

HERITAGE CITATION REPORT

name: Behlen Grain Silo
Address: 44 Noradjuha - Toosan East Road NORADJUHA
Place Type: Silo
Citation Date: 2022



**Recommended
Heritage Protection** **VHR -**

 HI -

 PS
 Yes

Integrity

High – in original condition and unaltered intact when compared with 1961 construction photograph. Appears to be most intact and highest integrity example in Victoria.

History and Historical Context

Following the proclamation of the *Land Act* of 1869 vast tracks of land previously occupied by ‘squatters’ was opened up for closer settlement. Parcels of 320 acres were taken up in the Wimmera district leading to a dramatic increase in population and the development of small settlements such as the township of Noradjuha.

The township of Noradjuha, situated on the Natimuk – Balmoral Road, was officially gazetted in 1885, although a state school had been established in 1877 and several residential and commercial buildings were erected prior to the township survey.

HERITAGE CITATION REPORT

The passing of the *Railway Act 1884* (also known as the Octopus Act) authorizing the construction of the Horsham – Noradjuha railway line was a catalyst for further investment. As a result a number of important civic and community buildings were erected, including the Bible Christian Church (1884), Mechanics' Institute (1886), police station (1887), Arapiles Shire Hall (1889) and Colonial Bank (1909).

The Horsham – Noradjuha Railway Line

The Horsham to Noradjuha Railway League was formed in the 1870s to lobby the Department of Railways for a branch line to link the western and southern Wimmera districts to the Horsham railhead. Prior to the construction of Horsham's rail connection in 1879, farmers carted their produce to railheads at Stawell and Hamilton – an arduous journey over treacherous roads, which took several days.

In August 1887 the 12 mile Horsham to Noradjuha branch line was opened to traffic, with a station, goods shed and platform erected soon after. The *Horsham Times* records that the line carried 10,000 bags of wheat, 7,000 bags of salt and 2,000 bales of wool to the Horsham railhead in 1896.[1]

By the late 1890s the Portland District Railway League, formed by Portland's business elite, renewed its campaign to construct a north-south through-line connecting Horsham to the Port of Portland. Running south from the Noradjuha terminus to Hamilton (via Cavandish) the rail link was to re-direct the district's agricultural freight to the Port of Portland and away from established markets at Melbourne and Geelong.

The Hamilton – East Natimuk railway line (as it was eventually known) was opened to traffic in November 1920, although sections of the line had operated for local freight and passenger services from the turn of the 20th century.

Bulk Handling

The passing of the *Grain Elevators Act* in 1934 resulted in the construction of bulk grain storage facilities along the Mallee, Wimmera and Riverina rail network. While the creation of the Victorian Grain Elevators Board (GEB) marked the transition from manual handling (the collection and storage of grain in bags) to bulk handling (silo storage), Noradjuha was not selected to host one of the 140 reinforced concrete silos proposed for the 1938-42 bulk storage roll out.

The nearest storage facilities to Noradjuha were constructed at Vectis and Natimuk in 1939, with grain freighted to Horsham and then on to the purpose-built export terminal at Geelong. Although the GEB planned to build a grain export terminal at Portland, this proposal was abandoned in 1937 in favour of terminals at Geelong and Williamstown.

In 1949 the Noradjuha branch of the Victorian Wheat and Woolgrower's Association was formed to lobby the GEB for their own bulk handling facilities.[2] By December 1951 district farmers spent five days constructing a corrugated iron horizontal-type wheat bulk head, which measured 220 ft x 66 ft with a capacity of 47,000 bushels. [3]

Demand for more storage capacity a decade later resulted in the erection of a 'Behlen Bin' to store wheat, with the 1951 bulk head employed to store oats. The prefabricated galvanized steel shed was manufactured in the USA by the Behlen Manufacturing Company and was one of five 'Behlen horizontal-type storage' systems imported by the Grain Elevators Board for the 1960-61 harvest.[4] The Behlen system employed self-supporting 'folded galvanized steel sheets' that were assembled on-site to form a load-bearing structure. Contractor A. Rizza of Melbourne supervised the assembly of the shed, which held a capacity of 100,000 bushels of wheat.

HERITAGE CITATION REPORT

[5]

A later steel cylinder double cell silo was erected at the Noradjuha rail siding in 1968 to separate wheat varieties.

[1] *Horsham Times*, Friday 6 May 1898, page 3

[2] *Horsham Times*, Friday 9 April 1948, page 1

[3] Noradjuha history p 62; *Horsham Times*, Friday 14 December 1951, page 1; *Horsham Times*, 6 December 1961, p.14 .

[4] *Supplementary Report Of The Auditor-General For The Year Ended 30th June, 1961*. P. 24.

[5] *Horsham Times*, 6 December 1961, p.14.

Description

Physical Description

67x 20 metre shed – unique ‘folded galvanised steel sheet’ self-supporting construction for roof and walls, negating the need for structural steel framing for the shed. Shed has a gable roof of 20-25 degree pitch. Shed is a ‘BEHLEN’ shed, manufactured in USA and exported to Victoria. Grain Elevators Board purchased seven sheds – Noradjuha shed is one of the sheds purchased. In 2014 it was still utilised as grain storage shed, but this had ceased by 2022. Construction comprises galvanised steel pan sections, folded off site to provide stiffness for structural support. Shed held together via steel rods, fixed across structure and supported on galvanised steel brace plates externally. Grain fed to top via truck dump bins (pit) to side and fed to top. Grain access doors and personal access doors at base. Shed sits to side of former rail siding.

