

# LAND AT LLAWNROC HARROWBARROW CALSTOCK CORNWALL

Results of a Desk-Based Assessment, Walkover Survey & Impact Assessment



South West Archaeology Ltd. report no. 170724



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# Land at Llawncroc, Harrowbarrow, Calstock, Cornwall

## Results of a Desk-Based Assessment, Walkover Survey & Impact Assessment

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By P. Webb  
Report Version: FINAL  
24<sup>th</sup> July 2017

Work undertaken by SWARCH for Keith Rolfe of Rolfe Planning Partnership  
On behalf of Bernard Pridham of Tamar Valley Transport Ltd.

### SUMMARY

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*This report presents the results of a desk-based assessment, walkover survey and historic visual impact assessment (HVIA) carried out by South West Archaeology Ltd. on land at Llawncroc, Harrowbarrow, Calstock, Cornwall, as part of the pre-planning submission for a proposed residential development.*

*The proposed development would be located within the Cornwall and West Devon Mining Landscape World Heritage Site, and more specifically on land that formed part of the Prince of Wales Mine; the northern half of this mine designated as a Scheduled Monument. Much of the surrounding landscape retains elements of its 19<sup>th</sup> and 20<sup>th</sup> century industrial heritage, with some traces of the earlier agricultural landscape and associated 17<sup>th</sup>-19<sup>th</sup> century farmhouses. While the development site is located within the Prince of Wales Mine site, this part of the mine has already been subject to 20<sup>th</sup> century industrial and residential development. Given the industrial use and re-use of the site its archaeological potential is deemed to be **low** to **medium**; however mine-related features or mineralogical deposits may survive.*

*There are eleven designated heritage assets within close proximity of the proposed development. Most of the high-value assets relate to the industrial mining heritage of the area, in particular the structures of the Prince of Wales Mine and the World Heritage Site. Of the subset that was selected for detailed assessment, the impact on both heritage assets was judged to be **negligible** to **negative/minor**, and that based largely on proximity.*

*With this in mind, the overall impact of the proposed development can be assessed as **negligible** to **negative/minor**. The impact of the development on the buried archaeological resource, assessed as being of **low** to **medium** potential, would be **permanent/irreversible**.*

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## ACKNOWLEDGEMENTS

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## PROJECT CREDITS

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## 1.0 INTRODUCTION

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**Location:** Land at Llawnroc  
**Parish:** Calstock  
**County:** Cornwall  
**NGR:** SX 40104 70337  
**SWARCH ref:** CHL17

### 1.1 PROJECT BACKGROUND

This report presents the results of a desk-based assessment, walkover survey and impact assessment carried out by South West Archaeology Ltd. (SWARCH) on land at Llawnroc, Harrowbarrow, Calstock (Figure 1). The work was commissioned by Keith Rolfe of Rolfe Planning Partnership (the Agent) on behalf of Bernard Pridham of Tamar Valley Transport Ltd. (the Client) in order to establish the archaeological potential of the site and assess the potential impact of a proposed residential development.

### 1.2 TOPOGRAPHICAL AND GEOLOGICAL BACKGROUND

Harrowbarrow is a small village located south of the A390 between Callington and Calstock. The land slopes down from a high ridge into valleys with tributaries that join the River Tamar at Cotehele. The site is located just north of the historic settlement of Harrowbarrow on the south-facing slopes of Hingston Down at a height of c.155m AOD.

The soils of this area are the well-drained fine loamy and fine silty soils of the Denbigh 1 Association, bordering the slowly-permeable seasonally-waterlogged fine loamy soils of the Sportsmans Association (SSEW 1983). These overlie the hornfelsed slates of the Tavy Formation (BGS 2017).

### 1.3 HISTORICAL BACKGROUND

The site is located within the parish of Calstock, in the Deanery and middle division of the Hundred of East. The manor of Calstock came to the Earls and Dukes of Cornwall in the high medieval period, and remained in their hands until 1798. Harrowbarrow ('the grey wood') was a seat of a younger branch of the Carews of Anthony, the manor becoming a farmhouse and the property of John Worth. Mining has been recorded in the area since the 16<sup>th</sup> century, though it was not until the 19<sup>th</sup> century that the Prince of Wales Mine with engine houses and processing floors was created. The mine remained intermittently in operation until the late 20<sup>th</sup> century since when it was abandoned, and the southern half was developed for light industrial and residential use.

### 1.4 ARCHAEOLOGICAL BACKGROUND

There are no designated heritage assets within the site itself, but it falls within the Cornwall and West Devon Mining Landscape World Heritage Site. The Scheduled Prince of Wales Mine is located to the north and a considerable amount of assessment work has been carried out on the surviving structures and features of the mine, with archaeological monitoring of conservation works to many of the surviving structures. The surrounding landscape includes other designated mining structures as well as Listed farmhouses; undesignated heritage assets indicate the use of this landscape from Prehistory.

## 1.5 METHODOLOGY

The desk-based assessment follows the guidance as outlined in: *Standard and Guidance for Archaeological Desk-Based Assessment* (ClfA 2014; revised 2017) and *Understanding Place: historic area assessments in a planning and development context* (English Heritage 2012). The historic visual impact assessment follows the guidance outlined in: *Conservation Principles: policies and guidance for the sustainable management of the historic environment* (English Heritage 2008), *The Setting of Heritage Assets* (Historic England 2015), *Seeing History in the View* (English Heritage 2011), *Managing Change in the Historic Environment: Setting* (Historic Scotland 2010), *Wind Energy and the Historic Environment* (English Heritage 2005), and with reference to *Visual Assessment of Wind farms: Best Practice* (University of Newcastle 2002), and *Guidelines for Landscape and Visual Impact Assessment 3<sup>rd</sup> edition* (Landscape Institute 2013).

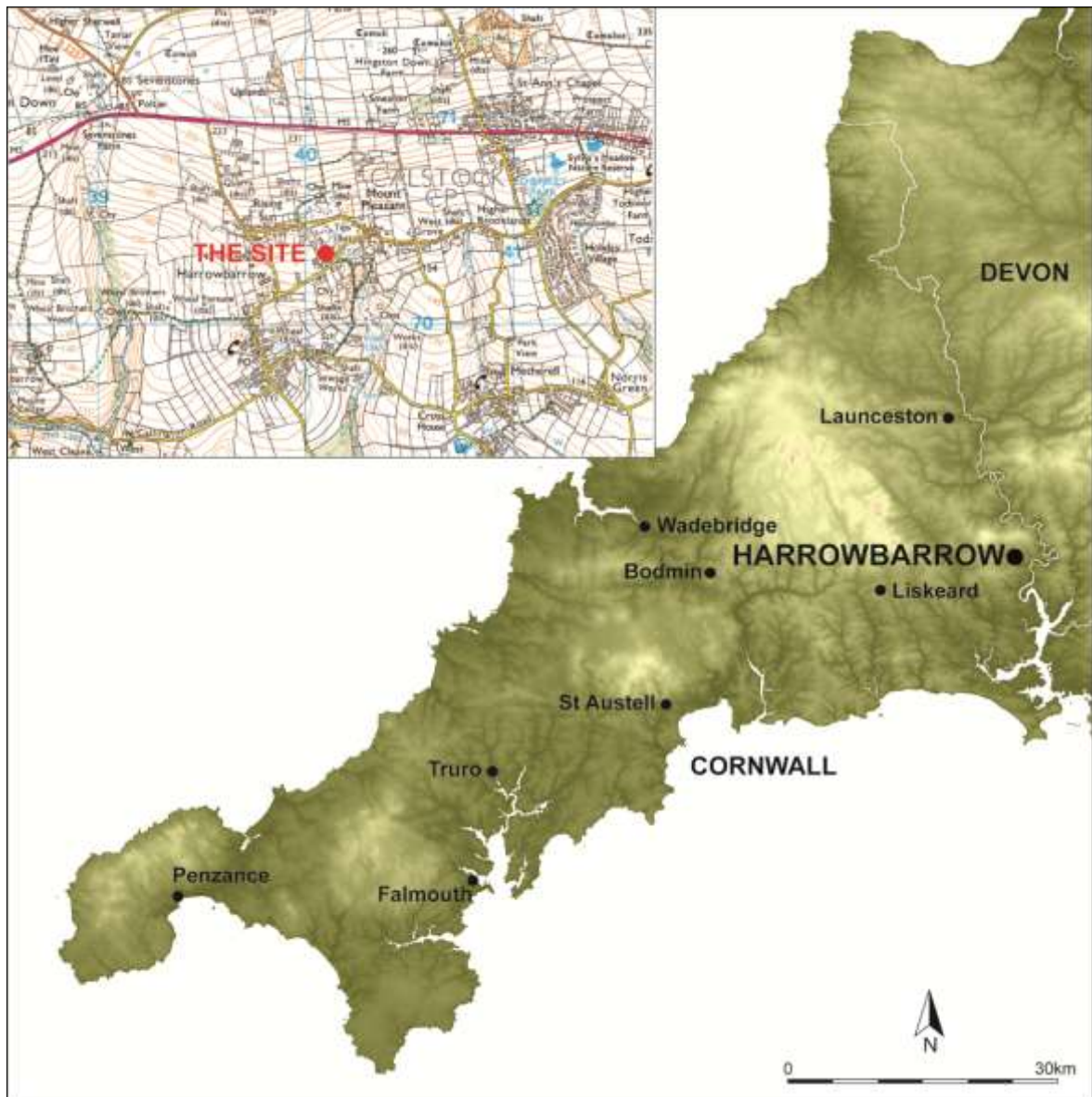


FIGURE 1: SITE LOCATION (CONTAINS OS DATA © CROWN COPYRIGHT AND DATABASE RIGHT 2017).

## 2.0 DESK-BASED ASSESSMENT AND CARTOGRAPHIC ANALYSIS

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### 2.1 DOCUMENTARY HISTORY

The site is located within the ecclesiastical parish of Calstock, in the Deanery and middle division of the Hundred of East. The manor of Calstock came to the Earls and Dukes of Cornwall in the high medieval period, and remained in their hands until 1798. It was purchased under the Land-Tax Redemption Act by John Pierson Foote Esq., and conveyed in 1806 to the industrialist John Williams Esq. of Scorrier House. Hingston Down is reputed to be the site of a battle between the Cornish, allied with the Danish Vikings, and Egbert of Wessex, which took place in AD 838. It was also where Cornish and Devon tanners met to resolve disputes in the 13<sup>th</sup> and 14<sup>th</sup> centuries, and the last Cornish Stannary Parliament was held there in 1753.

Harrowbarrow, originally *Harebere* (c.1286) from the Old English *hāra* + *bearu* meaning ‘the grey wood’ (Watts 2010) was a seat of a younger branch of the Carews of Anthony, the manor becoming a farmhouse and the property of John Worth (Lysons 1814).

As is clear from the cartographic records (see below), the site of the proposed development formed part of a plantation, parcel of the Manor of Calstock and belonging to John Michael Williams and William Williams. It lay immediately to the south of the extensive upland area known as Hingston Down.

Mining at Harrowbarrow dates back to 1580 when William Carnsewe refers to silver extraction at ‘*Goodlucke at Harrowbeer*’ (Mindat 2017); further documentary references to *Harrowbeer* show a combination of successful and unsuccessful mining attempts in: 1774, 1781, 1805 and 1825 under the name Wheal Goodluck, though the mine closed shortly after 1826. Between 1835 and 1841 mining was resumed, partly under the name East Wheal Brothers. These workings of the Harrowbarrow mine appear to have been focused along the Goodluck Lode. In 1850 the Prince of Wales Tin and Copper Company was formed by an amalgamation of the Wheal Fortune, Wheal George, Wheal Barnard and West Edward copper and tin mines, the site of the Wheal Pleasant mine being renamed to the Prince of Wales Mine. In 1865 the Goodluck Engine Shaft was being worked to a depth of 42 fathoms, large scale mining, and associated investment, having begun in 1863. From 1870, the discovery of new tin lodes saw a shift from a largely copper mine to increased tin production; the smaller scale copper production being shifted to the south of the site with the arsenic calciner, large reservoirs and waterwheel. In May 1879 the Prince of Wales Mining Company was wound up after the tin and copper reserves became uneconomical. However, in December of the same year a new company was formed, finding tin at a depth of 102 fathoms though a drop in market price in 1885 once again reducing activity on the site. By 1889 production was still small scale and mounting debts led to the seizure of the machinery by the High Sheriff of Cornwall and in 1894 works again stopped, the mine being acquired by the East Cornwall Tin Mining Syndicate, which collapsed in 1895 with large debts. Between 1895 and 1897 only arsenic pyrite was being extracted in any quantity. A further change of ownership in 1899 under the Calstock Tin and Copper Co. Ltd. led to the extraction of small quantities of ore until it ceased operation in 1910. The mine was operated by the Prince of Wales Mining Co. 1911-12, then by the Prince of Wales Mine Ltd. from 1913 until closure in 1916. The surface dumps were reworked in 1928 and again in 1938-40; new plant was reported as having been erected in 1945 with treatment of material from other mines being carried out on the site until 1952. In the early 1970s renewed interest was shown in the mine due to high tin prices; these exploratory works ceased in 1974, though some further prospection took place in the early 1980s (this account from CAU 2006).

## 2.2 EARLY CARTOGRAPHIC SOURCES

There are a number of early county maps for Cornwall, but none of these depict the landscape around Harrowbarrow in any meaningful detail. The first cartographic sources to show the area around the site in any detail is the 1809 Ordnance Survey 1" map (see figure 2), which shows the site as on the very edge of enclosed land below Hingston Down, with no established roads or clear settlement.



FIGURE 2: EXTRACT FROM THE 1809 ORDNANCE SURVEY 1" MAP (BL); THE APPROXIMATE LOCATION OF THE SITE IS INDICATED.



FIGURE 3: EXTRACT FROM THE 1839 CALSTOCK TITHE MAP (SOURCE: CRO); THE SITE IS INDICATED.

