

Devon hedge creation: new turf faced banks and planting

This section provides landowners, consultants, planners and contractors with information on how to construct and plant new turf faced Devon hedgebanks. For guidance on how to maintain and repair existing banks, and on stone faced banks, see section 9 on *Maintaining and repairing turf and stone facing*.

Devon hedges, including their banks, are very variable in size, type and shape, so it is best to follow local hedges where possible, to ensure new ones match others in the area and strengthen local landscape character. Researching the location of historic boundaries may help ensure that new hedges enhance the historic landscape character. Your local authority archaeologist may be able to advise on the exact alignment of hedges shown on the nineteenth century Tithe Map or First Edition Ordnance Survey maps.

In parts of Devon, hedges are stone faced rather than turf faced. Here the local tradition should always be followed and construction materials compatible with the local area used. For details of new stone faced hedges

refer to section 9 on *Maintaining and repairing turf and stone facing*.

This section does not include details on the planning and regulatory processes that may apply or need to be considered - your relevant local authority can advise on these.

Please see the *Glossary* for definitions of terms used.

Constructing a new turf faced Devon hedge

Key to Devon hedge construction is the selection of a skilled contractor specialised in this area of work and able to provide examples of good workmanship.

This note focuses on two main methods for constructing a new turf faced Devon hedge:

- Devon hedge with turves - this traditional option uses grass turves to face the soil core.
- Devon hedge with hessian sacks - this new technique is suitable in dry areas or where turves are unavailable or unsuitable. It uses layers of hessian sacks filled with soil to construct the profile of the bank.

The choice of which method to use will depend on soil and local landscape characteristics. Both options require the creation of a shallow foundation trench to provide a firm footing. If time allows, a short trial hedge can be constructed to test the suitability of the proposed methodology.

Typical profiles and dimensions are given in Figure 1. The measurements given are examples only; experienced contractors may suggest alternatives more appropriate to local circumstances. Relevant factors will include the material available on site, the cohesive properties of the soil, its moisture content and local traditions.

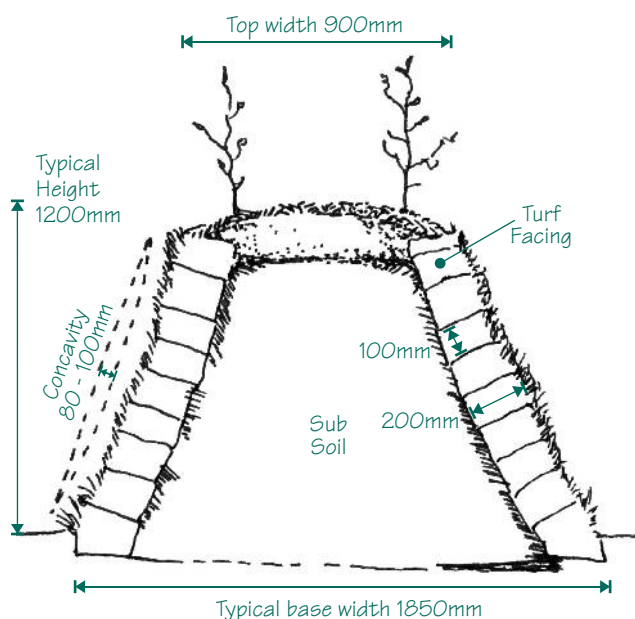


Figure 1: Cross section through typical turf faced bank. ©Heather Harley

Simpler construction techniques can be used to create a turf faced hedge, such as mechanically creating and shaping a simple soil bank. However, such approaches are not usually recommended as they will rarely successfully mimic the traditional character, especially the height and near-vertical faces, of the Devon hedge. Furthermore, the stability of such banks is often fragile, with the bank base susceptible to bulging.

