PIPELINE CHEAT SHEET

Pipe Specifications

- Governing United States code: Section 49, Part 192 of the Code of Federal Regulations (49 CFR Part 192)
    - American Society of Mechanical Engineers (ASME) B31.8 - industry guidance for pipeline loads, their evaluation, and the judging of their acceptability
    - American Petroleum Institute (API) – Materials specifications for procurement of linepipe
    - American Society of Mechanical Engineers (ASME) B16.5 – Materials specifications for procurement of valves and fittings
    - American Society of Testing Materials (ASTM) – Material testing procedures for quality assurance
    - American National Standards Institute (ANSI) – Industry standards for maximum pressure and temperature ratings for steel pipe, flanges, and fittings

ASME/ANSI Pressure Class – describes maximum allowable gas pressure

Class 600	1480 psi (maximum gas pressure in the pipe)
Class 900	2220 psi (maximum gas pressure in the pipe)
Class 1500	3700 psi (maximum gas pressure in the pipe)

Material Grade – describes the strength of the pipe steel

X52	52,200 psi
X70	70,300 psi
X80	80,500 psi

Location Class – describes the amount of human activity within 200 yards of the pipeline.

Class 1	Less than 10 buildings for human habitation
Class 2	From 10 to 46 buildings for human habitation
Class 3	Greater than 46 buildings for human habitation
Class 4	Buildings more than 4 stories high are prevalent

- Wall thickness (thickness of pipe steel) is based on internal pressure and proximity to building and people
- Strain based design – Pipeline and Hazardous Materials Safety Administration (PHMSA) requires a special permit for the use of this approach: where the pipe allowed to deform, but can still maintain pressure and not have to be repaired immediately.

Abbreviations

APSC	Alyeska Pipeline Service Company
ASME	American Society of Mechanical Engineers
ASTM	American Standard Testing Materials
CP	Cathodic Protection
GIS	Geographic Information System
HDD	Horizontal Directional Drill
ID	Insider Diameter
LiDAR	Light Detection and Ranging
MAOP	Maximum Allowable Operating Pressure
OD	Outside Diameter
PHMSA	Pipeline and Hazardous Materials Safety Administration
PI	Point of Intersection
psi	Pounds per Square Inch
ROW	Right of Way
SBD	Strain Base Design
SCFD	Standard Cubic Foot per Day
SMYS	Specified Minimum Yield Strength
SPCO	State Pipeline Coordinators Office
TAPS	Trans Alaska Pipeline System
WT	Wall Thickness

Specialized Pipeline Equipment

Figure 1. Sideboom

Figure 2. Chain Trencher

Figure 3. ASAP Typical Right of Way – Rock Ditch

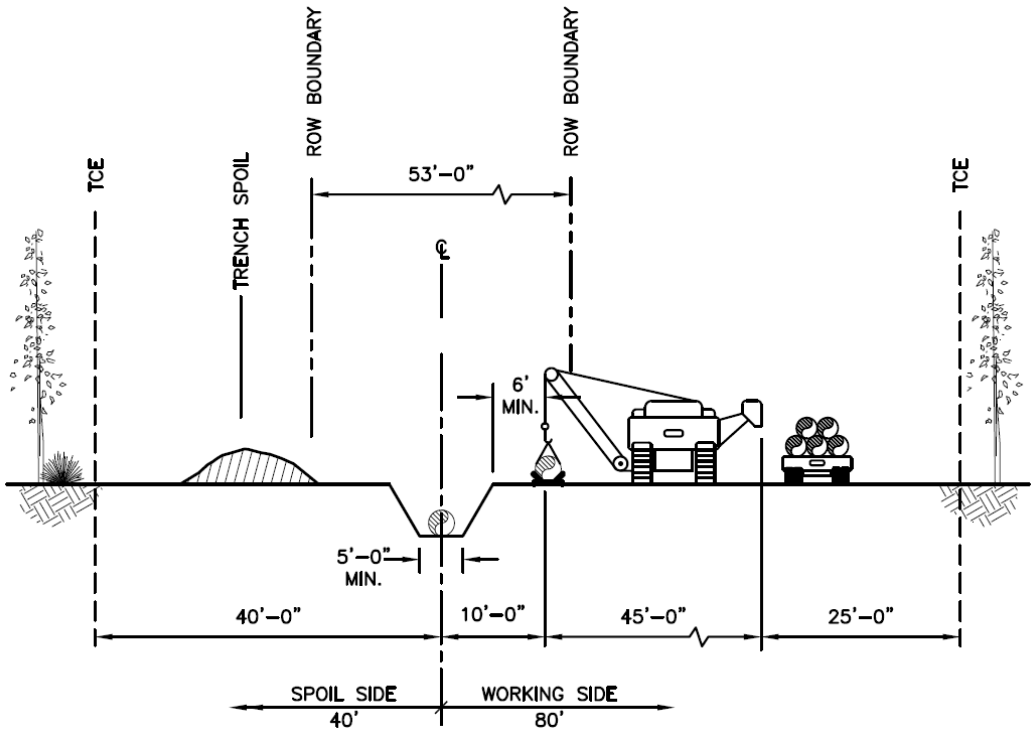

Figure 4. ASAP Typical Right of Way – Tundra Ice Road