

SiteID	JK0032
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 07:12:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	30.0000
Water volume used per hectare	1.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	< 3" tall, Scattered individuals
Treatment notes	Retreated the area and erected signage



Supplementary photos

SiteID	JK0033
Treated by	Colin Hayes
Treatment date / time	15/08/2019 07:05:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 9S / 61-75 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	130.0000
Water volume used per hectare	6.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	< 3" tall, Scattered individuals
Treatment notes	Sporadic regrowth of juvenile plants treated. Continued treatment and monitoring required.



Supplementary photos

SiteID	JK0033
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 07:16:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 21-40 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	60.0000
Water volume used per hectare	3l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	< 3" tall, Scattered individuals
Treatment notes	Area was retreated and signage erected



Supplementary photos

SiteID	JK0034
Treated by	Colin Hayes
Treatment date / time	15/08/2019 07:24:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	N/A
Method of treatment	No treatment done
Herbicide Used	N/A
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	
Water volume used per hectare	N/A
Nozzle type	N/A
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	No growth present
Treatment notes	No regrowth present. Continued monitoring required



Supplementary photos

SiteID	JK0034
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 07:20:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	N/A
Method of treatment	No treatment done
Herbicide Used	N/A
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	
Water volume used per hectare	N/A
Nozzle type	N/A
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	No growth present
Treatment notes	No regrowth present



Supplementary photos

SiteID	JK0035
Treated by	Colin Hayes
Treatment date / time	15/08/2019 07:25:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	N/A
Method of treatment	No treatment done
Herbicide Used	N/A
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	
Water volume used per hectare	N/A
Nozzle type	N/A
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	No growth present
Treatment notes	No regrowth present. Continued monitoring required



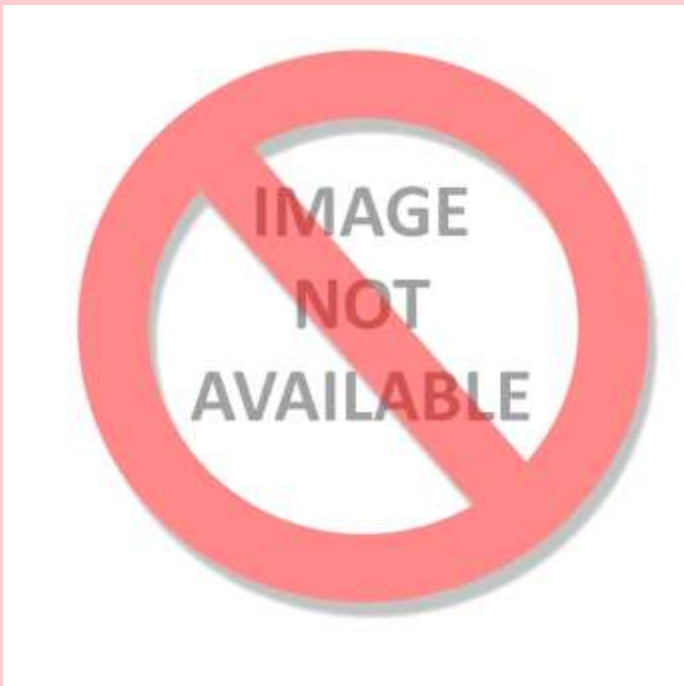
Supplementary photos

SiteID	JK0035
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 07:21:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	N/A
Method of treatment	No treatment done
Herbicide Used	N/A
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	
Water volume used per hectare	N/A
Nozzle type	N/A
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	No growth present
Treatment notes	No regrowth present



Supplementary photos

SiteID	JK0036
Treated by	Aidan Lombard
Treatment date / time	15/08/2019 18:51:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	16 / 11SW / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	45.0000
Water volume used per hectare	2.25l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	< 3" tall
Treatment notes	Area treated regrowth of scattered individuals



Supplementary photos

SiteID	JK0036
Treated by	John Walsh
Treatment date / time	19/09/2019 15:02:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	18 / 15 KPH SE / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	18-32" tall, > 32" tall, Scattered individuals
Treatment notes	Area treated signage maintained



Supplementary photos

SiteID	JK0037
Treated by	John Walsh
Treatment date / time	15/08/2019 07:47:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 17 KPH W / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	50.0000
Water volume used per hectare	2.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	3-18" tall, Scattered individuals
Treatment notes	Small amount of regrowth present whole location has been treated and signage maintained further monitoring and treatment required



Supplementary photos

SiteID	JK0037
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 07:28:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	< 3" tall, Scattered individuals
Treatment notes	Retreated the area



Supplementary photos

SiteID	JK0038
Treated by	John Walsh
Treatment date / time	15/08/2019 07:33:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 17 KPH W / 61-75 / 21-40 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	120.0000
Water volume used per hectare	6l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	18-32" tall, Scattered individuals
Treatment notes	Large area of Japanese knotweed which has some regrowth present whole location has been treated and signage maintained further monitoring and treatment required



Supplementary photos

SiteID	JK0038
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 07:26:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	50.0000
Water volume used per hectare	2.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	< 3" tall, Scattered individuals
Treatment notes	Retreated the area



Supplementary photos

SiteID	JK0039
Treated by	Colin Hayes
Treatment date / time	15/08/2019 07:19:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 9S / 61-75 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	150.0000
Water volume used per hectare	7.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	< 3" tall, Scattered individuals
Treatment notes	Juvenile Japanese Knotweed plants treated. The area is regularly being cut and signage was erected again. Himalayan balsam has started growing there and was treated also. Continued treatment and monitoring required.



Supplementary photos

SiteID	JK0039
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 07:31:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	150.0000
Water volume used per hectare	7.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, 18-32" tall, Scattered individuals
Treatment notes	Retreated the area and maintained the signage.



Supplementary photos

SiteID	JK0040
Treated by	Aidan Lombard
Treatment date / time	15/08/2019 07:40:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	N/A
Method of treatment	No treatment done
Herbicide Used	N/A
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	
Water volume used per hectare	N/A
Nozzle type	N/A
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	No growth present
Treatment notes	No regrowth present. Continued monitoring required.



Supplementary photos

SiteID	JK0040
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 07:37:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	No growth present
Treatment notes	Retreated the area and erected signage



Supplementary photos

SiteID	JK0041
Treated by	Aidan Lombard
Treatment date / time	15/08/2019 07:44:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	16 / 11S / 61-75 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall
Treatment notes	One piece of juvenile Japanese Knotweed was treated. The piece of Knotweed is being cut. Signage erected and continued treatment and monitoring required.



Supplementary photos

SiteID	JK0041
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 07:43:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	50.0000
Water volume used per hectare	2.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	< 3" tall, No growth present
Treatment notes	Retreated the area signage maintained



Supplementary photos

SiteID	JK0042
Treated by	Colin Hayes
Treatment date / time	15/08/2019 19:13:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	12 / 13SW / 76-90 / 21-40 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	100.0000
Water volume used per hectare	5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	< 3" tall, 3-18" tall, Scattered individuals
Treatment notes	Small Japanese Knotweed plants treated. Continued treatment and monitoring required



Supplementary photos

SiteID	JK0042
Treated by	John Walsh
Treatment date / time	20/09/2019 09:01:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 15 KPH SE / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	< 3" tall, Scattered individuals
Treatment notes	Area treated and signage maintained



Supplementary photos

SiteID	JK0043
Treated by	Colin Hayes
Treatment date / time	15/08/2019 19:23:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	12 / 13SW / 76-90 / 21-40 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	No growth present
Treatment notes	No regrowth present. Continued monitoring required



Supplementary photos

SiteID	JK0043
Treated by	John Walsh
Treatment date / time	20/09/2019 09:14:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 15 KPH SE / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	50.0000
Water volume used per hectare	2.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	No growth present. Continued monitoring recommended
Treatment notes	Area treated no signage required



Supplementary photos

SiteID	JK0044
Treated by	Noel Linehan
Treatment date / time	16/08/2019 15:18:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	20 / 20W / 76-90 / 0-20 / Cloudy
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	800.0000
Water volume used per hectare	40l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Noel Linehan
Description	18-32" tall, Scattered individuals
Treatment notes	No signage to maintain. Complete retreatment of surveyed areas



Supplementary photos

SiteID	JK0044
Treated by	John Walsh
Treatment date / time	20/09/2019 09:36:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	18 / 15 KPH SE / 31-60 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	140.0000
Water volume used per hectare	7l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	< 3" tall, 3-18" tall, 18-32" tall, > 32" tall, Scattered individuals
Treatment notes	Area treated signage maintained



Supplementary photos

SiteID	JK0045
Treated by	Aidan Lombard
Treatment date / time	16/08/2019 15:02:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	17 / 15KPHSW / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	150.0000
Water volume used per hectare	7.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, Scattered individuals
Treatment notes	Area treated



Supplementary photos

SiteID	JK0045
Treated by	John Walsh
Treatment date / time	20/09/2019 09:33:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	18 / 15 KPH SE / 31-60 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	30.0000
Water volume used per hectare	1.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	18-32" tall, > 32" tall, Scattered individuals
Treatment notes	Area treated signage replaced



Supplementary photos

SiteID	JK0046
Treated by	Aidan Lombard
Treatment date / time	16/08/2019 15:10:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	18 / 17 KPH W / 76-90 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	50.0000
Water volume used per hectare	2.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	18-32" tall
Treatment notes	Japanese knotweed growing in the middle of the river treated. Continued treatment and monitoring required



Supplementary photos

SiteID	JK0046
Treated by	John Walsh
Treatment date / time	20/09/2019 09:30:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	18 / 15 KPH SE / 31-60 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	18-32" tall, > 32" tall, Scattered individuals
Treatment notes	Area treated no signage required



Supplementary photos

SiteID	JK0047
Treated by	Colin Hayes
Treatment date / time	16/08/2019 16:58:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	20 / 25WSW / 76-90 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	70.0000
Water volume used per hectare	3.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	3-18" tall, Scattered individuals
Treatment notes	Japanese knotweed growing on the edge of the river bank was treated. There was three small plant treated. Continued treatment and monitoring required.



Supplementary photos

SiteID	JK0047
Treated by	John Walsh
Treatment date / time	20/09/2019 10:13:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	18 / 15 KPH SE / 31-60 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	60.0000
Water volume used per hectare	3l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	< 3" tall, 3-18" tall, Scattered individuals
Treatment notes	Area treated signage maintained



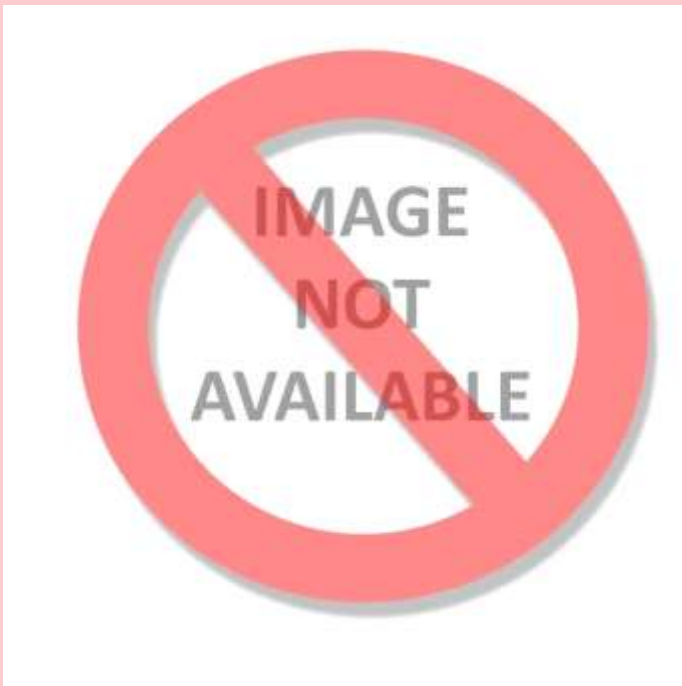
Supplementary photos

SiteID	JK0048
Treated by	Colin Hayes
Treatment date / time	16/08/2019 17:01:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	20 / 25WSW / 76-90 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	10.0000
Water volume used per hectare	0.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	No growth present
Treatment notes	No regrowth present .continued monitoring required



Supplementary photos

SiteID	JK0048
Treated by	John Walsh
Treatment date / time	20/09/2019 10:18:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	18 / 15 KPH SE / 31-60 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	5.0000
Water volume used per hectare	0.25l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	< 3" tall, 3-18" tall, Scattered individuals
Treatment notes	Area treated. Signage replaced



Supplementary photos

SiteID	JK0050
Treated by	Colin Hayes
Treatment date / time	16/08/2019 16:45:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	20 / 25WSW / 76-90 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	80.0000
Water volume used per hectare	4l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	3-18" tall, Scattered individuals
Treatment notes	Japanese knotweed growing just along the river side treated. Continued treatment and monitoring required.



Supplementary photos

SiteID	JK0050
Treated by	John Walsh
Treatment date / time	20/09/2019 11:18:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	18 / 15 KPH SE / 31-60 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	< 3" tall, 3-18" tall, Scattered individuals
Treatment notes	Area treated signage maintained



Supplementary photos

SiteID	JK0051
Treated by	Colin Hayes
Treatment date / time	16/08/2019 16:56:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	20 / 25WSW / 76-90 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	30.0000
Water volume used per hectare	1.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	3-18" tall, Scattered individuals
Treatment notes	Very small juvenile plants present. There is a lot of pedestrian activity in the area which is damaging the knotweed. Continued treatment and monitoring required.



Supplementary photos

SiteID	JK0051
Treated by	John Walsh
Treatment date / time	20/09/2019 11:12:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	18 / 15 KPH SE / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	< 3" tall, Scattered individuals
Treatment notes	Area treated no signage required



Supplementary photos

SiteID	JK0052
Treated by	Colin Hayes
Treatment date / time	16/08/2019 16:52:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	20 / 25WSW / 76-90 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	3-18" tall, Scattered individuals
Treatment notes	Two young plants present and treated. Continued treatment and monitoring required.



Supplementary photos

SiteID	JK0052
Treated by	John Walsh
Treatment date / time	20/09/2019 12:09:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	18 / 15 KPH SE / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	18-32" tall, Scattered individuals
Treatment notes	Area treated and signage maintained



Supplementary photos

SiteID	JK0053
Treated by	David Hyde
Treatment date / time	16/08/2019 16:35:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	20 / 25WSW / 76-90 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	300.0000
Water volume used per hectare	15l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	David Hyde
Description	3-18" tall, Scattered individuals
Treatment notes	Sporadic regrowth treated and continued treatment and monitoring required.



