

## Sizewell C Project

# Appendix C: Package to Inform Countryside and Rights of Way (CRoW) Act Assessment and Habitats Regulations Assessment

## Permits MCA/FRA/8, MCA/WRIL/2, MCA/FPA/1 and MCA/LDC/5 (Sizewell Drain Realignment)

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HABITATS REGULATION ASSESSMENT AND  
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## 1 INTRODUCTION

### 1.1 Overview

- 1.1.1.1 The Sizewell C Project ('SZC Project') is a consented nuclear power station [1], comprising two UK European Pressurised Reactors™ located north of the existing Sizewell B power station in Suffolk. The Development Consent Order (DCO) for the SZC Project was granted in 2022 [2]. The DCO was granted based on assessment work (underpinned by extensive baseline surveys and studies) and submitted to the Secretary of State. The Secretary of State's (SoS) Habitats Regulations Assessment (HRA) [3] (hereafter referred to as the 'SoS HRA') records his decision on the potential for adverse effects on the integrity of European and Ramsar sites as a result of the SZC Project.
- 1.1.1.2 The SZC Project is currently preparing construction permit applications. These permits are required for several of the works and construction activities, within and surrounding the Main Construction Area (MCA) to enable the construction of the SZC Project. Construction permits are required for a number of project-related activities (including, for example, water discharges and realignment of channels), several of which require HRA or have Countryside and Rights of Way 2000 (CRoW) Act considerations.
- 1.1.1.3 The Competent Authority (Environment Agency, EA) has screened each permit to determine a potential zone of influence (Zoi) of the activities covered by the permit on both European sites and Sites of Special Scientific Interest (SSSI). Through the EA Screening Tool a risk has been identified to Sizewell Marshes SSSI and Minsmere to Walberswick Heath and Marshes SSSI from several permit applications (SZC references MCA/FRA/8, MCA/LDC/5, MCA/WRIL/2, MCA/FPA/1). A risk has also been identified to Minsmere to Walberswick Heaths & Marshes Special Area of Conservation (SAC) and Minsmere-Walberswick Special Protection Area (SPA) and Ramsar site. Therefore, this package has been put together to aid the EA in completing their HRA and CRoW assessment for the permits outlined in this document as part of the 'Tranche 2' permit submission, with additional information on the proposals found in the Supporting Information Document (SID) or WRIL Technical Note provided as appendices for the relevant submissions. It is also intended to inform the Land Drainage Board regarding the HRA/CROW for permit MCA/LDC/5.

### 1.2 Key Definitions

Term / Abbreviation	Definition
AOD	Above Ordnance Datum
CoCP	Code of Construction Practice
CRoW	Countryside and Rights of Way
DCO	Development Consent Order
EA	Environment Agency
ES	Environmental Statement
ESPB	Environmental Sheet Pile Barrier
ESWMB	East Suffolk Water Management Board
FPA	Fish Pass Approval
FRA	Flood Risk Assessment
FRAP	Flood Risk Activity Permit
HRA	Habitats Regulations Assessment

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Term / Abbreviation	Definition
INNS	Invasive non-native species
IT&T	Information Technology and Telecommunications
LDC	Land Drainage Consent
MCA	Main Construction Area
MDS	Main Development Site
mm	Millimetre
NE	Natural England
NGR	National Grid Reference
SAC	Special Area of Conservation
SID	Supporting Information Document
SoCG	Statement of Common Ground
SoS	Secretary of State
SPA	Special Protection Area
SSSI	Sites of Special Scientific Interest
SZC Project	The Sizewell C Project
TCA	Temporary Construction Area
UXO	Unexploded Ordinance
WMMP	Water Monitoring and Management Plan
WRIL	Water Resource Impoundment Licence
Zol	Zone of Influence

### 1.3 References

Ref	Title	Location	Document No. / Link
1	The Sizewell C (Nuclear Generating Station) Order 2022	Online	<a href="https://www.legislation.gov.uk/uksi/2022/853/contents/made">https://www.legislation.gov.uk/uksi/2022/853/contents/made</a>
2	The Sizewell C (Nuclear Generating Station) Order 2022. Made 20th July 2022, Coming into force 11th August 2022	Online	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-011165-SZC-DCO.pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-011165-SZC-DCO.pdf</a>
3	Secretary of State (Department for Business, Energy and Industrial Strategy) (2022). Habitats Regulations Assessment for an Application Under the Planning Act 2008: Sizewell C New Nuclear Power Station	Online	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-011167-SZC-HRA.pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-011167-SZC-HRA.pdf</a>
4	Sizewell C Limited (2024). Flood Risk Activity Permit Application MCA/FRA/8 – Appendix B: Supporting Information Document	EDRMS	101375802

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Ref	Title	Location	Document No. / Link
5	NNB Generation Company (SZC) Limited (2021). Vol 5.2 Main Development Site Flood Risk Assessment Addendum, Rev 1.0. DCO Examination Library Ref. AS-157	Online	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-002947-SZC Bk5 5.2(A)Ad Main Development Site Flood Risk Assessment Addendum .pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-002947-SZC Bk5 5.2(A)Ad Main Development Site Flood Risk Assessment Addendum .pdf</a>
6	NNB Generation Company (SZC) Limited (2021). Deadline 10 Submission - 9.10.4 Statement of Common Ground - Environment Agency. DCO Examination Library Ref. REP10-094.	Online	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-008186-Sizewell%20C%20Project%20-%20Final%20SoCG%202027.pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-008186-Sizewell%20C%20Project%20-%20Final%20SoCG%202027.pdf</a>
7	NNB Generation Company (SZC) Limited (2020). 6.3 Volume 2 Main Development Site Chapter 19 Groundwater and Surface Water. Rev 1.0. DCO Examination Library Ref. APP-297	Online	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001912-SZC Bk6 ES V2 Ch19 Groundwater and Surface Water.pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001912-SZC Bk6 ES V2 Ch19 Groundwater and Surface Water.pdf</a>
8	Sizewell C Limited (2024). DCO Requirement 11: Water Monitoring and Management Plan. Revision 1.0	Online	<a href="https://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=documents&amp;keyVal=58JA5GQX06000">https://publicaccess.eastsuffolk.gov.uk/online-applications/applicationDetails.do?activeTab=documents&amp;keyVal=58JA5GQX06000</a>
9	NNB Generation Company (SZC) Limited (2020). Vol 2 Main Development Site Chapter 14 Terrestrial Ecology and Ornithology, Rev 2.0. DCO Examination Library Ref. AS-033	Online	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-002685-SZC Bk6 6.3(A) Ch14 Terrestrial Ecology and Ornithology.pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-002685-SZC Bk6 6.3(A) Ch14 Terrestrial Ecology and Ornithology.pdf</a>
10	NNB Generation Company (SZC) Limited (2020). 5.10 Shadow Habitats Regulations Assessment Volume 1: Screening and Appropriate Assessment Part 1 of 5. Rev 1.0. DCO Examination Library Ref. APP-145.	Online	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001765-SZC Bk5 5.10 V1 Shadow HRA Report Part 1 of 5.pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001765-SZC Bk5 5.10 V1 Shadow HRA Report Part 1 of 5.pdf</a>
11	NNB Generation Company (SZC) Limited (2021). Deadline 10 Submission - 9.16/10.21 On-site Marsh Harrier Compensatory Habitat Strategy – Clean Version. Book 9 Rev 3.0, Book 10 Rev 1.0. DCO Examination Library Ref. REP10-128.	Online	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-008111-Carly%20Vince%20-%20Other-%20Control%20Document%20-%20On-site%20Marsh%20Harrier%20Compensatory%20Habitat%20(clean%20version).pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-008111-Carly%20Vince%20-%20Other-%20Control%20Document%20-%20On-site%20Marsh%20Harrier%20Compensatory%20Habitat%20(clean%20version).pdf</a>
12	NNB Generation Company (SZC) Limited (2021). 9.28 Comments on Written Representations – Appendices, Rev 1.0, DCO Examination Library Ref. REP3-043	Online	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-005470-D3%20-%20The%20Sizewell%20C%20Project%20-%20Comments%20on%20WRs%20Appendices.pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-005470-D3%20-%20The%20Sizewell%20C%20Project%20-%20Comments%20on%20WRs%20Appendices.pdf</a>

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Ref	Title	Location	Document No. / Link
13	NNB Generation Company (SZC) Limited (2020). 6.3 Volume 3 Main Development Site, Chapter 19 Groundwater and Surface Water, Appendix 19B: Sizewell C Conceptual Site Model of the Hydrogeological Regime Part 1 of 5. DCO Examination Library Ref. APP-304	Online	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001920-SZC Bk6 ES V2 Ch19 Groundwater and Surface Water Appx19B Part 1 of 5 .pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001920-SZC Bk6 ES V2 Ch19 Groundwater and Surface Water Appx19B Part 1 of 5 .pdf</a>
14	NNB Generation Company (SZC) Limited (2021). 8.11 Code of Construction Practice (CoCP) Appendix A: Freshwater Fish and Aquatic Invertebrates Mitigation Strategy, Rev 1.0, DCO Examination Library Ref. AS-275	Online	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-002900-SZC Bk8 8.11(A) Freshwater Fish and Aquatic Invertebrates Mitigation Strategy.pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-002900-SZC Bk8 8.11(A) Freshwater Fish and Aquatic Invertebrates Mitigation Strategy.pdf</a>
15	NNB Generation Company (SZC) Limited (2021). 8.11 Code of Construction Practice (CoCP) Clean version, Rev 2.0. DCO Examination Library Ref. AS-273	Online	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-002898-SZC Bk8 8.11(A) Code of Construction Practice Clean Version.pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-002898-SZC Bk8 8.11(A) Code of Construction Practice Clean Version.pdf</a>
16	NNB Generation Company (SZC) Limited (2021). Deadline 10 Submission - Document 9.4/10.28 Terrestrial Ecology Monitoring and Mitigation Plan – Clean Version. Book 9 Revision 4.0, Book 10 Revision 1.0. DCO Examination Library Ref. REP10-090	Online	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-008098-Carly%20vince%20-%20Other-%20Control%20Document%20-%20Terrestrial%20Ecology%20Monitoring%20and%20Mitigation%20Plan%20(clean%20version).pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-008098-Carly%20vince%20-%20Other-%20Control%20Document%20-%20Terrestrial%20Ecology%20Monitoring%20and%20Mitigation%20Plan%20(clean%20version).pdf</a>
17	Minutes of the pre-app meeting held on 06/06/24	EDRMS	101294566
18	NNB Generation Company (SZC) Limited (2020). 6.3 Volume 2 Main Development Site Chapter 19 Groundwater and Surface Water, Appendices 19C - 19F. Rev. 01. DCO Examination Library Ref. APP-309	Online	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001926-SZC Bk6 ES V2 Ch19 Groundwater and Surface Water Appx19C 19F.pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001926-SZC Bk6 ES V2 Ch19 Groundwater and Surface Water Appx19C 19F.pdf</a>

## 1.4 SSSI and Habitats Sites

1.4.1.1 The following SSSI, SACs, SPAs and Ramsar sites have the potential to be affected by the EA’s pre-identified risks arising from permit activities.

**Table 1.1 Sensitive Receptor Sites**

Sensitive Receptor Site	Distance from Permit location
Sizewell Marshes SSSI	Permit activities are located within this SSSI
Minsmere to Walberswick SSSI	Permit activities are located circa 365m west of this SSSI
Minsmere to Walberswick Heaths and Marshes SAC	Permit activities are located circa 385m west of this SAC
Minsmere-Walberswick SPA	Permit activities are located circa 385m west of this SAC
Minsmere-Walberswick Ramsar site	Permit activities are located circa 385m west of this SAC
Sandlings SPA	Permit activities are located circa 1400m North of this SPA
Outer Thames Estuary SPA	Permit activities are located circa 675m west of this SAC

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Southern North Sea SAC	Permit activities are located circa 675m west of this SAC
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## 1.5 Environment Agency Risks

1.5.1.1 When considering the potential for an activity to impact upon a protected site, the focus of the EA's assessment is risk-based. There are specific risks for specific types of permit, and these are the focus of the EA assessment. The Land Drainage Board does not have a similar set of guidelines but it is logical to use the same risks and information requirements for the LDC as for the FRAP. For the EA permits in question the risks are as follows:

### Permit MCA/FRA/8 and Permit MCA/LDC/5:

- change in flow or velocity regime;
- change in freshwater flow to estuary;
- change in physical regime;
- change in surface water flooding;
- change in water chemistry;
- competition from non-native species;
- killing/injury or removal of fish or other animals;
- physical damage;
- turbidity;
- habitat /community simplification;
- habitat loss; and
- disturbance.

### Permit MCA/WRIL/2:

- reduced dilution capacity;
- habitat loss;
- entrapment/impingement;
- changes in water levels or table;
- change in flow or velocity regime;
- changes in surface water flooding;
- changed water chemistry;
- change in salinity regime; and
- change in freshwater flow to estuary.

### Permit MCA/FPA/1:

- turbidity;
- siltation;
- physical damage;
- habitat loss;
- disturbance;
- changes in water level or table;
- change in flow or velocity regime; and
- changes in surface water flooding.

## 1.6 Permit Details

1.6.1.1 This report provides technical detail specifically regarding impacts on SSSIs, SACs, SPAs and Ramsar sites, for the EA and Land Drainage Board to undertake their duties in relation to the CRoW Act and the Conservation



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of Habitats and Species Regulations 2017 (as amended). The following section provides a brief summary of the permitted activities for each permit application, by way of introduction.

- 1.6.1.2 Permit MCA/FRA/8 is a Flood Risk Activity Permit (FRAP). The purpose of this permit is to establish the MCA construction platform through means of the realignment of the section of Sizewell Drain which runs adjacent to the western boundary of the MCA, and will include the construction of an environmental sheet pile barrier (ESPB) to physically and hydraulically isolate the construction works in the MCA from the adjacent SSSI area. Connection of the realigned Sizewell Drain into the existing Leiston Drain at TM 47038 64437 is also included in this permit. This includes activities within 8m of the Leiston Drain main river as well as certain activities within the main river floodplain during the construction phase of the Sizewell C nuclear new build project.
- 1.6.1.3 Permit MCA/WRIL/2 is a Water Resource Impoundment Licence (WRIL) for the construction of a tilting weir at the new connection between Sizewell Drain and Leiston Drain, and the installation of pipe dams on some of the lateral drains connecting to Sizewell Drain. This is to facilitate control of ditch water levels (and associated shallow groundwater levels) within the SSSI, particularly during low flow conditions. The proposed drain invert level at the tilting weir location will be between -0.60 and -0.90mAOD and the weir crest will nominally be set at 0.45mAOD to maintain the upstream water environment in line with historical monitoring via managing the flows leaving the Sizewell Drain into the Leiston Drain. The operational protocols are defined within the Water Monitoring and Management Plan (WMMP), a copy of which is included within the WRIL supporting information document as Annexure A. This sets out the locations and frequency of monitoring and (in Section 4.2) the triggers for interventions. This will maintain surface water and groundwater conditions upstream within the SSSI in line with pre-development flows and levels. The pipe dams are replacements for existing connections between Sizewell drain and the upstream SSSI compartments and will have similar dimensions to existing structures.
- 1.6.1.4 Permit MCA/FPA/1 is a Fish Pass Approval (FPA) application for the installation on an eel pass on the tilting weir that will be installed under permit MCA/WRIL/2. The intent of this eel pass is to enable the movement of eels between the realigned Sizewell Drain and Leiston Drain, even if the tilting weir is in operation at the time.
- 1.6.1.5 Permit MCA/LDC/5 is a Land Drainage Consent (LDC) for the installation of the tilting weir structure (also covered by MCA/WRIL/2 above), the realignment of Sizewell Drain at the northern and southern sections, including lateral connections.
- 1.6.1.6 Prior to the commencement of the sheet piling works an Unexploded Ordnance (UXO) survey and clearance of any suspect objects will have been completed. All environmental mitigation measures required to have been in place before the start of works will also have been completed.
- 1.6.1.7 For clarity, **Table 1.2** lists the activities covered by each permit application.

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**Table 1.2 List of activities covered by permit applications**

Activity No.	Activity	Temporary/ Permanent?	FRAP	LDC	WRIL	FPA	Notes
2.1	Temporary access tracks and load out areas in SSSI floodplain	T	Y	N	N	N	FRAP required for raised tracks and laydown areas that could affect flood storage or conveyance in a main river floodplain.
2.2	Temporary arising stockpiles in SSSI floodplain associated with environmental sheet pile barrier and permanent realignment construction	T	Y	N	N	N	FRAP required for raised stockpiles that could affect flood storage or conveyance in a main river floodplain.
2.3	Main Construction Area (MCA) ESPB - northern section of N-S pile line	P	Y	N	N	N	FRAP required for raised structure that could affect flood storage or conveyance in a main river floodplain. No LDC or WRIL issues
2.4	Tilting weir including pile wall, weir structure, scour protection, and access	P	Y	Y	Y	Y	LDC required, WRIL required, FPA required. FRAP included as some aspects of the tilting weir may encroach within 8m of Leiston Drain.
2.5	Sizewell Drain permanent realignment - northern section - including lateral connections and infilling of former course/ temporary diversion and permanent access	P	Y	Y	Y	N	LDC required, WRIL required or lateral pipe connections. FRAP only required for downstream connection into Leiston Drain (works within 8m of top of bank of a main river).
2.6	MCA ESPB - W-E pile line to from NW corner to southern abutment	P	Y	N	N	N	FRAP required for raised structure that could affect flood storage or conveyance in a main river floodplain. No LDC or WRIL issues
2.7	MCA ESPB - southern section of N-S pile line	P	Y	N	N	N	FRAP required for raised structure that could affect flood storage or conveyance in a main river floodplain. No LDC or WRIL issues
2.8	Sizewell Drain permanent realignment - southern section - including lateral connections and infilling of former course and permanent access	P	N	Y	Y	N	No FRAP because this is on an ordinary watercourse. LDC required, WRIL required.
2.9	Removal of a wooden footbridge and installation of 2 clear-span	T	Y	N	N	N	FRAP required due to works over and within 8m of top of bank of Leiston Drain main river.

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	footbridges for fencing						
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## 1.7 Programme

- 1.7.1.1 It is anticipated that the proposed works for the ESPB, permanent realignment and associated works outlined in Section 3 of the Supporting Information Document (SID), will commence (approximately) from April 2025, once permits allow. The works are anticipated to be complete by January 2027.

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## 2 TECHNICAL INFORMATION

### 2.1 Permit MCA/FRA/8 and Permit MCA/LDC/5

#### 2.1.1 Overview of the intended operation

2.1.1.1 Permit MCA/LDC/5 concerns the environmental sheet pile barriers, permanent realignment of Sizewell Drain and its connection to Leiston Drain. Permit MCA/FRA/8 is specifically concerned with the connection to Leiston Drain which is Main River. They are discussed together because the Land Drainage Board does not have their own guidance on information requirements to inform their HRA/CROW assessment. It is therefore logical to apply the same requirement heading to the LDC as were provided by the EA for the FRAP.

2.1.1.2 The proposed flood risk activities that will be required as part of the construction works comprise of works within 8m of a main river and activities carried out on the floodplain of a main river, more than 8m from the riverbank with further detail in the table below.

**Table 2.1 Breakdown of flood risk activities in line with proposed construction works**

Flood risk activity type	Activity ID	Construction activity	Temporary or permanent?	Notes
Works within 8m of top of bank of a main river (Leiston Drain)	W01	Connection/tie-in of Sizewell Drain into Leiston Drain, scour protection for the tilting weir*, access structure to the eel pass including a small section of access track.	Permanent	May encroach on banks of Leiston Drain
	W02	Fencing, footbridge crossings, IT&T cable, and silt curtain installation	Temporary	Structures over or within the Leiston Drain
Activities carried out on the floodplain of a main river	W03	MCA environmental sheet pile barrier (ESPB) – northern section of N-S pile line and associated earthworks	Permanent	May reduce floodplain storage and conveyance
	W04	MCA ESPB: W-E pile line to and from the NW corner to southern abutment and associated earthworks	Permanent	May reduce floodplain storage and conveyance
	W05	MCA ESPB: southern section of N-S pile line and associated earthworks	Permanent	May reduce floodplain storage and conveyance
	W06	Access tracks, and load-out areas in SSSI floodplain	Temporary	May reduce floodplain storage and conveyance
	W07	Excavation arising stockpiles in SSSI floodplain	Temporary	May reduce floodplain storage and conveyance

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- 2.1.1.3 Permit MCA/LDC/5 concerns the permanent realignment of Sizewell Drain and infilling of the former course of the drain as well as the installation of a tilting weir within the realigned drain and installation of pipe dams on lateral connections, which are also covered by permit MCA/WRIL/2 detailed later in this document.
- 2.1.1.4 For realignment works construction would be undertaken by amphibious excavator, with the environmental sheet piles being driven by a piling rig mounted on a pontoon working from the temporary canals excavated along the piling alignment.
- 2.1.1.5 The drain would be realigned immediately following construction of the sheet piling. This would better enable construction of a stable bank for the realigned drain closest to the piling to take place.
- 2.1.1.6 Access arrangement for plant will be via one of two load-out platforms. Plant and materials will enter the site from the B1122 via Sizewell Gap and through the existing gate into the power station and then follow the designated site routes and traffic rules for the Main Construction Area (MCA). Access to the proposed Load-out Areas will require crossing the current alignment of Sizewell Drain. Culvert crossings of the Sizewell Drain have already been consented or are the subject of an amendment to a currently pending application (SZC Ltd. Ref. MCA/LDC/1).
- 2.1.1.7 Construction access, and therefore any associated compaction of the underlying peat and any further temporary works, would be focused on the inner (east) bank to protect the Sizewell Marshes SSSI.
- 2.1.1.8 A staged construction approach will be adopted for the installation of the environmental sheet pile barrier and the realigned drain. In overview, the works comprise the following elements:
- A temporary canal will be excavated
  - Removal of an existing wooden footbridge
  - Installation of temporary fencing and 2 temporary clear-span footbridges
  - Installation of the environmental sheet pile barrier in stages from a pontoon in the canal
  - Installation of the tilting weir and access walkway foundation sheet piles from the canal (this will primarily be consented through the MCA/LDC/5 and MCA/WRIL/2 applications)
  - Excavation of the permanent drain realignment plus infilling redundant channels (phase 1 and then phase 2), to be consented by the East Suffolk Water Management Board (ESWMB) up until 8m from the connection of Leiston Drain (MCA/LDC/5)
  - Completion of pipe dams in connecting channels, to be consented by the ESWMB (MCA/LDC/5) and the EA (MCA/WRIL/2)
  - Infilling of the temporary canal to form the maintenance access track
  - Installation of the tilting weir and associated eel pass (this will primarily be consented through the MCA/LDC/5 and MCA/WRIL/2 applications)
  - Installation of the access walkway and eel pass access structure
- 2.1.1.9 Details of the sheet piling including cross sections and height above the crest of the bank are contained within Section 3.3 of the Appendix B Supporting Information Document for permit MCA/FRA/8 [4].
- 2.1.1.10 To enable the construction of the water control structure (adjustable tilting weir, covered in MCA/LDC/5 and MCA/WRIL/2 – a separate application discussed below) on the realigned ditch, the temporary canal that will be created along the western edge of the MCA for installation of the environmental sheet pile barrier will be extended north. This will enable construction of the sheet piles needed to support the water control structure (tilting weir). The canal would run along the alignment of the proposed new maintenance track for the ditch in this section. On completion of the water control structure, the canal would be backfilled with Type 6A underwater fill or similar and capped in Type 6F3 or similar, to create the maintenance access track slightly above existing ground level in the area. The rest of the canal void, east of the track, is likely to be backfilled with suitable arisings from the SSSI or similar to restore the land. The temporary canal will be

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approximately 20m across the top, 11m across the bottom, and around 2m deep with side slopes of 1:3, which is sufficient to take the proposed piling pontoon and fully laden supply barges.

- 2.1.1.11 The route for the realigned drain runs through a large area of open water in the northern section. To minimise impact on the SSSI, a ditch will not be formed through this open water, as this would necessitate the import and placement of significant volumes of fill to create the banks/bed. Instead, the new ditch will tie into the open water area and re-emerge to the north to establish the connection into Leiston Drain. Where the sheet piled environmental barrier runs through this open water area, imported Type 6A underwater fill or similar will be used to form a small wedge behind the sheet pile on the SSSI side of the barrier. This will be necessary to assist in maintaining the position and integrity of the sheet piles when the maintenance track is used.
- 2.1.1.12 Upon completion of the permanent connection of the northern section of the realigned Sizewell Drain to Leiston Drain, the temporary bypass channel (for which consent has been sought from ESWMB via MCA/LDC/1) would be infilled using suitable arisings from the SSSI or similar. However, it has been agreed with the EA that no infilling will take place within 8m of top of bank of Leiston Drain. Instead a backwater feature will be left in situ which will increase morphological diversity along the Leiston Drain.
- 2.1.1.13 Filling in of the existing diagonal section of Sizewell Drain will be undertaken once the northern part of the realignment is complete. The filled section would then be incorporated into the MCA platform.
- 2.1.1.14 Realignment of the southern section of the Sizewell Drain, along the western edge of the MCA south of the SSSI triangle, will combine the existing multiple channels into one new north-south channel to the west of the environmental sheet pile barrier. Some limited import of material, such as Type 6A underwater fill or similar will be used to construct the pipe dams (explained further in Section 3.6 of the Supporting Information Document) between the realigned ditch and the various existing SSSI ditches intercepted by the new drain.

### 2.1.2 Location details

- 2.1.2.1 The National Grid References (NGR) of permanent drain realignment are southern end: TM 47013 63702; and northern end: TM 47017 64433. The NGRs of environmental sheet pile barrier are northwest corner: TM 47007 64368, eastern end: TM 47306 64439, and southern end: TM 47039 63731.
- 2.1.2.2 The new confluence of the realigned Sizewell Drain with Leiston Drain will be located at TM 47017 64433. **Figure 1** and **Figure 2** below show the works in context.

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Figure 1. Approximate location of the ESPB and permanent Sizewell Drain realignment in relation to Leiston Drain and surrounding SSSIs

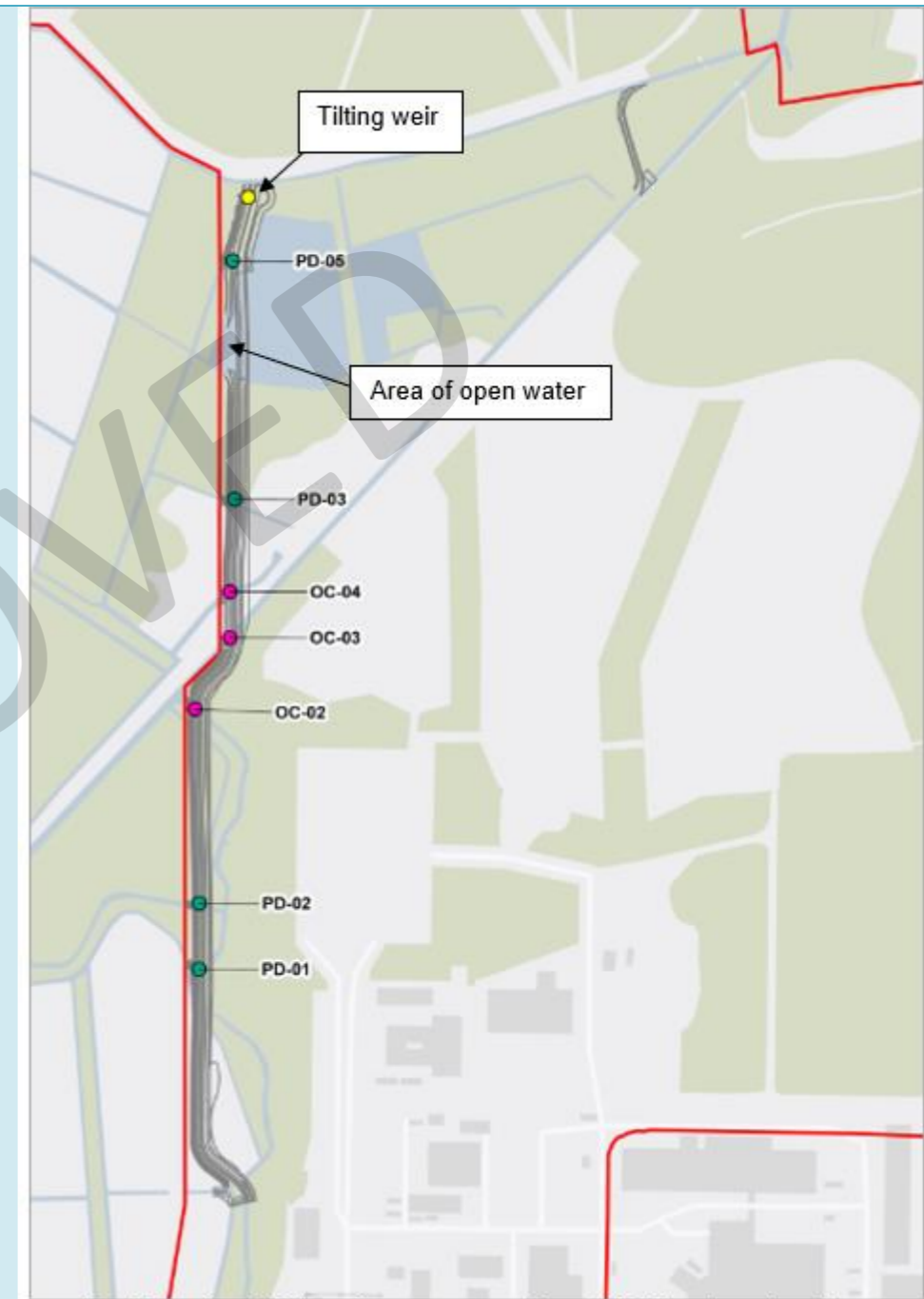


Figure 2. Proposed new drain alignment with locations of proposed pipe dams and open connections

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### 2.1.3 Details of modelling undertaken and the results/outcome of said modelling

2.1.3.1 Hydraulic modelling was used to assess the flood risk impacts of the proposed SZC Main Development Site (MDS) development as a whole. This was reported in the MDS Flood Risk Assessment (FRA) Addendum [5] that was produced in response to design changes proposed during the DCO Examination. The hydraulic modelling included the permanent realignment of the Sizewell Drain, representation of the SSSI Crossing, the building out of the MCA embankment into the 'SSSI Triangle', and the incorporation of additional flood storage into the Marsh Harrier Compensation Habitat area (as reported in [Section 3.2](#) of the MDS FRA Addendum [5]). The flood modelling results as reported in [Table 3.1](#) of the FRA Addendum [5] demonstrated minimal changes in peak flood level that did not have a significant impact on flood risk within the SSSI or to off-site receptors. The maximum increase in flood levels as a result of the scheme is up to 0.01m in the vicinity of the SSSI Crossing and there was no significant change in flood velocity or hazard rating when compared to the baseline scenario (as reported in Section 3.3 [Table 3.1](#) of the MDS FRA Addendum [5]). On the basis of the modelling presented in the MDS FRA addendum, the EA indicated in its final Statement of Common Ground (SoCG) that it was content that flood risks to and resulting from the proposed development were adequately controlled for the proposed lifetime of the development (See [Table 2.7](#), entry references MDS\_FRA1 to MDS\_FRA12 in [6]).

2.1.3.2 As highlighted in the Sizewell Marshes Hydrological Modelling note [appended to this report as Appendix A.4], in support of the DCO a numerical model was developed to represent the groundwater and surface water regime in the area of the SZC development. The area covered by the model domain is approximately 60 km<sup>2</sup>. The numerical model was based on a robust conceptual understanding of the groundwater and surface water flow regimes based on extensive ground investigation and monitoring data. The SZC model was developed to allow appropriate interface with the Environment Agency's regional model (the NEAC model). This meant that suitable boundary conditions could be determined, and model predictions validated against the NEAC model, particularly within the Sizewell Marshes SSSI. Within the domain of the SZC model the grid was refined around areas of interest to allow greater resolution in assessing change. In the Sizewell Marshes SSSI grid cells reduce to be less than 1m in scale. The model includes a coupled representation of groundwater and surface water in the Sizewell Marshes SSSI, which allows change in the interaction between groundwater and surface water to be assessed at each timestep in the model runs. This modelling includes work to be undertaken within permit MCA/FRA/8, but since it concerns Sizewell Drain itself rather than Leiston Drain it is most pertinent to permits MCA/LDC/5 and MCA/WRIL/2, which cover the majority of the drain realignment and the installation of the tilting weir and pipe dams in the realigned stretch of Sizewell Drain.

2.1.3.3 The numerical model was calibrated against real world monitoring data to demonstrate that there is a high degree of correlation between the model behaviour and observed groundwater and surface water responses. Once the baseline model had been developed and validated against real world data as being suitably representative a series of model runs were undertaken to allow the change associated with individual aspects of the SZC project to be assessed.

2.1.3.4 During the DCO Examination period the Environment Agency set out in their SoCG [6] (see [Table 2.2](#)) that:

- The SZC numerical model was an appropriate tool to use in assessing change resulting from the construction and operation of SZC (MDS\_GW1)
- The groundwater conceptualisation on which the numerical model was based is appropriate (MDS\_GW2)
- The surface water conceptualisation on which the numerical model was based is appropriate (MDS\_GW3)
- The assessment of predicted impacts is appropriate (MDS\_GW6)



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- The proposed WMMP (which includes the control structure on the realigned stretch of Sizewell Drain) is appropriate (MDS\_GW8)
- The proposed terrestrial ecology impacts and mitigations is appropriate.

2.1.3.5 [Table 19.15](#) of the Environmental Statement (ES) chapter [7] indicates that during construction the realignment of the drain would have a minor adverse residual effect, as defined in [Table 19.2 – 19.4 of that document](#), that was not significant. [Table 19.17](#) of the ES chapter indicates the same for the operational phase of the development. This aligns with the Examining Authority's Recommendation Report in [para. 5.11.76](#) that the effect of realignment activity would not be significant.

2.1.3.6 The Draft WMMP outlined existing monitoring efforts, consisting of 86 borehole locations to monitor groundwater, Velocity and stage monitoring at 7 locations to monitor surface water and a weather station to monitor rainfall. This plan also sets out further monitoring locations as detailed in [plate and table 6.1](#). This draft was agreed with the EA in the SoCG (MDS\_GW8).

2.1.3.7 Subsequent to the DCO monitoring of water levels and flows within the Sizewell Marshes has continued. During the recent revision of the WMMP which constitutes Annexure A of the WRIL technical note, more recent (post-DCO) monitoring data was compared to that used during the DCO assessments. This comparison showed that the characterisation of baseline conditions in the Sizewell Marshes SSSI established prior to the DCO remains valid, with no significant deviation in monitoring data. This is set out in [para. 4.2.11](#) of the WMMP recently approved to discharge Requirement 11 of the DCO [8].

2.1.3.8 In line with the results of this modelling, the Sizewell Drain realignment has been engineered to maintain a surface water level that will prevent alteration of the groundwater flow regime. This includes the installation of the tilting weir at the downstream end of the realigned drain, plus pipe dams at some of the connections from feeder drains along the realigned drain to manage ditch and groundwater levels. These pipe dams are covered by applications MCA/LDC/5 and MCA/WRIL/2.

### 2.1.4 Details of assessment undertaken in regard to noise or visual disturbance

2.1.4.1 Noise modelling was undertaken for all Phases of the SZC project to inform the ES for the Sizewell C DCO. This included specific modelling for Phase 1 of construction of the development. This included the realignment of Sizewell Drain but also include all other Phase 1 construction works across the Temporary Construction Area (TCA) and MCA including construction of the SSSI crossing, installation of fencing and general site clearance, demolition of above and below ground structures and buildings and diversion of existing utilities, erection of contractor compounds and office accommodation, and storage and materials processing/handling areas. As such, the results may exaggerate the effect from the drain realignment works alone.

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- 2.1.4.2 The best summary of the noise and visual disturbance assessment is in [paragraphs 14.12.59 to 14.12.151](#) of the ES chapter [9] with the Minsmere-Walberswick SPA in [paragraphs 14.12.76 to 14.12.100](#), and Minsmere to Walberswick Heaths and Marshes SSSI in [paragraphs 14.12.116 to 14.12.120](#). For each designation, each qualifying bird interest features is discussed in turn. The DCO HRA [10] also discusses construction period noise and visual impacts on Minsmere-Walberswick SPA in paragraphs [8.8.100 to 8.8.103](#) (breeding avocet), [8.8.131 to 8.8.134](#) (breeding bittern), [8.8.216 to 8.8.260](#) (breeding marsh harrier), [8.8.304 to 8.8.306](#) (breeding little tern), [8.8.357 to 8.8.364](#) (breeding gadwall), [8.8.381 to 8.8.388](#) (breeding shoveler), [8.8.404 to 8.8.408](#) (breeding teal), [8.8.424 to 8.8.426](#) (breeding nightjar), [8.8.445 to 8.8.449](#) (non-breeding hen harrier), [8.8.488 to 8.8.492](#) (non-breeding gadwall), [8.8.523 to 8.8.527](#) (non-breeding shoveler), and [8.8.540 to 8.8.547](#) (non-breeding white fronted goose). [Section 8.9](#) of the HRA report provides the same analysis for the Ramsar site. Functional linkage is considered (for example the role of the Minsmere South Levels in supporting the avocet population of the Minsmere-Walberwick SPA). In summary, the conclusion in that analysis is that no adverse effect will arise due to either (or a combination of) distance (such that locations are beyond the extent of predicted noise and visual disturbance), evidence from survey that suggests use of the affected areas is absent or limited, or limited susceptibility of the bird species in question to disturbance.
- 2.1.4.3 For Minsmere-Walberswick SPA and Ramsar site, the exception is breeding marsh harrier where the ES concludes that given the temporary but long-term duration (approximately 9-12 years) nature of the construction period, the potential loss of approximately 20% of foraging resource within 4km of Minsmere could conceivably affect the overall breeding productivity ([paragraph 14.12.90](#) of the Ecology ES chapter for DCO [9]). [Paragraphs 8.8.244 to 8.8.246](#) of the shadow HRA [10] concluded that noise and visual disturbance associated with construction of the MDS could result in the displacement of marsh harriers from functionally linked foraging habitat in the Sizewell Marshes and, to a lesser extent, the Minsmere South Levels. In other words, there was concluded to be a temporary noise and visual disturbance barrier preventing marsh harrier accessing some of the foraging area to the south of the SPA/Ramsar.
- 2.1.4.4 On the basis of a number of highly precautionary assumptions, such displacement was considered to have the potential to lead to an adverse effect on the SPA marsh harrier population, with this being addressed through the creation of 48.7ha of compensatory foraging habitat on former arable land within the EDF Sizewell estate to the north of the main development site, adjacent to the SPA. This compensatory habitat includes both terrestrial and wetland components. The terrestrial habitat creation has already been completed and is described in SZC On-site Marsh Harrier Compensatory Habitat Strategy [11].
- 2.1.4.5 For Sizewell Marshes SSSI, [paragraphs 14.12.121 to 14.12.123](#) of the ecology ES chapter [9] conclude that as more than 50% of the Sizewell Marshes SSSI would be directly affected, a large proportion of birds using Sizewell Marshes SSSI for breeding and foraging could potentially be affected by adverse noise impacts. However, they also document how boundary features and bunds are included within the construction masterplan to minimise noise, lighting and visual disturbance to adjacent designated sites or valuable habitats.
- 2.1.4.6 In relation to visual impacts, measures set out within the Lighting Management Plan for Construction and Operational Sites would ensure minimal light-spill onto the adjacent habitats in vicinity of the works associated with the SSSI crossing. [Paragraph 14.13.134](#) of the ecology ES chapter [9] states that at key commuting and foraging areas for bats, the light levels can be controlled to below 1lux. Moreover, [paragraph 14.12.124](#) sets out that replacement habitat has already been created at Aldhurst Farm, primarily to compensate for the anticipated losses of these habitats from the SSSI associated with the SSSI Crossing and the western edge of the new SZC platform (which is linked to this permit as the Sizewell Drain Realignment is to facilitate the expansion of the platform). This new habitat already supports a number of the relevant bird species, and this would compensate to some extent for the potential disturbance effects on Sizewell Marshes SSSI and any related displacement associated with the construction phase.

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### 2.1.5 Details/assessment of prevailing environmental conditions

- 2.1.5.1 During the DCO Examination a note was produced [12] that sets out the water balance in the Sizewell Marshes. [Paras. 1.4.14-15](#) of this note state that (in summary) the majority of the surface water levels and flows within the Sizewell Marshes are comparable between baseline and development model runs through the year. The exception is in the Sizewell Drain at the downstream end of the Sizewell Marshes. Here, there is a small increase in the maximum predicted flow rate, and the frequency at which it occurs. This is associated with the realigned Sizewell Drain. There is little or no change predicted in the Leiston Drain, downstream of the SSSI.
- 2.1.5.2 The assessment made during the DCO was based on data and evidence collected prior to submission of the DCO and supporting documentation. This included the draft WMMP. This draft was agreed with the EA in the SoCG [6] (MDS\_GW8).
- 2.1.5.3 Subsequent to the DCO monitoring of water levels and flows within the Sizewell Marshes has continued. During the recent revision of the WMMP [8], also included as Annexure A of the WRIL supporting information document) more recent (post-DCO) monitoring data was compared to that used during the DCO assessments. This comparison showed that the characterisation of baseline conditions in the Sizewell Marshes SSSI established prior to the DCO remains valid, with no significant deviation in monitoring data. This is set out in [para. 4.2.11](#) of the WMMP recently approved to discharge Requirement 11 of the DCO.

### 2.1.6 Details of any mitigation

- 2.1.6.1 Measures are being implemented to address the impacts of the overall project (i.e. the SZC DCO). Specifically of note, replacement reedbed and ditch habitat have already been implemented at Aldhurst Farm, adjacent to the western edge of Sizewell Marshes SSSI to compensate for the loss of the SSSI due to the DCO. In a letter dated 16 February 2015, Natural England (NE) indicated that they were confident that the [then proposed] wetland habitat creation at Aldhurst Farm would provide satisfactory compensation in quality and quantity for the permanent loss at Sizewell Marshes SSSI.
- 2.1.6.2 No measures are specifically being included in this permit package to protect SACs or SPAs. Beyond what is being done to address impacts on the SSSI itself from the DCO (such as addressing habitat loss as described above) the following mitigation measures are included in these permits to minimise impacts on the Sizewell Marshes SSSI:
- The route for the realigned drain runs through a large area of open water in the northern section. Rather than bringing in fill to construct the banks/bed of the drain channel through this area in keeping with the channel cross section along Sizewell Drain, to minimise impact on the SSSI, the new ditch will tie into the open water area and re-emerge to the north to establish the connection into Leiston Drain.
  - For the purpose of providing protection to the SSSI during construction, the environmental sheet piles will be embedded 5m into the Crag Formation, which is beyond the embedment of the ground improvement works. This will prevent any physical impingement of material from the construction works in the MCA into the SSSI and minimise the impact of dewatering within the MCA on groundwater levels in the SSSI.
  - It is intended that an erosion control system shall be provided along the slopes of the drain quickly after excavation to both protect the slope surfaces and provide some help with the initial stability. This will be CoirMesh or similar approved. Biodegradable pins will be installed at a spacing of 2.5 pins per square metre.
  - The erosion protection shall be in tandem with translocation of vegetation where possible to try and encourage the rapid establishment of species already present within the drainage network. Invasive vegetation will be removed prior to any translocation.

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- A length of scour protection is required over a 5m length of the channel bed downstream of the adjustable tilting weir. This will be installed at chainage 749.61. A Salix rock mattress made of 3mm synthetic polyethylene braided knotted nets, or similar product, will be utilised for this purpose. The energy of water going over the weir will be relatively low as the weir will be operational during periods of low flow. However, as the downstream channel is formed from soft material, to prevent any impact from erosion, scour protection has been included.
- The tilting weir and lateral pipe dams may themselves be viewed as mitigation in that they provide additional control on ditch water levels during low flows, in order to support shallow groundwater levels in the SSSI.
- Many construction phase control measures are being implemented during construction including measures to manage flood risk, ensure sediment control and avoid runoff, prevent pollution and minimise impact from waste and materials. This is in addition to ecological control measures including a requirement for a biosecurity protocol for contractors and the removal of Nuttall's Waterweed which is known to be present within the works area. These measures are detailed in section 7 of the Appendix B Supporting Information Document for permit MCA/FRA/8 [4].

### 2.2 Permit MCA/WRIL/2 and MCA/FPA/1

2.2.1.1 Permit MCA/WRIL/2 and MCA/FPA/1 are being considered together here as the eel pass covered by MCA/FPA/1 is to be installed on the tilting weir covered by permit MCA/WRIL/2. Given details of any fish pass are specifically requested with regard to the water resource impoundment licence, it was seen fit to assess these permits together.

#### 2.2.2 Ground and Surface Water Modelling

2.2.2.1 Ground and Surface water modelling has been conducted for the entire development, including the activities covered within this permit, along with the SSSI Crossing and the Main Platform construction. This is discussed in section 2.1.3 of this report.

2.2.2.2 As highlighted in the Sizewell Marshes Hydrological Modelling note [appended to this report as Appendix A.4], a numerical model to represent the groundwater and surface water regime was prepared, covering approximately 60 km<sup>2</sup>. This model was agreed as an appropriate tool to use in assessing change resulting from the construction and operation of SZC by the EA in their SoCG [6]. In this statement it was also agreed that the assessment of predicted impacts and the proposed WMMP [8] (which includes the control structure on the realigned stretch of Sizewell Drain) are appropriate.

2.2.2.3 Details of the modelling undertaken, and the results, were submitted as part of the DCO package [Appendix 19A Groundwater and surface water : Numerical Modelling Report](#). The appendices to this report are included as [APP-299](#), [APP-300](#), [APP-301](#), [APP-302](#) and [APP-303](#) in the DCO [Examination Library](#). [Sections 1.4](#) and [1.5](#) of [12] discuss and link to the model results relating to the change in the SSSI from realignment of the Sizewell Drain.

#### 2.2.3 Impoundment Details

2.2.3.1 This permit covers the installation of a tilting weir at the downstream end of the realigned Sizewell Drain and four pipe dams on some of the lateral drains connecting into the realigned drain.

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- 2.2.3.2 These pipe dams serve to replace existing pipe dam connections on the current alignment, in order to ensure continuity of connection following realignment. The pipe dams will include a 200mm diameter twin walled non-perforated plastic pipe, with a bend at the upstream end which may be raised or lowered to adjust the flow of water. The level of the collar on the vertical portion of the pipe will be adjusted by observation during installation to ensure that the hydraulic function is comparable with the current structure. There is no intention for regular intervention to adjust levels. While future changes to collar level may occur, this would be in line with the wider management practice across the SSSI in response to changing conditions more widely rather than a change specific to the drain realignment.
- 2.2.3.3 The tilting weir is to be installed just upstream of the confluence of the realigned stretch of Sizewell Drain and Leiston Drain. This weir will be 1.5 metres in width, with the top of the weir located 100mm below the ditch top and an operational range down to 300mm above the ditch bottom. The weir frame will be stainless steel and will be bolted onto the sheet piles. The proposed drain invert level where the tilting weir is located is between -060m AOD and -0.90m AOD. Weir plate and quadrants will be HDPE. The eel pass shall be a minimum of 250mm in width and 750mm in length, with a slope of 40% or 21.8 degrees, attached to the tilting weir plate and be constructed of aluminium and HDPE. It shall contain sufficient bristles to allow eels to climb and the free end shall include a float to allow the entrance to remain at the downstream water level. The tilting plate connection shall allow a flow of water down the eel pass at all weir levels.
- 2.2.3.4 A length of scour protection is required over a 5m length of the channel bed downstream of the adjustable tilting weir. This will be installed at chainage 749.61. A Salix rock mattress made of 3mm synthetic polyethylene braided knotted nets, or similar product, will be utilised for this purpose.
- 2.2.3.5 The maintenance access route for the weir and realigned drain will be of a width of 5m. The track surface level will be at 0.7m AOD and will consist of Class 6A fill with a layer of geogrid or geotextile where extra support is required. The final track surfacing shall be formed using a compacted layer of Class 6F3 fill. To access the eel pass for maintenance, provision has been made for the construction of an access walkway across the drain and a set of access steps down the eastern bank of the realigned drain as shown in **Figure 3**.
- 2.2.3.6 This impoundment structure can be used to restrict the outflow of water from Sizewell drain and can therefore be used to maintain the water level present within Sizewell Marshes SSSI. It is not anticipated that this impoundment structure will be used outside of periods of low flow, which typically only occur towards the end of summer. The impoundment is shown schematically in **Figure 3** below and a plan of its location is in **Figure 4**.

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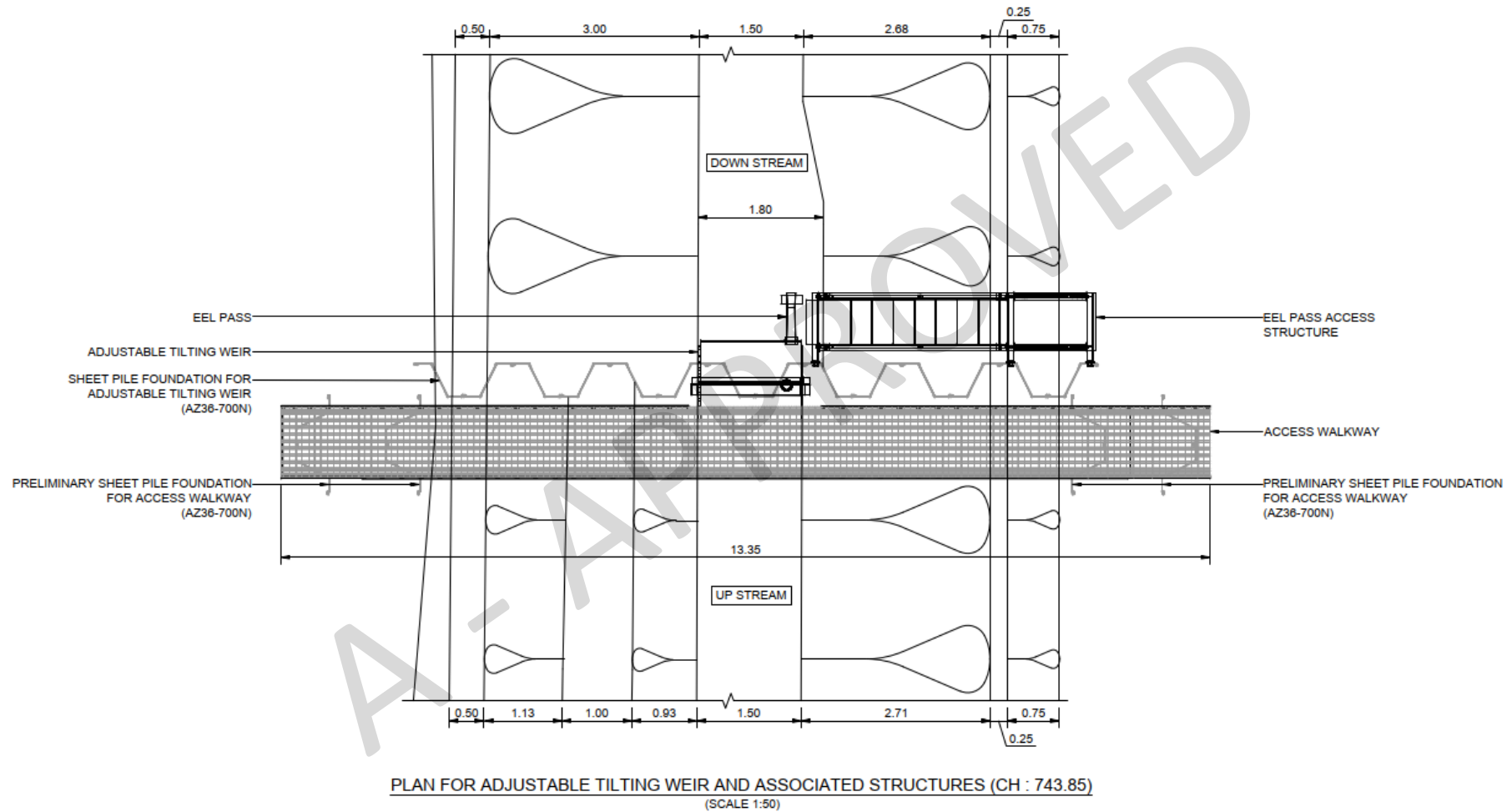


Figure 3: Plan for tilting weir. Extract from SZC-EW0413-ATK-XX-HSZ-XXXXXX-DRW-CIV-000006

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### 2.2.4 Details of Intended Operation of Impoundment Structure

- 2.2.4.1 The realigned channel of the Sizewell Drain is straighter and shorter than the current alignment. While the DCO assessment didn't identify any unacceptable change associated with the realignment there is a commitment under the WMMP to install a control structure at the downstream end of the channel to allow flows to be controlled and prevent water levels in the SSSI dropping below baseline recorded levels. This will allow for any unforeseen changes resulting in reduced water levels in the SSSI to be addressed, as well as improving overall resilience to changing climatic conditions.
- 2.2.4.2 In order to prevent more rapid conveyance of water out of the SSSI a tilting weir will be installed in the realigned Sizewell Drain at the new connection into the Leiston Drain. The tilting weir will be set to manage flows leaving the Sizewell Drain into the Leiston Drain to maintain the upstream water environment in line with historical monitoring at the existing connection. This will maintain surface water conditions upstream within the SSSI in line with pre-development flows and levels. The historical monitoring is summarised in the WMMP [8], which forms Annexure A of the WRIL supporting information document. The historical groundwater monitoring results are discussed in [Section 6.33](#) of the Groundwater Conceptual Model Report [13]. A summary of the interpretation of the monitoring in terms of the hydraulic functioning of the SSSI is presented in a [Technical Note](#) submitted during the DCO hearings [12].
- 2.2.4.3 The tilting weir serves the purpose of maintaining water levels upstream, in line with the baseline conditions; therefore, it is not possible to change the downstream flows as long as the weir is operated in line with the WMMP. The straightening of the channel and the new connection point into the Leiston Drain creates a shorter and more direct route into Leiston Drain which means water may drain more freely without the presence of the tilting weir to moderate discharge during periods of low flow. While the risk of lowering water levels within the SSSI is not considered significant, in order to fine tune flows and retain water within the SSSI in line with current conditions, the use of a control structure allows the current rate of water leaving the SSSI during periods of low flow to be maintained. During periods of normal and high flows the discharge to the Leiston Drain are controlled by the receiving watercourse, which becomes tide-locked twice daily. In terms of impact during periods of low flow, the mechanism of impact downstream would be a reduction in flows. The weir is incorporated into the design to prevent a slight increase in conveyance of water out of Sizewell Marshes resulting from the drain realignment, as set out in the WMMP, and therefore the effect of the weir will be to return flows to be in line with the original alignment of Sizewell Drain.
- 2.2.4.4 Four pipe dams will be installed on the lateral drains connecting to the realigned stretch of Sizewell Drain. These serve to replace existing pipe dam connections to the existing alignment. The effect of the new connections on water levels upgradient will be monitored and the level of the pipe dam collars adjusted as necessary to maintain a suitable hydraulic connection. This will be done by observation during construction and review of monitoring data.
- 2.2.4.5 Monitoring of water levels within Sizewell Marshes SSSI will be conducted in line with the with the WMMP, that was adopted on 9<sup>th</sup> April 2024 and is included in Annexure A of the WRIL supporting information document. The WMMP defines the normal conditions beyond which conditions would be considered extremely low. This document also sets out (in section 4.2) the specific triggers for intervention. There are triggers for each month. They have the following characteristics:
- The fen meadow community (M22) has exacting water management requirements
  - Seasonal changes in water level requirements throughout the year mean that defined triggers for each month are needed for the peat piezometers within Sizewell Marshes
  - Between November and March the maximum water levels can be less than 0.15m below ground level. Minimum levels are defined by the 70<sup>th</sup> centile water level from the baseline monitoring

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- Between April and October the upper and lower triggers are defined for each month, with an upper threshold defined by 30<sup>th</sup> centile values recorded from the baseline monitoring and a lower threshold defined by the 70<sup>th</sup> centile values.

### 2.2.5 Maps and Drawings

2.2.5.1 The tilting weir is to be installed just upstream of the confluence of the realigned Sizewell Drain and Leiston Drain. This will be approximately TM 47015 64423.

2.2.5.2 The pipe dams will be installed at the confluences of existing lateral drains to the realigned stretch of Sizewell Drain as shown in **Figure 4** overleaf.

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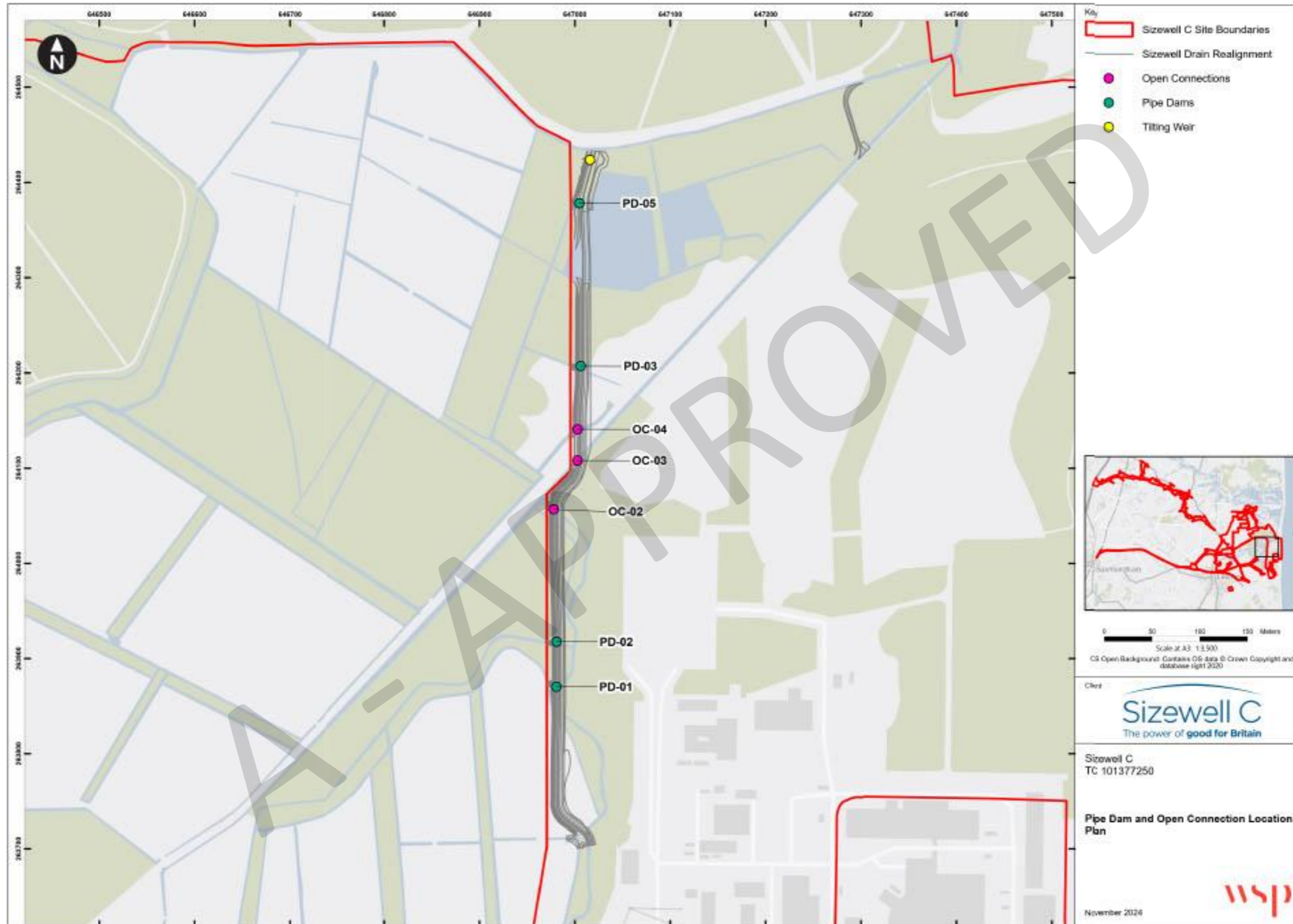


Figure 4. Proposed new drain alignment showing the location of lateral drain connections and pipe dams

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2.2.5.3 The realigned stretch of Sizewell Drain runs from TM 47013 63702 to TM 47017 64433, with the new connection point with Leiston Drain located at TM 47017 64433.

2.2.6 Fish Pass Detail

2.2.6.1 An eel pass is to be installed on the tilting weir as shown below. This pass is to be maintained in good working condition. This installation of this eel pass is covered by permit MCA/FPA/1.

2.2.6.2 The eel pass shall be a minimum of 250mm in width, 750mm in length with a slope of 40%, attached to the weir tilting weir plate and be constructed of aluminium and HDPE. It shall contain sufficient bristles to allow the eels to climb and the free end shall include a float to allow the entrance to remain at the downstream water level. An appropriate proprietary product will be selected to ensure that the tilting plate connection shall allow a flow of water down the eel pass at all weir levels. The eel pass is to be mounted such that it has a pivot connection at the weir crest and a float on the downstream side. This means that water passing over the weir crest at the location of the eel pass will flow down the top surface of the structure maintaining a wet surface. It is shown in **Figure 5** below.

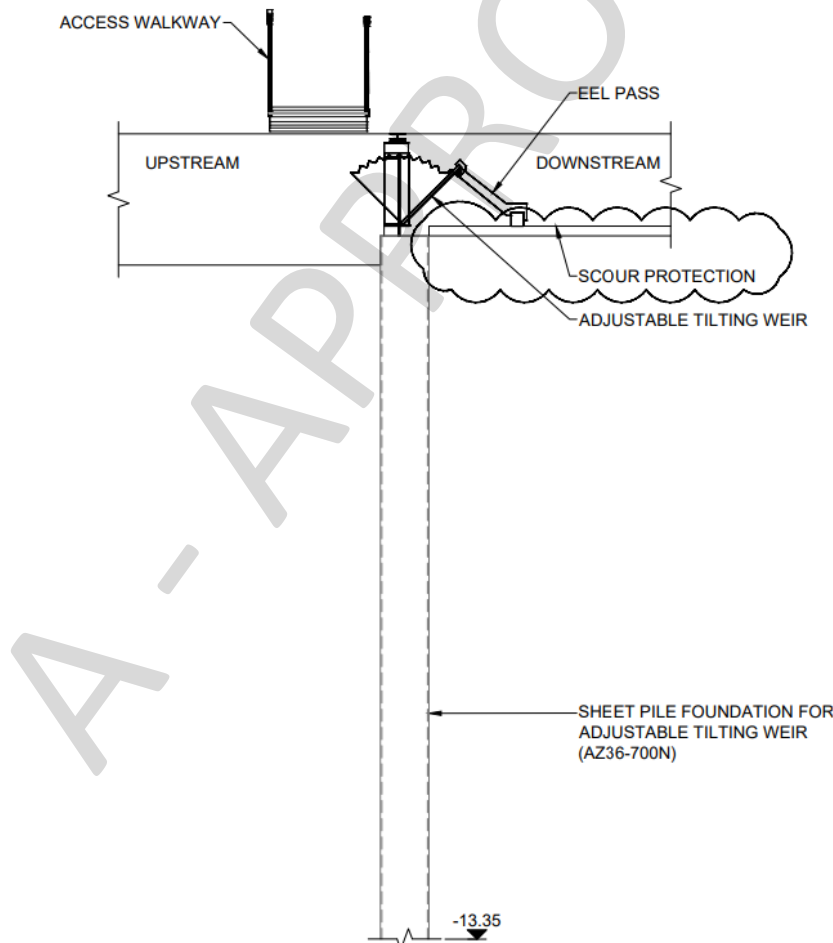


Figure 5. Proposed eel pass as part of the tilting weir (extract from SZC-EW0413-ATK-XX-HSZ-XXXXXX-DRW-CIV-000006)

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2.2.6.3 There should always be some flow over the weir. At low flows the water levels on the upstream side will equilibrate with the crest of the weir and flow over the top of the structure maintaining a wet surface on the eel pass. There will never be a situation where water levels on the upstream side fall below the weir crest as the structure is intended to retard the rate of discharge from the realigned drain, not to impound water and retain it wholly upstream. When the weir is submerged there will not be any need for the eel pass to provide a route for eel passage as there will be direct access through open water above the weir crest. Monitoring and maintenance of this eel pass has been planned for the lifetime of the tilting weir, with monthly visual inspections, maintenance and monitoring of a trail cam for the first operational season and regular inspections of the tilting pass mechanism with ongoing fish surveys in line with the Terrestrial Ecology Monitoring and Mitigation Plan [16].

2.2.6.4 The fish rescue required for the realignment of the Sizewell Drain will be carried out in accordance with the approved Code of Construction Practice (CoCP) '[Appendix A: Freshwater Fish and Aquatic Invertebrates Mitigation Strategy](#)' [14] as modified and consented. The eel pass will be maintained and monitored in accordance with the Eel Pass Monitoring and Maintenance Plan which is Appendix B of the eel pass permit application package.

### 2.2.7 Non-native Invasive Species Survey

2.2.7.1 Non-native invasive species surveys were undertaken in February-March 2022, with a desk study of the area conducted in October 2021 and extended in May and October 2022. Invasive plants have been recorded within the Sizewell Marshes SSSI. Nuttall's Waterweed has been recorded scattered throughout the Sizewell Drain within the area of the SSSI located within the MDS boundary and therefore will likely be present where the control structure and pipe dams are to be installed.

2.2.7.2 Assent to remove these plants as part of the vegetation clearance of the area has been provided by NE through their acceptance of the DCO for the SZC Project subject to the discharge of DCO Condition Requirements 25 and 26, so it is not necessary to seek a separate Assent for this work to go ahead.

2.2.7.3 As part of standard good site practice and management, the [CoCP](#) [15] requires a biosecurity risk assessment to be undertaken and a management plan to be implemented to avoid potentially facilitating the spread of Invasive Non-Native Species (INNS) ([paragraph 14.4.16](#) of [9]). The CoCP is secured through Requirement 2 of Schedule 2 of the DCO. The Environmental Risk Assessment within the application Supporting Information Document (Section 7.6, FRAP & LDC only) sets out that biosecurity protocols will be implemented in the CEMP for these works. [Paragraph 5.1.4](#) of the Freshwater Fish and Aquatic Invertebrates Mitigation Strategy [14] identifies that if invasive species are identified, work will not be undertaken prior to their removal and disposal.

### 2.2.8 Protected Species Surveys

2.2.8.1 A range of protected species surveys have been conducted to inform the DCO for the development of the entire site. Bat surveys found a total of 28 confirmed tree roosts over the zone of influence for the entire Sizewell C project. Four species of native UK reptiles were recorded during reptile surveys of the site, adder (*Vipera berus*), common lizard (*Zootoca vivipara*), grass snake (*Natrix helvetica helvetica*) and slow-worm (*Anguis fragilis*). Dormouse surveys on site found no evidence of hazel dormouse. Amphibian surveys of the site found no-indication that Great Crested Newts are present on the site. One protected species of invertebrate, Norfolk hawkler (*Anaciaeschna isosceles*), was identified during the invertebrate surveys. Protected species surveys for otters, badgers and water vole have also been conducted. Some of these are

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ongoing for monitoring purposes, although they are not directly relevant to SSSI interest features, notably monitoring of bat populations, and water vole populations.

