



Comhairle Contae Thiobraid Árann  
Tipperary County Council



## Suir Island Masterplan – Appendices

# Appendices

- Appendix A: Existing Reports Reviewed
- Appendix B: Flyer for Family Fun Day
- Appendix C: Survey
- Appendix D: Existing Building Actions
- Appendix E: Existing Pedestrian Route on Old Bridge
- Appendix F: Cost Estimate
- Appendix G: Tree Survey and Preservation Plan
- Appendix H: Legislative Policy Background
- Appendix J: Annex i Habitats and Annex ii Species
- Appendix K: Environmental Appraisal of Key Objectives
- Appendix L: Appropriate Assessment Screening
- Appendix M: Archaeological Appraisal

## Appendix A – Existing Reports Reviewed

- “Built Heritage Conservation Action Plan for Suir Island, Clonmel” (March 2014). Kevin Blackwood, Fred Hamond, Ivor McElveen and John Feehan, commonly referred to as the ‘Blackwood Report’.
- “An Archaeological Report on Hughes Mills, Little Island, Clonmel”. (1995). Henry, Mary.
- “A Documentary and Cartographic study of the Industrial Archaeological Remains on part of Suir Island, Clonmel”. (1990). Henry, Mary.
- “Archaeological Testing on the River Suir (Clonmel) Drainage Scheme”. (2006) Henry, Mary.
- “River Suir (Clonmel West) Drainage Scheme—Wildlife Survey”. (2007). Biosphere Environmental Services.
- “Archaeological Assessment of River Suir (Clonmel) Drainage scheme”. (June 2007). Mott McDonald Pettit.
- “A survey of the Waterworks Associated with Grubs Mills, Willow Island, Clonmel”. (2009). Hammond, Fred.
- “River Suir Heritage Survey Vol 2”. (2009). Feehan, J. and Sheridan, H.
- “SuirCan Community Forum Response to Draft Urban Design Framework for Suir Island”. (February 2009). SuirCan Community Forum.
- “Results of Archaeological Testing of River Suir at Green Lane Bridge”. (2010). Kieran, E., Hayden B. and Joyce, T.
- “Survey of the Lower River Suir Tinhalla to Knocklofty Bridge”. (2010). Hammond, Fred.
- “A summary of Community Participative Workshops held at the River Suir Café”. (July 2011). Tauber, L.
- “River Suir Community Action Plan” (2012). South Tipperary County Council.
- “Concept Development and Feasibility Study – Munster Peaks”. March 2014). Tourism Development International.
- “Clonmel Borough District Town Centre Initiative Report”. (March 2016). Tipperary County Council.
- “Strategic Tourism Marketing, Experience & Destination Development Plan 2016-2021”. (May 2016). CHL Consulting Company for Tipperary County Council.
- “Proposal for rustic woodland walk on Suir Island” (Oct 2016). SuirCan Community Forum.
- “Green & Blue Infrastructure Masterplan Roadmap for Tipperary Waterways”. (September 2018). Tipperary County Council.
- “What We Want! The Clonmel community highlight the strengths, challenges and ideas that require action”. (Date unknown). Clonmel Chamber.
- “Proposal for a painted mural for the Flood Relief Wall at Lady Blessington’s bath, Clonmel”. (Date unknown). SuirCan Community Forum.
- “Clonmel and Environs Development Plan” (2013). Clonmel Borough Council, South Tipperary County Council
- “Clonmel and Environs Development Plan” (2013). Clonmel Borough Council, South Tipperary County Council, Appendix 2 - Record of Protected Structures
- National Inventory of Architectural Heritage – description of built heritage structures.

Available at: <http://www.buildingsofireland.ie/niah/search.jsp?county=TS&regno=22121005&type=record>

Appendix B – Flyer for Family Fun Day Consultation



**SUN AUG 13TH**  
**SUIR ISLAND**  
**PUBLIC**  
**CONSULTATION**

**FAMILY FUN DAY**  
**DENIS BURKE PARK**  
**11AM-4PM**

**Come visit Kenneth Hennessy Architects to give your Design ideas for the development of Suir Island as a Community amenity and recreational resource in Clonmel**



# Appendix C – Survey

## Public Consultation Survey | Suir Island

Design ideas for the Development of Suir Island as a Community Amenity and Recreation Resource in Clonmel.

1) What amenities would you like to see on Suir Island?

2) What would you like to see Suir Island used as?

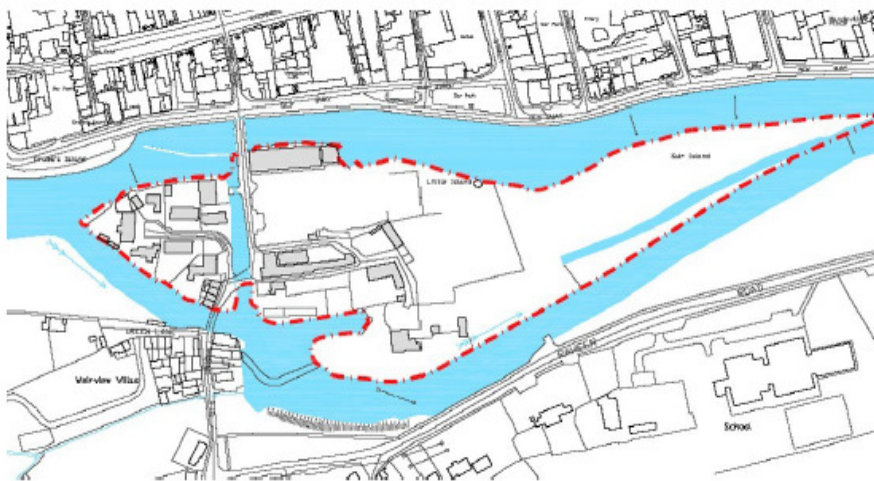
3) Would you like to see more local access to Suir Island (i.e a pedestrian bridge) and if so where would you like to see it located?

Yes

No

Please specify

Suir Island



4) Please select the top five activities that you would like to see on Suir Island from the following list

- |   |   |
|---|---|
| <input type="checkbox"/> Fishing            | <input type="checkbox"/> Bike Routes            |
| <input type="checkbox"/> Boating            | <input type="checkbox"/> Walking Routes         |
| <input type="checkbox"/> Swimming           | <input type="checkbox"/> Nature Walks           |
| <input type="checkbox"/> Paddle Boat Rental | <input type="checkbox"/> Camping / Tent Pitches |
| <input type="checkbox"/> SUP Rental         | <input type="checkbox"/> Picnic Areas           |
| <input type="checkbox"/> Bird Watching      | <input type="checkbox"/> BBQ Areas              |
| <input type="checkbox"/> Duck Feeding       | <input type="checkbox"/> Games Tables           |
| <input type="checkbox"/> Food Growing       | <input type="checkbox"/> Open Air Theatre       |
| <input type="checkbox"/> Allotments         | <input type="checkbox"/> Slacklining            |
| <input type="checkbox"/> Viewing Platform   | <input type="checkbox"/> Adventure Play Area    |
| <input type="checkbox"/> Sculpture Garden   | <input type="checkbox"/> Playground             |
| <input type="checkbox"/> Skate Park         | <input type="checkbox"/> Tree Climbing          |

5) Please provide any additional comments that you would like to make

6) If you would be interested in taking part in further research for this project, please provide your name and contact details here. Your participation in this questionnaire is entirely voluntary and you can withdraw from the questionnaire at any time. The information you provide will be treated confidentially and the data will be anonymised. Your name will not be used in the reporting or analyses in any way. Thank you for taking the time to complete this survey

Name

Phone Number

Address

Email Address



Suir Island Public Consultation Event



## Appendix D– Existing Building Actions

Existing Building actions. (Refer to “Built Heritage Conservation Action Plan for Suir Island, Clonmel” (March 2014) for detail)

<b>Structure no.</b> <i>(As per “Built Heritage Conservation Action Plan for Suir Island, Clonmel” (March 2014)</i>	<b>Description</b>	<b>Recommend action</b> <i>(As per “Built Heritage Conservation Action Plan for Suir Island, Clonmel” (March 2014)</i>
0601.01/0701.01	Building wall	Clear vegetation and unblock openings. Patch repoint, stitch cracks as necessary, and flaunch wall heads (retain at existing height). Salvage and consolidate remains of timber shaft. Retain in safe place for public display at a later date.
0602.01	Boundary wall	Clear vegetation, patch repoint, stitch cracks as necessary, and flaunch wall heads (retain at existing height).
0701.02—0701.06	Building wall	Clear vegetation, unblock walls infilled with concrete block, patch repoint, stitch cracks as necessary, and flaunch wall heads (retain at existing height). Depending on the final external ground level, a metal grille across the headrace arch at right may also be necessary for security reasons. Remove vegetation, patch repoint, stitch cracks as necessary, and flaunch wall heads (retain at existing height). Repair and consolidate the two arches over tailrace channel below. Remove all debris and sediment from the tailrace channels inside this building. Vegetation clearance to improve visibility of mill from flood control berm along N side.
0702.02	Headrace culvert	Reinstate parapet and railing; see also entrance to Suir Island House (0902.02). Unblock culvert if water being re-introduced to race. If channel rewatered but later entrance to Suir Island House retained (0902.02) as well, it will be necessary to insert a reinforced-concrete box culvert under extended section if there was never a culvert within the extension.
0702.03	Headrace wall	Selectively clear adjacent vegetation in line with works to garden. Dismantle unstable upstanding sections (retain stone for use elsewhere). Insert berm at junction with bed of headrace to Structural Engineer’s detail. Patch repoint stitch cracks as necessary and flaunch wall heads (retain or rebuild to at least 1.2m high).

Existing Building actions. (Refer to "Built Heritage Conservation Action Plan for Suir Island, Clonmel" (March 2014) for detail)

Structure no. (As per "Built Heritage Conservation Action Plan for Suir Island, Clonmel" (March 2014))	Description	Recommend action (As per "Built Heritage Conservation Action Plan for Suir Island, Clonmel" (March 2014))
0703.01—0701.05	Tailrace wall	Clear vegetation, patch repoint, stitch cracks as necessary, and flaunch wall heads (retain at existing height). Further inspection required once vegetation cleared from environs. If channels to both mills rewatered, this infill will require removal back to S side of tailrace from Mill 2 (0804.01).
0703.06	Footbridge	Remove vegetation to enable full inspection. Consider reinstating arch and beam bridges to facilitate pedestrian access over Mill 1 tailrace and to facilitate a footpath around site in general.
0703.07	Millrace	Remove trees etc within channel, and prune ones overhanging banks in consultation with environmentalist. Dredge bed to facilitate return of water from headrace back to river. Use the dredged material to consolidate banks as required.
0801.01 and 0801.02	Building Wall	Clear vegetation, patch repoint, stitch cracks as necessary, and flaunch wall heads (retain at existing height).
0801.03	Building Wall	Clear vegetation, patch repoint, stitch cracks as necessary, and flaunch wall heads (retain at existing height). Secure doorway to house with gate. In longer term, consider unblocking of some openings (depending on use of grounds).
0801.04	Tailrace wall	Remove vegetation in environs to enable full inspection of line of former tailrace.
0802.01 -0802.04	Building Wall	Remove vegetation, patch repointing, stitching and flaunching of wall heads (retain at existing height). Repair falling brick arch.

Existing Building actions. (Refer to "Built Heritage Conservation Action Plan for Suir Island, Clonmel" (March 2014) for detail)

<b>Structure no.</b> <i>(As per "Built Heritage Conservation Action Plan for Suir Island, Clonmel" (March 2014))</i>	<b>Description</b>	<b>Recommend action</b> <i>(As per "Built Heritage Conservation Action Plan for Suir Island, Clonmel" (March 2014))</i>
0803.01	Headrace wall	Clear vegetation, insert berm along junction with bed of headrace to Structural Engineer's detail. Patch repoint, stitch cracks as necessary, and flaunch wall heads to suitable height.
0803.02	Headrace culvert	Unblock culvert if water re-introduced to race. Remove vegetation from walls and bed of race and repoint, (in some cases possibly rebuild) castellations and re-render using lime render to match texture of original.
0803.03	Headrace wall	Clear vegetation, insert berm along junction with bed of headrace, patch repoint, stitch cracks as necessary, and flaunch wall heads to suitable height.
0803.04	Bypass Channel	Clear vegetation. Unblock culvert and reinstate sluices if water re-introduced to race. Inspect culvert. See also 0904.02
0803.06	Headrace wall	Clear vegetation, insert berm along junction with bed of headrace to Structural Engineer's detail. Patch repoint, stitch cracks as necessary, and flaunch wall heads to suitable height. Rebuild section around projecting tree but also consider replacing part of collapsed section with steps to facilitate river access.
0902.01, 0902.02	Boundary wall	Clear vegetation and consolidate walls, retaining as much fabric as possible on account of historical significance. Consider removing historic gate for restoration, and making temporary security in the meantime. Secure gate against unauthorised access. In short term, clear vegetation and install secure gate between piers to prevent unauthorised access. In long term, consider removing and reverting to original entrance (0902.01). Salvage and display remains of stone mounting blocks.

Existing Building actions. (Refer to "Built Heritage Conservation Action Plan for Suir Island, Clonmel" (March 2014) for detail)

<b>Structure no.</b> <i>(As per "Built Heritage Conservation Action Plan for Suir Island, Clonmel" (March 2014))</i>	<b>Description</b>	<b>Recommend action</b> <i>(As per "Built Heritage Conservation Action Plan for Suir Island, Clonmel" (March 2014))</i>
0901.01	Suir Island house building wall	Remove all vegetation, avoiding damage to building. Either remove slates to wall heads and stabilise tops in lime mortar, or rebed in lime mortar. Replace vulnerable lintels. Make structure secure from entry at ground floor level.
0901.02	Suir Island house building wall	Remove all vegetation, avoiding damage to building. At wall heads, either remove slates and stabilise wall with lime mortar, or rebed slates in lime mortar. Stabilise lintels to two central openings. If necessary, use reinforced-concrete replacements bedded in lime mortar to Structural Engineer's design and specification. Stabilise chimney stacks, as necessary, and retain fireplaces in-situ. Record and remove remaining rainwater goods. Make structure secure from entry at ground floor level.
0901.03	Suir Island house building wall	Remove all vegetation, avoiding damage to building. Record slate hanging to gable before removing. Retain intact slates for possibility of reapplying later. Stabilise wall tops at gable using lime mortar, stabilise chimney stack, and retain fireplaces. Remove window frames and make secure from entry at ground floor.
0901.04	Suir Island house building wall	Remove all vegetation, avoiding damage to building. Either remove slates to wall heads and stabilise tops in lime mortar, or rebed in lime mortar. Make structure secure from entry at ground floor level.
0901.05	Suir Island house building wall	Actions Remove vegetation, patch repoint, stitch cracks as necessary, and flaunch wall heads.

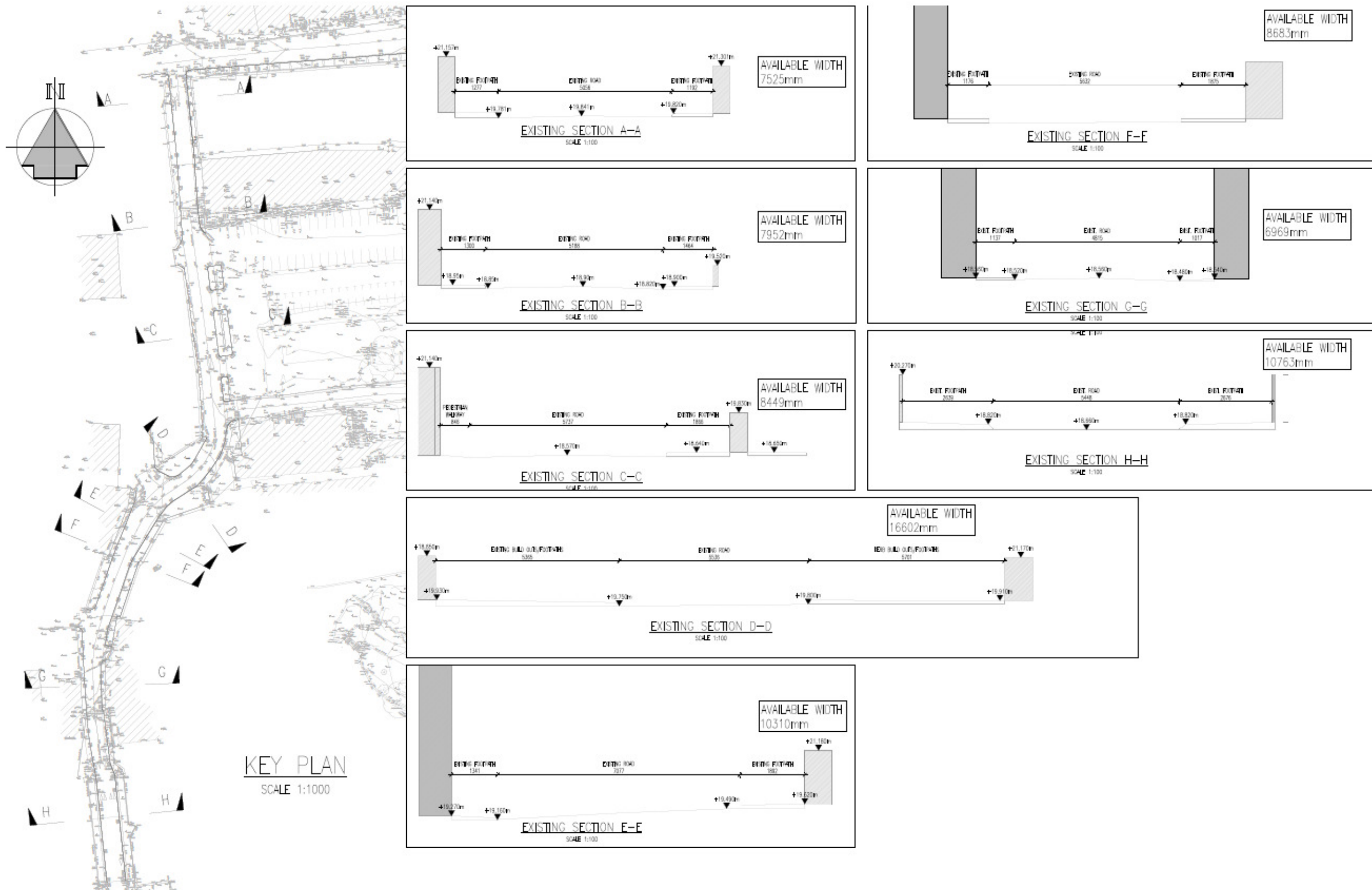
Existing Building actions. (Refer to "Built Heritage Conservation Action Plan for Suir Island, Clonmel" (March 2014) for detail)

<b>Structure no.</b> <i>(As per "Built Heritage Conservation Action Plan for Suir Island, Clonmel" (March 2014))</i>	<b>Description</b>	<b>Recommend action</b> <i>(As per "Built Heritage Conservation Action Plan for Suir Island, Clonmel" (March 2014))</i>
0901.06	Suir Island house building wall	Remove roof following appropriate measures and dispose off site. Consider demolition of this wall.
0901.07	Suir Island house building wall	Remove roof, retaining any sound slate. Remove vegetation and stabilise wall heads, as necessary, using lime mortar.
0901.08	Suir Island house building wall	Remove vegetation and stabilise wall heads, as necessary, using lime mortar.
0901.09	Suir Island house building wall	Remove collapsed roof and loose slates. Safe inspection of surviving floor required to ascertain if possible to conserve timberwork. Secure doorway against entry using barred gate.
0901.10—0901.13	Suir Island house building wall	Safe inspection of surviving floor required to ascertain if possible to conserve timberwork. Secure ground floor window against unauthorised entry. Stabilise wall heads. Secure against unauthorised entry. Stabilise wall heads. Secure against unauthorised entry.
0903.01, 0903.02	Building wall	Stabilise wall head, repoint as necessary, and retain as ruin. Retain neighbouring trees as an attractive feature.

Existing Building actions. (Refer to "Built Heritage Conservation Action Plan for Suir Island, Clonmel" (March 2014) for detail)

<b>Structure no.</b> <i>(As per "Built Heritage Conservation Action Plan for Suir Island, Clonmel" (March 2014))</i>	<b>Description</b>	<b>Recommend action</b> <i>(As per "Built Heritage Conservation Action Plan for Suir Island, Clonmel" (March 2014))</i>
0904.01	River wall	Selective removal of vegetation to enable inspection. Will probably require repair, consolidation and possibly even underpinning where undercut by the river. Consider retaining at 1.2m high to enable view of river and weir, subject to detailed design and renovation of garden. Retain existing wall height at gateway, and insert lockable gate.
0904.02	Bypass channel	Clear vegetation. If race to be re-watered, remove sediment to allow bypass channel (0803.04) to function.
0904.03	River wall	Remove vegetation, patch repoint, stitch cracks as necessary, and flaunch wall heads. Consider retaining at 1.2m high to enable view of river and weir, subject to detailed design and renovation of garden. Underpinning may also be necessary if found, after further inspection, to be undercut by the river.
1001.01— 1001.04	Tower wall	Remove vegetation from wall heads and stabilise/rebuild crenulations in stone and lime mortar. Unblock windows to permit ventilation of structure. Insert wire mesh over to prevent bird entry. Remove vegetation and concrete blockwork, stabilise wall head and window dressings, and repoint as required.

# Appendix E: Existing Pedestrian Route on Old Bridge



## Appendix F: Cost Estimate



**PROPOSED SUIR ISLAND MASTERPLAN**

**AT**

**SUIR ISLAND, CLONMEL  
CO. TIPPERARY**

**FOR**

**TIPPERARY COUNTY COUNCIL**

**DRAFT**

**ORDER OF MAGNITUDE  
COST ESTIMATE  
19th NOVEMBER 2018**



**Comhairle Contae Thiobraid Árann  
Tipperary County Council**

*Nolan Construction Consultants  
10 Ormonde Street  
Kilkenny  
(056) 780 1201*



**PROPOSED MASTERPLAN FOR SUIR ISLAND, CLONMEL, CO. TIPPERARY  
FOR TIPPERARY COUNTY COUNCIL**



**ORDER OF MAGNITUDE COSTS - 19th NOVEMBER 2018**

**DRAFT**

**ESTIMATED COST**

- Based on Masterplan drawings and information received from Kenneth Hennessy Architects and MPA Consulting Engineers, we would estimate that the cost of the proposed works will be **€11,000,000 (including VAT)**, made up as follows:-

	<b>Cost €</b>
1.1 Public Plaza and North Bridge	2,850,000
1.2 Raised walkway around berm and Tree top walk	2,135,000
1.3 Suir Island Garden	1,360,000
1.4 Wildwood Clearings & associated pathways/looped walks	260,000
1.5 Re-Water Millrace and develop river crossings and pathways	225,000
1.6 South Pedestrian Bridge	1,650,000
1.7 Facilities Building	200,000
	<hr/> 8,680,000
1.8 Contingency Sum for Design Development	900,000
	<hr/> 9,580,000
1.9 Value Added Tax @ 13½ %	1,293,300
	<hr/> 10,873,300
1.10 TOTAL ESTIMATED CONSTRUCTION COST (INCL. VAT)	€ 10,873,300
	<hr/> <b>(SAY) € 11,000,000</b>

**ASSUMPTIONS**

- The above figures are based on the following assumptions-
  - competitively priced tenders will be obtained for the project
  - ground conditions are normal and no specialist foundations are required for the new Facilities building

**QUALIFICATIONS**

- The estimated costs are based on current wage rates and material prices and exclude inflation from November 2018.
- Our estimated construction costs include an allowance for Mechanical and Electrical Installations, however, the exact scope of work will need to be determined and the figures confirmed by a Services Specialist.



5. The estimated costs include for works to the new and existing buildings as per the Site Layout Plan (Ref 1738 SK01) which take account of the existing Suir Island House, the new Facilities Buildings and tourist and rental offices.
6. The walkway structure within Item 1.2 is considered to be an elevated platform and increased provisions for same are included here.
7. The Tree Top Walk within Item 1.2 includes for an elevated walkway at canopy level 200 metres in length with a provision for a zipline, as per the Site Layout Plan (Ref 1738 SK01). These costs will need to be reviewed on receipt of a detailed design.
8. The project is currently at Masterplan stage and developed designs will need to be monitored and our estimates reviewed when more information is available and the structural and services solutions are resolved.
9. Works associated with the new and existing carpark including services do not form part of these costs and are to be carried out directly by Tipperary County Council.
10. The budget includes all the significant items available to us, there may be others which we have not been notified of.

#### EXCLUSIONS

11. The following items are **excluded** from the above costs:
  - 11.1 inflation from November 2018;
  - 11.2 local authority fees and charges;
  - 11.3 contributions to Public Utilities (if any);
  - 11.4 professional fees and expenses;
  - 11.5 finance costs (if any);
  - 11.6 legal fees (if any);
  - 11.7 advertising costs (if any);
  - 11.8 car parking facilities
  - 11.9 re-alignment of any existing roads and paths other than those indicated on the
  - 11.10 removal / diversion of any existing services;
  - 11.11 removal of any contaminated materials discovered during the works;
  - 11.12 archaeological investigation and associated attendance costs;
  - 11.13 Ecological Impact Assessment, if required.