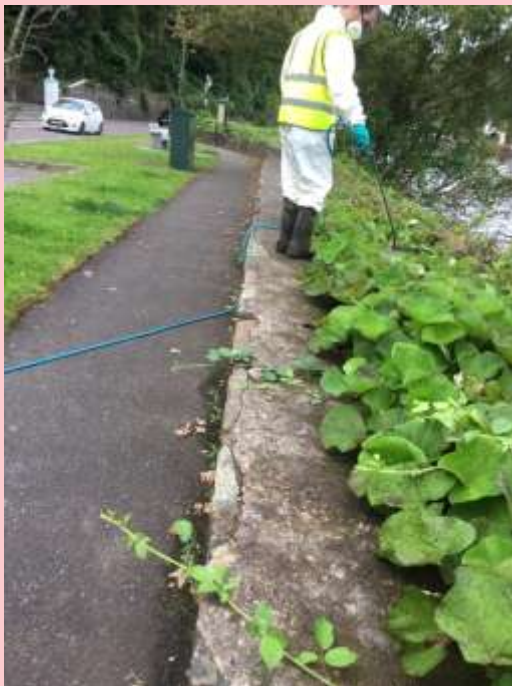
Supplementary photos

SiteID	JK0053
Treated by	John Walsh
Treatment date / time	20/09/2019 12:01:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	18 / 15 KPH SE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	200.0000
Water volume used per hectare	10l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	3-18" tall, 18-32" tall, > 32" tall, Scattered individuals
Treatment notes	Area treated signage maintained



Supplementary photos

SiteID	JK0054
Treated by	Aidan Lombard
Treatment date / time	16/08/2019 18:32:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	19 / 21KPHWSW / 76-90 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	50.0000
Water volume used per hectare	2.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, Scattered individuals
Treatment notes	No regrowth present. Winter heletrope was treated.



Supplementary photos

SiteID	JK0054
Treated by	John Walsh
Treatment date / time	20/09/2019 12:48:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / SSW / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	No growth present
Treatment notes	Area treated signage maintained



Supplementary photos

SiteID	JK0055
Treated by	Colin Hayes
Treatment date / time	16/08/2019 18:50:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	17 / 21KPHWSW / 76-90 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	30.0000
Water volume used per hectare	1.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	No growth present
Treatment notes	No signage to maintain due to inaccessibility of location



Supplementary photos

SiteID	JK0055
Treated by	John Walsh
Treatment date / time	20/09/2019 13:01:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / SSW / 31-60 / 0-20 / Cloudy
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	3-18" tall, Scattered individuals
Treatment notes	Area treated signage replaced



Supplementary photos

SiteID	JK0056
Treated by	Noel Linehan
Treatment date / time	16/08/2019 18:40:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	17 / 21KPHWSW / 76-90 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Noel Linehan
Description	No growth present
Treatment notes	No regrowth present. Area sprayed off for visibility



Supplementary photos

SiteID	JK0056
Treated by	John Walsh
Treatment date / time	20/09/2019 12:52:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / SSW / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	35.0000
Water volume used per hectare	1.75l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	No growth present
Treatment notes	Area treated signage maintained



Supplementary photos

SiteID	JK5001
Treated by	Aidan Lombard
Treatment date / time	15/08/2019 17:27:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	N/A
Method of treatment	No treatment done
Herbicide Used	N/A
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	
Water volume used per hectare	N/A
Nozzle type	N/A
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	No growth present
Treatment notes	No regrowth present and has not been for a number of year. Remove from the program



Supplementary photos

SiteID	JK5001
Treated by	Noel Linehan
Treatment date / time	19/09/2019 08:42:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	N/A
Method of treatment	No treatment done
Herbicide Used	N/A
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	
Water volume used per hectare	N/A
Nozzle type	N/A
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Noel Linehan
Description	No growth present
Treatment notes	No growth present further monitoring required



Supplementary photos

SiteID	JK5002
Treated by	Aidan Lombard
Treatment date / time	16/08/2019 12:53:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	17 / 15KPHSW / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	75.0000
Water volume used per hectare	3.75l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, Scattered individuals
Treatment notes	Area treated regrowth present



Supplementary photos

SiteID	JK5002
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 08:44:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	60.0000
Water volume used per hectare	3l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, Scattered individuals
Treatment notes	Retreated the area and maintained the signage



Supplementary photos

SiteID	JK5003
Treated by	Aidan Lombard
Treatment date / time	15/08/2019 17:19:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	N/A
Method of treatment	No treatment done
Herbicide Used	N/A
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	
Water volume used per hectare	N/A
Nozzle type	N/A
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	No growth present
Treatment notes	No regrowth present. Continued monitoring required



Supplementary photos

SiteID	JK5003
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 08:29:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, Scattered individuals
Treatment notes	No regrowth present and the area was treated. Signage maintained



Supplementary photos

SiteID	JK5004
Treated by	Aidan Lombard
Treatment date / time	15/08/2019 17:16:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	N/A
Method of treatment	No treatment done
Herbicide Used	N/A
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	
Water volume used per hectare	N/A
Nozzle type	N/A
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	No growth present
Treatment notes	No regrowth present. Continued monitoring required.



Supplementary photos

SiteID	JK5004
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 08:27:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, Scattered individuals
Treatment notes	No regrowth present, the area was treated and signage maintained.



Supplementary photos

SiteID	JK5005
Treated by	Aidan Lombard
Treatment date / time	15/08/2019 18:29:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	16 / 11SW / 76-90 / 21-40 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	No growth present
Treatment notes	No regrowth present. Continued monitoring required



Supplementary photos

SiteID	JK5005
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 09:12:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	60.0000
Water volume used per hectare	3l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	No growth present
Treatment notes	Retreated the area. Continued monitoring required



Supplementary photos

SiteID	JK5006
Treated by	John Walsh
Treatment date / time	15/08/2019 08:27:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 17 KPH W / 31-60 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	30.0000
Water volume used per hectare	1.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	3-18" tall, Scattered individuals
Treatment notes	Small amount of regrowth present in location whole area has been treated and signage maintained further monitoring and treatment required



Supplementary photos

SiteID	JK5006
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 08:02:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	60.0000
Water volume used per hectare	3l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, Scattered individuals
Treatment notes	Retreated the area and erected signage



Supplementary photos

SiteID	JK5008
Treated by	Noel Linehan
Treatment date / time	16/08/2019 17:57:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	19 / 21KPHWSW / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Noel Linehan
Description	3-18" tall, Scattered individuals
Treatment notes	2 small pieces growing on bark mulch were treated. Continued treatment and monitoring required.



Supplementary photos

SiteID	JK5008
Treated by	Noel Linehan
Treatment date / time	19/09/2019 10:10:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	11 / 15 KPH SE / 31-60 / 61-80 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	30.0000
Water volume used per hectare	1.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Noel Linehan
Description	< 3" tall, 18-32" tall, Scattered individuals
Treatment notes	Area treated no signage required



Supplementary photos

SiteID	JK5009
Treated by	Aidan Lombard
Treatment date / time	16/08/2019 17:58:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	19 / 21KPHWSW / 76-90 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	70.0000
Water volume used per hectare	3.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, Scattered individuals
Treatment notes	Two small plants growing and treated. Continued treatment and monitoring required.



Supplementary photos

SiteID	JK5009
Treated by	Noel Linehan
Treatment date / time	19/09/2019 10:04:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	11 / 15 KPH SE / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Noel Linehan
Description	< 3" tall, Scattered individuals
Treatment notes	Area treated no signage required



Supplementary photos

SiteID	JK5010
Treated by	John Walsh
Treatment date / time	15/08/2019 15:01:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	20 / 17 KPH W / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	3-18" tall, Scattered individuals
Treatment notes	Small amount of regrowth present whole location has been treated and signage maintained



Supplementary photos

SiteID	JK5010
Treated by	John Walsh
Treatment date / time	19/09/2019 11:00:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	11 / 15 KPH SE / 31-60 / 0-20 / Cloudy
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	< 3" tall, Scattered individuals
Treatment notes	Area treated and signage maintained



Supplementary photos

SiteID	JK5011
Treated by	John Walsh
Treatment date / time	15/08/2019 15:42:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	20 / 17 KPH W / 31-60 / 21-40 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	3-18" tall, Scattered individuals
Treatment notes	Small amount of regrowth present whole location has been treated and signage maintained further monitoring and treatment required



Supplementary photos

SiteID	JK5011
Treated by	John Walsh
Treatment date / time	19/09/2019 11:16:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	11 / 15 KPH SE / 31-60 / 0-20 / Cloudy
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	< 3" tall, Scattered individuals
Treatment notes	Area treated no signage required



Supplementary photos

SiteID	JK5012
Treated by	Colin Hayes
Treatment date / time	15/08/2019 10:10:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	N/A
Method of treatment	No treatment done
Herbicide Used	N/A
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	
Water volume used per hectare	N/A
Nozzle type	N/A
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	No growth present
Treatment notes	No regrowth present



Supplementary photos

SiteID	JK5012
Treated by	John Walsh
Treatment date / time	19/09/2019 11:50:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 15 KPH SE / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	< 3" tall, Scattered individuals
Treatment notes	Area treated and signage maintained



Supplementary photos

SiteID	JK5013
Treated by	Colin Hayes
Treatment date / time	15/08/2019 10:15:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	16 / 11SW / 61-75 / 0-20 / Overcast
Method of treatment	Foliar Spray, Clearance
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	10.0000
Water volume used per hectare	0.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	No growth present
Treatment notes	No regrowth present. Continued treatment and monitoring required



Supplementary photos

SiteID	JK5013
Treated by	John Walsh
Treatment date / time	19/09/2019 11:56:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 15 KPH SE / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	No growth present
Treatment notes	Area treated and signage maintained



Supplementary photos

SiteID	JK5014
Treated by	Colin Hayes
Treatment date / time	15/08/2019 06:33:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 9S / 76-90 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	300.0000
Water volume used per hectare	15l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	< 3" tall, 3-18" tall
Treatment notes	Japanese Knotweed juvenile plants growing on the river bank and into the field . Continued treatment and monitoring required. The Knotweed in the field is being grazed.



Supplementary photos

SiteID	JK5014
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 07:00:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	80.0000
Water volume used per hectare	4l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, 18-32" tall, Scattered individuals
Treatment notes	Retreated the area and signage erected



Supplementary photos

SiteID	JK5015
Treated by	Colin Hayes
Treatment date / time	15/08/2019 06:42:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 9S / 61-75 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	30.0000
Water volume used per hectare	1.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	< 3" tall, Scattered individuals
Treatment notes	Two juvenile plants required treatment. Continued treatment and monitoring required.



Supplementary photos

SiteID	JK5015
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 06:54:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	< 3" tall
Treatment notes	Retreated the area and signage erected.



Supplementary photos

SiteID	JK5016
Treated by	John Walsh
Treatment date / time	15/08/2019 06:15:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 9S / 61-75 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	120.0000
Water volume used per hectare	6l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	< 3" tall, 3-18" tall
Treatment notes	A small number of juvenile plants present and treated. Continued treatment and monitoring required



Supplementary photos

SiteID	JK5016
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 07:04:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	< 3" tall, Scattered individuals
Treatment notes	Retreated the area and erected signage



Supplementary photos

SiteID	JK5017
Treated by	John Walsh
Treatment date / time	15/08/2019 07:21:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 17 KPH W / 61-75 / 21-40 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	100.0000
Water volume used per hectare	5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	18-32" tall, Scattered individuals
Treatment notes	Small amount of regrowth present area has been treated and signage maintained further monitoring and treatment required



Supplementary photos

SiteID	JK5017
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 07:23:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	50.0000
Water volume used per hectare	2.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	< 3" tall, Scattered individuals
Treatment notes	Retreated the area



Supplementary photos

SiteID	JK5018
Treated by	Colin Hayes
Treatment date / time	15/08/2019 07:37:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	N/A
Method of treatment	No treatment done
Herbicide Used	N/A
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	
Water volume used per hectare	N/A
Nozzle type	N/A
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	No growth present
Treatment notes	One Juvenile Japanese Knotweed plant treated. Continued treatment and monitoring required. There is pedestrians trampling the area.



Supplementary photos

SiteID	JK5018
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 07:35:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	30.0000
Water volume used per hectare	1.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	< 3" tall, Scattered individuals
Treatment notes	Retreated the area and erected signage.



Supplementary photos

SiteID	JK5019
Treated by	Aidan Lombard
Treatment date / time	15/08/2019 07:56:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	16 / 11S / 61-75 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	80.0000
Water volume used per hectare	4l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, Scattered individuals
Treatment notes	Area treated regrowth of scattered individuals



Supplementary photos

SiteID	JK5019
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 07:45:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	< 3" tall
Treatment notes	Retreated the area and maintained the signage



Supplementary photos

SiteID	JK5020
Treated by	Aidan Lombard
Treatment date / time	15/08/2019 19:09:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	16 / 11SW / 76-90 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	< 3" tall, Scattered individuals
Treatment notes	Two pieces of Japanese Knotweed treated. Continued monitoring and treatment required.



Supplementary photos

SiteID	JK5020
Treated by	John Walsh
Treatment date / time	19/09/2019 13:02:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 15 KPH SE / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	< 3" tall, 3-18" tall, Scattered individuals
Treatment notes	Area treated and signage maintained



Supplementary photos

SiteID	JK5021
Treated by	Aidan Lombard
Treatment date / time	15/08/2019 07:49:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	16 / 11S / 61-75 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	55.0000
Water volume used per hectare	2.75l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall
Treatment notes	Area treated regrowth present



Supplementary photos

SiteID	JK5021
Treated by	Aidan Lombard
Treatment date / time	19/09/2019 07:50:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, Scattered individuals
Treatment notes	Retreated the area.



