

Appendix B

Route Inspection Notes

B1 Stocksbridge Line (Network Rail)

B1.1 Stocksbridge Line Inspection, 28th April 2010, Ian Walker

B1.1.1 Permanent Way

Generally the track is in good (very good?) condition with mostly 1970s continuous flat-bottomed rail on concrete sleepers with pandrol rail clips. Horizontal and vertical alignment is generally good with generally good ballast. In places the ballast appeared to be mucky below the surface but this wasn't investigated; if there has been clean ballast laid on top this could be widespread (though generally good vertical alignment masks this well if so). Signs of ongoing maintenance (e.g. new insulators). On some curves the outer rail is quite side worn. Possibly this is linked to several (half?) of the flange lubricators being inoperative. Several areas of recent rail renewal over very short lengths (e.g. 2004, 2007).

In places (perhaps six, well spaced) there was a length of hardwood timbers with two extended bearers as though they are remains of some S&C (Switches and Crossings – points/turnouts). Generally these timbers appeared sound though with a few having cracked along the length; though didn't recall seeing any sign of spot renewal. Some longer lengths of hardwood sleepers (e.g. quarter of a mile) such as on the straight north of Wadsley Bridge. Noticed a derailment scar here (flange running in four-foot). Large lengths of line (over half?) had signs of walking / driving / air release / hopper discharge down the centre of the four-foot (perhaps something regularly dragged along on underside of loco / wagons?); didn't seem to cause much damage. Track condition is poor in and north of Deepcar platforms, and appears very poor beyond the Network Rail limits (not inspected).

B1.1.2 S&C, Signalling, Communication, Power

No S&C or signalling or communication or power equipment visible along the whole length between Woodburn Junction and Deepcar. Old electrification feeder cable supports are extant along the line side; occasional cable troughing in poor condition. Regular (continuous?) overhead support foundations along the line, mostly head span column bases cut off by flame at or below knee height; RSJs set in concrete plinths a foot-square. Noted many reinforced concrete oil baths connected to the feeder cables remains; these were frequently broken with all showing signs of nearby historic contamination with oil / tar / pitch.

B1.1.3 Level Crossings

Met two (three?) footpath crossings; these seem to be in good condition though both had defective gate springs. Noted a private foot crossing between Network Rail lands near to the distant signal at Woodburn (south of Blast Lane).

B1.1.4 Alignment

Twin-track alignment is almost wholly intact with an exception at the southern end, between Victoria and Woodburn Junction. Towards the northern end there are long lengths of quadruple-width alignment. Space around the line appears mostly open and undeveloped, though various yards are in commercial use.

B1.1.5 Stations

There are platforms remaining at Victoria (1 no), Wadsley bridge (2 no), Oughtibridge (2 no) and Deepcar (2 no) though all are in a poor state. Some have edge stones (in poor condition also). Alignment seemed to vary with regard to proximity of platforms; all would need track slewing in or platform building out.

B1.1.6 Structures

The structures seem in good condition; there are some particularly large structures at the southern end. Noted one large crack in a retaining wall buttress just northeast of Pitsmoor Road. Didn't notice any likely gauge problems as structures seemed generously proportioned (throwback to the OLE no doubt; brackets remaining on some over-bridges).

Earthworks

Some tall earthworks in places. Evidence of historic remediation on curve south of south of Bridge 119 (Herries Road): rock pinning / mesh curtain on cutting side and (remains of?) debris protection (?) at track level (RSJs planted vertically on second (spare) alignment).

B1.1.7 Drainage

There didn't seem to be a great problem with drainage, though our visit was following a dry spell in the weather. This linked to generally good ballast; in notably few occasions there was evidence of seepage and deposition of fines in cuttings.

B1.1.8 Flora and Fauna

Many signs of large-scale vegetation clearance. Generally sighting is good with few spots of encroaching vegetation. Spotted a couple of sites with Japanese Knotweed and one with burrowing in ash cutting-side (badger sett?). Passed one site with SSSI signs forbidding unauthorised work (listed in the sectional appendix).

