DONNACHADH O'BRIEN
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CERTAIN ASSETS OF DAWNHILL AND WINDHILL LIMITED

Lands at Kilbride, Arklow, Co. Wicklow

Greenway Boardwalk: Outline Construction Methodology

2432-DOB-XX-SI-RP-C-0100

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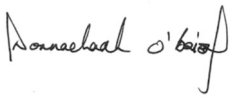
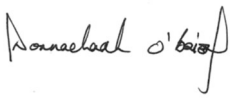
S2.P01	15.10.2024	Draft	Client, Design Team	1E	
S2.P02	19.05.2025	Issued for Planning	Wicklow County Council	2H, 1E	

1 Contents

1 Introduction

Donnachadh O'Brien & Associates Consulting Engineers Ltd. (DOBA) have been instructed by the Client, Certain Assets of Dawnhill and Windhill Limited, to prepare an Outline Construction Management Plan for the proposed cycle and pedestrian boardwalk which is proposed as part of a proposed residential development in Kilbride, Arklow, Co. Wicklow (see figure 1 below). This document should be read in conjunction with other relevant planning documentation submitted with the planning application including:

- Proposed Boardwalk Planning Drawing
    - 2432-DOB-XX-SI-DR-C-0900 Pr. Boardwalk General Arrangement
    - 2432-DOB-XX-SI-DR-C-0910 Existing and Proposed Works by WCC
    - 2432-DOB-XX-SI-DR-C-0920 Pr. Boardwalk River Crossing
    - 2432-DOB-XX-SI-DR-C-0930 Pr. Boardwalk Sections
- DOBA site Specific Flood Risk Assessment - 2432-DOB-XX-SI-RP-C-0005 SSFRA
- AWN Hydrogeological Report

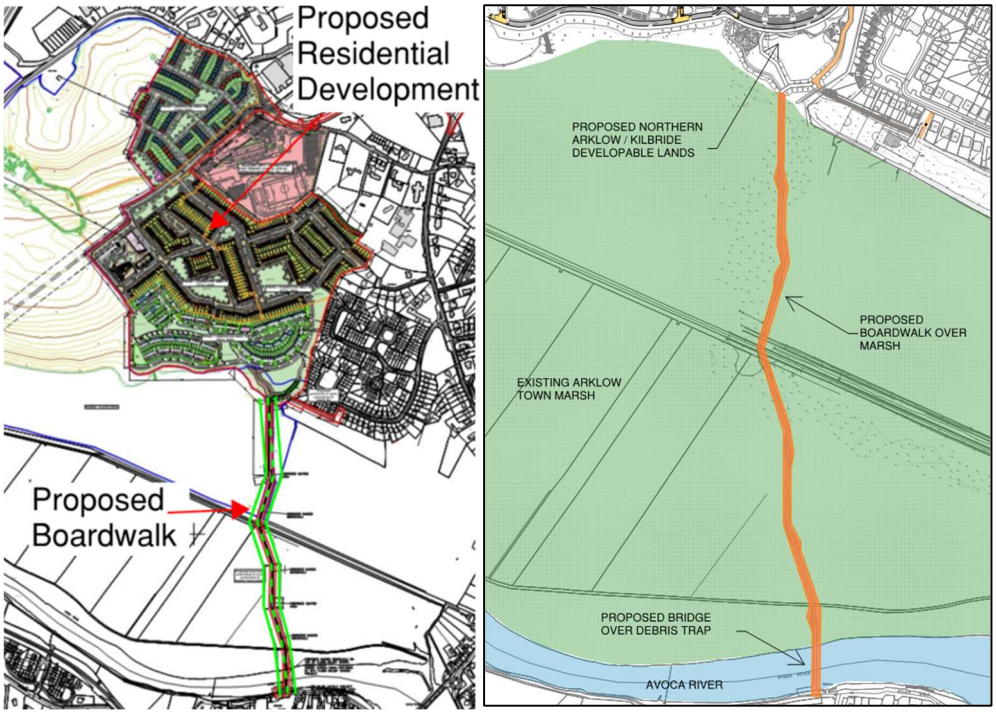


Figure 1: Site Location Map

The pedestrian and cyclist boardwalk is proposed between the proposed development at Kilbride, across the Arklow marshlands and Avoca River and will connect to the proposed Arklow to Shilelagh Greenway on the southern bank of the Avoca River. This Greenway starts adjacent to the public Cark Park in Arklow town centre. A River Walkway is being delivered by Wicklow County Council (WCC) as

part of the Arklow Flood Relief Scheme and the Boardwalk will tie into the proposed levels of the River Walkway.

The proposed Boardwalk extends form the southern side of the residential development, through the internal cycle and pedestrian network of the residential development. The boardwalk is elevated and extends approximately 650m across the marshlands, after which it crosses the Avoca River. Debris trap columns constructed in reinforced concrete are being provided by Wicklow County Council as part of the Avoca River Flood Relief scheme, and following extensive consultation with Wicklow County Council, the boardwalk will extend across the debris trap columns and will tie into the proposed levels of the Greenway on the southern side of the Avoca River. The Debris Trap piers and Greenway are approved works as part of WCC's Arklow Flood Relief Scheme.

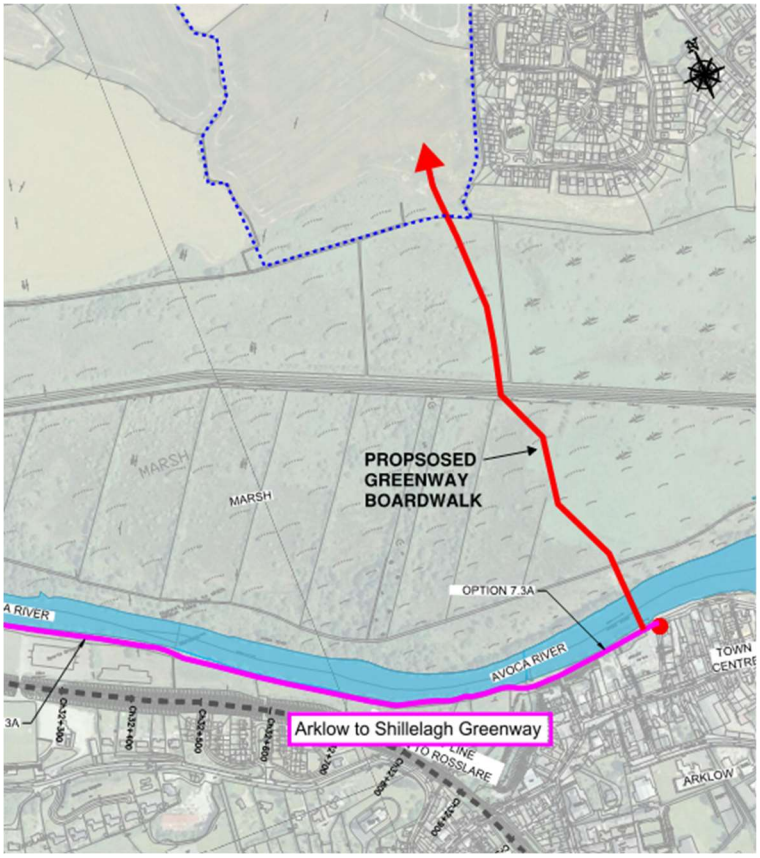


Figure 2: Proposed tie in of Boardwalk to Arlow to Shillelagh Greenway

The Design Team has engaged with the Local Authority on various occasions to discuss the provision of a boardwalk link for cyclists and pedestrians across the Avoca River and the marsh. This document describes the proposed boardwalk and outlines a construction methodology for the construction of the works.

