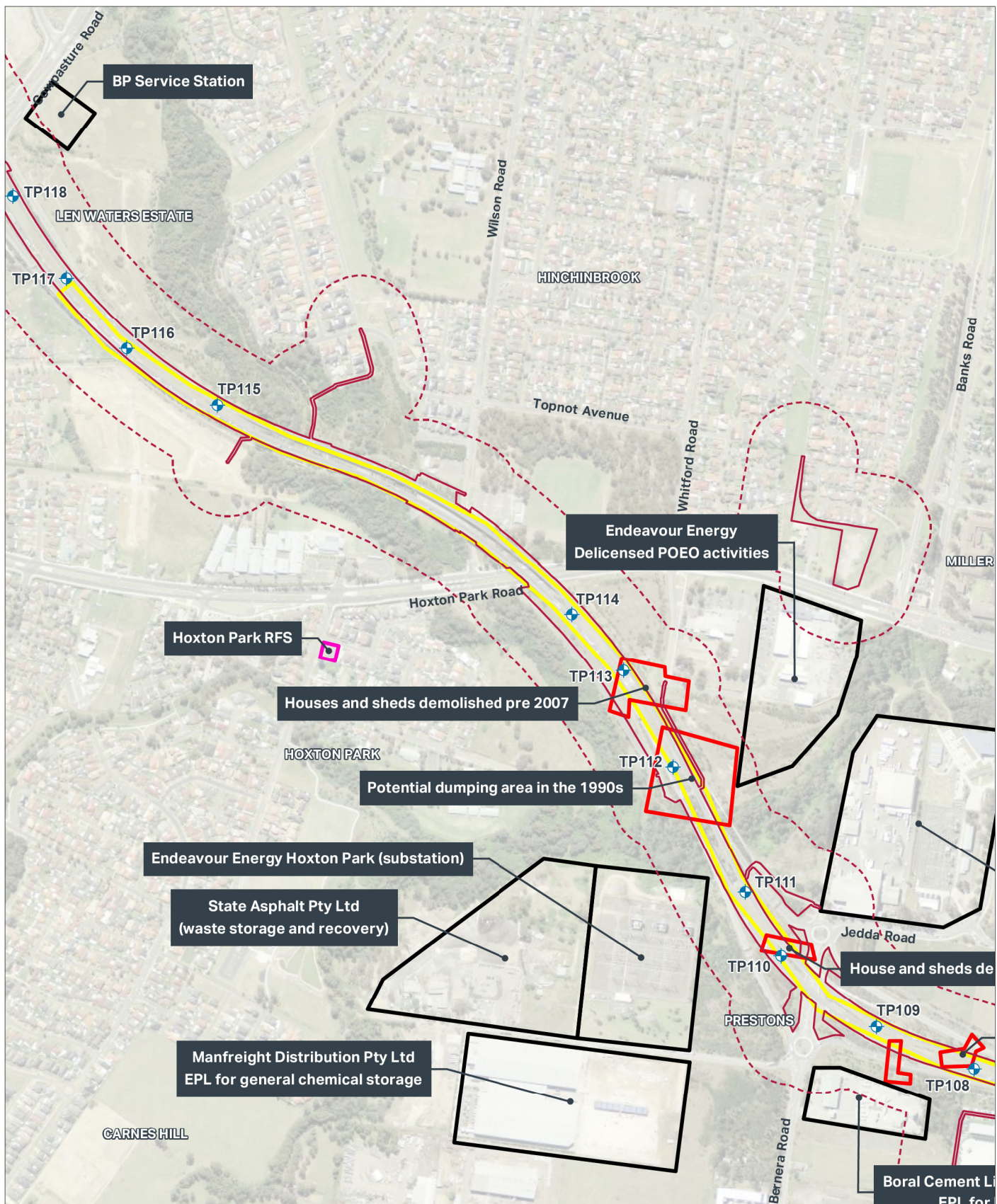
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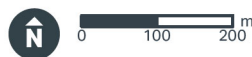
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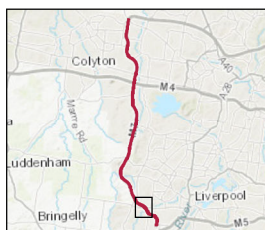
**FIGURE 7-113: POTENTIAL CONTAMINATING LAND USES AND SOURCES WITHIN STUDY AREA (SHEET 2 OF 16)**



**AECOM**

**Legend**

- Construction footprint
- Study area
- Current potentially contaminating land use
- Former potential contamination source from aerial photograph review
- Fire brigade site (potential PFAS source)
- Past M7 cut and fill section
- + Test pit



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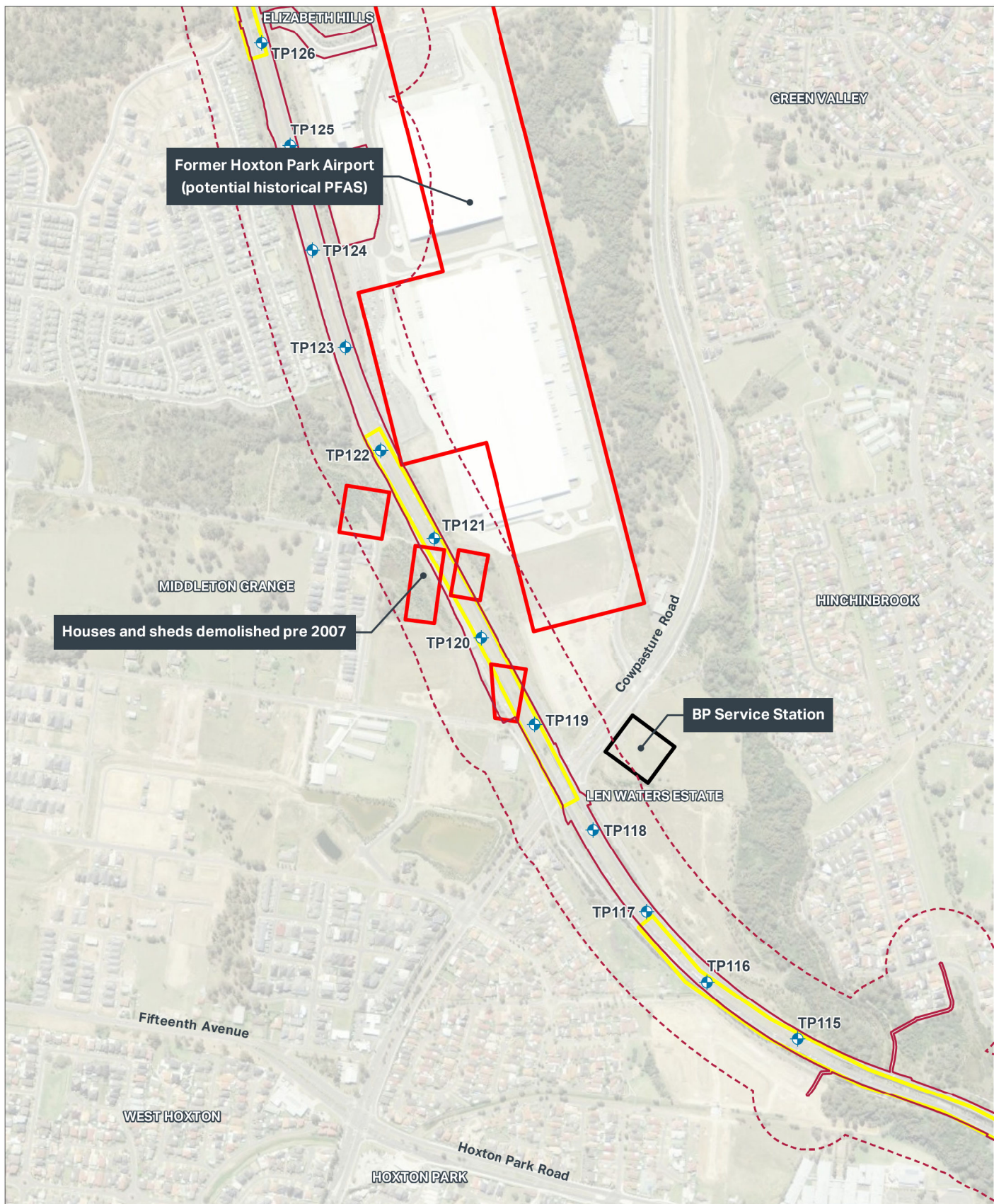
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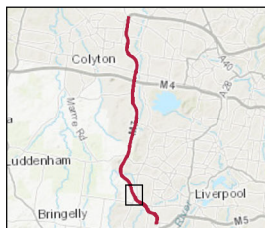
**FIGURE 7-114: POTENTIAL CONTAMINATING LAND USES AND SOURCES WITHIN STUDY AREA (SHEET 3 OF 16)**



**AECOM**

**Legend**

- Construction footprint
- Study area
- Current potentially contaminating land use
- Former potential contamination source from aerial photograph review
- Past M7 cut and fill section
- + Test pit