2.2.8.2 On going surveys to monitor the fish population within Sizewell and Leiston Drain after development are planned. These will be delivered in accordance with the 'Sizewell C Project – Terrestrial Ecology Monitoring and Mitigation Plan [16] ([Table 4.2](#): Fish Monitoring Construction and Operation)' in Year 4, Year 8, Year 12 and Year 17. It is anticipated electric fishing may be employed; however, the approved monitoring plan states '*The precise scope and detail of the monitoring must be submitted to the EWG for approval*' before any monitoring is undertaken.

2.2.8.3 The approved Monitoring and Mitigation Plan states '*In the event of the target not being met, a review of the conditions and survey monitoring must be carried out to determine the need for additional mitigation measures such as local improvements to channels. These measures must be discussed and agreed with the Environment Review Group and then implemented. Identify any potential barriers to movement within the Leiston Drain catchment*'.

### 2.2.9 Estimation of any Habitat Loss

2.2.9.1 Including the length of the realigned section of Sizewell drain, there will be an anticipated loss of SSSI habitat. This loss is primarily fen meadow, but also reedbed. This habitat loss has been factored into the habitat creation plans for the site at the DCO Stage. The loss of fen meadow has also been recognised as a result of the realignment of Sizewell Drain and compensation for the loss (such as wet woodland provision) is being planned at Benhall, Halesworth and Pakenham,

2.2.9.2 The control structures on the lateral drains will consist of small pipe dams. Due to the low level of maintenance required for this, no permanent access route to these structures is planned and so habitat loss will be minimised.

2.2.9.3 Any habitat loss arising from this permit has already been factored into habitat creation plans under the DCO. These plans include creation of replacement reedbed and ditch habitat implemented at Aldhurst Farm, and a fen meadow plan and wet woodland plan, which would create new, permanent fen meadow to compensate for the loss of fen meadow habitats through construction activities to establish the main platform.

### 2.2.10 Hydrological impact assessment

2.2.10.1 Hydraulic modelling was used to assess the flood risk impacts of the proposed SZC Main Development Site (MDS) development as a whole. This was reported in the MDS FRA Addendum [5] that was produced in response to design changes proposed during the DCO Examination. The hydraulic modelling included the permanent realignment of the Sizewell Drain, representation of the SSSI Crossing, the building out of the MCA embankment into the 'SSSI Triangle', and the incorporation of additional flood storage into the Marsh Harrier Compensation Habitat area (as reported in [Section 3.2](#) of the MDS FRA Addendum [5]). The flood modelling results as reported in [Table 3.1](#) of the FRA Addendum [5] demonstrated minimal changes in peak flood level that did not have a significant impact on flood risk within the SSSI or to off-site receptors. The maximum increase in flood levels as a result of the scheme is up to 0.01m in the vicinity of the SSSI Crossing and there was no significant change in flood velocity or hazard rating when compared to the baseline scenario (as reported in [Section 3.3 Table 3.1](#) of the MDS FRA Addendum [5]). The WRIL relates to structures used to control ditch and groundwater levels during dry conditions. In a flood the area would be inundated and these structures are therefore not relevant to flood impact.

2.2.10.2 As highlighted in the Sizewell Marshes Hydrological Modelling note [appended to this report as Appendix A.4], a numerical model to represent the groundwater and surface water regime was prepared, covering approximately 60 km<sup>2</sup>. This model was developed to allow appropriate interface with the Environment

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Agency's regional model (the NEAC model). This meant that suitable boundary conditions could be determined and model predictions validated against the NEAC model, particularly within the Sizewell Marshes SSSI. The model includes a coupled representation of groundwater and surface water in the Sizewell Marshes SSSI, which allows change in the interaction between groundwater and surface water to be assessed at each timestep in the model runs.

2.2.10.3 This model was calibrated against real world monitoring data. A series of model runs were undertaken to allow the change associated with individual aspects of the Sizewell C project to be assessed. During the DCO engagement it was agreed by the EA in their SoCG [6] (see [Table 2.2](#)) that:

- The SZC numerical model was an appropriate tool to use in assessing change resulting from the construction and operation of Sizewell C (MDS\_GW1)
- The groundwater conceptualisation on which the numerical model was based is appropriate (MDS\_GW2)
- The surface water conceptualisation on which the numerical model was based is appropriate (MDS\_GW3)
- The assessment of predicted impacts is appropriate (MDS\_GW6)
- The proposed Water Monitoring and Management Plan (WMMP) (which includes the control structure on the realigned stretch of Sizewell Drain) is appropriate (MDS\_GW8)
- The proposed terrestrial ecology assessment methodology, identified impacts, and mitigations is appropriate.

2.2.10.4 [Table 19.15](#) of the ES chapter [7] indicates that during construction the realignment of the drain would have a minor adverse residual effect, as defined in [Table 19.2 – 19.4 of that document](#), that was not significant. [Table 19.17](#) of the ES chapter indicates the same for the operational phase of the development. This aligns with the Examining Authority's Recommendation Report in [para. 5.11.76](#) that the effect of realignment activity would not be significant.

2.2.10.5 While there is no change to the upstream water environment as a result of the new alignment and proposed impoundment structures a concern was raised by the Environment Agency during pre-application discussions relating to the potential for the tilting weir to cause an increase in sedimentation rates on the upstream side due to changes in flow dynamics. This is not considered to be a risk for the following reasons:

There is a 50cm thickness silt layer in the bed of the Sizewell Drain in its current configuration;

- The proposed pipe dams on the realigned channel directly replace existing structures and will therefore not alter the dynamics of silt migration within the Sizewell Marshes SSSI;

The proposed location of the tilting weir is downstream of a pond in the Sizewell Drain which has a high density of reeds that will act to limit the downstream transit of silt to the control structure;

- The Sizewell Drain is a low energy environment in which sediment transport takes place predominantly following short duration high intensity rainfall events;
- The tilting weir will only influence discharge from the realigned Sizewell Drain during periods of low flow. Reducing flow from the Sizewell Drain towards the Leiston Drain will result in a reduction of energy and a potential increase in silt deposition, however there will be limited silt conveyance under low flow conditions;
- There is maintenance access to the tilting weir that will allow visual inspection and, if necessary, intervention. This intervention would consist of silt clearance undertaken from the main access track, utilising standard plant and procedures.

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2.2.10.6 The supplementary technical note provided with the WRIL permit application (Annexure B) includes specific details regarding modelling with regards to the Water Resource Impoundment Licence.

### 2.2.11 Details of any water level/flow monitoring undertaken

2.2.11.1 In their SoCG [6] the Environment Agency agreed that the assessment of predicted impacts and the proposed WMMP (which includes the control structure on the realigned stretch of Sizewell Drain) are appropriate.

2.2.11.2 The Draft WMMP produced during the DCO Examination outlined existing monitoring efforts, consisting of 86 borehole locations to monitor groundwater, Velocity and stage monitoring at 7 locations to monitor surface water and a weather station to monitor rainfall. This plan also sets out further monitoring locations as detailed in [Plate and Table 6.1](#). This draft was agreed with the EA in the SoCG [6] (MDS\_GW8).

2.2.11.3 Subsequent to the DCO monitoring of water levels and flows within the Sizewell Marshes has continued. During the recent revision of the WMMP (which is Annexure A of the WRIL supporting information document) more recent (post-DCO) monitoring data was compared to that used during the DCO assessments. This comparison showed that the characterisation of baseline conditions in the Sizewell Marshes SSSI established prior to the DCO remains valid, with no significant deviation in monitoring data. This is set out in para. [para. 4.2.11](#) of the WMMP [8] recently approved to discharge Requirement 11 of the DCO.

2.2.11.4 Water monitoring will continue within the SSSI, in line with the agreed WMMP. This data will be used to control the tilting weir, in order to maintain conditions in-line with an agreed envelope derived from the baseline monitoring.

### 2.2.12 Details of any mitigation

2.2.12.1 As listed in **Section 2.2.6**, an eel pass will be installed on the tilting weir to enable the passage of fish through. There are no other specific measures being implemented as mitigation for this specific permit. However, mitigation measures are being implemented to mitigate harm caused by the overall project. Specifically of note, replacement reedbed and ditch habitat have already been implemented at Aldhurst Farm, adjacent to the western edge of Sizewell Marshes SSSI. In a letter dated 16 February 2015, NE indicated that they were confident that the [then proposed] wetland habitat creation at Aldhurst Farm would provide satisfactory compensation in quality and quantity for the permanent loss at Sizewell Marshes SSSI.

2.2.12.2 No specific mitigation measures are required as part of this permit to protect the designated sites beyond those which would be required as part of general environmental protection measures.

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### 3 INFORMATION TO INFORM THE IN-COMBINATION ASSESSMENT

- 3.1.1.1 A summary of related SZC MDS permits, licences and consents already consented, currently being determined, or determined but not yet implemented, are provided below in **Table 3.1**. Please refer to the strategic in-combination tracker for a high-level overview of upcoming permits, which are of relevance for future applications.
- 3.1.1.2 These permits have the potential to interact in combination with other aspects of the Sizewell C project. However, for key risks this has been factored into the overall assessment work undertaken for the DCO. For example:
- Offsetting habitat creation for habitat loss in the Sizewell Marshes SSSI from Sizewell C as a whole has already been undertaken at Aldhurst Farm, through the fen meadow strategy, and in an area of wet woodland to the west of the Grove. Therefore, any significant habitat loss in the SSSI has already happened under this permit and the DCO itself and will not take place under permit MCA/FRA/2. This permit will therefore not affect the plant, invertebrate or bird interest features of the SSSI. As cited in [paragraph 14.7.127](#) of [9] NE indicated that they were confident that the [then proposed] wetland habitat creation at Aldhurst Farm would provide satisfactory compensation in quality and quantity for the permanent loss of reedbed habitats at Sizewell Marshes SSSI;
  - The noise assessment for Phase 1 of the DCO has already been discussed in this report; and
  - The construction of the MCA platform (including excavating the temporary ditch diversion and infilling the existing ditch, stockpiling arisings, installation of sheet piles, and improvement for the approach embankment) would result in a loss of part of the existing functional floodplain associated with Sizewell Marshes SSSI. However, flood modelling undertaken identifies that when comparing the maximum water levels for the baseline with the development scheme scenarios and factoring in imbedded mitigation measures, the loss contributes to a maximum relative difference of less than 0.01m across the floodplain. As such, further compensation would not be required due to the small magnitude, and as floodplain connectivity will not be at risk (MDS FRA Addendum[5]).

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**Table 3.1 Other related SZC MDS permits, licences and consents**

Permit type	SZC permit application reference	Regulator	Regulator permit reference	Activities covered	Status	Timing	Location
FRAP	MDS/FRA/50	EA	EPR/BB3590JX	Construction of temporary site access tracks for SSSI vegetation clearance (including tree stump removal). Erection of fencing (security and ecological), water voles habitat destruction, including vegetation clearance	Obtained and being implemented	Now implemented	Centroid of MDS: TM473640 SSSI Clearance within the 'SSSI triangle' corners: TM 46972 64083 TM 46996 64446 TM 47392 64532 Water Vole displacement area: Upstream- TM 47298 64506 Downstream- TM 47339 64518
FRAP (variation)	MDS/FRA/73	EA	EPR/BB3590JX/V001	Variation for BB3590JX for name change from NNB Generation Company (SZC) Limited to Sizewell C Limited.	Obtained	N/A	N/A
FRAP	MCA/FRA/53	EA	EPR/BB3590JX/V002	Variation for SSSI vegetation clearance consent (EPR_BB3590JX), extension of water vole clearance dates	Obtained	Now implemented	TM 47298 64506 to TM 47339 64518
FRAP (Variation)	MDS/FRA/56	EA	EPR/BB3590JX/V003	SSSI UXO and vegetation clearance	Obtained	Now implemented	Centroid of MDS: TM473640
LDC	MDS/LDC/21 MDS/LDC/40 MDS/LDC/41 MDS/LDC/42	ESWMB	22_07411_C 22_07412_C 22_07413_C 22_07415_C 23_23639_C 23_24431_C 24_26691_C 22_07414_C 23_07743_C 23_23643_C 23_24434_C	Vegetation clearance. Mink trapping and monitoring raft. Installing culverts for access. Erection of fencing (security and ecology). Retainment of existing culvert. Installation of silt curtains.	Obtained	Now implemented	<u>MDS/LDC/21</u> SSSI Clearance within the 'SSSI triangle' corners: TM 46972 64083, TM 46996 64446, TM 47392 64532 Also around Drain Realignment area: Upstream- TM 46972 64083, Downstream- TM 47003 63625 Water Vole displacement area: Upstream- TM 49695 64071, Downstream- TM 47395 64529 <u>MDS/LDC/40</u> 647071 264181 +/- 10m 647178 264299 647033 263738 or 647017 263722 <u>MDS/LDC/41</u> From 646954 263284 to 647400 264541 <u>MDS/LDC/42</u>



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Permit type	SZC permit application reference	Regulator	Regulator permit reference	Activities covered	Status	Timing	Location
							From 646954 263284 to 647400 to 647400 264541
Construction Water Discharge Activity (CWDA)	MDS/CWDA/18	EA	EPR/RP3820SH	Early site drainage, surface water discharges from MCA/TCA/ACA.	In determination	Estimated from October 2024 to December 2036	E01 NGR: TM 47654 64054 DW01 NGR: TM 47349 64530 O5 NGR: TM 46463 65940 O7 NGR: TM 46528 63491 O6a NGR: TM 45443 63501 O6b NGR: TM 45442 63495 O6c NGR: TM 45474 63488 O8a NGR: TM 44614 64000 O8 NGR: TM 44466 63737
Flood Risk Activity (FRA)	MCA/FRA/2	EA	Application submitted September 2024.	SSSI Crossing – Excavation of a temporary ditch diversion, Single span bridge crossings, Construction of utility corridors, Installation of sheet piles. This includes a temporary drain diversion positioned within 15m of the western environmental barrier of the southern SSSI Crossing approach embankment, directing flow from the Sizewell Drain to the Leiston Drain.	In determination	Winter 2024/25	NGRs of crossing: southern end: TM 47339 64432; and northern end: TM 47296 64563.  NGRs of water course activities bounded by: upstream point: TM 47281 64500; and downstream point: TM 47347 64522.
LDC	MCA/LDC/1	ESWMB	Application submitted September 2024.	SSSI Crossing - Temporary diversion and infilling of former course of Sizewell Drain to facilitate SSSI Crossing earthworks Installation of temporary construction access culverts.	In determination	Winter 2024/25	NGR of upstream connection with Sizewell Drain: TM 47293 64503  NGR of downstream connection with Leiston Drain: TM 47295 264427  NGR of culvert crossing: TM 47184 64310 +/- 10m  Eastings and Northings of isolation points at Sizewell Drain

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Permit type	SZC permit application reference	Regulator	Regulator permit reference	Activities covered	Status	Timing	Location
							to allow permanent realignment construction:  2A Easting – 647378 Northing – 264516  2B Easting – 647294 Northing – 264430
Water Resources Abstraction (WRA)	MCA/WRA/7	EA	NPS WR/043048	SSSI Crossing – temporary groundwater dewatering within cofferdams to allow installation of pile caps associated with SSSI crossing abutments	In determination	Winter 2024/25	NGR of corners of cofferdams to be dewatered are:  Northern cofferdam: TM 47351 64534, TM 47353 64530, TM 47284 64508, TM 47283 64512  Southern cofferdam: TM 47361 64504, TM 47363 64500, TM 47294 64477, TM 47293 64482
Water Resources Abstraction (WRA)	AD6/WRA/14	EA	To be confirmed – application not yet submitted	Dewatering of pile caps for bridge across Leiston Drain on bridleway AD6	In preparation	January to February 2025 then resuming in September 2025 to avoid bird nesting season.	Approximately TM 45417 63520
Flood Risk Activity (FRA)	AD6/FRA/1	EA	To be confirmed – application not yet submitted	Construction of crossing of Leiston Drain including works within the floodplain (e.g. mammal tunnel) for bridleway AD6	In preparation	January to February 2025 then resuming in September 2025 to avoid bird nesting season.	TM 45444 63497

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4 APPENDICES

A.1 EA Risks Relevant to Permit MCA/FRA/8 and Permit MCA/LDC/5

EA Risk	Sizewell Marshes SSSI	Minsmere to Walberswick Heaths and Marshes SSSI	Minsmere to Walberswick Heaths and Marshes SAC	Minsmere-Walberswick SPA	Minsmere-Walberswick Ramsar	Sandlings SPA	Outer Thames Estuary SPA	Southern North Sea SAC	Justification
Change in flow or velocity regime	X	X	X	X	X				<p>There is a potential to change the flow and velocity regime of Sizewell Drain. The permanent realignment of the Sizewell Drain could lead to a change in groundwater flow patterns that could have an associated effect on ecological receptors. To address this, the realignment has been engineered to maintain a surface water level that will prevent alteration of the groundwater flow regime. Pipe dams, replacing existing pipe dams, would be installed along the realigned Sizewell Drain to manage water flow and prevent changes to groundwater.</p> <p>The installation of pipe dams on connecting lateral drains to Sizewell Drain will control the flow of water between Sizewell Marshes SSSI and Sizewell Drain in line with the agreed upon Water Level management plan. The installation of the tilting weir control structure will enable the control of water flow between Sizewell Drain and Leiston Drain.</p> <p>There are no feasible impact pathways between change in flow or velocity regime and the features of Sandlings SPA, Outer Thames Estuary SPA, or Southern North Sea SAC</p>
Change in freshwater flow to estuary		X		X	X		X	X	<p>As detailed above in the 'Change in flow or velocity regime' assessment section of this table, the works covered by these permits will not affect the flows or velocity of the water regime. As a result, there is no feasible pathway for the Works (construction or operation) to affect freshwater flow to an estuary and hence no effect on the habitats of the designated sites.</p> <p>There are no feasible impact pathways between change in freshwater flow to any estuary and the features of Sizewell Marshes SSSI, Minsmere to Walberswick Heaths and Marshes SAC or Sandlings SPA</p>
Change in Physical Regime	X								<p>The realignment of Sizewell Drain could result in a change to the physical regime of the watercourse within Sizewell Marshes SSSI in that the Drain is being realigned. However, since the flow and velocity regime of Sizewell Drain will not be altered due to the inherent design of the realignment (see Change in flow or velocity regime), this will not significantly affect the SSSI.</p>
Change in surface water flooding	X	X	X	X	X				<p>The design of the realignment of Sizewell Drain maintains open existing channels to the existing floodplain. This will prevent increased flooding by retaining the amount of water that can flow to existing floodplain. While sheet pile barrier installation, stockpiling of excavation arisings and raised access tracks may reduce floodplain storage and disrupt conveyance, this is within the envelope of impacts of permanent development assessed in the DCO FRA and deemed acceptable.</p> <p>There are no feasible impact pathways between change in surface water flooding and the features of Sandlings SPA, Outer Thames Estuary SPA, or Southern North Sea SAC.</p>
Change in water chemistry	X	X	X	X	X				<p>The CoCP [15] embeds a range of measures to avoid accidental contamination of the water present upon site, including all storage and refilling of liquids such as fuel or lubricant occurring away from the vicinity of the drains and rivers on an impermeable surface. The CoCP is secured through Requirement 2 of Schedule 2 of the DCO. Additionally, a range of control measures to prevent pollution are detailed in Section 7 of the Appendix B Supporting Information Document for permit MCA/FRA/8 [4]</p> <p>There are no feasible impact pathways between change in water chemistry and the features of Sandlings SPA, Outer Thames Estuary SPA or Southern North Sea SAC.</p>

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EA Risk	Sizewell Marshes SSSI	Minsmere to Walberswick Heaths and Marshes SSSI	Minsmere to Walberswick Heaths and Marshes SAC	Minsmere-Walberswick SPA	Minsmere-Walberswick Ramsar	Sandlings SPA	Outer Thames Estuary SPA	Southern North Sea SAC	Justification
<b>Competition from non-native species</b>	X	X	X	X	X	X	X	X	Nuttall's waterweed is an invasive species that has been recorded within Sizewell Drain. As part of standard good site practice and management, the Code of Construction Practice (CoCP) [15] requires a biosecurity risk assessment to be undertaken and a management plan to be implemented to avoid potentially facilitating the spread of invasive non-native species (INNS) (paragraph 14.4.16 of [9]). The CoCP is secured through Requirement 2 of Schedule 2 of the DCO. The Environmental Risk Assessment within the application SID sets out biosecurity protocols. Paragraph 5.1.4 of the Freshwater Fish and Aquatic Invertebrates Mitigation Strategy [14] identifies that if invasive species are identified, work will not be undertaken prior to their removal and disposal. Further information regarding control and removal of invasive species is provided in the CoCP. It is not anticipated that this permit will increase competition from non-native species within the designated sites.
<b>Killing/injury or removal of fish or other animals</b>	X	X	X	X	X	X			Fish are not an interest feature of Sizewell Marshes SSSI although some may be prey items for SSSI birds. To minimise the risk of injury or death of fish and large invertebrates, a fish rescue will be carried out. To minimise the risk of injury or death of fish and large invertebrate, a fish rescue will be carried out. Fish in the Sizewell Drain will be caught during daylight hours using a multi-method approach that will take into consideration prevailing water depth, flow, in channel cover, turbidity and species likely to be present at the time of the survey. Methods that may be used include hand nets, traps and electric-fishing. After rescuing the fish, they will be retained on the bankside in an aerated holding tank before being relocated to an adjacent, on-line (hydrologically linked) water course. Receiving waters may include the Sizewell Drain upstream of the realigned reach or into adjacent unaffected on-line watercourses within Sizewell Marshes SSSI. Fish will only be released into established waterbodies with suitable habitat conditions. There are no feasible impact pathways between killing/injury or Removal of Fish or Other Animals and the features of Southern North Sea SAC or Outer Thames Estuary SPA.
<b>Physical damage</b>	X								Due to the distance between the works area and the protected sites, there is no risk of physical damage to any protected site with the exception of Sizewell Marshes SSSI. For that SSSI, any damage is avoided through the inherent design of the realigned drain, the fact that the construction plant and access are on the SZC (main platform) side of the drain and the compensation for impacts on the SSSI from the DCO generally that are already delivered as part of the DCO.
<b>Turbidity</b>	X	X	X	X	X				Run-off can increase silt within receiving watercourses. This will be controlled with the methods listed in Section 7.3 of Appendix B Supporting Information Document for permit MCA/FRA/8 [4]. Following these control measures this is not considered to result in effects on the designated sites. There are no feasible impact pathways between turbidity and the features of Sandlings SPA, Outer Thames Estuary SPA, or Southern North Sea SAC.
<b>Habitat/community simplification</b>	X	X	X	X	X				Permitted works will not result in habitat simplification that support SSSI breeding bird assemblages. Whilst permitted works will result in habitat loss (that has already been compensated for as part of the overall DCO mitigation for impacts on the Sizewell Marshes SSSI at Aldhurst Farm and other areas), it is unlikely that breeding bird supporting habitat simplification will occur. Details relating to hydrological changes are discussed in the above (changes in flow or velocity regime, changes in surface water flooding, and changes in water chemistry) assessments.

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EA Risk	Sizewell Marshes SSSI	Minsmere to Walberswick Heaths and Marshes SSSI	Minsmere to Walberswick Heaths and Marshes SAC	Minsmere-Walberswick SPA	Minsmere-Walberswick Ramsar	Sandlings SPA	Outer Thames Estuary SPA	Southern North Sea SAC	Justification
Habitat loss	X	X		X	X				<p>The works at Sizewell C, including building the main platform and SSSI Crossing in addition to realigning Sizewell Drain will result in permanent land take from Sizewell Marshes SSSI. Of this, habitat loss is directly associated with the drain realignment works.</p> <p>Offsetting habitat creation for habitat loss in the Sizewell Marshes SSSI from Sizewell C as a whole has already been undertaken at Aldhurst Farm and in an area of wet woodland to the west of the Grove. This loss is primarily fen meadow, but also reed bed. This habitat loss has been factored into the habitat creation plans for the site at the DCO Stage. The loss of fen meadow has also been recognised and compensation for the loss (such as wet woodland provision) is being planned at Benhall, Halesworth and Pakenham, Therefore, any significant habitat loss in the SSSI has already happened, or will happen as a result of delivering the DCO itself (i.e. establishing the western edge of the MCA) and will be a direct result of permit MCA/FRA/8. This permit will therefore not affect the interest features of the habitat sites.</p> <p>As cited in paragraph <a href="#">14.7.127</a> of [9] NE indicated that they were confident that the [then proposed] wetland habitat creation at Aldhurst Farm would provide satisfactory compensation in quality and quantity for the permanent loss of reedbed habitats at Sizewell Marshes SSSI.</p> <p>As the new reedbed and ditch habitats are located adjacent to the western edge of Sizewell Marshes SSSI, separated from Sizewell Marshes SSSI only by Lover's Lane, the impacts of habitat fragmentation have been minimised as the component flora and fauna from Sizewell Marshes SSSI would be expected to colonise naturally from the areas of retained reedbed and ditch habitats.</p> <p>The reedbed and ditch habitat creation undertaken at Aldhurst Farm has established and developed well and, are already supporting plant and bird species characteristic of reed bed habitat and further colonisation by other species can be expected. It is not anticipated that there will be any residual effects on breeding bird assemblages.</p>
Disturbance	X	X	X	X	X		X	X	<p>Breeding bird assemblages of lowland damp grasslands listed as qualifying interest features of designated sites may be sensitive to noise/ vibration and visual disturbance. It should be noted that bird species present within the Sizewell Marshes SSSI are likely to be habituated to some level to disturbance from visitors to the area and the ongoing presence of contractors. However, there is potential for breeding bird assemblages present to be disturbed by the Works, which, in the absence of mitigation may constitute a significant effect.</p> <p>Noise and visual disturbance is discussed in detail in section 2.1.4 of the main body of this report. For Sizewell Marshes SSSI, <a href="#">paragraphs 14.12.121 to 14.12.123</a> of the DCO Ecology ES Chapter [9] conclude that as more than 50% of the Sizewell Marshes SSSI would be directly affected, a large proportion of birds using Sizewell Marshes SSSI for breeding and foraging could potentially be affected by adverse noise impacts. However, they also document how boundary features and bunds are included within the construction masterplan to minimise noise, lighting and visual disturbance to adjacent designated sites or valuable habitats.</p> <p>The DCO and Paragraph <a href="#">14.4.11</a> of the Ecology ES chapter [9] sets out the primary mitigation measures for permanent loss of Sizewell Marshes SSSI due to the MCA and other works. These include creation of replacement reedbed and ditch habitat implemented at Aldhurst Farm, and a fen meadow plan (Appendix 14 C4 of the ES chapter) and wet woodland plan, which would create new, permanent fen meadow to compensate for the loss of fen meadow habitats through construction activities to establish the main platform. This new habitat already supports a number of the relevant bird species and this would compensate to some extent for the potential disturbance effects on Sizewell Marshes SSSI and any related displacement associated with the construction phase.</p> <p>The works will not therefore affect the interest features of the designated sites because disturbance effects, where they require mitigation, have already been taken into account as part of the overall DCO impact assessment and habitat delivered to ensure no significant loss of foraging or nesting resource.</p>

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A.2 EA Risks Relevant to Permit MCA/WRIL/2

EA Risk	Sizewell Marshes SSSI	Minsmere to Walberswick Heaths and Marshes SSSI	Minsmere to Walberswick Heaths and Marshes SAC	Minsmere-Walberswick SPA	Minsmere-Walberswick Ramsar	Sandlings SPA	Outer Thames Estuary SPA	Southern North Sea SAC	Justification
<b>Reduced Dilution Capacity</b>	X	X	X	X	X				There is a potential to change the dilution capacity of Sizewell Drain. The permanent realignment of the Sizewell Drain could lead to a change in the flow of water in both the drain and the ground water. This could result in an impact on the dilution capacity of the waterbody. As detailed below in "Change in Flow or Velocity Regime", the realignment has been engineered to maintain a surface water level that will prevent alteration of the groundwater flow regime. Pipe dams would be installed along the realigned Sizewell Drain, along with a tilting weir, to manage water flow and prevent changes to groundwater. There are no feasible impact pathways between change in dilution capacity and the features of Sandlings SPA, Outer Thames Estuary SPA, or Southern North Sea SAC
<b>Habitat loss</b>	X	X		X	X				The works at Sizewell C, including building the main platform and SSSI Crossing in addition to realigning Sizewell Drain will result in permanent land take from Sizewell Marshes SSSI. While habitat loss is directly associated with the drain realignment works, there is minimal habitat loss associated directly with the installation of the impounding structures covered by this permit. Offsetting habitat creation for habitat loss in the Sizewell Marshes SSSI from Sizewell C as a whole has already been undertaken at Aldhurst Farm and in an area of wet woodland to the west of the Grove. This loss is primarily fen meadow, but also reed bed. This habitat loss has been factored into the habitat creation plans for the site at the DCO Stage. The loss of fen meadow has also been recognised and compensation for the loss (such as wet woodland provision) is being planned at Benhall, Halesworth and Pakenham, Therefore, any significant habitat loss in the SSSI has already happened, or will happen as a result of delivering the DCO itself (i.e. establishing the western edge of the MCA) and will not be a direct result of permits MCA/FRA/8 and MCA/LDC/5. This permit will therefore not affect the interest features of the habitat sites.
<b>Entrapment/Impingement</b>	X	X		X	X				No SSSI or Habitat site features are at risk from entrapment/impingement, however fish and aquatic invertebrates may be at risk and these can provide a food source for avian features of the protected site. To mitigate this risk, a fish rescue will be carried out in accordance with the Section 8.11 CoCP Appendix A "Freshwater Fish and Aquatic Invertebrates Mitigation Strategy" [14] and will generally be by netting. This will remove the fish and large invertebrates from the areas that are to be dewatered, thus preventing them becoming entrapped or impinged. After rescuing the fish, they will be placed in the same stream either upstream or downstream of the working area. During operation, the eel pass that is incorporated into the tilting weir design (covered by permit MCA/FPA/1) will prevent entrapment and the disruption of migration pathways by ensuring a route that can be utilised under low flow conditions.
<b>Changes in Water Level/Table</b>	X	X	X	X	X				There is a potential to change the water level/table. To mitigate this, the realignment has been engineered to maintain a surface water level that will prevent alteration of the groundwater flow regime. The tilting weir and pipe dams would be installed along the realigned Sizewell Drain to manage water flow and prevent changes to groundwater. The installation of pipe dams on connecting lateral drains to Sizewell Drain will control the flow of water between Sizewell Marshes SSSI and Sizewell Drain in line with the agreed upon Water Level management plan. The installation of the tilting weir control structure will enable the control of water flow between Sizewell Drain and Leiston Drain, to enable the water level to be maintained at existing levels.

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EA Risk	Sizewell Marshes SSSI	Minsmere to Walberswick Heaths and Marshes SSSI	Minsmere to Walberswick Heaths and Marshes SAC	Minsmere-Walberswick SPA	Minsmere-Walberswick Ramsar	Sandlings SPA	Outer Thames Estuary SPA	Southern North Sea SAC	Justification
<b>Change in flow or velocity regime</b>	X	X	X	X	X				<p>There is a potential to change the flow and velocity regime of Sizewell Drain. The permanent realignment of the Sizewell Drain could lead to a change in groundwater flow patterns, that could have an associated effect on ecological receptors. To mitigate this, the realignment has been engineered to maintain a surface water level that will prevent alteration of the groundwater flow regime. Pipe dams would be installed along the realigned Sizewell Drain to manage water flow and prevent changes to groundwater, along with the tilting weir.</p> <p>The installation of pipe dams on connecting lateral drains to Sizewell Drain will control the flow of water between Sizewell Marshes SSSI and Sizewell Drain in line with the agreed upon Water Level management plan. The installation of the tilting weir control structure will enable the control of water flow between Sizewell Drain and Leiston Drain.</p> <p>There are no feasible impact pathways between change in flow or velocity regime and the features of Sandlings SPA, Outer Thames Estuary SPA, or Southern North Sea SAC</p>
<b>Change in surface water flooding</b>	X	X	X	X	X				<p>The design of the realignment of Sizewell Drain maintains drainage of the Sizewell Marshes SSSI floodplain. The tilting weir and pipe dams will only impound water during low flow conditions. The activities being undertaken are not anticipated to increase flood risk, as this part of the SSSI is mostly submerged during flood conditions, and the conveyance of the individual drainage channels are not influential compared with the conveyance and storage of the floodplain as a whole.</p> <p>There are no feasible impact pathways between change in surface water flooding and the features of Sandlings SPA, Outer Thames Estuary SPA, or Southern North Sea SAC</p>
<b>Change in water chemistry</b>	X	X	X	X	X				<p>The CoCP (Doc Ref. 8.11) [15] imbeds a range of measures to avoid accidental contamination of the water present upon site, including all storage and refilling of liquids such as fuel or lubricant occurring away from the vicinity of the drains and rivers on an impermeable surface. The CoCP is secured through Requirement 2 of Schedule 2 of the DCO.</p> <p>There are no feasible impact pathways between change in water chemistry and the features of Sandlings SPA, Outer Thames Estuary SPA, or Southern North Sea SAC.</p>
<b>Change in Salinity Regime</b>	X	X	X	X	X				<p>As detailed above in the 'Changes in flow or velocity regime' assessment, the works covered by this permit will not affect the flows or velocity of the water regime. Additionally as detailed above in 'change in water chemistry' the CoCP implements measure to prevent contamination of the water. Further, there is no feasible pathway for the Works (construction or operation) to affect the salinity regime and hence no effect habitats of the designated sites.</p> <p>There are no feasible impact pathways between salinity regime and the features of Sizewell Marshes SSSI, Minsmere to Walberswick Heaths and Marshes SAC, Outer Thames Estuary SPA, or Sandlings SPA</p>
<b>Change in Freshwater Flow to Estuary</b>		X		X	X		X	X	<p>As detailed above in the 'Changes in flow or velocity regime' assessment, the works covered by this permit will not affect the flows or velocity of the water regime. Further, there is no feasible pathway for the Works (construction or operation) to affect freshwater flow to the estuary and hence no effect on the habitats of the designated sites.</p> <p>There are no feasible impact pathways between change in freshwater flow to estuary and the features of Sizewell Marshes SSSI, Minsmere to Walberswick Heaths and Marshes SAC, Outer Thames Estuary SPA, or Sandlings SPA</p>

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A.3 EA Risks Relevant to Permit MCA/FPA/1

EA Risk	Sizewell Marshes SSSI	Minsmere to Walberswick Heaths and Marshes SSSI	Minsmere to Walberswick Heaths and Marshes SAC	Minsmere-Walberswick SPA	Minsmere-Walberswick Ramsar	Sandlings SPA	Outer Thames Estuary SPA	Southern North Sea SAC	Justification
<b>Turbidity</b>	X	X	X	X	X				Run-off from work operations during installation can increase silt within receiving watercourses. This will be controlled with the methods listed in Section 7.3 of the supporting information document for permit MCA/FRA/8 [4]. Following mitigation this is not considered to result in effects on the designated sites. There are no feasible impact pathways between turbidity and the features of Sandlings SPA, Outer Thames Estuary SPA, or Southern North Sea SAC.
<b>Siltation</b>	X	X	X	X					The justification for turbidity also applies here.  Additionally, monitoring and maintenance of this eel pass has been planned for the lifetime of the tilting weir, with monthly visual inspections, maintenance and monitoring of a trail cam, regular inspections of the tilting pass mechanism and ongoing fish surveys, ensuring that siltation does not prevent the eel pass from functioning.
<b>Physical damage</b>	X								Due to the distance between the works area and the protected sites, there is no risk of physical damage to any protected site with the exception of Sizewell Marshes SSSI.
<b>Habitat loss</b>	X	X		X	X				Offsetting habitat creation for habitat loss in the Sizewell Marshes SSSI from Sizewell C as a whole has already been undertaken at Aldhurst Farm and in an area of wet woodland to the west of the Grove. This loss is primarily fen meadow, but also reed bed. This habitat loss has been factored into the habitat creation plans for the site at the DCO Stage. The loss of fen meadow has also been recognised and compensation for the loss (such as wet woodland provision) is being planned at Benhall, Halesworth and Pakenham, Therefore, any significant habitat loss in the SSSI has already happened, or will happen as a result of delivering the DCO itself (i.e. establishing the western edge of the MCA) and will be a direct result of permit MCA/FRA/8. This permit will therefore not affect the interest features of the habitat sites.  As cited in <a href="#">paragraph 14.7.127</a> of [9] NE indicated that they were confident that the [then proposed] wetland habitat creation at Aldhurst Farm would provide satisfactory compensation in quality and quantity for the permanent loss of reedbed habitats at Sizewell Marshes SSSI.  As the new reedbed and ditch habitats are located adjacent to the western edge of Sizewell Marshes SSSI, separated from Sizewell Marshes SSSI only by Lover's Lane, the impacts of habitat fragmentation have been minimised as the component flora and fauna from Sizewell Marshes SSSI would be expected to colonise naturally from the areas of retained reedbed and ditch habitats.  The reedbed and ditch habitat creation undertaken at Aldhurst Farm has established and developed well and, are already supporting plant and bird species characteristic of reed bed habitat and further colonisation by other species can be expected. It is not anticipated that there will be any residual effects on breeding bird assemblages.
<b>Disturbance</b>	X	X	X	X	X		x	X	Breeding bird assemblages of lowland damp grasslands listed as qualifying interest features of the designated sites may be sensitive to noise/ vibration and visual disturbance. It should be noted that bird species present within Sizewell Marshes SSSI are likely to be habituated to some level to disturbance from visitors to the area and the ongoing presence of contractors. However, there is potential for breeding bird assemblages present to be disturbed by the Works, which, in the absence of mitigation may constitute a significant effect.  Noise and visual disturbance is discussed in detail in section 2.1.4 of the main body of this report. For Sizewell Marshes SSSI, <a href="#">paragraphs 14.12.121 to 14.12.123</a> of the DCO Ecology ES Chapter [9] conclude that as more than 50% of the Sizewell Marshes SSSI would be directly affected, a large proportion of birds using Sizewell Marshes SSSI for breeding

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EA Risk	Sizewell Marshes SSSI	Minsmere to Walberswick Heaths and Marshes SSSI	Minsmere to Walberswick Heaths and Marshes SAC	Minsmere-Walberswick SPA	Minsmere-Walberswick Ramsar	Sandlings SPA	Outer Thames Estuary SPA	Southern North Sea SAC	Justification
									<p>and foraging could potentially be affected by adverse noise impacts. However, they also document how boundary features and bunds are included within the construction masterplan to minimise noise, lighting and visual disturbance to adjacent designated sites or valuable habitats.</p> <p>The DCO and <a href="#">Paragraph 14.4.11</a> of the Ecology ES chapter [9] sets out the primary mitigation measures for permanent loss of Sizewell Marshes SSSI due to the MCA and other works. These include creation of replacement reedbed and ditch habitat implemented at Aldhurst Farm, and a fen meadow plan (Appendix 14C4 of the ES chapter) and wet woodland plan, which would create new, permanent fen meadow to compensate for the loss of fen meadow habitats through construction activities to establish the main platform. This new habitat already supports a number of the relevant bird species and this would compensate to some extent for the potential disturbance effects on Sizewell Marshes SSSI and any related displacement associated with the construction phase.</p> <p>The works will not therefore affect the interest features of the designated sites because disturbance effects, where they require mitigation, have already been taken into account as part of the overall DCO impact assessment and habitat delivered to ensure no significant loss of foraging or nesting resource.</p>
<b>Changes in Water Level or Table</b>	X	X	X	X	X				<p>There is a potential to change the water level/table.</p> <p>To mitigate this, the realignment has been engineered to maintain a surface water level that will prevent alteration of the groundwater flow regime. Pipe dams would be installed along the realigned Sizewell Drain to manage water flow and prevent changes to groundwater.</p> <p>The installation of pipe dams on connecting lateral drains to Sizewell Drain will control the flow of water between Sizewell Marshes SSSI and Sizewell Drain in line with the agreed upon Water Level management plan. The installation of the tilting weir control structure will enable the control of water flow between Sizewell Drain and Leiston Drain, to enable the water level to be maintained at existing levels.</p>
<b>Change in flow or velocity regime</b>	X	X	X	X	X				<p>There is a potential to change the flow and velocity regime of Sizewell Drain. The permanent realignment of the Sizewell Drain could lead to a change in groundwater flow patterns, that could have an associated effect on ecological receptors. To mitigate this, the realignment has been engineered to maintain a surface water level that will prevent alteration of the groundwater flow regime. Pipe dams would be installed along the realigned Sizewell Drain to manage water flow and prevent changes to groundwater.</p> <p>The installation of pipe dams on connecting lateral drains to Sizewell Drain will control the flow of water between Sizewell Marshes SSSI and Sizewell Drain in line with the agreed upon Water Level management plan. The installation of the tilting weir control structure will enable the control of water flow between Sizewell Drain and Leiston Drain.</p> <p>There are no feasible impact pathways between change in flow or velocity regime and the features of Sandlings SPA, Outer Thames Estuary SPA, or Southern North Sea SAC</p>
<b>Change in surface water flooding</b>	X	X	X	X	X				<p>The design of the realignment of Sizewell Drain maintains open existing channels to the existing floodplain. This will prevent increased flooding by retaining the amount of water that can flow to existing floodplain. While raised access tracks may reduce floodplain storage and disrupt conveyance, this is within the envelope of impacts of permanent development assessed in the DCO FRA and deemed acceptable.</p> <p>There are no feasible impact pathways between change in surface water flooding and the features of Sandlings SPA, Outer Thames Estuary SPA, or Southern North Sea SAC</p>

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## A.4 Sizewell Marshes Hydrological Modelling Note

### **Continued Validity of Sizewell Marshes Hydrological model**

In our meeting on Thursday 2<sup>nd</sup> May 2024, we discussed our intention to rely on the hydrological modelling undertaken for the DCO with regard to Sizewell Marshes SSSI, and our view it continues to be appropriate and robust. We agreed to circulate a note explaining our views on this. To that end, please see below a summary of the evidence base and rationale for using the numerical modelling from the DCO as an appropriate evidence base for the HRA to support permit applications.

In support of the DCO a numerical model was developed to represent the groundwater and surface water regime in the area of the Sizewell C development. The area covered by the model domain is approximately 60 km<sup>2</sup>. The numerical model was based on a robust conceptual understanding of the groundwater and surface water flow regimes based on extensive ground investigation and monitoring data. The SZC model was developed to allow appropriate interface with the Environment Agency's regional model (the NEAC model). This meant that suitable boundary conditions could be determined and model predictions validated against the NEAC model, particularly within the Sizewell Marshes SSSI. Within the domain of the SZC model the grid was refined around areas of interest to allow greater resolution in assessing change. In the Sizewell Marshes SSSI grid cells reduce to be less than 1m in scale. The model includes a coupled representation of groundwater and surface water in the Sizewell Marshes SSSI, which allows change in the interaction between groundwater and surface water to be assessed at each timestep in the model runs.

The numerical model was calibrated against real world monitoring data to demonstrate that there is a high degree of correlation between the model behaviour and observed groundwater and surface water responses. Once the baseline model had been developed and validated against real world data as being suitably representative a series of model runs were undertaken to allow the change associated with individual aspects of the Sizewell C project to be assessed.

The process of developing the SZC model was undertaken in collaboration with stakeholders including the Environment Agency and Natural England to ensure it was a sufficiently accurate tool to assess impacts in the appropriate areas of interest. A list of formal engagements is presented in Table 19.1 of the Groundwater and Surface Water chapter of the ES ([https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001912-SZC\\_Bk6\\_ES\\_V2\\_Ch19\\_Groundwater\\_and\\_Surface\\_Water.pdf#page=10](https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001912-SZC_Bk6_ES_V2_Ch19_Groundwater_and_Surface_Water.pdf#page=10)). This sets out the formal engagements between 2014 and 2019 prior to the DCO Examination.

During the DCO Examination period the Environment Agency set out in their Statement of Common Ground (<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-008186-Sizewell%20C%20Project%20-%20Final%20SoCG%2027.pdf#page=13>) that:

1. The SZC numerical model was an appropriate tool to use in assessing change resulting from the construction and operation of Sizewell C (MDS\_GW1)
2. The groundwater conceptualisation on which the numerical model was based is appropriate (MDS\_GW2)

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3. The surface water conceptualisation on which the numerical model was based is appropriate (MDS\_GW3)
4. The assessment of predicted impacts is appropriate (MDS\_GW6)
5. The proposed Water Monitoring and Management Plan (which includes the control structure on the realigned stretch of Sizewell Drain) is appropriate (MDS\_GW8)
6. The proposed terrestrial ecology assessment methodology, identified impacts, and mitigations is appropriate.

The original rationale for the Sizewell Drain realignment was set out in an appendix to the ES chapter (<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010012/EN010012-001926-SZC Bk6 ES V2 Ch19 Groundwater and Surface Water Appx19C 19F.pdf#page=3>). This outline design was assessed in the ES and forms the basis for the current, more detailed, design.

Table 19.15 of the ES chapter (<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010012/EN010012-001912-SZC Bk6 ES V2 Ch19 Groundwater and Surface Water.pdf#page=87>) indicates that during construction the realignment of the drain would have a minor adverse residual effect that was not significant. Table 19.17 of the ES chapter (<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010012/EN010012-001912-SZC Bk6 ES V2 Ch19 Groundwater and Surface Water.pdf#page=95>) indicates the same for the operational phase of the development.

In the Examining Authority's Recommendation Report it is stated in para. 5.11.76 (<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010012/EN010012-011161-SZC-Volume-2-Sections-5.1-5.13-FINAL.pdf#page=449>) that the effect of realignment activity would not be significant. This conclusion is based on the assessment agreed with the Environment Agency in their Statement of Common Ground.

During the DCO Examination a note was produced (Appendix B of [REP3-043](#)) that sets out the water balance in the Sizewell Marshes. This was produced in response to stakeholder concerns about change to the hydrochemistry and supported ecology of the Sizewell Marshes during the DCO. Paras. 1.4.14-15 of this note state that (in summary) *the majority of the surface water levels and flows within the Sizewell Marshes are comparable between baseline and development model runs through the year. The exception is in the Sizewell Drain at the downstream end of the Sizewell Marshes. Here, there is a small increase in the maximum predicted flow rate, and the frequency at which it occurs. This is associated with the realigned Sizewell Drain. There is little or no change predicted in the Leiston Drain, downstream of the SSSI.*

[Section 1.5.b](#)) describes the mechanism for change associated with the realignment of the drain, including in para. 1.5.17 that the control structure was not modelled i.e. the small degree of change predicted does not trigger the need for representation of the control structure in the numerical model.

The assessment made during the DCO was based on data and evidence collected prior to submission of the DCO and supporting documentation. This included the draft Water Monitoring and Management Plan ([https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010012/EN010012-007610-Sizewell%20C%20Project%20-%20Other-%20SZC%20Bk9%209.87\(A\)%20Draft%20Water%20Monitoring%20and%20Management%20Plan%20Clean%20Version.pdf](https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010012/EN010012-007610-Sizewell%20C%20Project%20-%20Other-%20SZC%20Bk9%209.87(A)%20Draft%20Water%20Monitoring%20and%20Management%20Plan%20Clean%20Version.pdf)). This draft was agreed with the EA in the Statement of Common Ground (MDS\_GW8).

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Subsequent to the DCO monitoring of water levels and flows within the Sizewell Marshes has continued. During the recent revision of the Water Monitoring and Management Plan more recent (post-DCO) monitoring data was compared to that used during the DCO assessments. This comparison showed that the characterisation of baseline conditions in the Sizewell Marshes SSSI established prior to the DCO remains valid, with no significant deviation in monitoring data. This is set out in para. 4.2.11 of the WMMP recently approved to discharge Requirement 11 of the DCO.

4.2.11 Trigger levels detailed in the Draft WMMP were derived from an extensive monitoring dataset collected from late 2013 to late 2018. The triggers have however been updated for this final plan, relative to those in the [Draft WMMP](#), informed by monitoring at these installations to the end of the hydrological year 2022 (i.e. 31<sup>st</sup> October) where available. Analysis of the differences, where new data are currently available, show that there has not been a general shift in water levels (either wetter or drier), with the 30<sup>th</sup> and 70<sup>th</sup> centiles remaining relatively unchanged. A comparison of the P8 triggers in the Draft WMMP and proposed triggers based on updated data are presented as an example in **Plate 4.2**, and show close correlation during the summer, only differing in the winter months. Where there are larger differences these tend to be at the extremes (i.e. beyond the proposed trigger levels).

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# Sizewell Drain Realignment - Impoundment Licence (MCA/WRIL/2) Technical Note

Additional Supporting Information

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## 1. Overview

Sizewell C Limited has engaged with the Environment Agency regarding its anticipated permit application for the proposed impoundment (MCA/WRIL/2) at the Sizewell Drain Realignment located at the Main Construction Area (MCA) for the planned Sizewell C nuclear power station.

The purpose of the impoundment on the realigned section of Sizewell Drain is to allow finetuning of flows leaving the Sizewell Marshes SSSI to ensure hydrological and hydrogeological conditions upstream within the SSSI remain in line with those that have been recorded prior to development. In order to achieve this, the following design elements have been incorporated into the realigned reach of Sizewell Drain:

- Tilting weir near the downstream connection with Leiston Drain; and
- Pipe connections between the realigned channel of Sizewell Drain and upstream compartments of the SSSI.

The design intention of the tilting weir is to allow impoundment of water during periods of low flow only. For the majority of the time, the structure will be submerged and offer no barrier to flow. During periods of low flow, it will act to reduce the rate at which water drains out of the SSSI with the objective of supporting water levels upstream in the SSSI to remain within their baseline ranges, as agreed in the Water Monitoring and Management Plan (WMMP) (refer to Annexure A – DCO Requirement 11: WMMP (Revision 1.0), February 2024 para 4.2.3.) [1].

Annexure A – DCO Requirement 11: WMMP (Revision 1.0), February 2024

The design intention of the lateral pipe dam connections is to replicate the existing hydraulic connections between upstream compartments of the SSSI and the current Sizewell Drain. New pipe dams will only be installed at locations where there are pipe dams on the existing drain alignment. In order to optimise the hydraulic connection, the design of the pipe connections is based on monitoring data and review of available design information about the existing structures. During construction the new pipe dams will be adjusted as necessary, and the performance monitored, in order to replicate the current hydraulic function.

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Additional Supporting Information

SZC considers the works described above as a holistic impoundment therefore have submitted one application to cover both aspects (tilting weir and pipe connections) of the impoundment activity.

In addition to this submission, the operation of the tilting weir is also governed by the WMMP, as approved pursuant to Requirement 11 of the DCO. It is therefore essential that there is alignment between any impoundment licence granted to regulate the operation of the impoundment activities under MCA/WRIL/2 and the WMMP, which was formally adopted by East Suffolk Council on 9<sup>th</sup> April 2024.

A background summary and rationale for placing continued reliance on the assessment undertaken during the DCO to inform the development of the WMMP, as well as relevant links which document the decision-making framework for the control structures, is included in the Sizewell Marshes Hydrological Modelling Note (101277353) [2] sent to the EA on 10th May 2024, attached here as Annexure B – Sizewell Marshes Hydrological Modelling Note.

### 2. Purpose of this document

Given the nature of the impoundment, some sections of the application forms are not directly applicable or the format of the form does not allow SZC to explain or complete in the available space. This technical note aims to provide further rationale and details to the application forms and to explain how the proposed activities align with the adopted WMMP.

During pre-application consultation (email correspondence dated 20<sup>th</sup> and 24<sup>th</sup> August 2024), the Environment Agency provided clarification on the level of detail required and how to address sections of the Water Resources Licence application forms which are not fully applicable to the proposed activities. The requested details for the application are provided below.

### 3. Permit application forms - additional supporting information

#### Form D:

#### **D4.1 An impounding location can be a single point, a reach (stretching between the banks of a river) or an area.**

The application is for a single reach which covers the impoundment works along the realigned Sizewell Drain. The combination of the tilting weir and the pipe dam structures along the realigned Sizewell Drain complies with the below EA requirements shared via email on 24 July 2024 and therefore is considered to as one impoundment:

- impounding the same inland water – the realigned Sizewell Drain;
- constructed together as part of one scheme;
- reliant upon each other to allow the overall impoundment scheme to work - the combination of the tilting weir and pipe dams is required to maintain the water levels for the Sizewell Marshes SSSI as the proposed realigned Sizewell Drain is straighter and slightly deeper than the existing Sizewell Drain to minimise habitat loss (see Environmental Statement, [Appendix 19C, para 19C.4](#)) [4]; and
- constructed near one another – the different structures that make up the scheme should not be above and below a tributary entry or major groundwater emergence, or where there is an abstraction or a discharge between the components of the structure which could affect the hydraulic characteristics or nature of the reach.

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Additional Supporting Information

**D5.1 In the table below say what method of impounding you will use at each impoundment location. Please also state the purpose for each impoundment.**

The proposed impoundment structures are a tilting weir and pipe dams used to maintain the existing water levels to control potential impact of the realignment of Sizewell Drain, therefore, the specified options provided under "Purpose" in D5.1 would not be applicable in this case.

The design of the tilting weir provides flexibility in the impounding level as the purpose of the control structure is to maintain future water levels in line with existing baseline conditions. This will be achieved by monitoring conditions across the Sizewell Marshes SSSI and adjusting the level of the tilting weir if required to retain water in the realigned Sizewell Drain during periods of low flow. The baseline conditions and trigger levels for intervention are defined in the WMMP (refer to Annexure A – DCO Requirement 11: WMMP (Revision 1.0), February 2024).

It is not envisaged that there will be a high frequency of interventions to alter levels as the tilting weir will only influence conveyance of water in the realigned Sizewell Drain during periods of low flow, which typically occur towards the end of the summer. Assessment of the realigned Sizewell Drain undertaken to support the DCO did not include a control structure at the downstream end of the realigned channel. Even without the beneficial presence of a tilting weir it was considered that the realignment would have a minor adverse residual effect that was not significant during both construction ([Table 19.15](#) of the ES chapter) and operation ([Table 19.17](#) of the ES chapter) [3]. The addition of the tilting weir at the downstream end of the realigned drain allows water levels to be kept within the ranges set out in the WMMP (refer to section 4, Annexure A).

Subsequent to the assessments undertaken to support the DCO, monitoring of water levels and flows within the Sizewell Marshes SSSI has continued. The recent monitoring data indicates that there has not been a significant deviation in the monitoring data since the original assessment was carried out (refer to para. 4.2.11 of the WMMP in Annexure A – DCO Requirement 11: WMMP (Revision 1.0), February 2024)[1].

The pipe dams act to regulate flow into the Sizewell Drain and prevent free drainage from upstream compartments. The pipe dams that are being installed, and are part of this permit application, are for the sole purpose of replicating the function of existing structures that provide hydraulic connection between the Sizewell Drain and the upstream compartments of the SSSI. They will be constructed in the realigned channel as close as possible to the existing structures and calibrated by observation on site to ensure they provide an equivalent hydraulic connectivity. Following installation and calibration the structures will not be adjusted further, in line with current management practice.

Design details of the tilting weir and pipe dams are provided in Annexure C – Design Drawings.

**D7.1 Please give a full description of your proposals to build, alter or remove impounding works.**

As stated previously, the objective of the project is to replicate the conditions of the baseline water levels before the drain re-alignment for the benefit of the SSSI.

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### Additional Supporting Information

To achieve this, the contractor will follow the below requirements for the adjustable tilting weir and attached eel pass:

1. Width of the weir: 1.5m
2. Top of the weir: 100mm below the ditch top
3. Operational range of the weir: 300mm above the ditch bottom
4. Weir plate and quadrants: HDPE or Stainless steel 316
5. Frame: Stainless steel 316
6. Bolted connections to attach the weir to the sheet pile cut out to be provided
7. The eel pass shall be a minimum of 250mm in width, attached to the weir tilting weir plate and be constructed of aluminium and HDPE. It shall contain sufficient bristles to allow the eels to climb and the free end shall include a float to allow the entrance to remain at the downstream water level. The tilting plate connection shall allow a flow of water down the eel pass at all weir levels.

These could be met by an Aquatic Control Engineer tilting weir and attached eel pass, or similar approved proprietary design.

The above requirements are based on the current understanding of the channel dimensions derived from all available survey information. If site conditions deviate significantly from the design dimensions the above requirements may be revised to ensure the installed weir is appropriately sized. Any change to the dimensions would be communicated to the Environment Agency as soon as practicable. Following completion of construction works "as-built" drawings showing the final dimensions of the structure will be provided to the Environment Agency.

The characteristics of the existing pipe dams are appropriate for their continued use on the site. The lightweight nature of the dams means that they do not require piling which ensures that they do not sink into the underlying Peat. They are straightforward to install and maintain using readily available materials and do not require the use of specialist construction plant.

The pipe dams will comprise the following:

- 200 mm diameter twin wall, UV stable, non-perforated plastic pipe with a right-angle bend opening on existing drain to allow the water flow from existing drain into the realigned drain.
- Class 6A fill shall be used to form the bunds due to its self-compacting nature under the water.
- The plastic sheet pile will be positioned at the centre of the bund along the pipe dam to establish a water barrier between the connecting channel and the proposed drain. It will be embedded 2 meters into the ground from the bottom of the realigned drain.

Full details of the construction sequencing and activities associated with temporary channel diversions and installation of impounding structures is presented in Annexure C – Design Drawings.

Following completion of construction works "as-built" drawings showing the final dimensions of the pipe dam structures will be provided to the Environment Agency.



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Additional Supporting Information

### **D8.3 Please give details about how you will control and measure the discharge of water downstream of the impoundment works.**

The discharge of water from the realigned Sizewell Drain into the Leiston Drain will be controlled by the tilting weir structure at periods of low flow. The purpose of the tilting weir is to allow water levels within the Sizewell Marshes SSSI to be maintained in alignment with agreed baseline conditions as set out in the WMMP (refer to Annexure A – DCO Requirement 11: WMMP (Revision 1.0), February 2024)[1]. The realigned channel of the Sizewell Drain is straighter and shorter than the current alignment. While the DCO assessment didn't identify any unacceptable change associated with the realignment there is a commitment under the WMMP to install a control structure at the downstream end of the channel to allow flows to be controlled and prevent water levels in the SSSI dropping below baseline recorded levels. This will allow for any unforeseen changes resulting in reduced water levels in the SSSI to be addressed, as well as improving overall resilience to changing climatic conditions.

The WMMP describes the extensive monitoring network that controls intervention to alter the tilting weir to retain a greater proportion of the water conveyed by the realigned Sizewell Drain. The network includes 3No. boreholes within the Crag, 9No. Peat piezometers and 4 No. surface water monitoring points along the existing watercourses. The downstream discharge of the impoundment works will be measured using in-channel flow monitoring equipment in Leiston Drain downstream of confluence as included in Section 3 of the WMMP (see Annexure A – DCO Requirement 11: WMMP (Revision 1.0), February 2024)[1].

The impoundment structures covered in this permit application form part of the WMMP that has been prepared and formally accepted to discharge DCO Requirement 11. Future changes to the WMMP requirements identified during subsequent monitoring undertaken to implement the WMMP will be agreed with the relevant stakeholders. The Agreement Log of the Water Management Working Group will be used to record minor updates to WMMP such as the frequency of monitoring, trigger levels, location of new piezometers. If a more substantial change is required, then an updated WMMP will be resubmitted to update compliance with Requirement 11. The latest agreed water level baseline will be used to adjust levels of the tilting weir.

Although water will be retained upstream of the tilting weir during periods of low flow there will be no change in downstream flows to the receiving watercourse, the Leiston Drain. This is due to the fact that the tilting weir is retaining water that would be present in the current alignment of the Sizewell Drain and upstream compartments of the SSSI in direct hydraulic continuity with it. The straightening of the channel and the new connection point into the Leiston Drain means water may drain more freely without the presence of the tilting weir to moderate discharge during periods of low flow. During periods of normal and high flows the discharge to the Leiston Drain are controlled by the receiving watercourse, which becomes tide-locked twice daily (see Section 1.2 of [Appendix B](#) of the Comments on Written Representations of the DCO)[5]. Flows will be measured at point G1 (TM 47419 64656) to ensure they remain in accordance with baseline conditions as set out in the WMMP.

The review process of the WMMP is explained in paragraph 5.2.1 of the WMMP (see Annexure A – DCO Requirement 11: WMMP (Revision 1.0), February 2024)[1].

### **D8.4 What will the planned overflow level of the impoundment works be?**

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### Additional Supporting Information

The tilting weir is an adjustable structure with an operational range as described in in D7.1 (above) including:

- Top of the weir: 100mm below the ditch top
- Operational range of the weir: 300mm above the ditch bottom

The installation position and levels for the tilting weir is shown on design drawings included in Annexure C – Design Drawings. The nominal installation elevation is 0.45m AOD.

The pipe dams will be installed at an equivalent elevation to the existing structures they are replacing. This will be based on measurements and observational adjustment on site during construction works. The performance of the replacement pipe dams will be based on monitoring and observation of water levels in the upstream compartments and into the realigned Sizewell Drain and their final levels will be determined based on successfully achieving the replication of current hydraulic function.

#### **D8.5 What is the planned capacity of the impoundment works when full to spillway level?**

The estimated maximum capacity of the realigned Sizewell Drain is estimated at 10,500 m<sup>3</sup>. This figure is based on a total realigned length of approximately 700m upstream of the tilting weir and maximum channel dimensions of 20m width and 1.5m depth which is the upper value of the range provided in the Environmental Statement, Volume 2, Chapter 19, Appendix 19E, [paragraphs 1.3.122 and 1.3.123 \[4\]](#). In reality, the realigned channel will not be at this maximum dimension for the whole of the realignment, and the design drawings (in Annexure C – Design Drawings) show it will usually be significantly below. Feedback from the Environment Agency received by email on 20<sup>th</sup> August 2024 indicates the intention of this question is to ascertain whether the impoundment falls under the remit of the Reservoir's Act 1975. The purpose of this calculation is to demonstrate it is not possible to retain a sufficient volume of water as an increase relative to current conditions to trigger the need to comply with the Act.

Additionally, the proposed impoundment will not retain water to this maximum drain capacity for the following reasons:

- The purpose of the impoundment is to maintain water levels and flows in line with existing conditions for the benefit of the SSSI. Retaining too much water would be in direct conflict with this objective;
- The tilting weir only becomes effective during low flows. As water levels within the Sizewell Drain rise the tilting weir ceases to influence flows;
- The tilting weir is installed below the top of the channel meaning it cannot be adjusted in such a way that it completely impedes flow out of the realigned Sizewell Drain; and
- The pipe dams recreate existing connections with upstream compartments in the SSSI meaning they retain no additional water.

The impoundment works will not therefore fall under the requirements of the Reservoir Act 1975 as the total volume retained as a consequence of its operation is considerably below 25,000m<sup>3</sup>.

#### **4. Assessment of Impacts from impoundment**

As set out in the WMMP the purpose of the impoundment is to allow the realigned Sizewell Drain to function hydraulically in the same manner as the existing alignment. Assessment undertaken to support the DCO demonstrated

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that simply realigning the drain and allowing water to discharge freely from the new alignment would not have an unacceptable impact on the water environment. Nonetheless, a commitment was made in the WMMP that an adjustable control structure would be installed at the downstream end of the realigned channel to allow flows leaving the SSSI to be restricted should conditions in the upstream compartments of the SSSI become too dry. Any change to flows in the realigned channel will result in water being retained to replicate the current conditions upstream of the tilting weir.

The new pipe dams are being constructed for the sole purpose of reinstating existing hydraulic connections that will be lost as a result of the realignment. Conveyance of water through the whole of the Sizewell Marshes SSSI is managed by the use of a range of control structures, including pipe dams. Where existing pipe dam structures are lost as a consequence of the realignment, a replacement structure will be installed as close to the original location as possible. Following installation of the new structures the required level of the physical connection to allow water to flow between upstream compartments and the Sizewell Drain will be calibrated using on-site observation and monitoring of water levels.

Although water will be retained upstream of the tilting weir during periods of low flow there will be no downstream derogation of the receiving watercourse, the Leiston Drain. This is due to the fact that the tilting weir is retaining water that would otherwise be present in the current alignment of the Sizewell Drain and upstream compartments of the SSSI in direct hydraulic continuity with it. The straightening of the channel and the new connection point into the Leiston Drain means water may drain more freely without the presence of the tilting weir to moderate discharge during periods of low flow. During periods of normal and high flows the discharge to the Leiston Drain are controlled by the receiving watercourse, which becomes tide-locked twice daily (see Section 1.2 of [Appendix B](#) of the Comments on Written Representations of the DCO)[5].

It is therefore considered that the outcome of the impoundment there will be no material change to the water environment upstream of the impoundment structures. While water will be retained upstream of the tilting weir during periods of low flow this will replicate pre-realignment conditions rather than altering the water environment relative to baseline conditions.

While there is no change to the upstream water environment as a result of the new alignment and proposed impoundment structures a concern was raised by the Environment Agency during pre-application discussions relating to the potential for the tilting weir to cause an increase in sedimentation rates on the upstream side of the tilting weir due to changes in flow dynamics. This is not considered to be a risk for the following reasons:

- There is a significant thickness of sediment, up to 50cm, in the bed of the Sizewell Drain in its current configuration;
- The proposed pipe dams on the realigned channel directly replace existing structures and will therefore not alter the dynamics of silt migration within the Sizewell Marshes SSSI;
- The proposed location of the tilting weir is downstream of a wider section of channel in the Sizewell Drain which has a high density of reeds that will act to limit the downstream transit of silt to the control structure;
- The Sizewell Drain is a low energy environment in which sediment transport takes place predominantly following short duration high intensity rainfall events;

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- The tilting weir will only influence discharge from the realigned Sizewell Drain during periods of low flow. Reducing flow from the Sizewell Drain towards the Leiston Drain will result in a reduction of energy and a potential increase in silt deposition, however there will be limited silt conveyance under low flow conditions;
- There is maintenance access to the tilting weir that will allow visual inspection and, if necessary, intervention

Considerations relating to the Habitats Regulations are provided in a separate technical note (TC 101375145)[6].

