

The PE-Avontuur Narrow Gauge Line– A brief history

This narrow gauge line was authorised in 1899 and construction commenced in 1902, reaching the Avontuur late in 1906. The line was built to connect the scenic Langkloof with its fruit growing industry to the port of Port Elizabeth. The official opening of the line was in 1907, with a main line track length of 284km (177 miles) from Port Elizabeth to Avontuur. The 30km branch line from Gamtoos Junction to Patensie was completed on April 3, 1914 to serve this rich irrigation area.

The establishment of the deciduous fruit industry in the Langkloof, and the use of the Narrow Gauge to transport fruit to the cooling sheds in the Port Elizabeth harbour for export, led to the popular name for the narrow gauge, namely APPLE EXPRESS.

In the early days, there was a suburban train service on the narrow gauge from Port Elizabeth station via Humewood Road to Walmer, with the Walmer branch diverging from the main line at Valley Junction near the present crematorium. This service ceased in 1928.

Chelsea Quarry

Until the mid-twenties, the harbour had been an open roadstead, with the vessels to be discharged lying in a mile offshore, with lighters (towed by steam tugs) plying between the ships and the three jetties. The "North Jetty" was used purely for the landing of passengers and their baggage; the "South Jetty" and the "Don Pedro Jetty" were used for goods discharged and loading.

The fishing boats that plied their trade from Algoa Bay used the Don Pedro Jetty, and it was from the end of this pier that the new breakwater was constructed. A mile-long breakwater – strong enough to withstand the heavy seas brought in by the south-east gales – called for many tons of stone, which were hauled in by the stone trains that ran over the two-foot rails from Chelsea Quarries.

These quarries were operated by convict labour and in order to house the workers, the Department of Prisons constructed a prison nearby. The building material for the prison was taken to the site by Narrow Gauge trains, and during the construction of the breakwater, nearly 350 tons were hauled.

By 1931, the harbour was protected by the new breakwater, the prisons of Chelsea were emptied of their occupants, and the haulage of broken stone over the Narrow Gauge ceased.

Van Staden's River Gorge

The Van Staden's rail bridge is the second highest railway bridge in South Africa, and the highest narrow gauge bridge in the world. Construction was completed in 1905. The bridge is 156m long, 77m high, contains 1 112 cubic metres of concrete, and 574 tons of steel.

Restoration of NG 119

The Port Elizabeth Apple Express is registered as a Section 21 Company (non-profit organisation), with all profits out back into the restoration of rolling stock. In the past two years, we have rebuilt and restored ten coaches, and have just completed the restoration of the steam locomotive NG15 No. 119. This locomotive was built in Henschel (now Namibia). When the line in Namibia was upgraded to Cape Gauge all the Kalahari locomotives were transferred to Port Elizabeth.

Rails to the Langkloof*

100 Years of narrow gauge railway operations of the Port Elizabeth–Avontuur Line

Background

The year 2007 sees 100 years of operations on the two-foot gauge railway from Humewood Road in Port Elizabeth to Avontuur in the Langkloof.

The construction of the line began from Humewood Road in Port Elizabeth and progressed to the Van Staden's river gorge by 1902, construction continuing on the far side of the gorge whilst the steel viaduct was built over the gorge. The line was opened as far as Humewood in 1905, and construction continued up the Langkloof Valley via Assegaaibos, Joubertina, Louterwater and Misgund, finally reaching the terminus at Avontuur in December 1906, with the completed line opened to traffic in January 1907.

The early years of the narrow gauge are comprehensively described in Sidney Moir's book "*Twenty Four Inches Apart*"; which covered the time span up to 1960.

Although a number of schemes were put forward for extensions to the line, including a link down to Knysna, none came to fruition until 1914 when a branch line was constructed in the Gamtoos Valley from a point near the Gamtoos river crossing (subsequently named Gamtoos Junction), via Hankey to Patensie. Patensie has remained the terminus of this branch, although schemes were proposed for an extension up to Andries Kraal.

In the Port Elizabeth area a branch was constructed in 1906 to serve the adjacent Walmer Township, which in those days was separate from Port Elizabeth. This passenger-only branch line deviated from the Port Elizabeth–Avontuur line at Valley Junction, 4km from Port Elizabeth (opposite the present Port Elizabeth Airport and approximately adjacent to the Crematorium), then ran along Second Avenue Walmer, up Villiers Road to Fifth Avenue and along Fifth Avenue to Water Road and all the way along Water Road to the terminus at Fourteenth Avenue.

