Tarset Archive Group.

TARSET CASTLE -- HERITAGE at RISK

1. SUMMARY

This report summarises the information researched and gathered by the Tarset Archive Group (TAG) between 2006 and 2011. It should be read in conjunction with the Reports produced by White Young Green in 2009 and 2011. It does not contain any information obtained by any later surveys or ground investigations. It also does not contain any account of slope movements which may have occurred after 2010.

This version of the Report (V 2.0) was issued in January 2014, incorporating some revision and expansion of a few sections of text.

Tarset Castle is located in the modern Parish of Tarset and Greystead, in the County of Northumberland (Unitary Authority). It also lies within the Northumberland National Park.(NNP) The remains of the Castle occupy an elevated site at National Grid Reference NY 7885 8545 on the left (east/south) bank of the Tarset Burn and 0.5km upstream of its confluence with the River North Tyne.

The site was defended to the North by a steep and unstable slope approximately 18m high above the Tarset Burn, on the East and South sides by a substantial and steep-sided ditch, and on the West by a steep slope which is believed to have been built up with spoil from the ditch. Active landslipping of the North slope poses a threat to the castle mound and the remnants of the building.

Although the remains are thought to be those of a fortified house, in this report the site and structures are referred to as 'The Castle'.

The Castle is a Scheduled Monument and a Grade II* Listed Building. It is on the English Heritage 'Buildings at Risk Register'. It is included in the following lists :--

National Monuments Record: NY 78 NE 7
English Heritage (Pastscape) Monument No. 15682.
Northumberland Historic Environment Record, No. 6995,
Tarset and Greenhaugh Historic Village Atlas (NNPA): Site 4,
Tarset Archive Group : Site A0004. (TAG Atlas Map M1)

2. TIMELINE of recorded events.

1244	The site may have been fortified, perhaps with an earth and timber-built structure.
1267	A Licence to fortify the site with a stone wall and ditch was granted by Henry III to John Comyn.. It was decreed that the castle was to be fortified in the manner of the *Camera [fortified house]* of Adam of Jesmond, now popularly known as King John's Palace, in Heaton Park, Newcastle. Confusingly it passed through the ownership of several John Comyns until 1312 when the last one was murdered by Robert the Bruce at Dumfries
1523	Occupied by Sir Ralph Fenwick and 80 men.
1524	William Charlton of Bellingham and 200 men displaced Fenwick
1525.	Fenwick returned with 100 men but the Castle was sacked and burnt by an alliance of Tynedale men and Scots. It was never rebuilt and became a quarry.
1725 (about)	It was reported that the walls were '*still of considerable height'* but '*yearly suffered dilapidations'.*
1773	A sketch plan of the site indicated that the outline of the external walls were still

	discernible, a rectangular building with a tower at each corner.
1795 (about)	*'Part of the walls were still standing'*
1825 (by)	'*The very foundations have been dug up for the purpose of obtaining the stone to build a mansion house.'*
1860 (about)	A cutting was made for the Border Counties Railway through the south-west corner of the site. This section of the Railway opened in February 1861
1862-1895	Major landslip(s) on the North slope (left bank of the Tarset Burn)
1888	The site was excavated by Mr. W.L.S Charlton. The finds included a well-built hewn stone underground passage containing a fine bronze key and a sword, but no plan was made. Some items of masonry may have been incorporated in the The Reenes farmhouse near Bellingham.
1897 (about)	Catastrophic failure of a masonry dam on the Tarret Burn near High Green. The subsequent flood may have caused further erosion of the North slope.
1956	The Railway was closed to passengers, and to freight about 2 years later.
2007	The site owner with the support of the Tarset Archive Group advised English Heritage of the deteriorating condition of the site.
2008	English Heritage launched 'Buildings at Risk Register' on site TAG, with NNP volunteers planted 1200 willow slips in an attempt to improve stability but the trees do not survive the dry summer and sheep/deer predation.
2009	English Heritage awarded funding for surveys and ground investigations which were carried out during the summer by White Young Green..
2010	TAG held a Heritage Open Day with an exhibition in Tarset Village Hall (September).
2011	Surface movement markers were re-surveyed, generally showing small displacements downslope. Some of the movement markers and piezometer casings had been lost

3. THE MAIN FEATURES OF THE SITE (See plan).

A The Castle Ditch (not a moat)

B The South East Tower: Only part of the rubble core remains.