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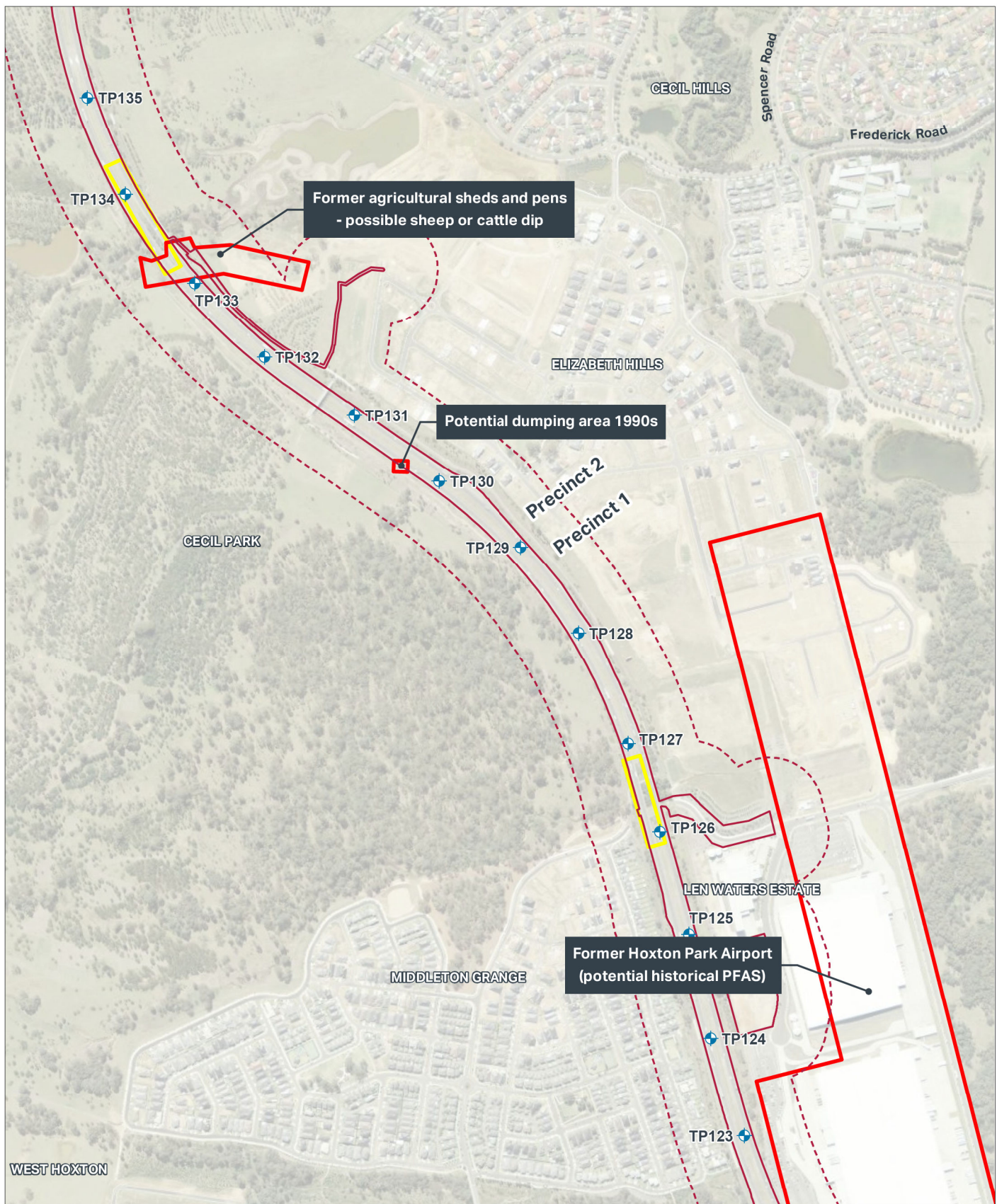
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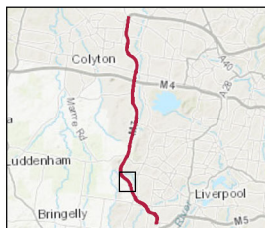
**FIGURE 7-115: POTENTIAL CONTAMINATING LAND USES AND SOURCES WITHIN STUDY AREA (SHEET 4 OF 16)**



**AECOM**

**Legend**

- Construction footprint
- Study area
- Former potential contamination source from aerial photograph review
- Past M7 cut and fill section
- + Test pit



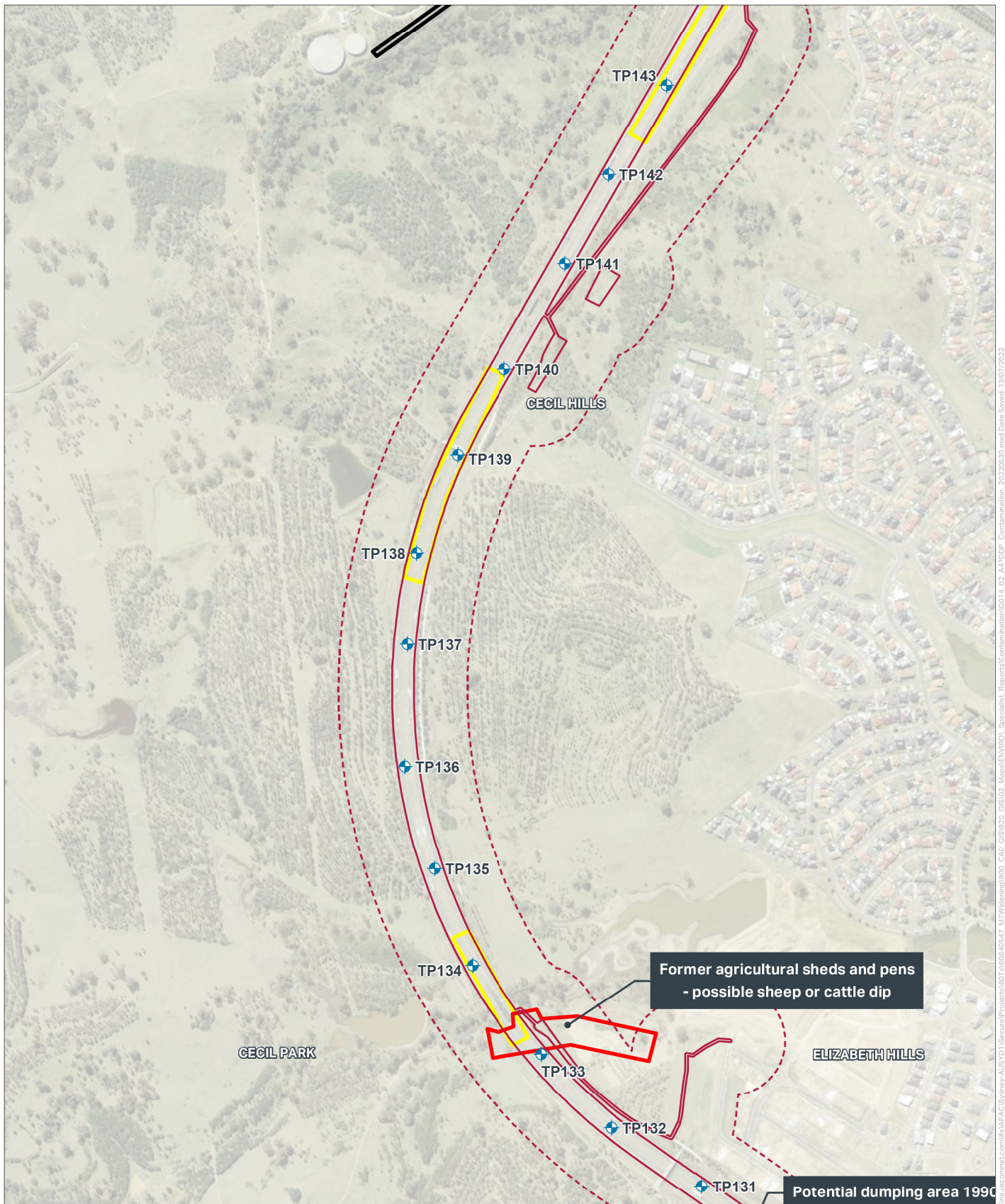
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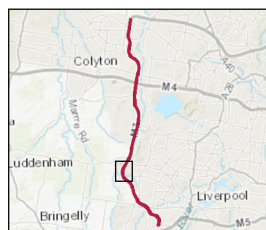
**FIGURE 7-116: POTENTIAL CONTAMINATING LAND USES AND SOURCES WITHIN STUDY AREA (SHEET 5 OF 16)**



**AECOM**

**Legend**

- Construction footprint
- Study area
- Current potentially contaminating land use
- Former potential contamination source from aerial photograph review
- Past M7 cut and fill section
- + Test pit



