ECOLOGICAL SURVEY OF THE ROYAL CANAL

FINAL REPORT 1990

farmhand limited
NAVAN ROAD, DUBLIN 15, IRELAND

Telephone: (01) 213455
Telex: 32523 (FARM EI)
Fax: (01) 213084

Ms. Brigid Johnston,
Office of Public Works,
Waterways Section,
51 St. Stephen's Green,
Dublin, 2.

July 29, 1991

Dear Ms. Johnston,

Further to your letter to Bomford & Evershed Ltd. on the 14th July and our telephone conversation today, I now enclose 3 leaflets on the Amazone Groundkeeper which I think will suit your purpose. We have sold a number of these machines throughout over the last 5 years in golf clubs, caravan parks, amenity areas etc. The Groundkeeper will cut (and collect) everything from light grass through medium to heavy scrub up to and including rubbish such as cans and disposable bottles. The Groundkeeper is used very extensively on the Continent for managing meadows where the grass is cut in early spring and again in mid autumn.

I would be delighted to give you any further information you require including a video showing the machine in action. Naturally we would be happy to demonstrate the machine in due course. I look forward to hearing from you, and am,

Yours sincerely,
Farmhand Ltd.

John Scrivener,
Managing Director.

ECOLOGICAL SURVEY
of the
ROYAL CANAL

Final Report 1990

Part 2 : Conservation Management Plan

UNIT III

Draper's Bridge - Richmond Harbour
Longford Branch

Prepared for:
The Wildlife Service and Waterways Section,
Office of Public Works. 1991

Edited by:
Marie Dromey
Brigid Johnston
Richard Nairn

Areas of Scientific Interest on the Royal Canal (after Wildlife Service 1989)

County (ASI no.)	Name Grid ref.	Km Sections	Area/ Length	Habitat	Rating
Dublin (20)	Royal Canal O0738 to O0732	D1-D13 1-5	16km	Canal	Regional
Kildare (11)	Royal Canal O000375	7-19	10km	Canal	Regional
Kildare (21)	Louisa Bridge N995368	7	3ha	Marsh	Local
Meath (24)	Ballynabarney Fen N687459	43-44	2ha	Fen	Local
Meath (32)	Lerick Bog N6747	45-46	60ha	Raised bog	Local
Meath (33)	Mount Hevey Bog N6348	49-51	190ha	Raised bog	Local
Westmeath (7)	Lough Owel N3957	-	950ha	Lake	National
Westmeath (25)	Royal Canal Mullingar to Ballynacarrigy N3653	74-92	17km	Canal	Local
Longford (6)	Cloondara Bog N0874	132	250ha	Raised bog	Regional
Longford (19)	Royal Canal N234598, N123637, N168585	96-102 105-111 116-122	15km	Canal	Local

Native Trees and shrubs suitable for planting

	Acid	Neutral	Alkaline
<5m metres in height			
Alder		*	*
Birch	*		*
Blackthorn		*	*
Crab apple		*	*
Spindle		*	*
Guelder rose		*	*
Hawthorn	*	*	*
Hazel		*	*
Holly	*	*	*
Rowan	*	*	
>5 metres			
Ash		*	*
Oak	*	*	*
Willows	*	*	*

Native Trees and Shrubs suitable for planting (cont.)

Species to be avoided -

Sycamore - seeds prolifically when mature and can invade areas with dense stands of saplings.

Poplar - species tend to produce suckers which can cause problems for access.

Suitable species

Alder - a small tree capable of growing in wet or waterlogged conditions. It has a dense fibrous root system that binds soil well.

Ash - a tall, light demanding tree with an open canopy, often found on river banks.

Birch - both downy and silver birch can be planted and will form slender graceful trees which are aesthetically pleasing. Downy birch is tolerant of damp sites. Both are light-demanding and should not form part of a mixture of trees for this reason.

Blackthorn - a low dense shrub that is valuable as cover for birds and useful for hedging and faggots.

Spindle - an attractive open shrub with very striking scarlet and orange fruits.

Guelder rose - an attractive open shrub with striking white, many-flowered heads and good autumn colour.

Hawthorn - a dense medium sized tree or hedgerow shrub useful for faggots. It establishes easily from whips and gives a good stock proof barrier. The white bunches of flowers provide a rich nectar source for insects. Birds benefit from the cover for roosting and nesting whilst the fruit is a valuable food in autumn.

Hazel - a medium to low open shrub that gives an early pollen source and edible nuts in the autumn. It coppices well and the coppice stakes and whips can be used in hedging or sold for pea sticks or for thatching spars.

Holly - this is an evergreen tree or shrub. Male and female flowers are normally on separate trees. The fruit is popular with birds. Its dense shade will kill vegetation beneath so it should not be used where this could be critical. Holly is an excellent hedging shrub and will also coppice well.

Oak - a large open-crowned tree, but slow growing. It is a valuable tree for insects.

Rowan - a medium to tall, open tree, light-demanding. The groups of white flowers provide a good nectar source and the fruit is taken by birds.

Willows - they are all fast-growing and tolerant of wet conditions. There are two native tree species and the remainder are shrubs or small trees. Many willow crosses occur and identification can be difficult. Tree species can be pollarded. All can be coppiced. Willow stakes and whips can be used to protect banks from erosion and stabilise embankments. Willows are the foodplant of many moth caterpillars.

Tree species - white willow, crack willow.

Shrubs and small trees - osier, goat willow, common sallow, purple willow.

(after: Newbold et al, 1989)

CONTENTS

CHAPTER 1. MANAGEMENT OBJECTIVES

- To give nature conservation equal priority with other values.
- To maximise diversity by varying management practices over space and time.
- To allow flexibility in management to take into account the variablity of nature.

CHAPTER 2. GENERAL GUIDELINES FOR CONSERVATION MANAGEMENT

2.1 RESTORATION

2.1.1 General

- Because of the conservation value of the western section of the canal a full-time ecologist should be employed to monitor the remaining restoration work.

2.1.2 Dredging

General

- The channel should only be dredged in short sections (of not more than 5km) to allow recolonisation from adjacent lengths.

- Hydraulic machinery should be used where possible as it is more selective and flexible than the present system.

- Dredging should be minimised during the months March to July to avoid the main growing season and to reduce disturbance to nesting birds.

- Natural revegetation of dredging spoil should be monitored annually to decide the best form of management.

Protection of reed fringe

- Dredging should be carried out from one bank only leaving a wide band of marginal vegetation on the offside.

- In sections where the only surviving reedbeds are on the towpath side of the canal the floating dredger should be used to avoid damaging the marginal vegetation.

Channel design

- This refers specifically to the restoration of unwatered sections of the canal.

- A deep central channel should be created to prevent the growth of rooted plants which obstruct navigation and to obviate the need for herbicide spraying.

- Where feasible submerged berms should be created in the channel bank to facilitate the growth of shallow water marginal vegetation outside the navigation area.

- Silt traps should be restored and maintained at intervals in the channel so that the resulting accumulations of silt may be selectively dredged.

- Create artificial islands in a number of the canal harbours as nest sites for mute swans and other breeding waterfowl. (The island in Maynooth Harbour provides a successful model.)

Spoil deposition

- Spoil should not be dumped on wetlands such as fens and raised bogs or on unimproved grasslands along the canal bank as these are the richest sites botanically.

- Spoil may be dumped in a trench dug between the towpath and the boundary. This should then be recovered with topsoil and allowed to revegetate naturally.

- Alternatively spoil may be dumped between the towpath and the boundary and topsoil spread thinly over this.

- If there are no other suitable places close to the canal bank spoil could be spread thinly in scrub.

Control of plant growth on spoil heaps

- Early colonising plants should be mowed at least twice in the first year and the cuttings removed. In subsequent years a single late summer mowing should be sufficient.

2.1.3 Repair work

Bank protection

- Natural materials or vegetation should be used in bank protection wherever possible instead of sheet piling.

Changing water levels

- Drastic changes of water level should be avoided in the months of March to July to minimise disturbance to nesting water birds.

- Coffer dams may be needed to reduce the length of dewatered sections and hence the impact on marginal plants and animals.

2.1.4 Towpath revegetation

- Towpaths should not be reseeded after clearance and should be allowed to revegetate naturally.

2.2 MAINTENANCE

2.2.1 Bankside trees

Trimming

- Tree-cutting should be avoided during the months of March to July to reduce disturbance to nesting birds and damage to plants during the main growing season.

- Removal of overhanging branches should be confined to those which overhang the canal and catch floating debris or obstruct navigation.

- Pollarding is a suitable management method for willows. Young growth is trimmed off each year at a height of 2m from the ground producing a solid stem and a crown of young growth.

- Coppicing is suitable for management of shrubs or young hazel willow or alder trees where access for machinery is necessary. Trunks are cut close to the ground using a slanting cut which sheds rainwater. Branches regenerate from the base or stool.

Selective removal of trees

- Removal of trees should be confined to the winter months to minimise disruption of plant communities and disturbance to nesting birds.

- Priority should be given to removal of exotic or introduced species such as conifers or sycamore. Native species such as alder, willow, ash etc should be retained where possible.

2.2.2 Scrub

- Clearance of scrub should be avoided during the months of March to July to reduce disturbance to nesting birds.

2.2.3 Hedgerows

Management methods

- Hedgerows should be trimmed on short lengths on a two to three year rotation.

- Trimming should be carried out in the months October to February to avoid damage to growing shrubs and disturbance of nesting birds.

- Hedgerow trees should be protected from damage during trimming and young saplings should be allowed to grow to maturity.

Replanting

- Preference should be given in replanting programmes to the use of native tree and shrub species such as those which grow naturally in the surrounding countryside.

- Planting of shrub and tree species should be done in autumn or spring but not during severe frosts.

2.2.4 Grassland

Grazing

- Grazing of individual sites either by sheep or cattle should be consistent from year to year to vary the height of the resulting sward.

- Boundary fencing should be repaired where necessary to control stock.

- Stocking rates should be lower than the average on agricultural land to avoid damage to canal banks and poaching of towpath soils.

- Fencing should be erected along the water's edge where banks are gently sloping to prevent poaching of bank structure.

- In general stock should be removed from the land not later than 30 October in any year to avoid overgrazing during the non-growing season.

Mowing

- Where grazing cannot be continued, mowing should be introduced to prevent invasion of grassland by woody species. Species-rich grasslands should be mown once per year after mid-August when the main flowering season is over.

- All hay or other cut vegetation should be removed from the towpath to maintain the low nutrient status of the grassland.

- Plant species colonising bare ground after disturbance of the towpath may need to be controlled by more frequent mowing during the first 2 to 3 years.

- In general, herbicides should not be used as these may damage non-target grassland species. Spot treatment of woody plants may be used as necessary.

2.2.5 Wetlands

- Wetland areas such as fens which occur on or close to the canal should be fenced to give control over grazing.

- Grazing in such areas should be limited to light stocking in late summer and autumn only to allow full flowering of the wetland species and to avoid poaching.

Sensitive habitats

- Sensitive small habitats such as fens and woodland should be left intact (see Part I, Chapter 2)

2.2.6 Aquatic vegetation

Environmental control

- Water depth should be managed to limit the growth of aquatic vegetation in the navigation channel (see Section 2.1.2).

- Boat traffic should be encouraged during the summer months as a means of keeping the navigation channel clear of plant growth.

Mechanical cutting

- Cutting should be carried out twice per year (once in early summer and once in late summer) using a boat-mounted cutter.

- Cutting should be limited to the central navigation channel leaving marginal vegetation fringes as intact as possible.

- Cuttings should be disposed of away from the canal or should be composted and used elsewhere.

Herbicides

- Herbicides should only be used where all the above methods of controlling plant growth have been tried and have failed. Before being widely used on the Royal Canal, the environmental impact of any herbicides should be carefully assessed.

Biological control

- The introduction of herbivorous fish such as grass carp (*Ctenopharyngodon idella*) should not be considered because of potential impacts on other parts of the aquatic ecosystem.

2.2.7 Masonry

- Use only mechanical methods to clean and maintain stonework. Herbicides should not be used as these may enter the water and have damaging effects on aquatic plants.

2.2.8 Water quality

- All direct discharges other than feeder streams could be eliminated and the water quality of the streams themselves should be monitored to ensure early detection of pollution sources.

2.3 RECREATIONAL MANAGEMENT

2.3.1 Boat traffic

- Speed limitations should be placed on all boat traffic to prevent damage to canal banks from wash.

- Disposal of effluent from boats into the canal should be prohibited to ensure continued high water quality.

2.3.2 Angling

- Re-stocking should be limited to the species of fish already found in the canal to avoid any imbalance in the predator prey relationships as they affect invertebrate populations.

- Areas of the canal known to be important for breeding and overwintering wildfowl (especially swans) should not be developed for course angling due to the risk of contamination with discarded lead weights.

- Herbicide spraying as a fisheries management method should be discontinued (see Section 2.2.6).

- Limits should be placed on the interference with bank vegetation to facilitate anglers.

- Angling may need to be restricted in certain ecologically sensitive areas or at certain times of year to avoid disturbance to birds.

UNIT III

DRAPERS BRIDGE - RICHMOND HARBOUR (Kilometre Sections 102-133)

LONGFORD BRANCH (Kilometre Sections L1 - L8)

3.1
METHODS AND DEFINITIONS

The canal was surveyed in 1 km stretches according to the method devised by the BWB (Tandy, 1989) based on techniques developed by the Nature Conservancy Council (NCC, 1985). 1:2500 base maps were used, and expanded laterally to allow the canal corridor to be mapped in greater detail. The definition and symbols used in the maps are given below.

Canal Corridor	The zones within the boundary structures. i.e. channel verges towpath cuttings embankments boundaries

(The term 'canal corridor' is used in BWB literature to mean the canal property plus a zone 50 metres wide on either side of it. Although the adjacent land-use was noted it was not possible, given the limitations of the survey, to do a detailed study of the corridor as defined by the BWB and the more restricted definition was used).

Bank verge (bkv)	The strip of land between the tow-path and the channel.
Boundary verge (bdv)	The strip of land between the tow-path and the boundary. Although the symbol bdv does appear on the following maps the boundary verge was not included as a separate zone when preparing species lists. Instead all the plants between the towpath and the boundary were counted as being in zone 1 (boundary zone).
Nearside (ns)	The bank of the canal which carries the tow-path,
Offside (ofs)	The bank opposite the towpath side.
Boundary (bd)	Hedgerow (hg) Fence (fc) Wall Ditch Stream/drain

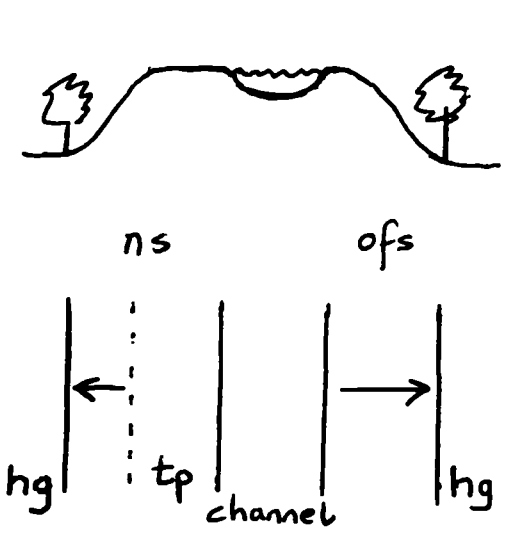
SLOPE

The direction of a slope is indicated by an open-headed arrow

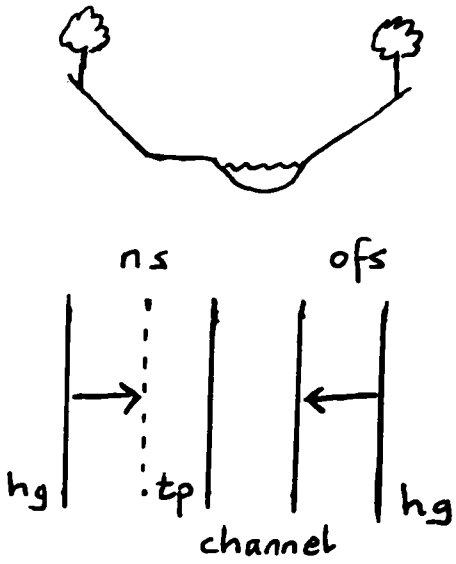
bottom of slope

top of slope

Embankment:



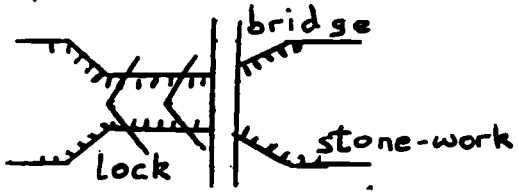
Cutting:



CHANNEL FEATURES

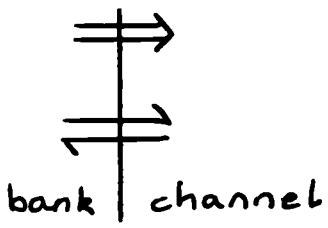
Bridge: Road, accommodation or foot-bridge

Locks:



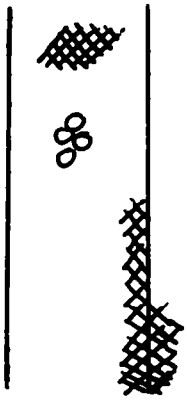
Inflow:

Poaching/
Trampled margins:



VEGETATION

Channel Vegetation



Emergents in channel

Floating-leaved vegetation

Emergent marginal fringe

Fringe transitional between channel and bank

	Glyceria maxima	Gly
	Phalaris arundinacea	Phal
	Phragmites australis	Phrag
	Carex rostrata	C. ros
	Scirpus lacustris	Sc
	Typha latifolia	Ty
	Sparganium erectum	Sp. er
	Alisma plantago-aquatica	Alisma
	Ranunculus lingua	lingua
	Nasturtium officinale	nast
	Menyanthes trifoliata	meny
	Nuphar lutea	N
	Potomageton natans	P. nat
	Polygonum amphibium	Poly
	Sparganium emersum	Sp. em
Submerged:	Myriophyllum spp.	Myr
	Hippuris vulgaris	Hip

Terrestrial Vegetation:

Dense open cover
Flora dominated by herbs and grasses

Sparse open cover
25% of the area is unvegetated - usually indicates recent levelling or dredging.

Dense scrub

Sparse scrub - offers little resistance to penetration, or small patches of dense scrub.

Reeds, sedges

Woodland

Trees and Shrubs:

tr	tree	< 5m tall
TR	tree	> 5m tall
(TR)	tree with well-developed canopy	

al/AL	Alder
as/AS	Ash
be/BE	Beech
bi/BI	Birch
br	Bramble
el/EL	Elder
hw/HW	Hawthorn
hz/HZ	Hazel
hc/HC	Horse Chestnut
ok/OK	Oak
pn/PN	Pine
po/PO	Poplar
ro/RO	Rowan
sy/SY	Sycamore
wl/WL	Willow

Shading:

Heavy shade

Light shade

(Length of arrow indicates area influenced by shading)

RIPARIAN BREEDING BIRD TERRITORIES

Symbol located approximately in centre of territory

● MA	MALLARD
● MS	MUTE SWAN
● MH	MOORHEN
● GL	GREY WAGTAIL

3.2

UNIT III

GENERAL PRINCIPLES FOR RESTORATION AND RECONSTRUCTION.

For most of Unit III the canal will need to be reconstructed rather than just restored, and this will have a major impact on the existing wildlife habitats. There must be consultation between the engineers and the Wildlife Service prior to starting work on this phase of the restoration, when more is known about the type of machinery that will be used and the scope of the work - e.g. whether restoration will involve disturbing both banks.

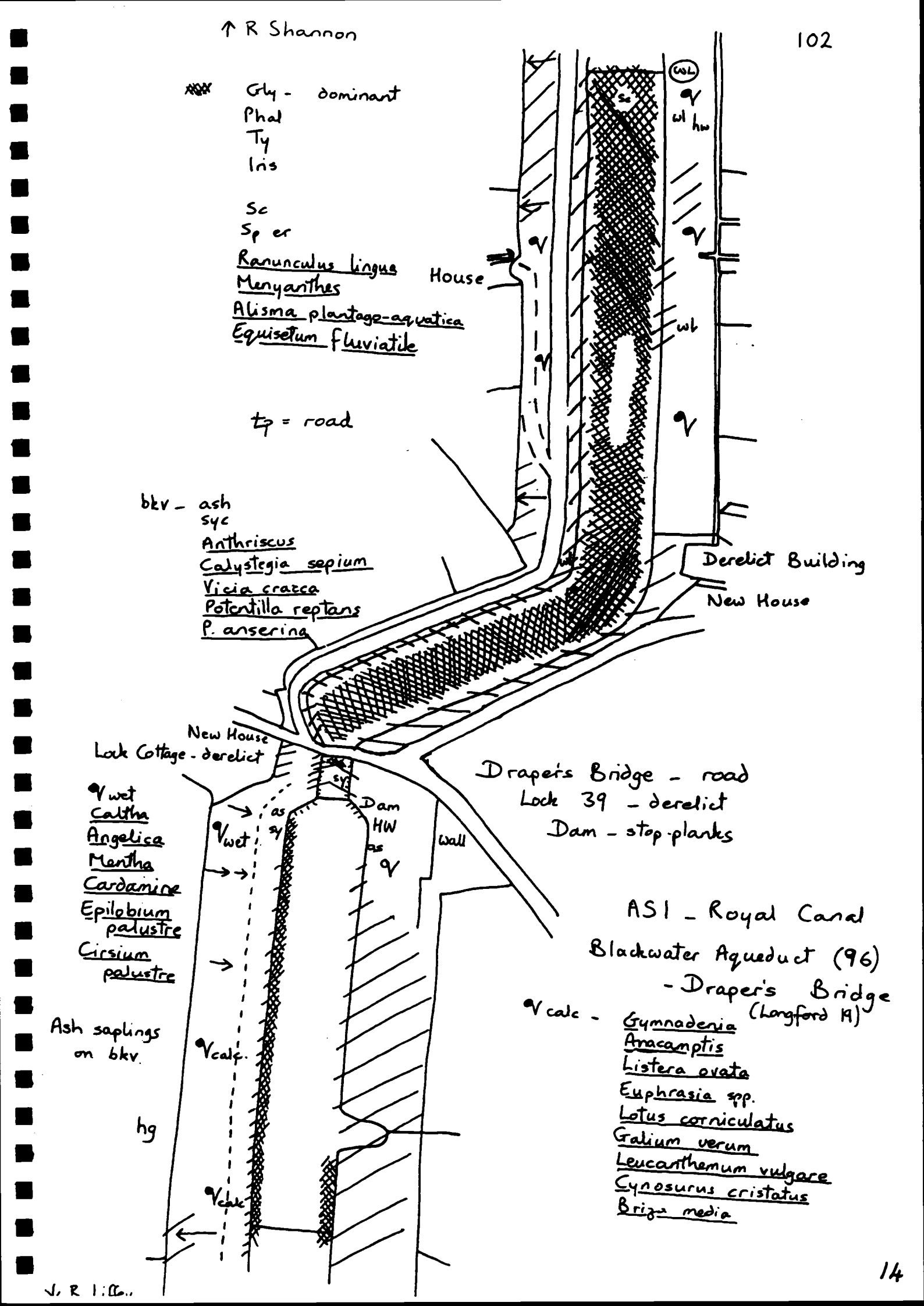
. A deep central channel with shallow, gently sloping margins should be created to restrict the growth of emergent plants and prevent them from obstructing the navigational channel. This design will reduce the requirement for management of the aquatic vegetation, and will help in the development of a herbicide-free system.
. Where space is available a wide berm (water depth = 0m) should be created on the offside to encourage the growth of the marsh species that currently dominate the channel, which will be lost upon restoration unless provision is made for them.
. The revegetation of the aquatic and terrestrial habitats should be allowed to proceed naturally. Manipulation of the cutting regime can be used to direct and control the revegetation processes.
. Certain sites or habitats in Unit III will need special treatment or protection during restoration, due to their sensitivity to disturbance and/or the very slow rate at which they recover.