#### APPENDICES

12. We have included an Elemental Breakdown of the Estimated Construction Costs in Appendix 1.

Robert Nolan MSCSI MRICS

**Director**

NOLAN CONSTRUCTION CONSULTANTS

**19th November 2018**



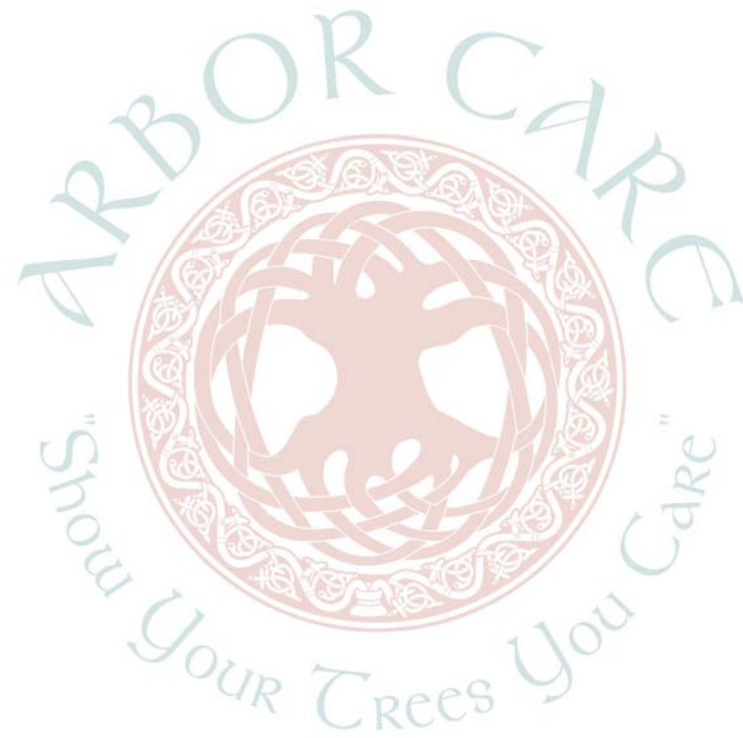
APPENDIX 1 - ANALYSIS OF COSTS

APPENDIX 1

Ele. No.	Element	Total €	Brief Specification
<b>Public Plaza and North Bridge</b>			
(10)	Prepared Site	100,000.00	Provisions for general site clearance; removal of vegetation, trees, hardstandings, etc;
(20)	Site Structures	1,680,000.00	Provision for wooden pedestrian bridge including works to north and south banks; feature canopy overhead
(30)	Site Enclosures	80,000.00	Allowance for retaining structures
(40)	Roads, Paths and Pavings	430,000.00	Raised walkway structure; steps, handrails and balustrades; tiered public plaza; asphalt road surface; kerbing; public realm paving
(50)	Site Services (Piped and Ducted)	50,000.00	Surface water drainage system; manholes, gullies, chambers, etc
(60)	Site Services (Electrical)	25,000.00	Provision for trenching and ducting for Site Lighting; lamp standard and uplighter bases; chambers
(69)	Electrical Installations	80,000.00	Provision for public / site lighting
(70)	Site Fittings	45,000.00	Benches; seating; bollards; litter bins, public realm features and the like
(80)	Landscaping	10,000.00	Grassing and seeding; provision for planting
(06)	Preliminaries & Insurances	350,000.00	Contractor's indirect costs, supervision, plant; health and safety; insurances
<b>Total</b>		<b>2,850,000.00</b>	
<b>Tree Top Walk</b>			
(20)	Site Structures	985,000.00	Tree top walk structure; approx. 130m long
(70)	Site Fittings	150,000.00	Allowance for potential zip line
(06)	Preliminaries & Insurances	150,000.00	Contractor's indirect costs, supervision, plant; health and safety; insurances
<b>Raised Walkway around Berm</b>			
(10)	Prepared Site	60,000.00	Provisions for general site clearance; removal of vegetation, trees, hardstandings, etc;
(30)	Site Enclosures	135,000.00	Provision for walls and retaining structures
(40)	Roads, Paths and Pavings	350,000.00	Elevated walkway structure; ramps, steps, handrails and balustrades; paving and edge detailing
(50)	Site Services (Piped and Ducted)	35,000.00	Surface water drainage systems; manholes, gullies, land drains, etc;
(60)	Site Services (Electrical)	20,000.00	Provision for trenching and ducting for public / site Lighting; lamp standard and uplighter bases; chambers
(69)	Electrical Installations	60,000.00	Provision for public / site lighting
(70)	Site Fittings	40,000.00	Benches; seating; litter bins
(80)	Landscaping	40,000.00	Formation of bermed embankments; grassing and seeding; allowance for trees, plants and shrubs including marsh planting
(06)	Preliminaries & Insurances	110,000.00	Contractor's indirect costs, supervision, plant; health and safety; insurances
<b>Total</b>		<b>2,135,000.00</b>	
<b>Suir Island Garden</b>			
(10)	Prepared Site	150,000.00	Provisions for general site clearance; removal of vegetation, trees, hardstandings, etc; demolitions of existing structures
(20)	Site Structures	500,000.00	Works to new and existing buildings including existing Suir Island House, and information / tourist and rental offices; Provision for water egress / ingress slipway
(30)	Site Enclosures	170,000.00	Provision for walls and retaining structures to perimeter as per Site Layout Plan Ref: 1738SK01
(40)	Roads, Paths and Pavings	130,000.00	Paved and gravel paths; kerbing and edge details; steps and handrails; hardstanding areas for boat storage yard
(50)	Site Services (Piped and Ducted)	55,000.00	Foul and surface water drainage systems; manholes, gullies, drainage channels, watermain, hydrants, chambers, valves, etc
(60)	Site Services (Electrical)	25,000.00	Provision for trenching and ducting for ESB, Telecom and Site Lighting; lamp standard and uplighter bases; chambers
(69)	Electrical Installations	40,000.00	Provision for public / site lighting
(70)	Site Fittings	100,000.00	Picnic areas; benches; lie-back seats; litter bins
(80)	Landscaping	25,000.00	Allowance for trees, plants and shrubs including marsh planting
(06)	Preliminaries & Insurances	165,000.00	Contractor's indirect costs, supervision, plant; health and safety; insurances
<b>Total</b>		<b>1,360,000.00</b>	

<b>Wildwood Clearings</b>			
(10)	Prepared Site	65,000.00	Provisions for general site clearance; removal of vegetation, trees, etc;
(40)	Roads, Paths and Pavings	55,000.00	Gravel paths; edge details
(70)	Site Fittings	55,000.00	Picnic seating and tables; benches; lie-back seats; litter bins; allowance for additional fittings
(80)	Landscaping	45,000.00	Grassing and seeding; bark mulch clearings; provision for planting
(06)	Preliminaries & Insurances	40,000.00	Contractor's indirect costs, supervision, plant; health and safety; insurances
<b>Total</b>		<b>260,000.00</b>	
<b>Re-Water Millrace</b>			
(10)	Prepared Site	165,000.00	Provision for clearance and cleaning of existing millrace; excavations and disposal; works associated with re-watering
(20)	Site Structures	15,000.00	Provision for water egress / ingress slipway
(40)	Roads, Paths and Pavings	5,000.00	Stepping stones within millrace
(06) & (07)	Preliminaries & Insurances	40,000.00	Contractor's indirect costs, supervision, plant; health and safety; insurances
<b>Total</b>		<b>225,000.00</b>	
<b>South Pedestrian Bridge</b>			
(20)	Site Structures	1,375,000.00	Provision for wooden pedestrian bridge including works to north and south banks
(69)	Electrical Installations	50,000.00	Provision for public / site lighting
(06)	Preliminaries & Insurances	225,000.00	Contractor's indirect costs, supervision, plant; health and safety; insurances
<b>Total</b>		<b>1,650,000.00</b>	
<b>Facilities Building</b>			
(20)	Site Structures	175,000.00	Facilities Building as Drwg Ref 1738 SK01 to include substructure, superstructure, completions, finishes, services installations and fittings: complete
(06)	Preliminaries & Insurances	25,000.00	Contractor's indirect costs, supervision, plant; health and safety; insurances
<b>Total</b>		<b>200,000.00</b>	
<b>Total Estimated Cost (Excl VAT)</b>		<b>€ 8,680,000.00</b>	

## Appendix G: Tree Survey and Preservation Plan



Unit 1A, Crossagalla Enterprise Centre,  
Ballysimon Rd., Limerick.  
Telephone: (086) 3082808  
Fax: (061) 400231  
[info@arborcare.ie](mailto:info@arborcare.ie)  
[www.arborcare.ie](http://www.arborcare.ie)



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**A Tree Survey and Plan of Preservation,  
For,  
Suir Island,  
Clonmel,  
Co. Tipperary.**

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Prepared for,

**KENNETH HENNESSY ARCHITECTS LTD**

50A Queen Street Clonmel,  
Co. Tipperary

Prepared by, (Arbor-Care Ltd)

Mr. Michael Garry,

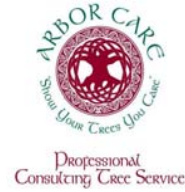
Unit 1A, Crossagalla Enterprise Centre,  
Ballysimon Rd., Limerick.

Telephone: (086) 3082808

Fax: (061) 400231

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[www.arborcare.ie](http://www.arborcare.ie)



### **1.0 Executive Summary.**

Arbor-Care Ltd was retained by Kenneth Hennessy architects, on behalf of Tipperary County Council to undertake a tree survey and plan of preservation, for the trees contained within Suir Island. Suir Island is located in the centre of Clonmel and is within easy walking distance of Clonmel Town Centre (O'Connell Street). The Island is surrounded by the River Suir on all sides and is accessible from the town centre via the Old Bridge to the north west of the island. The Island, from its mid-section to eastern end is largely undeveloped and overgrown. Existing development at the island's western end comprises an apartment complex, car-park, commercial units, commercial waste collector company, derelict mill building and an area of housing (largely vacant/derelict) on its western portion. The majority of the Island is in the ownership of Tipperary County Council, with some areas in private ownership. The island has been unmanaged for some years and as a result is quite overgrown in certain sections. In total a 115 trees were tagged and assessed. There are many fine examples of high amenity trees especially along the town side of the island where there is a mix of species such as horse chestnut, lime, sycamore and beech these due to their size and prominent location are of high amenity value. There are outstanding examples of very large and mature aspen trees toward the eastern end of the island. There are large areas that are in accessible due to the almost 2m high brambles, there is significant sycamore regeneration within the island.

The surveyed trees contained within this report are located within the boundaries of the Island. The following report is a based on a tree survey independent of any development plans. It sets out to record the trees onsite and to describe their conditions and appropriateness to the site and to categorise them in accordance with *BS 5837:2012 Trees in relation to construction*. A separate arboricultural assessment report will be undertaken to determine the impact the proposed development will have on the existing trees on the site.



### **2.0 Assignment.**

As outlined in the tender document we agreed that my assignment was to:

1. To undertake a visual tree survey to, identify any potential impact the new development would have on the trees and visa versa.
2. To provide recommendations for their preservation and or removal.
3. Present a written report on the inspection of the trees
4. To provide a tree constraints plan highlighting which trees are to be removed, retained.

### **2.1 Limits of the Assignment.**

Unless otherwise stated tree inspections have been undertaken from ground level and using non-invasive techniques only. Comments on the condition and safety of any tree relates to the condition of that tree at the time of the survey. It should be recognised that tree condition is subject to change due to, for example the effects of disease, wind or nearby development works. Changes in land use are also significant in respect of risk and condition assessment. Trees should therefore be inspected at 12 month intervals.



### 3.0 Methodology.

The tree survey and visual condition assessment was undertaken between the 22<sup>nd</sup> and 26<sup>th</sup> of September 2017. In accordance with BS 5837 2012 only mature trees with diameters of 75mm were surveyed. Also in accordance with point 4.4.2.3 of the British standard document where trees formed obvious groups these were assessed and recorded as groups.

#### 4.4.2.3

*Trees growing as groups or woodland should be identified and assessed as such where the arboriculturist determines that this is appropriate. However, an assessment of individuals within any group should still be undertaken if there is a need to differentiate between them, e.g. in order to highlight significant variation in attributes (including physiological or structural condition).*

*NOTE The term "group" is intended to identify trees that form cohesive arboricultural features either aerodynamically (e.g. trees that provide companion shelter), visually (e.g. **avenues** or screens) or culturally, including for biodiversity (e.g. parkland or wood pasture), in respect of each of the three subcategories*

The survey commenced at the north west section of the Island (the car park area) and continued east to the apex of the island. Then continued east finishing at the soil heap.

The survey concentrated primarily on the **significant trees** within the area that may be impacted on by the proposed development.

Significant trees can be equated as those trees whose visual importance to the surrounding area is sufficient to justify special efforts to protect/preserve and whose loss would have an irremediable adverse impact on the local environment. Significance can also be placed depending on the trees age, another variable to imply significance can be the aesthetic merit of the tree based on its unusual size, intrinsic physical features or outstanding appearance or occurring in a unique location or context, and thus provides a special contribution as a landmark or landscape feature.

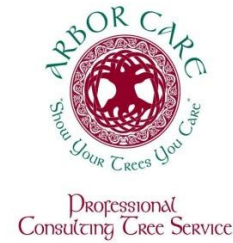
All above parts of the trees were visually examined. Tree diameters (DBH) were estimated at 1.5 meter above grade as per standard arboricultural practice. Tree height was measured with the use of a clinometer (Where practical). A generalised system was employed to describe the overall health of the trees. The system uses a five tier rating scale with the following descriptors,

Note:

Specimen condition is based on a 5-tier rating system:

- Very poor-1-20%
- Poor- 21-40%
- Fair- 41-60%
- Good- 61-80%
- Very good 81-100%

Where 100% would be a perfect species phenotype.



#### 4.0 Tree Preservation

Prior to any construction or demolition works on this site all trees destined for retention need to be protected by the use of protective barriers and or ground protection, fit for the purpose of ensuring the successful long-term preservation of the trees. In order for the retained trees to be adequately protected on the site a construction exclusion zone needs to be identified. This zone is calculated based on the root protection area (RPA), which is the minimum area in m<sup>2</sup> which should be left undisturbed around each retained tree. The RPA should be calculated as an area equivalent to a circle with a radius 12 times the stem diameter for a single stem tree and 10 times basal diameter measured immediately above the root flare for trees with more than one stem arising below 1.5m above ground level.

Number of Stems	Calculation
Single Stem Tree	$RPA (m^2) = \left\{ \frac{\text{stem diameter (mm)} @ 1.5m \times 12}{1000} \right\}^2 \times 3.142$
Tree with more than one Stem arising below 1.5m above Ground level	$RPA (m^2) = \left\{ \frac{\text{Basal Dia. (mm)} \times 10}{1000} \right\}^2 \times 3.142$

Note

The Calculated RPA should be capped to 707m<sup>2</sup>. e.g. which is the equivalent to a circle with a radius of 15m or a square with approximately 26 m sides.

#### Maintenance

All trees that are destined for removal shall be removed prior to any construction or demolition works on this site. Any tree remedial works that are required shall also be undertaken prior to any construction or demolition activity on the site. All the above shall be carried out by qualified and insured tree surgeons.



#### 5.2 Protective Barriers and Ground Protection.

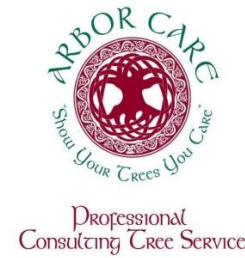
Trees that are destined to be retained must be protected by barriers and or ground protection prior to any materials or machinery being brought on site and prior to any development, demolition or soil stripping takes place. Areas that are designated for new plantings should be similarly protected. Barriers should be fit for the purpose of excluding construction activity. In most cases barriers should consist of a scaffold framework (Refer to Appendix 1) comprising a vertical and horizontal framework, well braced to resist impacts. To ensure the protective barriers are respected, clear concise signage must be affixed to the barrier in an unrestricted easily viewed location. The signage must state the following;

- No construction activity is to take place within the R.P.A. (unless pre-agreed the arborist)
- No materials of any kind are to be stored within the R.P.A.
- No "Spilling out" of materials shall take place within the R.P.A.
- No fires are to be lit within the R.P.A.

The protective barriers shall remain in an undisturbed condition and only removed on completion of all construction activity finished grading and sodding. Any breach of the protective fence shall be reported to the consulting arborist.

#### Ground Protection

Although works within the RPA are not recommended should essential works be required within the RPA. The installation of ground protection in the form of a single thickness of scaffold boards on top of a compressible layer laid onto a geotextile may be acceptable. For wheeled or tracked movements within the R.P.A. the ground protection should be designed by an engineer to accommodate the likely loading. Any works within the RPA must be undertaken with prior consultation with the arborist.



## **5.0 Predicted Impact of The Proposed Development.**

### **(Arboricultural Impact Assessment) (A.I.A.)**

#### ***Impact of the proposed development on the trees.***

It must be assumed that on any development site trees may be at risk from damage caused from a number of construction operations, these risks can include, mechanical damage to the crown or main stems of the tree from the use of heavy plant machinery on site, compaction of the soil from the storage of materials and or the use of plant machinery around the trees critical rooting zone or changes in soil levels which could either asphyxiate or expose the roots. The afore mentioned risks can be mitigated by adhering to the guidelines set out in *Bs: 5837 2012* which contains clear and concise current recommendations for a best practice approach to the assessment, retention and protection of trees on development sites. The afore mentioned proposed development has followed this guidance by,

- Seeking arboricultural advice to inform the layout and design stages of the proposed development
- Respecting the constraints posed to the development of the site by high or moderate quality trees
- Continuing to take advice on all aspects of the proposal that may impact upon the trees

The above assumes the R.P.A.'s are fenced and maintained prior to ground clearance and the sanctity of same is observed for the duration of all construction works. These measures and proposed new planting and landscaping will increase, augment and enhance the current arboreal footprint at this site.

The proposed development shall be undertaken in the most environmentally sensitive way, however there shall be incidences where trees will have to be removed in order to accommodate the development, this shall be necessary for progress and as not to place excessive pressure on those trees deemed for retention and lead to subsequent demands for their removal.

The main threat the trees face from development activities is soil compaction from both vehicular and pedestrian activities within the critical rooting zones of the trees and root severance. Soil compaction can be detrimental to the long term health of trees as it deprives the roots of oxygen and moisture. It is essential that soil compaction is avoided or at the very least kept to a minimum i.e pedestrian traffic only within the RPA of the trees and works carried out where possible during dry conditions. Should vehicular traffic be required within the rooting zone of the trees, and in consultation with the arborist a temporary surface must be installed to minimise the compaction levels. The severance of structural roots can destabilise trees increasing their risk of windthrow this must be avoided where possible. It is essential that during the course of works root severance is kept to a minimum and that any root over 250mm is pruned with the use of a chainsaw to ensure minimal damage and to prevent decay spreading into the roots.

The arboricultural impact on the above is not known at this stage until final design is agreed. However from discussions with the architects woodland paths and two pedestrian bridges are the main source of development. The pathways through the island will be constructed with compacted earth and or loose gravel either method will involve little if any excavations works thus reducing the soil compaction and or root severance. Where the path meets tree root greater than 200mm it is proposed to continue the path by means of a boardwalk which will involve no excavation therefore no root disturbance.

There are two pedestrian bridges proposed. The largest one of these will link the island with old quay. This area chosen by the architects is sensitive to the trees on the island and no trees will require removal to accommodate the bridge. The second bridge will link the island with town park, this may involve the removal of two semi-mature sycamores (2225-2226), however given the abundance of sycamore on the island the loss of two semi-mature trees will have no impact on the overall amenity of the island.

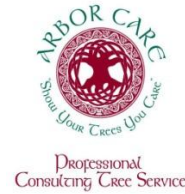
There is scope to clear the overgrowth of bramble and sycamore regeneration. Also a selective thinning programme could be incorporated to selectively remove certain trees to allow for more openings. In general suppressed, weakened trees can be removed.

Overall there are many examples of fine trees within the island and the island as a whole would have great potential as a 'Green Oasis' within the town



**6.1 Arboricultural Method Statement. (A.M.S.) Please review tree constraints plan.**

- A) Trees and that are suitable for retention shall be clearly identified by the use of a numbered aluminium tag affixed to the main stem they will also be clearly marked on a plan with a continuous outline and colour coded as applicable.
- B) Trees selected for removal shall be clearly identified by the use of a numbered aluminium tag affixed to the main stem, they will also be marked on a plan with a dark red dashed outline.
- C) The precise location for the erection of protective barriers and any other relevant physical protection measures including ground protection to protect the RPA shall be marked as a construction exclusion zone on the plan.



### Comments/Terminology.

**Tree Categorization. (Reference to Table 1-Cascade chart for tree quality assessment) of Bs. 5837 2012 should be reviewed for further information.**

#### **Category U**

This category signifies those trees that are in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.

#### **Category A.**

Those trees of a high quality and value, in such a condition as to be able to make a substantial contribution. ( A minimum of 40 years is suggested)

#### **Category B**

This category signifies those trees of a moderate value and in such a condition as to be able to make a substantial contribution (A minimum life expectancy of 20 yrs is suggested)

#### **Category C**

This category signifies those trees of a low quality and value that are currently in an adequate condition to remain until new planting could be established (A minimum life expectancy of 10yrs is suggested), or young trees with a stem diameter below 150mm. Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation.



### Sub-Categories

#### **1. Mainly Arboricultural values**

Trees which are particularly good examples of their species, especially if rare or unusual, or essential components of groups.

#### **2. Mainly landscape values**

Trees that might be included in the high category, but are down graded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage)

#### **3. Mainly cultural values, including conservation**

Trees, group or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees)

#### **Terminology.**

Deadwood-Wood/tissue that has become dysfunctional,  
Minor deadwood-dead wood with a diameter less than 100mm  
Moderate deadwood-deadwood with a diameter between 100-200mm  
Major Deadwood-deadwood with a diameter greater than 200mm

#### **Age Class:**

**Young: (Y)** A tree, which has been planted in the last 10 years.

**Semi –mature (SM)** A tree that is less than 1/3 the expected height of the species in question.

**Early mature: (EM)** A tree, which is approximately 2/3's the expected height of the species in question.

**Mature: (M)** A tree that has reached the expected height of the species in question, but still increasing in size.

**Over mature: (OM)** A tree at the end of its life cycle and the crown is starting to break up and decrease in size.

Table 1. Tree Inventory for Suir Island.

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>6</sup> Radius m
T2201 x 3	<i>Acer pseudoplatanus</i> Sycamore	M	500	16	N=4 S=4 E=4 W=4	2	Good	Represents three mature sycamores located within the old mill. High amenity value due to their location	Retain- no works required	B2	6m
T2202	<i>Tilia x europea</i> Common Lime	OM	1200	26	N=7 S=7 E=7 W=7	4	Good	A large OM lime displaying a good overall condition. A fantastic specimen of high amenity value	Retain- no works required	A2	12m
T2203	<i>Taxus baccata</i> 'Fastigiata' Irish Yew	SM	250	6	N=2 S=2 E=2 W=2	1	Good	A semi-mature Yew displaying a good overall condition.	Retain- no works required	C2	3.5m
T2204	<i>Quercus ilex</i> Holm Oak	OM	1000	14	N=5 S=5 E=6 W=6	1	Fair	An overmature Oak, displaying a fair overall condition it has suffered basal damage in the past, however recent tree surgery works have lessened the risk of failure occurring.	Retain –no works required	C2	12m
T2205	<i>Chamaecyparis lawsoniana</i> Lawson cypress	M	400	12	N=2 S=2 E=2 W=2	1	Fair-poor	A mature cypress has suffered basal damage and is leaning severely. A tree of low ecological value	Remove	U	

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Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>6</sup> Radius m
T2206	Irish Yew	SM	250	6	N=2 S=2 E=2 W=2	1	Good	A semi-mature Yew displaying a good overall condition.	Retain- no works required	C2	3.5m
T2207	<i>Fraxinus excelsior</i> Ash	M	250	8	N=2 S=2 E=2 W=2	2	Fair	A semi-mature ash that has suffered basal damage	Retain- no works required	C2	3.5m
T2208	Ash	M	320	10	N=3 S=3 E=3 W=3	1	Good	A mature ash tree displaying a good overall condition	Retain- no works required	B2	4m
T2209	<i>Thujaopsis dolobrata</i> Hiba	M	500	14	N=5 S=5 E=6 W=6	1	Good	A mature Hiba displaying a good condition.	Retain –remove scrub surrounding the tree this will emphasise the tree more	B2	6m
T2210 x 2	<i>Thuja plicata</i> Western red cedar	M	400	14	N=3 S=3 E=3 W=3	1	Good	A mature cedar displaying a good condition.	Retain –remove scrub surrounding the tree this will emphasise the tree more	B2	6m

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Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>6</sup> Radius m
T2211 x 4	Ash	SM	250	10	N=2 S=2 E=2 W=2	1	Fair	A cluster of 3 sm ash on the river bank leaning toward the river due to the larger trees to the rear. They will continue to grow in this manner	Consider for removal	C2/U	
T2212	<i>Fagus sylvatica</i> Beech	M	1100	20	N=6 S=6 E=6 W=6	2	Good	A large mature beech displaying a good overall condition. It has been recently crown reduced which will decrease its failure potential	Retain- no works required	B2	12m
T2213	Sycamore	M	400	12	N=3 S=3 E=3 W=3	1	Good	A mature sycamore growing adjacent the ruined house	Retain- no works required	B2	5m
T2214 x 4	Sycamore	M	320	10	N=3 S=3 E=3 W=3	2	Good	A cluster of 4 self seeded sycamores d	Retain- no works required	C2	4m
T2215	<i>Aesculus hippocastanum</i> Horse chestnut	Om	800	9	N=3 S=3 E=3 W=3	1	Poor	A large mature chestnut that has suffered extensive damage to its upper canopy, there are suckers maturing however these will eventually become hazardous	Remove to ground level	U	

Table 1. Tree Inventory for Suir Island.