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## Sizewell Drain Realignment - Impoundment Licence (MCA/WRIL/2) Technical Note

Additional Supporting Information

### 5. References

	Document Title	EDRMS Reference Number	Version Number	Protective marking	Transmitted via
1.	Water Monitoring and Management Plan (WMMP)	101257203	001	NOT PROTECTIVELY MARKED	Teamcenter
2.	Sizewell Marshes Hydrological Modelling Note	101277353	001	NOT PROTECTIVELY MARKED	Teamcenter
3.	Sizewell C Project - Environmental Statement 6.3 Volume 2 Main Development Site Chapter 19 Groundwater and Surface Water	N/A	N/A	N/A	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001912-SZC Bk6 ES V2 Ch19 Groundwater and Surface Water.pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001912-SZC Bk6 ES V2 Ch19 Groundwater and Surface Water.pdf</a>
4.	Sizewell C Project - Environmental Statement 6.3 Volume 2, Chapter 19, Appendices 19C - 19F	N/A	N/A	N/A	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001926-SZC Bk6 ES V2 Ch19 Groundwater and Surface Water Appx19C 19F.pdf">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001926-SZC Bk6 ES V2 Ch19 Groundwater and Surface Water Appx19C 19F.pdf</a>
5.	The Sizewell C Project	N/A	N/A	N/A	<a href="https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-005470-D3%20-">https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-005470-D3%20-</a>

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## Sizewell Drain Realignment - Impoundment Licence (MCA/WRIL/2) Technical Note

Additional Supporting Information

	Document Title	EDRMS Reference Number	Version Number	Protective marking	Transmitted via
	9.28 Comments on Written Representations - Appendices				<a href="#">%20The%20Sizewell%20C%20Project%20-%20Comments%20on%20WRs%20Appendices.pdf</a>
6.	Appendix C: Package to Inform Countryside Rights of Way (CRoW) Act Assessment and Habitats Regulations Assessment - Permits MCA/FRA/8, MCA/WRIL/2, MCA/FPA/1 and MCA/LDC/5 (Sizewell Drain Realignment)	101375145	001	NOT PROTECTIVELY MARKED	Teamcenter

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## **Sizewell Drain Realignment - Impoundment Licence (MCA/WRIL/2) Technical Note**

Additional Supporting Information

**Annexure A - DCO Requirement 11: WMMP (Revision 1.0), February 2024**

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# The Sizewell C Project

## DCO Requirement 11: Water Monitoring and Management Plan

Revision: 1.0

February 2024





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### 1 Introduction

#### 1.1 The Sizewell C (Nuclear Generating Station) Order 2022 Requirement 11

1.1.1 Requirement 11 of [The Sizewell C \(Nuclear Generating Station\) Order 2022](#) states that:

*(1) Neither Work No. 1A nor any part or defined area of land within Work No. 1A as may be agreed with East Suffolk Council, may be commenced, including dewatering, until a water monitoring and management plan for Work No. 1A or for any part or defined area of land as agreed with East Suffolk Council has been submitted to and approved by East Suffolk Council, following consultation with the Environment Agency, Royal Society for the Protection of Birds (RSPB), Natural England, the East Suffolk Internal Drainage Board and the Local Lead Flood Authority. Any water monitoring and management plan must be developed in general accordance with the Main Development Site Water Monitoring and Response Strategy and the Draft Water Monitoring and Management Plan.*

*(2) Any water monitoring and management plans approved under paragraph (1) must be implemented as approved.*

#### 1.2 This Report

1.2.1 This report has been prepared to discharge of DCO Requirement 11, Water Management and Monitoring Plan (WMMP), in anticipation of SZC carrying out Work No. 1A pursuant to the DCO. It supersedes the [Draft WMMP](#) submitted by SZC in response to the Secretary of State's Request for Further Information dated 25 April 2022 and also the plans submitted for partial discharge of Requirement 11 in respect of the Land East of Eastlands Industrial Estate (LEEIE) and the Site Establishment Early Access Road (SEEAR).

1.2.2 The WMMP provides a framework for monitoring and managing the water environment within Sizewell Marshes Site of Special Scientific Interest (SSSI) in general accordance with the Main Development Site Water Monitoring and Response Strategy Doc. 10.20 [REP10-048]. This is important because the optimal hydroecological conditions for the fen meadow habitat present must be protected and maintained during the SZC construction process. As specified in DCO Requirement 11, this WMMP is in general accordance with both the Main Development Site Water Monitoring and Response Strategy and the [Draft WMMP](#).

1.2.3 This plan is therefore being provided for approval by East Suffolk Council (ESC), pursuant to Requirement 11 of the Order, following consultation, via a workshop held on 29<sup>th</sup> January 2024, with the Environment Agency, Royal Society for the Protection of Birds (RSPB), Natural England, East Suffolk Council, Suffolk County Council, Suffolk Wildlife Trust and the Local Lead Flood Authority.

1.2.4 This WMMP describes the current water management within Sizewell Marshes SSSI, the proposed monitoring of water levels and quality, approach to setting, and proposed, triggers for further investigation of causes of any change in water levels of quality, auditing and reporting of the data, management measures and potential to enhance the marshes water management network.

#### 1.3 Principles of the Plan

1.3.1 The WMMP relates to the monitoring and management of construction works within DCO Works No. 1A, i.e. the monitoring and management of those activities under the control of the contractor (e.g. de-watering), and the pathways for potential impact between the source (e.g. works within the main

- construction area) and receptor (Sizewell Marshes SSSI), i.e. the groundwater and surface water pathway from the sources to receptors.
- 1.3.2 The WMMP acts as a framework to guide the control, monitoring and management of ground and surface water in so far as it relates to the SZC construction works and how these may be affecting Sizewell Marshes SSSI.
- 1.3.3 The Main Development Site Water Monitoring and Response Strategy Doc 10.20 [\[REP10-048\]](#) states that the WMMP must be developed in accordance with the following principles:
- change from baseline conditions identified;
  - plan to prepare for pre-determined action; and
  - the implementation of mitigation.
- 1.3.4 These principles were considered within the Environmental Statement for the scheme and, therefore the monitoring and management measures seek to validate and inform:
- The previously identified sources of impact on water levels and quality in the SSSI;
  - The previously identified potential pathways for effect;
  - the potential significance of any effects on water levels and/or water quality in the receptor (Sizewell Marshes SSSI) are considered; and
  - Targeting of measures (i.e. water level controls) undertaken to mitigate effects where required throughout the construction period.
- 1.3.5 The WMMP incorporates a range of measures that reflect best practice techniques and SZC will take all reasonable steps to avoid and minimise adverse impacts on water levels and water quality within the Sizewell Marshes SSSI. The WMMP may also provide the opportunity to enhance the current management of water within the SSSI both in terms of water level and quality.
- 1.4 Compliance**
- 1.4.1 SZC will implement the plan as approved throughout construction on the main development site pursuant to Requirement 11 of the DCO. The WMMP will be subject to periodic review (frequency to be agreed by the Water Management Working Group, as established by Schedule 17 of the Deed of Obligation [\[REP10-075\]](#)) to ensure that it remains relevant to the works being undertaken. Therefore, any future potential updates to the WMMP i.e. frequency of monitoring, trigger levels, location of new piezometers will be agreed with the key stakeholders forming part of the Water Management Working Group and therefore not require resubmission for discharge under Requirement 11. This will allow the document to evolve in a timely manner as the project progresses. Any amendments agreed by the Water Management Working Group will be tracked and noted within the groups Agreement Log. The document will also be updated to reflect amendments, but not submitted through the Requirement 11 route, unless changes become so substantial and warrant re discharge, this will be agreed with East Suffolk Council Officers in consultation with the Water Management Group.
- 1.4.2 SZC will take all reasonable steps to avoid and minimise adverse impacts on water levels and quality within the Sizewell Marshes SSSI. The WMMP may also provide the opportunity to enhance the current management of water with Sizewell Marshes SSSI and other designated sites in the catchment.

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## 2 Sizewell Marshes SSSI Water Management, Conceptualisation and Project Activities With Potential to Affect Levels

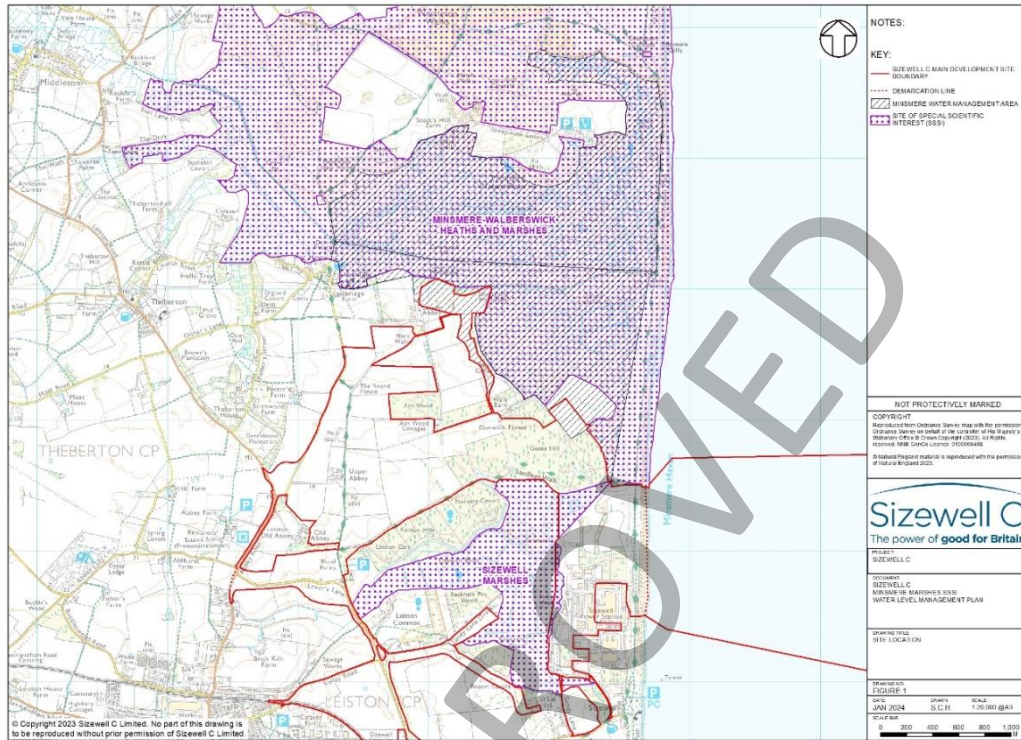
### 2.1 Sizewell Marshes SSSI Water Level Management Plan

- 2.1.1 A WLMP was prepared for Sizewell Marshes SSSI by the Environment Agency in 1998. The WLMP was prepared with reference to 1994 guidance prepared by the Ministry of Agriculture, Fisheries and Food (MAFF, 1994). The stated intention for the WLMP was that it “will be treated as a working document and will be reviewed on a regular basis and updated or revised if the objectives are unable to be met, or if circumstances change”.
- 2.1.2 Many of the original WLMPs produced for other SSSIs following the MAFF guidance have been updated since the publication of the original Sizewell Marshes WLMP in 1998. This work has prioritised sites that are in unfavourable condition, ensuring that government spending is focused on sites that require restoration. Sizewell Marshes is in favourable condition, meaning an update has not been prioritised and no update has been carried out since 1998.
- 2.1.3 It should be noted that the plan is now nearly 30 years old and out of date.

#### a) Land ownership and conservation management

- 2.1.4 Sizewell Marshes SSSI (**Plate 2.1**) is wholly owned by EDF Energy Nuclear Generation Limited (NGL) and the site is managed under contract by environmental land management services providers, currently Freedom Group, which is responsible for water level control and oversight of conservation grazing, amongst other duties in accordance with NGLs responsibility to maintain the SSSI in favourable condition.

Plate 2.1: Location of Sizewell Marshes SSSI in relation to Sizewell C main development site

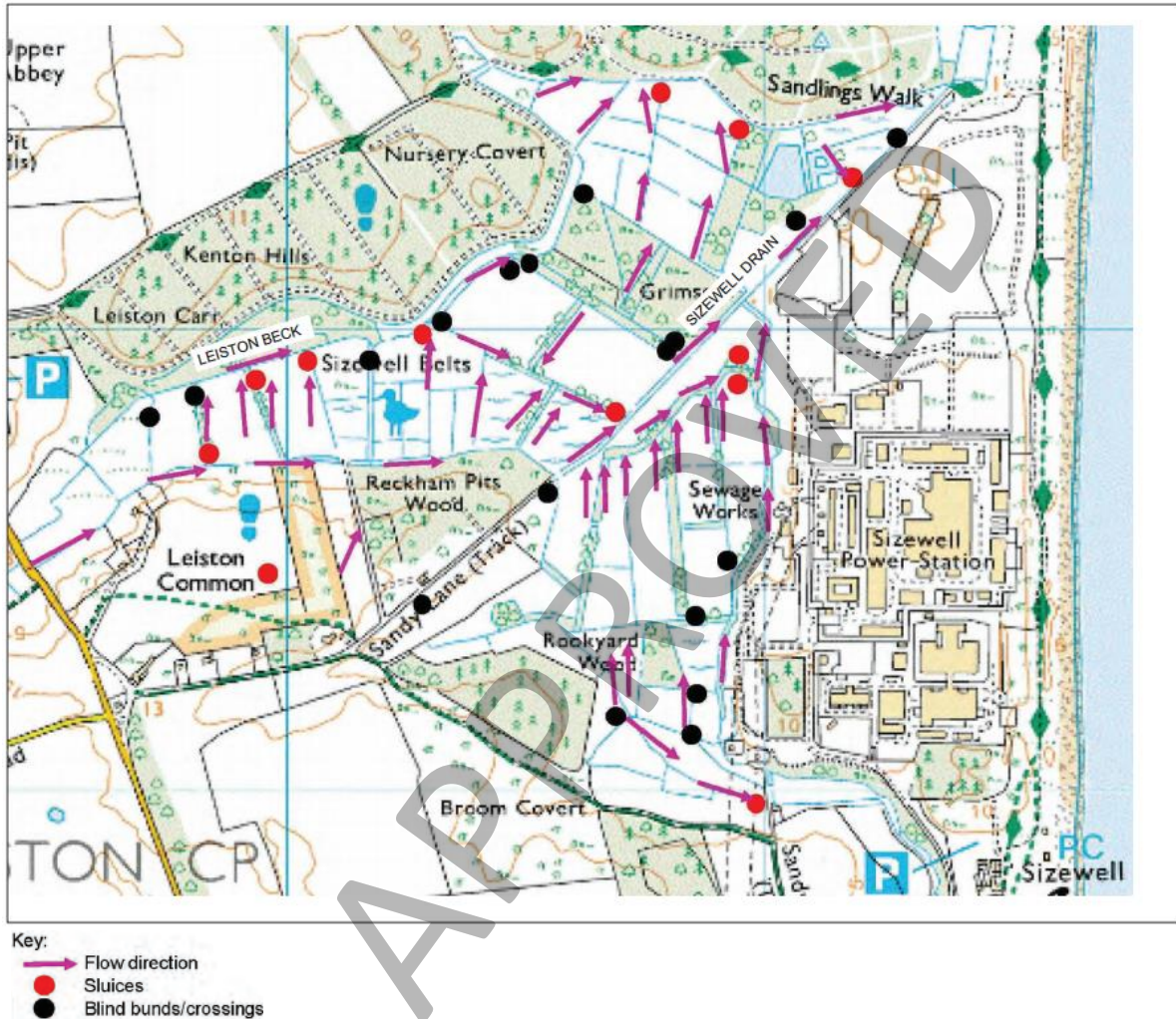


**b) Water management structures and their operation**

- 2.1.5 Water level control within the SSSI is exercised by means of small bunds, sluices and weirs distributed across the site which serve two principal aims:
  - to minimise interaction between the SSSI and Leiston Drain, since the drain receives treated sewage effluent from Leiston sewage works; and
  - to maintain water levels within the fen meadow habitat within the optimal range to maintain it in favourable condition. There are two aspects to this – first to maintain optimal soil moisture conditions for the target vegetation, and secondly to ensure that water levels are kept sufficiently low in the spring/summer for conservation grazing.
- 2.1.6 The existing arrangement of water control structures has been recorded for the Sizewell C project and comprise a series of blind bunds, sluices and weirs across the SSSI. Water levels are managed by Freedom Group using these control structures to modify the movement of water through the SSSI.
- 2.1.7 Drawing 5129919/SZC/009 in **Appendix 19B** of the **Groundwater and Surface Water Chapter 19** of the Environmental Statement (ES) [[APP-304](#)] shows the layout of the control structures and the direction of flow in the drains, and is extracted as **Plate 2.2**.
- 2.1.8 The water level control objective of the WLMP is to retain water levels within 15cm of the ground surface year round.

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Plate 2.2: Extract from drawing 5129919/SZC/009 in Appendix 19B of the Groundwater and Surface Water Chapter 19 of the ES [APP-304] showing the layout of the control structures and the direction of flow in the drains within Sizewell Marshes SSSI



## 2.2 Hydrogeological Conceptualisation of Sizewell Marshes

2.2.1 The geological setting of Sizewell Marshes is described in detail in Section 6.2.3 of APP-304. It can be briefly summarised in the Sizewell Marshes SSSI as peat, overlying Crag, overlying London Clay, overlying Chalk. The water environment in Sizewell Marshes is a function of the interaction between surface water (which represents the majority of the water balance for the site throughout the year), rainfall and groundwater.

- 2.2.2 The mechanisms of change in groundwater in Sizewell Marshes SSSI [REP3-043] considered the movement of water through the marshes and changes in hydrochemistry associated with altering the contribution of different water sources.
- 2.2.3 A comprehensive review of multiple lines of evidence was undertaken to characterize the hydrological and hydrogeological function of the Sizewell Marshes SSSI prior to and during DCO Examination which concluded that the interaction of the different water sources within Sizewell Marshes SSSI influences the baseline water chemistry of the peat groundwater, which in turn influences the distribution of ecological assemblages across the site. However, based on a comprehensive review of multiple lines of evidence undertaken to characterize the hydrological and hydrogeological function of the Sizewell Marshes SSSI prior to and during DCO Examination there is no evidence for variations in the hydrochemistry of the peat to be controlled predominantly by interaction with Crag groundwater.
- 2.2.4 Based on the extensive baseline monitoring undertaken to inform the assessment for SZC, the conceptualisation informed the development of the numerical model built, calibrated and validated for use in ecohydrological assessment in consultation with the Environment Agency and Natural England. Whilst there is evidence for a degree of movement of Crag groundwater into the peat, the upward movement of Crag groundwater is limited by ground conditions in and beneath the SSSI (Section 7.1.2 of APP-304). By far the dominant source of groundwater within the peat is surface water.
- 2.2.5 Maintaining the relative contributions of water from different sources in line with those recorded during the baseline monitoring period will result in continuity of water chemistry appropriate to support the ecological assemblages present in the Sizewell Marshes SSSI.

### 2.3 Condition of Sizewell Marshes SSSI

- 2.3.1 The condition of the fen meadow habitat specifically was assessed in 2021 and the whole of Sizewell Marshes SSSI is currently reported as being in favourable condition. However SZC has noted that water levels have been very high in recent years and these have been detrimental to NGL's management, limiting or preventing grazing or cutting activities in some areas e.g. Station Marshes in the east of the SSSI. To attempt to alleviate the high water levels SZC and NGL jointly funded slubbing out of Leiston Drain from the proposed SSSI crossing down to Minsmere Sluice in 2021. Since then some improvement has been observed but water level remain high in the eastern marshes. As a result an assessment of the condition of fen meadow in areas that will be directly affected by the development will be undertaken in spring/summer 2024 (scope to be agreed with the Ecology Working Group (EWG)).

### 2.4 Project Activities With Potential to Affect Water Levels and Quality

- 2.4.1 The assessment of hydrological effects on Sizewell Marshes resulting from the construction and operation of SZC considered all the potential construction activities proposed within DCO Works No. 1A and concluded that there is a small degree of level change predicted in both the Crag and peat groundwater systems during the construction period. These predicted effects, which may not be negative, comprise seasonal, non-continuous and very small lowering of water levels in the first 3-4 years of construction and result from two project activities (i) the realignment and shortening of the Sizewell Drain (which increases the hydraulic gradient of the watercourse and therefore encourages









review of data for new locations, triggers for these locations will be agreed with the Water Management Working Group.

- Boreholes GW8, GW9 (S&D), GW12, GW16(D), that are located on the coastal fringe of the main development site will be lost to the development and will not be replaced as these will be within the area encompassed by the cut-off wall and hence will not be useful in respect of the assessment of water level changes in Sizewell Marshes SSSI. As a result these are not shown on **Plate 3.1**.

3.2.3 Details of the proposed water monitoring locations and the rationale for selection of each are provided in **Table 3.1**.

**a) Network review undertaken**

3.2.4 There was a review of the monitoring network during winter 2023 to establish access and equipment status and any servicing requirements. The findings are as follows:

- P1 & P4 have been inundated with water since winter 2021 and requires an on-site water security access team to safely access the locations. Safe access is next planned for spring/summer 2024 when water levels are expected to be lower.
- P2 has been inundated with water since summer 2021 and requires a new footbridge to safely access the location. The installation of the new footbridge is planned for spring/summer 2024 when water levels are expected to be lower.
- P7 has been removed as part of the tree-felling works north-east of the SSSI.
- P8 & P9 benefit from good access. Both locations require new automatic loggers installing, scheduled for spring 2024.
- P12 benefits from good access. The piezometer standpipe has migrated vertically into the ground, suspected to be a consequence of historic livestock grazing at the location. Livestock have now been removed from this location. The standpipe will be repaired and automatic logger recalibrated or replaced, schedule for spring 2024.
- P14 & P15 benefit from good access. No service to access or equipment is proposed at these locations.

3.2.5 P1 and P7 have or will be lost as part of construction activities to the east and north-east of the SSSI. It is proposed that these locations will be reinstated either just inside or just outside the Order Limits, as close to the original positions as possible and within a similar orientation. The standpipes and automatic loggers housed therein will be installed to a similar depth.

3.2.6 Remedial actions and replacement of P1 and P7 are planned for spring/summer 2024, subject to SSSI consent if required.

3.2.7 The crossing is over a riparian drain (not Main River or IDB maintained) and therefore no permit or land drainage consent is required.

3.2.8 Following the completion of the above listed works, all monitoring locations will be surveyed by a geospatial team to re-establish datum and ground levels in spring/summer 2024.

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Table 3.1: Summary of the proposed water monitoring locations

Installation type and identifiers	Location	Frequency	Rationale
Piezometer P1*, P4, P7*	Eastern boundary of Sizewell Marshes	Automatic loggers recording water level every 15 minutes, with monthly downloads and manual measurements where feasible. Monthly water quality.	The proximity of these monitoring locations to the Main Construction Area (MCA), the realigned Sizewell Drain (DRN163G0202 and DRN163G0201), and areas of maximum drawdown in the peat. They measure groundwater in the shallow peat and will allow the early identification of effects that may extend further into the designated wetland. Trigger water levels have been established for these locations*.
Piezometer P2, P8, P9, P12, P14, P15	Within fen meadow	Automatic loggers recording water level every 15 minutes, with monthly downloads and manual measurements where feasible. Monthly water quality.	The monitoring locations sit in the nationally designated fen meadow habitats. They measure groundwater in the shallow peat and lie within the zone where drawdown of more than 0.1m is predicted in Crag. Whilst smaller effects are predicted in the peat, the monitoring locations are proposed to verify these findings. Trigger water levels have been established for these locations.
Borehole C1 (S&D), C2 (S&D), & C3 (S&D)	To the north and west of the MCA	Automatic loggers recording water level every 15 minutes, with monthly downloads and manual measurements where feasible. Monthly water quality.	Shallow and deep paired boreholes, monitoring groundwater levels and quality at different elevations in the strata. Provides a proximal comparison between water levels in the Crag and peat, and verifies predicted changes in the Crag.
Gauging station G3, G4	Western parts of Sizewell Marshes	Automatic loggers recording water level every 15 minutes, with monthly downloads and manual measurements where feasible. Monthly water quality.	Surface water monitoring to understand the distribution of the key surface water inputs to Sizewell Marshes to be measured.
Gauging station G5	Wild Aldhurst	Automatic loggers recording water level every 15 minutes, with monthly downloads and manual measurements where feasible. Monthly water quality.	Surface water monitoring linked to the operation of the compensatory habitat. A condition of the permits and licences for the operation of Wild Aldhurst.
Gauging station G1, G8	Downstream of SSSI crossing	Automatic loggers recording water level every 15 minutes, with monthly downloads and manual measurements where feasible. Monthly water quality.	Surface water monitoring providing the means of demonstrating the lack of effect downstream of the MCA. The reach is influenced by tide locking at Minsmere Sluice, which can only fully be separated from the fluvial influence by using both gauges.
Surface water sampling	Topographic low points within the fen meadow habitat	Monthly water quality.	Sampling will take place in local depressions or small topographic features within fen meadow habitats favoured by low lying and/or rarer species. The Terrestrial Ecology Monitoring and Mitigation Plan (TEMMP) <a href="#">[REP10-090]</a> requires the botanical monitoring of low growing plant species which occupy shallow depressions of the marshes. Water quality monitoring of 5 representative locations subject to botanical monitoring, where feasible, will be undertaken.

\* Installations requiring replacement and hence data from new points will need to be compared with the data for the existing locations prior to presenting and adopting triggers for these.

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Table 3.2: Proposed water quality determinands

Determinand	Units	Limit of detection*	Lab or Field Test
pH	n/a	n/a	Field
Electrical Conductivity	µS/cm	1	Field
Alkalinity (Total)	mg/l	10	Lab
Chloride	mg/l	1	Lab
Ammonium	mg/l	0.05	Lab
Ammoniacal Nitrogen as NH <sub>3</sub> and NH <sub>4</sub>	mg/l	0.05	Lab
Nitrite	mg/l	0.02	Lab
Nitrate	mg/l	0.5	Lab
Total Phosphorus	mg/l	0.02	Lab
Phosphate	mg/l	0.2	Lab
Sulphate	mg/l	1.0	Lab
Total Oxidised Nitrogen	mg/l	0.2	Lab
Calcium	mg/l	5.0	Lab
Potassium	mg/l	0.5	Lab
Magnesium	mg/l	0.5	Lab
Sodium	mg/l	0.5	Lab

\* Limits of Detection to be confirmed by the laboratory.

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## 4.2 Setting Triggers

### a) Approach

- 4.2.1 The microtopographic variability across the site adds complexity when describing hydrological conditions for the designated communities. The difference between tussock tops and the surrounding ground surface is a key interest within the fen meadow areas. Tussocks in the SSSI range in height from 0.05m to 0.15m.
- 4.2.2 Validated LiDAR data are available for Sizewell Marshes, meaning that it has been feasible to describe the water management regime for each unit of the SSSI. These data have been used as the basis for defining water level triggers (see below). High resolution water level monitoring, as proposed to be collected on an on-going basis in this plan (see Section 3.2 and Table 3.1), will then be used to assess whether conditions within Sizewell Marshes are consistent with the baseline (pre-construction) period.

### b) Water Management Objectives

- 4.2.3 The objective throughout the construction period is to maintain the existing water management regime. Baseline water level monitoring data have been analysed to define triggers, which have the following characteristics:
- the fen meadow (M22) community has exacting water management requirements.
  - seasonal changes in water level requirements throughout the year mean that defined triggers for each month are needed for the peat piezometers within Sizewell Marshes.
  - Between November and March the maximum water levels can be less than 0.15m below ground level. Minimum levels are defined by the 70<sup>th</sup> centile water level from the baseline monitoring.
  - Between April and October the upper and lower triggers are defined for each month, with an upper threshold defined by 30<sup>th</sup> centile values recorded from baseline monitoring and a lower threshold defined by the 70<sup>th</sup> centile values.
- 4.2.4 Defining triggers using these characteristics recognises the range of water level conditions that are observed on the site.
- 4.2.5 Basing the triggers on water level recorded in shallow peat piezometers, is underpinned by the principle that the water environment is a function of the interaction between surface water (which represents the majority of the water balance for the site), rainfall and groundwater, and that analysis of baseline data indicated a reasonable correlation between variations in hydrochemistry in the drainage network and groundwater within the peat and the ecological assemblages. During construction there is no significant change to the proportional flows of Crag groundwater, surface water and release of water from storage in the peat and hence no change to the hydrochemistry of the site is predicted. The focus on levels is therefore based on the conceptualisation that change in water levels, associated with a difference in relative contribution from different water sources, will occur before there is any change to water chemistry. Furthermore, data from the surface water gauges can be used in conjunction with the groundwater level data, collected from peat and Crag monitoring points, to review the water balance within the SSSI. In combination, these monitoring data will enable analysis of the contribution of diffuse Crag upwelling and surface water inflow into the SSSI to demonstrate that these are in line with baseline conditions and predictions.

- 4.2.6 As a result, triggers in respect of water quality are not proposed, although water quality monitoring is an integral component of this Plan and has been increased in frequency relative to the draft plan. Data will be reviewed in tandem with changes in water levels as part of the review of the impact of any potential changes identified in the water level monitoring data.
- 4.2.7 The approach, developed in agreement with the local authorities, Environment Agency and Natural England, allows the long baseline monitoring record to be used to determine appropriate future conditions. This provides continuity of the current hydrogeological and hydrological regime recognising the degree of natural variability within the water environment.

**c) Proposed Triggers**

- 4.2.8 The approach to setting triggers is illustrated in **Plate 4.1**, in this case derived from groundwater level data collected at location P8, within the fen meadow (M22) habitat. For location P8, ground level is at 0.654mAOD. In the winter months, water levels are typically above the ground surface. The need for action will be triggered if water levels fall below the 70<sup>th</sup> centile value (within the red shaded area). The process for taking action is described in **Section 4.3**.
- 4.2.9 Summer water levels show similar levels of variability to winter levels, including some periods where water levels exceed ground level. In the summer, triggers are prescribed when water levels fall below the 70<sup>th</sup> centile and are higher than the 30<sup>th</sup> centile (both areas are shaded red).
- 4.2.10 The selection of the 30<sup>th</sup> centile and 70<sup>th</sup> centile as trigger levels in this WMMP is based on their position within the baseline datasets. They were proposed to constrain variability within the regime, providing a means of intervening and modifying water levels where required within the central band of recorded baseline conditions, and were agreed with stakeholders during development of the [Draft WMMP](#). SZC is not proposing to change this approach. Water levels data will be processed and reviewed against triggers monthly.
- 4.2.11 Trigger levels detailed in the Draft WMMP were derived from an extensive monitoring dataset collected from late 2013 to late 2018. The triggers have however been updated for this final plan, relative to those in the [Draft WMMP](#), informed by monitoring at these installations to the end of the hydrological year 2022 (i.e. 31<sup>st</sup> October) where available. Analysis of the differences, where new data are currently available, show that there has not been a general shift in water levels (either wetter or drier), with the 30<sup>th</sup> and 70<sup>th</sup> centiles remaining relatively unchanged. A comparison of the P8 triggers in the Draft WMMP and proposed triggers based on updated data are presented as an example in **Plate 4.2**, and show close correlation during the summer, only differing in the winter months. Where there are larger differences these tend to be at the extremes (i.e. beyond the proposed trigger levels).
- 4.2.12 Any changes in the calculated triggers between the draft and final iterations of the plan are unrelated to works on SZC, which had not commenced during the data periods used.
- 4.2.13 **Table 4.1** lists the proposed trigger values.

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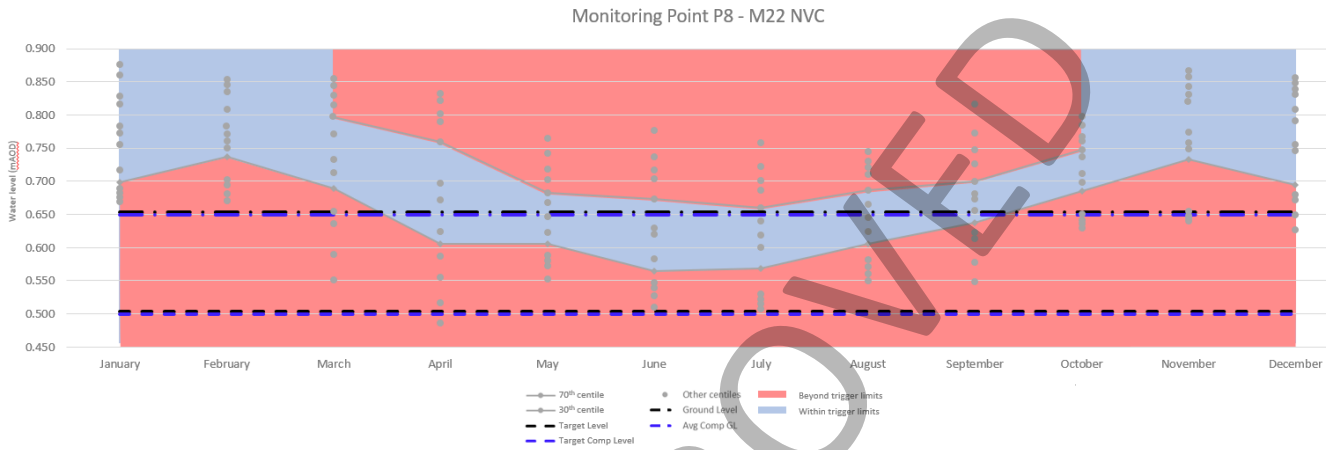
*Table 4.1: Proposed water level triggers*

Location	P2	P4	P8	P9	P12	P14	P15
Ground level at piezometer	0.609	0.526	0.654	0.762	0.766	0.746	0.684
Mean ground level in compartment	0.550	-	0.650	0.740	0.650	0.710	0.710
Indicative summer trigger based on mean ground level in compartment	0.400	-	0.500	0.590	0.500	0.560	0.560
January triggers	Lower: 0.560	Lower: 0.354	Lower: 0.732	Lower: 0.607	Lower: 0.615	Lower: 0.634	Lower: 0.652
February triggers	Lower: 0.535	Lower: 0.308	Lower: 0.750	Lower: 0.572	Lower: 0.572	Lower: 0.580	Lower: 0.656
March triggers	Lower: 0.518	Lower: 0.199	Lower: 0.696	Lower: 0.541	Lower: 0.530	Lower: 0.561	Lower: 0.606
April triggers	Upper: 0.527 Lower: 0.452	Upper: 0.410 Lower: 0.137	Upper: 0.719 Lower: 0.612	Upper: 0.602 Lower: 0.478	Upper: 0.543 Lower: 0.453	Upper: 0.592 Lower: 0.507	Upper: 0.608 Lower: 0.526
May triggers	Upper: 0.471 Lower: 0.406	Upper: 0.303 Lower: 0.109	Upper: 0.685 Lower: 0.606	Upper: 0.599 Lower: 0.496	Upper: 0.532 Lower: 0.424	Upper: 0.541 Lower: 0.473	Upper: 0.559 Lower: 0.492
June triggers	Upper: 0.427 Lower: 0.367	Upper: 0.244 Lower: 0.017	Upper: 0.676 Lower: 0.572	Upper: 0.621 Lower: 0.558	Upper: 0.556 Lower: 0.411	Upper: 0.482 Lower: 0.377	Upper: 0.576 Lower: 0.458
July triggers	Upper: 0.423 Lower: 0.336	Upper: 0.171 Lower: 0.042	Upper: 0.654 Lower: 0.572	Upper: 0.618 Lower: 0.576	Upper: 0.504 Lower: 0.3926	Upper: 0.540 Lower: 0.403	Upper: 0.599 Lower: 0.439
August triggers	Upper: 0.463 Lower: 0.368	Upper: 0.308 Lower: 0.206	Upper: 0.678 Lower: 0.611	Upper: 0.659 Lower: 0.558	Upper: 0.487 Lower: 0.346	Upper: 0.552 Lower: 0.479	Upper: 0.595 Lower: 0.466
September triggers	Upper: 0.470 Lower: 0.411	Upper: 0.426 Lower: 0.217	Upper: 0.701 Lower: 0.637	Upper: 0.693 Lower: 0.559	Upper: 0.527 Lower: 0.345	Upper: 0.554 Lower: 0.497	Upper: 0.592 Lower: 0.492
October triggers	Upper: 0.533 Lower: 0.469	Upper: 0.436 Lower: 0.315	Upper: 0.766 Lower: 0.690	Upper: 0.713 Lower: 0.616	Upper: 0.700 Lower: 0.455	Upper: 0.632 Lower: 0.527	Upper: 0.674 Lower: 0.595
November triggers	Lower: 0.552	Lower: 0.422	Lower: 0.751	Lower: 0.600	Lower: 0.601	Lower: 0.608	Lower: 0.629

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Location	P2	P4	P8	P9	P12	P14	P15
December triggers	Lower: 0.540	Lower: 0.399	Lower: 0.754	Lower: 0.608	Lower: 0.618	Lower: 0.603	Lower: 0.640

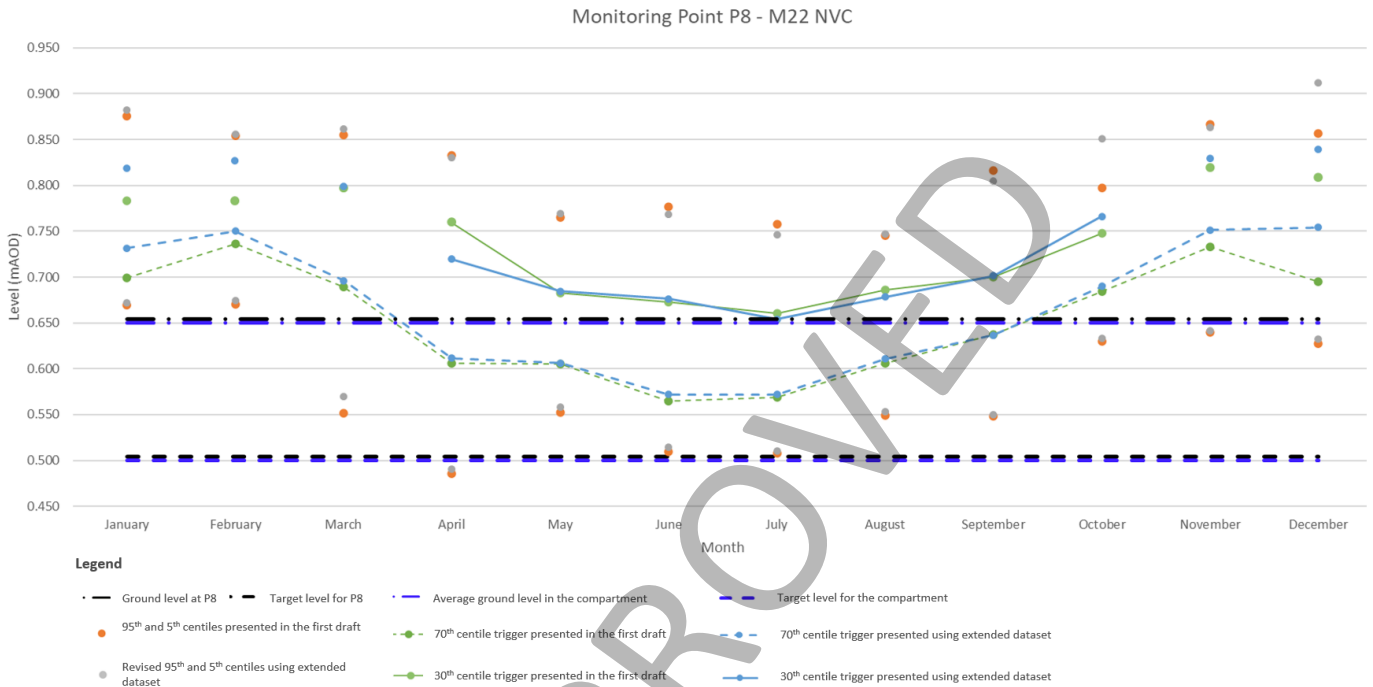
Plate 4.1: Groundwater level centiles for piezometer P8 on Sizewell Marshes



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Plate 4.2: Groundwater level centiles comparison of draft and updated final trigger levels for piezometer P8 on Sizewell Marshes



4.2.14 Routine water quality monitoring will not be used as a trigger for action but data will be reviewed against the historic dataset with any trends identified discussed with the Water Management Working Group. However should a potential impact on water level be identified then further targeted water quality monitoring will be a potential action, with the data reviewed against the historic dataset. This is based on the conceptualisation that change in water levels, associated with a difference in relative contribution from different water sources, will occur before there is any change to water chemistry with the intention of the monitoring to identify the potential for a change in the hydrochemical environment prior to it occurring, hence the focus on the more immediate indicator, water level. Any targeting proposed may be for specific locations and determinands to investigate specific issues.

### 4.3 Reporting and Adaptive Mitigation

4.3.1 The proposed water level review principles, to be agreed with the Water Management Working Group, are detailed below:

- Passing of a trigger at a single location will be logged on the first occasion;
- On passing a trigger for a second occasion at the same location, it will be logged if not greater than the first occasion. If increasing this will trigger review of data from the wider monitoring network;

- On passing a trigger on three consecutive occasions at the same location, data from the wider monitoring network will be reviewed regardless.
  - If however multiple points (>2) pass a trigger at the same time then this would also trigger a review.
- 4.3.2 The review is expected to be a rapid screening exercise and consider:
- The origins of the issue i.e. is it construction related (what stage is the development at?), natural variability (how wet or dry has it been?) or other causes (Is SZC aware of any off-site activities with potential to affect levels?);
  - How far outside the trigger value (i.e. where are levels relative to the centiles);
  - Spatial extent (is a pattern evident when considering the monitoring locations in sequence?);
  - Likely longevity (is there a rising or falling trend?).
  - Based on these review steps: Is any action needed?
- 4.3.3 Additionally, checks on the water quality and water balance within the SSSI will be undertaken based on review of data from the surface water gauges and groundwater level monitoring installations to demonstrate that contributions from different sources are in line with baseline conditions and predictions.
- 4.3.4 Any actions proposed will be based on the following considerations:
- Passing triggers due to natural hydrological variability (e.g. drought or flood) or non-development related changes (e.g. actions by others);
  - Passing triggers due to construction activities;
  - Passing triggers due to other relevant changes (e.g. revisions to permits and licences, ecological survey results);
  - Annual review of data in October to align with the hydrological year, with interim review in April, enabling lessons learnt and good practice to be reviewed and reflected in any plan updates made.
- 4.3.5 Where appropriate, passing of a trigger will also instigate wider stakeholder engagement and investigation. For example, where an external pressure is the potential cause of a trigger being passed, including water levels above bank full levels at the location of the water control structure, which will ultimately be governed by the Minsmere Sluice and flow conditions along the Leiston Drain. Similarly, when water levels are below the bed level at the location of the control structure, they will ultimately be governed by the prevailing natural hydraulic gradient in the wider groundwater system.

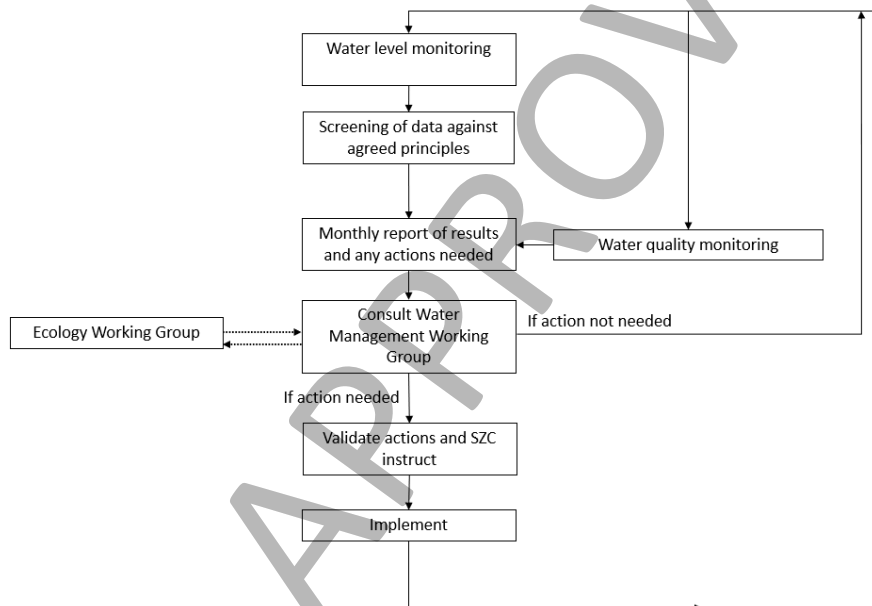
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## 5 Auditing and Plan Review

### 5.1 Audit process

- 5.1.1 Monitoring results, notification of triggers being passed, the results of rapid screening exercises, and proposed actions will be reported to, and discussed with, the Water Management Working Group, and interface with the Ecology Working Group as appropriate. SZC will then be responsible for implementing any actions as approved.
- 5.1.2 Reporting against triggers and also in respect of the water balance and water quality, will be pro-forma based with the format agreed with the Water Management Working Group within 1 month of discharge of the plan.
- 5.1.3 **Plate 5.1** outlines the process for obtaining data, reviewing it, determining action, its acceptance and implementation.

Plate 5.1: Process for monitoring and action



- 5.1.4 SZC is committed to controlling the inputs of surface water drainage into the marshes from the construction and operation activities, as secured by Requirement 5 of the Order relating to Project wide: Surface and foul water drainage and any subsequent drainage consents (applied for and approved).

### 5.2 Review of the WMMP

- 5.2.1 The WMMP will be subject to periodic review (frequency to be agreed by the Water Management Working Group to ensure that it remains relevant to the works being undertaken. Any future potential minor updates to the WMMP i.e. frequency of monitoring, trigger levels, location of new piezometers will be agreed with the key stakeholders forming part of the Water Management

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Working Group and therefore not require resubmission for discharge under Requirement 11. This will allow the document to evolve in a timely manner as the project progresses. Any amendments agreed by the Water Management Working Group will be tracked and noted within the groups Agreement Log. The document will also be updated to reflect amendments, but not submitted through the Requirement 11 route, unless changes become so substantial and warrant re discharge, this will be agreed with East Suffolk Council Officers in consultation with the Water Management Group.

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## 6 Enhancing the Water Management Network

6.1.1 The network of monitoring proposed for the Sizewell Marshes SSSI provides an opportunity for the wider water environment to be managed in a more coordinated and optimised manner. Following first commencement, the Water Levels Management Group (WLMG) and Water Management Working Groups (WMWG) have been established in accordance with the Deed of Obligation. These forums provide an opportunity for the member organisations to set out shared objectives for managing water levels within Sizewell Marshes SSSI and ensure that water levels are managed their respective land ownerships in a manner that is consistent with maximising the ecological value of the SSSI. Further information in relation to these groups, and their responsibilities, are set out in their respective Terms of Reference (ToR).

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## 7 References

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101375146VERSION 01

## **Sizewell Drain Realignment - Impoundment Licence (MCA/WRIL/2) Technical Note**

Additional Supporting Information

### **Annexure B – Sizewell Marshes Hydrological Modelling Note**

A - APPROVED

## **Continued Validity of Sizewell Marshes Hydrological model**

In our meeting on Thursday 2<sup>nd</sup> May, we discussed our intention to rely on the hydrological modelling undertaken for the DCO with regard to Sizewell Marshes SSSI, and our view it continues to be appropriate and robust. We agreed to circulate a note explaining our views on this. To that end, please see below a summary of the evidence base and rationale for using the numerical modelling from the DCO as an appropriate evidence base for the HRA to support permit applications.

In support of the DCO a numerical model was developed to represent the groundwater and surface water regime in the area of the Sizewell C development. The area covered by the model domain is approximately 60 km<sup>2</sup>. The numerical model was based on a robust conceptual understanding of the groundwater and surface water flow regimes based on extensive ground investigation and monitoring data. The SZC model was developed to allow appropriate interface with the Environment Agency's regional model (the NEAC model). This meant that suitable boundary conditions could be determined and model predictions validated against the NEAC model, particularly within the Sizewell Marshes SSSI. Within the domain of the SZC model the grid was refined around areas of interest to allow greater resolution in assessing change. In the Sizewell Marshes SSSI grid cells reduce to be less than 1m in scale. The model includes a coupled representation of groundwater and surface water in the Sizewell Marshes SSSI, which allows change in the interaction between groundwater and surface water to be assessed at each timestep in the model runs.

The numerical model was calibrated against real world monitoring data to demonstrate that there is a high degree of correlation between the model behaviour and observed groundwater and surface water responses. Once the baseline model had been developed and validated against real world data as being suitably representative a series of model runs were undertaken to allow the change associated with individual aspects of the Sizewell C project to be assessed.

The process of developing the SZC model was undertaken in collaboration with stakeholders including the Environment Agency and Natural England to ensure it was a sufficiently accurate tool to assess impacts in the appropriate areas of interest. A list of formal engagements is presented in Table 19.1 of the Groundwater and Surface Water chapter of the ES ([https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010012/EN010012-001912-SZC\\_Bk6\\_ES\\_V2\\_Ch19\\_Groundwater\\_and\\_Surface\\_Water.pdf#page=10](https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010012/EN010012-001912-SZC_Bk6_ES_V2_Ch19_Groundwater_and_Surface_Water.pdf#page=10)). This sets out the formal engagements between 2014 and 2019 prior to the DCO Examination.

During the DCO Examination period the Environment Agency set out in their Statement of Common Ground (<https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010012/EN010012-008186-Sizewell%20C%20Project%20-%20Final%20SoCG%2027.pdf#page=13>) that:

- The SZC numerical model was an appropriate tool to use in assessing change resulting from the construction and operation of Sizewell C (MDS\_GW1)
- The groundwater conceptualisation on which the numerical model was based is appropriate (MDS\_GW2)
- The surface water conceptualisation on which the numerical model was based is appropriate (MDS\_GW3)
- The assessment of predicted impacts is appropriate (MDS\_GW6)
- The proposed Water Monitoring and Management Plan (which includes the control structure on the realigned stretch of Sizewell Drain) is appropriate (MDS\_GW8)

- The proposed terrestrial ecology assessment methodology, identified impacts, and mitigations is appropriate.

The original rationale for the Sizewell Drain realignment was set out in an appendix to the ES chapter (<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001926-SZC Bk6 ES V2 Ch19 Groundwater and Surface Water Appx19C 19F.pdf#page=3>). This outline design was assessed in the ES and forms the basis for the current, more detailed, design.

Table 19.15 of the ES chapter (<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001912-SZC Bk6 ES V2 Ch19 Groundwater and Surface Water.pdf#page=87>) indicates that during construction the realignment of the drain would have a minor adverse residual effect that was not significant. Table 19.17 of the ES chapter (<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001912-SZC Bk6 ES V2 Ch19 Groundwater and Surface Water.pdf#page=95>) indicates the same for the operational phase of the development.

In the Examining Authority's Recommendation Report it is stated in para. 5.11.76 (<https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-011161-SZC-Volume-2-Sections-5.1-5.13-FINAL.pdf#page=449>) that the effect of realignment activity would not be significant. This conclusion is based on the assessment agreed with the Environment Agency in their Statement of Common Ground.

During the DCO Examination a note was produced (Appendix B of [REP3-043](#)) that sets out the water balance in the Sizewell Marshes. This was produced in response to stakeholder concerns about change to the hydrochemistry and supported ecology of the Sizewell Marshes during the DCO. Paras. 1.4.14-15 of this note state that (in summary) *the majority of the surface water levels and flows within the Sizewell Marshes are comparable between baseline and development model runs through the year. The exception is in the Sizewell Drain at the downstream end of the Sizewell Marshes. Here, there is a small increase in the maximum predicted flow rate, and the frequency at which it occurs. This is associated with the realigned Sizewell Drain. There is little or no change predicted in the Leiston Drain, downstream of the SSSI.*

[Section 1.5.b](#)) describes the mechanism for change associated with the realignment of the drain, including in para. 1.5.17 that the control structure was not modelled i.e. the small degree of change predicted does not trigger the need for representation of the control structure in the numerical model.

The assessment made during the DCO was based on data and evidence collected prior to submission of the DCO and supporting documentation. This included the draft Water Monitoring and Management Plan ([https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-007610-Sizewell%20C%20Project%20-%20Other-%20SZC%20Bk9%209.87\(A\)%20Draft%20Water%20Monitoring%20and%20Management%20Plan%20Clean%20Version.pdf](https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-007610-Sizewell%20C%20Project%20-%20Other-%20SZC%20Bk9%209.87(A)%20Draft%20Water%20Monitoring%20and%20Management%20Plan%20Clean%20Version.pdf)). This draft was agreed with the EA in the Statement of Common Ground (MDS\_GW8).

Subsequent to the DCO monitoring of water levels and flows within the Sizewell Marshes has continued. During the recent revision of the Water Monitoring and Management Plan more recent (post-DCO) monitoring data was compared to that used during the DCO assessments. This

comparison showed that the characterisation of baseline conditions in the Sizewell Marshes SSSI established prior to the DCO remains valid, with no significant deviation in monitoring data. This is set out in para. 4.2.11 of the WMMP recently approved to discharge Requirement 11 of the DCO.

4.2.11 Trigger levels detailed in the Draft WMMP were derived from an extensive monitoring dataset collected from late 2013 to late 2018. The triggers have however been updated for this final plan, relative to those in the [Draft WMMP](#), informed by monitoring at these installations to the end of the hydrological year 2022 (i.e. 31<sup>st</sup> October) where available. Analysis of the differences, where new data are currently available, show that there has not been a general shift in water levels (either wetter or drier), with the 30<sup>th</sup> and 70<sup>th</sup> centiles remaining relatively unchanged. A comparison of the P8 triggers in the Draft WMMP and proposed triggers based on updated data are presented as an example in **Plate 4.2**, and show close correlation during the summer, only differing in the winter months. Where there are larger differences these tend to be at the extremes (i.e. beyond the proposed trigger levels).

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## **Sizewell Drain Realignment - Impoundment Licence (MCA/WRIL/2) Technical Note**

Additional Supporting Information

### **Annexure C - Design Drawings**

A - APPROVED

**FOR PERMIT APPLICATION**

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OTHER GRID	<input type="checkbox"/>	(To be defined in the contract project plan)	

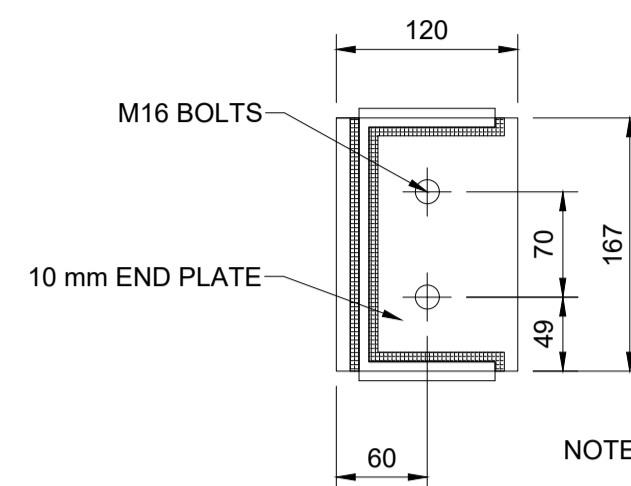
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- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000007.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT SZC-EW0413-ATK-XX-000-XXXXX-SPE-CIV-000001.

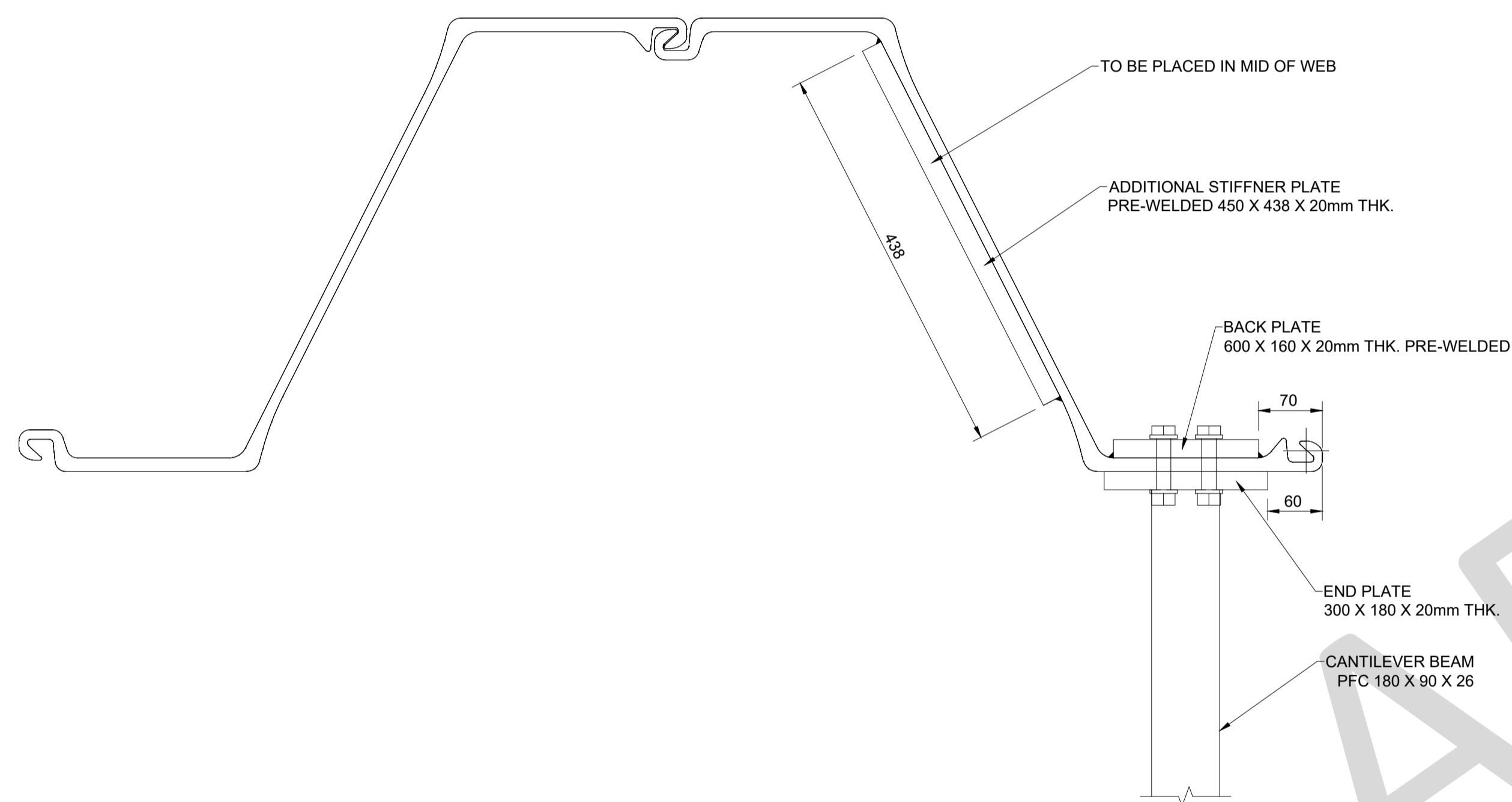
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- ALL STAIR STRINGER JOINTS TO BE FULL STRENGTH BUTT WELDS.
- ALL OTHER WELDS TO BE 6mm FILLET WELDS CONTINUOUS UOS (AS PER BS EN ISO 15614-1:2017).
- ALL HOLES FOR HANDRAIL STANDARDS AND STAIR TREADS TO BE 14 DIA. FOR M12 GRADE 8.8 BOLTS.
- ALL OTHER HOLES ARE TO BE 18 DIA. FOR M16 GRADE 8.8 BOLTS.
- ALL DIMENSIONS & DETAILS SHOWN FOR HANDRAILING, STANDARDS & TREADS ARE TO SUPPLIER'S STANDARD PATTERN.
- FINISH - ALL MATERIALS TO BE HOT - DIP GALVANIZED (INCLUDING BOLTS AND NUTS) (AS PER BS EN ISO 1461) EXCEPT FOR EXCEPT FOR PLATES WELDED TO SHEET PILES, WHICH ARE TO BE UNTREATED (STAIR & LANDING STRINGERS ARE TO BE GALVANIZED).
- MATERIALS - PLATES S355 J0 AS PER STANDARD EN 10025-2 - BOLTS GRADE 8.8 AS PER STANDARD EN 14399
- COVER PLATES TO BE WELDED TO SHEET PILES OFF-SITE. NO SITE WELDING WILL BE PERMITTED.

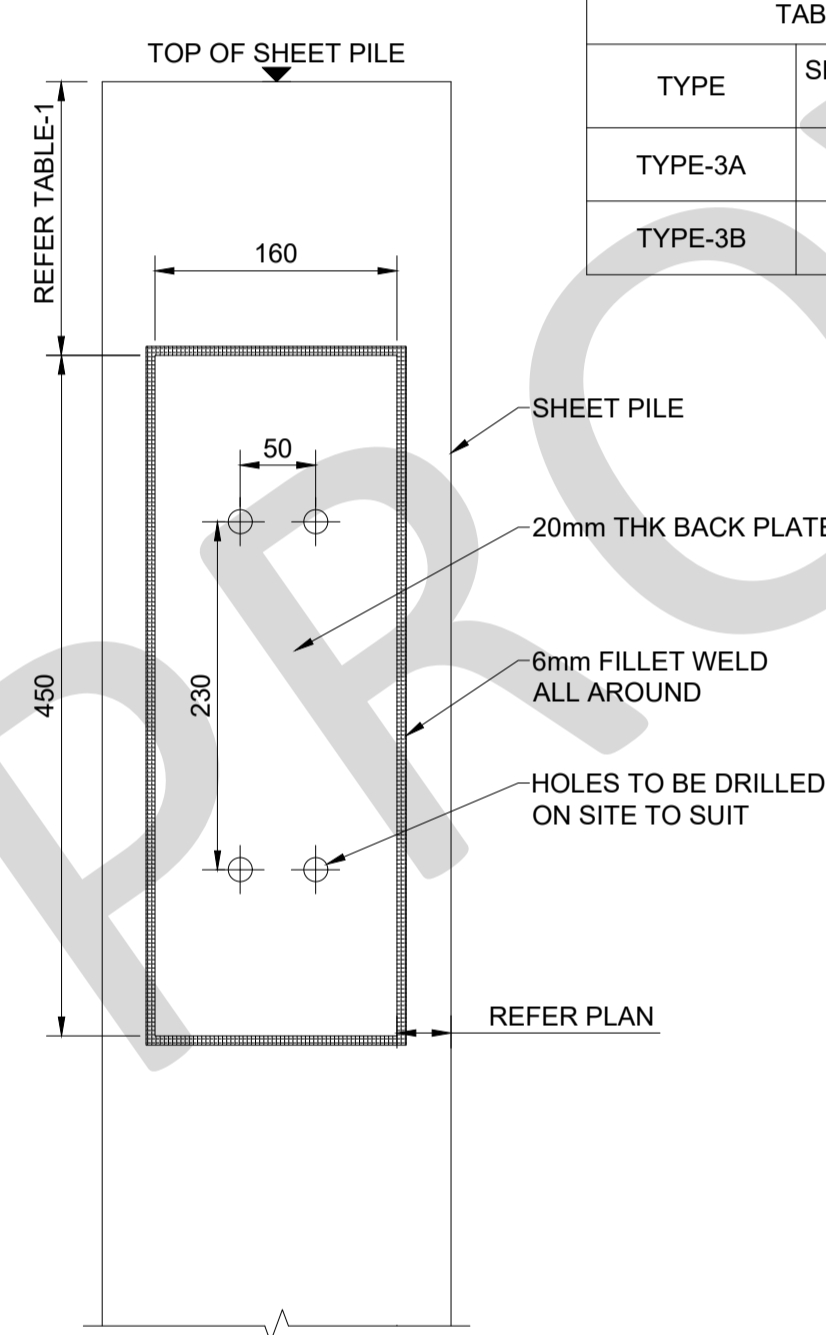


NOTE: TYPE 4 WILL REQUIRE 10 mm PLATE WELDED TO TOES OF SUPPORTING PFC.

