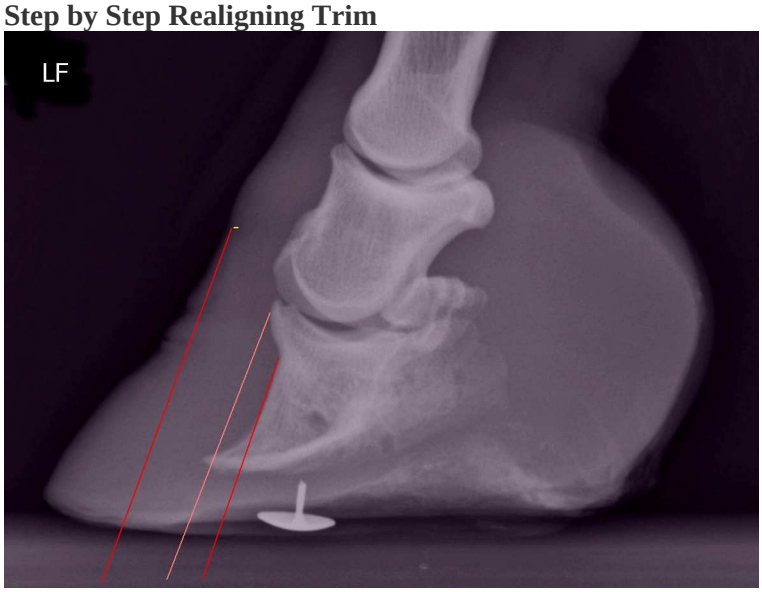
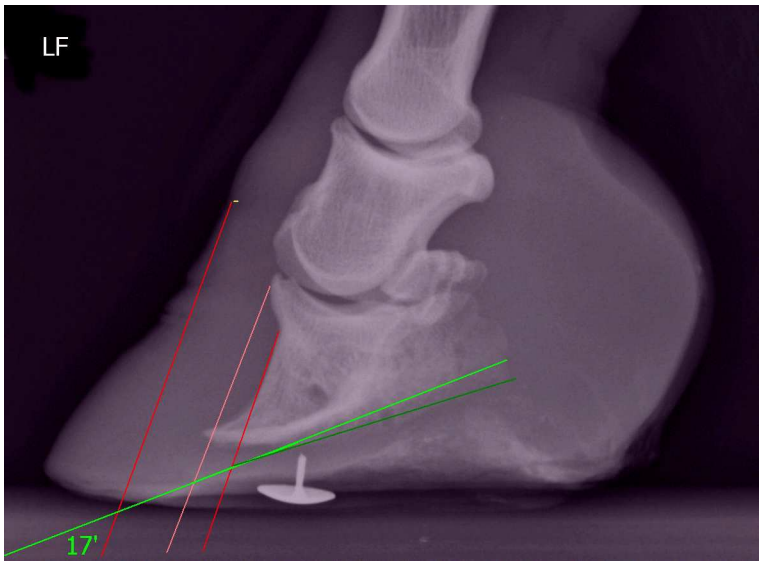
Step by Step Realigning Trim



The true toe (outer red line), starting from the hairline, should be parallel to a line drawn down the dorsal surface of P3 (inner red line). Given the bone loss/remodelling, the pink line represents a safety margin.

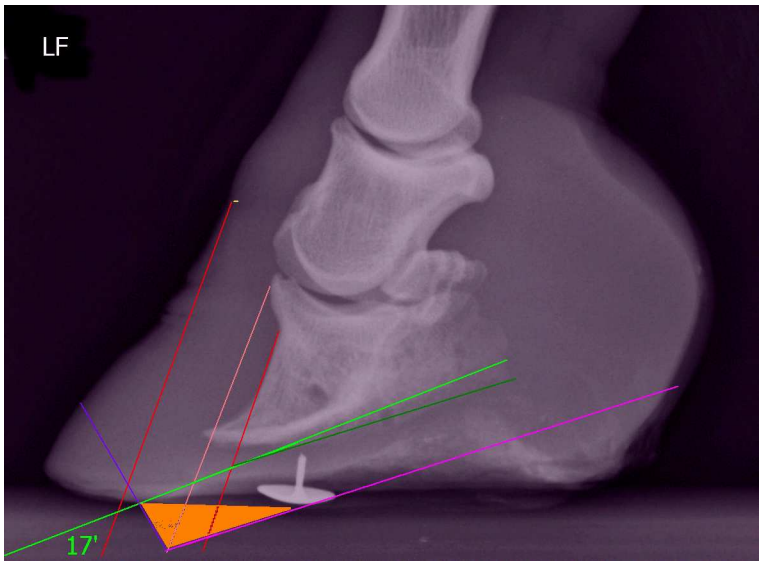
The solar surface of P3 is not clear, the green line estimates the solar surface. Using this line, the palmar angle is around 17 degrees – a good palmar angle is generally considered to be between 3 and 8 degrees, but less during laminitis rehab, say 3-5 degrees.



