

INNOVATIVE PIPELINE STRATEGIES (IPS)

Innovative Pipeline Strategies (IPS) is an oil and gas pipeline construction approach that is part of an **overall land stewardship planning process** designed to meet societal expectations for responsible resource development.

IPS encourages the use of low impact industry-proven technologies and wise practices. IPS was **developed by the Industry** in response to an increasing awareness of the long term cumulative impacts on the environment from traditional pipeline construction practices. The IPS initiative demonstrates the type of **Industry and Community collaboration necessary to build trust**.

IPS Objectives:

- Develop, prove and encourage use of **innovative pipeline construction planning** and management systems to achieve desired environmental outcomes
- **Encourage the use of innovative technologies**
- **Reduce life cycle costs and liabilities**
- **Re-build and maintain community trust**

"I can't even tell a pipeline was installed on our land, **this is exactly how Industry can help re-build trust.**" Ray Marcy, Landowner

IPS is recognized as an **Integrated Land Management (ILM)** technology developed by Industry in collaboration with Government to address the cumulative impacts of pipeline construction on public and private lands in Alberta.

IPS promotes detailed construction planning on all pipeline projects and implements "**Best in Class**" technologies that supports a no net loss of ecosystem processes and function. The successful implementation of IPS enhances operational efficiency and may result in reduced full life-cycle costs.

WHY IPS?

The construction of oil and gas pipelines is estimated to be one of the largest industrial land disturbances in Alberta. Most pipelines continue to be constructed using conventional methods with potential long term ecological impacts. In the interest of reducing impacts, assuring land outcomes and building public trust at new projects, industry and government have begun to shift away from conventional to new low impact construction practices. This collaborative process has generated a number of practical and cost effective technologies that address many of the issues associated with conventional practices including soil degradation from salvage operations, soil erosion, ditch-line settlement as a result of incomplete trench compaction, negative wildlife interaction, fragmentation, invasive species increase, large linear disturbances, soil compaction and impact to the re-establishment of vegetation.

IPS was developed by Industry in collaboration with Government in 2007 to establish "**Best in Class**" technologies and continues to improve and evolve to assure land outcomes, facilitate responsible resource development and build public trust.



Pipeline installed – no disturbance!



15 m soil salvage compared to 36" trench-line soil salvage



WHERE AND WHEN IS IPS USED

IPS was initially designed to be used for the construction and installation of small diameter pipelines (3-12 inches) and has been successfully proven across a variety of landforms across Alberta.

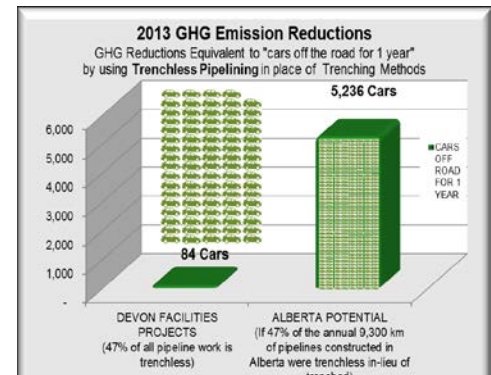
IPS can be effectively used on the majority of pipeline construction projects in Alberta. The IPS approach promotes collaboration, land stewardship, land conservation and innovation.

IPS can be used on a wide range of challenging and sensitive cultivated, range, forested and wetlands across Alberta.

ADVANTAGES OF IPS:

Environmental Results:

- Substantial reduction in right of way widths
- Significant reduction of the forest removed
- Major shift towards reducing footprint
- Ditch spoil replaced in original location
- Facilitates natural recovery
- Significant reduction of soil and water erosion
- Directional drilling method leads to **GHG reductions**
- Protects natural habitats and biodiversity
- Achieve Land Use Framework outcomes
- Reduced opportunities for invasive species
- Reduced energy (fuel) use



Economic Results:

- Significant cost reduction using IPS (reduced soil disturbance results in \$ savings)
- \$30-75/m potential savings when operators don't have to return to the r.o.w. for final clean-up
- **400 million dollars approximate savings to industry** (based on 10,000 kms/year)

Social License:

- Social license is earned by demonstrating our care for the environment
- Collaboration and the strive for excellence are required for building trust
- Implementing the IPS process can help earn the trust of a community