**TYPE 2 AND TYPE 4 CONNECTION DETAIL**  
(SCALE 1:5)



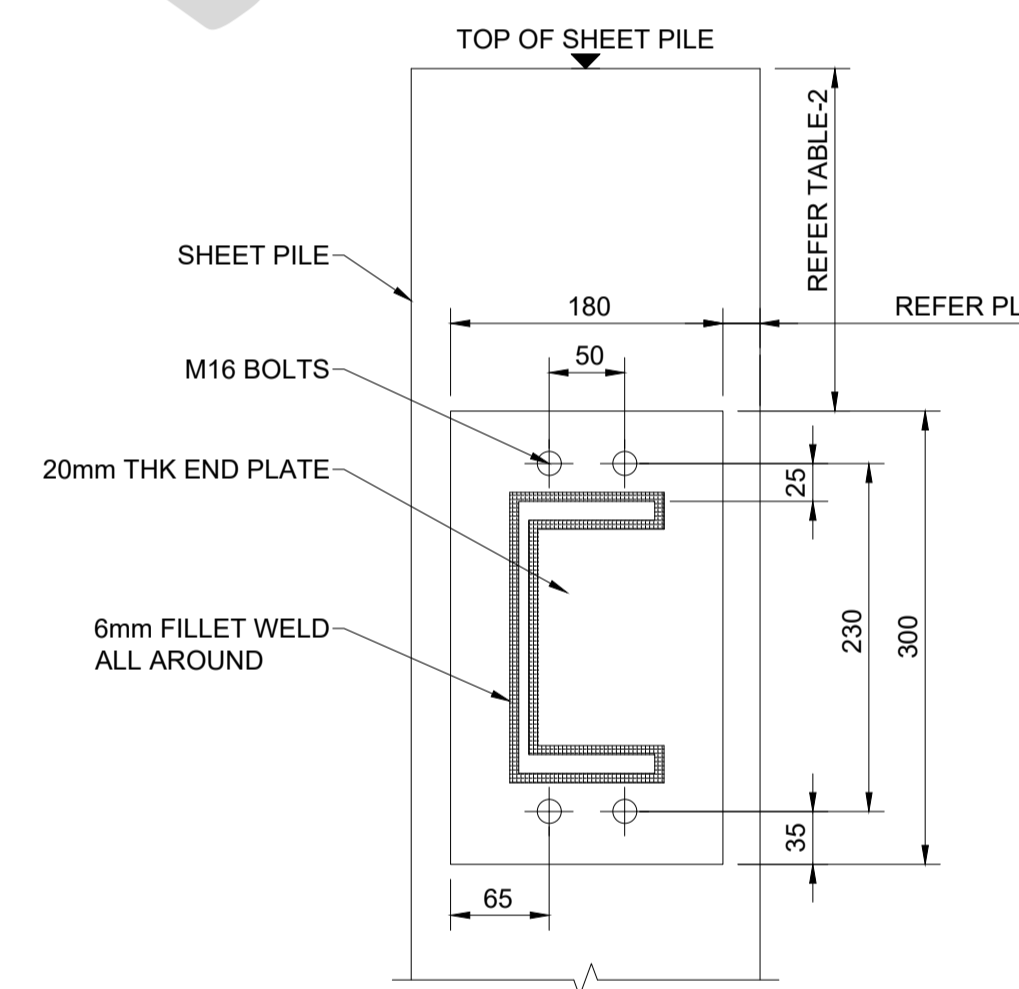
**PLAN**



**ELEVATION (SHOWING BACK PLATE ONLY)**

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TYPE	SETOUT FROM TOP OF SHEET PILE
TYPE-3A	25
TYPE-3B	725

TABLE-2	
TYPE	SETOUT FROM TOP OF SHEET PILE
TYPE-3A	40
TYPE-3B	800



**ELEVATION (SHOWING END PLATE ONLY)**

**TYPE 3A & 3B CONNECTION DETAIL**  
(SCALE 1:5)

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**  
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

<b>CONSTRUCTION</b>	N/A
<b>MAINTENANCE/CLEANING:</b>	N/A
<b>DECOMMISSIONING/DEMOLITION:</b>	N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXX-REG-CIV-000009  
It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

P01	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P02	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

1st partner		2nd partner	
<b>NNB GenCo (SZC) LTD.</b>	<b>Sizewell C</b>	<b>AtkinsRéalis</b>	

CONTRACTOR COMPANY TRADE NAME : AtkinsRéalis

CONTRACTOR REF. No. SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000405

CONTRACT NUMBER : Early Works EWXXX\_098\_01

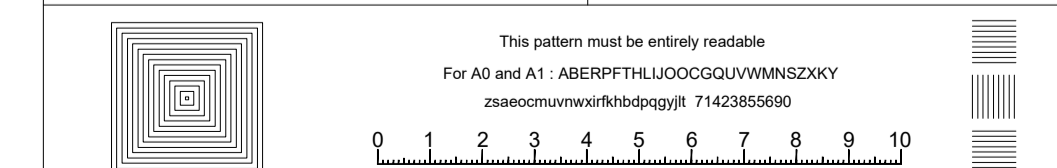
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PAGE 1/1	

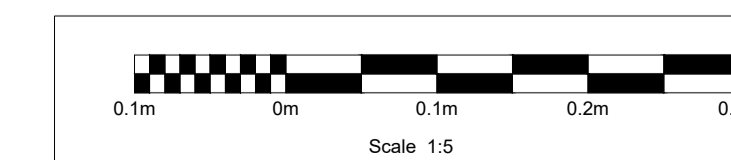
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INTELLECTUAL PROPERTY OWNERSHIP: N/A	NNB: N/A	EDF: N/A	CONTRACTOR: N/A
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NOTES:

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STRUCTURAL NOTES:

- ALL STAIR STRINGER JOINTS TO BE FULL STRENGTH BUTT WELDS.
- ALL OTHER WELDS TO BE 6mm FILLET WELDS CONTINUOUS UOS (AS PER BS EN ISO 15614-1:2017).
- ALL HOLES FOR HANDRAIL STANDARDS AND STAIR TREADS TO BE 14 DIA. FOR M12 GRADE 8.8 BOLTS.
- ALL OTHER HOLES ARE TO BE 18 DIA. FOR M16 GRADE 8.8 BOLTS.
- ALL DIMENSIONS & DETAILS SHOWN FOR HANDRAILING, STANDARDS & TREADS ARE TO SUPPLIER'S STANDARD PATTERN.
- FINISH - ALL MATERIALS TO BE HOT - DIP GALVANIZED (INCLUDING BOLTS AND NUTS) (AS PER BS EN ISO 1461) EXCEPT FOR EXCEPT FOR PLATES WELDED TO SHEET PILES, WHICH ARE TO BE UNTREATED (STAIR & LANDING STRINGERS ARE TO BE GALVANIZED).
- MATERIALS - ROLLED SECTIONS S355 J0 AS PER STANDARD EN 10025-2 - BOLTS GRADE 8.8 AS PER STANDARD EN 14399

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, the following:

**CONSTRUCTION**  
N/A

**MAINTENANCE/CLEANING:**

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**DECOMMISSIONING/DEMOLITION:**

N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXX-REG-CIV-000009

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P02	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY

CONTRACTOR COMPANY TRADE NAME : AtkinsRéalis

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CONTRACT NUMBER : Early Works EWXXX\_098\_01

CONTRACTOR WBS CODE : EW0413 QRA RELATED Yes  No

APPLICABILITY:  
1: Document related to Unit 1  
2: Document related to Unit 2  
9: Document that applies to buildings/systems common to Unit 1 & 2  
0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)

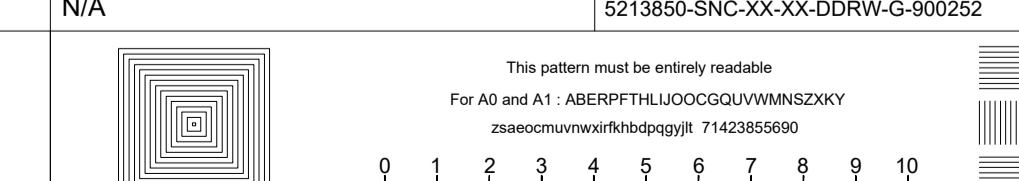
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TEAMCENTER DOCUMENT REFERENCE No. 101345444

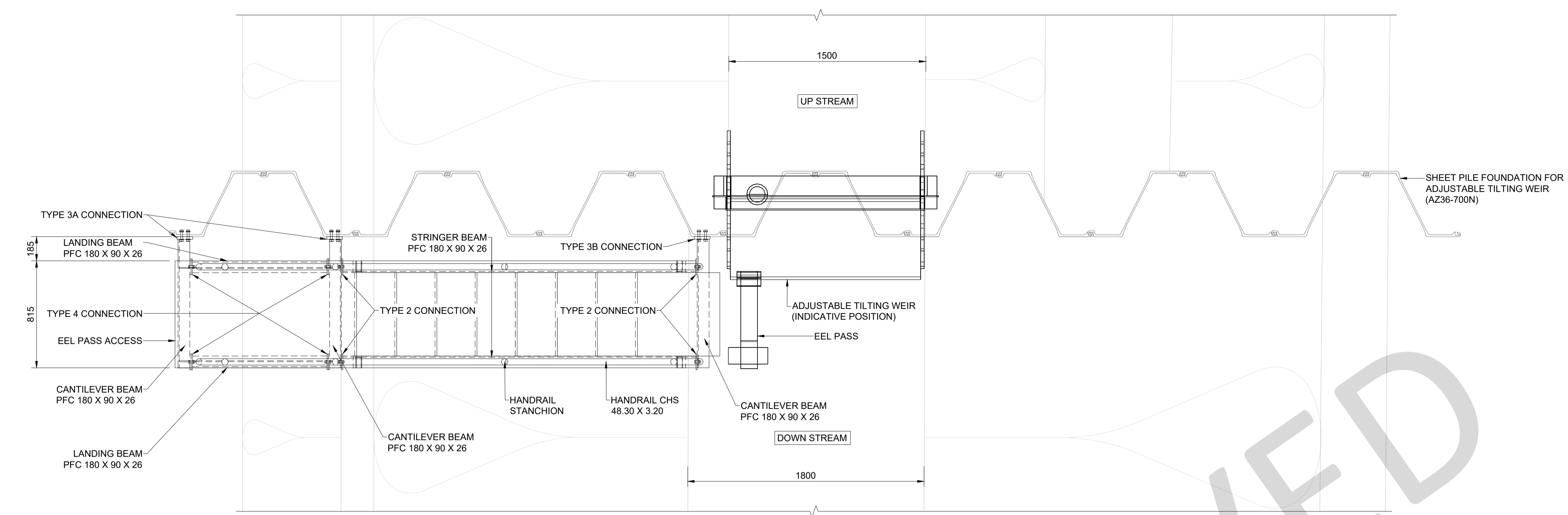
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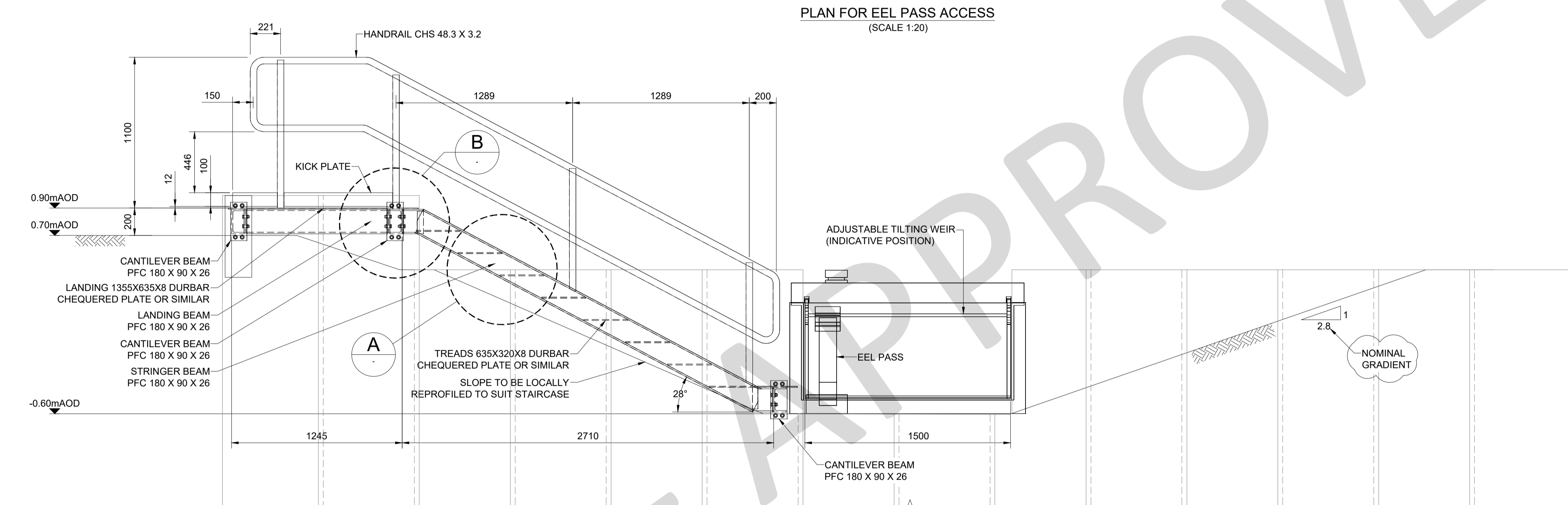


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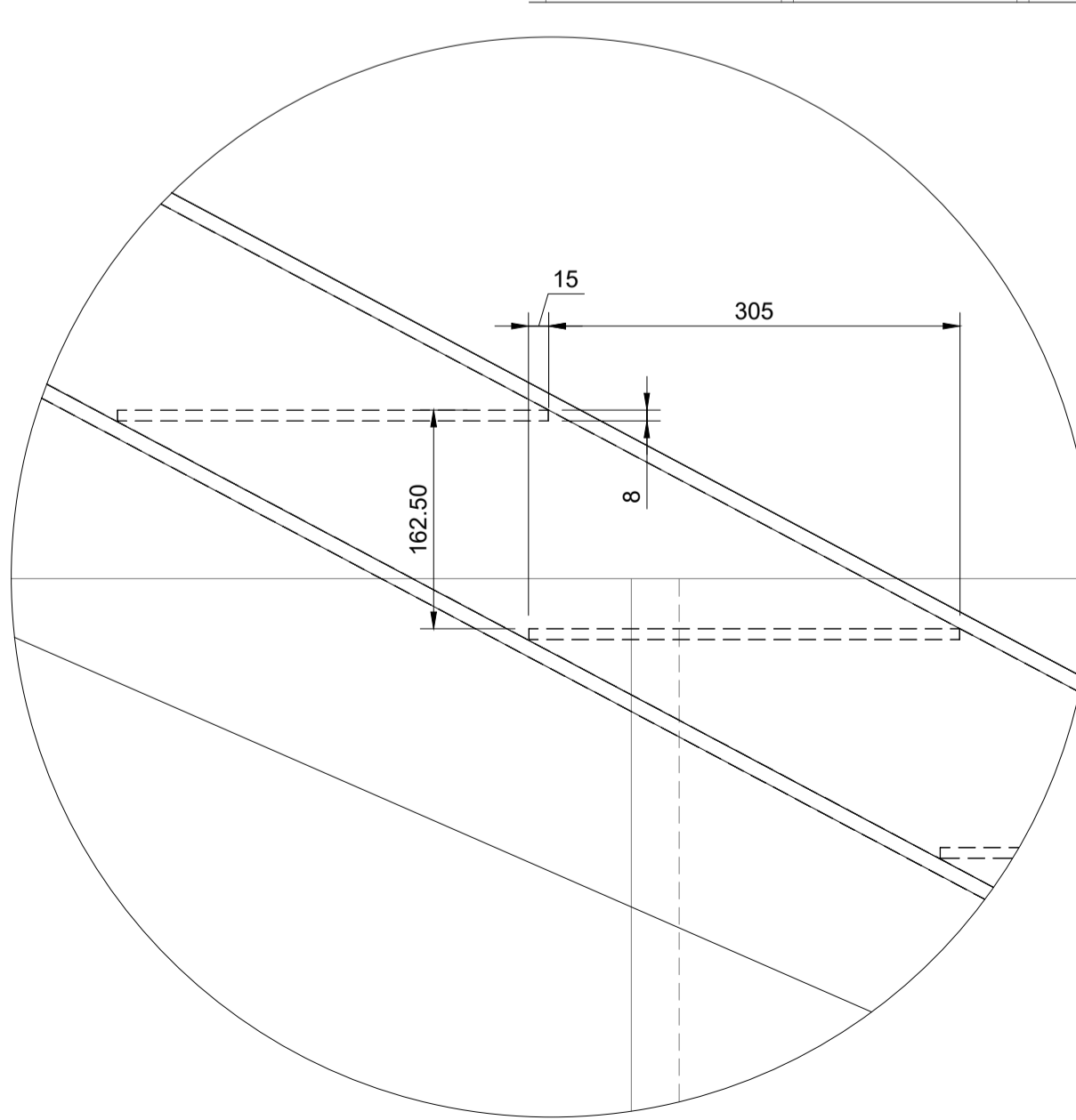
FOR PERMIT APPLICATION



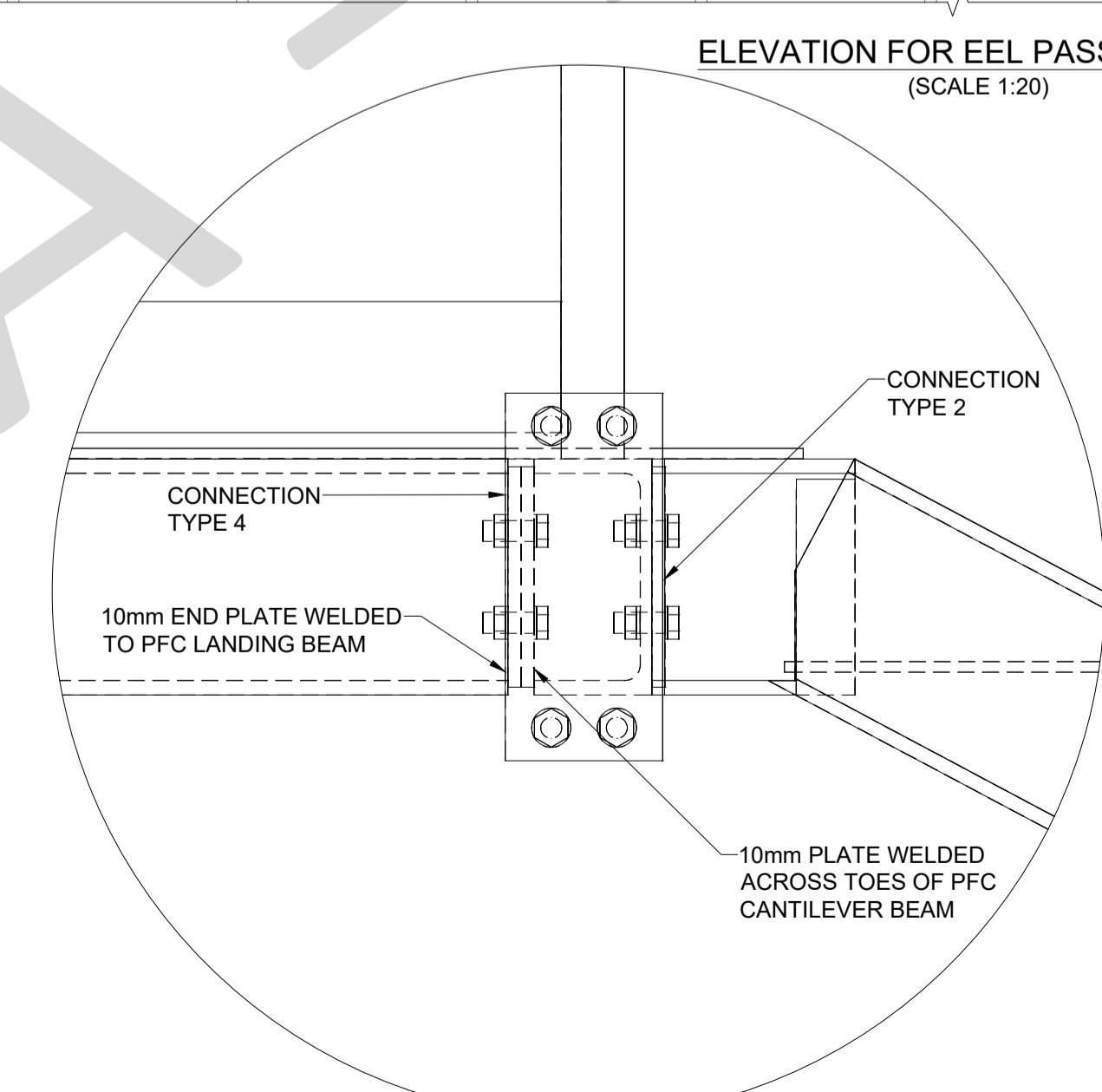
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ELEVATION FOR EEL PASS ACCESS (SCALE 1:20)



DETAIL-A (SCALE 1:5)



DETAIL-B (SCALE 1:5)

Sizewell C | 101375146 / 001 | P1 - For Implementation | 29-Nov-2024 | NOT PROTECTIVELY MARKED

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**NOTES:**

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- SUGGESTED EROSION CONTROL PRODUCT CAN BE HY-TEX COIRMESH OR WITH ECO-PEG, MMP2B OR SIMILAR APPROVED.
- EROSION CONTROL MATTING SHALL BE PLACED ON EXPOSED SLOPES AS EXCAVATION PROGRESSES. IF THE INSTALLATION CANNOT BE COMPLETED THEN THE DELIVERY PARTNER SHALL PROPOSE AN ALTERNATIVE SOLUTION TO THE PROJECT MANAGER FOR AGREEMENT.

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

**CONSTRUCTION**  
N/A

**MAINTENANCE/CLEANING:**  
N/A

**DECOMMISSIONING/DEMOLITION:**  
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The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXX-REG-CIV-000009  
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P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

CONTRACTOR COMPANY TRADE NAME: AtkinsRéalis

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CONTRACT NUMBER: Early Works EWXXX\_098\_01

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 2: Document related to Unit 2  
 9: Document that applies to buildings/systems common to Unit 1 & 2  
 0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)

NUCL/REP/EPR/UKX	BUILDING
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CONTRACTOR COMPANY TRADE NAME: AtkinsRéalis

CONTRACTOR REF. No: SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000403

CONTRACT NUMBER: Early Works EWXXX\_098\_01

CONTRACTOR WBS CODE: EW0413 QRA RELATED Yes  No

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TEAMCENTER DOCUMENT REFERENCE No.

101190119

DOCUMENT SUB - TYPE

N/A

EDF CLASSIFICATION CODE

N/A

SUBCONTRACTOR COMPANY TRADE NAME

N/A

SUBCONTRACTOR DOCUMENT REF. No

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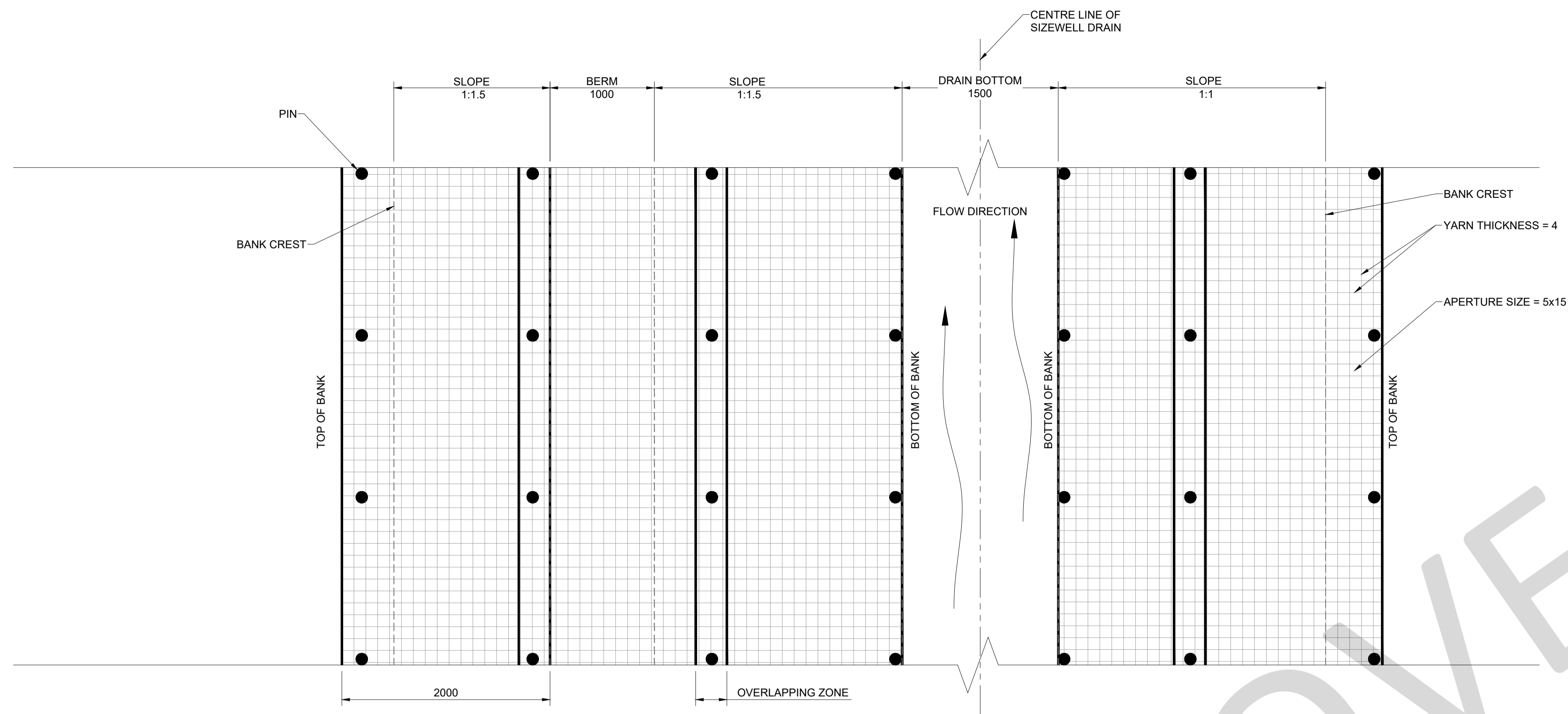
INTELLECTUAL PROPERTY OWNERSHIP: N/A

NNB: N/A

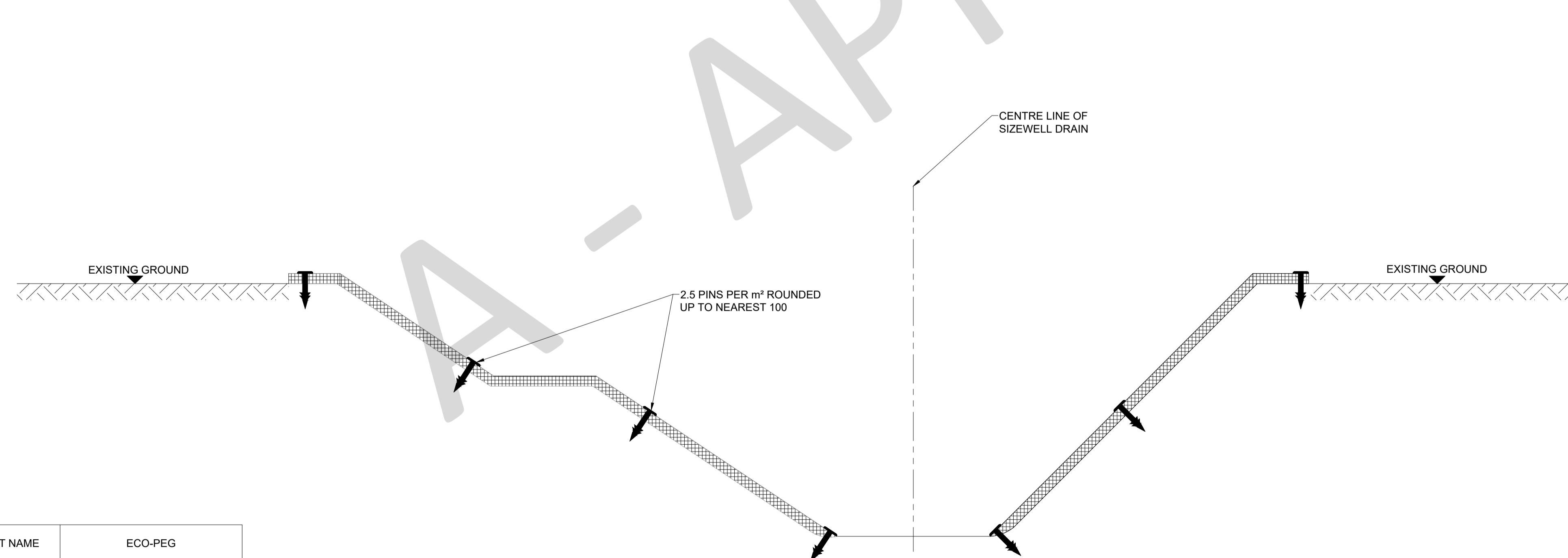
EDF: N/A

CONTRACTOR: N/A

**FOR PERMIT APPLICATION**



SUGGESTED EROSION CONTROL MATTING LAYOUT  
(SCALE : NTS)



TYPICAL CROSS SECTION OF THE SUGGESTED EROSION CONTROL MATTING  
(SCALE : NTS)

PRODUCT NAME	ECO-PEG
SIZE	150mm LONG, SERRATED EDGE
PRODUCT CODE	MMP2B
BARBS	2 SIDES

TYPICAL DETAILS OF PIN  
(SCALE : NTS)

**FOR PERMIT APPLICATION**

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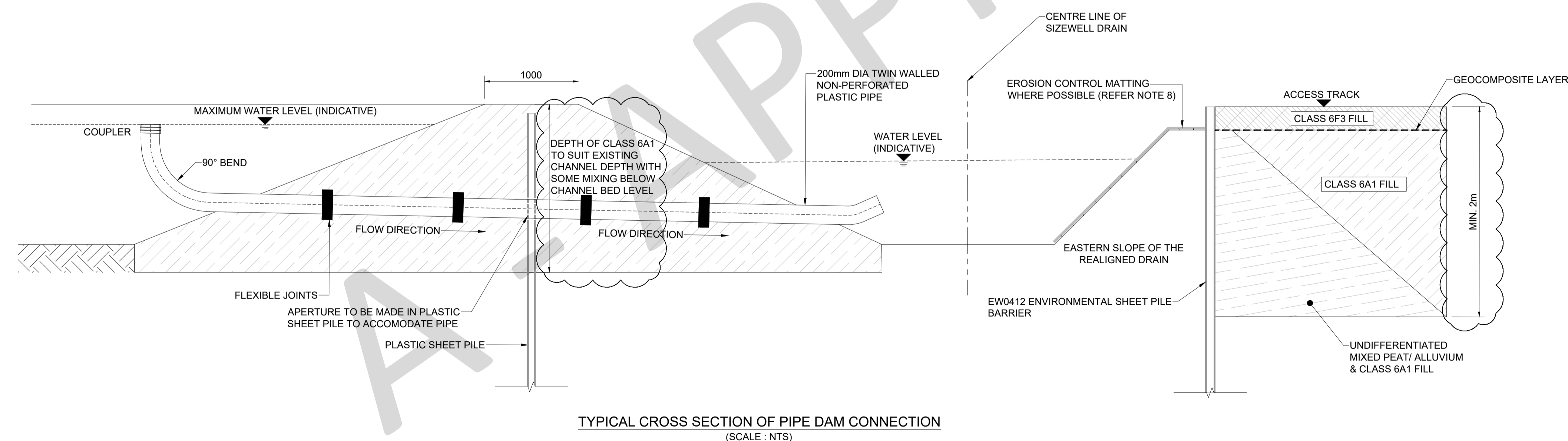
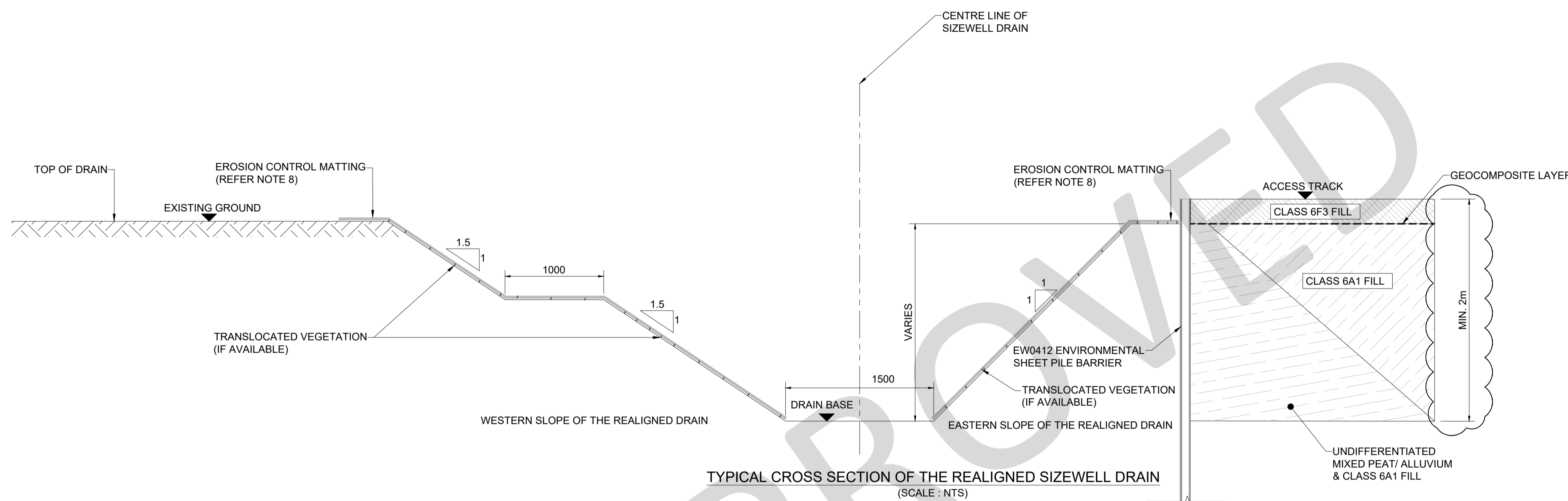
DRAWING GRID / COORDINATE SYSTEM:

SITE LOCAL GRID  NATIONAL GRID OSGB36   
 OTHER GRID  (To be defined in the contract project plan)

CONTRACT PROJECT PLAN DOC. REF. No: N/A

**NOTES:**

- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
- FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000007.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT SZC-EW0413-ATK-XX-000-XXXXX-SPE-CIV-000004.
- ENVIRONMENTAL SHEET PILE BARRIER IS NOT DESIGNED IN THIS WBS AND IT WILL BE COVERED UNDER EW0412 PACKAGE.
- THE PLASTIC SHEET PILES SHALL HAVE A MINIMUM 2m EMBEDMENT BELOW THE CONNECTING CHANNEL INVERT LEVEL.
- THE REALIGNED DRAIN SLOPES SHALL HAVE EROSION PROTECTION MEASURES AND TRANSLOCATED VEGETATION (IF AVAILABLE) INSTALLED IMMEDIATELY AFTER EXCAVATION. IF THE INSTALLATION CANNOT BE COMPLETED THEN AN ALTERNATIVE SOLUTION SHALL BE PROPOSED TO THE PROJECT MANAGER FOR AGREEMENT.



**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**  
 In addition to the hazards/risks normally associated with the types of work detailed on this drawing, refer to the following:

**CONSTRUCTION:** N/A  
**MAINTENANCE/CLEANING:** N/A  
**DECOMMISSIONING/DEMOLITION:** N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXX-REG-CIV-000009. It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	Detailed Design - Phase 2 Completion	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

CONTRACTOR COMPANY TRADE NAME : AtkinsRéalis

CONTRACTOR REF. No. SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000402

CONTRACT NUMBER : Early Works EWXXXX\_098\_01

CONTRACTOR WBS CODE : EW0413 QRA RELATED Yes  No

APPLICABILITY:  
 1: Document related to Unit 1  
 2: Document related to Unit 2  
 9: Document that applies to buildings/systems common to Unit 1 & 2  
 0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)

NUCL/REP/EPR/UKX	BUILDING
SZC (doc: SZ)	HSZ
0 1 2 9	SYSTEM
X	N/A

SCALE: NTS  
 SIZE: A1  
 PAGE: 1/1

DESCRIPTION: Typical Details North and West MCA Drain Diversion Sheet 01

TEAMCENTER DOCUMENT REFERENCE No. 101184502

DOCUMENT SUB - TYPE: N/A EDF CLASSIFICATION CODE: N/A

SUBCONTRACTOR COMPANY TRADE NAME: N/A SUBCONTRACTOR DOCUMENT REF. No: 5213850-SNC-XX-XX-DDRW-G-001004

INTELLECTUAL PROPERTY OWNERSHIP: N/A NNB: N/A EDF: N/A CONTRACTOR: N/A

**FOR PERMIT APPLICATION**

Sizewell C | 101375146 / 001 | P1 - For Implementation | 29-Nov-2024 | NOT PROTECTIVELY MARKED



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DRAWING GRID / COORDINATE SYSTEM:

SITE LOCAL GRID  NATIONAL GRID OSGB36   
 OTHER GRID  (To be defined in the contract project plan)

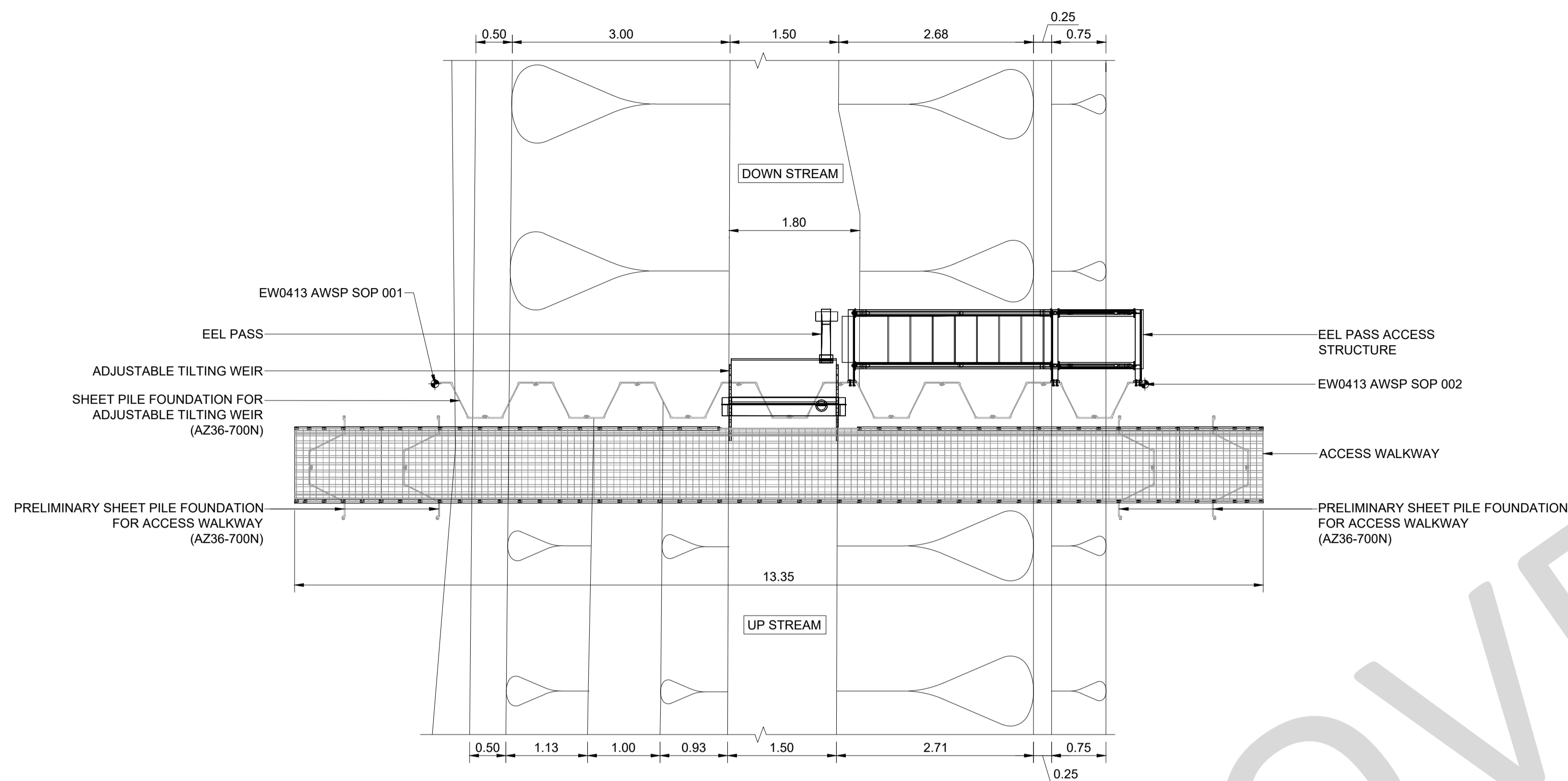
CONTRACT PROJECT PLAN DOC. REF. No: N/A

**NOTES:**

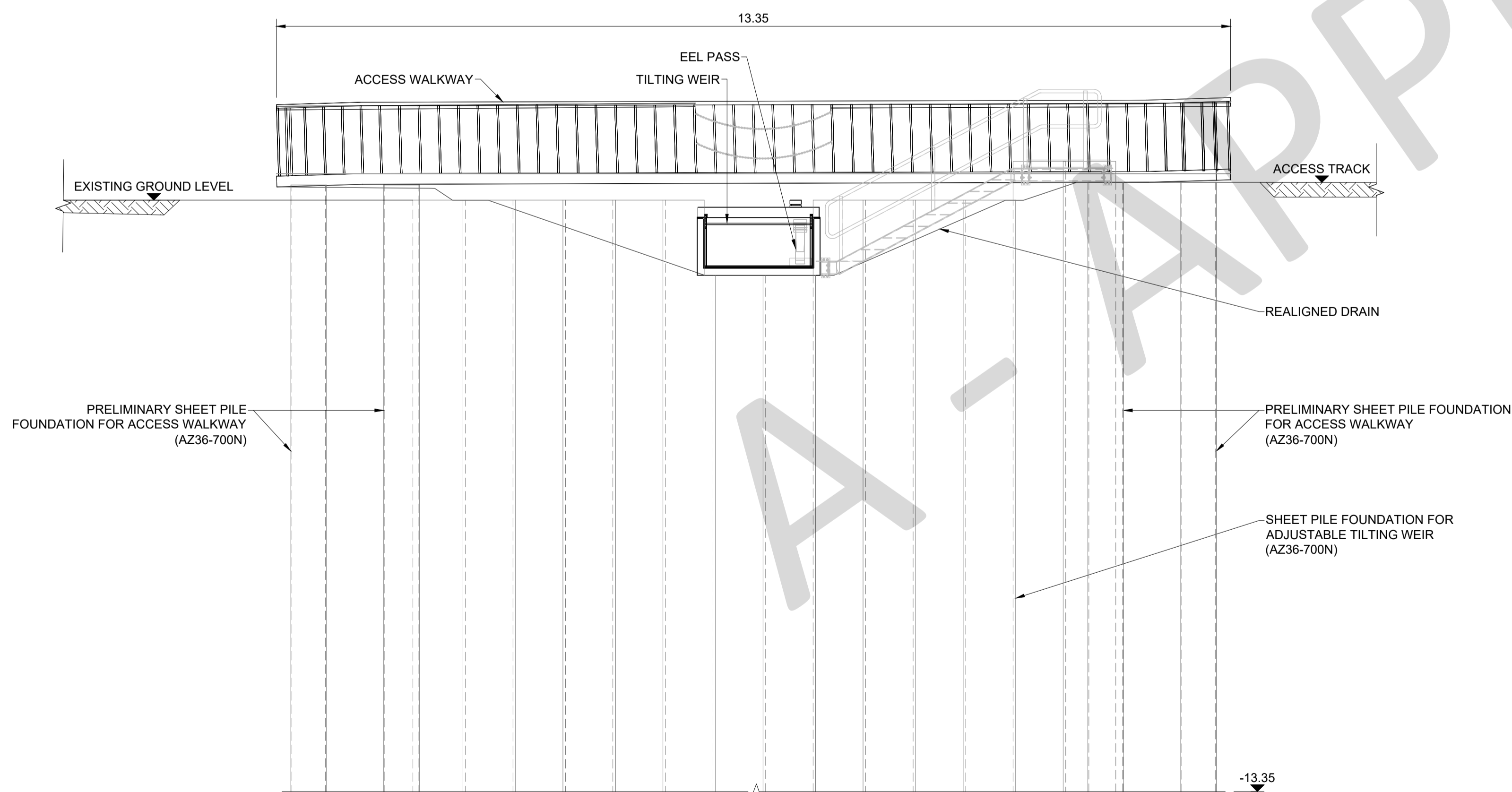
- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
- ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
- FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000007.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT SZC-EW0413-ATK-XX-000-XXXXX-SPE-CIV-000001.
- THE CONNECTION DETAILS FOR THE ACCESS WALKWAY AND PROPOSED SHEET PILE FOUNDATION ARE TO BE DETERMINED BY THE DELIVERY PARTNER. DESIGN OF ADJUSTABLE TILTING WEIR, ACCESS WALKWAY AND ITS FOUNDATION SHALL BE CARRIED OUT BY THE DELIVERY PARTNER.
- THE INDICATIVE LOCATION AND CONNECTION OF THE TILTING WEIR WITH THE SHEET PILES IS SHOWN, AND THE CONNECTION SYSTEM WITH THE SHEET PILES SHALL BE DESIGNED BY THE DELIVERY PARTNER.

**ABBREVIATION :**

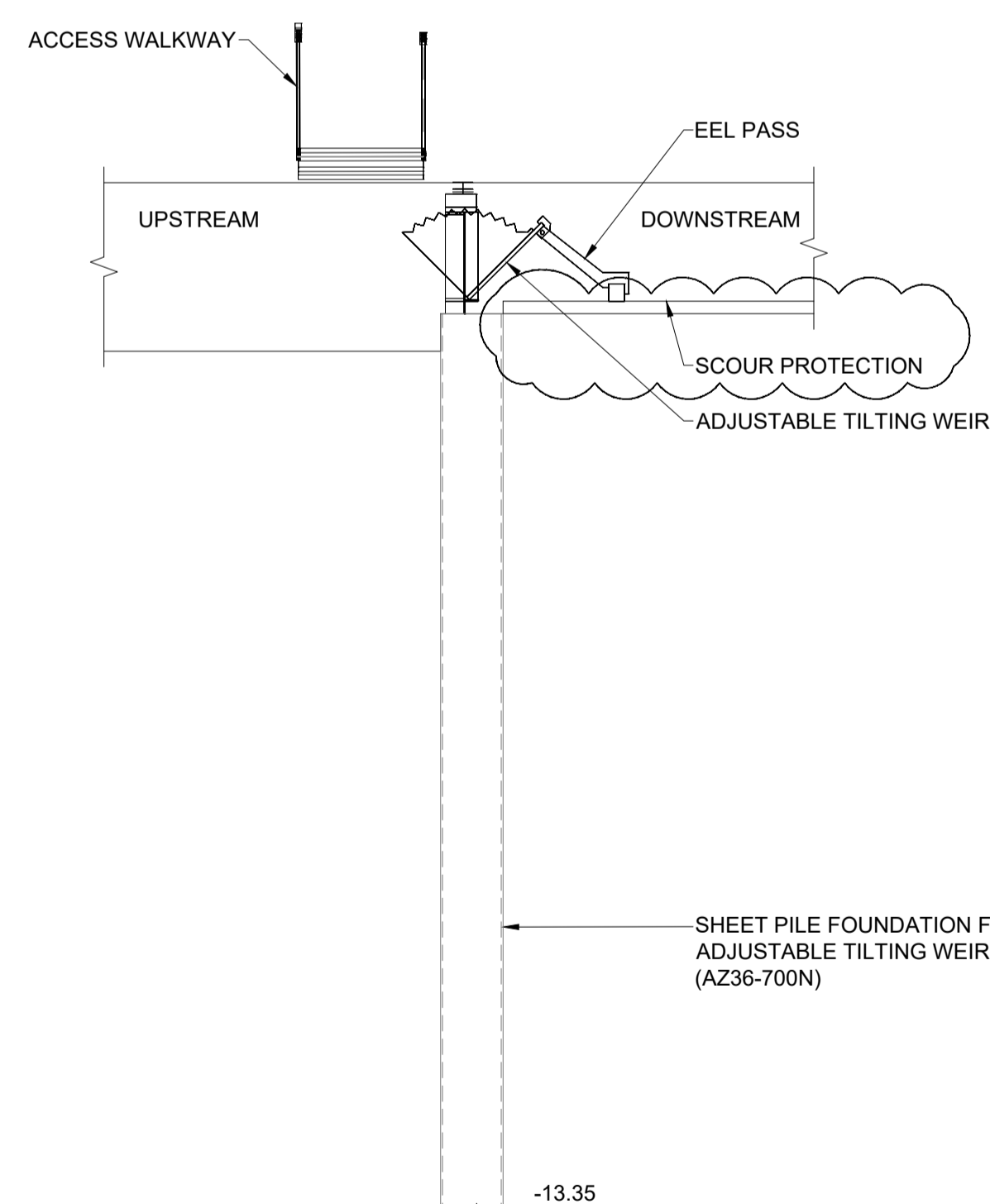
AWSP : ACCESS WALKWAY SHEET PILE



PLAN FOR ADJUSTABLE TILTING WEIR AND ASSOCIATED STRUCTURES (CH : 743.85)  
(SCALE 1:50)



TYPICAL CROSS-SECTION OF TILTING WEIR (FRONT VIEW)  
(SCALE 1:50)



NOTE:  
ACCESS WALKWAY FOUNDATION SHEET PILES AND EEL PASS ACCESS STRUCTURE OMITTED FOR CLARITY

TYPICAL CROSS-SECTION OF TILTING WEIR (SIDE VIEW)  
(SCALE 1:50)

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**  
 In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

**CONSTRUCTION**

N/A

**MAINTENANCE/CLEANING:**

- EW0413-01-EXCAVATOR LOADS CLOSE TO THE CREST OF THE DRAIN DURING MAINTENANCE.

**DECOMMISSIONING/DEMOLITION:**

N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXX-REG-CIV-000009  
 It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	Detailed Design - Phase 2 Completion	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

CONTRACTOR COMPANY TRADE NAME : AtkinsRéalis

CONTRACTOR REF. No. SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000006

CONTRACT NUMBER : Early Works EWXXX\_098\_01

CONTRACTOR WBS CODE : EW0413 QRA RELATED Yes  No

APPLICABILITY:  
 1: Document related to Unit 1  
 2: Document related to Unit 2  
 9: Document that applies to buildings/systems common to Unit 1 & 2  
 0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)

NUCL/REP/EPR/UKX	BUILDING
SZC (doc: SZ)	HSZ
0 1 2 9	SYSTEM
X	N/A

CONTRACTOR COMPANY TRADE NAME : AtkinsRéalis

CONTRACTOR REF. No. SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000006

CONTRACT NUMBER : Early Works EWXXX\_098\_01

CONTRACTOR WBS CODE : EW0413 QRA RELATED Yes  No

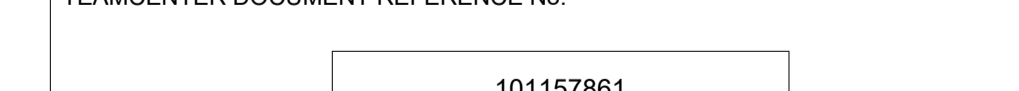
SCALE	DESCRIPTION
1:50	Structures and Foundations Details North and West MCA Drain Diversion
SIZE	
PAGE	
1/1	

TEAMCENTER DOCUMENT REFERENCE No.

101157861

DOCUMENT SUB - TYPE N/A EDF CLASSIFICATION CODE N/A

SUBCONTRACTOR COMPANY TRADE NAME N/A SUBCONTRACTOR DOCUMENT REF. No. 5213850-SNC-XX-XX-DDRW-G-000411



INTELLECTUAL PROPERTY OWNERSHIP: NNB: N/A EDF: N/A CONTRACTOR: N/A

**FOR PERMIT APPLICATION**

**FOR PERMIT APPLICATION**

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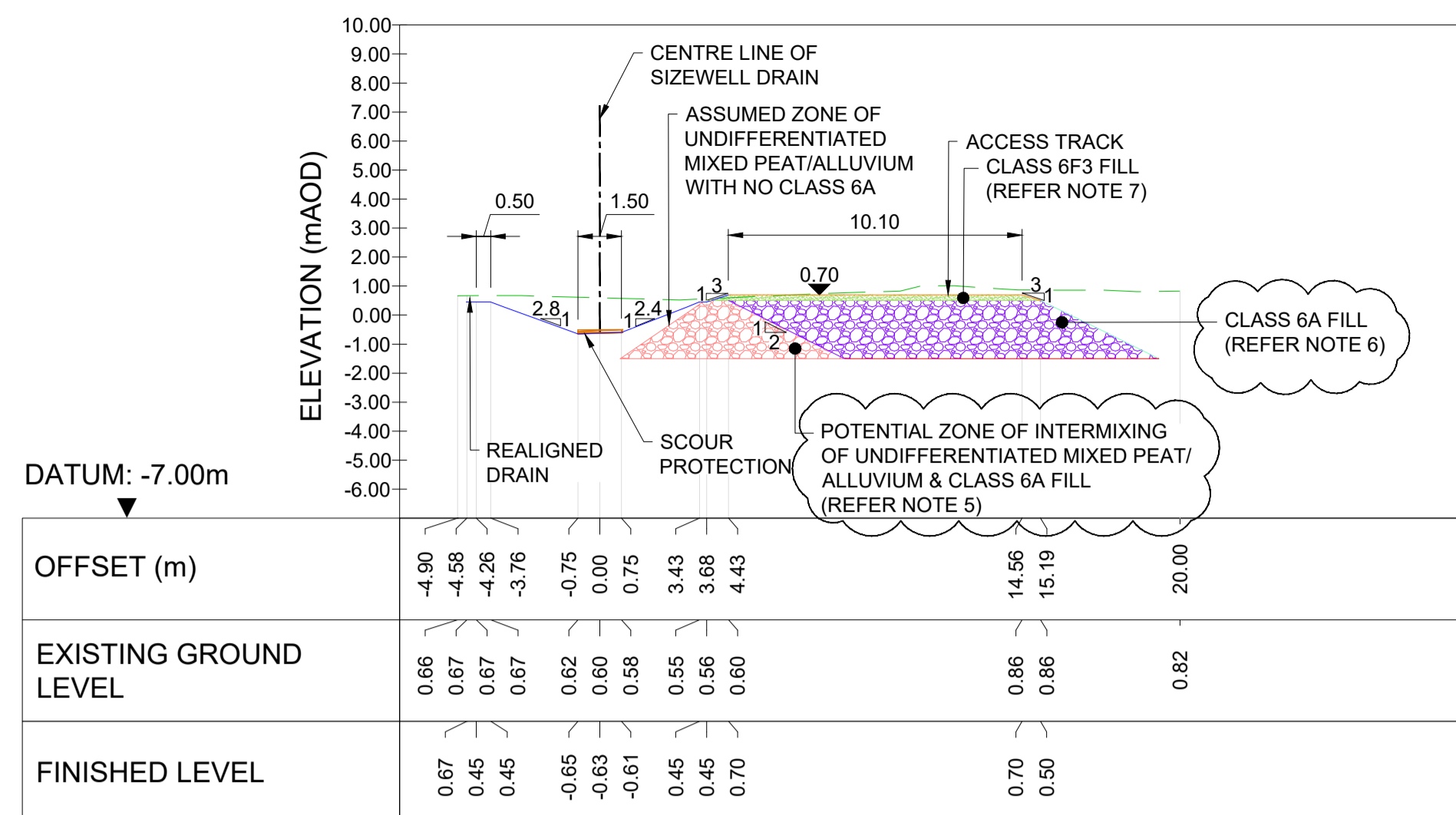
DRAWING GRID / COORDINATE SYSTEM:

SITE LOCAL GRID  NATIONAL GRID OSGB36   
 OTHER GRID  (To be defined in the contract project plan)

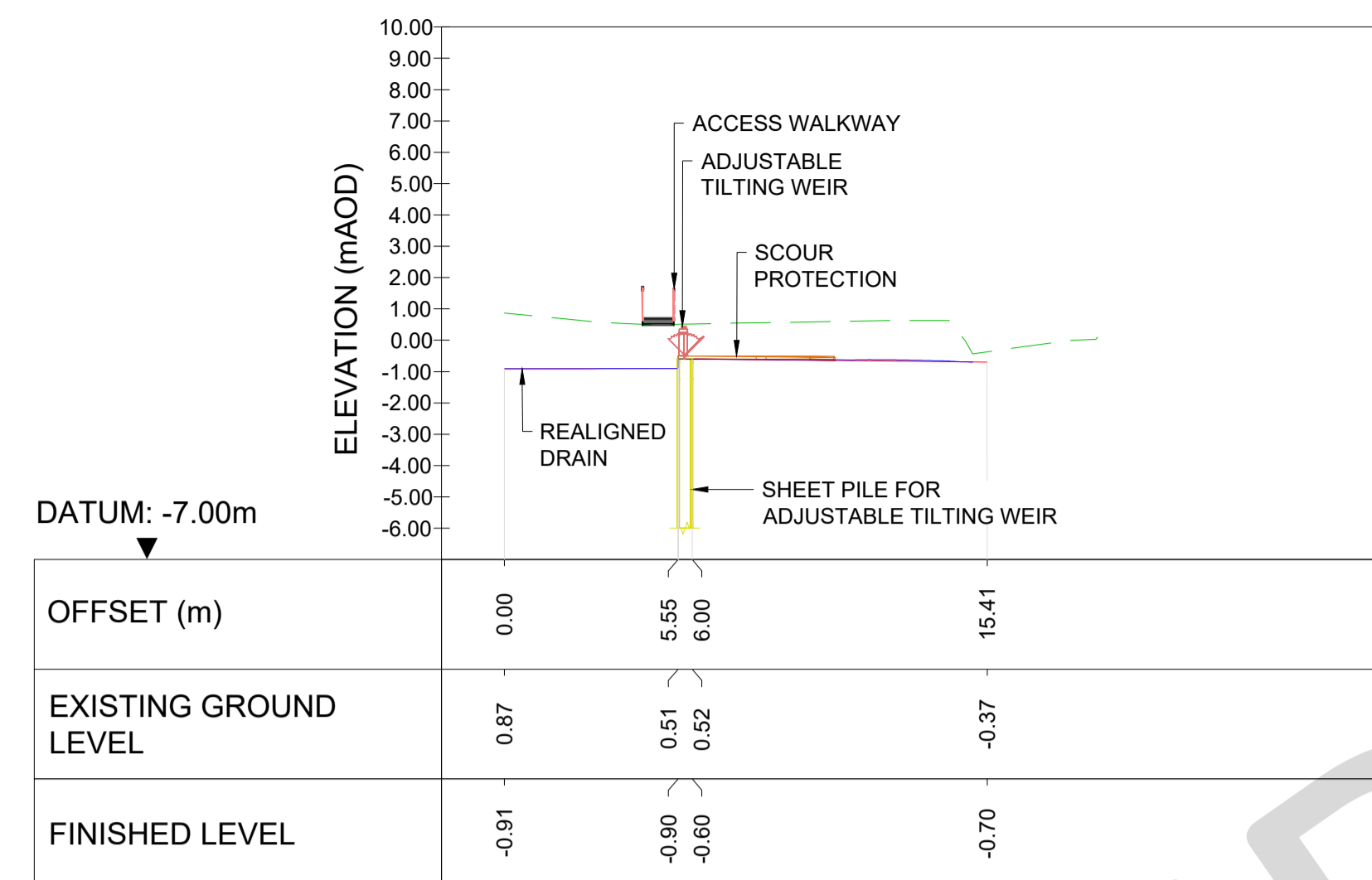
CONTRACT PROJECT PLAN DOC. REF. No: N/A

**NOTES:**

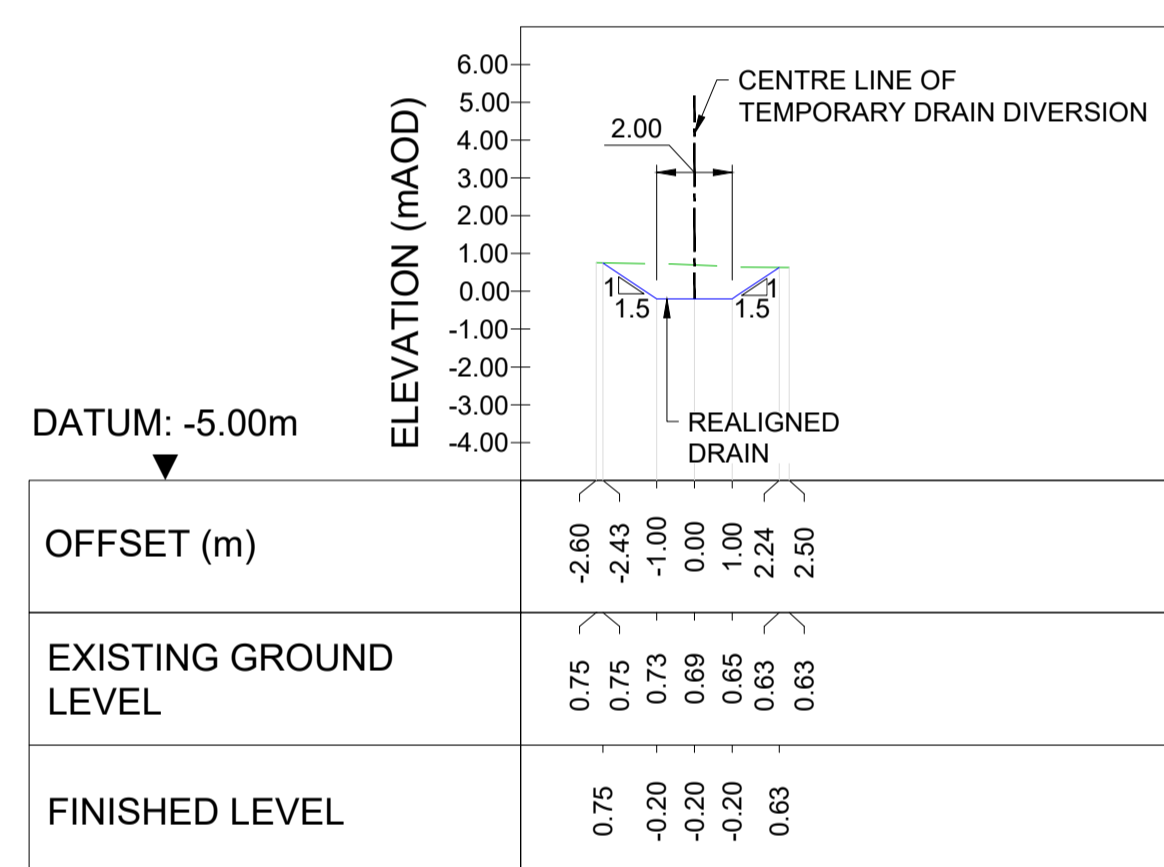
- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
- ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
- FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000007.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT.
- SZC-EW0413-ATK-XX-000-XXXXX-SPE-CIV-000001 THE EXTENT OF INTERMIXING OF UNDIFFERENTIATED PEAT/ALLUVIUM WITH CLASS 6A1/CLASS 6A FILL SHOWN ARE INDICATIVE. THE METHOD OF PLACING CLASS 6A1/CLASS 6A MATERIAL IS SUBJECT TO THE DELIVERY PARTNER'S CHOSEN METHOD OF WORK. THE EXTENTS OF THIS MATERIAL MAY VARY FROM THAT WHICH IS SHOWN IN THE DRAWINGS.
- THE EXTENT OF THE TEMPORARY CONSTRUCTION CANAL HAS NOT BEEN CONFIRMED. THE DESIGN HAS BEEN PROGRESS ASSUMING THE INVERT LEVEL OF THE TEMPORARY CANAL AS 1.50 mAOD.
- THE CLASS 6F3 MATERIAL IS PLACED ACROSS THE ENTIRE ACCESS TRACK WIDTH ON COMPLETION OF FILL PLACEMENT OR GROUND IMPROVEMENT UNDER EW0414 (WHERE PRESENT).