Supplementary photos

SiteID	JK5022
Treated by	Aidan Lombard
Treatment date / time	16/08/2019 15:35:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	20 / 20W / 76-90 / 21-40 / Cloudy
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	200.0000
Water volume used per hectare	10l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	18-32" tall, Scattered individuals
Treatment notes	No signage required due to inaccessibility of area. Complete retreatment of surveyed area. Himalayan balsam present on the embankment . Should considered pulling /deadheading next year prior to seeds becoming viable



Supplementary photos

SiteID	JK5022
Treated by	John Walsh
Treatment date / time	19/09/2019 13:12:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 15 KPH SE / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	100.0000
Water volume used per hectare	5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	3-18" tall, > 32" tall, Scattered individuals
Treatment notes	Area treated and signage maintained



Supplementary photos

SiteID	JK5023
Treated by	Colin Hayes
Treatment date / time	16/08/2019 18:42:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	17 / 21KPHWSW / 76-90 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	70.0000
Water volume used per hectare	3.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	3-18" tall, Scattered individuals
Treatment notes	Scattered individuals. No signage erectedw



Supplementary photos

SiteID	JK5023
Treated by	John Walsh
Treatment date / time	19/09/2019 15:56:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / SSW / 61-75 / 0-20 / Cloudy
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	35.0000
Water volume used per hectare	1.75l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	3-18" tall, Scattered individuals
Treatment notes	Area treated signage replaced



Supplementary photos

SiteID	JK5024
Treated by	John Walsh
Treatment date / time	15/08/2019 17:33:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	18 / 17 KPH W / 31-60 / 21-40 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	3-18" tall, Scattered individuals
Treatment notes	Small amount of regrowth present area has been treated and signage maintained further monitoring and treatment required, grass cutting being dumped over hedge into location



Supplementary photos

SiteID	JK5024
Treated by	Noel Linehan
Treatment date / time	19/09/2019 08:35:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	11 / 15 KPH SE / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Noel Linehan
Description	18-32" tall, Scattered individuals
Treatment notes	Area treated and signage maintained



Supplementary photos

SiteID	JK5025
Treated by	Aidan Lombard
Treatment date / time	15/08/2019 17:31:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	16 / 11SW / 76-90 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	No growth present
Treatment notes	No regrowth present. Continued monitoring required



Supplementary photos

SiteID	JK5025
Treated by	Noel Linehan
Treatment date / time	20/09/2019 12:45:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	11 / 15 KPH SE / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Noel Linehan
Description	< 3" tall, Scattered individuals
Treatment notes	Area treated no signage required



Supplementary photos

SiteID	JK5026
Treated by	John Walsh
Treatment date / time	16/08/2019 13:26:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	18 / 17 KPH W / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	45.0000
Water volume used per hectare	2.25l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	< 3" tall, Scattered individuals
Treatment notes	Area treated regrowth of scattered individuals



Supplementary photos

SiteID	JK5026
Treated by	Aidan Lombard
Treatment date / time	20/09/2019 12:38:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 41-60 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	70.0000
Water volume used per hectare	3.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, Scattered individuals
Treatment notes	Retreated the area.



Supplementary photos

SiteID	JK5027
Treated by	John Walsh
Treatment date / time	15/08/2019 18:15:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	18 / 17 KPH W / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	> 32" tall, Scattered individuals
Treatment notes	1 plant growing in location whole location has been treated



Supplementary photos

SiteID	JK5027
Treated by	John Walsh
Treatment date / time	20/09/2019 14:28:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 15 KPH SE / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	No growth present
Treatment notes	No growth present further monitoring required



Supplementary photos

SiteID	JK5028
Treated by	John Walsh
Treatment date / time	15/08/2019 07:05:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	N/A
Method of treatment	No treatment done
Herbicide Used	N/A
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	
Water volume used per hectare	N/A
Nozzle type	N/A
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	No growth present
Treatment notes	No sign of regrowth present may have been eaten by horses in field further monitoring required



Supplementary photos

SiteID	JK5028
Treated by	Aidan Lombard
Treatment date / time	20/09/2019 08:14:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	10.0000
Water volume used per hectare	0.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	No growth present
Treatment notes	Retreated the area.



Supplementary photos

SiteID	JK5029
Treated by	John Walsh
Treatment date / time	15/08/2019 07:16:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	N/A
Method of treatment	No treatment done
Herbicide Used	N/A
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	
Water volume used per hectare	N/A
Nozzle type	N/A
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	No growth present
Treatment notes	No evidence of regrowth present further monitoring required



Supplementary photos

SiteID	JK5029
Treated by	Aidan Lombard
Treatment date / time	20/09/2019 08:18:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	30.0000
Water volume used per hectare	1.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	< 3" tall, Scattered individuals
Treatment notes	Retreated the area and signage replaced.



Supplementary photos

SiteID	JK5030
Treated by	Colin Hayes
Treatment date / time	15/08/2019 19:15:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	12 / 13SW / 76-90 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	30.0000
Water volume used per hectare	1.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Colin Hayes
Description	No growth present
Treatment notes	No regrowth present. Continued monitoring required



Supplementary photos

SiteID	JK5030
Treated by	John Walsh
Treatment date / time	20/09/2019 14:00:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 15 KPH SE / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	30.0000
Water volume used per hectare	1.5l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	< 3" tall, Scattered individuals
Treatment notes	Area treated signage maintained



Supplementary photos

SiteID	JK5031
Treated by	Aidan Lombard
Treatment date / time	15/08/2019 17:38:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	16 / 11SW / 76-90 / 21-40 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, Scattered individuals
Treatment notes	Treatment of sporadic Japanese Knotweed. Signage erected. Continued treatment and monitoring required . Branches are being dumped there .



Supplementary photos

SiteID	JK5031
Treated by	Aidan Lombard
Treatment date / time	20/09/2019 14:07:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	9 / 4ENE / 61-75 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, Scattered individuals
Treatment notes	Retreated the area and maintained the signage



Supplementary photos

SiteID	JK5032
Treated by	Aidan Lombard
Treatment date / time	15/08/2019 18:01:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	16 / 11SW / 61-75 / 21-40 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	15.0000
Water volume used per hectare	0.75l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	No growth present
Treatment notes	No regrowth present. Continued monitoring required



Supplementary photos

SiteID	JK5032
Treated by	Noel Linehan
Treatment date / time	20/09/2019 15:12:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	11 / 15 KPH SE / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Noel Linehan
Description	< 3" tall, Scattered individuals
Treatment notes	Area treated no signage required due to inaccessibility of location



Supplementary photos

SiteID	JK5033
Treated by	Aidan Lombard
Treatment date / time	15/08/2019 15:27:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	16 / 11SW / 61-75 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	120.0000
Water volume used per hectare	6l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, Scattered individuals
Treatment notes	This location was added to the survey in 2019 but treated in 2018. Continued treatment and monitoring required. There is some juvenile shoots that were treated



Supplementary photos

SiteID	JK5033
Treated by	John Walsh
Treatment date / time	20/09/2019 15:25:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	15 / 15 KPH SE / 31-60 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	40.0000
Water volume used per hectare	2l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	< 3" tall, Scattered individuals
Treatment notes	Area treated and signage maintained



Supplementary photos

SiteID	JK5035
Treated by	Aidan Lombard
Treatment date / time	16/08/2019 15:09:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	18 / 17 KPH W / 76-90 / 0-20 / Clear
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	60.0000
Water volume used per hectare	3l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	Aidan Lombard
Description	3-18" tall, Scattered individuals
Treatment notes	A new location treated by foliar spraying. Continued treatment and monitoring required



Supplementary photos

SiteID	JK5035
Treated by	John Walsh
Treatment date / time	20/09/2019 15:28:00
Weather ConditionsTemp / Wind / Sky / Humidity % / Rain %	18 / 15 KPH SE / 31-60 / 0-20 / Overcast
Method of treatment	Foliar Spray
Herbicide Used	RoundUp Biactive
PCS Number	4660
Calibration rate per hectare	4.0l
Total conc. product used (ml)	20.0000
Water volume used per hectare	1l
Nozzle type	110° 0.3
Calibration used in accordance with SUD	Yes
Qualified and registered advisor	Yes
Qualified and registered PU	John Walsh
Description	3-18" tall, 18-32" tall, Scattered individuals
Treatment notes	Area treated signage maintained



Supplementary photos

Appendix D

Planting Plan (Brady Shipman Martin 2020)



Tree Planting Schedule

Nr	Abrv.	Species	Height	Size	Stem	Type
Extra Heavy Standard			S3			
3	Ps	<i>Pinus sylvestris</i>	4.0-4.5m	18-20cm	Clear 2m	RB
33	Ag	<i>Alnus glutinosa</i>	4.0-4.5m	14.16cm	Clear 2m	BR
12	Bp	<i>Betula pubescens</i>	4.0-4.5m	14.16cm	Clear 2m	RB
5	Qr	<i>Quercus robur</i>	4.0-4.5m	14.16cm	Clear 2m	RB



Pinus sylvestris



Alnus glutinosa



Quercus robur



Betula pubescens

Native Hedgrow Planting Schedule

(Planted double staggered row)

Name	Botanical name	Size (height, root br= bare root, cg = container grown)	Percentage of planting mix	Spacing
Hawthorn	<i>Crataegus monogyna</i>	90-120cm, br	20	0.45
Blackthorn	<i>Prunus spinosa</i>	90-120cm, br	15	0.45
Hazel	<i>Corylus avellana</i>	90-120cm, br	15	0.45
Spindle	<i>Euonymus europaeus</i>	90-120cm, br	10	0.45
Dog rose	<i>Rosa canina</i>	60-90cm, br	10	0.45
Bird cherry	<i>Prunus avium</i>	60-90cm, br	10	0.45
Holly	<i>Ilex aquifolium</i>	30-40cm, cg	10	0.45
Honeysuckle	<i>Lonicera periclymenum</i>	20-30cm, cg	10	0.45



Hawthorn



Blackthorn



Hazel



Spindle



Dog rose



Bird Cherry



Holly



Honeysuckle

Dry Side Seeding Planting Schedule

Mix %	Species
30	Slender Creeping Red Fescue
20	Chewings Fescue
40	Perennial Ryegrass
5	Creeping Bentgrass
5	Browntop Bentgrass

SUPPLIER: National Agrochemical Distributors Ltd., Blakes Cross, Lusk, Co.Dublin
Email: sales@nadirl.com Tel: 01 8437909 or equivalent



Wet Side Seeding Planting Schedule

Native Origin Irish Wildflower Seed Mixtures: Ecotype
Product Code: EC05
Product Name: Wetland Wild Flora (Seasonally Flooded)
EC05 is a vigorous, medium tall mixture which can compete with the often fertile wetland soils on which many wetlands are situated.

Species List: Code EC05 Wetland Wild Flora (Seasonally)

1. Devils Bit Scabious	17. Red Rattle
2. Common Sorrel	18. Ribwort Plantain
3. Cowslip	19. Selfheal
4. Fleabane	20. Sneezewort
5. Greater Trefoil	21. Tufted Vetch
6. Hemp Agrimony	22. Water Avens
7. Lesser Knapweed	23. Wild Angelica
8. Marsh Cinquefoil	24. Wild Valerian
9. Marsh Marigold	25. Yarrow
10. Meadow Buttercup	26. Yellow Flag Iris
11. Meadowsweet	27. Yellow Rattle
12. Meadow Rue	28. Corn Marigold
13. Oxeye Daisy	29. Corn Poppy
14. Purple Loosestrife	30. Corncockle
15. Ragged Robin	31. Cornflower
16. Red Clover	32. Scented Mayweed

Seed Mixture Specifications: Total number of seeds per gram: 2450

Suitable for soil type: All types of wet soil Clay, Loam, Sand, Heavy Soil, and Peat, as long as it remains wet throughout the year. but not raised Peat Bog.,

Moisture Level: Moist, Very wet or flooded.

pH range: Best between 5.5 - 7.5

SUPPLIER: Design By Nature - Monavea, Carlow, Ireland
R93T289. Info@wildflowers.ie, or equivalent.



Rev	Date	Drawn	Checked	Description
02	13/10/2020	AK	DB	Revised Tender Issue
01	12/06/2020	AK	DB	Tender Issue
00	13/04/2018	AK	DB	Issued for Planning

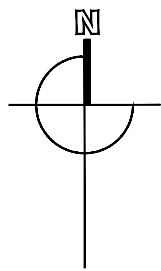
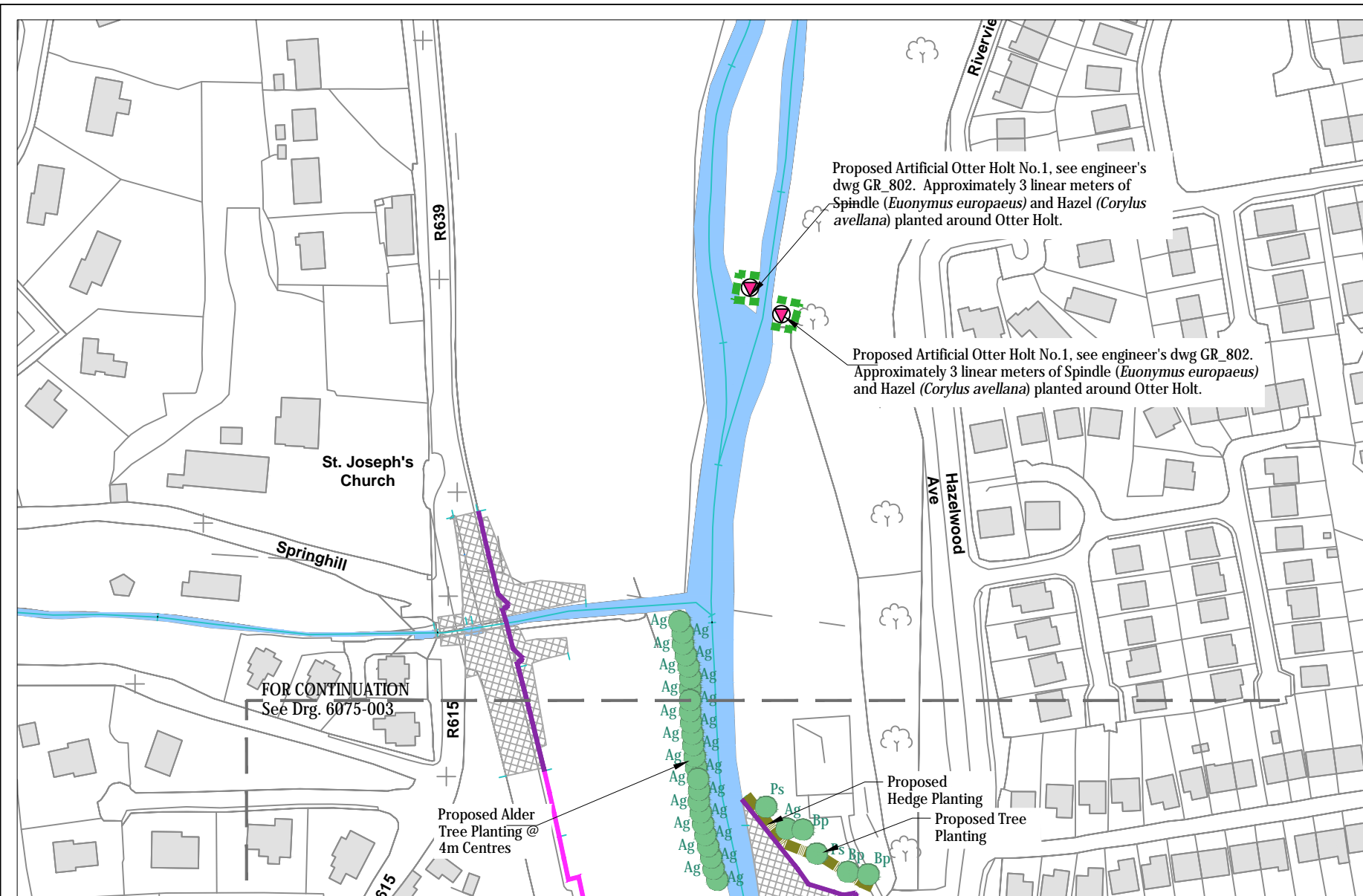
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Project Glashaboy River Drainage Scheme		Project No. 6075	
Drg. Planting Schedule		Drawing No. Figure 001	Rev. 02
Scales N/A @A3		Status TENDER	
Date 13/10/2020		Drn. AK	Chd. DBos
Penrose Wharf Business Centre, Penrose Wharf, Cork Tel: +353(0) 21 242 5620		Passed DBos	

