

RIPON MILITARY HERITAGE PROJECT

Clotherholme and Laver Banks

Ripon Military Heritage Trust

This document is prepared in support of representations made to Harrogate Borough Council with regard to Planning Application ref: 20/02973/EIAMAJ

February 2022

Contents

1. Introduction
2. Heritage background
3. Significance and Threat
4. The Proposal, Community and Delivery

1. INTRODUCTION

The Ripon Military Heritage Project is the initiative of the Ripon Military Heritage Trust. The Trust is in the process of being formed in early 2022 to reveal, protect, interpret and engage with the Ripon community and its members from the Corp of Royal Engineers. The initial objective is to secure and sustain the military heritage assets of the Ripon Barracks, notably those in the Laver Banks training grounds.

In December 1914 the War Office announced that General Kitchener had agreed to the establishment of a large camp for between 30,000-40,000 troops in Ripon. Ultimately this “camp” was actually two - the North and South Camps (with other camps located around the city). While the South Camp was returned to agricultural use in the 1920s, the North Camp has remained in military occupation to this day.

During World War I it became clear that there was a requirement for heavy bridging constructed out of stock spans, which could be held in Engineer Stores depots. With the development of the Inglis and Hopkins steel bridges it was realised that training in their erection and use was required and concrete ‘islands’ such as those in the River Laver became used to practice such skills.

With the onset of World War II the School of Military Engineering (SME) was evacuated from Chatham, Kent to Ripon; this included the Experimental Bridging Establishment (EBE) Company Royal Engineers from Christchurch, Dorset. Since 1940 it had become clear that existing military bridges based on the tubular design of the Inglis Bridge could not cope with the increasing weight of new tanks. In addition very little bridging equipment was available to the army after 1939/40. EBE, headed by Donald Bailey, was tasked with developing a new bridge which was to become known as the revolutionary Bailey Bridge.

A crucial part of the development of the Bailey Bridge was the need for troop trials, loading trials and launching trials, in order to issue a provisional user handbook. In order to facilitate this a Bailey testing site was excavated at Ripon. This was then used extensively to train and test the Bailey Bridge and the troops which would be using them. Such training was of particular importance to allies such as the Canadians and Americans.

A further WWII requirement arose for a long-span bridge for military operations, especially in the Far East, where jungle conditions, flooding from monsoons and difficult access over mountain roads made bridging challenging. In October 1942 a new variant the Bailey Suspension Bridge was designed by Mr O. Bundy, under the supervision of Donald Bailey, at the EBE using as many of the available Bailey Bridge components as possible. This suspension bridge too was tested at Ripon across various parts of Laver Banks.

Following the decision immediately after WW2 to develop the Conqueror tank series, it was decided in May 1946 to commission a new fixed bridge. The Heavy Girder Bridge (HGB) was a relative of the Bailey Bridge and is very similar in appearance and characteristics but is larger and heavier. By 1955 the first 40 production sets of the HGB had been issued with 60 more sets on order. (The first reported HGB in the country was constructed upstream of Hewick Bridge on the River Ure in 1956 showing that Ripon was still being used as a commissioning and testing centre.) The current HGB crossing the River Laver was erected in 1992 when a Bailey Bridge was removed. Of all the HGB sets produced, it is thought that this is the only surviving example in England.

The 1957 Defence White Paper led in the early 1960s to a decision to concentrate on a powerful “Strategic Reserve” based in the UK which could provide short-term, targeted overseas deployments. This change was reflected in equipment provision and development; one of which was a requirement for lightweight, “airportable” equipment, including prefabricated buildings for temporary use in the field and in emergency conditions. Developed in 1959 the Twynham Hut was the successor to the Nissen Hut and was closely associated with the Corps of Royal Engineers.

The huts could be used as accommodation for personnel, as offices or stores and saw service in

Cyprus, Aden, Libya, Northern Ireland and on Ascension Island. The huts at Deverell Barracks were erected as a group of three in 1988/9 and the single unit in 1991. Of the hundreds of Twynham Huts produced the only traceable surviving examples within the UK are those at Deverell Barracks.

In 2013 the Secretary of State for Defence announced the closure of the Ripon barracks. The disposal of the barracks became the responsibility of the Defence Infrastructure Organisation (DIO) and in 2019 the responsibility for redevelopment was passed to Homes England. Ripon barracks comprises the Deverell Barracks, Claro Barracks and the Laver Banks training grounds.