B1.1.9 Crime

Regular and frequent signs of habitual trespass along almost the whole line (perhaps excluding between Victoria and Woodburn Junction). Regular signs of vandalism and graffiti including fires, cable-stripping, dens, air rifles, drinks bottles / cans. Didn't notice any sign of drug abuse. Fly tipping in some areas though these seemed the exception rather than the rule. Littering seemed common; railway detritus and otherwise.

B1.1.10 Summary

A well maintained route with room for expansion and a trespass problem.

B1.2 Stocksbridge Line Inspection, 28th April 2010, James Park

B1.2.1 Pre-walkout

Prior to accessing the track, a discussion was held with the signalman on duty at Woodburn Junction Signalbox. He informed me that on a typical day there is a single freight train movement onto the 'Up Stocksbridge Down' (as termed on the signalling panel, hereafter referred to as 'the branch'). The train typically enters the branch at Woodburn Jct just past 18:00 and having run to Stocksbridge, will return to Woodburn Jct at approximately 21:00. Occasionally the Corus dispatcher at Stocksbridge will call ahead to the box to say a returning train is on its way back, but 9/10 times, the first the signaller knows about the returning train is when it appears on the box panel as occupying the last track circuit block preceding the distance signal.

The signalman stated that once a train has entered the branch, it was not possible to set a route onto the branch for another train to enter the branch before the initial train had exited the branch. He stated the normal operation was for freight trains use the branch 5 or 6 days per week.

Note. Further discussion took place at the end on the day with a signalman on the next shift at Woodburn Box. He confirmed that a second train could not follow onto the branch with a train already on the line. However in the days of running football specials to Wadsley Bridge, using a key in the panel, the operation could be switched to Single Line Working from the normal One Train Working. He stated this method has not been in use for more than ten years and did not know the whereabouts of the key to switch the operation. (Presumably this was in conjunction with another, (now closed) box up the line?)

The second signalman also confirmed that there is no physical exchange with the driver, in spite of the traps points observed at Deepcar requiring an Annett's key (stated on the lever plate to be retained at Woodburn Jct Box) to operate. It is presumed this token is retained by Corus staff at Stocksbridge

B1.2.2 Woodburn Junction to Sheffield Victoria

The branch commences at Woodburn Junction although in mileage terms this is the high mileage end, being 42m 29ch. The line initially runs straight and parallel to the Sheffield to Skegness Line for a distance of approximately 70 chains, forming a three track railway. To the south of this section is the Car park for Supertram Nunnery Lane stop. Measured at its narrowest point, the boundary fence to the north side of the branch line was approximately 7m to the edge of the nearest rail. This implies a platform and footbridge and/or lift structure could be constructed wholly within the railway boundary, a stop and cross-track access to Nunnery Lane Supertram stop and car park.

The branch was track circuited in this area, with the only Multi Aspect Signal being W218 which is located adjacent to Supertram Nunnery Lane Depot. This signal controls exit moves from the branch towards Woodburn Jct. A passenger train stopping on the branch would not have to pass this signal to use a Nunnery Lane station platform.

The track material in this area is continuously welded rail (CWR) of flat bottom pattern, circa 1970's, supported on F27 concrete sleepers with good clean ballast.

At underbridge 136, the branch diverges from the Sheffield-Skegness line by curving off to the north. The line passes either side of two Network Rail maintenance depots, linked by a foot crossing over the branch. To maximise the depot yard space, the double track bed has been encroached on the Up side by the placement of a metal palisade fence approx 3m from the nearest rail. It would not be possible to restore this short section of the branch to a double track railway and maintain clearance to track personnel without relocation of the fence.