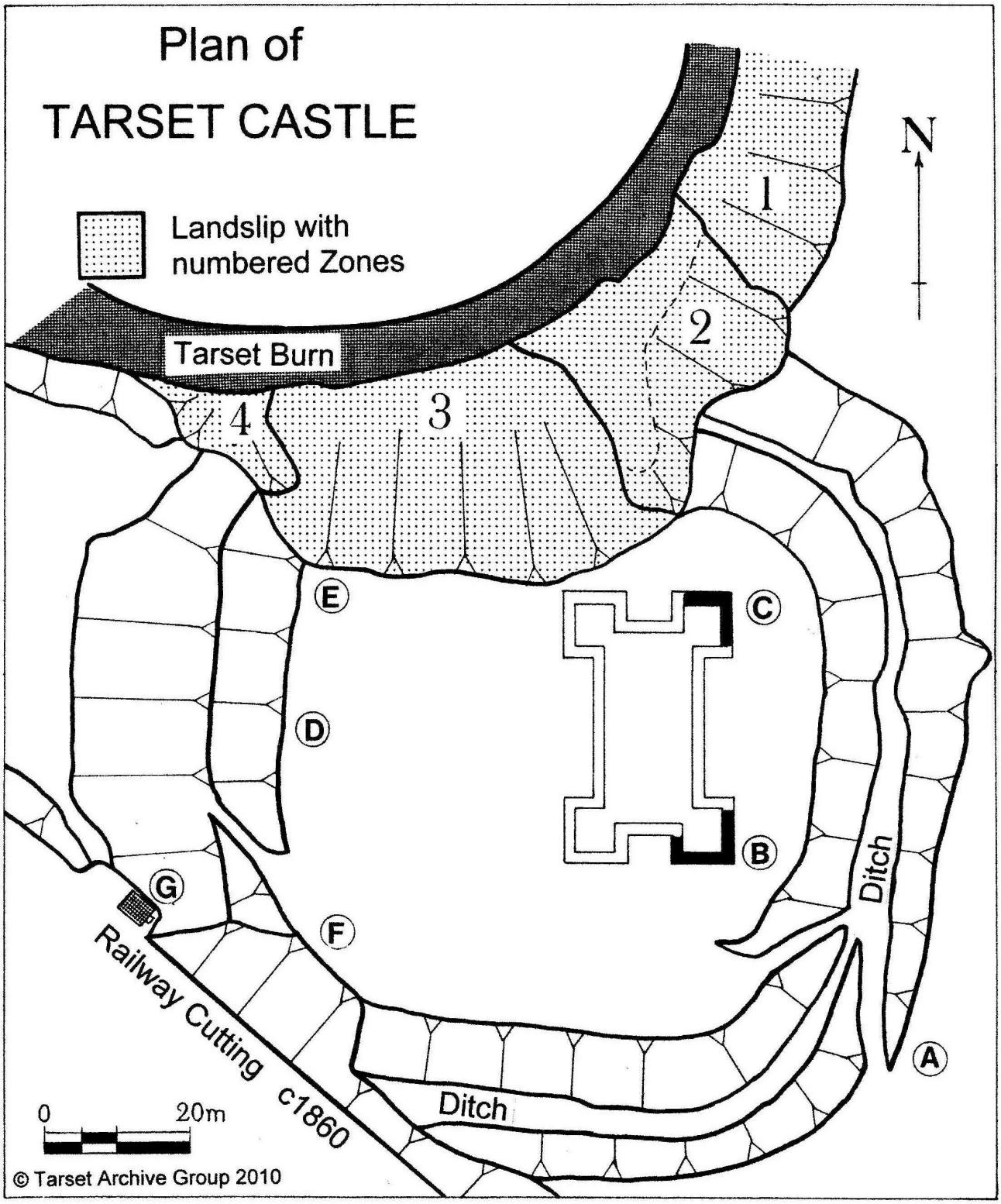
C The North East Tower: The remaining masonry, a chamfered plinth, is of high quality. There may be remains buried at a lower level.

D Strategic views: North up the Tarset Valley, North-west and East to the Park, West, towards the Border 13 miles away, South, towards Dally Castle 1 mile away.

E The North Slope. A steep natural slope, the toe of which is under attack from the Tarset Burn. Landslipping now threatens the castle remains. (See below)

F. Excavating the cutting for the Border Counties Railway in about 1860 removed part of the castle mound and ditch.

G Railway Lengthmen's Hut: Used as a bothy and to store tools by men who patrolled the line daily, carrying out maintenance. Now derelict.



