Methodology & Associated Risk - Boundary Wall Works

11 Wood Street,

Skelmanthorpe, HD8 9BN

Index-

Introduction

The Wood Street development is situated within Skelmanthorpe. A former detached property has been demolished to enable the construction of four good sized detached properties which will be arranged along a private gated site road.

Wood Street itself is a small ancillary road, in the main singular vehicle width. The road is used more as an access road to properties on the street rather than a through road. In the main the road appears to be well maintained with minor age related wear in places, along the length there are road gullies however the length of road towards Station Road has no kerb line and all property boundaries abut the road, no footpath.

A number of conditions have been applied to the development of this site. Planning Condition 6 of Application 2024/62/91934/E requires that the Wall on Wood Street be reduced in size, see condition below in image 1.

6. Before development commences, the wall to the site frontage and 2m x 17m sight lines to the east and 2m x 43m to the west of the proposed access shall be lowered to a height not exceeding 900mm above the level of the adjoining highway as shown on the Site Access Visibility Assessment Plan number 21017/VIS/001 rev B and shall be cleared of all obstructions to visibility and shall be retained free of obstruction throughout the lifetime of the development.
Reason: This pre-commencement condition is necessary to allow for safe pedestrian access to and from the site and adequate visibility in the interest of highway safety and in accordance with Policy LP21 of the Kirklees Local Plan and the aims of the National Planning Policy Framework.

Image 1

As per the condition Linfit will reduce the wall and grade/ reduce the ground accordingly, this document will discuss the methodology of works along with concerns and risks.

Description of Existing Wall type, Construction & Condition

A Visual Structural Inspection Report was conducted by OEC Consulting Engineers on the 12th May 2023, a revision of the report was done on 25th March 2025 which recorded further movement within the wall in Area B, the revised report is in appendices A.

Within the report reference is made to sections of the wall in turn through photography, site survey with discussion of materials and structure.

As discussed in the engineer's report the existing wall is not of one construction, it appears to have been added onto and repaired quite a number of times. In image 2 (over page), you can clearly see the original shale layer wall, since commencing works onsite, we have been able to determine where the original walling material came from. This type of stone is present in the upper 250mm- 500mm of the ground in the unquarried areas of the site and it understandably has been utilised for the original boundary walls due to the abundance of the material, so much so that it is present on a number of walls local to the site. It must be noted that the shale stone is quite a 'soft' product and is seen as waste by local quarries as it mainly reduces to dust when riddled. The nature of this product is evident in the wall where it has fractured, weathered and formed voids.

Image 2

The upper part of the wall has been constructed at a later date out of what appears to be ‘backings’ from an old stone house. Backing stones were commonly used on the internal face of properties local to the site, the scutch marks on the face of these stones were created to enable the adhesion of lime plaster product. Across the site there were a number of garden walls that had been constructed of similar materials. The use of them on boundary walls is not unusual however they do require mortar and a second skin with ties/ jumpers for integrity and strength, this wall has a second internal skin on the last 300mm and there appears to have been concrete poured just below the surface for the inner leaf, this raises further concerns over the stability of the structure of this wall.

Image 3

In image 3 the shale layer is very prominent with a mixture of ‘backings’ and random stone above, none of which is bedded on any form of mortar. The shale along the wall length is fragmenting and fracturing is present along the length with pockets forming in the wall.

In image 4 & 5 you can see that a section has been repaired to what appears to be a good standard with drainage outlets fitted. Unfortunately, it is only a small area of the wall that has been repaired, however as suggested by the Engineer it is not to an acceptable standard for the Highway.

Image 4

Image 5

‘Bellying’ has been evident for some time in areas along the length of the wall, this is discussed in the Engineers Report. In January 2026 the area known as Section A in the Engineers Report, partially collapsed leaving a large pocketed area within the wall, see Image 6.

Image 6

Risks - Removing Existing Wall and Reducing Ground to New Wall Height

Planning Condition 6 requires that we reduce the height of the wall, we commenced this in February 2026.

When the operatives began removing the upper layers of the wall it sagged locally to the collapsed area and a large section of wall slid down.

This sudden collapse was caused by large amounts of concrete which had been poured down the back of the wall that was unseen, we believe this may have been done to act as a footing for the inner leaf of masonry and/or to stabilise the wall from deteriorating further, See Image 7. We now know that the concrete behind the wall is present in other areas, but can not confirm that it runs the full length of the wall.

On the evening of the 13th May 2026 into the early hours of the 14th the wall collapsed further. The effected area was in the region of section A moving into B on the Engineer's drawing. Linfit staff attended on the evening and moved Heras fencing to create an exclusion zone.

The leading edge had fallen forwards and the next few meters or so had a severe lean towards the highway. On the morning of the 14th the 360 Excavator driver was instructed to remove the area of wall that was leaning and to remove spoil to create an angle of repose, the risk was removed.