Construction option 1: using turves

- Turves should be cut from areas as near as convenient to the site, ideally from the immediate vicinity of the new hedge or alternatively from an adjacent location with similar soil conditions and vegetation. Be careful not to damage important herb-rich turf or features of archaeological importance in the process.
- Ideally, turves should be cut using a shovel rather than a mechanical turf cutter which may produce turves that are too thin. Importantly, the angle at which the base of each turf is cut will determine the way it sits on the hedge, so sloping rather than straight bases are preferable. Turves should preferably be 300mm in length to ensure adequate course overlap.
- Turves should be placed with the grass facing outwards in level courses following a bricklaying stretcher bond pattern, ensuring that the joints are staggered.
- Each layer of turves should be set back marginally compared to the previous layer (by approximately 10 mm), and at the same time a slightly concave batter created. This is desirable for the stability of the bank structure, helping to prevent bulging through allowing some outward movement when the turves are tamped down. It will also allow rainwater to run into the root area of each layer of turf. Ideally, there should be less batter on the wetter south to west faces and more on the drier north to east faces.



Figure 2: The new bank on the right has been built and turf faced using an excavator. The ditch provided most of the material for the bank. This bank will soon be planted with shrubs and trees. ©Robert Wolton



Figure 3: Construction of a turf faced bank showing the progressive coursing of turves and build-up of fill. ©Paul Couttie

- Upon completion of each course of turves, the core of the hedge should be backfilled with subsoil, which preferably has a good clay content to aid compaction of the bank and adhesion of the turves (Figure 3). Ideally, subsoil should contain few stones, and those of a small size, otherwise there is risk of hedge faces slumping inwards overtime as fill soil migrates downwards in between stone crevices.
- Materials should ideally be excavated on site to eliminate the cost of importing material and to improve overall waste management on the site.

- The fill should be thoroughly compacted, ideally being tamped manually. Essentially, the soil on the back of the turves must adhere with the fill to create a strong bond. When tamping, pressure should be applied in both an inwards and a downwards direction. This will help to ensure that turves are consolidated and prevented from being pushed outwards by the pressure of the fill.
- The bank should be finished with loose soil to just above the level of turf, so that shrubs/trees can be planted along the top of the completed hedge. Mulch or upside down turves can be added over the topsoil to help control weed growth.

Construction option 2: using hessian sacks

Where the use of turves or stone facing is not practical, hessian sacks, though not traditional, can provide a suitable alternative (Figure 4). The construction method applies the same principles as discussed in Construction Option 1, other than as detailed below. Further information on this construction method can be found in section 14, *Devon hedges and development 2: pipelines*.

- In lieu of turves, hessian sacks are filled two thirds full with local soil (with or without additional grass and wildflower seed - see below). This has the advantage of using a readily available, on site resource, which will also contain the seeds of local plant communities.
- Hessian sacks are laid in courses following the stretcher bond pattern and successively back filled. The digger bucket should be used to apply sufficient pressure to compact material in 150 mm layers, without pushing the hessian sacks apart.
- To increase the lateral stability of the bank, lay two hessian sheets across the width of the bank at approximately one third and two thirds of the bank height. The sheets should be secured by wrapping them under the outer edge of hessian sacks.

- The sacks should be laid with the seams facing towards the inside of the bank to produce a better surface finish. The outside face of the hedge can be smoothed out with the back of a hand shovel.
- Shape formers can be used to ensure that the profile of the face is correct and the line and level of the hessian sacks remains constant (Figure 4). As with the turf faced hedge, creating a hedge with a concave batter is desirable for the stability of the bank structure.
- A seed mix can be added to the soil within the hessian sacks to assist rapid vegetative cover of the hedge. Appropriate seed mixes should include wildflower and grass species of local provenance to provide good cover and wildlife habitat, and to reflect the local conditions. Mixes could involve a 70/30 split between grass and wildflower species.
- Alternatively, or where seed growth from within the hessian sack fails to establish or is limited, the entire face of the hedge may be hydroseeded (a sprayed slurry of seed and mulch) (Figure 5).



Figure 4: Hessian sacks being used to construct a bank on the Exe Estuary Trail. Note that both machinery and hand tools are used. Shape formers (painted blue) were used to guide the profile, line and level of the bank during construction. ©Paul Couttie



Figure 5: Hydroseeding the surface of hessian sacks.
©Paul Couttie

Devon hedge planting

To complete the new Devon hedge, trees and shrubs should usually be planted along the top of the bank.

