

# Human Patrols to Inspect Pipeline Corridors

**TABLE 3.1-1 Patrol Frequency for Natural Gas Transmission Pipelines**

Characteristics of Area Consisting of 220 yards of 1-mile Length of Pipeline	Maximum Interval between Patrols	
	At Highway and Railroad Crossings	At All Other Places
Any location having fewer than 46 buildings intended for human occupancy	7.5 months; but at least twice each calendar year.	15 months; but at least once each calendar year.
Any location having 46 or more buildings intended for human occupancy or where the pipeline lies within 100 yards of a building	4.5 months; but at least four times each calendar year.	7.5 months; but at least twice each calendar year.
Any location where buildings with four or more stories above ground are prevalent	4.5 months; but at least four times each calendar year.	4.5 months; but at least four times each calendar year.

# Managing Water and Erosion



From Climate Progress  
([thinkprogress.org](http://thinkprogress.org))

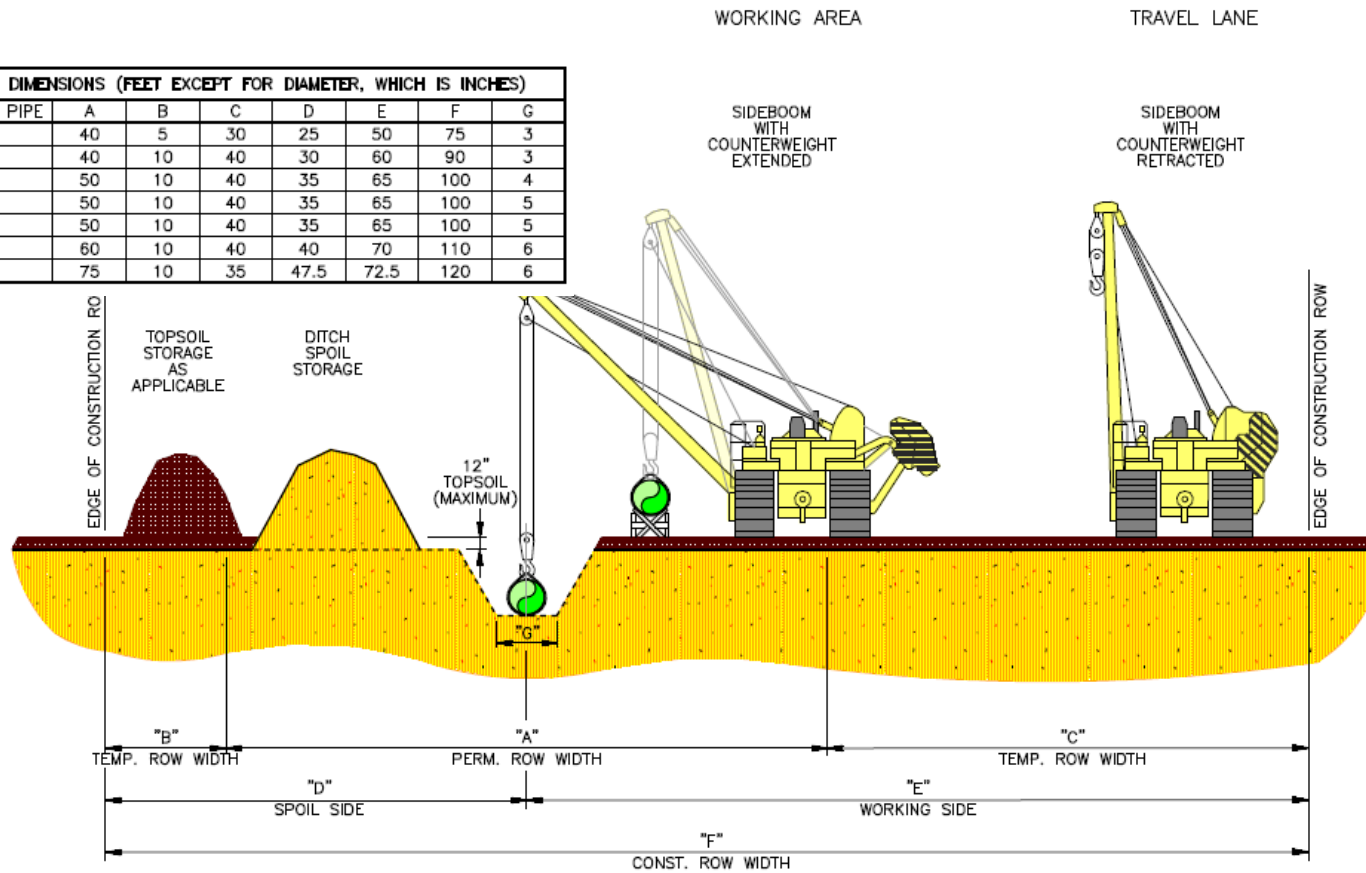
# Potential Impacts

- ▶ Building or Utility Settlements
- ▶ Noise, Vibration
  - ▶ Excavation, Truck Traffic, Compaction, Blasting, Mech. Exc. of Rock
- ▶ Effects on Wells
- ▶ Effects on Septic Systems
- ▶ Effects on Roadways
- ▶ Effects on Wetlands