Further works on the wall have been stopped until a safe system of works can be devised

The risks posed by the wall are numerous and each area must be dealt with separately in a slow methodical manner.

Using the Elevation drawing on page 27 of Engineers Visual Structural Inspection Report we will explore the potential risks associated with removing each section of wall, at this stage we will not discuss the replacement wall.

Wall Section A – this area has collapsed, the upper section is still piled up against the lower section of wall to prevent further slippage.

Image 7

The main risk has already occurred in this area, fortunately nobody was injured or property damaged. In this event happening it has demonstrated the potential issues that we will face throughout the task.

When the collapsed stone is removed from the base, the remaing wall behind may start to shift. To negate this the wall and pile will be reduced at the same time ensuring equal height until fully removed to road level.

Wall Section B through to the end of E, less C – The concerns relating to these areas are due to the irregularity of the structure. In the main, the wall has been poorly rebuilt with random, unbonded stone and there is no evidence of large jumper stones or ties. The extent of the concrete behind this wall is unknown, we do not know whether it was put there as a footing for the internal skin, to strengthen the wall or both, for this exercise we will assume the same risk of collapse as seen in Section A is present.

Wall Section C – Previously repaired by Kirklees Council, though this area was repaired in recent years we have no knowledge or understanting of its make up. With this in mind we will assume the same risk as the rest of the structure.

The spoil behind the wall in area A appears to be loose in the initial 500mm, for safety this has been batted back to to prevent slippage into the highway. It is assumed that the material behind the whole length of the wall will be loose spoil intermingled with roots and quarry detritus of varying sizes.

The stability of the material behind the wall is unknown, we will assume that it will collapse in the same manner as Section A, see Image 7.

As the wall is reduced in height the spoil behind will be cut into to give an angle of repose of 45°, however it must be noted that should the spoil remain unstable the angle will be reduced to potentially 30°, see appendices C 'Section Through Existing Wall'.

The proposed use of the angle of repose will be impeded in the area of the tree T1, this will be due to roots being present. The works to remove the wall in this area will be significantly difficult, the excavator will remove the wall with ease but will struggle to form the angle of repose without potentially damaging the roots. It is also possible that the spoil may fall away from the roots as the wall is removed, if this happens then there may be voids left in and around the roots to an unknown extent which may undermine the stability of the tree potential leading to it falling.

The wall removal works can not and will not be done by hand, the risk to operatives is not acceptable and only mechanical means with long reach, such as an excavator, affords the correct level of safety to undertake the work.

The angle of repose applied will create a banking, the base will be next to the highway and the top of the banking will sit approximately 2m back into site. Due to the height of the spoil behind the wall the cut to form the angle of repose must be done by mechanical means, NO work by hand until the risk is removed and has been assessed.

At this stage the risk presented by the wall and fill is removed, however the tree T5, as noted in the AMS, will only be circa 2 – 2.5m from the top of the newly formed banking most likely with roots exposed presenting a further risk, see Image 8.

Image 8

Proposed Replacement Wall Design and Reasoning

Once the original wall has been removed and the banking stabilised then works will commence on the replacement wall.

The proposed design is shown in Image 9, note the overall height of the wall will be no greater than 900mm, as per Condition 6, Image 1, the height shown in the drawing below is a maximum tolerance not the final height and the angle of repose is shown for indicative purposes.