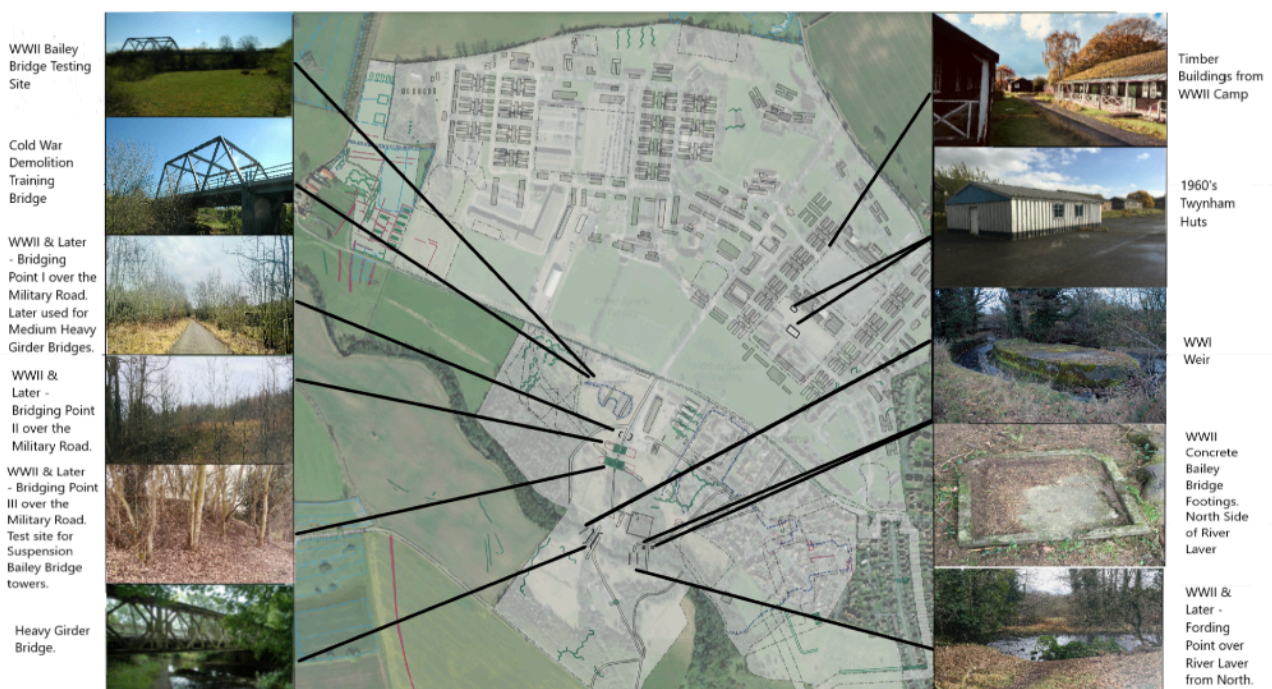
In April 2019 the Ripon Neighbourhood Plan (RNP) was made part of the Development Plan for the Harrogate district. In 2020 the Local Plan for the Harrogate district was adopted by Harrogate Borough Council (HBC). Both documents envisaged the redevelopment of the barracks for housing and employment use and RNP identified the heritage and archaeological importance of the barracks. An outline planning application was submitted in September 2020 by Homes England to Harrogate Borough Council (the local planning authority). This included a heritage and archaeological assessment of the importance of the barracks site.

Ripon Civic Society (RCS) submitted that further assessment was required of the Laver Banks and has carried out further research of Deverell Barracks and Laver Banks. While it was known already that some physical evidence remained from the WW1 era this further research revealed the importance of the site in WW2 and beyond into the Cold War era.

This evidence was not identified in the heritage and archaeological assessment submitted with the outline planning application and yet is of importance for understanding in particular the development of military bridging practice and the technologies and architectural character of post-WW2 military accommodation.

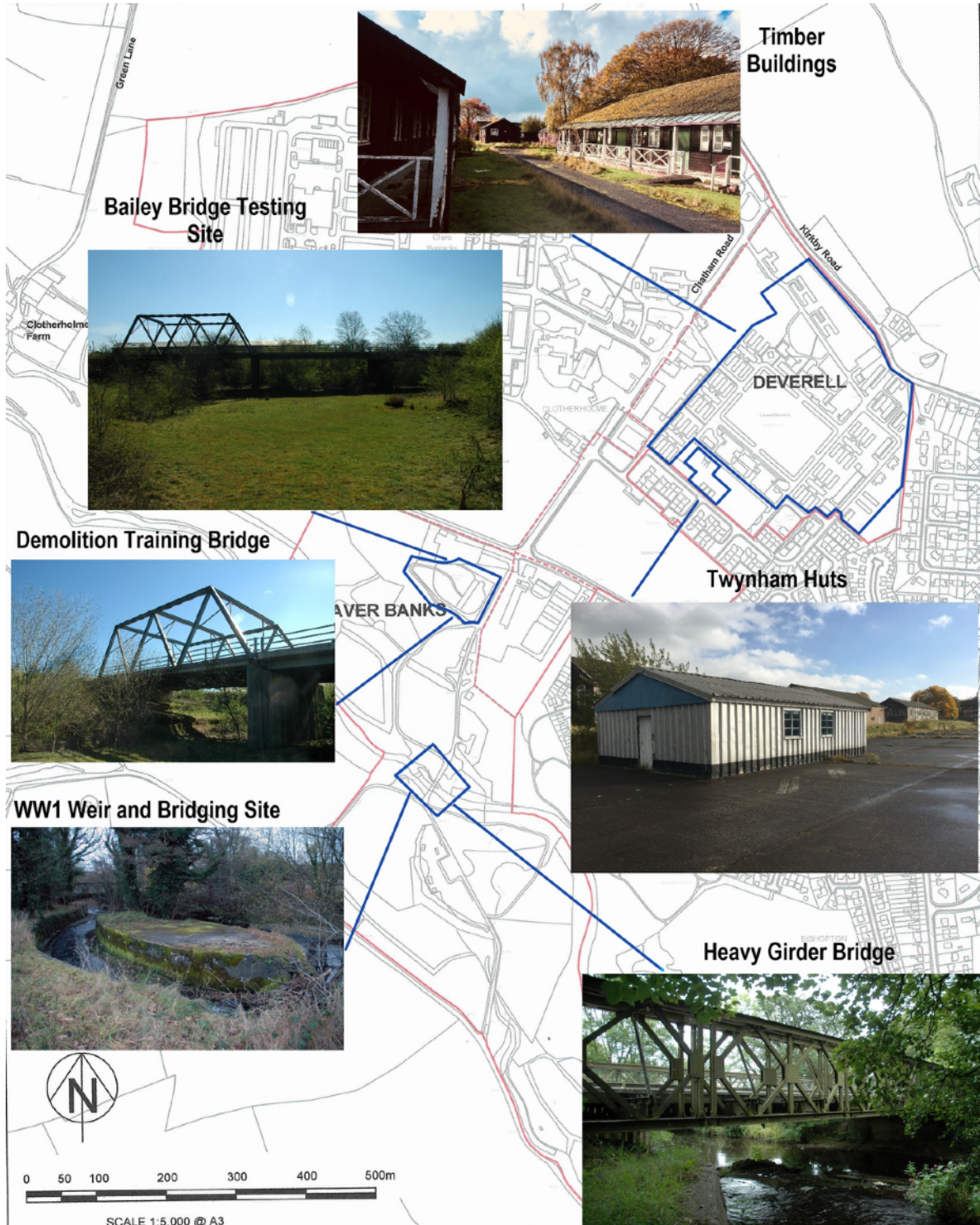
The masterplan accompanying the outline planning application does not recognise the military heritage assets but nor does it exclude the potential to accommodate them. Homes England is informally aware of this.