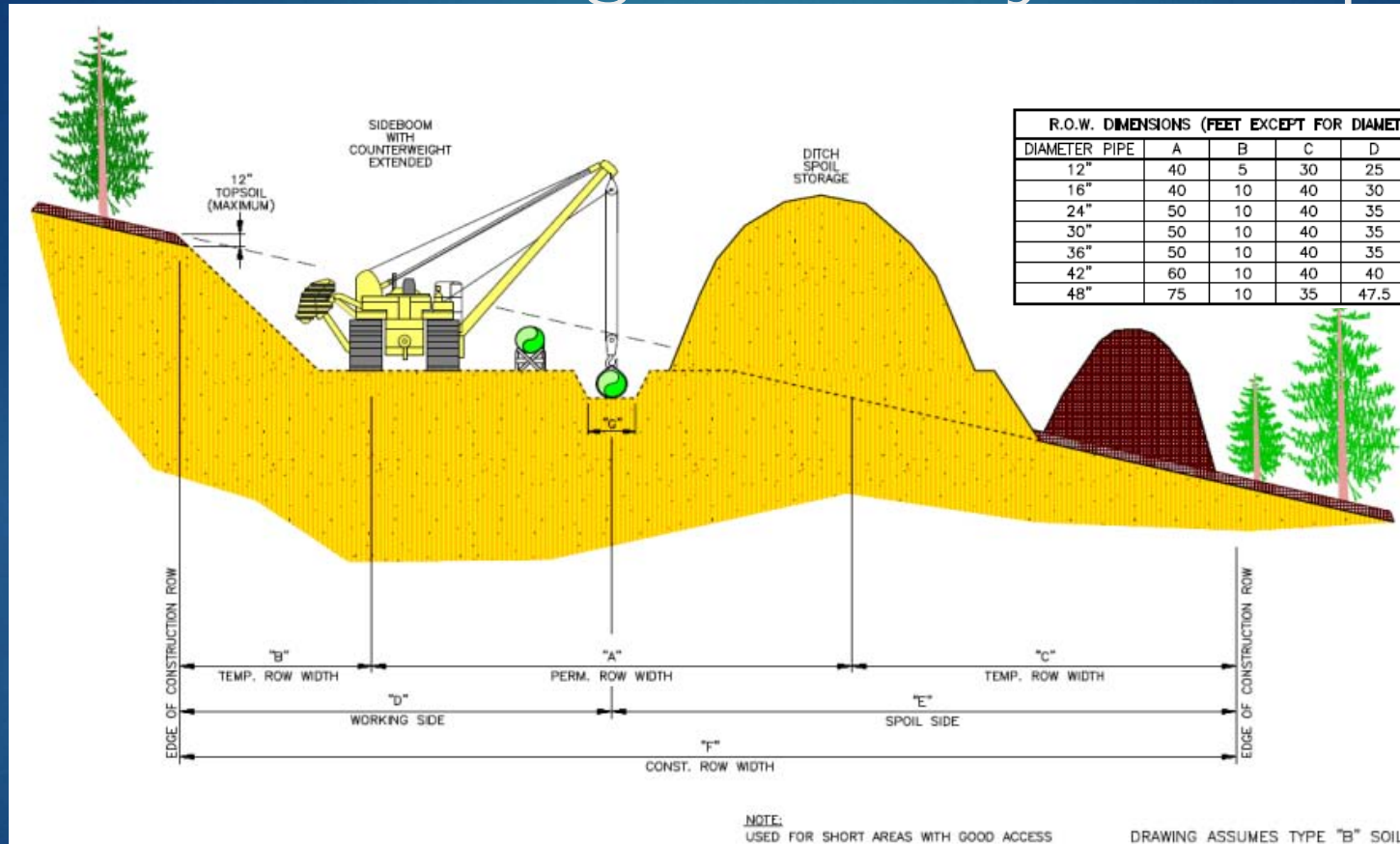
# Construction Right of Way

R.O.W. DIMENSIONS (FEET EXCEPT FOR DIAMETER, WHICH IS INCHES)							
DIAMETER PIPE	A	B	C	D	E	F	G
12"	40	5	30	25	50	75	3
16"	40	10	40	30	60	90	3
24"	50	10	40	35	65	100	4
30"	50	10	40	35	65	100	5
36"	50	10	40	35	65	100	5
42"	60	10	40	40	70	110	6
48"	75	10	35	47.5	72.5	120	6