In contrast, the tithe map of c.1839 for Calstock (Figure 3) provides a detailed cartographic account of the site and the surrounding fields. To the south around Harrowbarrow and Metherell



the fields are long and curving, indicating they preserve in outline the layout of a medieval open field system. In contrast, the fields around the site are fairly small, rectangular but not rigidly so, with some long curving boundaries. This is suggestive of a landscape of large initial intakes, probably for grazing, later subdivided into smaller semi-regular fields for the better management of livestock. Those fields would have belonged to a series of smallholdings (the cottages shown on the tithe map) occupied by miner/farmers, and this is reflected by the complex pattern of land ownership and tenancy as recorded by the tithe apportionment (see Table 1). The southern part of the Prince of Wales Mine site would be located within a large field called *Coldeast Plantation*, with a land use listed as *fir*. This plantation was one of a large number held in the parish by the Williams family of Scorrier House and Caerhays Castle, presumably to supply timber for their mines. Most of the field names (see Table 1) are relatively prosaic, relating to land use, nearby features or the local topography.

TABLE 1: EXTRACT FROM THE TITHE APPORTIONMENT FOR CALSTOCK; THE FIELDS OF THE SITE ARE HIGHLIGHTED.

Number	Landowner	Tenant	Field Name	Cultivation
601	Landowners of Calstock	Landowners of Calstock	Hengist Down	Common
651	Daniel Halls	William Cole	Garden	Garden
652			House & courtlage	
653			Garden	Garden
656			Garden	Garden
654		Himself	Mowhay Field	Arable
655			Home Field	Arable
658			Lower Middle Field	Arable
659			Shrub Field	Arable
660			Outer Field	Arable
661			Three Corners	Arable
657	William Worth	Joseph Fize	Deer Park	Arable
662	John White	Joseph Fize	Moons Park	Arable
1077			Higher Corners	Arable
1079			Road	
1079a			Garden	Garden
1078		Samuel Shear	House & garden	
663	Richard Halls	Richard Halls	Tingcombe	Arable
1075			House & garden	Garden
1076			Lower Field	Arable
<b>664</b>	<b>John Michael Williams &amp; William Williams</b>	<b>John Michael Williams &amp; William Williams</b>	<b>Coldeast Plantation</b>	<b>Fir</b>
1080		John Halls	Tin Park	Arable
1072	Elizabeth Matthews	Elizabeth Matthews	House & garden	
1073		William Matthews	House & garden	Garden

## 2.1 ORDNANCE SURVEY MAPS

The 1884-5 OS maps (Figure 4) indicate some significant developments had occurred within this landscape, most notably the creation of the Prince of Wales Mine. The principal site was constructed to the north of *Coldeast Plantation* within fields enclosed from Hingston Down in the early 1860s. However, the mine extended down through into the plantation and *Goodluck Shaft* is located to the south-west of the site; a building is shown on the north-east side of the site. The settlement of Harrowbarrow shows signs of growth with a number of new dwellings along the road to the south of the site as well as a church (All Saints). By the time of the 1907 (Figures 5), the Prince of Wales Mine is shown to have expanded to encompass the whole of *Coldeast Plantation*, with the construction of a series of new buildings along its eastern edge; *Goodluck Shaft* is shown as disused.

Later OS maps (not illustrated) and the 1940s aerial photographs depict a landscape similar in outline, but it is clear that the spoil heaps have been spread and reworked. It is not until after 1954x63 that significant development occurs, with the spread of residential development along minor roads in the area, particularly to the west of the Prince of Wales Mine.

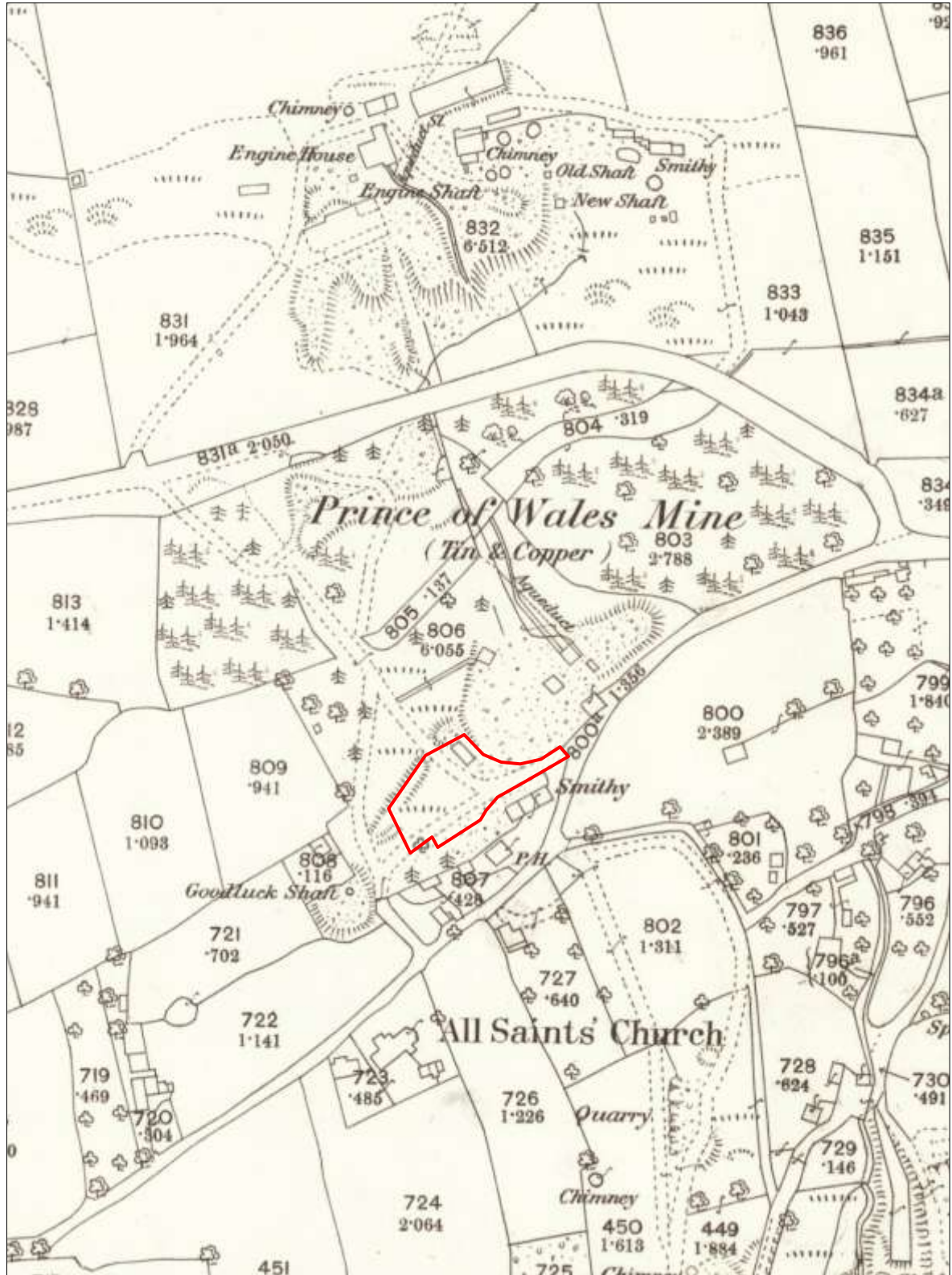


FIGURE 4: EXTRACT FROM THE 1883 1<sup>ST</sup> EDITION ORDNANCE SURVEY 25" MAP (CRO); THE SITE IS INDICATED.

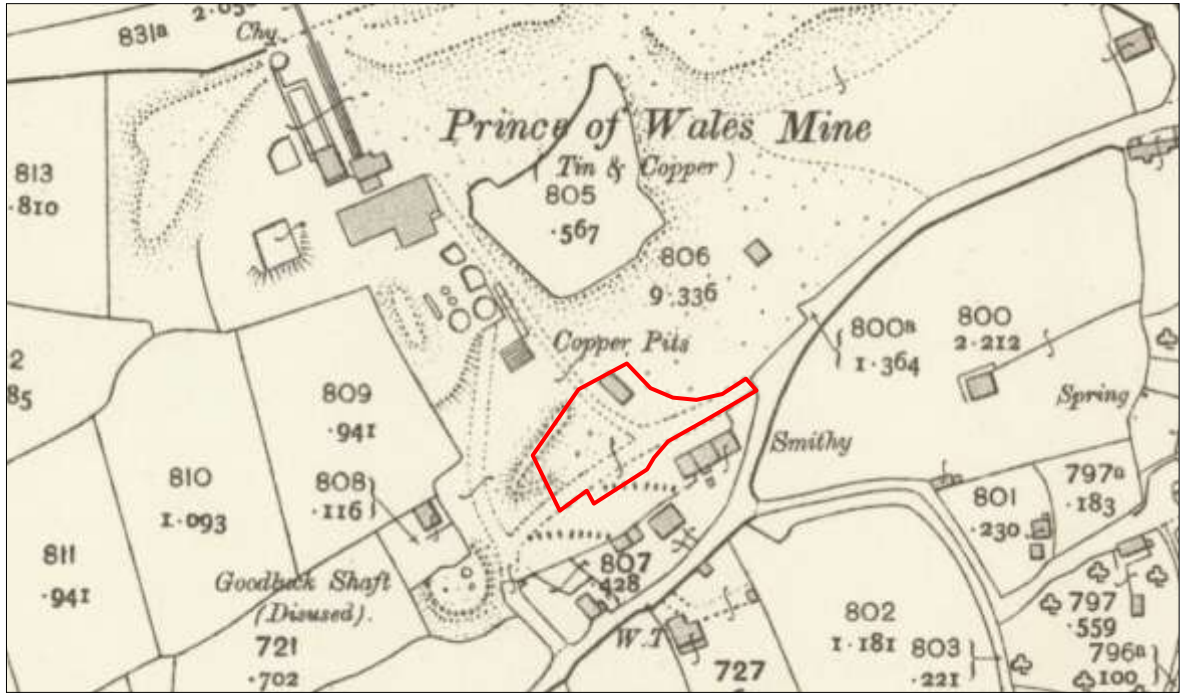


FIGURE 5: EXTRACT FROM THE 1906 2<sup>ND</sup> EDITION ORDNANCE SURVEY 25" MAP (CRO); THE SITE IS INDICATED.

## 3.0 ARCHAEOLOGICAL BACKGROUND

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### 3.1 BASELINE DATA

Extensive industrial development took place in Calstock from the 18<sup>th</sup> through to the early 20<sup>th</sup> century. Preparation for the WHS bid included a considerable amount of assessment work on the surviving structures and features within this landscape, and a number have since been the subject of archaeological monitoring during conservation works. Desk-based assessment and site survey was carried out at the Prince of Wales Mine (CAU 2006a), with subsequent monitoring of the conservation works (CAU 2011); as well as at the nearby mining sites of Harrowbarrow Arsenic Chimney (CAU 2006b) and Wheal Brothers (CAU 2006c). Further limited survey work has been undertaken in the vicinity, including a geophysical survey to the north-east of Salter's Farmhouse (SWARCH 2014) and walkover survey and evaluation trenching on land at St. Ann's Chapel (SWARCH 2015; 2016)

The site is located within the Tamar Valley area of the Cornwall and West Devon Mining Landscape World Heritage Site. To the north is the SAM Prince of Wales Mine (List entry number 1021411). Nine Grade II Listed buildings are located within 1km of the site, including: the 17<sup>th</sup> century Barn at Harobear Farmhouse (1140222), Whilst Cottage (1158153), Old Brooklands (List 1158129); 18<sup>th</sup> century House adjoining Hazeldene (1329325), Brooklands Farmhouse (1158129); and 19<sup>th</sup> century Harrowbarrow Methodist Chapel (1157965), Kithill Mine buildings (1220388; 1290995), and milepost (1392536).

#### 3.1.1 PREHISTORIC & ROMANO-BRITISH

Evidence for early Prehistoric occupation in the area is relatively sparse, with very little – both in terms of settlement or monuments – relating to the earlier periods of later prehistory. The Bronze Age, in contrast, is well represented with a series of at least 20 barrows strung out along the ridge from Kit Hill to the west (MCO2973) to Roundabarrow Farm (MCO2883) to the east. In addition, possible Bronze Age field boundaries are recorded on the northern flanks of Kit Hill (MCO21124). The geophysical survey carried out at Salter's Farm picked up traces of an earlier field system that might be of a similar date (SWARCH 2014). Evidence for late Prehistoric and Romano-British occupation is highly restricted, and no remains have been identified within the study area.

#### 3.1.2 EARLY MEDIEVAL

The early medieval history of the area is poorly understood. British kingdoms were established in the centuries following the end of Roman rule, and the place-names in the area are a mix of Old English and Cornish. The archaeological evidence for early medieval settlement is almost entirely lacking, but the early estate centres listed in the Domesday Book (e.g. Calstock) had presumably been in existence for some time prior to 1066 and indicates that this was an occupied and utilised landscape. Hingston Down is reputed to be the site of a battle between the Cornish allied with the Danish and Egbert of Wessex that took place in AD 838

#### 3.1.3 MEDIEVAL

By 1086 the basic structure of the medieval landscape had already come into being, with settlement centres located in sheltered mid-slope locations, including Honicombe (MCO15027), Metherell (MCO15708), and St. Ann's Chapel (MCO52628). These settlements were associated with strip-field systems (MCO21028, MCO21208, MCO21209, MCO40287) and extensive upland pastures; the distinction between these areas, and the basic outline of the medieval field systems, is evident in the pattern of fields today. Tin and copper mining was clearly important in this area, but not to the extent it was later to assume.

### 3.1.4 POST-MEDIEVAL

Widespread improvement occurred in the later 18<sup>th</sup> and 19<sup>th</sup> centuries, accompanied by industrialisation of this landscape. The proliferation of mines across the area – including Hingston Down (MCO29675), Kit Hill (MCO12048), and the Prince of Wales (MCO12457; MCO52761; MCO52762) – and the importance of the Tamar for transportation, with improved transport links indicated by mileposts (1392536) are key themes during this period. The upland areas across Kit Hill and Hingston Down were intensively prospected and worked during the second half of the 19<sup>th</sup> century, with the workforce housed in the smallholdings and humble cottages that sprang up around the edge of the unenclosed ground, particularly St. Ann’s Chapel, but also Harrowbarrow and other settlements. Following the decline of the extractive industries in the later 19<sup>th</sup> and early 20<sup>th</sup> centuries, agriculture once again became the principal employer.