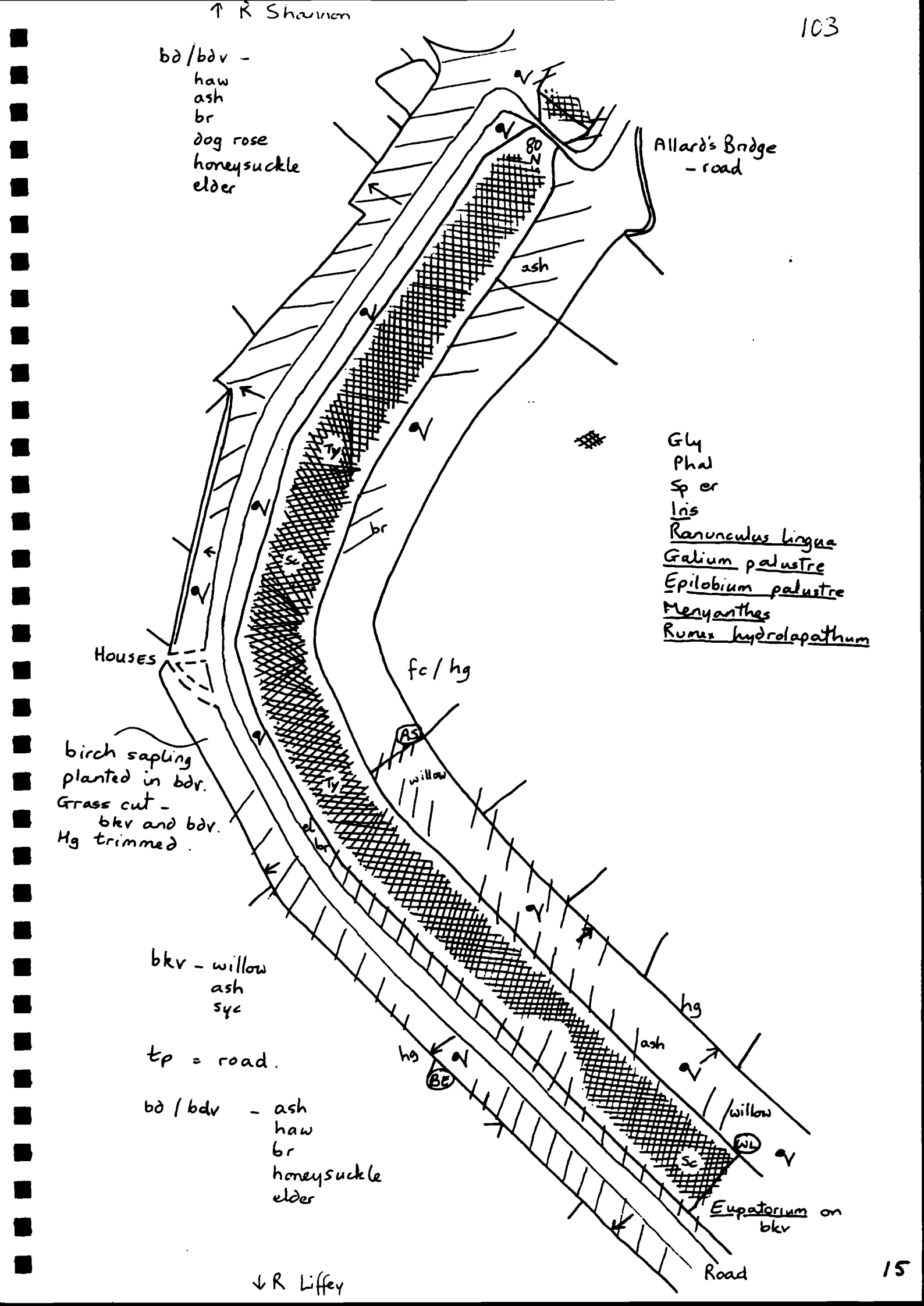
ASI's on the Royal Canal at	
N 123637	105-111
N 168585	116-122
ASI on Cloondara Bog	131/132
Raised Bog - Cloonbreany	118
Cloondara (ASI)	131/132
Fens -	109
Stream -	120
Calcareous grassland -	106/107
	109
	110
	113
Meadow grassland -	107
	116
Hazel woodland -	117
	L2
Mixed woodland with Spindle/	
Guelder Rose -	119/120
Mullawornia Rock -	113

Three stretches of the Royal Canal in Co. Longford are designated as ASI sites (Part 1, Table 1.3). The Wildlife Service should be consulted before starting work in these areas - 96-102, 105-111 and 116-122.

. Spoil should be dumped in a ditch at the boundary of the canal corridor, and covered with topsoil from the same area.

3.3 MANAGEMENT GUIDELINES FOR SPECIFIC SECTIONS


↑ R Shannon
Gly - dominant
Phal
Ty
Iris
Sc
Sp er
Ranunculus lingua
Menyanthes
Alisma plantago-aquatica
Equisetum fluviatile
House
tp = road
bkv - ash
syc
Anthriscus
Calystegia sepium
Vicia cracca
Potentilla reptans
P. anserina
WL
wl hw
wl
Derelict Building
New House
New House
Lock Cottage - derelict
Draper's Bridge - road
Lock 39 - derelict
Dam - stop planks
wet
Caltha
Angelica
Mentha
Cardamine
Epilobium palustre
Cirsium palustre
Dam
HW
wall
Ash saplings on bkv.
hg
ASI - Royal Canal
Blackwater Aqueduct (96)
- Draper's Bridge
(Longford 19)
calc -
Gymnadenia
Anacamptis
Listera ovata
Euphrasia spp.
Lotus corniculatus
Galium verum
Leucanthemum vulgare
Cynosurus cristatus
Briza media


↑ R Shannon
bd/bdv -
haw
ash
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dog rose
honeysuckle
elder
Allard's Bridge
- road
80 N
ash
Houses
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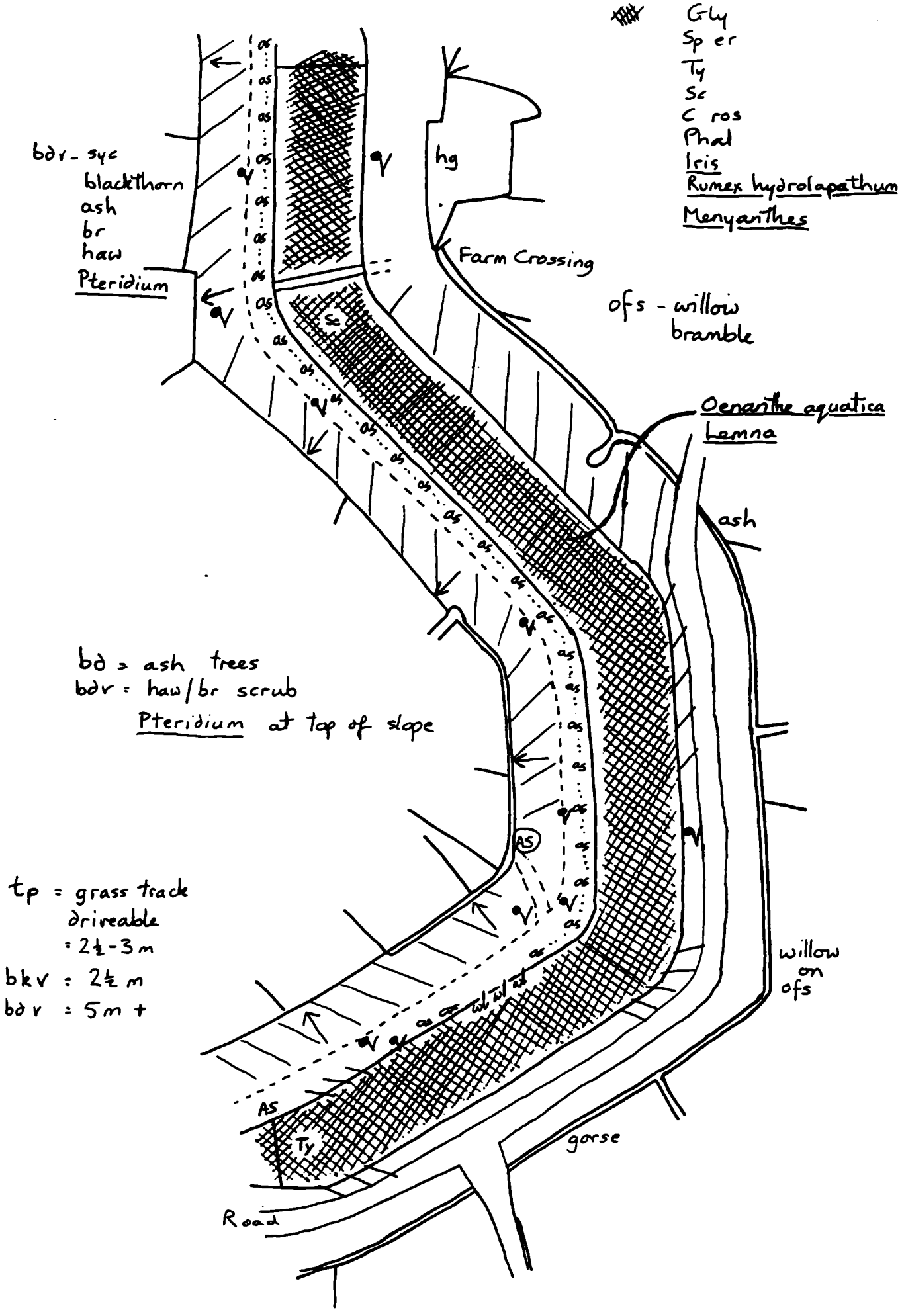
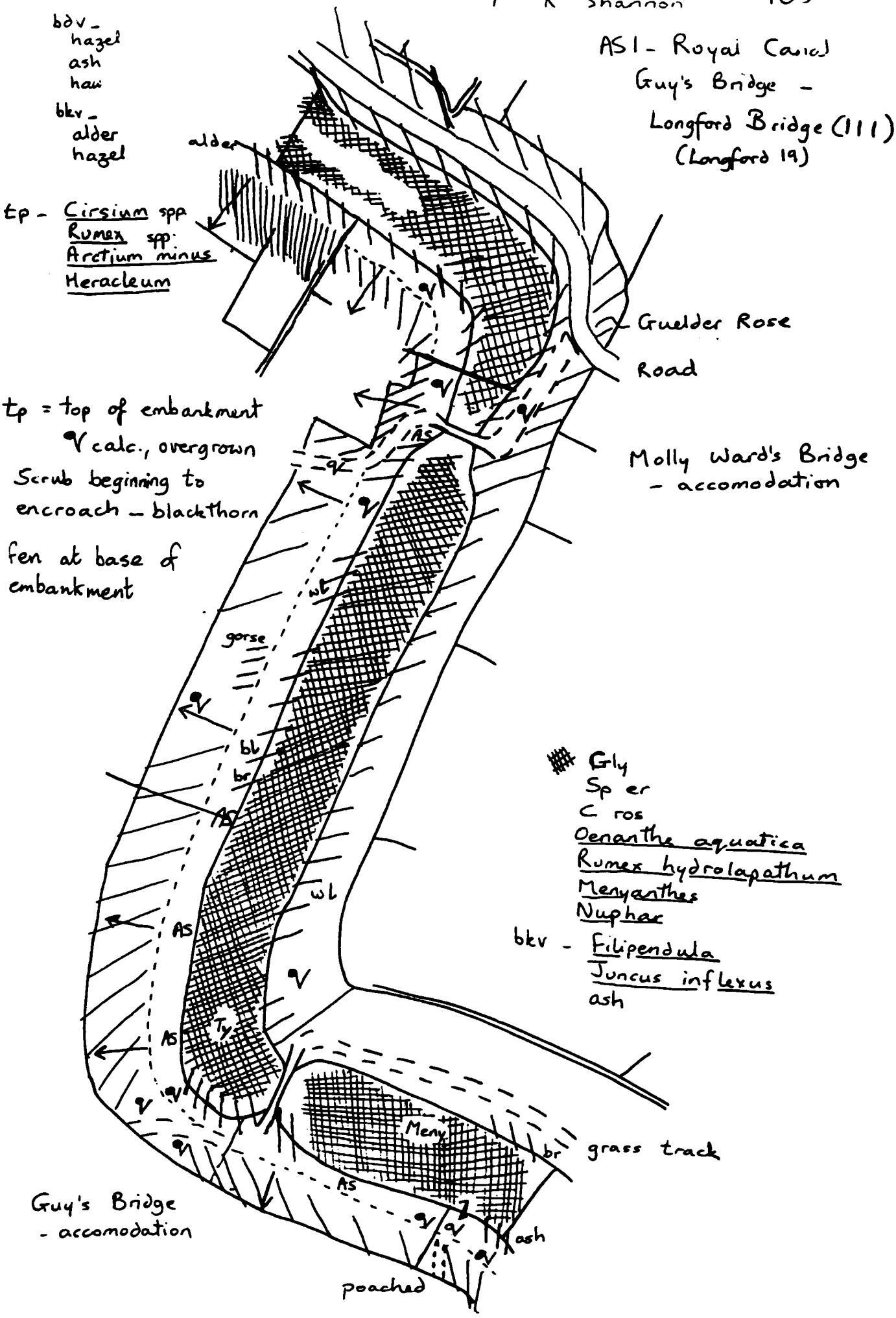
Sc
br
Gly
Phal
Sp er
Iris
Ranunculus lingua
Galium palustre
Epilobium palustre
Menyanthes
Rumex hydrolapathum
fc/hg
AS
willow
birch sapling
planted in bdv.
Grass cut -
bkv and bdv.
Hg trimmed.
el
bkv - willow
ash
syc
tp = road.
bd/bdv - ash
haw
br
honeysuckle
elder
hg
BE
ash
willow
WL
Sc
Eupatorium on
bkv
Road
↓ R Liffey


Gly
Sp er
Ty
Sc
C ros
Phal
Iris
Rumex hydrolapathum
Menyanthes
bdr - syc
blackthorn
ash
br
haw
Pteridium
hg
Farm Crossing
ofs - willow
bramble
Oenanthe aquatica
Lemna
ash
bd = ash trees
bdr = haw/br scrub
Pteridium at top of slope
tp = grass track
driveable
= 2½-3m
bkv = 2½ m
bdr = 5m +
willow
on
ofs
gorse
Road
Ty
AS
Sc

↓ R Liffey

↑ R Shannon 105

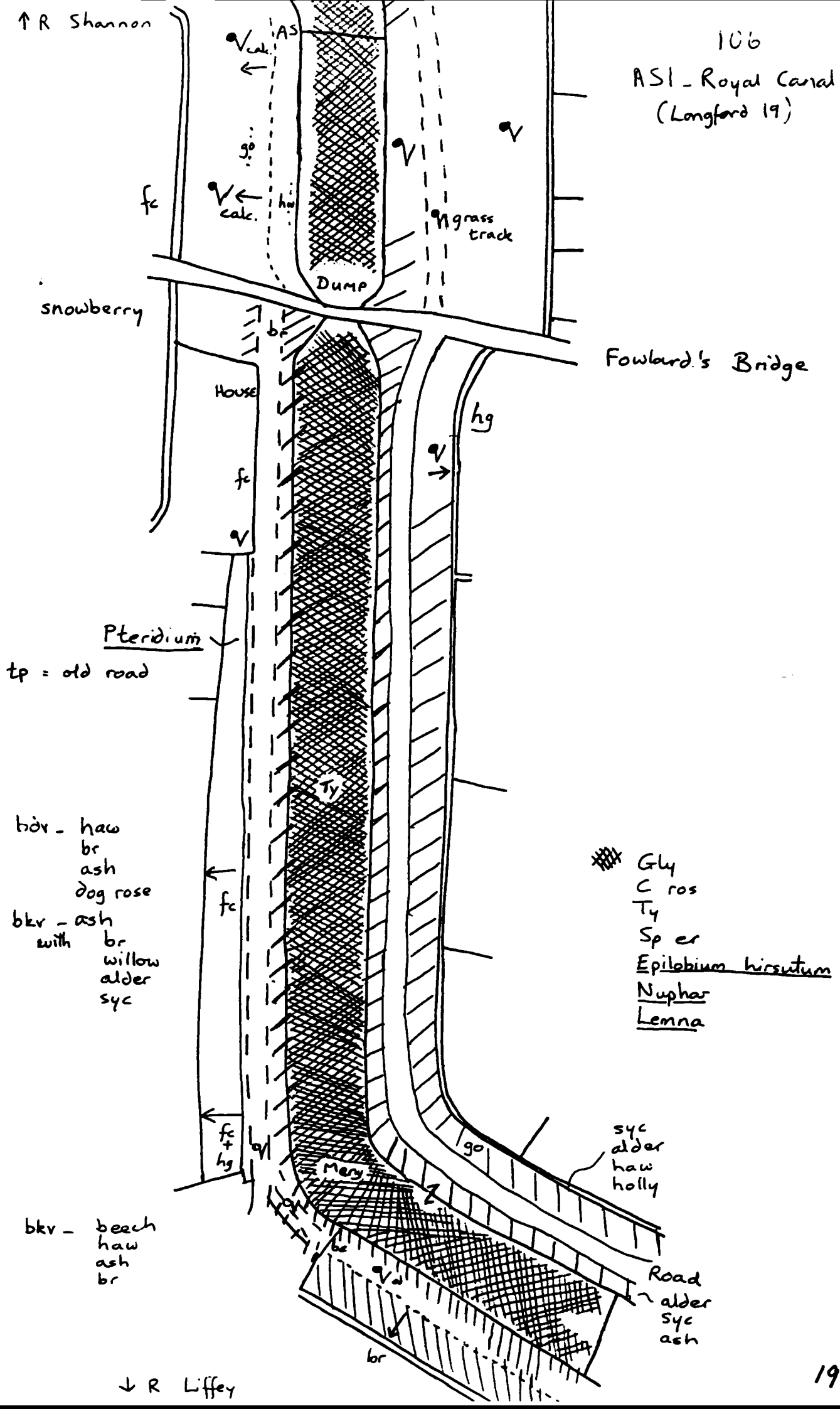


↓ R Liffey

KM SECTIONS 106-107 FOWLARD'S BRIDGE → WEST

GOOD FEATURES
- ASI along the canal corridor including channel, bank and towpath (Km sections 105-111).
- calcareous grassland on the embankment (106, 107).
- wide strip of meadow grassland at base of embankment (107).

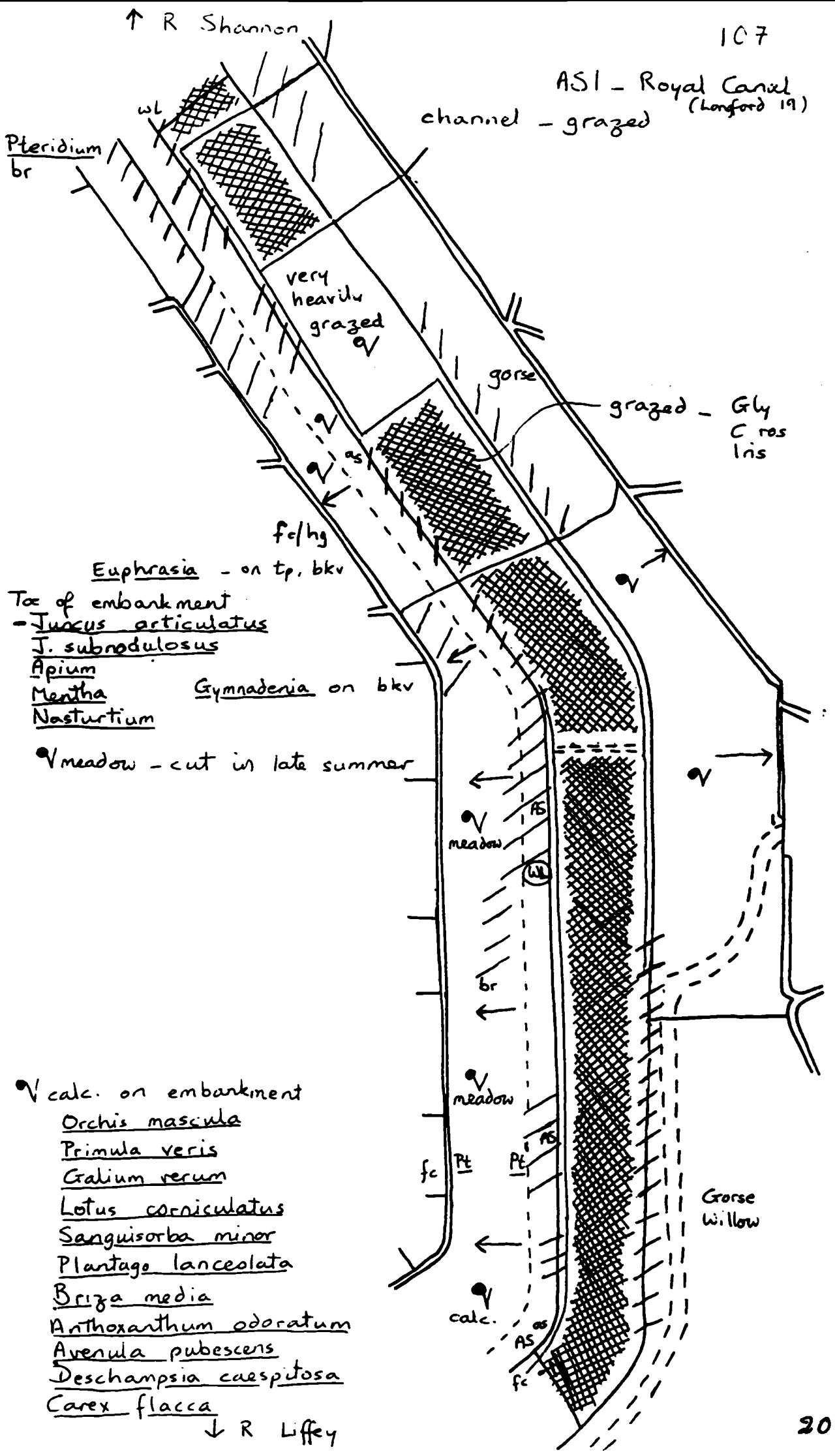
RECOMMENDATIONS-
- do not dump spoil on the grassland sites.
- continue cutting the meadow for hay in August.
- maintain calcareous grassland by light grazing. Clear scrub where it is encroaching onto grassland.