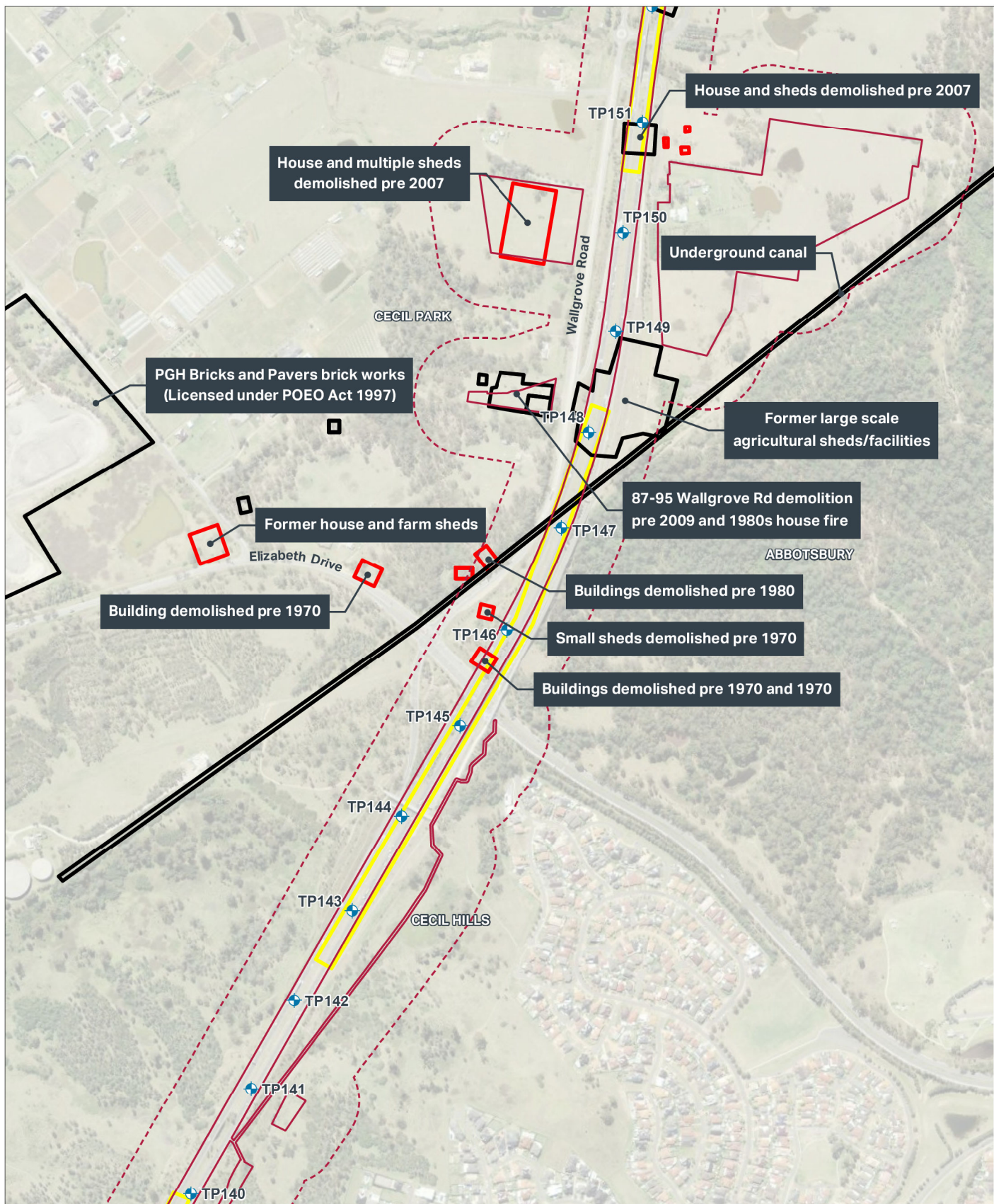
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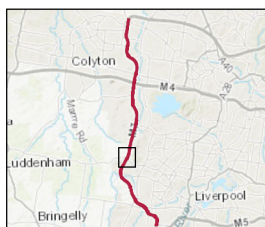
**FIGURE 7-117: POTENTIAL CONTAMINATING LAND USES AND SOURCES WITHIN STUDY AREA (SHEET 6 OF 16)**



**AECOM**

**Legend**

- Construction footprint
- Study area
- Current potentially contaminating land use
- Former potential contamination source from aerial photograph review
- Past M7 cut and fill section
- + Test pit



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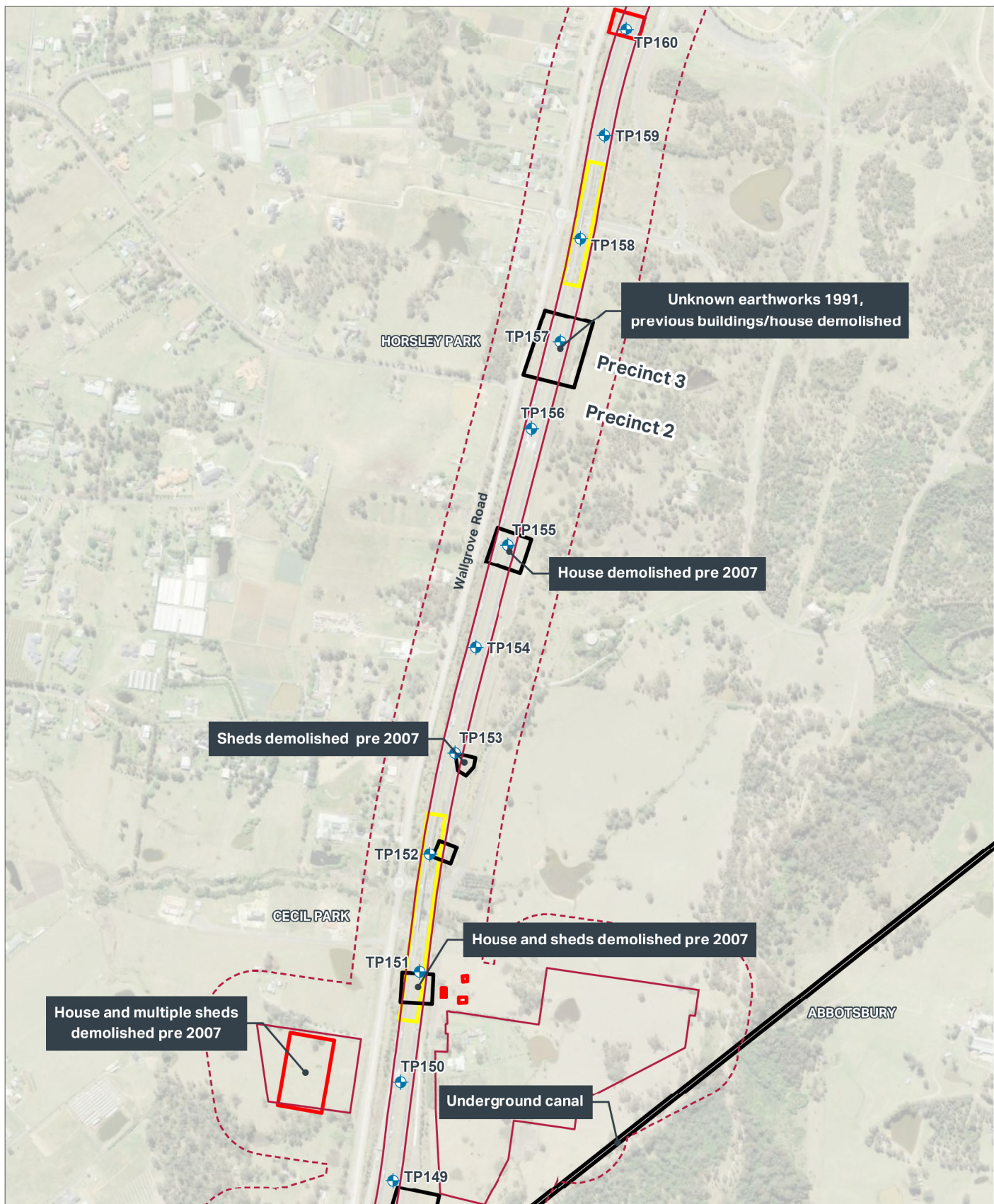
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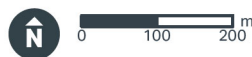
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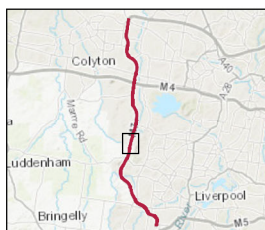
**FIGURE 7-118: POTENTIAL CONTAMINATING LAND USES AND SOURCES WITHIN STUDY AREA (SHEET 7 OF 16)**



**AECOM**

**Legend**

- Construction footprint
- Study area
- Current potentially contaminating land use
- Former potential contamination source from aerial photograph review
- Past M7 cut and fill section
- Test pit