### 3.1.5 20<sup>TH</sup> CENTURY

The 20<sup>th</sup> century has seen limited changes occur within this landscape, mostly through the closure of the mines, and the subsequent decrepitude of many of the structures. Modern development has also resulted in the infilling of areas of the landscape, particularly along the road to the west of the Prince of Wales Mine.

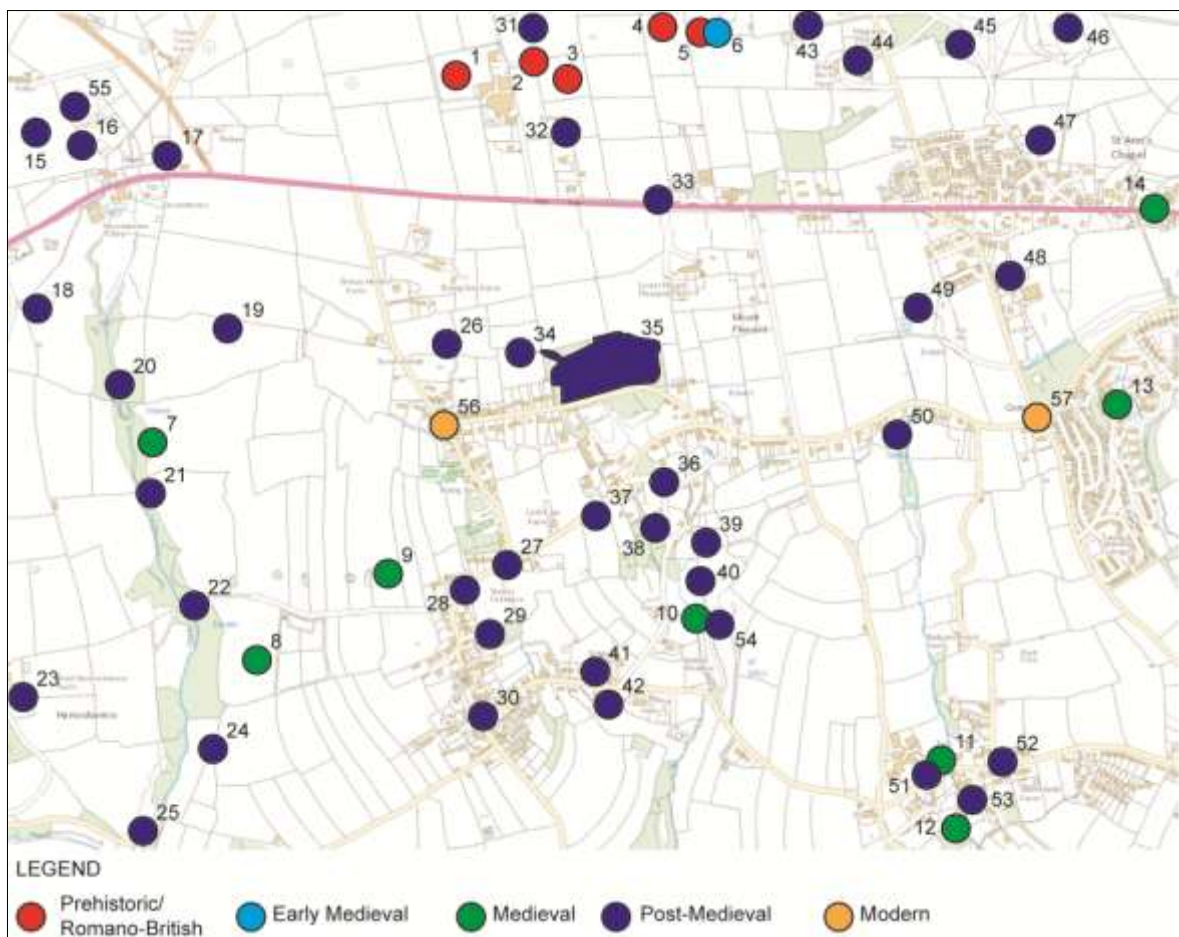


FIGURE 6: HER RECORDS WITHIN 1KM (SOURCE: CORNWALL & SCILLY HER).

TABLE 2: TABLE OF HER RECORDS (SOURCE: CORNWALL & SCILLY HER).

No	Mon ID.	Name	Record	Details
1	MCO2888	Hingston Down – Bronze Age barrow	Earthwork	A possible barrow or spoil from a prospecting pit is visible on aerial photographs.
2	MCO40297	Hingston Down – Bronze Age barrow	Earthwork	A possible barrow visible on aerial photographs.
3	MCO50288	Hingston Down – Bronze Age barrow	Earthwork	The possible remains of a ploughed out barrow.
4	MCO2884	Hingston Down – Bronze Age	Earthwork	Ploughed down round barrow surviving to 1m high.

		barrow		
5	MCO2882	Hingston Down – Bronze Age barrow	Earthwork	Large flat topped bowl barrow surviving to 1.5m high.
	MCO2885	Hingston Down – Bronze Age barrow	Earthwork	One of a number of round mounds on Hingston Down, recorded in an area of clay pits.
	MCO2886	Hingston Down – Bronze Age barrow	Earthwork	One of a number of round mounds on Hingston Down, recorded in an area of clay pits.
6	MCO39227	Hingston Down – Early Medieval field system	Earthwork	Four slight banks are visible on aerial photographs, up to 200m long and 10m apart. Likely to be remnants of a more extensive strip field system.
7	MCO40287	Harrowbarrow - Medieval filed system	Earthwork	Two field boundaries are visible as a bank and ditch on aerial photographs.
8	MCO21209	Metherell – Medieval field system	Documentary	Field boundaries around the medieval settlement of Metherell are possibly the enclosed strips of an open field system.
9	MCO21028	Metherell – Medieval field system	Documentary	Field boundaries around the medieval settlement of Metherell are possibly the enclosed strips of an open field system.
10	MCO21208	Metherell – Medieval field system	Documentary	Field boundaries around Metherell are possibly the enclosed strip fields of a medieval open field system.
11	MCO47817	Metherell – Medieval settlement	Earthwork	An area of slight earthworks to the east of Tree Farm, of possible plots associated with a once larger settlement.
12	MCO15708	Metherell – Medieval settlement	Documentary	The settlement of Metherell is first recorded in 1298.
13	MCO15027	Honicombe – Medieval settlement	Documentary	The settlement of Honicombe is first recorded in 1327.
14	MCO52628	St. Ann’s Chapel – Medieval settlement	Documentary	The settlement of St. Ann’s Chapel is first recorded in 1540-1 when it is spelt ‘Sent Anne is Chepell’.
15	MCO12048	East Kit Hill Mine – Post-medieval mine	Structure	East Kit Hill Mine was working tin in 1853, and later became part of Kit Hill United Mines.
16	MCO40289	Sevenstones – Post-medieval field boundary	Earthwork	A bank field boundary visible is visible on aerial photographs and is likely to be post-medieval in date.
17	MCO24347	Kit Hill – Post-medieval boundary stone	Monument	Eighteen upright granite posts within Kit Hill Country Park have been identified as boundary stones.
18	MCO12780	West Prince of Wales – Post-medieval mine	Structure	The West Prince of Wales tin mine was operational in the 1860-70s, closed but re-opened in the early 20 <sup>th</sup> century.
19	MCO40288	Harrowbarrow – Post-medieval field system	Earthwork	Four field boundaries are visible as banks on aerial photographs and are likely to be post-medieval in date.
20	MCO40295	Harrowbarrow – Post-medieval quarry	Earthwork	A disused quarry is marked at this location on OS mapping, and is visible on aerial photographs.
21	MCO29670	Wheal Brothers Wood – Post-medieval quarry	Earthwork	An infilled quarry is visible on aerial photographs.
22	MCO12840 MCO40492	Wheal Brothers – Post-medieval mine	Structure	Originally worked to extract silver from 1812-16, re-worked in 1833, re-opened 1874-8.
23	DCO1912 1140222	Barn about 25m east of Harobear Farmhouse	Listed building	Grade II listed 17 <sup>th</sup> century barn with later alterations.
24	MCO13052	Wheal Mexico – Post-medieval mine	Documentary	Wheal Mexico worked a silver lode discovered in 1847.
25	MCO47044	Harrowbarrow – Post-medieval bridge	Structure	A single round arch road bridge built of rubble masonry, probably 19 <sup>th</sup> century.
26	MCO40304	Harrowbarrow – Post-medieval quarry	Earthwork	A quarry is marked on the 1880 1 <sup>st</sup> Edition OS, visible on aerial photographs.
27	DCO2641 1157965	Harrowbarrow Methodist Church and attached Sunday School and walls	Listed building	Grade II listed Methodist Chapel and attached buildings, stone rubble built. Dated 1842.
28	MCO47596	Harrowbarrow – Post-medieval drill hall	Structure	Drill shed recorded on the 1880 1 <sup>st</sup> Edition OS. Has elements of a re-used 16 <sup>th</sup> -17 <sup>th</sup> century building.
29	MCO12930	Wheal Fortune – Post-medieval mine	Documentary	Also known as Wheal Sisters was a copper, silver and lead mine opened in 1833.
	MCO46880	Wheal Fortune – Post-medieval engine house	Structure	Surviving foundations and plinth of a rotative beam engine still visible
30	DOC3684 1329325	House adjoining Hazeldene to south-east	Listed building	Probable early 18 <sup>th</sup> century painted stone rubble building with later alterations.
	MCO47039	Harrowbarrow – Post-medieval architectural fragment	Findspot	Parts of granite mullioned possible 17 <sup>th</sup> century window frames re-used in a later house.
	MCO52284	Harrowbarrow – Post-medieval nonconformist chapel	Structure	Baptist chapel recorded on the 1880 1 <sup>st</sup> Edition OS, but not labelled as a chapel by 1907 2 <sup>nd</sup> Edition. Now

				cottages.
31	MCO40290	Uplands – Post-medieval field boundary	Earthwork	A field boundary is visible as a 90m long cropmark bank on aerial photographs.
32	MCO29675	Hingston Down – Post-medieval prospecting pit	Earthwork	Numerous prospecting pits in an east-west linear arrangement in fields.
33	DCO14501 1392536 MCO52480	Hingston Downs – Post-medieval milestone	Listed building	Grade II listed 19 <sup>th</sup> century milestone
34	MCO13082	Wheal Pleasant – Post-medieval mine	Earthwork	Wheal Pleasant was at work before 1850. Later known as Prince of Wales Mine. 2 mine shafts are visible on aerial photographs.
35	1021411	Prince of Wales mine at Harrowbarrow	SAM	The northern part of Prince of Wales mine. Represents the amalgamation of several other mines in the early 19 <sup>th</sup> century.
	MCO12457	Prince of Wales – Modern mine	Structure	Except for short interruptions this mine worked from 1863-1914. Re-used for ore processing in WWII.
	MCO52761	Prince of Wales – Post-medieval engine house	Structure	Engine house for whim engine.
	MCO52762	Prince of Wales – Post-medieval engine house	Structure	Engine house floor for stamps engine.
36	MCO50287	Harrowbarrow – Post-medieval walled garden	Structure	A walled garden survives at Coombe, Harrowbarrow.
37	MCO44235	Harrowbarrow – Post-medieval church	Structure	All Saints Church, built 1871 as a chapel of ease to Calstock.
38	MCO40302	Prince of Wales Mine – Post-medieval quarry	Earthwork	A quarry is recorded on the 1880 1 <sup>st</sup> Edition OS map, visible on aerial photographs.
39	MCO40303	Prince of Wales Mine – Post-medieval quarry	Earthwork	A quarry is recorded on the 1880 1 <sup>st</sup> Edition OS map, visible on aerial photographs.
40	MCO39384	Harrowbarrow – Post-medieval mine	Structure	Also known as Harrowbeer Mine, first recorded workings in 1774. Continued in use intermittently into 19 <sup>th</sup> century.
41	MCO47819	Harrowbarrow – Post-medieval teachers house/school	Structure	A National School is recorded in the late 19 <sup>th</sup> century, built 1878.
42	MCO13063	Wheal Newton – Post-medieval mine	Documentary	Wheal Newton was in operation between 1873 and 1880.
43	MCO50289	Hingston Down – Post-medieval firing range	Documentary	A rifle range is recorded on the 1880 1 <sup>st</sup> Edition OS map.
44	MCO29416	Calstock – Post-medieval brickworks	Earthworks	A complex of brick kilns served by clay pits, visible on aerial photographs.
45	MCO12185	Hingston Down Consols – Post-medieval blacksmiths workshop; Post-medieval mine	Structure	Hingston Down Consols commenced working in 1846. Last worked in 1926.
46	MCO29415	Hingston Down – Post-medieval stonemasons yard	Documentary	Granite works are recorded on Symons 1848 map as a quarry; the works and a smithy on OS mapping.
		Hingston Down	Documentary	Site of a now demolished engine house recorded on 1880 1 <sup>st</sup> Edition OS map.
47	DCO2650 1158163	Salter's Farmhouse	Listed building	Grade II listed mid 19 <sup>th</sup> century stone rubble farmhouse.
48		West Drakewells	Documentary	Site of an engine house marked on 1880 1 <sup>st</sup> Edition OS map.
49	MCO12769	West Drakewalls – Post-medieval mine	Documentary	A tin and copper mine worked at intervals in the 19 <sup>th</sup> century.
50	MCO29419	Higher Brooklands – Post-medieval tannery	Documentary	A tannery is recorded at Higher Brooklands in 1856.
51	DCO2649 1158153	White Cottage	Listed building	Grade II listed early-mid 17 <sup>th</sup> century painted stone rubble cottage.
	MCO47813	Metherell – Post-medieval walled garden	Structure	A walled garden survives at Tree Farm.
	MCO47816	Metherell – Post-medieval farmstead	Structure	17 <sup>th</sup> century farmhouse with 19 <sup>th</sup> century outbuildings.
	MCO47818	Metherell – Post-medieval bridge	Structure	A single round-arched broad bridge.
	MCO29403	Metherell – Post-medieval brewery	Documentary	A brewhouse is recorded on the 1939 tithe award.
52	MCO47812	Metherell – Post-medieval nonconformist chapel	Structure	A Bible Christian chapel recorded on 1880 1 <sup>st</sup> and 1907 2 <sup>nd</sup> Edition OS maps. Now a house.
53	DCO1903 1140213	Old Brooklands	Listed building	Early-mid 17 <sup>th</sup> century farmhouse with later alterations.
	DCO2648 1158129	Brooklands Farmhouse	Listed building	Grade II listed late 18 <sup>th</sup> or early 19 <sup>th</sup> century farmhouse.
54	MCO29396	Coombe – Modern arsenic	Documentary	An arsenic works enlarged in the 1870s and closed in

		works		the 1920s.
55	DCO10086 1290995	Remains of building approximately 10 south-east of chimney at East Kithill Mine	Listed building	Grade II listed mid 19 <sup>th</sup> century mine building.
	DCO8369 1220388	Remains of engine house at East Kithill Mine	Listed building	Grade II listed mid 19 <sup>th</sup> century engine house.
56	MCO57728	Harrowbarrow – 20 <sup>th</sup> century fingerpost	Structure	A short cast iron fingerpost.
57	MCO57727	Honicombe Corner – 20 <sup>th</sup> century fingerpost	Structure	An aluminium fingerpost.