106

ASI - Royal Canal (Longford 19)

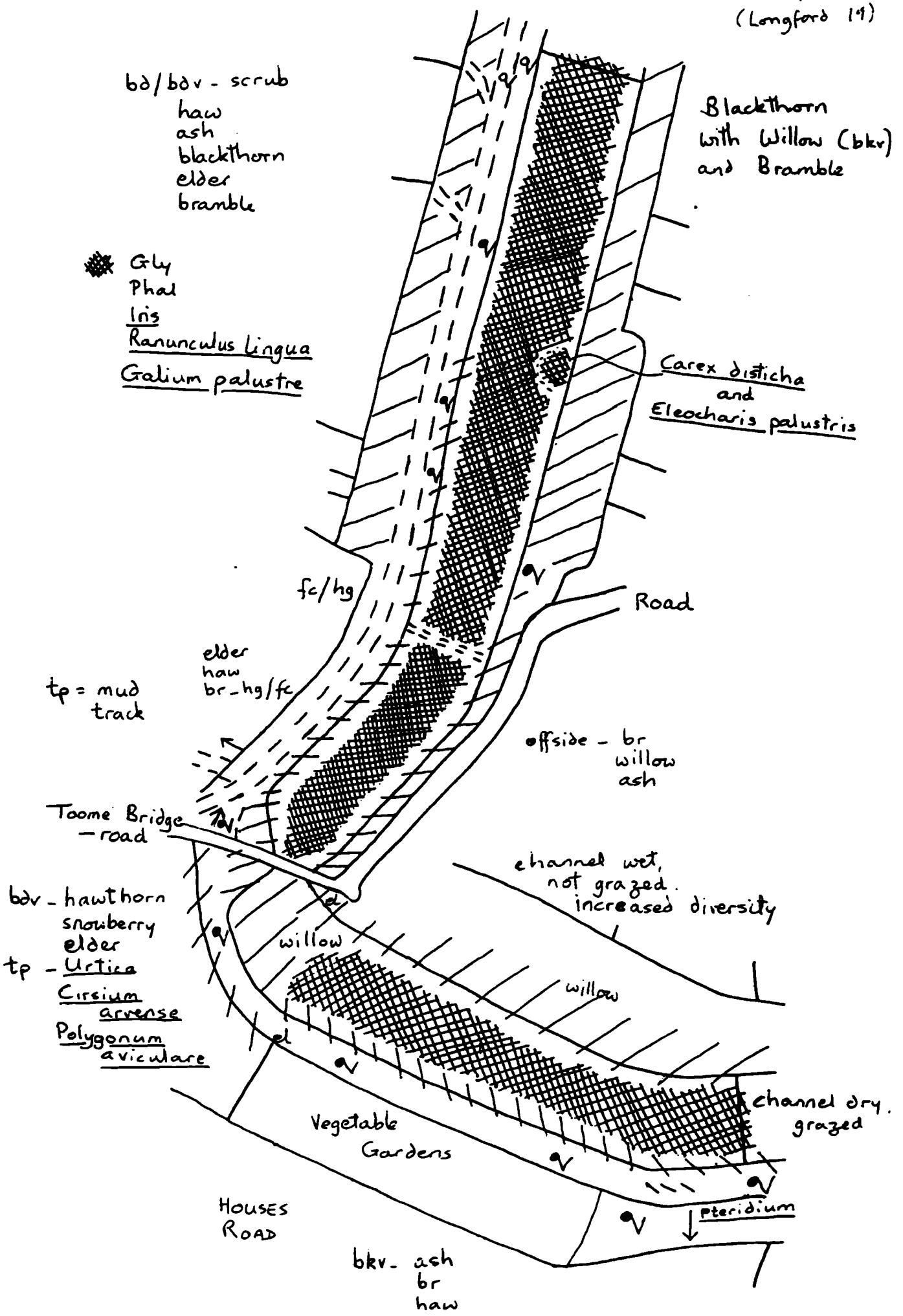
19


↑ R Shannon
AS1 - Royal Canal (Longford 19)
channel - grazed
wl
Pteridium
br
very heavily grazed
gorse
grazed - Gly
C ros
lis
as
fc/hg
Euphrasia - on tp, bkv
Toe of embankment
- Juncus articulatus
J. subnodulosus
Apium
Mentha
Nasturtium
Gymnadenia on bkv
meadow - cut in late summer
meadow
AS
wl
br
meadow
fc
Pt
Pt
AS
Gorse
Willow
calc.
AS
as
fc
calc. on embankment
Orchis mascula
Primula veris
Galium verum
Lotus corniculatus
Sanguisorba minor
Plantago lanceolata
Briza media
Anthoxanthum odoratum
Avenula pubescens
Deschampsia caespitosa
Carex flacca
↓ R Liffey

↑ R Shannon

IC8

ASI - Royal Canal
(Longford 19)



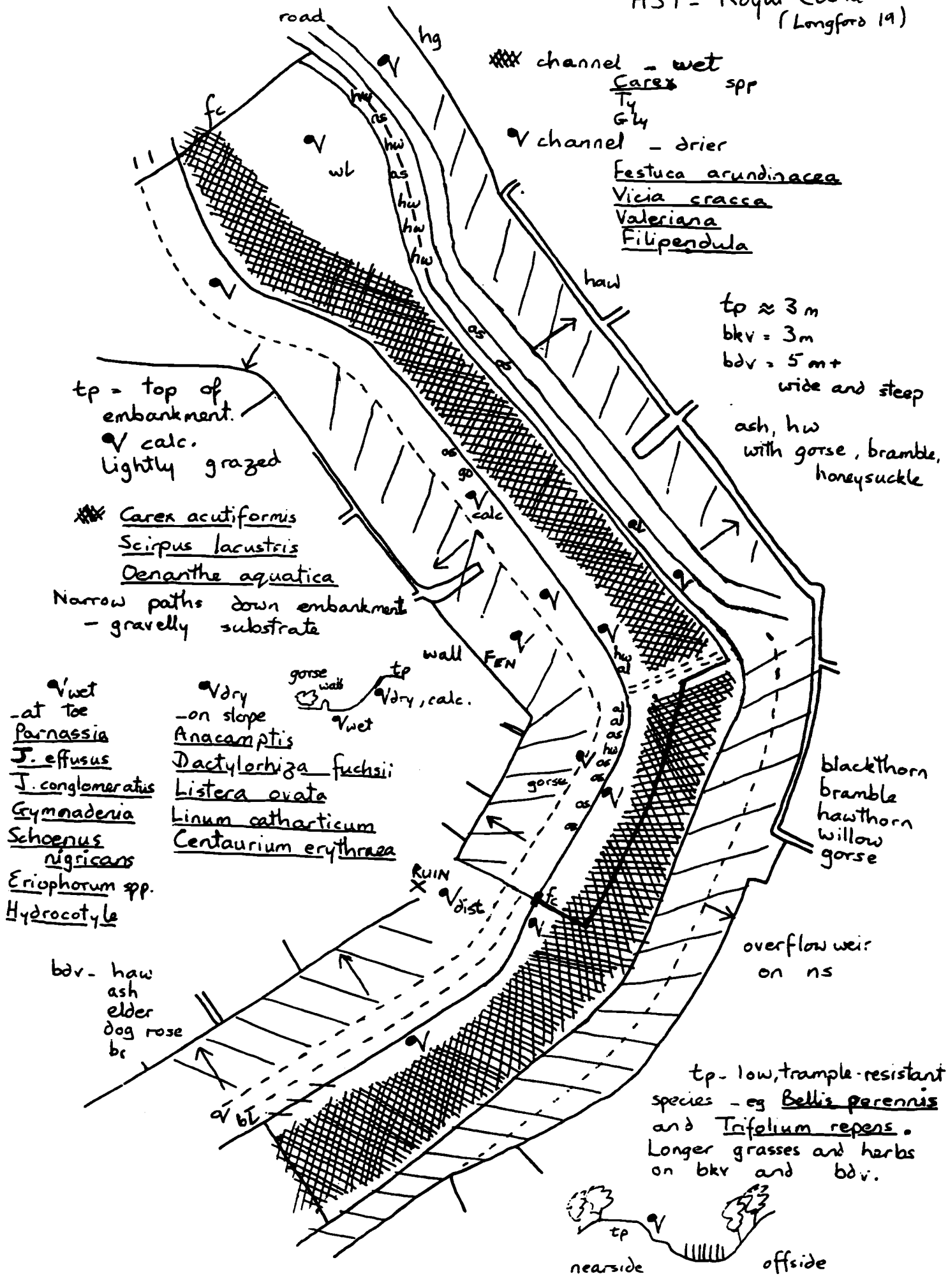
↓ R Liffey

21

KM SECTION 109

GOOD FEATURES	-	ASI of canal corridor including channel, bank and towpath (Km sections 105-111)
	-	calcareous embankment.
	-	wetland at the toe of the embankment.
	-	many rare species.
RECOMMENDATIONS	-	do not dump spoil on the embankment or the wetland site.
	-	maintain the calcareous grassland by light grazing.

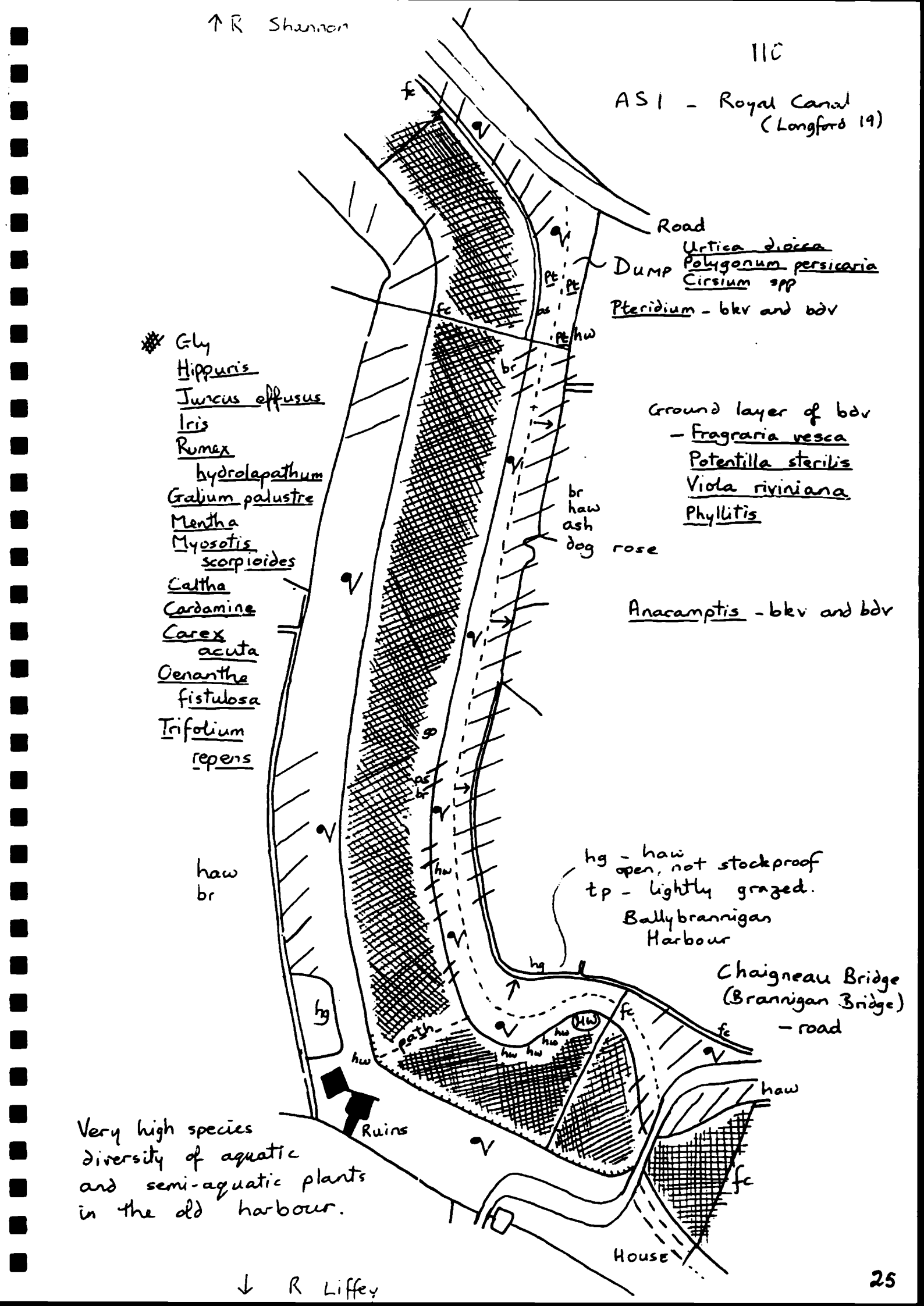
AS1 - Royal Canal (Longford 19)

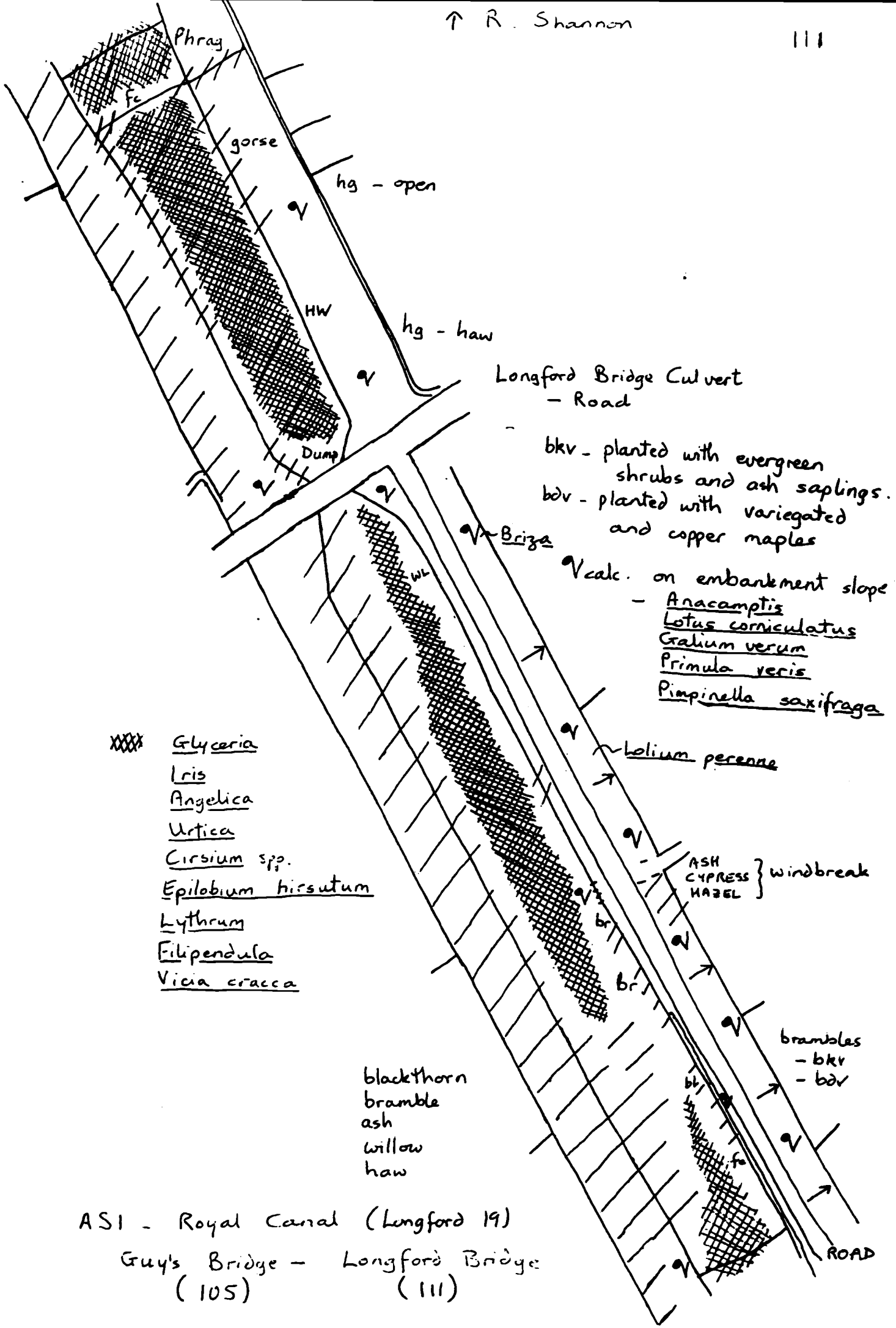


KM SECTION 110 BALLYBRANNIGAN HARBOUR (PLATE 25)

GOOD FEATURES
- ASI on the canal corridor including channel bank and towpath (Km sections 105-111).
- particularly high diversity of aquatic and semi-aquatic plants in the channel (Plate 25).
- rich species diversity on the calcareous bank and towpath.

RECOMMENDATIONS-
- use the dredging spoil to rebuild the banks and create berms, in order to preserve the rich seed bed.
- maintain the calcareous grassland by light grazing.
- do not dump spoil on calcareous grassland.


↑ R Shannon
IIC
ASI - Royal Canal (Longford 19)
Road
Urtica dioica
Polygonum persicaria
Cirsium spp
Dump
Pteridium - bkv and bdv
Gly
Hippuris
Juncus effusus
Iris
Rumex hydrolapathum
Galium palustre
Mentha
Myosotis scorpioides
Caltha
Cardamine
Carex acuta
Oenanthe fistulosa
Trifolium repens
Ground layer of bdv
- Fragraria vesca
Potentilla sterilis
Viola riviniana
Phyllitis
br
haw
ash
dog rose
Anacamptis - bkv and bdv
haw
br
hg - haw open, not stockproof
tp - lightly grazed.
Ballybrannigan Harbour
Chaigneau Bridge (Brannigan Bridge) - road
Ruins
House
Very high species diversity of aquatic and semi-aquatic plants in the old harbour.
↓ R Liffey
25

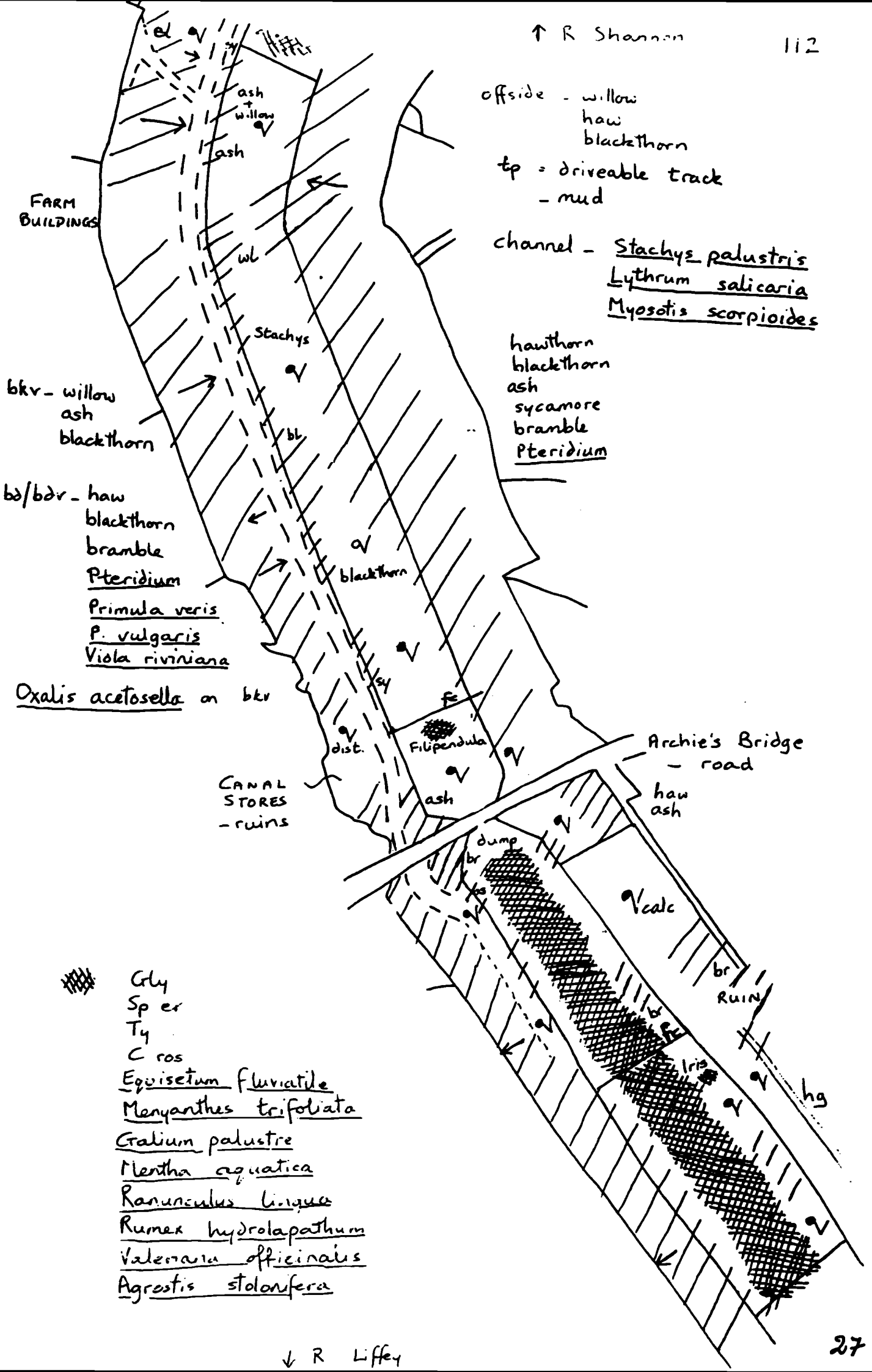


ASI - Royal Canal (Longford 19)

Guy's Bridge - Longford Bridge
(105) (111)

↓ R. Liffey

↑ R Shannon



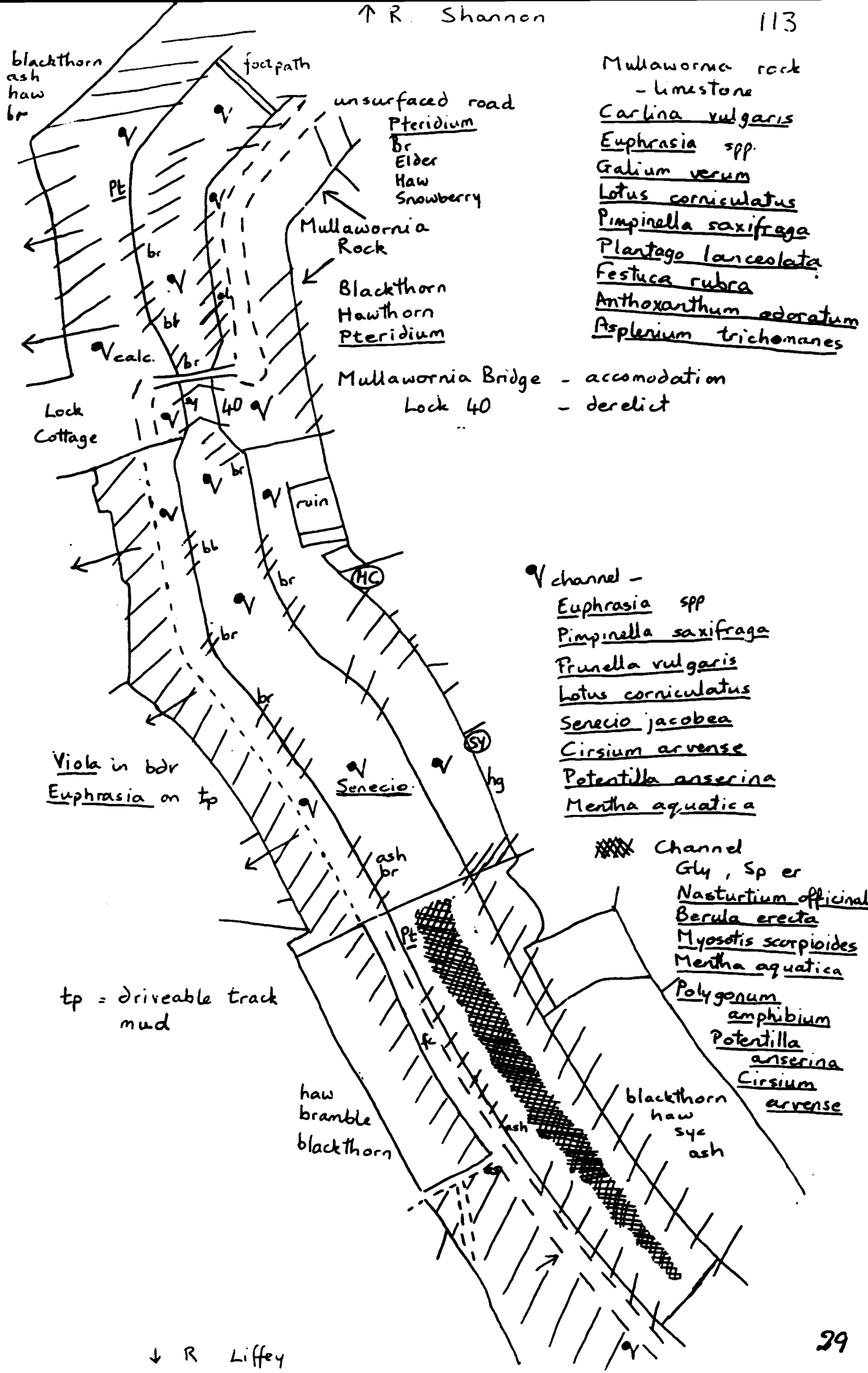
↓ R Liffey

KM SECTION 113 **MULLAWORNIA**

GOOD FEATURES - limestone rock and associated calcareous species.

RECOMMENDATIONS- deposit spoil in a trench on the south/west bank, and cover with top soil from the same site.