The 'Ripon Military Heritage Project' is the means to identify fully, protect and conserve, interpret and sustain these assets and the development of a military heritage centre as part of the Clothierholme Village development offering positive community, recreational and educational outcomes for the city. Responsibility for delivery will lie with the emerging Ripon Military Heritage Trust and partners.



2. HERITAGE BACKGROUND

The introduction provides a timeline of military activity at Ripon camp and barracks. The preceding illustration shows the current known assets of interest. Research has revealed considerable evidence of the heritage assets identified and illustrated below. The sites of significance and are described.



WW1 Weir & Bridging Point, Laver Banks, Ripon

Historic Interest

The WW1 military camp was crossed by two rivers the Laver and the Skell with the River Laver crossing joining Galphay and Clotherholme Roads. Adjacent to this crossing point was the Camp Electric Power Station. A photograph of the Power Station clearly shows the crossing point with what appears to be a 2 - span bridge and the railway track running alongside. The weir just upstream from the bridging point was used to provide water for the power station and the sluice mechanism would divert the river away from the concrete slipway, controlling the flow and levels of water.

During WW1 (particularly during the crossing of the River Aisne in September 1914) it became clear that there was a requirement for heavy bridging constructed out of stock spans, which could be held in Engineer Stores depots. This led to the development of the Inglis and Hopkins bridges and with the introduction of these new steel bridges it was realised that training in the erection and use of the new structures was required. At Ripon, concrete 'islands' such as those in the River Laver could be used to practice such skills.

Part of the alterations to the River Laver at this point was the formation of 2 concrete 'islands' on either side of the road and railway bridges. The upstream island was partially formed by the concrete slipway off the weir, the downstream island appears from the map evidence to be a separate structure. Neither the islands or the weir are visible on the 1910 OS Map but do appear on the 1929 & 1938 OS Maps. Concrete 'islands' such as those in the River Laver could be used to teach and practice such bridging skills.

In August 1922 with the Ripon Camp being decommissioned, Ripon City Council passed a resolution to buy the Camp Power Station for £3,000. This sum was to include all the plant, fittings and equipment, "...together with the weir in the River Laver and all rights of impounding and taking water from such stream for the purpose of the undertaking as at present enjoyed by the War Department; also all existing roads, culverts and bridges connecting the power station with Clotherholme Road and Galphay Lane..."¹ It appears that this suggested purchase did not go ahead as in March 1924, tenders were invited for the purchase and removal of "...Plant and Material lying at Electric Power Station Ripon Camps, Yorkshire..."²

Archaeological Interest

Extensive remains of WW1 alterations to River Laver including: weir, sluice and concrete slipway, concrete bridging island, remains of concrete piers to original bridge. Map evidence shows substantial alterations to the river at this point, indeed the 1929 OS Map indicates that the site contained two bridging islands originally. The artificial weir and concrete slipway with the remains of a metal sluice-like control still survive in situ. Much of the river along this stretch is man-made with sections of the local river cobbles being embedded in concrete and under the existing HGB bridge, concrete abutments and the concrete remains, in the middle of the river, of what may be a support to the WW1 road bridge. These features are of similar construction and form to the known WW1 concrete abutments on the River Skell at Hell Wath Cottage.

Architectural Interest

The site demonstrates the early development of concrete construction techniques by the military during WW1 and relates directly to changes in military bridge construction and training.

Group value

¹ Ripon Observer, 3rd August, 1922

² Ripon Observer, 15 March, 1924

There is group value with other WW1 concrete structures on and around the Rivers Laver and Skell all associated with the military camp. There is further group value in association with the WW2 Class 100 Heavy Girder Bridge.

