

= Hell ? Sunnan Line =

The Hell ? Sunnan Line ( Norwegian : Hell ? Sunnanbanen ) is a 105 @-@ kilometer @-@ long ( 65 mi ) railway line between Hell , Stjørdal and Sunnan , Steinkjer in Nord @-@ Trøndelag , Norway . The name is no longer in official use and the line is now considered part of the Nordland Line . The Hell ? Sunnan Line branches from the Meråker Line at Hell and runs on the east shore of the Trondheimsfjord passing through the municipalities of Stjørdal , Levanger , Verdal , Inderøy and Steinkjer .

The Norwegian State Railways ( NSB ) started construction in 1899 and the first part of the line , from Hell to Stjørdalshalsen , opened on 1 February 1902 . The railway opened to Levanger on 29 October 1902 , to Verdalsøra on 1 November 1904 and to Sunnan on 15 November 1905 . Sunnan was chosen as terminus because of its location on the southern end of the lake of Snåsavatnet . The line was further extended to Snåsa in 1926 , after which it has been classified as part of the Nordland Line . The railway is the most heavily trafficked non @-@ electrified line in Norway , with the Trøndelag Commuter Rail running south of Steinkjer . It is also used by intercity passenger and freight trains .

= = Route = =

The Hell ? Sunnan Line constitutes the section of the Nordland Line between Hell , Stjørdal and Sunnan , Steinkjer . At the time of the line 's opening , it was 105 @-@ 2 kilometers ( 65 @-@ 4 mi ) long . The railway is single track , standard gauge , non @-@ electrified , and equipped with centralized traffic control , partial automatic train control , and GSM @-@ R. The railway line is owned and maintained by the Norwegian National Rail Administration .

Starting in the south at Hell Station , which is located 31 @-@ 54 kilometers ( 19 @-@ 60 mi ) from Trondheim Central Station ( Trondheim S ) , the Meråker Line branches from the Nordland Line . The latter crosses the river of Stjørdalselva on a 149 @-@ meter @-@ long ( 489 ft ) truss bridge . It passes the closed Sandferhus Station before reaching Trondheim Airport Station ( 33 @-@ 17 km or 20 @-@ 61 mi from Trondheim S ) , which serves as an airport rail link and is situated below the terminal of Trondheim Airport , Værnes . Previously there was a 3 @-@ kilometer @-@ long ( 1 @-@ 9 mi ) spur from Sandferhus to Værnes and Øyanmoen . The mainline continues under the airport 's taxiway and runway in the two Værnes Tunnels , the latter which is 150 meters ( 490 ft ) long , after which the line reaches Stjørdal Station ( 34 @-@ 67 km or 21 @-@ 54 mi ) .

The line continues past the closed Vold Station , which was built to serve a mill , to Skatval , through which the line makes a semi @-@ circular detour . Here it serves Skatval Station ( 41 @-@ 90 km or 26 @-@ 04 mi ) and the closed Alstad Station . Alstad was previously an important station as it was conveniently placed for boat access from Frosta . Located at 89 @-@ 6 meters ( 294 ft ) above mean sea level ( AMSL ) , it was the highest elevated station on the line . The line then enters the municipality of Levanger , where it first reaches the closed Langstein Station and then the closed Vudu Station . After Vudu , the line reaches its highest elevation of 99 meters ( 325 ft ) when it crosses over European Road 6 ( E6 ) . The line then reaches Åsen Station ( 61 @-@ 40 km or 38 @-@ 15 mi ) before continuing past the closed Hammerberg Station to Ronglan Station ( 69 @-@ 65 km or 43 @-@ 28 mi ) .

Before reaching Skogn Station ( 76 @-@ 01 km or 47 @-@ 23 mi ) , a 2 @-@ 8 @-@ kilometer @-@ long ( 1 @-@ 7 mi ) spur branches off to Fiborgtangen , serving Norske Skog Skogn . It mainline continues past Eggen Station and over the E6 , past the closed Sykehuset Levanger Station , which served Levanger Hospital , before reaching Levanger Station ( 83 @-@ 90 km or 52 @-@ 13 mi ) . It then crosses the river Levangselva on a 27 @-@ 4 @-@ meter @-@ long ( 90 ft ) bridge . It passes the closed Elberg Station and to reach HiNT Station ( 69 @-@ 65 km or 43 @-@ 28 mi ) , which serves the Levanger campus of Nord @-@ Trøndelag University College .