From INGAA Foundation Report 2013.01

# Construction Right of Way on Slope



From INGAA Foundation Report 2013.01



# Compressor Station



From Valdes Engineering Company  
([www.valdeseng.com](http://www.valdeseng.com))



From LG&E KU  
(<http://lge-ku.com>)

# Valve



From the Federal Energy Regulatory Commission  
([www.ferc.gov](http://www.ferc.gov))

Questions?





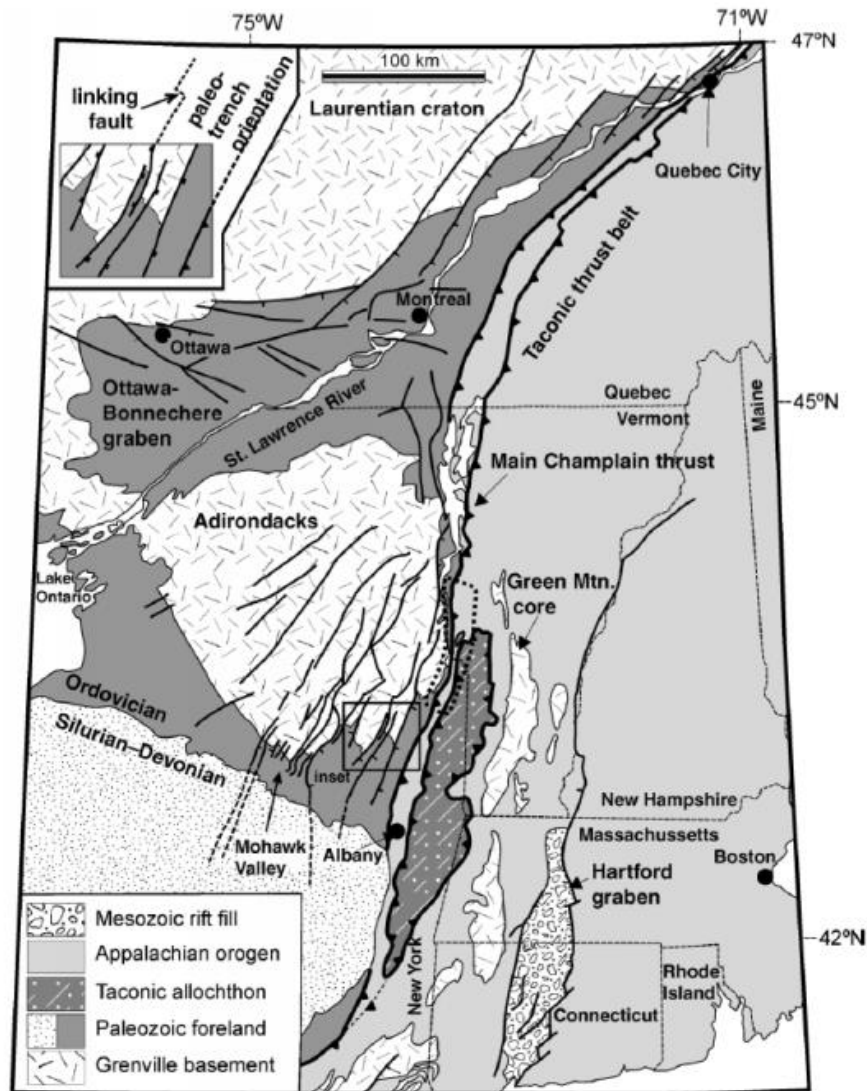


## 220 CMR 109.13

- ▶ (1) The pressure at the beginning of a pipeline and at each of the end points of a pipeline shall be monitored.
- ▶ (2) The flow rate and other pressures or operating functions determined necessary by the operator for the safe operation of a pipeline shall be monitored.
- ▶ (3) The functions listed in 220 CMR 109.13(1) and 109.13(2) shall be monitored at a continuously attended control center. Any abnormal condition of a monitored function shall activate audible and visible alarms at the control center.
- ▶ (4) The entire route of the pipeline shall be patrolled at least four times each calendar year but at intervals of no more than 4 1/2 months.
- ▶ (5) Each pipeline shall be leakage surveyed at least once each calendar year but at intervals of no more than 15 months. Leakage surveys shall be done with flame ionization detectors or equivalent devices.
- ▶ (6) There shall be written procedures for any maintenance or repairs performed on a pipeline. The materials and equipment used for maintenance or repair shall be suitable for the MAOP of the pipeline. Personnel shall be trained in the procedures and use of the materials and equipment before any maintenance or repairs are performed.