BSM

 Est. 1968



LEGEND:

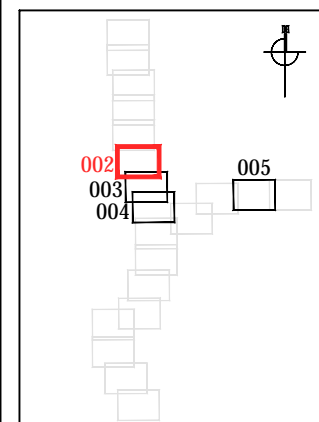
- PROPOSED TREE PLANTING, FOR SPECIES REFER TO TREE PLANTING SCHEDULE ON DRAWING 6075-001. ALL TREES TO BE SUPPLIED AND PLANTED IN ACCORDANCE WITH BS 8545:2014, BS 3936-1:1992 AND BS 4428:1989. ALLOW ROOT BARRIER WHERE REQUIRED TO MEET IRISH WATER REQUIREMENTS.
- PROPOSED OTTER HOLT SCREEN PLANTING, APPROXIMATELY 3 LINEAR METERS AROUND EACH PROPOSED OTTER HOLT.
SPECIFICATION:
 - EUONYMUS EUROPAEUS, 0.9-1.2m, 1+1, BUSHY, ROOTBALED, PLANTED AT 450mm CENTRES.
 - CORYLUS AVELLANA, 2.5-3.0m, MULTISTEM, ROOTBALED, PLANTED AT 1m CENTRES.
- PROPOSED OTTER HOLT, REFER TO ENGINEERS DRAWING GR 802 AND THE COMPENSATORY OTTER HOLT STUDY FOR GLASHABOY RIVER, CO.CORK.
- PROPOSED FLOOD DEFENCE STRUCTURES - REFER TO ENGINEERS DRAWINGS FOR DESIGN DETAIL
- PROPOSED BOUNDARY REPAIR/ IMPROVEMENT WORKS - REFER TO ENGINEERS DRAWINGS FOR DESIGN DETAIL

LANDSCAPE NOTES:

1. EXISTING TREES AND HEDGEROWS TO BE RETAINED AND TO BE PROTECTED IN ACCORDANCE WITH BS 5837:2012 TREES IN RELATION TO CONSTRUCTION.
2. EXISTING TREE TO BE FELLED/ REMOVED DUE TO CONSTRUCTION. ALL TREE WORKS TO BE CARRIED OUT IN ACCORDANCE WITH BS 3998:2010 TREE WORK. FOR TREE REMOVAL REFER TO ARUP DRAWINGS GR_702-705 PROPOSED TREES TO BE REMOVED.
3. ALL TREES RETAINED IN PROXIMITY OF THE CONSTRUCTION WORKS (I.E. WITHIN ROOT PROTECTION AREA (RPA) AS PER BS 5837) SHALL BE SUBJECT OF A DETAILED POST-CONSTRUCTION TREE SURVEY TO BE CARRIED BY THE WORKS CONTRACTOR AND COMPETENT ARBORICULTURAL PROFESSIONAL. THE POST CONSTRUCTION SURVEY SHALL BE MADE AVAILABLE TO THE OPW FOR APPROVAL AND ANY TREE WORKS RECOMMENDED SHALL BE UNDERTAKEN BY THE CONTRACTOR.
4. LANDSCAPE WORKS TO BE CARRIED IN ACCORDANCE WITH BS 4428:1989 CODE OF PRACTICE FOR GENERAL LANDSCAPE OPERATIONS.
5. ALL TOPSOILING TO COMPLY WITH BS 3882:2007.
6. DRY SIDE AMENITY GRASS TO SPECIFICATION ON DRAWING 6075-001 (LOW MAINTENANCE GRASS MIX).
7. WET SIDE MEADOW MIX TO SPECIFICATION ON DRAWING 6075-001 (WETLAND WILD FLORA SEASONALLY FLOODED EC05).

LOCATION PLAN

Scale 1:2000



**KEY PLAN
NTS**

NOTES:

- For Proposed Works refer to Engineer's drawing GR_206 Proposed Flood Defences - Plan Layout
- For Tree Removal refer to ARUP Figure 3 (Appendix 3.2 b) Proposed Trees to be Removed - Plan Layout

Rev	Date	Drawn	Checked	Description
02	13/10/2020	AK	DB	Revised Tender Issue
01	12/06/2020	AK	DB	Tender Issue
00	13/04/2018	AK	DB	Issued for Planning

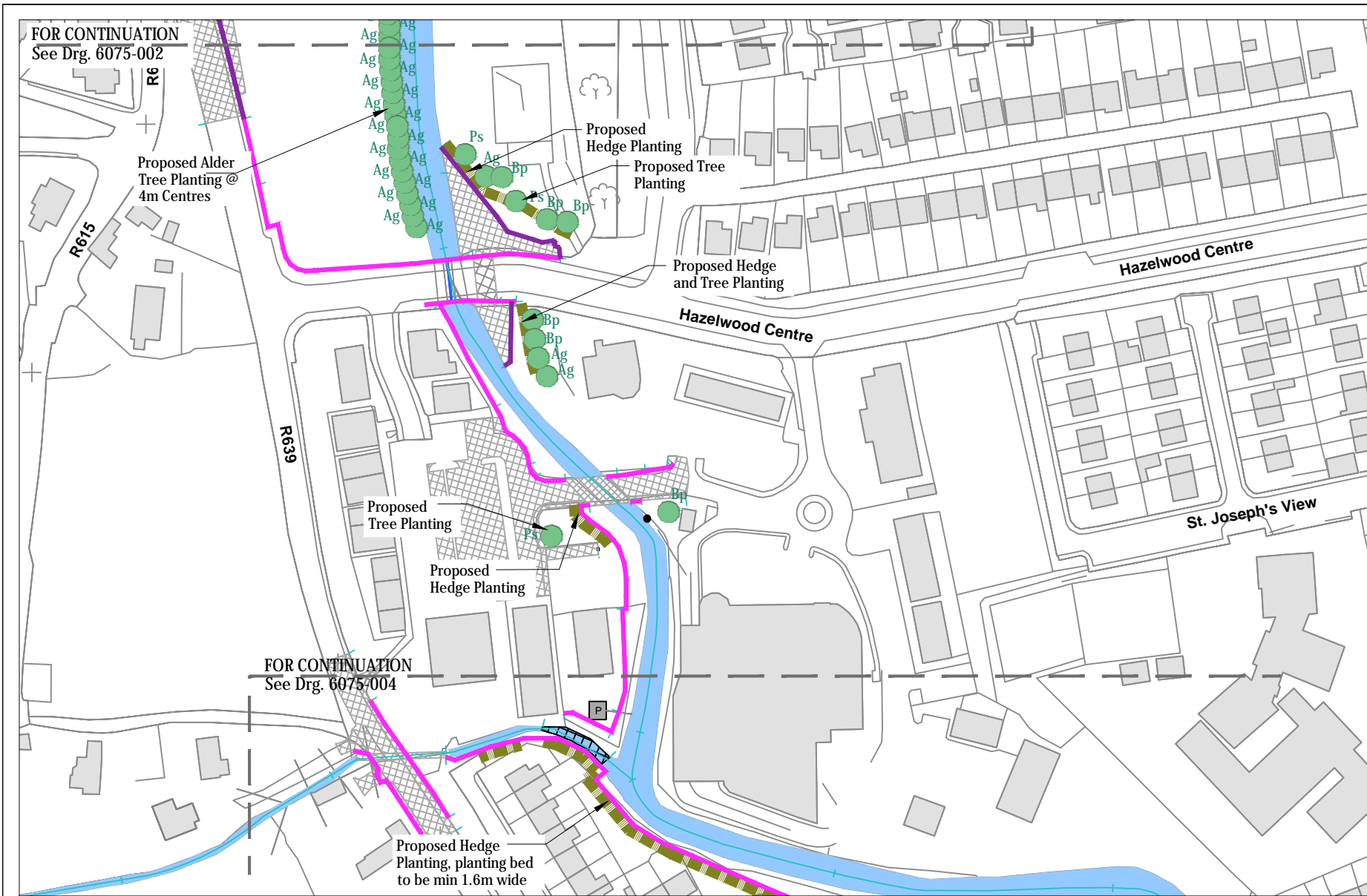
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

Project Glashaboy River Drainage Scheme		Project No. 6075	
Drg. Planting Plan Layout (Sheet 1 of 4)		Drawing No. Figure 002	Rev. 02
Scales 1:2000@A3	Status TENDER	Date 13/10/2020	
Penrose Wharf Business Centre, Penrose Wharf, Cork Tel: +353(0) 21 242 5620		mail@bradyshipmanmartin.com www.bradyshipmanmartin.com	Drn. AK Chd. DBos Passed DBos



**Est.
1968**



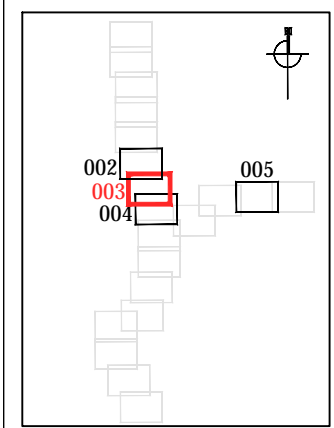
LEGEND:

-  **PROPOSED TREE PLANTING,** FOR SPECIES REFER TO TREE PLANTING SCHEDULE ON DRAWING 6075-001. ALL TREES TO BE SUPPLIED AND PLANTED IN ACCORDANCE WITH BS 8545:2014, BS 3936-1:1992 AND BS 4428:1989. ALLOW ROOT BARRIER WHERE REQUIRED TO MEET IRISH WATER REQUIREMENTS.
-  **PROPOSED NATIVE HEDGEROW PLANTING MIX,** FOR SPECIES REFER TO NATIVE HEDGEROW PLANTING SCHEDULE ON DRAWING 6075-001. ALL PLANTING STOCK COMPLY WITH BS 3936-1:1992, LANDSCAPE WORKS TO BE CARRIED OUT IN ACCORDANCE IN BS 4428:1989. ALL TOPSOILING TO COMPLY WITH BS 3882:2007.
-  **PROPOSED FLOOD DEFENCE STRUCTURES -** REFER TO ENGINEERS DRAWINGS FOR DESIGN DETAIL
-  **PROPOSED BOUNDARY REPAIR/ IMPROVEMENT WORKS -** REFER TO ENGINEERS DRAWINGS FOR DESIGN DETAIL

LANDSCAPE NOTES:

1. EXISTING TREES AND HEDGEROWS TO BE RETAINED AND TO BE PROTECTED IN ACCORDANCE WITH BS 5837:2012 TREES IN RELATION TO CONSTRUCTION.
2. EXISTING TREE TO BE FELLED/ REMOVED DUE TO CONSTRUCTION. ALL TREE WORKS TO BE CARRIED OUT IN ACCORDANCE WITH BS 3998:2010 TREE WORK. FOR TREE REMOVAL REFER TO ARUP DRAWINGS GR_702-705 PROPOSED TREES TO BE REMOVED.
3. ALL TREES RETAINED IN PROXIMITY OF THE CONSTRUCTION WORKS (I.E. WITHIN ROOT PROTECTION AREA (RPA) AS PER BS 5837) SHALL BE SUBJECT OF A DETAILED POST-CONSTRUCTION TREE SURVEY TO BE CARRIED BY THE WORKS CONTRACTOR AND COMPETENT ARBORICULTURAL PROFESSIONAL. THE POST CONSTRUCTION SURVEY SHALL BE MADE AVAILABLE TO THE OPW FOR APPROVAL AND ANY TREE WORKS RECOMMENDED SHALL BE UNDERTAKEN BY THE CONTRACTOR.
4. LANDSCAPE WORKS TO BE CARRIED IN ACCORDANCE WITH BS 4428:1989 CODE OF PRACTICE FOR GENERAL LANDSCAPE OPERATIONS.
5. ALL TOPSOILING TO COMPLY WITH BS 3882:2007.
6. DRY SIDE AMENITY GRASS TO SPECIFICATION ON DRAWING 6075-001 (LOW MAINTENANCE GRASS MIX).
7. WET SIDE MEADOW MIX TO SPECIFICATION ON DRAWING 6075-001 (WETLAND WILD FLORA SEASONALLY FLOODED EC05).

