

LEGEND

- ▬ GASWORKS SITE
- ▬ CLEANING SHED SITE

0 10 20 30 40 50 60 m





3.2 Topography and Surface Hydrology

The Former Gasworks site slopes gently towards the south west, with the northern boundary being approximately 20.3 m AHD and the northwest corner, close to Burren Street and the residential properties being approximately 19.9 m AHD. A 2 metre high retaining wall and grassed embankment separates the Site from the former gasworks area.

Surface water at the Site is likely to run towards the Illawarra railway line located beyond the southern boundary of the Site. A concrete lined surface water drain is installed along the western boundary of the site and this is considered likely to receive surface water runoff after migrating across the southern boundary of the Site.

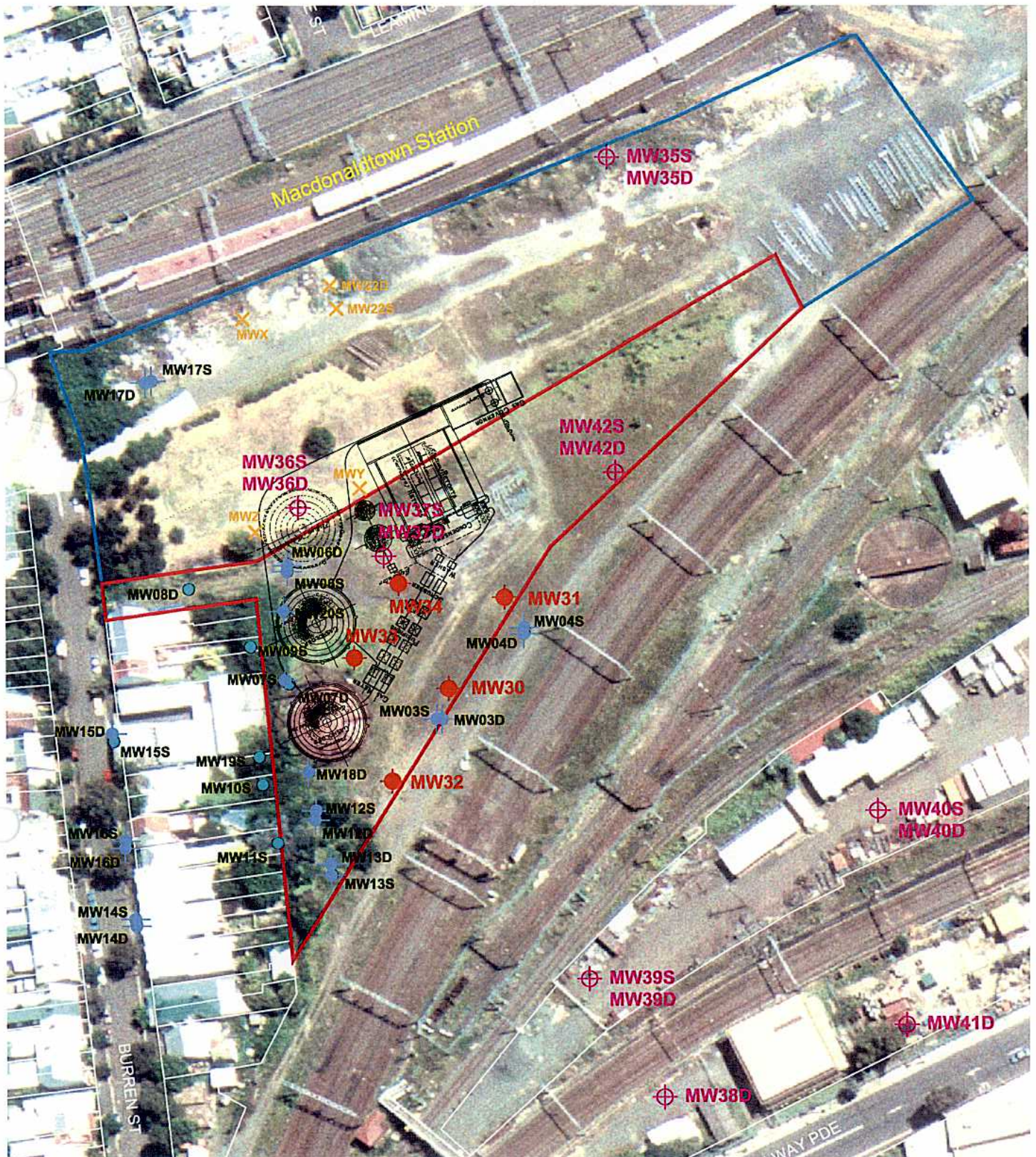
3.3 Geology

The Geology of the Sydney 1:100,000 Sheet (Ed. 1, Sheet 9130, 1983) indicates that the Macdonaldtown Triangle area is underlain by Ashfield Shale comprising black to dark-grey shale, siltstone, laminite, calcareous claystone and coal. Ashfield Shale belongs to the Middle Triassic Epoch and is part of the Wianamatta Group.

