

Merkland Intake Design - Structure Dimension

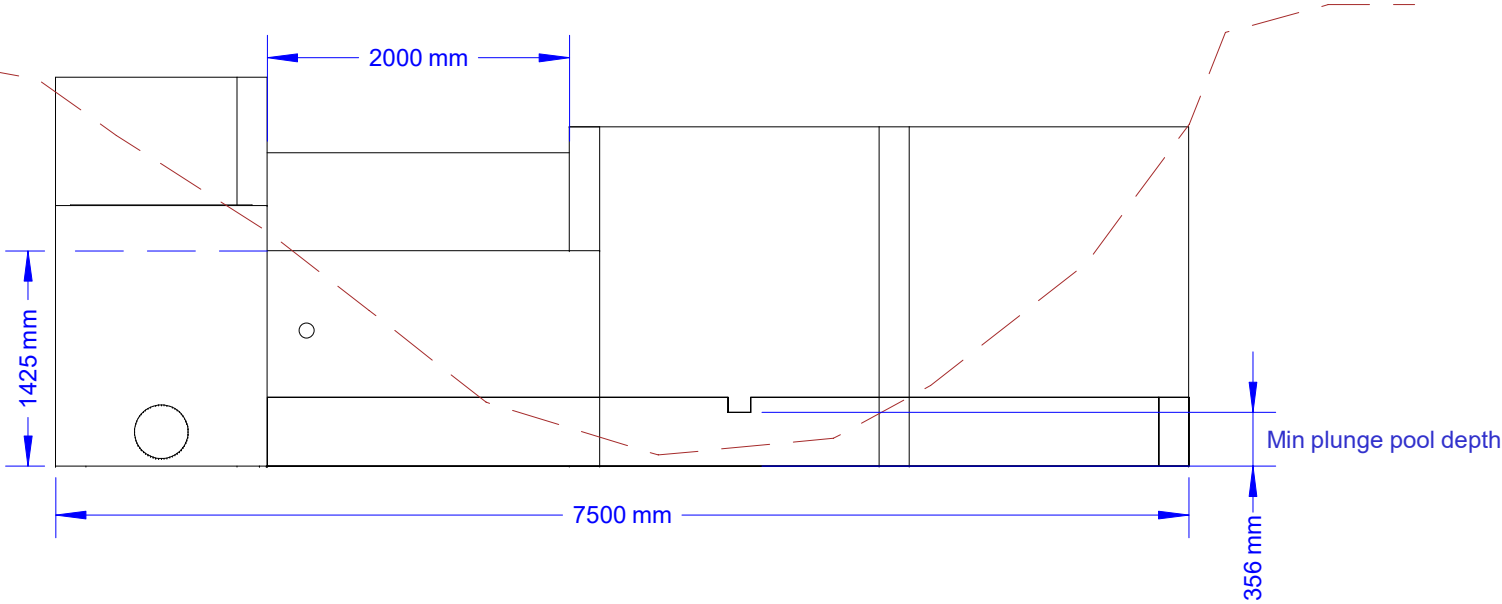
Merkland

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Version: 1
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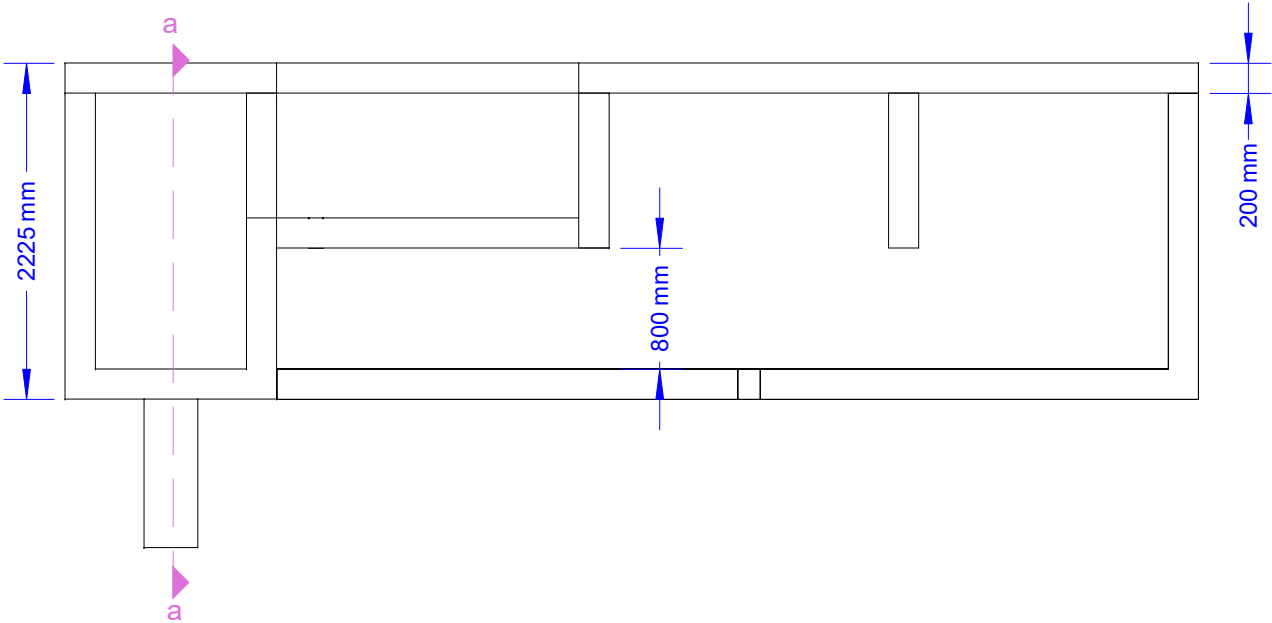
Version details