**CROSS SECTION N-N (CH : 749.61)**  
(HORIZONTAL SCALE 1:200, VERTICAL SCALE 1:200)



**CROSS SECTION P-P (CH - 0.00 m - 18.93)**  
(HORIZONTAL SCALE 1:200, VERTICAL SCALE 1:200)



**CROSS SECTION Q-Q**  
(HORIZONTAL SCALE 1:200, VERTICAL SCALE 1:200)

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

**CONSTRUCTION**  
N/A

**MAINTENANCE/CLEANING**  
1. EW0413-01 EXCAVATOR LOADS CLOSE TO THE CREST OF THE DRAIN DURING MAINTENANCE

**DECOMMISSIONING/DEMOLITION**  
N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXX-REG-CIV-000009  
 It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	Detailed Design - Phase 2 Completion	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

CONTRACTOR COMPANY TRADE NAME : AtkinsRéalis

CONTRACTOR REF. No. SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000004

CONTRACT NUMBER : Early Works EWXXX\_098\_01

CONTRACTOR WBS CODE : EW0413 QRA RELATED Yes  No

APPLICABILITY:  
 1: Document related to Unit 1  
 2: Document related to Unit 2  
 9: Document that applies to buildings/systems common to Unit 1 & 2  
 0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)

NUCL/REP/EPR/UKX	BUILDING
SZC (doc: SZ)	HSZ
0 1 2 9	SYSTEM
X	N/A

SCALE 1:200

DESCRIPTION

**Sections**  
North and West MCA Drain Diversion  
Zone 02 - Sheet 04

SCALE 1:200

SCALE 1:200

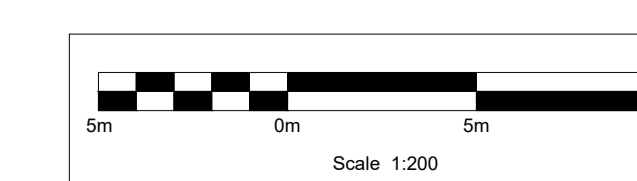
TEAMCENTER DOCUMENT REFERENCE No. 101159735

DOCUMENT SUB - TYPE N/A EDF CLASSIFICATION CODE N/A

SUBCONTRACTOR COMPANY TRADE NAME N/A SUBCONTRACTOR DOCUMENT REF. No. 5213850-SNC-XX-XX-DDRW-G-000409

INTELLECTUAL PROPERTY OWNERSHIP: N/A NNB: N/A EDF: N/A CONTRACTOR: N/A

**FOR PERMIT APPLICATION**



A - APPROVED

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DRAWING GRID / COORDINATE SYSTEM:

SITE LOCAL GRID  NATIONAL GRID OSGB36   
 OTHER GRID  (To be defined in the contract project plan)

CONTRACT PROJECT PLAN DOC. REF. No: N/A

NOTES:

- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
- ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
- FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000007.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT.
- SZC-EW0413-ATK-XX-000-XXXXX-SPE-CIV-000001
- THE EXTENT OF INTERMIXING OF UNDIFFERENTIATED PEAT/ALLUVIUM WITH CLASS 6A1/CLASS 6A FILL SHOWN ARE INDICATIVE. THE METHOD OF PLACING CLASS 6A1/6A MATERIAL IS SUBJECT TO THE DELIVERY PARTNER'S CHOSEN METHOD OF WORK. THE EXTENTS OF THIS MATERIAL MAY VARY FROM THAT WHICH IS SHOWN IN THE DRAWINGS.
- THE EXTENT OF THE TEMPORARY CONSTRUCTION CANAL HAS NOT BEEN CONFIRMED. THE DESIGN HAS BEEN PROGRESSED ASSUMING THE INVERT LEVEL OF THE TEMPORARY CANAL AS -1.50 mAOD.
- THE INVERT LEVEL OF THE POND IS ASSUMED AS -1.50 mAOD AS THE TOPOGRAPHICAL SURVEY DETAILS ARE NOT AVAILABLE.
- THE CLASS 6F3 MATERIAL IS PLACED ACROSS THE ENTIRE ACCESS TRACK WIDTH ON COMPLETION OF FILL PLACEMENT OR GROUND IMPROVEMENT UNDER EW0414 (WHERE PRESENT)

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

CONSTRUCTION

N/A

MAINTENANCE/CLEANING

- EW0413-01 EXCAVATOR LOADS CLOSE TO THE CREST OF THE DRAIN DURING MAINTENANCE

DECOMMISSIONING/DEMOLITION

N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXX-REG-CIV-000009  
 It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	Detailed Design - Phase 2 Completion	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

<b>NNB GenCo</b> (SZC) LTD.	1st partner	2nd partner

CONTRACTOR COMPANY TRADE NAME: AtkinsRéalis

CONTRACTOR REF. No. SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000003

CONTRACT NUMBER: Early Works EWXXXX\_098\_01

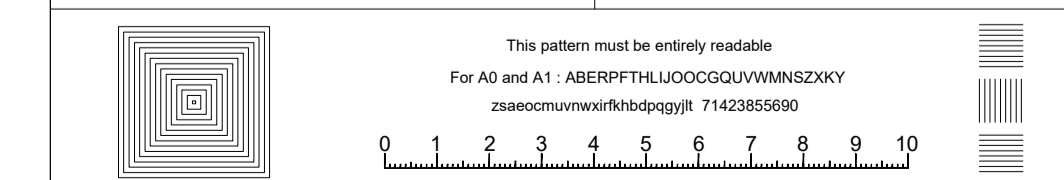
CONTRACTOR WBS CODE: EW0413 QRA RELATED Yes  No

APPLICABILITY: 1: Document related to Unit 1 2: Document related to Unit 2 9: Document that applies to buildings/systems common to Unit 1 & 2 0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)	<table border="1"> <tr> <th>NUCL/REP/EPR/UKX</th> <th colspan="4">SZC (doc: SZ)</th> </tr> <tr> <td></td> <td>0</td> <td>1</td> <td>2</td> <td>9</td> </tr> <tr> <td>X</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	NUCL/REP/EPR/UKX	SZC (doc: SZ)					0	1	2	9	X					BUILDING HSZ  SYSTEM N/A
NUCL/REP/EPR/UKX	SZC (doc: SZ)																
	0	1	2	9													
X																	

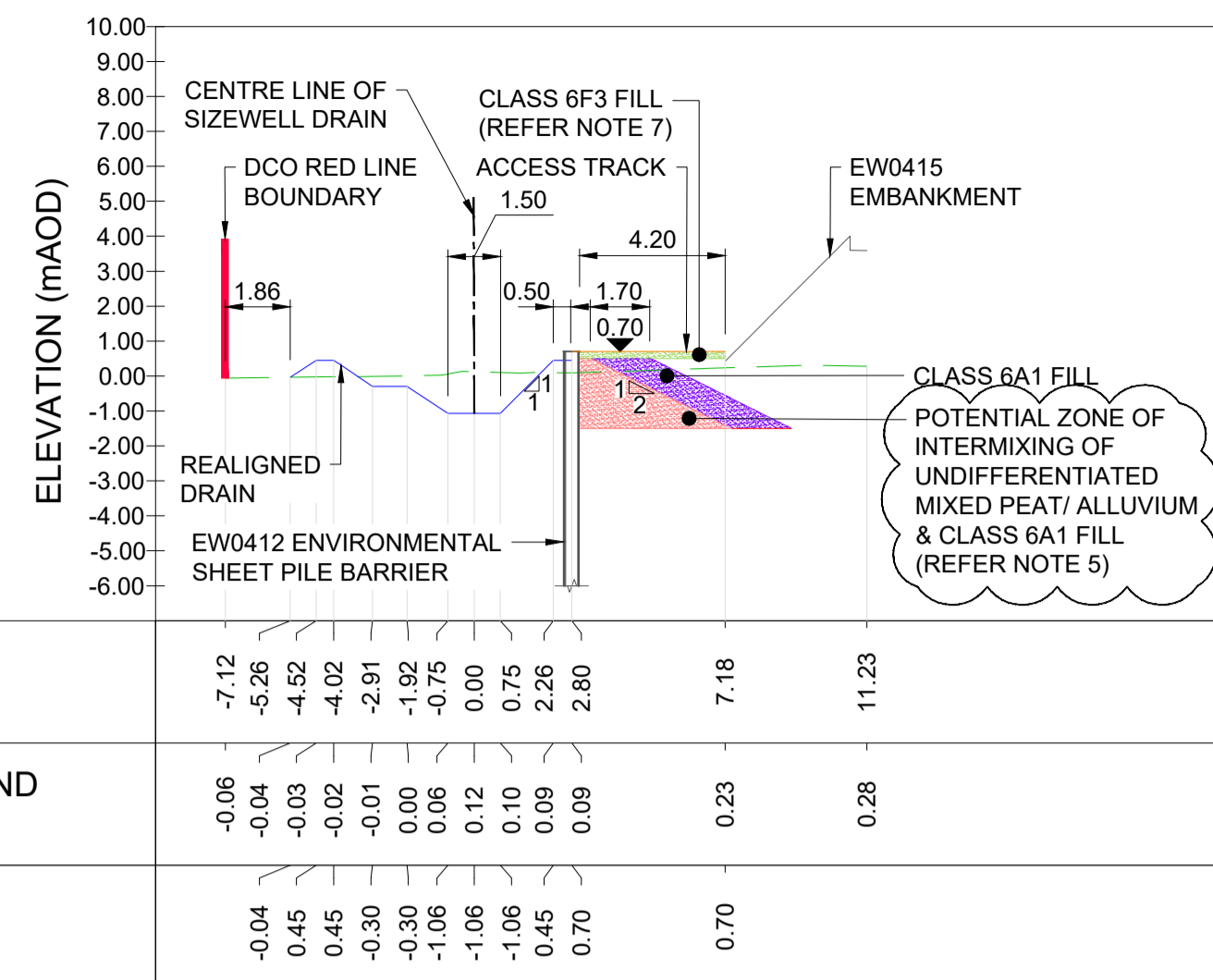
SCALE	DESCRIPTION
1:200	Sections
SIZE	North and West MCA Drain Diversion
PAGE	Zone 02 - Sheet 03
1/1	

TEAMCENTER DOCUMENT REFERENCE No. 101161585

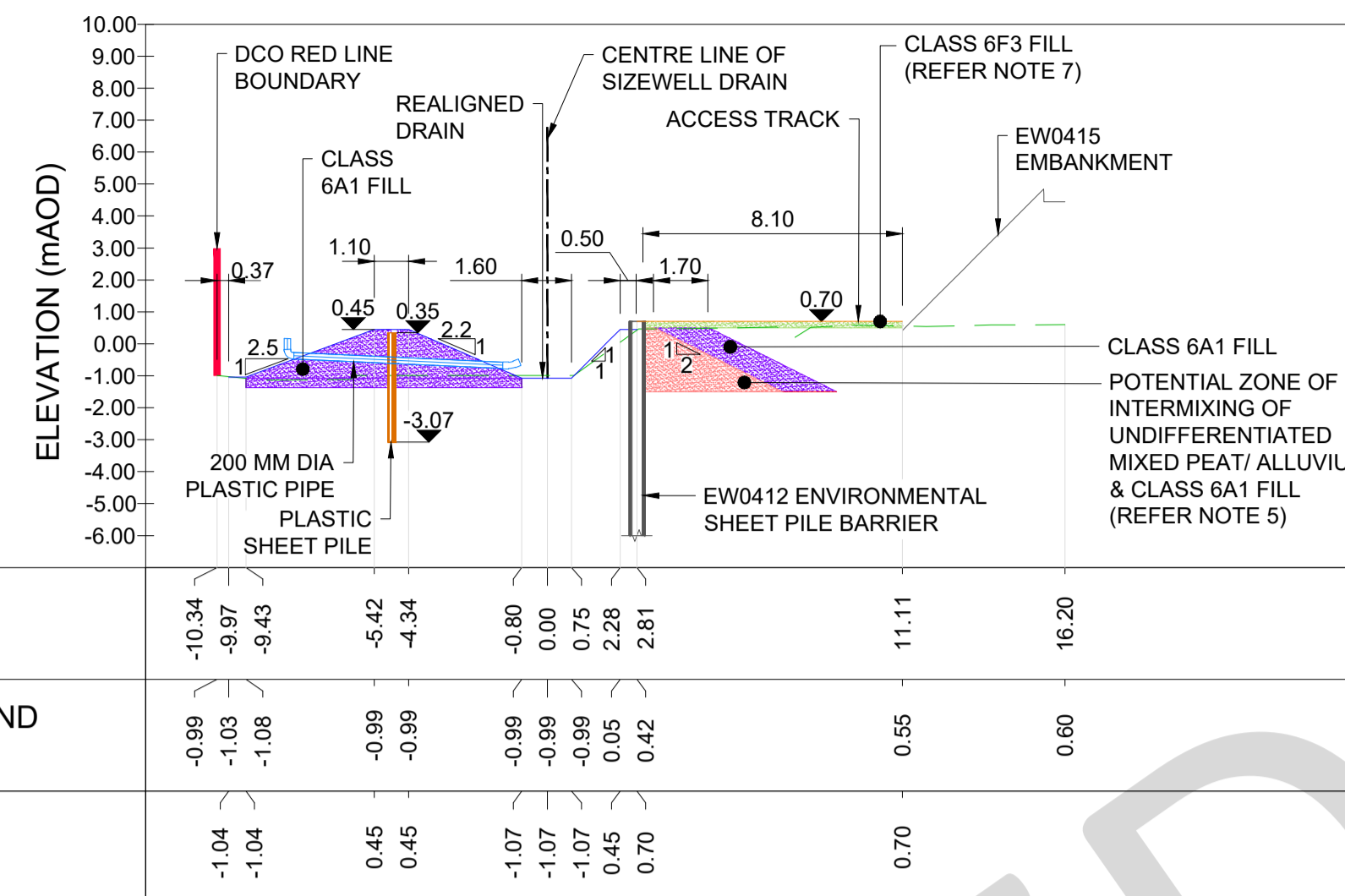
DOCUMENT SUB - TYPE	EDF CLASSIFICATION CODE
N/A	N/A
SUBCONTRACTOR COMPANY TRADE NAME	SUBCONTRACTOR DOCUMENT REF. No
N/A	5213850-SNC-XX-XX-DDRW-G-000408



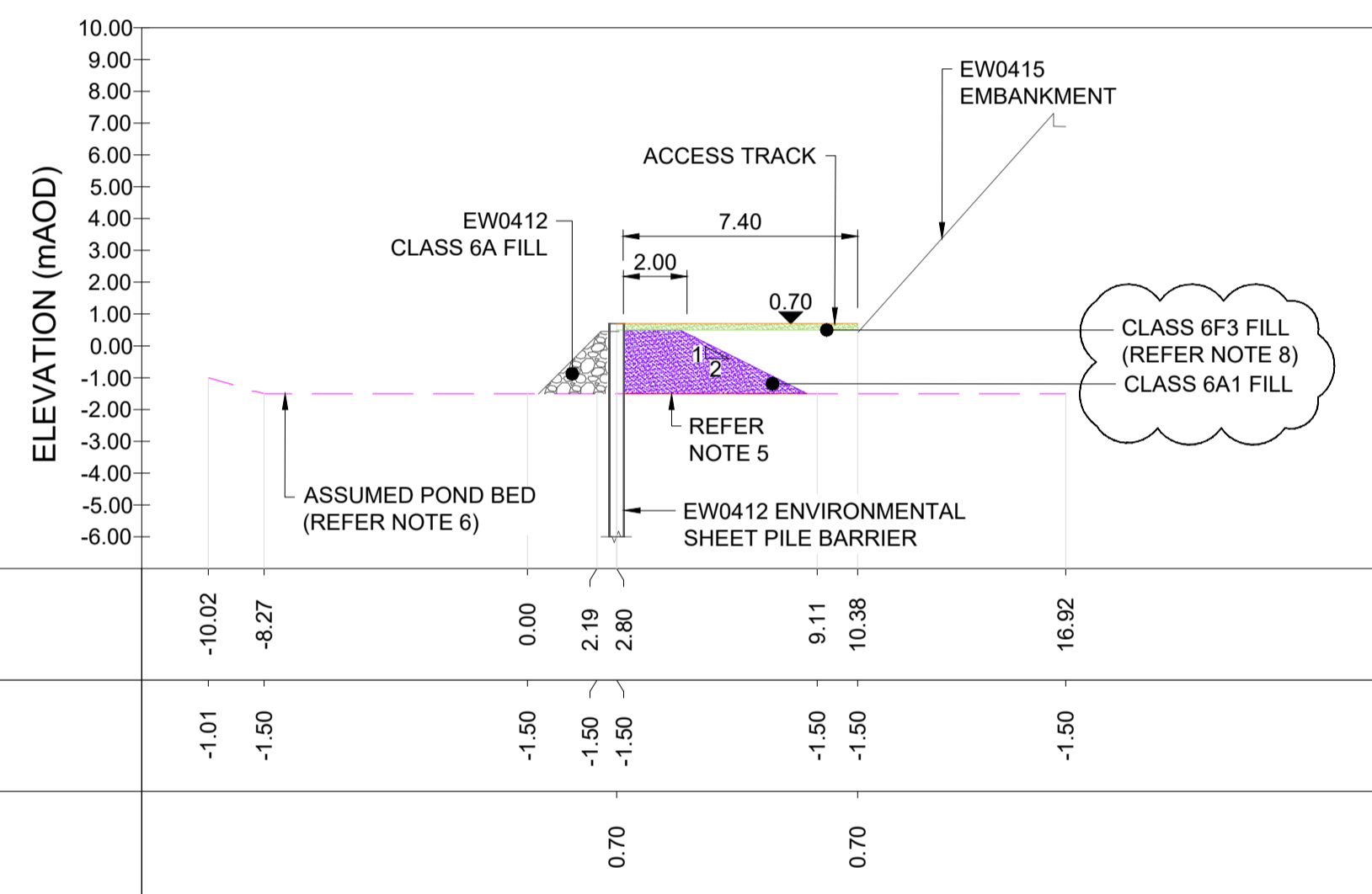
INTELLECTUAL PROPERTY OWNERSHIP: NNB: N/A EDF: N/A CONTRACTOR: N/A



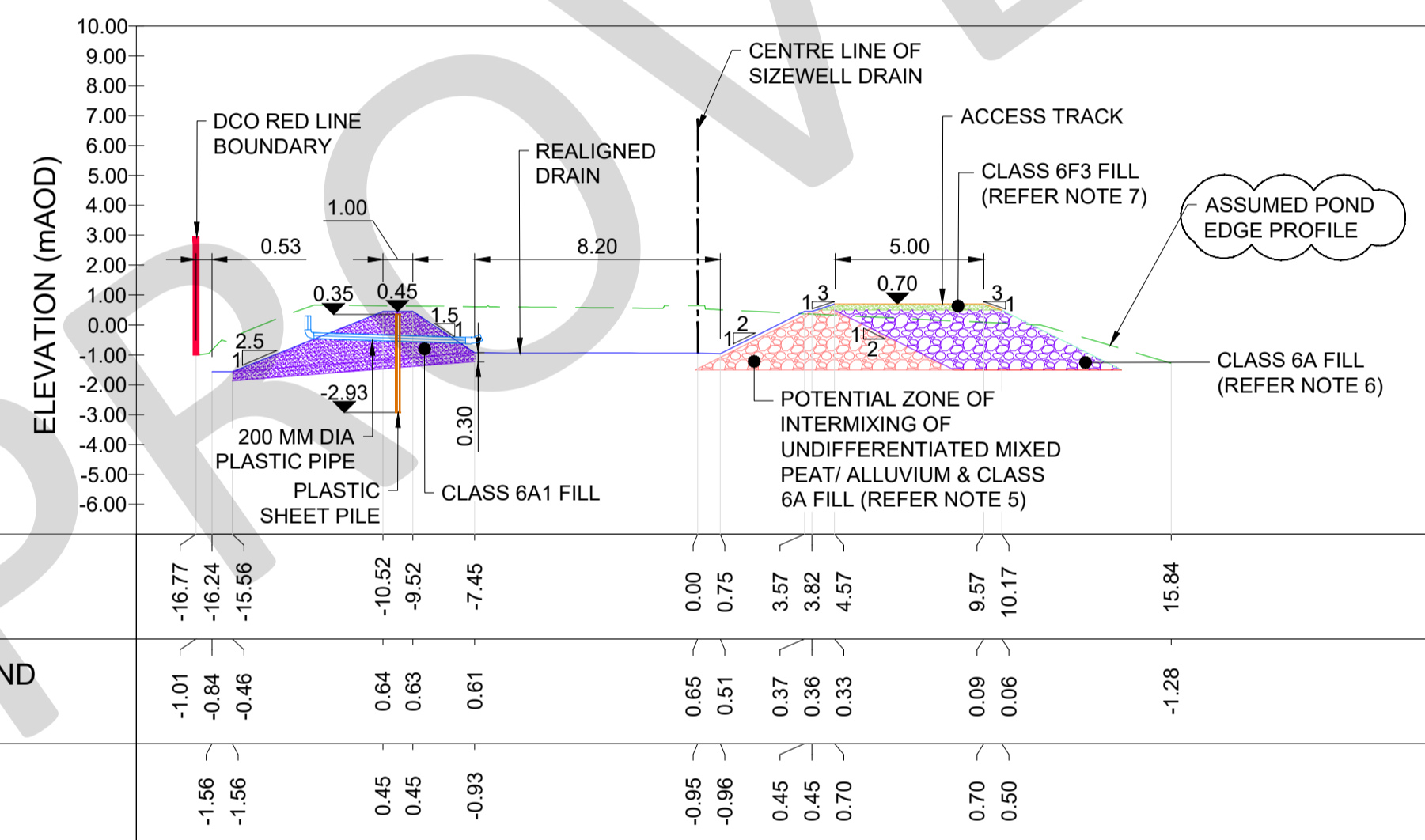
CROSS SECTION G-G (CH : 405.97)  
 (HORIZONTAL SCALE 1:200, VERTICAL SCALE 1:200)



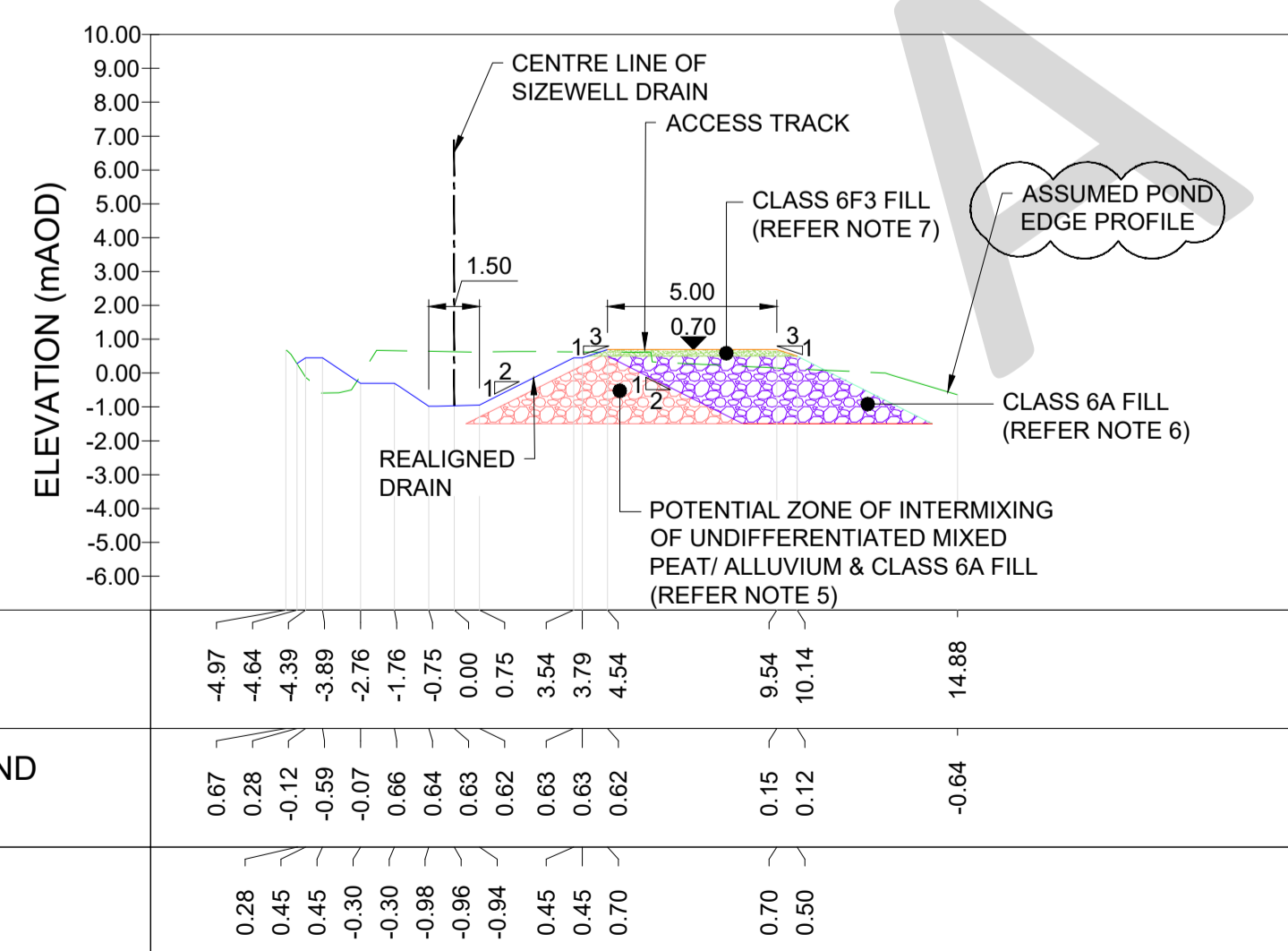
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 (HORIZONTAL SCALE 1:200, VERTICAL SCALE 1:200)



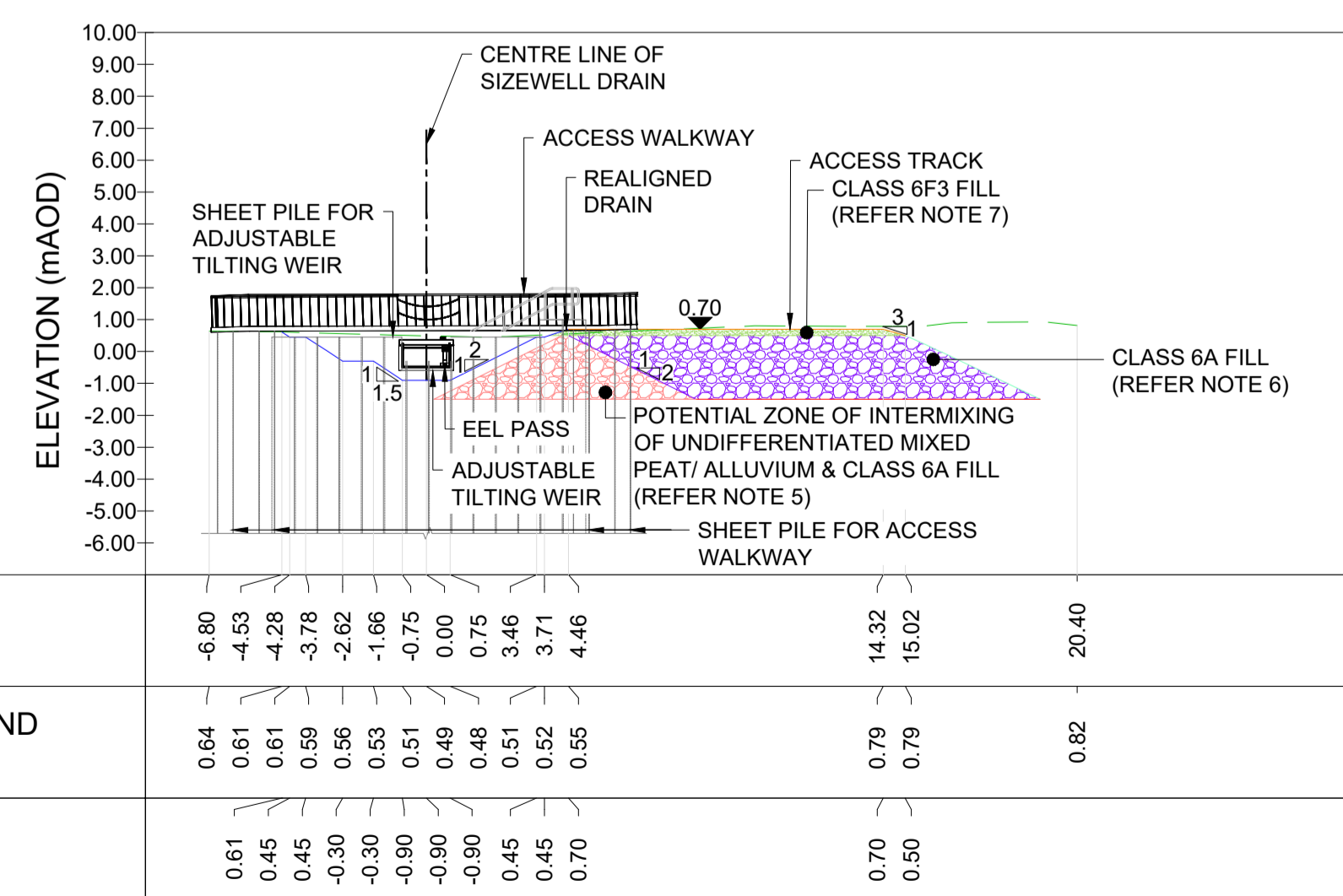
CROSS SECTION J-J (CH : 640.00)  
 (HORIZONTAL SCALE 1:200, VERTICAL SCALE 1:200)



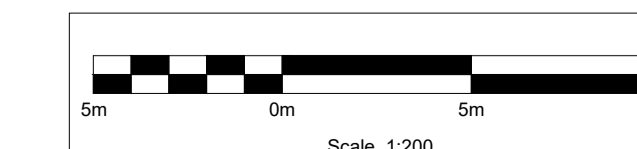
CROSS SECTION K-K (CH : 705.87)  
 (HORIZONTAL SCALE 1:200, VERTICAL SCALE 1:200)



CROSS SECTION L-L (CH : 716.22)  
 (HORIZONTAL SCALE 1:200, VERTICAL SCALE 1:200)



CROSS SECTION M-M (CH : 743.85)  
 (HORIZONTAL SCALE 1:200, VERTICAL SCALE 1:200)



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DRAWING GRID / COORDINATE SYSTEM:

SITE LOCAL GRID  NATIONAL GRID OSGB36   
 OTHER GRID  (To be defined in the contract project plan)

CONTRACT PROJECT PLAN DOC. REF. No: N/A

**NOTES:**

- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
- ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
- FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000007.
- THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT SZC-EW0413-ATK-XX-000-XXXXX-SPE-CIV-000001.
- THE EXTENT OF INTERMIXING OF UNDIFFERENTIATED PEAT/ALLUVIUM WITH CLASS 6A1/CLASS 6A FILL SHOWN ARE INDICATIVE. THE METHOD OF PLACING CLASS 6A1/6A MATERIAL IS SUBJECT TO THE DELIVERY PARTNER'S CHOSEN METHOD OF WORK. THE EXTENTS OF THIS MATERIAL MAY VARY FROM THAT WHICH IS SHOWN IN THE DRAWINGS.
- THE EXTENT OF THE TEMPORARY CONSTRUCTION CANAL HAS NOT BEEN CONFIRMED. THE DESIGN HAS BEEN PROGRESSED ASSUMING THE INVERT LEVEL OF THE TEMPORARY CANAL AS -1.80 mAOD.
- THE CLASS 6F3 MATERIAL IS PLACED ACROSS THE ENTIRE ACCESS TRACK WIDTH ON COMPLETION OF FILL PLACEMENT OR GROUND IMPROVEMENT UNDER EW0414 (WHERE PRESENT).
- WHERE A BERM IS SHOWN ON THE WESTERN SLOPE OF THE DITCH, IT SHALL BE 1m WIDE AT 0.75m DEPTH BELOW GROUND LEVEL WITH SLOPES EITHER SIDE AT 1 IN 1.5.

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

**CONSTRUCTION**

N/A

**MAINTENANCE/CLEANING**

- EW0413-01 EXCAVATOR LOADS CLOSE TO THE CREST OF THE DRAIN DURING MAINTENANCE

**DECOMMISSIONING/DEMOLITION**

N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXX-REG-CIV-000009  
 It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	Detailed Design - Phase 2 Completion	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

<b>1st partner</b> <b>NNB GenCo (SZC) LTD.</b>	<b>2nd partner</b> 	

CONTRACTOR REF. No. SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000002

CONTRACT NUMBER : Early Works EWXXXX\_098\_01

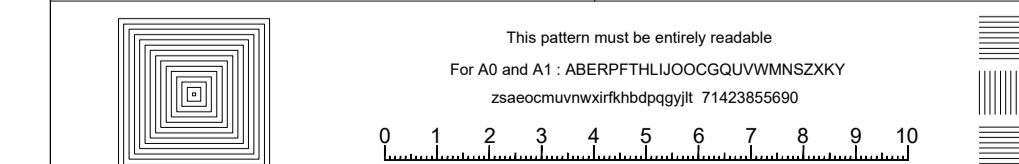
CONTRACTOR WBS CODE : EW0413 QRA RELATED Yes  No

APPLICABILITY: 1: Document related to Unit 1 2: Document related to Unit 2 9: Document that applies to buildings/systems common to Unit 1 & 2 0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)	<table border="1"> <tr> <td>NUCL/REP/EPR/UKX</td> <td></td> </tr> <tr> <td>SZC (doc: SZ)</td> <td></td> </tr> <tr> <td>0 1 2 9</td> <td></td> </tr> <tr> <td>X</td> <td></td> </tr> </table>	NUCL/REP/EPR/UKX		SZC (doc: SZ)		0 1 2 9		X		BUILDING HSZ  SYSTEM N/A
NUCL/REP/EPR/UKX										
SZC (doc: SZ)										
0 1 2 9										
X										

SCALE 1:200 DESCRIPTION Sections North and West MCA Drain Diversion Zone 02 - Sheet 02

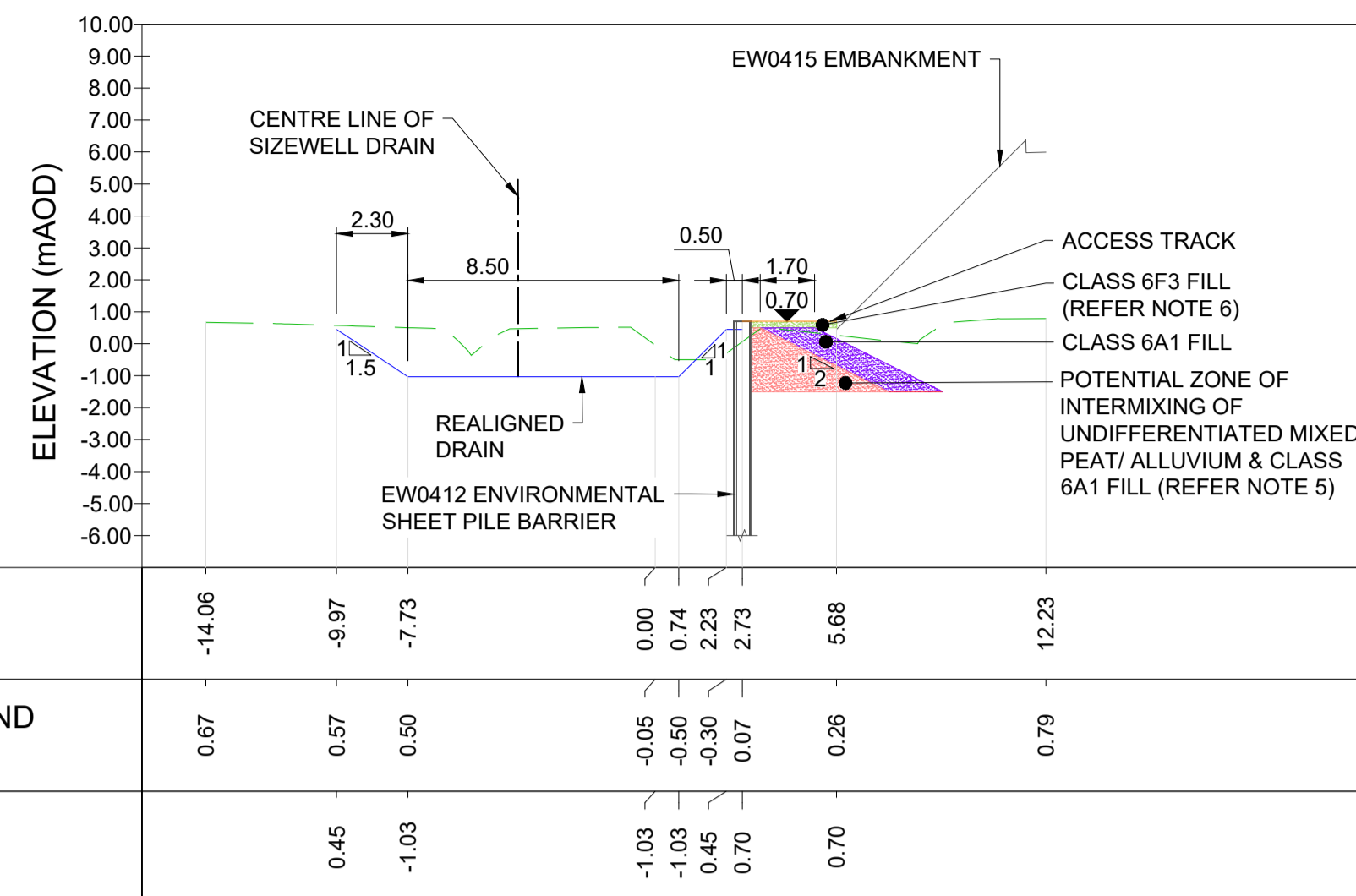
TEAMCENTER DOCUMENT REFERENCE No. 101159648

DOCUMENT SUB - TYPE N/A EDF CLASSIFICATION CODE N/A  
 SUBCONTRACTOR COMPANY TRADE NAME SUBCONTRACTOR DOCUMENT REF. No 5213850-SNC-XX-XX-DRW-G-000407

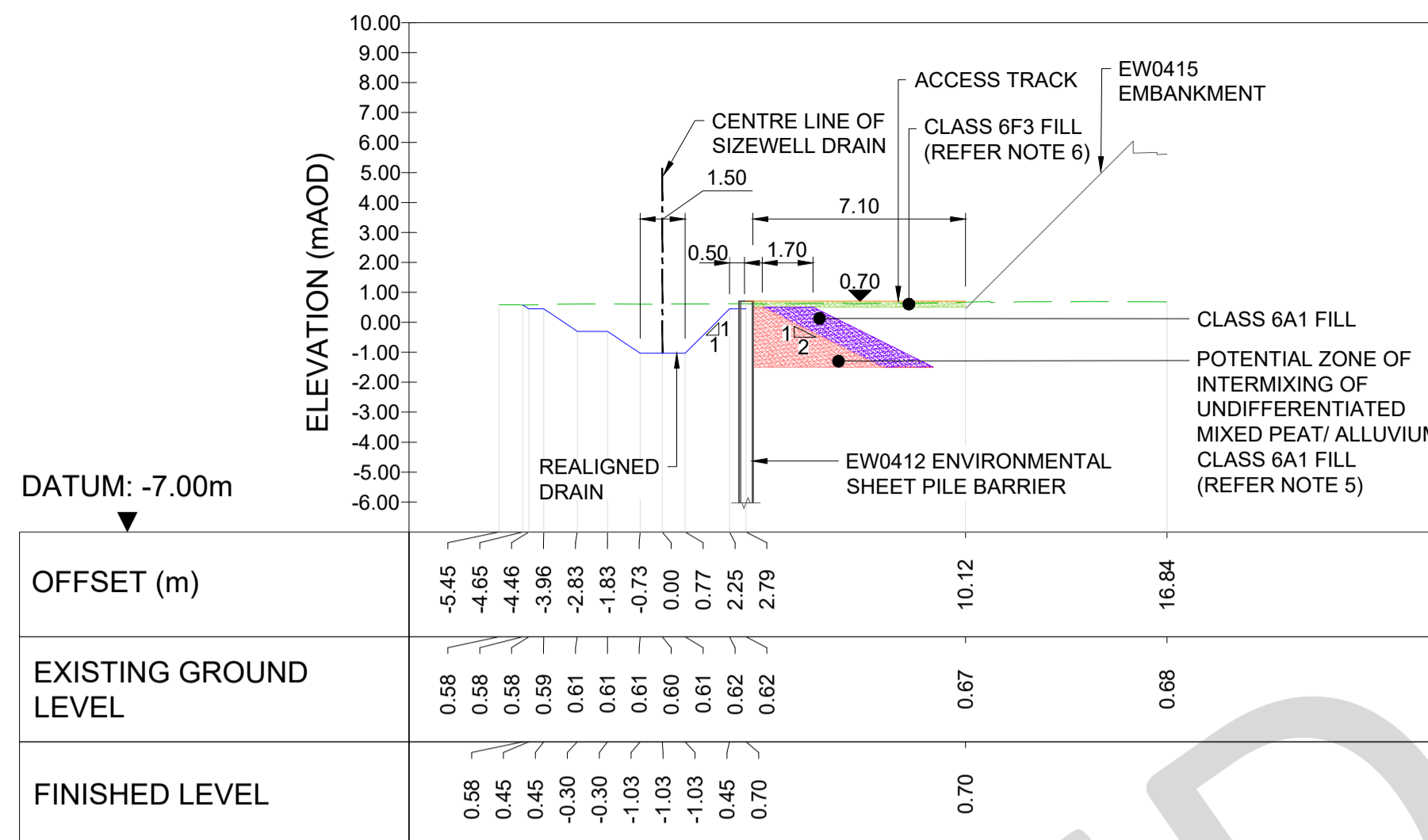


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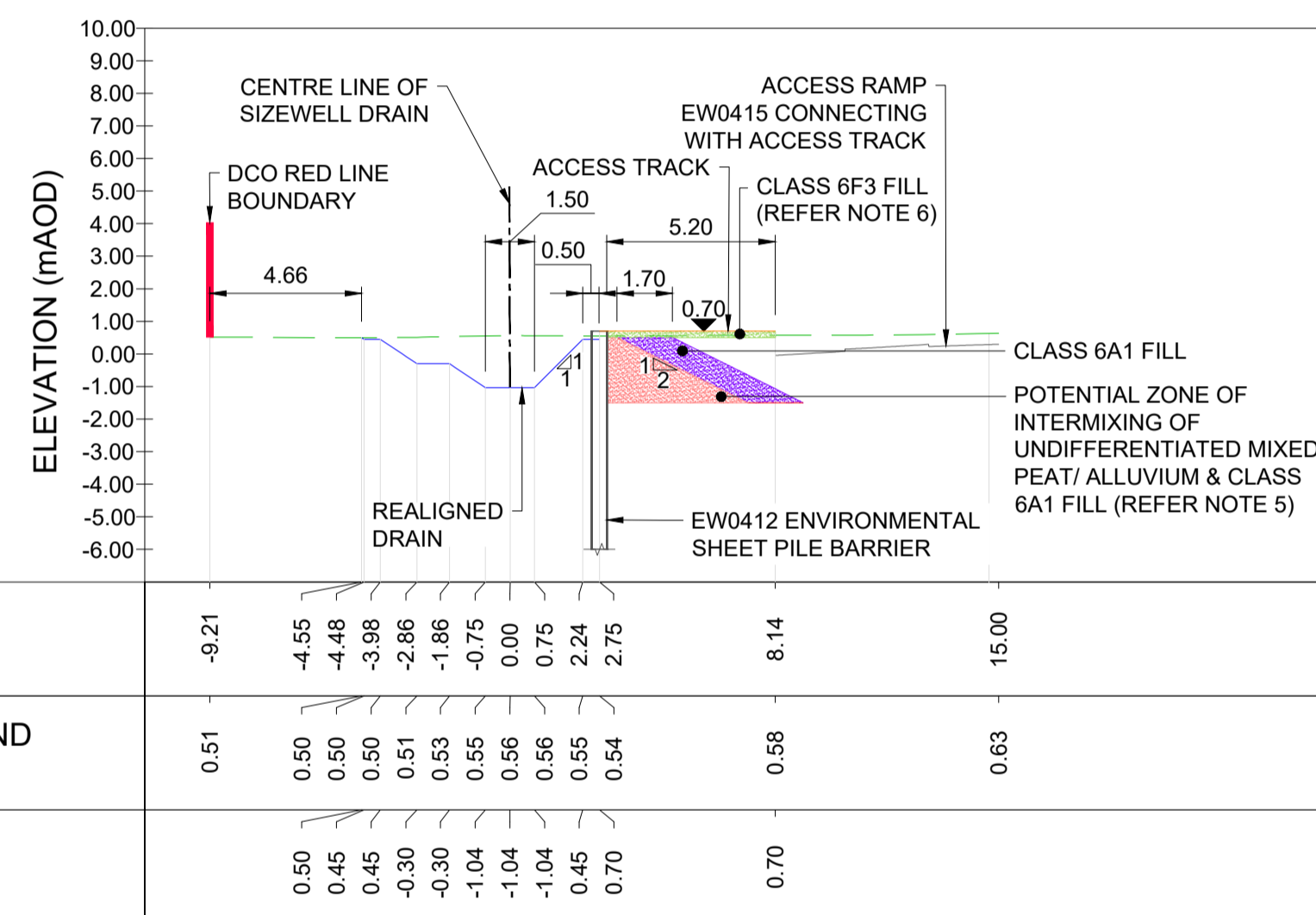
**FOR PERMIT APPLICATION**



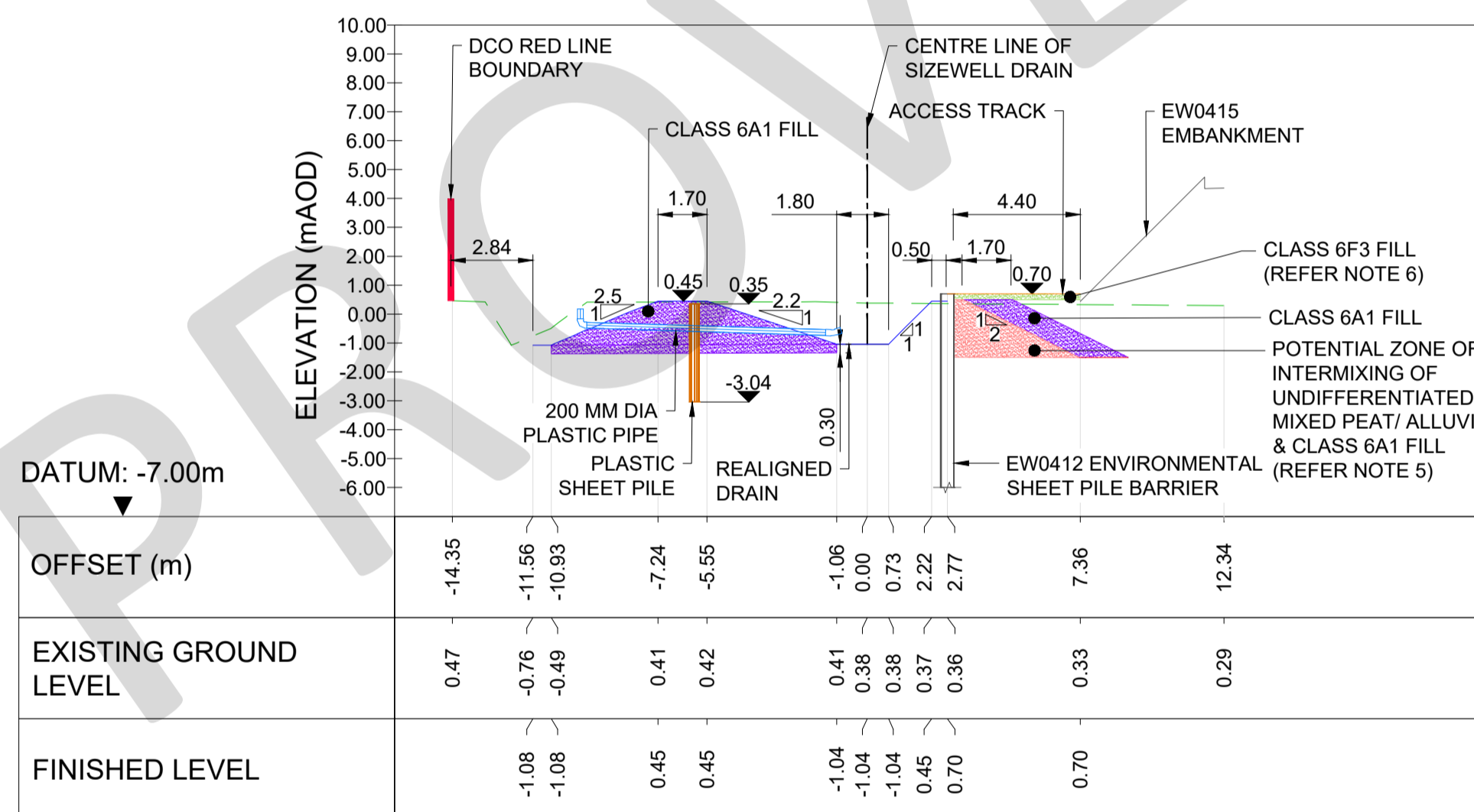
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(HORIZONTAL SCALE 1:200, VERTICAL SCALE 1:200)



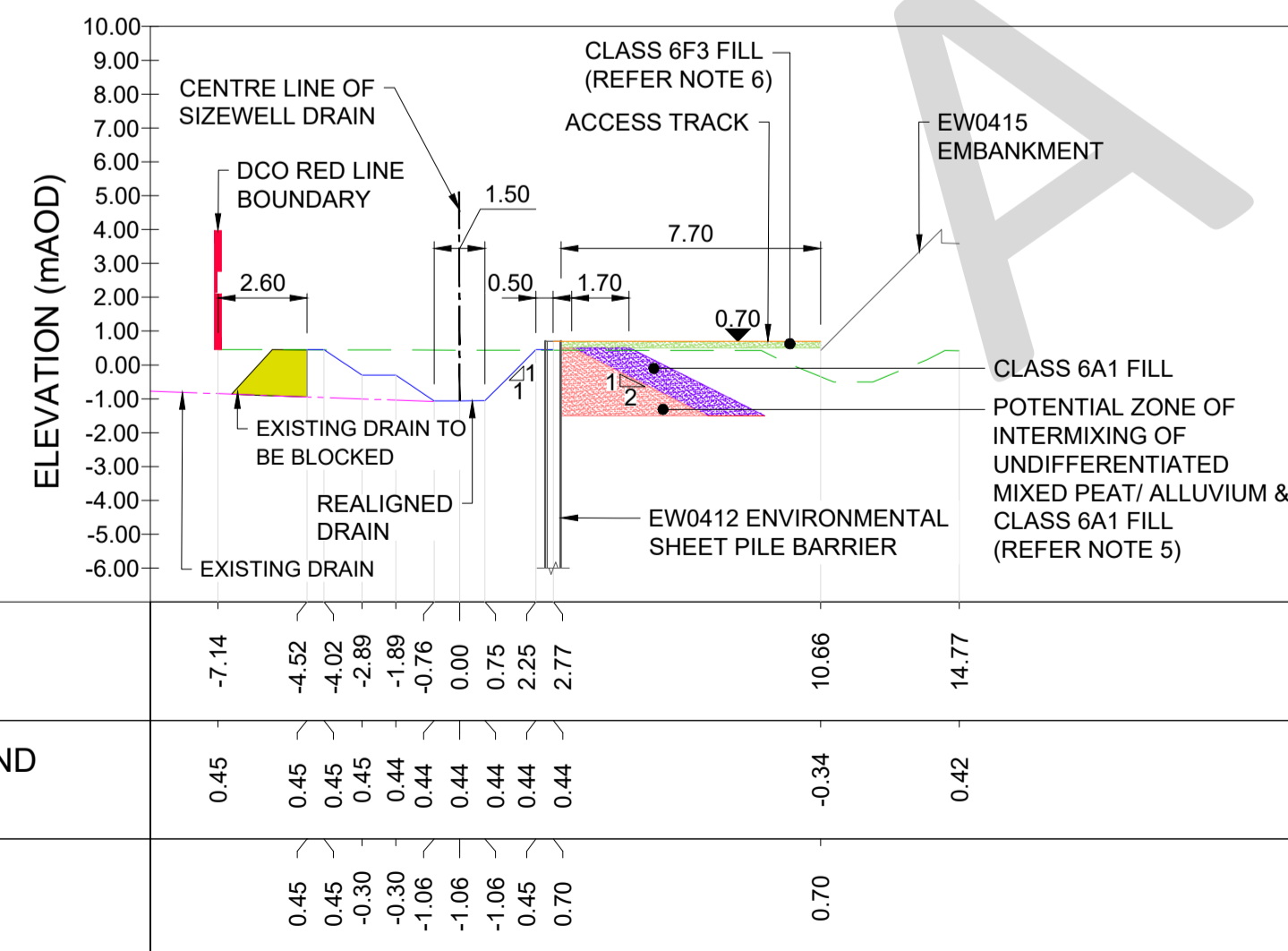
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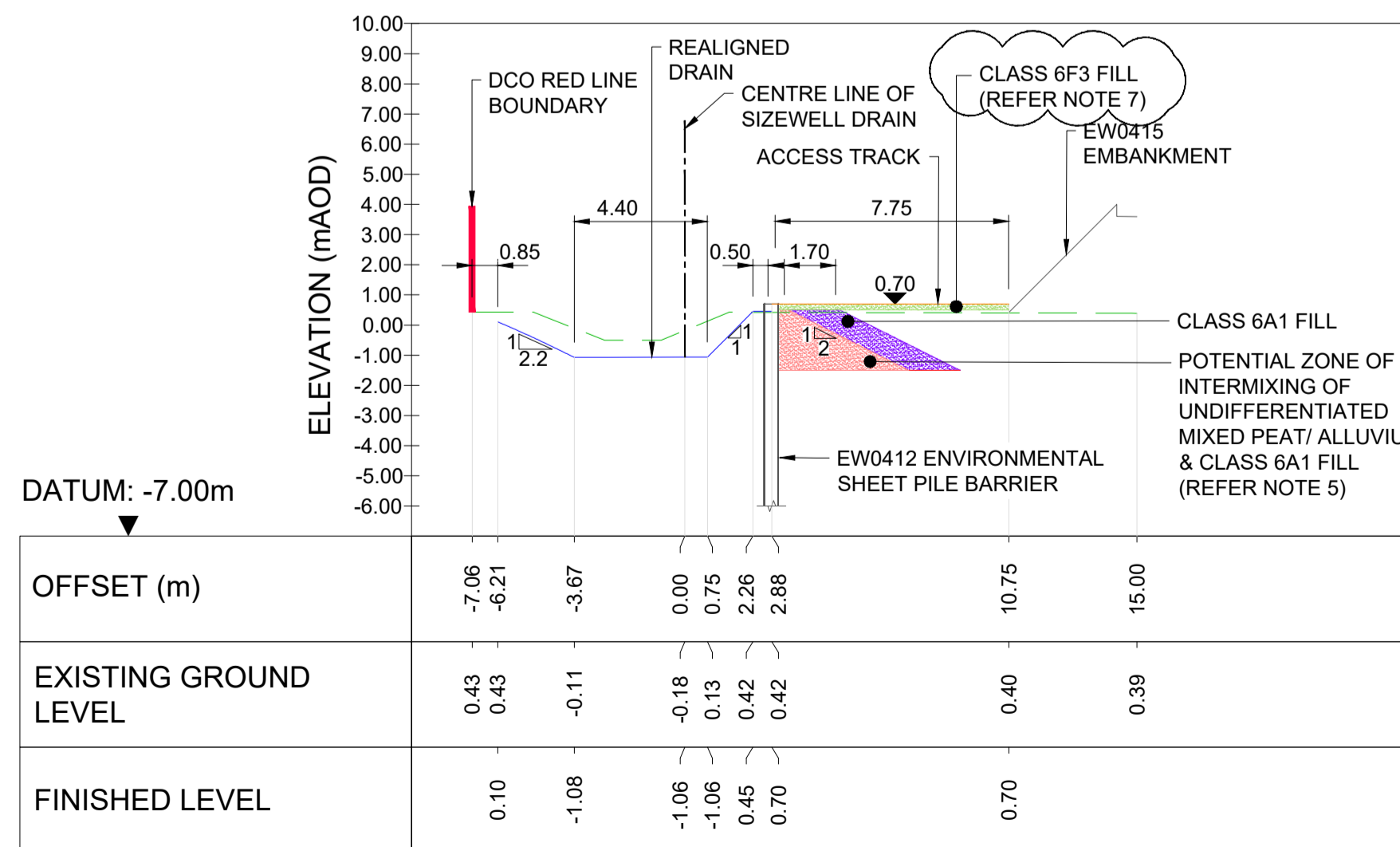
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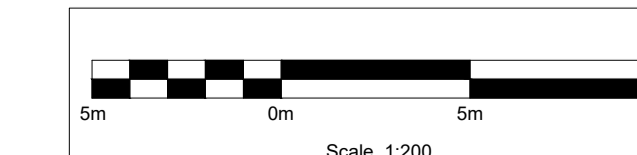
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(HORIZONTAL SCALE 1:200, VERTICAL SCALE 1:200)



CROSS SECTION E-E (CH : 358.42)  
(HORIZONTAL SCALE 1:200, VERTICAL SCALE 1:200)



CROSS SECTION F-F (CH : 370.06)  
(HORIZONTAL SCALE 1:200, VERTICAL SCALE 1:200)



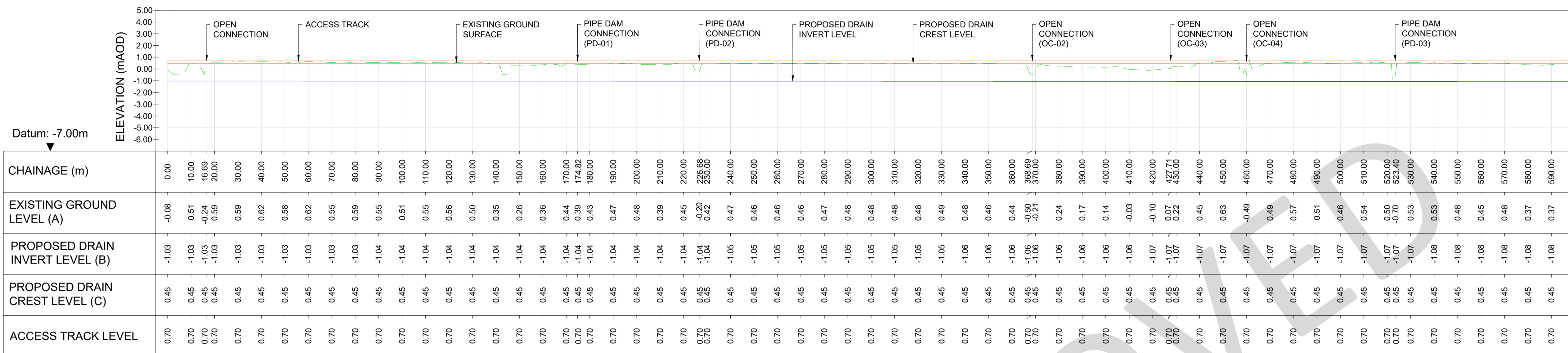


**FOR PERMIT APPLICATION**

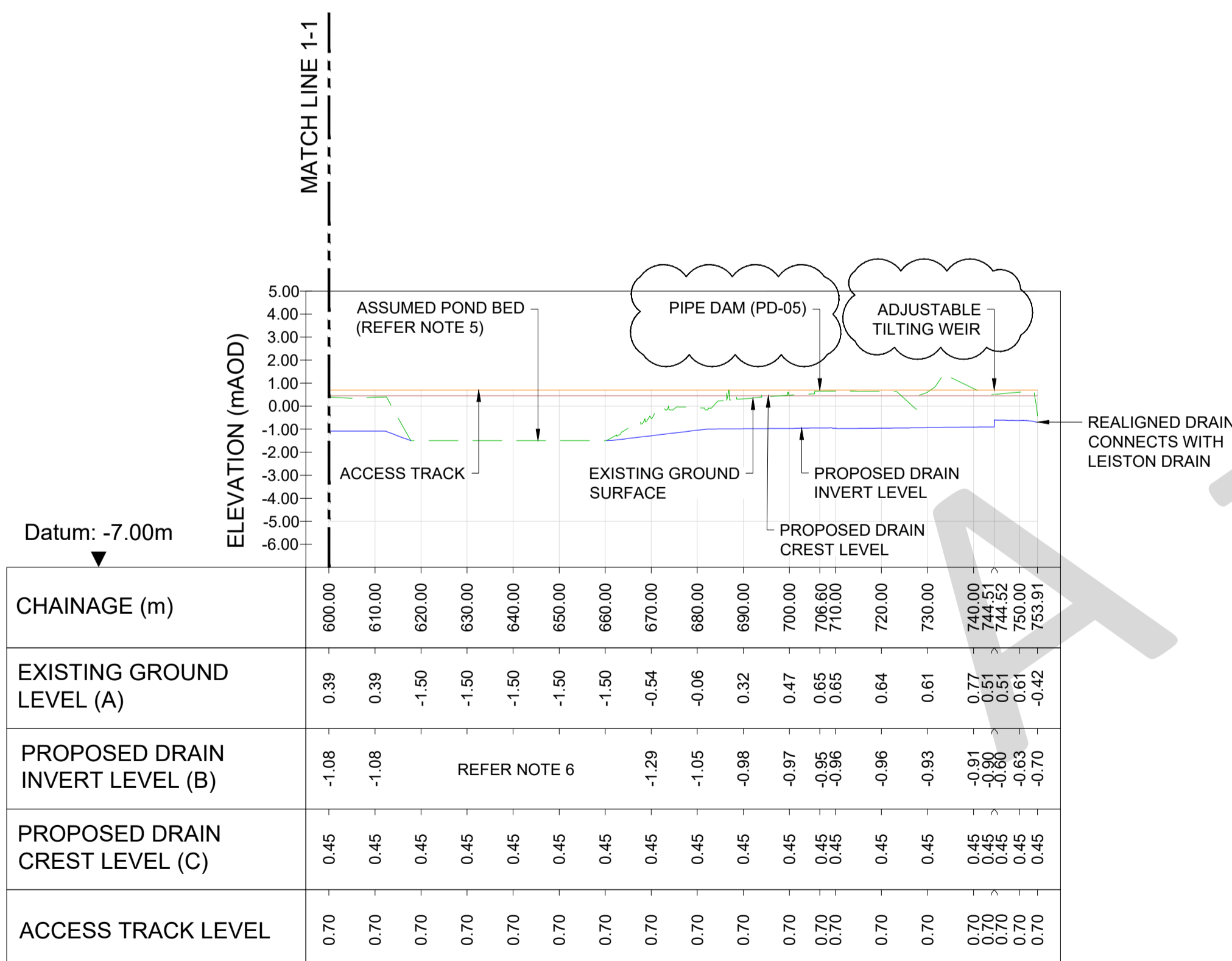
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DRAWING GRID / COORDINATE SYSTEM:	
SITE LOCAL GRID	<input type="checkbox"/> NATIONAL GRID OSGB36 <input type="checkbox"/>
OTHER GRID	<input type="checkbox"/> (To be defined in the contract project plan)
CONTRACT PROJECT PLAN DOC. REF. No: N/A	

- NOTES:**
- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
  - ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  - FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXXX-DRW-CIV-000007.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT.
  - SZC-EW0413-ATK-XX-000-XXXXXX-SPE-CIV-000001.
  - THE EXTENTS OF THE POND ARE CONSIDERED BASED ON OS MAP AND THE INVERT LEVEL OF THE POND IS ASSUMED AS -1.5 mAOD.
  - THE REALIGNED DRAIN PROFILE MERGES WITH THE EXISTING POND AT CH - 617.80 m AND CH - 660.28 m, SO DRAIN WILL NOT BE PRESENT IN THIS STRETCH.



LONGITUDINAL PROFILE FOR DIVERSION DRAIN (CH - 000.00 m - 600.00 m)  
(HORIZONTAL SCALE 1:200, VERTICAL SCALE 1:40)



LONGITUDINAL PROFILE FOR DIVERSION DRAIN (CH - 600.00 m - 753.91 m)  
(HORIZONTAL SCALE 1:200, VERTICAL SCALE 1:40)

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

**CONSTRUCTION**

N/A

**MAINTENANCE/CLEANING**

1. EW0413-01 EXCAVATOR LOADS CLOSE TO THE CREST OF THE DRAIN DURING MAINTENANCE  
2. EW0413-07 110000 CHANNEL OUTFALL DISCHARGING ONTO MAINTENANCE ACCESS TRACK

**DECOMMISSIONING/DEMOLITION**

N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXXX-REG-CIV-000009  
It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	Detailed Design - Phase 2 Completion	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

<b>NNB GenCo (SZC) LTD.</b> 1st partner	 The power of good for Britain	 2nd partner

CONTRACTOR REF. No. SZC-EW0413-ATK-XX-HSZ-XXXXXX-DRW-CIV-000001

CONTRACT NUMBER : Early Works EWXXXX\_098\_01

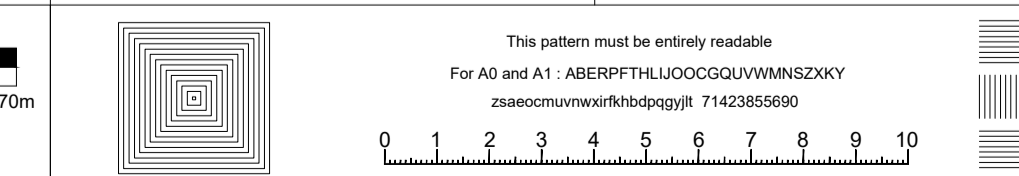
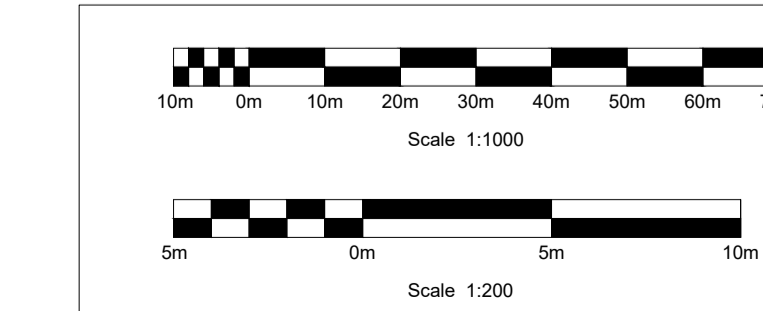
CONTRACTOR WBS CODE : EW0413 QRA RELATED Yes  No

APPLICABILITY: 1: Document related to Unit 1 2: Document related to Unit 2 9: Document that applies to buildings/systems common to Unit 1 & 2 0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)	<table border="1"> <tr> <th>NUCL/REP/EPR/UX</th> <th>SZC (doc: SZ)</th> </tr> <tr> <td>0</td> <td>1</td> </tr> <tr> <td>X</td> <td>2</td> </tr> </table>	NUCL/REP/EPR/UX	SZC (doc: SZ)	0	1	X	2	BUILDING HSZ  SYSTEM N/A
NUCL/REP/EPR/UX	SZC (doc: SZ)							
0	1							
X	2							

SCALE AS SHOWN	DESCRIPTION
SIZE A1	Sections
PAGE 1/1	North and West MCA Drain Diversion Zone 02 - Sheet 01

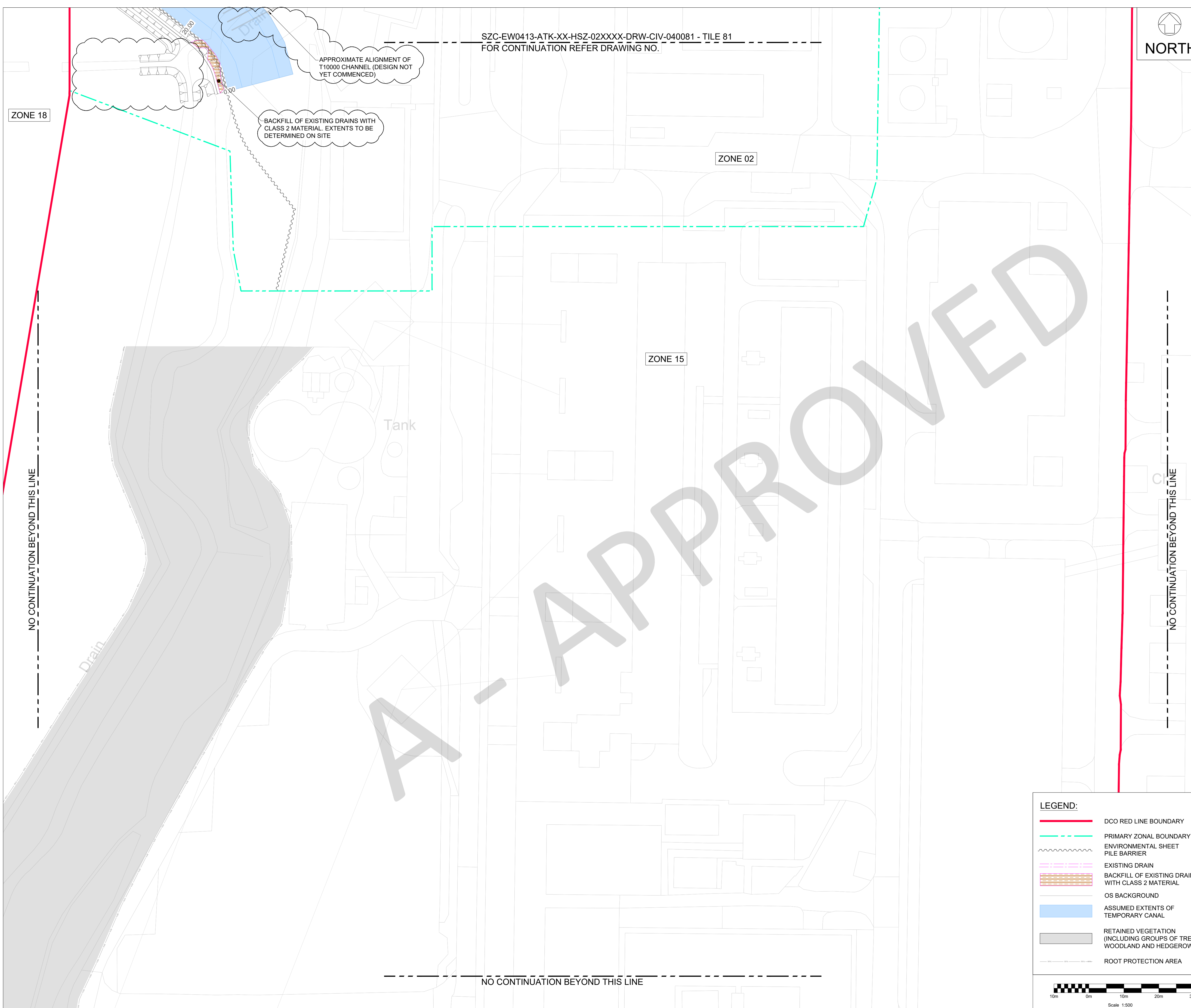
TEAMCENTER DOCUMENT REFERENCE No. 101162066

DOCUMENT SUB - TYPE N/A	EDF CLASSIFICATION CODE N/A
SUBCONTRACTOR COMPANY TRADE NAME N/A	SUBCONTRACTOR DOCUMENT REF. No. 5213850-SNC-XX-XX-DDRW-G-000406



INTELLECTUAL PROPERTY OWNERSHIP: N/A	NNB: N/A	EDF: N/A	CONTRACTOR: N/A
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**FOR PERMIT APPLICATION**



SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-040081 - TILE 81  
FOR CONTINUATION REFER DRAWING NO.

