

## **Appendix G**

### **Road Drainage and the Water Environment**

## DMRB Stage 2 Report – Appendix G

## Summary of Potential Effects on the Water Environment (from HA 216/06 Table 5.2)

Description of study area	Feature	Attributes/ Services	Quality	Importance	Magnitude of impact without mitigation	Significance of impact without mitigation	Mitigation	Magnitude of impact with mitigation	Significance of impact with mitigation
A77 Maybole bypass route options (northern corridor)	Unnamed watercourse at Broomknowes tie-in  BLUE AND RED ROUTE OPTIONS	Dilution and removal of waste products	There are no known consented discharges to this watercourse within the area of the proposed works.	<u>Medium</u> Medium quality and rarity on a local scale.	<u>Negligible</u> The proposed scheme is likely to have negligible effect on the ability of the watercourse to receive other discharges	<u>Neutral</u> In line with HA216/06 guidelines.	Not Required		
		Biodiversity	Watercourse unclassified. Status assumed to be good.	<u>High</u> High quality and rarity on local scale.	<u>Moderate Adverse</u> The proposed scheme could have an impact on water quality and thus biodiversity of the watercourse.	<u>Moderate/Large</u> In line with HA216/06 guidelines.	Adherence to best practice during construction. Flow attenuation and pollutant removal through provision of SUDS measures during operation	<u>Negligible</u>	<u>Neutral</u>

## DMRB Stage 2 Report – Appendix G

Description of study area	Feature	Attributes/ Services	Quality	Importance	Magnitude of impact without mitigation	Significance of impact without mitigation	Mitigation	Magnitude of impact with mitigation	Significance of impact with mitigation
		Conveyancing of flow	Minor watercourse with no known flood risk.	<u>Low</u> Low quality and rarity on a local scale.	<u>Minor Adverse</u> Local impacts on flows in the watercourse and on potential flood risk	<u>Neutral</u> In line with HA216/06 guidelines.	Appropriate culvert design. Flow attenuation through provision of SUDS measures	<u>Negligible</u>	<u>Neutral</u>
	Unnamed watercourse at Ladycross Wood  BLUE ROUTE OPTION	Dilution and removal of waste products	There are no known consented discharges to this watercourse within the area of the proposed works.	<u>Medium</u> Medium quality and rarity on a local scale.	<u>Negligible</u> The proposed scheme is likely to Have negligible effect on the ability of the watercourse to receive other discharges	<u>Neutral</u> In line with HA216/06 guidelines.	Not Required		

## DMRB Stage 2 Report – Appendix G

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		Biodiversity	Watercourse unclassified. Status assumed to be good.	<u>High</u> High quality and rarity on local scale.	<u>Moderate Adverse</u> The proposed scheme could have an impact on water quality and thus biodiversity of the watercourse.	<u>Moderate/Large</u> In line with HA216/06 guidelines.	Adherence to best practice during construction. Flow attenuation and pollutant removal through provision of SUDS measures during operation	<u>Negligible</u>	<u>Neutral</u>
		Conveyancing of flow	Minor watercourse with no known flood risk.	<u>Low</u> Low quality and rarity on a local scale.	<u>Moderate Adverse</u> Realignment of channel. Local impacts on watercourse, flows and on potential flood risk	<u>Slight</u> In line with HA216/06 guidelines.	Appropriate culvert design and sensitive realignment of watercourse. Flow attenuation through provision of SUDS measures	<u>Minor Adverse</u>	<u>Neutral</u>

## DMRB Stage 2 Report – Appendix G

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	Brockloch Burn, East Brockloch to Slateford Bridge  BLUE ROUTE OPTION	Dilution and removal of waste products	There are no known consented discharges to this watercourse within the area of the proposed works.	<u>Medium</u> Medium quality and rarity on a local scale.	<u>Negligible</u> The proposed scheme is likely to have negligible effect on the ability of the watercourse to receive other discharges	<u>Neutral</u> In line with HA216/06 guidelines.	Not Required		
		Biodiversity	Watercourse unclassified. Status assumed to be good.	<u>High</u> High quality and rarity on local scale.	<u>Moderate Adverse</u> The proposed scheme could have an impact on water quality and thus biodiversity of the watercourse.	<u>Moderate/Large</u> In line with HA216/06 guidelines.	Adherence to best practice during construction. Flow attenuation and pollutant removal through provision of SUDS measures during operation	<u>Negligible</u>	<u>Neutral</u>

## DMRB Stage 2 Report – Appendix G

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		Conveyancing of flow	Minor watercourse with limited extent at risk of flooding	<u>Medium</u> Medium quality and rarity on a local scale.	<u>Minor Adverse</u> Local impacts on flows in the watercourse and on potential flood risk	<u>Slight</u> In line with HA216/06 guidelines.	Flow attenuation through provision of SUDS measures	<u>Negligible</u>	<u>Neutral</u>
	Unnamed watercourse flowing into Black Glen  YELLOW AND RED ROUTE OPTIONS	Dilution and removal of waste products	There are no known consented discharges to this watercourse within the area of the proposed works.	<u>Medium</u> Medium quality and rarity on a local scale.	<u>Negligible</u> The proposed scheme is likely to have negligible effect on the ability of the watercourse to receive other discharges	<u>Neutral</u> In line with HA216/06 guidelines.	Not Required		