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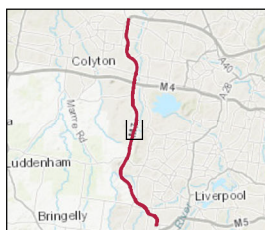
**FIGURE 7-119: POTENTIAL CONTAMINATING LAND USES AND SOURCES WITHIN STUDY AREA (SHEET 8 OF 16)**



**AECOM**

**Legend**

- Construction footprint
- Study area
- Current potentially contaminating land use
- Former potential contamination source from aerial photograph review
- Past potentially contaminating land use (from UBD data)
- Past M7 cut and fill section
- ⊕ Test pit



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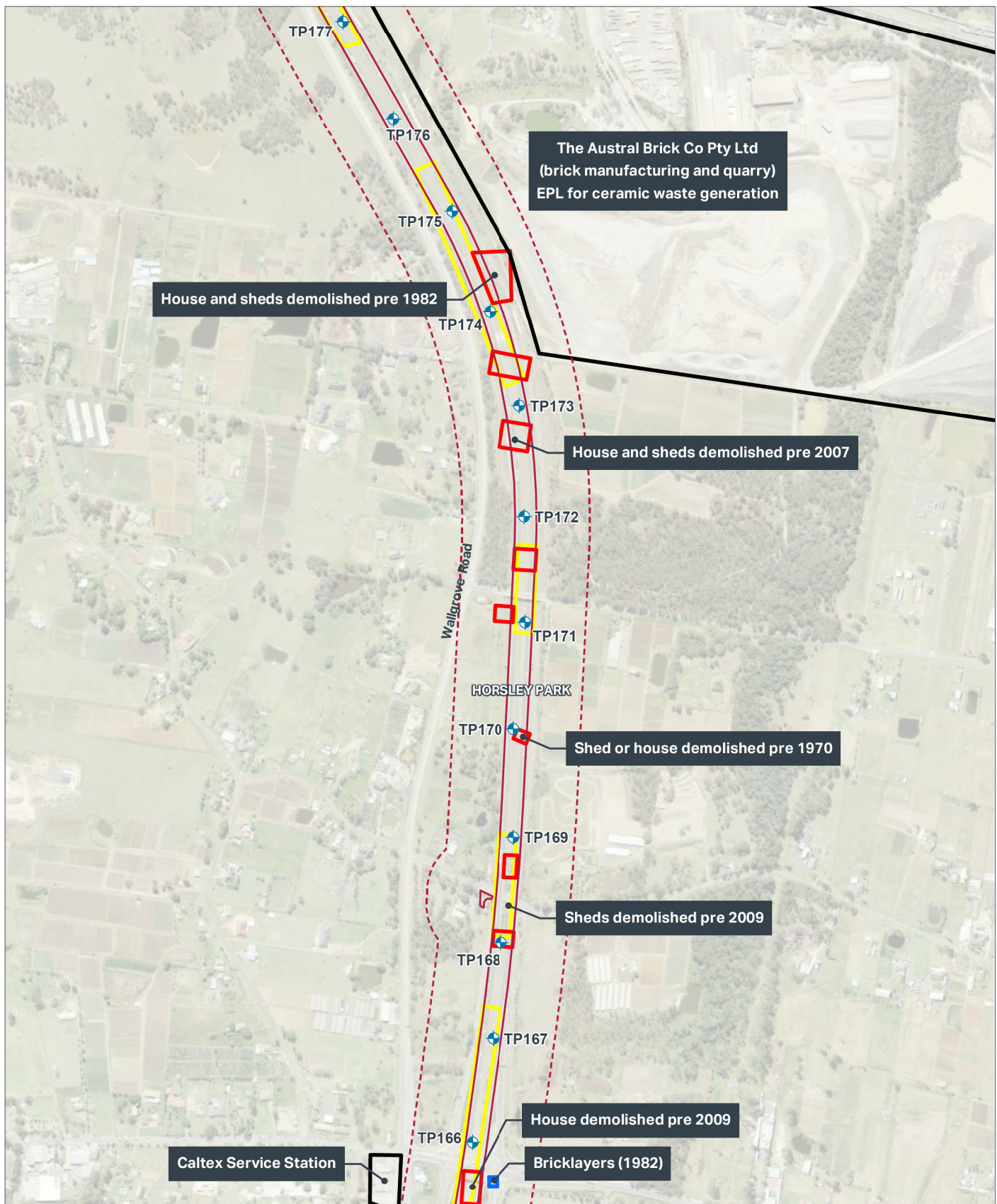
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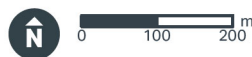
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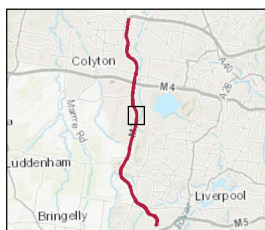
**FIGURE 7-120: POTENTIAL CONTAMINATING LAND USES AND SOURCES WITHIN STUDY AREA (SHEET 9 OF 16)**



**AECOM**

**Legend**

- Construction footprint
- Study area
- Current potentially contaminating land use
- Former potential contamination source from aerial photograph review
- Past potentially contaminating land use (from UBD data)
- Past M7 cut and fill section
- Test pit



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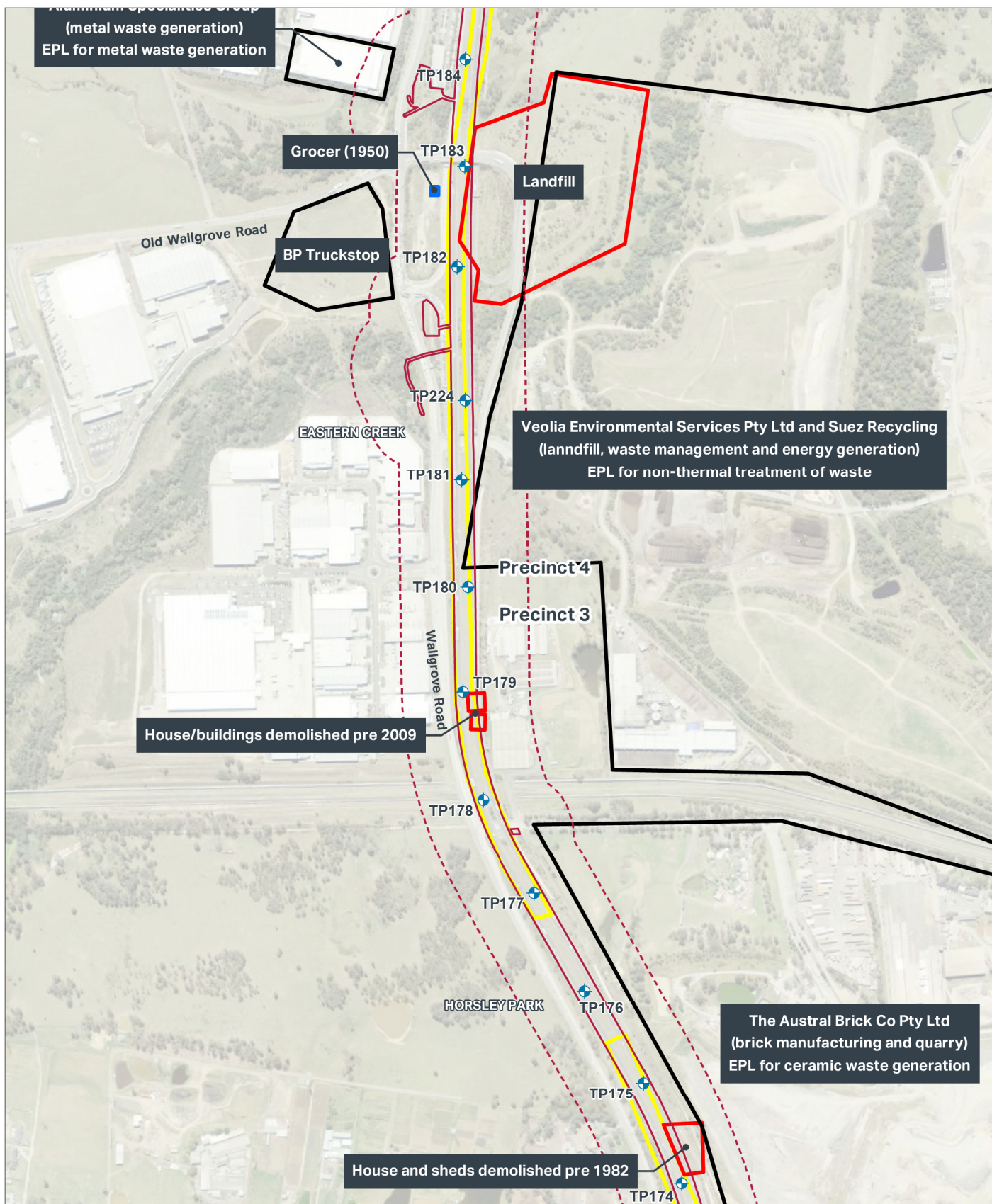
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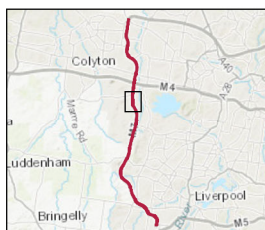