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>6</sup> Radius m
T2216	Horse chestnut	M	300	10	N=2 S=2 E=2 W=2	1	Fair	A cluster of 3 m chestnuts that are leaning severely toward the canoe slalom and will continue to grow in this manner	Remove	U	
T2217	<i>Cupressus macrocarpa</i> Monterey Cypress	M	380	10	N=2 S=2 E=2 W=2	2	Good	A mature Cypress displaying a good overall condition. It is not growing in the right location and will in time outgrow its living space	Maybe cost effective to remove at this size	U/C2	
T2218 x 2	Sycamore	M	300	10	N=2 S=2 E=2 W=2	1	Good	Two mature sycamore displaying a good overall condition there are also two young ash in this row	Retain- no works required	C2	4m
T2219	Sycamore	M	250	12	N=2 S=2 E=2 W=2	2	Good	A mature sycamore displaying a good overall condition	Retain- no works required	C2	3.5m
T2220	Sycamore	M	250	10	N=2 S=2 E=2 W=2	2	Good	A mature sycamore displaying a good overall condition	Retain- no works required	C2	3.5m

**Table 1. Tree Inventory for Suir Island.**

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>6</sup> Radius m
T2221	<i>Laurus nobilis</i> Bay	M	200	6	N=2 S=2 E=2 W=2	1	Good	A bay leaf tree/shrub displaying good overall condition	Retain	C2	3m
T2222	Sycamore	M	380	12	N=2 S=2 E=2 W=2	2	Fair	A mature sycamore that is completely suppressed by clematis	Remove the clematis	C2	4.5m
T2223	Ash	M	300	12	N=2 S=2 E=2 W=2	1	Fair	A mature ash displaying a fair overall condition leaning severely toward the river	Retain- no works required	C2	4m
T2224	Sycamore	M	350	12	N=3 S=3 E=3 W=3	2	Good	A mature sycamore displaying a good overall condition	Retain- no works required	C2	4.5m
T2225-2226	Sycamore x 5	M	320	10	N=2 S=2 E=2 W=2	2	Good	Represents 5 mature sycamore displaying a good overall condition	Retain- no works required	C2	4.5m

**Table 1. Tree Inventory for Suir Island.**

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>6</sup> Radius m
T2227	Yew	M	500	10	N=3 S=3 E=3 W=3	2	Good	A large mature Yew that is partially uprooted, it is being propped up.	Retain- reduce the weight on the downward facing limbs	B2	6m
T2228	Sycamore x 2	M	380	12	N=2 S=2 E=2 W=2	2	Fair	Two mature sycamore displaying a good overall condition	Retain- no works required	C2	4.5m
T2229	Yew	M	450	12	N=3 S=3 E=3 W=3	1	Good	A mature Yew displaying a fair overall condition	Retain- no works required	B2	5.5m
T2230	Sycamore	M	350	10	N=3 S=3 E=3 W=4	2	Good	A mature sycamore displaying a good overall condition. Leaning toward the river	Retain- no works required	C2	4.5m
T2231	Beech	Om	1200	26	N=5 S=5 E=5 W=5	2	Good	A large om beech displaying a good overall condition. There are small cavities found however there are no fungi associated with them	Retain- no works required, further investigations may be required	A2	12m

Table 1. Tree Inventory for Suir Island.

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>5</sup> Radius m
T2232	Yew	M	500	8	N=3 S=3 E=3 W=3	2	Good	A large mature Yew that is partially uprooted, it is being propped up.	Retain- reduce the weight on the downward facing limbs	B2	6m
T2233-2234	Sycamore x 4	SM	220	8	N=2 S=2 E=2 W=2	2	Fair	Represents 4 sm sycamore clusters displaying a good overall condition	Retain- no works required	C2	3.5m
T2235	Ash	M	350	16	N=3 S=3 E=3 W=3	1	Good	A mature Ash displaying a good overall condition	Retain- no works required	B2	4.5m
T2236	Sycamore	M	300	12	N=2 S=2 E=3 W=4	2	Good	A mature sycamore displaying a good overall condition.	Retain- no works required	C2	4m
T2237	Sycamore	M	300	12	N=3 S=3 E=3 W=3	2	Good	A mature multi-stemmed sycamore displaying a good overall condition	Retain- no works required	C2	4m

Table 1. Tree Inventory for Suir Island.

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>5</sup> Radius m
T2238	Sycamore	M	450	16	N=3 S=3 E=3 W=3	2	Good	A mature sycamore displaying a good overall condition.	Retain- no works required	B2	5.5m
T2239	Ash x 2	M	320	12	N=3 S=3 E=3 W=3	2	Good	Represents 2 mature ash displaying a good overall condition	Retain- no works required	B2	4m
T2240	<i>Populus tremula</i> Trembling aspen	M	800	20	N=4 S=4 E=4 W=4	4	Good	A large mature Aspen displaying a good overall condition	Retain- no works required	A2	9m
T2241	Ash	M	680	22	N=4 S=4 E=4 W=4	2	Good	A large mature Ash displaying a good overall condition.	Retain- no works required	B2	8m
T2242	Sycamore	M	300	12	N=3 S=3 E=3 W=3	2	Good	A mature multi-stemmed sycamore displaying a good overall condition	Retain- no works required	C2	4m

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T2243 x 2	Sycamore	M	400	14	N=3 S=3 E=3 W=3	2	Good	Two mature sycamore displaying a good overall condition.	Retain- no works required	B2	5m
T2244	Sycamore	M	400	14	N=3 S=3 E=3 W=3	2	Good	Two mature sycamore displaying a good overall condition.	Retain- no works required	B2	5m
T2245	Horse chestnut	M	500	9	N=4 S=4 E=4 W=4	4	Good	A large mature multi-stemmed chestnut displaying a good overall condition	Retain- no works required	B2	6m
T2246	Ash	M	380	14	N=4 S=4 E=4 W=4	2	Good	A mature Ash displaying a good overall condition.	Retain- no works required	B2	5m
T2247	Sycamore	M	300	16	N=3 S=3 E=3 W=3	2	Good	A mature multi-stemmed sycamore displaying a good overall condition	Retain- no works required	C2	4m

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T2248	Sycamore	M	300	16	N=3 S=3 E=3 W=3	2	Good	A mature multi-stemmed sycamore displaying a good overall condition	Retain- no works required	C2	4m
T2249	Sycamore	M	300	16	N=3 S=3 E=3 W=3	2	Good	A mature multi-stemmed sycamore displaying a good overall condition	Retain- no works required	C2	4m
T2250	Sycamore	M	300	16	N=3 S=3 E=3 W=3	2	Good	A mature multi-stemmed sycamore displaying a good overall condition	Retain- no works required	C2	4m
T2251	Beech	M	350	14	N=2 S=2 E=2 W=2	2	Good	A mature beech displaying a good overall condition.	Retain- no works required	B2	4.5m
T2252	Horse chestnut	M	720	16	N=3 S=3 E=3 W=3	2	Fair	A mature chestnut displaying a fair overall condition, there is evidence of bleeding canker, however the tree is leaning away from any potential path	Retain- no works required	C2	8m

**Table 1. Tree Inventory for Suir Island.**

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>6</sup> Radius m
T2253	Horse chestnut	M	700	16	N=3 S=3 E=3 W=3	2	Good	A mature chestnut leaning over the water, however this is a natural lean caused by the larger trees to the rear displaying a good overall condition	Retain- no works required	A2	8m
T2254	Beech	M	700	22	N=5 S=5 E=5 W=5	2	Good	A mature Beech leaning over the water, however this is a natural lean caused by the larger trees to the rear displaying a good overall condition	Retain- no works required	A2	8m
T2255	Horse chestnut	SM	220	10	N=3 S=3 E=3 W=3	2	Good	A semi-mature chestnut displaying a good overall condition.	Retain- no works required	C2	3m
T2256	Horse chestnut	M	350	14	N=4 S=4 E=4 W=4	2	Good	A mature multi-stemmed horse chestnut displaying a good overall condition.	Retain- no works required	B2	4.5m
T2257	Horse chestnut	M	500	16	N=3 S=3 E=3 W=3	2	Good	A mature multi-stemmed horse chestnut displaying a good overall condition.	Retain- no works required	B2	6m

**Table 1. Tree Inventory for Suir Island.**

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>6</sup> Radius m
T2258	Horse chestnut	M	350	14	N=4 S=4 E=4 W=4	2	Good	A mature multi-stemmed horse chestnut displaying a good overall condition.	Retain- no works required	B2	4.5m
T2259	Sycamore	M	300	16	N=3 S=3 E=3 W=3	2	Good	A mature multi-stemmed sycamore displaying a good overall condition	Retain- no works required	C2	4m
T2260	Horse chestnut	M	340	14	N=3 S=3 E=3 W=3	2	Good	A mature chestnut cluster displaying a good overall condition.	Retain- no works required	B2	4m
T2261	Horse chestnut	M	350	12	N=3 S=3 E=3 W=3	2	Good	A mature horse chestnut displaying a good overall condition.	Retain- no works required	B2	4.5m
T2262	Lime	M	350	16	N=4 S=4 E=4 W=4	2	Good	A mature multi-stemmed lime displaying a good overall condition.	Retain- no works required	B2	4.5m

Table 1. Tree Inventory for Suir Island.

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>6</sup> Radius m
T2263	Lime	M	350	16	N=4 S=4 E=4 W=4	2	Good	A mature multi-stemmed lime displaying a good overall condition.	Retain- no works required	B2	4.5m
T2264	Ash	M	480	16	N=3 S=3 E=3 W=3	2	Good	A mature Ash displaying a good overall condition	Retain- no works required	B2	6m
T2265	<i>Pinus sylvestris</i> Scots Pine	M	700	22	N=3 S=3 E=3 W=3	2	Good	A large mature Pine displaying a good overall condition.	Retain- no works required	A2	8m
T2266	Horse chestnut	M	600	16	N=3 S=3 E=3 W=3	2	Good	A mature horse chestnut displaying a good overall condition.	Retain- no works required	B2	7m
T2267	Ash	M	600	18	N=4 S=4 E=4 W=4	2	Good	A mature Ash displaying a good overall condition.	Retain- no works required	B2	7m

Table 1. Tree Inventory for Suir Island.

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>6</sup> Radius m
T2268	<i>Salix fragilis</i> Willow	M	350	16	N=4 S=4 E=4 W=4	2	Good	A mature multi-stemmed willow cluster displaying a good overall condition. Appropriate riverside tree	Retain- no works required	B2	4.5m
T2269	Willow	M	600	18	N=4 S=4 E=4 W=4	2	Good	A large mature Willow displaying a good overall condition. Appropriate for its location	Retain- no works required	A2	7m
T2270	Sycamore	M	300	10	N=2 S=2 E=2 W=2	2	Good	A mature sycamore cluster displaying a good overall condition.	Retain- no works required	C2	4m
T2271	Willow x 2	M	500	12	N=3 S=3 E=3 W=3	2	fair	Represents two mature willow that have suffered stem damage	Retain- no works required	C2	6m
T2272	Ash	M	350	16	N=2 S=2 E=2 W=2	2	Good	A mature Ash displaying a good overall condition.	Retain- no works required	B2	4.5m

Table 1. Tree Inventory for Suir Island.

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>5</sup> Radius m
T2273	Sycamore	M	300	10	N=2 S=2 E=2 W=2	2	Good	A mature sycamore cluster displaying a good overall condition.	Retain- no works required	C2	4m
T2274 x 3	<i>Alnus glutinosa</i> Common Alder	M	400	16	N=3 S=3 E=3 W=3	2	Good	Represents 3 mature alder displaying a good overall condition. Appropriate for their location	Retain- no works required	B2	5m
T2275	Horse chestnut	M	300	8	N=4 S=4 E=4 W=4	2	Good	A mature multi-stemmed chestnut displaying a good overall condition.	Retain- no works required	B2	4m
T2276	Aspen	OM	800	24	N=3 S=3 E=3 W=3	2	Good	Represents a group of 13 large mature to overmature aspen. The most dominant group of trees on the island	Retain- no works required	A2	9m
T2277	Willow	M	350	14	N=2 S=2 E=2 W=2	2	Good	A mature willow displaying a good overall condition. On the banks of the river	Retain- no works required	B2	4.5m

Table 1. Tree Inventory for Suir Island.

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>5</sup> Radius m
T2278	Ash	M	400	12	N=2 S=2 E=2 W=2	2	Good	A mature ash tree displaying a good overall condition.	Retain- no works required	B2	5m
T2279	Elm	M	300	8	N=2 S=2 E=2 W=2	2	Good	Represents an elm cluster displaying a good overall condition. Appropriate for their location	Retain- no works required	C2	4m
T2280	Horse chestnut	M	500	8	N=6 S=2 E=2 W=2	2	Good	A mature multi-stemmed chestnut displaying a good overall condition.	Retain- no works required	B2	4m
T2281	Sycamore x 5	M	400	14	N=2 S=2 E=2 W=2	2	Good	Represents a group of 5 mature Sycamore. Displaying a good overall condition	Retain- no works required	C2	5m
T2282	Ash	M	350	18	N=5 S=5 E=5 W=5	2	Good	A mature Ash displaying a good overall condition.	Retain- no works required	B2	4.5m

Table 1. Tree Inventory for Suir Island.

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>5</sup> Radius m
T2283	Sycamore x 2	M	600	20	N=4 S=4 E=5 W=4	2	Good	Two large mature multi-stemmed sycamore. Displaying a good overall condition	Retain- no works required	B2	7m
T2284	Lime	M	600	18	N=6 S=6 E=6 W=6	2	Good	Represents a large mature Lime displaying a good overall condition. Appropriate for their location	Retain- no works required	A2	7m
T2285	Horse chestnut	M	500	8	N=7 S=2 E=2 W=2	2	Good	A mature multi-stemmed chestnut displaying a good overall condition. Leaning toward the river	Retain- no works required	B2	6m
T2286	Horse chestnut	M	500	8	N=7 S=2 E=2 W=2	2	Good	A mature multi-stemmed chestnut displaying a good overall condition. Leaning toward the river	Retain- no works required	B2	6m
T2287	Sycamore x 3	M	400	14	N=2 S=2 E=2 W=2	2	Good	Represents 3 mature sycamores displaying a good overall condition.	Retain- no works required	B2	4.5m

Table 1. Tree Inventory for Suir Island.

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>5</sup> Radius m
T2288	Ash x 4	M	600	20	N=4 S=4 E=5 W=4	2	Good	Four large mature multi-stemmed ash. Displaying a good overall condition	Retain- no works required	B2	7m
T2289	Lime	M	400	18	N=4 S=4 E=4 W=4	2	Good	Represents a large mature Lime displaying a good overall condition. Appropriate for their location	Retain- no works required	B2	5m
T2290	Sycamore	M	400	18	N=4 S=4 E=4 W=4	2	Good	Represents a large mature Sycamore displaying a good overall condition. Appropriate for their location	Retain- no works required	B2	5m
T2291	Lawson cypress	M	400	18	N=2 S=2 E=2 W=2	2	Good	A mature Lawson cypress located along the river bank, adds variety to the deciduous canopy displaying a good overall condition.	Retain- no works required	B2	5m
T2292	Sycamore x 2	M	400	16	N=2 S=2 E=2 W=2	2	Good	Represents 2 mature sycamores displaying a good overall condition.	Retain- no works required	B2	5m

**Table 1. Tree Inventory for Suir Island.**

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>6</sup> Radius m
T2293	Sycamore x 2	M	400	18	N=2 S=2 E=2 W=2	2	Good	Represents 2 mature sycamores displaying a good overall condition.	Retain- no works required	B2	5m
T2294	Sycamore x 2	M	400	12	N=2 S=2 E=2 W=2	2	Good	Represents 2 mature sycamores displaying a good overall condition.	Retain- remove the clematis	C2	5m
T2295	Sycamore	M	400	16	N=3 S=3 E=3 W=3	2	Good	Represents a large mature Sycamore displaying a good overall condition.	Retain- no works required	B2	5m
T2296	Cherry	M	500	12	N=5 S=5 E=5 W=5	2	Good	A mature cherry displaying a good overall condition.	Retain- no works required	B2	6m
T2297 x 4	<i>Populus alba</i> White poplar	M	300	12	N=3 S=3 E=3 W=3	2	Good	Represents a cluster of 4 mature poplars displaying a good overall condition.	Retain- no works required	B2	4m

**Table 1. Tree Inventory for Suir Island.**

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>6</sup> Radius m
T2298	Sycamore x 5	M	400	16	N=3 S=3 E=3 W=3	2	Good	Represents 5 mature sycamores displaying a good overall condition.	Retain- no works required	B2	5m
T2299-2300	Sycamore x 6	M	500	18	N=3 S=3 E=3 W=3	2	Good	Represents 6 large mature sycamores displaying a good overall condition. On the river bank in view of the town	Retain- remove the clematis	B2	6m
T2301	Horse chestnut	M	850	22	N=6 S=6 E=6 W=6	2	Good	Represents a large mature chestnut on the riverbank, fantastic specimen	Retain- no works required	A2	9.5m
T2302	Lime	OM	1000	22	N=6 S=6 E=6 W=6	2	Good	A large overmature Lime displaying a good overall condition.	Retain- no works required	A2	12m
T2303	Horse chestnut	OM	1000	22	N=6 S=6 E=6 W=6	2	Good	A large overmature chestnut displaying a good overall condition.	Retain- no works required	A2	12m

**Table 1. Tree Inventory for Suir Island.**

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>5</sup> Radius m
T2304	Sycamore	M	800	22	N=6 S=6 E=6 W=6	2	Good	Represents a large mature sycamores displaying a good overall condition.	Retain- no works required	A2	9m
T2305	Lime	M	750	24	N=6 S=6 E=6 W=6	2	Good	Represents a large mature Lime displaying a good overall condition. On the river bank in view of the town	Retain- remove the clematis	A2	9m
T2306	Sycamore	M	450	12	N=4 S=4 E=4 W=4	2	Good	Represents a mature Sycamore displaying a good overall condition	Retain- no works required	B2	5.5m
T2307	Sycamore	M	450	12	N=4 S=4 E=4 W=4	2	Good	Represents a mature Sycamore displaying a good overall condition	Retain- no works required	B2	5.5m
T2308	Sycamore	M	450	12	N=4 S=4 E=4 W=4	2	Good	Represents a mature Sycamore displaying a good overall condition	Retain- no works required	B2	5.5m

**Table 1. Tree Inventory for Suir Island.**

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>5</sup> Radius m
T2309	Sycamore	M	450	12	N=4 S=4 E=4 W=4	2	Good	Represents a mature Sycamore displaying a good overall condition	Retain- no works required	B2	5.5m
T2310	Sycamore	M	450	12	N=4 S=4 E=4 W=4	2	Good	Represents a mature Sycamore displaying a good overall condition	Retain- no works required	B2	5.5m
T2311	Sycamore	M	450	12	N=4 S=4 E=4 W=4	2	Good	Represents a mature Sycamore displaying a good overall condition	Retain- no works required	B2	5.5m
T2312	Sycamore	M	450	12	N=4 S=4 E=4 W=4	2	Good	Represents a mature Sycamore displaying a good overall condition	Retain- no works required	B2	5.5m
T2313	Horse chestnut	M	450	18	N=4 S=4 E=4 W=4	2	Good	Represents a mature multi stemmed chestnut displaying a good overall condition	Retain- no works required	B2	5.5m

Table 1. Tree Inventory for Suir Island.

Tree # <sup>1</sup>	Species	Age class	Size <sup>2</sup> (mm)	Height (M)	Crown Sp.(M)	Crown Cl.(M)	Condition <sup>3</sup>	Structural/Physiological Observations	Remedial Recommendation	Category <sup>4</sup>	RPA <sup>5</sup> Radius m
T2314	Horse chestnut	M	450	18	N=4 S=4 E=4 W=4	2	Good	Represents a mature multi stemmed chestnut displaying a good overall condition	Retain- no works required	B2	5.5m
T2315	Sycamore	SM	280	8	N=2 S=2 E=2 W=2	2	Good	Represents a mature Sycamore displaying a good overall condition	Retain- no works required	B2	5.5m

Notes:

- 1- Tags were affixed to the main stem of the tree (Where practical). Tag numbers range from inclusively 2201-2315
- 2- Diameters were measured using callipers at approximately 1.5m above grade (DBH)
- 3- Specimen condition is based on a 5-tier rating system: very poor (1-20%)-poor (21-40%)-fair (41-60%)-good (61-80%)-very good (81-100%), where 100% would be a perfect species phenotype.
- 4- Tree categorization is used to identify the quality and value of the existing tree stock to allow informed decisions to be made concerning which trees should be removed or retained should development occur. (Refer to Comments for further information)
- 5- It should be noted that root systems are often highly asymmetric, so that an arbitrarily designated circular protection area maybe inadequate on one side, asymmetry should be suspected if the ground is sloping or if there are existing roads or buildings in the vicinity.





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Yours in Conservation,

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**Figure 1.**  
Below highlights a suitable area for the footbridge. There would be no impact on the trees.



**Figure 2.** Displays the trees along the spit. Due to their location they could not be safely tagged. However they are of high amenity value and in good condition



**Figure 3. Displays the soil heap that is over grown.**



**Figure 4. Displays trees 2201. High quality trees of high amenity value**



## Appendix H: Legislative Policy Background

## Appendix - Legislative Policy Background

### Key European Legislation and Conventions

The key pieces of European environmental legislation that inform the decision-making process with regards habitats and the environment include the sources described below.

The EU Habitats Directive (92/43/EEC) - requires member states to designate areas of European importance for certain habitats, plants and animals other than birds. These areas are known as Special Areas of Conservation (SACs).

The EU Birds Directive – this is the EU's oldest piece of nature legislation and one of the most important. Relating only to birds and their habitats, it required that Ireland designate any site that met the required ecological criteria, as Special Protection Areas (SPAs), which established a network of protected sites for birds across Ireland and across Europe.

Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) are collectively known as Natura 2000 sites and are part of a network of sites of 'community importance' for biodiversity across the EU called the 'Natura 2000' network.

Convention on Biological Diversity - Ireland is one of 193 countries who are parties to the Convention on Biological Diversity (CBD) along with the other EU Member States and the EU itself. In 2002, the Parties committed themselves to achieve by 2010 a significant reduction of the current rate of biodiversity loss at the global, regional and national levels as a contribution to poverty alleviation and to the benefit of all life on Earth. In 2006 the European Commission set out a target of halting biodiversity loss by 2010; a target that has not been reached (DoAHG, 2011).

The Convention of Wetlands of International Importance (Ramsar Convention, 1971) - requires members to maintain the ecological character of their Wetlands of International Importance and to plan for the "wise use", or sustainable use, of all of the wetlands in their territories.

The EU Environmental Impact Assessment (EIA) Directive (85/337/EEC as amended by 97/11/EC), and Strategic Environmental Assessment (SEA) Directive (Directive 2001/42/EC) all require the consideration of potential development impacts on biodiversity. There needs to be improved coherence at national level between various plans and programmes affecting biodiversity and it must be ensured that decision making at regional and local levels is consistent with high level commitments for biodiversity (DoAHG, 2011).

The Environmental Liability Directive has been substantially transposed into Irish law through the Environmental Liability Regulations (SI 547 of 2008). The principal aims of the Directive are to prevent and remedy damage to waters and lands or damage to natural habitats and protected areas. It reinforces the "polluter pays principle" making any operator, as defined in the Regulations that causes environmental damage, legally and financially liable for the damage caused and subsequent remediation through the liability regimes.

### Natura 2000 sites and Appropriate Assessment

The obligation to undertake Appropriate Assessment is derived from Articles 6 (3) and (4) of European Union (EU) Council Directive 92/43/EEC (Habitats Directive) and transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations S.I. No. 477 of 2011.

As signatories to the aforementioned Directive, Ireland like other EU member states must take appropriate steps to 'avoid the deterioration of natural habitats and the habitats of species' (Article 6-2). In addition, where plans or projects are proposed within, or have the potential to affect Natura 2000 sites, member states must ensure that these plans or projects are subject to Appropriate Assessment (AA), a process that considers the possible implications of any plan or project on the Natura 2000 site network before a decision is made to allow a plan or project to proceed (DoEHLG, 2009).

### National Legislation

Planning and Development (Amendment) Act, 2010 - the requirements of the Habitats and Birds Directives have been incorporated into planning law via this act.

The Wildlife (Amendment) Act 2000 - is Ireland's primary national legislation for the protection of wildlife. It covers a broad range of issues, from the designation of nature reserves, the protection of species, regulation of hunting and controls in wildlife trading. Section 40 of the Wildlife Act 1976 as amended by Section 46 of the Wildlife Amendment Act 2000 restricts the cutting, burning, or destruction of hedges during nesting and breeding season between the 1st March and the 31st August, in order to protect nesting birds except for certain exemptions.

Flora (Protection) Order 2000 - it is an offence to cut, pick, uproot or take the flowers of any species protected by a Flora Protection Order. The 2000 Flora Protection Order lists vascular plant species which are protected by along with mosses, liverworts and lichens.

Irish Red Data Books - list plant and animal species that are considered rare, threatened or internationally important. The species are categorised as critically endangered, endangered, vulnerable and near threatened. The lists of these species can be obtained from National Parks and Wildlife Services (NPWS).

Tree Preservation Orders and Tree Felling licences - These are the two main measures for the protection of trees in Ireland.

### Legislation concerning water quality and protection

The principal legislation governing water quality in Ireland is the European Communities (Water Policy) Regulations 2003 (S.I. 722 of 2003) and EC Water Policy Regulations (Amendment) (SI No. 413 of 2005) which transposed the Water Framework Directive 2000/60/EC (WFD) into Irish law. The WFD covers rivers, lakes, groundwater and transitional (estuarine) and coastal waters and its objectives are to prevent further deterioration of the status of all bodies of surface water, and to protect, enhance and restore all bodies of surface water to good status by 2015.

As part of the implementation of the WFD, Ireland was subdivided into eight River Basin Districts (RBD's). The majority of Cork County is located within the South West River Basin District (SWRBD).

The European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. No. 272 of 2009) regulations came into effect in July 2009 and give effect to the measures needed to achieve the environmental objectives established for bodies of surface water by the WFD including:

- The establishment of legally binding quality objectives for all surface waters and environmental quality standards for pollutants;
- The examination and review of existing discharge authorisations by Public Authorities to ensure that the emission limits laid down support compliance with water quality objectives/standards;
- The classification of surface water bodies by the EPA;
- The establishment of inventories of priority substances by the EPA, and;
- The drawing up of pollution reduction plans to reduce pollution by priority substances and to cease and/or phase out discharges, emissions or losses of priority hazardous substances.

The treatment of wastewater is governed by the Urban Waste Water Treatment Directive (91/271/EEC) (amended by Directive 98/15/EEC) transposed into Irish law by the Urban Waste Water Treatment Regulations 2001 (S.I. No. 254 of 2001). The Directive aims to protect the environment from adverse effects of wastewater discharges by ensuring that wastewater is appropriately treated before it is discharged to the receiving environment. The Directive sets minimum standards and deadlines for the provision of sewerage systems, and treatment of sewage according to the population served by sewage treatment works, and the sensitivity of receiving waters to their discharges.

### Alien Invasive Species

EU Regulation 1143/2014 provides measures which deal with, among other things, bringing into the territory of the Union, keeping, breeding, transporting and placing on the market, species included on the list of invasive alien species of Union concern (the "Union list"). This directive came into force on the 3rd August, 2016. It also implements the EU Biodiversity Strategy to 2020 that specifies targets to reduce the threat of invasive alien species in order to halt the loss of biodiversity and ecosystem services. However, the most recent list produced during 2017 by the UE does not include Japanese Knotweed as it was considered too costly to eradicate it in Europe.

