



During Construction

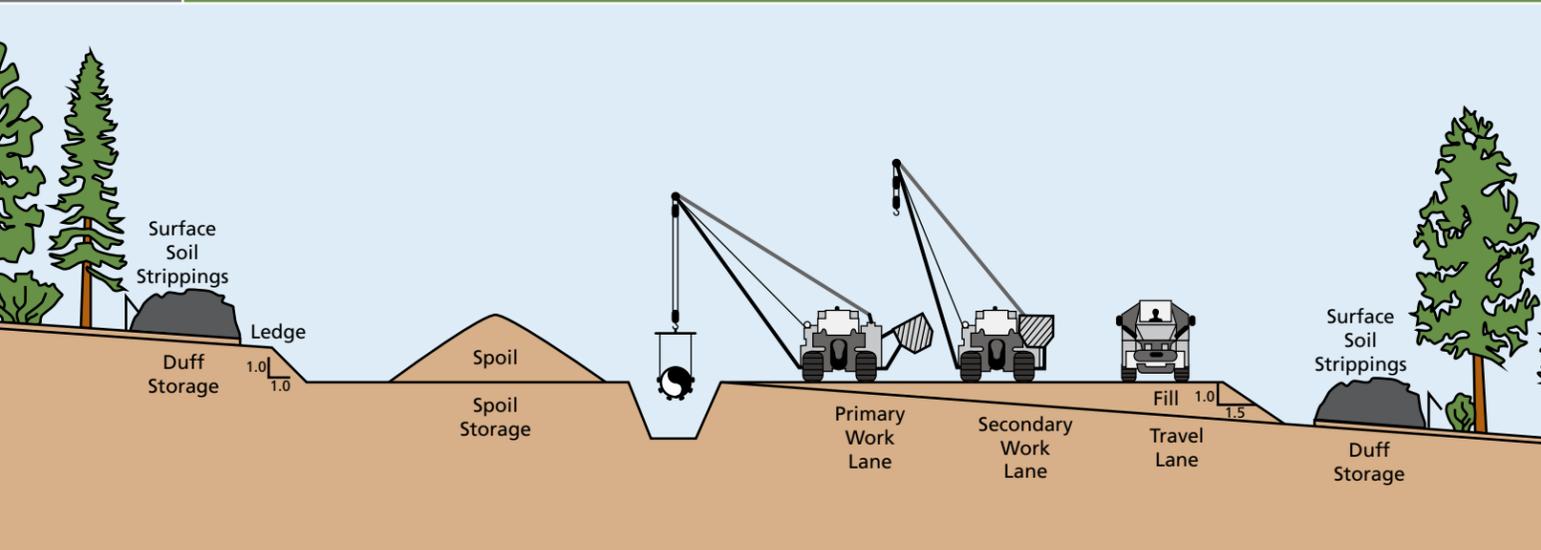
After Construction

Natural Gas Pipelines – An Overview

Above: Pipeline Rights-of-way Reclamation:

TransCanada considers reclamation to be a critical part of project execution. Clean-up begins immediately following construction to restore the pipeline right-of-way to equivalent land capabilities, including vegetation and drainage.

Below: Typical Pipeline Construction Activities



Contact Us

We invite you to contact us with any questions or comments you have regarding this proposed project:

Coastal GasLink
 Phone: 1.855.633.2011 (Toll-free)
 Email: coastalgaslink@transcanada.com
www.transcanada.com/coastalgaslink

Stages of Pipeline Construction

1. Clearing and Grading

Topsoil is stripped and the ground (or grade) prepared along the right-of-way. Topsoil is stored so it can be replaced following construction.



2. Trenching

Construction crews dig the trench for the pipe, storing the soil to fill the trench after the pipe is laid.

3. Stringing/Bending

Pipeline crews line up sections of the pipe along the edge of the trench. A machine bends the pipe so that it follows the pipeline route and the contour of the land.



4. Welding/Coating

Welders join the pipe segments together. Pipeline joints are coated with an anti-corrosion material and then inspected. Extreme care is used to properly weld the pieces together. Each seam is examined through a non-destructive inspection process.

5. Lowering in and tie-ins

Following a careful inspection, specially designed cranes are used to lower the sections of welded pipe into the trench. A separate crew completes the final welds (tie-ins) connecting continuous lengths of pipeline that have been lowered into the trench.

6. Backfilling

The stored subsoil is returned to the trench to bury the pipeline.

7. Pressure-testing

The pipeline is filled with water and pressurized up to a level that exceeds the operating pressure of the line to ensure that the pipeline is ready to transition safely to operation.

8. Cleanup/Reclamation

Once testing is complete, final techniques are employed to stabilize the right-of-way, return the ground surface to its original contours for drainage patterns, replace topsoil, and allow for the re-establishment of appropriate vegetation. The goal is to bring the land as close to the original state as possible.

What is Natural Gas?

- The cleanest-burning fossil fuel, often found in combination with oil and water in underground rock formations deep below the earth's surface.
- A naturally occurring gas mixture consisting primarily of methane, but may also contain other valuable products such as propane and butane.
- Natural gas should not be mistaken with gasoline – a liquid made from refining crude oil and commonly used to fuel vehicles.

What is LNG?

- Liquefied natural gas (LNG) is natural gas that has been converted to a liquid form for storage or transportation.
- LNG takes up approximately 1/600th the volume of natural gas in its gaseous state. It is condensed to a liquid by cooling it to approximately -162 degrees Celsius. It is transported on specially designed LNG carrier ships, and then regasified following transportation.

What is Natural Gas Used For?

- Natural gas is used for a wide variety of purposes, most commonly as a fuel source for power generation, home heating and transportation.
- We use natural gas to heat our homes, hospitals and businesses, and cook our food.
- Industry uses natural gas to fuel electric generators and fire steam boilers.
- It is also used in some manufacturing processes.

Natural Gas Pipelines

Pipelines are the safest method to transport natural gas across considerable distances. TransCanada's pipelines are designed, built and operated to ensure the safety and protection of the local communities and the environment. We work to meet or exceed industry, government and regulatory standards to ensure public safety.

No pipeline construction work will begin until final regulatory approvals have been received and easement agreements granting us access to the land have been acquired from landowners.

Pipelines are built within a right-of-way, which are permanent corridors of land designated for the safe construction and ongoing operation of the natural gas pipeline. The size of these easements will vary depending on the pipeline size, terrain and ground conditions. During construction, temporary work space is required for the safe operation of equipment. Additional temporary work space will be required at certain highway, railway and existing pipeline corridors, watercourse crossings and at other site specific locations, to accommodate pipeline crossing construction activities.

Design:

- Industry-leading steel and welding techniques.
- Higher design safety factor when crossing roads, railway tracks, water bodies or near communities.
- Precautions include using thicker-walled pipe and burying pipeline deeper near populated areas.
- Design meets or exceeds all federal and provincial regulations and standards.

Construction:

- Welds checked by ultrasonic inspection and/or x-ray.
- Pipelines coated to protect against corrosion.
- Pressure-testing pipe by filling with water and pressurized higher than maximum operating pressure to ensure the pipeline is sealed and ready for operation.

Maintenance:

- The pipeline system is monitored 24 hours a day by highly trained staff from a state-of-the-art control centre.
- "Smart pigs" – sophisticated inspection devices that record information about the internal conditions of the pipelines – are utilized as part of the ongoing operations of the pipeline.
- In the highly unlikely event of an incident, TransCanada has a comprehensive Emergency Response Program designed to work with local emergency services and protect the public and environment.
- Our Emergency Management System is tested regularly through annual exercises and we encourage community involvement from local emergency responders during field exercises.