### 3.2 WALKOVER SURVEY

The site was visited on 31<sup>st</sup> July 2017 by P. Webb. The proposed site is located within the yard area of a working transport depot, located at the south-western edge of the former Prince of Wales Mine. The site is flanked to the north-east, south-east and south-west by 19<sup>th</sup> century and later housing; a storage container yard lies to the north-west. Access is from the east via a concrete drive off Callington Road; the drive is bounded by a modern stone wall to the north and stone-faced hedgebank to the south. The site slopes gently to the south with a yard surface of compacted stone hardcore, with four structures (two steel portal frame buildings, a container and a portacabin) on concrete plinths. The south-eastern site boundary backs onto residential gardens and is formed by wooden panel fencing with an evergreen hedge behind. Heavily-overgrown large spoil heaps flank the site to the north and west.



FIGURE 7: VIEW ACROSS THE SITE SHOWING ITS CURRENT USE AS A HAULAGE DEPOT; VIEWED FROM THE EAST.

### 3.3 ARCHAEOLOGICAL POTENTIAL

The site is located within an area of intensive mining activity, but it has seen significant post-industrial development during the 20<sup>th</sup> century. This includes the alteration or construction of domestic properties within and around the mine, and the construction of the haulage yard, which is likely to have affected the survival and preservation of early archaeological deposits and



features. In terms of archaeological potential therefore, the likelihood of encountering significant early material or features is *low* to *negligible*. Furthermore, the 20<sup>th</sup> century re-use of the site would suggest the value of any 19<sup>th</sup> century mining remains will have been significantly degraded. However, and to err on the side of caution, the proximity of Goodluck Shaft, and the propensity of mine waste to bury and conceal, would suggest an assessment of *low* to *medium* potential is appropriate.

## 4.0 HISTORIC VISUAL IMPACT ASSESSMENT

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### 4.1 HERITAGE IMPACT ASSESSMENT – OVERVIEW

The purpose of heritage impact assessment is twofold: Firstly, to understand – insofar as is reasonably practicable and in proportion to the importance of the asset – the significance of a historic building, complex, area or archaeological monument (the ‘heritage asset’). Secondly, to assess the likely effect of a proposed development on nearby heritage assets (direct impact) and their setting (indirect impact). The methodology employed in this assessment is based on the staged approach advocated in *The Setting of Heritage Assets* (GPA3 Historic England 2015), used in conjunction with the ICOMOS (2011) and DoT (DMRB vol.11; WEBTAG) guidance. Sections 4.2-4.6 discuss policy, concepts and approach; section 4.7 covers the methodology, and section 4.8 individual assessments.

### 4.2 NATIONAL POLICY

General policy and guidance for the conservation of the historic environment are now contained within the *National Planning Policy Framework* (Department for Communities and Local Government 2012). The relevant guidance is reproduced below:

*Paragraph 128*

*In determining applications, local planning authorities should require the applicant to describe the significance of any heritage assets affected, including the contribution made by their setting. The level of detail should be proportionate to the assets’ importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should be consulted and the heritage assets assessed using appropriate expertise where necessary. Where a site on which a development is proposed includes or has the potential to include heritage assets with archaeological interest, local planning authorities should require developers to submit an appropriate desk-based assessment and, where necessary, a field evaluation.*

*Paragraph 129*

*Local planning authorities should identify and assess the particular significance of any heritage asset that may be affected by a proposal (including by development affecting the setting of a heritage asset) taking account of the available evidence and any necessary expertise. They should take this assessment into account when considering the impact of a proposal on a heritage asset, to avoid or minimise conflict between the heritage asset’s conservation and any aspect of the proposal.*

A further key document is the Planning (Listed Buildings and Conservation Areas) Act 1990, in particular section 66(1), which provides *statutory protection* to the setting of Listed buildings:

*In considering whether to grant planning permission for development which affects a listed building or its setting, the local planning authority or, as the case may be, the Secretary of State shall have special regard to the desirability of preserving the building or its setting or any features of special architectural or historic interest which it possesses.*

### 4.3 CULTURAL VALUE – DESIGNATED HERITAGE ASSETS

The majority of the most important (‘nationally important’) heritage assets are protected through *designation*, with varying levels of statutory protection. These assets fall into one of six categories, although designations often overlap, so a Listed early medieval cross may also be Scheduled, lie

within the Curtilage of Listed church, inside a Conservation Area, and on the edge of a Registered Park and Garden that falls within a World Heritage Site.

#### 4.3.1 LISTED BUILDINGS

A Listed building is an occupied dwelling or standing structure which is of special architectural or historical interest. These structures are found on the *Statutory List of Buildings of Special Architectural or Historic Interest*. The status of Listed buildings is applied to 300,000-400,000 buildings across the United Kingdom. Recognition of the need to protect historic buildings began after the Second World War, where significant numbers of buildings had been damaged in the county towns and capitals of the United Kingdom. Buildings that were considered to be of 'architectural merit' were included. The Inspectorate of Ancient Monuments supervised the collation of the list, drawn up by members of two societies: The Royal Institute of British Architects and the Society for the Protection of Ancient Buildings. Initially the lists were only used to assess which buildings should receive government grants to be repaired and conserved if damaged by bombing. The *Town and Country Planning Act 1947* formalised the process within England and Wales, Scotland and Ireland following different procedures. Under the 1979 *Ancient Monuments and Archaeological Areas Act* a structure cannot be considered a Scheduled Monument if it is occupied as a dwelling, making a clear distinction in the treatment of the two forms of heritage asset. Any alterations or works intended to a Listed Building must first acquire Listed Building Consent, as well as planning permission. Further phases of 'listing' were rolled out in the 1960s, 1980s and 2000s; English Heritage advise on the listing process and administer the procedure, in England, as with the Scheduled Monuments.

Some exemption is given to buildings used for worship where institutions or religious organisations (such as the Church of England) have their own permissions and regulatory procedures. Some structures, such as bridges, monuments, military structures and some ancient structures may also be Scheduled as well as Listed. War memorials, milestones and other structures are included in the list, and more modern structures are increasingly being included for their architectural or social value.

Buildings are split into various levels of significance: Grade I (2.5% of the total) representing buildings of exceptional (international) interest; Grade II\* (5.5% of the total) representing buildings of particular (national) importance; Grade II (92%) buildings are of merit and are by far the most widespread. Inevitably, accuracy of the Listing for individual structures varies, particularly for Grade II structures; for instance, it is not always clear why some 19<sup>th</sup> century farmhouses are Listed while others are not, and differences may only reflect local government boundaries, policies and individuals.

Other buildings that fall within the curtilage of a Listed building are afforded some protection as they form part of the essential setting of the designated structure, e.g. a farmyard of barns, complexes of historic industrial buildings, service buildings to stately homes etc. These can be described as having *group value*.

#### 4.3.2 SCHEDULED MONUMENTS

In the United Kingdom, a Scheduled Monument is considered an historic building, structure (ruin) or archaeological site of '**national importance**'. Various pieces of legislation, under planning, conservation, etc., are used for legally protecting heritage assets given this title from damage and destruction; such legislation is grouped together under the term 'designation', that is, having statutory protection under the *Ancient Monuments and Archaeological Areas Act 1979*. A heritage asset is a part of the historic environment that is valued because of its historic, archaeological, architectural or artistic interest; those of national importance have extra legal protection through designation.

Important sites have been recognised as requiring protection since the late 19<sup>th</sup> century, when the first ‘schedule’ or list of monuments was compiled in 1882. The conservation and preservation of these monuments was given statutory priority over other land uses under this first schedule. County Lists of the monuments are kept and updated by the Department for Culture, Media and Sport. In the later 20<sup>th</sup> century sites are identified by English Heritage (one of the Government’s advisory bodies) of being of national importance and included in the schedule. Under the current statutory protection any works required on or to a designated monument can only be undertaken with a successful application for Scheduled Monument Consent. There are 19,000-20,000 Scheduled Monuments in England.

#### 4.3.3 WORLD HERITAGE SITES

Arising from the UNESCO World Heritage Convention in 1972, Article 1 of the Operational Guidelines (2015, no.49) states: ‘Outstanding Universal Value means cultural and/or natural significance which is so exceptional as to transcend national boundaries and to be of common importance for present and future generations of all humanity’. These sites are recognised at an international level for their intrinsic importance to the story of humanity, and should be accorded the highest level of protection within the planning system.

#### 4.3.4 VALUE AND IMPORTANCE

While every heritage asset, designated or otherwise, has some intrinsic merit, the act of designation creates a hierarchy of importance that is reflected by the weight afforded to their preservation and enhancement within the planning system. The system is far from perfect, impaired by an imperfect understanding of individual heritage assets, but the value system that has evolved does provide a useful guide to the *relative* importance of heritage assets. Provision is also made for heritage assets where value is not recognised through designation (e.g. undesignated ‘monuments of Schedulable quality and importance’ should be regarded as being of *high* value); equally, there are designated monuments and structures of *low* relative merit.

TABLE 3: THE HIERARCHY OF VALUE/IMPORTANCE (BASED ON THE DMRB VOL.11 TABLES 5.1, 6.1 & 7.1).

Hierarchy of Value/Importance	
Very High	Structures inscribed as of universal importance as World Heritage Sites; Other buildings of recognised international importance; World Heritage Sites (including nominated sites) with archaeological remains; Archaeological assets of acknowledged international importance; Archaeological assets that can contribute significantly to international research objectives; World Heritage Sites inscribed for their historic landscape qualities; Historic landscapes of international value, whether designated or not; Extremely well preserved historic landscapes with exceptional coherence, time-depth, or other critical factor(s).
High	Scheduled Monuments with standing remains; Grade I and Grade II* (Scotland: Category A) Listed Buildings; Other Listed buildings that can be shown to have exceptional qualities in their fabric or historical associations not adequately reflected in the Listing grade; Conservation Areas containing very important buildings; Undesignated structures of clear national importance; Undesignated assets of Schedulable quality and importance; Assets that can contribute significantly to national research objectives. Designated historic landscapes of outstanding interest; Undesignated landscapes of outstanding interest; Undesignated landscapes of high quality and importance, demonstrable national value; Well-preserved historic landscapes, exhibiting considerable coherence, time-depth or other critical factor(s).
Medium	Grade II (Scotland: Category B) Listed Buildings; Historic (unlisted) buildings that can be shown to have exceptional qualities in their fabric or historical associations; Conservation Areas containing buildings that contribute significantly to its historic character; Historic Townscape or built-up areas with important historic integrity in their buildings, or built settings (e.g. including street furniture and other structures); Designated or undesignated archaeological assets that contribute to regional research objectives; Designated special historic landscapes; Undesignated historic landscapes that would justify special historic landscape designation, landscapes of regional value; Averagely well-preserved historic landscapes with reasonable coherence, time-depth or other critical factor(s).
Low	Locally Listed buildings (Scotland Category C(S) Listed Buildings);

Hierarchy of Value/Importance	
	<p>Historic (unlisted) buildings of modest quality in their fabric or historical association;                      Historic Townscape or built-up areas of limited historic integrity in their buildings, or built settings (e.g. including street furniture and other structures);                      Designated and undesignated archaeological assets of local importance;                      Archaeological assets compromised by poor preservation and/or poor survival of contextual associations;                      Archaeological assets of limited value, but with potential to contribute to local research objectives;                      Robust undesignated historic landscapes;                      Historic landscapes with importance to local interest groups;                      Historic landscapes whose value is limited by poor preservation and/or poor survival of contextual associations.</p>
Negligible	<p>Buildings of no architectural or historical note; buildings of an intrusive character;                      Assets with very little or no surviving archaeological interest;                      Landscapes with little or no significant historical interest.</p>
Unknown	<p>Buildings with some hidden (i.e. inaccessible) potential for historic significance;                      The importance of the archaeological resource has not been ascertained.</p>

#### 4.4 CONCEPTS – CONSERVATION PRINCIPLES

In making an assessment, this document adopts the conservation values (*evidential, historical, aesthetic and communal*) laid out in *Conservation Principles* (English Heritage 2008), and the concepts of *authenticity and integrity* as laid out in the guidance on assessing World Heritage Sites (ICOMOS 2011). This is in order to determine the relative importance of *setting* to the significance of a given heritage asset.