## Appendix J: Annex i Habitats and Annex ii Species

## Appendix: Potential for Annex I habitats and Annex II species to occur in the vicinity of Suir Island

### Annex I Habitats

**Floating River Vegetation** - Aquatic macrophyte assemblages sharing some links with this habitat occur downstream of and adjoining Suir Island, predominantly by virtue of the presence of Ranunculus species vegetation and the moss species Fontinalis antipyretica that are species that form part of the plethora of macrophyte plants that are indicators of the habitat.

**Alluvial Woodland** - The eastern end of Suir Island corresponds with the habitat Alluvial Forests, given it is a lower lying area of the island frequently inundated and supporting mature Willow species and localised Ash.

**Hydrophilous Tall Herb Communities** - Small pockets of this habitat exist along the verges of Suir Island primarily on the east and southern sides of the Island. These included species such as branched bur-reed (*Spartanium erectum*) and Flowering Rush (*Butomus umbellatus*).

### Annex II Species

**Freshwater Pearl Mussel** - Although there are no records of Freshwater Pearl Mussel within Clonmel, there are records of Margaritifera margaritifera present at various locations upstream with the closest being 300 metres upstream, south of Marifield (NPWS 1987-2006 records) (RPS, 2013), and downstream of Clonmel (NPWS, 2017).

**White-Clawed Crayfish** - The White-clawed Crayfish is a globally threatened species and Ireland holds one of the largest surviving populations. Crayfish has been found all along the river Suir main channel, with records both upstream and downstream of Clonmel town (NBDC mapping). During 2017 large numbers of dead crayfish were discovered between Clonmel and Carrick-on-Suir, with DNA testing confirming the cause of death to be crayfish plague. There are huge concerns that the disease will spread up river and wipe out the entire population (NPWS, 2017b). Dead crayfish were observed during a site survey during August 2017.

**Lamprey and Atlantic Salmon** - In Clonmel, the River Suir splits in two around Suir Island in the town, with one branch flowing over Lady Blessington's weir, and the other passing through the Old Bridge and flowing on the town side. As the flow divides each side of the island, water has to flow over man-made weirs which can affect the free passage of lamprey species up the River Suir (RPS, 2013). Lamprey species are present downstream of the weirs at this point of the River Suir as reported by Inland Fishers Ireland and Biodiversity Ireland records. There are very few records of lamprey species upstream of the weirs. However, the weirs do not impact on the free passage of salmonids. Otters have also been recorded to use this stretch of the river habitat as recorded by Biodiversity Ireland (RPS, 2013).

Lampreys are widely distributed in the Suir catchment and upstream and downstream of Clonmel (O'Connor, 2007). Redds were recorded downstream of Suir Island (i.e. between the Island and Gashouse Bridge) during an IFI survey of 2013 (Rooney et al. 2014) while in 2014 a similar survey recorded two reds along the Clonmel town quays, upstream of the Old Waterford Road Bridge (O'Gorman et al. 2015).

**Otter** - Otters are widely distributed along the River Suir and records confirm presence within the vicinity of Suir Island (NBDC mapping). During the August 2017 site walk over survey an otterholt and sprainting site was observed on the east side of the Island.

### Lower River Suir SAC – Site Code 002137

Lower River Suir SAC consists of the freshwater stretches of the River Suir immediately south of Thurles, the tidal stretches as far as the confluence with the Barrow/Nore immediately east of Cheekpoint in Co. Waterford, and many tributaries including the Clodiagh in Co. Waterford, the Lingaun, Anner, Nier, Tar, Aherlow, Multeen and Clodiagh in Co. Tipperary. The Suir and its tributaries flow through the counties of Tipperary, Kilkenny and Waterford.

Upstream of Waterford city, the swinging meanders of the Suir criss-cross the Devonian sandstone rim of hard rocks no less than three times as they leave the limestone-floored downfold below Carrick-on-Suir. In the vicinity of Carrick-on-Suir the river follows the limestone floor of the Carrick Syncline. Upstream of Clonmel the river and its tributaries traverse Upper Palaeozoic Rocks, mainly the Lower Carboniferous Visean and Tournaisian.

The freshwater stretches of the Clodiagh River in Co. Waterford traverse Silurian rocks, through narrow bands of Old Red Sandstone and Lower Avonian Shales, before reaching the carboniferous limestone close to its confluence with the Suir. The Aherlow River flows through a Carboniferous limestone valley, with outcrops of Old Red Sandstone forming the Galtee Mountains to the south and the Slievenamuck range to the north. Glacial deposits of sands and gravels are common along the valley bottom, flanking the present-day river course.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (\* = priority; numbers in brackets are Natura 2000 codes):

[1330] Atlantic Salt Meadows  
[1410] Mediterranean Salt Meadows  
[3260] Floating River Vegetation  
[6430] Hydrophilous Tall Herb Communities  
[91A0] Old Oak Woodlands  
[91E0] Alluvial Forests\*  
[91J0] Yew Woodlands\*  
[1029] Freshwater Pearl Mussel (*Margaritifera margaritifera*)  
[1092] White-clawed Crayfish (*Austropotamobius pallipes*)  
[1095] Sea Lamprey (*Petromyzon marinus*)  
[1096] Brook Lamprey (*Lampetra planeri*)  
[1099] River Lamprey (*Lampetra fluviatilis*)  
[1103] Twaité Shad (*Alosa fallax*)  
[1106] Atlantic Salmon (*Salmo salar*)  
[1355] Otter (*Lutra lutra*)

Alluvial wet woodland is a declining habitat type in Europe as a result of drainage and reclamation. The best examples of this type of woodland in the site are found on the islands just below Carrick-on-Suir and at Fiddown Island. Species occurring here include Almond Willow (*Salix triandra*), White Willow (*S.*

*alba*), Rusty Willow (*S. cinerea* subsp. *oleifolia*), Osier (*S. viminalis*), with Yellow Iris (*Iris pseudacorus*), Hemlock Water-dropwort (*Oenanthe crocata*), Wild Angelica (*Angelica sylvestris*), Pendulous Sedge (*Carex pendula*), Meadowsweet (*Filipendula ulmaria*) and Common Valerian (*Valeriana officinalis*).

The terrain is littered with dead trunks and branches and intersected with small channels which carry small streams to the river. The bryophyte and lichen floras appear to be rich. A small plot is currently being coppiced and managed by the National Parks and Wildlife Service. In the drier areas species such as Ash (*Fraxinus excelsior*), Hazel (*Corylus avellana*), Hawthorn (*Crataegus monogyna*) and Blackthorn (*Prunus spinosa*) occur.

Eutrophic tall herb vegetation occurs in association with the various areas of alluvial forest and elsewhere where the floodplain of the river is intact. Characteristic species of the habitat include Meadowsweet, Purple Loosestrife (*Lythrum salicaria*), Marsh Ragwort (*Senecio aquaticus*), Ground Ivy (*Glechoma hederacea*) and Hedge Bindweed (*Calystegia sepium*).

Old oak woodlands are also of importance at the site. The best examples are seen in Portlaw Wood which lies on both sides of the Clodiagh River. On the south-facing side the stand is more open and the oaks (mainly Pedunculate Oak, *Quercus robur*) are well grown and spreading. Ivy (*Hedera helix*) and Bramble (*Rubus fruticosus* agg.) are common on the ground, indicating relatively high light conditions. Oak regeneration is dense, varying in age from 0-40 years and Holly (*Ilex aquifolium*) is fairly common but mostly quite young.

Across the valley, by contrast, the trees are much more closely spaced and though taller, are poorly grown on average. There are no clearings; large oaks extend to the boundary wall. In the darker conditions, Ivy is much rarer and Holly much more frequent, forming a closed canopy in places. Oak regeneration is uncommon since there are as yet few natural clearings. The shallowness of the soil on the north-facing slope probably contributes to the poor tree growth there. The acid nature of the substrate has induced a 'mountain' type oakwood community to develop. The site is quite species-rich throughout, including an abundance of mosses, liverworts and lichens. The rare lichen *Lobaria pulmonaria*, an indicator of ancient woodlands, is found here.

Inchinquillib Wood consists of three small separate sloping blocks of woodland in a valley cut by the young Multeen River and its tributaries through acidic Old Red Sandstone and Silurian rocks. Two blocks, both with an eastern aspect, located to the north of the road, are predominantly of Sessile Oak (*Quercus petraea*) and Hazel, with Downy Birch (*Betula pubescens*), Ash and Holly. The ground flora is quite mixed with, for example, Wood-sedge (*Carex sylvatica*), Bluebell (*Hyacinthoides non-scripta*), Primrose (*Primula vulgaris*), Wood-sorrel (*Oxalis acetosella*), Pignut (*Conopodium majus*) and Hard Fern (*Blechnum spicant*).

The base poor nature of the underlying rock is to some extent masked by the overlying drift. The third block, to the south of the road, and with a northern aspect, is a similar although less mature mixture of Sessile Oak, Birch and Holly. Here the influence of the drift is more marked, with the occurrence of Wood Anemone (*Anemone nemorosa*) amongst the ground flora.

Two stands of Yew (*Taxus baccata*) woods, a rare habitat in Ireland and the E.U., occur within the site. These are on limestone ridges at Shanbally and Cahir Park. Both are in woods planted with non-native species, including conifers. However, the area at Cahir Park is fairly substantial in size and includes some relatively undisturbed patches of wood and some very old trees. Regeneration of the Yew trees is mostly poor, due to competition from species such as Sycamore (*Acer pseudoplatanus*) and, at Shanbally, due to heavy grazing by goats.

Other native species which occur with the Yew trees include Ash, Pedunculate Oak, Hazel and Spindle (*Euonymus europaeus*). Future prospects for these Yew woods are good as the sites are proposed for restoration under a Coillte E.U. LIFE programme.

Floating river vegetation is evident in the freshwater stretches of the River Suir and along many of its tributaries. Typical species found include Canadian Pondweed (*Elodea canadensis*), water-milfoils (*Myriophyllum* spp.), Fennel Pondweed (*Potamogeton pectinatus*), Curled Pondweed (*P. crispus*), Perfoliate Pondweed (*P. perfoliatus*), Pond Water-crowfoot (*Ranunculus peltatus*), other crowfoots (*Ranunculus* spp.) and the moss *Fontinalis antipyretica*. At a couple of locations along the river Opposite-leaved Pondweed (*Groenlandia densa*) occurs. This species is protected under the Flora (Protection) Order, 1999. The Aherlow River is fast flowing and mostly follows a natural unmodified river channel. Submerged vegetation includes the aquatic moss *Fontinalis antipyretica* and Stream Water-crowfoot (*R. pencillatus*), while shallow areas support species such as Reed Canary-grass (*Phalaris arundinacea*), Brooklime (*Veronica beccabunga*) and Water Mint (*Mentha aquatica*). The river bank is fringed in places with Alder (*Alnus glutinosa*) and willows (*Salix* spp.).

The Multeen River is fast flowing, mostly gravel-bottomed and appears to follow a natural unmodified river channel. Water-crowfoots occur in abundance and the aquatic moss *Fontinalis antipyretica* is also common. In sheltered shallows, species such as Water-cress (*Nasturtium officinale*) and water-starworts (*Callitriche* spp.) occur. The river channel is fringed for most of its length with Alder, Willow and a narrow strip of marshy vegetation.

Salt meadows occur below Waterford City in old meadows where the embankment is absent, or has been breached, and along the tidal stretches of some of the in-flowing rivers below Little Island. There are very narrow, non-continuous bands of this habitat along both banks. More extensive areas are also seen along the south bank at Ballynakill, the east side of Little Island, and in three large salt meadows between Ballynakill and Cheekpoint. The Atlantic and Mediterranean sub-types are generally intermixed.

The species list is extensive and includes Red Fescue (*Festuca rubra*), oraches (*Atriplex* spp.), Sea Aster (*Aster tripolium*), Sea Couch (*Elymus pycnanthus*), frequent Sea Milkwort (*Glaux maritima*), occasional Wild Celery (*Apium graveolens*), Parsley Water-dropwort (*Oenanthe lachenalii*), English Scurvygrass (*Cochlearia anglica*) and Sea Arrowgrass (*Triglochin maritima*). These species are more representative of the Atlantic sub-type of the habitat. Common Cord-grass (*Spartina anglica*), is rather frequent along the main channel edge and up the internal channels. The legally protected (Flora (Protection) Order, 1999) Meadow Barley (*Hordeum secalinum*) grows at the landward transition of the saltmarsh. Sea Rush (*Juncus maritimus*), an indicator of the Mediterranean salt meadows, also occurs.

Other habitats at the site include wet and dry grassland, marsh, reedswamp, improved grassland, coniferous plantations, deciduous woodland, scrub, tidal river, stony shore and mudflats. The most dominant habitat adjoining the river is improved grassland, although there are wet fields with species such as Yellow Iris, Meadowsweet, rushes (*Juncus* spp.), Meadow Buttercup (*Ranunculus acris*) and Cuckooflower (*Cardamine pratensis*).

Cabragh marshes, just below Thurles, lie in a low-lying tributary valley into which the main river floods in winter. Here there is an extensive area of Common Reed (*Phragmites australis*) with associated marshland and peaty fen. The transition between vegetation types is often well displayed. A number of wetland plants of interest occur, in particular the Narrow-leaved Bulrush (*Typha angustifolia*), Bottle Sedge (*Carex rostrata*) and Blunt-flowered Rush (*Juncus subnodulosus*). The marsh is naturally eutrophic but it has also the nutritional legacy of the former sugar factory which discharged into it through a number of holding lagoons, now removed. Production is high, which is seen in the size of such species as Celery-leaved Buttercup (*Ranunculus scleratus*), as well as in the reeds themselves.

Throughout the Lower River Suir site are small areas of woodland other than those described above. These tend to be a mixture of native and non-native species, although there are some areas of semi-natural wet woodland with species such as Ash and willow. Cahir Park Woodlands is a narrow tract of mixed

deciduous woodland lying on the flat-lying floodplain of the River Suir. This estate woodland was planted over one hundred years ago and it contains a large component of exotic tree species. However, due to original planting and natural regeneration there is now a good mix of native and exotic species. About 5 km north-west of Cashel, Ardmayle pond is a long, possibly artificial water body running parallel to the River Suir. It is partly shaded by planted Lime (*Tilia* hybrids), Sycamore and the native Alder. Growing beneath the trees are shade tolerant species such as Remote sedge (*Carex remota*).

The site is of particular conservation interest for the presence of a number of Annex II animal species, including Freshwater Pearl Mussel (both *Margaritifera margaritifera* and *M. margaritifera* subsp. *durrovensis* occur), White-clawed Crayfish, Salmon, Twaité Shad (*Alosa fallax fallax*), three species of Lampreys - Sea Lamprey, Brook Lamprey and River Lamprey, and Otter. This is one of only three known spawning grounds in the country for Twaité Shad.

The site also supports populations of several other animal species. Those which are listed in the Irish Red Data Book include Daubenton's Bat, Natterer's Bat, Pipistrelle Bat, Pine Marten, Badger, Irish Hare, Smelt and Common Frog. Breeding stocks of Carp are found in Kilsheelan Lake. This is one of only two lakes in the country which is known to have supported breeding Carp. Carp require unusually high summer water temperatures to breed in Ireland. As the site is therefore unusual in this regard, it may also support interesting invertebrate populations.

Parts of the site have also been identified as of ornithological importance for a number of Annex I (E.U. Birds Directive) bird species, including Greenland White-fronted Goose (10), Golden Plover (1,490), Whooper Swan (7) and Kingfisher. Figures given in brackets are the average maximum counts from four count areas within the site for the three winters 1994-1997. Wintering populations of migratory birds use the site. Flocks are seen in Coolfinn Marsh and also along the reedbeds and saltmarsh areas of the Suir.

Coolfinn supports nationally important numbers of Greylag Goose on a regular basis, with numbers between 600 and 700 recorded. Other species occurring include Mallard (21), Teal (159), Wigeon (26), Tufted Duck (60), Pintail (4), Pochard (2), Little Grebe (2), Black-tailed Godwit (20), Oystercatcher (16), Lapwing (993), Dunlin (101), Curlew (195), Redshank (28), Greenshank (4) and Green Sandpiper (1). Nationally important numbers of Lapwing (2,750) were recorded at Faithlegg in the winter of 1996/97. In Cabragh marshes there is abundant food for surface feeding wildfowl which total approximately 1,000 in winter. Widgeon, Teal and Mallard are numerous, and the latter has a large breeding population, with up to 400 in summer. In addition, less frequent species like Shoveler and Pintail occur and there are records for both Whooper and Bewick's swans. Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive, occurs along some of the many tributaries throughout the site.

Land use at the site consists mainly of agricultural activities including grazing, silage production, fertilising and land reclamation. The grassland is intensively managed and the rivers are therefore vulnerable to pollution from run-off of fertilisers and slurry. Arable crops are also grown. Fishing is a main tourist attraction on stretches of the Suir and some of its tributaries, and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. The Aherlow River is a designated Salmonid Water under the E.U. Freshwater Fish Directive. Other recreational activities such as boating, golfing and walking are also popular. Several industrial developments, which discharge into the river, border the site including three dairy related operations and a tannery.

The Lower River Suir contains excellent examples of a number of Annex I habitats, including the priority habitats alluvial forest and Yew woodland. The site also supports populations of several important animals species, some listed on Annex II of the Habitats Directive or listed in the Irish Red Data Book. The presence of two legally protected plants (Flora (Protection) Order, 1999) and the ornithological importance of the site adds further to the ecological interest and importance.

#### Potential for Protected Flora, Fauna and Birds to occur in the vicinity of Suir Island

##### Protected Flora

A desktop review of botanical data available for the study area was undertaken. The National Biodiversity Data Centre (NBDC) online database was consulted to identify any rare or protected botanical species recorded within the relevant national 10-km (i.e. S22) and 2-km grid square (i.e. S22B) surrounding Suir Island. The resulting list of plant species (Table 4.3) was then further examined for recorded presence within the vicinity of Suir Island, using data extracted for the polygon drawn around Suir Island.

#### Rare/Protected plant species recorded in 10-km square S22 and 2-km square S22b and potential for presence within the vicinity of Suir Island

Species	Annex V	Flora Protection Order, 2015	Red Data Books <sup>a,b</sup>	Potential presence within study area
Stag's-horn Clubmoss ( <i>Lycopodium clavatum</i> )	√			Yes
Meadow barley ( <i>Hordeum secalinum</i> )		√		Yes
Heath Cudweed ( <i>Gnaphalium sylvaticum</i> )		√	Endangered <sup>a</sup>	Yes
Opposite leaved pondweed ( <i>Groenlandia densa</i> )		√	Near threatened <sup>a</sup>	Yes
Tufted Thread-moss ( <i>Bryum caespiticium</i> )			Vulnerable <sup>b</sup>	Yes
Twisting Thread-moss ( <i>Bryum torquescens</i> )			Vulnerable <sup>b</sup>	Yes
Ceruous Thread-moss ( <i>Bryum uliginosum</i> )		√	Vulnerable <sup>b</sup>	Yes
River Bristle-moss ( <i>Orthotrichum rivulare</i> )			Near threatened <sup>b</sup>	Yes
Tufted Feather-moss ( <i>Scleropodium cespitosum</i> )			Near threatened <sup>b</sup>	Yes
Fountain feather-moss ( <i>Amblystegium tenax</i> )			Near threatened <sup>b</sup>	Yes
Common Extinguisher-moss ( <i>Encalypta vulgaris</i> )			Near threatened <sup>b</sup>	Yes

Species	Annex V	Flora Protection Order, 2015	Red Data Books <sup>a,b</sup>	Potential presence within study area
Prince-of-Wales Feather Moss ( <i>Leptodon smithii</i> )		√	Endangered <sup>b</sup>	Yes

Source: Wyse Jackson, M., FitzPatrick, U., Cole, E., Jebb, M., McFerran, D., Sheehy Skeffington, M. & Wright, M. (2016) Ireland Red List No. 10: Vascular Plants. National Parks and Wildlife Service, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs, Dublin, Ireland. <sup>a</sup>Lockhart, N., Hodgetts, N. & Holyoak, D. (2012) *Ireland Red List No.8: Bryophytes*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

##### Protected Fauna

The National Biodiversity Data Centre (NBDC) online database was consulted to identify any rare or protected faunal species recorded within the relevant national 10-km (i.e. S22) and 2-km grid square (i.e. S22B) surrounding Suir Island. The resulting list of species (Table 4.4) was then further examined for recorded presence within the vicinity of Suir Island, using data extracted for the polygon drawn around Suir Island. The potential presence of bat species was assessed using NBDC on-line mapping.

#### Rare/Protected mammal, amphibian and reptile species within Ireland with potential for presence within the Suir Island study area. (Ireland Red List criteria follow IUCN (2001): RE Regionally Extinct; CR Critically Endangered; EN Endangered; VU Vulnerable; NT Near threatened; lc least concern; dd data deficient; na not assessed)

Taxa	EU Habitats Directive	Wildlife Act, 2000	Red Data Species*	Potential presence within study area
<b>Mammals</b>				
Hedgehog <i>Erinaceus europaeus</i>		√	lc	Yes
Pygmy shrew <i>Sorex minutus</i>		√	lc	Not recorded but highly likely
<b>Chiroptera</b>		√	lc	
Common pipistrelle <i>Pipistrellus pipistrellus</i>	IV	√	lc	Yes
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	IV	√	lc	Yes
Brown long-eared bat <i>Plecotus auritus</i>	IV	√	lc	Yes
Leisler's bat <i>Nyctalus leisleri</i>	IV	√	NT	Yes
Daubenton's bat <i>Myotis daubentonii</i>	IV	√	lc	Yes
Whiskered bat <i>Myotis mystacinus</i>	IV	√	lc	Low
Natterer's bat <i>Myotis nattereri</i>	IV	√	lc	Low
<b>Lagomorpha</b>				
Irish Hare <i>Lepus timidus hibernicus</i>		√	lc	Yes
<b>Rodentia</b>				
Red Squirrel <i>Sciurus vulgaris</i>		√	NT	Yes
<b>Carnivora</b>				
Badger <i>Meles meles</i>		√	lc	Yes
Otter <i>Lutra lutra</i>	II & IV	√	NT	Yes
<b>Artiodactyla</b>				
Fallow deer <i>Dama dama</i>		√	lc	Yes
<b>Amphibians</b>				
Smooth newt <i>Triturus vulgaris</i>		√	lc	Not recorded but potential
Common Frog <i>Rana temporaria</i>	V	√	lc	Yes
<b>Reptiles</b>				
Common lizard <i>Lacerta vivipara</i>		√	lc	Yes

Source: Ross Macklin BSc. Env Science, H Dip GIS CIEEM IFM

##### Birds

The National Biodiversity Data Centre (NBDC) online database was consulted to identify any Annex I bird species, or birds of conservation concern (BoCCI) (Colhoun & Cummins, 2013) recorded within a polygon drawn around Suir Island. The resultant species list is shown in Table 4.5.

#### Annex I or bird species of conservation concern recorded within the vicinity of Suir Island.

Common Name	Latin Name	Annex I	BoCCI (Red or Amber)
Barn Owl	<i>Tyto alba</i>	Yes	Red
Barn Swallow	<i>Hirundo rustica</i>		Amber
Black-headed Gull	<i>Larus ridibundus</i>		Red
Common Gull	<i>Larus canus</i>		Amber
Common Linnet	<i>Carduelis cannabina</i>		Amber
Common Pochard	<i>Aythya ferina</i>		Amber
Common Quail	<i>Coturnix coturnix</i>		Red
Common Sandpiper	<i>Actitis hypoleucos</i>		Amber
Common Starling	<i>Sturnus vulgaris</i>		Amber
Common Swift	<i>Apus apus</i>		Amber
Coot	<i>Fulca atra</i>		Amber
Curlew	<i>Numenius arquata</i>		Red

Common Name	Latin Name	Annex I	BoCCI (Red or Amber)
Gadwall	<i>Anas strepera</i>		Amber
Golden Plover	<i>Pluvialis apricaria</i>	Yes	Red
Grasshopper Warbler	<i>Locustella naevia</i>		Amber
Great Black-backed Gull	<i>Larus marinus</i>		Amber
Great Cormorant	<i>Phalacrocorax carbo</i>		Amber
Greenfinch	<i>Carduelis chloris</i>		Amber
Grey Partridge	<i>Perdix perdix</i>		Red
Grey Wagtail	<i>Motacilla cinerea</i>		Red
Hen Harrier	<i>Circus cyaneus</i>	Yes	Amber
Herring Gull	<i>Larus argentatus</i>		Red
House Martin	<i>Delichon urbicum</i>		Amber
House Sparrow	<i>Passer domesticus</i>		Amber
Kestrel	<i>Falco tinnunculus</i>		Amber
Kingfisher	<i>Alcedo atthis</i>	Yes	Amber
Lapwing	<i>Vanellus vanellus</i>		Red
Lesser Black-backed Gull	<i>Larus fuscus</i>		Amber
Little Grebe	<i>Tachybaptus ruficollis</i>		Amber
Meadow Pipit	<i>Anthus pratensis</i>		Red
Merlin	<i>Falco columbarius</i>		Amber
Mistle Thrush	<i>Turdus viscivorus</i>		Amber
Mute Swan	<i>Cygnus olor</i>		Amber
Northern Wheatear	<i>Oenanthe oenanthe</i>		Amber
Peregrine	<i>Falco peregrinus</i>	Yes	
Red Grouse	<i>Lagopus lagopus</i>	Yes	Red
Robin	<i>Erithacus rubecula</i>		Amber
Sand Martin	<i>Riparia riparia</i>		Amber
Shoveler	<i>Anas clypeata</i>		Red
Sky Lark	<i>Alauda arvensis</i>		Amber
Snipe	<i>Gallinago gallinago</i>		Amber
Sparrowhawk	<i>Accipiter nisus</i>		Amber
Spotted Flycatcher	<i>Muscicapa striata</i>		Amber
Stock Pigeon	<i>Columba oenas</i>		Amber
Stonechat	<i>Saxicola torquata</i>		Amber
Teal	<i>Anas crecca</i>		Amber
Tree Sparrow	<i>Passer montanus</i>		Amber
Tufted Duck	<i>Aythya fuligula</i>		Amber
Water Rail	<i>Rallus aquaticus</i>		Amber
Whooper Swan	<i>Cygnus cygnus</i>		Amber
Wigeon	<i>Anas penelope</i>		Amber
Woodcock	<i>Scelopax rusticola</i>		Amber
Yellowhammer	<i>Emberiza citrinella</i>		Red

Source: Ross Macklin BSc. Env Science, H Dip GIS CIEEM IFM

#### Summary of Protected Species and Habitats location relative to Suir Island

Receptor/ Entity	Location relative to works
[1330] Atlantic Salt Meadows	No. Does not occur within 15km of the site.
[1410] Mediterranean Salt Meadows	No. Does not occur within 15km of the site.
[3260] Floating River Vegetation	Yes. Aquatic macrophyte assemblages sharing links with this habitat occur adjacent and downstream of Suir Island.
[6430] Hydrophilous Tall Herb Communities	Yes. Small pockets of habitat sharing links with the Annexed habitat definition exist along the verges of Suir Island primarily on the east and southern sides of the Island.
[91A0] Old Oak Woodlands	No. Habitat does not occur at Suir Island.
[91E0] Alluvial Forests*	Yes. The eastern end of Suir Island shares links with the Annex habitat Alluvial Forests.
[91J0] Yew Woodlands*	No. Does not occur within the site. A few mature yew occur on the northern side of Suir Island but these do not correspond to the Habitat Yew Woodland.
[1029] Freshwater Pearl Mussel ( <i>Margaritifera margaritifera</i> )	Yes. Closest record of the species occurs 300m upstream of Suir Island (south of Marfield) RPS (2013). Species also occurs downstream of Clonmel (NPWS, 2017).
[1092] White-clawed Crayfish ( <i>Austropotamobius pallipes</i> )	Species occurs in River Suir at Suir Island but has been impacted severely by crayfish plague during 2017.
[1095] Sea Lamprey ( <i>Petromyzon marinus</i> )	Yes. The species spawns immediately downstream of Suir Island (Rooney et al. 2014).
[1096] Brook Lamprey ( <i>Lampetra planeri</i> )	Yes. The species occurs downstream of weirs at Suir Island
[1099] River Lamprey ( <i>Lampetra fluviatilis</i> )	Yes. Occurs downstream of weirs at Suir Island
[1103] Twait Shad ( <i>Alosa fallax</i> )	Downstream at Carrick-on-Suir, but no recent records at Suir Island.
[1106] Atlantic Salmon ( <i>Salmo salar</i> )	Yes. The species occurs in river at Suir Island.
[1355] Otter ( <i>Lutra lutra</i> )	Yes. The species is present on Suir Island (holt site found on eastern part of island by Ross Macklin during August 2017).