Residual soils in the vicinity of the Site are classified in the Soil Landscapes of Sydney 1:100,000 (Sheet 9130, 1983) as part of the Blacktown group. The group are described as shallow to moderately deep red and brown Podzolic soils on crests, upper slopes and well drained areas. Deep yellow Podzolic soils and Soloths on lower slopes and in areas of poor drainage. Limitations for the Blacktown groups are moderately reactive highly plastic subsoil, low fertility and poor soil drainage.

The boreholes undertaken as part of this risk assessment encountered a fill layer to a depth of 0.4 – 2.5 m close to the northern boundary at MW35D and MW35S, respectively, as shown in **Figure 5**. Weathered shale was found below this depth to a maximum depth of 12.2 m at MW35D, at which depth the borehole was terminated. Fill was encountered to a depth of 0.6 m at MW33 in the central portion of the site underlain by residual, silty clay with ironstone nodules. At MW34 fill was encountered to a depth of 0.4 m with silty clay below this. Along the eastern boundary of the site at 42D, fill was encountered to a depth of 2.3 m with predominantly residual clay found below this at a depth of at least 12 m.

Copies of all borehole logs provided in previous investigation and prepared as part of this study are provided in **Appendix A**.



LEGEND

- ▭ GASWORKS SITE
- ▭ CLEANING SHED SITE
- CH2MHILL MONITORING WELL LOCATIONS
- × CH2MHILL MONITORING WELL LOCATIONS NOT PREVIOUS IDENTIFIED
- ⊕ SKM GROUNDWATER MONITORING WELL LOCATIONS (1 DEEP AND 1 SHALLOW)

⊕ SOIL VAPOUR MONITORING WELLS

0 10 20 30 40 50 60 m





3.4 Hydrogeology

Groundwater beneath the Site flows in a south and southeast direction towards the Illawarra railway and the concrete drain. Standing groundwater levels ranged from 1.0m below ground to 9.5mbgl (metres below ground level). The main water bearing stratum at the Site is likely to be the shale bedrock. Due to a clay layer overlying the aquifer, it is likely that the aquifer is semi-confined and this was supported by the site inspection, where artesian waters were observed to flow from MW14D and MW15D. In this area the groundwater aquifer is sufficiently contained for groundwater to be forced towards the ground surface.

A more detailed assessment of the hydrogeological conditions at the Site is provided in **Section 10**.

3.5 Surface Conditions

The Site is grassed in areas with a large portion of the north-east corner of the Site being covered with a gravel layer. A gravel roadway is located along the northern boundary of the Site, adjacent to the retaining wall found along the boundary with the former cleaning shed site. Trees are located along the western boundary of the Site.