##### 4.4.1 EVIDENTIAL VALUE

*Evidential value* (or research potential) is derived from the potential of a structure or site to provide physical evidence about past human activity, and may not be readily recognised or even visible. This is the primary form of data for periods without adequate written documentation. This is the least equivocal value: evidential value is absolute; all other ascribed values (see below) are subjective. However,

##### 4.4.2 HISTORICAL VALUE

*Historical value* (narrative) is derived from the ways in which past people, events and aspects of life can be connected via a place to the present; it can be *illustrative* or *associative*.

*Illustrative value* is the visible expression of evidential value; it has the power to aid interpretation of the past through making connections with, and providing insights into, past communities and their activities through a shared experience of place. Illustrative value tends to be greater if a place features the first or only surviving example of a particular innovation of design or technology.

*Associative value* arises from a connection to a notable person, family, event or historical movement. It can intensify understanding by linking the historical past to the physical present, always assuming the place bears any resemblance to its appearance at the time. Associational value can also be derived from known or suspected links with other monuments (e.g. barrow cemeteries, church towers) or cultural affiliations (e.g. Methodism).

Buildings and landscapes can also be associated with literature, art, music or film, and this association can inform and guide responses to those places.

Historical value depends on sound identification and the direct experience of physical remains or landscapes. Authenticity can be strengthened by change, being a living building or landscape, and historical values are harmed only where adaptation obliterates or conceals them. The appropriate use of a place – e.g. a working mill, or a church for worship – illustrates the relationship between design and function and may make a major contribution to historical value. Conversely, cessation of that activity – e.g. conversion of farm buildings to holiday homes – may essentially destroy it.

#### 4.4.3 AESTHETIC VALUE

*Aesthetic value* (emotion) is derived from the way in which people draw sensory and intellectual stimulation from a place or landscape. Value can be the result of *conscious design*, or the *fortuitous outcome* of landscape evolution; many places combine both aspects, often enhanced by the passage of time.

*Design value* relates primarily to the aesthetic qualities generated by the conscious design of a building, structure or landscape; it incorporates composition, materials, philosophy and the role of patronage. It may have associational value, if undertaken by a known architect or landscape gardener, and its importance is enhanced if it is seen as innovative, influential or a good surviving example. Landscape parks, country houses and model farms all have design value. The landscape is not static, and a designed feature can develop and mature, resulting in the 'patina of age'.

Some aesthetic value developed *fortuitously* over time as the result of a succession of responses within a particular cultural framework e.g. the seemingly organic form of an urban or rural landscape or the relationship of vernacular buildings and their materials to the landscape. Aesthetic values are where proposed developments usually have their most pronounced impact: the indirect effects of most developments are predominantly visual or aural, and can extend many kilometres from the site itself. In many instances the impact of a development is incongruous, but that is itself an aesthetic response, conditioned by prevailing cultural attitudes to what the historic landscape should look like.

#### 4.4.4 COMMUNAL VALUE

*Communal value* (togetherness) is derived from the meaning a place holds for people, and may be closely bound up with historical/associative and aesthetic values; it can be *commemorative*, *symbolic*, *social* or *spiritual*.

*Commemorative and symbolic value* reflects the meanings of a place to those who draw part of their identity from it, or who have emotional links to it e.g. war memorials. Some buildings or places (e.g. the Palace of Westminster) can symbolise wider values. Other places (e.g. Porton Down Chemical Testing Facility) have negative or uncomfortable associations that nonetheless have meaning and significance to some and should not be forgotten. *Social value* need not have any relationship to surviving fabric, as it is the continuity of function that is important. *Spiritual value* is attached to places and can arise from the beliefs of a particular religion or past or contemporary perceptions of the spirit of place. Spiritual value can be ascribed to places sanctified by hundreds of years of veneration or worship, or wild places with few signs of modern life. Value is dependent on the perceived survival of historic fabric or character, and can be very sensitive to change. The key aspect of communal value is that it brings specific groups of people together in a meaningful way.

#### 4.4.5 AUTHENTICITY

Authenticity, as defined by UNESCO (2015, no.80), is the ability of a property to convey the attributes of the outstanding universal value of the property. 'The ability to understand the value attributed to the heritage depends on the degree to which information sources about this value may be understood as credible or truthful'. Outside of a World Heritage Site, authenticity may usefully be employed to convey the sense a place or structure is a truthful representation of the thing it purports to portray. Converted farm buildings, for instance, survive in good condition, but are drained of the authenticity of a working farm environment.

#### 4.4.6 INTEGRITY

Integrity, as defined by UNESCO (2015, no.88), is the measure of wholeness or intactness of the cultural heritage and its attributes. Outside of a World Heritage Site, integrity can be taken to represent the survival and condition of a structure, monument or landscape. The intrinsic value of

those examples that survive in good condition is undoubtedly greater than those where survival is partial and condition poor.

#### 4.4.7 SUMMARY

As indicated, individual developments have a minimal or tangential effect on most of the heritage values outlined above, largely because almost all effects are indirect. The principle values in contention are aesthetic/designed and, to a lesser degree aesthetic/fortuitous. There are also clear implications for other value elements (particularly historical and associational, communal and spiritual), where views or sensory experience is important. As ever, however, the key element here is not the intrinsic value of the heritage asset, or the impact on setting, but the relative contribution of setting to the value of the asset.

#### 4.5 SETTING – THE SETTING OF HERITAGE ASSETS

The principal guidance on this topic is contained within two publications: *The Setting of Heritage Assets* (Historic England 2015) and *Seeing History in the View* (English Heritage 2011). While interlinked and complementary, it is useful to consider heritage assets in terms of their *setting* i.e. their immediate landscape context and the environment within which they are seen and experienced, and their *views* i.e. designed or fortuitous vistas experienced by the visitor when at the heritage asset itself, or those that include the heritage asset. This corresponds to the experience of its wider landscape setting.

Where the impact of a proposed development is largely indirect, *setting* is the primary consideration of any HIA. It is a somewhat nebulous and subjective assessment of what does, should, could or did constitute the lived experience of a monument or structure. The following extracts are from the Historic England publication *The Setting of Heritage Assets* (2015, 2 & 4):

*The NPPF makes it clear that the setting of a heritage asset is the surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve.*

*Setting is not a heritage asset, nor a heritage designation. Its importance lies in what it contributes to the significance of the heritage asset. This depends on a wide range of physical elements within, as well as perceptual and associational attributes, pertaining to the heritage asset's surroundings.*

*While setting can be mapped in the context of an individual application or proposal, it does not have a fixed boundary and cannot be definitively and permanently described for all time as a spatially bounded area or as lying within a set distance of a heritage asset because what comprises a heritage asset's setting may change as the asset and its surroundings evolve or as the asset becomes better understood or due to the varying impacts of different proposals.*

The HIA below sets out to determine the magnitude of the effect and the sensitivity of the heritage asset to that effect. The fundamental issue is that proximity and visual and/or aural relationships may affect the experience of a heritage asset, but if setting is tangential to the significance of that monument or structure, then the impact assessment will reflect this. This is explored in more detail below.

##### 4.5.1 LANDSCAPE CONTEXT

The determination of *landscape context* is an important part of the assessment process. This is the physical space within which any given heritage asset is perceived and experienced. The experience of this physical space is related to the scale of the landform, and modified by cultural and biological factors like field boundaries, settlements, trees and woodland. Together, these determine the character and extent of the setting.

Landscape context is based on topography, and can vary in scale from the very small – e.g. a narrow valley where views and vistas are restricted – to the very large – e.g. wide valleys or extensive upland moors with 360° views. Where very large landforms are concerned, a distinction can be drawn between the immediate context of an asset (this can be limited to a few hundred metres or less, where cultural and biological factors impede visibility and/or experience), and the wider context (i.e. the wider landscape within which the asset sits).

When new developments are introduced into a landscape, proximity alone is not a guide to magnitude of effect. Dependant on the nature and sensitivity of the heritage asset, the magnitude of effect is potentially much greater where the proposed development is to be located within the landscape context of a given heritage asset. Likewise, where the proposed development would be located outside the landscape context of a given heritage asset, the magnitude of effect would usually be lower. Each case is judged on its individual merits, and in some instances the significance of an asset is actually greater outside of its immediate landscape context; for example, where church towers function as landmarks in the wider landscape.

#### 4.5.2 VIEWS

Historic and significant views are the associated and complementary element to setting, but can be considered separately as developments may appear in a designed view without necessarily falling within the setting of a heritage asset *per se*. As such, significant views fall within the aesthetic value of a heritage asset, and may be *designed* (i.e. deliberately conceived and arranged, such as within parkland or an urban environment) or *fortuitous* (i.e. the graduated development of a landscape ‘naturally’ brings forth something considered aesthetically pleasing, or at least impressive, as with particular rural landscapes or seascapes), or a combination of both (i.e. the *patina of age*, see below). The following extract is from the English Heritage publication *Seeing History in the View* (2011, 3):

*Views play an important part in shaping our appreciation and understanding of England’s historic environment, whether in towns or cities or in the countryside. Some of those views were deliberately designed to be seen as a unity. Much more commonly, a significant view is a historical composite, the cumulative result of a long process of development.*

*The Setting of Heritage Assets* (2015, 3) lists a number of instances where views contribute to the particular significance of a heritage asset:

- Views where relationships between the asset and other historic assets or places or natural features are particularly relevant;
- Views with historical associations, including viewing points and the topography of battlefields;
- Views where the composition within the view was a fundamental aspect of the design or function of the heritage asset;
- Views between heritage assets and natural or topographic features, or phenomena such as solar and lunar events;
- Views between heritage assets which were intended to be seen from one another for aesthetic, functional, ceremonial or religious reasons, such as military or defensive sites, telegraphs or beacons, Prehistoric funerary and ceremonial sites.

On a landscape scale, views, taken in the broadest sense, are possible from anywhere to anything, and each may be accorded an aesthetic value according to subjective taste. Given that terrain, the biological and built environment, and public access restrict our theoretical ability to see anything from anywhere, in this assessment the term *principal view* is employed to denote both the deliberate views created within designed landscapes, and those fortuitous views that may be considered of aesthetic value and worth preserving. It should be noted, however, that there are



distance thresholds beyond which perception and recognition fail, and this is directly related to the scale, height, massing and nature of the heritage asset in question. For instance, beyond 2km the Grade II cottage comprises a single indistinct component within the wider historic landscape, whereas at 5km or even 10km a large stately home or castle may still be recognisable. By extension, where assets cannot be seen or recognised i.e. entirely concealed within woodland, or too distant to be distinguished, then visual harm to setting is moot. To reflect this emphasis on recognition, the term *landmark asset* is employed to denote those sites where the structure (e.g. church tower), remains (e.g. earthwork ramparts) or – in some instances – the physical character of the immediate landscape (e.g. a distinctive landform like a tall domed hill) make them visible on a landscape scale. In some cases, these landmark assets may exert landscape *primacy*, where they are the tallest or most obvious man-made structure within line-of-sight. However, this is not always the case, typically where there are numerous similar monuments (multiple engine houses in mining areas, for instance) or where modern developments have overtaken the heritage asset in height and/or massing.

Yet visibility alone is not a clear guide to visual impact. People perceive size, shape and distance using many cues, so context is critically important. For instance, research on electricity pylons (Hull & Bishop 1988) has indicated scenic impact is influenced by landscape complexity: the visual impact of pylons is less pronounced within complex scenes, especially at longer distances, presumably because they are less of a focal point and the attention of the observer is diverted. There are many qualifiers that serve to increase or decrease the visual impact of a proposed development (see Table 2), some of which are seasonal or weather-related.

Thus the principal consideration of assessment of indirect effects cannot be visual impact *per se*. It is an assessment of the likely magnitude of effect, the importance of setting to the significance of the heritage asset, and the sensitivity of that setting to the visual or aural intrusion of the proposed development. The schema used to guide assessments is shown in Table 2 (below).

#### 4.6 METHODOLOGY

The methodology adopted in this document is based on that outlined in *The Setting of Heritage Assets* (English Heritage 2011 and 2015 Guidance Note). The assessment of visual impact at this stage of the development is an essentially subjective one, and is based on the experience and professional judgement of the authors.

Visibility alone is not a clear guide to impact. People perceive size, shape and distance using many cues, so context is critically important. For instance, research on electricity pylons (Hull & Bishop 1988) has indicated scenic impact is influenced by landscape complexity: the visual impact of pylons is less pronounced within complex scenes, especially at longer distances, presumably because they are less of a focal point and the attention of the observer is diverted. There are many qualifiers that serve to increase or decrease the visual impact of a proposed development (see Table 3), some of which are seasonal or weather-related.

The principal consideration of this assessment is not visual impact *per se*. It is an assessment of the likely magnitude of effect, the importance of setting to the significance of heritage assets, and the sensitivity of that setting to the visual intrusion of the proposed development. The schema used to guide assessments is shown in Table 3 (below). A key consideration in these assessments is the concept of *landscape context* (see below).

##### 4.6.1 ASSESSMENT AND LANDSCAPE CONTEXT

The determination of *landscape context* is an important part of the assessment process. This is the physical space within which any given heritage asset is perceived and experienced. The

experience of this physical space is related to the scale of the landform, and modified by cultural and biological factors like field boundaries, settlements, trees and woodland.

Landscape context is based on topography, and can vary in scale from the very small – e.g. a narrow valley where views and vistas are restricted – to the very large – e.g. wide valleys or extensive upland moors with 360° views. Where very large landforms are concerned, a distinction can be drawn between the immediate context of an asset (this can be limited to a few hundred metres or less, where cultural and biological factors impede visibility and/or experience), and the wider context (i.e. the wider landscape within which the asset sits).

When new developments are introduced into a landscape, proximity alone is not a guide to magnitude of effect. Dependant on the nature and sensitivity of the heritage asset, the magnitude of effect is potentially much greater where the proposed development is to be located within the landscape context of a given heritage asset. Likewise, where the proposed development would be located outside the landscape context of a given heritage asset, the magnitude of effect would usually be lower. Each case is judged on its individual merits, and in some instances the significance of an asset is actually greater outside of its immediate landscape context, for example, where church towers function as landmarks in the wider landscape.

