

FLOOD PREVENTION (SCOTLAND) ACT 1961

WEST DUNBARTONSHIRE COUNCIL

KNOWLE BURN FLOOD PREVENTION SCHEME 2007

Made by the West Dunbartonshire Council at Dumbarton on *15th June* 2007

Head of Administrative and Legal Services
Solicitor to the Council
West Dunbartonshire Council
Council Offices
Garshake Road
Dumbarton
G82 3PU

FLOOD PREVENTION (SCOTLAND) ACT 1961

WEST DUNBARTONSHIRE COUNCIL KNOWLE BURN FLOOD PREVENTION SCHEME 2007

1. General

In exercise of the powers conferred upon them by the Flood Prevention (Scotland) Act 1961, (hereinafter referred to as 'the Act') West Dunbartonshire Council (hereinafter referred to as 'the Council') hereby make the following Flood Prevention Scheme (hereinafter referred to as 'the Scheme'), the purpose of which is to authorise certain flood prevention operations in order to prevent and mitigate the flooding of Dumbarton from the Knowle Burn.

2. Terms of the Scheme

The terms of the Scheme are as detailed in Paragraphs 3 to 8 hereunder.

3. Description of the Operations

The flood prevention operations to be carried out in terms of the Scheme (hereinafter referred to as 'the operations') are described in Schedule I annexed and executed as relative hereto and shown on the plans marked 'J18883/FPO/01 to J18883/FPO/07' annexed and executed as relative hereto, and which plans are listed in the plan register in Schedule II annexed and executed as relative hereto.

4. Site of the Flood Prevention Operations

The sites at which the operations are to be carried out in terms of the Scheme are situated on land on the East and West banks of the Knowle Burn, from a point approximately 35m north west of Garshake Road to the outlet of the culvert beneath St James Retail Park, Dumbarton as shown on said plan marked J18883/FPO/01.

5. Land

The land that will be affected by the operations and the land upon which entry is required for the purposes of carrying out the operations and of executing temporary works is shown on the said plans. The limits of lateral deviation and vertical deviation are defined in First Schedule to the Act and are as shown on the said plans.

6. Ancillary Operations

The following ancillary operations will also be undertaken:-

- a) All trees and shrubs, which would affect the construction of the Scheme shall be removed. Overhanging trees and shrubs not directly affecting construction works shall be trimmed. A scheme of planting with indigenous species and general landscaping to be agreed with the Council's Planning Department will be carried out at locations where it will not affect the efficacy of the scheme.
- b) Diversion of utility services directly affected by operations in conjunction with utility service providers. These are referred to as 'Ancillary Operations' on the said plans marked J18883/FPO/01, J18883/FPO/02 and J18883/FPO/04.

Ancillary Operation 1

Diversion of existing sewer by Scottish Water at Garshake Road.

Ancillary Operation 2

Diversion of existing water main by Scottish Water at Garshake Road

Ancillary Operation 3

Diversion of existing gas main by Scotland Gas Networks at Garshake Road

Ancillary Operation 4

Diversion of sewer by Scottish Water at Round Riding Road

7. Powers

The provision of the First Schedule to the said Act are hereby incorporated.

8. Cost

The estimated cost of the said operations is approximately **£3,172,820**

Made by The West Dunbartonshire Council at Dumbarton on the (*11th*) day of (*June*)
Two Thousand and Seven.



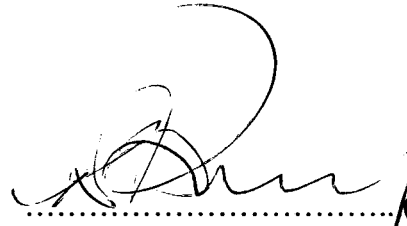
Signed

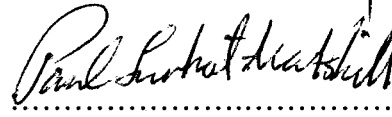
Seal

Head of Administrative and Legal Services
Solicitor to the Council

The Scottish Ministers in exercise of the powers conferred by section 4 of, and paragraph 7 of the Second Schedule to, the Flood Prevention (Scotland) Act 1961¹, and of all other powers enabling them in that behalf, hereby confirm the foregoing Knowle Burn Flood Prevention Scheme 2007.