View A - Front

Approx bank profile



View B - Plan



Merkland Intake Design - Overview

*without coanda

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Version details

Stainless steel plate divides stilling chamber in two. Chamber containing penstock only receives water once the circular orifice is delivering the HOF.

Plate positioned and sized so that when the flow through the coanda is equal to annual Q_{mean} , the circular orifice delivers the licensed residual flow.

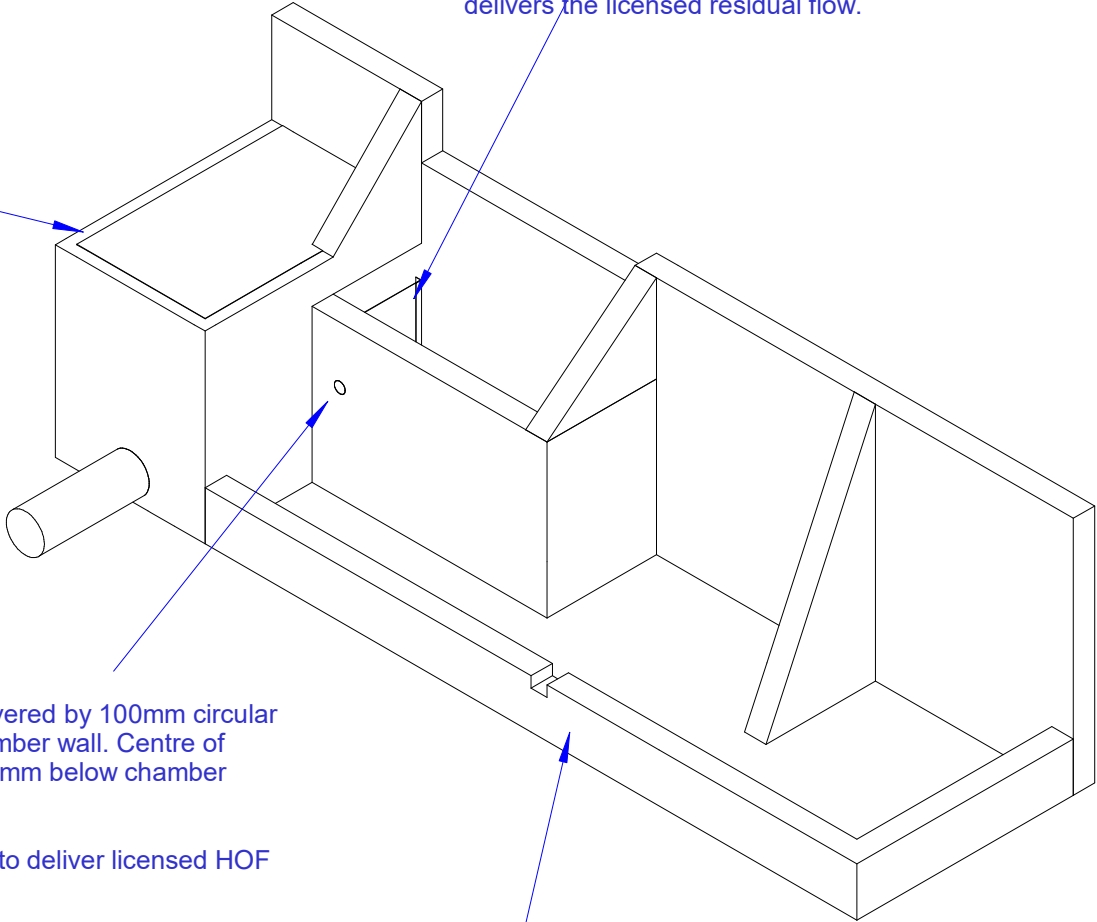
Stainless steel stilling chamber lid

355mm HDPE Penstock

Compensation flow delivered by 100mm circular orifice in the stilling chamber wall. Centre of orifice to be located 270mm below chamber dividing wall.

Orifice sized/positioned to deliver licensed HOF and residual flow.

Plunge pool extends the full width of the dam. 150mm x 100mm rectangular outlet.