4.0 SITE DESCRIPTION

4.1 Earthworks

The castle is situated on the top of a spur of land between the Tarset Burn and the River North Tyne. This spur is probably the upstream end of a large drumlin or 'glacial flute' (Frost and Holliday 1980) composed of Till (Boulder Clay) but containing some beds of sand. The original land form of this spur has largely been lost as a result of the castle and railway construction and erosion by the Tarset Burn The top of the Castle mound measures approximately 70m across E-W and 60-75m across N-S. (see plan). The top is roughly level at an elevation of about 136m AOD., about 18m above the adjacent haughs (floodplains). The humps and bumps of the castle ruins and what are probably heaps of demolition rubble have a maximum elevation of about 138m AOD.

The south and east sides of the mound are bounded by a substantial ditch, generally 20m wide at the top, about 5m wide at the base and with a maximum depth below natural ground of about 4m. The sides of the ditch are grassed with slopes of 35-40 degrees, but the base of the southern section of the ditch has extensive reed growth indicating damp soil.

At the north-east corner of the site the ditch turns north-west to meet the north (landslipped) slope. This slope is described in detail in Section 5.0.

The western side of the mound is also a steep grass-covered slope in two sections; a top section at about 40 degrees, but with terracettes indicating soil creep, is now suspected to be constructed mainly of fill. A lower section with a slope of about 17 degrees is thought to be in natural ground but might have been a borrow area for the railway.

The field to the east of the site has been cultivated by rig and furrow, the sinuous traces of which are visible both on the ground and on air photos. This field slopes gently to the west, towards the castle ditch and the river slope. Comparing levels across the ditch suggests that the castle mound may have been raised and levelled with spoil from the ditch. Taking the length of the surviving ditch as about 180m, and estimating from the above dimensions the volume excavated from the ditch indicates the spoil might have been sufficient to raise the level of the castle mound (including the footprint of the building) on average by about 2m. There is therefore a possibility that the stone passage found in the 1888 excavations is in fact part of a buried lower floor of the building.

4.2 The Castle

The 1773 sketch plan indicates that the actual castle was a rectangular building with square towers at each corner. It stood on the eastern side of the mound and with its longer axis aligned north-south. Scaling from the 2nd edition O.S plan and air photos indicated initially that the overall length in this direction was 30-35m. The width was more difficult to determine as it appears from air photos that most of the structure has been removed on the western side. A 'best fit' from the air photos and the recent detailed topographic survey suggests overall dimensions (including the corner towers) of a N-S length of about 37m and an E-W width of about 23m, (say 120ft x 75ft.)

The best preserved remains are at the NE and SE corners. At the north-east corner a double chamfered plinth is exposed on the N and E walls of the corner tower. At the south-east corner rubble core masonry of the corner tower stands to a height of approximately 1.5m.

Sandstone for the castle masonry is likely to have been obtained from quarries adjacent to the crossroads at Lanehead. The gable wall of Tarset Lodge facing the road is built of uniform blocks which are probably from the Castle.

4.3 The Railway

The railway cutting does not form part of the Scheduled Monument but the castle site was damaged by its construction.
Plans for the Border Counties Railway were deposited in 1853 and construction was authorised by Act of Parliament in 1854. Construction at the Hexham end did not begin until the end of 1855 and, following various delays, the Contractor did not reach Tarset until about 1860. The line past the Castle opened to traffic in February 1861. The railway company purchased and fenced land for a double line of rails and all the bridges were built to this standard. The earthworks, however, accommodated only a single track and the 'spare' land was left on the north side of the track. An embankment 2.5km further west is partly constructed of ash and slag fill, probably from the defunct ironworks at Bellingham, suggesting that the contractor was short of fill and he may therefore have dug extra material from or near the Castle site.

The cutting adjacent to the Castle has a 40 degree slope with terracettes indicating soil creep but otherwise appears to be stable. This is somewhat steeper than 'standard' cuttings in soil of this era which were usually built with slopes of 1V to 1.5H or c35deg. In the long term, the excavation of the cutting may have had a beneficial effect by improving the drainage of the castle mound.

The railway crossed the Tarset Burn just downstream of the Castle by a 3-arch skew masonry viaduct, the eastern arch of which has been reinforced with concrete ribs. Messrs. Moore reported that the eastern river pier was being undermined by scour and that remedial piling and construction of a concrete 'boot' was undertaken at a cost of £50,000, not long before the line closed in 1956. Further scour has now exposed some of the piling.