ZONE 18

ZONE 02

ZONE 15

APPROXIMATE ALIGNMENT OF T10000 CHANNEL (DESIGN NOT YET COMMENCED)

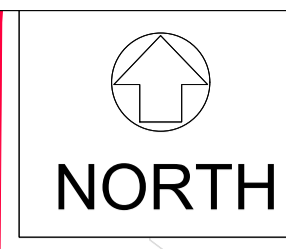
BACKFILL OF EXISTING DRAINS WITH CLASS 2 MATERIAL. EXTENTS TO BE DETERMINED ON SITE

Tank

A - APPROVED

NO CONTINUATION BEYOND THIS LINE

NO CONTINUATION BEYOND THIS LINE

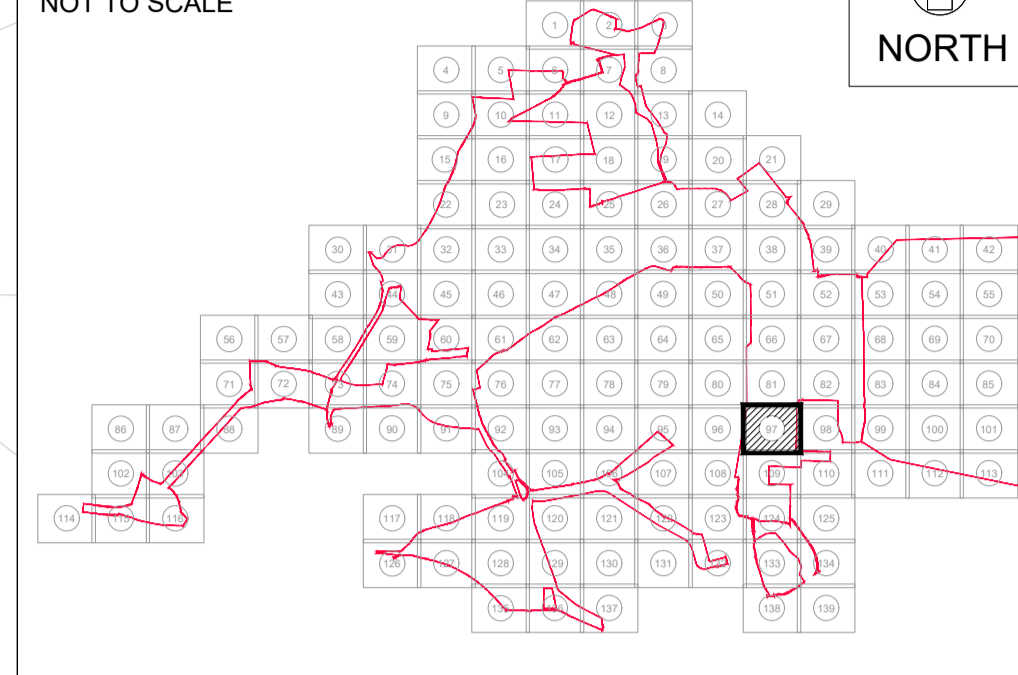


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DRAWING GRID / COORDINATE SYSTEM:  
 SITE LOCAL GRID  NATIONAL GRID OSGB36   
 OTHER GRID  (To be defined in the contract project plan)

CONTRACT PROJECT PLAN DOC. REF. No: N/A



- NOTES:**
- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
  - ALL COORDINATES AND DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  - FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000007.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT SZC-EW0413-ATK-XX-HSZ-XXXXX-SPE-CIV-000004.
  - ONLY EXISTING CHANNELS CONSIDERED AS CANAL BACKFILLING TO BE COMPLETED SEPARATELY

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

**CONSTRUCTION**

N/A

**MAINTENANCE/CLEANING**

- EW0413-07 T10000 CHANNEL OUTFALL DISCHARGING ONTO MAINTENANCE ACCESS TRACK

**DECOMMISSIONING/DEMOLITION**

N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXXX-REG-CIV-000009

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	Detailed Design - Phase 2 Completion	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

<b>1st partner</b> <b>NNB GenCo</b> (SZC) LTD.	<b>Sizewell C</b> <small>The power of good for Britain</small>	<b>2nd partner</b> <b>AtkinsRéalis</b>
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CONTRACTOR COMPANY TRADE NAME : AtkinsRéalis

CONTRACTOR REF. No. SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-000401

CONTRACT NUMBER : Early Works EWXXXX\_098\_01

CONTRACTOR WBS CODE : EW0413 QRA RELATED Yes  No

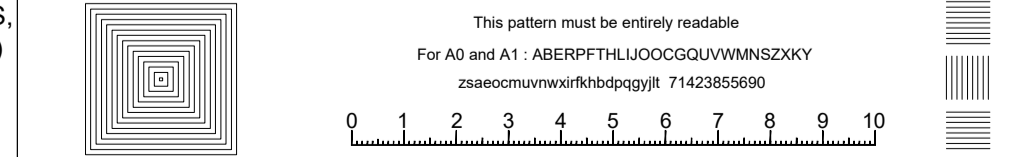
APPLICABILITY:	NUCL/REP/EPR/UKX	BUILDING
1: Document related to Unit 1	0	HSZ
2: Document related to Unit 2	1	
9: Document that applies to buildings/systems common to Unit 1 & 2	2	SYSTEM
0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)	9	N/A

SCALE 1:500  
 SIZE A1  
 PAGE 1/1

DESCRIPTION  
**Backfilling Details**  
 North and West MCA Drain Diversion  
 Zone 02 - Tile 97

TEAMCENTER DOCUMENT REFERENCE No.  
 101184500

DOCUMENT SUB - TYPE N/A EDF CLASSIFICATION CODE N/A  
 SUBCONTRACTOR COMPANY TRADE NAME N/A SUBCONTRACTOR DOCUMENT REF. No. 5213850-SNC-02-XX-DDRW-G-001003

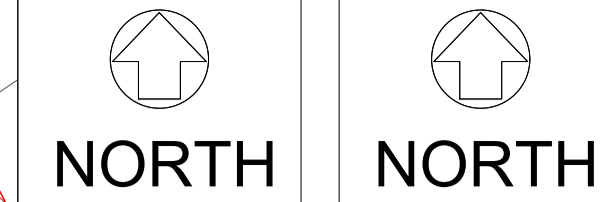
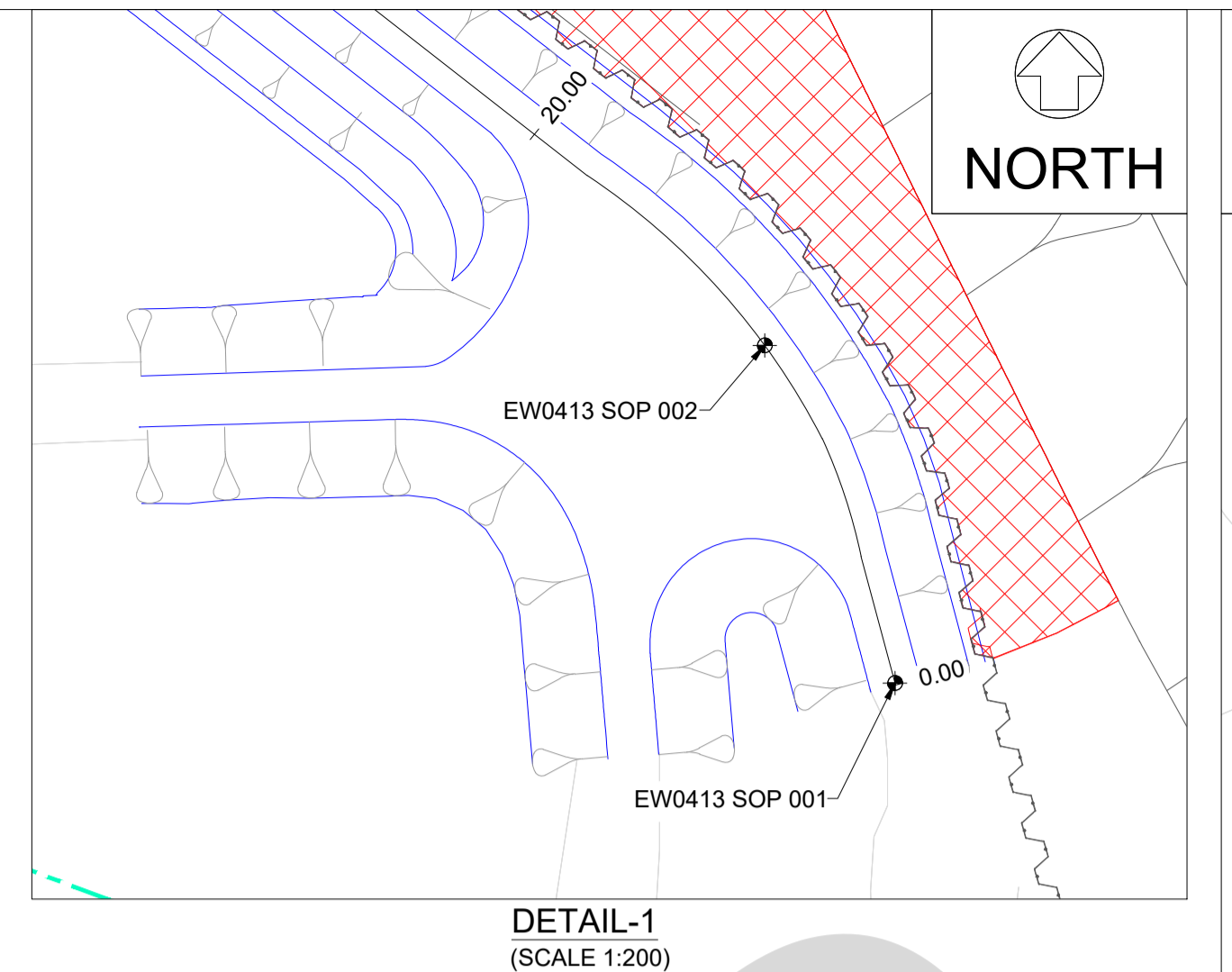
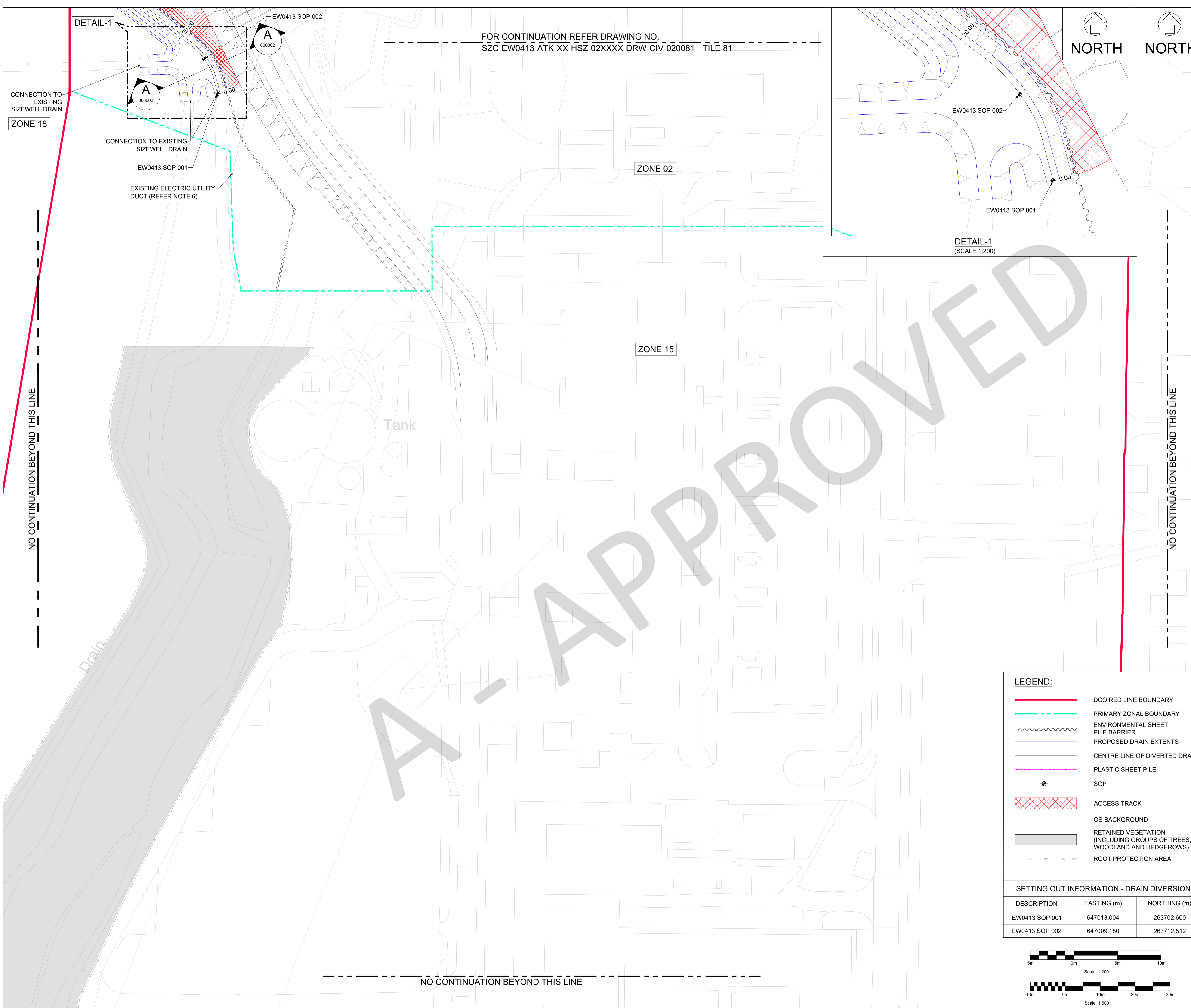


INTELLECTUAL PROPERTY OWNERSHIP: NNB: N/A EDF: N/A CONTRACTOR: N/A

**FOR PERMIT APPLICATION**

**LEGEND:**

- DCO RED LINE BOUNDARY
- PRIMARY ZONAL BOUNDARY
- ENVIRONMENTAL SHEET PILE BARRIER
- EXISTING DRAIN
- BACKFILL OF EXISTING DRAINS WITH CLASS 2 MATERIAL
- OS BACKGROUND
- ASSUMED EXTENTS OF TEMPORARY CANAL
- RETAINED VEGETATION (INCLUDING GROUPS OF TREES, WOODLAND AND HEDGEROWS)
- ROOT PROTECTION AREA



**FOR PERMIT APPLICATION**

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DRAWING GRID / COORDINATE SYSTEM:  
 SITE LOCAL GRID  NATIONAL GRID OSGB36   
 OTHER GRID  (To be defined in the contract project plan)

CONTRACT PROJECT PLAN DOC. REF. No: N/A

**KEY PLAN:**  
NOT TO SCALE

- NOTES:**
- ALL LEVELS ARE IN METRES ABOVE ORDANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
  - ALL COORDINATES AND DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  - FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXXX-DRW-CIV-000007.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT SZC-EW0413-ATK-XX-000-XXXXXX-SPE-CIV-000001.

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**  
 In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

- CONSTRUCTION**  
N/A
- MAINTENANCE/CLEANING:**  
1. EW0413-07: T10000 CHANNEL OUTFALL DISCHARGING ONTO MAINTENANCE ACCESS TRACK
- DECOMMISSIONING/DEMOLITION:**  
N/A
- The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXXX-REG-CIV-000009  
 It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	Detailed Design - Phase 2 Completion	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

1st partner  
**NNB GenCo (SZC) LTD.**

2nd partner  
**Sizewell C**  
The power of good for Britain

**AtkinsRéalis**

CONTRACTOR COMPANY TRADE NAME : AtkinsRéalis

CONTRACTOR REF. No. SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-000001

CONTRACT NUMBER : Early Works EWXXXX\_098\_01

CONTRACTOR WBS CODE : EW0413 QRA RELATED Yes  No

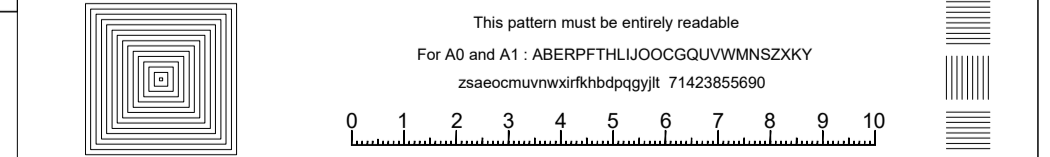
APPLICABILITY:  
 1: Document related to Unit 1  
 2: Document related to Unit 2  
 9: Document that applies to buildings/systems common to Unit 1 & 2  
 0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)

NUCL/REP/EPR/UKX	BUILDING
SZC ( doc: SZ )	HSZ
0 1 2 9	SYSTEM
X	N/A

SCALE	DESCRIPTION
AS SHOWN	General Arrangement North and West MCA Drain Diversion Zone 02 - Tile 97
SIZE A1	
PAGE 1/1	

TEAMCENTER DOCUMENT REFERENCE No.  
101184488

DOCUMENT SUB - TYPE N/A	EDF CLASSIFICATION CODE N/A
SUBCONTRACTOR COMPANY TRADE NAME N/A	SUBCONTRACTOR DOCUMENT REF. No 5213850-SNC-02-XX-DDRW-G-001001



INTELLECTUAL PROPERTY OWNERSHIP: N/A	NNB: N/A	EDF: N/A	CONTRACTOR: N/A
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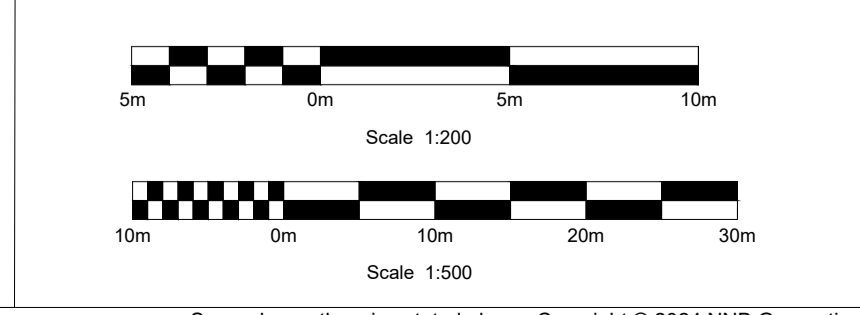
**FOR PERMIT APPLICATION**

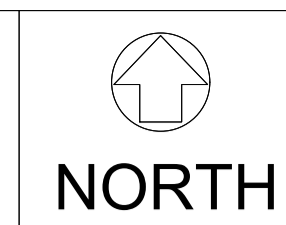
**LEGEND:**

- DCO RED LINE BOUNDARY
- PRIMARY ZONAL BOUNDARY
- ENVIRONMENTAL SHEET PILE BARRIER
- PROPOSED DRAIN EXTENTS
- CENTRE LINE OF DIVERTED DRAIN
- PLASTIC SHEET PILE
- SOP
- ACCESS TRACK
- OS BACKGROUND
- RETAINED VEGETATION (INCLUDING GROUPS OF TREES, WOODLAND AND HEDGEROWS)
- ROOT PROTECTION AREA

**SETTING OUT INFORMATION - DRAIN DIVERSION**

DESCRIPTION	EASTING (m)	NORTHING (m)
EW0413 SOP 001	647013.004	263702.600
EW0413 SOP 002	647009.180	263712.512





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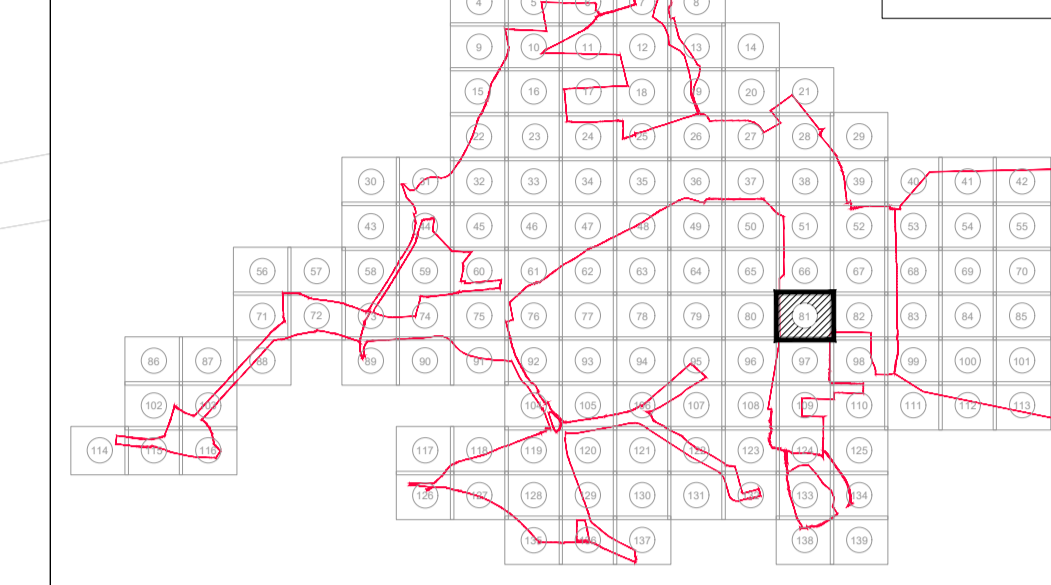
DRAWING GRID / COORDINATE SYSTEM:

SITE LOCAL GRID  NATIONAL GRID OSGB36

OTHER GRID  (To be defined in the contract project plan)

CONTRACT PROJECT PLAN DOC. REF. No: N/A

KEY PLAN:  
NOT TO SCALE



- NOTES:**
- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
  - ALL COORDINATES AND DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  - FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-000007.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT SZC-EW0413-ATK-XX-HSZ-XXXXX-SPE-CIV-000001.
  - ONLY EXISTING CHANNELS CONSIDERED AS CANAL BACKFILLING TO BE COMPLETED SEPARATELY.

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

**CONSTRUCTION**

N/A

**MAINTENANCE/CLEANING**

- EW0413-07 T10000 CHANNEL OUTFALL DISCHARGING ONTO MAINTENANCE ACCESS TRACK

**DECOMMISSIONING/DEMOLITION**

N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXX-REG-CIV-000009

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	Detailed Design - Phase 2 Completion	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

CONTRACTOR COMPANY TRADE NAME : AtkinsRéalis

CONTRACTOR REF. No. SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-040081

CONTRACT NUMBER : Early Works EWXXXX\_098\_01

CONTRACTOR WBS CODE : EW0413

QRA RELATED Yes  No

APPLICABILITY:  
 1: Document related to Unit 1  
 2: Document related to Unit 2  
 9: Document that applies to buildings/systems common to Unit 1 & 2  
 0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)

NUCL/REP/EPR/UKX	
SZC ( doc: SZ )	
0	1
2	9
X	

BUILDING HSZ

SYSTEM N/A

SCALE 1:500

SIZE A1

PAGE 1/1

TEAMCENTER DOCUMENT REFERENCE No. 101157853

DOCUMENT SUB - TYPE N/A

EDF CLASSIFICATION CODE N/A

SUBCONTRACTOR COMPANY TRADE NAME N/A

SUBCONTRACTOR DOCUMENT REF. No. 5213850-SNC-02-XX-DRW-G-000394

INTELLECTUAL PROPERTY OWNERSHIP: N/A

EDF: N/A

CONTRACTOR: N/A

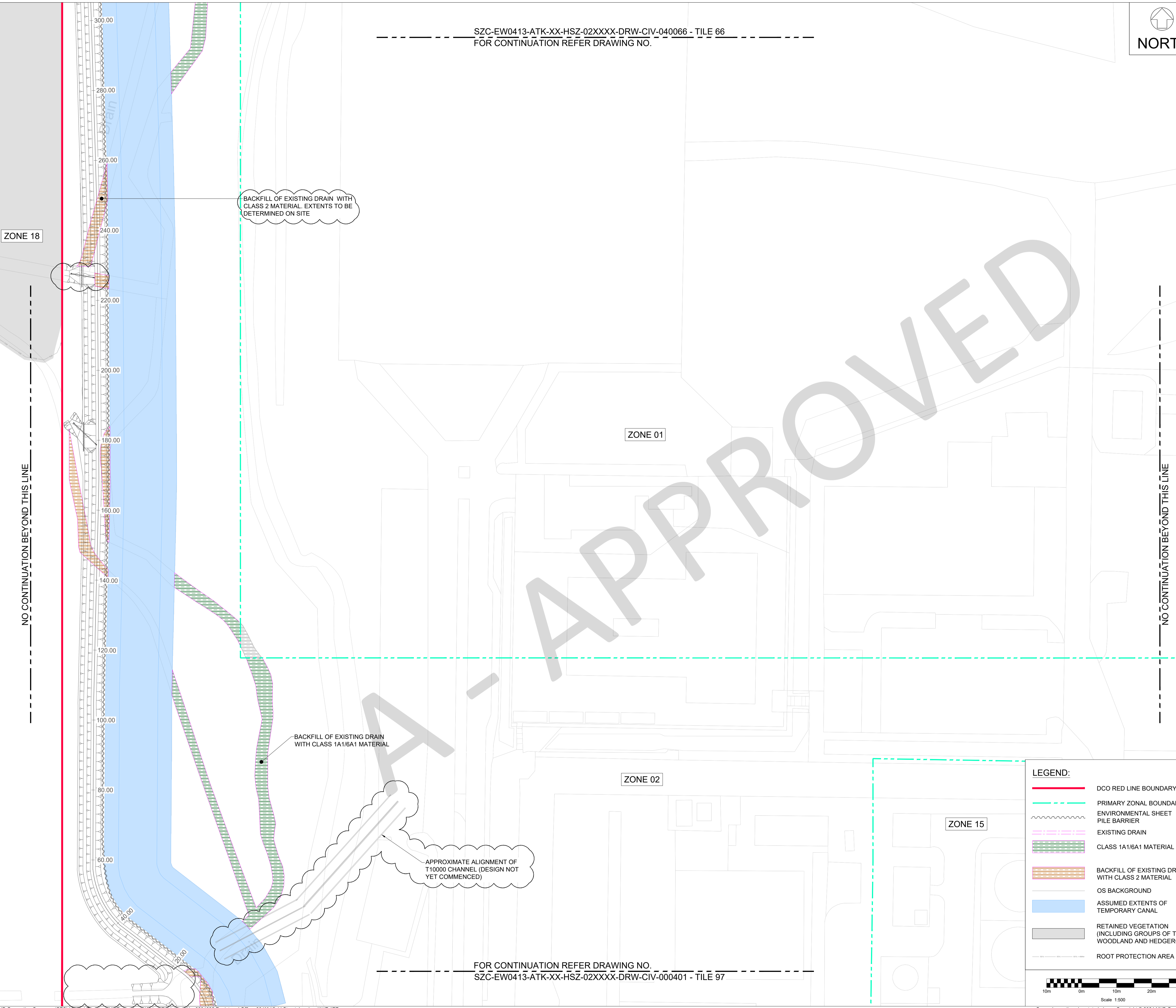
**FOR PERMIT APPLICATION**

Scale 1:500

0m 10m 20m 30m

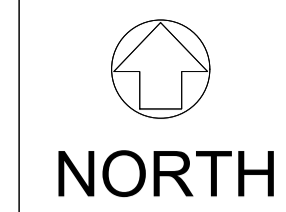
FOR CONTINUATION REFER DRAWING NO. SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-000401 - TILE 97

SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-040066 - TILE 66  
FOR CONTINUATION REFER DRAWING NO.



**LEGEND:**

- DCO RED LINE BOUNDARY
- PRIMARY ZONAL BOUNDARY
- ENVIRONMENTAL SHEET PILE BARRIER
- EXISTING DRAIN
- CLASS 1A1/6A1 MATERIAL
- BACKFILL OF EXISTING DRAINS WITH CLASS 2 MATERIAL
- OS BACKGROUND
- ASSUMED EXTENTS OF TEMPORARY CANAL
- RETAINED VEGETATION (INCLUDING GROUPS OF TREES, WOODLAND AND HEDGEROWS)
- ROOT PROTECTION AREA



**FOR PERMIT APPLICATION**

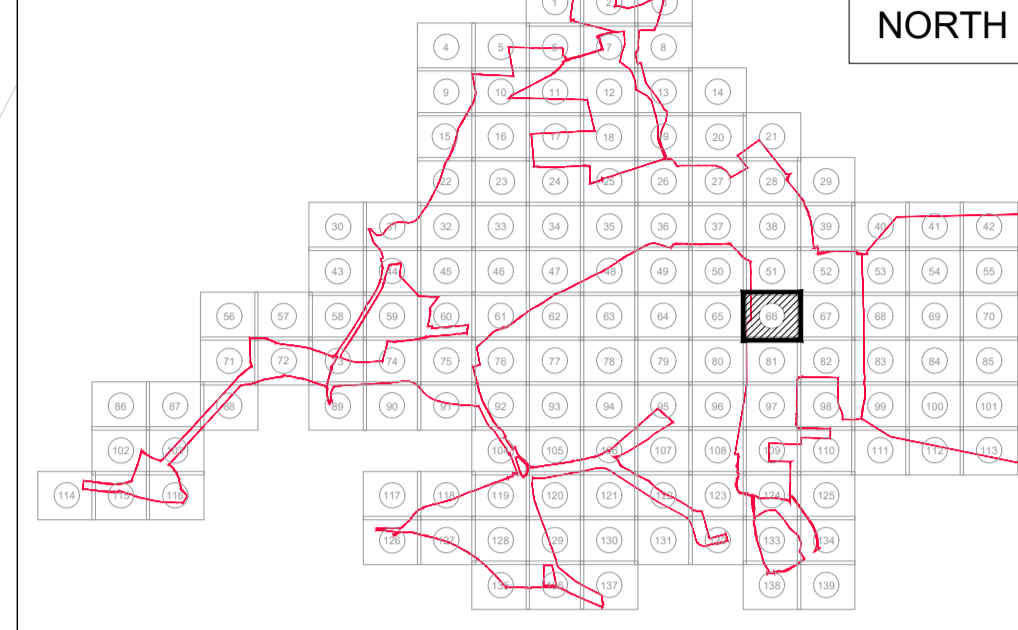
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DRAWING GRID / COORDINATE SYSTEM:

SITE LOCAL GRID  NATIONAL GRID OSGB36   
OTHER GRID  (To be defined in the contract project plan)

CONTRACT PROJECT PLAN DOC. REF. No: N/A

KEY PLAN:  
NOT TO SCALE



- NOTES:**
- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
  - ALL COORDINATES AND DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  - FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-000007.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT SZC-EW0413-ATK-XX-HSZ-XXXXX-SPE-CIV-000004.
  - ONLY EXISTING CHANNELS CONSIDERED AS CANAL BACKFILLING TO BE COMPLETED SEPARATELY.

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

**CONSTRUCTION**  
N/A

**MAINTENANCE/CLEANING**  
N/A

**DECOMMISSIONING/DEMOLITION**  
N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXX-REG-CIV-000009

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	Detailed Design - Phase 2 Completion	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

<b>CONTRACTOR COMPANY TRADE NAME :</b> NNB GenCo (SZC) LTD.	1st partner	2nd partner

CONTRACTOR REF. No: SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-040066

CONTRACT NUMBER : Early Works EWXXXX\_098\_01

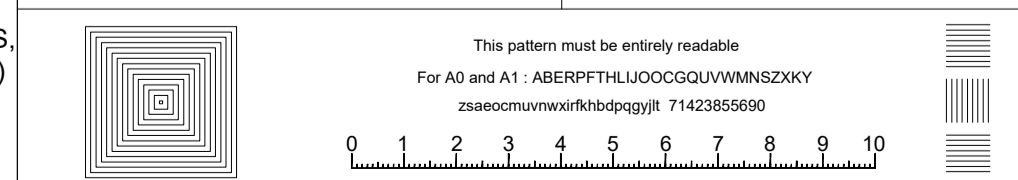
CONTRACTOR WBS CODE : EW0413 QRA RELATED Yes  No

APPLICABILITY: 1: Document related to Unit 1 2: Document related to Unit 2 9: Document that applies to buildings/systems common to Unit 1 & 2 0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)	<table border="1"> <tr> <th>NUCL/REP/EPR/UKX</th> <th>SZC ( doc: SZ )</th> </tr> <tr> <td>0</td> <td>1 2 9</td> </tr> <tr> <td>X</td> <td></td> </tr> </table>	NUCL/REP/EPR/UKX	SZC ( doc: SZ )	0	1 2 9	X		BUILDING HSZ  SYSTEM N/A
NUCL/REP/EPR/UKX	SZC ( doc: SZ )							
0	1 2 9							
X								

SCALE	DESCRIPTION
1:500	Backfilling Details North and West MCA Drain Diversion Zone 02 - Tile 66
SIZE	
A1	
PAGE	1/1

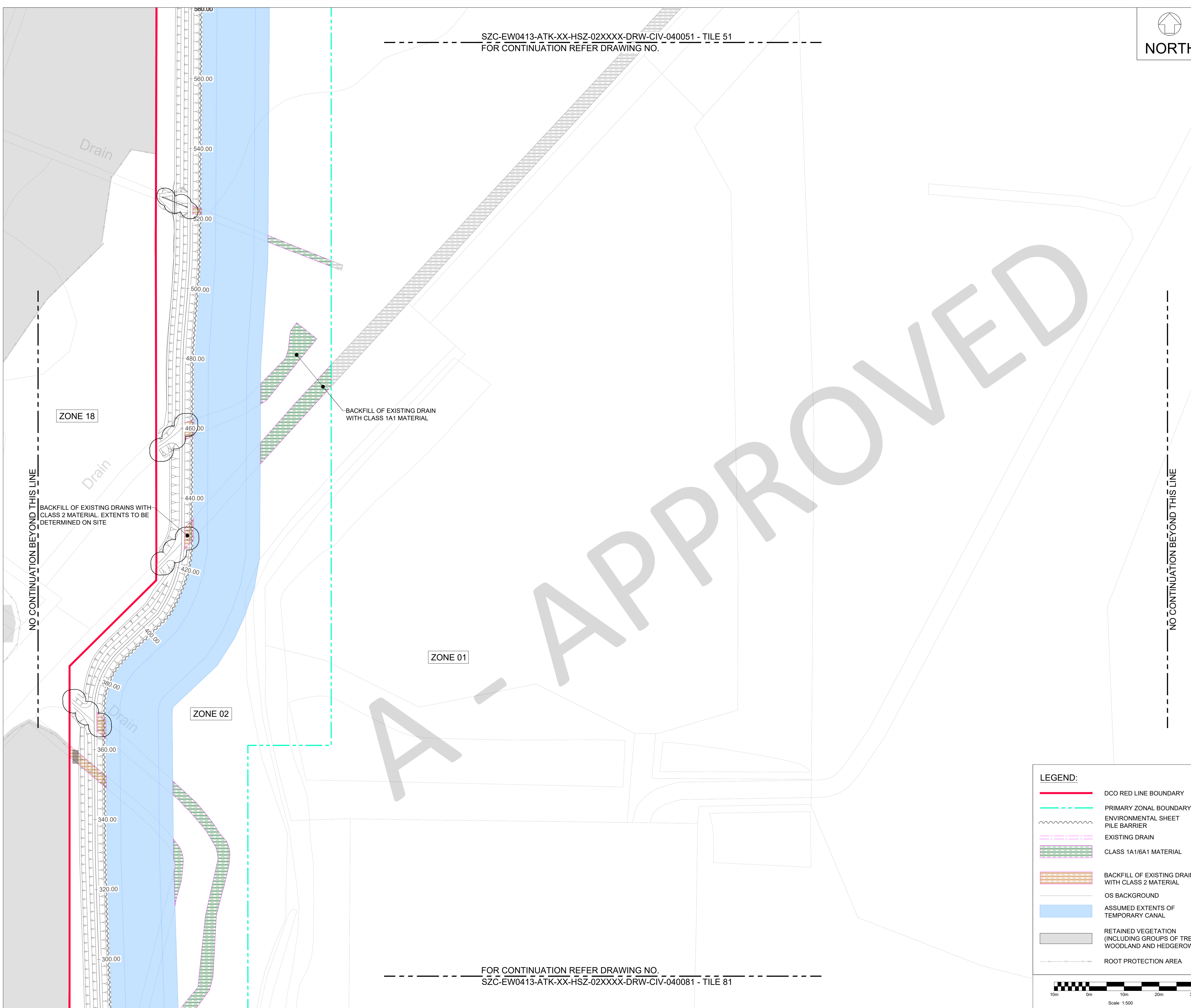
TEAMCENTER DOCUMENT REFERENCE No. 101157865

DOCUMENT SUB - TYPE	EDF CLASSIFICATION CODE
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SUBCONTRACTOR COMPANY TRADE NAME	SUBCONTRACTOR DOCUMENT REF. No
N/A	5213850-SNC-02-XX-DRW-G-000392

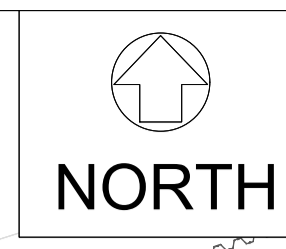


INTELLECTUAL PROPERTY OWNERSHIP:	NNB: N/A	EDF: N/A	CONTRACTOR: N/A
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**FOR PERMIT APPLICATION**





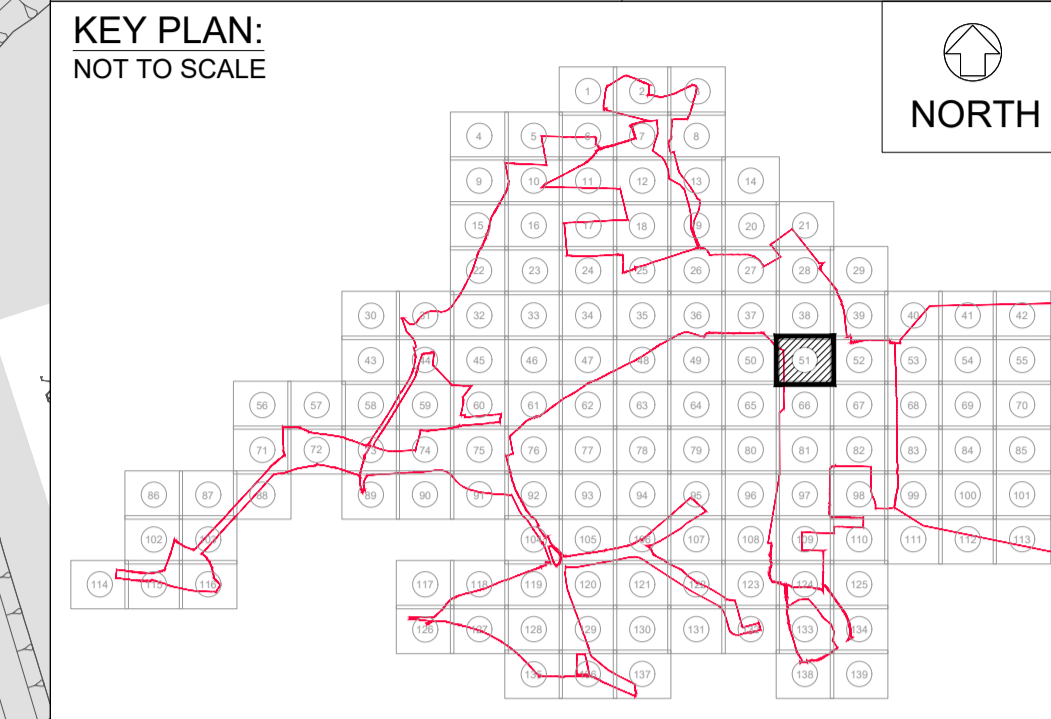


FOR PERMIT APPLICATION

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DRAWING GRID / COORDINATE SYSTEM:  
SITE LOCAL GRID  NATIONAL GRID OSGB36   
OTHER GRID  (To be defined in the contract project plan)

CONTRACT PROJECT PLAN DOC. REF. No: N/A



- NOTES:
- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
  - ALL COORDINATES AND DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  - FOR GENERAL NOTESER TO SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000007.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT SZC-EW0413-ATK-XX-HSZ-XXXXX-SPE-CIV-000004.
  - ONLY EXISTING CHANNELS CONSIDERED AS CANAL BACKFILLING TO BE COMPLETED SEPARATELY.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION  
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

CONSTRUCTION  
N/A

MAINTENANCE/CLEANING  
N/A

DECOMMISSIONING/DEMOLITION  
N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXX-REG-CIV-000009  
It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	Detailed Design - Phase 2 Completion	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

<b>NNB GenCo (SZC) LTD.</b>	1st partner	2nd partner

CONTRACTOR COMPANY TRADE NAME : AtkinsRéalis

CONTRACTOR REF. No. SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-040051

CONTRACT NUMBER : Early Works EWXXXX\_098\_01

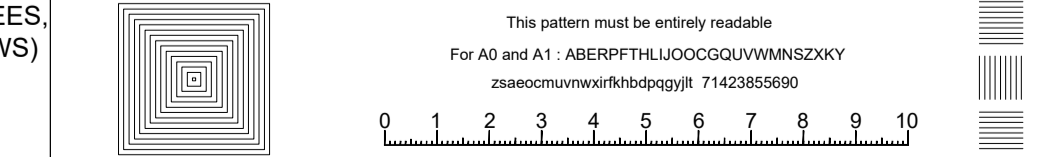
CONTRACTOR WBS CODE : EW0413 QRA RELATED Yes  No

APPLICABILITY: 1: Document related to Unit 1 2: Document related to Unit 2 9: Document that applies to buildings/systems common to Unit 1 & 2 0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)	NUCL/REP/EPR/UKX SZC (doc: SZ) 0 1 2 9 X	BUILDING HSZ SYSTEM N/A
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SCALE 1:500  
SIZE A1  
PAGE 1/1  
DESCRIPTION  
Backfilling Details  
North and West MCA Drain Diversion  
Zone 02 - Tile 51

TEAMCENTER DOCUMENT REFERENCE No.  
101157863

DOCUMENT SUB - TYPE N/A  
EDF CLASSIFICATION CODE N/A  
SUBCONTRACTOR COMPANY TRADE NAME N/A  
SUBCONTRACTOR DOCUMENT REF. No. 5213850-SNC-02-XX-DRW-G-000387



INTELLECTUAL PROPERTY OWNERSHIP: NNB: N/A EDF: N/A CONTRACTOR: N/A

FOR PERMIT APPLICATION

NO CONTINUATION BEYOND THIS LINE

ZONE 03

ZONE 02

ZONE 01

ZONE 18

BACKFILL OF EXISTING DRAIN WITH CLASS 2 MATERIAL. EXTENTS TO BE DETERMINED ON SITE

BACKFILL OF EXISTING DRAIN WITH CLASS 1A1/6A1 MATERIAL

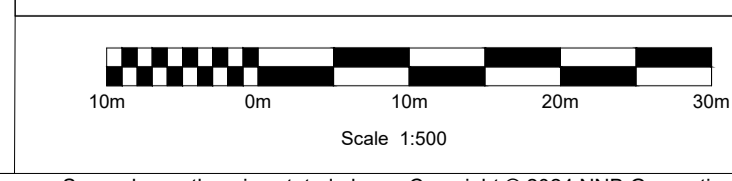
FOR CONTINUATION REFER DRAWING NO. SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-040052 - TILE 52

A - APPROVED

FOR CONTINUATION REFER DRAWING NO. SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-040066 - TILE 66

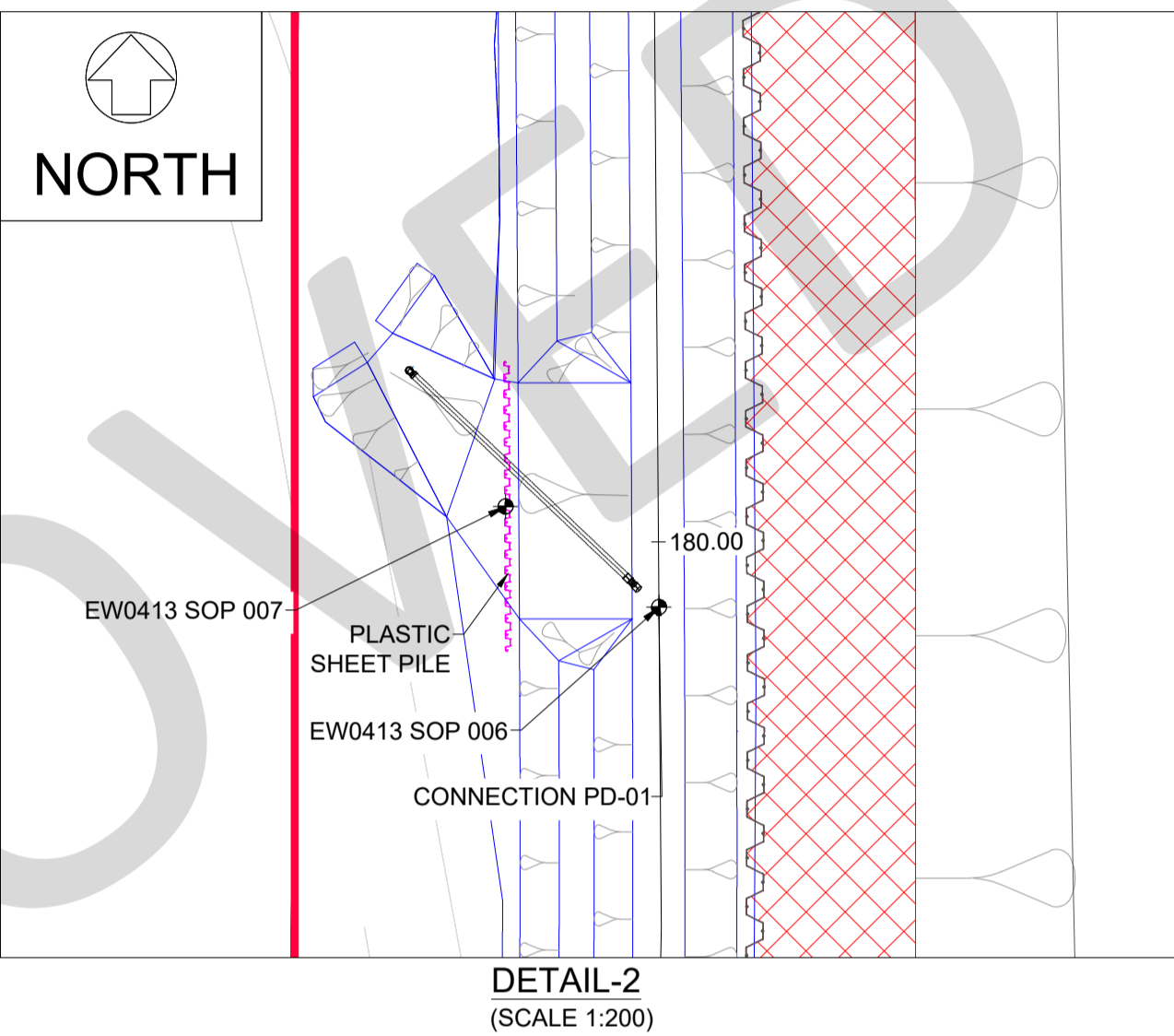
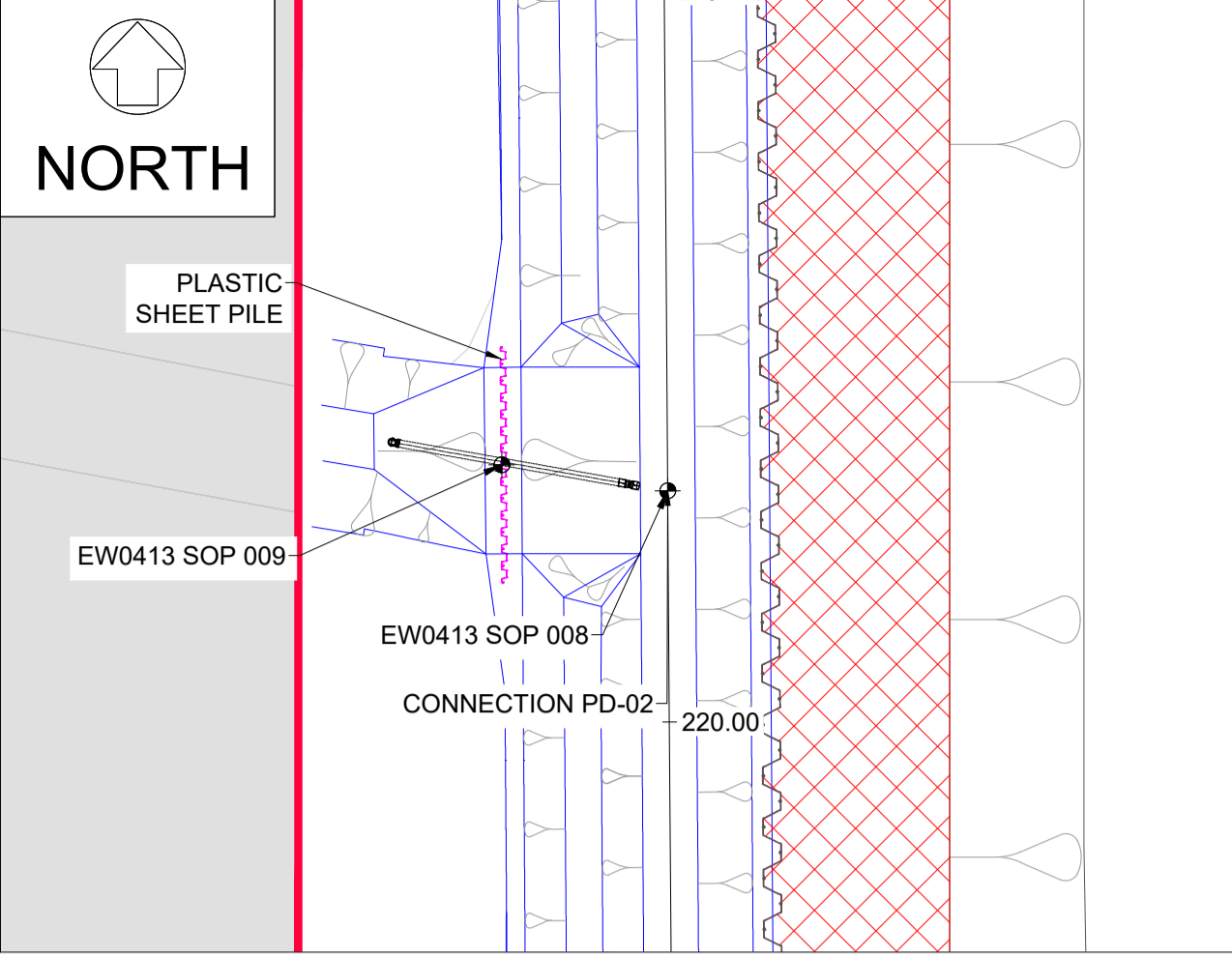
LEGEND:

- DCO RED LINE BOUNDARY
- PRIMARY ZONAL BOUNDARY
- ENVIRONMENTAL SHEET PILE BARRIER
- EXISTING DRAIN
- CLASS 1A1/6A1 MATERIAL
- BACKFILL OF EXISTING DRAINS WITH CLASS 2 MATERIAL
- OS BACKGROUND
- ASSUMED EXTENTS OF TEMPORARY CANAL
- RETAINED VEGETATION (INCLUDING GROUPS OF TREES, WOODLAND AND HEDGEROWS)
- ROOT PROTECTION AREA



Sizewell C | 101375146 / 001 | P1 - For Implementation | 29-Nov-2024 | NOT PROTECTIVELY MARKED

FOR CONTINUATION REFER DRAWING NO.  
SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-020066 - TILE 66



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DRAWING GRID / COORDINATE SYSTEM:  
SITE LOCAL GRID  NATIONAL GRID OSGB36   
OTHER GRID  (To be defined in the contract project plan)

CONTRACT PROJECT PLAN DOC. REF. No: N/A

**KEY PLAN:**  
NOT TO SCALE

- NOTES:**
- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
  - ALL COORDINATES AND DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  - FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXXX-DRW-CIV-000007.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT SZC-EW0413-ATK-XX-000-XXXXXX-SPE-CIV-000001.

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

**CONSTRUCTION**

N/A

**MAINTENANCE/CLEANING:**

1. EW0413-07: T10000 CHANNEL OUTFALL DISCHARGING ONTO MAINTENANCE ACCESS TRACK.

**DECOMMISSIONING/DEMOLITION:**

N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXXX-REG-CIV-000009

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	First Revision	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

CONTRACTOR COMPANY TRADE NAME: AtkinsRéalis

CONTRACTOR REF. No: SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-020081

CONTRACT NUMBER: Early Works EWXXXX\_098\_01

CONTRACTOR WBS CODE: EW0413 QRA RELATED Yes  No

APPLICABILITY:  
1: Document related to Unit 1  
2: Document related to Unit 2  
3: Document that applies to buildings/systems common to Unit 1 & 2  
0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)

NUCL/REP/EPR/UKX	1	2	9
SZC (doc: SZ)	0	1	2
	X		

BUILDING HSZ N/A  
SYSTEM N/A

CONTRACTOR COMPANY TRADE NAME: AtkinsRéalis

CONTRACTOR REF. No: SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-020081

CONTRACT NUMBER: Early Works EWXXXX\_098\_01

CONTRACTOR WBS CODE: EW0413 QRA RELATED Yes  No

SCALE AS SHOWN

SIZE A1

PAGE 1/1

TEAMCENTER DOCUMENT REFERENCE No. 101161253

DOCUMENT SUB - TYPE N/A

EDF CLASSIFICATION CODE N/A

SUBCONTRACTOR COMPANY TRADE NAME N/A

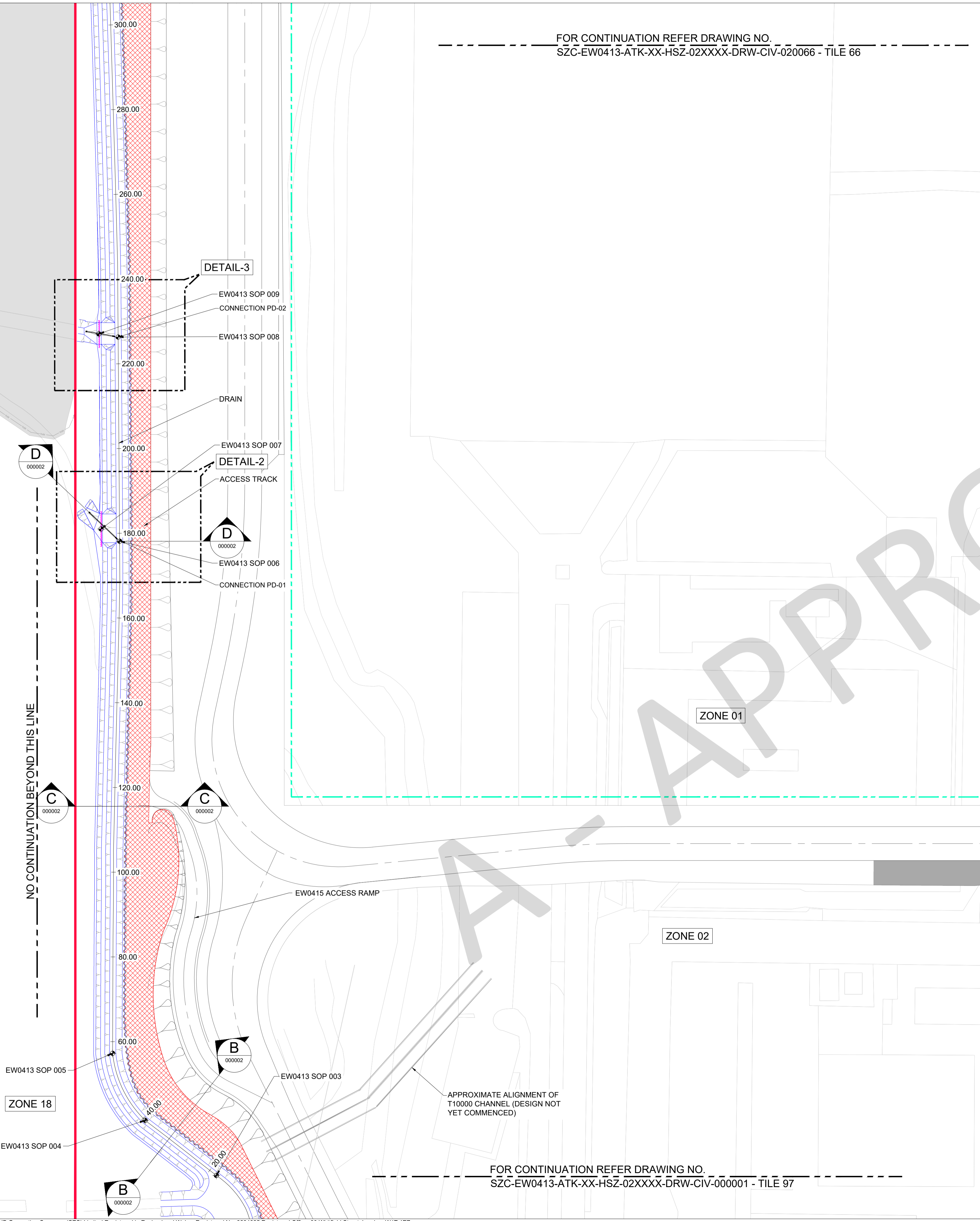
SUBCONTRACTOR DOCUMENT REF. No 5213850-SNC-02-XX-DDRW-G-000374

**General Arrangement**  
North and West MCA Drain Diversion  
Zone 02 - Tile 81

DESCRIPTION	EASTING (m)	NORTHING (m)
EW0413 SOP 003	647003.970	263717.500
EW0413 SOP 004	646987.159	263730.503
EW0413 SOP 005	646979.479	263746.323
EW0413 SOP 006	646981.135	263867.191
EW0413 SOP 007	646976.741	263870.087
EW0413 SOP 008	646980.783	263915.386
EW0413 SOP 009	646976.233	263916.117

INTELLECTUAL PROPERTY OWNERSHIP: NNB: N/A EDF: N/A CONTRACTOR: N/A

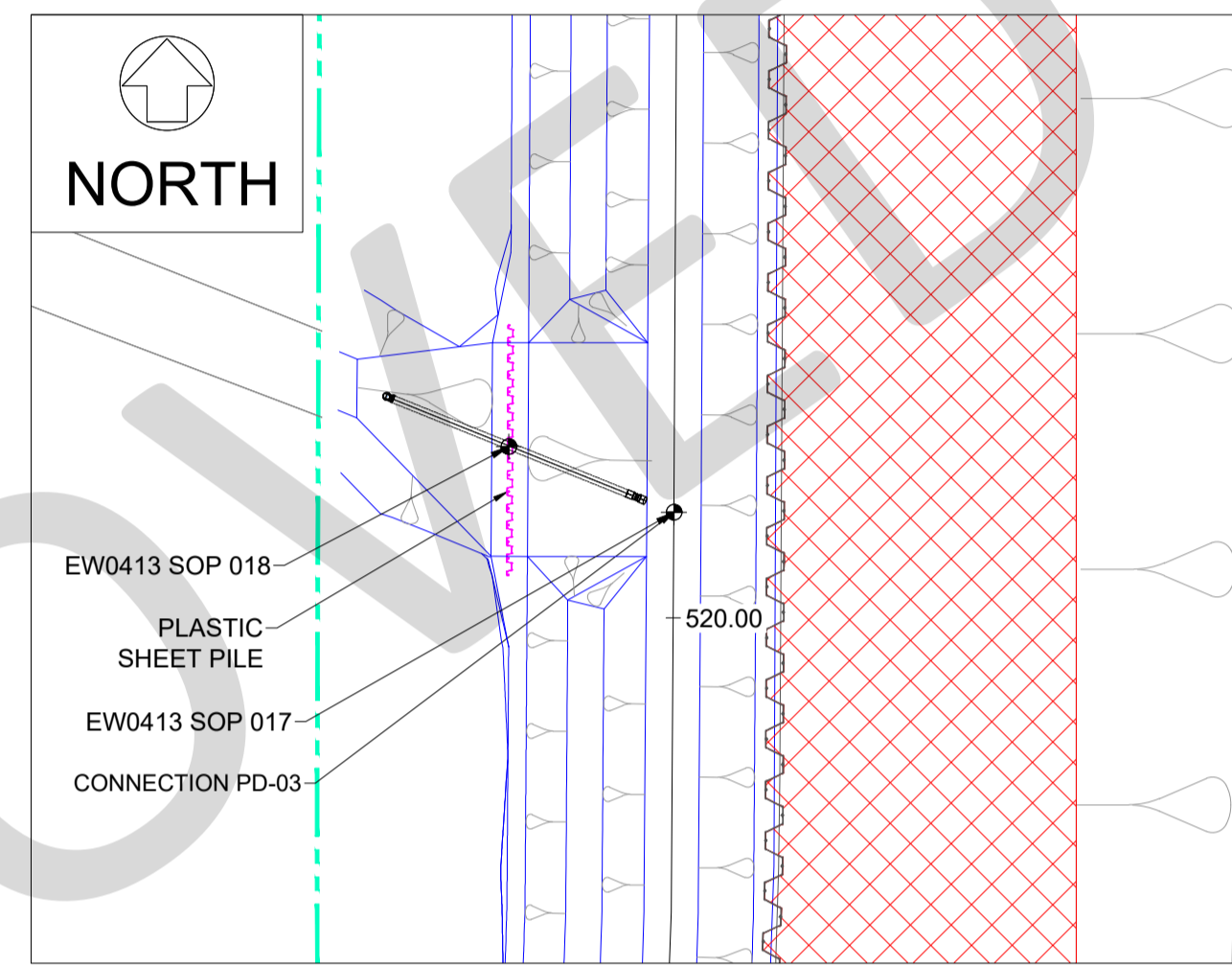
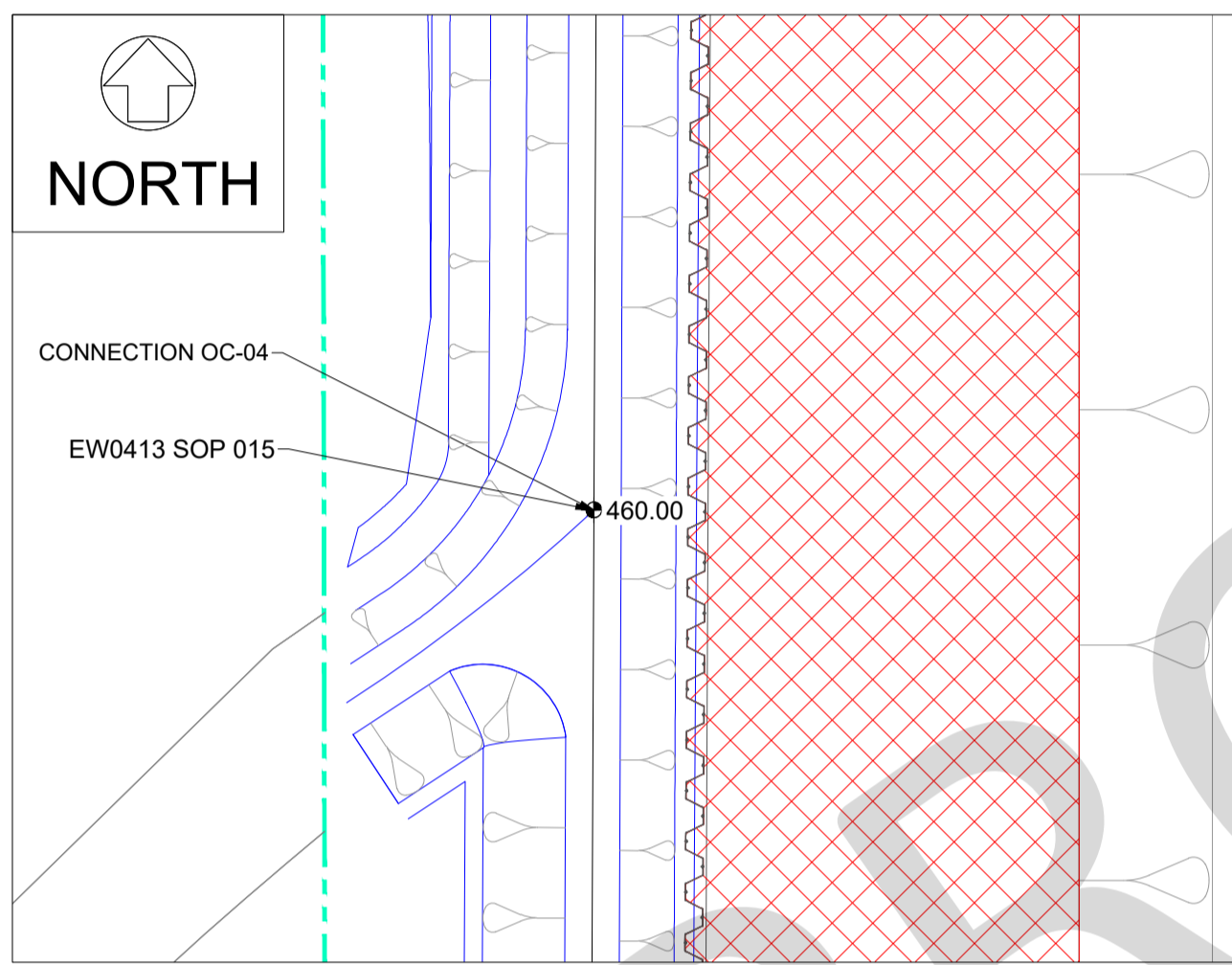
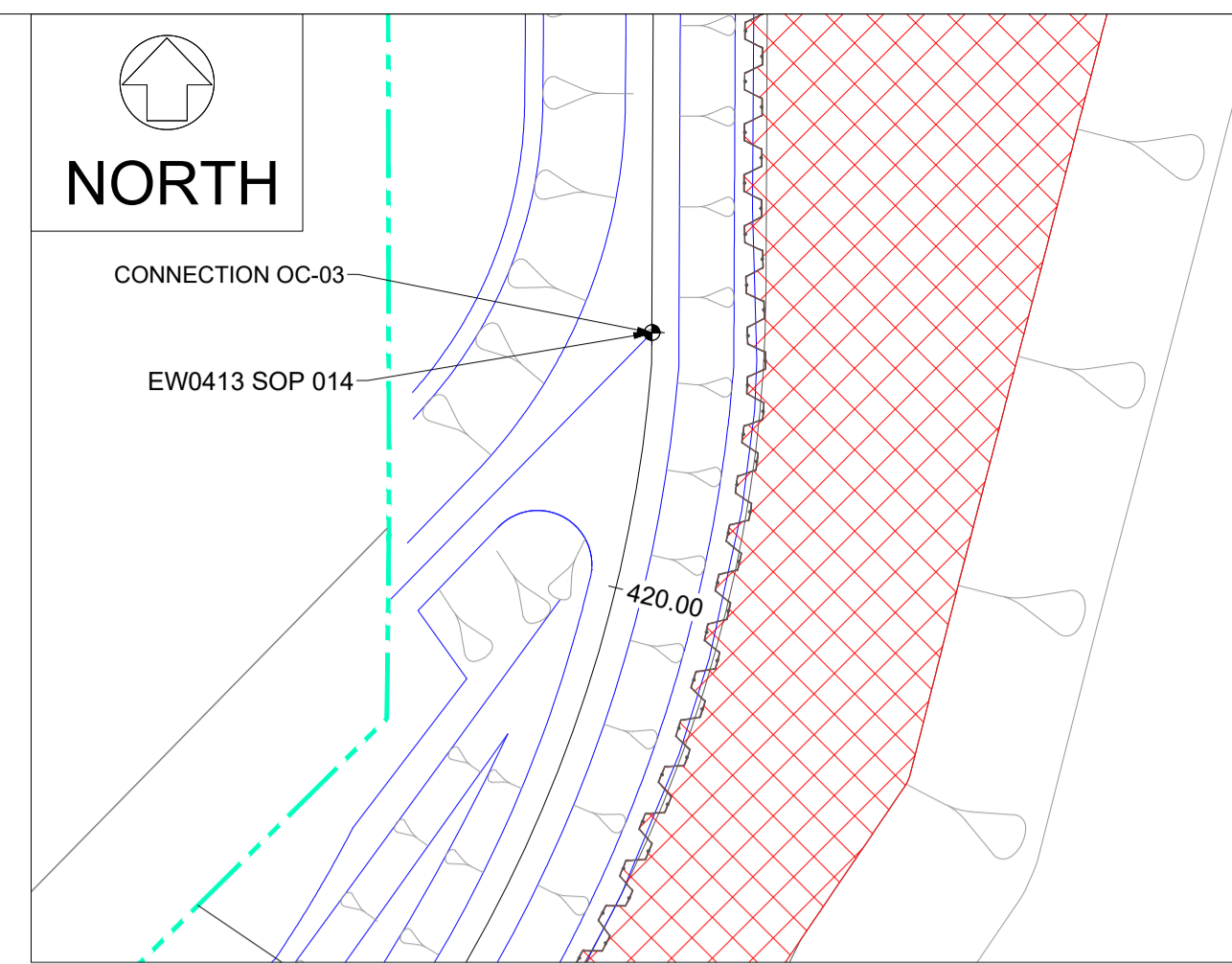
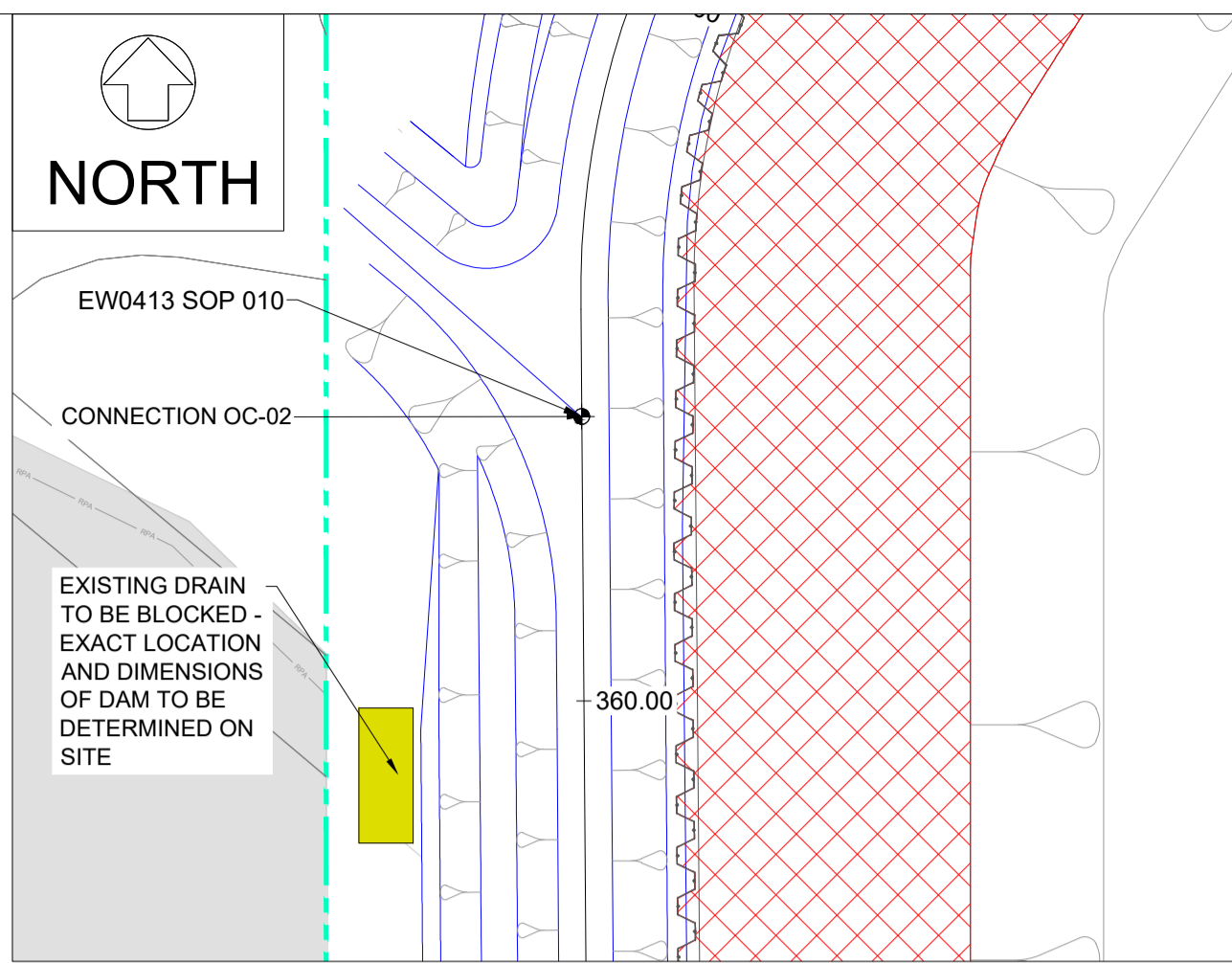
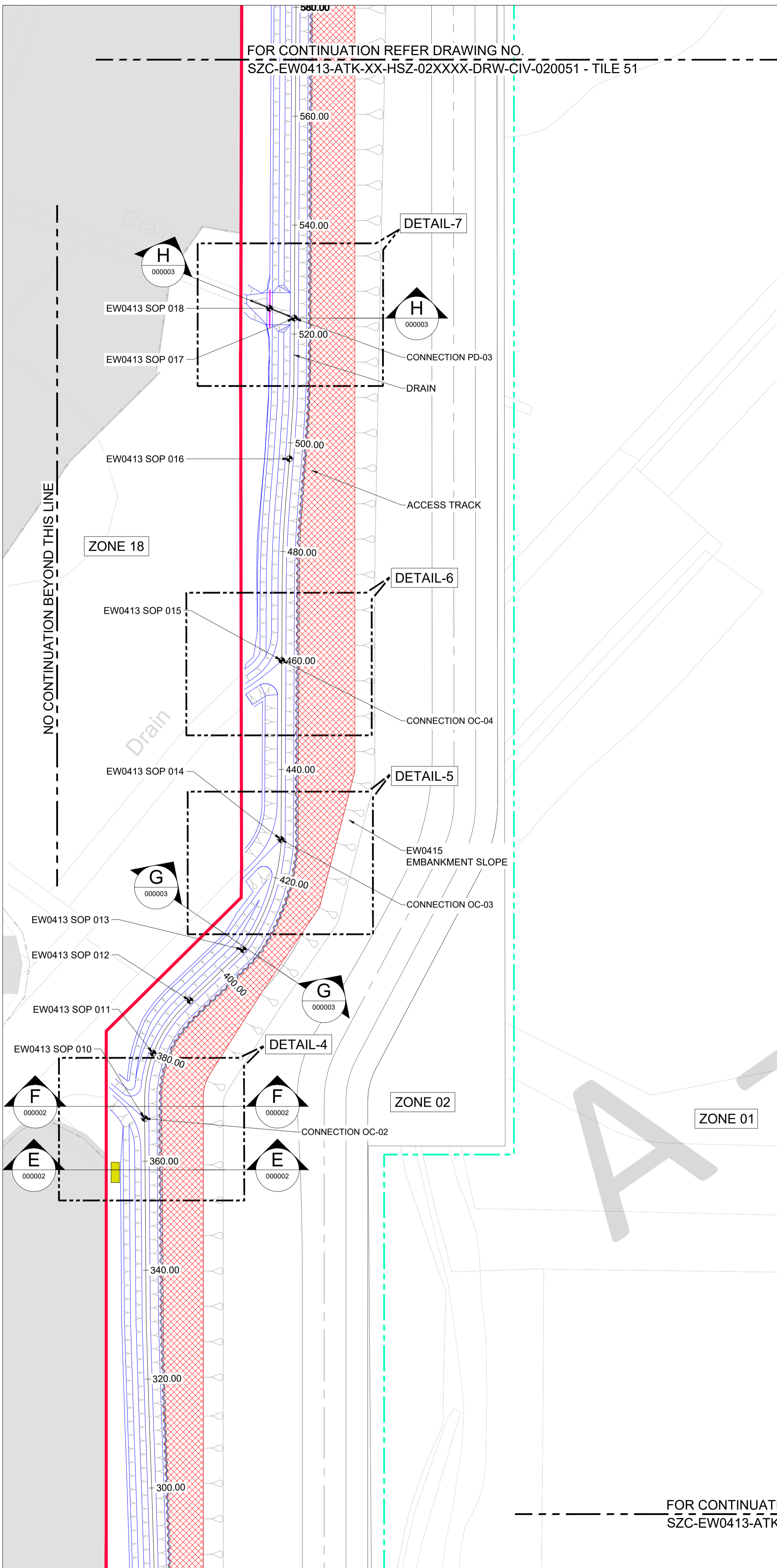
**FOR PERMIT APPLICATION**



FOR CONTINUATION REFER DRAWING NO.  
SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-000001 - TILE 97



FOR CONTINUATION REFER DRAWING NO.  
SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-020051 - TILE 51

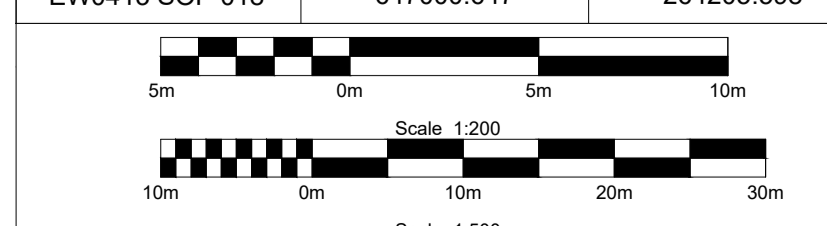


**LEGEND:**

- DCO RED LINE BOUNDARY
- PRIMARY ZONAL BOUNDARY
- ENVIRONMENTAL SHEET PILE BARRIER
- PROPOSED DRAIN EXTENTS
- CENTRE LINE OF DIVERTED DRAIN
- PLASTIC SHEET PILE
- SOP
- ACCESS TRACK
- OS BACKGROUND
- RETAINED VEGETATION (INCLUDING GROUPS OF TREES, WOODLAND AND HEDGEROWS)
- ROOT PROTECTION AREA
- DAM

**SETTING OUT INFORMATION - DRAIN DIVERSION**

DESCRIPTION	EASTING (m)	NORTHING (m)
EW0413 SOP 010	646977.749	264056.855
EW0413 SOP 011	646979.280	264068.835
EW0413 SOP 012	646986.061	264078.493
EW0413 SOP 013	646995.834	264087.847
EW0413 SOP 014	647002.771	264108.074
EW0413 SOP 015	647002.908	264140.946
EW0413 SOP 016	647004.304	264177.972
EW0413 SOP 017	647005.206	264203.788
EW0413 SOP 018	647000.647	264205.598



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DRAWING GRID / COORDINATE SYSTEM:

SITE LOCAL GRID  NATIONAL GRID OSGB36

OTHER GRID  (To be defined in the contract project plan)

CONTRACT PROJECT PLAN DOC. REF. No: N/A

**KEY PLAN:**  
NOT TO SCALE

- NOTES:**
- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
  - ALL COORDINATES AND DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  - FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000007.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT SZC-EW0413-ATK-XX-000-XXXXX-SPE-CIV-000001.