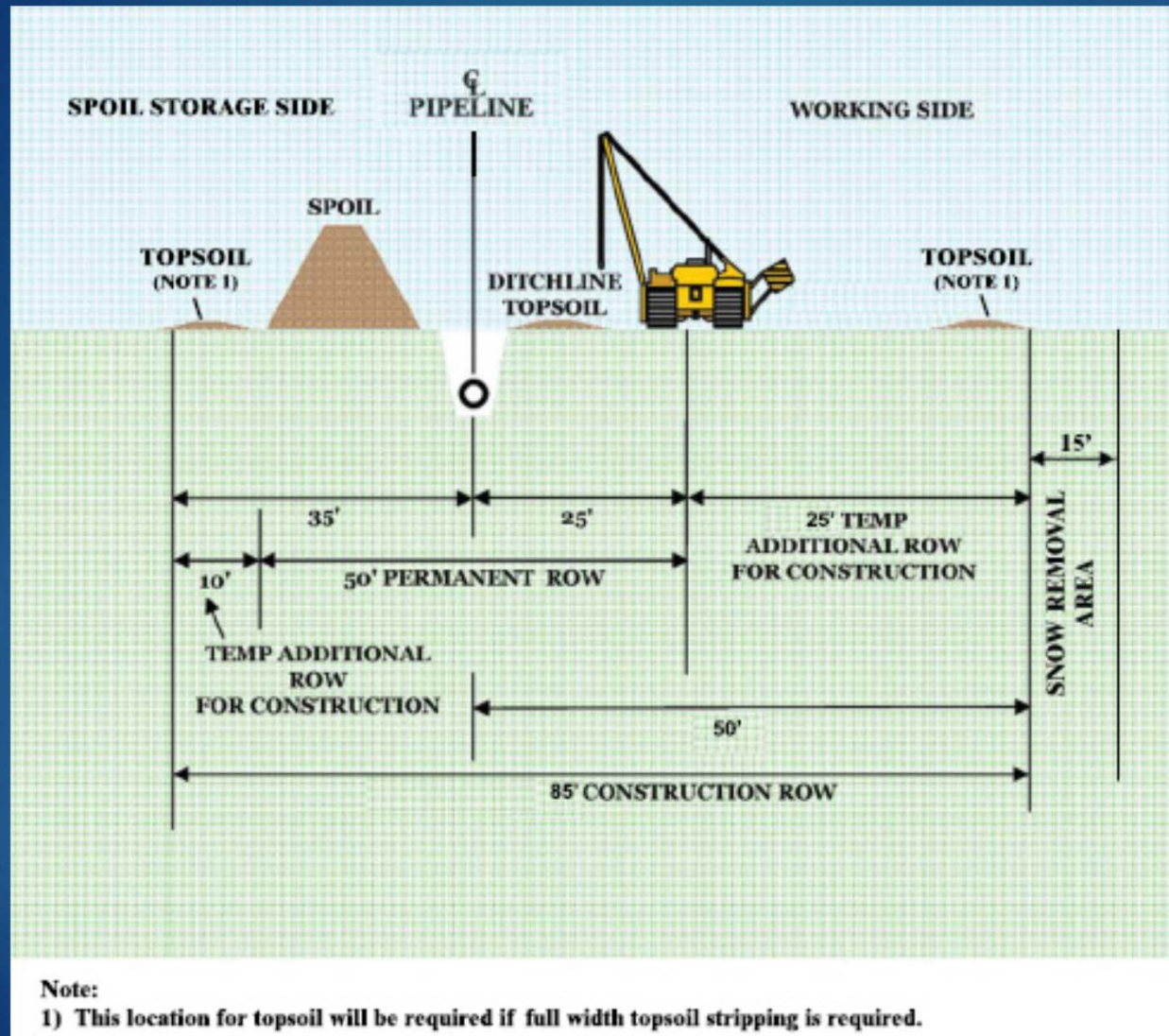
# O & M - Safety Precautions Include

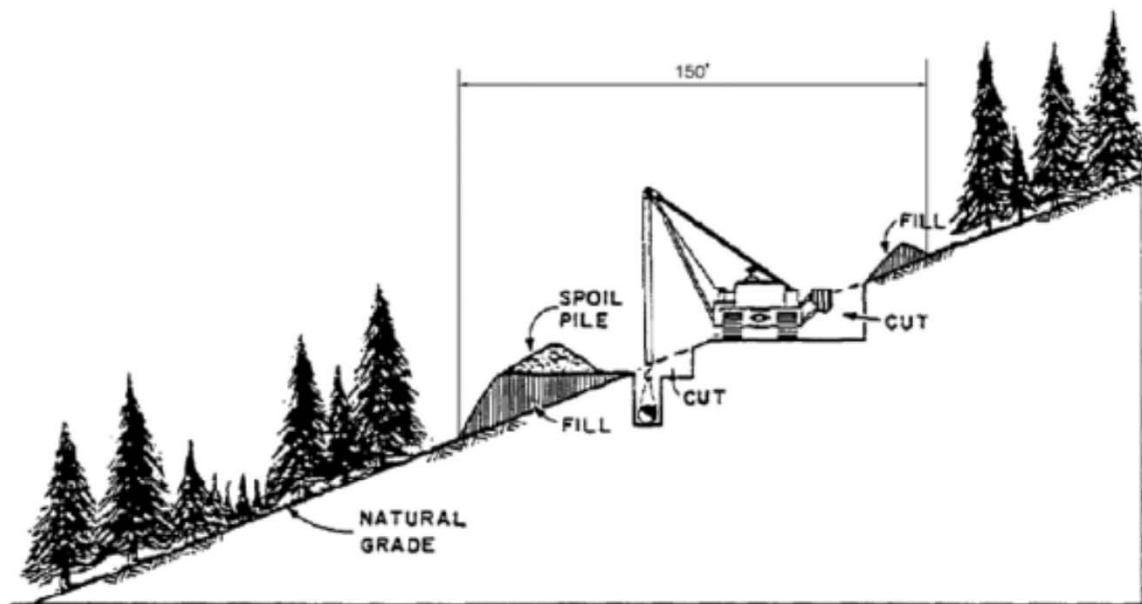
- ▶ **Aerial Patrols** - To detect construction activities too close to the route of the pipeline, particularly in residential areas. Unauthorized construction and digging is a primary threat to pipeline safety.
- ▶ **Leak Detection** - Natural gas detecting equipment is periodically used to check for leaks at the surface.
- ▶ **Pipeline Markers** - Signs above natural gas pipelines to warn the public and reduce the chance of interference with the pipeline.
- ▶ **Gas Sampling** - Routine sampling of the natural gas in pipelines for quality, indications of corrosion of the interior of the pipeline, or the influx of contaminants.
- ▶ **Preventative Maintenance** - Testing of valves, removal of surface impediments to pipeline inspection.
- ▶ **Emergency Response** - Emergency response teams that train for the possibility of a wide range of potential accidents and emergencies.