At Milepost 41 ½ the multi arch structure Victoria Viaduct (Structure 133) commences on which Sheffield Victoria Station was constructed. The central island platform structure remains although in poor condition and heavily overgrown with mature vegetation. The platform copers are still evident at the north end of the platform. The branch is aligned to pass to the east of the island platform structure with the track slued out by varying degrees from 0.8m to 4m to provide structural clearance. No S & C remains in the station, with CWR plain line of 1970's vintage continuing throughout. Spot re-railing had taken place adjacent to the platform with rail of 2004 vintage.

A strategy for developing Sheffield Victoria station could be to reconstruct the required station building(s) and a platform face to the west of the existing island platform face. A discrete length of new track could be laid adjacent to the platform to the standard X & Y dimensions. If all of this work was completed 3m or greater from the existing line, the work would not be subject to onerous possession time limits. There would be no need to maintain structural passing clearance at the end of each day. Upon completion of the station works the existing track through the station could quickly be cut at either end and slued and welded to the new trackwork.

B1.2.3 Sheffield Victoria to Neepsend

The northern most arches of the Victoria Viaduct have recently (2006?) been replaced with a single span steel structure to make provision for the A6109 in the remodelled Wicker, Savile Street and A61 junction.

The original rail and sleepers have been reused over this structure with rail pads, insulators and clips replaced on the re-laid section. An adjustment switch panel has been introduced just to the north end of the new structure.

The alignment of the re-laid track is not perfect, with an unnecessary reverse introduced into the straight track between Victoria station and the right hand curve to the north. The re-laid track has also introduced a slight hump in the vertical alignment. Neither of these alignment issues will be prohibitive to running passenger trains at the current line speed of 30mph, nor at an elevated speed of say 40mph.

Overbridges carrying Rock Street and Pitsmoor Road (structures 130 and 129 respectively) are steel structures with brick parapets. It was noted that these structures were both 'high' and 'wide' and would not present any gauging issues should the track be re-doubled. In this area, on the east side of the railway there is a retaining wall ~ 10m in height chiefly of brick construction but with some cut stone material. The outer skin on part of the stone section of the wall was observed to have in effect delaminated from the bulk of the wall, leaving a bulge in the skin. Further delaminating could lead to wall material falling onto the tracks, therefore remedial works to secure the wall would be recommended before passenger services commenced. There was some graffiti on and around the bridge, applied line side plus a large quantity of debris around the line which had been thrown from the bridge.

Prior to the right hand curve on the approach the former Neepsend Station, the F27 concrete sleepers give way to a section of earlier design F19 concrete sleepers with SHC V clips. A small quantity were found to have missing or damaged steel clips. Proportionally these sleepers had more defects than the adjacent F27, probably as spares are harder to obtain. The track material reverts back to F27 sleepers before the footbridge (Structure 125 at the site of the former Neepsend Station). A rail flange lubricator in serviceable condition was sited in the transition to the aforementioned right hand curve. There was evidence of quite severe lipping on the low rail.

Approximately 200m south of the former station is a sign designating the commencement of a Legally Protected Environmental Site. The eastern bank at the site of the former Neepsend Station, having been subject to vegetation clearance in the last 2 or 3 years, also had shoots of Japanese knotweed growing up it. In respect of the station itself, there is no remaining infrastructure with the exception of the footbridge 125 which is a relatively new structure which utilises the original bridge's eastern abutment.

B1.2.4 Neepsend to Wadsley Bridge

North of Neepsend Overbridge 124 carries Parkwood Road over the railway. The bridge has brick abutments and parapets with what appears to be a replacement reinforced concrete deck. Again the position of the existing track would suggest re-doubling would not be a problem. Again graffiti featured on the bridge but there was less material ejected from the road above.

Approximately 70m north of bridge 124, the first of 5 instances of short discrete (~10m) lengths of track supported on baseplated timber sleepers enclosed by the otherwise common F27 concrete sleepers. At less than 10m, these lengths are too short to be removed turnouts converted to plainline. They are too long to be adjustment switch panels which have been removed for conversion to CWR. (The rails and sleepers will have been stressed rail since being laid) At some locations further up the line extended timbers for point motors were present at the north end of the pockets of timber. This supports the theory that the timber could have previously been catchpoints protecting the line against errant unfitted (unbraked) wagons which are no longer permitted.