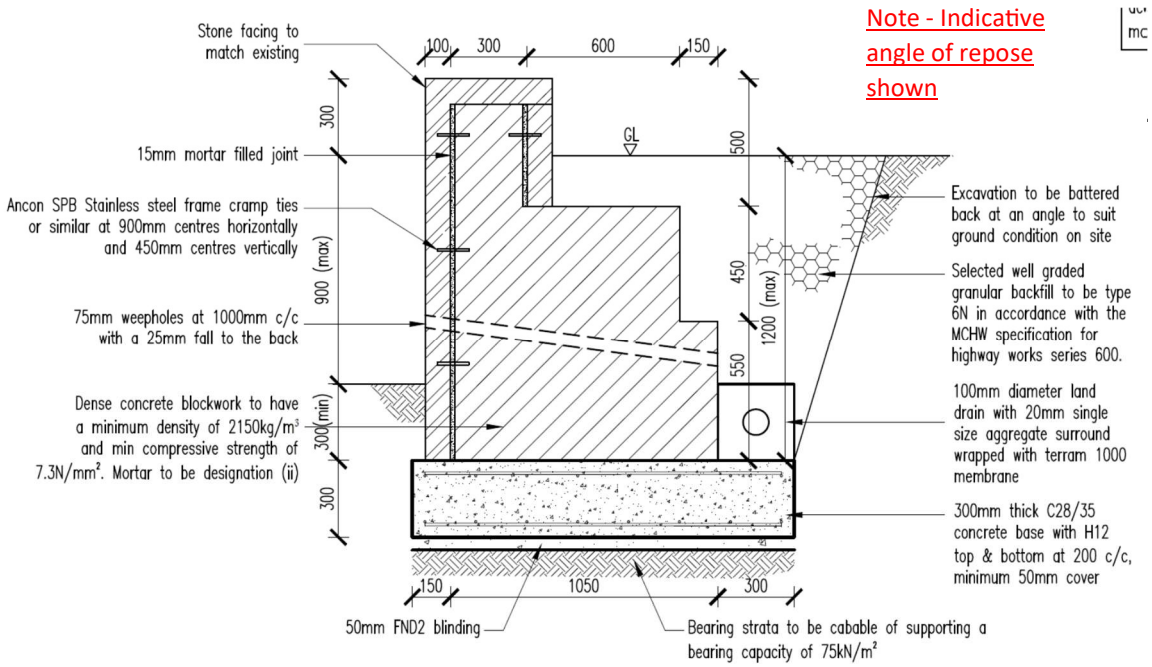

Image 9

The Gravity Retaining Wall design was chosen by the Engineer, other options were disregarded due to site constraints. The decision is discussed in the letter from the Engineer, see Appendices B.

Retaining Wall Method of Construction

The construction process for the chosen design is practical, simplistic and safe, however that is only the case if the working area is clear of obstacles. The methodology to construct the new wall would be straight forward, however due to the tree T5 further risks have been created. The risks created will be discussed in the 'Retaining Wall Construction Risk' Section.

The Method of Works will follow the steps below in conjunction with a set of RAMs that will be produced by the contractor undertaking the works prior to commencement.

A safe working area will be established on Wood Street with appropriate barriers and signage in place. A 3t 360 Excavator will be used to cut into the banking to create the footing void, working area to the rear and the angle of repose. The works will create the safe working area for the operatives constructing the wall, see Appendices D.

Once the working area has been established the groundworkers will construct the formwork to enable the footing concrete pour.

Once poured the concrete will take a number of days to cure, weather dependant, when cured the Ground workers will strike the formwork and infill the area to the rear up to the top of the footing with MOT (or similar) to provide a safe working area free of slips, trips and falls.

The bricklayers will proceed to build the wall to completion. After which the ground workers will install the land drain and infill the ground to the required finished level.

This is the simplified approach and as mentioned RAMs will be required prior to commencement, the above does not take into account the risks posed by T5.

Retaining Wall Construction Risks

Works like this are not uncommon and usually the risks associated with such works are easily mitigated through a well-constructed set of RAMs that are continually reviewed and updated as required by the works, however T5 changes this dramatically and implies a whole series of additional risks.

Planning Condition 6 requires that the wall be reduced in height, see Image 1. To carry out the works we must do extensive groundworks which involve digging out a substantial amount of ground to provide a safe working area for the Groundworkers and Bricklayers. In creating the safe working area, the roots to T5 will be further exposed, more spoil will be removed and the stability of the tree will be greatly undermined which may potentially lead to the tree failing.

The new wall requires the ground to be graded down to the rear of it, see Appendices E. If the roots were to remain in place they would be significantly exposed, note the ground level will be reduced by a minimum of 1200mm, this measure will increase in areas, again this may lead to issues with T5.

The risk posed is very high, should the tree fail, limbs fall then there is risk implied to operatives, the general public, nearby properties and vehicles.

Conclusion

As previously mentioned, the works are not uncommon and most risks can be safely mitigated by use of the correct machinery, trained and competent operatives, with a robust set of RAMs that are amended, updated as required for the task.

The risk with this sequence of works is in the main imposed by the tree T5 and its position in relation to the wall.

From the moment the operatives commence removing the wall from the area near the tree the risk increases and continues to do so throughout the works.

We have no way of knowing what is going to happen and can only assume worst case scenarios based on the evidence we have seen already, as discussed, the wall itself is extremely unstable and we know that the ground that was behind the recent collapse was loose spoil, we can only assume that it will be the same the length of the wall. We know there is rock shelves across the site and potentially the ground local to T5 could have rock layers within 1m of the surface which could then pose further issues with a shallow root system.

Health and Safety is priority, our operatives will only proceed once the risk is mitigated and a safe system of work is adopted, the proposed works are easily achievable and can be safely done if T5 was not in close proximity.

The works must be done as they are a Planning Condition, we can not simply reduce what is there as the wall is in poor condition and it will eventually fail which poses risk to those using Wood Street, further to this the current wall is not constructed to Highway standard, refer to appendices B – Letter from Engineer.

The only safe way to mitigate the risk of the wall collapsing is to replace it and the only safe way to undertake these works is to remove the risk in its entirety by removing T5, in doing so the existing wall can be removed and replaced safely, with no risk to the General Public or Operatives.

A – Visual Structural Inspection Report

B – Engineers Letter Regarding Retaining Wall – 11/05/2026

C – Section Through Existing Wall

D – Typical Section Through Retaining Wall Works

E – Section Through Retaining Wall Works Showing Tree (T1)

Last Page

Intentionally Blank