↑ R Shannon



Mullawornia rock - limestone

Carlina vulgaris
Euphrasia spp.
Galium verum
Lotus corniculatus
Pimpinella saxifraga
Plantago lanceolata
Festuca rubra
Anthoxanthum odoratum
Asplenium trichomanes

Mullawornia Bridge - accomodation
Lock 40 - derelict

channel -
Euphrasia spp
Pimpinella saxifraga
Prunella vulgaris
Lotus corniculatus
Senecio jacobea
Cirsium arvense
Potentilla anserina
Mentha aquatica

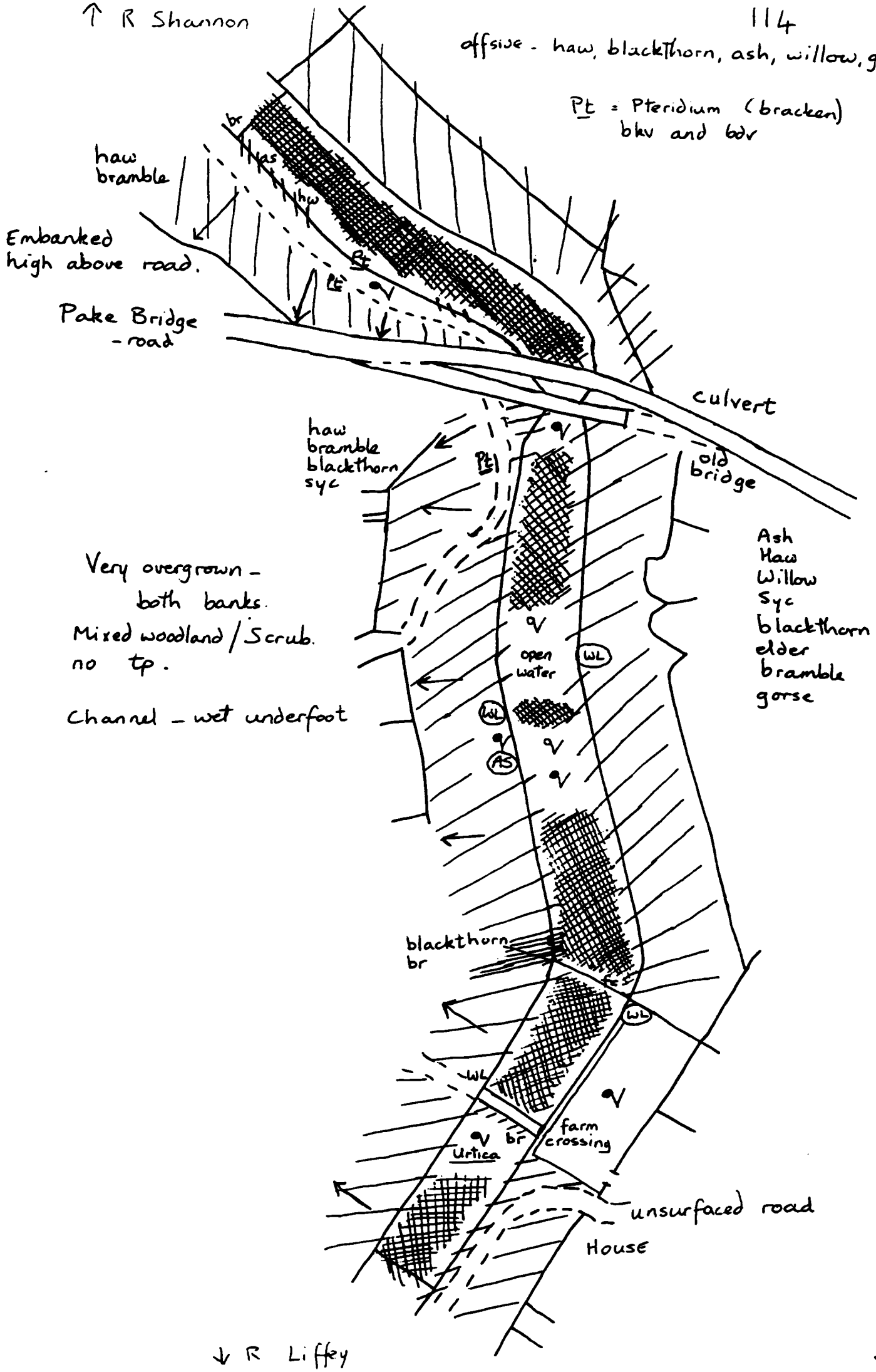
Channel
Gly, Sp er
Nasturtium officinale
Berula erecta
Myosotis scorpioides
Mentha aquatica
Polygonum amphibium
Potentilla anserina
Cirsium arvense

↓ R Liffey

↑ R Shannon

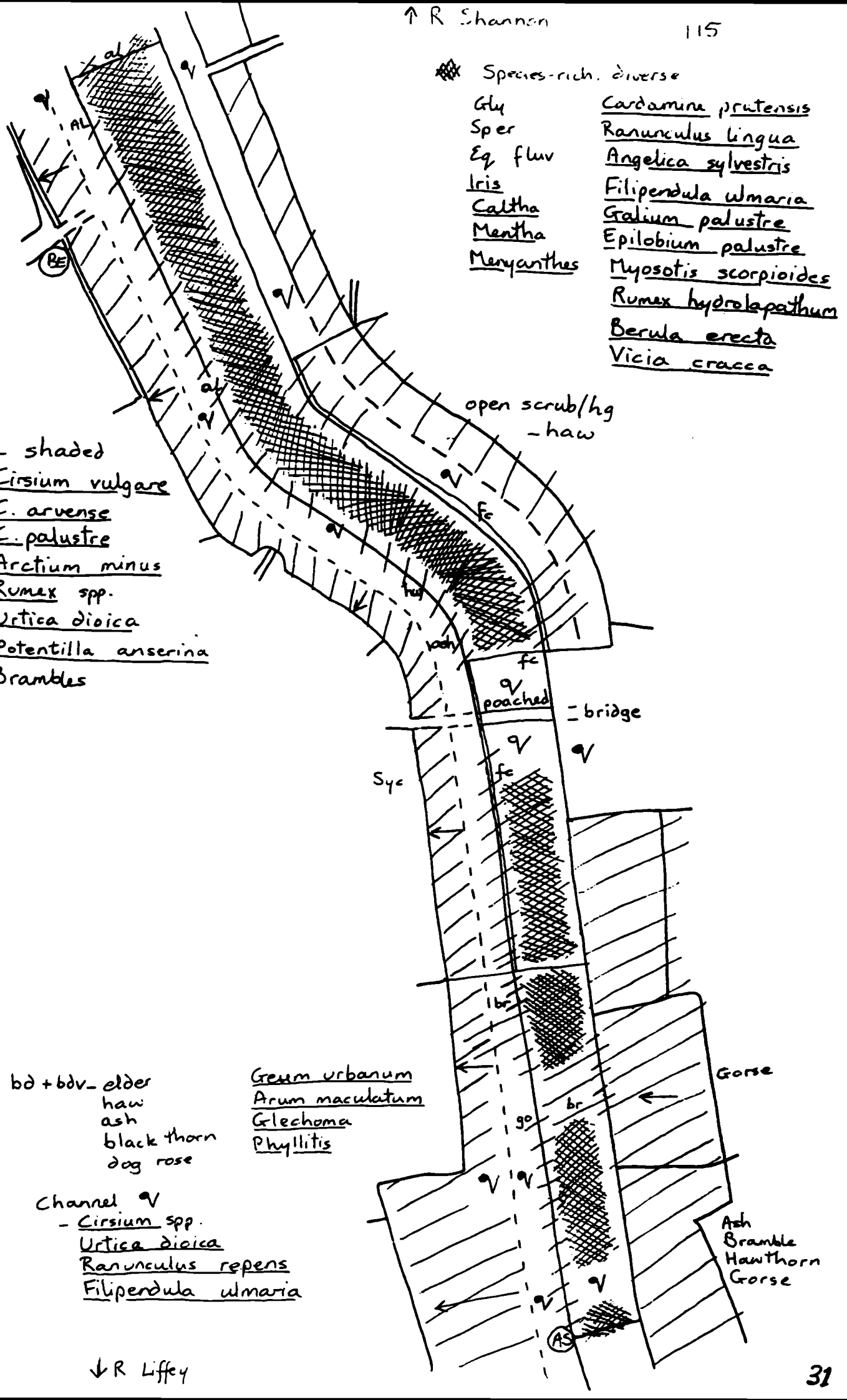
offside - haw, blackthorn, ash, willow, gorse

Pt = Pteridium (bracken)
bkv and bdv



↓ R Liffey

↑ R Shannon



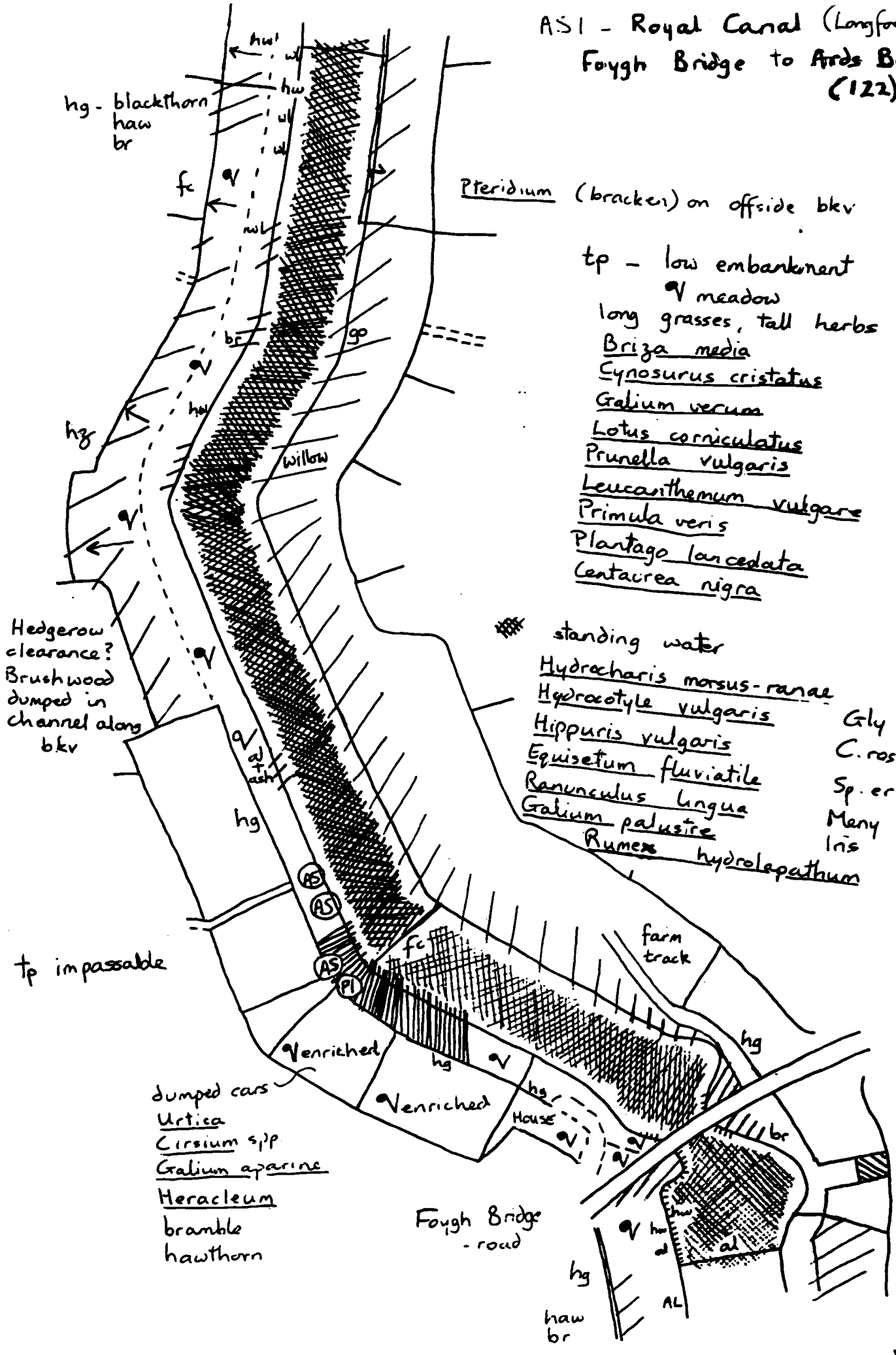
↓ R Liffey

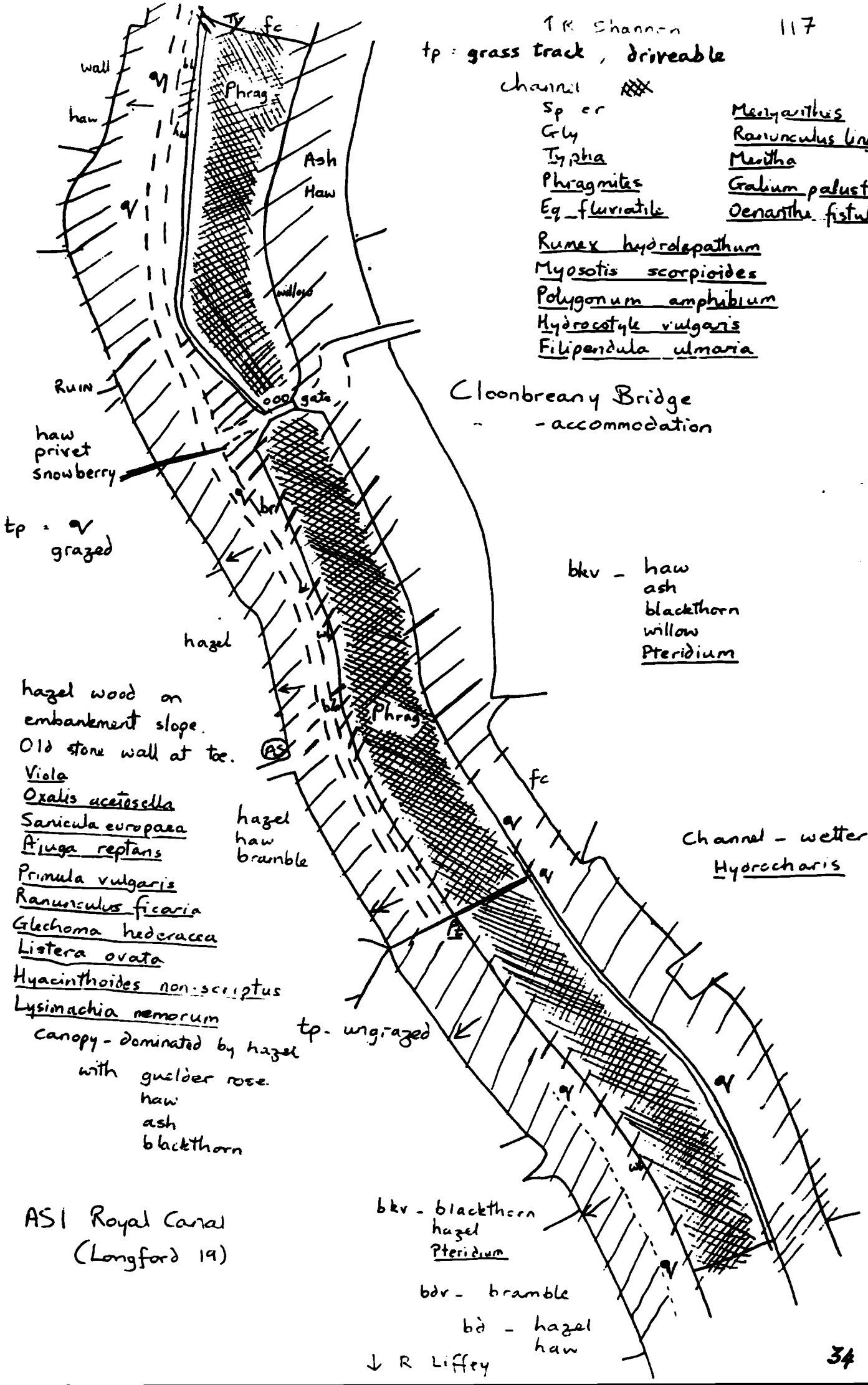
KM SECTIONS 116-117 (Plate 29) FOYCH BR. – CLOONBREANY BR.

GOOD FEATURES
- meadow grassland on the embankment (116).
- calcareous grassland on embankment (117) maintained by light grazing.
- hazel wood on embankment slope (117).
- Hydrocharis morsus-ranae in channel (116-124).

RECOMMENDATIONS
- dump spoil on the offside (east bank), in scrub or in a trench.
- cut meadow (116) once a year (August) and remove the cut material as hay.
- continue light grazing to maintain calcareous grassland (117).

AS1 - Royal Canal (Longford 19)
Foygh Bridge to Ards Bridge (122)




tp : grass track , driveable
channel
Sp er
Gly
Typha
Phragmites
Eq_fluviatile
Menyanthes
Ranunculus lingua
Mentha
Galium palustre
Oenanthe fistulosa
Rumex hydrolapathum
Myosotis scorpioides
Polygonum amphibium
Hydrocotyle vulgaris
Filipendula ulmaria
wall
haw
Phrag
Ash
Haw
willow
RUIN
gate
Cloonbreany Bridge
- accommodation
haw
privet
snowberry
tp : grazed
bkv - haw
ash
blackthorn
willow
Pteridium
hazel
hazel wood on embankment slope.
Old stone wall at toe.
Viola
Oxalis acetosella
Sanicula europaea
Ajuga reptans
Primula vulgaris
Ranunculus ficaria
Glechoma hederacea
Listera ovata
Hyacinthoides non-scriptus
Lysimachia nemorum
canopy - dominated by hazel
with guelder rose
haw
ash
blackthorn
hazel
haw
bramble
fc
Channel - wetter
Hydrocharis
tp - ungrazed
AS1 Royal Canal
(Longford 19)
bkv - blackthorn
hazel
Pteridium
bdv - bramble
bd - hazel
haw
↓ R Liffey

KM SECTION 118 **CLOONBREANY BOG (Plates 5 and 9)**

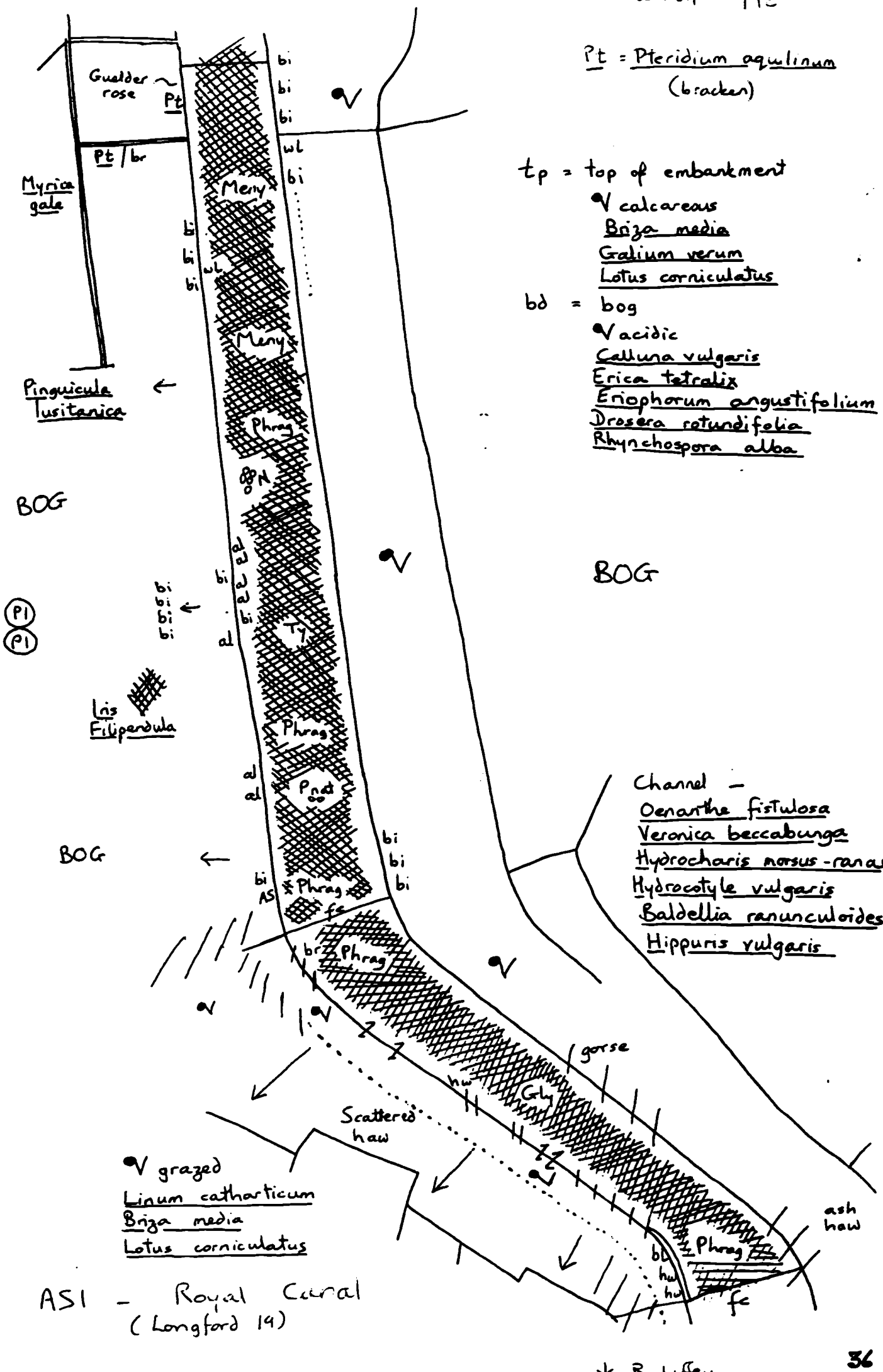
GOOD FEATURES - ASI on the canal corridor including channel bank and towpath (Km sections 116-122).

- Very diverse and species-rich section, with many rare plants:

acidic	- bog
calcareous	- towpath and embankment
channel	- contains aquatic and non-aquatic species.

BAD FEATURES - bog is being cut, and is draining into the canal itself.

↑ R Shannon 112



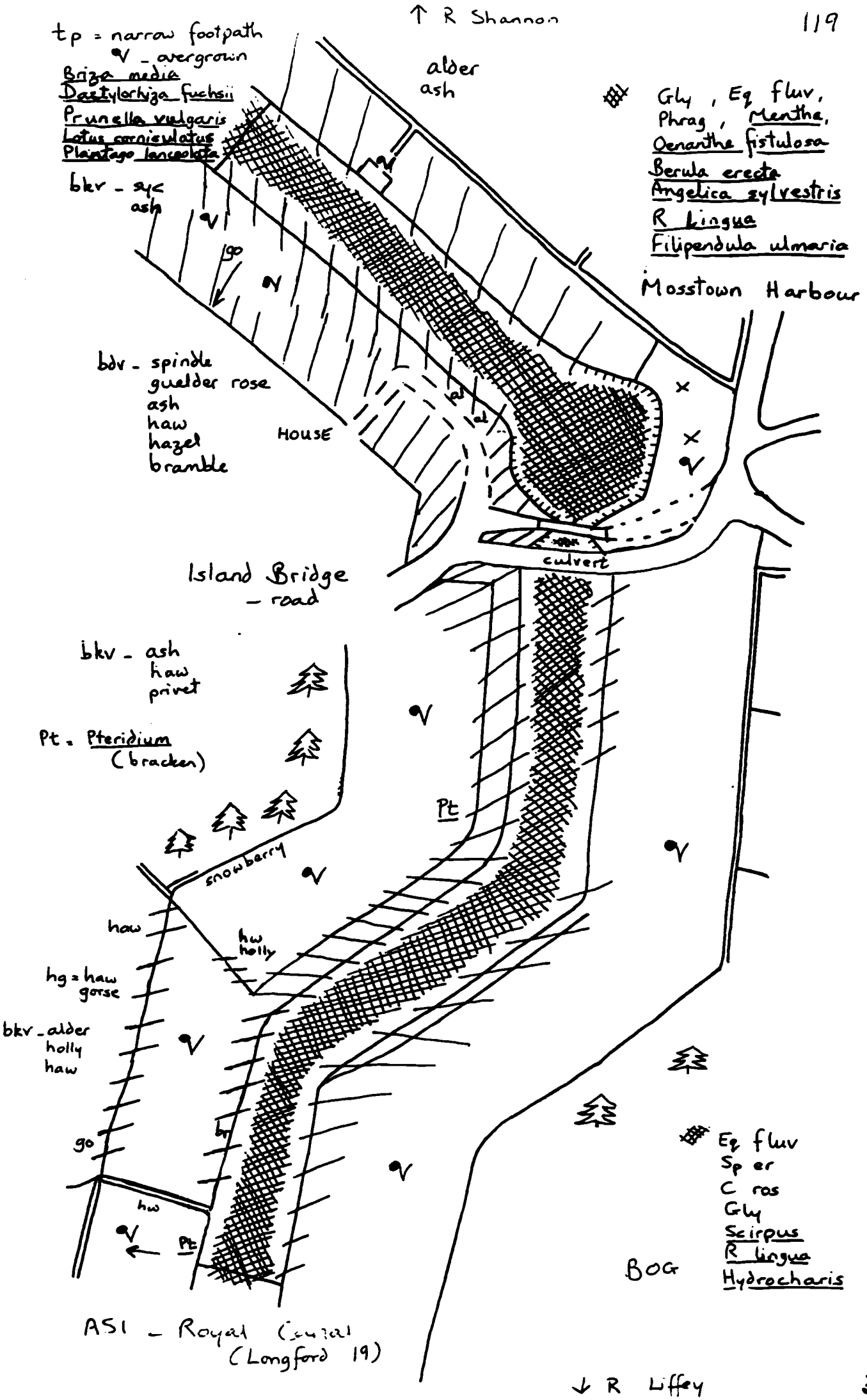
Pt = Pteridium aquilinum (bracken)

tp = top of embankment
- calcareous
- Briza media
- Galium verum
- Lotus corniculatus

bd = bog
- acidic
- Calluna vulgaris
- Erica tetralix
- Eriophorum angustifolium
- Drosera rotundifolia
- Rhynchospora alba