The line continues past the closed Østborg Station and Rinnan Station before entering the municipality of Verdal . After Bergsgrav Station ( 93 @-@ 70 km or 58 @-@ 22 mi ) , which serves the neighborhood of Vinne , a spur branches off to Verdal 's industrial area . The mainline crosses

the river of Verdalselva on a 210 @-@ meter @-@ long ( 690 ft ) truss bridge before reaching Verdal Station ( 96 @.@ 23 km or 59 @.@ 79 mi ) . It is followed by the closed Fleskhus Station and Bjørga Station before entering the municipality of Inderøy at the 103 @-@ meter @-@ long ( 338 ft ) Koabjørge Tunnel . The only station in Inderøy is Røra Station ( 105 @.@ 47 km or 65 @.@ 54 mi ) ; however the line does not enter Steinkjer before passing through the 385 @-@ meter @-@ long ( 1 @,@ 263 ft ) Lunnan Tunnel .

After passing the closed Vollan Station , the line reaches Sparbu Station ( 112 @.@ 93 km or 70 @.@ 17 mi ) . It then passes the closed Mære Station and Vist Station and crosses over the 46 @-@ meter ( 151 ft ) bridge over Figgja to reach Steinkjer Station ( 125 @.@ 50 km or 77 @.@ 98 mi ) . The line runs over the river of Steinkjerelva on a 96 @-@ meter @-@ long ( 315 ft ) truss bridge . Then come two spurs , to Eggebogen and Byafossen . The line continues past the closed Byafossen Station and Fossemvatnet Station and terminates at the closed Sunnan Station ( 1 @,@ 136 @.@ 66 km or 706 @.@ 29 mi ) . The Nordland Line continues over a bridge across Snåsavatnet .

= = History = =

= = = Planning = = =

Planning of a railway to connect Trøndelag and Jämtland , Sweden , started in 1869 , with one of the proposals being to build a line from Trondheim via Verdal to Sweden . However , surveys along the Verdal alternative deemed it unsuitable , and instead the line was built via Stjørdalen and Meråker . To conform with Swedish standards , the line was built with standard gauge instead of the more common narrow gauge . The Meråker Line opened on 22 July 1882 .

In Stjørdal , controversy arose over the route . The river of Stjørdalselva creates a barrier just north of Hell , which made it cheaper to build the line on the south shore of the river to Hegra . However , the major population center was located at Stjørdalshalsen , on the north shore of the river . Locally , there were many protests against the line bypassing such a large town , but the cost of the bridge made Parliament choose the southern alternative . This gave residents in the town a considerably longer route to the train , since they had to cross the river to get access to the railway . This decreased the railway 's ability to compete with the steam ships and thus the overall profitability of the line . With the arrival of the railway , transport to Trondheim became much easier than to Stjørdalshalsen and Levanger , helping Trondheim grow as a regional center .

The Nordland Line was first publicly proposed by Ole Tobias Olsen in a letter to the editor in Morgenbladet in 1872 , where he argued for a railway between Trondheim and his home county of Nordland . The same year , Nord @-@ Trøndelag County Council voted in favor to start planning of a railway between Trondheim and Namsos . The county council appointed a railway committee in 1875 , who on 23 August 1876 published a report to encourage national authorities to consider the line , which resulted in surveying starting in 1877 . On 27 April 1881 , the committee made its recommendation to the county council and ceased its work . No planning was done the next three years , until three county councilors , Vilhelm Andreas Wexelsen , Peter Theodor Holst and Bernhard Øverland , made a new proposal . However , it was not until 1889 that the county council appointed a new railway committee , which was led by Wexelsen .

In 1891 , the county 's road committee , led by Øverland , sent an official request to the railway committee , asking for details about their plans , so the appropriate roads could be planned . This spurred the committees work and a cooperation with Nordland County Council was initiated to increase the projects priority by national politicians . On 2 March 1896 , with 87 against 27 votes , Parliament passed legislation approving a railway from Hell to Sunnan . Costs were estimated at 8 @.@ 75 million Norwegian krone ( NOK ) , of which 15 percent was to be financed with local grants and the remainder by the state . Construction was scheduled to take 15 years . The decision initially called for the railway to be built in two stages , with the split at Rinnan in Levanger ? the site of the military camp Rinnleiret . Final approval of construction was made by Parliament on 11 June 1898 .

