

### Determining the Route

Pipelines are one of the most efficient, safe and environmentally responsible energy transportation systems there is. Every day, Enbridge's pipelines alone move more than two million barrels of petroleum products across North America.

The Northern Gateway Project began the route selection process by hosting community open houses to which Aboriginal groups and stakeholders such as landowners and community members were invited. At the open houses Northern Gateway shared information about pipelines facilities, and discussed possible routes and any associated concerns.

Planners, environmentalists, biologists, geologists and chemists spent months studying the proposed areas and reviewing potential design options. Based on their findings they developed solutions that took into account environmental sensitivities to ensure the route had minimal environmental impact.

### Pipeline Materials

A well maintained pipeline can last for a long time if it starts with quality pipe. The pipes that Northern Gateway will use come from quality steel pipe production mills, and undergo a series of tests and quality checks. Third party inspection companies ensure that the final product is of the highest quality and meets all requirements.

### Steps in Building a Pipeline

Once all approvals are in place, the pipeline can be built. There are various steps a pipeline goes through before it is complete:

1. **Clearing and Grading** - The top soil is striped and the ground (or grade) prepared along the right-of-way. Throughout this process the top soil is stored so it can be replaced later.
2. **Trenching** – Construction crews dig the trench for the pipe preserving the soil to fill the trench after the pipe is laid. The depth of the pipeline trench will typically be a metre or more beneath the surface.
3. **Stringing/Bending** - Pipeline crews place sections of the pipe to be used along the edge of the trench. A machine then bends the pipe such that it follows the route of the pipeline and matches 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, and each seam is subject to a thorough X-ray inspection.
5. **Lowering in and tie-ins** – Following a careful inspection, construction crews use specially designed cranes to lower the long sections of welded pipe into the trench. A separate crew completes final welds (tie-ins), connecting continuous lengths of pipeline that have been lowered into the trench.
6. **Pressure-testing** - The pipeline is pressure-tested with water, subjecting it to a higher pressure than it would normally operate under.
7. **Backfilling** - The trench is backfilled and the sub and top soils are replaced and packed, leaving the area close to the way it was before the pipeline was installed.