**FIGURE 7-121: POTENTIAL CONTAMINATING LAND USES AND SOURCES WITHIN STUDY AREA (SHEET 10 OF 16)**

**Legend**

- Construction footprint
- Study area
- Current potentially contaminating land use
- Former potential contamination source from aerial photograph review
- Past potentially contaminating land use (from UBD data)
- Past M7 cut and fill section
- Test pit



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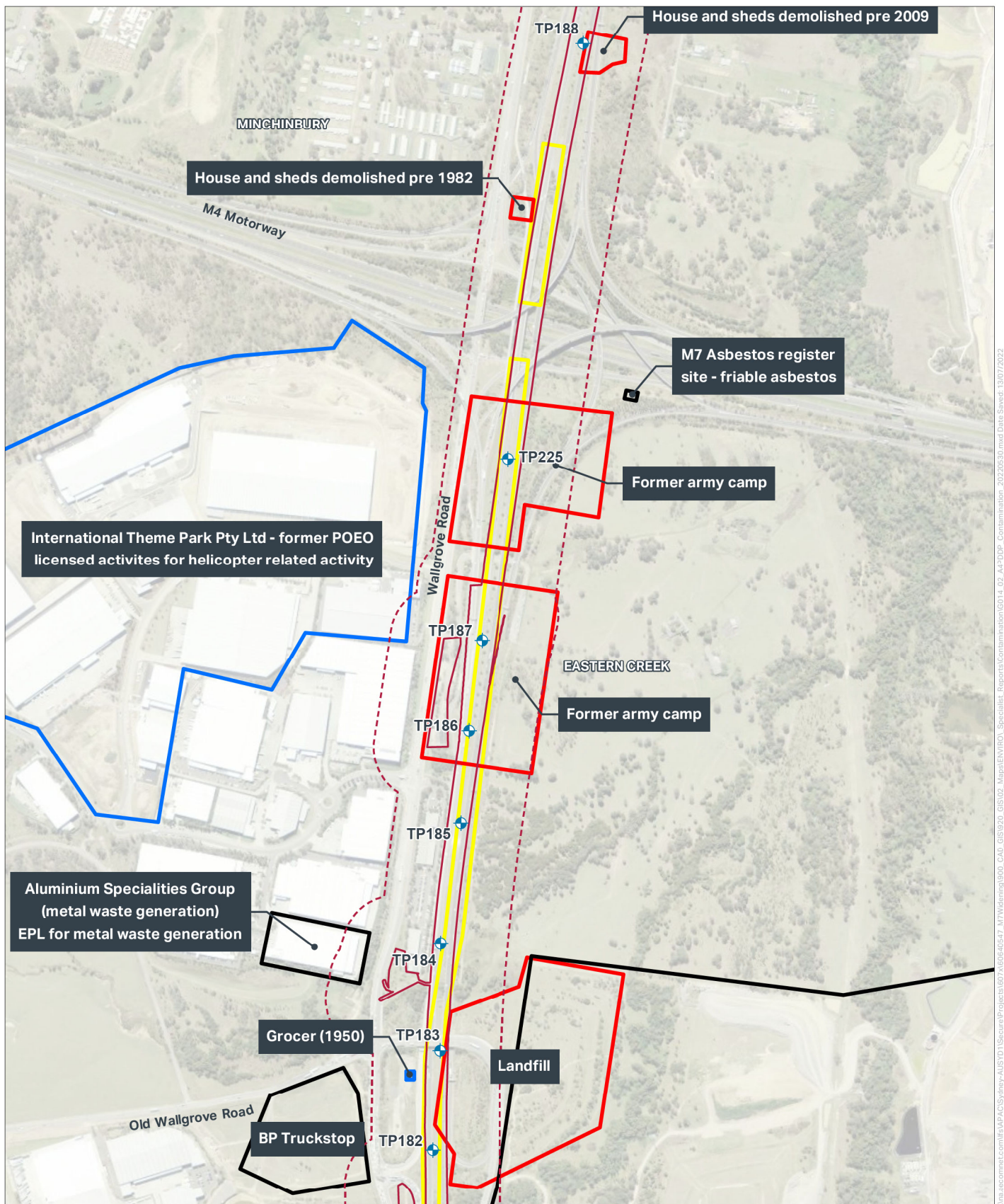
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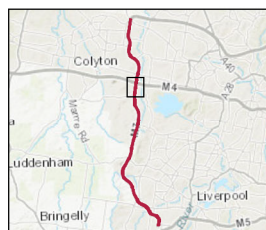




**FIGURE 7-122: POTENTIAL CONTAMINATING LAND USES AND SOURCES WITHIN STUDY AREA (SHEET 11 OF 16)**

**Legend**

- Construction footprint
- Study area
- Current potentially contaminating land use
- Former potential contamination source from aerial photograph review
- Past potentially contaminating land use (from UBD data)
- Past M7 cut and fill section
- Test pit



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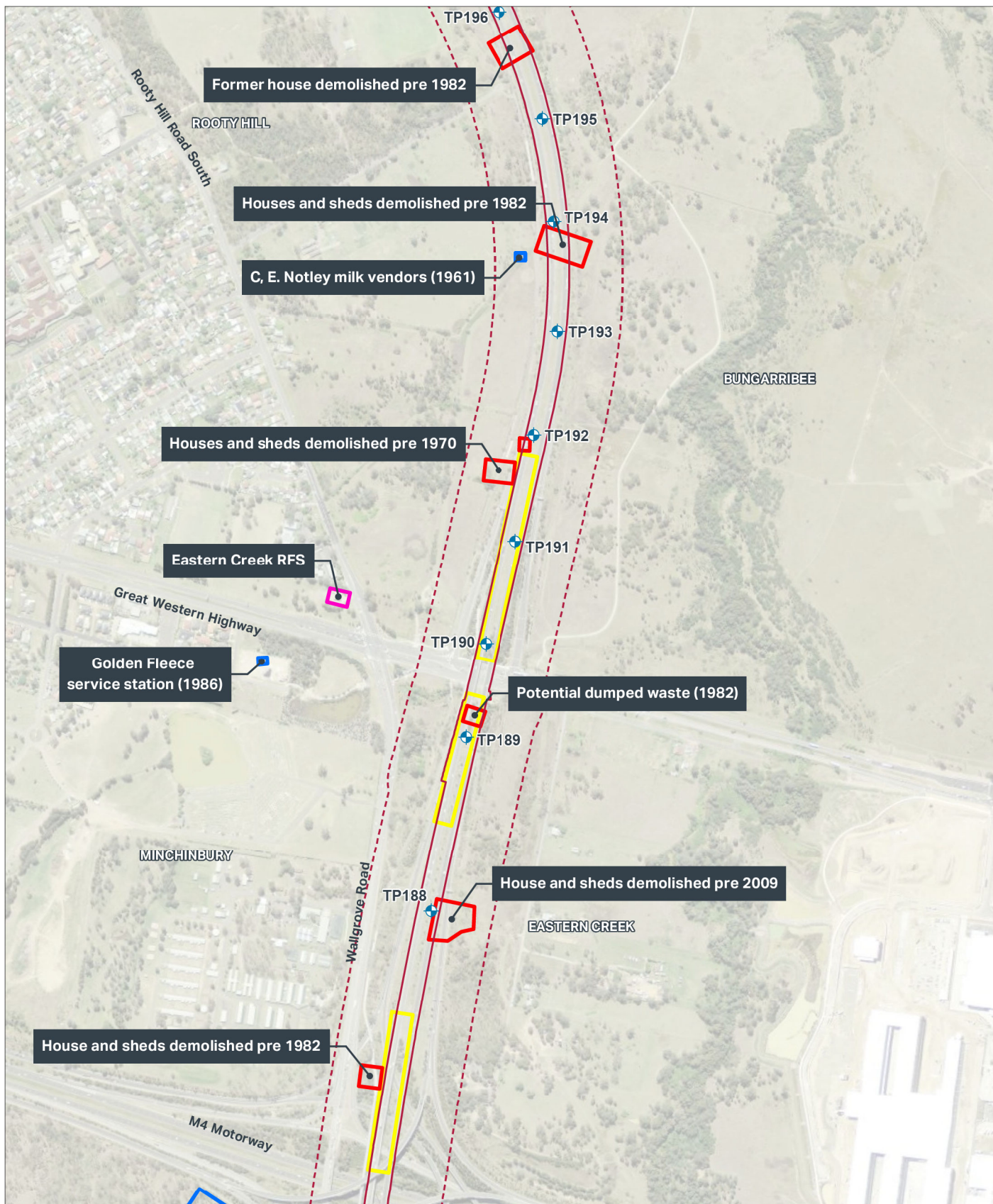
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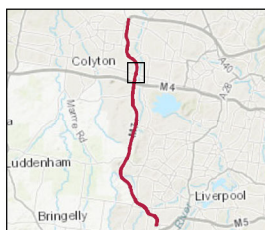
**FIGURE 7-123: POTENTIAL CONTAMINATING LAND USES AND SOURCES WITHIN STUDY AREA (SHEET 12 OF 16)**



