



Culvert hydraulics

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Culverts are simple structures

Hydraulics are complex

Six principle types of flow:

- > Weir or orifice control at inlet
- > Four cases of control at or downstream of the outlet

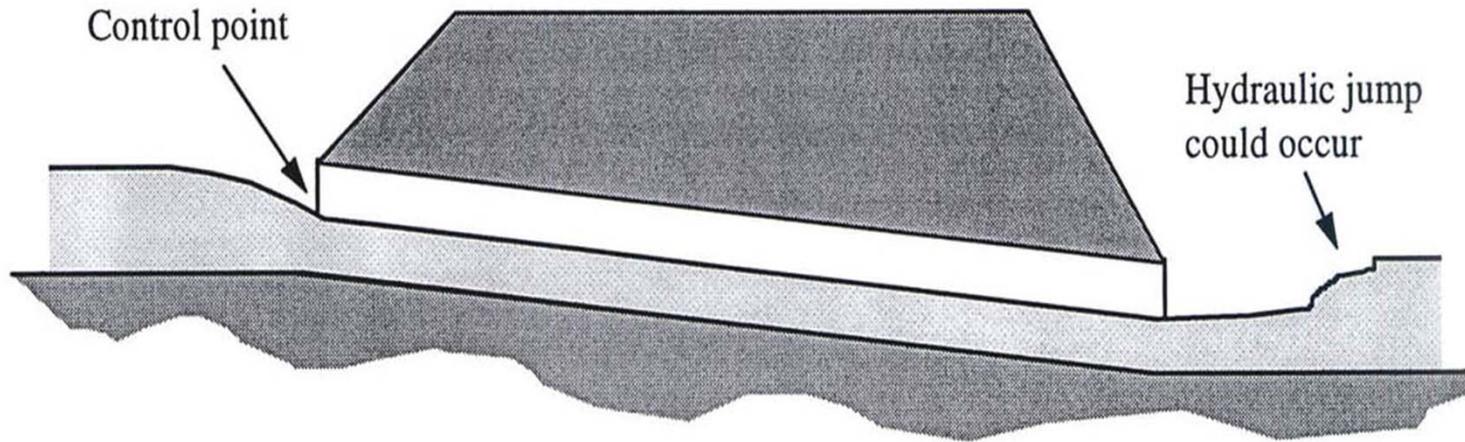


Figure 2.3 *Type I flow*

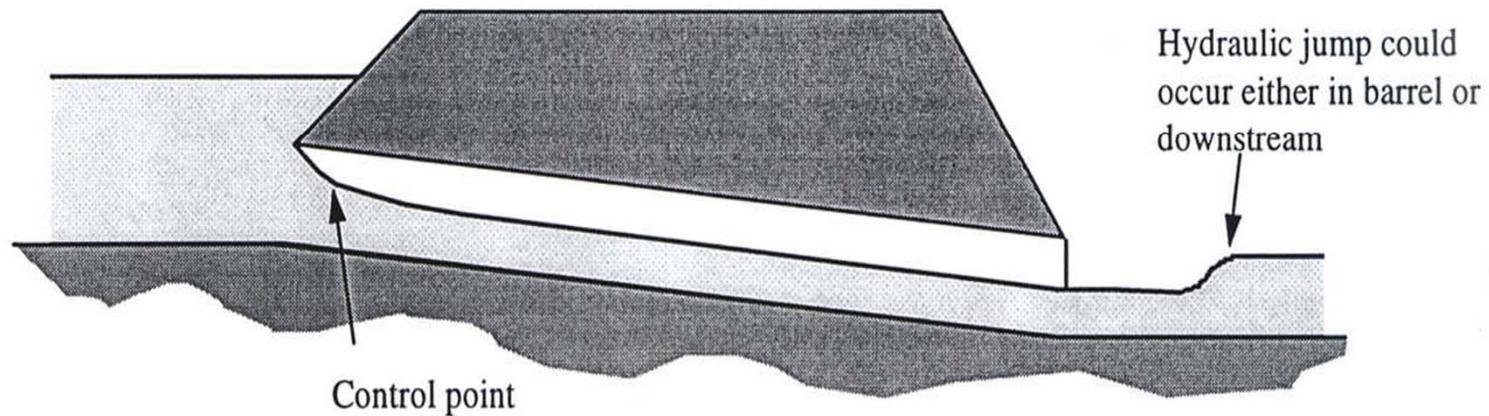
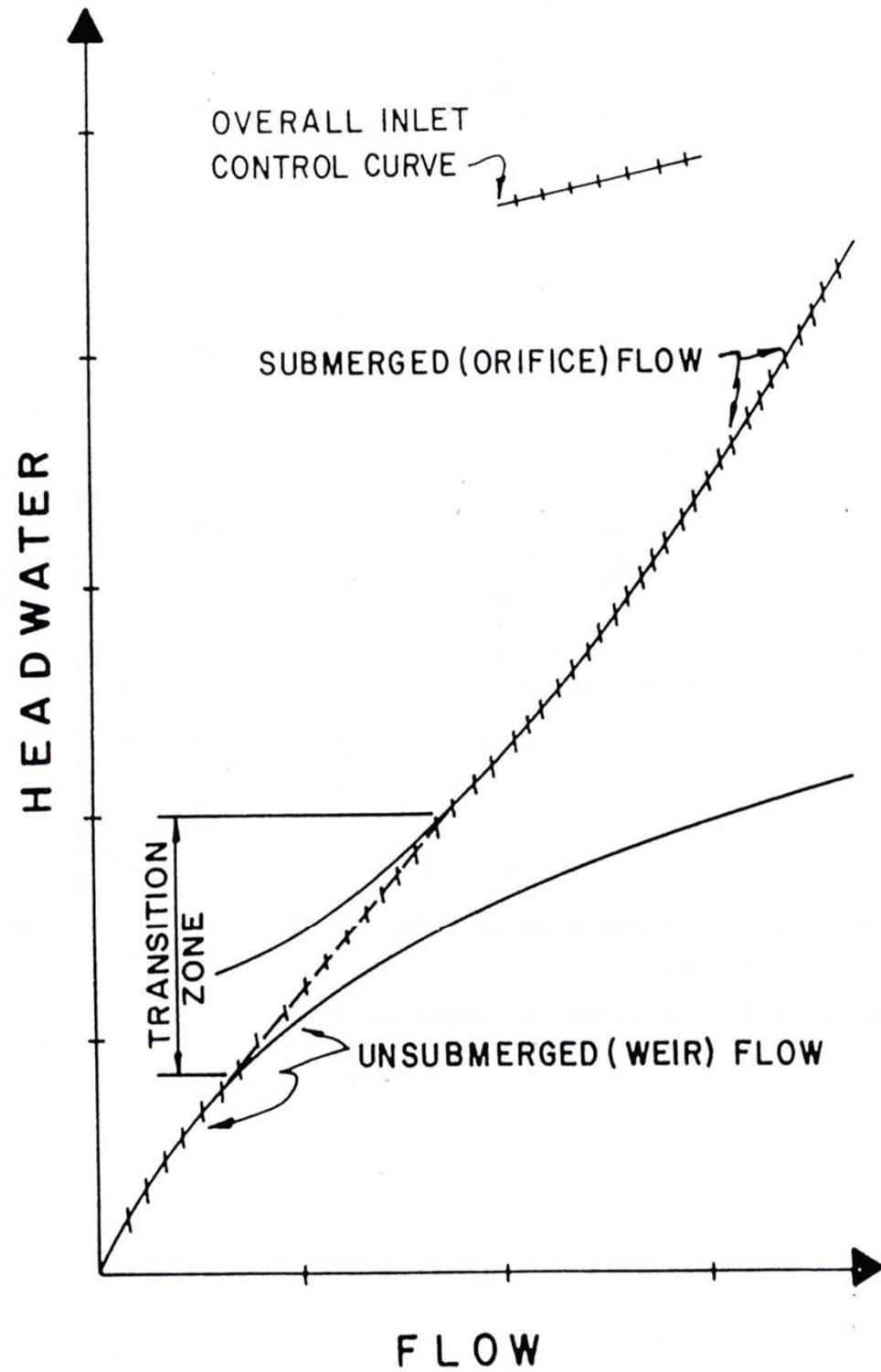


Figure 2.7 *Type V flow*

Inlet flow control curves



Outlet control (1)

