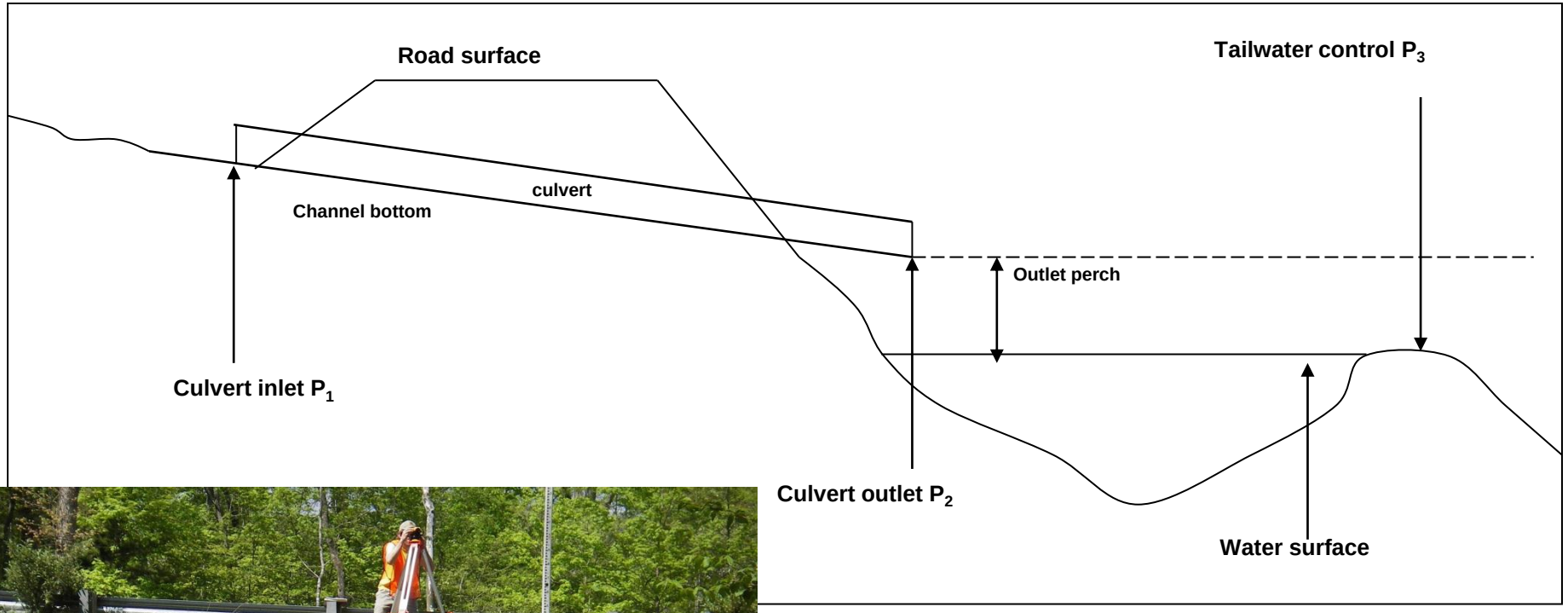
Methods



Elevations measurements

P3>P1 = fully backwatered

P2-P3 = outlet drop (in)

P2-water surface = outlet perch (in)

pipe slope(%) x pipe length (ft) = slope x length

Predictive Models

Model A: Strong swimmers/leapers (e.g. Adult Trout)

Model B: Moderate swimmers/leapers (e.g. Cyprinids / Juvenile Trout)

Model C: Weak swimmers/leapers (e.g. darters / sculpins)

Model A

Pipe fully backwatered or 100% of structure bottom covered by substrate

Yes

No

Drop

< 24 in | ≥ 24 in

Pipe Slope

< 7.0% | ≥ 7.0%

Slope x Length

≤ 50 | > 50 & < 600 | ≥ 600

PASSABLE

INDETERMINATE

IMPASSABLE

Model B

Pipe fully backwatered or 100% of structure bottom covered by substrate

Yes

No

Drop

< 9 in | ≥ 9 in

Pipe Slope

< 3.5% | ≥ 3.5%

Slope x Length

≤ 25 | > 25 & < 200 | ≥ 200

PASSABLE

INDETERMINATE

IMPASSABLE

Model C

Residual inlet depth ≥ 0.0 OR 100% of structure bottom covered by substrate

Yes

No

Drop

< 4 in | ≥ 4 in

Pipe Slope

< 3.5% | ≥ 3.5%

Slope x Length

≤ 15 | > 15 & < 150 | ≥ 150

PASSABLE

INDETERMINATE

IMPASSABLE