**AECOM**

**Legend**

- Construction footprint
- Study area
- Former potential contamination source from aerial photograph review
- Past potentially contaminating land use (from UBD data)
- Fire brigade site (potential PFAS source)
- Past M7 cut and fill section
- Test pit



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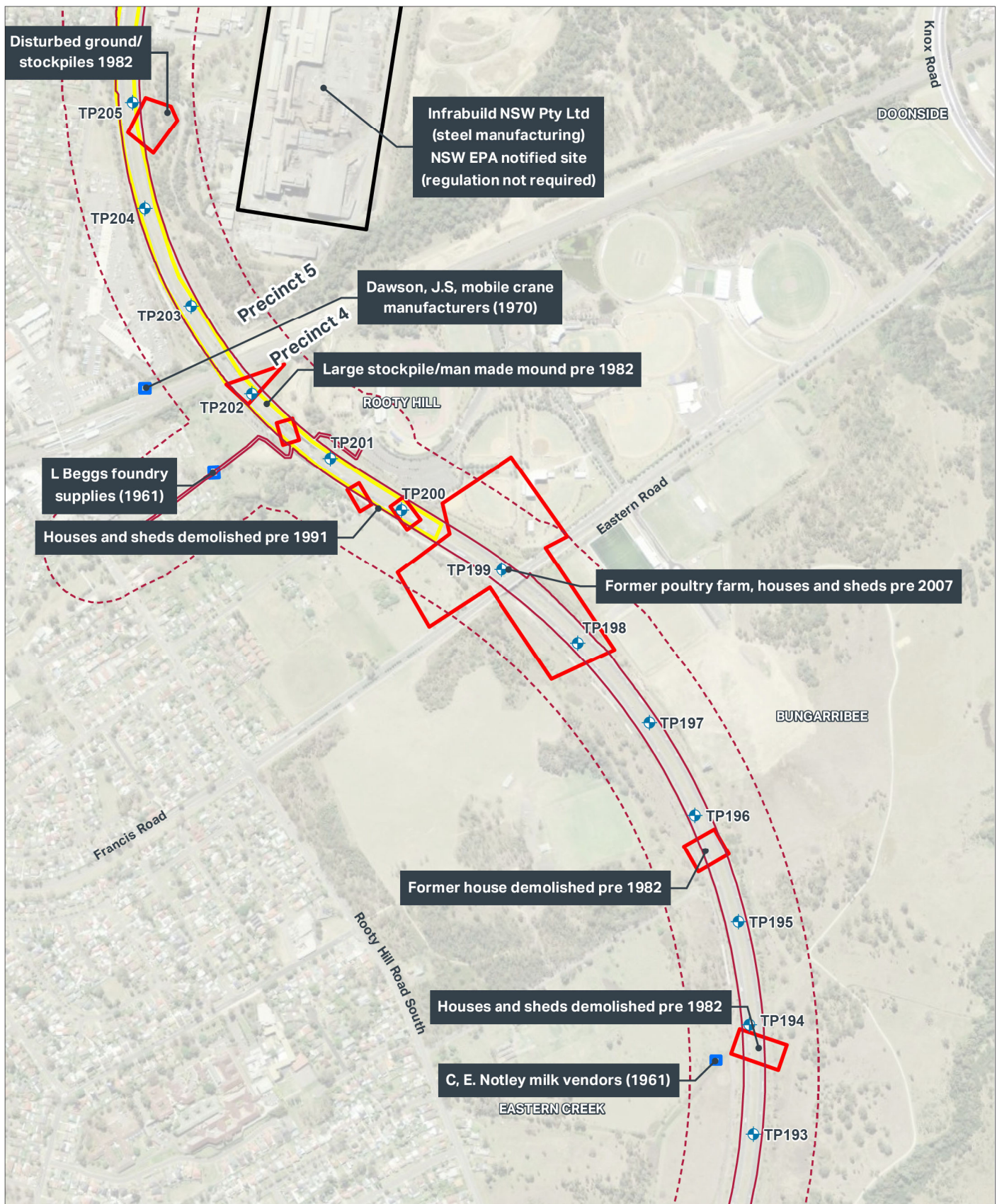
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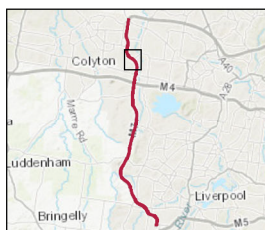
**FIGURE 7-124: POTENTIAL CONTAMINATING LAND USES AND SOURCES WITHIN STUDY AREA (SHEET 13 OF 16)**



**AECOM**

**Legend**

- Construction footprint
- Study area
- Current potentially contaminating land use
- Former potential contamination source from aerial photograph review
- Past potentially contaminating land use (from UBD data)
- Past M7 cut and fill section
- Test pit



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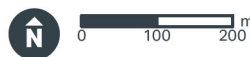
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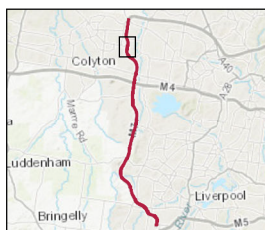
**FIGURE 7-125: POTENTIAL CONTAMINATING LAND USES AND SOURCES WITHIN STUDY AREA (SHEET 14 OF 16)**



**AECOM**

**Legend**

- Construction footprint
- Study area
- Current potentially contaminating land use
- Former potential contamination source from aerial photograph review
- Past potentially contaminating land use (from UBD data)
- Past M7 cut and fill section
- Test pit



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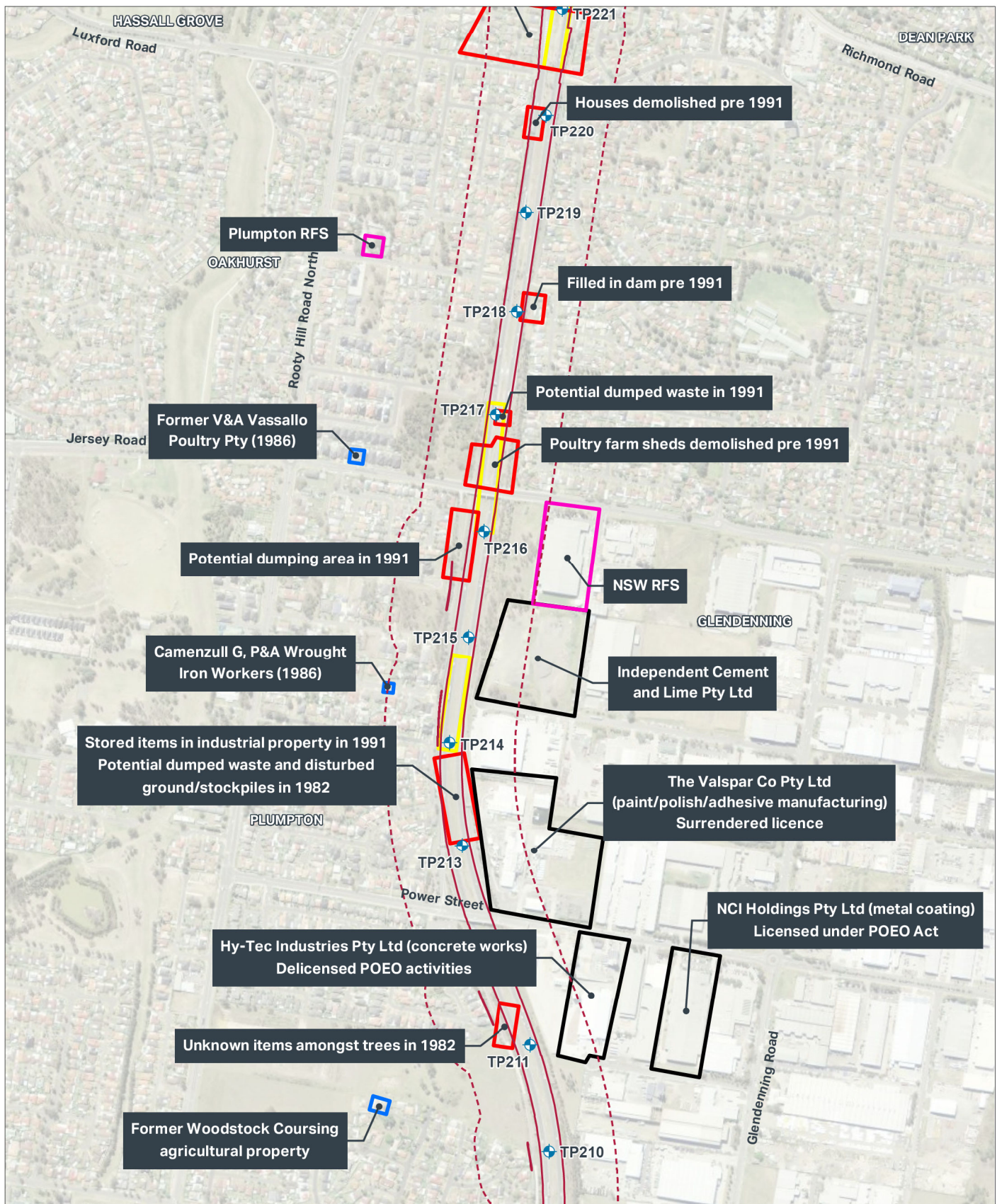
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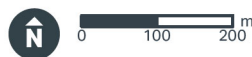
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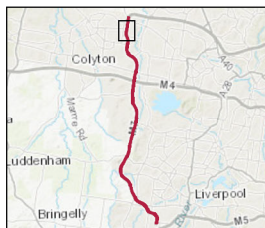
**FIGURE 7-126: POTENTIAL CONTAMINATING LAND USES AND SOURCES WITHIN STUDY AREA (SHEET 15 OF 16)**