Bailey Bridge Testing Site and the Demolition Training Bridge, South of Clotherholme Road, Laver Banks, Ripon

Historic Interest

In September 1940 the School of Military Engineering (SME) was evacuated from Chatham, Kent to Ripon; this included the Experimental Bridging Establishment (EBE) Company Royal Engineers from Christchurch, Dorset. Since 1940 it had become clear that existing military bridges based on the tubular design of the Inglis Bridge could not cope with the increasing weight of new tanks such as the Churchill Tank. In addition very little bridging equipment was available to the army after 1939/40 and Dunkirk, as virtually all the stock sent to France was either captured or destroyed. EBE headed by Donald Bailey, was tasked with developing a new bridge which was to become known as the revolutionary Bailey Bridge. The Bailey Bridge was, "... *easy to handle and launch, it would cater for a variety of spans and loads, including loads of up to 70 tons, it could be made into a heavy floating bridge without the use of trestles, and it lent itself to mass production...*".³The first prototypes were ready for testing in May 1941, production started in July 1941 and the first bridges were with the troops by December 1941.

A crucial part of the development of the Bailey Bridge was the need for troop trials, loading trials and launching trials, in order to issue a provisional user handbook. In order to facilitate this a Bailey testing site was excavated at Ripon. This was then used extensively to train and test the Bailey Bridge and the troops which would be using them. Such training was of particular importance to allies such as the Canadians. "*In late October 1941 Major Tregillus, an engineer in Division Headquarters, was sent to Ripon in central England to witness a Bailey bridge demonstration. He was the first Royal Canadian Engineer officer from the 1st Canadian Infantry Division to see the new bridge, which would eventually become the most important piece of water-crossing equipment in the division's stores...the new structure, which in sapper lore became known as the 'technical wonder of the Western World'*"⁴. In mid-September 1942 an American Section was established at Ripon commanded by Major Henry C. Frank. The Section was trained and liaised on all aspects of bridging, mines and demolitions. This too was the first time the Americans had seen the Bailey Bridge and by December 1943 over 1,000 US engineers had been trained.⁵ In July 1943 the 1st Canadian Infantry formed part of the Anglo-American Invasion force on Sicily. As Field Marshal Montgomery stated, "*..as far as operations were concerned, with the Eighth Army in Italy and with the 21 Army Group in NW Europe, I could never have maintained the speed and tempo of forward movement without large supplies of Bailey Bridges..*"⁶.

Part of the testing of the bridges involved 'loading' the different variants with all the known tanks in military service at this time. An oral recording at the IWM of the artist Terence Cuneo, corroborates this process he states: "*...I was transferred to the RE and I went to this big place at Ripon, which was a jolly nice barracks actually, and shortly all the known tanks of that day were sent to Ripon for tests and certainly for tests on the new Bailey Bridge and in no time I found myself, all my spare time down by the tank line drawing tanks of every sort, Matildas, Valentines and Grants and all sorts of things, Christie Suspension tanks and I went round them inside and out...*"⁷.

³ Col. S.A. Stewart, 'Twenty Years in the Development of Military Road Bridging (1925 to 1945)', The Royal Engineers Journal, Vol. LX, March 1946.

⁴ B. Rawling, 'Bridging the Gap: The 1st Canadian Division Engineers and Bridge Construction 1939-1945', Canadian Journal of the History of Science, Technology and medicine, Vol. 9 No. 2 (29) December 1985. p 119

⁵ Historical Note on the American Section, School of Military Engineering, Ripon 1942-43.

⁶ Col. J H Joiner, 'The Bailey Bridge Storey - A Tribute to Sir Donald Bailey Part 1', The Royal Engineers Journal, Vol.100, No.4 Dec 1986.

⁷ IWM Audio Library, Terence Cuneo Reel 2 - the mention of Grants suggests a date of 1941

During WW2 a requirement arose for a long-span bridge for military operations, especially in the Far East, where jungle conditions, flooding from monsoons and difficult access over mountain roads made bridging challenging. In October 1942 a new variant the Bailey Suspension Bridge was designed by Mr O. Bundy, under the supervision of Donald Bailey, at the EBE. The new design used as many of the available Bailey Bridge components as possible with a maximum span of 400ft, although shorter spans down to 200ft in 20ft stages could be built. High-tensile steel specially produced along with mild steel were used in the bridge. This suspension bridge too was built and tested at Ripon; the towers were tested at Bridging Point III and possibly also across the Bailey site.

Following the Defence White Paper of 1957, and the coming of the Cold War, UK military services focused heavily on Europe and NATO. By the early 1960s the availability of tactical nuclear weapons to NATO and the increasing role that the German Bundeswehr began to play in the defence of Western Europe, led to the adoption of a "Forward Defence Policy" based on the defence of the River Weser, 150 km from the East German border. In turn this Forward Policy created a demand for "rapid obstacle creation capabilities" in the form of preparing extensive minefields and demolitions. NATO operational plans designed at SACUER (Supreme Allied Commander Europe) known as 'Exercise Active Edge' called for the Royal Engineers to be deployed before main combat units in order to 'prepare' the battle area. It was thought that the sappers might only receive 48 hours notice before going in which called for precise and well practised plans known as the General Deployment Plan (GDP). Frequent practice of this primary, operational role took the form of demolition exercises chiefly on the types of bridges known to span the River Weser and the Mittellandkanal. As demolitions played such a key part in any operational obstacle plan, agreements were made with the German authorities for the construction of pre-prepared demolition chambers in both bridges and roads in the operational area into which charges, carefully designed in depots, could be emplaced without time consuming work with boreholes in bridges and camouflages in roads. 'Demolition' Training Bridges such as this one were constructed as teaching aids and usually contained different types of bridging spans in order to prepare sappers for the main types of bridges they would encounter as part of the GDP.