This service lasted until 1928, where after the Walmer Branch was uplifted – all that remained was the signboard at the Valley.

Infrastructure

Over the years a number of improvements and deviations have been constructed. Initially these were concerned with replacing temporary bridges and culverts with more permanent structures, and thereafter with reducing curvature and improving gradients on certain sections.

The biggest change came about in the mid-Thirties, when a large section of the Patensie Branch between Centerton (near Hankey) and Patensie had to be re-routed thanks to ongoing problems with washaways where the line ran along the banks of the Gamtoos River, forcing a relocation along a different alignment via a circuitous route that involved a significant climb and then a torturous descent back onto the original alignment near Gonnakop.

Following the development of the limestone quarries around Patensie in the 1920s, a private siding was constructed from the Eastern Province Cement Company's Works at New Brighton, Port Elizabeth, to meet with the Port Elizabeth–Avontuur line at Chelsea (22.6km from Port Elizabeth).

During the early-1960s further improvements were made at various stations along the line, to allow for the operation of the Class NG15 locomotives ex the Tsumeb Railway in what is now Namibia; turning triangles were constructed at Van Staden's, Humansdorp, Louterwater, Misgund and Avontuur and a new turntable installed at Assegaibos.

The last major improvement came with the introduction of diesel traction, in the mid-1970s, and the whole line was progressively upgraded to cater for the heavier loads of the Class 91 units. Initially only the section between Port Elizabeth and Loerie was done, followed by the sections to Humansdorp and Assegaibos.

The upgrading of the remainder of the railway in the Langkloof was only completed in the mid-1980s. The upgrading of the Patensie Branch is still ongoing with rails recovered from the defunct Eastern Province Cement private siding being used – the old rail from the Patensie Branch going to Sandstone Estates in an exchange deal. Hand-in-hand with the upgrading of the track was the widening of the cuttings along the right of way to cater for the increased width of the Class 91 Diesel locomotives.

Permanent way

The permanent way itself has been systematically improved over the years with the whole line (except for some sidings) being now laid with 60 lb rail. All rail is second-hand, having been recovered from standard gauge secondary lines as these were upgraded.

Sleepers remain a combination of hardwood and pressed steel, with rail laid in standard lengths – there is no Continuously Welded Rail (CWR) on the narrow gauge and all turnouts (points) are hand-operated by tumbler throws. Originally the line was economically constructed with sand or under ballast, but this has been replaced with standard crushed stone ballast.

There are no ballast quarries on the narrow gauge system and so all ballast is imported via the standard gauge, with transfer taking place at Humewood Road in Port Elizabeth where standard gauge wagons are emptied into a hopper and then discharged into narrow gauge wagons on a line at a lower level.

Stations

When the line was originally constructed a number of stations were built and these were staffed, dealing with both passengers and freight as well as providing operating control.

In the early days there were manned stations at Humewood Road (Port Elizabeth), Thornhill, Loerie, Humansdorp, Assegaibos, Joubertina, Louterwater and Avontuur. Later this was expanded to Patensie, Gamtoos, Chelsea and Misgund. Chelsea was purely for operational purposes.

The original buildings were generally of timber and corrugated galvanised iron construction, with a pitched roof and covered stoep (verandah). Of all the station buildings only Thornhill survives, but is no longer used for railway purposes.

In the 1960s and 1970s many of the original buildings, including Humansdorp, Loerie and Patensie, were demolished and replaced with modern facebrick structures while most stations, even the unmanned ones, had freight loading facilities, often in the form of a goods shed on a short raised platform and a cattle dock.

Goods sheds were also of timber and corrugated galvanised iron construction, with pitched roofs and sliding doors and of these a number have survived, with an example to be found at Thornhill. Many of these facilities were expanded by the addition of covered loading facilities, formed out of a steel frame using redundant rails bent to shape and with a corrugated galvanised iron roof.

During the 1960s, with the introduction of the block tablet train control system, little facebrick with concrete roof buildings were built at each siding for the control apparatus.

In recent years, with the withdrawal of the passenger service and LCL freight, the use of these facilities has fallen away and the introduction of radio control for train operations has eliminated the manned stations. Only Assegaibos is now manned for operational purposes.

Operational Facilities

The main locomotive depot has always been at Humewood Road and the steam locomotive depot there remained in use until the mid 1980s, thereafter being used by the Apple Express until 2005.