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

- CONSTRUCTION**  
N/A
- MAINTENANCE/CLEANING:**  
1. EW0413-01: EXCAVATOR LOADS CLOSE TO THE CREST OF THE DRAIN DURING MAINTENANCE.
- DECOMMISSIONING/DEMOLITION:**  
N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXX-REG-CIV-000009

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	Detailed Design - Phase 2 Completion	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

CONTRACTOR COMPANY TRADE NAME : AtkinsRéalis

CONTRACTOR REF. No. SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-020066

CONTRACT NUMBER : Early Works EWXXXX\_098\_01

CONTRACTOR WBS CODE : EW0413

QRA RELATED Yes  No

APPLICABILITY:  
1: Document related to Unit 1  
2: Document related to Unit 2  
9: Document that applies to buildings/systems common to Unit 1 & 2  
0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)

NUCL/REP/EPR/UX  
SZC (doc: SZ)  
0 1 2 9  
X

BUILDING HSZ SYSTEM N/A

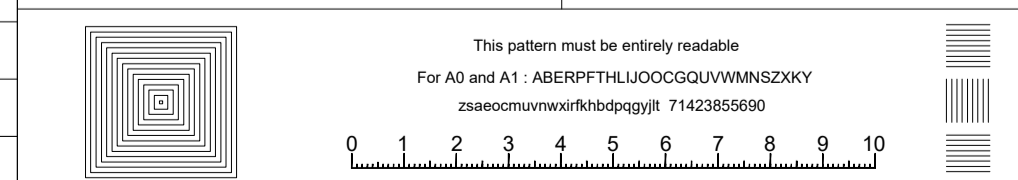
SCALE AS SHOWN SIZE A1

DESCRIPTION General Arrangement North and West MCA Drain Diversion Zone 02 - Tile 66

PAGE 1/1

TEAMCENTER DOCUMENT REFERENCE No. 101159523

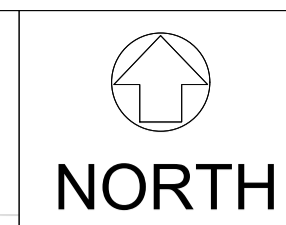
DOCUMENT SUB - TYPE N/A	EDF CLASSIFICATION CODE N/A
SUBCONTRACTOR COMPANY TRADE NAME N/A	SUBCONTRACTOR DOCUMENT REF. No 5213850-SNC-02-XX-DDRW-G-000372



INTELLECTUAL PROPERTY OWNERSHIP: N/A	EDF: N/A	CONTRACTOR: N/A
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**FOR PERMIT APPLICATION**

FOR CONTINUATION REFER DRAWING NO.  
SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-020081 - TILE 81



**FOR PERMIT APPLICATION**

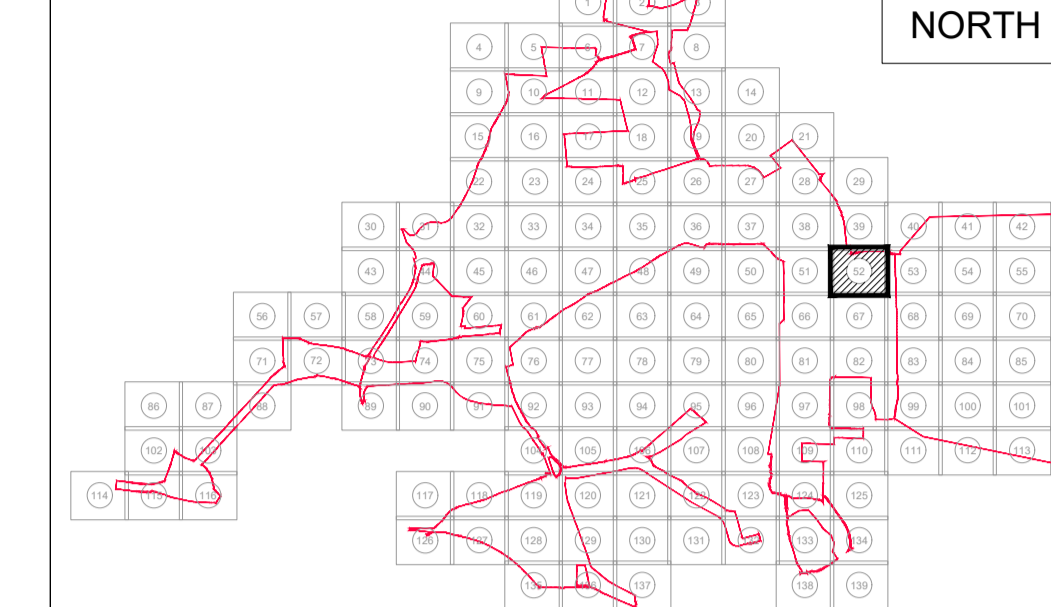
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DRAWING GRID / COORDINATE SYSTEM:

SITE LOCAL GRID  NATIONAL GRID OSGB36   
OTHER GRID  (To be defined in the contract project plan)

CONTRACT PROJECT PLAN DOC. REF. No: N/A

KEY PLAN:  
NOT TO SCALE



- NOTES:**
- ALL LEVELS ARE IN METRES ABOVE ORDANCE DATUM (mAOD) UNLESS NOTED OTHERWISE
  - ALL COORDINATES AND DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE
  - FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000007.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT SZC-EW0413-ATK-XX-000-XXXXX-SPE-CIV-000001.

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

**CONSTRUCTION**  
N/A

**MAINTENANCE/CLEANING:**  
N/A

**DECOMMISSIONING/DEMOLITION:**  
N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXX-REG-CIV-000009  
It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

P01	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P02	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY

CONTRACTOR COMPANY TRADE NAME : AtkinsRéalis

CONTRACTOR REF. No. SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-020052

CONTRACT NUMBER : Early Works EWXXX\_098\_01

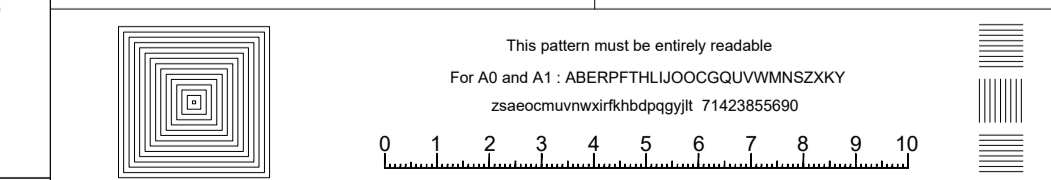
CONTRACTOR WBS CODE : EW0413 QRA RELATED Yes  No

APPLICABILITY:	NUCL/REP/EPR/UKX	BUILDING
1: Document related to Unit 1	HSZ	HSZ
2: Document related to Unit 2	SZC ( doc: SZ )	SYSTEM
9: Document that applies to buildings/systems common to Unit 1 & 2	0 1 2 9	N/A
0: Documents that relate exclusively to buildings or systems that are common to the whole site ( e.g. parking, ancillary buildings...)	X	

SCALE 1:500  
DESCRIPTION  
SIZE A1  
PAGE 1/1  
General Arrangement  
North and West MCA Drain Diversion  
Zone 02 - Tile 52

TEAMCENTER DOCUMENT REFERENCE No.  
101162706

DOCUMENT SUB - TYPE N/A EDF CLASSIFICATION CODE N/A  
SUBCONTRACTOR COMPANY TRADE NAME N/A SUBCONTRACTOR DOCUMENT REF. No. 5213850-SNC-02-XX-DDRW-G-000370



INTELLECTUAL PROPERTY OWNERSHIP: NNB: N/A EDF: N/A CONTRACTOR: N/A

**FOR PERMIT APPLICATION**

NO CONTINUATION BEYOND THIS LINE

ZONE 18

ZONE 02

ZONE 01

FOR CONTINUATION REFER DRAWING NO. SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-020051 - TILE 51

NO CONTINUATION BEYOND THIS LINE

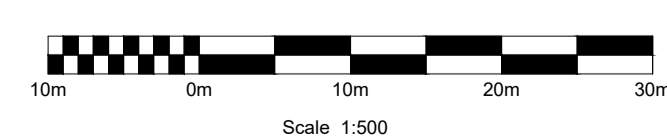
A - APPROVED

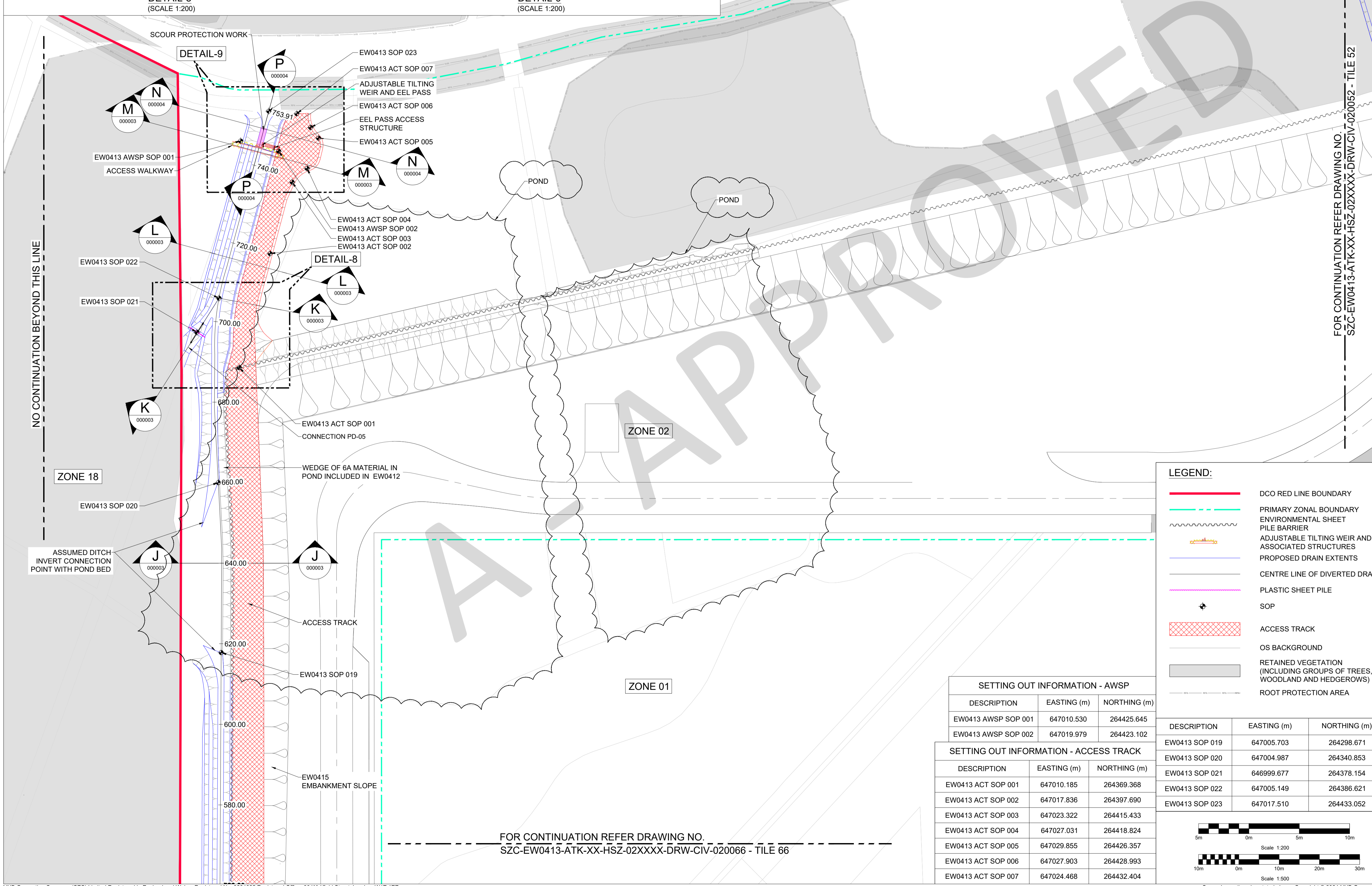
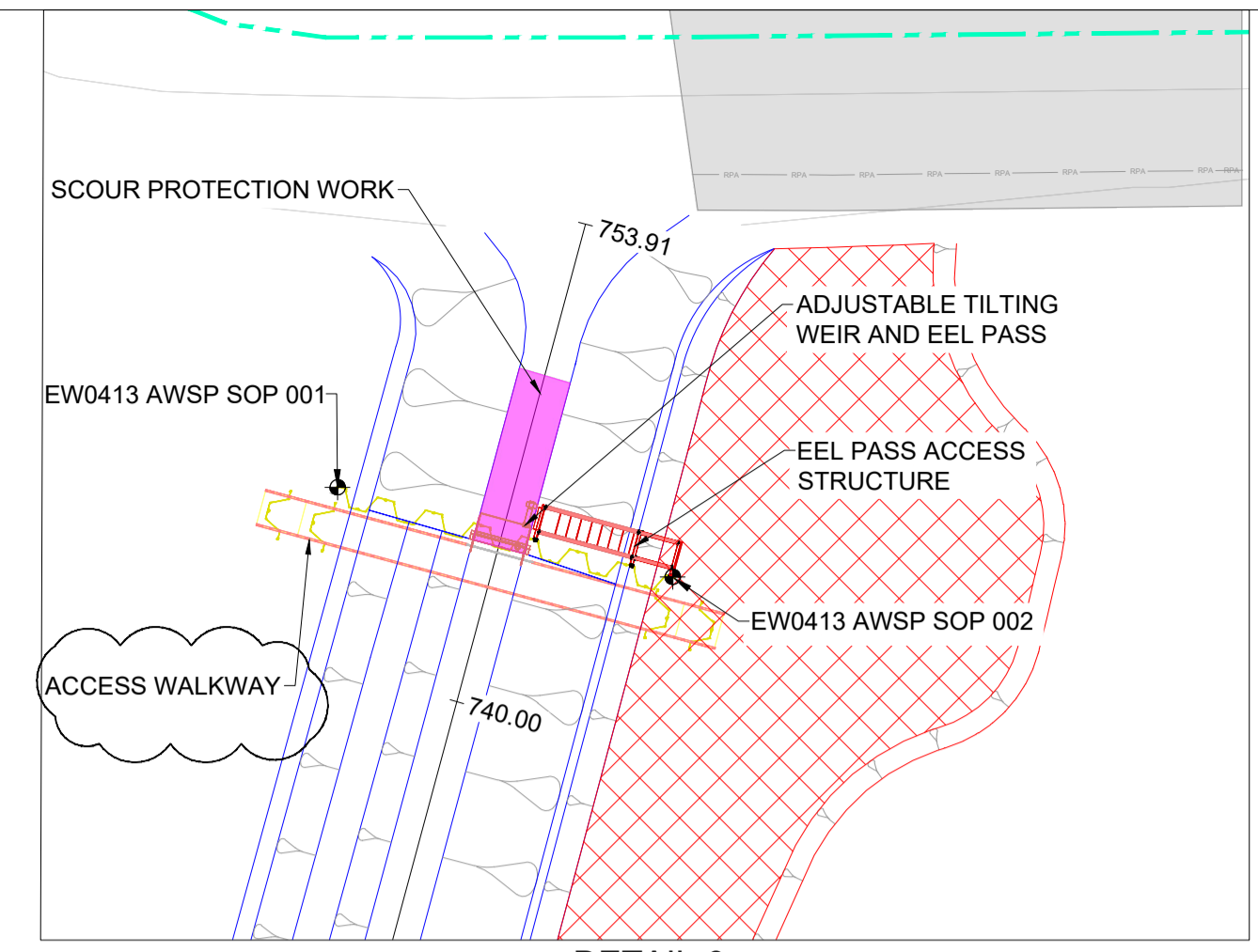
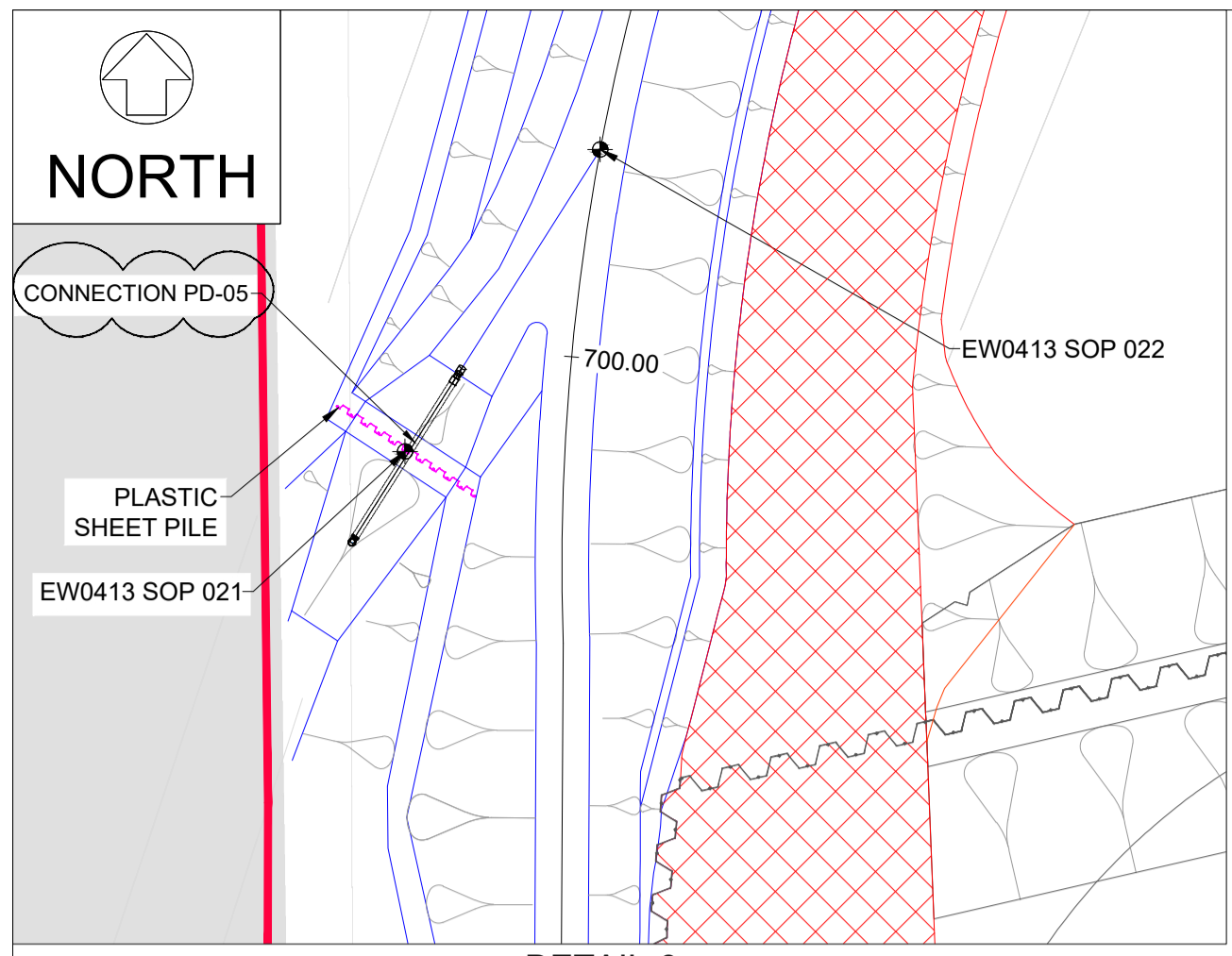
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**SETTING OUT INFORMATION  
TEMPORARY DRAIN DIVERSION**

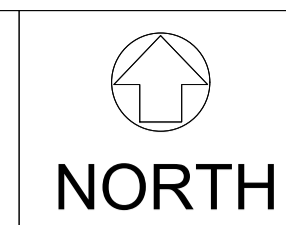
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EW0413 TEM SOP 002	647296.504	264440.608
EW0413 TEM SOP 003	647287.031	264473.018
EW0413 TEM SOP 004	647292.784	264502.676

- LEGEND:**
- DCO RED LINE BOUNDARY
  - PRIMARY ZONAL BOUNDARY
  - ENVIRONMENTAL SHEET PILE BARRIER
  - PROPOSED DRAIN EXTENTS
  - CENTRE LINE OF DIVERTED DRAIN
  - PLASTIC SHEET PILE
  - SOP
  - ACCESS TRACK
  - OS BACKGROUND
  - RETAINED VEGETATION (INCLUDING GROUPS OF TREES, WOODLAND AND HEDGEROWS)
  - ROOT PROTECTION AREA





NO CONTINUATION BEYOND THIS LINE



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DRAWING GRID / COORDINATE SYSTEM:  
 SITE LOCAL GRID  NATIONAL GRID OSGB36   
 OTHER GRID  (To be defined in the contract project plan)

CONTRACT PROJECT PLAN DOC. REF. No: N/A

**KEY PLAN:**  
NOT TO SCALE

- NOTES:**
- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
  - ALL COORDINATES AND DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  - FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000007.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT SZC-EW0413-ATK-XX-000-XXXXX-SPE-CIV-000001.

**ABBREVIATION:**  
 AWSP : ACCESS WALKWAY SHEET PILE

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**  
 In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

**CONSTRUCTION**  
N/A

**MAINTENANCE/CLEANING:**  
 1. EW0413-01: EXCAVATOR LOADS CLOSE TO THE CREST OF THE DRAIN DURING MAINTENANCE.

**DECOMMISSIONING/DEMOLITION:**  
N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXX-REG-CIV-000009

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	Detailed Design - Phase 2 Completion	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

**CONTRACTOR COMPANY TRADE NAME:** AtkinsRéalis

**CONTRACTOR REF. No:** SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-020051

**CONTRACT NUMBER:** Early Works EWXXXX\_098\_01

**CONTRACTOR WBS CODE:** EW0413

**QRA RELATED:** Yes  No

**APPLICABILITY:**  
 1: Document related to Unit 1  
 2: Document related to Unit 2  
 9: Document that applies to buildings/systems common to Unit 1 & 2  
 0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)

NUCL/REP/EPR/UX	
SZC (doc: SZ)	0 1 2 9
X	

**BUILDING HSZ:** N/A

**SYSTEM:** N/A

**SCALE:** AS SHOWN

**DESCRIPTION:** General Arrangement North and West MCA Drain Diversion Zone 02 - Tile 51

**SIZE:** A1

**PAGE:** 1/1

**TEAMCENTER DOCUMENT REFERENCE No.:** 101162059

**DOCUMENT SUB - TYPE:** N/A

**EDF CLASSIFICATION CODE:** N/A

**SUBCONTRACTOR COMPANY TRADE NAME:** N/A

**SUBCONTRACTOR DOCUMENT REF. No:** 5213850-SNC-02-XX-DRW-G-000367

**INTELLECTUAL PROPERTY OWNERSHIP:** N/A

**NNB:** N/A

**EDF:** N/A

**CONTRACTOR:** N/A

**LEGEND:**

- DCO RED LINE BOUNDARY
- PRIMARY ZONAL BOUNDARY
- ENVIRONMENTAL SHEET PILE BARRIER
- ADJUSTABLE TILTING WEIR AND ASSOCIATED STRUCTURES
- PROPOSED DRAIN EXTENTS
- CENTRE LINE OF DIVERTED DRAIN
- PLASTIC SHEET PILE
- SOP
- ACCESS TRACK
- OS BACKGROUND
- RETAINED VEGETATION (INCLUDING GROUPS OF TREES, WOODLAND AND HEDGEROWS)
- ROOT PROTECTION AREA

**SETTING OUT INFORMATION - AWSP**

DESCRIPTION	EASTING (m)	NORTHING (m)
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EW0413 AWSP SOP 002	647019.979	264423.102

**SETTING OUT INFORMATION - ACCESS TRACK**

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EW0413 ACT SOP 002	647017.836	264397.690
EW0413 ACT SOP 003	647023.322	264415.433
EW0413 ACT SOP 004	647027.031	264418.824
EW0413 ACT SOP 005	647029.855	264426.357
EW0413 ACT SOP 006	647027.903	264428.993
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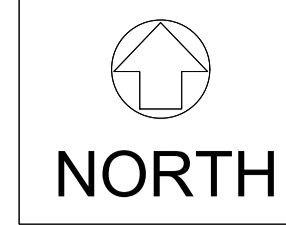
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EW0413 SOP 021	646999.677	264378.154
EW0413 SOP 022	647005.149	264386.621
EW0413 SOP 023	647017.510	264433.052

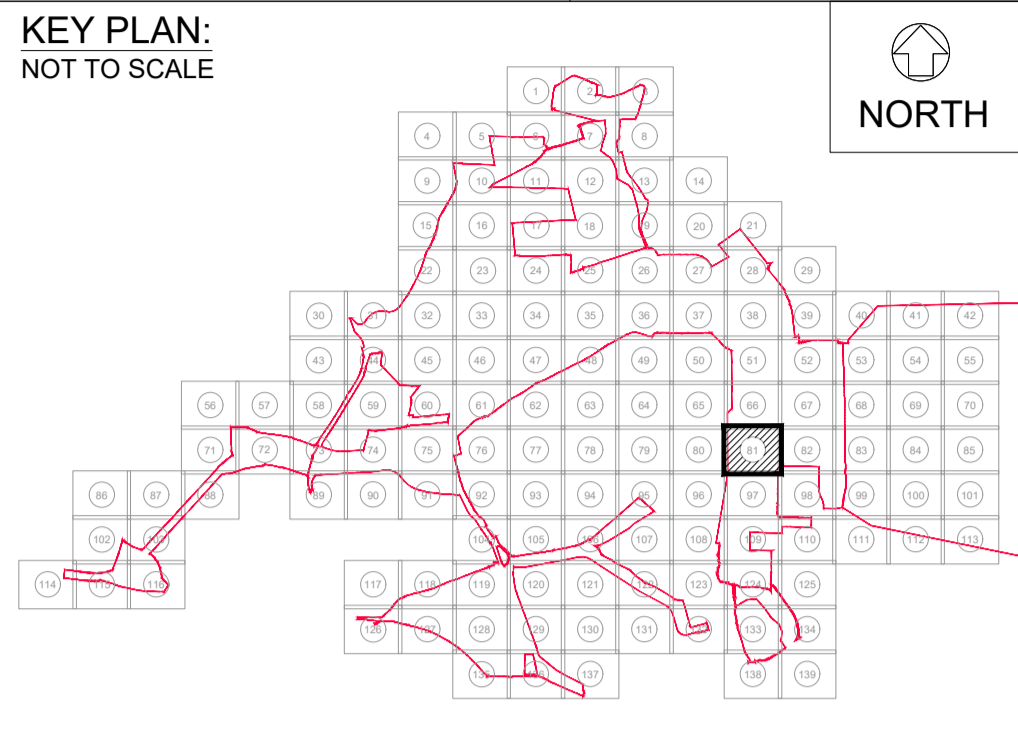
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**SCALE:** 1:500

FOR CONTINUATION REFER DRAWING NO. SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-020066 - TILE 66



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 DRAWING GRID / COORDINATE SYSTEM:  
 SITE LOCAL GRID  NATIONAL GRID OSGB36   
 OTHER GRID  (To be defined in the contract project plan)  
 CONTRACT PROJECT PLAN DOC. REF. No: N/A



- NOTES:**
- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
  - ALL COORDINATES AND DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  - FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-000007.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT SZC-EW0413-ATK-XX-HSZ-XXXXX-SPE-CIV-000004.
  - ONLY EXISTING CHANNELS CONSIDERED AS CANAL BACKFILLING TO BE COMPLETED SEPARATELY.

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**  
 In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

<b>CONSTRUCTION</b>	N/A
<b>MAINTENANCE/CLEANING</b>	N/A
<b>DECOMMISSIONING/DEMOLITION</b>	N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXX-REG-CIV-000009  
 It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	Detailed Design - Phase 2 Completion	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

CONTRACTOR COMPANY TRADE NAME: AtkinsRéalis

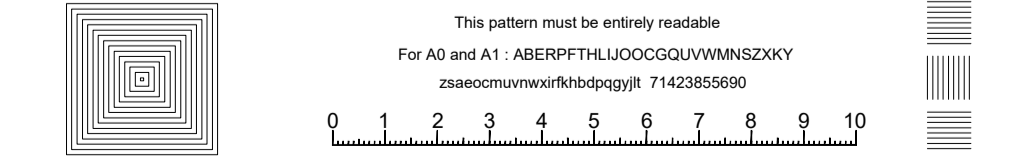
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 CONTRACT NUMBER: Early Works EWXXXX\_098\_01

CONTRACTOR WBS CODE: EW0413 QRA RELATED Yes  No

APPLICABILITY: 1: Document related to Unit 1 2: Document related to Unit 2 9: Document that applies to buildings/systems common to Unit 1 & 2 0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)	<table border="1"> <tr> <th>NUCL/REP/EPR/UKX</th> <th>SZC ( doc: SZ )</th> </tr> <tr> <td>0</td> <td>1 2 9</td> </tr> <tr> <td>X</td> <td></td> </tr> </table>	NUCL/REP/EPR/UKX	SZC ( doc: SZ )	0	1 2 9	X		BUILDING HSZ SYSTEM N/A
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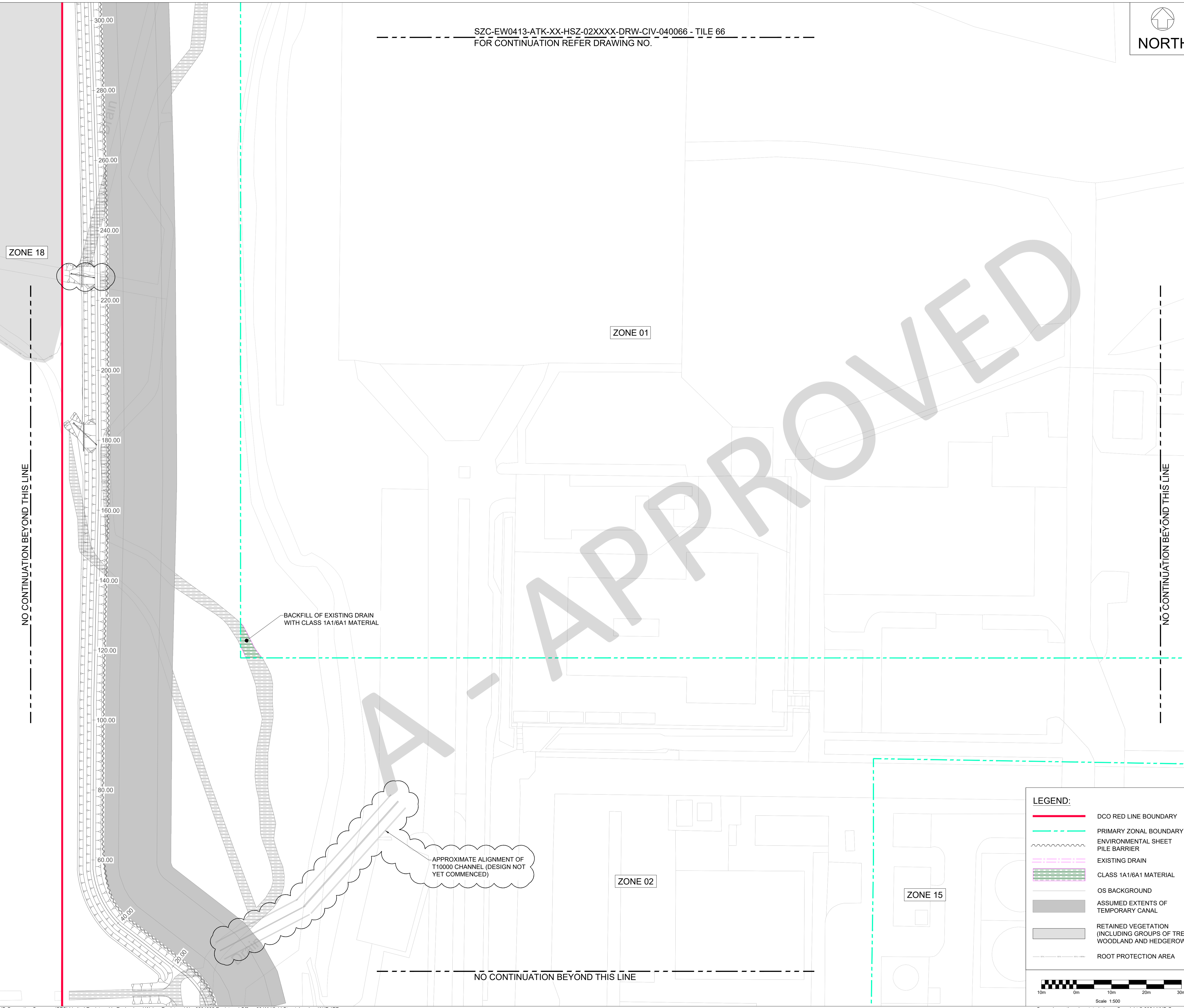
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**TEAMCENTER DOCUMENT REFERENCE No.** 101157854

DOCUMENT SUB - TYPE N/A	EDF CLASSIFICATION CODE N/A
SUBCONTRACTOR COMPANY TRADE NAME N/A	SUBCONTRACTOR DOCUMENT REF. No 5213850-SNC-01-XX-DRW-G-000393



INTELLECTUAL PROPERTY OWNERSHIP: N/A	NNB: N/A	EDF: N/A	CONTRACTOR: N/A
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**FOR PERMIT APPLICATION**



ZONE 18

ZONE 01

ZONE 02

ZONE 15

BACKFILL OF EXISTING DRAIN WITH CLASS 1A1/6A1 MATERIAL

APPROXIMATE ALIGNMENT OF T10000 CHANNEL (DESIGN NOT YET COMMENCED)

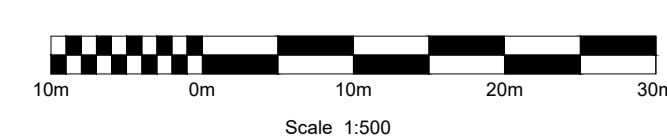
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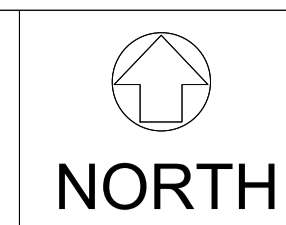
NO CONTINUATION BEYOND THIS LINE

NO CONTINUATION BEYOND THIS LINE

**LEGEND:**

- DCO RED LINE BOUNDARY
- PRIMARY ZONAL BOUNDARY
- ENVIRONMENTAL SHEET PILE BARRIER
- EXISTING DRAIN
- CLASS 1A1/6A1 MATERIAL
- OS BACKGROUND
- ASSUMED EXTENTS OF TEMPORARY CANAL
- RETAINED VEGETATION (INCLUDING GROUPS OF TREES, WOODLAND AND HEDGEROWS)
- ROOT PROTECTION AREA





FOR PERMIT APPLICATION

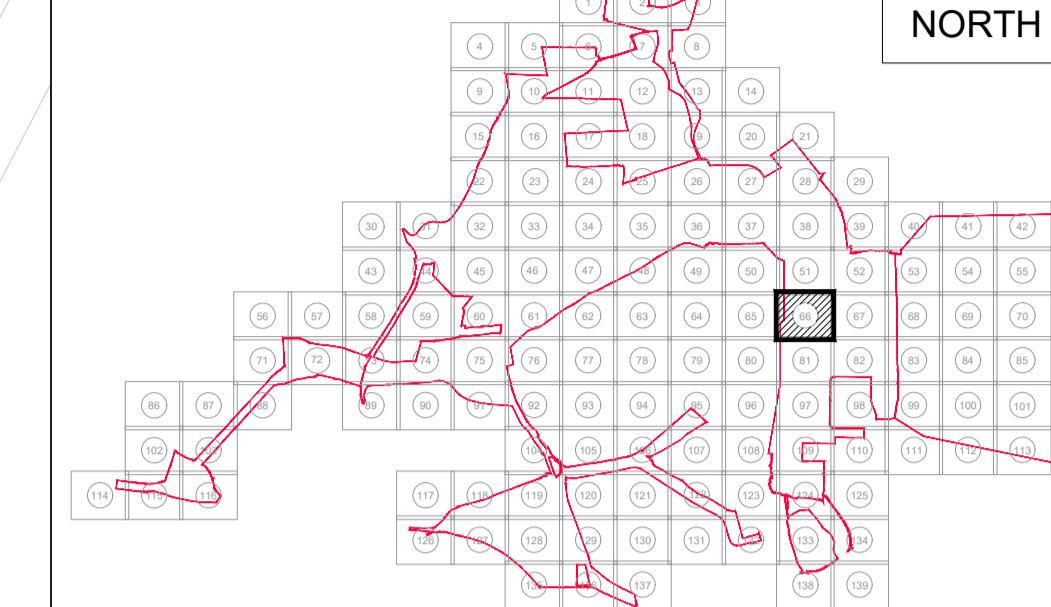
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DRAWING GRID / COORDINATE SYSTEM:

SITE LOCAL GRID  NATIONAL GRID OSGB36   
OTHER GRID  (To be defined in the contract project plan)

CONTRACT PROJECT PLAN DOC. REF. No: N/A

KEY PLAN:  
NOT TO SCALE



- NOTES:
- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
  - ALL COORDINATES AND DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  - FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-000007.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT SZC-EW0413-ATK-XX-HSZ-XXXXX-SPE-CIV-000004.
  - ONLY EXISTING CHANNELS CONSIDERED AS CANAL BACKFILLING TO BE COMPLETED SEPARATELY.

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

CONSTRUCTION

N/A

MAINTENANCE/CLEANING

N/A

DECOMMISSIONING/DEMOLITION

N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXXX-REG-CIV-000009  
It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	Detailed Design - Phase 2 Completion	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

CONTRACTOR COMPANY TRADE NAME : AtkinsRéalis

CONTRACTOR REF. No. SZC-EW0413-ATK-XX-HSZ-01XXXX-DRW-CIV-040066

CONTRACT NUMBER : Early Works EWXXXX\_098\_01

CONTRACTOR WBS CODE : EW0413      QRA RELATED    Yes  No

APPLICABILITY:	NUCL/REP/EPR/UX	BUILDING
1: Document related to Unit 1		HSZ
2: Document related to Unit 2		
9: Document that applies to buildings/systems common to Unit 1 & 2		SYSTEM
0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)		N/A

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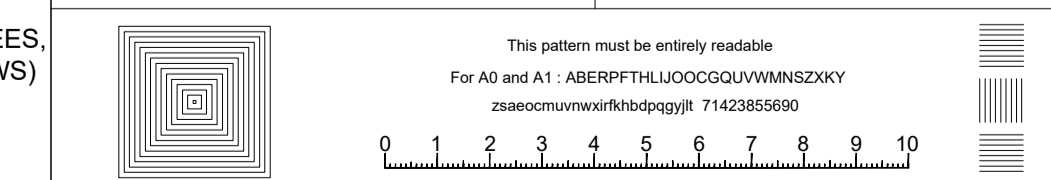
SIZE A1      Backfilling Details

PAGE 1/1      North and West MCA Drain Diversion

1/1      Zone 01 - Tile 66

TEAMCENTER DOCUMENT REFERENCE No. 101157841

DOCUMENT SUB - TYPE	EDF CLASSIFICATION CODE
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SUBCONTRACTOR COMPANY TRADE NAME	SUBCONTRACTOR DOCUMENT REF. No
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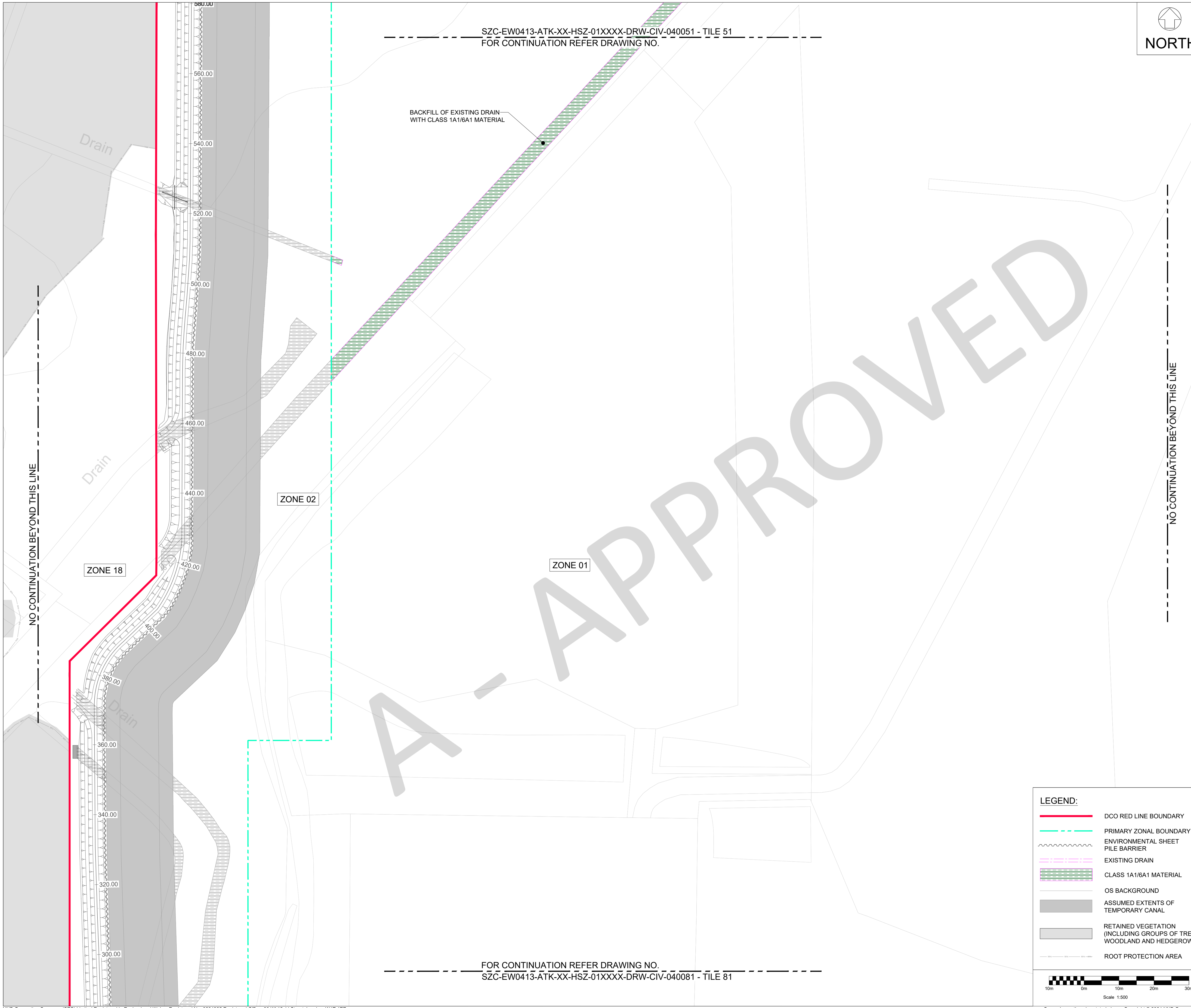


INTELLECTUAL PROPERTY OWNERSHIP:	NNB: N/A	EDF: N/A	CONTRACTOR: N/A
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FOR PERMIT APPLICATION

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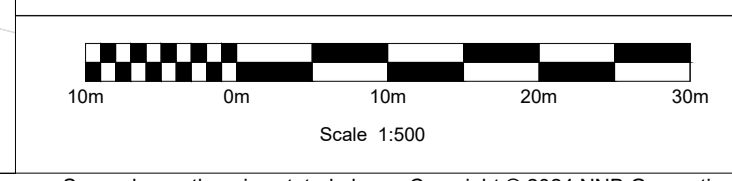
BACKFILL OF EXISTING DRAIN WITH CLASS 1A1/6A1 MATERIAL

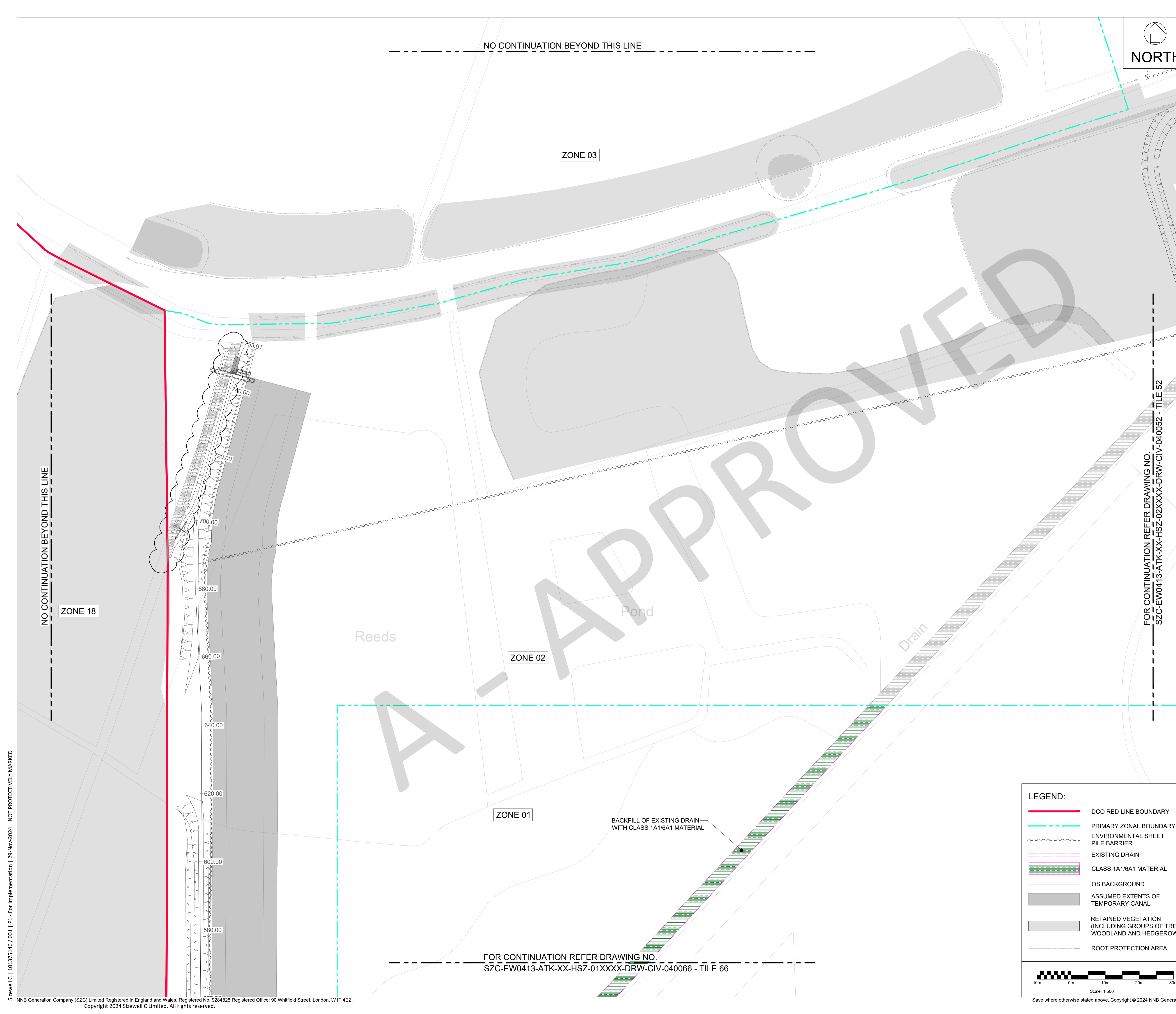


FOR CONTINUATION REFER DRAWING NO. SZC-EW0413-ATK-XX-HSZ-01XXXX-DRW-CIV-040081 - TILE 81

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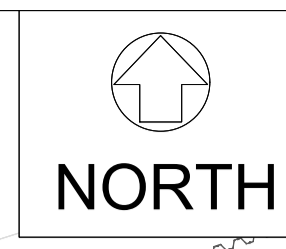
- DCO RED LINE BOUNDARY
- PRIMARY ZONAL BOUNDARY
- ENVIRONMENTAL SHEET PILE BARRIER
- EXISTING DRAIN
- CLASS 1A1/6A1 MATERIAL
- OS BACKGROUND
- ASSUMED EXTENTS OF TEMPORARY CANAL
- RETAINED VEGETATION (INCLUDING GROUPS OF TREES, WOODLAND AND HEDGEROWS)
- ROOT PROTECTION AREA





NO CONTINUATION BEYOND THIS LINE

NO CONTINUATION BEYOND THIS LINE



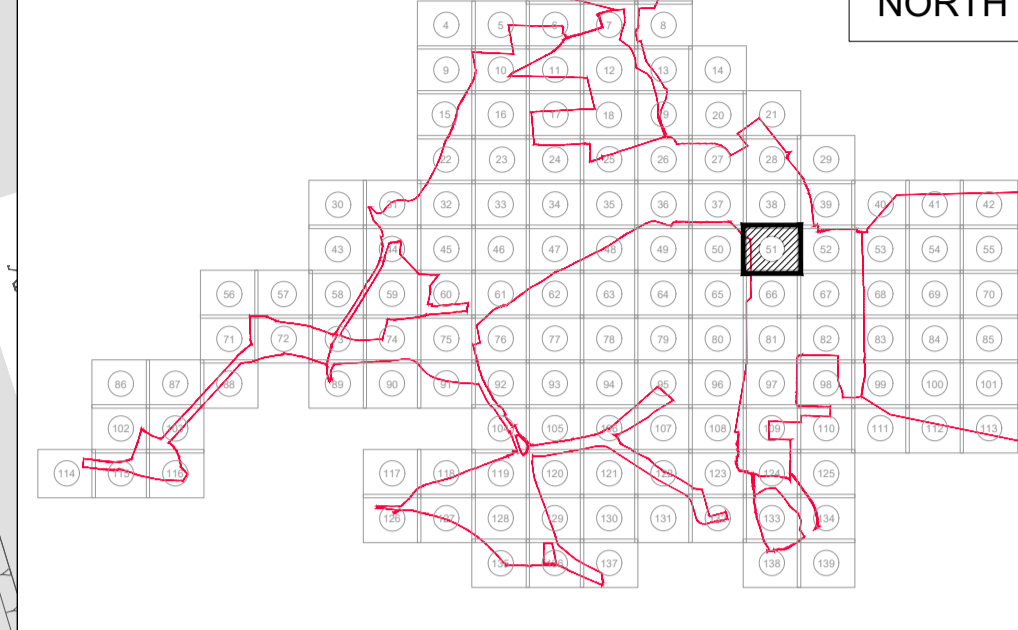
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 SITE LOCAL GRID  NATIONAL GRID OSGB36   
 OTHER GRID  (To be defined in the contract project plan)

CONTRACT PROJECT PLAN DOC. REF. No: N/A

KEY PLAN:  
 NOT TO SCALE



- NOTES:**
- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (mAOD) UNLESS NOTED OTHERWISE.
  - ALL COORDINATES AND DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  - FOR GENERAL NOTES REFER TO SZC-EW0413-ATK-XX-HSZ-XXXXX-DRW-CIV-000007.
  - THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT SZC-EW0413-ATK-XX-HSZ-XXXXX-SPE-CIV-000004.
  - ONLY EXISTING CHANNELS CONSIDERED AS CANAL BACKFILLING TO BE COMPLETED SEPARATELY.

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION**

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:

**CONSTRUCTION**  
 N/A

**MAINTENANCE/CLEANING**  
 N/A

**DECOMMISSIONING/DEMOLITION**  
 N/A

The above risks are listed in the Design Risk Register reference: SZC-EW0000-ATK-XX-000-XXXXX-REG-CIV-000009  
 It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
P01	19/03/24	AS	MS	P4	First Revision	K M J
P02	25/10/24	AS	MS	P6	Phase 3 First Revision	AD
P03	06/11/24	AS	MS	P6	Phase 3 Completion (SHE Box and Notes Updated)	AD

CONTRACTOR COMPANY TRADE NAME : AtkinsRéalis

CONTRACTOR REF. No. SZC-EW0413-ATK-XX-HSZ-01XXXX-DRW-CIV-040051

CONTRACT NUMBER : Early Works EWXXXX\_098\_01

CONTRACTOR WBS CODE : EW0413 QRA RELATED Yes  No

APPLICABILITY:  
 1: Document related to Unit 1  
 2: Document related to Unit 2  
 9: Document that applies to buildings/systems common to Unit 1 & 2  
 0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)

NUCL/REP/EPR/UKX	BUILDING
SZC (doc: SZ)	HSZ
0 1 2 9	SYSTEM
X	N/A

SCALE 1:500

SIZE A1

PAGE 1/1

TEAMCENTER DOCUMENT REFERENCE No. 101157852

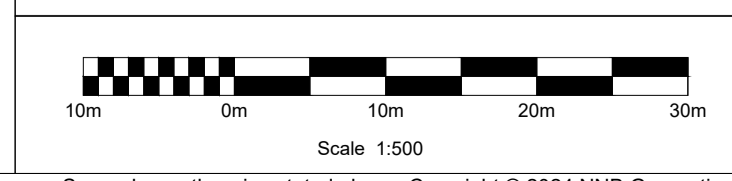
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SUBCONTRACTOR COMPANY TRADE NAME N/A SUBCONTRACTOR DOCUMENT REF. No. 5213850-SNC-01-XX-DRW-G-000386

INTELLECTUAL PROPERTY OWNERSHIP: NNB: N/A EDF: N/A CONTRACTOR: N/A

**LEGEND:**

- DCO RED LINE BOUNDARY
- PRIMARY ZONAL BOUNDARY
- ENVIRONMENTAL SHEET PILE BARRIER
- EXISTING DRAIN
- CLASS 1A/16A1 MATERIAL
- OS BACKGROUND
- ASSUMED EXTENTS OF TEMPORARY CANAL
- RETAINED VEGETATION (INCLUDING GROUPS OF TREES, WOODLAND AND HEDGEROWS)
- ROOT PROTECTION AREA



FOR CONTINUATION REFER DRAWING NO. SZC-EW0413-ATK-XX-HSZ-01XXXX-DRW-CIV-040066 - TILE 66

FOR CONTINUATION REFER DRAWING NO. SZC-EW0413-ATK-XX-HSZ-02XXXX-DRW-CIV-040052 - TILE 52

A - APPROVED

## Sizewell C Project

# Appendix E: Methodology for Environmental Sheet Piling, Tilting Weir & Drain Diversion

A - APPROVED

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APPENDIX E: METHODOLOGY FOR THE ENVIRONMENTAL SHEET PILING, TILTING WEIR & DRAIN DIVERSION

## DOCUMENT CONTROL

This document is stored and approved in the Electronic Document and Records Management System (EDRMS).

<b>Prepared by:</b>	[Redacted] Associate Director Land and Water
<b>Reviewed by:</b>	[Redacted] Technical Manager Land and Water
<b>Verified by:</b>	[Redacted] Environmental Consents and Sustainability Lead
<b>Approved by:</b>	[Redacted] Environment Manager - Construction Permits and Consents

## REVISION HISTORY

Rev	Status	Amendment	Prepared By	Date
01	For Issue	First Issue of document	[Redacted]	19/11/2024



APPENDIX E: METHODOLOGY FOR THE ENVIRONMENTAL SHEET PILING, TILTING WEIR & DRAIN DIVERSION

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Sizewell C | 101375813 / 001 | P1 - For Implementation | 10-Dec-2024 | NOT PROTECTIVELY MARKED

APPENDIX E: METHODOLOGY FOR THE ENVIRONMENTAL SHEET PILING, TILTING WEIR & DRAIN DIVERSION

# 1 INTRODUCTION

## 1.1 Purpose

- 1.1.1.1 The construction of the new Sizewell C (SZC) power station requires the extension of a construction platform north of the existing Sizewell B power station. This necessitates the inclusion of an area of wet woodland and drainage ditches forming part of the local drainage system which is part of the Sizewell Marshes Sites of Special Scientific Interest (SSSI) to the west and the Minsmere-Walberswick SSSI site to the north.
- 1.1.1.2 It is a requirement of the enabling works to regularise the Sizewell Drain to the west of the main site, extending it north from its present position, joining the Leiston Drain to the north where a tilting weir is to be constructed. A new bridge crossing the Leiston Drain (the ‘SSSI Crossing’) is to be built to the northwest under a separate application (SZC Ltd. Ref. MCA/FRA/2). (See plans in **Figure 1** and **Figure 2**).
- 1.1.1.3 An integral part of these works will be the installation of a sheet piled environmental barrier along the east side of the new drain, the regularisation of the Sizewell Drain to the west and the diversion of the same drain around the new reclaimed area into the Leiston Drain to the north.
- 1.1.1.4 This document explains the methodology proposed to install the environmental piles, the tilting weir and to excavate the new drain diversion. It has been produced specifically to support the FRAP application for the environmental sheet pile barrier and Sizewell Drain realignment (SZC Ltd. Ref. MCA/FRA/8). It is not a method statement and does not include all the health and safety risks and mitigations to be employed, which will be set out in the detailed method statements prepared by the contractor.

## 1.2 Definitions

Term / Abbreviation	Definition
ATV	All Terrain Vehicle
CoCP	Code of Construction Practice
CEMP	Construction Environmental Management Plan
ECoW	Ecological Clerk of Works
EDRMS	Electronic Document and Records Management System
EMP	Environmental Management Plan
MCA	Main Construction Area
RAMS	Risk Assessment Method Statement
SSSI	Sites of Special Scientific Interest
SWMP	Site Waste Management Plan
SZC	Sizewell C
UXO	Unexploded Ordnance

## APPENDIX E: METHODOLOGY FOR THE ENVIRONMENTAL SHEET PILING, TILTING WEIR & DRAIN DIVERSION

## 2 SCOPE OF WORKS

### 2.1 Scope

- 2.1.1.1 The new alignment of the Sizewell Drain lies in wooded wetland and reedbeds making access by conventional construction plant difficult, expensive and likely to have a significant negative impact on the ecology of the area. An alternative to the conventional approach is proposed involving the creation of temporary canals allowing floating specialist plant to transport and drive the piles reducing the environmental impact and required land-take. The use of specialist amphibious excavators also reduces the need for imported fill material and the construction of conventional access tracks.
- 2.1.1.2 The proposed strategy necessitates the formation of two load-out areas to mobilise the floating plant and to handle and load-out the piles onto transportation barges. The location of these load-out areas, A and B, are shown in **Figure 3** with further details provided in **Figure 5** and **Figure 6**.
- 2.1.1.3 An initial construction sequence comprises the temporary canals being excavated by an amphibious excavator, the environmental sheet piles then driven by a piling rig mounted on a pontoon working from the canals. The new drain is then excavated on the western/northern side of the pile-line by the amphibious excavator which also backfills the old drains and canal where necessary. The same floating piling rig will install the tilting weir and footbridge.
- 2.1.1.4 In order to maintain flow in the Sizewell Drain, the water within it will need to be diverted into the new drain at appropriate times in the programme. The method and timings of these diversions are detailed in the **Section 3.4** of this document.
- 2.1.1.5 Once complete, the load-out areas can either be adopted within the permanent works or removed and recycled within the site.