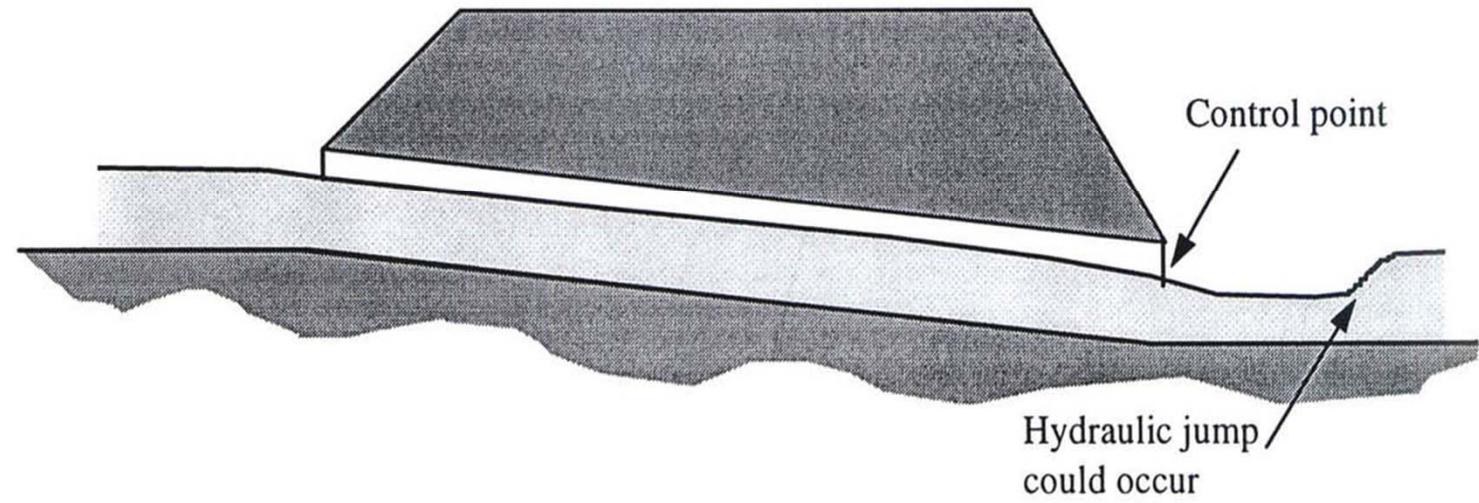


Figure 2.4 *Type II flow*

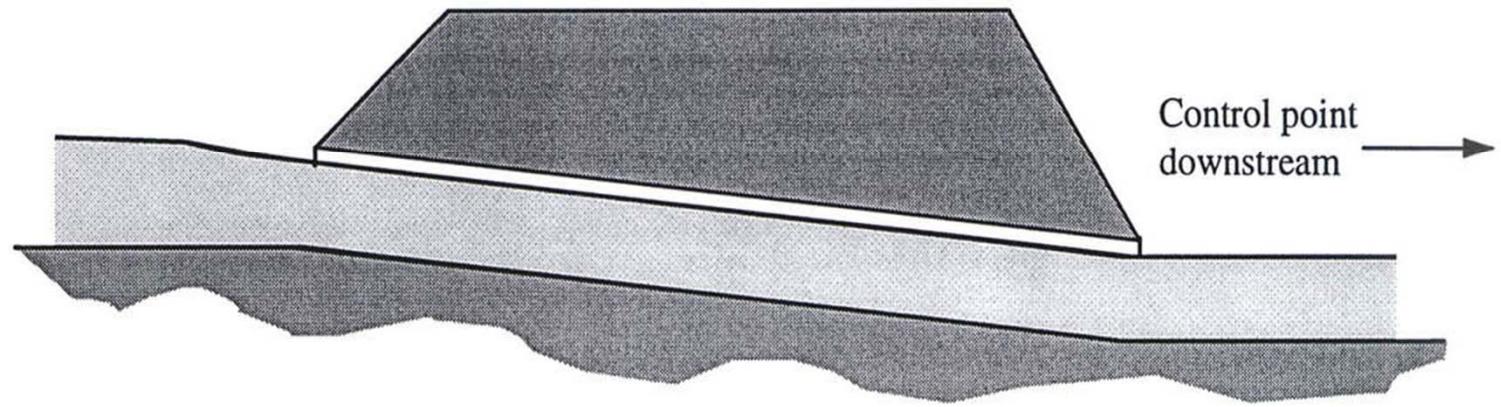
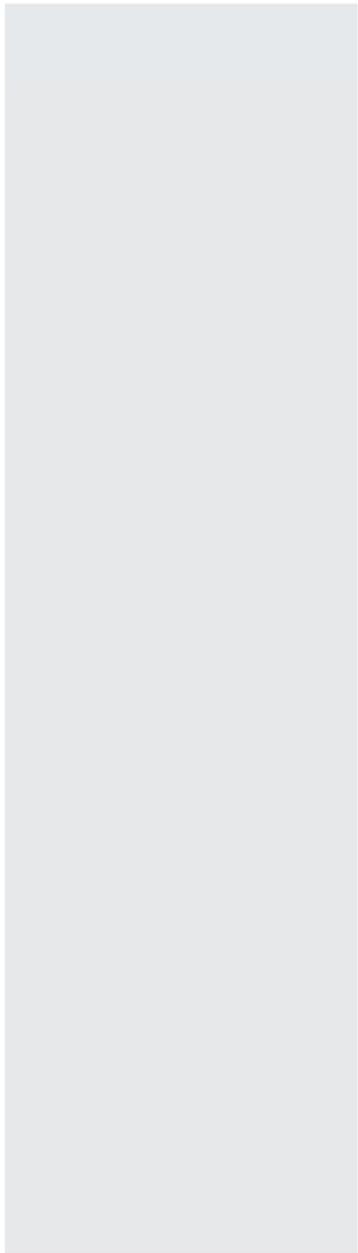