The facilities at Humewood Road Steam depot remain largely intact, although in the last year or so they have been abandoned and badly vandalised.

In the early years locomotive sub-sheds were established at Humansdorp and Assegaibos and later on at Patensie while servicing facilities were provided at Loerie and Avontuur.

En-route watering and ash dumping facilities were installed at a number of points along the line, viz.:

- ◆ Watertank (between Progress and St Albans)
- ◆ Van Staden's station
- ◆ Kabeljousrivier
- ◆ Howley
- ◆ Waterbank (between Kammiebos and Kompanjiesdrif)
- ◆ Louterwater
- ◆ Watertank (between Haarlem and Siesta)

There was no water at Avontuur. In later years additional ash dumping points were installed at most stations and passing sidings.

Humewood Road steam depot had a maintenance workshop, with drop pits, and could undertake most routine maintenance and running repairs although all heavy overhauls and major maintenance on locomotives was always done at the Uitenhage Railway Workshops, and locomotives were transported to and from Uitenhage piggy-backed on specially adapted flat cars on the standard gauge lines.

With the introduction of the Class 91 diesel locomotives, in 1972, a new purpose-built service and maintenance depot was constructed in the disused quarry adjacent to the line between Humerail and Humewood and this depot did all servicing and overhauls on the diesel fleet.

Currently the heritage steam fleet, operated by the *PE Apple Express*, also utilise the diesel depot and a steam locomotive inspection pit is being constructed for their use.

During the 1960s a substantial new steam locomotive depot, with turntable and coaling stage, was constructed at Assegaibos, all of which is still in place if rather overgrown now.

Housing

Alongside the development of the stations staff housing was constructed at a number of places along the line. Housing for the Port Elizabeth end was at Humerail, opposite Humewood Road Station, next came Thornhill, then Loerie, Humansdorp, Assegaibos, Joubertina, Louterwater and Avontuur.

Staff housing was also provided at Patensie station and in later years housing was also provided at Chelsea, to deal with the interchange traffic with the EP Cement Company private siding.

Housing for the maintenance of way-staff was built at a number of places along the line, with ganger's cottages and Section Foreman's houses being provided where necessary while in later years labourers' cottages were added at St Alban's, Thornhill, Loerie, Assegaibos and Heights, with temporary camps at Loerie, Mondplaas and Centerton.

With the re-structuring of operational procedures, during the period between 1960 and 1980, Assegaibos developed into an important operational hub and the staff housing was expanded considerably, with a whole new township being developed.

As a result of the changing operational and maintenance procedures in recent years the need to house staff at various points along the line has been significantly reduced, and most houses and cottages are currently rented out by Transnet Housing. Ongoing efforts to dispose of these properties have largely been unsuccessful, due to the lack of access and services to many of the remote locations.

Maintenance

Maintenance of the right-of-way was originally done with section gangs, under the control of Section Foremen based at strategic points along the line, with each ganger being responsible for his particular section, which he patrolled every day. Each section ganger had his little trolley that was used to transport tools, etc.

In later years, as was the practice elsewhere on the South African Railway system, maintenance was centralised out of Assegaaibos, Humansdorp and Port Elizabeth. Eventually everything became centralised in Port Elizabeth. Transport was then by road, except on sections of the line between Gamtoos Junction and Hankey where there is restricted access and small hand trolleys are still used.

At present there is one motorised inspection trolley available for on line inspections.

Also as a result of changing policies and priorities within Spoornet, and the fact that the narrow gauge is not seen as a core line, has meant a reduction in maintenance standards along the line. The severe flooding in 2005/6 has not helped the situation and in late 2006 the Patensie Branch was blocked with fallen trees near Patensie and the line to the Langkloof was out of operation beyond Assegaaibos, due to severe flood damage to the line between Assegaaibos and Heights.

Motive power

All traffic on the line was hauled by steam locomotives, from the opening of the first section in 1902 until the arrival of the first diesel locomotives in 1972.

When the 20 Class 91 locomotives – GE Bo-BoDE type UM6B, makers 38603-22 of 1973, road numbers 91 001 - 20 – were introduced their first priority was the haulage of the limestone traffic from Loerie to Chelsea for the EP Cement Company. Thereafter the diesels were introduced between Humewood Road and Humansdorp.

Once the line to Assegaaibos had been upgraded the diesels took over all workings between Humewood Road and Assegaaibos, with workings beyond Assegaaibos to Joubertina, Louerwater and Avontuur continuing to be steam hauled. This situation lasted between 1974 and 1984.