Subscribed by Bob Irvine
Deputy Director,
Environmental Quality Directorate,
Scottish Executive at Edinburgh on
June 2009, before this witness:
Paul Linhart-MacAskill.


.....(Signature)


.....(Witness Signature)

¹ The functions of the Secretary of State were, in so far as within devolved competence, transferred to the Scottish Ministers by virtue of section 53 of the Scotland Act 1998 (c.46)

SCHEDULE I

THE WEST DUNBARTONSHIRE COUNCIL KNOWLE BURN FLOOD PREVENTION SCHEME 2006

The Operations referred to in Paragraph 3 of the Scheme are described as:-

(N.B. References to right-hand and left-hand banks are made when looking in the same direction as the flow)

Operation 1

The construction of a new flood retaining wall, approximately 35m long, on the left hand bank of the Knowle Burn, immediately upstream of Garshake Road. The maximum height of this wall will not exceed 1.2m. All as generally shown on the said plan marked J18883/FPO/02.

Operation 2

The construction of a new flood retaining wall, approximately 15m long, and flood retaining embankment, approximately 15m long, on the right hand side of the Knowle Burn immediately upstream of Garshake Road. The maximum height of this wall and embankment will not exceed 0.85m. All as generally shown on the said plan marked J18883/FPO/02.

Operation 3

Replacement of the existing culvert beneath Garshake Road, approximately 19m long. The internal dimensions of this new culvert will be 1.8 x 1.2m. All as generally shown on the said plan marked J18883/FPO/02.

Operation 4

The construction/excavation of a flood storage pond in the area in front of the existing Council Buildings on Garshake Road. This pond has an area of approximately 10,000m². The pond will include a new embankment approximately 60m long, with spillweir approximately 11m long, protected with erosion control. The erosion control will extend from approximately 5m into the pond to the toe of the spillway on the right hand side of the Knowle Burn. A small embankment will be constructed on the right hand side of the Knowle Burn from the approximate outlet of the Garshake Road culvert to the approximate inlet of the Stirling Road culvert. The embankment will have side slopes at 1vertical to 2 horizontal, a crest width of approximately 1.0m and a maximum height of 0.5m. The pond will also include an access track for maintenance purposes, approximately 40m long, leading from Garshake Road into the new pond. A new outfall structure will be constructed through the spillway, discharging into Knowle Burn. The outfall consists of 1 No. concrete pipe approximately 6m long, an upstream forebay structure with trash screens and a downstream structure housing a stilling basin, trash screen and flap valves to the pipe. A flow control orifice will be constructed at the inlet to the culvert beneath Stirling Road. Two new structures will be constructed around the pond, a flood retaining wall and a flood retaining embankment. The new embankment, which is approximately 35m long and located on the left hand bank of Knowle Burn, will tie into the new flood wall at Stirling Road and high ground at Garshake Road. The embankment will have side slopes at 1vertical to 2 horizontal, a crest width of approximately 1.0m and a maximum height of 0.5m. The new flood retaining wall, which is approximately 270m long and adjacent to Stirling Road, will tie into high ground at South Drive and the new embankment at Garshake Road. This wall height is approximately 2.2m above the invert level of the pond and a maximum of 1.6m above road level. All as generally shown on the said plan marked J18883/FPO/02.

Operation 5

The construction of a new trash screen at the inlet to the culvert beneath Stirling Road, with the screen fixed at an angle. All as generally shown on the said plan marked J18883/FPO/02.

Operation 6

The construction of a flow control, v-notch weir at the downstream end of the existing culvert beneath Stirling Road. All as generally shown on the said plan marked J18883/FPO/03.