## Ecological Recommendations

**Specialist Ecological Studies** - Given that fully comprehensive baseline studies of the site have not been undertaken apart from a site walkover during the current study (23rd August 2017) and botanical habitat mapping during 2013, future development proposals on Suir Island would require additional baseline ecological studies as follows:

**Breeding Bird Survey** - Suir Island has a diversity of habitats that are likely to support a wide range of bird species. We would recommend that a breeding bird survey be undertaken during the 2018 breeding bird season. The proposed field methods follow a method set out by Chamberlain et al. (2007). Birds are surveyed using a combination of mapping, point counts and transects in a similar manner to the survey work completed previously at St Stephen's Green (McAvey & Crowe, 2012) and the Phoenix Park (Crowe, 2011). During each visit, observers walk along a survey route which takes them to within 50 metres of every point on the island. Where necessary (e.g. woodland habitat) point counts are used. All bird species seen and heard are recorded directly onto the maps. Birds flying over and obviously not interacting with the island are recorded separately.

The island should be visited two times, once during the early breeding season (1st May to 20th May) and a second visit during the late breeding season (21st May to 30th June). This timing is designed to maximize recording of residents and early migrants, which tend to be more easily detected on the first visit, and later migrants, which are more abundant in the second visit. Survey work is carried out between 06:00 and 09:00 hours to coincide with maximum bird activity, but to avoid concentrated song activity at dawn.

**Mammal Survey** - A mammal survey of Suir Island would help identify its importance for mammal species. In particular, an otter survey, given they are a conservation objective species in the Lower River Suir SAC. The presence of breeding habitats such as natal holt sites are important to locate given they are important for the future prosperity of otter populations. The presence of breeding holts on the island may be of even higher importance given the unsuitability of much of the wider area of Clonmel given that much of the riparian areas have high flood walls making them unfeasible for otter breeding. The presence of an active otter holt on the eastern end of Suir Island (as recorded during August 2017) identifies that the island has suitability for breeding otter and a full site specific survey would be warranted.

**Bat Survey** - Suir Island has excellent potential for foraging bats, having a combination of mature woodland habitat, open areas and the adjoining waters of the River Suir. Furthermore, the presence of historical abandoned buildings, some of which still have roof spaces intact and mature ivy covered trees to 3m in diameter would indicate good roosting potential. By establishing the importance of the Island for roosting and foraging bats, future plans for the development of the island can be tailored accordingly.

**Biodiversity Management Plan** - The baseline ecological studies of the island including the recommended site-specific studies above can help establish areas of biodiversity importance within Suir Island and hinterland and help further define areas to be preserved for habitats and species of importance, relative to future plans and projects. The plan would include location maps and defined zonations for habitat preservation (i.e. no development areas building on Figure 5.1) and opportunities for habitat enhancement can be precisely defined. The biodiversity plan would also identify breeding habitat, wildlife corridors and site specific locations of protected flora and fauna following the results of the recommended surveys.

By maintaining ecologically sensitive areas free from development in posterity, wildlife can have true refugia that are protected from development encroachment over time. Of particular importance is the eastern side of Suir Island that supports conservation objective species such as otter, alluvial woodland and fringing hygrophilous herb vegetation. The plan should also aim to maintain the riparian corridors fringing the island where mature trees act as a wildlife corridor and add to the natural heritage of the site. Furthermore, the plan should also identify the linkages between habitats and prevent further fragmentation of habitat, by facilitating a contiguous plane between areas of importance. Indeed, opportunities for enhancement, where such linkages have been lost should be accounted for.

Other issues are the management of the spread of scrub habitat that includes invasive alien species including but not limited to Giant Hogweed, Japanese Knotweed and Himalayan Balsam (see Invasive Species Management Plan below).

**Invasive Species and Biosecurity Management Plan** - An invasive species management plan is very important on Suir Island to minimise the spread of existing stands of invasive species in light of future proposed construction works and development. The plan would help to develop control measures to prevent the spread of invasive species. The first step is to create a database and map of the distribution of existing invasive species on Suir Island. The next phase is to develop control strategies to eradicate these species overtime. This may involve prioritising control in areas of the island of biodiversity importance or where proposed development is scheduled. Furthermore, the plan should integrate biosecurity measures to prevent the spread of invasive species or crayfish plague that has had devastating effects on the White-clawed crayfish population of the River Suir during 2017. It should also address the risk of Ash Dieback disease.

## Terrestrial Habitats (Suir Island and Adjoining Lands)

*River Suir Heritage Survey Volume II – Natural Heritage*

A Survey of the Natural Heritage Along the River Suir from Tinalla to Knocklofty Bridge, Co Tipperary

On behalf of South Tipperary County Council

November 2009

[Extract]

### Site No: 042007 (Suir Island)

"Walking down Grubbs Lane onto Suir Island, this is bounded on the right hand side by the old mill. Abundant ivy grows on the walls of this, together with travellers joy and occasional pellitory of the wall and ivy-leaved toadflax. Along the pathway, nettle, dandelion, wavy bittercress, herb Robert, ragwort, creeping buttercup, hedge bindweed, butterfly bush and common broomrape are of occasional to rare occurrence. At the end of the mill, the laneway (BL3) bends to the right leading onto Willow Island. The lane is approximately 3m wide with a 2m grassy verge (GS2) along either side. Species growing along the lane and its verges include: butterfly bush, bramble, great willow herb, feverfew, ivy-leaved toadflax, red valerian, dandelion, ivy, soft brome, creeping buttercup, bent grasses,

nettle, broad-leaved willowherb, broad-leaved dock, water figwort, rough sow thistle, spear thistle, greater plantain, pignut, smooth sow thistle, white clover, briar, elder, black medick, thyme-leaved speedwell, annual meadow grass, hedge woundwort, sun spurge, red clover, common mallow, red deadnettle, catsear, selfheal, burdock and knotgrass, with an abundance of ivy, travellers joy and hedge bindweed growing on the adjacent walls. An area where fly tipping takes place is evident at the end of the lane, before entering the grounds of Suir Island House.

All habitats and features of ecological interest recorded within Denis Burke Park (Site No 042004) and Suir Island (Site No 042007) and are presented in Fig. 4.1.



Figure. 4.1. Digitised image of habitat boundaries and other features of ecological interest recorded within Sites No 042004 (Denis Burke Park) and 042007 (Suir Island)

The area to the left just before Suir Island House is bounded by mostly intact stone walls (BL1) which are covered with ivy and Japanese knotweed. The internal area of this is used to dump hedge clippings and these have become completely overgrown with hedge bindweed, nettle and bramble. Other species which occur occasionally either within or along the fringe of this area include: creeping buttercup, false oat grass, nipplewort, knotgrass, greater plantain, mouse ear, annual meadow grass, scented mayweed, field pennycress, herb Robert and burdock.

The old harbour is slightly damp underfoot and very shaded, it has also and is classified as 'recolonising bare ground' (ED3). Nettle, broad-leaved dock, wavy bittercress, greater plantain, brooklime, broad-leaved willowherb, water forgetmenot, creeping buttercup, bent grasses, ivy, crack willow, Yorkshire fog, alexanders and broad-leaved willowherb are all frequently occurring species within this area. Additional species whose incidence is occasional to rare include: ash (saplings), yarrow, angelica, prickly sow thistle, yellow iris, flowering rush, spear thistle, creeping thistle, bramble, elder, cow parsley, great willowherb, groundsel, meadow buttercup, water mint, scarlet pimpernel, selfheal, enchanters nightshade, sun spurge, common cleaver, chickweed, ribwort plantain, fathen and water figwort, ragwort, briar, creeping buttercup, sycamore, coltsfoot, meadowsweet, holly, redshank, ground elder, beaked hawksbeard, hogweed, floating sweet grass, toad rush with some reed canary grass and along the waters edge. There is frequent incidence of ivy and occasional pellitory of the wall, maiden hair spleenwort and Harts-tongue fern on the adjacent wall. A very mature holm oak and lime also occur within this area.

Unlike the harbour where much of the ground area is quite shaded and therefore poorly vegetated, there is much great vegetation cover within the garden area in front of Suir Island House. This is classified as 'grassy verge' (GS2). Species occurring in this area include: water figwort, creeping buttercup, scented mayweed, greater plantain, hedge bindweed, common cleaver, travellers joy, great willowherb, false oat grass, Yorkshire fog, broad-leaved willowherb, cocksfoot, red clover, ribwort plantain, bittersweet, bent grasses, spear thistle, coltsfoot, annual meadow grass, angelica, selfheal, black knapweed, smooth sow thistle, meadow vetchling, bush vetch, ivy, cherry laurel, whitethorn, variegated laurel, nipplewort, bramble, hogweed, birdsfoot trefoil, ragwort, herb Robert. This area is bounded along the riverside by an overgrown stretch of ash, sycamore, hawthorn, cherry laurel, bramble, elder, Lawsons cypress, yew, lime and holly, classified as 'mixed broadleaved woodland' (WD1).

An overgrown track classified as 'grassy verge' (GS2), leads behind Suir Island House to Moneyarla or Grubb's Island.

A good selection of herbs and grasses grow in and around the trackway including: creeping buttercup, bush vetch, Yorkshire fog, bent grasses, false oat grass, dandelion, hedge bindweed, rough meadow grass, creeping thistle, water figwort, bramble, bittersweet, butterfly bush, meadow vetchling, nettle, ivy, knotgrass, spear thistle, greater plantain, broad-leaved dock, angelica, great and broad-leaved willowherb, ground elder, pignut, ribwort plantain, red and white clover, black medick, hogweed, spear thistle, coltsfoot, ragwort, nipplewort, cocksfoot, annual meadow grass, scarlet pimpernel, wood avens and Japanese knotweed. Both sides of the trackway are completely overgrown by hedge bindweed, bramble, creeping thistle and nettle, with a large area completely dominated by Japanese knotweed dominated scrub (WS1) on the left hand side along the trackway. Other species which occur within this area of scrub include: bramble and hedge bindweed. A selection of mature trees and shrubs bound the trackway, forming a hedgerow (WL1). Species within this include: sycamore, ash, grey willow, crack willow, cherry laurel, snowberry, travellers joy. A population of giant hogweed occurs close to the end of this hedgerow.

The trackway leads to an area of spoil (ED2), where building materials have essentially been dumped. The disturbance in this area has given rise to a good selection of species which would be characteristic of these areas. Species which are present include: rough sow thistle, sun spurge, hedge bindweed, common hogweed, scarlet pimpernel, pineapple mayweed, creeping thistle, knotgrass, goosefoot, wavy bittercress, spear thistle, creeping buttercup, fumitory, broad-leaved dock,

*common vetch, greater plantain, toadrush, chickweed, ground elder, bent grasses, coltsfoot, bittersweet, false oat grass, water figwort, herb Robert, garlic mustard, perforate St John's wort, slender St John's wort, bittersweet, black nightshade, white and red clover, creeping thistle, black medick and meadowsweet.*

*Beyond this disturbed area, the trackway through the island becomes very rough and moves through an area of rank grassland where there is an abundance of hedge bindweed, bramble, stinging nettle, bent grass species, Yorkshire fog, broad-leaved willowherb, broad-leaved dock, common cleavers, rough meadow grass with occasional perforate St John's wort, great willowherb, meadowsweet and ragwort. This leads to a second area where rubble has been 'dumped'. Another small population of giant hogweed is located alongside this.*

*The area surrounding this is completely dominated by bramble, hedge bindweed and rough grass species. Beyond this the remaining section of the island is dominated by a large monoculture of Japanese knotweed.*

*The entire eastern side of the island is bounded by a fringe of riparian woodland (WNS) consisting of mature and immature trees with some shrubs and creepers also present. Species include: lime, holm oak, sycamore, ash, cherry laurel, aspen, horse chestnut, Lawsons cypress, hawthorn, grey and crack willow, wych elm, beech, hornbeam, alder, snowberry, bramble, travellers joy, elder, briar, holly, crab apple, mountain ash, butterfly bush and Yew.*

*The smaller western portion of the island is not contained within the boundary of the SAC. Access was not gained to this portion due to the major construction works which were ongoing at the time of surveying. However, nothing of ecological interest appears to remain within this area which is now covered by buildings and the construction site".*

## Appendix K: Environmental Appraisal of Key Objectives

## Environmental Appraisal of Key Objectives

### Methodology

The success of the development of Suir Island rests largely on how the proposal will be managed operationally within the context of the island's natural, physical and cultural assets. As recognised, the island in part sits within the **Lower River Suir SAC** (Site Code 002137) and is home to a number of protected species and their habitats.

It is important to acknowledge that the subject site is adjacent to Clonmel town and the continuing presence of these protected habitats and species at this site in spite of its location close to a moderately sized urban centre are also notable.

Having regard to the "protected" status environment within which Suir Island is located, a series of Key Strategic Environmental Themes were identified to be utilised in the process to assess the overall proposed Masterplan from an Environmental Planning perspective. Presented as a reference or indicative tool for the design team at the outset, the Environmental Themes aid in the Masterplan process for the proposed development of Suir Island for the purposes of developing as a key community amenity and recreational resource in Clonmel.

The Key Strategic Environmental Themes established by the Design team for the assessment of the Suir Island Masterplan, were as follows:

**Table 1: Key Strategic Environmental Themes and Associated Issues**

No.	Theme	Issue
1.	Biodiversity - Flora and Fauna.	a. Biodiversity – Lower River Suir (SAC 002137) and River Barrow and River Nore (SAC 0021) (conserve, develop, knowledge).
		b. Habitats Directive (Annex I – habitat type and flora).
		c. Habitats Directive (Annex II – flora and fauna species).
		d. Habitats Directive (Annex IV – strict protection species).
		e. Birds Directive (Annex I – avian species and habitat).
		f. Invasive Species (Flora – Giant Hogweed and Japanese Knotweed, Fauna – American Mink).
2.	Population and Human Health - Socio-Economic, Education, Quality of Life, etc.	a. Socio-economic profile of Suir Island (key histories and associated legacy, identified opportunity site for redevelopment).
		b. Economic attractiveness (operational management, viability of land uses, target population – environmentally conscientious, year-round appeal).
		c. Quality of life for the community - local residents, business, religious and visitors (access, recreation, vehicular parking, educational, full year use).
		d. Historic (relationship with Suir Island House, Lady Blessington's Baths, the weir, mills, mill races).
3.	Landscape - Visual Character.	a. Natural (landscape designation, tree preservation on island).
		b. Historic (relationship with Suir Island House, Lady Blessington's Baths, the weir, mills, mill races).
		c. Views, relationships and access to waterways (Denis Bourke Park and Clonmel Town, berm reshaping).
		d. Visual relationship to Existing Development (Stretches Island - houses, Hughes Mill – apartments).
4.	Air Quality - Traffic Generated and Means	a. Suir Island (air quality impact from increased traffic flows).
		b. Old Bridge Road (intersection vehicular movements – potential congestion and idling).
		c. Pedestrian interconnectivity between Convent Bridge, Old Bridge and Gashouse Bridge.
5.	Climatic Factors - Energy Demands.	a. Conceptualisation Physical Design (building concepts).
		b. Construction Stage (materials and methodology).
		c. Operational Stage (sustainable energy sources / renewables).
6.	Cultural Heritage - Archaeological.	a. Identification (opportunity to highlight industrial site history).
		b. Importance Level (assessment of recovered artefacts).
		c. Protection (in-situ and documentation).
7.	Cultural Heritage – Architectural (RPS / NIAH)	a. Protection (direct impact of new development).
		b. Conservation (integration into new development).
		c. Enhancement (complementary expansion by incorporating protected structures into design and reuse of structures).
8.	Material Assets - Infrastructure (Roads, Drainage, Waste management, Services).	a. Drainage (foul and surface water connectivity and pump station functionality).
		b. Waste management (public refuse [littering], collection, disposal, reuse and recycling and operationally generated waste).
		c. Access Infrastructure (pedestrian paths and footbridges, mobility impaired, roads and operational services – energy (gas), electricity, communications).
		d. Conservation (source, use, reuse and recycle).
9.	Water - Ground Water and Surface Water.	a. Enhancing surface water drainage systems (integration with existing infrastructure).
		b. Flood Risk (mitigation measures).
		c. Surface and Sub-surface contamination (dumping and previous land uses).
		d. Vehicular Traffic (patrons, staff and services / suppliers).
10.	Noise and Vibration.	a. Enhancing (control of impact, mitigation measures).
		b. Existing Infrastructure (suitability of access facilities).
		c. Existing Infrastructure (suitability of access facilities).

Source: The Planning Partnership, August 2017.

Although non-exhaustive, the preceding does provide for a holistic interpretation of the principal concerns requiring attention in the Masterplan.

To ensure a balanced approach to the qualitative assessment of the proposals presented within the Suir Island Masterplan, no weightings are assigned to specific themes and as such all are considered equally important to ensure a sustainable and professionally objective approach to the Design Team's judgement and assessment of proposals. A high-level assessment has been conducted of the above Key Strategic Environmental Themes per the Environmental Issues identified utilising a criteria assessment rating of risks and opportunities as detailed in Table 2 below.

**Table 2: Magnitude/Significance of Potential Impacts**

Key	Very Positive	Positive	Neutral	Negative	Very Negative	Uncertain
	++	+	o	-	--	?

Source: The Planning Partnership

The assessment does not take account of the temporary, relatively short-term risks or impacts associated with the construction phase of the Suir Masterplan proposals, as such risks or impacts are typically amenable to mitigation at statutory planning and implementation stage. Such factors are unlikely to represent key differentiators.

### Clonmel and Environs Development Plan 2013 and the carrying out of the Strategic Environmental Assessment (SEA)

The preparation of the *Clonmel and Environs Development Plan 2013* and the carrying out of the SEA were necessary processes, reflected in the development plan as adopted. From the outset, environmental considerations informed the development plan.

The Environmental Protection Objectives for the SEA relevant to Suir Island in the *Clonmel and Environs Development Plan 2013* comprised the following:

- **Car parking:** Surface car parks should be permeable or semi-permeable surfacing to reduce surface water run-off and mitigate against contribution to flooding.
  - **Riverside Amenity:** The Council will actively pursue the further sustainable and appropriate development and improvement of existing green spaces within the Plan area prioritising Suir Island and the creation of links from Mulcahy Park, Suir Island, and Denis Burke Park.
  - **Opportunity Site:** A raised plaza along the quays with views overlooking the River Suir and Suir Island and the development of a raised pedestrian link along Sarsfield Street and across the River Suir should be considered and developed if feasible and subject to project level strategic environmental assessment and appropriate assessment screening.
- Suir Island shall be developed as the 'Green Heart' of the town with extensive formal and informal/natural garden areas, footpaths and views across the Suir subject to the protection of the existing habitats within the special area of conservation.
- The development of Suir Island shall incorporate car-parking and coach parking at appropriate locations with easy access to the town centre via the proposed footbridge.

### Clonmel and Environs Development Plan 2013 and the carrying out of Appropriate Assessment (AA)

The preparation of the *Clonmel and Environs Development Plan 2013* and the carrying out of the Appropriate Assessment (AA) were iterative processes, reflected in the development plan as adopted. The AA associated with the *Clonmel and Environs Development Plan 2013* had been completed prior to any decision to authorise, adopt or proceed with the development plan. Through the AA process, this enabled any measures proposed to avoid or mitigate impacts on Natura 2000 Sites to be incorporated into the policy/objective or detail of the plan before finalisation.

It is acknowledged that Suir Island is subject to Special Area of Conservation (SAC) status designation.

The Screening Assessment for AA relevant to Suir Island that may have an impact upon the Lower River Suir SAC in the *Clonmel and Environs Development Plan 2013* comprised the following:

- **Opportunity Site:** Development of opportunity sites close to or adjacent to River Suir such as Suir Island, Clonmel Arms, Davis Road and Fair Oaks Food.
- **Car Parking:** Policy of Plan to actively encourage proposals that seek to bring the river back into the town e.g. by using boardwalks, plazas etc along the river side.
- **Car Parking:** Provision of improved car parking facilities adjacent River Suir e.g. at Suir Island.
- **Tourism:** Increased tourism and related increase in recreational demand and facilities associated with the increased use in and around the River Suir. In particular the proposed improvement of riverside walk along the River Suir tow path.
- **Pedestrian Bridge:** New pedestrian bridge over the River Suir on to connect the town centre with Suir Island and Denis Bourke Park.
- **Flood Risk:** Flood Risk and Management Strategy.
- **Developments:** Size and scale, land-take, distance from the Natura 2000 site or key features of the site, resource requirements, emissions, excavation requirements, transport requirements and duration of construction and operation.

- Habitats and Species: Reduction of habitat area, disturbance to key species, reduction in species density, changes in key indicators of conservation value (water quality etc) and effects of climate change
- Natura 2000 Site: Interference with the key relationships that define the structure of the site and interference with the key relationships that define the function of the site.

**Developing and Assessing Proposals**

As detailed in Suir Masterplan, proposals comprise 5 no. elements associated with the overall development of the subject area.

- A. Public Plaza** along The Quay and **North** semi-enclosed pedestrian **Bridge** maximising pedestrian movement and accessibility between Suir Island and Clonmel Town Centre, the Greenway and recreational and tourist amenities within Clonmel;
- B. Boardwalk** along top of existing flood defence berm with seating forming a natural Amphitheatre for the car park **Event Space**;
- C. Formal Suir Island Garden** area around Suir Island **House** with mixture of limestone paved and natural paths within managed landscaped areas with seating and facilities that support recreational activities;
- D. Natural Wildwood Clearings** to be reinstated to facilitate both active and passive recreational activities, looped meandering pedestrian paths, the **rewatered Millrace** to invoke the history of the island and to further promote recreation amenity, and pedestrian **South Bridge** connecting the Suir Island from the historic millrace crossing point to Denis Burke Park to the south of River Suir, maximising accessibility between Suir island and the Suir Blueway, Denis Burke Park and recreational amenities within Clonmel; and
- E.** A raised boardwalk with integrated seating facilitates **Wildwood Nature Boardwalk** presenting minimum interventions to the eastern part of the island which is also the most ecologically sensitive area in terms of both flora and fauna, integrating and enhancing existing wildlife habitats and biodiversity.