As time went on the continued upgrading of the line allowed the Class 91 diesels to penetrate further up the Langkloof, until they could work all the way through to Avontuur although throughout this period the Patensie Branch line was still steam worked, with the locomotives being based at Loerie and working through from there.

After 1984, changing traffic patterns meant that the diesel fleet could handle most of the remaining traffic and two years later even the Patensie branch went over to diesel haulage – mainly due to a shortage of operational steam locomotives and a surplus of diesel locomotives. Following the closure of the limestone quarries near Loerie, and the cessation of stone trains in 2002, there was surplus of motive power and currently at least one class 91 has been converted to 3'6" gauge and is shunting in Port Elizabeth. Class 91 No. 91 014 was written-off in an accident some years ago.

Train Control

From the outset the PE-Avontuur line has never been signalled and was originally worked by timetable and train order. In the 1920s wooden staff working was introduced on certain sections and a telephone system was installed between the manned stations along the line.

As the line got busier, during the period after the Second World War, train control became a problem and the decision was taken to introduce the "van Schoor" automatic token system. This meant that each crossing point – at a manned station or unmanned station or interloop (crossing point) – had to have the equipment installed. At the stations the equipment was generally installed in the existing buildings, but at the unmanned stations and interloops new small red facebrick buildings (with flat concrete roofs) were constructed. Each facility had two "van Schoor" machines – one for each token section.

The introduction of this system meant that under normal operating conditions trains had to stop at every token station to exchange tablets. Although the flexibility and operational safety improved the running times did not, due to the time allowances for the token stops. The only exception to this system was the Patensie Branch, which was operated with a wooden staff system between Gamtoos junction and Patensie.

During the 1960s and 1970s the line was extremely busy, especially in the fruit season when many special trains were run – timetables showing up to 48 trains a day.

During the early 1990s the Port Elizabeth Municipality was considering the construction of a new 11,000 volt overhead power line, to serve the expanding western suburbs of Port Elizabeth, and this was to run parallel to the line adjacent to the rail reserve from near Theescombe right down to between Lorraine and Bogfarm. Spoornet was concerned that induction from the power line would interfere with the control signals and telecommunications systems running in the rail reserve and came to an agreement with the Municipality that they would not object to the power line if the Municipality assisted them with the introduction of a new radio control system, which would replace the "van Schoor" system. Thus a radio order control system was introduced, which was extended to cover the whole line and the Patensie Branch. The new system allowed for much greater flexibility as intermediate stops could be eliminated. The old "van Schoor" system was just abandoned, and the buildings allowed to decay. At some stations the derelict equipment is still in place.

Operations

Up until the introduction of diesel traction, in 1972, the line was totally steam-operated with locomotives being based at Humewood Road, Loerie, Humansdorp and Assegaibos.

The Humewood Road locomotives operated between Port Elizabeth and Humansdorp, Loerie and Assegaibos, whilst the Loerie-based locomotives handled the stone traffic between Loerie and Chelsea and also the daily train to Patensie. Humansdorp-based locomotives ran from there through to Avontuur, and the Assegaibos locomotives worked to Joubertina, Louterwater and Misgund.

From 1960, when the class NG15 and some NGG16 Garratt locomotives arrived from South West Africa (Namibia), operations settled down to a regular pattern with two NGG16 locomotives being based at Humansdorp and two at Assegaibos. The remaining two were at Humewood Road as spares or undergoing maintenance.

The last NGG13 Garratts were all stationed at Loerie, although they rotated through Humewood Road for servicing and maintenance. The class NG15s were all allocated to Humewood Road, except during the fruit season when some of them were temporarily allocated to Assegaibos.

Following the introduction of the Class 91 locomotives the whole operating pattern changed and all the Garratts were withdrawn – the class NGG16s being transferred to the various narrow gauge systems in Natal and the NGG13's eventually being plinthed.

The diesels took over operations between Humewood Road and Assegaibos, whilst the NG15s operated from Assegaibos to Avontuur and also handled the Patensie branch, and this continued until the mid 1980s when steam was finally withdrawn.

Passenger traffic

Other than the suburban service between Port Elizabeth and Walmer, which lasted until 1928, passenger traffic has always been of secondary importance on the narrow gauge. Normally first, second and third class accommodation was attached to certain goods trains. Officially passenger traffic was terminated in 1948, when a road motor service was introduced to the Langkloof. However, third class accommodation was still provided on the daily "all stations" pick-up train and this served the intermediate stops, which often did not have road access.