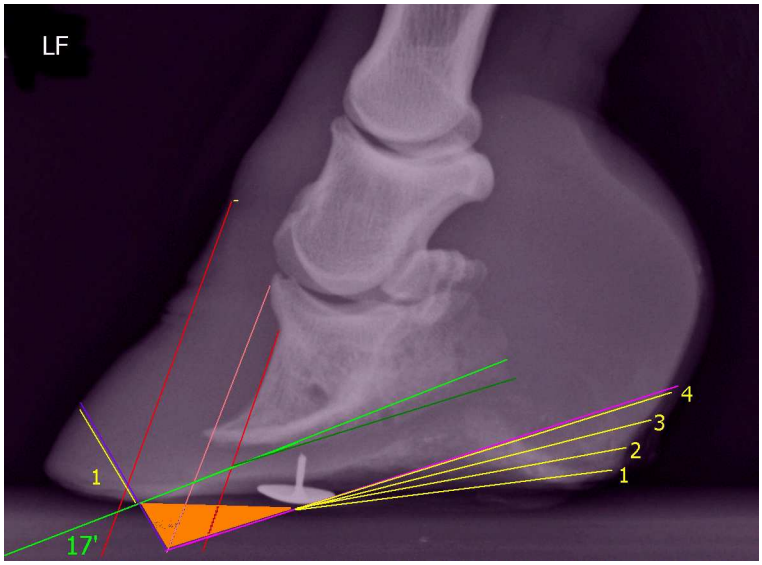
The dark green line suggests a 4 degree palmar angle.

The pink line suggests the heel trim needed to give a 4 degree palmar angle, providing good sole depth. See below.

The purple line suggests the bevel required, taking into account the sole depth desired.



Orange marks the area of sole that needs to develop.



The actual trim that should be carried out is marked in yellow.

The heel trim:
Given the length of time this pony may have had raised heels, the likely sole compaction (which may make it difficult to identify live sole), and the suggestion that no more than 10 mm should be taken off the heel height in any one trim to minimise the risk of soft tissue damage (Pete Ramey/Debra Taylor), it may be best to lower the heels to achieve the reduced palmar angle over 3 to 4 trims, ideally just a few days to a week apart – as suggested by the yellow lines numbered (trim) 1, 2, 3 and 4. Heels can grow 10 mm in 3 weeks, therefore it is important that trim intervals are less than 3 weeks, to progress the rehabilitation.
Note that the heel trim starts behind the apex of the frog – the area marked orange must not be touched with any trimming tool – this area must be allowed to develop sole material to protect the pedal bone.

The heels should be lowered using a rasp, and the rasp must be "floated" above the front of the foot – ideally the rasp should remain 15 mm above the bottom of the collateral grooves at all times (but sometimes to achieve the realignment it is necessary to come slightly lower, but always remaining at least 10 mm above the bottom of the collateral grooves). The trim NEVER touches live sole. This means that in effect, the heels are bevelled, and also that whilst the sole depth in the front of the foot is developing, the ground surface of the foot will be in 2 planes. This is necessary to lower the palmar angle AND retain/build essential sole depth, and as long as the horse is kept in boots with thick EVA pads and/or on deep conforming material, there is no problem doing this.