= = = Construction = = =

At Hell , there arose a disagreement about where the Hell ? Sunnan Line should branch from the Meråker Line . Initial proposals were to place the branch from a location before Hell Station , thus forcing trains to back up from Hell Station before continuing northwards . The station building at Hell was also too small for the increased traffic , so it was moved to Sunnan Station and a new station building , with capacity for 25 employees , was built at Hell . In Skatval , there was a controversy as to whether the station should be built at Mæhre or Alstad . Mæhre ( later Skatval ) had support from the municipal council and was closer to the larger share of the area 's population . However , the military wanted Alstad , as it was a rally point for the military in case of a Swedish invasion , and gave easy waterway access from Frosta . The station was placed at Mæhre , while a passing loop was built at Alstad .

The most difficult work was through Grubbåsen , near Åsen . The ground consisted of quick clay , which the railway was to pass through in a trench . On 5 May 1900 , a landslide filled the trench , killing three navvies . Past the lake of Nesvannet , there was also weak soil mechanics , resulting in the need for piling . One worker was killed after getting hit by a piling log . In Levanger , there was debate as to whether the station should be on the west or east side of the tracks , with the decision falling on the west side . The 3 @. @ 0 @-@ kilometer @-@ long ( 1 @. @ 9 mi ) section from Hell to Stjørdal started revenue service on 1 February 1902 . The 49 @. @ 4 @-@ kilometer @-@ long ( 30 @. @ 7 mi ) section from Stjørdalshalsen to Levanger was officially opened on 27 October 1902 , with ordinary services starting on 29 October .

Construction on the line 's second part , from Levanger to Sunnan , started in 1901 . Part of the reason for the early start was to help employ older navvies who were working on the southern section during the summer . By early 1904 , the right @-@ of @-@ way to Fleskhus was completed and the laying of tracks could begin . The bridge over Verdalselva was built using 473 tonnes ( 466 long tons ; 521 short tons ) of stone , which had to be transported 12 kilometers ( 7 @. @ 5 mi ) from Bagloåsen in Levanger . The superstructure was built by Vulkan of Oslo and was installed between 9 September and 27 November 1903 .

In Verdalsøra there again arose a debate over which side of the tracks the station should be on . The townspeople wanted it on the west side , which was on the same side as the town center , while farmers wanted it east side , which was most accessible from the valley . The result was that the station was placed on the east side . The 12 @. @ 4 @-@ kilometer @-@ long ( 7 @. @ 7 mi ) section from Levanger to Verdal was opened on 1 November 1904 , although the station building was not completed until 1905 . At the time there were two trains per direction per day , one passenger train and one post train .

For the bridge over Ydseelva in Verdal , which had a main span of only 1 @. @ 5 meters ( 4 ft 11 in ) , construction started in April 1903 and was completed on 21 November . The area has quik clay , so the bridge needed piling . At Røra , a spur was originally planned to Hylla , but this was discarded late in the planning phase . At Hellem in Inderøy the right @-@ of @-@ way had to be moved because of poor soil mechanics . There were similar issues north of the Lunnan Tunnel , forcing the tunnel to be extended and a supporting being built . Construction of the tunnel was performed by 40 men during the winter of 1904 and 1905 . It cost NOK 90 @, @ 179 and took 23 @. @ 9 man @-@ hours per meter to build .

In the former municipality of Sparbu , there was a contentious debate over both the route and the location of the station . Although the line was built where it had originally been planned , two alternatives were launched , both which saw the line go further east and higher up in the terrain . At the time both the dairy and store were located at Lein . The current villages of Sparbu and Mære had not been established , and locals wanted the railway to go through Lein , which was the de facto municipal center . However , the alternatives were 2 kilometers ( 1 @. @ 2 mi ) longer and would run through more rolling terrain , so the engineers insisted on the original route . The plans called for a station at Leira ( today known as Sparbu ) and at Vist , but many locals instead wanted it at Mære , in part to serve the new Mære Agricultural School . On 5 June 1900 , Parliament voted in favor of

only one station , at Mære . However , the decision was reverted by Parliament on 24 April 1901 .