ASI – Royal Canal (Longford 14)

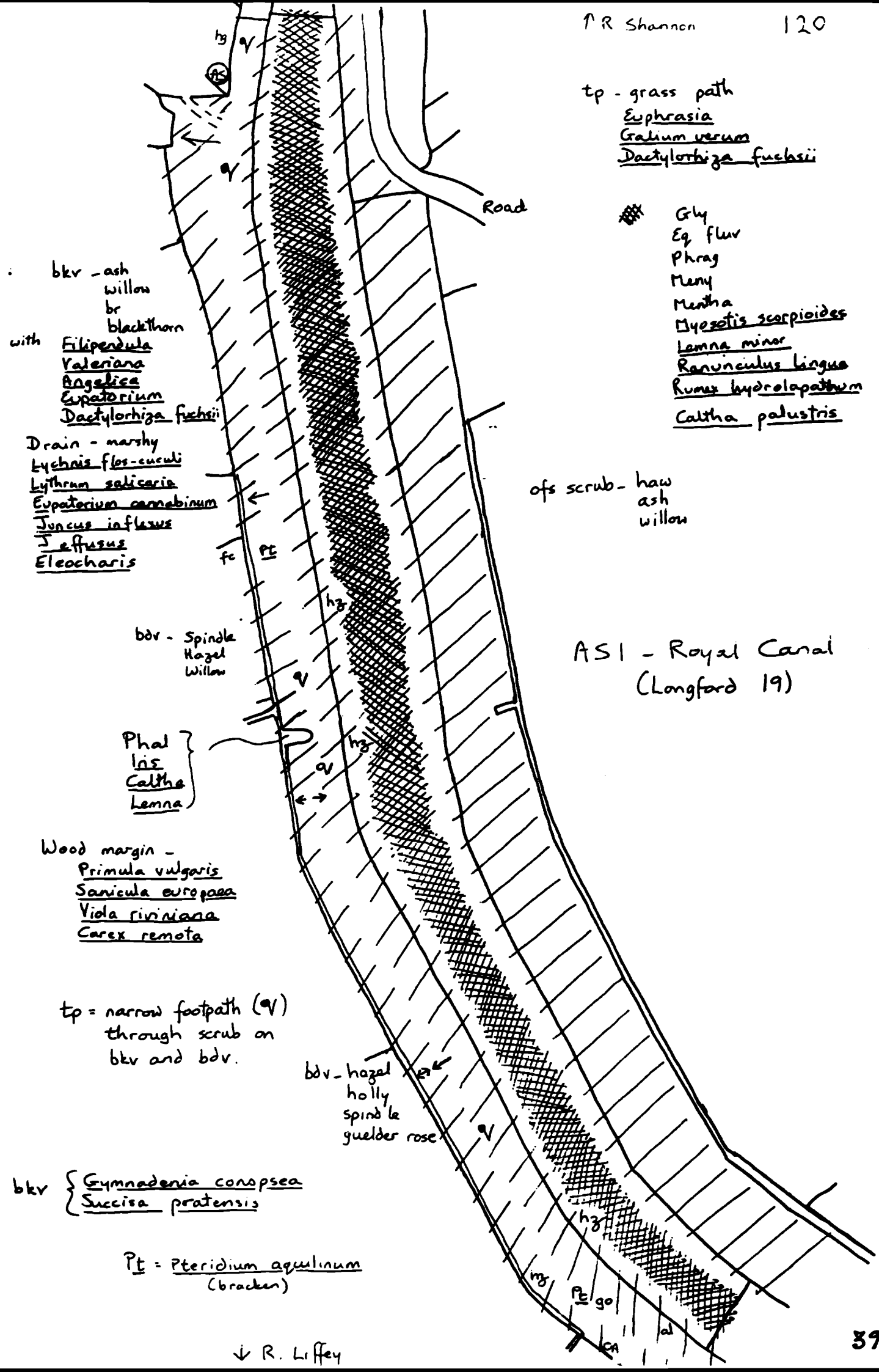
↓ R Liffey

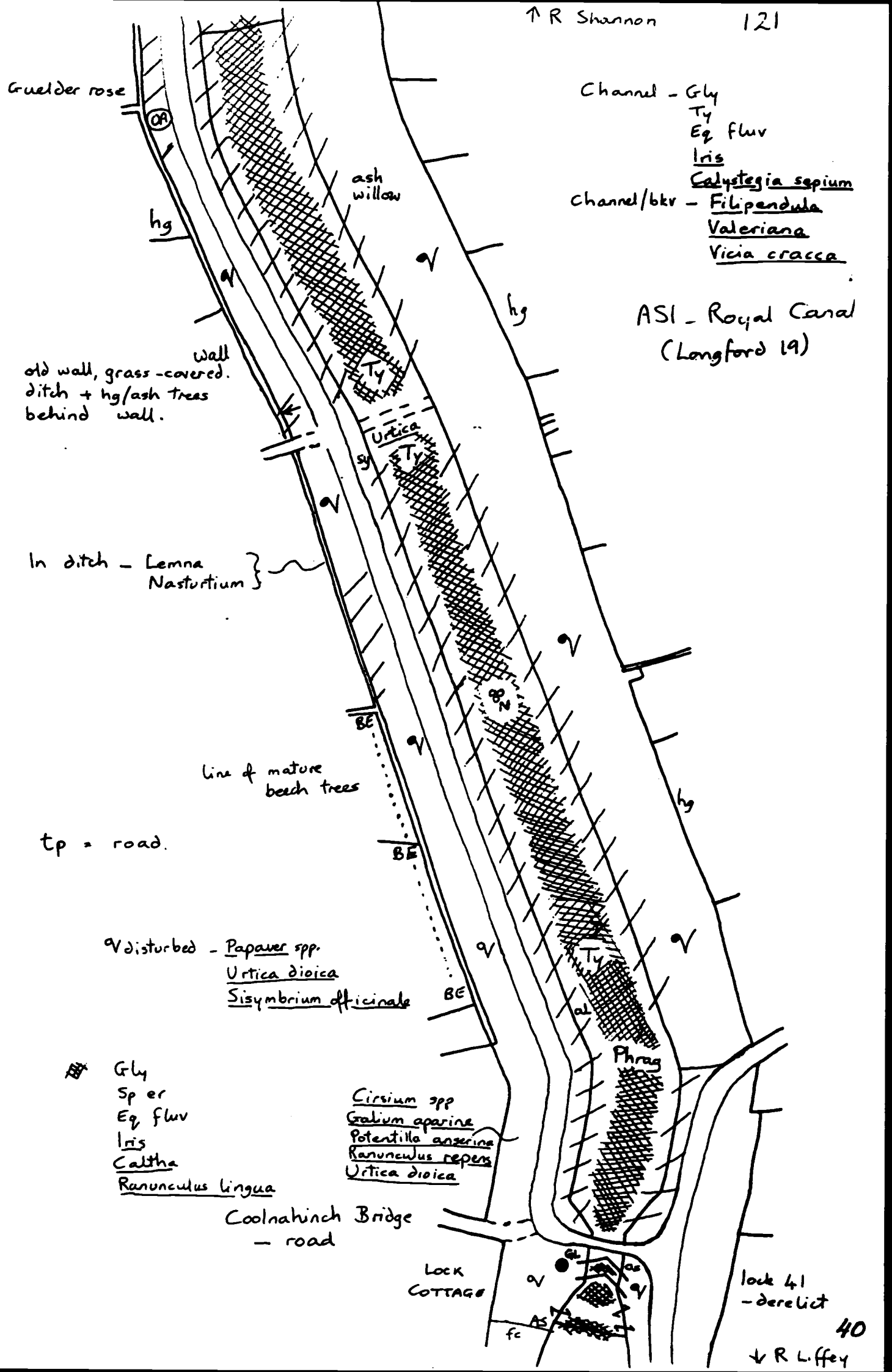

↑ R Shannon
tp = narrow footpath
v - overgrown
Briza media
Dactylorhiza fuchsii
Prunella vulgaris
Lotus corniculatus
Plantago lanceolata
bkv - syc
ash
alder
ash
Gly, Eq fluv,
Phrag, Mentha,
Oenanthe fistulosa
Berula erecta
Angelica sylvestris
R lingua
Filipendula ulmaria
Mosstown Harbour
go
bdv - spindle
guelder rose
ash
haw
hazel
bramble
HOUSE
al
culvert
Island Bridge
- road
bkv - ash
haw
privet
Pt = Pteridium
(bracken)
Pt
snowberry
haw
hw
holly
hg = haw
gorse
bkv - alder
holly
haw
go
hw
Pt
Eq fluv
Sp er
C ros
Gly
Scirpus
R lingua
Hydrocharis
BOG
ASI - Royal Canal
(Longford 19)
↓ R Liffey

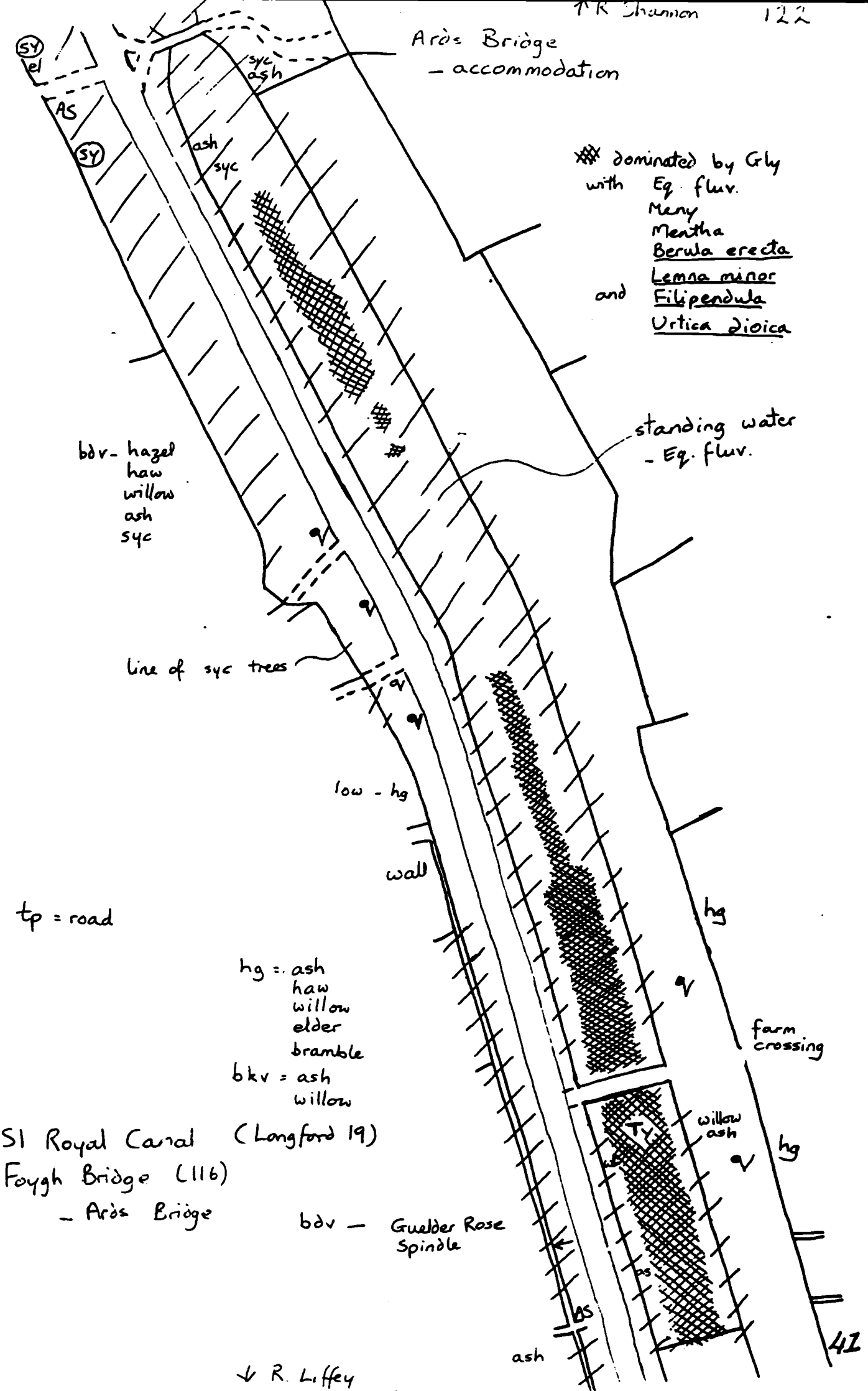
KM SECTION 120 Mosstown Harbour(N9) to Coolnahinch Br.

GOOD FEATURES
- ASI on the canal corridor including the channel, bank, towpath and boundary (Km sections 116-122).
- species-rich drain.
- woodland on offside (east bank) and boundary of nearside (west bank) with Guelder Rose (Viburnum opulus), Spindle (Euonymus europaeus) and Hazel (Corylus avellana).
- towpath through woodland of calcareous grassland.

RECOMMENDATIONS- selective protection of Guelder Rose, Spindle and Hazel during restoration.

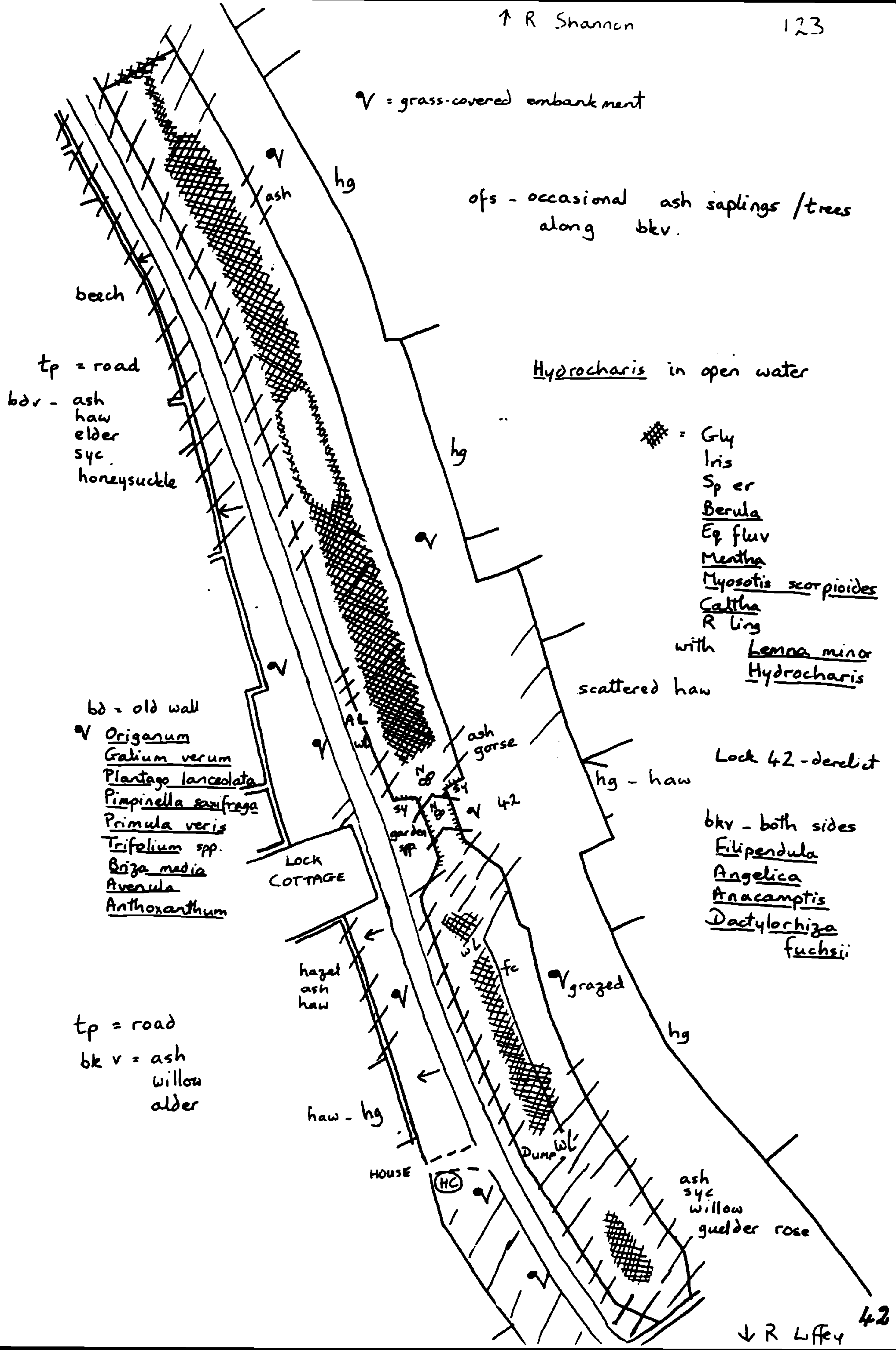

hg
q
Road
tp - grass path
Euphrasia
Galium verum
Dactylorhiza fuchsii
Gly
Eq fluv
Phrag
Meny
Mentha
Myosotis scorpioides
Lemna minor
Ranunculus lingua
Rumex hydrolapathum
Caltha palustris
bkv - ash
willow
br
blackthorn
with Filipendula
Valeriana
Angelica
Eupatorium
Dactylorhiza fuchsii
Drain - marshy
Lychnis flos-cuculi
Lythrum salicaria
Eupatorium cannabinum
Juncus inflexus
J effusus
Eleocharis
fc
Pt
ofs scrub - haw
ash
willow
bdv - Spindle
Hazel
Willow
ASI - Royal Canal
(Longford 19)
Phal
Iris
Caltha
Lemna
Wood margin -
Primula vulgaris
Saniculo europaea
Viola riviniana
Carex remota
tp = narrow footpath (q)
through scrub on
bkv and bdv.
bdv - hazel
holly
spindle
guelder rose
bkv { Gymnadenia conopsea
Succisa pratensis
Pt = Pteridium aquilinum
(bracken)
go
al
CA
↓ R. Liffey

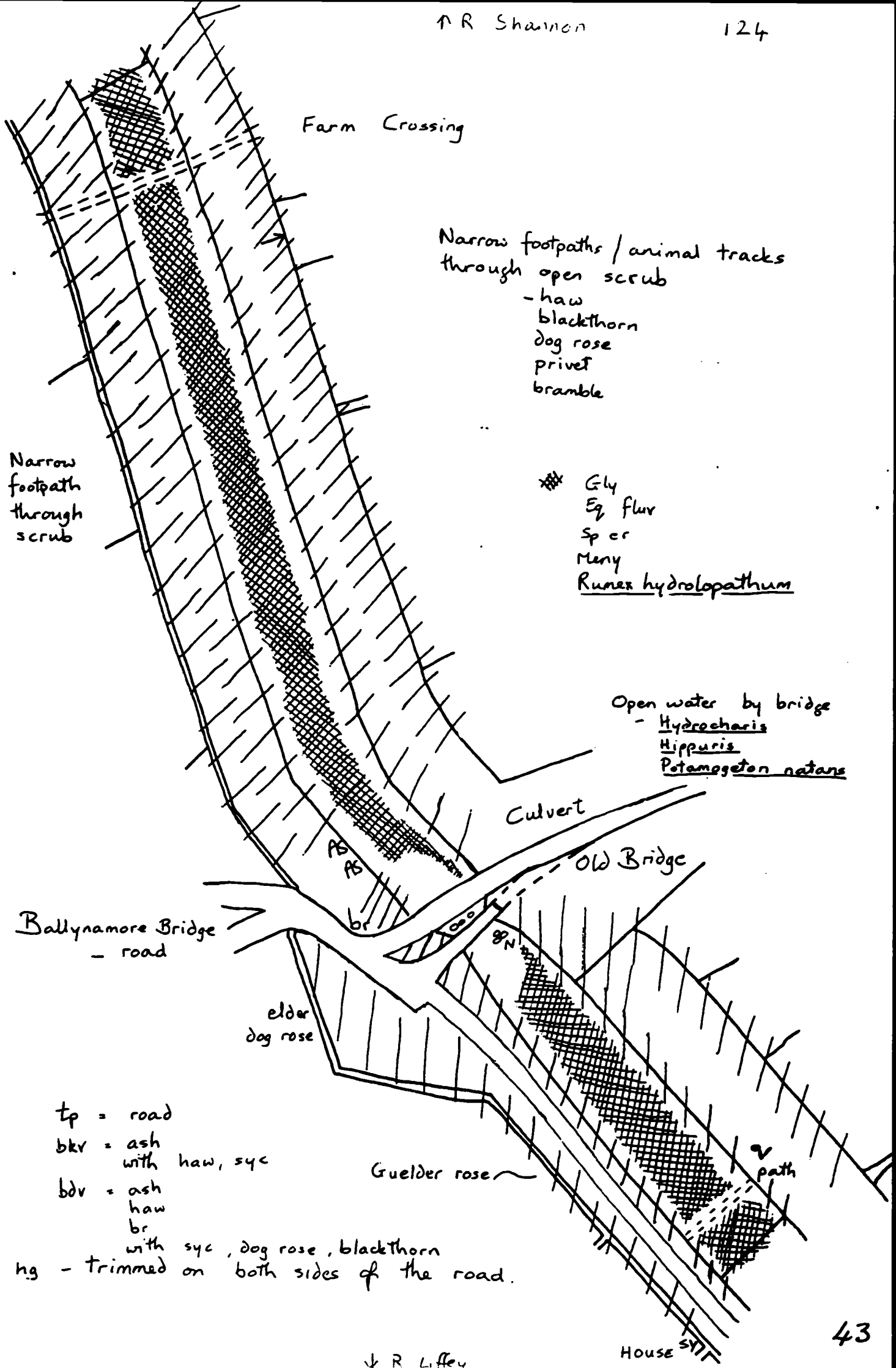

Guelder rose
OA
ash willow
hg
wall
old wall, grass-covered. ditch + hg/ash trees behind wall.
Ty
Urtica
sy
In ditch – Lemna
Nasturtium
BE
line of mature beach trees
tp = road.
disturbed – Papaver spp.
Urtica dioica
Sisymbrium officinale
Gly
Sp er
Eq fluv
Iris
Caltha
Ranunculus lingua
Cirsium spp
Galium aparine
Potentilla anserina
Ranunculus repens
Urtica dioica
Coolnahinch Bridge – road
Channel – Gly
Ty
Eq fluv
Iris
Calystegia sepium
Channel/bkv – Filipendula
Valeriana
Vicia cracca
ASI – Royal Canal (Longford 19)
Phrag
al
LOCK COTTAGE
Gl
as
fc
lock 41 – derelict