2 Existing Environment

The Arklow Town Marsh is located north of the Avoca estuary on the perimeter of Arklow Town. A pedestrian laneway runs in a general east to west direction through the site. The majority of the marsh is covered by a wet grassy compound. The area is designated as a proposed Natural Habitat Area (pNHA). Figure 3 and 4 are typical photographs of the existing marshlands.

Figure 3: Typical Arklow Marshland images

Figure 4: Typical view of Existing Marsh

Figure 5 below is taken from Arklow and Environs LAP (Map SFRA1 – Indicative Flood Zones) and provides the predicted Flood Zone A and B developed as part of the River Avoca (Arklow Town) Flood Relief Study. This mapping, aligns with current CFRAMS mapping indicates that the marshland is subject to fluvial and coastal flooding. The 1:100 year floor event has a predicted water level of 2.72m OD. The marshland existing ground levels vary generally between 1 and 2 m OD

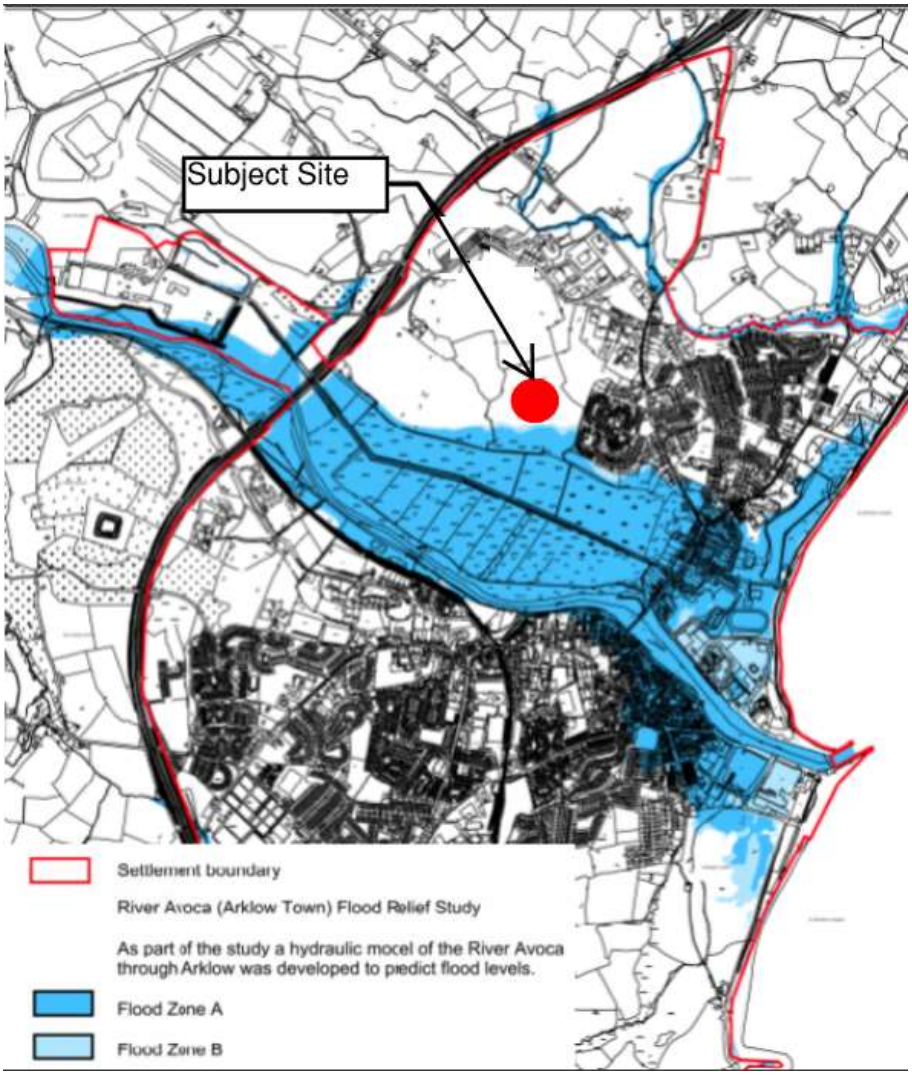


Figure 5: SFRA 1- Arklow & Environs LAP

3 Ground Conditions

A previous site investigation was conducted by the Flood Relief Scheme Design Team in 2019. As part of this investigation, the following test were conducted at the specific area of development:

- Groundwater Monitoring,
- Window Sample Boreholes,

The boreholes indicated varying soil profiles, generally ranging as follows:

- 0 – 1.0m below ground: **Peat/Silt**
- 1.0m – 1.5m **Silty Sand**
- 1.5m – 3.0m **Sand**

Groundwater monitoring standpipes have been installed at 5 No. locations across the marsh and the monitoring was conducted for a 6-week period to establish the hydrogeological regime of the marsh. For half the duration of the test period, the water level ranged between -0.1m OD to -0.5m OD (i.e. below ground) at the various test locations. For the remainder of the test period, the water levels recorded were above-ground, ranging between 0.0m OD to 0.25m OD.

A copy of the investigation can be reviewed in Appendix A of this technical note.