Only two such 'demolition' training bridges are known to survive in England, this one at Laver Banks and a smaller 2 span bridge at Minley Manor, Hampshire the Brigade Headquarters of the Corps of Royal Engineers from 1971. A Demolition Training Bridge was first commissioned by the RE Corps for Chatham and then Minley Manor. Finally after several delays the bridge at Ripon was erected in October 1989 - a good illustration of the time-lag, typically of at least ten years, between commissioning and implementation of equipment.

Archaeological Interest

The Bailey Bridge testing site comprises a man made hollow approximately 55m (N to S) x 110m (E to W) and now overgrown with self seeded saplings set within a larger level area. The shape of the hollow is roughly rectangular with a narrow entrance channel to west, the south side is deliberately stepped/terraced to produce 2 stages. The entrance channel allowed the site to be accessed by pedestrians or vehicles and provided a viewing/assessment area underneath the bridges being tested.

Photographic and written evidence ⁸ shows that in addition to the trialling and testing of the standard Bailey Bridge the SME also conducted tests on the 400ft Suspension Bailey Bridge in 1941 at Ripon. During this testing process, "...more care was given to...the towers than to any other part of the bridge. It was realised from the beginning that their stability and that of the anchorages were vital..." ⁹. Wind-loading tests were also carried out. Ground survey work in the 1980s showed disturbed/soil ground at the western side of the site in positions commensurate with the position of the tower foundations of the suspension bailey bridge in the photograph in *Engineering*; this meant that the Demolition Training Bridge had to be repositioned further to the eastern end.

⁸ O. Bondy, 'The Bailey Suspension Bridge', *Engineering*, June 24, 1949 pp. I 577-581

⁹ *Ibid.* p.578

Map evidence shows that the testing site post-dates the 1939 period and although later OS maps, unsurprisingly do not show it, it is evident on the 1971 Masterplan of Claro, Laver and Deverell Barracks (DEFE 221/74) and labelled as “bailey site”. A RAF aerial photograph of the site dated August, 1945 clearly shows two Bailey Bridges across the testing site. There is evidence of concrete railway sleepers on the site. The potential for covered archaeology such as bridging posts from World War II and later etc. remains. Ground survey work carried out in the 1980s by 38 Engineer Regiment also suggests that areas of disturbed soil for bridges abutments etc. are also preserved on the site which may provide evidence for a chronology of different bridge typologies, sub-surface¹⁰.

Architectural Interest

The Demolition Training Bridge has 3 spans each of a different construction type: Warren, Steel-Beam and Concrete Beam, which in total span about 50 metres. It carries a single track road with footways to both sides, all with kerbs and parapets - it is in effect a perfect ‘mock’ bridge. The northern span is a Warren Truss, based on the 1848 patented design by James Warren which made use of equilateral triangles. The spanning strength of this section of the bridge is provided by the superstructure. All the sections used to fabricate this bridge are of stock rolled steel beams and columns. The through girders contain pre-prepared demolition chambers, purpose built to house demolition charges which were specially designed to fit the chambers. The centre span is constructed of steel beams which act in co-ordination with the concrete deck. The southern span is constructed primarily in concrete with 4 beams. To the underside of this section of the bridge concrete cladding panels have been attached to the beams’ sides and soffits; these panels again contain demolition chambers for pre-package demolition charges. All 3 spans were manufactured and constructed by the Royal Engineers to be perfect replicas of the West German bridges crossing the River Weser and the Mittellandkanal.

Group value

Group Value: The combination of these two complementary military structures creates a legible ensemble where the military experience is readily captured

¹⁰ This information comes via ex-military personnel who worked on the site and were responsible for the erection and planning of the Demolition Bridge.

Class 100 Heavy Girder Bridge and Bridging Site crossing the River Laver at Laver Banks, Ripon

Historic Interest

The WW1 military camp was crossed by two rivers the Laver and the Skell. In December 1914 a contract was let to Messrs. Balfour and Co. of Glasgow to built a light (reduced load) railway of 4ft 8.5 inches gauge from the Littlethorpe siding of the North East Railway Company, through the South Camp, crossing the River Laver just off Galphay Lane and into the North Camp. 26 miles of new roads - both main and secondary - were also constructed. A “*..road running alongside the railway from Clotherholme to Galphay Lane, bridging the River Laver..*” was also constructed. A Mr Whitaker of Horsforth was appointed engineer with the rank of “*...roads, etc. officer to the staff of the general officer of the camp..*”¹¹. These WW1 road and railway crossings provided vital access for goods and haulage and marked the start of a continuing military crossing point over the River Laver.

Although much of the land was returned to agricultural use after WW1 and the light railway was dismantled in the early 1920s, the military road bridge remained in this location. In 1936 it is recorded that “*...a car travelling along the disused military road between Galphay Lane and Clotherholme found the bridge over the Laver was unable to stand up to its weight and fell into the river. None of the occupants were injured..*”¹²

The bridge which stood in 1936 must have been replaced as the river crossing was an essential link within the WW2 military establishment at Ripon. The evacuation of the Military School of Engineering to Ripon in September 1940 and the important role that the Laver Banks area served in training troops and testing new bridging equipment means that a number of bridges could have been built in this location. The current Heavy Girder Bridge (HGB) was erected in 1992 when a Bailey Bridge was removed.