LOCATION PLAN



KEY PLAN NTS

Scale 1:2000

NOTES:

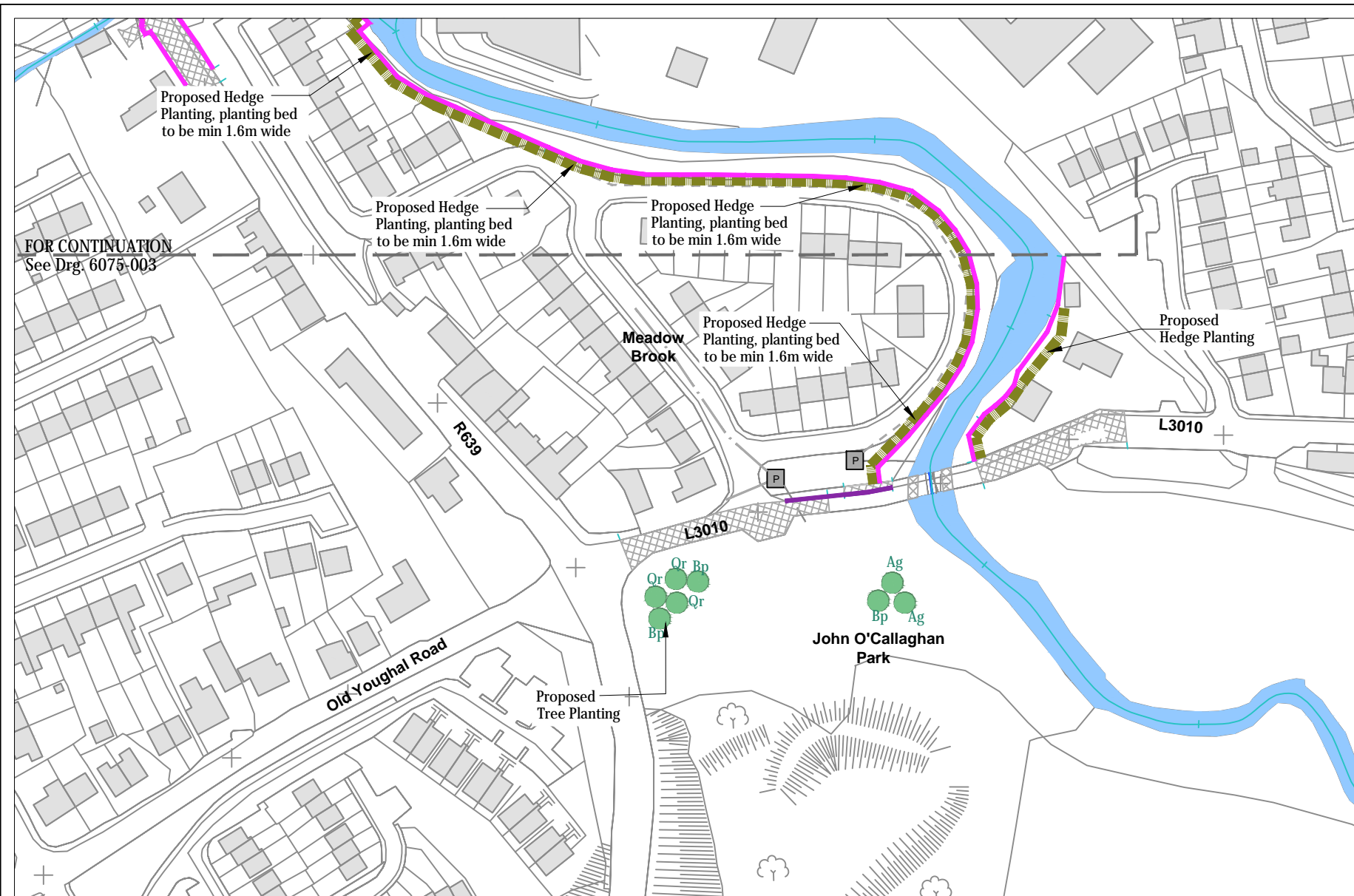
- For Proposed Works refer to Engineer's drawing GR_207 Proposed Flood Defences - Plan Layout
- For Tree Removal refer to ARUP Figure 3 (Appendix 3.2 b) Proposed Trees to be Removed - Plan Layout

Rev	Date	Drawn	Checked	Description
02	13/10/2020	AK	DB	Revised Tender Issue
01	12/06/2020	AK	DB	Tender Issue
00	13/04/2018	AK	DB	Issued for Planning

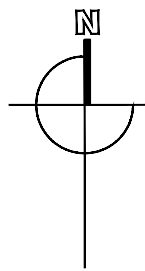
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Drg. Planting Plan Layout (Sheet 2 of 4)		Drawing No. Figure 003	Rev. 02
Scales 1:2000@A3	Status TENDER	Date 13/10/2020	
Penrose Wharf Business Centre, Penrose Wharf, Cork Tel: +353(0) 21 242 5620		mail@bradyshipmanmartin.com www.bradyshipmanmartin.com	Drn. AK Chd. DBos Passed DBos



FOR CONTINUATION
See Drg. 6075-003



LEGEND:

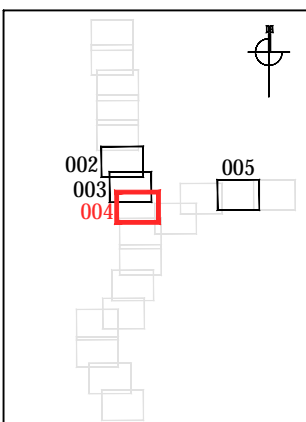
- PROPOSED TREE PLANTING,**
FOR SPECIES REFER TO TREE PLANTING SCHEDULE ON DRAWING 6075-001. ALL TREES TO BE SUPPLIED AND PLANTED IN ACCORDANCE WITH BS 8545:2014, BS 3936-1:1992 AND BS 4428:1989. ALLOW ROOT BARRIER WHERE REQUIRED TO MEET IRISH WATER REQUIREMENTS.
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- PROPOSED BOUNDARY REPAIR/ IMPROVEMENT WORKS - REFER TO ENGINEERS DRAWINGS FOR DESIGN DETAIL**

LANDSCAPE NOTES:

1. EXISTING TREES AND HEDGEROWS TO BE RETAINED AND TO BE PROTECTED IN ACCORDANCE WITH BS 5837:2012 TREES IN RELATION TO CONSTRUCTION.
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LOCATION PLAN

Scale 1:2000



**KEY PLAN
NTS**

NOTES:

- For Proposed Works refer to Engineer's drawing GR_208 Proposed Flood Defences - Plan Layout
- For Tree Removal refer to ARUP Figure 3 (Appendix 3.2 b) Proposed Trees to be Removed - Plan Layout

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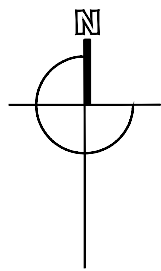
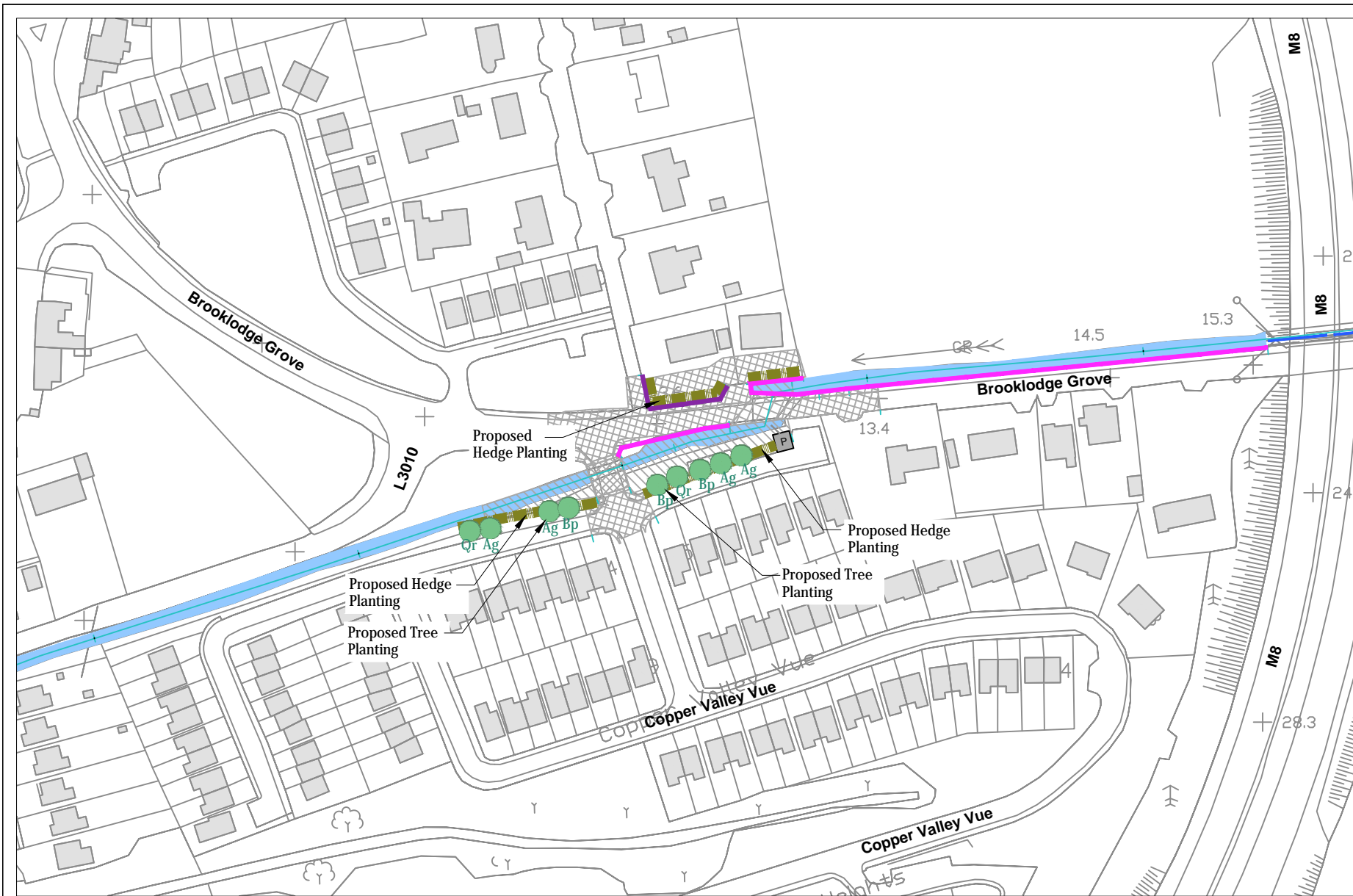
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Project Glashaboy River Drainage Scheme		Project No. 6075				
Drg. Planting Plan Layout (Sheet 3 of 4)		Drawing No. Figure 004	Rev. 02			
Scales 1:2000@A3	Status TENDER	Date 13/10/2020				
Penrose Wharf Business Centre, Penrose Wharf, Cork Tel: +353(0) 21 242 5620		mail@bradyshipmanmartin.com www.bradyshipmanmartin.com	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Drn. AK</td> <td style="width: 33%;">Chd. DBos</td> <td style="width: 33%;">Passed DBos</td> </tr> </table>	Drn. AK	Chd. DBos	Passed DBos
Drn. AK	Chd. DBos	Passed DBos				







**Est.
1968**

Rev	Date	Drawn	Checked	Description
02	13/10/2020	AK	DB	Revised Tender Issue
01	12/06/2020	AK	DB	Tender Issue
00	13/04/2018	AK	DB	Issued for Planning



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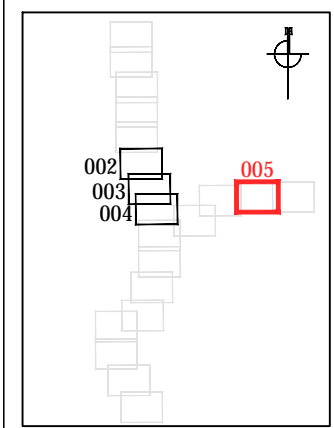
-  PROPOSED TREE PLANTING, FOR SPECIES REFER TO TREE PLANTING SCHEDULE ON DRAWING 6075-001. ALL TREES TO BE SUPPLIED AND PLANTED IN ACCORDANCE WITH BS 8545:2014, BS 3936-1:1992 AND BS 4428:1989. ALLOW ROOT BARRIER WHERE REQUIRED TO MEET IRISH WATER REQUIREMENTS.
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-  PROPOSED BOUNDARY REPAIR/ IMPROVEMENT WORKS - REFER TO ENGINEERS DRAWINGS FOR DESIGN DETAIL

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7. WET SIDE MEADOW MIX TO SPECIFICATION ON DRAWING 6075-001 (WETLAND WILD FLORA SEASONALLY FLOODED EC05).

LOCATION PLAN

Scale 1:2000



KEY PLAN NTS

NOTES:

- For Proposed Works refer to Engineer's drawing GR_211 Proposed Flood Defences - Plan Layout
- For Tree Removal refer to ARUP Figure 4 (Appendix 3.2 b) Proposed Trees to be Removed - Plan Layout

Rev	Date	Drawn	Checked	Description
02	13/10/2020	AK	DB	Revised Tender Issue
01	12/06/2020	AK	DB	Tender Issue
00	13/04/2018	AK	DB	Issued for Planning

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Drg. Planting Plan Layout (Sheet 4 of 4)		Drawing No. Figure 005	Rev. 02
Scales 1:2000@A3	Status TENDER	Date 13/10/2020	
Penrose Wharf Business Centre, Penrose Wharf, Cork Tel: +353(0) 21 242 5620		Drn. AK	Chd. DBos
mail@bradyshipmanmartin.com www.bradyshipmanmartin.com		Passed DBos	

Drn. AK	Chd. DBos	Passed DBos
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Appendix E

Derogation Licences (EIAR 2018)

E.1 Licence No. DER-OTTER-2017-170 (Holt closure)



An Roinn
Cultúir, Oidhreachta agus Gaeltachta

Department of
Culture, Heritage and the Gaeltacht

Licence No.: DER – OTTER – 2017 – 170

**EUROPEAN COMMUNITIES (BIRDS AND NATURAL HABITATS) REGULATIONS
2011 (S.I. No 477 of 2011)**

DEROGATION LICENCE

Granted under Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations 2011, hereinafter referred to as “the Habitats Regulations”.

Introduction

The Minister for Culture, Heritage, and the Gaeltacht, (hereinafter referred to as “the Minister”), after obtaining professional advice, is satisfied that: -

(A) this licence should be granted for the purpose of protecting wild fauna and conserving natural habitats and for imperative reasons of overriding public interest, including those of a social or economic nature, and

(B) there is no satisfactory alternative, and the action authorised by this licence will not be detrimental to the maintenance of the population of **OTTERS** referred to below at a favourable conservation status in their natural range.

Licence

The Minister, in exercise of the powers conferred on her by Regulation 54 of the Habitats Regulations hereby grants to **Ross Macklin, Senior Ecologist, Triturus Environmental Services, 42 Norwood Court, Rochestown, Cork** on behalf of **Cork County Council**, (“the licensee”) a licence in respect of **Otter Species**. This licence authorises the following:

- (a) disturbance;
 - (b) damage or destruction of breeding sites or resting places;
- (“the authorised actions”).