4 Temporary Construction Access

The boardwalk will be delivered as part of a phased LRD housing project, subject to planning approval. From discussion with Wicklow County Council the debris trap columns and flood relief scheme including the river walkway is expected to be delivered by Q4 2028 and then walkway could be in operation in 2029. Part of the Lioncor Landholding included an approved residential scheme for 86 No units, (WCC Planning Reg. Ref. 23756)

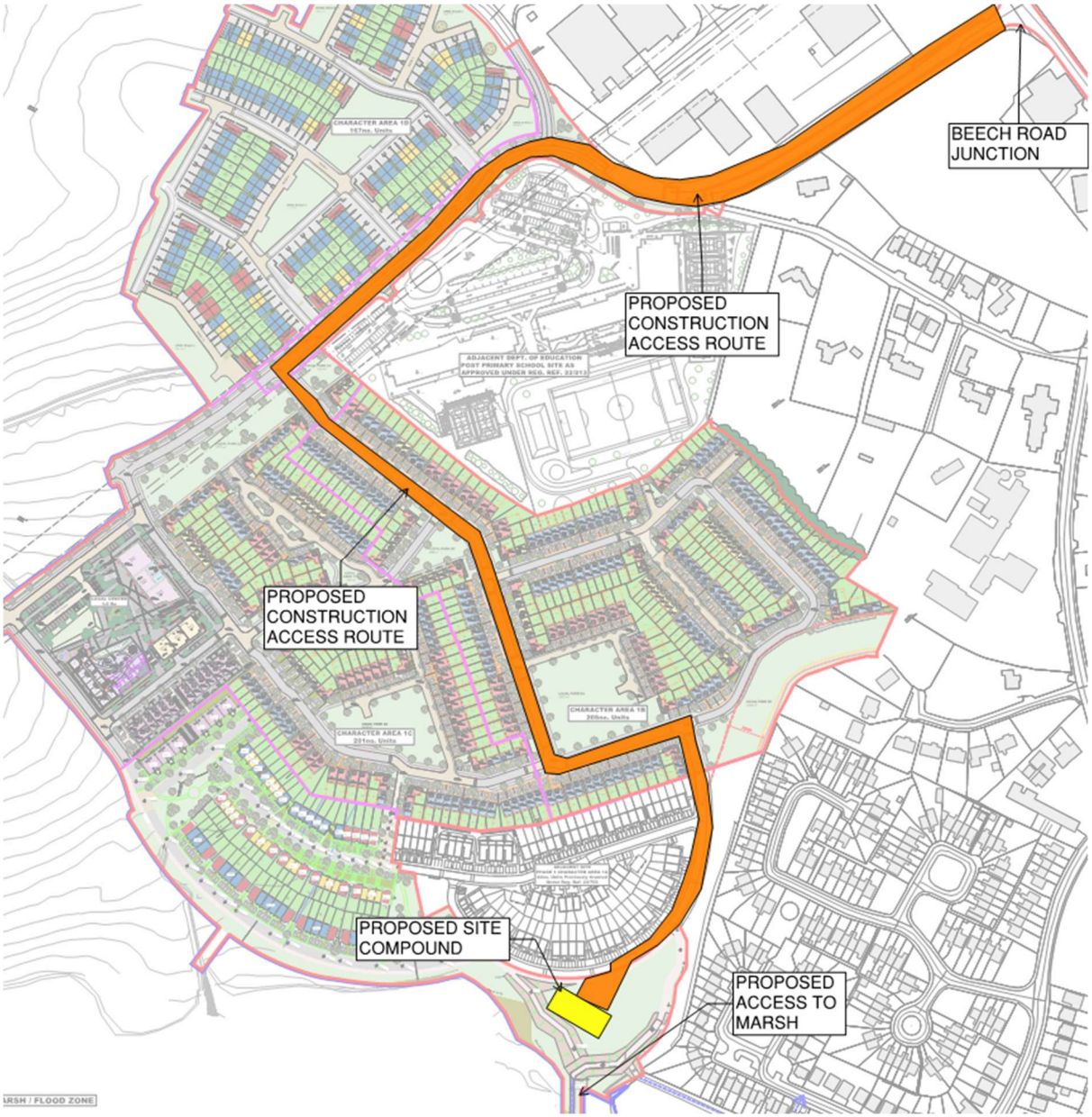


Figure 6: Temporary Site Access

It is expected that delivery of this housing scheme will commence in Q3/4 2025 and that temporary construction access to the marsh for the boardwalk construction will be provided will be provided form this site. It is proposed to utilise the existing roads (expected to be constructed at the time of the boardwalk construction) as entrance roads to the boardwalk site compound. The site access will be taken to a site compound immediately north of the marsh and flood lands. This area is indicatively shown in the **Figure 6** above, but may change depending on the phasing of ten housing development.

The access routes will be constructed with temporary bog mats in the marsh to provide access for the required construction vehicles.

5 Boardwalk

It is proposed to construct greenway infrastructure in the form of a boardwalk which crosses the marshlands to the south of the proposed development in order to increase connectivity and permeability to the centre of Arklow Town. The proposed infrastructure shall traverse Wicklow County Council-owned lands and will consist of a 3.0m wide shared cycle and footpath along a raised decking structure. The proposed boardwalk shall traverse the marsh to the south of the LRD Scheme site at an elevated level of 3.50mOD, 500mm above the 1:100-year flood level of 3.05mOD along the length of the boardwalk. Following discussions with Wicklow County Council, it is proposed to utilise reinforced concrete debris traps columns (previously permitted under the proposed Arklow Flood Defence scheme works) as a route to traverse the Avoca River to the south of the site.

Figure 7: Typical image of proposed boardwalk across Marsh

6 Review of Hydrological and Hydrogeological Qualitative Assessment

DOBA have read and reviewed the Hydrological and Hydrogeological Qualitative Assessment to ensure a comprehensive understanding of the study's findings, methodologies, and conclusions. This review forms the basis for our informed feedback and any subsequent recommendations or actions.

The following table sets out the mitigation measures identified by AWM Consulting's Hydrological and Hydrogeological Qualitative Assessment (Document Ref. 257501.0051WR01, submitted under separate cover), and compiled the following table of responses to the mitigation measures identified:

Table 1: Risk and Mitigation Table

AWN Identified Risks/Impacts	DOBA Responses and Mitigation Measures
Construction Impacts	
The construction of infrastructure near watercourses poses a significant risk in terms of contamination arising from spillages and sediment transport areas which can lead to degradation of water quality, ecological damage and flooding.	The risk is significantly reduced by the removal of any equipment or plant servicing areas from the marsh. Any equipment or plant will be refuelled/serviced within the construction compound located outside of the marsh. Sufficient bunding and spill kits will be provided at the compound. There are no direct flow paths toward the watercourses.
Construction activities will require localised clearance although removal of topsoil/subsoil is not foreseen. These works would potentially increase the erosion potential of the area during heavy rainfall and flooding events during which sediment can be transferred to the river via overland flow	The risk is removed by utilising a construction method not involving any soil movement. The use of bog mats will avoid excavations, resulting in the least possible disruption to the marsh.
Boardwalk construction across the Avoca River negative impact on the water quality of the Avoca River.	The additional piling works will be conducted in conjunction with the WCC Part 8 in-river works and will make use of all their construction access preparation and facilities. There is therefore no additional risks/impact over and above those identified as part of the WCC works.
Water levels in the marsh are very shallow and respond rapidly to rainfall events, so recurrent	The construction of the boardwalk will take place during the spring-autumn period, where potential flooding is negligible. It is further anticipated that

flooding is to be expected during the construction phase	any possible spillages will be contained within the site compound, located outside of the marsh.
Operational Impacts	
The interception of rainfall by the boardwalk during the operational period.	The marsh will remain in its unaltered condition, and the impact of the additional hardstanding area of the elevated boardwalk is considered negligible.
The risk of pollution to both surface and groundwater resulting from accidental spillage.	The boardwalk is intended for the use of pedestrians and cyclists only. It is considered that the impact is negligible.