3.6 Underground Structures and Buried Services

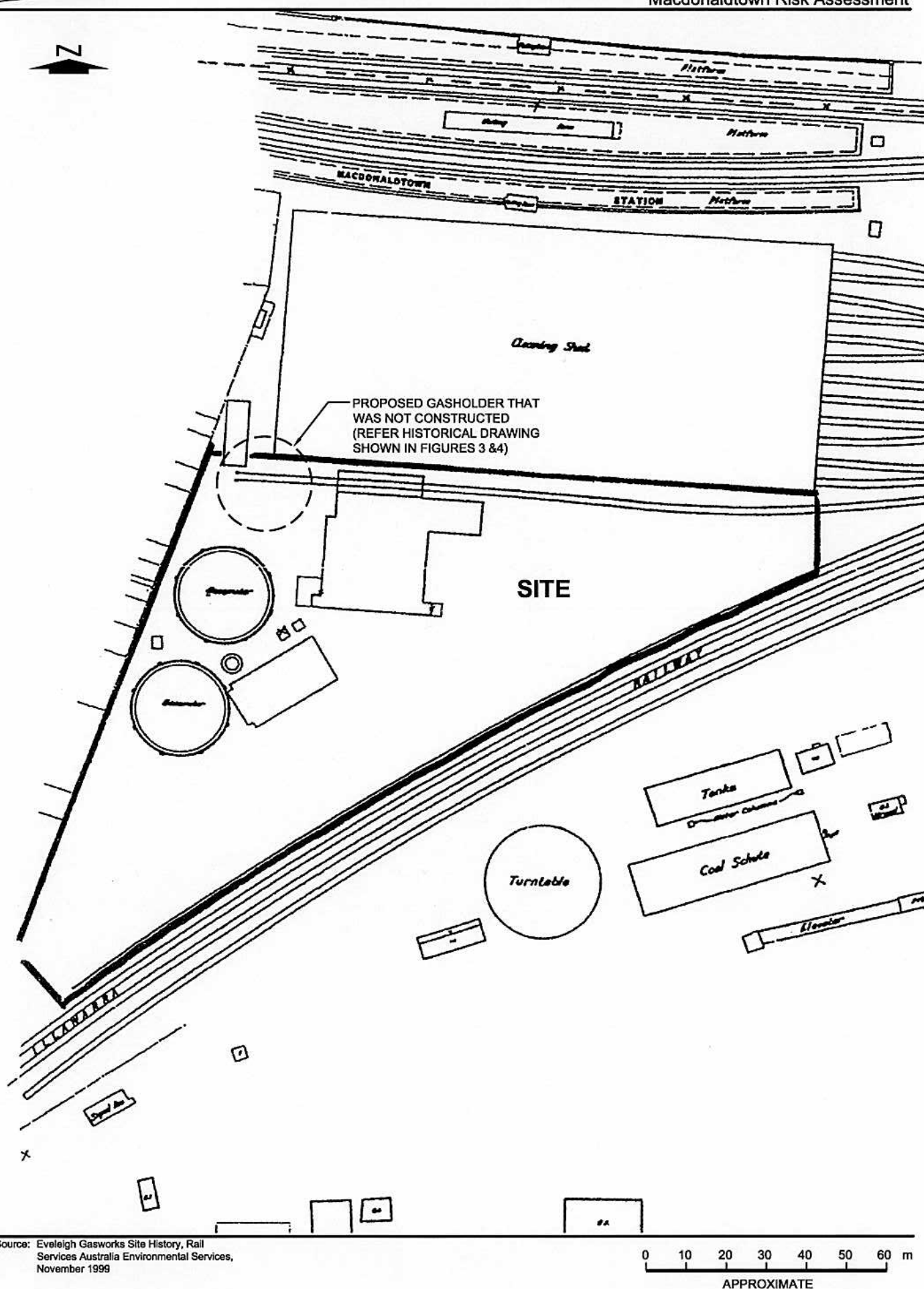
A number of elements of the former gasworks plant (retorts and gas governor) were once situated along the northern boundary of the Site, as shown in **Figure 6**. The retort house was an elaborate and substantial structure adjacent to the retaining wall and consisted of a variety of components including coal/ shale stores, boiler rooms and offices. Below ground structures associated with these components of the former gasworks are likely to remain as sub-surfaces features on the southern boundary of the Site.

The tar and liquor tanks were located close to the retort house, with below ground structures located close to the northern boundary of the former gasworks site.

A retaining wall with an approximate height of 1.5m runs across the northern perimeter of the Site and is in a poor condition consisting of cemented brick with integral vertical rail supports that in several locations has collapsed.

Adjacent to the retaining wall and the residential area in the north western portion of the site, a concrete slab is raised about 0.8 m above the ground level, with separate vertical buffs to prevent vehicle damage. The top of the concrete slab (12.1 x 2.9 m) is believed to have been prepared to support a timber frame superstructure. It was believed that it was likely to be an office or store area.

Figure 6
HISTORICAL LAYOUT OF THE
MACDONALDTOWN TRIANGLE AREA
 Macdonaldtown Risk Assessment





RailCorp and Dial before you Dig records indicate a number of underground services are located within the Site boundary. Services located at the Site include:

- A telephone cable in the north-west corner of the Site;
- Energy Australia 240V Station Supply located along the western boundary; and,
- Low Voltage (LV) supply to Erskineville Signals Depot via steel cable inspection pits positioned along the length of the surface drain.