A support wall was built at Sørliå , just south of Steinkjer , after there was a clay landslide . Construction of the bridge over Figgja , just south of Steinkjer , was performed in 1904 . The superstructure was built by Kværner of Oslo and installed between 11 November and 21 December 1904 . The bridge over Steinkjerelva took up a significant portion of the old river port in Steinkjer , resulting in a spur being built to a new port location . The railway ran right through the town center , forcing 20 houses to be demolished and splitting the town in two . The arrival and route of the railway was described by some locals as vandalism . A counter @-@ proposal which saw the line run further up and cross through Steinkjersannan and Furuskogen ? and thus avoid the town itself ? was discarded because it would wreck the military camp at Steinkjersannan and would be located too far from the port . There was also a major debate as to whether the station should be on the south side or north side of the river . The municipal council voted for the south side with the mayor 's double vote being decisive . Construction of the bridge over Steinkjerelva started in August 1902 and was completed on 7 May 1904 . A proposal to build the bridge as a swing bridge was dropped , forcing the railways to pay NOK 45 @, @ 402 in compensation to companies with facilities upstream .

Steinkjer is surrounded by a moraine which had to be traversed with a cutting , 85 meters ( 279 ft ) long and up to 21 meters ( 69 ft ) deep . 125 @, @ 000 cubic meters ( 4 @, @ 400 @, @ 000 cu ft ) of earthwork was removed , half with a steam shovel , and largely used to build reclaimed land for the railway 's right @-@ of @-@ way through Steinkjer . The official opening of the 40 @. @ 4 @-@ kilometer @-@ long ( 25 @. @ 1 mi ) section between Verdal and Sunnan took place on 14 November 1905 . Revenue service started the following day .

= = = Operation = = =

The choice of route through Innherred was largely without much debate , as the line naturally went through all the towns and most of the important villages . Sunnan was a natural place to halt construction , as it is located at the foot of the lake of Snåsavatnet , allowing connection with steam ships . Scheduled services on Snåsavatnet started in 1871 with SS Dina , which was replaced with SS Bonden in 1885 . From 1904 to 1921 , Bonden was supplemented with MS St. Olaf , although SS Bonden remained in corresponding service with the train until 1926 .

Even before planning of the Hell ? Sunnan Line was completed , there arose disagreement as to the route onwards . In a plan from the 1870s , there was consensus that the towns of Stjørdal , Levanger , Steinkjer and Namsos should receive a line , but there was a disagreement as to the route . The Beitstad Line would run from Steinkjer via Beitstad and Namdalseid to Namsos and from there to Grong , while the Snåsa Line would run from Sunnan via Snåsa to Grong , with a branch from Grong to Namsos . The Beitstad Line would run through the most densely populated areas , while the Snåsa Line was shorter . Parliament decided on the Snåsa Line in 1900 . The railway was extended from Sunnan to Snåsa Station on 30 October 1926 , with the section from Hell to Sunnan becoming classified as part of the Nordland Line . The railway was completed to Bodø on 7 June 1962 .

In 1909 , a station was opened at Fossemvatnet , followed by a station at Fleskhus in 1913 . Mære continued to be the dominant center of Sparbu , so in 1915 , the national authorities offered to build a station there . However , the municipality would not grant the necessary NOK 6 @, @ 300 , so the station was funded with private donations . Construction started in 1916 and Mære Station opened on 1 April 1917 . In the original plans for the railway , a spur was planned from north of Steinkjerelva to Eggebogen in Egge . However , in the parliamentary voting for the line , the spur was removed . In 1915 , a public report criticized the railway for not having sufficient access to a proper port in Steinkjer , as Sørsileiret was located on the river and did not have a deep quay . The municipal council voted in favor of a new quay at Eggebogen on 16 May 1916 , which was completed in 1924 . The 2 @. @ 2 @-@ kilometer @-@ long ( 1 @. @ 4 mi ) spur to Bogakaia opened on 15 August 1927 , having cost NOK 139 @, @ 200 . A station was opened at Østborg in 1923 , at Alstad in 1934 , and at Hammerberg , Eggen and Bergsgrav in 1938 .