As the Masterplan will be developed on a phased basis, it will be necessary to ensure the wildwood, paths and Suir Island garden area are readily accessible to the public in advance of the implementation of the boardwalk and the pedestrian bridges. The proposals range from simple to more complex and costly and as such it is proposed that the overall Suir Island Masterplan will be implemented over 9 no. Stages as follows presented within the Suir Masterplan:

**Table 3: Phasing Plan**

Stage	Description	Key Actions
Stage 1a	Suir Island Garden	<ul style="list-style-type: none"> <li>Make suir island house and associated walls and structures safe, including removal of overgrowth;</li> <li>Clear overgrowth where necessary, including invasive species management;</li> <li>Addition of paths, planting and furniture.</li> </ul>
Stage 2a	Wildwood clearings	<ul style="list-style-type: none"> <li>Clear overgrowth where necessary, including invasive species management;</li> <li>Reinstate clearings;</li> <li>Addition of paths, planting and furniture.</li> </ul>
Stage 2b	Wildwood clearings	<ul style="list-style-type: none"> <li>Advertise and consider applications for activities in this area;</li> <li>Evaluate proposed activities in relation to overall masterplan;</li> <li>Implement activities.</li> </ul>
Stage 3	Wildwood nature boardwalk	<ul style="list-style-type: none"> <li>Clear overgrowth where necessary, including invasive species management;</li> <li>Addition of boardwalk, art/sculpture paths, planting and furniture;</li> </ul>
Stage 4	Boardwalk berm	<ul style="list-style-type: none"> <li>Addition of boardwalk, planting and furniture;</li> <li>Addition of access ramps and steps.</li> </ul>
Stage 5	Re-water Millrace	<ul style="list-style-type: none"> <li>Design, plan, statutory compliance, implement.</li> </ul>
Stage 6	Facilities building	<ul style="list-style-type: none"> <li>Design, plan, statutory compliance, implement.</li> </ul>
Stage 7	Tree top walk	<ul style="list-style-type: none"> <li>Design, plan, statutory compliance, implement.</li> </ul>
Stage 8	Public Plaza and North bridge	<ul style="list-style-type: none"> <li>Design, plan, statutory compliance, implement.</li> </ul>
Stage 9	South pedestrian bridge	<ul style="list-style-type: none"> <li>Design, plan, statutory compliance, implement.</li> </ul>

Source: Suir Island Masterplan

Assessment of Suir Island Masterplan Proposals			Magnitude/Significance of Potential Impacts				Comments
No.	Theme	Issue	A.	B.	C.	D.	
1.	Biodiversity - Flora and Fauna.	a. Biodiversity – Lower River Suir (SAC 002137) and River Barrow and River Nore (SAC 0021) (conserve, develop, knowledge)	++	+	-	++	
		b. Habitats Directive (Annex I – habitat type and flora)	++	++	o	++	
		c. Habitats Directive (Annex II – flora and fauna species)	++	++	o	+	
		d. Habitats Directive (Annex IV – strict protection species)	++	+	o	+	
		e. Birds Directive (Annex I – avian species and habitat)	+	+	-	+	
		f. Invasive Species (Flora – Giant Hogweed and Japanese Knotweed, Fauna – American Mink)	o	o	+	++	
2.	Population and Human Health - Socio-Economic, Education, Quality of Life, etc.	a. Socio-economic profile of Suir Island (key histories and associated legacy, identified opportunity site for redevelopment)	+	++	+	++	
		b. Economic attractiveness (operational management, viability of land uses, target population – environmentally conscientious, year-round appeal)	++	++	+	++	
		c. Quality of life for the community - local residents, business, religious and visitors (access, recreation, vehicular parking, educational, full year use)	++	++	+	++	
3.	Landscape - Visual Character.	a. Natural (landscape designation, tree preservation on island)	o	++	+	++	
		b. Historic (relationship with Suir Island House, Lady Blessington’s Baths, the weir, mills, mill races)	o	+	+	+	
		c. Views, relationships and access to waterways (Denis Bourke Park and Clonmel Town, berm reshaping)	++	++	+	++	
		d. Visual relationship to Existing Development (Stretches Island - houses, Hughes Mill – apartments)	+	++	+	+	
4.	Air Quality - Traffic Generated and Means.	a. Suir Island (air quality impact from increased traffic flows)	--	--	-	-	
		b. Old Bridge Road (intersection vehicular movements – potential congestion and idling)	--	--	-	-	
		c. Pedestrian interconnectivity between Convent Bridge, Old Bridge and Gashouse Bridge	++	++	o	o	
5.		a. Conceptualisation Physical Design (building concepts)	++	++	+	+	

	Climatic Factors - Energy Demands.	b .	Construction Stage (materials and methodology)	?	++	+	?	
		c .	Operational Stage (sustainable energy sources / renewables)	?	?	?	?	
6.	Cultural Heritage - Archaeological.	a .	Identification (opportunity to highlight industrial site history)	+	+	+	++	
		b .	Importance Level (assessment of recovered artefacts)	o	o	+	o	
		c .	Protection (in-situ and documentation)	o	o	+	++	
7.	Cultural Heritage – Architectural (RPS / NIAH).	a .	Protection (direct impact of new development)	++	++	+	++	
		b .	Conservation (integration into new development)	++	++	+	++	
		c .	Enhancement (complementary expansion by incorporating protected structures into design and reuse of structures)	o	o	+	++	
8.	Material Assets - Infrastructure (Roads, Drainage, Waste management, Services).	a .	Drainage (foul and surface water connectivity and pump station functionality)	+	++	o	++	
		b .	Waste management (public refuse [littering], collection, disposal, reuse and recycling and operationally generated waste)	?	?	?	?	
		c .	Access Infrastructure (pedestrian paths and footbridges, mobility impaired, roads and operational services – energy (gas), electricity, communications)	++	++	+	++	
9.	Water - Ground Water and Surface Water.	a .	Conservation (source, use, reuse and recycle)	o	o	+	++	
		b .	Enhancing surface water drainage systems (integration with existing infrastructure)	o	++	o	++	
		c .	Flood Risk (mitigation measures)	++	++	-	++	
		d .	Surface and Sub-surface contamination (dumping and previous land uses)	+	o	+	++	
10.	Noise and Vibration.	a .	Vehicular Traffic (patrons, staff and services / suppliers)	++	--	-	-	
		b .	Enhancing (control of impact, mitigation measures)	++	++	+	++	
		c .	Existing Infrastructure (suitability of access facilities)	+	++	+	++	
Key	Very Positive	Positive	Neutral	Negative	Very Negative	Uncertain		
	++	+	o	-	--	?		

Summary Assessment of Suir Island Masterplan Proposal			Magnitude/Significance of Potential Impacts			
No.	Theme	Issue	Comments			
1.	Biodiversity	Flora and Fauna.	++			
2.	Population and Human Health	Socio-Economic, Education, Quality of Life, etc.	++			
3.	Landscape	Visual Character.	++			
4.	Air Quality	Traffic Generated and Means.	-			
5.	Climatic Factors	Energy Demands.	?			
6.	Cultural Heritage	Archaeological.	+			
7.	Cultural Heritage	Architectural (RPS / NIAH).	++			
8.	Material Assets	Infrastructure (Roads, Drainage, Waste management, Services).	?			
9.	Water	Ground Water and Surface Water.	+			
10.	Noise and Vibration	Traffic and infrastructure.	o			
Key	Very Positive	Positive	Neutral	Negative	Very Negative	Uncertain
	++	+	o	-	--	?

## Appendix L: Appropriate Assessment Screening

**Appropriate Assessment Screening  
For the development of Suir Island, Clonmel,  
Co. Tipperary**

**- Suir Island Masterplan -**



January 2018

<b>Document Reference</b>	<b>JN10_17_Suir_Island</b>
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## Contents

<b>Section</b>	<b>Page</b>
<b>1. Introduction</b>	<b>2</b>
<b>2. Project Description</b>	<b>4</b>
<b>3. Methods</b>	<b>10</b>
<b>4. Stage I - Appropriate Assessment Screening</b>	<b>13</b>
Designated Habitats & Species at Suir Island	19
Conservation Objective Annex I Habitats (Suir Island)	19
Conservation Objective Annex II Species (Suir Island)	20
<b>5. Impact assessment</b>	<b>24</b>
<b>6. Cumulative (in combination) Impacts</b>	<b>32</b>
<b>7. Findings of Significant Effects</b>	<b>33</b>

# 1. Introduction

This NIS screening report for the Suir Island Masterplan has been prepared by Environmental Scientist Ross Macklin BSc. Env Science, H Dip GIS CIEEM IFM. The Suir Island Masterplan project proposes to develop the island as a recreational and amenity resource for the people of Clonmel, Co. Tipperary, by harmonizing the rich heritage value of the island with the proposed design concepts.

Suir Island itself is a land parcel situated in the middle of the River Suir, bounded by the quayside of Clonmel town center on the north channel of the river and the R671 and Denis Burke Park along the south channel (see Figure 1.1 below). In light of the situation of Suir Island within the Lower River Suir SAC (site code 2137), inclusive of the eastern extents of the island (also situated within the SAC boundary – see Figure 4.2), the proposals to develop the island would be subject to appropriate assessment screening.

This report represents the first phase of the appropriate assessment process (i.e. appropriate assessment screening). The screening process aims to establish whether a proposed plan or project (in this case a masterplan) either alone or in combination with other plans or projects, could have significant negative effects on a Natura 2000 site in view of the site’s conservation objectives (i.e. those species and habitats for which the Natura site has been designated). The obligation to undertake Appropriate Assessment arises from Articles 6 (3) and (4) of European Union (EU) Council Directive 92/43/EEC (Habitats Directive) and transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations S.I. No 477 of 2011. The methodology employed in this report for the screening process and other elements of reporting are described in section 3 of this report.

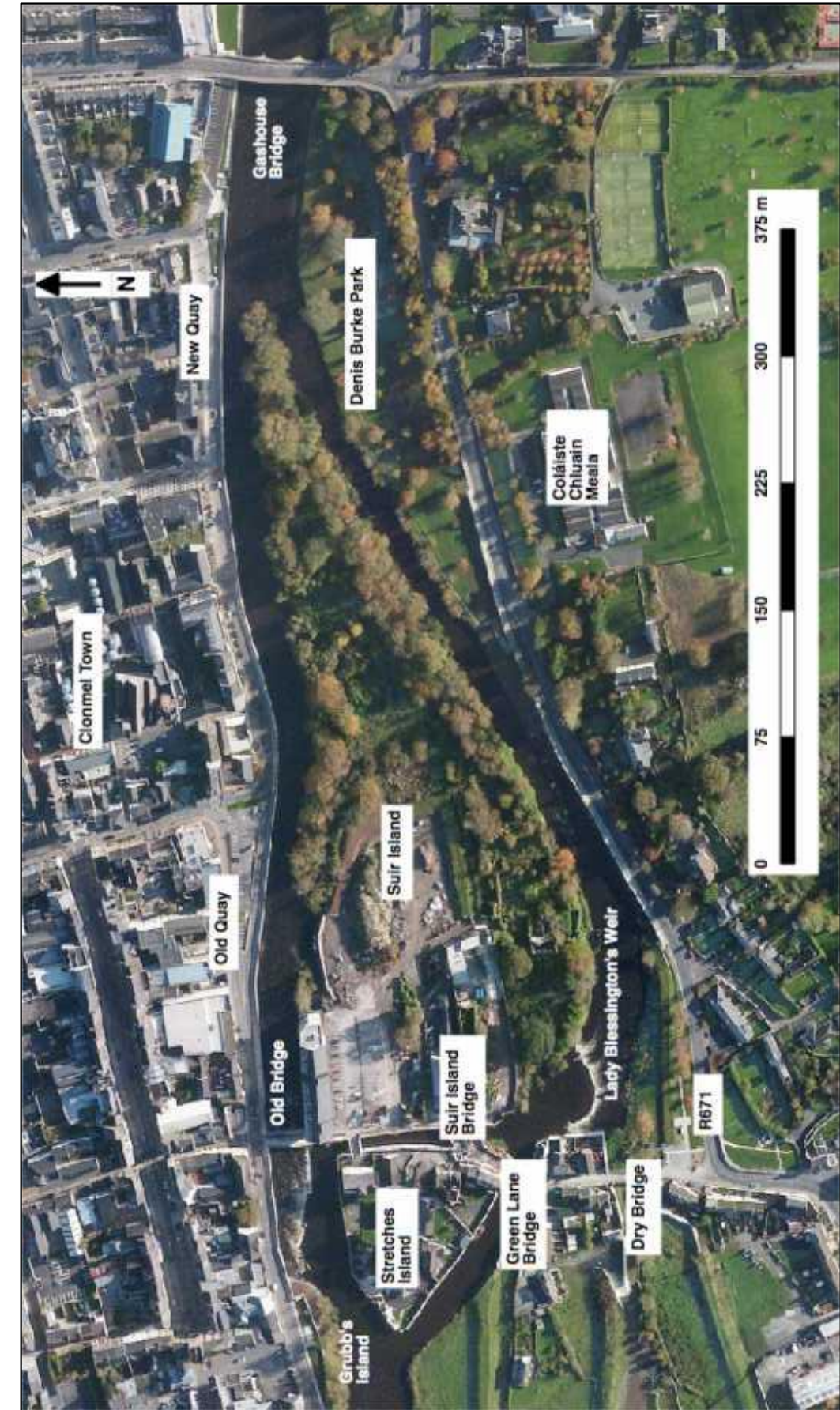


Figure 1.1 - Location of Suir Island & adjoining areas (existing layout), Clonmel, Co. Tipperary.

## 2. Project Description

The specific elements of the project will be considered in relation to the conservation objective species and habitats screened in and the potential levels of impact relative to their situation overlapping the proposed phased design elements. The Suir Island Masterplan proposals comprise five key design elements associated with the development's masterplan. They are itemized and described below and also illustrated in the schematic (Figure 2.1) and layouts (Figures 2.2 through 2.4) below.

1. **Public Plaza** along The Quay and North semi-enclosed pedestrian Bridge maximising pedestrian movement and accessibility between Suir Island and Clonmel Town Centre, the Greenway and recreational and tourist amenities within Clonmel;
2. **Boardwalk** along top of existing flood defense berm with seating forming a natural Amphitheatre for the car park Event Space;
3. **Formal Suir Island Garden** area around Suir Island House with mixture of limestone paved and natural paths within managed landscaped areas with seating and facilities that support recreational activities;
4. **Natural Wildwood Clearings** to be reinstated to facilitate both active and passive recreational activities, looped meandering pedestrian paths, the rewatered Millrace to invoke the history of the island and to further promote recreation amenity, and pedestrian South Bridge connecting the Suir Island from the historic millrace crossing point to Denis Burke Park to the south of River Suir, maximising accessibility between Suir island and the Suir Blueway, Denis Burke Park and recreational amenities within Clonmel; and
5. **A raised boardwalk** with integrated seating facilitates. Wildwood Nature Boardwalk presenting minimum interventions to the eastern part of the island which is also the most ecologically sensitive area in terms of both flora and fauna, integrating and enhancing existing wildlife habitats and biodiversity.

The masterplan for Suir Island will be developed on a phased basis. It will commence with the wildwood, paths and Suir Island garden areas in advance of the implementation of the boardwalk and the pedestrian bridges (i.e. connecting Clonmel north and south of the Island). The Suir Island Masterplan will be implemented over 9 no. Stages in total (see Figure 2.1 below). The phases progress from what is described as 'low level intervention' to 'high level intervention'. Low levels of intervention include vegetation clearance, localized management of invasive plants and ensuring the structural integrity of existing stone buildings and walls. It also accounts for the creation of paths, landscaping and the provision of furniture. Medium level intervention includes the consideration of the development of the island for recreational activities (i.e. recreational opportunity spectrum), the creation of boardwalks and infrastructure (access ramps, steps etc.). High level intervention includes more significant infrastructural development including the design, planning and implementation of significant elements of the design i.e. re-watering of millrace channel, facilities building and bridge constructions. Incidentally the high level intervention also have associated higher costs (see Figure 2.1 below).

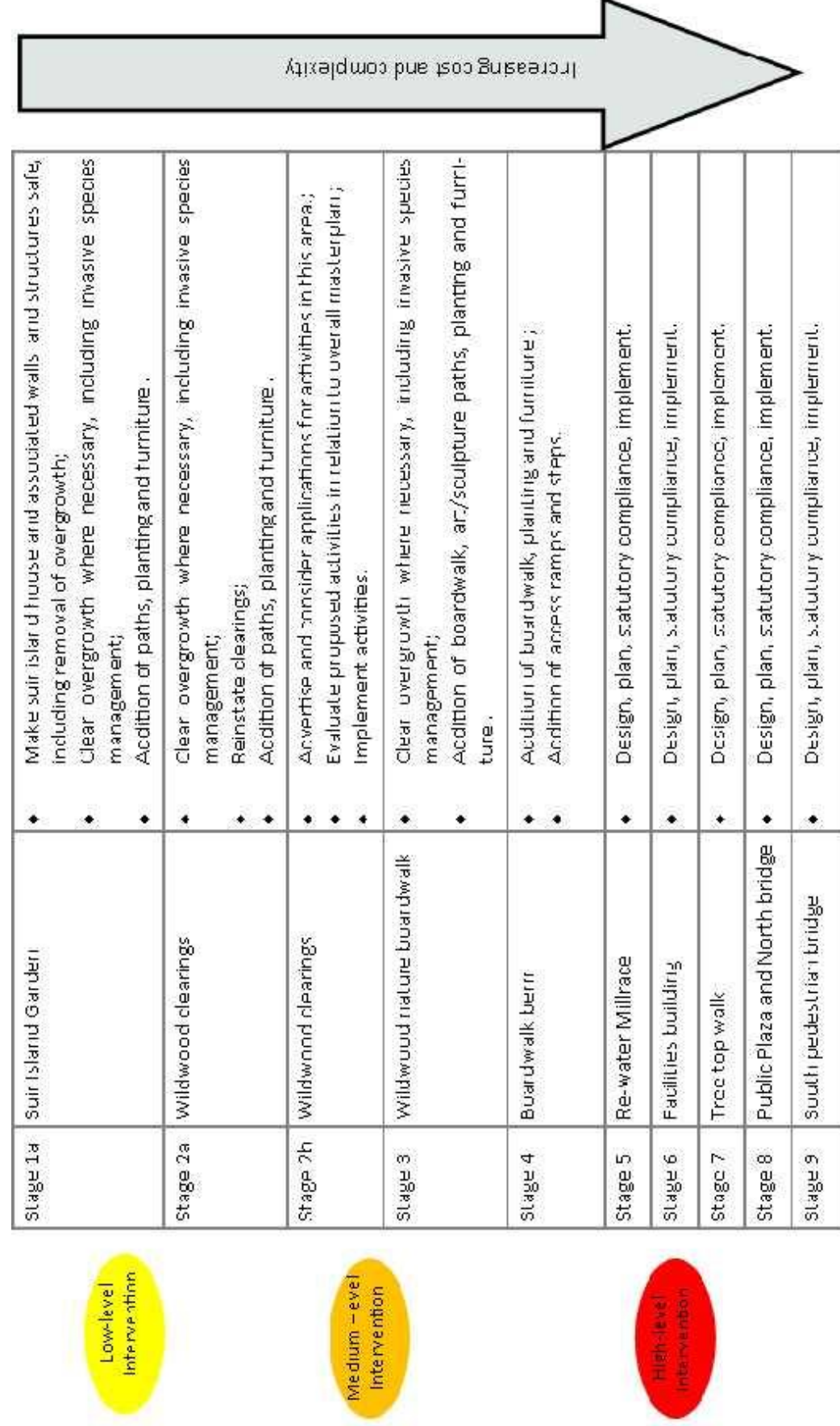


Figure 2.1 – Key Stages of the Suir Island with associated design elements for each phase



Figure 2.2 – Site Layout Plan (Western and Central Extent - Kenneth Hennessy architects)



### 3. Methods

#### Methodology for Appropriate Assessment

The Appropriate Assessment process begins with Stage 1 - Screening to determine if a plan or project is likely to have an impact on a Natura 2000 site. A screening assessment was carried out and is presented below. The methodology used to complete the Appropriate Assessment follows best practice guidance, including the following:

- European Commission (2000) Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.
- European Commission (2001) Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Articles 6(3) and (4) of the Habitats Directive 92/43/EEC.
- European Commission (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/49/EEC; clarification of the concepts of: Alternative solutions, Imperative reasons of overriding public interest, Compensatory Measures, Overall Coherence, Opinion of the Commission.
- Department of the Environment, Heritage and Local Government (2009). Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities.

There are 4 stages in an Appropriate Assessment as outlined in the European Commission Guidance document (EU Commission, 2001). The following is a brief summary of these steps.

- **Stage 1 - Screening:** This stage examines the likely effects of a project/plan, either alone or in combination with other projects/plan, upon a Natura 2000 site and considers whether it can be objectively concluded that these effects will be non-significant. The assessment of significance is carried out in consultation with the relevant wildlife and environmental conservation agencies.

- **Stage 2 - Appropriate Assessment:** In this stage, the impact of the project on the integrity of the Natura 2000 site is considered with respect to the conservation objectives in place for site.
- **Stage 3 - Assessment of Alternative Solutions:** Should the Appropriate Assessment determine that adverse impacts are likely upon a Natura 2000 site, this stage examines alternative ways of implementing the project that, where possible, avoid these adverse impacts.

In the absence of any reasonable alternatives for a project/plan that would be less damaging to the integrity of a Natura 2000 site, it is then necessary to proceed to Stage four.

- **Stage 4 - Assessment where no alternative solutions exist and where adverse impacts remain:** Where Imperative Reasons of Overriding Public Interest (IROPI) exist, an assessment to consider whether compensatory measures will or will not effectively offset the damage to the Natura site will be necessary.

Ross Macklin BSc. Env Science, H Dip GIS CIEEM IFM completed the methodology outlined below:

#### Identification of Natura 2000 sites

Natura 2000 sites within a radius of the proposed development were identified. There is no set recommended distance for projects from Natura 2000 sites. Rather, DoEHLG (2009) recommend that for projects '*the distance should be evaluated on a case-by-case basis with reference to the nature, size and location of the project, and the sensitivities of the ecological receptors, and the potential for in combination effects.*' For the purpose of the current project a 15 km radius was used.

### Desk top Study

The identification of impacts upon a Natura 2000 site requires a characterization of the site and its surrounding landscape. To this end, a desk top study was undertaken and sources of information included the following:

- Online data held by the National Parks and Wildlife Service (NPWS) ([www.npws.ie](http://www.npws.ie)) including locations and boundaries of Natura 2000 sites;
- Information on water quality from the Environmental Protection Agency ([www.epa.ie](http://www.epa.ie));
- Information on the nature and design of the proposed development;
- National Biodiversity Data Centre ([www.nbdc.ie](http://www.nbdc.ie)).

### Site visits

The field survey was undertaken by Ross Macklin BSc. Env Science, H Dip GIS CIEEM IFM on the 24<sup>th</sup> August 2017. Habitat assessment was carried out according to the Irish Habitat Classification as described within the Heritage Council's 'A Guide to Habitats within Ireland' (Fossitt, 2000). This helped identify whether species of conservation importance occurred in the vicinity of the proposed works area.

## 4. Stage I - Appropriate Assessment Screening

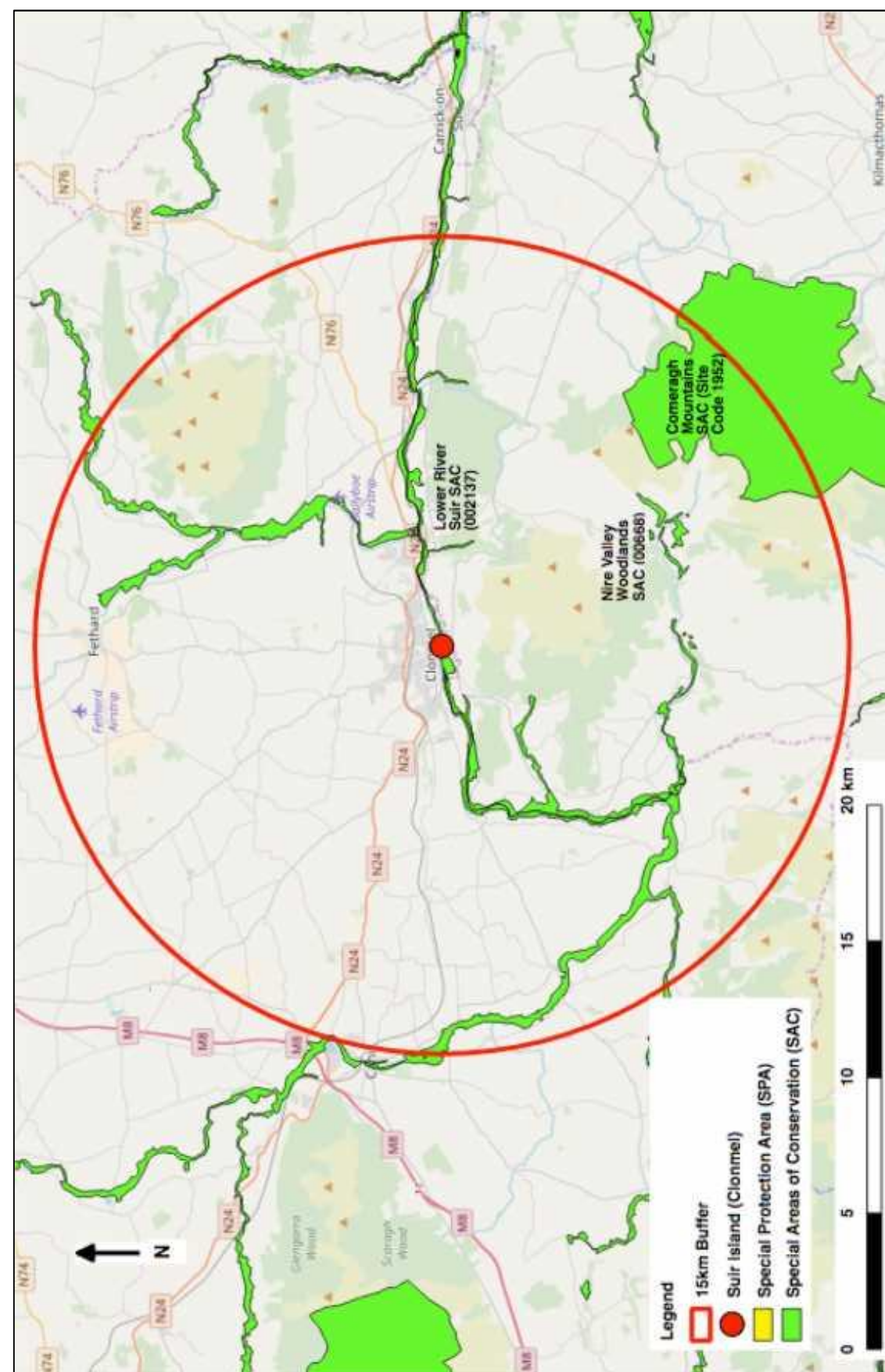
The screening process identified three SAC sites within a 15km radius of the center point of Suir Island, Clonmel, Co. Tipperary (see Figure 4.1 below). Natura 2000 sites screened in within 15km of the development are listed on Table 4.1 below, with the approximate distance from the proposed works by water or land stated. Impacts to the Nier Valley Woodlands SAC (site code 000668) and the Comeragh Mountains SAC (site code 1952) can be screened out based on no connectivity with the proposed works area at Suir Island and these designations (see Table 4.1 below).

The second phase of the screening would focus on a more detailed review of possible impacts to the conservation objectives (i.e. qualifying interests) and / or special conservation interests of those Natura 2000 sites maintaining connectivity with the development area (i.e. source – pathway - receptor impact appraisal). This includes connectivity by water & water bourne pollutants or indirect disturbance etc.).

The screening process has identified based on connectivity by water or due to close proximity and/ or potential disturbance related impacts, that one Natura 2000 sites, namely the Lower River Suir SAC (site code 002137) been screened in. As such the remaining sites have been screened out due to the improbability of impact given no connectivity directly or indirectly. In this respect further detail is described below in the proceeding sections specific to conservation objective species and habitats of the Lower River Suir SAC. This will establish whether individual habitats and species (i.e. site specific conservation objectives) can be screened out in advance of a decision on whether to proceed to Phase II – Natura Impact Statement.