This licence is subject to the terms and conditions set out overleaf



Terms and Conditions

1. This licence is granted solely in respect of the activities specified in connection with **holt closure on Glenmore River, Co. Cork.**
2. The authorised actions shall be carried out on the licensee's behalf by, or under the authorisation of **Ross Macklin** ("the scientific agent").
3. All activities authorised by this licence, and all equipment used in connection herewith, shall be carried out, constructed and maintained (as the case may be) so as to avoid unnecessary injury or distress to any species of **OTTER.**
4. This licence may be modified or revoked, for stated reasons, at any time.
5. The actions to which this licence authorises shall be completed between **1st January** and **28th February 2018.**
6. The works are to comply with **TII's 'Guidelines for the treatment of Otters prior to the construction of National Road Scheme.'**
7. No agent or servant of the licensee, nor any other person, shall carry out any of the activities to which this licence applies unless authorised in writing by the scientific agent. Any such agent, servant or other person shall make a copy of the written authorisation available for and shall produce it on demand to any member of An Garda Síochána or an authorised officer.
8. This licence is granted subject to the licensee, including his or her servants and the scientific agent, adhering to the recommendations as set out in the accompanying survey report, prepared by **Triturus Environmental Services**, for **Cork County Council**, dated **20th December 2017** and any additional mitigation measures requested by the National Parks and Wildlife Service.
9. The local NPWS official shall be contacted prior to the commencement of work under the terms of this licence. The local NPWS District Conservation Officer is **Declan O'Donnell** who can be contacted at **087-2646452.**
10. Within 5 working days of being requested to do so by an authorised officer, the licensee shall provide a report on the progress of the work covered by this licence and of the mitigation measures implemented.
11. The licensee shall, within 14 days of completion of the actions which this licence authorises, submit a written report to the address below, describing the activities carried out and the mitigation measures implemented in pursuance of this licence.
12. The licensee shall provide for and implement a scientific programme (hereinafter referred to as "the scientific programme") of monitoring of any translocated populations and of the operation of the mitigation measures, to investigate and provide data on the effectiveness of the mitigation measures. The scientific programme will provide for supplementary mitigation measures informed by data obtained from this monitoring programme.



13. The licensee shall, within **3 calendar months** of the submission of the report under 13 above, submit to the signatory at the address below an interim report on the continued monitoring under the scientific programme. The licensee shall submit a further report by the **13th (final report)** calendar month after the submission of the report under 10 above, setting out the results of the monitoring carried out over these periods and particulars of any supplementary mitigation measures taken.
14. The reporting requirements under this licence will continue in force after the completion of the actions which it authorises, until their completion and the licensee shall be responsible for ensuring that these requirements are met in full.



Gerry Leckey

(a person authorised by the Minister to sign on her behalf)

22nd December 2017

Wildlife Licensing Unit,
National Parks and Wildlife Service,
Department of Culture, Heritage, and the Gaeltacht.
7 Ely Place,
Dublin 2, D02 TW98.

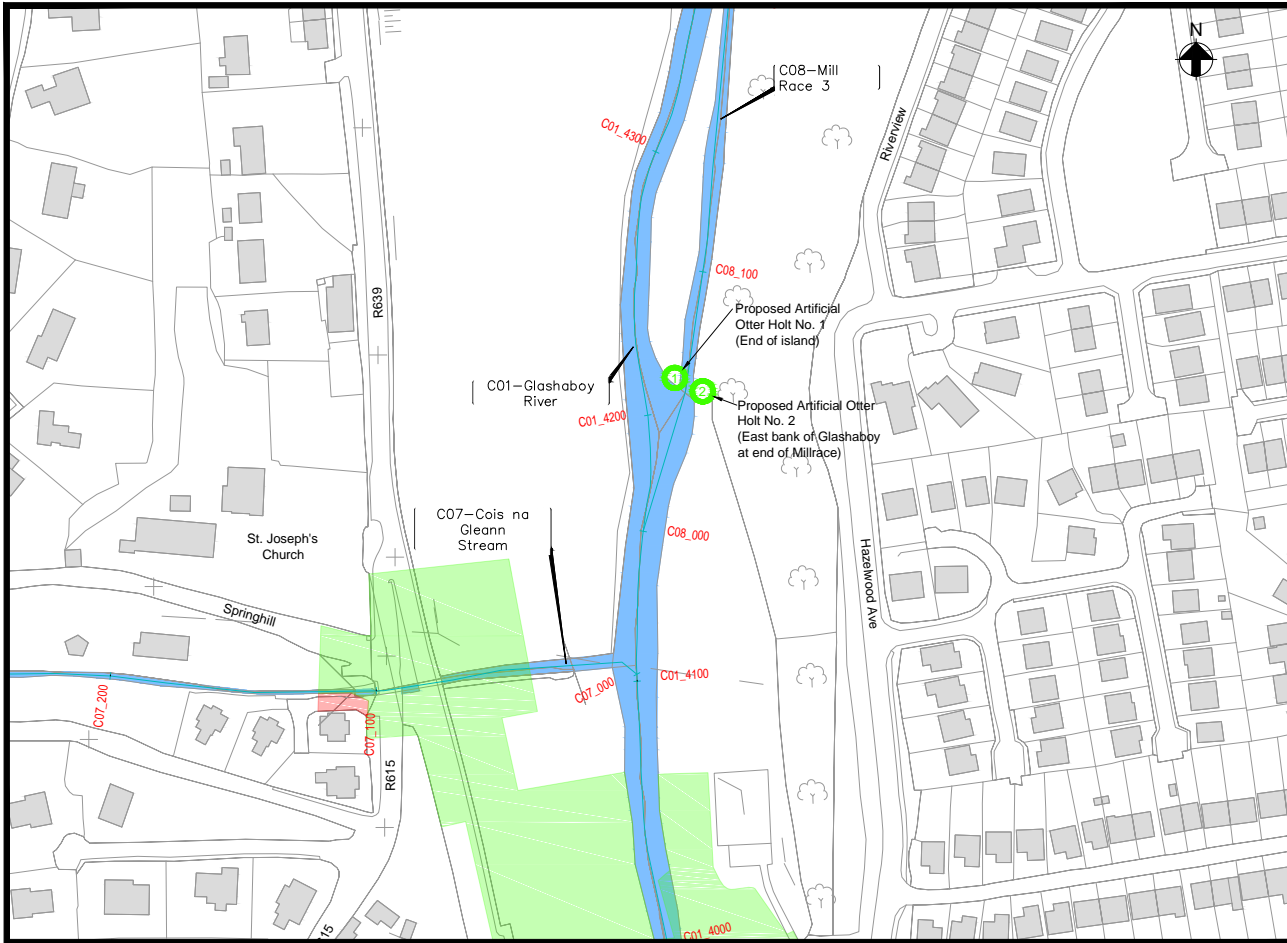
wildlifelicence@chg.gov.ie

NOTES (1 to 2).

1. This licence is granted for the period specified and subject to compliance with the conditions specified. Anything done other than in accordance with the terms of this licence may constitute an offence.
2. This licence applies to **otters** and to no other species.



E.2 Artificial Otter Holt Locations








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Location Plan

Scale 1:1,000 at A1
Scale 1:2,000 at A3



Key to Plan

-  Watercourse
-  Channel Centreline, Reference (C08) and Chainage (300m)
-  Proposed Artificial Otter Holt
-  Potential Access Routes
-  Indicative Extent of Works (excluding channel cleaning and maintenance)

Key Plan

E.3 Licence No. DER/BAT 2017 (amended) - 168 (Bat Derogation Licence)



An Roinn
Cultúir, Oidhreacht agus Gaeltachta

Department of
Culture, Heritage and the Gaeltacht

Licence No.: DER/BAT 2017 (amended) – 168

**EUROPEAN COMMUNITIES (BIRDS AND NATURAL HABITATS)
REGULATIONS, 2011 (S.I. No 477 of 2011)**

DEROGATION LICENCE

Granted under Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations 2011, hereinafter referred to as “the Habitats Regulations”.

Licence

The Minister for Culture, Heritage and the Gaeltacht, in exercise of the powers conferred on her by Regulation 54 of the Habitats Regulations hereby grants to the **Contractor for Flood Relief Scheme works appointed by Cork County Council** supervised by **Dr Tina Aughney, Ulex House, Drumheel, Virginia, Co. Cavan, Ecological Consultant (“the scientific agent”)** a licence in respect of **Bat Species**. This licence authorises the following:

- (a) roost disturbance
 - (b) damage or destruction of breeding sites or resting places;
- (“the authorised action(s”).

This licence is subject to the terms and conditions set out overleaf.



Terms and Conditions

1. This licence is granted solely to allow the activities specified in connection with **Flood Relief Scheme** at **Riverstown Bridge, Co. Cork**.
2. All activities authorised by this licence, and all equipment used in connection herewith, shall be carried out, constructed and maintained (as the case may be) so as to avoid unnecessary injury or distress to any species of **BAT**.
3. This licence may be modified or revoked, for stated reasons, at any time.
4. The mitigation measures outlined in the report (**1. Bat Mitigation Measures, pp 5-11**), subject to any modification in conditions agreed upon between the agent and NPWS prior to issue of the licence.
5. No work can begin before **1st August 2018** and must be completed by **31st July 2019**.
6. The works will be supervised by a licensed bat specialist, **Dr Tina Aughney**.
7. This licence shall be produced for inspection on a request being made on that behalf by a member of An Garda Síochána or an authorised NPWS officer appointed under Regulation 4 of the Habitats Regulations.
8. The local NPWS District Conservation Ranger, **Danny O'Keeffe**, (**danny.okeefe@ahg.gov.ie, 026-41621**) should be contacted prior to the commencement of any activity, and if bats are detected on site during the course of the work, under the terms of this licence.
9. A report shall be submitted to Wildlife Licensing Unit, National Parks & Wildlife Service, 7 Ely Place, Dublin 2, D02 TW98 on completion of the actions which this licence authorises, describing the activities carried out in pursuance of this licence.



Gerry Leckey

Gerry Leckey

(a person authorised by the Minister to sign on her behalf)

9th January 2018

Wildlife Licensing Unit
National Parks and Wildlife Service,
7 Ely Place,
Dublin 2
D02 TW98

NOTES (1 to 2).

- This licence is granted for the period specified and subject to compliance with the conditions specified. Anything done other than in accordance with the terms of this licence may constitute an offence.
- This licence applies to **bats** and to no other species.



E.4 Licence No. DER-OTTER-2017-137 (amended) Holt Closure Glenmore Stream



Otter Derogation Report, Glenmore River, Co. Cork.

Prepared for JBA & Cork County Council



November 2017

PROJECT TITLE	Glashaboy River (Glanmire/Sallybrook) Drainage Scheme
REPORT TITLE	Glenmore otter holt closure, derogation reporting.
AUTHORS	Ross Macklin (Tirturus Environmental Services)
DOCUMENT NO.	NV10_17_Otter
Date	23rd November 2017

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3.	Results & Discussion	8

APPENDIX A - NPWS OTTER DEROGATION LICENSE

1. Introduction

As part of the Glashaboy Flood Relief scheme, culvert replacement works are required on the Glenmore River tributary of the Glashaboy River at Corbally, west of the Brooklodge Business Park, Co. Cork. Baseline ecological surveys identified the presence of a suspected otter holt on a retaining wall bordering the river and adjoining a local road (see Figure 1.1 & Plate 1 .1 below; Irish Grid W 74378 75386). Proposed flood relief works required as part of the Glashaboy Flood Relief Scheme required the removal of the suspected holt in order to facilitate proposed culvert replacement works. In light of these proposals and to establish occupancy or not by otter, a trail camera survey was undertaken between April and June 2017. The camera survey results established that the suspected holt was not occupied by otter, rather the entrance used for spraint marking. Following submission of the trail camera monitoring report to the development applications unit and subsequent review of the monitoring report, it was deemed that there was no requirement for an artificial holt replacement as the existing holt was considered ‘unoccupied and suboptimal¹’.

To ensure no future occupancy by otter as a precaution, it was proposed to close the suspected holt structure permanently in advance of flood relief construction works by Cork County Council. As such a derogation was applied for under Regulation 54 of the EU communities (Birds & Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) to close the suspected otter holt. On the 4th October 2017 derogation license no. DER – Otter – 2017 – 137 was successfully granted by the NPWS (see Appendix A). The otter holt was successfully closed on Thursday (9th of November 2017) by Cork County Council staff under the supervision of Triturus following notification to Cyril Saich (NPWS) of the intention to close the structure. The closure by Cork County Council staff was undertaken under the supervision of Triturus Environmental Services (ecological clerk of works with specialist otter expertise) following an interim monitoring period with trail cameras. This report summarises the results of monitoring and sequence of works before and after the

¹ Correspondence received from the Development Applications Unit (DAU) on the 23rd of August 2017, project ref - GPre00347/2016 Glanmire Sallybrook Drainage Scheme – Otter Holt.

closure of the holt. The report validates that the holt was successfully closed without harming otter.



Figure 1.1 – Study area location, Corbally (near Glanmire), Co. Cork.



Plate 1.1 – Heron at suspected otter holt on the Glenmore River (W 74378, 75386).

2. Methods

Study Site

The suspected otter holt is situated on the south bank of the Glenmore River, west of the Brooklodge Business Park, Cork. More precisely the suspected holt structure is situated immediately downstream of a tertiary road bridge crossing (i.e. box culvert) and upstream of the overpass of the M8 Cork Dublin Road, north west of Glanmire village (see Figure 1.1 above).

Trail Camera Survey

In advance of holt closure (undertaken on 9th November 2017) and following the initial trail camera monitoring period between April and June 2017, further monitoring was required by trail camera to ensure no interim occupancy of the suspected holt (i.e. further monitoring between August and November 2017). Browning trail cameras were positioned during the day (see plate 2.1) to avoid potential disturbance to otters that are most active at dawn, dusk or nocturnally. The cameras recorded time, date, temperature and other attributes and are triggered by mammal movement using infra red sensors. Data (SD cards) were collected every 14 days and repositioned when necessary. Browning HD Pro 12MP infrared cameras (2017 model) were used during the survey as they have excellent detection (trigger) rates, range and cause minimal disturbance to wildlife.