The Environmentally Protected Zone is exited approximately 550m north of Neepsend Station.

Two flange greasers are provided at the reverse point as the alignment transitions from the right to the left at approximately 39m 60ch. The first evidence of limeside drainage was observed in the Down cess of this left hand curve with broken catchpit lids with ballast ingress. That said there has not been anything to suggest that track drainage is an issue, owing to the topography and geology of the line.

A second small pocket of timber sleepers is encountered at approximately 39m 41ch. Discrete lengths of re-railing had taken place in this area using rail of 2004 vintage.

The alignment reverses once more at Overbridge 121 that carries pedestrian traffic to the cemetery on the high ground to the east. No vandalism issues identified here. Suitable for re-doubling without realigning existing track.

Between O/B 121 and Underbridge 119, a 5 arch stone structure under which passes Herries Road, rock fall from the eastern bank has been mitigated against by the installation of I beams piled at a ~2m interval into the track bed of the former Up line over a length of approximately 270m. Protruding 1m above ground, these fence posts were originally strung with steel cables and a wire mesh fence to protect the line from the fall. However the cables have been stolen in the intervening period since installation rendering the installation useless. Re-doubling in this section would require the removal at least to 300mm below bottom of sleeper level before the track could be reinstated.

A third pocket of timbers was found approximately 60m south of U/b 119. As with the other sites some of the timbers had longitudinal splits which would require spot replacement. In the fullness of time, serviceable concrete sleepers should be sourced to remove completely this legacy.

Catchpits, again full of ballast and fines were noted to be in 6 foot north of U/b119.

The approach to Wadsley Bridge is straight, the line and level good. Small to medium vegetation lines this part of the route.

Stone arch Overbridge 117 carries a footpath across the railway. No vandalism issues identified. Suitable for re-doubling without realigning existing track.

A short section of approximately 400m of F19 sleepers is present between O/b 117 and U/b 116.

The former Wadsley Bridge Station is situated just off the north end of U/b 116 (Halifax Rd). Much of the Down platform is still largely in existence but is need of re-facing, re-coping and resurfacing.

Three potential car park site were observed around Wadsley Bridge. The site east of the railway and south of Halifax Road is most directly linked to Halifax Road, however it position does not lend itself to utilising the original Wadsley Station site which is located north of Underbridge 116 and features a subway (structure 115) which could be brought back into use for future access to the Up platform.

A potential car park (Currently Greenfield) off Baxter Road on the east side of the railway and north side of Halifax Rd. This site would take traffic past residential dwellings and would require a footbridge to gain access to the Down side platform.

The third site which is best for locating vehicles near to the platform is the site of a former sidings and latterly passing loop, on the west side of the line north of the former station.

The track material from the adjacent passing loop is still evident however all S&C has been removed and plainlined.

It was noted in this area that lineside security was particularly poor with unhindered foot access from Baxter Road onto the railway. This could not continue with a frequent passenger service.

B1.2.5 Wadsley Bridge to Oughtibridge

There is approximately 450m of timber sleepers in the line adjacent to the former loop the majority of the sleepers are in a fair condition however some broken baseplates were observed. Marks on the sleeps suggested a low speed derailment had occurred at some time. The rails are still fully welded in CWR through the timber sleepers. The loop line is overgrown with mature vegetation.

The track material reverts back to F27 just before Underbridge 114, a single masonry arch structure which carries the line over Limestone Cottage Lane. No Gauging issues to restore to double track in the future.

Reverse curves are negotiated, taking the line under Overbridge 113 and through Beeley Wood.

O/b 113, stone abutments, concrete deck, retains redundant OLE equipment as a legacy of the electrification. The down line is in its original position and thus the structure would not pose a problem if double track were reinstated. Vegetation is maintain well clear of the line through the wood.