This service continued until the late 1970s when operating procedures were changed and guards vans removed, thus leaving no staff on the train to handle tickets, and the remaining passenger traffic finally ceased.

Fortunately, most of the coaching stock has survived and from 1965 has been utilised for the operation of the "*Apple Express*" tourist train, which continues to operate under the auspices of the *PE Apple Express Company*.

Freight traffic

Goods and freight traffic has been the lifeblood of the line throughout its existence. In the early years it served as a conduit for farmers in the Langkloof and Gamtoos Valley, to get their products to market and also for supplies to be brought in to these areas.

The existence of the railways was an essential part of the dramatic growth in the development of fruit farming, in both the Langkloof and Gamtoos Valley. Large fruit grower co-operatives were developed at Louterwater and Misgund in the Langkloof and at Patensie and these were linked to the railway, and fruit was hauled by rail to the harbour at Port Elizabeth. All this traffic was seasonal, but the peak was from May to September and in later years the Langkloof was extremely busy with both steam and diesel hauled trains handling the traffic. Unfortunately in the mid-1980s this traffic went over to road haulage.

The other major traffic was the limestone from the quarries near Loerie to EP Cement Company (EPCC – later PPC) factory at New Brighton in Port Elizabeth. The initial quarries were near Patensie, but in the early-1930s a new quarry was developed near Loerie with the Limestone being transported by aerial cableway from the quarry to the large loading facility at Loerie.

From Loerie the stone was hauled in open wagons to Chelsea, where it was handed over to the EPCC for haulage on the private siding (branch line) to New Brighton. This service continued until the closure of the quarries in 2003.

In recent years, after the loss of the fruit traffic, there was a surplus of motive power and when the time came for PPC to replace their locomotives, agreement was reached with Spoornet for them to operate the whole line from Chelsea to New Brighton – this simplified operations considerably and the diesel locomotives used between New Brighton and Loerie were sub-shedded at New Brighton.

Following the loss of the stone traffic the major remaining traffic is cut timber, which originates at a number of points along the line, but mostly at Assegaibos. The other bulk commodity is containerised cement that is shipped from Port Elizabeth to Humansdorp.

Over the last 30 years there have been some interesting developments regarding the handling of freight on the Port Elizabeth–Avontuur narrow gauge, which has allowed it to survive longer than the other narrow gauge systems in South Africa. Firstly, the introduction of the C-series heavy-duty gondola wagons for the limestone traffic, which were designed for unloading in a rotary tippler at EPCC. Hand-in-hand with this was the introduction of the Willison knuckle coupler instead of the Norwegian hook normally used.

Next came the specialised insulated covered wagons for the conveyance of the apple traffic – these however did not last long due to the change over to road haulage. Many of these wagons were later modified by the addition of extension plates to widen them to handle palletised citrus fruit – these wagons had their sides removed and roll-down tarpaulins installed.

The general introduction of containers initially was a problem, but specialised fleet wagons were introduced that allowed 6-metre containers to be transported. The introduction of 12-metre high cube containers for the shipping of export fruit has caused a problem that has not been resolved yet, although experimental wagons were constructed to handle these.

To handle the increased timber traffic miniature ST wagons have been built. At present freight traffic is generally limited to one train a day – between Port Elizabeth and Assegaibos.

The Way Forward

As previously mentioned, Spoornet does not see the narrow gauge as part of its core system and has allowed the line to degenerate and is running a minimal service.

Concerns about the future, of the line and the *Apple Express* tourist train, has led to the Mandela Bay Development Agency conducting a Feasibility Study into the possible future “privatisation” of the line. The study has been presented to the Agency, and its findings are being considered.

At the same time, the Eastern Cape Provincial Department of Transport have also announced that they are interested in taking over the line from Spoornet and introducing contract operations of the line – how this would affect the future operation of the *Apple Express* remains to be seen.

There is tremendous community support for the railway in the Langkloof and Gamtoos Valley, with requests for the re-introduction of some form of passenger service to serve some of the more remote areas that do not have proper road access, and the co-op at Patensie is keen to keep its citrus export traffic on rail, specifically to reduce road traffic.

The potential also exists for expanded rail tourism into the Gamtoos Valley and Langkloof, but this is dependent on the railway line being kept open.

The PE-Avontuur Railway currently faces some of the biggest challenges in its whole 100-year history.

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