Figure 2.5 *Type III flow*



Outlet control (2)



Figure 2.6 *Type IV flow*

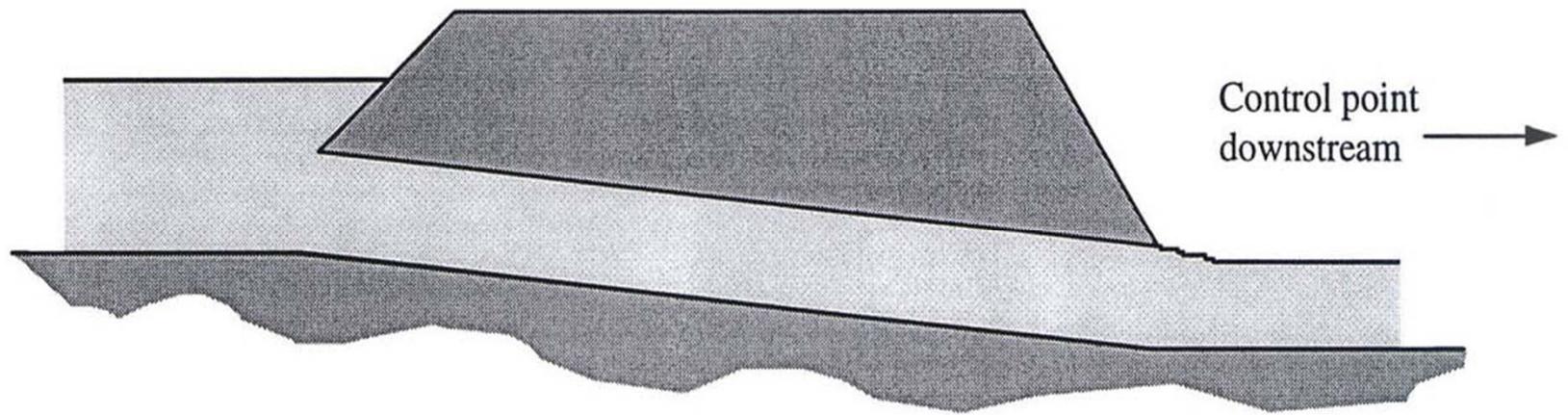
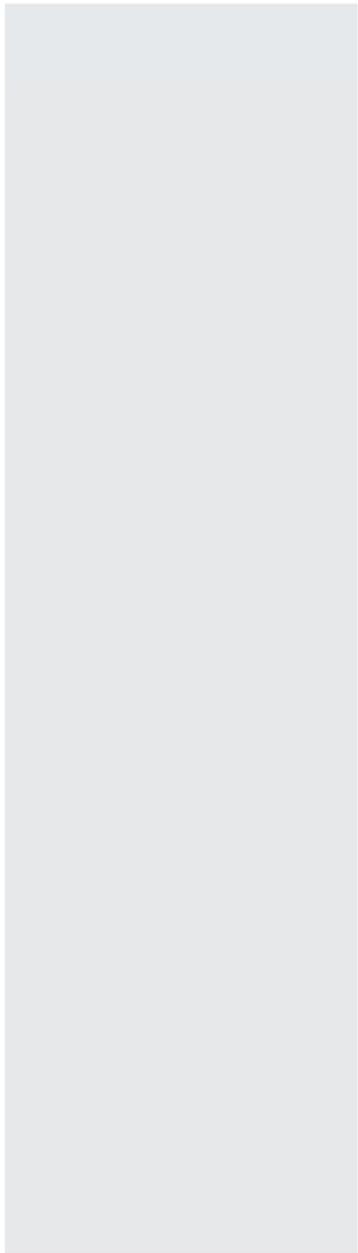
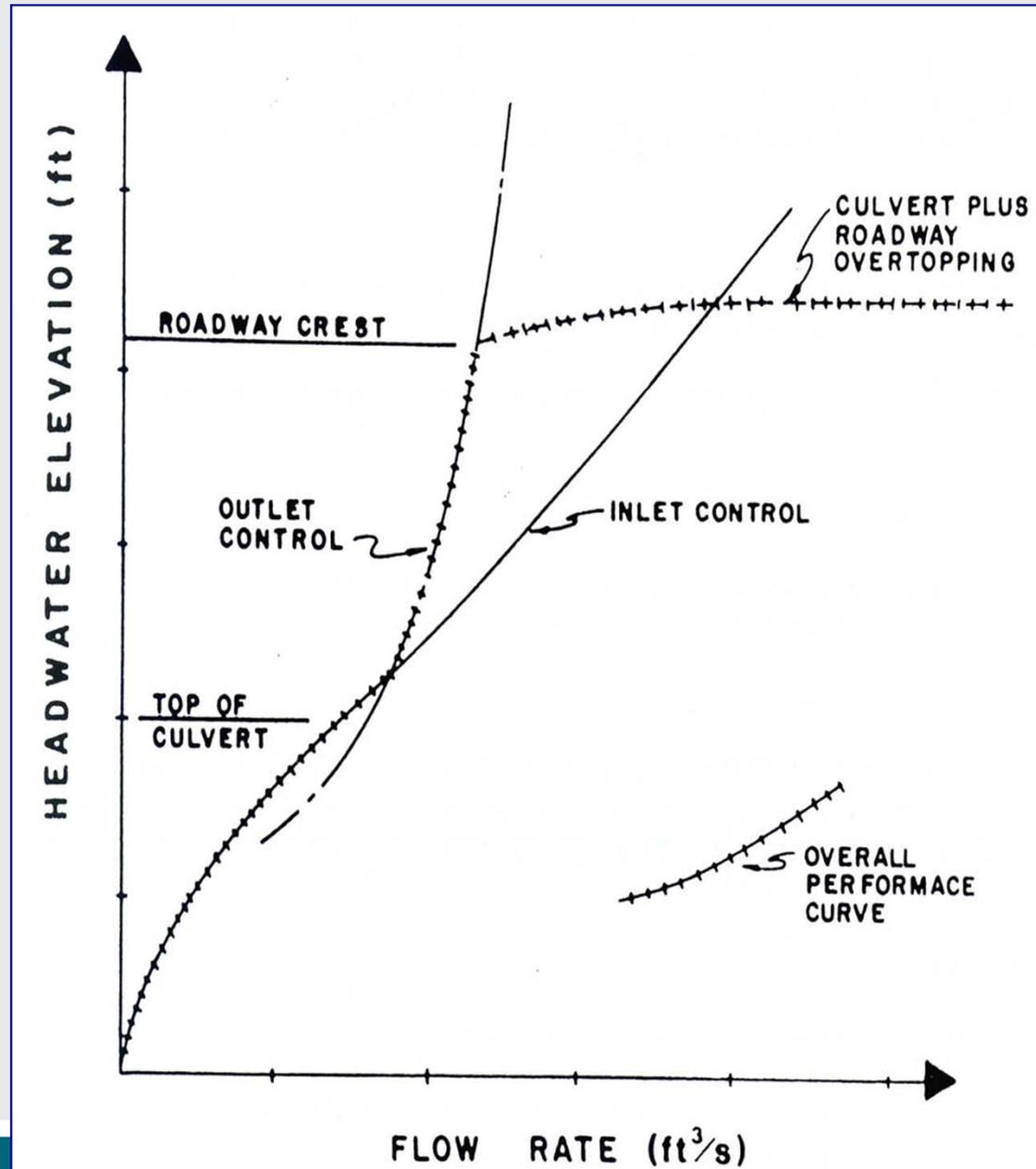


Figure 2.8 *Type VI flow* *Also partially full case*



Culvert performance curve with roadway overtopping





Any questions?

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