By its nature of being further from the populous centre, there is much reduced evidence of trespass through Beeley Wood, however upon reaching Outibridge town, it was noted the a resident who's property back onto the line have incorporated a door into his boundary fence to give him/her access to the lineside. Garden landscaping materials were being stored in line a worn trail indicated walks along and/over the line regularly took place.

O/b 110 Outibridge Lane. Single masonry arch structure which immediately precedes the former Outibridge Station. No graffiti, tipping or vandalism evident. Possible tight for gauge but obviously double track is achievable.

Outibridge Station – Has 2nd most complete station platforms after Deepcar. Platform structures largely intact but engulfed in lvey and brambles, particularly on the Up side. Track slued away to provide clearance for copers which are still institu for the most part.

B1.2.6 Oughtibridge to Deepcar

Line reverses around periphery of Wharncliffe Wood. CWR on F27 sleepers of the most part with some timber sleepers. There was evidence of some trespass to cross the line for access to the wood, rather than to vandalise.

A patch of fines deposition was noted at Wharncliffe footcrossing approx (34m 67ch) where material had wash down from the wood on to the line. There was some drainage infrastructure in this location which look to be reasonably recent however this itself was full of fines thus assumed blocked.

There were other unmaintained drainage catchpits however there appeared to be no visible consequence of this.

Just prior to Deep car station the concrete sleepers gave way to baseplated timers of fair quality. These changed from being inclined to Vertical 'V' baseplates where S&C had been removed. Previously jointed track had been welded up for form CWR.

Further localised ballast contamination in the form of fines washed from the adjacent site development, south of the former station.

Down platform still in existence with coopers at Deepcar, however coper edge is poor.

Adjustment switches within station protect jointed track and bullhead trap (Locked with Annett's key) from CWR stresses. Line continues as Corus owned infrastructure to Stocksbridge steel plant.

B2 Stocksbridge Railway (Corus)

B2.1 Stocksbridge Railway Inspection, 11th May 2010, Ian Walker

B2.1.1 Corus

The Corus chaps are very amicable and open to suggestions. Community-minded but have not money for developments in that regard. Not fazed by suggestions of buying parcels of their land, of shared running, of moving their timetabled DB Schenker delivery into the middle of the day (even though this last one affects their internal operations and would require restaffing). Genuinely seemed to think it was a worthwhile and achievable aim (if someone else is willing to fund it). Seemed happy also with the suggestion of moving the DB Schenker / Corus handover point to the Riverside site if there was a station there. That they sent the Works Engineer for Specialist Steels (Aldwarke and Stocksbridge) to the progress meeting on Monday and to our Corus meeting on Tuesday at their offices is telling. Further, they had Pete Hamby (Civil Engineer) take spot heights the full length of the line with a dumpy level in order that we could have the gradient info! So a good partner/stakeholder it would seem. They did make clear that they would not give up their train as it is their lifeline.

B2.1.2 Operations

Operationally, the line is run on a one-engine-in-steam principle (at the moment at least as traffic doesn't require two locos). Site speed limit is 5 mph throughout and 3 mph when shunting. No signalling or train protection but drivers run on a line-of-sight principle I suppose. They do apparently protect with derailleurs and padlocks (keys held by DB Schenker shunter and Corus driver) when taking delivery of incoming trains.

B2.1.3 Permanent Way

The track is a mix of concrete and wooden sleepers; flat-bottom and bull-head; welded and jointed; ash, slag and stone ballast. Short sections of line (several lengths at the east end of the Ellen Cliff loop) have been renewed in the last couple of years. Many sections appear to be rather timeworn to say the least. There is a real mixture of conditions but as an indication I would guess the following:

- Very Good 0%
- Good 10%
- Fair 20%
- Poor 30%
- Very Poor 40%

There is an annually-renewed contract with Balfour-Beatty to maintain the line. Balfour-Beatty has a representative on site daily. There are occasional derailments it seems but these are apparently infrequent. So the line is generally poor but fit for purpose and maintained as such (i.e. minimum spend).