Bridging equipment developed during WW2 was primarily designed to carry vehicles at a maximum of Class 40 weight load limit and of a width between 8 and 9ft. In practice, the flexibility of the Bailey Bridge enabled greater weights to be carried but as there was a continual increase in both the weight and width of vehicles coupled with lessons learnt during the war, it became apparent that there was a need for new equipment. In addition, new materials - especially new aluminium alloys - also impacted upon new bridge designs, for example light aluminium alloys reduced the thickness of bridge decking.

The Heavy Girder Bridge (HGB) was a relative of the Bailey Bridge and is very similar in appearance and characteristics but is larger and heavier. Following the decision, immediately after WW2 to develop a new range of FV 200 armoured vehicles - the Conqueror tank series - it was decided in May 1946 to commission a new Class 100, fixed bridge. The HGB went through various prototype designs before trials commenced in mid 1950 at the Military Engineering Experimental Establishment (MEXE) at Christchurch, Dorset. By 1955 the first 40 production sets of the HGB had been issued with 60 more sets on order. In fact the first reported HGB in the country was constructed upstream of Hewick Bridge on the River Ure in 1956 showing that Ripon was still being used as a commissioning and testing centre in support of MEXE.¹³ The bridge carried on in service until the late 1980s.

The HGB was primarily developed for use by the British Army of the Rhine (BAOR) which with NATO allies was responsible for Western Europe's defence during the Cold War. By 1955 West Germany had become the new 'front line' and the HGB was designed to be used to cross rivers over 30m wide. A variant, the Heavy Floating Bridge, was also produced. The HGB was also used in a limited capacity in Malaya.

¹¹ Ripon Observer, Thursday 17th Dec. 1914

¹² Eds. E Ellis. M Mauchline, T Pearson and J Whitehead, 'Ripon Record 1887-1986', Phillimore, 1986, p.93

¹³ Ibid. p.138

Of all the HGB sets produced, it is thought that this is the only surviving example in England.¹⁴

Archaeological Interest

The bridging site, and its surroundings contain extensive remains of WW1 alterations to the River Laver including: a weir, sluice with concrete slipway, concrete bridging island, and the remains of structures relating to previous bridges. Under the existing HGB there are remains of what appear to be concrete abutments which are of a similar construction and form to the other known WW1 concrete abutments on the River Skell just beyond Hell Wath Cottage. Much of the river along this stretch of the Laver is man-made with sections of the local river cobbles being embedded in concrete. Map evidence shows substantial alterations to the river at this point, indeed the 1929 OS Map indicates that the site contained two bridging islands originally. There is a high potential for concealed archaeological remains and evidence of the continuing evolution of military bridging and associated river bank/bed alterations.

Architectural Interest

Designed for Class 100 traffic the HGB had a standard roadway of 18' 10", a narrow version with a 15' 6" wide roadway was also available. It is a "through" type bridge and is launched by the cantilever method using a launching nose with its decking added after completion of the full launch. The HGB makes use of Bailey-type panels, but they are larger than the original, being designed to carry loads up to more than twice the weight and width of a Bailey Bridge. The main difference between the two bridges is in the cross girders and the end post to the beams. The cross girders and transoms are deeper but formed as trusses to make them lighter. The end posts are an addition, to transfer the high shear load from the deck to the support bearings and to stiffen the end of the main girders. The decking panels are made from an aluminium alloy which are then slotted together, producing an extremely strong yet remarkably light structure.

Although closely related to the Bailey Bridge none of the parts of the two types of equipment are interchangeable. The HGB was designed to be constructed using mechanical aids or the specially designed Coles bridging crane; on a reasonable site and with 30 men with a crane a 100ft bridge could be built and open for traffic in 4 hours. Construction by hand was possible, given enough time and men.

Group Value

There is group value with WW1 concrete structures on and around the River Laver.

¹⁴ To date all UK military training grounds have been assessed but no HGB have been identified - independent research RE Corps.

Twynham Huts (x4), Deverell Barracks, Clotherholme Road/Chatham Road, Ripon

Historic Interest

The 1957 Defence White Paper was a turning point in British Military history; it illustrated the diminishing role of the UK in world affairs and the rapidly escalating costs of all forms of defence. During the period 1960-1980 this resulted in: a reduction in the size of the armed forces, withdrawal from huge bases in the near, middle and far east and instead a focus on Europe and NATO and finally an operational role in N Ireland. This led in the early 1960s to a decision to concentrate on a powerful "Strategic Reserve" based in the UK which could provide short-term, targeted overseas deployments. This change was reflected in equipment provision and development; one of which was a requirement for lightweight, "airportable" equipment, including pre-fabricated buildings for temporary use in the field and in emergency conditions. Developed in 1959 to an inter-service specification by the Military Engineering Experimental Establishment (MEXE), the Twynham Hut was the successor to the Nissen Hut. The Twynham Hut was closely associated with Corps of Royal Engineers as they had responsibility through the Engineer Specialist Services Establishment (ESSE) for their construction during operational, warlike conditions during which these were often deployed and erected.

The huts could be used as accommodation for personnel, as offices or stores. When used for personnel or office purposes they could be fitted with air-conditioning units, either under a window or at the gable end, and had false ceilings fitted. This relative comfort reflects the wider social changes revealing that the military had overhauled barrack life so that it was more in keeping with the civilian standards, improving buildings to give more room and privacy. This 'improvement' in living standard was a direct result of the end of Conscriptio and the change to an all-volunteer army.