## DMRB Stage 2 Report – Appendix G

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		Biodiversity	Watercourse unclassified. Status assumed to be good.	<u>High</u> High quality and rarity on local scale.	<u>Moderate Adverse</u> The proposed scheme could have an impact on water quality and thus biodiversity of the watercourse.	<u>Moderate/Large</u> In line with HA216/06 guidelines.	Adherence to best practice during construction. Flow attenuation and pollutant removal through provision of SUDS measures during operation	<u>Negligible</u>	<u>Neutral</u>
		Conveyancing of flow	Minor watercourse with no known flood risk.	<u>Low</u> Low quality and rarity on a local scale.	<u>Minor Adverse</u> Local impacts on flows in the watercourse and on potential flood risk	<u>Neutral</u> In line with HA216/06 guidelines.	Appropriate culvert design. Flow attenuation through provision of SUDS measures	<u>Negligible</u>	<u>Neutral</u>

## DMRB Stage 2 Report – Appendix G

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	Unnamed watercourse at Nether Culzean  YELLOW AND RED ROUTE OPTIONS	Dilution and removal of waste products	There are no known consented discharges to this watercourse within the area of the proposed works.	<u>Medium</u> Medium quality and rarity on a local scale.	<u>Negligible</u> The proposed scheme is likely to have negligible effect on the ability of the watercourse to receive other discharges	<u>Neutral</u> In line with HA216/06 guidelines.	Not Required		
		Biodiversity	Watercourse unclassified. Status assumed to be good.	<u>High</u> High quality and rarity on local scale.	<u>Moderate Adverse</u> The proposed scheme could have an impact on water quality and thus biodiversity of the watercourse.	<u>Moderate/Large</u> In line with HA216/06 guidelines.	Adherence to best practice during construction. Flow attenuation and pollutant removal through provision of SUDS measures during operation	<u>Negligible</u>	<u>Neutral</u>



## DMRB Stage 2 Report – Appendix G

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		Conveyancing of flow	Minor watercourse with no known flood risk.	<u>Low</u> Low quality and rarity on a local scale.	<u>Minor Adverse</u> Local impacts on flows in the watercourse and on potential flood risk	<u>Neutral</u> In line with HA216/06 guidelines.	Appropriate culvert design. Flow attenuation through provision of SUDS measures	<u>Negligible</u>	<u>Neutral</u>
	Brockloch Burn at Smithson tie-in  ALL ROUTE OPTIONS	Dilution and removal of waste products	There are no known consented discharges to this watercourse within the area of the proposed works.	<u>Medium</u> Medium quality and rarity on a local scale.	<u>Negligible</u> The proposed scheme is likely to Have negligible effect on the ability of the watercourse to receive other discharges	<u>Neutral</u> In line with HA216/06 guidelines.	Not Required		

## DMRB Stage 2 Report – Appendix G

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		Biodiversity	Watercourse unclassified. Status assumed to be good.	<u>High</u> High quality and rarity on local scale.	<u>Moderate Adverse</u> The proposed scheme could have an impact on water quality and thus biodiversity of the watercourse.	<u>Moderate/Large</u> In line with HA216/06 guidelines.	Adherence to best practice during construction. Flow attenuation and pollutant removal through provision of SUDS measures during operation	<u>Negligible</u>	<u>Neutral</u>
		Conveyancing of flow	Minor watercourse with no known flood risk.	<u>Medium</u> Medium quality and rarity on a local scale.	<u>Minor Adverse</u> Local impacts on flows in the watercourse and on potential flood risk	<u>Slight</u> In line with HA216/06 guidelines.	Appropriate culvert design. Flow attenuation through provision of SUDS measures	<u>Negligible</u>	<u>Neutral</u>

## DMRB Stage 2 Report – Appendix G

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	Groundwater ALL ROUTE OPTIONS	Base flow to watercourses	Groundwater vulnerability	<u>Low</u> In line with HA216/06 guidance	<u>Minor</u> Potential local impact on groundwater, but non-aquifer. Risk of pollution from accidental spillages low.	<u>Neutral</u> In line with HA216/06 guidelines.	Not required		

**Reference Source(s):**

Data obtained directly from Scottish Environment Protection Agency, South Ayrshire Council and BGS groundwater vulnerability map of Scotland.

**Qualitative Comments:**

The water environment has high importance in terms of biodiversity, a medium importance in terms of dilution and removal of waste products, a medium or low importance in terms of conveyancing of flow and a low importance in terms of groundwater. It is predicted that, without mitigation, the scheme will have a negligible impact of neutral significance on dilution and removal of waste products and a minor impact of neutral significance on groundwater for all options. There are, however, predicted moderate adverse impacts of moderate to large significance on the biodiversity on all watercourses affected by the three route options. Without mitigation there is also a moderate adverse impact of slight significance on conveyancing of flow predicted for the unnamed watercourse at Ladycross Wood (Blue option), the Brockloch Burn upstream of Slateford Bridge (Blue option) and the Brockloch Burn at the Smithstone tie-

*DMRB Stage 2 Report – Appendix G*

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in (All options). With mitigation all potential impacts can be reduced to negligible with the exception of the unnamed watercourse at Ladycross Wood where a residual minor adverse impact remains as a result of the realignment required for the Blue option.

**Overall Assessment Score:** Negligible Impact depending on mitigation measures.