5.0 THE NORTH SLOPE LANDSLIP

5.1 Description

The slip area extends approximately 115m along the south (left) bank of the Tarset Burn on the outside of a rather sharp bend. About two thirds of the slip area lies directly below the Castle mound and ditch.
As is usual in old slips of this size, various zones and slope facets can be identified within the slipped area, each having characteristic materials, slope angles and slope processes. Four zones were identified in the preliminary survey and have been defined in more detail in the 2009 surveys. They are described in order from upstream to downstream and the various slope facets from the bank of the Tarset Burn upwards. Measurements [in brackets] are the approximate length of river frontage.

Zone 1. [35m.]
This Zone is north/upstream of the castle ditch and movement here does not directly threaten the castle remains.

(a) Burn bank formed by large boulders and possibly rock insitu. Alder trees with roots in the river.
(b) A 'terrace' up to about 5m wide and at about the same level as the floodplain on the opposite bank.
(c) Slope of about 30deg. with mature alder trees, some showing signs of slope movement. This merges upward to:
(d) Slope at about 30deg. with no trees but wet (reeds) from seepage emerging at base of :-
(e) Steep back scarp at about 40deg. with bare scars, the largest exposing a deposit of orange-brown sand. The top 30cm or so of the sand seems disturbed, contains angular stones and is overlain by an irregular dark soil horizon with fragments of charcoal, below topsoil.

Zone 2. [25m.]

Zone 2 is clearly defined by 'steps' running up the slope on both sides. There are now no trees in this zone. This is an active zone where further movements will have a direct impact on the Castle. [A review of the movements in this zone suggests that it would be preferable to divide it into two sections, East and West.]

(a) Burn bank: boulders in the water, some up to 1m in length, but the bank is being actively eroded with undercut slices of soil and turf falling into the river.
(b) Wet ground with thick reed growth, some boulders possibly from the Castle but few if any worked stones. Lower part covered when the Tarset Burn is in flood. The facet is approximately horizontal near the burn but along the western side of the zone it narrows upslope to what appears to be a translational slide or mud-flow.
(c) Back slope which, where intact, is turf-covered with angles up to about 40 deg. The castle ditch daylights on to the slope in this zone. North of the ditch there is an active slip which is mainly grass-covered and hummocky but with till and soil exposed around the edge. South of the ditch is a large slip scar exposing till and/or fill with slope angles estimated up to about 55 deg. Seepage below the Castle ditch appears to be emerging from a horizon of white weakly cemented fine sand.

Consideration should be given to the possible effects of the ditch on the stability of this zone. The ditch as a whole must act as a large surface water drain, although the catchment to the East must now be limited by the adjacent C200 road. Levels show that the base of the ditch drains both to the North and South. Northward drainage would thus be into this zone. The ditch must also act as a groundwater drain; seepage from the sand horizon described above also discharges into this zone. The combined effect of both discharges may be a factor in generating greater activity and the mud flow.

Zone3. [40m.]
Further recession of the top of the slope would damage the Castle remains. Much of the lower part of this slope (b) may be debris from the late C19th slip identified on old O.S. Plans. (See below 5.2.)

(a) Burn bank: some boulders in the burn but erosion is now removing material between the surviving alder trees. Tree roots in the burn. Some trees lean back and some forwards over the burn and generally look vulnerable.
(b) Apron/accumulation zone, hummocky, a few boulders, appears reasonably well drained, slope 15-20deg.
(c) Back slope with 40deg. grass slope at the top but with a large bare till scar as in Zone 2. Possible incipient slip scarps at top close to ruins.

Zone 4. [15m]
Active slip. Cutting into west slope of Castle Mound.
(a) Burn bank; unprotected, smaller boulders than zones upstream, no trees.
(b) A steep scar exposing till and encroaching on an older scarp. Turf and reed-covered debris has slipped almost to river level.

In Zones 1 and 3 alders along the bank provide some protection of the toe of the slip against erosion. It appears that there may be diseased trees in the area; loss of more trees would have an adverse effect on stability.

5.2 Progress of Slipping

The first accurate survey of the site is contained in the Parliamentary Plans for the Railway deposited in 1853, but the scales of both the plan and the longitudinal section are too small to make useful deductions.
The following sources have been used to track changes on the site:

O.S. 1:2500 Plans
1st Edition Surveyed c1861-2
2nd Edition Revised c1895
3rd Edition Revised 1922.

O.S Air photos, about 1:8000, Vertical stereo pairs flown in 1974
O.S. 1:1250 Plan, not dated, supplied by NNPA. No National Grid.
O.S. 1:1250 Rectified Vertical Air Photo, 2003, supplied by the Forestry Commission

It has been assumed that the O.S 1:2500 plans were actually resurveyed on the above dates. Definite changes are shown to the north bank of the Tarset Burn, however, the outline of the castle ditch does not appear to be quite correct and may have been carried over from the first edition.