**Table 4.1** – Natura sites within 15km of Clonmel (see Figure 3.1 below)

Natura 2000 site	Conservation Objectives	Distance from works area	Connectivity (Yes/No)
<b>Lower River Suir SAC (Site Code 002137)</b>	<p><b>1029</b> Freshwater Pearl Mussel <i>Margaritifera margaritifera</i>.</p> <p><b>1092</b> White-clawed Crayfish <i>Austropotamobius pallipes</i>.</p> <p><b>1095</b> Sea Lamprey <i>Petromyzon marinus</i>.</p> <p><b>1096</b> Brook Lamprey <i>Lampetra planeri</i>.</p> <p><b>1099</b> River Lamprey <i>Lampetra fluviatilis</i>.</p> <p><b>1103</b> Twaite Shad <i>Alosa fallax</i>.</p> <p><b>1106</b> Salmon <i>Salmo salar</i>.</p> <p><b>1330</b> Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>).</p> <p><b>1355</b> Otter <i>Lutra lutra</i>.</p> <p><b>1410</b> Mediterranean salt meadows (<i>Juncetalia maritimi</i>).</p> <p><b>3260</b> Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation.</p> <p><b>6430</b> Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels.</p> <p><b>91A0</b> Old sessile oak woods with and in the British Isles.</p> <p><b>91E0</b> Alluvial forests with and (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>).</p> <p><b>91J0</b> woods of the British Isles.</p>	Designation overlaps works areas (east side of Suir Island & River Suir north & south bordering Suir Island).	<b>Yes</b> (overlaps eastern part of works area on Suir Island and borders the River Suir to the north and south).
<b>Nier Valley Woodlands SAC (Site Code 00668)</b>	<b>91A0</b> Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles * denotes a priority habitat.	9.5km South East (by land)	<b>No</b>
<b>Comeragh Mountains SAC (Site Code 1952)</b>	<p><b>3110</b> Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>).</p> <p><b>3260</b> Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation.</p> <p><b>4010</b> Northern Atlantic wet heaths with <i>Erica tetralix</i>.</p> <p><b>4030</b> European dry heaths.</p> <p><b>4060</b> Alpine and Boreal heaths.</p> <p><b>8110</b> Siliceous scree of the montane to snow levels (<i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i>).</p> <p><b>8210</b> Calcareous rocky slopes with chasmophytic vegetation.</p> <p><b>8220</b> Siliceous rocky slopes with chasmophytic vegetation.</p>	10.2km South West (by land)	<b>No</b>



**Figure 4.1** - Natura 2000 sites located within a 15km buffer of Suir Island (Clonmel, Co. Tipperary).

### Other Designated Sites (Sites of National Importance)

The basic designation for wildlife is the Natural Heritage Area (NHA). This is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection. To date, over 140 sites have been designated as Natural Heritage Areas. In addition, there are 630 proposed NHAs (pNHAs), which were published on a non-statutory basis in 1995, but have not since been statutorily proposed or designated. None of those sites listed below have connectivity with Suir Island.

Proposed Natural Heritage Areas within a 10km radius of Suir Island are:

- Marfield Lake proposed Natural Heritage Area (Site Code 1981) – c. 3km to the north-east.
- Kilsheelin Lake proposed Natural Heritage Area (Site Code 1701) – c. 6km to the east.
- Templetny Quarry proposed Natural Heritage Area (Site Code 1982) – c. 8km to the north-east.
- Toor Wood proposed Natural Heritage Area (Site Code 1708) – c. 9.5km to the south-east.
- Nier valley Woodlands proposed Natural Heritage Area (Site Code 668) – c. 10km to the south.

### Lower River Suir Special Area of Conservation (site code 002137)

One of the most important features of the natural heritage of South Tipperary is the River Suir itself which together with its tributaries, reaches almost every corner of the county (South Tipperary Co. Co., 2010). The Lower River Suir SAC full site synopsis is presented in Appendix A & boundaries are illustrated in Figure 4.2 below relative to the situation of Suir Island. The SAC consists of the freshwater stretches of the River Suir immediately south of Thurles, the tidal stretches as far as the confluence with the Barrow/Nore immediately east of Cheekpoint in Co. Waterford, and many tributaries including the Clodiagh in Co. Waterford, the Lingaun, Anner, Nier, Tar, Aherlow, Multeen and Clodiagh in Co. Tipperary. The Suir and its tributaries flow through the counties of Tipperary, Kilkenny and Waterford.

The River Suir was selected for SAC designation on the basis of supporting seven habitats listed on Annex I of the EU Habitats Directive, namely: Atlantic Salt Meadows, Mediterranean Salt Meadows, Floating River Vegetation, Hydrophilous Tall Herb Communities, Old Oak Woodlands, Alluvial Forests and Yew Woodlands; the latter two of which are priority habitats under the directive.

In addition, the site supports eight species listed on Annex II of the EU habitats Directive, namely Freshwater Pearl Mussel (*Margaritifera margaritifera*), White-clawed Crayfish (*Austropotamobius pallipes*), Sea Lamprey (*Petromyzon marinus*), Brook Lamprey (*Lampetra planeri*), River Lamprey (*Lampetra fluviatilis*), Twaité Shad (*Alosa fallax*), Atlantic Salmon (*Salmo salar*) and Otter (*Lutra lutra*).

In Clonmel, the River Suir splits in two around Suir Island in the town as previously described, with one branch flowing over Lady Blessington's weir, and the other passing through the Old Bridge and flowing on the town side. As the flow divides each side of the island, water has to flow over man-made weirs which can affect the free passage of lamprey species up the River Suir (RPS, 2013). Lamprey species are present downstream of the weirs at this point of the River Suir as reported by Inland Fishers Ireland and Biodiversity Ireland records (notably sea lamprey that spawn above Gashouse Bridge).

There are very few records of lamprey species upstream of the weir structures (i.e. adjoining Suir Island) as the anadromous forms of lamprey find weir passage difficult. However, the weirs do not impact on the free passage of salmonids as fish passes are present. Otters have also been recorded to use this stretch of the river habitat as recorded by Biodiversity Ireland (RPS, 2013).



**Figure 4.2** - Section of Lower River Suir SAC adjacent to Clonmel © National Parks & Wildlife Service, OSI, and esri Ireland (SAC boundary illustrated in red hatching)

## Designated Habitats & Species at Suir Island

Following the initial phase of screening, the Lower River Suir SAC was screened in as a designated site that may be affected by the Suir Island masterplan proposals. In light of the overlap of the works area with the SAC (both directly at its eastern extent and bordering the riverine sections) an examination of the designated habitat and species listed as conservation objectives relative to their situation on and adjoining Suir Island was required to screen for potential impact. The distribution of those habitats and species relative to the location of the proposed works at Suir Island is considered below. Should good examples of those species and habitats occur in close proximity or overlap the works (see Table 4.2 below) there may be grounds for potential impacts. Those species and habitats and species screened in are considered in the next section of the report 'impact assessment'.

### Conservation Objective Annex I Habitats (Suir Island)

#### **3260 - Water courses of plain to montane levels with the *Ranunculus fluitantis* and *Callitriche-Batrachion* vegetation.**

Aquatic macrophyte assemblages sharing some links with floating river vegetation habitat occur downstream of and adjoining Suir Island. This was predominantly by virtue of the presence of *Ranunculus* species vegetation and the moss species *Fontinalis antipyretica* that are species that form part of the plethora of macrophyte plants that are indicators of the habitat.

#### **91E0 - Alluvial forests with and (*Alno-Padion*, *Alnion incanae*, *Salicion albae*).**

The eastern end of Suir Island corresponds with the habitat Alluvial Forests, given it is a lower lying area of the island frequently inundated and supporting mature Willow species and localised Ash. This included crack willow and grey willow species and open muddy areas with paludal plants.

#### **6430 - Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels.**

Small pockets of this hydrophilous tall herb communities exist along the verges of Suir Island primarily on the east and southern sides of the Island. These included species such as branched

bur-reed (*Sparganium erectum*) and the nationally uncommon Flowering Rush (*Butomos umbellatus*).

#### Conservation Objective Annex II Species (Suir Island)

##### **1029 - Freshwater Pearl Mussel *Margaritifera margaritifera*.**

Although there are no records of Freshwater Pearl Mussel within Clonmel, there are records of *Margaritifera margaritifera* present at various locations upstream with the closest being 300 metres upstream, south of Marlfield (NPWS 1987-2006 records) (RPS, 2013). However, according to the conservation objectives document for the Lower River Suir SAC (NPWS, 2017) the conservation objective respective of freshwater pearl mussel refers to the Clodiagh population. The Clodiagh River flows into the River Suir downstream of Carrick-on-Suir and west of Portlaw. The Clodiagh River is located over 30km downstream of Clonmel and thus there is no connectivity to the site from the development at Suir Island. According to Ross (2006) mussels were present for most of the length of the channel downstream of Clonea to above Portlaw within the Clodiagh. However, the population had contracted since the 1990's.

##### **1092 - White-clawed Crayfish *Austropotamobius pallipes*.**

The White-clawed Crayfish is a globally threatened species and Ireland holds one of the largest surviving populations. Crayfish has been found all along the River Suir main channel, with records both upstream and downstream of Clonmel town (NBDC mapping). During 2017 large numbers of dead crayfish were discovered between Clonmel and Carrick-on-Suir, with DNA testing confirming the cause of death to be crayfish plague. There are huge concerns that the disease will spread up river and wipe out the entire population (NPWS, 2017b). Dead crayfish were observed during a site survey by the authors during August 2017.

##### **1106, 1095, 1096, 1099 Atlantic Salmon (*Salmo salar*) & Lamprey Species (*Lampetra* spp. & *Petromyzon marinus*)**

In Clonmel, the River Suir splits in two around Suir Island in the town, with one branch flowing over Lady Blessington's weir, and the other passing through the Old Bridge and flowing on the

town side (see Figure 1.1). As the flow divides each side of the island, water has to flow over man-made weirs which can affect the free passage of lamprey species up the River Suir (RPS, 2013).

Lamprey species are present downstream of the weirs at this point of the River Suir as reported by Inland Fishers Ireland and Biodiversity Ireland records. There are very few records of lamprey species upstream of the weirs. However, the weirs do not impact on the free passage of Atlantic salmon, a species that also occurs in the River Suir at Clonmel. Otters have also been recorded to use this stretch of the river habitat as recorded by Biodiversity Ireland (RPS, 2013).

Lampreys are widely distributed in the Suir catchment and upstream and downstream of Clonmel (O'Connor, 2007). Redds were recorded downstream of Suir Island (i.e. between the Island and Gashouse Bridge) during an IFI survey of 2013 (Rooney et al. 2014) while in 2014 a similar survey recorded two redds along the Clonmel town quays, upstream of the Old Waterford Road Bridge (O'Gorman et al. 2015).

##### **1103 - Twaite Shad *Alosa fallax***

Twaite shad spawn in the River Suir at Carrick-on-Suir above the weir. They do not typically migrate upstream beyond the tidal sections of the river. Good numbers of 2+ shad were caught during May 2017 by anglers and returned at Carrick-on-Suir. Populations are not known to occur at Clonmel.

##### **1355 - Otter *Lutra lutra***

Otters are widely distributed along the River Suir and records confirm presence within the vicinity of Suir Island (NBDC mapping<sup>1</sup>). During the August 2017 site walk over survey an otter holt and sprainting site was observed on the east side of the Island. Table 4.2 below summarises all of the protected habitats and species and their geographic situation relative to the proposed development of Suir Island.

<sup>1</sup> [www.nbdc.ie](http://www.nbdc.ie) accessed January 2018

**Table 4.2 – Summary of Protected Species & Habitats location relative to Suir Island**

Receptor/ Entity	Occurrence Relative to the Development	Source-Pathway-Receptor Linkages
[1330] Atlantic Salt Meadows	No	Does not occur within 15km of the site.
[1410] Mediterranean Salt Meadows	No	Does not occur within 15km of the site.
[3260] Floating River Vegetation	Yes	<b>Aquatic macrophyte assemblages sharing links with this habitat occur adjacent and downstream of Suir Island.</b>
[6430] Hydrophilous Tall Herb Communities	Yes	<b>Small pockets of habitat sharing links with the Annexed habitat definition exist along the verges of Suir Island primarily on the east and southern sides of the Island.</b>
[91A0] Old Oak Woodlands	No	Habitat does not occur at Suir Island.
[91E0] Alluvial Forests*	Yes	<b>The eastern end of Suir Island shares links with the Annex habitat Alluvial Forests.</b>
[91J0] Yew Woodlands*	No	Does not occur within the site. A few mature yew occur on the northern side of Suir Island but these do not correspond to the Habitat Yew Woodland.

Receptor/ Entity	Occurrence Relative to the Development	Source-Pathway-Receptor Linkages
[1029] Freshwater Pearl Mussel ( <i>Margaritifera margaritifera</i> )	No (see source-pathway-receptor linkages)	Closest record of the species occurs 300m upstream of Suir Island (south of Marlfield) RPS (2013). However, according to the conservation objectives document for the Lower River Suir SAC (NPWS, 2017) the conservation objective respective of freshwater pearl mussel refers to the Clodiagh population. The Clodiagh River flows into the River Suir downstream of Carrick-on-Suir and west of Portlaw. The Clodiagh River is located over 30km downstream of Clonmel and thus there is no connectivity to the site from the development at Suir Island. According to Ross (2006) mussels were present for most of the length of the channel downstream of Clonea to above Portlaw within the Clodiagh. However, the population had contracted since the 1990's.
[1092] White-clawed Crayfish ( <i>Austropotamobius pallipes</i> )	Yes	<b>Species occurs in the River Suir at Suir Island but has been impacted severely by crayfish plague during 2017 (pers. obs.).</b>
[1095] Sea Lamprey ( <i>Petromyzon marinas</i> )	Yes	<b>The species spawns immediately downstream of Suir Island and upstream of Gasworks Bridge (Rooney et al. 2014).</b>
[1096] Brook Lamprey ( <i>Lampetra planeri</i> )	Yes	<b>The species occurs downstream of weirs at Suir Island.</b>
[1099] River Lamprey ( <i>Lampetra fluviatilis</i> )	Yes	<b>Occurs downstream of weirs at Suir Island.</b>
[1103] Twait Shad ( <i>Alosa fallax</i> )	No	Downstream at Carrick-on-Suir, but no recent records at Suir Island.
[1106] Atlantic Salmon ( <i>Salmo salar</i> )	Yes	<b>The species occurs in the River Suir at Suir Island.</b>
[1355] Otter ( <i>Lutra lutra</i> )	Yes	<b>The species is present on Suir Island (holt site found on eastern part of island by Ross Macklin during August 2017). The holt was considered active at the time of survey and is likely to be a breeding holt.</b>

## 5. Impact assessment

### Do Nothing Impact

The do-nothing impact would mean that Suir Island would remain in its current state. An absence of activity in the eastern extents of the Island would be beneficial for otter, that favor seclusion and cover and the better quality habitat corresponding to alluvial woodland would remain intact. Invasive plants i.e. Japanese Knotweed (*Fallopia japonica*) and Himalayan balsam (*Impatiens glandulifera*) would likely continue to encroach disturbed or open areas on the island. It is likely that the remaining areas of Willow would become colonized with Sycamore (*Acer pseudoplatanus*) and Ash (*Fraxinus excelsior*) as succession occurs overtime (i.e. silt sand deposits build up and species such as crack willow naturally topple) and facilitate growth of other fast growing species.

### Potential for Significant Negative Effects

AA screening is concerned primarily with impacts upon Natura 2000 sites and qualifying habitats and species. Of prime importance therefore, is the assessment as to whether predicted impacts will be significant. Significance must be established in light of, amongst other things, the characteristics and specific environmental conditions of the site concerned, and the likely effects of the plan or project. If a plan or project is likely to undermine any of the site's conservation objectives it must be considered likely to have a **significant effect** on that site (EC, 2001). Conversely, if a plan or project will have impacts on a site, but these impacts will clearly not affect or undermine those conservation objectives, then it is considered that the project/plan will not have a significant effect on the site concerned (DoEHLG, 2009).

An essential first step is the determination of whether there is an overlap or coincidence between the qualifying interest habitats and species of the Natura 2000 site and the 'zone of influence'<sup>2</sup> of the proposed development.

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<sup>2</sup> Zone of influence can be defined as 'the ecological areas and features likely to be affected by the biophysical changes caused by the project, however remote from the route' (NRA, 2009); or 'the area/resources that may be affected by the biophysical changes caused by the proposed project (IEEM, 2006)

Natura 2000 sites are considered 'relevant' where a source-pathway-receptor link exists between the proposed development and the Natura 2000 site. The results of this assessment are shown below (summaries for habitats and species of conservation interest).

The screening process has concluded that only the aquatic designated species for which the Lower River Suir SAC is designated may be affected by the works. Therefore, only those screened in aquatic species for the Lower River Suir SAC have been discussed further on the basis of indirect downstream impacts.

### Sources of Impact

#### ***Pollutants & Surface Water Drainage (run-off during construction & operational phases)***

During site clearance and excavation of the soils and clearance of vegetation significant risk of suspended solids entering the River Suir are considered possible. Heavy rain and flood water exacerbates these risks. Construction environmental management plans (CEMP) are essential to detail working methods to reduce the risk of pollutants entering sensitive watercourses such as the River Suir. The network of channels (historical millraces and sloping banks to the River Suir at Suir Island increase the potential risks associated with pollution runoff.

The operational phase also has potential to contribute to water quality impacts. This includes hydrocarbons, heavy metals, detergents and other compounds carried in surface water during the operation of hard surface areas require drainage (e.g. storm drainage) and these areas discharge to adjoining river catchments. Should rates of discharge not be in line with green field rates, they can contribute to hydraulic changes locally within the river if not attenuated through underground storage and hydrobrakes etc.

Proposals for foul sewerage from the site (e.g. facilities building) or public toilets and other infrastructure would need to be accommodated in the Clonmel collection network. All additional loadings contribute to nutrient enrichment, suspended solids etc. when at end of pipe enter the River Suir. The adequate treatment of foul water is essential to maintain lower nutrient and suspended solids levels in river systems such as the Suir where numerous water dependent species and habitats are under threat. Given that the majority of the Annex II conservation objectives associated with the adjoining Lower River Suir SAC are water dependent risks associated with construction and operation to species survival are higher.

### **Flood risk**

A flood study carried out for Suir Island would identify relevant flood extent based on various flood event scenarios (e.g. 100 year flood event etc.). Extreme weather events may be exacerbated by hard surfaces, bridge constructions etc. and cause associated ecological damage. Knowledge of flood risks associated with the proposals are useful to contextualize any knock on ecological impacts.

### **Species disturbance**

Most of the Annex II species that occur, or may occur, in the vicinity of the development site are aquatic invertebrates or fish, and are, therefore, not susceptible to disturbance impacts (with the exception of spawning fish). Works during the construction phase e.g. piling may impact fish during the spawning periods e.g. (spring and early summer for lamprey & December-January for Atlantic salmon). The Otter is the only Annex II species that is potentially susceptible to disturbance impacts all year round from this type of development. Impacts to otter are discussed in the next section.

### **Invasive species**

The site survey carried out on Wednesday the 23rd of August 2017 revealed that invasive species were widespread on Suir Island. The stands of invasive plants were typically concentrated in areas where human activities such as construction works had occurred. Notable species included Himalayan Balsam (*Impatiens glandulifera*), Japanese Knotweed (*Fallopia japonica*) and Giant Hogweed (*Heracleum mantegazzianum*).

The development of the island (while involving management of existing stands) may also serve to spread invasive species in the absence of an invasive species management plan that would aim to prevent the spread of invasive plants and species associated with each phase of the Suir Island Masterplan.

The crayfish plague (*Aphanomyces astaci*) has impacted the River Suir with outbreaks recorded by the NPWS during 2017. The River Suir in Clonmel has been severely infected with dead crayfish being widespread throughout the river inclusive of the survey area. Dead crayfish were observed during the site visit on the 24<sup>th</sup> August 2017.

Signs were erected to notify the public of biosecurity measures to prevent the spread of the disease. Crayfish plague can wipe out entire river populations and is severely damaging to the ecology of rivers given many riparian species feed on crayfish and they help regulate vegetation levels naturally. Incidentally their role in the structuring of floating river vegetation communities has not been described. Biosecurity measures for any equipment working near rivers are critically important to prevent further spread of crayfish plague or indeed other diseases (e.g. ash dieback disease *Hymenoscyphus fraxineus*).

### **Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation (3260)**

The floating river vegetation collective habitat encompasses *Ranunculus*, *Callitriche* and *Potamogeton* species in addition to river mosses. Notable species among this collective includes the protected species opposite-leaved pondweed (*Groenlandia densa*) that was recorded historically from ditches of the floodplain near Carrick-on-Suir downstream of Clonmel (Colgan and Scully, 1898). However, the species was not recorded in the drainage ditches at Suir Island and the species tends to favour tidal drainage channels of the very lower reaches of river systems and less commonly from fully freshwater areas (pers. obs.).

Of the other species making up the floating river vegetation community, *Ranunculus penicillatus* var. *penicillatus* and the moss *Fontanlis antipyretica* are present downstream and adjoining Suir Island. Other crowfoots are also present including Pond Water-crowfoot (*Ranunculus peltatus*).

According to the NPWS site synopsis for the Lower River Suir, *Potamogeton* species are well represented with Fennel Pondweed (*Potamogeton pectinatus*), Curled Pondweed (*Potamogeton crispus*), Perfoliate Pondweed (*Potamogeton perfoliatus*) present (NPWS, 2013).

While the full extent of the floating river vegetation community is not known at Suir Island the presence of Raunuculus beds in the fast water in addition to the generalist river moss *Fontanalis antipyretica* illustrate links with the annexed I habitat. The floating river vegetation community is important for species such as Atlantic salmon (also a conservation objective species for the Lower River Suir), the juveniles of which use the vegetation for cover and also for feeding on attaching mayflies and simuliid larvae.

The potential impact pathway from the proposed development to the SAC would be construction and operational impacts that could alter the hydrological regime, the substratum composition and/or the water quality.

Without further detail on the precise construction requirements i.e. design of bridge structures, re-watering of the millrace channel etc. potential impacts are difficult to elucidate. Furthermore, the collective operational phase of the development of Suir Island including proposals for wastewater and storm water need to be clearly defined.

#### **Hydrophilous Tall Herb Communities [6430]**

Small pockets of habitat sharing links with the Annex I habitat Hydrophilous Tall Herb Communities [6430], existed along the verges of Suir Island primarily on the east and southern sides of the Island. The habitat included species such as branched bur-reed (*Sparganium erectum*) and Flowering Rush (*Butomos umbellatus*). The development of the fringes of the island (e.g. pedestrian bridges) may impact edge communities through shading or direct removal or indeed hydrological changes (i.e. that result in shift in the deposition of soft sediment in the river margins that encourage the development of this community). The presence of the nationally uncommon and striking species Flowering Rush is a very important element of the floral biodiversity of Suir Island.

#### **[91E0] Alluvial Forests**

The eastern end of Suir Island corresponds with the habitat Alluvial Forests, given it is a lower lying area of the island frequently inundated and supporting mature Willow species and localised Ash. It is lower lying the western areas of the island and thus subject to the inundation of flood water. The encroachment of the eastern extent of Suir Island with board walks etc. would require careful planning to ensure that the habitat is not impacted and the hydrology shaping the eastern extent of the island remains unaltered. Furthermore, other a species strongly associated with alluvial woodland habitat could be impacted by opening up the habitat to people or material changing its structure.

#### **Potential Impacts to Screened in Species**

##### **White-clawed Crayfish *Austropotamobius pallipes* [1092]**

The White-clawed Crayfish is a globally threatened species and Ireland holds one of the largest surviving populations. Crayfish has been found all along the river Suir main channel, with records both upstream and downstream of Clonmel town (NBDC mapping<sup>3</sup>). During 2017 large numbers of dead crayfish were discovered between Clonmel and Carrick-on-Suir, with DNA testing confirming the cause of death to be crayfish plague. There are huge concerns that the disease will spread up river and wipe out the entire population (NPWS, 2017b). Dead crayfish were observed during the site survey by the authors during August 2017 in the adjoining River Suir. As crayfish plague has severely impacted the crayfish population downstream of Clonmel following outbreaks during 2017, the status of the population currently remains unknown. However, any residual populations if still present may be affected by impacts associated with a decline in water quality, sedimentation of cobbles and rocks within the river (i.e. blocking refugia) or any instream works removing habitat (e.g. bridge construction & bankside works).

##### **Sea Lamprey *Petromyzon marinus* (1095), River Lamprey *Lampetra fluviatilis* (1099) and Brook Lamprey *Lampetra planeri* (1096)**

In Clonmel, the River Suir splits in two around Suir Island in the town, with one branch flowing over Lady Blessington's weir, and the other passing through the Old Bridge and flowing on the town side (see Figure 1.1).

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<sup>3</sup> Accessed January 2018 - [www.nbdc.ie](http://www.nbdc.ie)

As the flow divides each side of the island, water has to flow over man-made weirs which can affect the free passage of lamprey species up the River Suir (RPS, 2013). Lamprey species are present downstream of the weirs at this point of the River Suir as reported by Inland Fishers Ireland and Biodiversity Ireland records. There are very few records of lamprey species upstream of the weirs. However, the weirs do not impact on the free passage of salmonids. Otters have also been recorded to use this stretch of the river habitat as recorded by Biodiversity Ireland (RPS, 2013).

Lampreys are widely distributed in the Suir catchment and upstream and downstream of Clonmel (O'Connor, 2007). Redds were recorded downstream of Suir Island (i.e. between the Island and Gashouse Bridge) during an IFI survey of 2013 (Rooney et al. 2014) while in 2014 a similar survey recorded two redds along the Clonmel town quays, upstream of the Old Waterford Road Bridge (O'Gorman et al. 2015).

Impact pathways from the proposed development to the Lower River Suir SAC would be impacts on water quality, water flows (hydrological changes) in the River Suir. Such impacts could affect the downstream or adjoining spawning habitat or the distribution of fine sediment areas (for ammocoete settlement) adjoining spawning areas. The construction of pedestrian bridges, re-watering of the millrace, creation of hard surfaces and associated storm drains may impact the lamprey populations of the River Suir SAC.