#### 4.7 TYPE AND SCALE OF IMPACT

The effect of a proposed development on a heritage asset can be direct (i.e. the designated structure itself is being modified or demolished, the archaeological monument will be built over), or indirect (e.g. a housing estate built in the fields next to a Listed farmhouse, and wind turbine erected near a hillfort etc.); in the latter instance the principal effect is on the setting of the heritage asset. A distinction can be made between construction and operational phase effects. Individual developments can affect multiple heritage assets (aggregate impact), and contribute to overall change within the historic environment (cumulative impact).

**Construction phase:** construction works have direct, physical effects on the buried archaeology of a site, and a pronounced but indirect effect on neighbouring properties. Direct effects may extend beyond the nominal footprint of a site e.g. where related works or site compounds are located off-site. Indirect effects are both visual and aural, and may also affect air quality, water flow and traffic in the local area.

**Operational phase:** the operational phase of a development is either temporary (e.g. wind turbine or mobile phone mast) or effectively permanent (housing development or road scheme). The effects at this stage are largely indirect, and can be partly mitigated over time through provision of screening. Large development would have an effect on historic landscape character, as they transform areas from one character type (e.g. agricultural farmland) into another (e.g. suburban).

**Cumulative Impact:** a single development will have a physical and a visual impact, but a second and a third site in the same area will have a synergistic and cumulative impact above and beyond that of a single site. The cumulative impact of a proposed development is particularly difficult to estimate, given the assessment must take into consideration operational, consented and proposals in planning.

**Aggregate Impact:** a single development will usually affect multiple individual heritage assets. In this assessment, the term aggregate impact is used to distinguish this from cumulative impact. In essence, this is the impact on the designated parts of the historic environment as a whole.

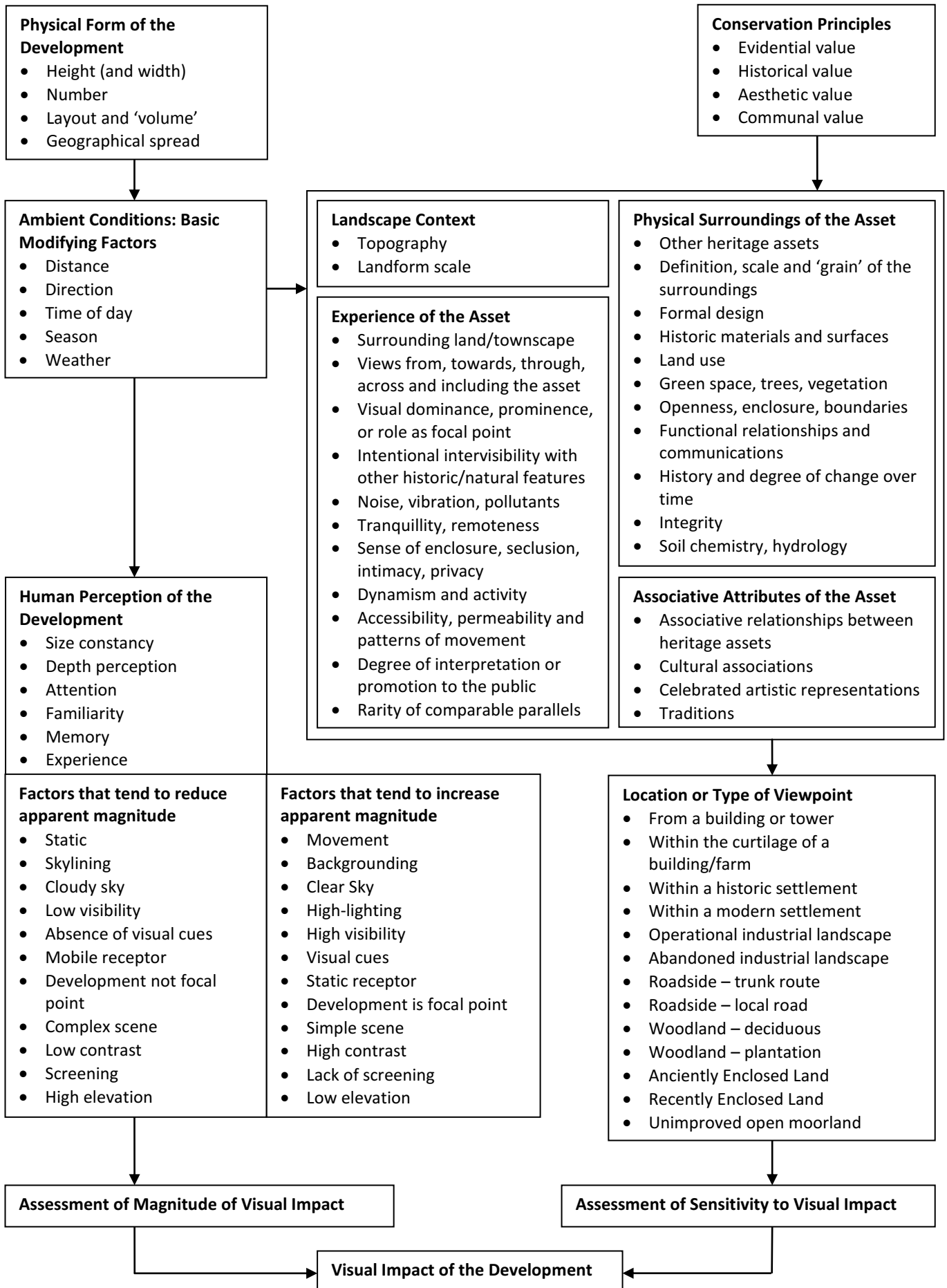


TABLE 4: THE CONCEPTUAL MODEL FOR VISUAL IMPACT ASSESSMENT PROPOSED BY THE UNIVERSITY OF NEWCASTLE (2002, 63), MODIFIED TO INCLUDE ELEMENTS OF ASSESSMENT STEP 2 FROM THE SETTING OF HERITAGE ASSETS (ENGLISH HERITAGE 2011, 19).

TABLE 5: MAGNITUDE OF IMPACT (BASED ON DMRB VOL.11 TABLES 5.3, 6.3 AND 7.3).

Factors in the Assessment of Magnitude of Impact – Buildings and Archaeology	
Major	Change to key historic building elements, such that the resource is totally altered; Change to most or all key archaeological materials, so that the resource is totally altered; Comprehensive changes to the setting.
Moderate	Change to many key historic building elements, the resource is significantly modified; Changes to many key archaeological materials, so that the resource is clearly modified; Changes to the setting of an historic building or asset, such that it is significantly modified.
Minor	Change to key historic building elements, such that the asset is slightly different; Changes to key archaeological materials, such that the asset is slightly altered; Change to setting of an historic building, such that it is noticeably changed.
Negligible	Slight changes to elements of a heritage asset or setting that hardly affects it.
No Change	No change to fabric or setting.
Factors in the Assessment of Magnitude of Impact – Historic Landscapes	
Major	Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to historic landscape character unit.
Moderate	Changes to many key historic landscape elements, parcels or components, visual change to many key aspects of the historic landscape, noticeable differences in noise or sound quality, considerable changes to use or access; resulting in moderate changes to historic landscape character.
Minor	Changes to few key historic landscape elements, parcels or components, slight visual changes to few key aspects of historic landscape, limited changes to noise levels or sound quality; slight changes to use or access: resulting in limited changes to historic landscape character.
Negligible	Very minor changes to key historic landscape elements, parcels or components, virtually unchanged visual effects, very slight changes in noise levels or sound quality; very slight changes to use or access; resulting in a very small change to historic landscape character.
No Change	No change to elements, parcels or components; no visual or audible changes; no changes arising from in amenity or community factors.

TABLE 6: SIGNIFICANCE OF EFFECTS MATRIX (BASED ON DRMB VOL.11 TABLES 5.4, 6.4 AND 7.4; ICOMOS 2011, 9-10).

Value of Heritage Assets	Magnitude of Impact (positive or negative)				
	No Change	Negligible	Minor	Moderate	Major
Very High	Neutral	Slight	Moderate/Large	Large/Very Large	Very Large
High	Neutral	Slight	Moderate/Slight	Moderate/Large	Large/Very Large
Medium	Neutral	Neutral/Slight	Slight	Moderate	Moderate/Large
Low	Neutral	Neutral/Slight	Neutral/Slight	Slight	Slight/Moderate
Negligible	Neutral	Neutral	Neutral/Slight	Neutral/Slight	Slight

TABLE 7: SCALE OF IMPACT.

Scale of Impact	
<i>Neutral</i>	No impact on the heritage asset.
<i>Negligible</i>	Where the developments may be visible or audible, but would not affect the heritage asset or its setting, due to the nature of the asset, distance, topography, or local blocking.
<i>Negative/minor</i>	Where the development would have an effect on the heritage asset or its setting, but that effect is restricted due to the nature of the asset, distance, or screening from other buildings or vegetation.
<i>Negative/moderate</i>	Where the development would have a pronounced impact on the heritage asset or its setting, due to the sensitivity of the asset and/or proximity. The effect may be ameliorated by screening or mitigation.
<i>Negative/substantial</i>	Where the development would have a severe and unavoidable effect on the heritage asset or its setting, due to the particular sensitivity of the asset and/or close physical proximity. Screening or mitigation could not ameliorate the effect of the development in these instances. This is, as is stressed in planning guidance and case law, a very high bar and is almost never achieved.

#### 4.7.1 SCALE OF IMPACT

The effect of development and associated infrastructure on the historic environment can include positive as well as negative outcomes. However, all development changes the character of a local environment, and alters the character of a building, or the setting within which it is experienced. Change is invariably viewed as negative, particularly within respect to larger developments; thus while there can be beneficial outcomes (e.g. positive/moderate), there is a presumption here that, as large and inescapably modern intrusive visual actors in the historic landscape, the impact of a development will almost always be **neutral** (i.e. no impact) or **negative** i.e. it will have a **detrimental impact** on the setting of ancient monuments and protected historic buildings.

This assessment incorporates the systematic approach outlined in the ICOMOS and DoT guidance (see Tables 5-6), used to complement and support the more narrative but subjective approach advocated by Historic England (see Table 7). This provides a useful balance between rigid logic and nebulous subjectivity (e.g. the significance of effect on a Grade II Listed building can never be greater than moderate/large; an impact of negative/substantial is almost never achieved). This is in adherence with GPA3 (2015, 7).

#### 4.8 THE STRUCTURE OF ASSESSMENT

The proposed development will consist of a small scale residential development of two bungalows. The archaeological potential of the site is fairly low given modern development of the area; though development of the site has the potential to affect the setting of a Scheduled Monument and a World Heritage Site. Given the small scale of the development and level of both topographical and woodland screening it was decided that most designated heritage assets would not be impacted by the development, and only the Tamar Valley Mining District World Heritage Site; and Prince of Wales Mine Scheduled Ancient Monument were considered in detail.

##### 4.8.1 INDUSTRIAL BUILDINGS AND INFRASTRUCTURE

*A range of industrial and extractive structures, often exhibiting elements of formal planning, rarely with a view to aesthetics*

A whole range of structures relating to a whole range of industries falls under this broad category, and include ruined, standing and functioning buildings. This might include: bridges, canals, capstans, clay-drying facilities, engine houses, fish cellars, gunpowder mills, railways, warehouses and so forth. However, in most instances industrial buildings were not built with aesthetics in mind, despite the elements of formal planning that would often be present. The sensitivity of these structures to the visual intrusion of a development depends on type, age and location.

It is usually the abandoned and ruined structures, now overgrown and 'wild', that are most sensitive to intrusive new visual elements. The impact on these buildings could be significant. Where they occur in clusters – as they often do – the impact of an isolated development is lessened, but the group value of the heritage asset is enhanced.

##### **What is important and why**

This is a very heterogeneous group, though all buildings and associated structures retain some evidential value, which ranges with the degree of preservation. Some structures are iconic (e.g. Luxulyan viaduct) and quite often others are, due to the rapid intensification of industry in the 18<sup>th</sup> and 19<sup>th</sup> centuries, innovative in both design and application (historical/illustrative). Some may survive as working examples – in which case the associational value is maintained – but many are ruinous or converted (historical/associational). All were designed, and many conform to a particular template (e.g. engine houses) although incremental development through use-life and subsequent decrepitude may conceal this. Fortuitous development may then lead to ruinous or deserted structures or building complexes taking on the air of a romantic ruin (e.g. Kennall Vale gunpowder works), imagery quite at odds with the bustle and industry of their former function. Some of the more spectacular or well-preserved structures may become symbolic (e.g. South Crofty Mine), but communal value tends to be low, especially where public access is not possible.