**AECOM**

**Legend**

- Construction footprint
- Study area
- Current potentially contaminating land use
- Former potential contamination source from aerial photograph review
- Past potentially contaminating land use (from UBD data)
- Fire brigade site (potential PFAS source)
- Past M7 cut and fill section
- Test pit



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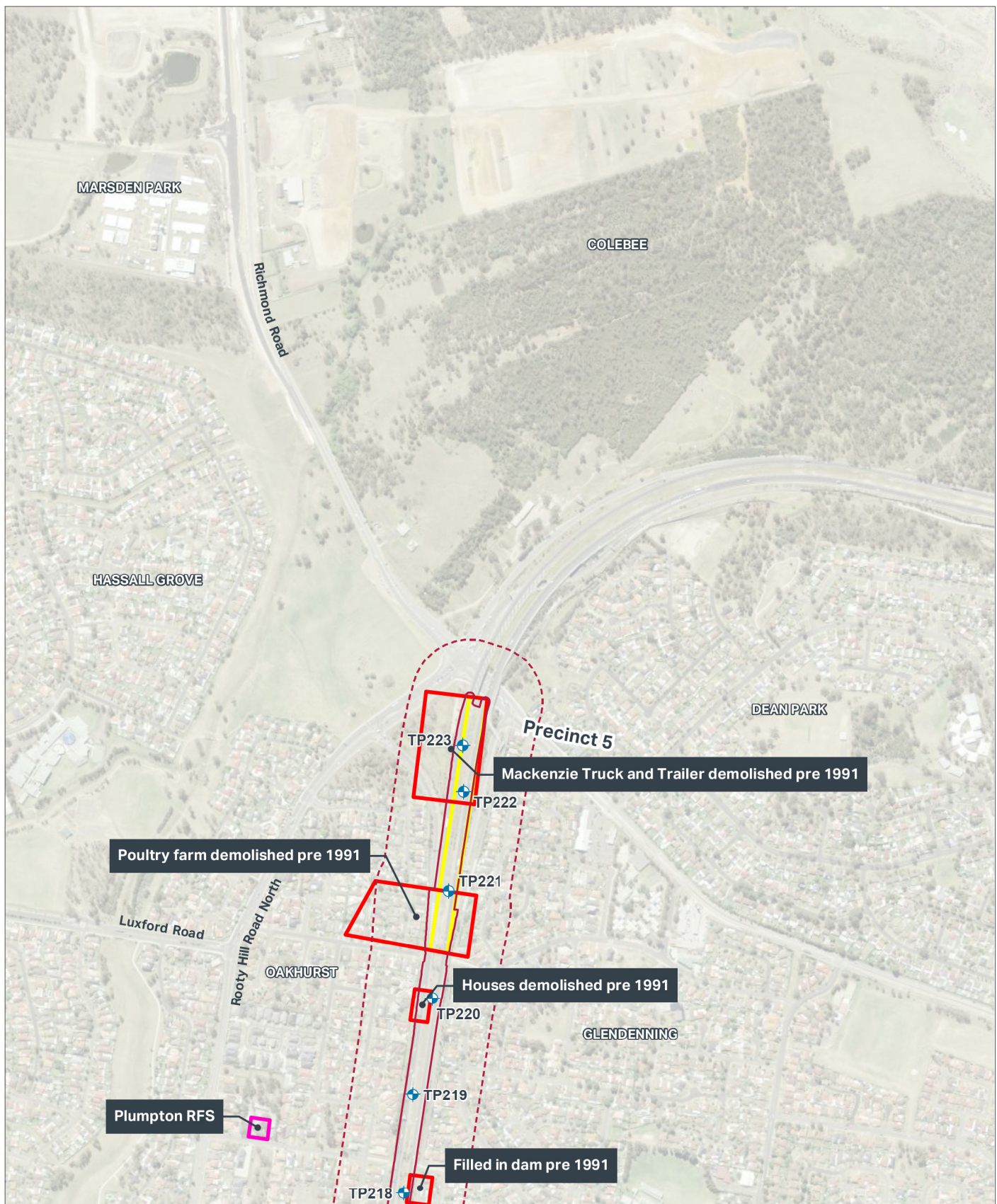
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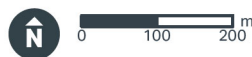
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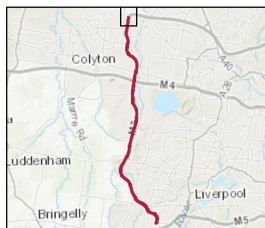
**FIGURE 7-127: POTENTIAL CONTAMINATING LAND USES AND SOURCES WITHIN STUDY AREA (SHEET 16 OF 16)**



**AECOM**

**Legend**

- Construction footprint
- Study area
- Former potential contamination source from aerial photograph review
- Fire brigade site (potential PFAS source)
- Past M7 cut and fill section
- + Test pit



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### 7.11.5 Impact assessment

#### Construction

##### ***Disturbance of contamination***

The following construction activities for the proposed modification could disturb existing contamination within the Westlink M7 lease area and proposed construction ancillary facility locations, which is present due to current and historic contaminated land uses and/or the construction of the existing motorway:

- Topsoil stripping
- Excavating cut and fill areas
- Excavation for piers and abutments for bridge works
- Trenching for utilities and drainage
- Excavation of footings for noise walls and retaining walls
- Earthworks for temporary waterway diversions
- Surface soil disturbance for establishment and operation of construction ancillary facilities.

There is potential for contaminated groundwater to be encountered whilst bridge pilings are being constructed. It is a requirement under Transport's QA Specification B59 that temporary casings are to be used if groundwater is encountered during construction works. The specifications would be outlined in the Soil and Water Management Plan (SWMP). The use of temporary casings would reduce the volume of groundwater required to be dewatered and the extracted groundwater is expected to be disposed of offsite. Potential receptors of the above exposure pathways include project construction workers, terrestrial and aquatic ecological receptors within the construction footprint, aquatic ecological receptors down-gradient of the construction footprint, and human receptors (various land uses) adjacent or downgradient of the construction footprint.

Potential transport and exposure pathways during construction are mainly related to construction workers and include:

- Direct/ dermal contact with and incidental ingestion of soil and surface water
- Inhalation of dusts or fibres by construction workers and potentially other human receptors and/or vapours from subsurface trenches and pits
- Migration via erosion and stormwater run-off from the construction footprint
- Recreational contact (primary or secondary) with surface water down-gradient of the construction works
- Risk of explosion or fire where landfill gases are present in the subsurface and are intercepted.

Mitigation measures in Table 7-94 have been identified to minimise these impacts.

##### ***Acid sulfate soils***

The probability of intercepting ASS across the study area is extremely low, however, there is a potential for inland ASS to be encountered in water bodies within the study area if construction activities were to lower the water table by more than one metre. If potential acid sulfate soils are present, they are not expected to be excavated in large quantities, as they are limited in depth (only exist in a thin layer) and the excavation works in the areas of risk would be localised pilings and footings for the bridge structures. If acid sulfate soils are disturbed, runoff from excavated soils can be acidic and leach iron, aluminium and other heavy metals. Without mitigation measures, these heavy metals and acids can leach into soil and groundwater, or impacted runoff can enter waterways and have negative impacts on water quality and aquatic ecosystems. As construction is unlikely to lower the water table by more than one metre, and with the implementation of the CEMP, potential construction related acid sulfate soils impacts would be appropriately managed and would be minor.