- ▶ **DigSafe**



(Modified from Reactivation of Prethrusting...within the Ordovician Champlain-Taconic Thrust System, Hayman and Kidd, GSA, 2011)







1. TWO-TONE THE RIGHT-OF-WAY TO LIMIT THE NEED FOR DEEP CUTS AND ADDITIONAL RIGHT-OF-WAY ON STEEP SLOPES
2. CLEAR AND STAKE ADDITIONAL RIGHT-OF-WAY TO ALLOW FOR EXTRA SPOIL
3. ENSURE SIDE BOOM TRACTORS ARE EQUIPPED WITH BOOM EXTENDERS AND COUNTERWEIGHTS IF REQUIRED.
4. USE BACKHOE TO ASSIST BULLDOZERS WITH REPLACING CUTS.
5. EMPLOY EROSION CONTROL MEASURES SUCH AS BREAKERS, CROSS DITCHES AND BERMS, AND REVEGETATION.

IH40705

**FIGURE 2.2-7 Typical Two-Tone Construction ROW (Source: FERC 2006b)**

# MTBM Jacking Pipe into Place



From Akkerman Inc.



# MTBM Receiving Pit



From Port Authority, North Shore Connector (ITE 2006)



# Inserting a Pig to Inspect Pipeline



From Fluxys Belgium  
([www.fluxys.com](http://www.fluxys.com))

# Reading Pipe for Assembly



From MXE  
([mexicoenergetico.com.mx](http://mexicoenergetico.com.mx))