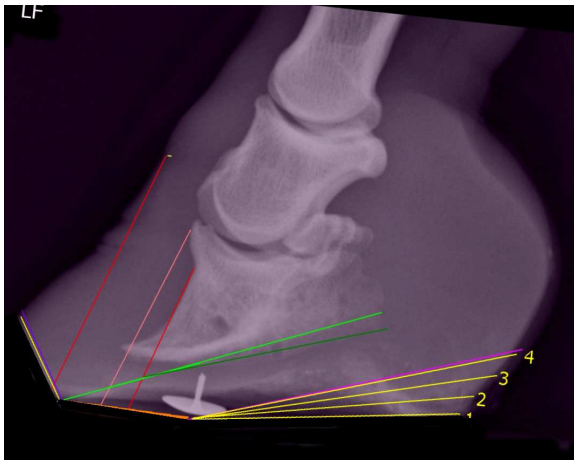
The toe can be bevelled as shown by the purple line in the first trim. The purple line suggests an angle of around 60 degrees, to keep the excess toe/laminar wedge (if it is retained) from ground contact/separating forces. Please read http://www.all-natural-horse-care.com/toe-rocker.html.

The outer wall should be bevelled out of weight bearing around the whole foot, apart from the heel, to remove it from separating forces and reduce flare.

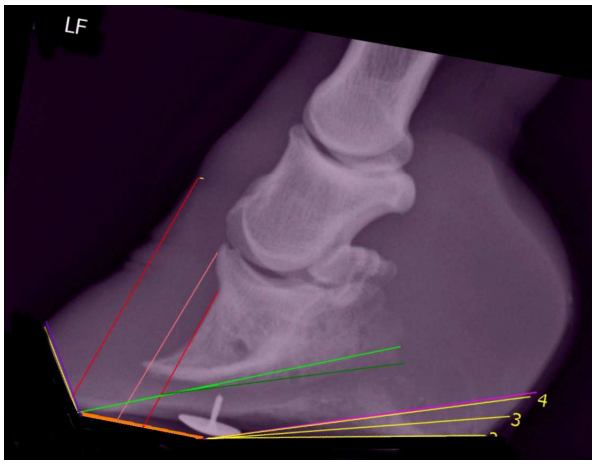
There are 2 schools of thought about removing the laminar wedge.
Daisy Bicking suggests removing a stable laminar wedge -
http://blog.easycareinc.com/blog/hoof-love-not-war/laminitis-and-the-laminar-wedge%3A-take-it-or-leave-it
Debra Taylor/Pete Ramey suggest removing flare/laminar wedge in the bottom 1/3 of the hoof only:
http://www.j-evs.com/article/S0737-0806(13)00637-0/fulltext

At The Laminitis Site, we used to follow the Debra Taylor protocol of leaving flare above the bottom 1/3 of the hoof, but we suspect that leaving the full thickness of laminar wedge might continue to increase compressive forces on the coronary/laminar coriums in some cases, and for this reason we have started to experiment with reducing flare/laminar wedge on long-term chronic cases, so far with success.

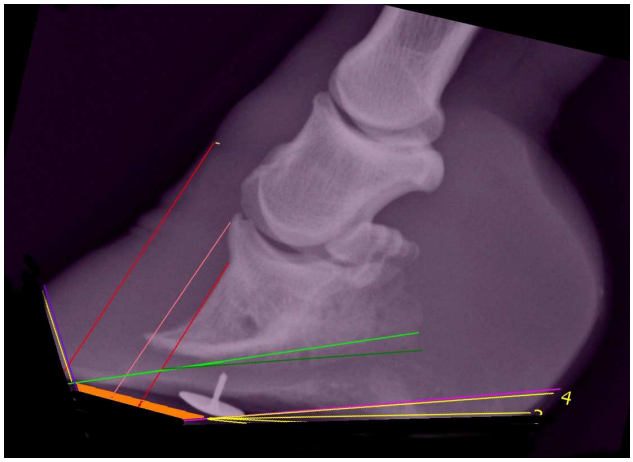
So whether some or all of the hoof wall to the outside of the outer red line is removed is a judgement call for the vet and farrier, but we see no reason to not at least remove wall flare/laminar wedge in the bottom 1/3 of the foot.