3.7 Sensitive Environments

The surrounding land use is a mix of industrial and residential. Industrial land is associated with the vacant railway land and the Macdonaldtown railway station and main western line to the north of the site and active rail track to the east and south of the Site. The presently vacant area immediately to the north of the site, referred to as the Cleaning Shed area, is to be turned into a train stabling facility for CityRail.

Residential land is associated with the 'Standard' residential properties located to the west of the site along Burren Street. Many of these properties are old terrace housing, while some of the blocks becoming redeveloped as modern town houses and apartments. The residential properties along Burren Street represent the most sensitive adjacent land use in the area.



4 Site History

This section of the report provides an assessment of the past land uses that have occurred at the Site and in the surrounding areas that are likely to be the main causes of ground contamination in the area. The information provided by this assessment, together with the results obtained by previous investigations, was used as the basis for developing the investigation strategy for the additional investigation work undertaken as part of this assessment.

4.1 Sources of Historical Information

RailCorp provided SKM with the following reports on investigations and assessments that have been undertaken at the Site, these being:

- CH2MHill (13 June 2000) "Macdonaldtown Triangle Phase I and Phase II Environmental Site Assessments."
- CH2MHill (November 2001) "Soil and Groundwater Investigations of the Former Gasworks Area and Off Site, Macdonaldtown Triangle, Erskineville."
- GHD (1995). *Macdonaldtown Rail Yard: Development of Environmental Buffer Zone for the Local Residents*. October 1995.
- Banksia Heritage and Archaeology (2004). *Macdonaldtown Station Works – Archaeological Assessment*. April 2004.
- Rail Services Australia (1999). *Eveleigh Gasworks Site History*. October 1999.

Other sources of historical information include RailCorp records and aerial photographs.

4.2 Previous Layout and Activities

The Macdonaldtown Site was acquired by the 'Railways' in 1888. Although previous land titles dating back to 1794 are available, they do not include details of the Site usage.

Construction of a small gasworks at the Site started prior to 1891 (GHD, 1995), with construction completed in 1892. It is understood that the gasworks was constructed to provide lighting for carriages, stations, signals and railyards. The gasworks comprised a retort house and two gasholders.

Records indicate that the gasworks included two tar pits (located west of retort house). Gas production ceased during the 1950's due to poor quality feed stock being used in the gas production process. Although plant and machinery associated with the gas production were demolished and removed in 1958, the gasworks continued to be used for gas storage until the mid 1970's.



Information provided by RailCorp indicates that the Site located to the north of the gasworks was used for cleaning sheds and railway sidings. Operations continued until the mid 1980's, after which the buildings and railway tracks were removed. Since the 1980's the Site has been used as a staging depot for the storage and fabrication of materials for track upgrading and renewal projects (CH2M Hill, 2000).

The general layout of the former gasworks and location of structures in relation to the Site boundary is shown in **Figure 4**, which is based on information provided by Rail Services Australia (1999).

4.3 Historical Aerial Photographs

A review of aerial photographs is included in the CH2MHill Phase 1 and 2 Environmental Site Assessment Report (CH2M Hill, 2000). Summary information on the historical aerial photographs is provided below.

1961 Photograph – The 1961 photograph shows the presence of a large rectangular building located along the northern boundary of the Cleaning Sheds area. This is assumed that this is the building used for the cleaning of railway carriages and as railway sidings. The two gasholders are visible on the former gasworks site along with two smaller rectangular buildings. The first of these buildings is located along the southern side of the large railway shed, in the approximate position of the retort house. The second building lies in a southwest – northeast direction, located to the east of Gasholder No.1. The building seems to include chimneys and is possibly the gas purifying process buildings.

The surrounding land use appears to be the same as it is today with the residential properties to the west and the surrounding railway infrastructure.

1970 Photograph – The building located along the southern edge of the large railway building (possible retort house) has been removed. Gasholder No.2 and possibly the gas purifying building have also been removed from the site (CH2M Hill, 2000).

1986 Photograph – The large railway building has been removed, with only the concrete floor slab and railway tracks remaining. The remainder of the Site is unchanged (CH2M Hill, 2000).

1999 Photograph – The Site appears as present (CH2M Hill, 2000)

4.4 History of Surrounding Properties

The earliest photographs show the surrounding land use to be consistent with present usage, as described previously in **Section 3.1**.