Holt Closure

Once the suspected holt monitoring had identified that otter were not occupying the holt structure following review of the trail camera footage (no entry or exit sequences from the holt structure), a temporary plug using plastic and expanda foam was placed within the entrance of the holt structure and left in situ for 48 hours. Plate 2.2 below illustrates an otter sprainting on the boulders at the entrance of the suspected holt in advance of the temporary closure (i.e. typical behaviour observed over the monitoring period). The temporary closure of the suspected holt would further validate no occupancy if still in place in advance of permanent closure. The temporary plug of the entrance (see Plate 2.3) was also monitored in conjunction with a trail camera.

Following review of trail camera data and physical check of the temporary barrier barrier on the morning of closure (9th of November 2017), permanent closure of the structure could commence as there was no evidence of movement. The holt structure was then sealed permanently with dry mix and fast setting 30N concrete (see Plate 2.4) by Cork County Council staff. A single trail camera was repositioned on the newly closed suspected holt structure to continue monitoring after closure. This would establish whether patterns of otter usage of the area remained the same or changed following closure. Camera footage captured following closure of the structure illustrated that otter continued to use the entrance of the structure (boulders) for sprainting as normal (see Plate 2.5 below). This behaviour recorded by trail camera was similar to that which was captured from the start of the monitoring period (i.e. the entrance used as a sprainting area by otter). The monitoring by trail camera therefore indicated that otter continued to exhibit typical patterns of use of the site before and after permanent closure of the suspected holt.



Plate 2.1 – Browning trail camera positioned in front of suspected holt site.



Plate 2.2 – Male otter sprainting at the suspected holt entrance in advance of closure.



Plate 2.3 – Temporary seal of the suspected holt entrance in advance of permanent closure (also monitored by trail camera).



Plate 2.4 – Suspected otter holt sealed off with 30N dry concrete mix.



Plate 2.5 – Otter continue to use sprainting site after permanent closure of the suspected holt.

3. Results & Discussion

Based on the examination of the results of the trail camera survey, otter activity before and after the closure of the suspected holt structure remained broadly similar. This is considered in respect that no otter were harmed during the closure and patterns of otter usage of the site remained consistent before and after permanent closure of the holt. This conclusion is based on over six months of trail camera monitoring that illustrated the suspected holt entrance was used as a sprainting site rather than as a dwelling/ resting place by otter. The illustrated pictographic summary of the works sequence before and after the suspected holt closure is summarised on plates 2.1 through 2.5 of the results section. These images captured by trail camera indicate that otter continued to use the sprainting site at the entrance of the suspected holt in a fashion similar to that recorded before and after the permanent closure of the structure.

APPENDIX A
NPWS Otter Derogation License



An Roinn
Cultúir, Oidhreachta agus Gaeltachta

Department of
Culture, Heritage and the Gaeltacht

Licence No.: DER – OTTER – 2017 – 137 (amended)

**EUROPEAN COMMUNITIES (BIRDS AND NATURAL HABITATS) REGULATIONS
2011 (S.I. No 477 of 2011)**

DEROGATION LICENCE

Granted under Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations 2011, hereinafter referred to as “the Habitats Regulations”.

Introduction

The Minister for Culture, Heritage, and the Gaeltacht, (hereinafter referred to as “the Minister”), after obtaining professional advice, is satisfied that: -

(A) this licence should be granted for the purpose of protecting wild fauna and conserving natural habitats and for imperative reasons of overriding public interest, including those of a social or economic nature, and

(B) there is no satisfactory alternative, and the action authorised by this licence will not be detrimental to the maintenance of the population of **OTTERS** referred to below at a favourable conservation status in their natural range.

Licence

The Minister, in exercise of the powers conferred on her by Regulation 54 of the Habitats Regulations hereby grants to **Ross Macklin, Senior Ecologist, Triturus Environmental Services, 42 Norwood Court, Rochestown, Cork** on behalf of **Cork County Council**, (“the licensee”) a licence in respect of **Otter Species**. This licence authorises the following:

- (a) disturbance;
 - (b) damage or destruction of breeding sites or resting places;
- (“the authorised actions”).

This licence is subject to the terms and conditions set out overleaf.

Terms and Conditions

1. This licence is granted solely in respect of the activities specified in connection with **holt closure on Glenmore River, Co. Cork.**
2. The authorised actions shall be carried out on the licensee's behalf by, or under the authorisation of **Ross Macklin** ("the scientific agent").
3. All activities authorised by this licence, and all equipment used in connection herewith, shall be carried out, constructed and maintained (as the case may be) so as to avoid unnecessary injury or distress to any species of **OTTER.**
4. This licence may be modified or revoked, for stated reasons, at any time.
5. The actions to which this licence authorises shall be completed between **4th October 2017 and 28th February 2018.**
6. No agent or servant of the licensee, nor any other person, shall carry out any of the activities to which this licence applies unless authorised in writing by the scientific agent. Any such agent, servant or other person shall make a copy of the written authorisation available for and shall produce it on demand to any member of An Garda Síochána or an authorised officer.
7. This licence is granted subject to the licensee, including his or her servants and the scientific agent, adhering to the recommendations as set out in the accompanying survey report, prepared by **Triturus Environmental Services**, for **Cork County Council**, dated **4th October 2017** and any additional mitigation measures requested by the National Parks and Wildlife Service.
8. The local NPWS official shall be contacted prior to the commencement of work under the terms of this licence. The local NPWS District Conservation Officer is **Cyril Saich** who can be contacted at **087-2646443.**
9. Within 5 working days of being requested to do so by an authorised officer, the licensee shall provide a report on the progress of the work covered by this licence and of the mitigation measures implemented.
10. The licensee shall, within 14 days of completion of the actions which this licence authorises, submit a written report to the address below, describing the activities carried out and the mitigation measures implemented in pursuance of this licence.
11. The licensee shall provide for and implement a scientific programme (hereinafter referred to as "the scientific programme") of monitoring of any translocated populations and of the operation of the mitigation measures, to investigate and provide data on the effectiveness of the mitigation measures. The scientific programme will provide for supplementary mitigation measures informed by data obtained from this monitoring programme.



12. The licensee shall, within **3 calendar months** of the submission of the report under 13 above, submit to the signatory at the address below an interim report on the continued monitoring under the scientific programme. The licensee shall submit a further report by the **13th (final report)** calendar month after the submission of the report under 10 above, setting out the results of the monitoring carried out over these periods and particulars of any supplementary mitigation measures taken.
13. The reporting requirements under this licence will continue in force after the completion of the actions which it authorises, until their completion and the licensee shall be responsible for ensuring that these requirements are met in full.



Gerry Leckey
(a person authorised by the Minister to sign on her behalf)

4th October 2017

Wildlife Licensing Unit,
National Parks and Wildlife Service,
Department of Culture, Heritage, and the Gaeltacht,
7 Ely Place,
Dublin 2, D02 TW98.

wildlifelicence@chg.gov.ie

NOTES (1 to 2).

1. This licence is granted for the period specified and subject to compliance with the conditions specified. Anything done other than in accordance with the terms of this licence may constitute an offence.
2. This licence applies to **otters** and to no other species.



E.5 Licence No. 025/2017 Licence to photograph/film wild animals



Trail Camera Survey of Otter *Lutra lutra* on the Glenmore River, Co. Cork



June 2017

PROJECT TITLE	Glashaboy River (Glanmire/Sallybrook) Drainage Scheme
REPORT TITLE	Trail Camera Survey of Otter <i>Lutra lutra</i> on the Glenmore River, Co. Cork
AUTHORS	Ross Macklin (Tirturus Environmental Services)
DOCUMENT NO. & REVISION	JU01_17_Otter
Date	29th June 2017

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APPENDIX A SECTION 9 & 23-6(B) LICENSE

1. Introduction

As part of the wider Glashaboy River (Glanmire/Sallybrook) Drainage Scheme, culvert replacement works and upgrades to a retaining wall damaged by historical flooding are proposed on the Glenmore River, west of the Brooklodge Business Park, Cork (see Figure 2.1 - site location below). An ecological appraisal of the Glenmore River in the footprint of the proposed works area was carried out by Triturus on the 14th October 2016. During the site surveys a suspected European Otter *Lutra lutra* (L.) (hereafter otter) holt was identified in the footprint of the proposed works area. The holt was located in collapsed boulders on the left hand bank of the Glenmore River immediately downstream of an existing culvert apron. A mammal had excavated a tunnel between a large gap in boulders that had collapsed from the retaining wall structure (see Plate 1.1 below). An otter sprainting site was also present at the entrance on instream boulders with fresh fish remains present.

In light of the discovery of a potentially active holt site, Triturus Environmental Services were contracted by JBA consulting engineers to undertake a trail camera survey of the suspected holt site. An application was made under Sections 9 & 23 (6) b of the Wildlife Acts 1976 to 2012 to monitor otter activity by means of trail camera surveillance on the Glenmore River at the suspected holt site. A license was required given that the use of camera equipment near a potential breeding and resting area, as such activities may constitute a disturbance. Subsequently Triturus were successfully granted a license to undertake surveys between April and December 2017 (License no. 025/2017 in Appendix A of this report).



Plate 1.1 – Suspected Otter Holt (excavation under collapsed riverine retaining wall)

Otter Legal Status in Ireland

Otter are listed under Annex II & V of the EU Habitats Directive (92/43/EEC). Otter breeding and resting areas are afforded protection under the Wildlife Act 1976 and Wildlife (Amendment) Act, 2000 (S.I. No. 38 of 2000) and the European Communities (Birds and Natural Habitats) Regulations, 2011. More specifically with regard to development it is considered an offence to;

- Deliberately or Intentionally kill, injure or capture an otter.
- Deliberately disturb an otter.
- Possess or control any live or dead specimen or anything derived from an otter.
- Wilfully interfere with any structure or place used for breeding or resting by an otter.
- Damage or destroy a breeding site or resting place of an otter.

Otter Conservation Status in Ireland

Otter conservation status has been assessed as 'Near threatened' (Marnell et al. 2009). The previous Article 17 report on the Status of EU Protected Species and Habitats in Ireland for otter, deemed the prospects of the population trend to be poor (NPWS, 2008). This was accounted for by an estimated 24% decline in the estimated number of breeding females from 8,400 to 6,400 (Marnell et al. 2011). However, the range of the species (66500km²) still remained favourable (NPWS, 2008), in addition to the habitat and future prospects (NPWS, 2008). During follow up surveys (i.e. the 2010/2012 National Otter Survey of Ireland) it was illustrated that there was an increase in otter range by order of 31% from the 1993-2006 survey data. Despite an increase in the range of the species the established population baseline estimates from 1993-2006 were not significantly different (Reid et al. 2013). The data collated under the statutory parameters in assessing the conservation status of a species i.e. range, population, habitat & future prospects were considered to be in 'Favourable or Good Conservation Status' in contradiction to the findings of earlier national otter surveys. The observed positive trends (i.e. changes from previous survey conclusions) were linked to more accurate data collation and survey knowledge rather than empirical evidence of improved conservation status (Reid et al. 2013).

Background on Otter Ecology

Otter as a species is considered vulnerable given their reliance on fish food supplies, sensitivity to disturbance and pollution in addition to their short life cycle and small litter sizes (Channin, 2003). Of most importance are natal holting sites where otters rear their young. Holt sites can be difficult to identify given that they can be unmarked by spraint. Otter as a species favour seclusion away from people and flooding. As a result, breeding holts are often located in scrub, steep embankments and poorly accessible areas to human and dogs including dense riparian treelines above typical flood levels. However, on occasion visible excavations in embankments are present and observations of adults frequenting a holt site can give away their presence. Otters can

also use man-made structures to build holts. These include culverts, large crevices, bridge aprons and even abandoned buildings. In addition to holts, otters can also use 'couch' sites for resting. These resting areas are identified by tracks and slides leading to flattened grass where otters roll, scent mark and eat prey. The smell of otter in these areas, which is not as sharp as mink or fox and identifiable by experienced surveyors, can help identify couches in conjunction with marked tracks and slides.

The disruption of regular feeding areas or holt sites would have a negative effect on otter populations particularly if they are longer term or permanent impacts. As such one of the primary objectives of an otter survey should be to identify feeding, resting and breeding areas in order to target avoidance and or mitigation. Otter mark territory and communicate with spraint, which is useful in helping to identify the patterns of use of habitat by otter. Regularly used sites can be marked with spraint in the form of 'latrine piles'. These are piles of spraint on small rocks or stones or in shallow hollows and scrapes 'latrine pits'. During the breeding season female otters do not spraint near breeding areas which may be a measure to protect young from predators including male otter that have been reported to kill young. Together all of the above identified behaviours help create a pattern of otter utilisation of a site and thus are a key component in the design of safeguards to protect the species.

Previous surveys of the Glenmore River identified a suspected holt site on the river. By using trail cameras the occupancy of the holt can be confirmed and mitigation tailored accordingly to protect the species during construction works.

2. Methods

Study Site

The study site is located on the Glenmore River, west of the Brooklodge Business Park, Cork, immediately downstream of a tertiary road bridge crossing upstream of the overpass of the M8 Cork Dublin Road, north west of Glanmire village (see Figure 2.1 below). The Glenmore River rises in the townland of Cloneen and flows south west into the Glashaboy River at Brookville, Glanmire. The Glenmore River (EPA code: 19B06) is

located in hydrometric area 19 and within the south western river basin district. The Glenmore River is a spate type channel (i.e. subject to flashy floods) and characteristic of an E type channel (after Rosgen, 1996). Such channels are meandering, with higher incised banks and as floods are typically contained within the channel (outside of extreme events), rather than spreading onto the floodplain. They are important salmonid bearing rivers and are characteristic of many Irish rivers. The Glenmore has been identified as having healthy stocks of brown trout *Salmo trutta*, Atlantic salmon *Salmo salar* and European eel *Anguilla anguilla* that are important food source for riverine otter. While the river contains a good degree of naturalness, large sections of the river have been straightened and culverted to facilitate road widening, residential housing and for flood relief purposes. Straightened reaches of channel also are accompanied by sections of retaining wall locally.

The riparian zone of the Glenmore River comprised mature treelines upstream of the culvert replacement area (see habitat map Figure 2.2 below). Species included beech *Fagus sylvatica*, lime *Tilia platyphyllos*, sycamore *Acer pseudoplatanus* and alder *Alnus glutinosa* to 18m in height were present. The very mature trees upstream of the culvert replacement area were also covered by Ivy *Hedera helix* locally.

A block of broad leaved woodland (WD1) adjoined the river locally immediately upstream of the culvert and for a significant proportion of the north bank of the river downstream of the culvert replacement area. Species included frequent beech, willow *Salix spp.*, ash *Fraxinus excelsior* and occasional alder. The understory contained frequent ivy, bramble *Rubus fruticosus* and occasional buddleia *Buddleia davidii*.