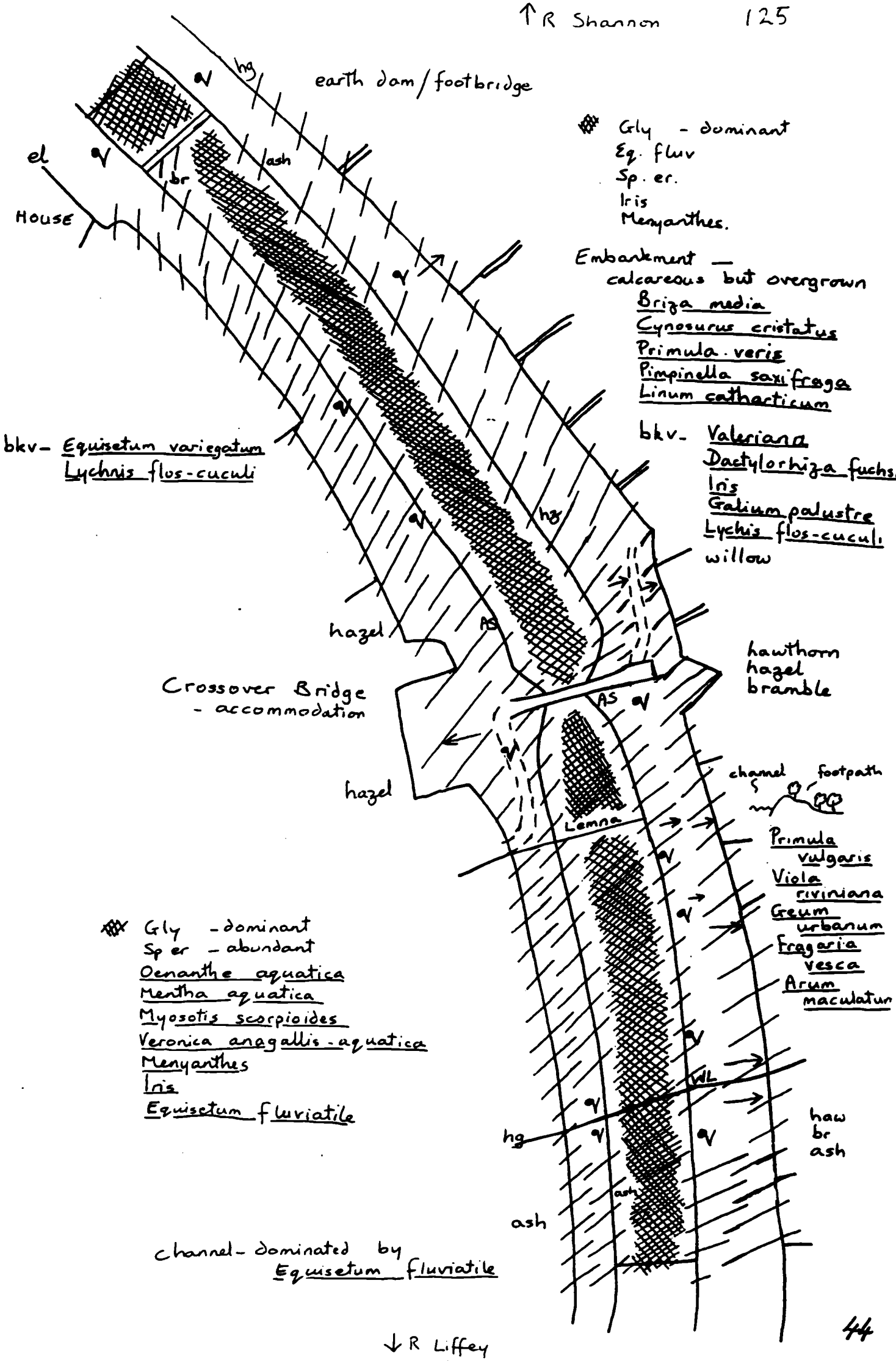


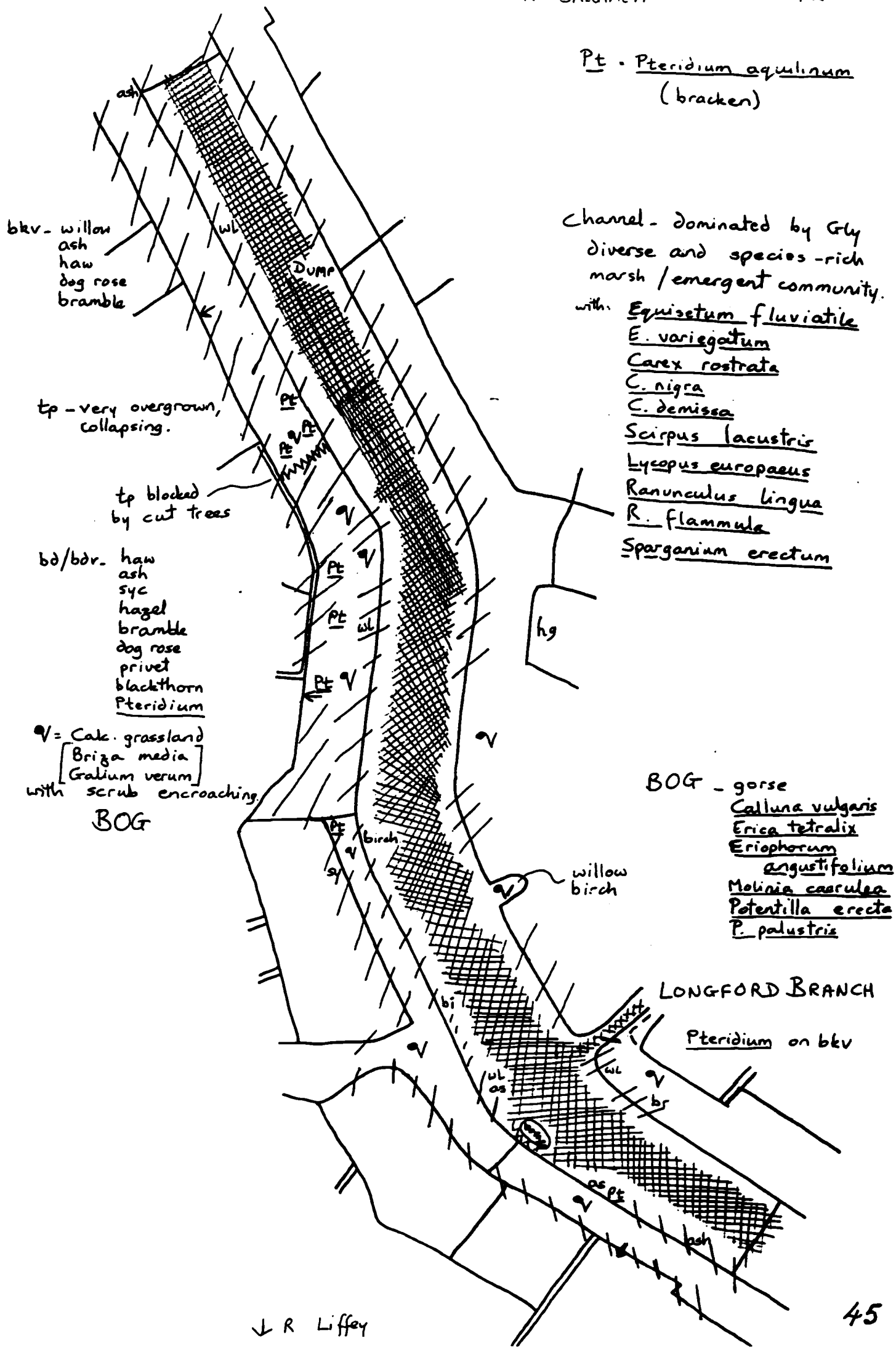
ASI Royal Canal (Longford 19)
Foygh Bridge (116)
- Aròs Bridge

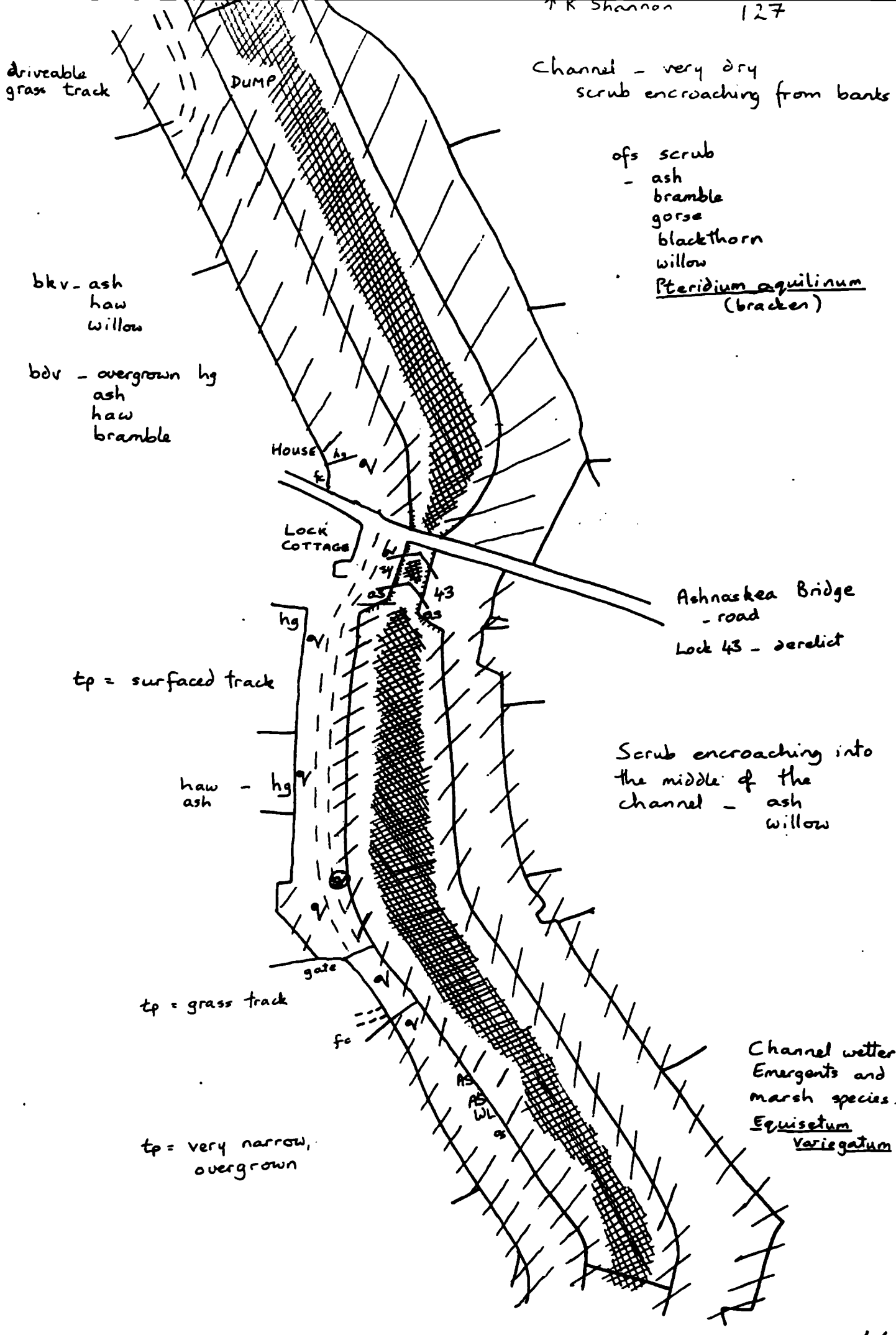
↓ R. Liffey


↑ R Shannon
V = grass-covered embankment
ofs - occasional ash saplings / trees along bkv.
ash
hg
beech
tp = road
bdv - ash
haw
elder
syc
honeysuckle
Hydrocharis in open water
hg
= Gly
Iris
Sp er
Berula
Eq fluv
Mentha
Myosotis scorpioides
Caltha
R ling
with Lemna minor
Hydrocharis
scattered haw
bd = old wall
V Origanum
Galium verum
Plantago lanceolata
Pimpinella saxifraga
Primula veris
Trifolium spp.
Briza media
Avenula
Anthoxanthum
AL
wL
ash
gorse
Lock 42 - derelict
hg - haw
sy
42
garden spp
LOCK COTTAGE
bkv - both sides
Filipendula
Angelica
Anacamptis
Dactylorhiza fuchsii
wL
fc
V grazed
hazel
ash
haw
hg
tp = road
bk v = ash
willow
alder
haw - hg
Dump
wL
HOUSE
HC
ash
syc
willow
guelder rose
↓ R Liffey

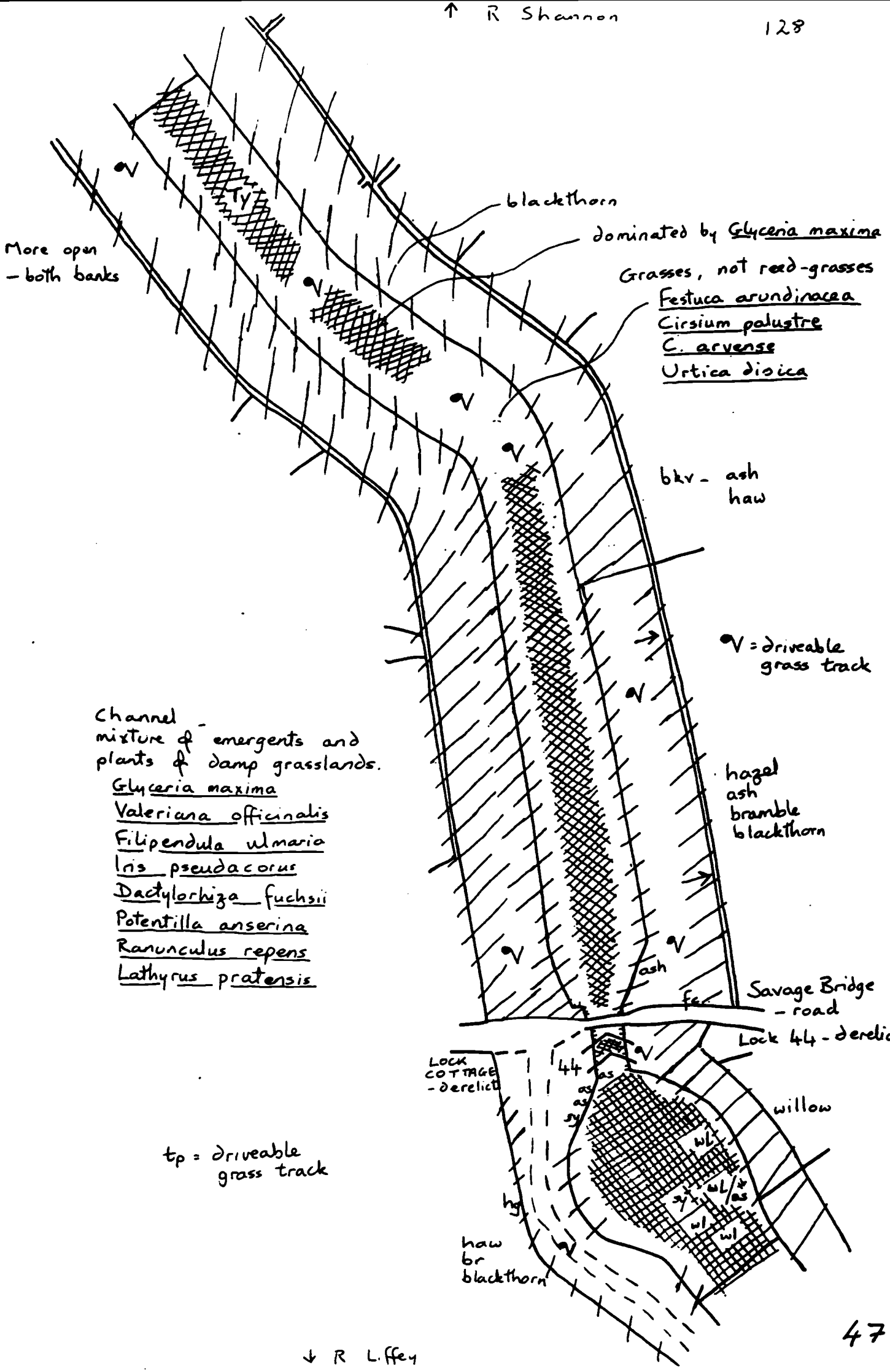

Farm Crossing
Narrow footpaths / animal tracks through open scrub
- haw
blackthorn
dog rose
privet
bramble
Narrow footpath through scrub
Gly
Eq flur
Sp er
Meny
Rumex hydrolopathum
Open water by bridge
- Hydrocharis
Hippuris
Potamogeton natans
Culvert
Old Bridge
AS
AS
br
Ballynamore Bridge
- road
elder
dog rose
tp = road
bkv = ash with haw, syc
bdv = ash haw br with syc, dog rose, blackthorn
hg - trimmed on both sides of the road.
Guelder rose
path
House
syn


hg
earth dam / footbridge
Gly - dominant
Eq. fluv
Sp. er.
Iris
Menyanthes.
el
ash
br
HOUSE
Embankment —
calcareous but overgrown
Briza media
Cynosurus cristatus
Primula veris
Pimpinella saxifraga
Linum catharticum
bkv- Equisetum variegatum
Lychnis flos-cuculi
bkv- Valeriana
Dactylorhiza fuchsi
Iris
Galium palustre
Lychis flos-cuculi
willow
hazel
AS
hawthorn
hazel
bramble
Crossover Bridge
- accommodation
hazel
channel
footpath
Lemna
Primula vulgaris
Viola riviniana
Geum urbanum
Fragaria vesca
Arum maculatum
Gly - dominant
Sp er - abundant
Oenanthe aquatica
Mentha aquatica
Myosotis scorpioides
Veronica anagallis-aquatica
Menyanthes
Iris
Equisetum fluviatile
WL
haw
br
ash
hg
ash
ash
Channel - dominated by
Equisetum fluviatile

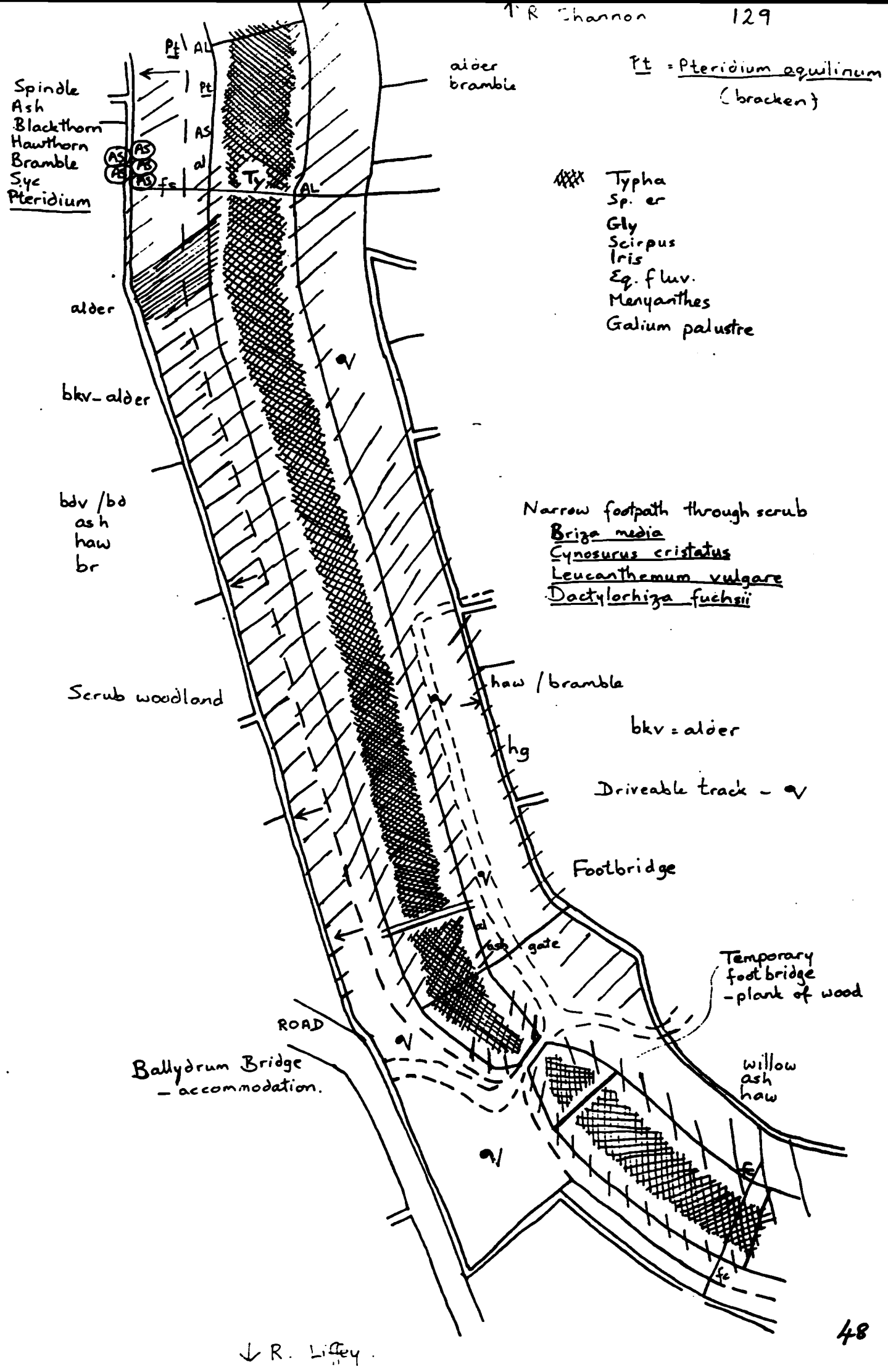

Pt - Pteridium aquilinum (bracken)
ash
bkv - willow ash haw dog rose bramble
wl
Dump
Channel - dominated by Gly diverse and species-rich marsh / emergent community. with: Equisetum fluviatile E. variegatum Carex rostrata C. nigra C. demissa Scirpus lacustris Lycopus europaeus Ranunculus lingua R. Flammula Sparganium erectum
tp - very overgrown, collapsing.
Pt
Pt & Pt
tp blocked by cut trees
bd/bdv - haw ash syc hazel bramble dog rose privet blackthorn Pteridium
hg
V = Calc. grassland [Briza media Galium verum] with scrub encroaching.
BOG
BOG - gorse Calluna vulgaris Erica tetralix Eriophorum angustifolium Molinia caerulea Potentilla erecta P. palustris
birch
sy
willow birch
bi
LONGFORD BRANCH
Pteridium on bkv
ul
os
br
bsh
↓ R Liffey
45


driveable grass track
DUMP
Channel - very dry scrub encroaching from banks
ofs scrub
- ash
bramble
gorse
blackthorn
willow
Pteridium aquilinum (bracken)
bkv - ash
haw
willow
bdv - overgrown hg
ash
haw
bramble
House
LOCK COTTAGE
43
Ashnaskea Bridge - road
Lock 43 - derelict
hg
tp = surfaced track
haw - hg
ash
Scrub encroaching into the middle of the channel - ash
willow
gate
tp = grass track
fc
Channel wetter Emergents and marsh species.
Equisetum variegatum
tp = very narrow, overgrown