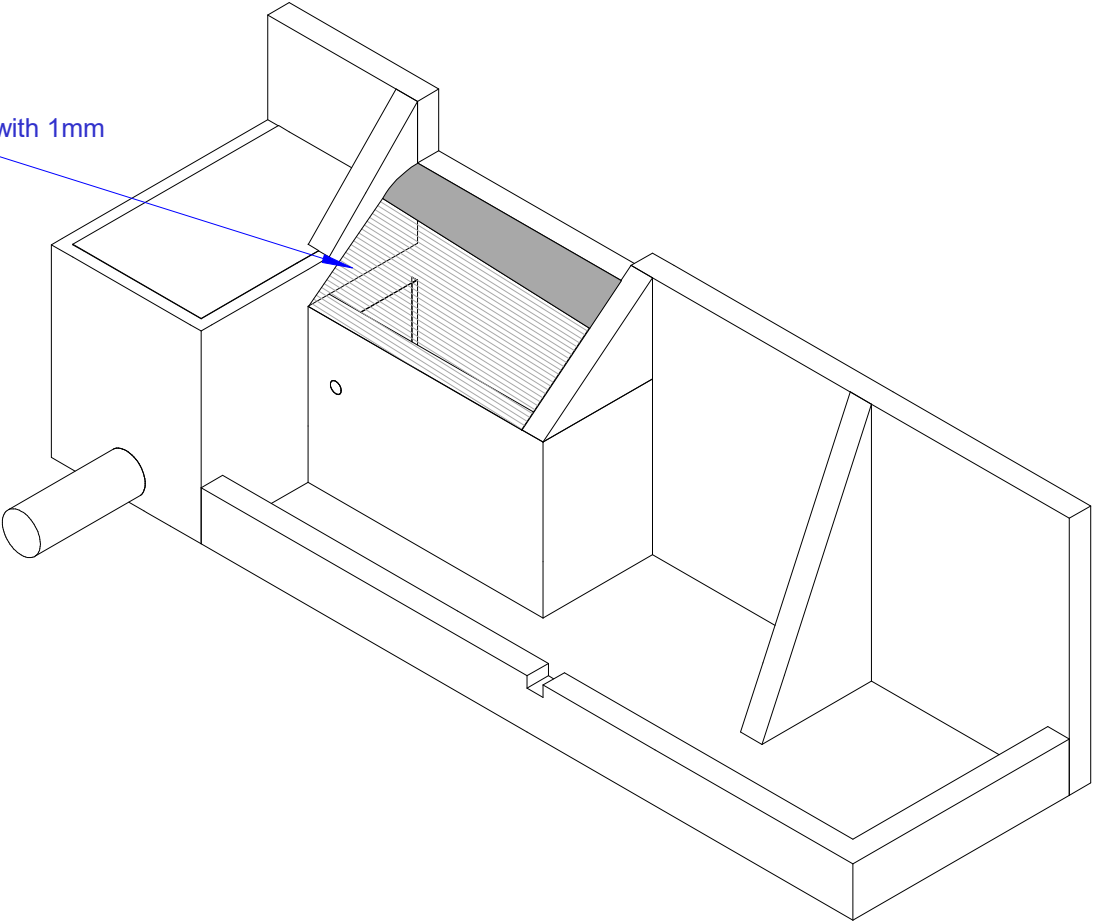
Merkland Intake Design - Overview

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Version details

Coanda screen with 1mm
bar spacings



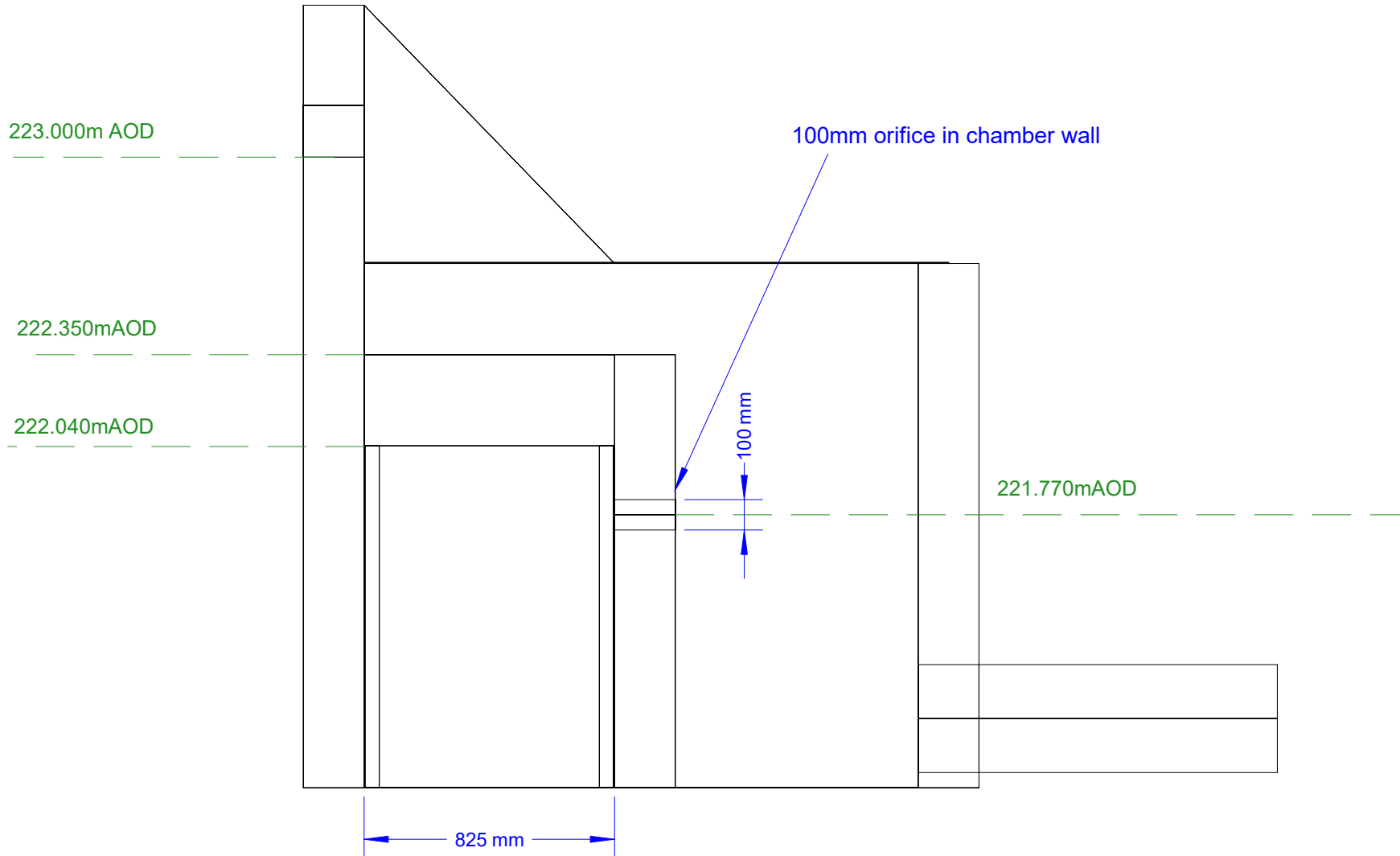
Merkland Intake Design - Compensation Design

View: A-A (see page 1)

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Version details



Minimum turbine flow = 12l/s
Max turbine flow = 122l/s
Annual Q_{mean} = 95l/s
Annual Q₉₀ = 11l/s
Annual Q₈₀ = 16l/s
Width of stilling chamber baffle = 825mm

Depth above baffle at turbine start up = 44mm
Depth above baffle at annual Q_{mean} = 197mm
Depth above baffle at max turbine flow = 240mm

Circular Orifice Diameter = 100mm
Orifice centre below baffle = 270mm

Hands off flow = 11.7l/s

Residual flow when flow
in burn is annual Q_{mean}
= 14.9l/s