7 Outline Construction Methodology

7.1 Temporary Access and working platforms

Ground conditions of the upper soils across the marsh consist of soft silts and peaty soils. In addition the water table is liable to be seasonally variable and close to or at ground level. In order to have the least impact on the existing marshland and vegetation it is proposed that access across the marsh for construction traffic will utilise temporary timber bog mats. The below Figure 8 illustrates a typical installation.

Figure 8: Timber Bog Mats (*Source: Irish Access Mats)*

The process typically involves site preparation prior to the laying of the mats. This includes, but is not limited to:

- Identifying any live services/utilities (there are no underground services across the marshland)
- Use of geotextile sublayers where the marsh is extremely wet,
- Timber mats are then placed on top of the marsh/wetland areas and secured to each other;
- Mats are typically 5mx1mx100mm made from European hardwood. Mats are made using 5x200mm sleepers securely bolted together and countersunk. Each mat has 2 lifting eyes as standard. Mats weigh approx 500kg.
- Load bearing capacity is estimated at 30 Ton

The proposed timber bog mat specification sheet can be reviewed in Appendix B.

The alternative to use of bog mats would require the contribution of a temporary access road using crushed stone. In the ground conditions of the marsh area, this would require extensive topsoil stripping and stockpiling, provision of a Tensar geogrid and use if between 300mm and 400mm of crushed

hardcore stone. On completion of the works this temporary road would be removed and the soil replaced. The use of bog mats avoids the disruption of all of this work and the mats van be laid on the existing ground and vegetation without significant excavations resulting in the least possible disruption to the marsh. This proposed methodology will reduce substantially the need for excavations and temporary stockpiling, reduce stone importation and associated construction traffic, and provide a more sustainable construction methodology with a reduced embodied carbon. Specialist providers will be engaged to provide the bog mats which are 100% reusable.

7.2 Existing Watercourses

As part of the proposed boardwalk and construction, it may be necessary to traverse existing field boundary drains or watercourses within the marsh which are illustrated in the below figure. It is proposed that any existing watercourses will be piped with single or twin 600mm diameter UPVC pipe and timber bog mats will be installed over the watercourses/ ditch to facilitate temporary construction traffic crossing and to ensure the existing natural flow of the ditch remains undisturbed. At the completion of the construction stage, these pipes will be removed and the ditch returned back to the pre-development condition.

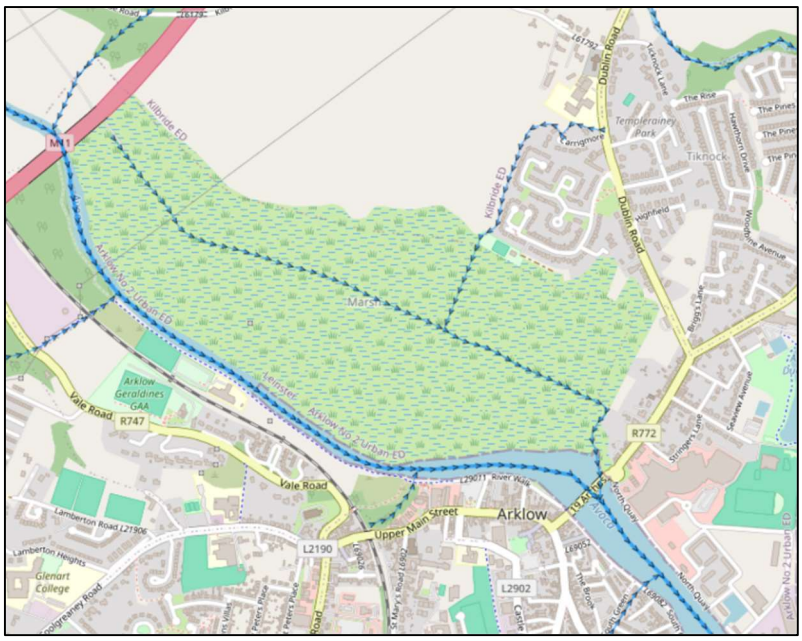


Figure 9: Illustration of local field boundary drain in the centre of the marsh

7.3 Piling and groundworks

The boardwalk is likely to be founded on piles. The piling solution has been designed to ensure that the lightweight rigs can be used and 150/200mm diameter bottom driven steel tube mini piles are proposed to be used. Figure 10 below provides an indication of the size of such piling rigs a typical piling rig data

sheet is included in Appendix C. The weight of these rigs are typically between 2 and 2.5 Tonnes. As the capacity of the proposed temporary bog mat is in the order of 30T, the use of this light weight piling equipment will ensure that any potential impact from the piling activities will be minimised.

The use steel end driven piled foundations will ensure that excavation of soils within the marsh area will be kept to a minimum. As the piles are end drive steel pile there are no soil arisings form the piling operation which will require disposal. The piles are filled with concrete and a single 25mm steel reinforcing bar. In-situ concrete will be placed with mini concrete trucks and concrete pumps will be utilised.

Figure 10: Typical Mini-Piling Rigs for bottom end driven streel piles

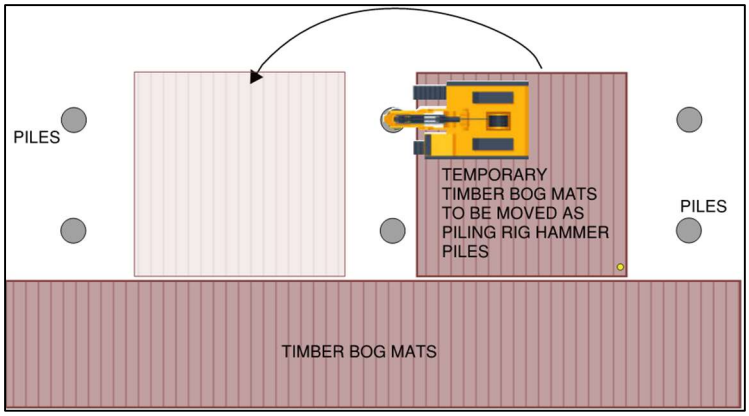


Figure 11: Using Temporary Timber Bog Mats Under the Piling Rig

7.4 Boardwalk construction in Marsh

A steel framed lightweight boardwalk has been deigned to traverse the Marshland. Vertical supports will be at 6m and it is intended that the steelwork deck will be delivered in prefabricated sections and lifted in position onto the support steels. To minimise construction work in the marshland, it is proposed

that precast concrete pile caps will be used onto which the steel framed boardwalk will be connected. A typical section of the boardwalk is indicated in figure 12 below. Please refer to the boardwalk drawings accompanying this application for full details of the boardwalk proposals.