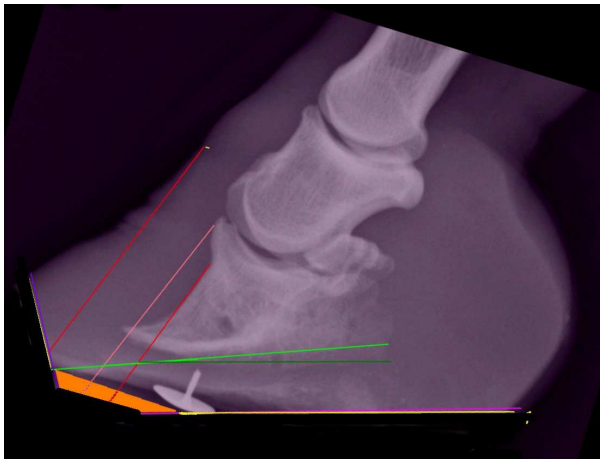
How the foot will look after the first trim (if the laminar wedge is not removed).



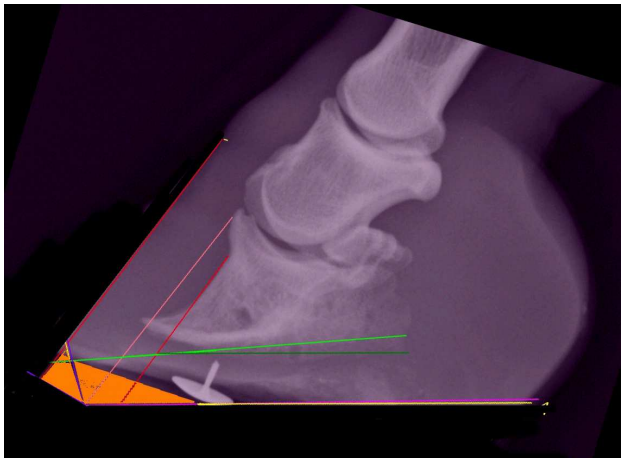
How the foot will look after the second trim.



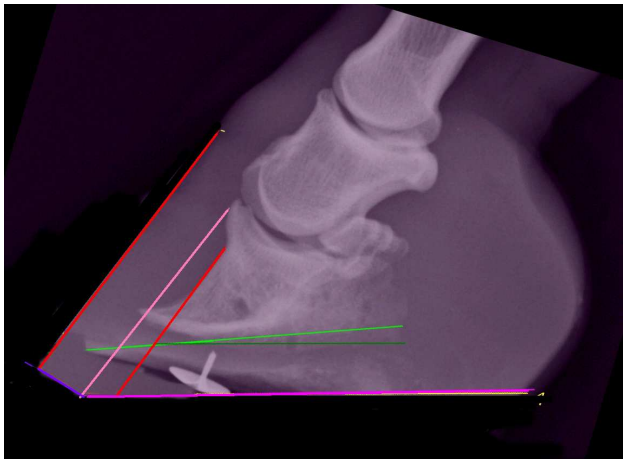
How the foot will look after the third trim – some increased sole depth should be expected by now.



How the foot will look after the fourth and final realigning trim.



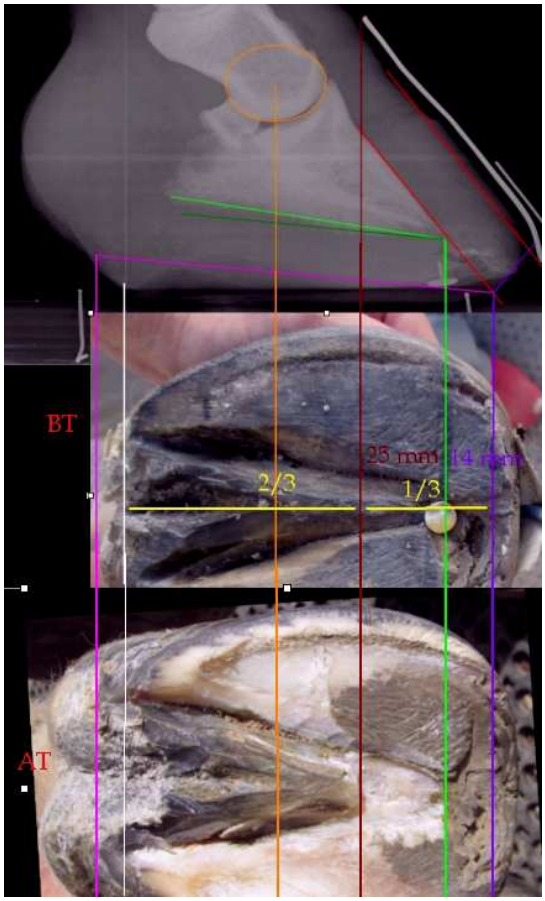
How the foot will look once the sole has fully developed (orange) and the new hoof wall has grown down (or the laminar wedge has been removed). Note the bevel at the toe has been reduced from around 60 degrees to around 30 degrees, as the foot is now correctly realigned.