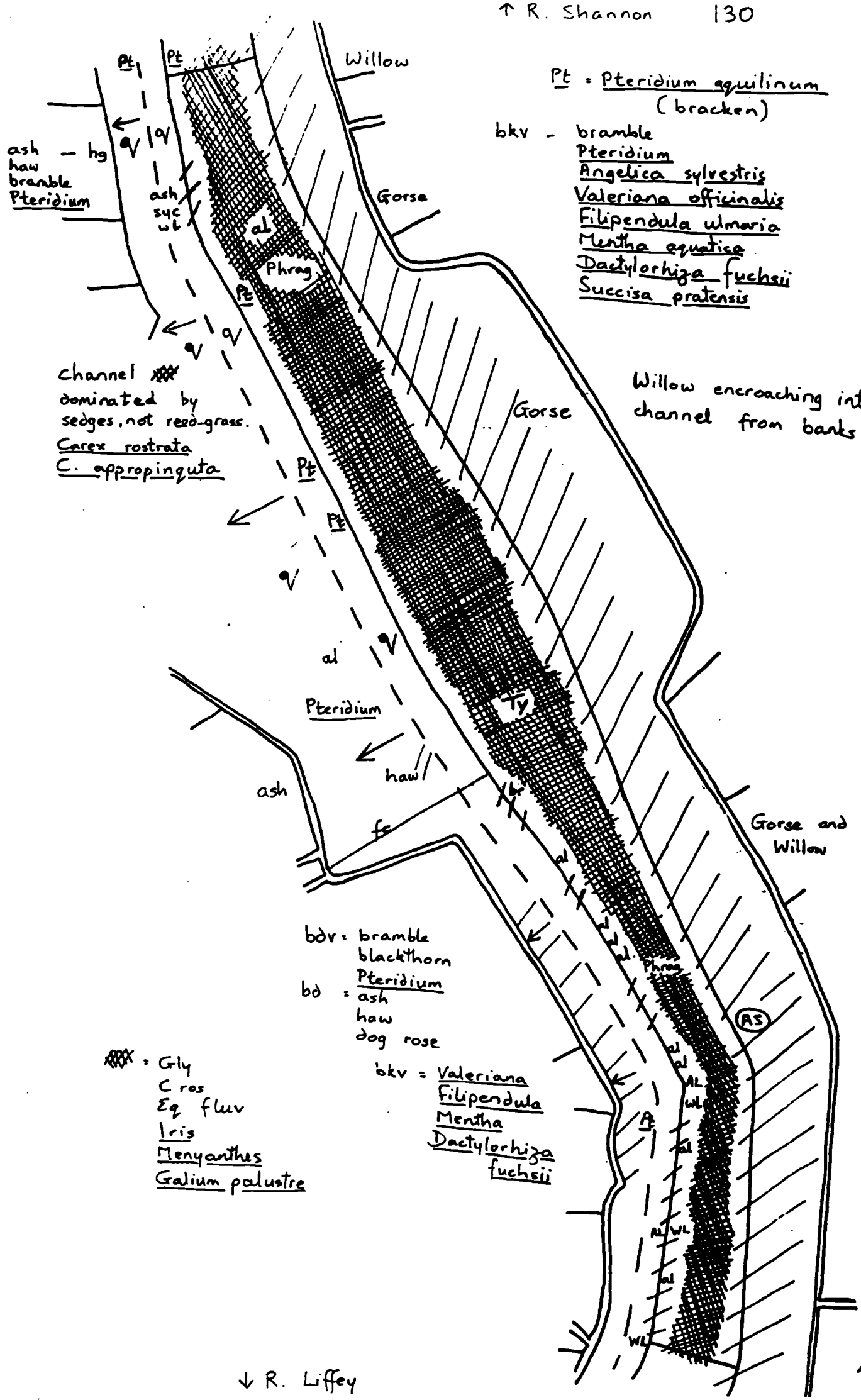
↑ R Shannon



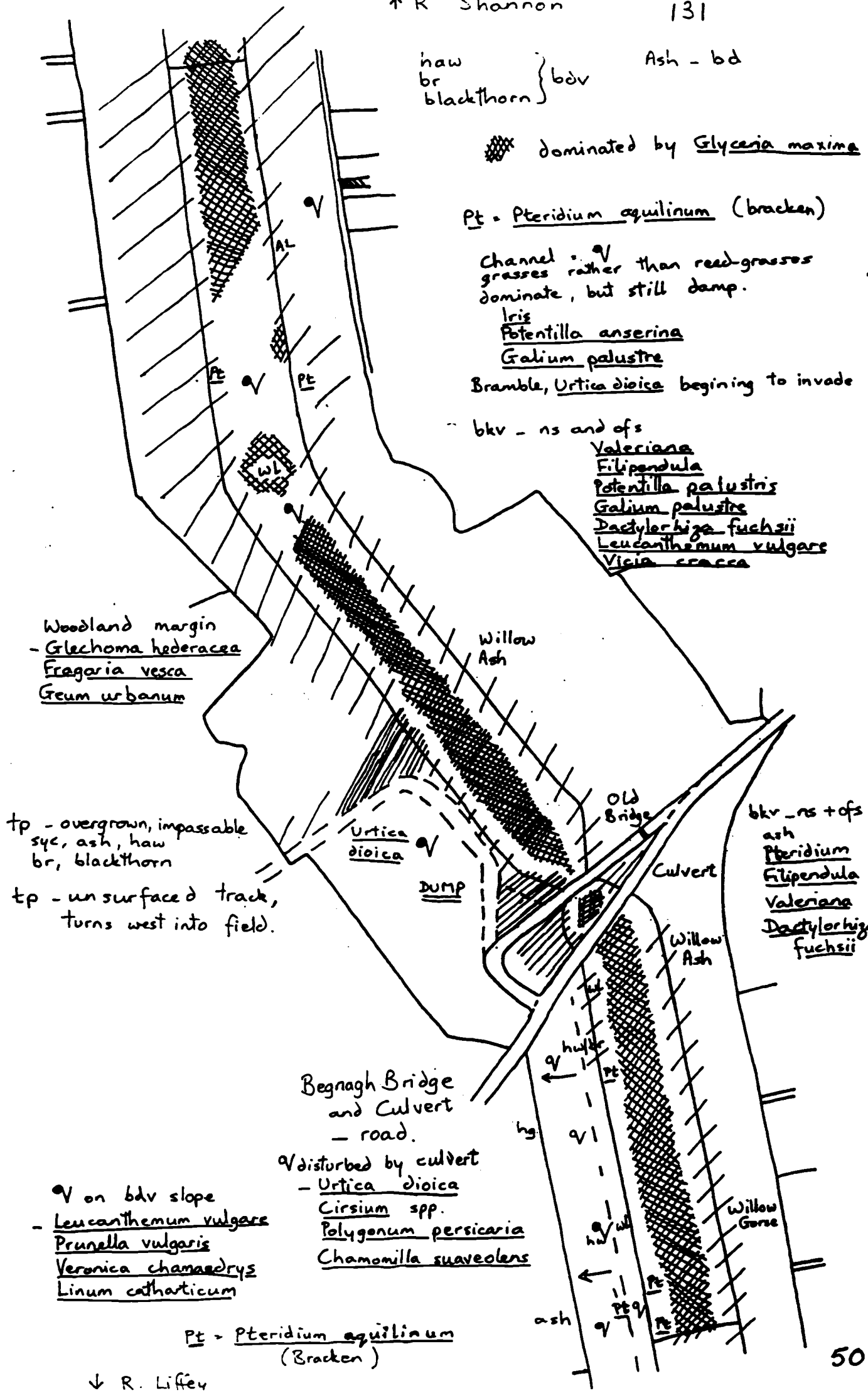
↓ R Liffey


Pt
AL
Pt
AS
al
Ty
fs
AL
Spindle
Ash
Blackthorn
Hawthorn
Bramble
Sye
Pteridium
AS
AS
AS
alder
bkv - alder
bdv / bd
ash
haw
br
Scrub woodland
alder
bramble
Pt = Pteridium aquilinum
(bracken)
Typha
Sp. er
Gly
Scirpus
Iris
Eq. fluv.
Menyanthes
Galium palustre
Narrow footpath through scrub
Briza media
Cynosurus cristatus
Leucanthemum vulgare
Dactylorhiza fuchsii
haw / bramble
bkv = alder
hg
Driveable track - ⌀
Footbridge
al
ash
gate
Temporary
footbridge
- plank of wood
ROAD
Ballydrum Bridge
- accommodation.
willow
ash
haw
fe

↓ R. Liffey.

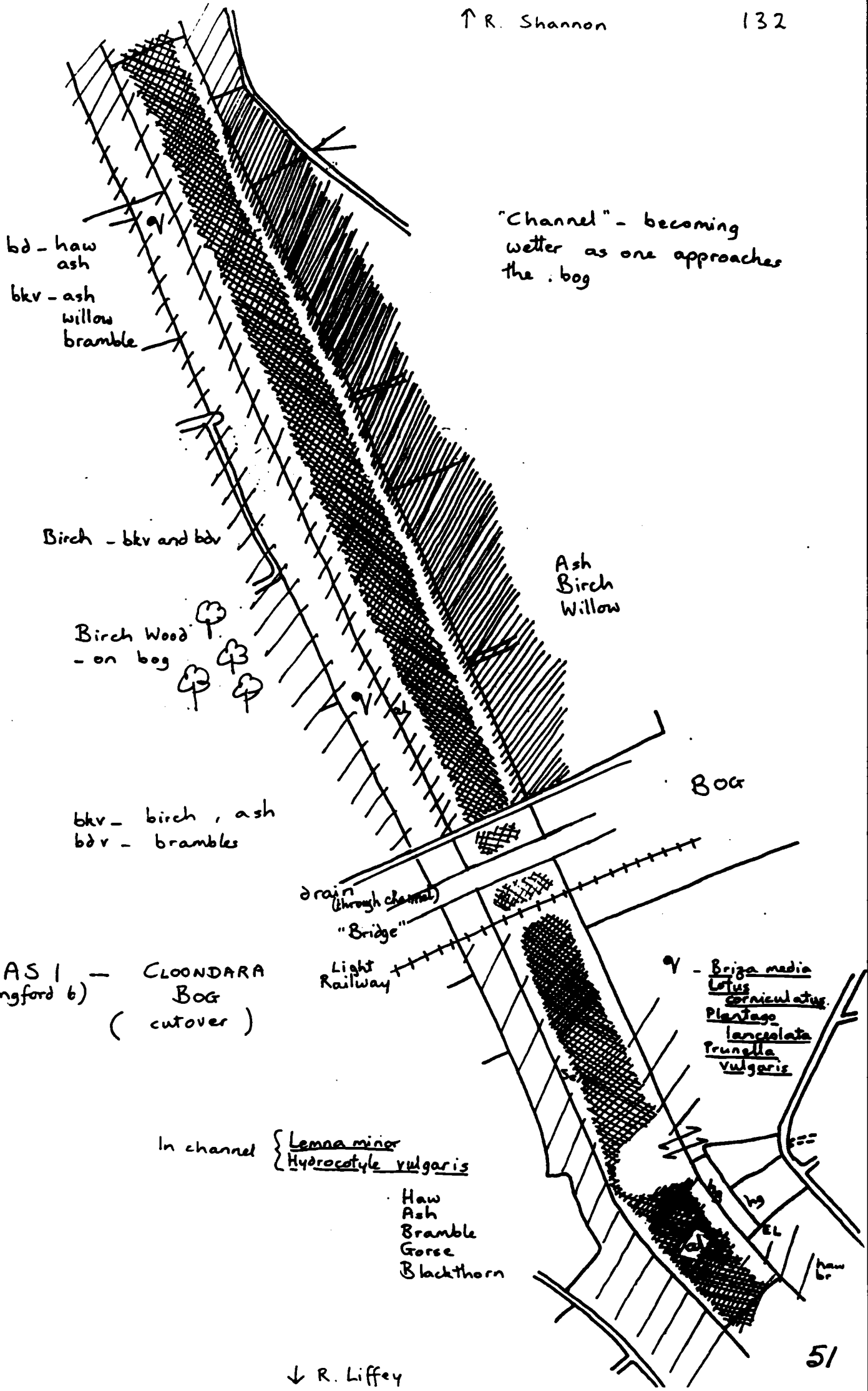

Pt = Pteridium aquilinum (bracken)
bkv - bramble
Pteridium
Angelica sylvestris
Valeriana officinalis
Filipendula ulmaria
Mentha aquatica
Dactylorhiza fuchsii
Succisa pratensis
Willow
Gorse
Willow encroaching into channel from banks
Channel dominated by sedges, not reed-grass.
Carex rostrata
C. appropinquta
ash - hg
haw
bramble
Pteridium
ash
syc
wl
al
Phrag
Pt
Pteridium
ash
haw
Ty
Gorse and Willow
bdv: bramble
blackthorn
Pteridium
bd = ash
haw
dog rose
bkv = Valeriana
Filipendula
Mentha
Dactylorhiza
fuchsii
= Gly
C ros
Eq fluv
Iris
Menyanthes
Galium palustre
AS
AL
WL

↓ R. Liffey


haw
br
blackthorn
bdv
Ash - bd
dominated by Glyceria maxima
Pt - Pteridium aquilinum (bracken)
Channel : V grasses rather than reed-grasses dominate, but still damp.
Iris
Potentilla anserina
Galium palustre
Bramble, Urtica dioica begining to invade
bkv - ns and ofs
Valeriana
Filipendula
Potentilla palustris
Galium palustre
Dactylorhiza fuchsii
Leucanthemum vulgare
Vicia cracca
Woodland margin
- Glechoma hederacea
Fragaria vesca
Geum urbanum
Willow
Ash
tp - overgrown, impassable
syc, ash, haw
br, blackthorn
tp - unsurfaced track,
turns west into field.
Urtica dioica
DUMP
Old Bridge
Culvert
bkv - ns + ofs
ash
Pteridium
Filipendula
Valeriana
Dactylorhiza fuchsii
Willow
Ash
Begnagh Bridge
and Culvert
- road.
V disturbed by culvert
- Urtica dioica
Cirsium spp.
Polygonum persicaria
Chamomilla suaveolens
V on bdv slope
- Leucanthemum vulgare
Prunella vulgaris
Veronica chamaedrys
Linum catharticum
Willow
Gorse
ash
Pt - Pteridium aquilinum
(Bracken)

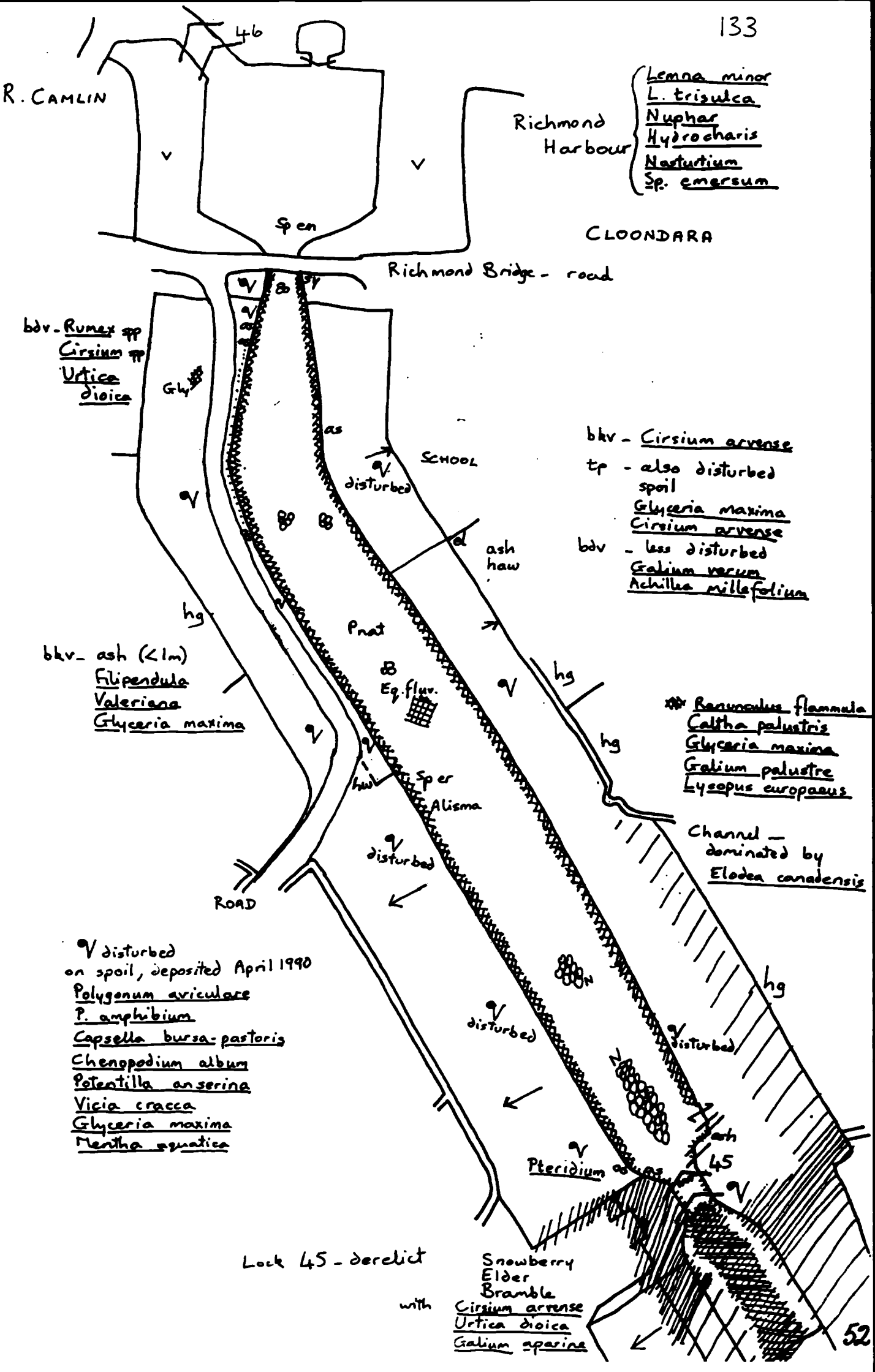
↓ R. Liffey

↑ R. Shannon



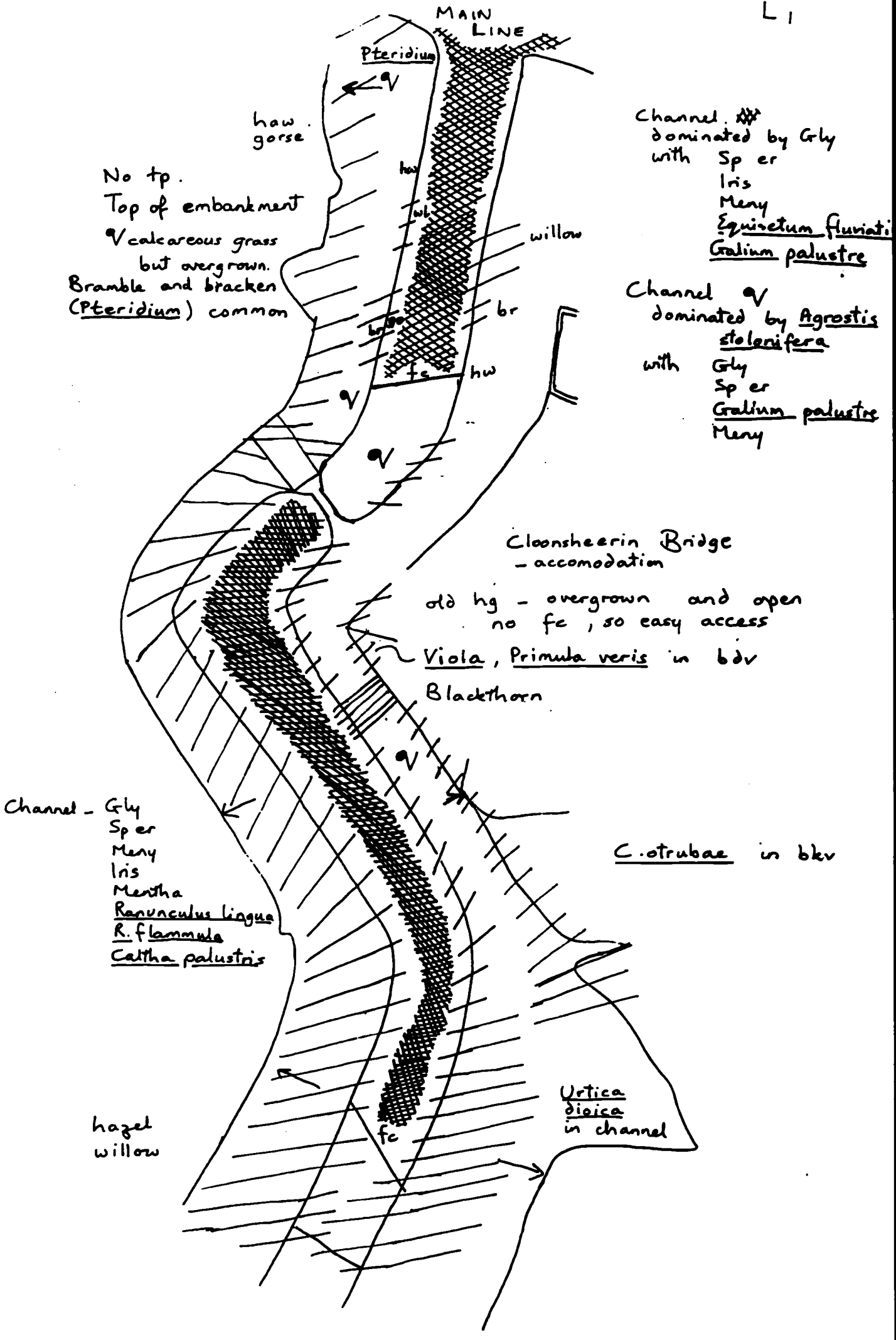
AS 1 (Longford 6) — CLOONDARA BOG (cutover)

↓ R. Liffey

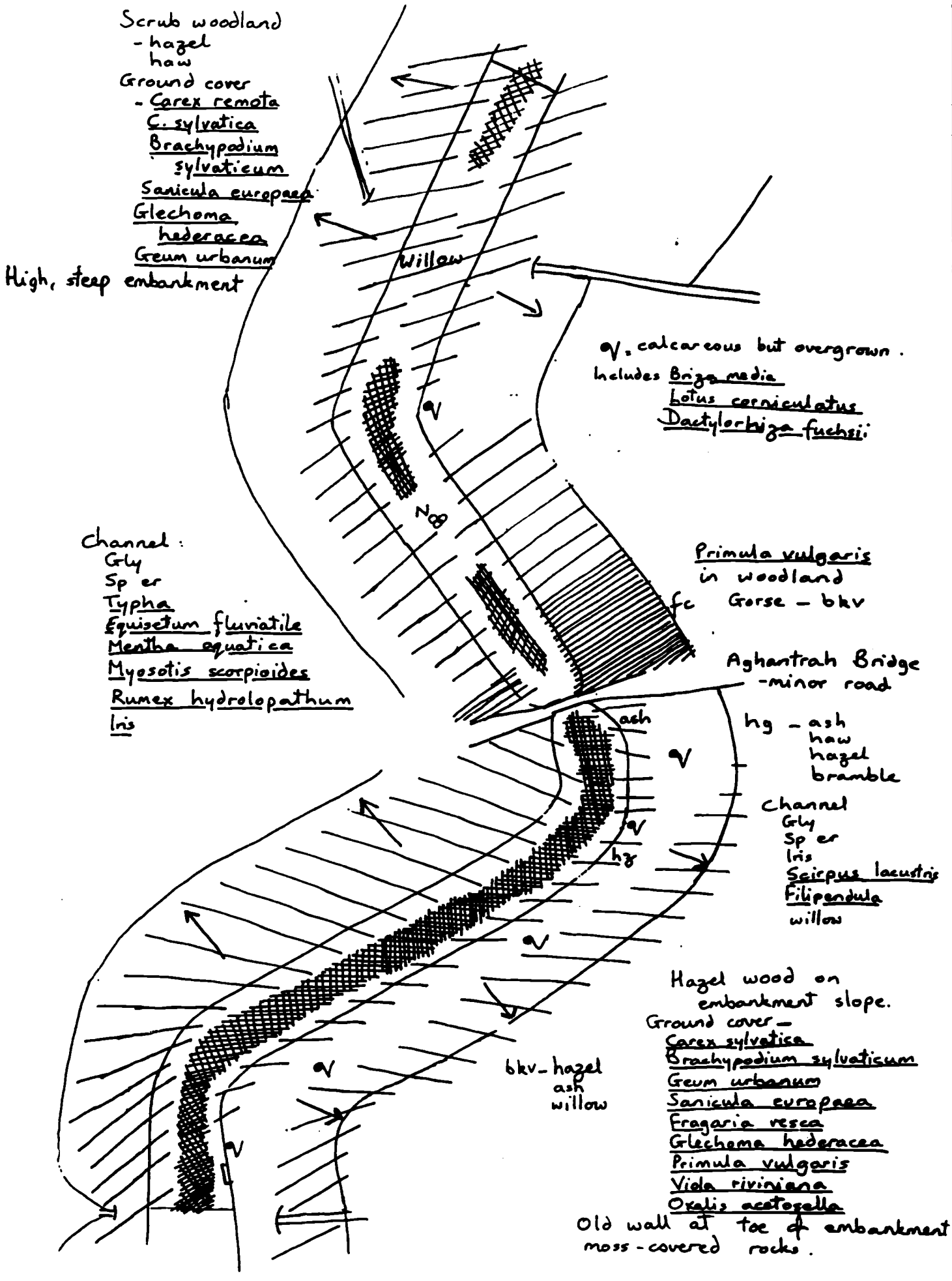

46
R. CAMLIN
Richmond Harbour
Lemna minor
L. trisulca
Nuphar
Hydrocharis
Nasturtium
Sp. emersum
Sp en
CLOONDARA
Richmond Bridge - road
bdv - Rumex spp
Cirsium spp
Urtica dioica
Gly
as
SCHOOL
disturbed
bkv - Cirsium arvense
tp - also disturbed spoil
Glyceria maxima
Cirsium arvense
bdv - less disturbed
Galium verum
Achillea millefolium
ash
haw
hg
Pnat
bkv - ash (<1m)
Filipendula
Valeriana
Glyceria maxima
Eq. fluv.
Sp er
Alisma
Ranunculus flammula
Caltha palustris
Glyceria maxima
Galium palustre
Lycopus europaeus
Channel - dominated by Elodea canadensis
ROAD
disturbed
on spoil, deposited April 1990
Polygonum aviculare
P. amphibium
Capsella bursa-pastoris
Chenopodium album
Potentilla anserina
Vicia cracca
Glyceria maxima
Mentha aquatica
N
Pteridium
45
Lock 45 - derelict
with
Snowberry
Elder
Bramble
Cirsium arvense
Urtica dioica
Galium aparine

KM SECTIONS L1-L8 LONGFORD BRANCH

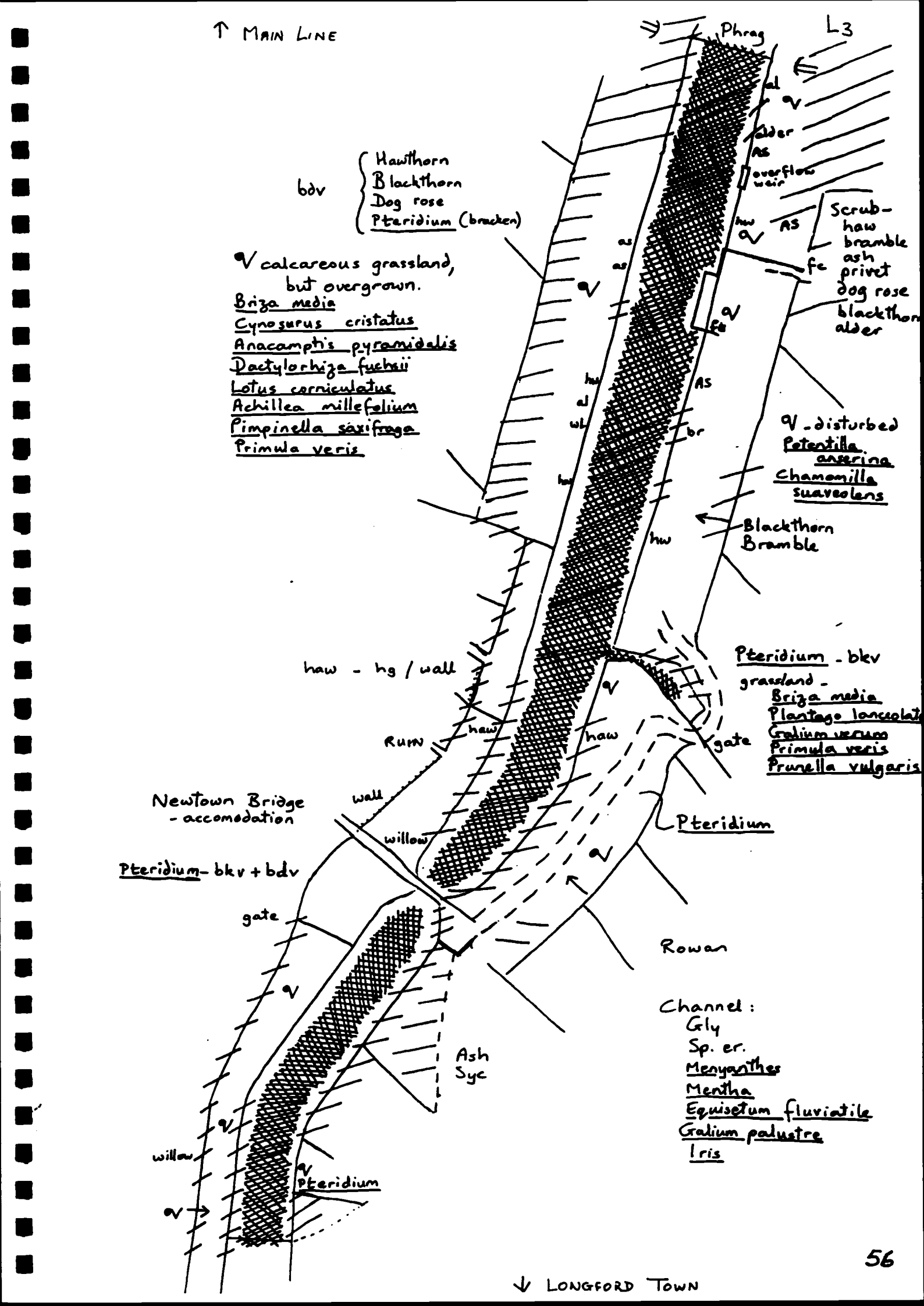
GOOD FEATURES	-	diversity of channel habitats e.g. L1: Open water Reed bed Alder carr
	-	Hazel woodland on both sides of the embankment (L2) (Plate 12).
	-	calcareous grassland on towpath (L4 and L5).
	-	presence of Equisetum telmateia.
BAD FEATURES	-	both channel and towpath are largely overgrown, reducing species diversity.
RECOMMENDATIONS	-	protect the Hazel wood during restoration.
	-	maintain calcareous grassland by light grazing.