Mitigation measures in Table 7-94 have been identified to minimise these impacts.



### ***Salinity***

The proposed modification is located in Western Sydney, where salinity is known to occur. The salinity potential within the study area and surrounds ranges from medium to high. There are areas of the Westlink M7 where fill material of unknown origin is present along the proposed modification. It is unknown if this fill material is saline.

Construction could result in excavation or erosion of potentially saline soils. This could cause saline surface water runoff to waterways, surrounding soils or other areas if saline soils are re-used elsewhere within the construction footprint. Saline soils can cause a decline in soil structure, plant growth and impact freshwater aquatic ecosystems.

Construction is not expected to include activities that would result in a rise in local groundwater levels and minimal groundwater dewatering is anticipated as it is a requirement to use temporary casings during construction of bridge pilings. It is expected that groundwater encountered during piling works would be minimal and would be disposed of off-site.

With the implementation of the CEMP, potential construction related salinity impacts would be appropriately managed and would be minor.

Mitigation measures in Table 7-94 have been identified to address and minimise these impacts.

### ***New contamination***

The construction works for the proposed modification could result in soil, surface water or groundwater contamination from the following activities if adequate controls are not in place:

- Spills of oils, fuels or chemicals from plant and equipment within the construction footprint
- Accumulation of potentially contaminated sediments in sedimentation and water quality basins
- Importation and backfilling of excavations with undocumented contaminated fill material
- Stockpiling of potentially contaminated spoil.

With the implementation of the CEMP, potential construction related contamination impacts would be appropriately managed and would be minor.

Mitigation measures in Table 7-94 have been identified to minimise these impacts.

### ***Erosion and sedimentation***

The proposal would involve the following construction activities:

- Stripping, stockpiling and management of topsoil, sub-soil, and material unsuitable for re-use
- Earthworks associated with filling for the new pavement, including the construction of raised embankments, retaining walls and sections of cutting
- Vegetation removal.

If not adequately managed, these construction activities could potentially have the following impacts:

- Erosion of exposed soil and stockpiled materials
- An increase in sediment loads entering nearby watercourses.

With the implementation of erosion and sedimentation controls outlined in **Section 7.2**, potential construction related erosion and sedimentation impacts would be appropriately managed and would be minor.

Mitigation measures in Table 7-94 have been identified to minimise these impacts.



## Operation

### Contamination

The proposed modification would not require any additional operational ancillary facilities to the existing Westlink M7 facilities. There are no anticipated impacts from contamination sources to soil, surface water and groundwater from the operation of the proposed modification. An operational impact assessment of potential surface water runoff and groundwater impacts has been undertaken in **Section 7.5** (Surface water and groundwater) of this modification report.

Existing contamination not identified during construction or encapsulated during remediation could have impacts to future maintenance workers or future land users of redundant ancillary facilities. Soil and water contamination within the Westlink M7 lease area would be managed in accordance with the existing or updated Operational Environmental Management Plan (OEMP).

### Acid sulfate soils

Potential inland acid sulfate soils are not expected to be disturbed during operation of the proposed modification. Disturbed areas would be rehabilitated and stabilised following construction.

### Salinity

Saline soils and groundwater are not expected to be disturbed during operation of the proposed modification. Disturbed areas would be rehabilitated and stabilised following construction.

### Erosion and sedimentation

During the operation of the proposed modification, the risk of soil erosion and exposure to potentially contaminated soil would be minor as all areas impacted during construction would be sealed or rehabilitated and landscaped to prevent soil erosion from occurring. The existing drainage infrastructure was designed to accommodate a future widening of the Westlink M7 (now proposed), and would be assessed for adequacy to accommodate the proposed modification and would be upgraded if required.

#### 7.11.6 Management and mitigation

The proposed modification would be designed, constructed and operated with the aim of achieving these performance outcomes. Based on the assessment above, the mitigation measures described in Table 7-94 are proposed to be implemented in order to achieve the performance outcomes above and manage potential impacts to soils and contamination during construction and operation of the proposed modification.

**Table 7-94 Mitigation measures**

Impacts	ID	Mitigation measure	Responsibility	Timing
Soil and water	C1	<p>A Soil and Water Management Plan (SWMP) will be implemented during construction and incorporate the following measures:</p> <ul style="list-style-type: none"> <li>Worker health and safety measures, waste management (including stockpiling) and tracking for contamination</li> <li>Register of known or suspected areas of contamination (from site investigations) and areas requiring remediation</li> <li>An unexpected finds procedure to manage previously unidentified chemical or asbestos contamination</li> <li>Asbestos Management Plan for areas where ACM and/or friable asbestos is likely to be encountered,</li> </ul>	Construction contractor	Prior to construction



Impacts	ID	Mitigation measure	Responsibility	Timing
		<p>with the plan including worker health and safety measures</p> <ul style="list-style-type: none"> <li>• Testing procedures to determine the actual presence of acid sulfate soils prior to ground disturbance activities</li> <li>• Testing procedures to determine the presence of saline soils prior to ground disturbance activities.</li> <li>• Process for testing, treating and discharging water from site to meet applicable water quality limits.</li> <li>• Site-specific Erosion and Sediment Control Plan which will identify detailed measures and controls, that are consistent with the practices and principles in the current guidelines, to be applied to minimise erosion and sediment control risks. These include, but not necessarily limited to: runoff, diversion and drainage points; use of sediment basins and sumps; scour protection; stabilising disturbed areas as soon as possible, check dams, fencing and swales; and staged implementation arrangements.</li> </ul>		
Existing contamination	C2	<p>A Sampling, Analysis and Quality Plan will be prepared ahead of detailed site investigations, focusing on potential source areas of potential contamination where the likelihood risk of contamination is moderate to high, and additional areas to give further understanding of potential contamination impacts (Table 7-90 to Table 7-93).</p> <p>The results from the site investigations will be assessed against criteria contained within the <i>National Environment Protection (Assessment of Site Contamination) Measure</i> (2013) and other applicable NSW statutory guidelines to assess whether remediation or other management measures are required during construction and to address requirements of <i>State Environmental Planning Policy (Resilience and Hazards) 2021</i>.</p>	Construction contractor	Prior to construction



Impacts	ID	Mitigation measure	Responsibility	Timing
	C3	Remediation will be undertaken where assessed as required based on the outcome of detailed site investigations. Works will be performed in accordance with the hierarchy of preferred strategies in the <i>Guidelines for the NSW Site Auditor Scheme</i> (NSW EPA, 2017) and CRC CARE Pty Ltd (CRC CARE, 2020) National Remediation Framework. Where practical, remediation works will be integrated with excavation and development works performed during construction and address requirements of <i>State Environmental Planning Policy (Resilience and Hazards) 2021</i> .	Construction contractor	Prior to construction
	C4	Contamination within the Westlink M7 lease area will be managed in accordance with the existing or updated Operational Environmental Management Plan (OEMP).  Pre-construction contamination condition surveys will be undertaken on all sites intended to be used as construction ancillary facilities. Post construction contamination condition surveys will be undertaken on all ancillary facilities and any contamination caused by the use of the site as a construction ancillary facility remediated to a standard suitable for the identified land use. Remediation will be undertaken by the construction contractor prior to operation of the modification.	Construction contractor Westlink M7 Operator	Construction Prior to operation Operation
Acid sulfate soils	C5	Prior to ground disturbance in areas of potential inland acid sulfate soil occurrence, testing will be carried out to determine the actual presence of acid sulfate soils. This measure is especially applicable to areas on waterbodies where disturbance of sediments and surrounding soil is to occur. If acid sulfate soils are encountered, they will be managed in accordance with the <i>Acid Sulfate Soil Manual</i> (Acid Sulfate Soil Management Advisory Committee, 1998) and <i>Guidelines for the Management of Acid Sulfate Materials: Acid Sulfate Soils, Acid Sulfate Rock and Monosulfidic Black Ooze</i> (NSW Roads and Traffic Authority, 2005).	Construction contractor	Prior to construction



Impacts	ID	Mitigation measure	Responsibility	Timing
Salinity	C6	Prior to ground disturbance in high probability salinity areas, testing will be carried out to determine the presence of saline soils. If salinity is encountered, excavated soils will not be reused or will be managed in accordance with <i>Book 4 Dryland Salinity: Productive Use of Saline Land and Water</i> (NSW DECC, 2008c). Erosion controls will be implemented in accordance with the <i>Managing Urban Stormwater: Soils and Construction Volume 1</i> (DPIE, 2004)	Construction contractor	Prior to construction
Ancillary facilities	C7	Post-construction contamination condition surveys will be undertaken on all ancillary facilities and may be required by lease agreements. Any contamination caused by the use of the site as a construction ancillary facility for the widening works will be remediated to a standard suitable for the identified land use. Remediation will be undertaken by the construction contractor prior to operation of the modification.	Construction contractor	Post-construction