<b>Asset Name: Prince of Wales Mine at Harrowbarrow</b>	
<i>Parish:</i> Calstock	<i>Value:</i> High
<i>Designation:</i> SAM	<i>Distance to Development:</i> c.0.2km
<p><i>Description:</i> Listing: The monument includes the northern part of the Prince of Wales Mine which is situated on a gentle south-facing slope on the northern edge of Harrowbarrow village. The mine represents an amalgamation of several other mines amongst which are Wheal Fortune, Wheal Pleasant, Wheal George, Wheal Barnard and West Edward which together were known as Calstock United Tin and Copper Mines in the early part of the 19th century. In 1861 the mine was re-constituted as the Prince of Wales Mine and operated intermittently from then until 1916. In 1940, during World War II, a processing floor was established at the mine to rework the earlier dumps and material from nearby small mines and Devon Great Consols. In about 1971 a Canadian company carried out exploratory work including drilling and finally, in 1977, an exploratory adit was cut into the hillside. Between 1861 and 1916 output from the mine was 10,845 tons of copper ore, over 1000 tons of black tin and 7,720 tons of arsenic yielding iron pyrites. The mine's relatively long and productive life has resulted in a complex series of surviving structures and earthworks. Amongst these are three engine houses, shafts, a dry, at least two processing floors of different dates, a magazine, two boiler ponds, tramways, concrete buildings and extensive waste dumps. All three engine houses were constructed with pinkish shillety killas, with wooden lintels and without granite quoining. The western engine house was built in 1888 and powered stamping machinery. It was modified during the 1940's reprocessing event and at this time the stamping floor, loading and boiler house were demolished. The middle engine house, built in 1879, once held a 50 inch pumping engine extracting water from the adjacent Watson's Shaft and its boiler house is attached to its eastern wall. Its detached chimney, which is capped with brick and incorporates a decorative drip-ring and cap, stands a short distance to the north west and they are connected to each other by an underground flue. The third engine house, installed in 1888, held an all-indoor beamed rotative engine for winding from Watson's Shaft. The bedstone remains in its original position and to the south is the crankshaft loading and a rectangular pit which would have held the winch drum. Traces of the boiler house survive to the north. The dry building stands to the north of the pumping engine house and was enlarged to incorporate its chimney sometime between 1881 and 1906. In this building, miners' wet clothing was dried, presumably using heat generated by a flue from the nearby boiler house. Much of the earlier tin dressing floor now underlies later waste material, although three conical buddles protruding through this material indicates that much of this floor, which was housed in a large building, survives as a buried feature. By contrast much of the 1940's dressing floor survives as a series of concrete footings and bases together with a large ore bin. A small stone-built standing structure set away from the mine at NGR SX 39957059 may represent the site of a powder magazine. Two boiler ponds are known from early maps. The first at NGR SX 40027058 has been truncated by the 1977 adit, whilst the other larger example at NGR SX 40107063 survives as a rectangular water filled hollow denoted on its lower side by a substantial bank. A small number of concrete buildings surviving within the monument relate to the 1940's reworking, whilst a large adit together with tramways belong to the 1977 exploration. Dominating the southern part of the monument are substantial dumps of fine yellow-grey sand. These represent waste from the 1940's activity, but they do overlie and protect earlier dumps. Modern fences built around open shafts and other structures are excluded from the scheduling, but the ground beneath them is included.</p>	
<p><i>Supplemental Comments:</i> The entire Scheduled part of the mine site has become heavily wooded and overgrown, so much so that the surviving structural elements are not intervisible, and the formerly prominent spoil dumps are no longer visible from outside the site.</p>	
<p><i>Evidential Value:</i> The surviving structures have been the subject of a programme of building recording that has explored the structure and development of the site. The remediation works that have taken place appear to have been moderately extensive. The foundations of the buildings located to the south of the Scheduled site, and that now lie in proximity to residential development, may survive.</p>	
<p><i>Historical Value:</i> As the last surviving upstanding part of the Prince of Wales Mine complex, which sits within an extensive extractive landscape, the mine has considerable narrative value, especially given the rare survival of three phases of engine house.</p>	
<p><i>Aesthetic Value:</i> The engine houses and chimneys are solid-looking structures with a certain industrial grandeur to their form and design. The use of similar materials and, and brick arches to the openings, indicate some care over their appearance was taken. The regenerating scrub around the site does not appear to be managed in any meaningful way, and would contribute to an aesthetic air of ruinous dereliction; however, the conservation works have introduced a degree of artificiality to its appearance</p>	

<p>which has yet to subside.</p>
<p><i>Communal Value:</i> None.</p>
<p><i>Relevant Attributes of the World Heritage Site:</i> 1. Mine sites and ore dressing floors [Prince of Wales Mine].</p>
<p><i>Authenticity:</i> The engine houses and chimneys are authentic structures of the 19<sup>th</sup> century, subject to some alteration in the early 2000s during conservation works. However, its surroundings have been all encompassed by woodland growth.</p>
<p><i>Integrity:</i> The engine houses survive to eaves-height as a shell, and the chimneys appear to survive to full height. All internal and most external fixtures and fittings have decayed or have been removed; though some additional structural remains survive. Any surviving working floors have been lost to undergrowth or spoil heaps; whilst those spoil heaps to the south of the Scheduled area are likely to have been reworked during modern development.</p>
<p><i>Topographical Location and Landscape Context:</i> The Scheduled area is located on a steep south-facing slope mid-way up Hingston Down, at the top of a shallow valley. It is surrounded by open agricultural fields, but the site itself is heavily wooded, visually contiguous with the woods in the valley below.</p>
<p><i>Principal Views:</i> Views from the site are limited by woodland and vegetation in all directions, and by the topography of the landscape to the north. Loss of deciduous foliage in the winter may reduce levels of screening, but there are sufficient evergreens to limit the effect. There are wide landscape views towards the Mine, but its distinction within these views is masked by the trees; the chimneys on Kit Hill being much more prominent a component of the skyline in their location on the ridge.</p>
<p><i>Landscape Presence:</i> The engine houses and chimneys are very solid-looking structures, though only the chimneys are visible on a landscape scale. However, the woods that encompass the site, and its position mid-slope, render the mine less obvious than its original composition would have projected, and this diminishes its subjective <i>landmark</i> status.</p>
<p><i>Immediate Setting:</i> The immediate setting of the mine is fairly constrained, and while the visitor may be aware the location is elevated, the woodland and scrubby vegetation covering and surrounding the site mean it is not obvious. The site can be accessed by foot from the south from the road dissecting the former mine site; this is a pleasant footpath partially using former tracks on the site, which meanders past most of the surviving structures. Whilst the enclosing woodland and vegetation detracts from the functional nature of the site, it enhances the visual appeal and sense of exploration and discovery upon arriving at the building remains. The structural elements of the mine are open access land, though vegetation prevents access to all areas; old mine shafts and spoil heaps are now fenced in. Since restoration works took place, woodland, gorse and scrub has regenerated in and around the mine buildings and spoil heaps, restricting outward views and masking previously visible spoil heaps.</p>
<p><i>Wider Setting:</i> The agricultural fields on the slopes of Hingston Down, and the interface between recently enclosed upland and more venerable enclosures.</p>
<p><i>Enhancing Elements:</i> Its woodland location giving a sense of isolation from surrounding development.</p>
<p><i>Detracting Elements:</i> The extensive undergrowth and woodland preventing the site from being seen as a single entity; inconsiderate dog walkers and dog mess.</p>
<p><i>Direct Effects:</i> None.</p>
<p><i>Indirect Effects:</i> Whilst the proposed development would not affect the area of the Scheduled Monument, its location on part of the same former mine site gives it the potential to influence the wider site. However, development of this area has already occurred. The woodland here, both on the Monument and around the proposed site, will screen direct views to the development site for the lifetime of the trees. The spoil heaps also provide local blocking. The visual effect of the proposed development would generally only be experienced on arrival at the site from the Callington Road and from buildings immediately adjacent. The expansion of residential development in the area has an adverse effect on the current setting and experience of the mine. However, the proposed development would be screened from view and falls within an area that has already been developed.</p>
<p><i>Contribution of Setting to the Significance of the Asset:</i> The Prince of Wales Mine had a specific function within an industrial landscape. Its location was determined by the presence of copper, tin and land ownership, and it was not clearly designed for outward views or to create a landmark. However, the recent development of the site as a community resource, and the fact that the site is growing into the landscape as a ruin, renders it more sensitive to unsympathetic development in the wider area.</p>
<p><i>Magnitude of Impact:</i> The proposed development would not impinge on the experience and setting of the</p>

designated part of the Prince of Wales Mine, being situated in an area of the mine that has already been developed with screening by existing woodland. Construction of modern housing to the west of the mine has already had a negative effect on the experience of the approach to the mine. However, the proposal is within an area already developed and would essentially only replace existing structures on the site, providing mitigation for the negative effect.

*Impact Assessment: High value + Negligible effect = Slight Impact. Negligible to Negative/Minor impact overall.*

**Asset Name: World Heritage Site – Tamar Valley Mining District with Tavistock**

*Parish:* Multiple

*Value:* Very High

*Designation:* WHS (contains Listed Bldgs, SAMs)

*Distance to Development:* Site inside the WHS

*Description:*

**Outline:** The mining district comprises both valley and upland setting for tin, copper, silver-lead and arsenic mining, ore processing and smelting. It includes the River Tamar and its associated industrial river quays, and the major town of Tavistock that was remodelled during the nineteenth century with profits derived principally from copper mining royalties. The boundary has been drawn to contain all of the principal mines in the upland area from west to east, and in the valley setting from north to the south (including the Bere silver mines in the south). The principal mining quays, villages and mineral railway network are within the boundary, and the linear route of the early nineteenth century Tavistock Canal links the two sub areas.

**Key Characteristics:** The rounded granite summit of Kit Hill (333m OD) dominates the western part of the Area whilst high ground creates a distinctive landform running eastwards along the upland ridge of Hingston Down. At Gunnislake, on the western bank of the River Tamar, the granite ridge descends steeply to the river. Tavistock is a medieval stannary town, re-modelled during the nineteenth century using the profits of copper mining, notably from Devon Great Consols (A10i) and Wheal Friendship (Mary Tavy). It includes a number of impressive contemporary public buildings and model housing for workers as well as the inland terminus of an important mineral canal. The Tamar Valley forms the principal central landform of the district. Whilst the river flows from north to south, its great loops and bends follow a highly sinuous and changing course, and its sides are often steep and frequently wooded. To the east the landscape is rolling cultivated countryside that descends to the ancient market town of Tavistock, which nestles beneath the high granite uplands of Dartmoor. The mines of this district exploited an important concentration of tin, copper and arsenic lodes most of which run parallel with the east-west axis of the granite and which were worked almost continuously from Callington to Tavistock (WHS Management Plan).

**Supplemental Comments:** There is an inherent conflict between the protection and preservation of this landscape, the duty to ‘protect, conserve and enhance historical authenticity, integrity and historic character’ and the need to appreciate that this is a living landscape that continues to evolve and where sustainable development must be encouraged (WHS Management Plan). The upland parts of this landscape form a highly distinctive landform, in which the relicts of its mining heritage form prominent components. Anything that detracts from that comes into conflict with the need to conserve and enhance historic character.

**Evidential Value:** The district contains a very large number of historic buildings, structures and mining-related features, very few of which have been comprehensively surveyed, and which survive to varying degrees. Certain elements – e.g. the Tavistock Canal, Devon Great Consols, and Morwellham Quay – are well documented and well served by survey and publication, but they are in the minority. Most of the mine sites, including many of the principal ones identified by the WHS management plan, have not been surveyed, and there is little understanding of the below-ground resource. In addition, as the LiDAR survey and geophysical survey in the district indicates, mining activity was not restricted to the mine sites and lode-back pits etc. and can be found at some distance to the established mines. Understanding of other key attributes of the WHS (infrastructure, settlements, great houses, mineralogy etc.) are subject to similar caveat.

**Historical Value:** ‘The landscapes of Cornwall and West Devon were radically reshaped during the eighteenth and nineteenth centuries by deep mining for predominantly copper and tin. The remains of mines, engine houses, smallholdings, ports, harbours, canals, railways, tramroads, and industries allied to mining, along with new towns and villages reflect an extended period of industrial expansion and prolific innovation. Together these are testimony, in an inter-linked and highly legible way, to the sophistication and success of early, large-scale, industrialised nonferrous hard-rock mining. The technology and infrastructure developed at Cornish and west Devon mines enabled these to dominate copper, tin and later



arsenic production worldwide, and to greatly influence 19<sup>th</sup> century mining practice internationally' (WHS Management Plan). Mineral extraction on Hingston Down was proverbial, and there is considerable time-depth to this extractive landscape; *Goodluck* is mentioned in 1580. All but one (Great Houses) of the key attributes of the WHS are represented here, and thus the historical value of the area is considerable.

*Aesthetic Value:* The aesthetic value of the principal mine sites is variable: in some areas these ruinous complexes can be described as romantic, in others as blasted wastes with industrial structures best described as eyesores. In many ways, such sites have greatest aesthetic appeal when viewed from the middle distance. Chimneys provide key visual markers in the landscape, protruding above the trees that conceal many of the lowland sites. Some elements (e.g. great houses) were designed to be attractive, whereas others can be enhanced by their setting (e.g. cottage gardens). In this specific instance, the chimneys of the Prince of Wales Mine are visible protruding through the encompassing treeline.

*Communal Value:* Variable, dependant on individual elements (e.g. churches within mining settlements); none in this instance.

*Relevant Attributes of the World Heritage Site:* All, but specific to the proposed development: 1. Mine sites and ore dressing floors [Prince of Wales Mine].

*Authenticity:* Inscription as a WHS implies authenticity, but as an extensive site within a living landscape authenticity will vary. The Prince of Wales site has become heavily wooded and overgrown, and the southern half has been developed; St Ann's Chapel has changed over the course of the 20<sup>th</sup> century.

*Integrity:* Inscription as a WHS implies integrity, but as an extensive site within a living landscape, integrity will vary. Many of the structures at Prince of Wales Mine, including three sets of engine houses and chimneys, have been conserved. The spoil heaps on the southern (undesignated) part of the site have been extensively reworked, and the site re-used in part for light industry.

*Topographical Location and Landscape Context:* The proposed development would be located on the southern flanks of Hingston Down.

*Principal Views:* Views to and from the flanks of Hingston Down, from viewpoints within the lowlands to the south, and from elevated areas to the west (Kit Hill) and east.

*Landscape Presence:* Elements of the WHS in this area are visible on a landscape scale. The chimneys at Prince of Wales Mine are a localised skyline monument, but mostly concealed within trees – the chimneys on Kit Hill to the north-west are more obvious landmarks. St Ann's Chapel, as a ribbon development crossing a prominent hill slope, is visible on a landscape scale; it should be noted that the extant housing estates at the western end of the settlement are reasonably prominent, being a discrete block of buildings, many of which are painted white.

*Direct Effects:* The development would have a direct effect on the archaeology beneath the site. However, the site has been subject to industrial and residential development which may have already disturbed surviving archaeology. The proximity of Goodluck Shaft might suggest earlier mining features might be present at depth, and 19<sup>th</sup> century mining plans show a lode running east-west below the site.