The Twynham Hut was trialled by 12 Pioneer Company on Cyprus in 1960 in the lead up to Independence and over 400 were constructed at the Akrotiri and Dhekelia Sovereign Base Areas. They were also used, amongst other countries, during 1962-4 in the construction of deployment camps in Aden, in Libya in 1968-9, at the Long Kesh Camp in Northern Ireland in 1971-2 and in 1982 still formed aircrew accommodation at Wideawake airfield on Ascension Island during the Falklands War.

A characteristic of the huts was their ability to be dismantled and re-used. Being four times as expensive on a square footage basis to a Nissen Hut the Twynham was considered more comfortable and had twice the design life, around 20 years. In 1969 Major General George Brain Sinclair faced with an order to abandon the airfield at El Adem in Cyrenaic in the Libyan desert, argued that the Twynham huts on site were valuable and could be re-used; he recovered 85.

The huts at Deverell Barracks were erected in two phases, the group of 3 in 1988/9 and the single unit in 1991, all came from the Central Engineer Park, (CEP), Long Marston, Staffordshire, no longer in existence. Of the hundreds of Twynham Huts produced the only other traceable surviving examples within the UK were at the Royal Monmouth RE training camp, but were destroyed recently (last 3 years), leaving only the four at Deverell Barracks.

Architectural Interest

Twynham Huts were constructed using a galvanised steel portal frame of individual bays which could also be constructed in half and quarter lengths, (common lengths included the standard 64ft but also 16ft, 32ft, 96ft and 128ft). This allowed for a greater wind and snow loading to the pitched corrugated aluminium roof and for the use on ground of lower bearing capacity. The frame was then covered in corrugated aluminium panels and fitted with aluminium framed 6 paned windows, the apex of the gable ends was cased in wood. The aluminium 'curtain wall' not only enclosed the hut and kept the weather out but it also transmitted transient loads, primarily wind, to the building frame. This feature helped to provide the necessary flexibility required by a hut which could be deployed anywhere in the world, with varying weather conditions. In the Middle East the aluminium helped deflect heat from the structures. It also had the advantage in combat areas of being able to stop shrapnel. The aluminium alloys also offered the characteristic of light weight which was essential for rapid transportation of component parts by air. The

length of time for construction varied; if the hut was to go straight onto the ground it could be erected in one day, in practice most were mounted on concrete pads which resulted in a longer construction period of 8-10 days.

Aluminium had started, in earnest, to be used as a building, constructional material after the end of the Second World War. The manufacture of temporary prefabricated bungalows included the recycling of the aluminium alloys from aircraft; however by 1949 the expense of these building could not be justified. With the advent of the Cold War, aluminium began to be used again within military. The emergence of aluminium alloys which could be relatively easily prefabricated provided the opportunity for lightweight modules to be used. MEXE in particular carried out a series of developments with aluminium for example the Class 16 Airportable Bridge and the AM2 mat surface for the rapid construction of forward airfields.

A technical innovation of the Twynham was the ability to install air-conditioning if climatic conditions required it. In the larger huts an air handling unit and a refrigerator unit were sited at the gable end. Warm air was extracted from the hut at floor level and cooled air was blown into the hut through grills set into a false ceiling. In smaller huts the unit was situated under a window. These were the first air-condition huts designed and used by British services.

There are four Twynham Huts at Deverell Barracks. Three form a group and one is situated nearby. They have been converted into permanent structures and are fixed into concrete bases. Three retain the original Portal frame structure, corrugated aluminium roofs, walls, windows and original wooden gable ends. (One has been semi-clad in brick). The roof beams of one hut bears multiple markings including W.P.C. 1963 TWYNHAM 20/ HT. 2578, PSC 1960 TWYNHAM 20/ 2 and ESD 62 (NE) SUP SQN RE CYPRUS. The latter indicating 62 (NE) Support Squadron, who were based at Rhine Camp, Cyprus; providing a very real link between the hut, the Corps of the Royal Engineers and its area of deployment. The others may also contain similar markings.

Group value

The 4 huts together mark military experience and relate to the essential quality as pre-fabricated units which could be dismantled, stored and then re-erected using available 'elements'.

load

3. SIGNIFICANCE AND THREAT

Significance

The National Planning Policy Framework (as revised 2021) states

189. Heritage assets range from sites and buildings of local historic value to those of the highest significance, such as World Heritage Sites which are internationally recognised to be of Outstanding Universal Value. These assets are an irreplaceable resource, and should be conserved in a manner appropriate to their significance, so that they can be enjoyed for their contribution to the quality of life of existing and future generations.

Additionally,

194. In determining applications, local planning authorities should require an applicant to describe the significance of any heritage assets affected, including any contribution made by their setting.

The term 'significance' is important. Advice has been sought from Historic England Inspectors both on site and desk-based. The research carried out has been shared with the North Yorkshire County Archaeologist who it is understood will enter these assets on the Historic Environment Record.

The particular significance of the four assets is both individual and collective. It is historical, technological, operational and international. The Laver Banks site at Clouterholme illustrates the development of bridging by the British Army and in particular the Corps of the Royal Engineers, from WW1 through to the post WW2 period and the historic development of the WW1 Ripon Camp through to the post WW2, Deverell and Claro Barracks. It is strongly linked to the immediate post WW2 development in bridging types as a response to changes in vehicle weights, widths and in changes of military policy linked to the Cold War.