In 1940 , a 3 @-@ kilometer @-@ long ( 1 @.@ 9 mi ) spur was built to Værnes Air Station and Øyanmoen . A new , wooden station building was built at Åsen in 1943 and 1944 . The section to Værnes was removed in 1947 . Vudu Station opened in 1950 , followed by Vollan in 1952 and Bjørga and Sandferhus in the following year . From June to October 1953 , a station was in use at Bjørga . From 1957 , NSB started replacing steam trains on the line by introducing Di 3 locomotives . In 1956 , NATO granted funding for an expansion of the runway at Trondheim Airport , Værnes . The easiest way was to extend the runway by building it over the road and railway and into the river . Construction started in 1959 and on 1 June 1960 , the Værnes Tunnel was taken into use . A 2 @.@ 8 @-@ kilometer @-@ long ( 1 @.@ 7 mi ) spur was built to Fiborgtangen in February 1966 . Two years later , Elberg Station was opened . Fossemvatnet Station was closed in 1972 .

The line received centralized traffic control in four phases : from Trondheim to Stjørdal on 11 January 1976 , to Levanger on 9 January 1977 , to Steinkjer on 6 December 1977 and to Snåsa on 23 November 1984 . Bergsgrav Station was opened on 6 December 1977 . In 1981 , Di 4 @-@ locomotives were introduced . The spur to Øyanmoen was taken out of use and removed in October 1982 . NSB introduced Class 92 diesel multiple units in 1985 , cutting travel time on local services between Steinkjer and Trondheim by 25 minutes . In 1989 , the station building at Sunnan was demolished . In 1989 and 1990 , five stations were closed , consisting on Sandferhus , Vold , Vollan , Vist and Sunnan .

On 1 September 1993 , NSB launched the Trøndelag Commuter Rail , of which the main service ran from Steinkjer to Trondheim . The initial plans called to the continued use of the Class 92 rolling stock , but saw change in schedules and the upgrading platforms for NOK 15 million . At the same time , the stations of Alstad , Langstein and Fleskhus were closed . The service from Trondheim to Steinkjer had ten daily round trips . After six months operation , the service had experienced a 40 percent growth in patronage . This was further increased with the opening of Trondheim Airport Station on 15 November 1994 , which cost NOK 24 million . The upgrades to the airport also included a new taxiway , which resulted in second Værnes Tunnel being built . A station was also established to serve Levanger Hospital on 20 December 1995 . On 10 November 1994 , the line received automatic train control . NSB was split up on 1 December 1996 and the ownership of the tracks and infrastructure was inherited by the Norwegian National Rail Administration , while the operation of trains was taken over by the new NSB . From 1994 , Di 6 and Di 8 locomotives were introduced , but the Di 6 proved unreliable and returned to the manufacturer .

In 2000 , NSB started using Class 93 diesel multiple units on intercity trains , retiring the Di 3 . In March 2000 , NSB announced the closing of several stations for the commuter train service . Fifty percent of the stations were responsible for only two percent of the traffic , and NSB instead wanted buses to transport people to the closest railway station , which would reduce overall transport time for most passengers . From 7 January 2001 , a fixed , hourly headway was introduced on the trains from Steinkjer to Trondheim . Mære , Østborg , Rinnan and Elberg were closed , but HiNT Røstad opened . From June 2001 , NSB introduced additional rush @-@ hour trains between Trondheim and Steinkjer , giving a half @-@ hour headway . The Nordland Line had not received NSB 's first generation of train radio , Scanet , so was among the first lines to receive GSM @-@ R from 1 December 2004 . In 2010 , CargoNet started using Vossloh Euro locomotives . Sykehuset Levanger Station was closed on 11 December 2010 . Despite generating some 90 @,@ 000 annual patrons and being one of the busiest stations on the line , it was located too close to Levanger Station to meet safety requirements .

= = Architecture = =

The stations were designed by Paul Due ( 1835 ? 1919 ) and his son , Paul Armin Due ( 1870 ? 1926 ) . Original stations between Stjørdal and Levanger were designed by Paul Due , while those from Rinnan to Byafossen , as well as Hell Station , were designed by Paul Armin Due . The designs are characterized by the transition period between Dragestil and Art Nouveau , with early stations dominated more by the former and later stations more by the latter . Norway went through a nationalistic period during the construction , and Paul Due chose to replace his older buildings '

foreign elements with traditional Norwegian elements . Røra and Byafossen were the only stations not custom designed , while Sunnan was designed by Peter Andreas Blix ? as it was originally built at Hell in 1881 .