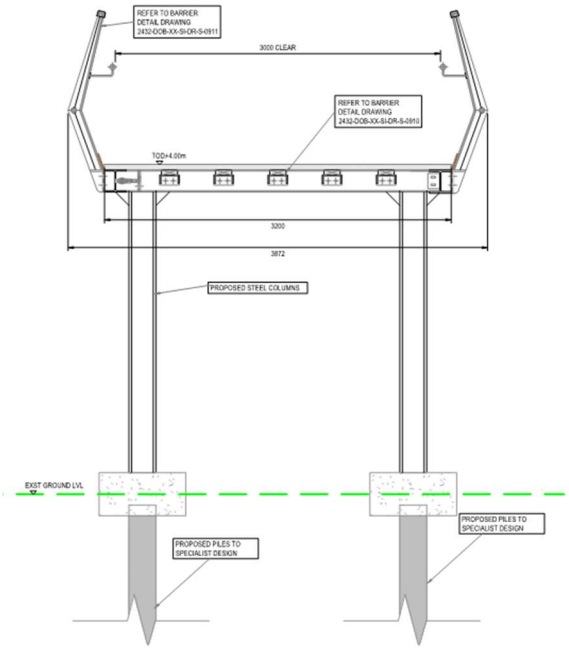


Figure 12: Typical Boardwalk section through Marsh

7.5 Boardwalk construction across Avoca River

The cross section of the boardwalk to be constructed across the debris traps columns is shown in figure 13 below. As part of the WCC/OPW flood defence scheme, construction access will be provided for the construction of the debris traps, which are oval-shaped concrete piers approximately 1600mm x 600mm. These are being supported on CFA piles to be installed in the river bed. It is our understanding that temporary gravel working platforms will be provided for the construction of these works and it is intended that the boardwalk deck will be installed following the completion of the debris trap concrete piers. All works within the Avoca River will be constructed during low flow and temporary gravel berms and flow diversions can be put in place to ensure a safe working platform in the river bed to undertake the construction works.

Adjacent to the river walkway on the south bank of the Avoca River, a section of boardwalk will be constructed supported on CHS 200mm diameter end-driven piles. In total, 12 No. piles are required to support the structure along the southern bank. Please refer to DOBA Drawings 2432-DOB-XX-SI-DR-C-0900 to 0930.

The construction of these additional piles is proposed to be in conjunction with the WCC/OPW works within the river. In this way, the proposed piling contractor will utilise the temporary gravel bed, which will already be provided by the WCC/OPW.

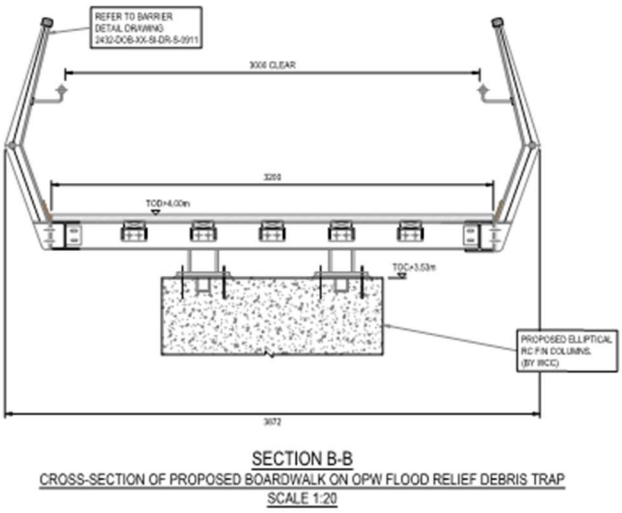


Figure 13: Typical Boardwalk section across WCC Debris Trap Columns

7.6 Summary and Conclusion

This outline construction plan for boardwalk construction across the marsh and Avoca river has been developed to ensure and demonstrate that the construction methodology has been carefully considered and that appropriated forms of temporary and permanent construction area adapted to minimize the impact on the existing marsh environment. This outline plan will be used by the appointed contractor to develop a full Construction Plan and Methodology prior to construction. The key consideration of the construction methodology are set out below:

7.7 Avoca River Crossing

- Use of the debris trap columns provided by Wicklow County Council as part of the Arklow Flood Relief Scheme to support the boardwalk deck across the Avoca River
- Tie in to the riverwalk Greenway on the southern bank of the Avoca River which will be constructed by Wicklow County Council as part of the Arklow Flood Relief Scheme
- Access to the river to construct the boardwalk will use the temporary gravel ramps and access ways being provided to undertake the Flood Relief Works. These works will be coordinated with Wicklow County Council prior to construction.
- Use of small piling rigs (approx. 2–3-ton machines) for bottom driven 200mm diameter steel piles for foundation support to the boardwalk at the riverside

- Construction of the works requiring access to the river during normal and low flows (summer months) with contingency plans for periods of higher flows or flood events

7.8 Marsh Boardwalk

- Boardwalk has been designed to be permanently above the CFRAMS predicted flood events
- Permanent and construction phase methodology does not interfere with the existing surface water regime or the natural flows of potential flood water in the marsh floodplain
- Any existing watercourses will be temporary piped with twin 600mm diameter pipes maintaining the existing hydrological regime in the marsh area.
- Reduction/elimination of mass excavation for temporary construction roads through use of bog mats placed directly onto the existing ground. Eliminate use of imported stone fill which will facilitate the restoration of the marsh lands to pre-construction conditions
- Use of small piling rigs (approx. 2-3 tons) for bottom driven 200mm diameter steel piles for foundation support to the boardwalk at the riverside
- Use of precast pile caps to reduce the in-situ concrete work on site. Pile caps will sit at or above existing ground level to reduce the excavation requirements on site
- Offsite assembly of boardwalk deck and use of small crawler cranes to erect the boardwalk which will reduce the construction programme
- Comprehensive marsh monitoring and reinstatement by ecologist to ensure the pre-construction existing environment is returned

