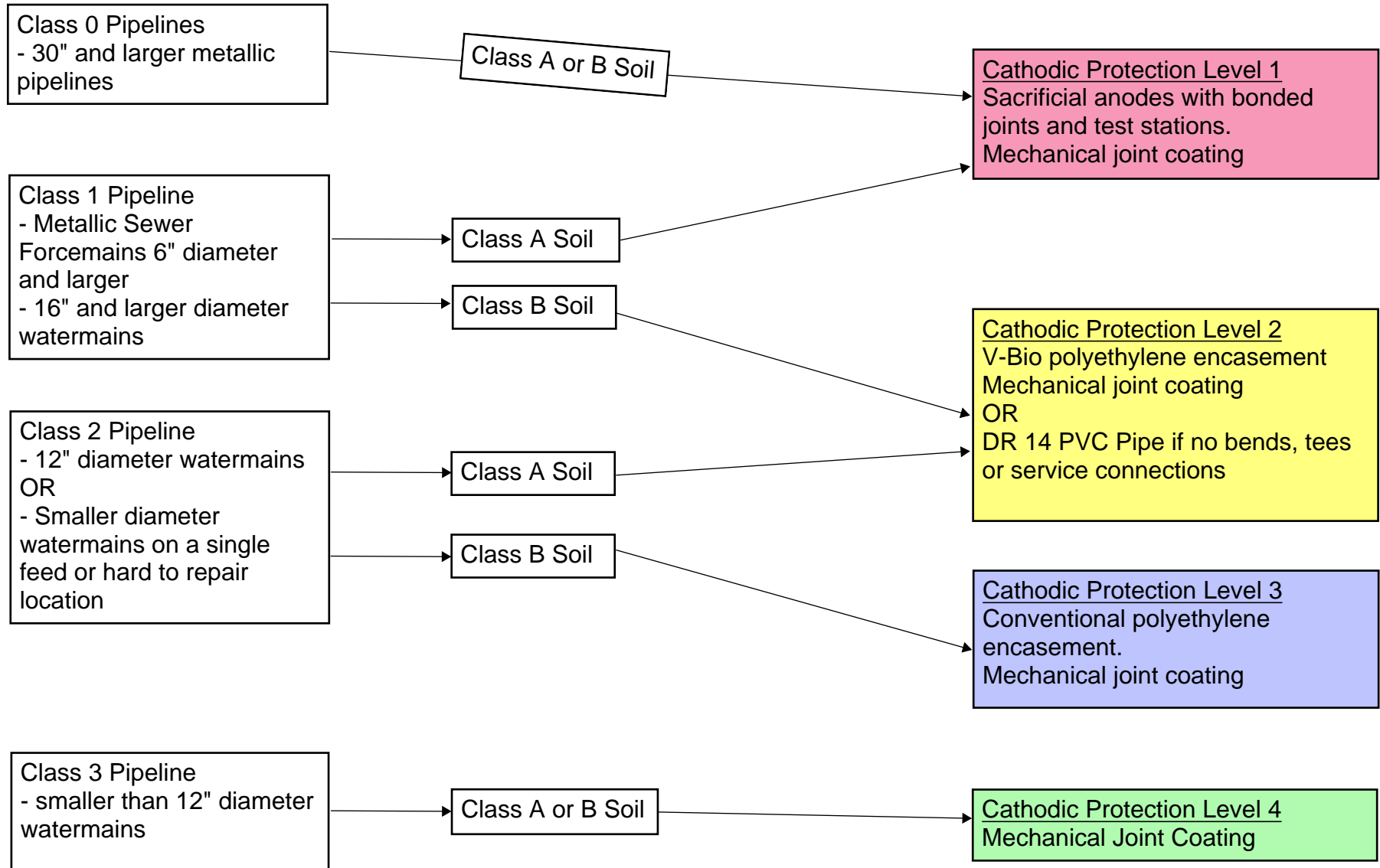


# Linear Cathodic Protection Decision Tree



When a potential for stray current is within 100' of a pipeline, subtract 1 from the CP Level.

# Pipeline Classification Based on Consequence of Failure

## Class 0 - Extremely Critical Pipelines

30" diameter and larger metallic pipelines

## Class 1 - Highly Critical Pipelines

Sewer force mains 6" diameter and larger or water mains 16" diameter and larger.  
 Could also include any single feed or other high consequence of failure critical main.

## Class 2 - Moderately Critical Pipelines

12" diameter watermains or smaller diameter watermains on a single feed.  
 Could also include moderately high consequence of failure mains.  
 Usually less than 40 customers will be out of service if this main fails.

## Class 3 - Distribution Pipelines

Smaller than 12" diameter watermains.  
 Usually less than 25 customers will be out of service if this main fails.

### Considerations for Consequence of Failure

- High Pressure
- Stream Crossing
- Median Divided Road Crossing
- More than 7' deep
- Steep slopes
- Difficult access
- Within Fence Line of Secured Facility
- Number of Customers Out of Service
- Critical Customers Out of Service

## Likelihood of Failure

Pick the soil that is the depth that the pipe will be located. Determine the scores for each of the below categories and sum.

Class A Soil: Score of -10 or less

Class B Soil: Everything Else

If pipe is installed in a landfill, within cinders, mine waste, fly ash or coal, automatically assume Class A soil.

If the pipe trench will be in rock, use backfill soil characteristics to determine soil class

<u>Soil Type</u>		<u>Sulfides</u>	
Sand/Gravel (GW, GP, GM, GC, SW, SP, SM, SC)	+2	Not Present	0
Silt (ML, MH)	+0	Trace, Less than 0.5 mg/kg S <sup>2</sup>	-2
Clay (CL, OH, CH, OL, OH)	-2	Present, Greater Than or Equal to 0.5 mg/kg S <sup>2</sup>	-4
Peat/Bog (Pt)	-4	<u>Sulphates</u>	
<u>Resistivity</u>		Less than 200 mg/kg	0
Greater Than 10,000 Ohms	0	200 - 500 mg/kg	-1
10,000 - 5,000 Ohms	-1	501 - 1,000 mg/kg	-2
4,999 - 2,300 Ohms	-2	Greater than 1,000 mg/kg	-3
2,299 - 1,000 Ohms	-3	<u>Water Level</u>	
Less Than 1,000 Ohms	-4	Within the 100 year flood plain	-2
<u>pH Value</u>		Within a delineated wetland or stream	-4
Greater than 6	0	Seasonally within the water table	-5
Less than 6	-1	Always within the water table	-2
		No Water	0

# Cathodic Protection Construction Closeout Procedure

June 2023

Construction of pipeline and CP system occurs

AMPP technician submits Insulated flange/isolation Joint Inspection report, casing pipe electrical isolation report, and baseline potential survey report

Loudoun Water reviews and approves

Contractor provides at least 5 days notice before activating the CP system

AMPP technician conducts CP testing on the installed equipment and records data. Connects the wires to the shunt board.

AMPP technician retests the site two weeks later and records the data.

AMPP technician submits reports and as-built to Loudoun Water inspector.

Loudoun Water reviews and approves

Beneficial/Substantial inspection occurs, punchlist created

Loudoun Water conducts the as-built survey and creates the as-built based on the contractor's and AMPP technician's markups

Contractor requests final inspection, walks the site with Loudoun Water and creates punchlist

AMPP technician retests the system and submits results to Loudoun Water

Final punchlist work is completed and project is finalized