*Indirect Effects:* The immediate landscape already features modern housing development, including within the former Prince of Wales Mine and to its immediate west. Whilst the further development of housing in this area would erode the regional distinctiveness of this landscape, the scale of the proposed development, and its location within a haulage yard surrounded by domestic housing within a wooded area, significantly reduces this impact. Intervisibility between the various designated elements discussed (above) would suggest that the principal effect would only be on the houses immediately adjacent. Local blocking from other structures and vegetation will reduce the impact on other components of the WHS.

*Contribution of Setting to the Significance of the Asset:* The key characteristic of many of the mine sites in this upland area is a sense of openness. The Prince of Wales site, however, has an entirely enclosed feel – the surrounding fields are open agricultural land but the mine itself is wooded and overgrown. There are numerous chimneys located within its shallow valley but none of these are visible at any great distance.

*Magnitude of Impact:* The proposed development would cover a tiny proportion of the total area of the WHS, but would be located in a relatively sensitive part of the WHS. It is within the Prince of Wales Mine (one of the principal mine sites identified within the district), and is moderately close to St Ann's Chapel. Each heritage asset, whether designated or not, reflects one of the key attributes of the WHS. However, the authenticity and integrity of these assets varies considerably. The proposed development, which converts currently industrial land into residential, is located within an area of the Prince of Wales Mine that has already been heavily disturbed and is screened by spoil heaps and trees from the surviving mine structures within the SAM; the proposed structures are likely to have no greater impact on the site than

those they would replace.

*Impact Assessment: Very High value + Negligible effect = Slight Impact. **Negligible to Negative/Minor** impact overall.*

#### 4.8.2 HISTORIC LANDSCAPE

##### *General Landscape Character*

The landscape of the British Isles is highly variable, both in terms of topography and historical biology. Natural England has divided the British Isles into numerous ‘character areas’ based on topography, biodiversity, geodiversity and cultural and economic activity. The County Councils and AONBs have undertaken similar exercises, as well as Historic Landscape Characterisation.

Some character areas are better able to withstand the visual impact of development than others. Rolling countryside with wooded valleys and restricted views can withstand a larger number of sites than an open and largely flat landscape overlooked by higher ground. The English landscape is already populated by a large and diverse number of intrusive modern elements, e.g. electricity pylons, factories, modern housing estates, quarries, and turbines, but the question of cumulative impact must be considered. The aesthetics of individual developments is open to question, and site specific, but as intrusive new visual elements within the landscape, it can only be **negative**.

The proposed site would be constructed within the *Kit Hill* Landscape Character Area (LCA):

- This LCA is characterised by the prominent Marilyn hilltop of Kit Hill, a largely unenclosed heathland of scrub and bracken scarred by its mining heritage, together with a lower granite and slate ridge (Hingston Down) that extends to the east, enclosed in the 19<sup>th</sup> century with improved and semi-improved grassland. Dependent on location, sweeping panoramic views are possible from the upper slopes and hilltops. The wider landscape around Harrowbarrow is fairly complex, with medieval settlements with their associated fieldsystems defined by substantial Cornish hedgebanks (Harrowbarrow, Metherell, Chilsworthy), and later settlements (Drakewalls, St Ann’s chapel) associated with mining in the area. The complexity of this landscape, when viewed from suitably elevated viewpoints to the south, means the visual element of development is reduced; and it was noted during the site visit that the proposal site is screened completely by surrounding woodland. As the proposal is within an already developed area of settlement, and infills space rather than extending the settlement, the impact on the historic landscape as a whole is assessed as **negligible**.

#### 4.8.3 AGGREGATE IMPACT

The aggregate impact of a proposed development is an assessment of the overall effect of a single development on multiple heritage assets. This differs from cumulative impact (below), which is an assessment of multiple developments on a single heritage asset. Aggregate impact is particularly difficult to quantify, as the threshold of acceptability will vary according to the type, quality, number and location of heritage assets, and the individual impact assessments themselves.

Of the heritage assets selected for detailed assessment, the impact of the proposed development was judged to be negative/minor in both instances; whilst other assets were considered to not suffer any appreciable negative effect primarily due to the role of local blocking. On that basis, the aggregate impact is assessed as **negligible**.

#### 4.8.4 CUMULATIVE IMPACT

*Cumulative impacts affecting the setting of a heritage asset can derive from the combination of different environmental impacts (such as visual intrusion, noise, dust and vibration) arising from a single development or from the overall effect of a series of discrete developments. In the latter*

*case, the cumulative visual impact may be the result of different developments within a single view, the effect of developments seen when looking in different directions from a single viewpoint, of the sequential viewing of several developments when moving through the setting of one or more heritage assets.*

The Setting of Heritage Assets 2011a, 25

*The key for all cumulative impact assessments is to focus on the **likely significant** effects and in particular those likely to influence decision-making.*

GLVIA 2013, 123

The visual impact of a single housing development can be significant, but the cumulative impact could undoubtedly eclipse this in some areas. An assessment of cumulative impact is, however, very difficult to gauge, as it must take into account operational developments, those with planning consent, and those still in the planning process. The threshold of acceptability has not, however, been established, and landscape capacity would inevitably vary according to landscape character.

In terms of cumulative impact in this landscape, the roadside settlement to the west of the Prince of Wales Mine is mid-late 20<sup>th</sup> century and later, whilst there has also been 20<sup>th</sup> century development on the southern portion of the mine. The nature of both of these developments mimics the linear morphology of nearby settlements, and whilst the choice of design and materials may increase impact, if sympathetically undertaken new small scale development may not be noticeable. On that basis, the cumulative impact is taken as **negligible**.

#### 4.8.5 SUMMARY

Table 8: Impact summary

Asset	Type	Distance	Value	Magnitude of impact	Assessment	Overall Assessment
Prince of Wales Mine at Harrowbarrow	SAM	0.2km	High	Negligible	Slight	Negligible to Negative/Minor
WHS Tamar Valley and Tavistock	WHS	0.0km	Very High	Negligible	Slight	Negligible to Negative/Minor
<b>Landscape</b>						
Historic Landscape Character			High	Negligible	Slight	Negligible
Aggregate Impact			High	Negligible	Slight	Negligible
Cumulative Impact			High	Negligible	Slight	Negligible

## 5.0 CONCLUSION

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The proposed development would be located on land that was formerly a fir plantation in the 1840s owned by the Williams family of Scorrier House and Caerhays Castle. It became part of the Prince of Wales Mine from the 1850s, though mining in the area (Goodluck Shaft) is documented from the 16<sup>th</sup> century. The site has been subject to extensive modern development, having been a transport depot since the 1970s.

Most of the designated heritage assets in the wider area are located at such a distance or topographical location such as to minimise the impact of the proposed development, or else the contribution of setting to overall significance is less important than other factors. The landscape context of many of these buildings and monuments is such that they would be partly or wholly insulated from the effects of this proposed development by a combination of local blocking from trees, or buildings or that other modern intrusions have already impinged upon their setting.

The key consideration for this site is the potential effect on the World Heritage Site and its component in the immediate area: Prince of Wales Mine (SAM). This exhibits one of the key attributes of the WHS (mine site). The proposed development would have an effect on the character and setting of these heritage assets, namely in its location within the area of the former Prince of Wales Mine (though to the south of the Scheduled area). However, whilst the Prince of Wales Mine retains good authenticity and integrity, the proposal site is within an area that has already seen modern development and the proposals would seek to replace existing structures, and as such would mitigate the potential for harm, giving an overall assessment of **negligible to negative/minor**.

With this in mind, the overall impact of the proposed development can be assessed as **negligible to negative/minor**. The impact of the development on any buried archaeological resource, which is assessed as being of **low to medium** potential, would be **permanent** and **irreversible**.

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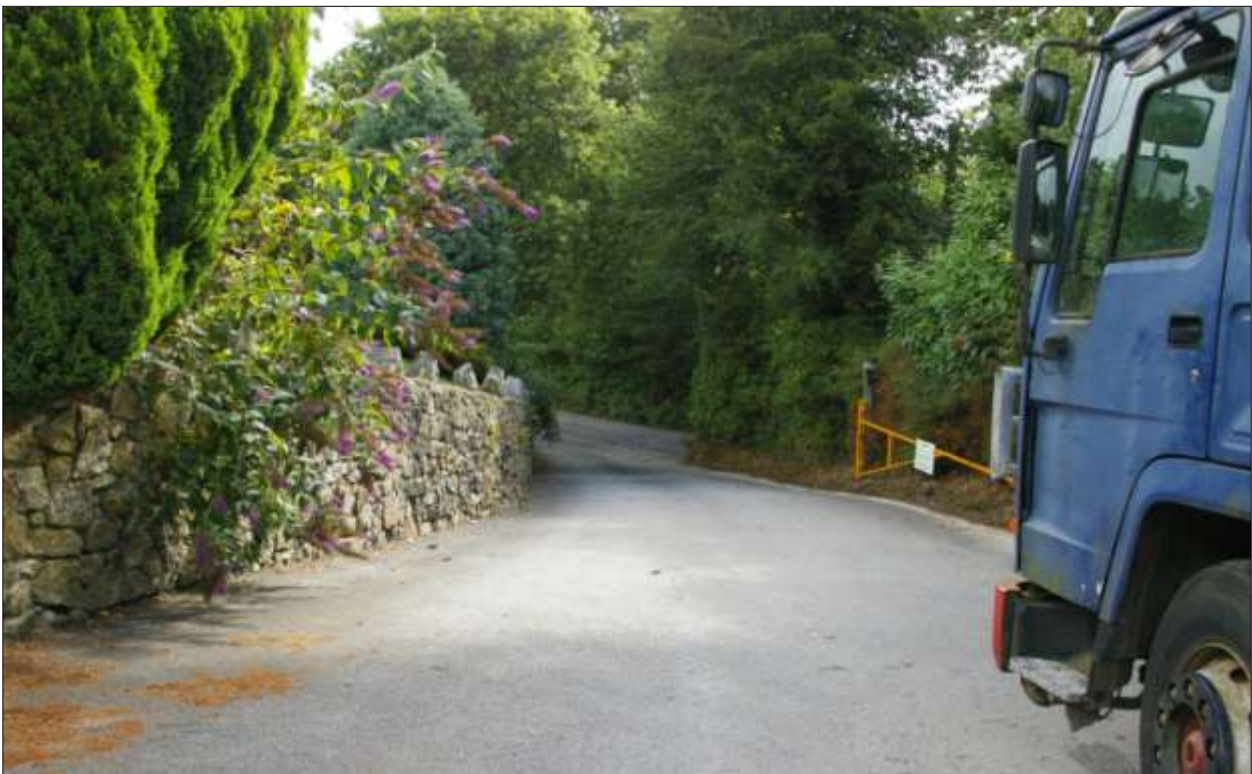
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APPENDIX 1: SUPPORTING PHOTOGRAPHS: WALKOVER



View onto the site from along the entrance drive from Callington Road; viewed from the east-north-east.



View back along the site entrance; viewed from the south-west.



Detail of the hedgebank on the south-east side of the entrance; viewed from the west (1m scale).



Detail of the modern stone wall on the northern side of the entrance; viewed from the south-west (1m scale).



View across the site showing its current use as a haulage depot; viewed from the north-east.



View along the north-eastern boundary of the site; viewed from the south-east.





The north-west site boundary looking towards the Prince of Wales Mine SAM; note the slope and extent of the adjacent spoil heap, now heavily overgrown; viewed from the south-east.



As above; viewed from the east.



View looking towards the Prince of Wales Mine SAM showing screening from vegetation to the north; viewed from the south.

## APPENDIX 2: SUPPORTING PHOTOGRAPHS: HVIA



View along the Callington Road towards Harrowbarrow from the site entrance (Club Cottage is visible), showing the character and size of roadside hedges and trees; viewed from the north-east.



View along the Callington Road away from Harrowbarrow from the site entrance, showing the character and size of roadside hedges and trees; viewed from the south-west.



19<sup>th</sup> and 20<sup>th</sup> century houses along Callington Road; viewed from the south-west.



View from the road bisecting the Prince of Wales Mine, looking down to the site (screened by trees); viewed from the north-north-west.



Detail of the view from directly above (north) the site; the roof of the extant workshop is visible (indicated) but the rest of the site is screened from view; this is the only view in which other chimneys are visible; viewed from the north-north-west.



View showing the undergrowth to the east of the site; viewed from the west.



Some of the light industrial units on the developed part of The Prince of Wales Mine; viewed from the north.



View towards the site from the southern limit of The Prince of Wales Mine SAM; viewed from the north-east.



View back towards the Prince of Wales Mine SAM from one of the spoil heaps in storage yard adjacent to the site; viewed from the south-south-east.



Landscape view to the south-east of the site; viewed from the north-west.



View across the Prince of Wales Mine SAM from the A390, showing the site to be screened by the topography and woodland from views to the north; viewed from the north-north-west.



View from the northern edge of The Prince of Wales Mine SAM showing the extent of woodland regeneration; viewed from the north.



Detail of the winding engine house, showing the trees and undergrowth; viewed from the north-east (1m scale).





As above, viewed from the north-west.



Detail of the pumping engine house, showing the trees and undergrowth; viewed from the north-east.



As above, viewed from the north-east.



View towards the site from the inside of the pumping engine house, showing screening from trees; viewed from the north.



Views of the pumping engine house chimney; viewed from the south-west.



View of the stamps engine house chimney; viewed from the north-north-west.



View of the stamps engine house and chimney, showing the trees and undergrowth; viewed from the north-west.



As above, viewed from the south-west.



View along the PROW along the western edge of The Prince of Wales Mine SAM, looking towards the site; viewed from the north (1m scale).



The roadside bank at the southern boundary of The Prince of Wales Mine SAM; viewed from the south-west (1m scale).



Spoil heaps within the southern (undesignated) part of The Prince of Wales Mine now used for the storage of steel containers, looking towards the site; viewed from the north.



The roadside bank at the northern boundary of the southern (undesignated) part of The Prince of Wales Mine; viewed from the north (1m scale).



View across the wooded spoil heaps within the southern (undesignated) part of The Prince of Wales Mine; viewed from the north-north-east.



View across the wooded spoil heaps within the southern (undesignated) part of The Prince of Wales Mine; viewed from the north-east looking towards the site.



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