The following changes are evident.

1. There have been changes to the position of the north bank, and in particular to the spreads of gravel (but actually cobbles and boulders) along the bank and in the river. A gravel island appearing in the 1974 photos and mapped on other O.S. maps of that era has now gone.
2. Little or no movement of the south bank has been recorded since 1861-2 , but two rock outcrops in are shown in the burn on the 1922 plan in Zone 1.
3. Between 1861 and 1895
   (a) The main slip scar is shown extending a further 30m downstream (Zones 3 & 4.) and;
   (b) there was a major recession of the top of the slip over its whole length with the loss of up to 15m width of the top of the mound.
4. The 1974 photos show several trees on the river bank in Zone 2, all of which have been lost .

It thus appears that there was a major slip between 1862-1895. Archer (1992) notes that there were no exceptional floods on the River Tyne for the two decades following 1856, and therefore, by inference, no excessive rainfall. There were however, major floods in the period from 1875 to 1886, including the devastating flood following rapid snowmelt in 1881.

The slope may also have been affected by the failure of a masonry dam on the Tarret Burn (tributary to the Tarset Burn) near High Green in the 1890s, although the exact date is uncertain. Calculations based on measurements of the surviving remnants of the 6m high dam indicate that it had a low factor of safety against both sliding and overturning. The masonry was also of poor quality so failure is likely to have been catastrophic and to have generated a large flood.

Although the sequence of O.S. plans shows no significant movement of the toe of the slip area, it is clear on site that material has moved and is currently moving towards the river, but it appears that erosion and supply of material have more or less balanced over the period of these records.

5.3 Ground Investigations.

During the summer of 2009 a ground investigation was carried by White Young Green Environmental and the results were reported in their Interpretative Report issued in September/October 2009, Ref: A056038.
In summary the site work included a detailed topographic survey, installation of ground anchors to monitor surface movements, boreholes sunk with a window sampler and the installation of standpipe piezometers. Soil index tests were performed on selected samples. Some analyses of slope stability were carried using assumed effective stress parameters.

Preliminary proposals were made for remedial works, but these were not costed and do not constitute a appropriate or safe design.

In addition English Heritage required a laser scan to be made of the castle remains. This apparently proved difficult to interpret and TAG has not seen the final result.

In the summer of 2011 the surface movement markers were re-surveyed, most showing small displacements downslope. Some movement markers and piezometer casings were reported as lost. Unfortunately the surviving piezometers were not dipped and no check was made to see if any of the tubes had been sheared.

Future monitoring of the slope should be carried out on a more regular and systematic basis. It should include photographs taken from specific points (e.g. movement markers or piezometers) and in defined directions so that there is a consistent record of the surface features.

6.0. GROUND MODEL and SLIP MECHANISMS

A ground model has been proposed based on the above observations and by analogy with similar landslip areas (e.g. Hall et al. 1996). This model may (or may not) be verified or refined by further investigation and monitoring :-

1. The north slope of the Castle site above the Tarset Burn is underlain by till containing some horizons of sand, and capped by fill excavated from the Castle Ditch. Rock head is probably close to the stream level in Zone 1.
2. The main movements have been separate rotational slips, probably involving the whole height of the slope. As till is essentially a remoulded (engineering) soil it is non-brittle (cf A.W. Bishop). Further movements of the slipped masses, which may be triggered by rises in pore-water pressure or toe erosion, are therefore relatively small and slow.
3. As the slipped masses descend, the over-steep back scarps of the slips become higher and may fail independently. Material from the scarp may slip or fall on to the main slipped masses, top-loading them and causing further movement towards the burn.
4. Surface drainage and seepage of groundwater may soften the debris, generating a translational slide (as in Zone 2.)
5. In due course, when sufficient slip debris has been removed by erosion, another major slip will occur and the cycle will be repeated.

This model does not fit the other slopes of the castle mound, the inner slope of the ditch, the railway cutting and the West slope which appear to be reasonably stable with slope angles up to 40deg. They are all 'old' slopes and are not, of course, subject to toe erosion. The geology is, presumably, similar although it is not known if sand horizons are present, or crop out on the slopes

7.0 SELECTED REFERENCES

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8.0 DISCLAIMER

This Report was compiled to summarise the information researched and gathered by the Tarset Archive Group between 2007 and 2011 for use only in further assessments of the site and to inform the design of any

future investigations. The designer(s) of any remedial works will need to verify the observations and check historical and geographical data from primary sources.