The 'Bailey Site' and the training given to Canadian, American and UK troops at Ripon means the site is directly linked to the internationally globally significant campaigns the invasion of Italy and Western Europe during WW2 - Operation Avalanche and Operation Overlord. Almost 2500 Bailey bridges were built in the Italian Campaign from 1943 to 1945 and over 1500 during the advance into NW Europe from May 1944 onward. It is recorded that the Bailey Bridge was one of three factors that secured Allied victory on WW2.

The site is linked directly to the key national figure Sir Donald Bailey and the evacuation of the Royal School of Military Engineering in Sept 1940 to Ripon. The Bailey Bridge and its variants are internationally recognised as a supreme engineering achievement and a crucial stage in architectural history of assault bridges. Plans exist showing the precise configuration of the site which reflect the specific purpose of the design.

The positioning of the Demolition Bridge over the Bailey testing site links it back to the development and evolution of bridging techniques carried out by the Corps of Royal Engineers within the British Army. It is linked to the internationally important Cold War preparations and the "Forward Defence Policy" devised by NATO. It is one of only two known examples of this type of military bridge in the country. Re-use of site during Cold War for the Demolition Bridge demonstrates the adaptation of this military site to changing military policies, threats and technology. It is a rare survival and although very early testing was carried out at Christchurch marshes no other known 'dry' Bailey testing sites are known.

The Heavy Girder Bridge is a rare survival of this bridge type designed primarily for the BAOR and use in Europe during the Cold War and is significant for new technology in the use of aluminium alloys. Its Group Value with the WW1 bridging site adjacent along the River Laver creates a legible ensemble in which the functioning of various parts is strongly sensed and where the military experience is readily captured.

The surviving Twynham Huts at Deverell Barracks illustrate the direct link between the RE and their role in deployments world-wide. It also demonstrates the evolving role of the RE during the post WW2 and Cold War periods. This has significance as an example of MEXE's experiments with aluminium alloys. The extreme rarity value of the only acknowledged surviving examples of the Twynham Hut is

The NPPF further states that

197. In determining applications, local planning authorities should take account of:

a) the desirability of sustaining and enhancing the significance of heritage assets and putting them to viable uses consistent with their conservation;

b) the positive contribution that conservation of heritage assets can make to sustainable communities including their economic vitality; and

c) the desirability of new development making a positive contribution to local character and distinctiveness.

The relevance of this consideration of significance arises from the withdrawal of the military from the Ripon Barracks. Homes England acting with the Defence Infrastructure Organisation of the Ministry of Defence has submitted an outline planning application for the redevelopment of the barracks for a mixed-use development 20/02973/EIAMAJ. The documents submitted do not address the heritage assets described here and is accordingly an existential threat to the military heritage of Ripon.

It is the intention that this information will enable Harrogate Borough Council to recognise these as non-designated heritage assets. This process is the responsibility of the local planning authority and should be addressed alongside a planning application.

Threat

The threat in particular arises from the risk of removal of the assets as part of the withdrawal of the military before the site is handed to Homes England. Additionally there is lack of recognition of the assets in the descriptions on Laver Banks in documents submitted as part of the outline planning application, notably the Green Infrastructure Parameter Plan and the design guide.

It is unclear if the current Class 100 Heavy Girder Bridge will be retained as part of the path-way/cycle track crossing the River Laver. No details of restoration, mitigation or statement of significance have been produced for this undesignated heritage asset. NYCC Highways have stated that they would not 'adopt' the bridge for public use.

The illustrative masterplan for new development is unclear as to the treatment of the Bailey Bridge testing site. Accordingly it must be assumed that demolition of the Demolition Training Bridge is proposed. Furthermore the area adjacent to the site is designated for sports accommodation in the GIPP but the allocation of sports provision will not be dealt with within this outline application. No recognition has been given to these undesignated archaeological heritage assets.

The outline planning application proposes the demolition of all structures and buildings on site. This includes the Twynham Huts.

4. THE PROPOSAL, COMMUNITY AND DELIVERY

Proposal

The Ripon Military Heritage Project at Clothierholme proposes the allocation of two sites at Laver Banks to identify fully, protect and conserve, interpret and sustain these assets and the development of a military heritage centre as part of the Clothierholme Village development offering positive community, recreational and educational outcomes for the city. There is confidence that this can be achieved within wider green infrastructure, biodiversity and recreational objectives.

A preliminary suggestion of the location of the two sites is shown on this extract from the Homes England masterplan. The Twynham Huts would be relocated to them.



Community

The military has been part of the City of Ripon community for over a century. The operational army is a visible and social presence in the city. Over time so has the army become established in the city's traditions and the City has conferred special status on the Royal Engineers. Recently, the WW1 armistice was celebrated with significant community and military activity including exemplary public art works.

Many military households choose to remain or return to the city after service or upon retirement. This military community is sustained through regimental ties and associations as well as the wider community. The Ripon Military Heritage Project will draw upon the military community in the Ripon and wider North Yorkshire area for support, implementation and operation. In return there is the opportunity to support individual members of the military community.

Delivery

Responsibility for delivery of the project will lie with the emerging Ripon Military Heritage Trust and partners. This will have fundraising capability and accountability. Homes England will need to ensure management of various elements of the Clothholme village and there will be reciprocal benefits for both organisations and others through a comprehensive overall approach to stewardship.

Ripon Civic Society
February 2022