#### **Atlantic Salmon *Salmo salar* [1106]**

According to the SSCS (2016), the River Suir was meeting 79% of its conservation limit. The average electrofishing value for the Suir in 2016 was 10.2 salmon fry, which is below the 17 fry target for the river. Threats to salmon as a result of the proposed development at Suir Island include the development of the riparian zone (e.g. bridges) that could increase the risk of damage to adjoining spawning gravels due to suspended solids escapement during the construction phase. Changes in the hydrology of the river due to hard surfaces and instream/ bankside structure could destabilize riverine gravels. Impacts to recruitment for Atlantic salmon could further affect the conservation limits for the species in the River Suir.

#### **Otter *Lutra lutra* [1355]**

While otters can successfully live in urban areas (Sleeman and Moore, 2005) and can tolerate a degree of disturbance (Bassett and Wynn, 2010) they favour secluded areas away from human disturbance for breeding and resting (pers. obs.). At Suir Island, a potential breeding holt was detected at the eastern point of the island. This area was very overgrown with scrub and difficult to access with no evidence of any recent access by people. There were abundant signs of otter activity in this area including a holt with two visible entrances and accompanied spraint areas on adjoining willow bark and worn trails with roll areas. Any activity encroaching on this area of the island may impact breeding otter and given that the local otter populations form part of the SAC population. Therefore, impacts could be considered significant if the population at Suir Island was disturbed. Indeed, there are proposals to create a boardwalk and path into the undisturbed areas of the eastern extent of the island according to the development masterplan. Such encroachment in an area, where it is very important to provide seclusion for otter undisturbed from human activity, could impact the otter population. Other indirect impacts, could be considered associated with water quality impacts given the proposed radical changes to the wider footprint of Suir Island (i.e. pedestrian bridges, wildwood clearings, facilities building and boardwalk). The effects of such wide level construction activities remain unknown and could also indirectly impact the local prey resources outside of direct disturbance.

Indirect effects (i.e. reduction in prey availability because of turbid water/ pollution etc.), may be greater in light of the decimation of the white-clawed crayfish population because of crayfish plague. This could mean that fish prey and other sources of food are now a greater part of the otter population's energy budget. While the phased nature of the Suir Island masterplan development will help reduce impacts to otter (i.e. constructed in stages rather than all at once), any disturbances near breeding areas could result in otter no longer breeding at Suir Island.



**Plate 6.1** – Otter holt at Suir Island (eastern point of island)

#### Other features

The other qualifying Annex I habitats of the Lower river Suir SAC including the Annex I habitats, [1330] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*), [1410] Mediterranean salt meadows (*Juncetalia maritimi*), [91A0] Old Oak Woodlands, [91J0] Yew Woodlands\*1029] and Annex II species [1029] Freshwater Pearl Mussel (*Margaritifera margaritifera*) and [1103] Twaité Shad (*Alosa fallax*) will not be impacted due to their geographical separation from the proposed development at Suir Island.

## 6. Cumulative (in combination) Impacts

A review of all developments proposed on Suir Island was reviewed to examine whether in-combination impacts were possible when viewing the Suir Island masterplan in combination with other proposals on the land parcel.

There are proposals forming part of a part 8 planning application to develop the existing carpark at Suir Island to facilitate an additional 193 car parking spaces. This includes a 264 space car park with macadam surfacing and site drainage through the existing drainage network. There are also proposals to remove the existing rubble and spoil to landfill and other ancillary works.

The proposals were subject to appropriate assessment screening in accordance with Article 6(3) of the EU Habitats Directive (92/43/EEC) and the Planning and Development Act 2000 as amended. The AA Screening concluded that the proposed development would not give rise to significant or intermediate impacts to any Natura 2000 site.

Therefore, significant negative in-combination impacts are not likely, rather further assessment is required for the current Suir Island masterplan when viewed in isolation (see findings of significant effects below).

## 7. Findings of Significant Effects

The Lower River Suir SAC directly overlaps the proposed works footprint. The direct encroachment of the boundary of the Lower River Suir SAC<sup>4</sup> and significant infrastructural development of the wider footprint of Suir Island gives rise for potential impacts to water dependent species and habitats. Direct encroachment on the SAC boundary and associated removal of edge habitats including indirect impacts (e.g. pollutant escapement) as a result of bridge construction and machinery access along the riparian zones of the river (among other design elements) may impacts both conservation objective species and habitats. Specifically, with regard habitat impacts, they include those effecting the edge communities of hydrophilous herb vegetation, floating river vegetation and alluvial woodland.

Fish species including lamprey and Atlantic salmon in addition to white-clawed crayfish and otter may also be impacted directly or indirectly. Given that more consideration is required to avoid environmentally sensitive areas, i.e. built into the design and knowledge on the breeding status of otter on the island, among other ecological considerations, there is a requirement to proceed to phase II – Appropriate Assessment.

<sup>4</sup> Development of the eastern proportions of Suir Island directly overlap the Lower River Suir SAC boundary.

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## Appendix A (NPWS Site Synopses)

**Site Name: Lower River Suir SAC (002137)**

Lower River Suir SAC consists of the freshwater stretches of the River Suir immediately south of Thurles, the tidal stretches as far as the confluence with the Barrow/Nore immediately east of Cheekpoint in Co. Waterford, and many tributaries including the Clodiagh in Co. Waterford, the Lingaun, Anner, Nier, Tar, Aherlow, Multeen and Clodiagh in Co. Tipperary. The Suir and its tributaries flow through the counties of Tipperary, Kilkenny and Waterford.

Upstream of Waterford city, the swinging meanders of the Suir criss-cross the Devonian sandstone rim of hard rocks no less than three times as they leave the limestone-floored downfold below Carrick-on-Suir. In the vicinity of Carrick-on-Suir the river follows the limestone floor of the Carrick Syncline. Upstream of Clonmel the river and its tributaries traverse Upper Palaeozoic Rocks, mainly the Lower Carboniferous Visean and Tournaisian. The freshwater stretches of the Clodiagh River in Co. Waterford traverse Silurian rocks, through narrow bands of Old Red Sandstone and Lower Avonian Shales, before reaching the carboniferous limestone close to its confluence with the Suir. The Aherlow River flows through a Carboniferous limestone valley, with outcrops of Old Red Sandstone forming the Galtee Mountains to the south and the Slievenamuck range to the north. Glacial deposits of sands and gravels are common along the valley bottom, flanking the present-day river course.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (\* = priority; numbers in brackets are Natura 2000 codes):

[1330] Atlantic Salt Meadows

[1410] Mediterranean Salt Meadows

[3260] Floating River Vegetation

[6430] Hydrophilous Tall Herb Communities

[91A0] Old Oak Woodlands

[91E0] Alluvial Forests\*

[91J0] Yew Woodlands\*

[1029] Freshwater Pearl Mussel (*Margaritifera margaritifera*)

[1092] White-clawed Crayfish (*Austropotamobius pallipes*)

[1095] Sea Lamprey (*Petromyzon marinus*)

[1096] Brook Lamprey (*Lampetra planeri*)

[1099] River Lamprey (*Lampetra fluviatilis*)

[1103] Twaite Shad (*Alosa fallax*)

[1106] Atlantic Salmon (*Salmo salar*)

[1355] Otter (*Lutra lutra*)

Alluvial wet woodland is a declining habitat type in Europe as a result of drainage and reclamation. The best examples of this type of woodland in the site are found on the islands just below Carrick-on-Suir and at Fiddown Island. Species occurring here include Almond Willow (*Salix triandra*), White Willow (*S. alba*), Rusty Willow (*S. cinerea subsp. oleifolia*), Osier (*S. viminalis*), with Yellow Iris (*Iris pseudacorus*), Hemlock Water-dropwort (*Oenanthe crocata*), Wild Angelica (*Angelica sylvestris*), Pendulous Sedge (*Carex pendula*), Meadowsweet (*Filipendula ulmaria*) and Common Valerian (*Valeriana officinalis*). The terrain is littered with dead trunks and branches and intersected with small channels which carry small streams to the river. The bryophyte and lichen floras appear to be rich. A small plot is currently being coppiced and managed by the National Parks and Wildlife Service. In the drier areas species such as Ash (*Fraxinus excelsior*), Hazel (*Corylus avellana*), Hawthorn (*Crataegus monogyna*) and Blackthorn (*Prunus spinosa*) occur.

Eutrophic tall herb vegetation occurs in association with the various areas of alluvial forest and elsewhere where the floodplain of the river is intact. Characteristic species of the habitat include Meadowsweet, Purple Loosestrife (*Lythrum salicaria*), Marsh Ragwort (*Senecio aquaticus*), Ground Ivy (*Glechoma hederacea*) and Hedge Bindweed (*Calystegia sepium*).

Old oak woodlands are also of importance at the site. The best examples are seen in Portlaw Wood which lies on both sides of the Clodiagh River. On the south-facing side the stand is more open and the oaks (mainly Pedunculate Oak, *Quercus robur*) are well grown and spreading. Ivy (*Hedera helix*) and Bramble (*Rubus fruticosus agg.*) are common on the ground, indicating relatively high light conditions.

Oak regeneration is dense, varying in age from 0-40 years and Holly (*Ilex aquifolium*) is fairly common but mostly quite young. Across the valley, by contrast, the trees are much more closely spaced and though taller, are poorly grown on average. There are no clearings; large oaks extend to the boundary wall. In the darker conditions, Ivy is much rarer and Holly much more frequent, forming a closed canopy in places. Oak regeneration is uncommon since there are as yet few natural clearings. The shallowness of the soil on the north-facing slope probably contributes to the poor tree growth there. The acid nature of the substrate has induced a 'mountain' type oakwood community to develop. The site is quite species-rich throughout, including an abundance of mosses, liverworts and lichens. The rare lichen *Lobaria pulmonaria*, an indicator of ancient woodlands, is found here.

Inchinquillib Wood consists of three small separate sloping blocks of woodland in a valley cut by the young Multeen River and its tributaries through acidic Old Red Sandstone and Silurian rocks. Two blocks, both with an eastern aspect, located to the north of the road, are predominantly of Sessile Oak (*Quercus petraea*) and Hazel, with Downy Birch (*Betula pubescens*), Ash and Holly. The ground flora is quite mixed with, for example, Wood-sedge (*Carex sylvatica*), Bluebell (*Hyacinthoides non-scripta*), Primrose (*Primula vulgaris*), Wood-sorrel (*Oxalis acetosella*), Pignut (*Conopodium majus*) and Hard Fern (*Blechnum spicant*). The base poor nature of the underlying rock is to some extent masked by the overlying drift. The third block, to the south of the road, and with a northern aspect, is a similar although less mature mixture of Sessile Oak, Birch and Holly. Here the influence of the drift is more marked, with the occurrence of Wood Anemone (*Anemone nemorosa*) amongst the ground flora.

Two stands of Yew (*Taxus baccata*) woods, a rare habitat in Ireland and the E.U., occur within the site. These are on limestone ridges at Shanbally and Cahir Park. Both are in woods planted with non-native species, including conifers. However, the area at Cahir Park is fairly substantial in size and includes some relatively undisturbed patches of wood and some very old trees. Regeneration of the Yew trees is mostly poor, due to competition from species such as Sycamore (*Acer pseudoplatanus*) and, at Shanbally, due to heavy grazing by goats. Other native species which occur with the Yew trees include Ash, Pedunculate Oak, Hazel and Spindle (*Euonymus europaeus*). Future prospects for these Yew woods are good as the sites are proposed for restoration under a Coillte E.U. LIFE programme.

Floating river vegetation is evident in the freshwater stretches of the River Suir and along many of its tributaries. Typical species found include Canadian Pondweed (*Elodea canadensis*), water-milfoils (*Myriophyllum* spp.), Fennel Pondweed (*Potamogeton pectinatus*), Curled Pondweed (*P. crispus*), Perfoliate Pondweed (*P. perfoliatus*), Pond Water-crowfoot (*Ranunculus peltatus*), other crowfoots (*Ranunculus* spp.) and the moss *Fontinalis antipyretica*. At a couple of locations along the river Opposite-leaved Pondweed (*Groenlandia densa*) occurs. This species is protected under the Flora (Protection) Order, 1999.

The Aherlow River is fast flowing and mostly follows a natural unmodified river channel. Submerged vegetation includes the aquatic moss *Fontinalis antipyretica* and Stream Water-crowfoot (*R. pectinatus*), while shallow areas support species such as Reed Canary-grass (*Phalaris arundinacea*), Brooklime (*Veronica beccabunga*) and Water Mint (*Mentha aquatica*). The river bank is fringed in places with Alder (*Alnus glutinosa*) and willows (*Salix* spp.).

The Multeen River is fast flowing, mostly gravel-bottomed and appears to follow a natural unmodified river channel. Water-crowfoots occur in abundance and the aquatic moss *Fontinalis antipyretica* is also common. In sheltered shallows, species such as Water-cress (*Nasturtium officinale*) and water-starworts (*Callitriche* spp.) occur. The river channel is fringed for most of its length with Alder, Willow and a narrow strip of marshy vegetation.

Salt meadows occur below Waterford City in old meadows where the embankment is absent, or has been breached, and along the tidal stretches of some of the inflowing rivers below Little Island. There are very narrow, non-continuous bands of this habitat along both banks. More extensive areas are also seen along the south bank at Ballynakill, the east side of Little Island, and in three large salt meadows between Ballynakill and Cheekpoint. The Atlantic and Mediterranean sub-types are generally intermixed. The species list is extensive and includes Red Fescue (*Festuca rubra*), oraches (*Atriplex* spp.), Sea Aster (*Aster tripolium*), Sea Couch (*Elymus pycnanthus*), frequent Sea Milkwort (*Glaux maritima*), occasional Wild Celery (*Apium graveolens*), Parsley Water-dropwort (*Oenanthe lachenalii*), English Scurvygrass (*Cochlearia anglica*) and Sea Arrowgrass (*Triglochin maritima*). These species are more representative of the Atlantic sub-type of the habitat. Common Cord-grass (*Spartina anglica*), is rather frequent along the main channel edge and up the internal channels.

The legally protected (Flora (Protection) Order, 1999) Meadow Barley (*Hordeum secalinum*) grows at the landward transition of the saltmarsh. Sea Rush (*Juncus maritimus*), an indicator of the Mediterranean salt meadows, also occurs.

Other habitats at the site include wet and dry grassland, marsh, reedswamp, improved grassland, coniferous plantations, deciduous woodland, scrub, tidal river, stony shore and mudflats. The most dominant habitat adjoining the river is improved grassland, although there are wet fields with species such as Yellow Iris, Meadowsweet, rushes (*Juncus* spp.), Meadow Buttercup (*Ranunculus acris*) and Cuckooflower (*Cardamine pratensis*).

Cabragh marshes, just below Thurles, lie in a low-lying tributary valley into which the main river floods in winter. Here there is an extensive area of Common Reed (*Phragmites australis*) with associated marshland and peaty fen. The transition between vegetation types is often well displayed. A number of wetland plants of interest occur, in particular the Narrow-leaved Bulrush (*Typha angustifolia*), Bottle Sedge (*Carex rostrata*) and Blunt-flowered Rush (*Juncus subnodulosus*). The marsh is naturally eutrophic but it has also the nutritional legacy of the former sugar factory which discharged into it through a number of holding lagoons, now removed. Production is high, which is seen in the size of such species as Celery-leaved Buttercup (*Ranunculus sceleratus*), as well as in the reeds themselves.

Throughout the Lower River Suir site are small areas of woodland other than those described above. These tend to be a mixture of native and non-native species, although there are some areas of semi-natural wet woodland with species such as Ash and willow. Cahir Park Woodlands is a narrow tract of mixed deciduous woodland lying on the flat-lying floodplain of the River Suir. This estate woodland was planted over one hundred years ago and it contains a large component of exotic tree species. However, due to original planting and natural regeneration there is now a good mix of native and exotic species. About 5 km north-west of Cashel, Ardmayle pond is a long, possibly artificial water body running parallel to the River Suir. It is partly shaded by planted Lime (*Tilia* hybrids), Sycamore and the native Alder. Growing beneath the trees are shade tolerant species such as Remote sedge (*Carex remota*).

The site is of particular conservation interest for the presence of a number of Annex II animal species, including Freshwater Pearl Mussel (both *Margaritifera margaritifera* and *M. margaritifera* subsp. *durrovensis* occur), White-clawed Crayfish, Salmon, Twaite Shad (*Alosa fallax fallax*), three species of Lampreys - Sea Lamprey, Brook Lamprey and River Lamprey, and Otter. This is one of only three known spawning grounds in the country for Twaite Shad.

The site also supports populations of several other animal species. Those which are listed in the Irish Red Data Book include Daubenton's Bat, Natterer's Bat, Pipistrelle Bat, Pine Marten, Badger, Irish Hare, Smelt and Common Frog. Breeding stocks of Carp are found in Kilsheelan Lake. This is one of only two lakes in the country which is known to have supported breeding Carp. Carp require unusually high summer water temperatures to breed in Ireland. As the site is therefore unusual in this regard, it may also support interesting invertebrate populations.

Parts of the site have also been identified as of ornithological importance for a number of Annex I (E.U. Birds Directive) bird species, including Greenland Whitefronted Goose (10), Golden Plover (1,490), Whooper Swan (7) and Kingfisher. Figures given in brackets are the average maximum counts from four count areas within the site for the three winters 1994-1997. Wintering populations of migratory birds use the site. Flocks are seen in Coolfinn Marsh and also along the reedbeds and saltmarsh areas of the Suir. Coolfinn supports nationally important numbers of Greylag Goose on a regular basis, with numbers between 600 and 700 recorded.

Other species occurring include Mallard (21), Teal (159), Wigeon (26), Tufted Duck (60), Pintail (4), Pochard (2), Little Grebe (2), Black-tailed Godwit (20), Oystercatcher (16), Lapwing (993), Dunlin (101), Curlew (195), Redshank (28), Greenshank (4) and Green Sandpiper (1). Nationally important numbers of Lapwing (2,750) were recorded at Faithlegg in the winter of 1996/97. In Cabragh marshes there is abundant food for surface feeding wildfowl which total approximately 1,000 in winter. Widgeon, Teal and Mallard are numerous, and the latter has a large breeding population, with up to 400 in summer. In addition, less frequent species like Shoveler and Pintail occur and there are records for both Whooper and Bewick's swans.

Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive, occurs along some of the many tributaries throughout the site.

Land use at the site consists mainly of agricultural activities including grazing, silage production, fertilising and land reclamation. The grassland is intensively managed and the rivers are therefore vulnerable to pollution from run-off of fertilisers and slurry. Arable crops are also grown. Fishing is a main tourist attraction on stretches of the Suir and some of its tributaries, and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. The Aherlow River is a designated Salmonid Water under the E.U. Freshwater Fish Directive. Other recreational activities such as boating, golfing and walking are also popular. Several industrial developments, which discharge into the river, border the site including three dairy related operations and a tannery.

The Lower River Suir contains excellent examples of a number of Annex I habitats, including the priority habitats alluvial forest and Yew woodland. The site also supports populations of several important animal species, some listed on Annex II of the Habitats Directive or listed in the Irish Red Data Book. The presence of two legally protected plants (Flora (Protection) Order, 1999) and the ornithological importance of the site adds further to the ecological interest and importance.

## Appendix M: Archaeological Appraisal

## 1. Introduction

As part of preparing a Masterplan for Suir Island as a community amenity and recreational resource, this section of the report appraises the proposal on how it might impact, in a broad sense, on the archaeological heritage of Suir Island. To appreciate the significance of Suir Island to Clonmel town, a brief summary of its historical background is worthwhile.

## 2. Historical Background

The medieval town of Clonmel was located at a fording point on the north bank of the river Suir, where the river widens to incorporate a small island. The town was to develop into a very important and prominent medieval town. Its strategic importance on the river continued into the post-medieval period, resulting in Clonmel becoming a prosperous industrial town. It was remarked in Pigot & Co's Provincial Directory of Ireland of 1824 that the main aspect of this industrial prowess, the corn market, was *"as extensive as any in the kingdom, and the merchants and traders evince a more enterprising spirit and transact more business thnt those of any town of equal size in Ireland"*.

This corn market is synonymous with the commercial and economic development of Clonmel in the eighteenth and nineteenth centuries. However, the first mill in the town dates much earlier, to the medieval period. The Manor Mill, was located on the north bank of the river, at the town side of the Old Bridge and dated to the medieval period. In the Civil Survey of 1654-56 it was noted that the town *"...hath the accommodation of a stone bridge together with two greist mills on the same..."*. It was further noted in the Civil Survey that *"two mills upon the Bridge of Clonmel in the county of Tipperary did yield the said Corporation a yearly rent in ye year 1640 and always before, time out of minde...."* According to Lyons, a local antiquarian, the second mill, referred to in the Civil Survey, was located opposite Hughes Mill, on the west side of the Old Bridge. There are further references to six mills in the Settlement of 1666, including tuck and corn mills.

The focal location of the milling industry in the eighteenth and nineteenth centuries was centered on the islands on the river Suir - Little Island, Suir Island and Stretches Island - as well as the banks of the river Suir further upstream and downstream of the town.

The zenith of the milling industry in Clonmel occurred in the latter decades of the eighteenth century and in the first half of the nineteenth century. In the latter half of the eighteenth century there was a significant shift from pastoral farming towards the cultivation of cereals. In 1758 an Act of Parliament was passed that made provision for bounties on the carriage of grain and flour from remote counties to Dublin. The passing of this Act and subsequent Acts in 1767, 1777 and 1779 provided the stimulus for a transition to cereal cultivation. During the next fifty years Clonmel was to become one of the greatest grain markets in Ireland with all of the corn of Tipperary and neighbouring counties passing through the town. In 1798 the bounties on grain were abolished, but nonetheless, the milling industry was firmly established in Clonmel to take advantage of the Napoleonic wars between 1793-1815. During these wars Ireland supplied Great Britain with corn. The repeal of the Corn Laws in 1845 hit the milling industry in the town and it went into a permanent state of decline.

As part of the golden era of milling in Clonmel, it has been estimated there were a total of 23 mills, many of which were located on the island within the river Suir - Little Island, Suir Island and Stretches Island - with main focus being on Suir Island. The river was harnessed at two weirs to facilitate flour milling activities. In 1778 Simmons Sparrow opened the Suir Island mills under the name of Premier Mills of Clonmel. In 1781 Clonmel Corporation leased forever the old Corporation mill on Little Island to Edward Collins, who built new mills on the site of the old mill at a significant cost of £12,000. Edward and John Howell, millers in the late 1700s, also leased mills from the Corporation on Little Island. In *circa* 1785 Robert Samuel Grubb replaced an existing mill which was probably used for rapeseed grinding and of seventeenth date. A brother of Robert Grubb, Joseph Thomas, also built a new mill on Suir Island sometime in the 1780s.

The construction of mills continued unabated in the nineteenth century. In 1808 the Malcomson brothers bought the Corporation mills on Little Island from John Howell. David Malcomson built a new mill in the early years of the nineteenth century with ten pairs of stones during his tenure. This mill, which subsequently was demolished and the site occupied by Avonmore Creamery and now a car-park, was taken over for other uses following the collapse of the milling industry in 1876. In the early 1800s Thomas Hughes built a mill on the northern part of Little Island. There is little indication in the historical records to suggest there was a mill on the site of Hughes' property. Thomas Hughes obtained land from the Bagwell Estate under the fee farm system and built a corn mill in the early 1800s. This mill, which ceased to operate in the early 1890s, is now occupied by a large block of apartments, on the northern edge of Little Island.

The phenomenal success of the milling industry allowed their owners to build fine dwelling houses set within ornate gardens on the islands. In addition, a Quaker's girls boarding school was built by the wife of one of the prominent milling families, namely the Grubbs.

## 3. Merits of the Proposed Masterplan

Suir Island has reverted to a highly under-utilized area within close proximity to Clonmel's town centre. It is now an over grown, in part inaccessible, large site, by and large out of reach to the people of Clonmel. In light of its current dilapidated and unkempt condition, any proposals can only be beneficial to the industrial heritage of the Island if undertaken sympathetically. Although the site is within the zone of archaeological potential for Clonmel town (TS083-019), a recorded monument in the South Tipperary Record of Monuments and Places (RMP), and in proximity to an Architectural Conservation Area, the proposals can be implemented without compromising the intrinsic value of the archaeological industrial heritage of Suir Island.

The proposals, as set out in the Masterplan for Suir Island, has merit from an archaeological perspective and in particular for the industrial heritage of Clonmel. As part of the fabric of the eighteenth and nineteenth centuries town, this industrial archaeological heritage is still significant to Clonmel and its environs. However, following the demise of the industrial activity in the early twentieth century on the Island, the impact and awareness of this industrial heritage is but a distant memory; if known at all to the majority of the town's population. These proposals, where possible, will provide a tangible reminder of the value of the industrial heritage that made Clonmel the pre-eminent town in County Tipperary and one of the most important provincial towns in Ireland during the eighteenth and nineteenth centuries.

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To fulfil these proposals it is considered the impact on the archaeological resource will not be over compromised. Many of the proposals are of limited intrusive invasion into the Island's sub-surface, such as creating walks, erecting signage, lighting, event/amenity spaces, building a broadwalk on an existing flood defence berm, landscaping, sculpture installations, seating, etc. Other aspects of the proposals, such as retain and secure walls, residual structures, mill races and in particular the proposed re-watering of the main millrace extending through the Island, will bring a physical reality to the remaining traces of the Island's industrial heritage.

The dividend from creating a public amenity and bringing the river, the Island and its industrial archaeological legacy back to the people of Clonmel cannot be over stated. It is considered the trade-off on the industrial archaeological will not be overly compromised in order to heighten the awareness and appreciation of Clonmel's industrial past. It is within this context, the proposed Masterplan will provide an invaluable educational setting within an informal setting, to bring this aspect of Clonmel's heritage to new generations of school children.

To negate any adverse impact, an appropriate detailed Impact Assessments will be undertaken of the proposals, with a follow on presentation of appropriate mitigation measures in conjunction with the relevant stakeholders such as Tipperary County Council, Department of Arts, Heritage and the Gaeltacht, the National Museum of Ireland and the Heritage Council. The most beneficial time for this Assessment is when the principle of the Masterplan is acceptable to the relevant stakeholders; and when the project moves to the detailed stage and presentable with interpretable design drawings.