Appendix A Site Investigation

Ground Investigations Ireland Ltd
www.gii.ie

Site Arklow Marsh - Option 2			**Number** WS07
Machine : Tec op 10 **Method :** Drive-in Windowless Sampler	**Dimensions**	**Ground Level (mOD)** 0.47	**Client** Byrne Looby Partners	**Job Number** 8975-08-19
	Location 724413.1 E 673854.4 N	**Dates** 13/09/2019	**Project Contractor** Ground Investigations Ireland	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					(1.00)	Very soft dark brown fibrous PEAT with rootlets		
				-0.53	1.00			
					(0.60)	Brownish grey gravelly very clayey fine to coarse SAND with grass rootlets		
				-1.13	1.60			
2.00-3.00	B				(1.40)	Firm brownish grey slightly sandy SILT with rootlets		
				-2.53	3.00			
						Complete at 3.00m		

Remarks
0.00-1.00m BGL 30% recovery
1.00-2.00m BGL 70% recovery
2.00-3.00m BGL 100% recovery

Scale (approx)	Logged By
1:25	AB

Figure No. 8975-08-19.WS07

Ground Investigations Ireland Ltd
www.gii.ie

Site Arklow Marsh - Option 2			**Number** WS08
Machine : Tec op 10 **Method :** Drive-in Windowless Sampler	**Dimensions**	**Ground Level (mOD)** 0.44	**Client** Byrne Looby Partners	**Job Number** 8975-08-19
	Location 724385.4 E 673763.9 N	**Dates** 13/09/2019	**Project Contractor** Ground Investigations Ireland	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					(0.65)	Very soft dark brown fibrous spongy PEAT with rootlets			
				-0.21	0.65	Soft brownish grey slightly sandy SILT with rootlets			
1.00-1.70	B				(1.05)				
				-1.26	1.70	Bluish grey slightly gravelly clayey fine to medium SAND with occasional rootlets			
2.00-3.00	B				(1.30)				
				-2.56	3.00	Complete at 3.00m			

Remarks
0.00-1.00m BGL 75% recovery
1.00-2.00m BGL 90% recovery
2.00-3.00m BGL 80% recovery
Standpipe installed, 50mm slotted from 3.00 to 1.00m BGL, sealed from 1.00m BGL to GL with cement benthonite seal with raised covers

Scale (approx)	Logged By
1:25	AB

Figure No. 8975-08-19.WS08

Ground Investigations Ireland Ltd
www.gii.ie

Site Arklow Marsh - Option 2			**Number** WS09
Machine : Tec op 10 **Method :** Drive-in Windowless Sampler	**Dimensions**	**Ground Level (mOD)** 0.67	**Client** Byrne Looby Partners	**Job Number** 8975-08-19
	Location 724237.4 E 673948.9 N	**Dates** 13/09/2019	**Project Contractor** Ground Investigations Ireland	**Sheet** 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water	Instr
					(0.20)	Soft brown TOPSOIL with grass rootlets			
0.20-1.00	B			0.47	0.20	Soft to firm brown mottled red SILT with grass rootlets			
					(0.75)				
1.00-1.70	B			-0.28	0.95	Soft dark brown organic SILT with wood and grass rootlets			
					(0.75)				
2.00-3.00	B			-1.03	1.70	Grey slightly gravelly clayey fine to medium SAND with grass rootlets			
					(1.30)				
				-2.33	3.00	Complete at 3.00m			

Remarks
0.00-1.00m BGL 85% recovery
1.00-2.00m BGL 100% recovery
2.00-3.00m BGL 100% recovery
Standpipe installed, 50mm slotted from 3.00 to 1.00m BGL, sealed from 1.00m BGL to GL with cement benthonite seal with raised covers