MAIN LINE
Pteridium
haw
gorse
No tp.
Top of embankment
calcareous grass but overgrown.
Bramble and bracken (Pteridium) common
hw
wb
willow
br
fc
hw
Channel dominated by Gly with Sp er Iris Mery Equisetum fluviati Galium palustre
Channel dominated by Agrostis stolenifera with Gly Sp er Galium palustre Mery
Cloonsheerin Bridge - accomodation
old hg - overgrown and open no fc, so easy access
Viola, Primula veris in bdv
Blackthorn
Channel - Gly Sp er Mery Iris Mentha Ranunculus lingua R. flammula Caltha palustris
C. otrubae in bkv
Urtica dioica in channel
hazel
willow
fc
↓ LONGFORD TOWN

↑ MAIN LINE L2



↓ LONGFORD TOWN


↑ MAIN LINE
Phrag
L3
al
alder
AS
overflow weir
Scrub-
haw
bramble
ash
privet
dog rose
blackthorn
alder
bdv
Hawthorn
Blackthorn
Dog rose
Pteridium (bracken)
calcareous grassland, but overgrown.
Briza media
Cynosurus cristatus
Anacamptis pyramidalis
Dactylorhiza fuchsii
Lotus corniculatus
Achillea millefolium
Pimpinella saxifraga
Primula veris
fe
hw
AS
as
wl
br
disturbed
Potentilla anserina
Chamomilla suaveolens
Blackthorn
Bramble
haw - hg / wall
RUIN
haw
Pteridium - bkv
grassland -
Briza media
Plantago lanceolata
Galium verum
Primula veris
Prunella vulgaris
gate
Newtown Bridge
- accomodation
wall
willow
Pteridium
Pteridium - bkv + bdv
gate
Rowan
Channel :
Gly
Sp. er.
Menyanthes
Mentha
Equisetum fluviatile
Galium palustre
Iris
Ash
Syc
willow
Pteridium
↓ LONGFORD TOWN

↑ Main Line

L4

Leucanthemum
Primula veris
} V at base of wall

Pteridium (bracken)
bramble
blackthorn
} behind and on top of wall, and growing over it.

wall

V

Privet
Guelder rose
} on bkv

Pteridium

blackthorn - hg

wall

Euphrasia
Galium verum
Lotus corniculatus
Briza media

footbridge

HOUSE

Garden

Channel:
Gly
Sp er
Phrag
Iris
Meny
Equisetum fluviatile
E. variegatum
Myosotis scorpioides
Galium palustre
Mentha aquatica
Valeriana officinalis
Angelica sylvestris

Pteridium

Bdv { Guelder rose
Spindle
Elder

Bdv { Blackthorn
Hazel
Spindle

Bkv { Alder
Ash
Blackthorn

AS

ash

Cloontuck Bridge - accomodation footpath only, overgrown

tp = unsurfaced track
bkv = ash
alder
bdv = haw
br
syc
bd = ash trees behind scrub

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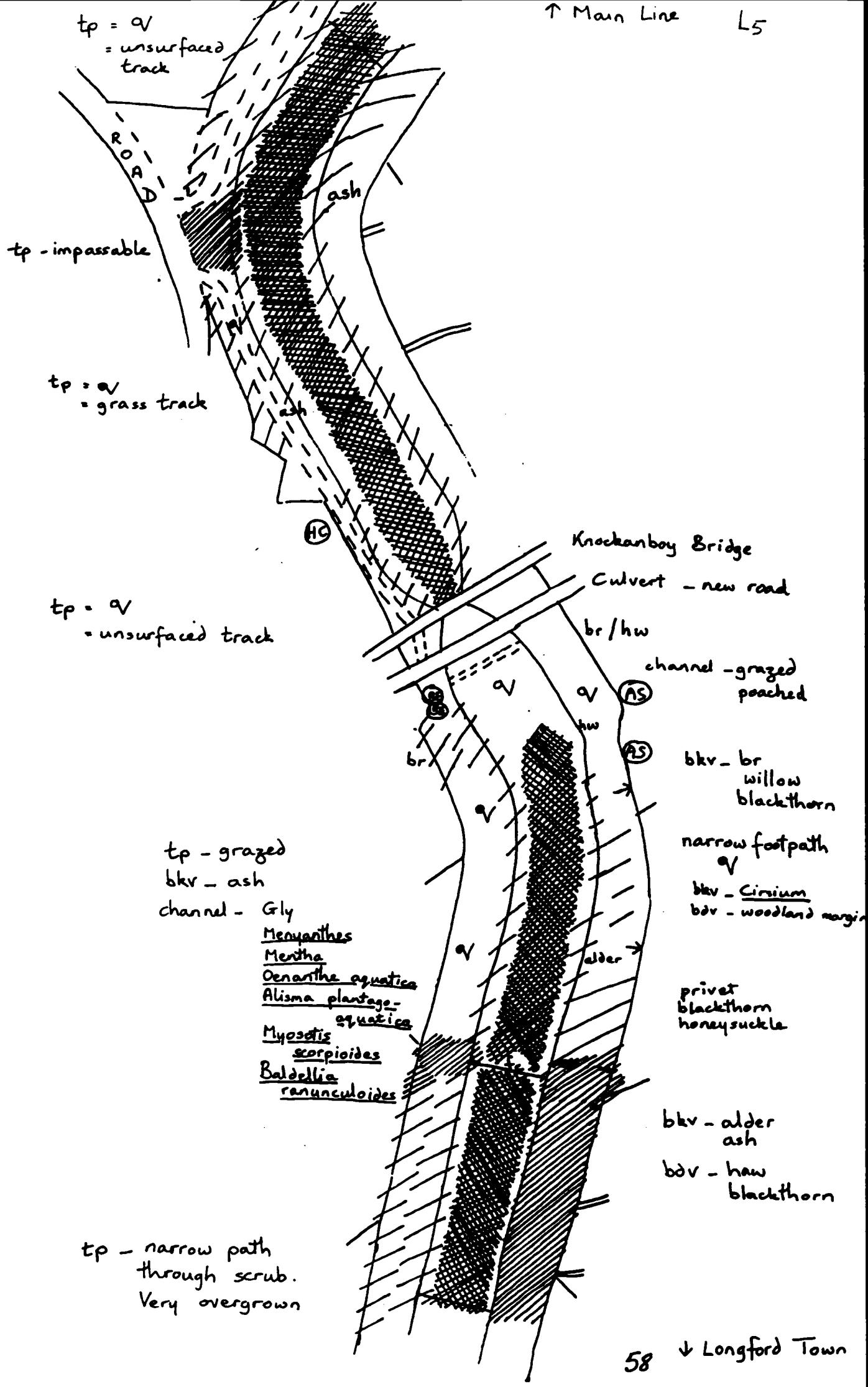
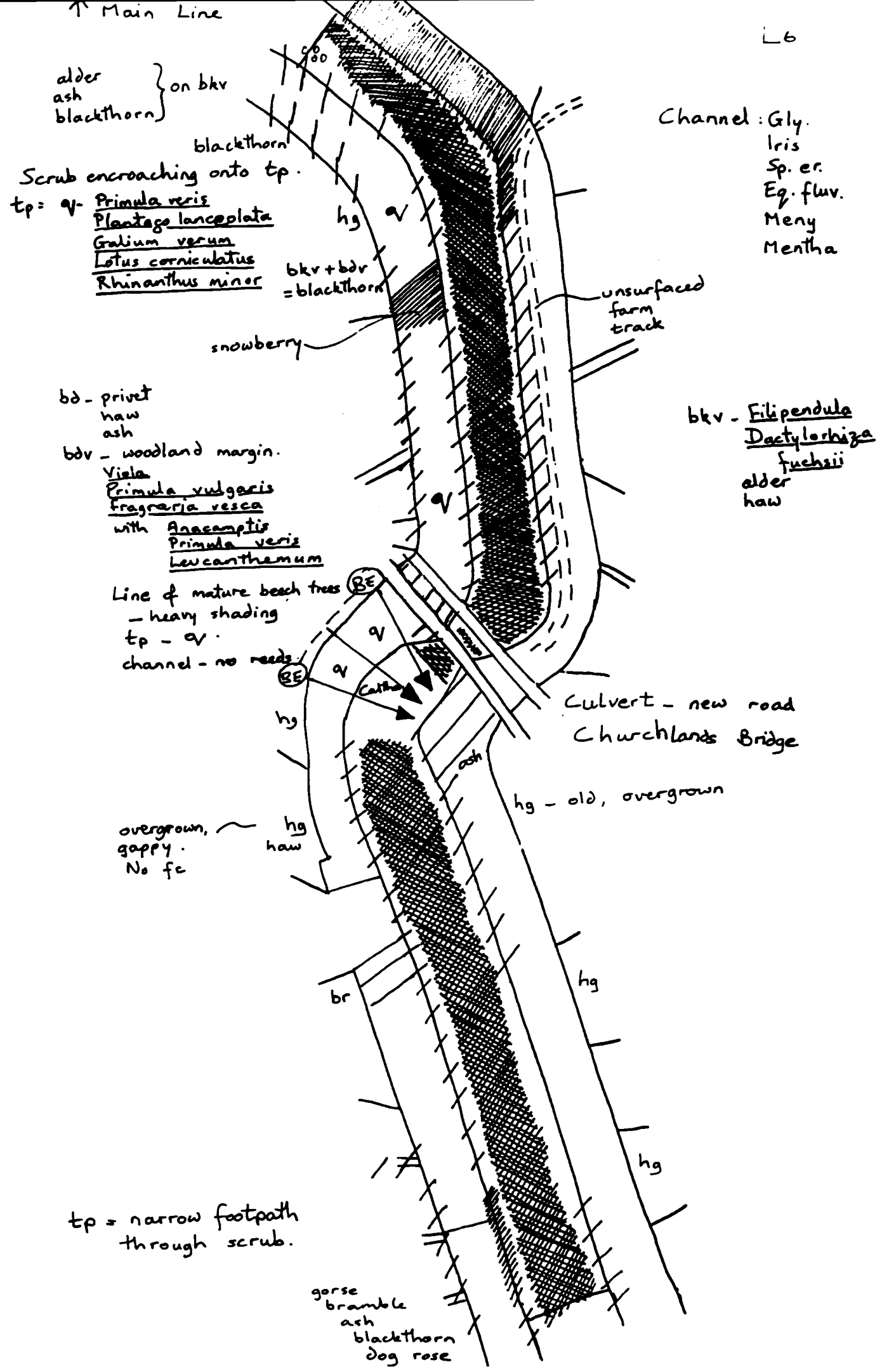
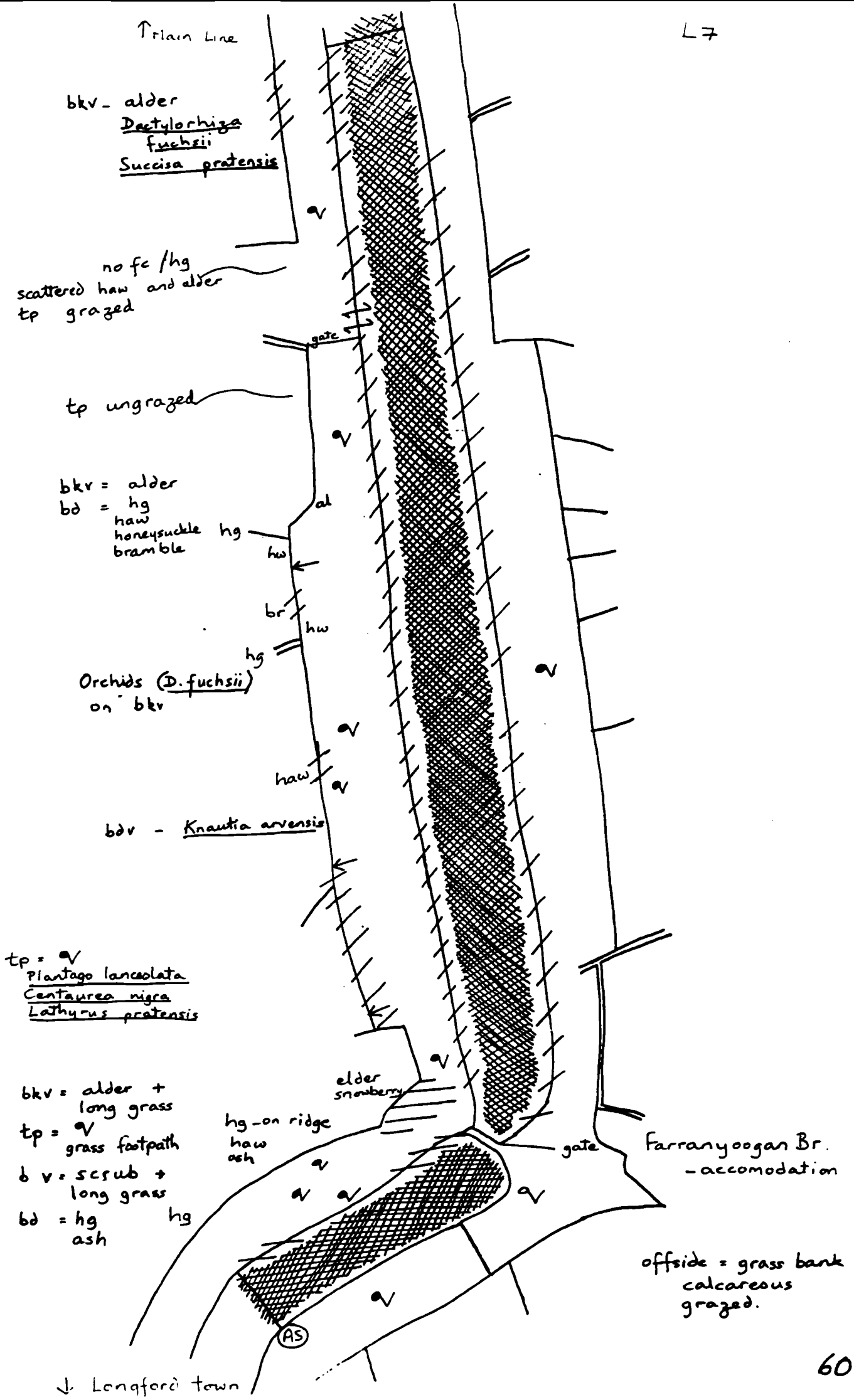
↓ LONGFORD TOWN

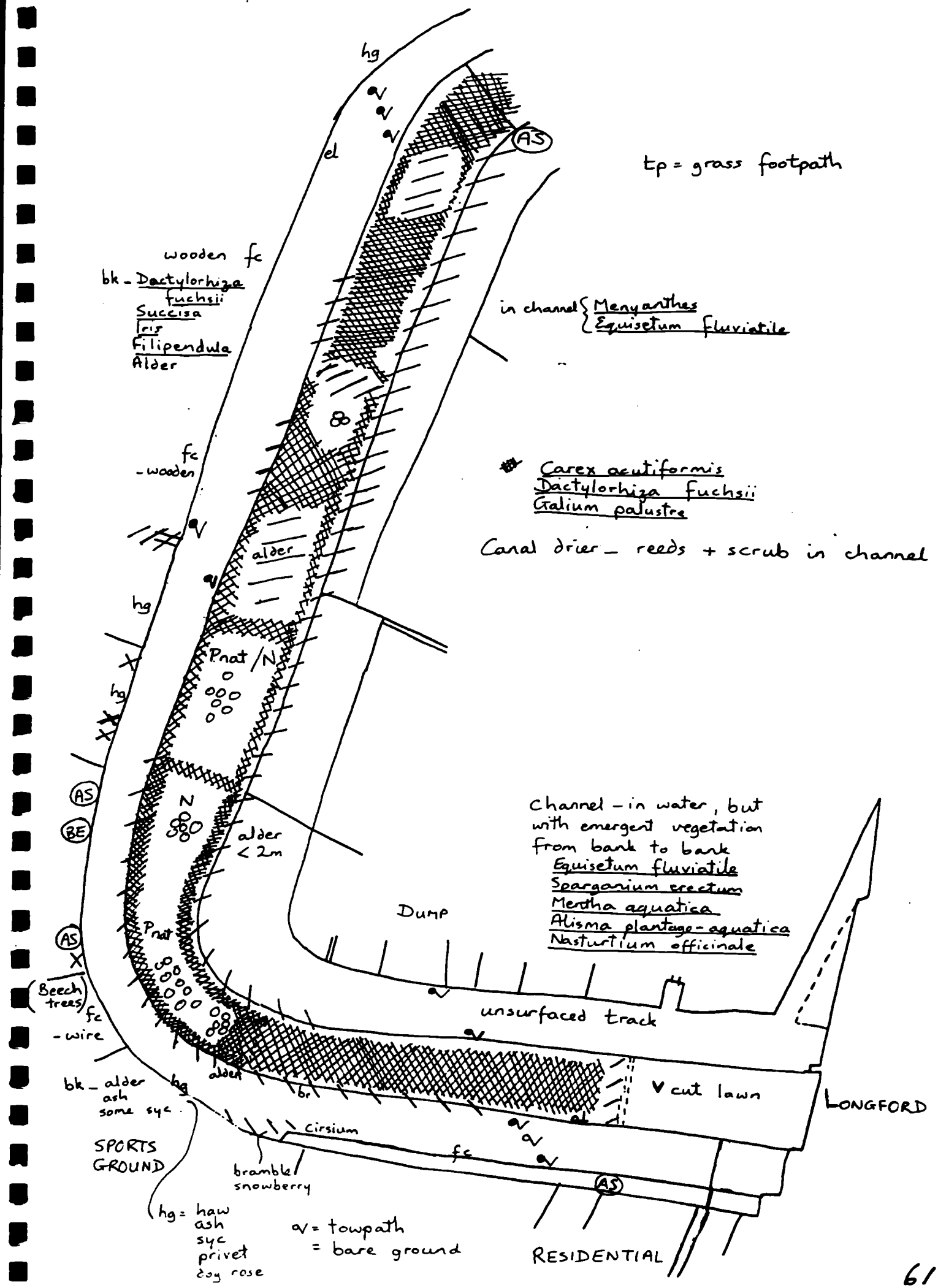

tp = qv
= unsurfaced track
ROAD
ash
tp - impassable
tp = qv
= grass track
ash
HC
Knockanboy Bridge
Culvert - new road
tp = qv
= unsurfaced track
br/hw
channel - grazed poached
qv
qv
AS
hw
AS
br
bkv - br willow blackthorn
qv
narrow footpath
qv
bkv - Cirsium
bdv - woodland margin
tp - grazed
bkv - ash
channel - Gly
Menyanthes
Mentha
Oenanthe aquatica
Alisma plantago-aquatica
Myosotis scorpioides
Baldellia ranunculoides
qv
alder
privet
blackthorn
honeysuckle
bkv - alder
ash
bdv - haw blackthorn
tp - narrow path through scrub. Very overgrown


↑ Main Line
alder
ash
blackthorn
} on bkv
blackthorn
Scrub encroaching onto tp.
tp: qv - Primula veris
Plantago lanceolata
Galium verum
Lotus corniculatus
Rhinanthus minor
hg
qv
bkv + bdv
= blackthorn
snowberry
Channel: Gly.
Iris
Sp. er.
Eq. fluv.
Meny
Mentha
unsurfaced
farm
track
bd - privet
haw
ash
bdv - woodland margin.
Viola
Primula vulgaris
Fragraria vesca
with Anacamptis
Primula veris
Leucanthemum
bkv - Filipendula
Dactylorhiza
fuchsii
alder
haw
Line of mature beach trees
- heavy shading
tp - qv.
channel - no reeds
BE
qv
Culvert - new road
Churchlands Bridge
hg
ash
hg - old, overgrown
overgrown,
gappy.
No fc
hg
haw
br
hg
hg
tp = narrow footpath
through scrub.
gorse
bramble
ash
blackthorn
dog rose
↓ Longford Town


↑Train Line
bkv - alder
Dactylorhiza fuchsii
Succisa pratensis
no fc / hg
scattered haw and alder
tp grazed
gate
tp ungrazed
bkv = alder
bd = hg
haw
honeysuckle
bramble
hg
al
hw
br
hw
hg
Orchids (D. fuchsii) on bkv
haw
bdv - Knautia arvensis
tp = v
Plantago lanceolata
Centaurea nigra
Lathyrus pratensis
bkv = alder + long grass
tp = v grass footpath
b v = scrub + long grass
bd = hg ash
hg
elder
snowberry
hg - on ridge
haw
ash
gate
Farranyoogan Br.
- accomodation
offside = grass bank
calcareous
grazed.
AS
↓ Longford town

bk, tp, bov = av

↑ Main Line



ROYAL CANAL

Figure 1.1

MANAGEMENT UNITS I, II, III

AREAS OF SCIENTIFIC INTEREST 33

LEGEND

- LOCK
- BRIDGE
- TOWN
- AQUEDUCT
- COUNTY BOUNDARY
- RAILWAY
- MAP BOUNDARY
- VIADUCT

SCALE 0 1 2 3 4 5 Km

denotes the end of a kilometre section