- A variety of native, locally sourced, species should be used, reflecting those growing nearby and typical of the local landscape character. A diverse range of species will benefit wildlife by providing shelter, food and safe breeding sites. Hazel, hawthorn, blackthorn, oak and holly are ideal species to use, together with, depending on local conditions, beech, field maple, dogwood, privet, alder buckthorn, spindle, honeysuckle, dog-rose, rowan, crab apple, willow, guelder-rose and wayfaring tree.
- The new bank should be allowed to settle, and repaired to ensure a level top as necessary, before being planted. Ideally, young trees and shrubs should be planted the following autumn or winter (September - March) when ground and weather conditions are suitable (avoid very wet or frosty conditions). Do not turf or seed the top of the bank as grass growth will impede the growth of the trees. Any aggressive weeds should be controlled before planting, using herbicide if appropriate.
- Plants should be handled, stored, transported and prepared with care and following supplier recommendations. They should be at least two years old and can be either bare rooted (20-40 cm high) or cell grown (30-60 cm high). Spindly plants, or plants with a single root or just a few fibrous roots, should be avoided.

- Ensure cell grown stock is kept well watered before planting. Keep bare rooted plants damp and covered and, if obtained more than a few days before planting, they should be temporarily 'heeled into' a soil trench.
- Plant at 6-8 plants per metre in two staggered rows along the edges of the top of the bank to allow plenty of space between rows for casting up in the future. Planting on the combs of the hedge top rather than in the middle will also help to keep animals off the top of the hedge. However, if the bank is too narrow, or because it is the local tradition, a single row of saplings can be planted.
- If there is a deer, rabbit or vole problem, the plants should be protected with spiral guards or tree shelters. If there is no risk of browsing animals, low growth on saplings will develop better without guards or shelters.
- Weeds are probably the biggest problem for the saplings and a mulch such as woodchip should normally be applied to the top of the bank to suppress weed growth.
- Fencing may be required to ensure that hedges are protected from livestock damage. Fencing should be erected at a distance that will prevent stock from grazing the tops of new hedge plants. For further information on fencing, see section 4, *Devon hedges and modern farming, management cycle and fencing*.

Hedgerow trees, ditches and margins

Establishing new hedgerow trees is an important part of a new hedge. The easiest way to establish hedgerow trees is to include them in the planting mix. Further detailed advice is given in section 12, *Hedgerow trees*. Native oaks are the species of choice; however consideration must be given to which other native species already grow in the locality and are representative of the local landscape character.



Figure 6: New Devon hedge which had time to settle before saplings were planted. Plants are protected by rabbit guards and fencing. ©Paul Yells, Wonnacott Farm



Figure 7: This rebuilt section of Devon hedge with stone and turf facing closely matches the profile and shrub mix of the original. It was reinstated following installation of the South West reinforcement gas pipeline. ©Laing O'Rourke

The junctions of hedges can be very suitable positions for new hedgerow trees because the hedges may be wider and so the young trees less vulnerable to trimming damage.

Once planted, use a marker to help prevent the trees being cut along with the rest of the hedge. Further detailed advice is given in section 12, *Hedgerow trees*.

Incorporating a ditch along one or both sides of a new Devon hedge can increase biodiversity as well as assisting with field drainage. Excavated material can be used as infill during the construction of the bank, and turf used to build the faces of the hedge (Figure 2).

Field margins adjacent to a Devon hedge can provide both wildlife and agricultural benefits along with a range of ecosystem services, as well as creating a visually attractive feature. More detailed information can be found within section 6, *Devon hedges and wildlife 2: flowers, field margins and ditches*.

Aftercare of new Devon hedges

Appropriate maintenance and aftercare of a new hedge is vital to ensure its successful establishment.

- If tree guards have been used they must be checked at least once a year and removed as soon as the risk of damage is over, unless biodegradable.

- If weed growth is out-competing newly planted shrubs, control using a hand-held cutting hook or, if necessary, herbicide, being very careful to avoid the hedge plants.
- Replace any failed shrubs and trees the following winter and carry out structural repairs, if necessary.
- Information about trimming in the early years after planting is given in section 4, *Devon hedges and modern farming, management cycle and fencing*.

Further information

1. Natural England Technical Information Note TIN 039. 2008. *Devon field boundaries: restoration standards for agri-environment schemes*. www.gov.uk/natural-england
2. Natural England. 2008. *Hedge planting: answer to 18 common questions*. Leaflet NE36. www.hedgelink.org.uk

Acknowledgements

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