Scale (approx)	Logged By
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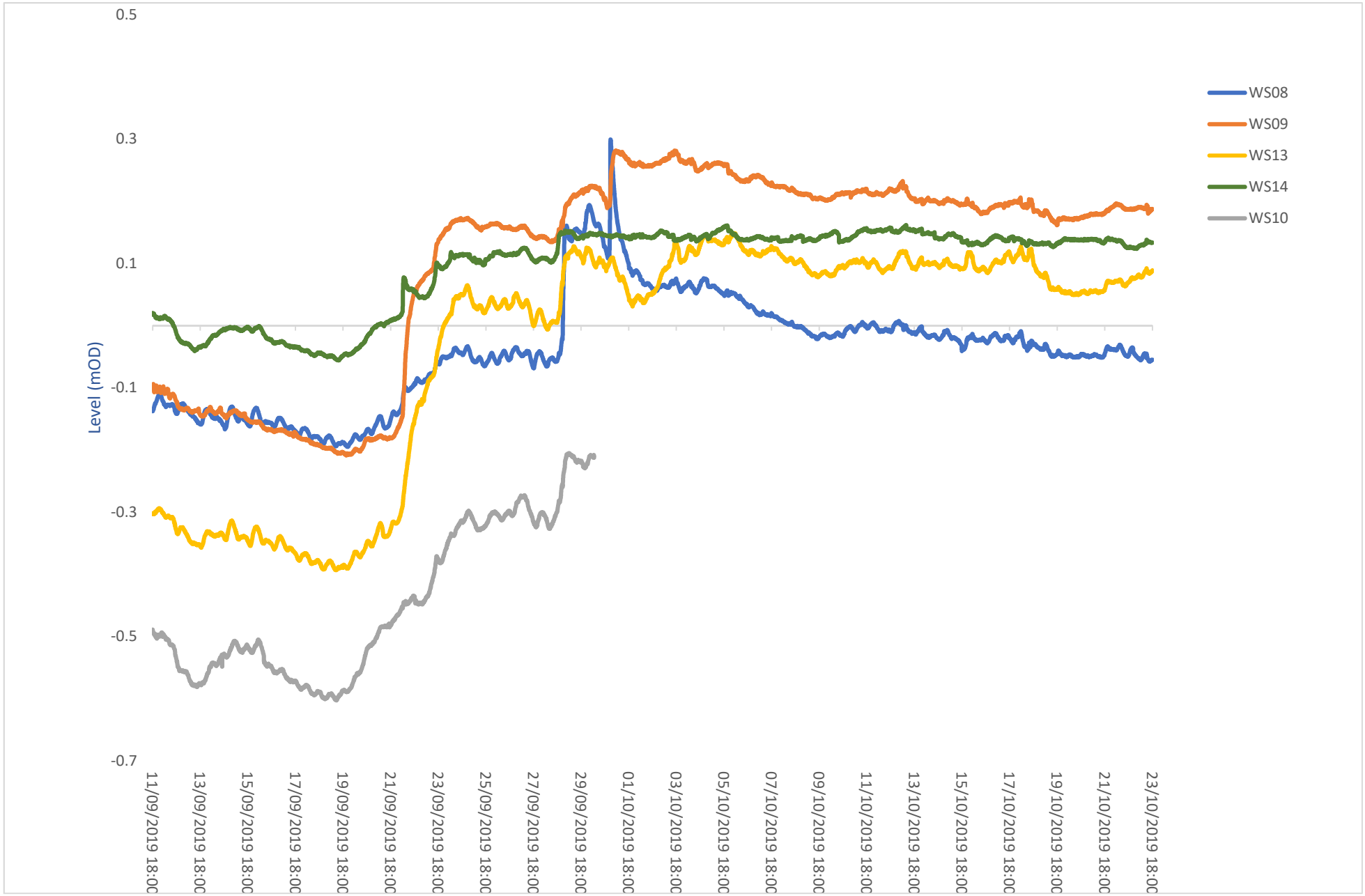
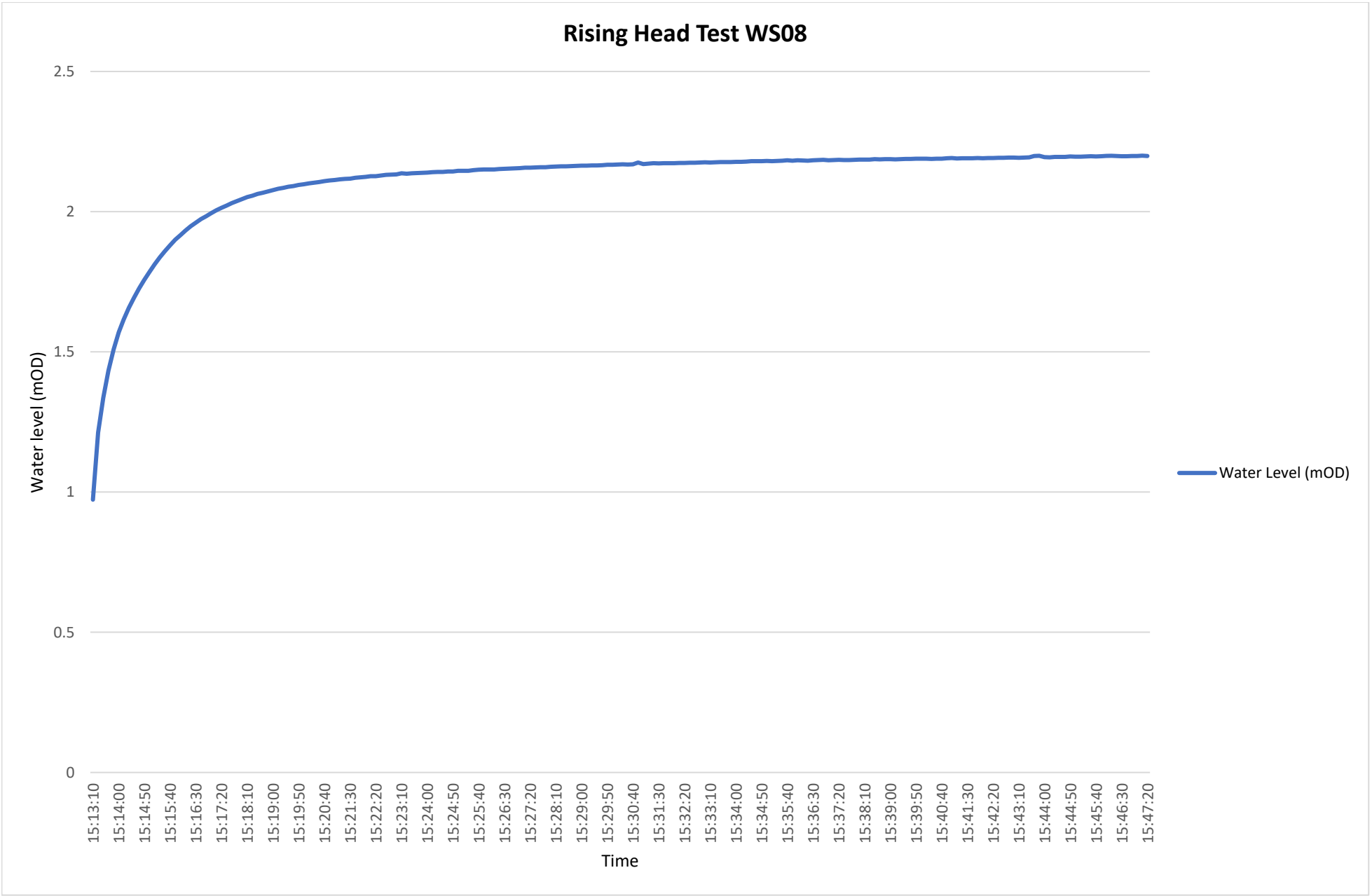
Figure No. 8975-08-19.WS09