Internally, the base of all four walls is supported by closely spaced triangular steel struts measuring about 3 metres high and deep, occupying much of the clear floor space. At eaves level are closely spaced tie rods, running N-S and E-W beneath an open ceiling. The grain conveyor remains at the centre of the room.

Physical Condition

Average to good condition – surface corrosion (viewed from exterior) minimal. All parts of shed still extant and shed has not been noticeably modified from original installation.

Australian Heritage Commission Criteria

Relevant HERCON Criteria

Criterion A: Importance to the course, or pattern, of our cultural or natural history. (bulk handling of grain required such storage facilities post 1934 Act. Unique construction type, to save time and cost. Also reflected need for greater storage capacity as harvest yields increased post WW11 due to improved practices and agricultural activity.)

Criterion B: Possession of uncommon, rare or endangered aspects of our cultural or natural history. (one of 7 Behlen silos imported from USA in kit form to Victoria 1960s. – rare construction type for silo.)

HERITAGE CITATION REPORT

Criterion D: Importance in demonstrating the principal characteristics of a class of cultural or natural places or environments. (Part of a class of grain silos scattered across the Shire (and Victoria), reflecting changes to bulk handling of grain (1934 Act) and increases in agricultural production and importance of the railway in transporting grain to markets)

Criterion F: Importance in demonstrating a high degree of creative or technical achievement at a particular period. (Behlen type unique construction utilising deep folds in galvanised sheet cladding, to support structure – no internal framing system, allowing quick and economic erection and maximises storage capacity. Rare in Victoria and only one erected in Horsham)

Comparative Analysis

The Grain Elevators Board imported seven 'Behlen' storage systems from the USA. The following six (including the Noradjuha silo) have been located in other municipalities:

Behlen Silo, Donald-Swan Hill Rd, C261, railway siding, Lalbert: Extant – more corrosion evident than Noradjuha and simple pipe fed grain loading mechanism

Behlen Silo, Bendigo-Pyramid Rd (rail siding), Dingee: Extant – shed roof added to one end, central ventilator missing, additional structural struts added to base of shed (perimeter) condition poor compared to Noradjuha

Behlen Silo, Brooklyn Road, Melton South: Extant – 'Melton Produce' – on the edge of Melton South suburb on rail siding. Appears to now be a shed, rather than grain silo – large entry doors cut into each gable end of structure – lower integrity than Noradjuha

Behlen silo, Natimuk-Frances Rd, Gymbowen (rail siding): Part of Horsham-Carrolac line extant and in good condition – still operational (probably) very similar to Noradjuha in intactness

Behlen silo, Stanhope: Extant, but in average to poor condition. Additional perimeter struts added around building

Statement of Significance

What is significant?

The elements of heritage value of the 1961 Behlen grain silo, 44 Noradjuha-Tooan East Road, Noradjuha, include:

. Whole of self-supporting shed structure, support rods, original hatches/ doorway openings, grain bins (pit), elevator shed/ pipes and conveyor.

How is it significant?

The 1961 Noradjuha Behlen grain silo is of local historical and technical significance to Horsham Rural City and potentially to the State of Victoria.

Why is it significant?

The 1961 Noradjuha Behlen grain silo is of:

HERITAGE CITATION REPORT

. local historical significance as a part of a class of grain silos scattered across the Shire (and Victoria), reflecting changes to bulk handling of grain (1934 *Grain Elevators Act*) and increases in agricultural production and importance of the railway in transporting grain to markets. (Criteria A)

. local and potentially state-wide technical significance as a rare and the most intact example of the imported 1960s Behlen shed system – which features folded galvanised steel sheet section pans 160mm deep, which were erected to form self-supporting shed walls and roof, without the need for structural framing. The innovative shed construction system allowed easy transport, economic use of materials and speedy erection. (Criteria B and F)

Recommendations 2022

External Paint Controls	Yes
Internal Alteration Controls	Yes
Tree Controls	No
Fences & Outbuildings	No
Prohibited uses may be permitted	No
Incorporated Plan	-
Aboriginal Heritage Place	No

References

Literature title: Horsham Times Newspaper

Literature type: General Reference

Literature author:

Literature publisher:

Literature year:

Literature title: entry for Walter and Ruby Behlen House

Literature type: General Reference

Literature author: Nebraska State Historical Society

Literature publisher:

Literature year:

Literature title: Noradjuha 1873-1973

Literature type: General Reference

Literature author: Noradjuha Centenary Celebrations Committee

Literature publisher: Noradjuha Centenary Celebrations Committee, Noradjuha

Literature year: 1973

Literature title: Supplementary Report of The Auditor-General for the Year Ended 30th June, 1961

Literature type: General Reference

Literature author:

HERITAGE CITATION REPORT

Literature publisher:

Literature year: 1961

This information is provided for guidance only and does not supersede official documents, particularly the planning scheme. Planning controls should be verified by checking the relevant municipal planning scheme.