The same image looking more like a foot.

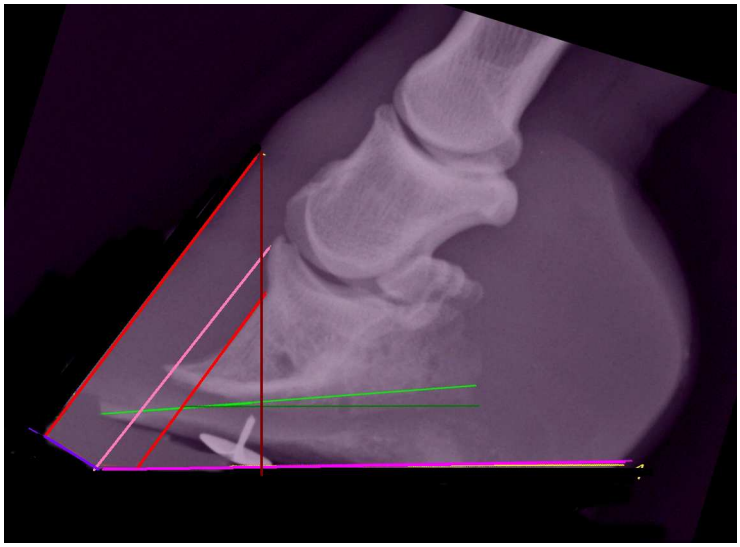
Trimming Notes

Identifying the true apex.
An important guide to establishing the correct toe/breakover position is that 2/3 of the foot will be behind the apex of the frog, and no more than 1/3 in front of the apex. For this, the apex of the frog must be true – the frog often migrates forwards over the true apex in horses with chronic laminitis. The illustration below shows how dropping a line down from the correctly marked hairline identified that the true apex of the frog was further back than the tip of the frog. The true apex is always back behind the tip of the pedal bone too. Using this guide, the farrier was able to locate the true apex.



Normally a line dropped down from the hairline at the toe will suggest the approximate position of the true apex of the frog. However, this appears to assume a palmar angle of around 5 degrees. The palmar angle

here is around 17 degrees. Assuming we have estimated the hairline correctly, the line from the hairline to the apex marker is at an angle.



After the realigning trim, a line dropped down from the hairline at the toe pretty much agrees with the placement of the drawing pin (assuming correct estimate of the hairline) and shows the approximate position of the true apex of the frog.

Boots with thick (12 – 25 mm) EVA pads are likely to be needed during the rehabilitation, and at any time the collateral groove depths at the apex are less than 10-12 mm. Please read the links below for further information.

Further information – please read in full before carrying out a realigning trim:
http://www.thelaminitissite.org/realigning-trim.html
http://www.thelaminitissite.org/articles/laminitis-and-the-feet

http://www.j-evs.com/article/S0737-0806(13)00637-0/fulltext
Taylor D, Sperandeo A, Schumacher J, Passler T, Wooldridge A, Bell R, Cooner A, Guidry L, Matz-Creel H, Ramey I, Ramey P
Clinical Outcome of 14 Obese, Laminitic Horses Managed with the Same Rehabilitation Protocol
Journal of Equine Veterinary Science Volume 34, Issue 4, Pages 556–564, April 2014

NB normal trimming guidelines should be followed, with close attention paid to the live sole plane and collateral groove depths. Live sole/live tissue should NEVER be touched. The horse should be more comfortable after the trim each time.