Arklow Marsh Groundwater Montioring



Note: Data Logger for WS10 interfered with and removed from standpipe on 30/09/2019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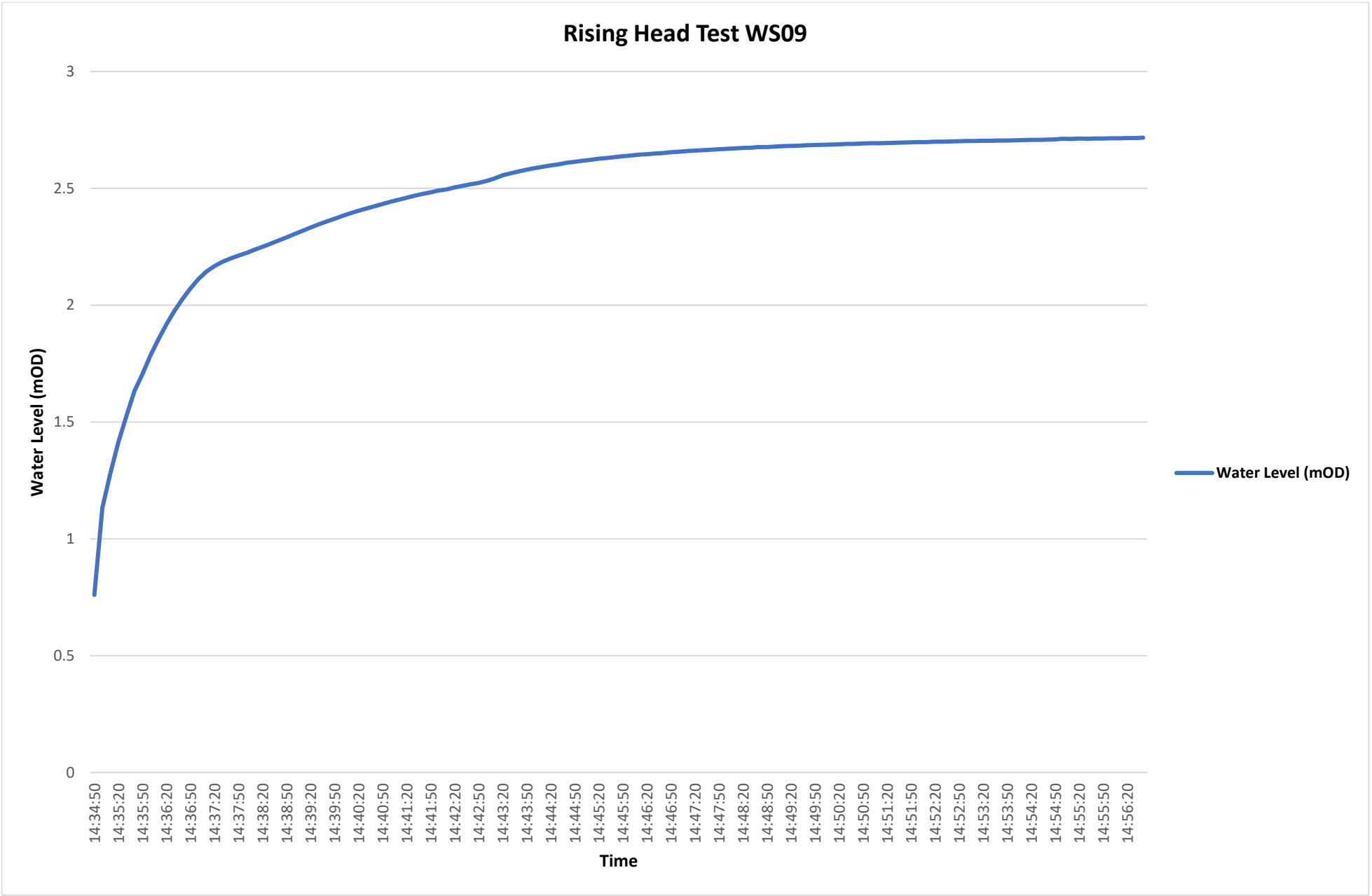
Time
Water Level (mOD)


Rising Head Test WS09
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1.5
1
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14:54:50
14:55:20
14:55:50
14:56:20
Time
Water Level (mOD)

A1

WS01
WS02
WS03
WS04
WS05
WS06
WS07
WS08
WS09
WS10
WS12
WS13
WS14
WS15
WS1

MARSH
Willow Grove
Inbhear Mor Park
Highfield
Avondale Crescent
Avondale Avenue
UD Bdy
UND
CD
10kV
38kV
HWM
AVOCA RIVER
Highest Point to which Medium Tides Flow
Sports Ground
Riverview Heights
ARKLOW
Tennis Ground
School
St Columba's Terrace
Electricity Sta
Church (C of I)
Court House
Hotel
Cinema
Car Park
Bank
Library
Church (Roman)
Parochial House
Convent
Chapel
Museum
Mayfair Court
St Peter's Place
Coolgreaney Park
Cemetery
Toilets
Bowling Green
Basketball Ground
Harbour
Arklow Bridge
Slipway
RIVER WALK
MAIN STREET
CASTLE PARK
CHURCH ROAD
VEVERS ROAD
MILL ROAD
RADAR GROUND
CASTLE ARMS
HALLGARD
UPPER
COOLGREANEY ROAD
SOUTH GREEN
HARBOUR

N
W E
S

LEGEND
PROPOSED WINDOW SAMPLE LOCATION SHOWN THUS: WS06

NOTES:

1. DO NOT SCALE OFF DRAWING
2. DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS
3. DRAWING IS FOR INFORMATION PURPOSES ONLY, NOT FOR CONSTRUCTION
4. FINAL POSITIONS TO BE AGREED WITH INVESTIGATION SUPERVISOR AND CONTRACTOR ON SITE
5. LOCATIONS OF INSTALLATIONS AND IN SITU TESTING TO BE AGREED WITH INVESTIGATION SUPERVISOR AND CONTRACTOR ON SITE

Note: Approximate locations - please refer to window samples logs in Appendix 2 for location coordinates

Rev	Date	Description	By	Chk	App
00	08/08	INFORMATION	NP	NP	KT

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CLIENT
WICKLOW COUNTY COUNCIL

PROJECT
AVOCA RIVER (ARKLOW) FLOOD RELIEF SCHEME

DRAWING TITLE
PROPOSED SITE INVESTIGATION SCOPE

STATUS
FOR INFORMATION

Date: 30.03.18	Scale: 1/2000	Drawn: NM	Chk: KT	App: KT
Project No: PH00886/01	Drg. No: 892			Rev: 00

Appendix B Bog Mats Specification Sheet

Timber mats 5mx1mx100mm

Used as temporary roadways and working platforms, Irish Access Mats' Timber Mats are a simple and effective method of ensuring heavy plant and equipment can traverse soft or boggy terrain without being impeded or causing excessive damage to the land. Our mats are are imported from sawmills in Europe that respect National Forest Management Plans.

General Usage

- Access across soft or waterlogged land
- Temporary roadways
- Pipeline tracks
- Light duty traffic access
- Utility protection & access
- Crane and equipment platforms
- Sea defence construction
- Piling operations
- Rail protection

Specification & Load bearing

Mats are 5mx1mx100mm made from European hardwood. Mats are made using 5x200mm sleepers securely bolted together and countersunk. Each mat has 2 lifting eyes as standard. Mats weigh approx 500kg. Load bearing capacity is estimated at 30 Ton but this will vary dependant on ground conditions and age of mat. *The specifications given should be taken as guidelines only as there will be variation between mats. Mats are not certified for load-bearing.*

For further information on performance and what mat size may best suit your requirements please email hire@irishaccessmats.ie or contact Con Farren on 087 6804109.

Appendix C Piling Rig Specification Sheet

Rig Data Sheet – D500

Bottom Driven

Operating Details :

Description	Dimension
Maximum Pile Depth	25.0m
Maximum Pile Diameter	220mm
Mast Height	2.25 – 3.25m
Rig Length	2.9m
Rig Width	0.7 – 1.0m
Rig Weight	2.0t

Transport Details :

Description	Dimension
Transportation Length	3.2m
Transportation Height	1.9m
Transportation Width	0.8m

Track Pressures* :

Operation	BRE Load (case)	Length (m)	Width (m)	UDL (kN/m^2)
Standing	1	0.75	0.2	53
Travelling	1	0.75	0.2	53
Handling	1	0.76	0.2	53
Penetrating	2	0.52	0.2	40
Extracting	2	0.83	0.2	55

(*further details available on request)