At the time of construction , the railways provided a leap in transport for the communities it passed through . NSB saw beautiful and grandeur stations as a way to draw patronage , and chose , in addition to impressive architecture , to build a park adjacent each stations . As construction went by , funding for stations were reduced , resulting in less grandeur further north . Most stations had two stories and an attic , although some of the stations serving lesser places had smaller buildings . From Steinkjer to Skogn , the ground floors were built in random rubble . As construction continued , budgets were reduced and station costs were cut . From Rinnan to Sparbu , the ground floors were instead built in brick , and from Mære and north , the stations have wooden ground floors . In addition to a station buildings , stations consisted of an outhouse and a freight house ; selected stations also featured a water tower and motive power depot .

Levanger Station is the most spectacular station on the line and also the best preserved town station . Built entirely in stone , it has a dominant position in town and with a park in front of the station . It was designed in combined Medieval style , with strong elements of Gothic and Romanesque style . Steinkjer Station was the other station entirely built in stone . It has a combined Baroque Revival and Art Nouveau style , and is more anonymous than Levanger Station . Its characteristics were largely lost after it was connected with the bus station . Three stations , Langstein , Skogn and Levanger , have been preserved , while Skatval and Hell have been protected .

In 1993 , NSB built new sheds on all stations served by the commuter rail . Linje Arkitekter designed sheds which combined the existing architectural traditions in material and roof shapes , with modern style . The sheds have a roof , glass walls and a framework in wood . They were optimized to give good protection from various types weather .

= = Service = =

The main passenger service on the section from Hell to Steinkjer is the Trøndelag Commuter Rail . Operated by the Norwegian State Railways , it runs at a fixed hourly headway ? with additional rush @-@ hour services ? between Lerkendal Station in Trondheim and Steinkjer , calling at 13 stations on the Hell ? Sunnan Line . Travel time from Steinkjer is 24 minutes to Verdal , 37 minutes to Levanger , 1 hour and 24 minutes to Stjørdal and 2 hours and 4 minutes to Trondheim . The services are operated with Class 92 diesel multiple units .

NSB also operates intercity services from Trondheim to Bodø on the Nordland Line . These consist of two daily through trains , one day and one night service , with an additional service between Trondheim and Mo i Rana . Stjørdal and Steinkjer are the only stations along the line which remain manned . NSB uses a combination of Class 93 diesel multiple units and Di 4 @-@ hauled trains . CargoNet and Cargolink operate freight trains along the line . CargoNet hauls using Vossloh Euro , while Cargolink uses Di 6 locomotives , respectively .

= = Future = =

Politicians have signalized that they want to electrify the tracks from Trondheim to Steinkjer along with the Meråker Line . NSB will need to replace the Class 92 trains towards the end the 2010s , and want to coordinate the new stock with electrification . The county municipalities of Nord @-@ Trøndelag and Sør @-@ Trøndelag proposed during the early 2000s that the Nordland Line between Trondheim and Steinkjer be upgraded reduce travel time to one hour . This would require the average speed to be increased to 115 kilometers per hour ( 71 mph ) , mainly through a modernization of the existing line . Specific projects include electrification , double track between Trondheim and Trondheim Airport , additional passing loops , a new bridge over Stjørdalselva and a rearrangement of the tracks at Hell . This would have to be combined with a reduction in the number of stops . The National Rail Administration estimates that the mentioned investments , which would

cost between NOK 4 and 6 billion , will allow a travel time of one hour and ten minutes . If a number of curves are straightened , increased capacity is introduced between Stjørdal and Steinkjer and a further number of stops are removed , travel time could be reduced to one hour .

Norsk Bane , a lobbyist organization which is suggesting to build a high @-@ speed line from Oslo to Trondheim and onwards to Steinkjer , have proposed building an all @-@ new right @-@ of @-@ way on the route . They estimate that regional trains would , with their infrastructure , be able to operate trains from Steinkjer to Trondheim in 40 minutes . The proposals involves only keeping the stations at Trondheim Airport , Stjørdal , Åsen , Levanger , Verdal , Røra and Steinkjer along the Hell ? Sunnan segment . It would involve three services per hour and direct trains to Oslo , with speeds up to 300 kilometers per hour ( 190 mph ) .