Operation 7

The construction of an overflow structure immediately downstream of the outlet to Stirling Road culvert and a by-pass channel beneath Round Riding Road. Flow passes through the overflow, from the Knowle Burn, into the new by-pass culvert. The overflow consists of an upstand and screen at the inlet and access chamber for maintenance. The by-pass culvert is a box culvert with internal dimensions of 1.0m wide x 0.5m high and is approximately 300m long. The culvert will discharge into the Knowle Burn between Boghead Farm and number 46 Round Riding Road, with erosion control at the outlet. All as generally shown on the said plan marked J18883/FPO/03.

Operation 8

Replace the existing culvert beneath Overwood Drive. The new culvert has an approximate height of 0.6m, an approximate width of 1.2m and is approximately 22m long. All as generally shown on the said plan marked J18883/FPO/03.

Operation 9

Replace the existing culvert beneath Miller Court. The new culvert has an approximate height of 0.6m, an approximate width of 1.5m and is approximately 20m long. All as generally shown on the said plan marked J18883/FPO/03.

Operation 10

The construction of a new flood retaining wall on the right hand bank of the Knowle Burn. The wall will be approximately 10m long and has a maximum height of 1.3m above existing bed level and will tie into the existing wall at the downstream end. All as generally shown on the said plan marked J18883/FPO/04.

Operation 11

The construction of a new flood retaining wall on the left hand bank of the Knowle Burn. The wall will be approximately 60m long and has a maximum height of 1.3m above existing bed level and will tie into high ground at the upstream and downstream end of the wall. All as generally shown on the said plan marked J18883/FPO/04.

Operation 12

Bank protection along the toe of the existing wall on the right hand bank of the Knowle Burn, for a length of approximately 25m. All as generally shown on the said plan marked J18883/FPO/04.

Operation 13

The construction of a new wall on the right hand bank of the Knowle Burn. This wall will be approximately 20 long with a maximum height of 1.3m above existing bed level. All as generally shown on the said plan marked J18883/FPO/04.

Operation 14

Bank protection along the toe of the existing wall on the left hand bank of the Knowle Burn for a length of approximately 10m. All as generally shown on the said plan marked J18883/FPO/04.

Operation 15

Bank protection along the left hand bank of the Knowle Burn, for a length of approximately 70m and on the right hand bank of the Knowle Burn, for a length of approximately 95m. All as generally shown on the said plan marked J18883/FPO/04.

Operation 16

Construction of a single line of river training works, on the right hand bank of the Knowle Burn, over a length of 60m, with a height of 1.0m above the existing channel bed. All as generally shown on the said plan marked J18883/FPO/04.

Operation 17

Bank protection along the toe of the existing left hand bank of the Knowle Burn, for a length of approximately 60m. All as generally shown on the said plan marked J18883/FPO/04.

Operation 18

The construction of a new flood retaining wall on the right hand bank of the Knowle Burn. This wall will be approximately 20m long with a maximum height of 0.8m above the existing channel bed. All as generally shown on the said plan marked J18883/FPO/04.

Operation 19

The construction of a line of river training works, on the left hand bank of the Knowle Burn, over a length of approximately 20m with a maximum height of 1.0m above the existing channel bed. All as generally shown on the said plan marked J18883/FPO/04.

Operation 20

The existing channel bed will be re-graded between chainage 440m and 603m, with a maximum level difference of 410mm. All as generally shown on the said plan marked J18883/FPO/04.

Operation 21

The existing pedestrian footbridge across the Knowle Burn will be replaced with a new footbridge. All as generally shown on the said plan marked J18883/FPO/04.

Operation 22

Re-align the existing channel between Chainage 740m and 820m and provide bank protection to the new banks. All as generally shown on the said plan marked J18883/FPO/05.

Operation 23

The construction of new embankments on both the right and left hand banks of the Knowle Burn. These embankments have side slopes of approximately 1 vertical to 2 horizontal, an average crest width of 1m, a maximum height of 0.9m and an approximate length of 133m. All as generally shown on the said plan marked J18883/FPO/05.