B2.1.4 S&C, Signalling, Communication, Power

There are many units of S&C on the line; around seven on the through route between Deepcar and the Riverside site. These are generally in fair condition though their type may be unsuitable and they are all hand operated and not lockable. There is no signalling on the system, with the exception of two ground shunt signals in the western end of the steelworks. Communication is currently by two-way radio between the driver and rail controller. There are several lighting columns in place at the loops at Ellen Cliff and the Exchange Sidings; it is not thought that these are operational. There is a gaseous oxygen pipeline running along the line, presumably to supply the steelworks. This is generally buried or elevated in the embankment or cutting side, and slung under the bridges. It is not known whether this is operational.

B2.1.5 Level Crossings

The level crossing at Ellen Cliff is currently an open vehicular crossing. It is a footpath right of way though clearly is used by motor vehicles and horseriders. It is sited on a hillside, with the crossing being made at an oblique angle and the roadway sloping in both directions. In addition, the alignment curves on either side of the crossing, it is in a cutting and there is poor sighting due to encroaching mature vegetation in places. It is unlikely to be acceptable for a 20mph passenger service (for example). Options could include installing gates or barriers, a user telephone, an overbridge, or a stop-and-proceed instruction to rail traffic.

B2.1.6 Alignment

The line is approximately 1 ½ miles from Stocksbridge to Deepcar. The lowest point is at the bridge over The Porter or Little Don; gradients are consistently uphill in both directions from here. The alignment is a mix of tight curves and long straights. There appear to be several sites available for expansion; this may be due to rationalisation from a historically extensive layout. Some sites are already being developed; e.g. the Outu Kumpu works adjacent to the Riverside site.

B2.1.7 Stations

Although there are no stations on the line at present, there does appear to be a suitable site in the Riverside area, adjacent to the soon-to-be developed Outu Kumpu site. This is 1 in 163 but is open and not too restrictive. Thought would be needed on how to segregate the passenger and freight operations here. Any location of a station on the line would require access providing (unless the station is on the Corus site).

B2.1.8 Structures

There are a few large structures, and these seem well-built and in good repair. Apparently DB Schenker do not run their Class 66 locomotives beyond Little Don bridge because of the loading limits. This seems odd since the structure appears well-built and in good condition (same style and age as the Don bridge and road bridge, both of which they do cross).

Vehicle	Gross weight, t	Wheel arrangement	Average axleload, t	Comments
Class 66	130	Co-Co	21.7	
Yorkshire shunter	60	0-6-0	20.0	
BBA	101	Bo-Bo	25.3	*very high*
ZCA	46	2-2	22.9	

According to the Network Rail Sectional Appendix, Deepcar to Woodburn Junction is RA8 which is axleload $\leq 24.1t$. Class 66s are RA7 which is also axleload $\leq 24.1t$. Note that the Stocksbridge Railway (Corus-owned) may not be included here (though the Don bridge has a 5 mph restriction in the Sectional Appendix) and that axle spacing contributes to RA rating.

The A6102 road bridge has in the past had some remedial work carried out: the piers have been strengthened (the east pier significantly), probably in response to some historic (?) movement.

B2.1.9 Earthworks

There are a couple of large earthworks.

B2.1.10 Drainage

Generally the formation appeared well-drained (although our visit did coincide with a dry spell in the weather). There are a few patches of chronic poor drainage which would need rectification. These were shown as pumping sleepers and deposition of clay fines, and as track flooding and algal-bloom.

B2.1.11 Flora and Fauna

Generally the route is clear of vegetation, though would benefit from clearance on the inside of curves in places, notably by the Level Crossing at Ellen Cliff.

B2.1.12 Crime

Nothing to note.

B2.1.13 Summary

Corus seem to be most receptive, and whilst the line condition is currently poor, there is the potential for a passenger-grade running line and station. This could be a secondary stage of operation for the Don Valley Railway.