Figure 2.1 – Study Area Location, relative to Cork

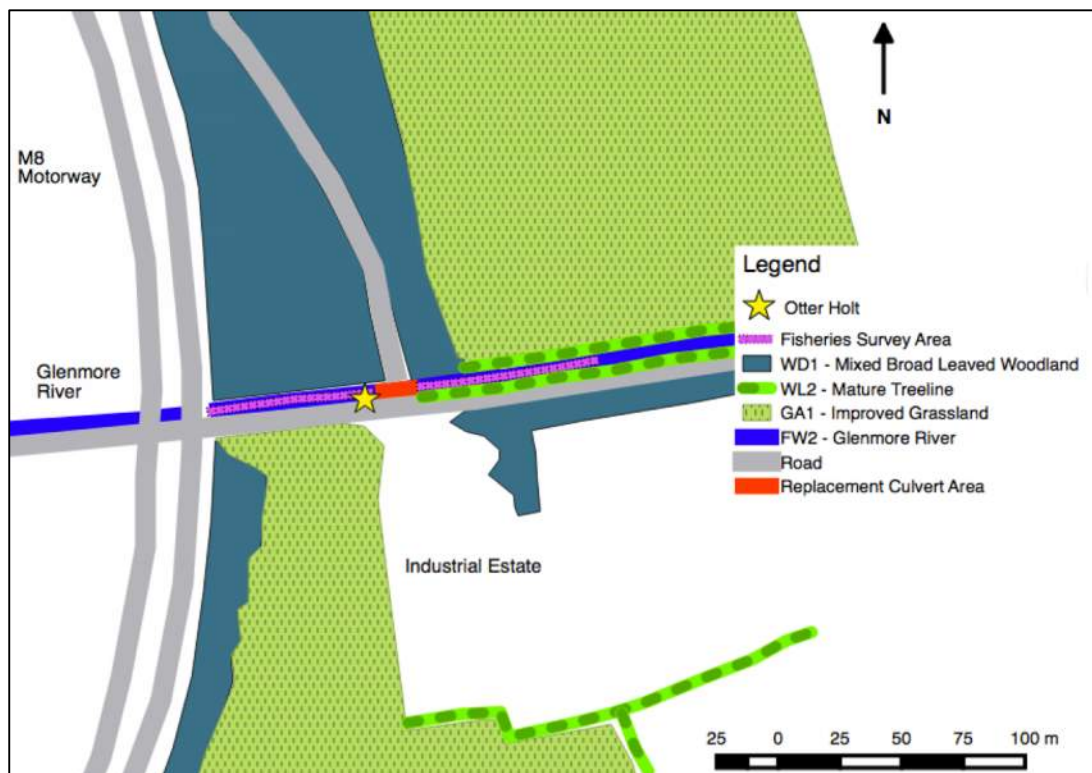


Figure 2.2 – Habitats adjoining otter holt area according to Fossit (2000)

Trail Camera Survey

Following the identification of patterns of otter usage of the River Glenmore and the location of a potential holt site three cameras were positioned strategically relative to the holt entrance to maximise the field of view for detection. Cameras were positioned during the day to avoid potential disturbance to otters that are most active at dawn, dusk or nocturnally. The cameras record time, date, temperature and other attributes and are triggered by mammal movement using infra red sensors. Data (SD cards) were collected every 7 days and repositioned when necessary. Browning special ops XTR 10MP and Bushnell E2, infrared cameras were used as they are considered the best available on the market with silent black flash and low glow LED that cause a minimal disturbance to wildlife. The number of camera triggers would indicate the frequency of use of the suspected holt, identify whether young are present and the number of otters present. It would also help identify males or females, given males are typically solitary, have a defined sagittal crest and are larger in size than females.

Optimum Survey Period and seasonal sensitivities

There is not specifically an optimal season for otter surveying as the otter can be active all year round and can breed at any time during the year (albeit spring appears to be an optimal time for courtship and breeding based on our own personnel observations). By covering three months of surveying between April and June 2017, a good overview of otter usage the suspected holt site on the Glenmore River could be achieved.

3. Results

Camera Trapping Results

The frequency of triggers and the animal type responsible for the triggers are summarised on Table 3.1 below. Overall low numbers of triggers for otter detection were recorded <10 at all three cameras. Other animals included Mink and bird species Grey Wagtail, Dipper and Heron. The camera footage did not reveal otter entry or egress from the suspected holt site, rather a single male using the boulders at the entrance for sprainting. However, a mink was observed on video footage entering and exiting the suspected holt on two occasions. The interpretation of the results are discussed in full in the discussion section.

Table 3.1 – Holt Survey Records from trail camera surveillance

Camera Numbers	Number of Camera Triggers	Animal Detected (number of triggers in parenthesis)	Behaviour of Otter when detected
Camera 1	42	Otter (8); Dipper (9); Heron (>20), Mink ¹ (5)	Sprainting on Rock at entrance of Holt.
Camera 2	33	Otter (7); Dipper (3); Grey Wagtail (3); Heron (>20)	Sprainting on Rock at entrance of Holt
Camera 3	33	Otter (5); Dipper (4); Grey Wagtail (4); Heron (>20)	Sprainting on Rock at entrance of Holt

¹ Mink was observed exiting ‘Holt’ entrance on two occasions

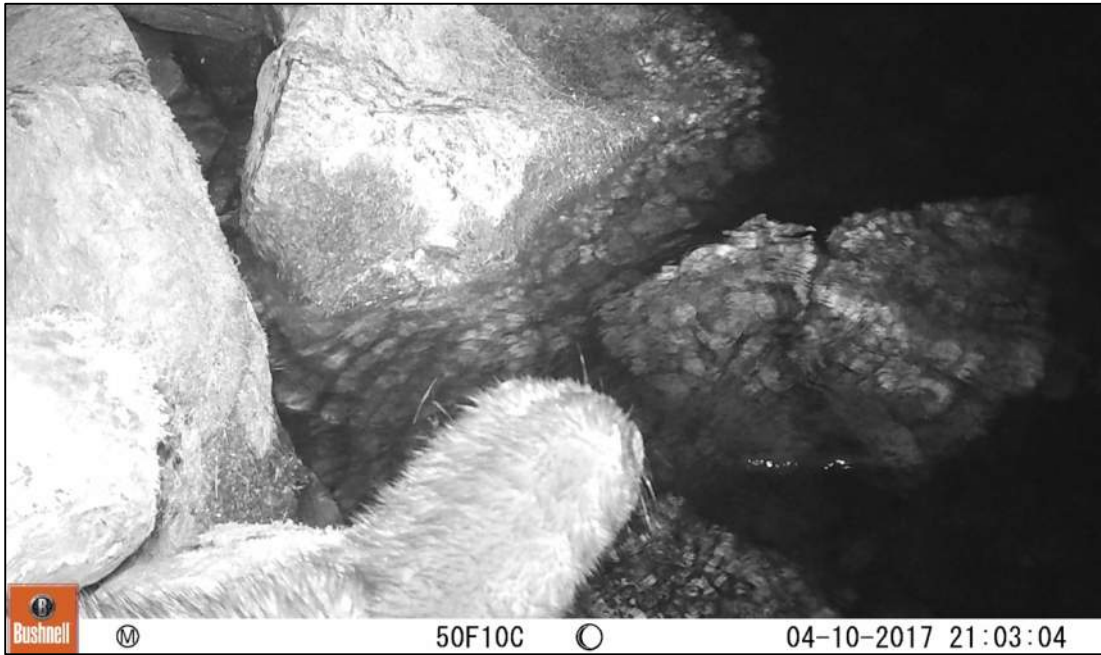


Plate 3.1 – Male otter with pronounced sagittal crest



Plate 3.2 – Adult male sprainting on boulder at entrance to suspected holt



Plate 3.3 – Otter using regular sprainting site (entrance of suspected holt)



Plate 3.4 – Heron with brown trout in front of suspected holt site

4. Discussion

Otter Usage of the Study Area

Based on the results of the trail camera survey otter activity was limited on the Glenmore River at the suspected holt site. Otter triggers occurred on average once every two weeks and typically were of a single animal passing by the suspected holt quickly or on occasion depositing spraint.

The results also illustrate that otters are not using the suspected holt as a dwelling place, given there were no triggers of animals emerging or exiting the holt. Furthermore, the absence of mother and young indicate that the holt is not currently being used as a resting place or breeding place. A mink was detected emerging from the holt on two occasions as recorded by video footage. The presence of mink emerging from the suspected holt would certainly help confirm that otter are unlikely to be using the suspected holt site as the two species compete for niche space (Boseni et al. 2004), with otter being more dominant forcing mink to become more generalist when seasonal niche overlap is at its highest. It would seem probable that if otter were occupying the suspected holt site, mink would not occur sympatrically in such a dwelling place. The footage also indicated that the single otter captured on the trail camera was a solitary adult male and females with cubs typically avoid males (pers. obs.). Male otters can be identified as male by the presence of a large head, jaw structure and pronounced sagittal crest, see plates 3.1 & 3.2 (Harris, 1986; Rey, 2016).

The infrequency of camera triggers <10 on all cameras for otter would indicate that the single male is passing through this section of the Glenmore River and marking this area as part of its wider territory but not resident. It can therefore be concluded that the suspected holt site is not currently being used as a resting or breeding place by otter.

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APPENDIX A
NPWS Section 9 & 23-6(b) License



An Roinn Ealaíon, Oidhreachta,
Gnóthaí Réigiúnacha, Tuaithe agus Gaeltachta
Department of Arts, Heritage,
Regional, Rural and Gaeltacht Affairs

Licence No. 025/2017

NATIONAL PARKS & WILDLIFE SERVICE

Wildlife Acts 1976 to 2012 - Sections 9 and 23 (6) (b)

LICENCE TO PHOTOGRAPH/FILM WILD ANIMALS FOR EDUCATIONAL, SCIENTIFIC OR OTHER PURPOSES

The Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs in exercise of the powers conferred on her by Sections 9 and 23 of the Wildlife Acts 1976 to 2012 authorises:

**Ross Macklin
42 Norwood Court, Rochestown, Co. Cork**

To photograph/film the species of wild animals specified in Column 1 of the Schedule hereunder in the area specified in Column 2 for educational, scientific or other purposes during the period beginning on the **3rd day of April 2017** and ending on the **31st day of December 2017**, subject to the conditions listed overleaf.

Schedule

1	2
Species	Area(s)
Otter <i>(Lutra lutra)</i>	Glenmore River, Corbally, Glanmire, Co. Cork

**Dated this the 3rd April 2017
For The Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs**

[Handwritten signature]



Conditions

1. This licence shall be produced for inspection on a request being made on that behalf by a member of An Garda Síochána or any person appointed by the Minister for Arts, Heritage and the Gaeltacht under Section 72 of the Wildlife Acts 1976 to 2012, to be an authorised person for the purposes of the Acts.
2. This licence does not confer the right to capture or handle any of the above species.
3. Local National Parks & Wildlife Service staff must be notified and agreement reached before any work can commence at any site.
4. You must liaise with the local Conservation Ranger prior to embarking to photograph/film at any particular location. The local Conservation Ranger must be contacted in advance during business hours.
5. Any query in relation to this licence should be made to National Parks and Wildlife Service, 7 Ely Place, Dublin 2, D02 TW98. Telephone: (01-8883232)

NOTE: This licence does not confer right of entry on any land



Appendix F

Geomorphologic Audit of the Glashaboy River and Assessment of the Proposed Drainage Scheme (2020)

JBA
consulting

ARUP

Geomorphic audit of the Glashaboy River and assessment of the proposed Drainage Scheme

Final Report

October 2020



**Cork
City Council**
Comhairle Cathrach Chorcaí



OPW

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Revision History

Revision Ref / Date Issued	Amendments	Issued to
Rev 1 - May 2014	Initial Issue	Steering Group
Rev 2 - August 2016	Addendum including extended FRS works in Appendix 1	Arup
Rev 5 - October 2016	Report update	Exhibition
Rev6 - November 2016	Update for reduced works at in tidal area	Exhibition
Rev7 - March 2016	Minor updates following scheme amendments	Arup for EIAR
Rev9 - October 2020	Addendum to include review of detailed design in Appendix B	Arup for EIAR
Rev10 - October 2020	Issue for FI Response	Arup for FI Response

Contract

This report describes work commissioned by Cork County Council, by a contract signed in December 2013 by Arup, with JBA Consulting operating as sub-contractors.

Matthew Hemsworth and Sebastian Bentley of JBA Consulting carried out this work.

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Purpose

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Executive Summary

The geomorphological audit has shown that the Glashaboy is presently not actively transporting much gravel sized material. The river in its upper reaches has good floodplain connectivity, but in its lower reaches, as the urban influences encroach into the channel and floodplain and confine the river corridor, instabilities in the channel occur and erosional processes increase.

Sediment deposition is generally at a low level. The main supply of sediment into the system is from bank erosion, steep tributaries and glacial sediment re-working (in the very upper reaches). Run off from agricultural areas also inputs fine sediment in to the system with limited buffer strips due to a poor quality riparian zone in many locations. Where sediment accumulation issues exist within the system these tend to be as a result of modifications to the channel which has acted to disrupt the natural river system processes. This includes impoundment disrupting the downstream transport of sediment, over widening which reduces channels velocity (increasing sedimentation), channel narrowing increasing velocities (decreasing sedimentation and increasing bank erosion) and poor placement of in channel features and structures.

Opportunities are noted where it is possible to improve floodplain connectivity in several areas upstream of urban locations. This could help reduce flow energy causing erosion in key areas such as adjacent to the shopping centre. However, the opportunities available as a result of the proposed measures is limited and therefore channel erosion mitigation measures will be necessary at vulnerable areas. The steepness of the banks adjacent to the shopping centre though and the limited easement between the top of bank and buildings means careful consideration should be given to bank stability, as the current ad-hoc method of bank protection could lead to long term issues.

Addendums to this report are provided in Appendix A (Geomorphology Addendum 2016), which provides a geomorphic assessment of the outline design of the Glashaboy Flood Relief Scheme. Appendix B (Geomorphic Impact Assessment 2020) provides a geomorphic assessment of the detailed design in response to further detail requested in an RFI received by the Department of Public Expenditure and Reform. Appendix B provides the most detailed assessment of the proposed scheme measures and predicted impact on sediment transport and should be considered in response to the RFI.