Operation 24

Existing channel bed will be re-graded between chainage 729m to 872m, with a maximum level difference of 100mm. All as generally shown on the said plan marked J18883/FPO/05.

Operation 25

The replacement of the existing culvert beneath Crosslet Road. The new culvert has an approximate height of 1.2m, an approximate width of 1.8m and is approximately 12m long. All as generally shown on the said plan marked J18883/FPO/05.

Operation 26

The existing channel is to be re-graded from Chainage 890m to 950m, with a maximum level difference of 95mm. All as generally shown on the said plan marked J18883/FPO/06.

Operation 27

The channel to be re-aligned from chainage 930m approximately towards the railway embankment at chainage 990m. Bank protection to be provided for new channel banks of side slopes approximately 1 vertical to 2 horizontal. All as generally shown on the said plan marked J18883/FPO/06.

Operation 28

The construction of new flood embankment on the right and left hand banks of the Knowle Burn. The embankments have side slopes of approximately 1 vertical to 2 horizontal, an average crest width of 1.0m, a maximum height of 0.8m and an approximate length of 70m. All as generally shown on the said plan marked J18883/FPO/06.

Operation 29

The removal of the existing flow control structure upstream of the existing culvert beneath the railway embankment. Backfill the remaining existing channel between the existing culvert and the existing flow control. All as generally shown on the said plan marked J18883/FPO/06.

Operation 30

The construction of a new outfall structure at chainage 950m approximately. The outfall discharges into the Knowle Burn from the right hand bank and consists of a concrete pipe with headwall and flap valve. All as generally shown on the said plan marked J18883/FPO/06.

Operation 31

The refurbishment of the existing culvert beneath the railway embankment. The existing culvert is a 1–1.5m diameter pipe culvert, approximately 55m long. The headwall arrangement will be approximately 3.6m above the culvert invert and include wing walls. A new trash screen will be constructed at the inlet. The culvert outlet will be connected into a new chamber on the downstream side of the railway embankment provided by the retail park developer. All as generally shown on the said plan marked J18883/FPO/06.

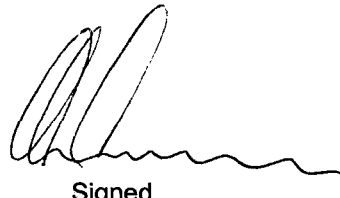
Operation 32

The installation of a new flap valve on the outfall of the culvert beneath St James Retail Park. This outfall will discharge into the Knowle Burn from the left hand bank, with erosion control at the discharge point. All as generally shown on the said plan marked J18883/FPO/07.

Operation 33

Access manhole covers along the length of the existing culvert below St James Retail Park, approximately 30, will be bolted down. All as generally shown on the said plan marked J18883/FPO/07.

This is the schedule I referred to in the foregoing Scheme.



Signed

Head of Administrative and Legal Services
Solicitor to the Council

Seal

SCHEDULE II

**THE WEST DUNBARTONSHIRE COUNCIL
KNOWLE BURN FLOOD PREVENTION SCHEME 2007**

PLAN REGISTER

Plan Marked	TITLE	REVISION
J18883/FPO/01	Flood Prevention Scheme Plans Sheet 1	0
J18883/FPO/02	Flood Prevention Scheme Plans Sheet 2	0
J18883/FPO/03	Flood Prevention Scheme Plans Sheet 3	0
J18883/FPO/04	Flood Prevention Scheme Plans Sheet 4	0
J18883/FPO/05	Flood Prevention Scheme Plans Sheet 5	0
J18883/FPO/06	Flood Prevention Scheme Plans Sheet 6	0
J18883/FPO/07	Flood Prevention Scheme Plans Sheet 7	0

This is the schedule II referred to in the foregoing Scheme.



Seal

Signed
Head of Administrative and Legal Services
Solicitor to the Council