### 2.2 Sequence of Works

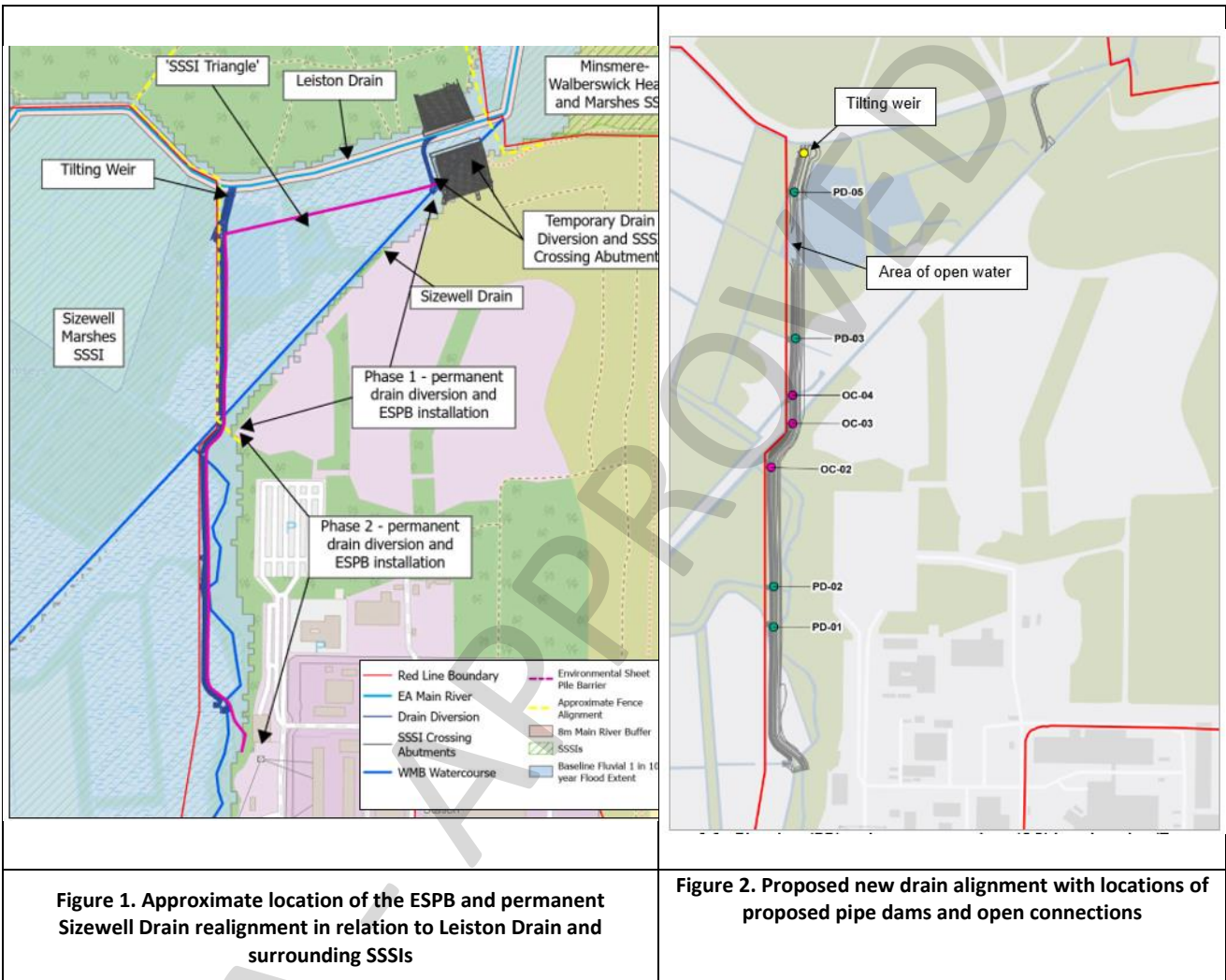
- 2.2.1.1 A simplified sequence of works is further described in the following paragraphs.
- 2.2.1.2 Prior to the commencement of the sheet piling works an Unexploded Ordnance (UXO) survey and clearance of any suspect objects will have been completed. All environmental mitigation measures required to have been in place before the start of works will also have been completed.
- 2.2.1.3 This document relates solely to the specific operations of carrying out the following activities:
1. Construction of access routes and load-out areas A and B including mobilisation of plant and site accommodation. The exact location of these features are to be determined onsite following ground investigation and temporary works inspection.
  2. Excavation of all canals to enable the installation of the environmental piles.
  3. Installation of sheet piles to form the environmental cut-off.
  4. Installation of the tilting weir and eel pass at the northern extension of the new drain alignment.
  5. Formation of the new drain profile including the connections from the original drain at point D4 into the new diverted drain and from the northern section of the diverted drain into the Leiston Drain at D3 in **Figure 4** including connections to the lateral drains.
  6. Infilling of the canals and disused drain sections, plus the abandoned section of the Sizewell Drain between load-out areas A and B.
  7. Demobilisation of the floating plant & equipment from load-out areas A and B.

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8. Installation of the 63m plan length of the environmental pile line only south of the diversion (the 'southern extension') at D4 using land-based plant and equipment.
9. Construction of the maintenance track to the tilting weir.

2.3 Plans



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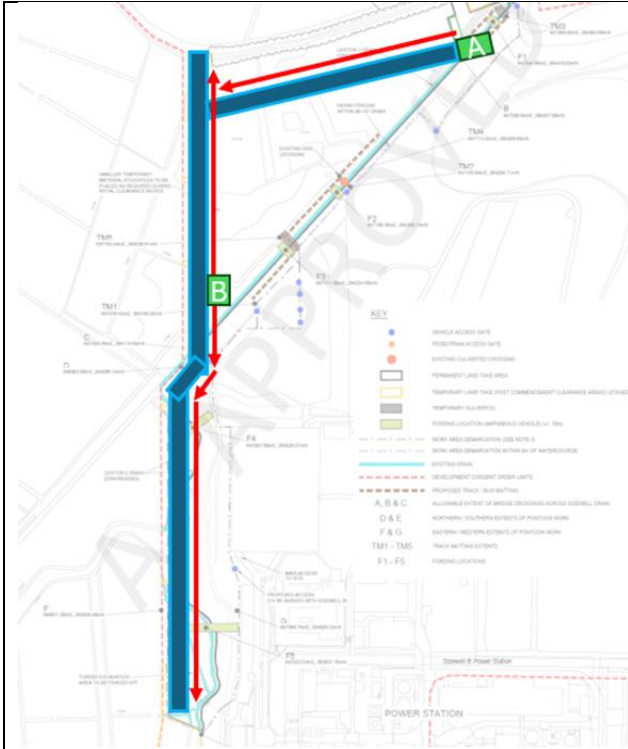


Figure 3. Load-out locations & direction of pile driving

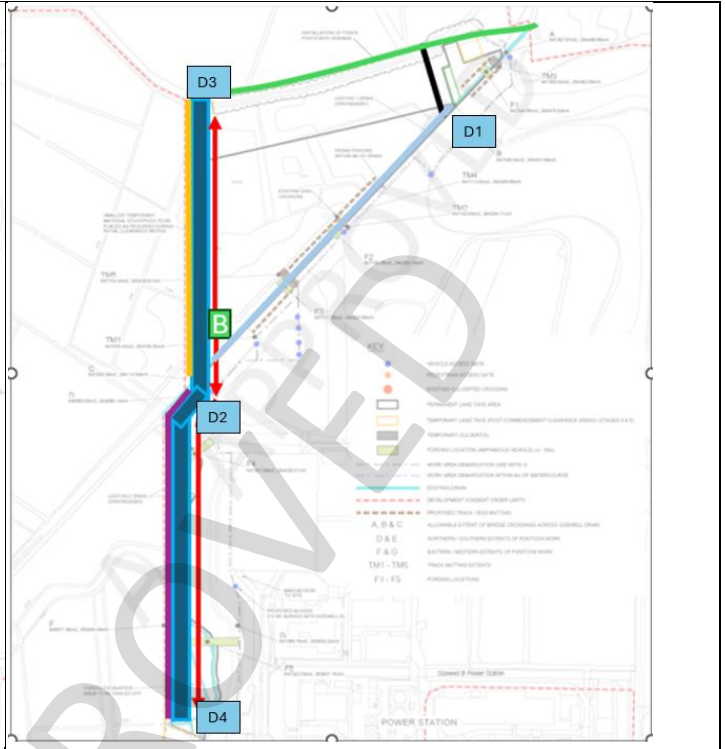


Figure 4. Location of drain diversions/connections

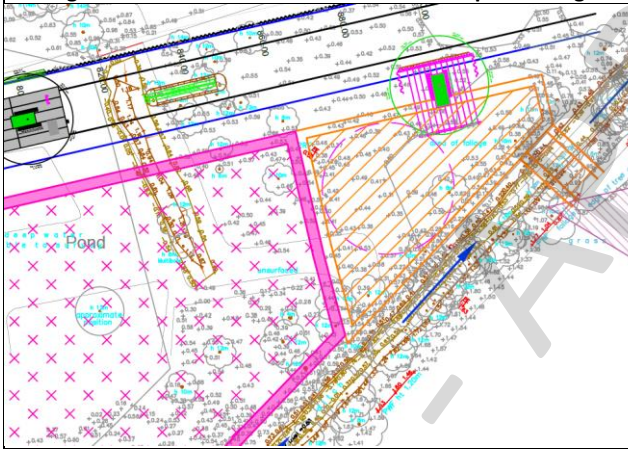


Figure 5. Location & GA of Load-out Area A

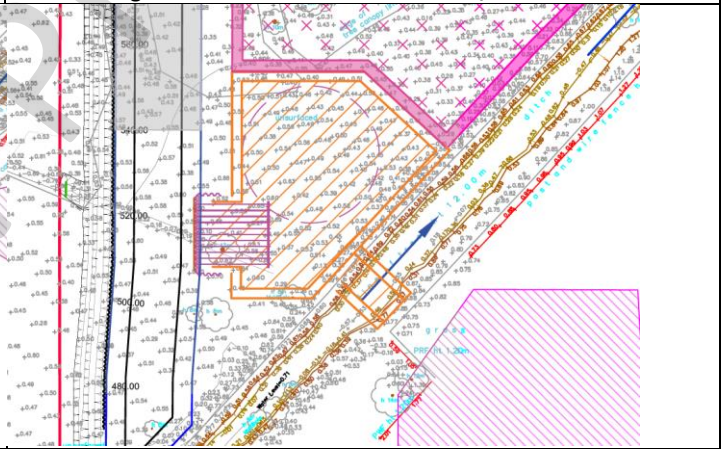


Figure 6. Location & GA of Load-out Area B




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3 METHODOLOGY

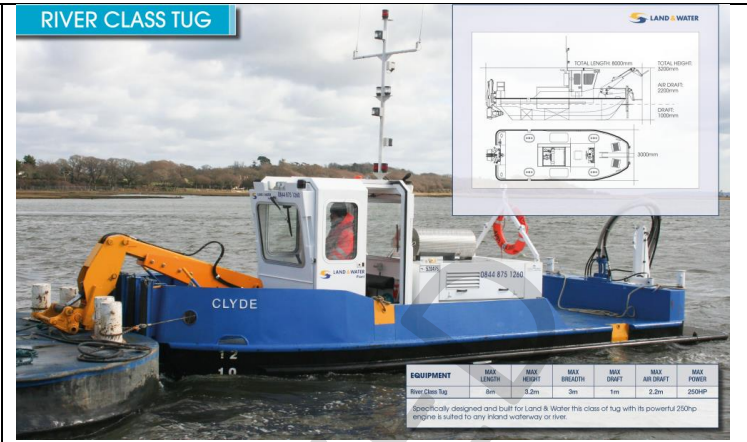

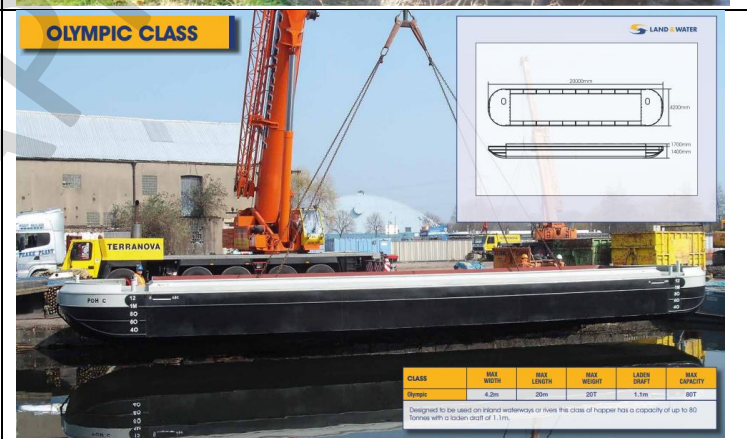
3.1 Main Plant Items

3.1.1.1 The following table illustrates the main specialist items of plant, or similar, to be used during the works outlined within this document. Standard items of construction plant are not included.

<p><b>Figure 7</b></p> <p>The AM300 is the largest amphibious excavator to be used on the site with a maximum reach of 18.0m and a maximum dig depth of 12m. It will be used to remove obstructions within the pile line, excavate the temporary canals and backfill redundant drainage sections.</p> <p>It can float but will operate in water depths of up to 1.0m and can track across wetlands and soft mud.</p>																	
<p><b>Figure 8</b></p> <p>The WK150 amphibious excavator, or similar, is also to be used to excavate the temporary canals, the new drain alignment and backfill redundant drainage sections.</p> <p>It can float but will operate in water depths of up to 1.0m and can track across wetlands and soft mud.</p>	<p><b>WK150 LONG REACH (12m)</b></p> <table border="1" data-bbox="1066 999 1401 1077"> <thead> <tr> <th>MODEL</th> <th>MAX. OUTREACH</th> <th>MAX. DIG DEPTH</th> <th>TRAVEL WIDTH</th> <th>OPERATIONAL WIDTH</th> <th>MAX. HEIGHT</th> <th>MAX. LENGTH</th> <th>GROUND PRESSURE</th> </tr> </thead> <tbody> <tr> <td>WK150</td> <td>12m</td> <td>7m</td> <td>3.6m</td> <td>4.7m</td> <td>5.42m</td> <td>12.35m</td> <td>0.118kg/cm<sup>2</sup></td> </tr> </tbody> </table> <p><small>This long reach / amphibious excavator places less weight per square inch onto the ground than the average tracked loader and coupled with 12m outreach is suitable for a vast array of projects. Unlike other excavators of its class the excavator uses a hydraulically retractable undercarriage that allows it to be delivered ready to use when it arrives on site.</small></p> 	MODEL	MAX. OUTREACH	MAX. DIG DEPTH	TRAVEL WIDTH	OPERATIONAL WIDTH	MAX. HEIGHT	MAX. LENGTH	GROUND PRESSURE	WK150	12m	7m	3.6m	4.7m	5.42m	12.35m	0.118kg/cm <sup>2</sup>
MODEL	MAX. OUTREACH	MAX. DIG DEPTH	TRAVEL WIDTH	OPERATIONAL WIDTH	MAX. HEIGHT	MAX. LENGTH	GROUND PRESSURE										
WK150	12m	7m	3.6m	4.7m	5.42m	12.35m	0.118kg/cm <sup>2</sup>										
<p><b>Figure 9</b></p> <p>The proposed piling barge will be made up from 10No Ravestein modular pontoons (5No 12m + 5No 6m long sections). The Ravestein pontoon sections are road transportable and lifted onto the water where they are assembled. The pontoon is held on station with two spud legs lifted by a deck crane.</p> <p>The picture shows a similar arrangement using 6 pontoons.</p>	<p><b>6 SECTION RAVESTIEN</b></p> <table border="1" data-bbox="1066 1458 1401 1536"> <thead> <tr> <th>PONTOON TYPE</th> <th>MATERIAL</th> <th>OVERALL LENGTH</th> <th>OVERALL WIDTH</th> <th>MAX. SPUD LEG LENGTH</th> <th>CARRYING CAPACITY</th> </tr> </thead> <tbody> <tr> <td>Modular</td> <td>Steel</td> <td>18.4m</td> <td>7.32m</td> <td>30m</td> <td>25T</td> </tr> </tbody> </table> <p><small>This fully road transportable pontoon has been designed to be used on inland waterways or rivers and can carry up to a 30 tonne Long Reach Excavator. This excavator can be fitted with a long reach full spud leg system that allows it to be used in tidal areas.</small></p> 	PONTOON TYPE	MATERIAL	OVERALL LENGTH	OVERALL WIDTH	MAX. SPUD LEG LENGTH	CARRYING CAPACITY	Modular	Steel	18.4m	7.32m	30m	25T				
PONTOON TYPE	MATERIAL	OVERALL LENGTH	OVERALL WIDTH	MAX. SPUD LEG LENGTH	CARRYING CAPACITY												
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<p><b>Figure 10</b></p> <p>The river class tug has a 250HP engine and will be used to push the piling barge or material barges along the canal.</p> <p>It has a 1.0m draft which makes it ideal for the shallow waters to be excavated in the canals.</p>	 <table border="1"> <thead> <tr> <th>EQUIPMENT</th> <th>MAX LENGTH</th> <th>MAX HEIGHT</th> <th>MAX WEIGHT</th> <th>MAX DRAFT</th> <th>MAX AIR DRAFT</th> <th>MAX POWER</th> </tr> </thead> <tbody> <tr> <td>River Class Tug</td> <td>8m</td> <td>3.2m</td> <td>3m</td> <td>1m</td> <td>2.2m</td> <td>250HP</td> </tr> </tbody> </table> <p>Specifically designed and built for Land &amp; Water this class of tug with its powerful 250hp engine is suited to any inland waterway or river.</p>	EQUIPMENT	MAX LENGTH	MAX HEIGHT	MAX WEIGHT	MAX DRAFT	MAX AIR DRAFT	MAX POWER	River Class Tug	8m	3.2m	3m	1m	2.2m	250HP
EQUIPMENT	MAX LENGTH	MAX HEIGHT	MAX WEIGHT	MAX DRAFT	MAX AIR DRAFT	MAX POWER									
River Class Tug	8m	3.2m	3m	1m	2.2m	250HP									
<p><b>Figure 11</b></p> <p>The engineering class tug has a 70HP engine and will be used to push the material barges along the canal.</p> <p>It has a 0.45m draft which makes it ideal for the shallow waters to be excavated in the canals.</p>	 <table border="1"> <thead> <tr> <th>EQUIPMENT</th> <th>MAX LENGTH</th> <th>MAX HEIGHT</th> <th>MAX WEIGHT</th> <th>MAX DRAFT</th> <th>MAX AIR DRAFT</th> <th>MAX POWER</th> </tr> </thead> <tbody> <tr> <td>Engineering Class Tug</td> <td>6.17m</td> <td>2.68m</td> <td>2.03m</td> <td>448mm</td> <td>1.83m</td> <td>69.3HP</td> </tr> </tbody> </table> <p>Designed and built to give the user the highest power output and manoeuvrability whilst still remaining shallow drafted at just 400mm. Ideally suited to be used on the canal network, reservoirs and shallow rivers.</p>	EQUIPMENT	MAX LENGTH	MAX HEIGHT	MAX WEIGHT	MAX DRAFT	MAX AIR DRAFT	MAX POWER	Engineering Class Tug	6.17m	2.68m	2.03m	448mm	1.83m	69.3HP
EQUIPMENT	MAX LENGTH	MAX HEIGHT	MAX WEIGHT	MAX DRAFT	MAX AIR DRAFT	MAX POWER									
Engineering Class Tug	6.17m	2.68m	2.03m	448mm	1.83m	69.3HP									
<p><b>Figure 12</b></p> <p>The Olympic class hopper barge will be used to carry the piles from the load-out area locations to the piling barge.</p> <p>It has an 80-tonne capacity and a 1.1m draft when fully loaded.</p> <p>It is road transportable and lifted easily in and out of the water.</p>	 <table border="1"> <thead> <tr> <th>CLASS</th> <th>MAX WIDTH</th> <th>MAX LENGTH</th> <th>MAX WEIGHT</th> <th>LOADS</th> <th>MAX DRAFT</th> <th>MAX CAPACITY</th> </tr> </thead> <tbody> <tr> <td>Hopper</td> <td>4.2m</td> <td>20m</td> <td>20T</td> <td>1.1m</td> <td>80T</td> <td></td> </tr> </tbody> </table> <p>Designed to be used on inland waterways or rivers this class of hopper has a capacity of up to 80 tonnes with a laden draft of 1.1m.</p>	CLASS	MAX WIDTH	MAX LENGTH	MAX WEIGHT	LOADS	MAX DRAFT	MAX CAPACITY	Hopper	4.2m	20m	20T	1.1m	80T	
CLASS	MAX WIDTH	MAX LENGTH	MAX WEIGHT	LOADS	MAX DRAFT	MAX CAPACITY									
Hopper	4.2m	20m	20T	1.1m	80T										

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<p><b>Figure 13</b></p> <p>This workboat doubles as a safety boat, can carry up to eight persons and comes with a 40HP outboard engine.</p> <p>It is used to carry personnel and/or small items of plant or materials.</p>	 <table border="1" data-bbox="1077 324 1388 392"> <thead> <tr> <th>EQUIPMENT</th> <th>MAX LENGTH</th> <th>MAX HEIGHT</th> <th>MAX BEAM</th> <th>MAX DRAFT</th> <th>MAX AIR DRAFT</th> <th>MAX POWER</th> </tr> </thead> <tbody> <tr> <td>Workboat</td> <td>5.2m</td> <td>0.8m</td> <td>2.15m</td> <td>220mm</td> <td>600mm</td> <td>40HP</td> </tr> </tbody> </table> <p>ABLE TO carry up to eight people or a payload of a tonne and fitted with a 40hp outboard engine these workboats are suited to shallow inland waterways or rivers.</p>	EQUIPMENT	MAX LENGTH	MAX HEIGHT	MAX BEAM	MAX DRAFT	MAX AIR DRAFT	MAX POWER	Workboat	5.2m	0.8m	2.15m	220mm	600mm	40HP
EQUIPMENT	MAX LENGTH	MAX HEIGHT	MAX BEAM	MAX DRAFT	MAX AIR DRAFT	MAX POWER									
Workboat	5.2m	0.8m	2.15m	220mm	600mm	40HP									
<p><b>Figure 14</b></p> <p>The Hagglund BV type ATV (All Terrain Vehicle) is specially designed for off road transport in difficult conditions such as the wet woodland and wetland areas of the site.</p> <p>It can be used for people transport or for recovery of injured or ill persons if required.</p>															

### 3.2 Mobilisation and Accesses

#### 3.2.1 Load-out area B

- 3.2.1.1 Prior to commencing works all site staff and operatives will have attended a SZC Project Induction and a Site-Specific Induction which will include briefings on the Construction Environmental Management Plan (CEMP), the Environmental Management Plan (EMP), the Site Waste Management Plan (SWMP) and the contractor’s Risk Assessment Method Statement (RAMS). Specific individuals will be briefed on additional procedures such as Lift Plans, temporary works, traffic management and security.
- 3.2.1.2 The sequence of work outlined in this document are as envisaged at the time of submission, however, this may be amended to suit site conditions. The methods described will remain as stated.
- 3.2.1.3 The load-out area at location B, as identified in **Figure 4** and **Figure 6**, will be constructed before load-out area A, enabling the northern element of the Sizewell Drain re-alignment to commence first as currently programmed.
- 3.2.1.4 Plant and materials will enter the site from the B1122 via Sizewell Gap and through the existing gate into the power station and then follow the designated site routes and traffic rules for the Main Construction Area (MCA). Access to the proposed Load-out Areas at A & B will require crossing the Sizewell Drain. Culvert crossings of the Sizewell Drain have already been consented or are the subject of an amendment to a currently pending application (SZC Ltd. Ref. MCA/LDC/1). Their locations and load-out areas are shown in **Figure 15**.



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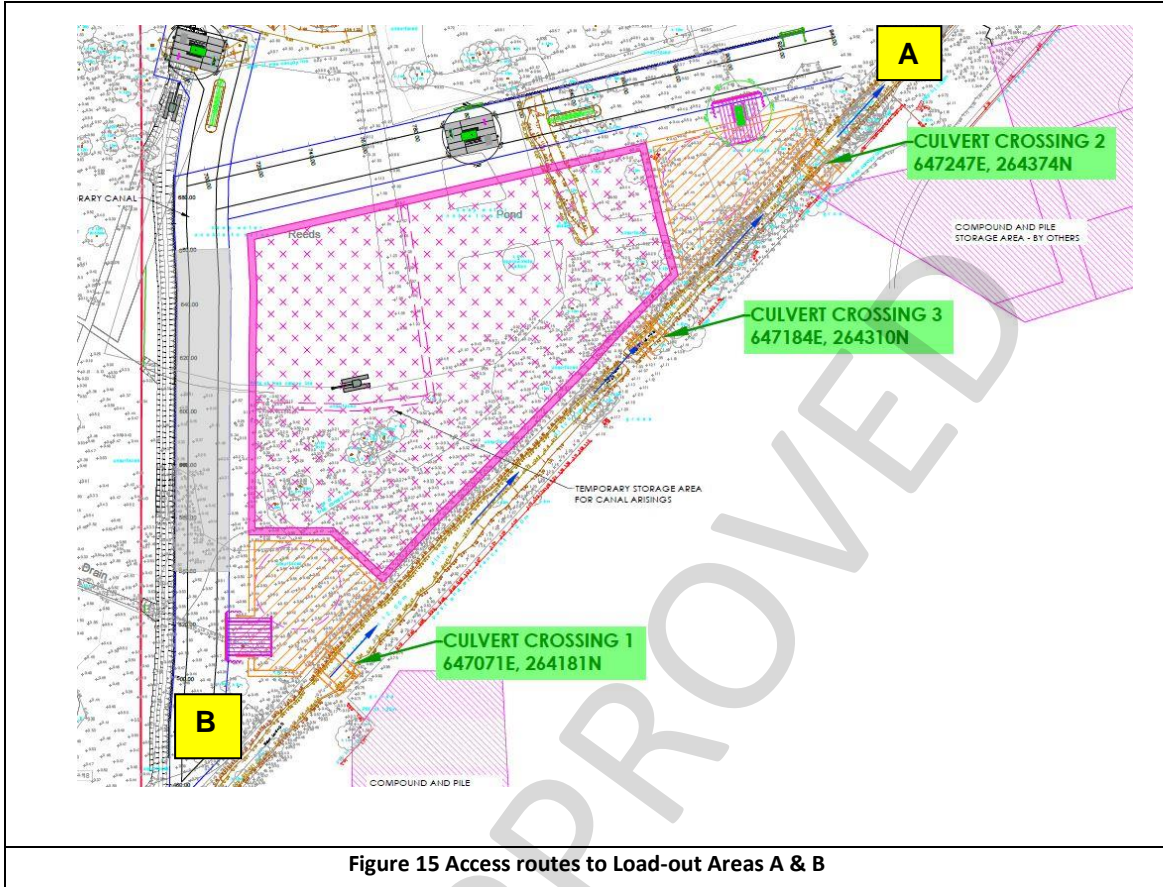


Figure 15 Access routes to Load-out Areas A & B

3.2.1.5 The access drain crossings will be installed at the grid references indicated in **Figure 15** to allow plant to access the mobilisation area to create the working platform.

3.2.1.6 Access tracks will be formed from compacted Class 6F2 or Type 3 aggregate on a geotextile separator providing a crest width of 8.0m and a road width of 6.0m as shown in **Figure 16**. In order to keep the load-out areas above normal flood levels, the finish level of the temporary roads will be +1.5mOD, whereas the finish level of access roads elsewhere will typically be +1.0mOD.

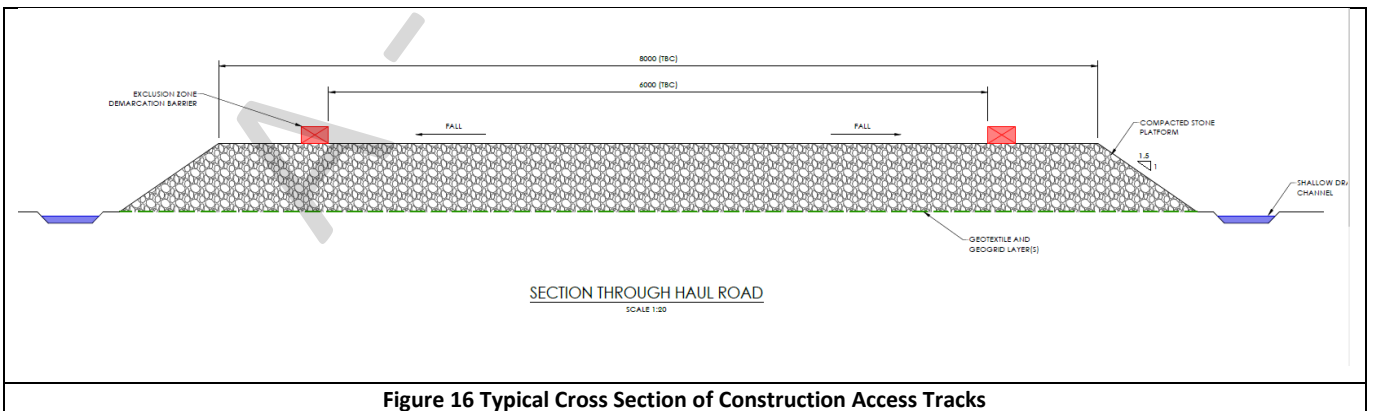


Figure 16 Typical Cross Section of Construction Access Tracks

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3.2.1.7 The preliminary temporary works design of the load-out area is presented in **Figure 17**. Construction will involve stripping any vegetation, placing an initial layer of Class 6A material below groundwater level to mix with the soft ground then laying a geotextile separator and filling the area with Type 3 compacted fill.

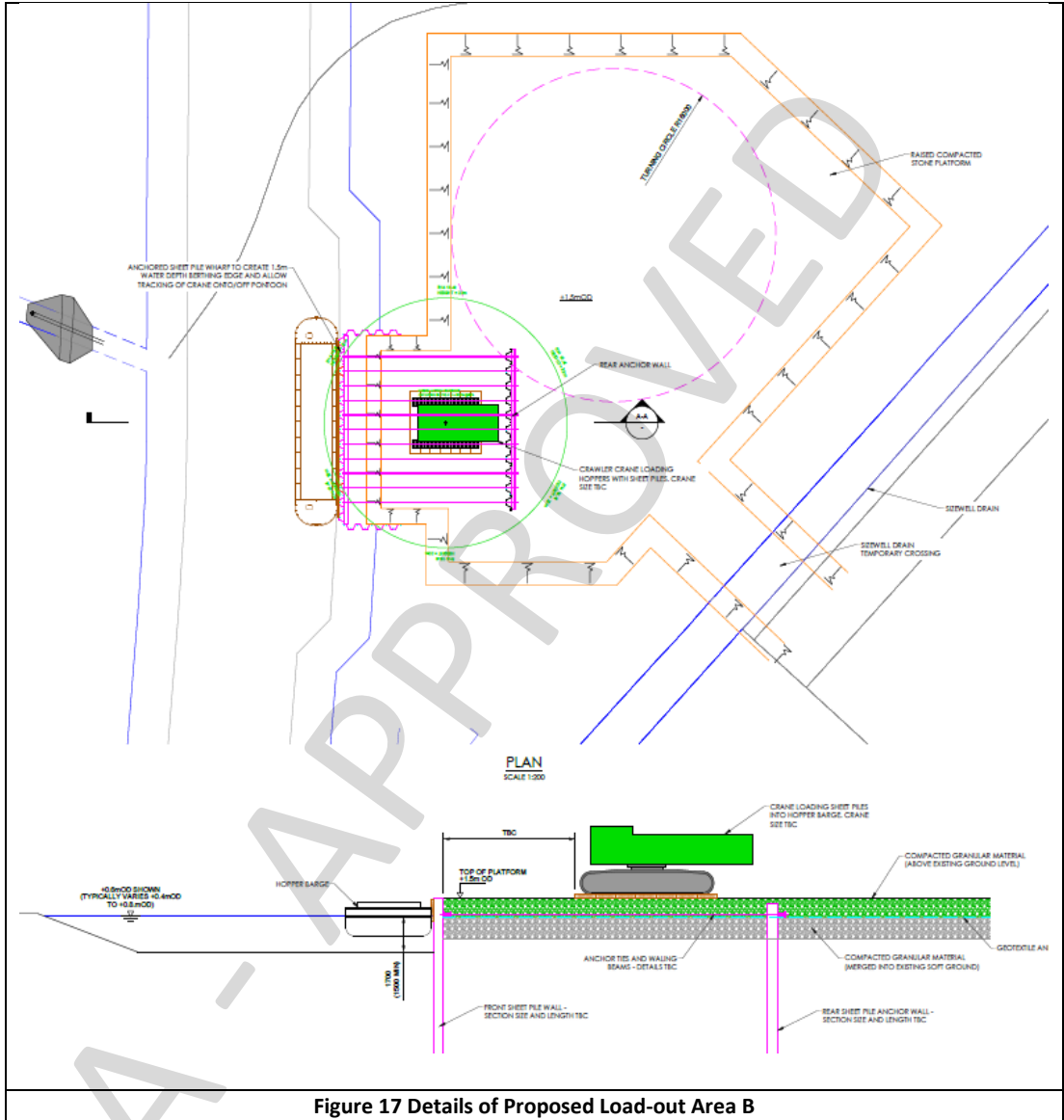


Figure 17 Details of Proposed Load-out Area B

3.2.1.8 The temporary quay, comprising tied back sheet piles along a 15m length, will be installed using a Movax piling rig to protect the bank of the new canal and offering support to the loading out plant. Once complete, any testing of the temporary works structures will be carried out and the temporary works certificate signed in line with the Temporary Works Procedure allowing the mobilisation of the floating plant to commence.

3.2.1.9 The excavation of the temporary canal will have been commenced in advance of the construction of load-out area B using the amphibious excavator that does not require the platform for its mobilisation. Thus, the

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section of the canal adjacent to the load out area and temporary quay will have been formed providing water into which the floating plant can be mobilised.

3.2.1.10 A suitably sized mobile crane will be mobilised to the platform via the temporary haul road and crossing over Sizewell Drain and set up in position. It will then be used to lift sections of the pontoon from their road transport into place on the canal, where they will be joined together to form the complete piling barge. The spud legs will then be lifted, fitted and secured.

3.2.1.11 The piling crane will then be tracked onto the pontoon and the rest of the equipment loaded including the piling hammers, fuel bowser, welfare unit and stores. A stability calculation for the barge will have been carried out for the temporary loading of the pontoon as well as the operational conditions.

### 3.2.2 Load-out area A

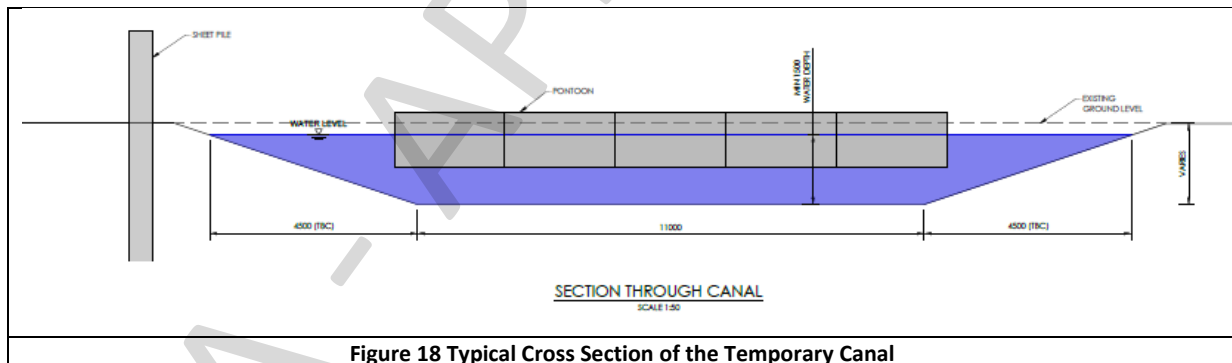
3.2.2.1 Load-out area A is shown in **Figure 3** and **Figure 5** and will be constructed to mobilise plant and equipment to install the environmental piles west from the SSSI Crossing to join with the piles at the northern end of the Sizewell Drain realignment.

3.2.2.2 A similar Temporary Works Design to that of Load-out B will have been submitted and approved by SZC. The construction of the platform and sheet piled quay will follow that same installation sequence and method using the access route shown in **Section 3.2.1** above.

## 3.3 Piling Works

### 3.3.1 Piling from Point B North

3.3.1.1 In order to be able to access the pile line with suitable piling plant, a temporary canal will be excavated using an amphibious excavator transferring the arisings to a second amphibious excavator which will place it into the stockpile area indicated in **Figure 33**. The sediment placed in the stockpile area will be spread over the site by a third amphibious excavator and left to consolidate. See **Section 3.3.5** for further details.



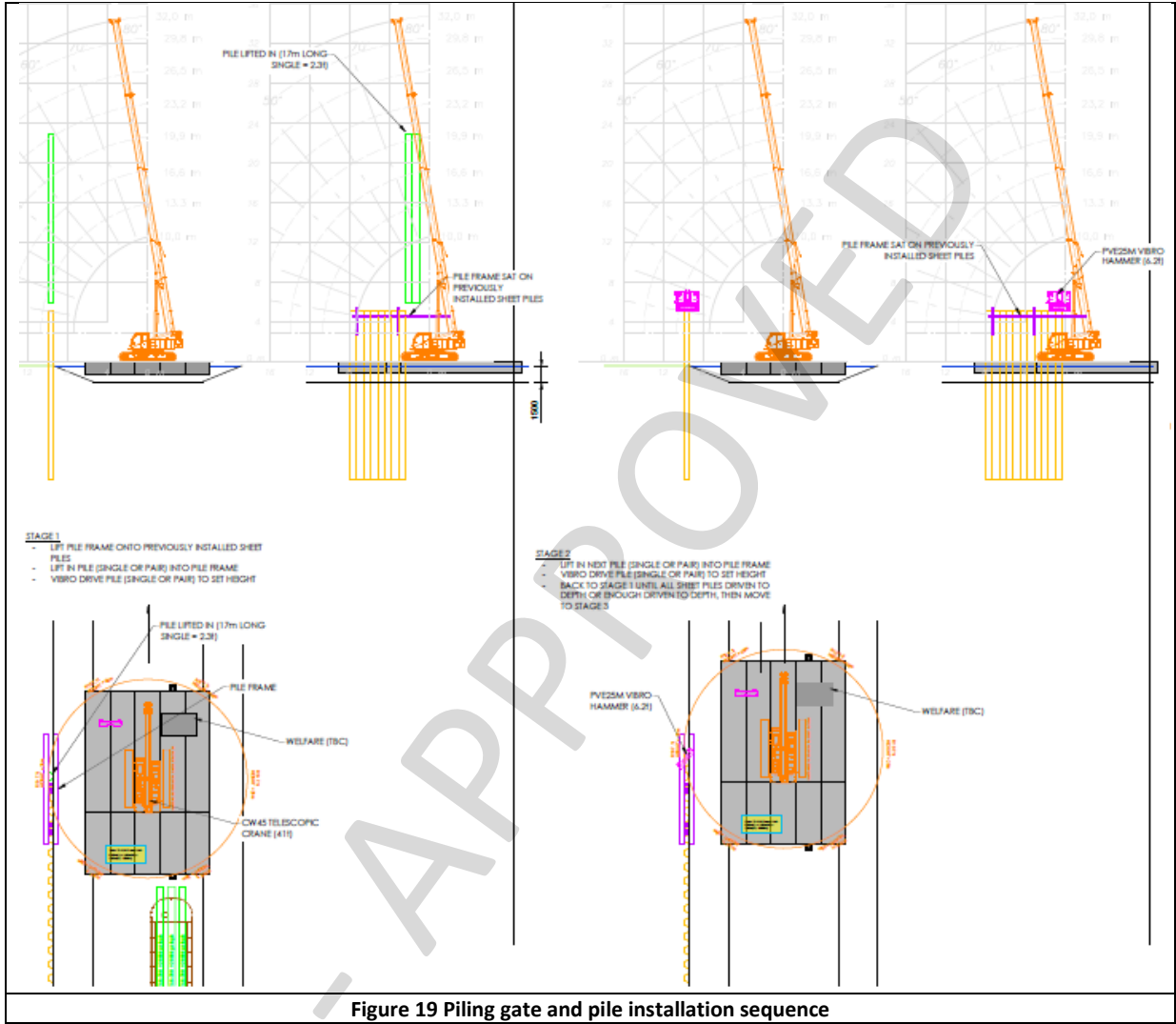
3.3.1.2 **Figure 18** shows the canal will be approximately 20m across with 1:3 slopes and a minimum water depth of 1.5m which is sufficient to take the proposed piling pontoon and fully laden barges.

3.3.1.3 Canal excavation and piling will commence from Point B in a northerly direction. The piles will be lowered into a piling gate mounted on the previously installed piles and driven to refusal using the vibro hammer as depicted in **Figure 19**, relocating the pontoon as required using a tug and resetting the piling gate. If the final design toe level is not achieved with the vibro hammer, the piles will be driven to level with an impact hammer, either as work progresses or in one operation once the initial drive along the first section is complete.

3.3.1.4 There is a possibility of hard bog timber in the wetland area, and if encountered this will cause difficult driving conditions for piling and thus should be removed where possible. If and when encountered, the

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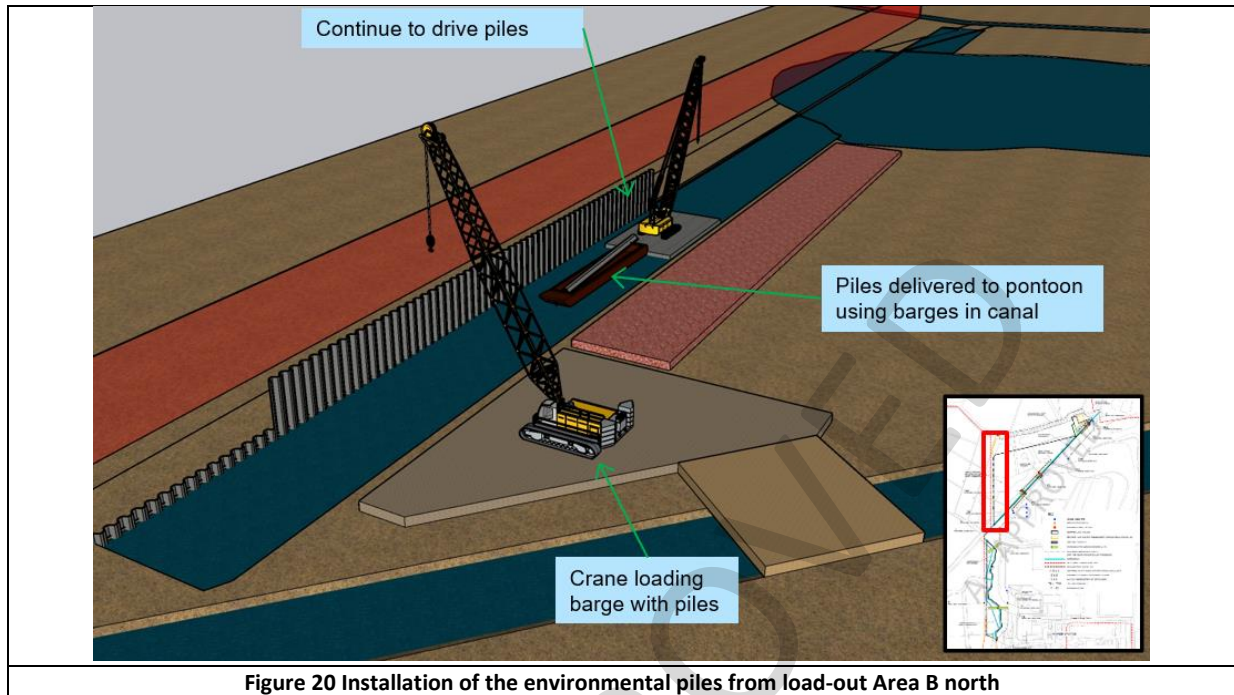
obstruction will be removed by a long-reach amphibious excavator dragging its digging bucket through the upper soft ground layers removing only the obstruction whilst leaving the remaining material in place.



3.3.1.5 Additional piles will be delivered to the piling barge in the Olympic hopper, loaded out from Point B and pushed along the canal using one of the tugs. The crane on the piling barge will offload the piles from the Olympic hopper as required. A schematic drawing of the piling operation is shown in **Figure 20**. Piling works will continue northward until the line of the piles turns to the east at which point piling will temporarily cease.

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- 3.3.1.6 The excavation of the Sizewell Drain re-alignment will commence with a short lag of a few days behind the piling works, working from the south to the north. The excavation will be carried out on the western side of the environmental pile cut-off using an amphibious excavator working back over its own tracks thereby minimising disturbance of the adjacent vegetation and ecology. Erosion control biodegradable geotextile matting such as CoirMesh will be pinned/anchored to the drain banks in accordance with the manufacturers recommendations or as specified.
- 3.3.1.7 The route of the access canal and re-aligned drain intersects an area of reedbed and open water. The amphibious excavator can progress across the pond ensuring that there is sufficient water depth for the piling pontoon and the piling pontoon can install piles along the required pile line within the pond.
- 3.3.1.8 The design of the environmental piles requires backfilling either side of the piles in certain sections, specifically within the ponded area and to support an access route to the tilting weir as shown in the **Figure 21** and **Figure 22**.
- 3.3.1.9 To create this lateral support to the piles, Class 6A material will be brought to each site in the Olympic hoppers having loaded it at the Load-out areas and pushed to the required location using the tugs. The 6A material will then be offloaded and placed by excavator either side of the pile line, trimming to the required gradient using a ditching bucket.
- 3.3.1.10 As ground conditions are very soft along the pile line, particularly the bed of the ponded area, it is proposed to sink a specialist heavy-weight geotextile, such as Sandex 5000 GSL, on the substrate below the proposed fill areas to prevent loss of material into the soft ground and reduce settlement of the Class 6A material. Installation would be subject to trial installation to review the methodology and impact.
- 3.3.1.11 The above backfilling works will likely be carried out after the completion of the piling, exchanging the piling crane on the pontoon for an excavator which can offload and handle the 6A material from the hopper and place it either side of the piles as specified. Finally, the remainder of the temporary canal will be backfilled with Class 6A fill up to existing ground level pushing out the material with low ground pressure bulldozers from load-out area B and then from load-out area A once the west to east piles have been driven. Note Sandex 5000 GSL will not be used beneath the backfill in the canals.

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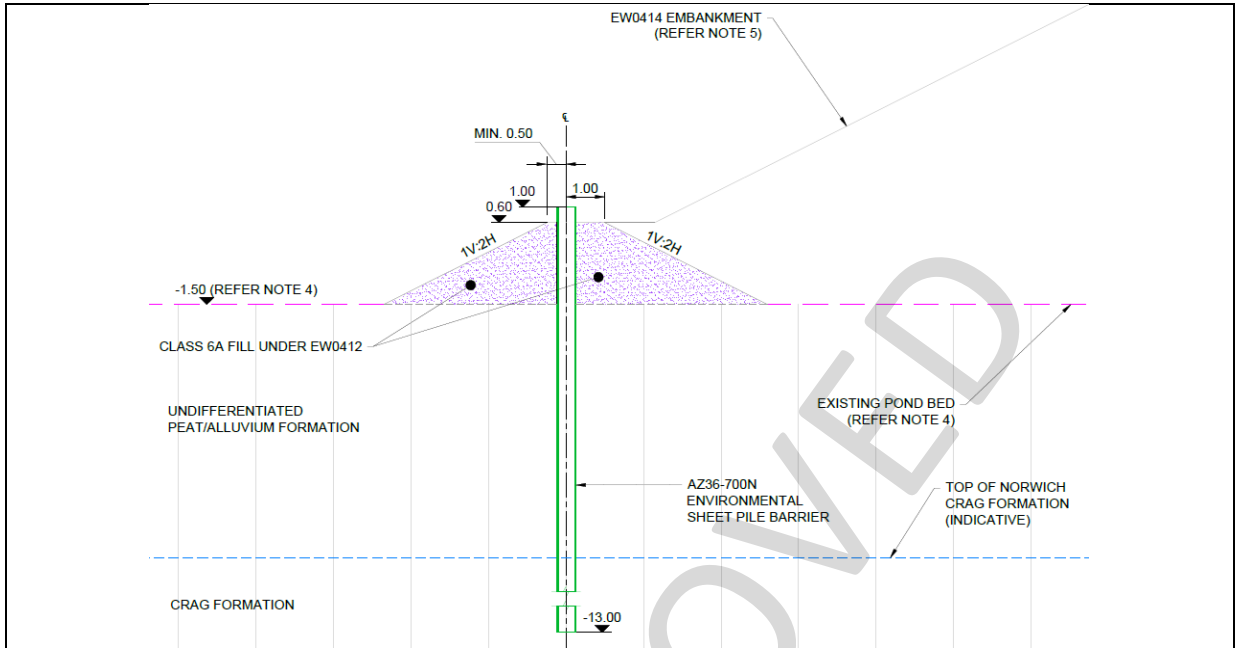


Figure 21 Backfilling required in the ponded area

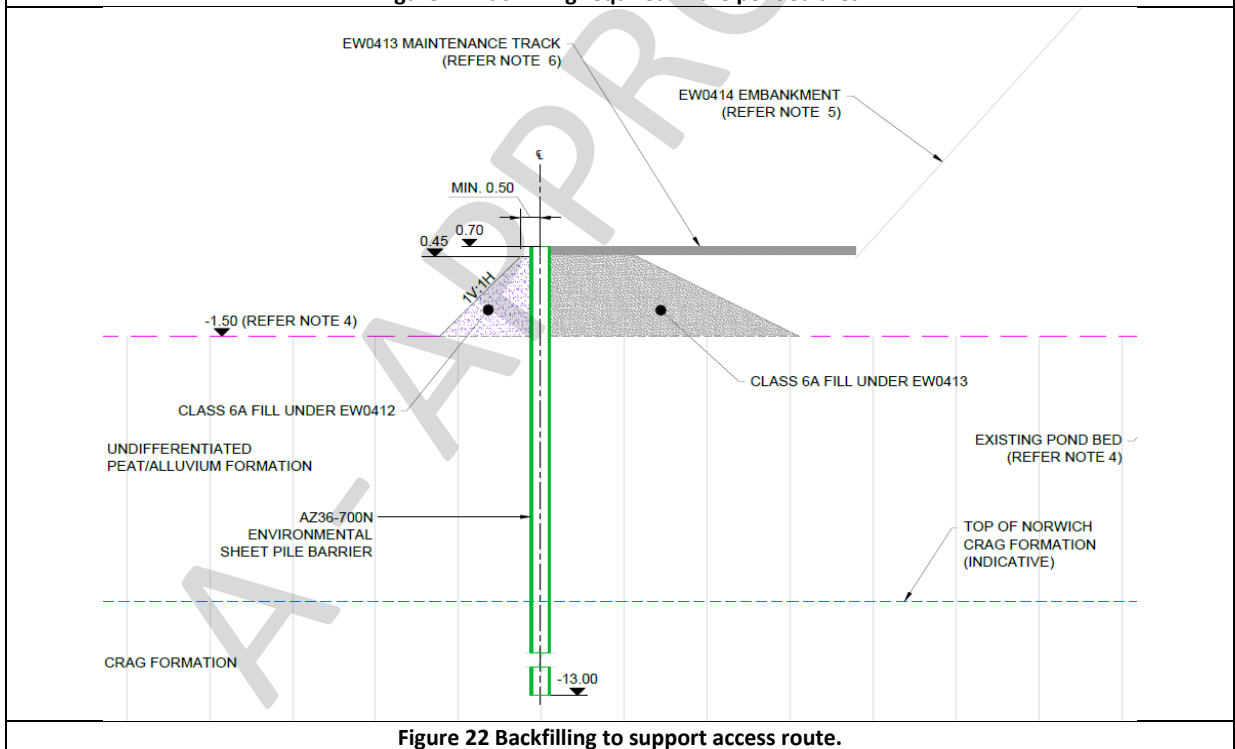


Figure 22 Backfilling to support access route.

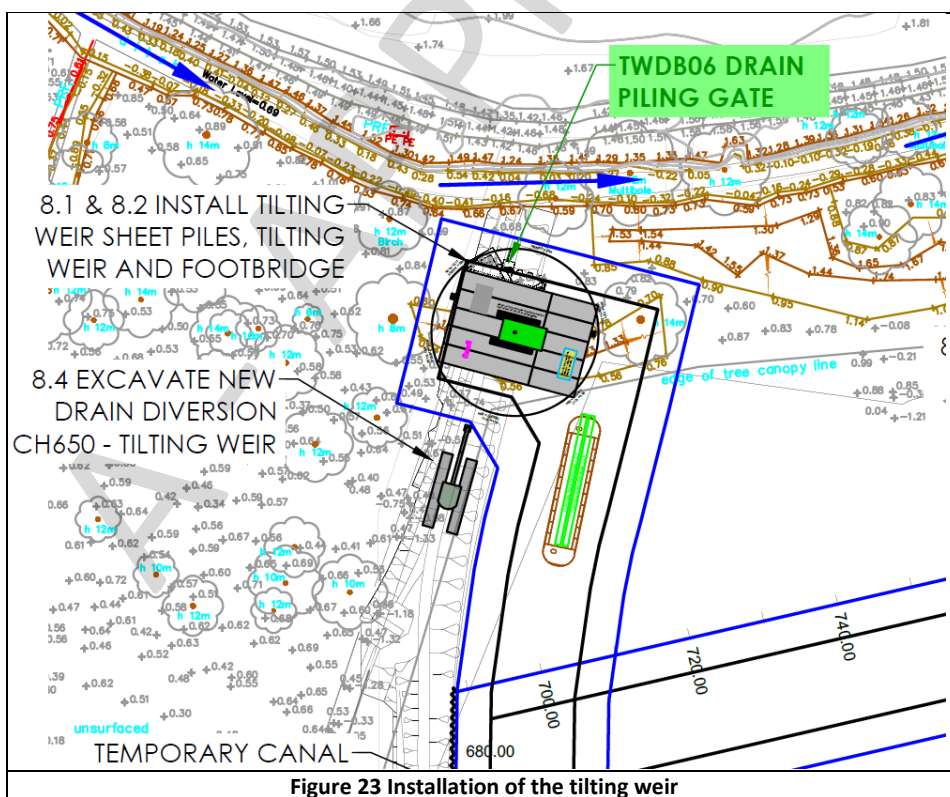
3.3.2 Tilting Weir and Eel Pass

3.3.2.1 Whilst the installation of the piles is temporarily halted, the canal will be extended to the north to enable the installation of the tilting weir as described below. Referring to **Figure 23**, the sequence of works to install the tilting weir would be as follows:

1. Extend the canal up to the location of the proposed tilting weir.

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2. Bring the piling barge, the materials supply hopper with the piles, tilting weir structure, walkway and eel-pass up to the location.
3. Erect temporary piling gates for the tilting weir sheet piles.
4. Drive the weir piles and walkway support piles to the specified toe level.
5. Cut or form the recess in the piles and fit the tilting weir in place and secure the eel pass.
6. Lift in the walkway and secure on the support piles.
7. Relocate the pile barge south along the canal.
8. Using an amphibious excavator, excavate the Sizewell Drain extension up to the tilting weir and then track around the weir to connect with Leiston Drain forming the specified cross-sectional profile and fixing the slope protection matting, working upstream of a silt curtain which will have been placed around the proposed exit of the Sizewell Drain to prevent suspended sediment entering the Leiston Drain.
9. Backfill the redundant drain with Class 2 material.
10. Construct a bund using Class 6A material across the canal along the eastern line of the new drain to form its permanent bank.
11. Backfill the canal from the new bank southward to the line of the environmental piles with Class 6A material as specified by the construction drawings.



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### 3.3.3 Piling from Point B South

3.3.3.1 Before the piling works can proceed south from Point B, the existing Sizewell Drain needs to be diverted into the newly excavated drain to the north of Point B. The methodology of this diversion is set out in **Section 3.4.2**.

3.3.3.2 It can be seen from **Figure 24** that the proposed canal route for this southern section crosses the lines of the existing Sizewell Drain and its lateral drains in several locations, and thus the construction interface with the flow of the drains and the presence of any fish within the drains becomes a sequencing issue. This area has defined water courses in dry conditions but has no defined water courses in wet flooded conditions.

3.3.3.3 Two viable construction scenarios are therefore presented to cover the two water level eventualities described above:

#### Non-flooded Conditions

3.3.3.4 Where water levels are low, below the top of the banks, it is proposed to isolate and remove any fish in the drains prior to commencing the main works in the section. Nets with an appropriate mesh size will be placed across the drains and used to isolate the fish and prevent further migration into the working sections. Once the fish have been removed, the nets will be left in place allowing water flow until the drains are blocked and the water diverted as explained in the sequencing of works in **Figure 24** to **Figure 29**.

3.3.3.5 Fish rescue will be carried out in accordance with the Section 8.11 Code of Construction Practice (CoCP) Appendix A "Freshwater Fish and Aquatic Invertebrates Mitigation Strategy" and will generally be by netting. Appropriately experienced and licensed specialists will be used to carry out the fish rescue who, after rescuing the fish, will place them in the same stream upstream of the working area.

3.3.3.6 The temporary canal will be excavated using the amphibious excavator(s) placing the arisings, initially in the main stockpile area using dumpers and then adjacent to the canal as illustrated in the pink hatched stockpiling areas in the **Figure 26** and **Figure 27**. All sections of existing drains in these areas will have been cleared of fish prior to the placement of the excavated material. Any bank side vegetation to be reused in the new drain alignment will also have been excavated prior to covering with canal arisings.

3.3.3.7 The piles will be driven using the same floating plant and piling equipment as detailed in **Section 3.3.1** of this document with piles being loaded onto the Olympic hopper barges from load-out area B and pushed along the canal to the piling barge for off-loading.

3.3.3.8 When lateral drains are encountered during the piling operations, one or two of the piles will be overdriven to a depth that allows flow from the lateral drain over the piles into the canal. Once the excavation of the drain diversion reaches the same point, the permanent flow control structure will be installed, and the overdriven piles pulled up to the design level diverting the lateral flow into the new drain diversion.

3.3.3.9 The excavation of the new drain alignment will be by the amphibious excavator placing the excavated material over the new piles into silt hoppers mooring in the canal for subsequent offloading into the pink hatched stockpiling areas shown on the **Figure 24** to **Figure 28** below.

3.3.3.10 Bank protection with pinned Coirmesh will be installed as the work proceeds following the specification or the manufacturers recommendations. Translocated plants will also be placed on the banks where practicable.

3.3.3.11 The breakthrough of the new drain into the existing Sizewell Drain is detailed on **Figure 28** and **Figure 29**, and further detailed in **Section 3.4.4**. Once the piling is complete and the piling barge demobilised, the temporary canal will be backfilled primarily with Class 6A material. This will be placed either using bulldozers accessing from Platform B or using hopper barges to transport and excavators on pontoons to place. If the stockpiled



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excavated arisings from the canal excavation and drain re-alignment have reached the required strength, then they could be placed directly into the temporary canal as part of the backfilling operation.

**Flooded Conditions.**

- 3.3.3.12 If the whole area is flooded, fish can migrate from one area to another without obstruction and therefore works can proceed following the above sequence but without netting and fish rescue. It might also not be possible to create the adjacent stockpile areas due to high water levels, so all arising will have to be transferred to the main stockpile area.
- 3.3.3.13 The final trimming of the drain diversion banks and the fixing of the Coirmesh bank protection will also have to wait until water levels have dropped and access is possible for placing and pinning the coir fabric.
- 3.3.3.14 It is possible that both flooding and non-flooding conditions will occur during the works depending upon the time of year and weather conditions. However, the above methods can be interchangeable and instigated as conditions vary with the knowledge and approval of the Ecological Clerk of Works (ECoW).

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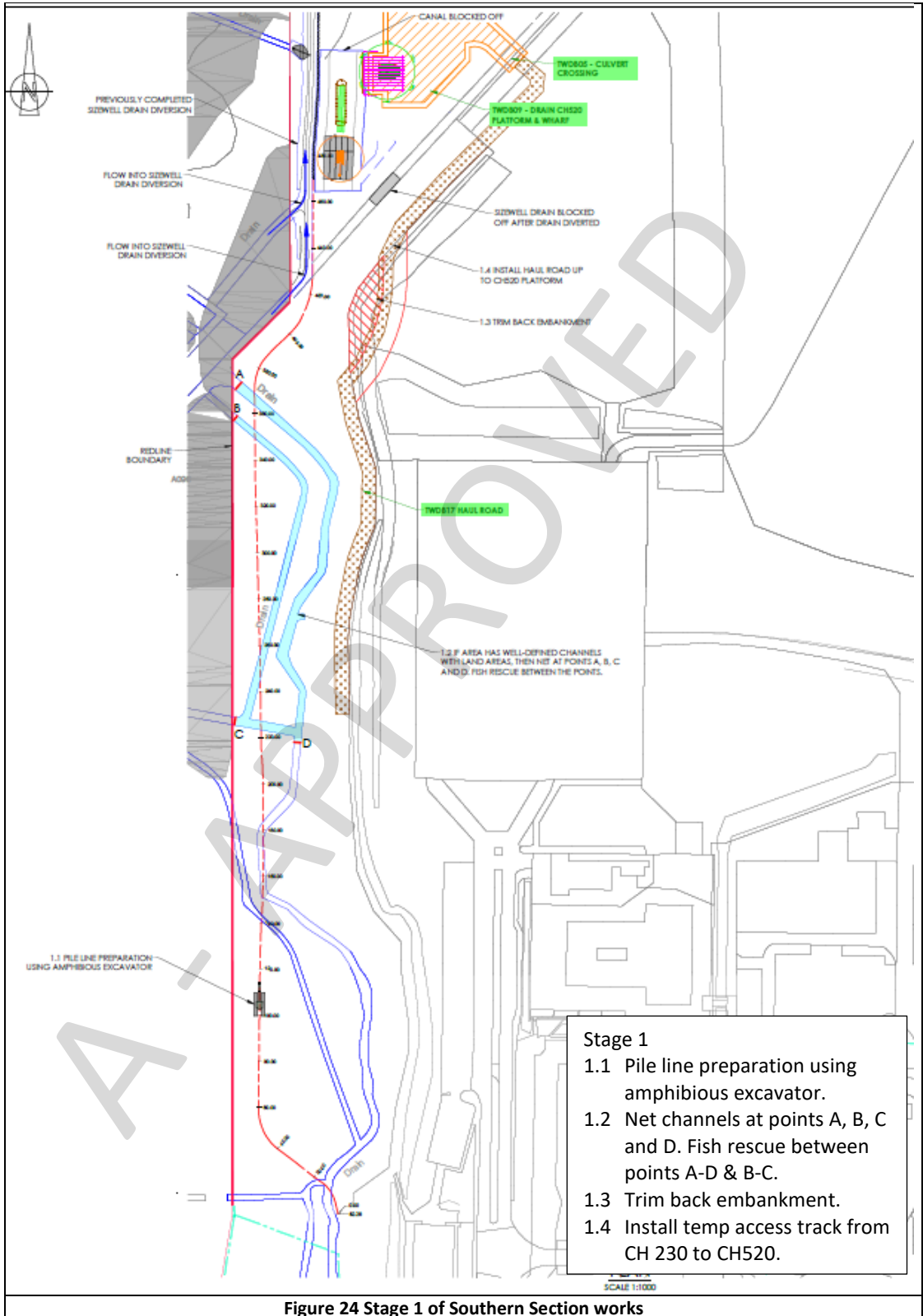
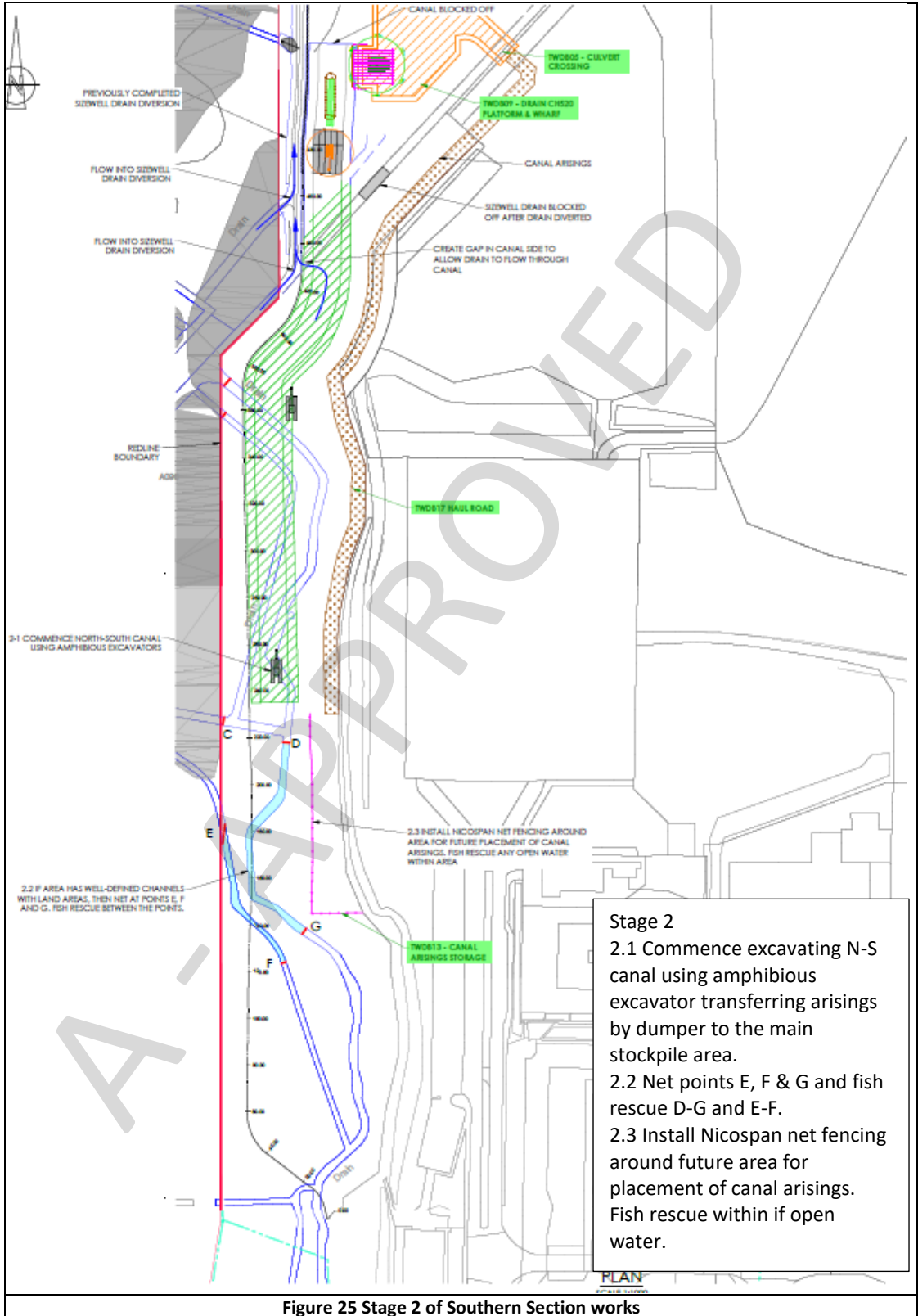


Figure 24 Stage 1 of Southern Section works

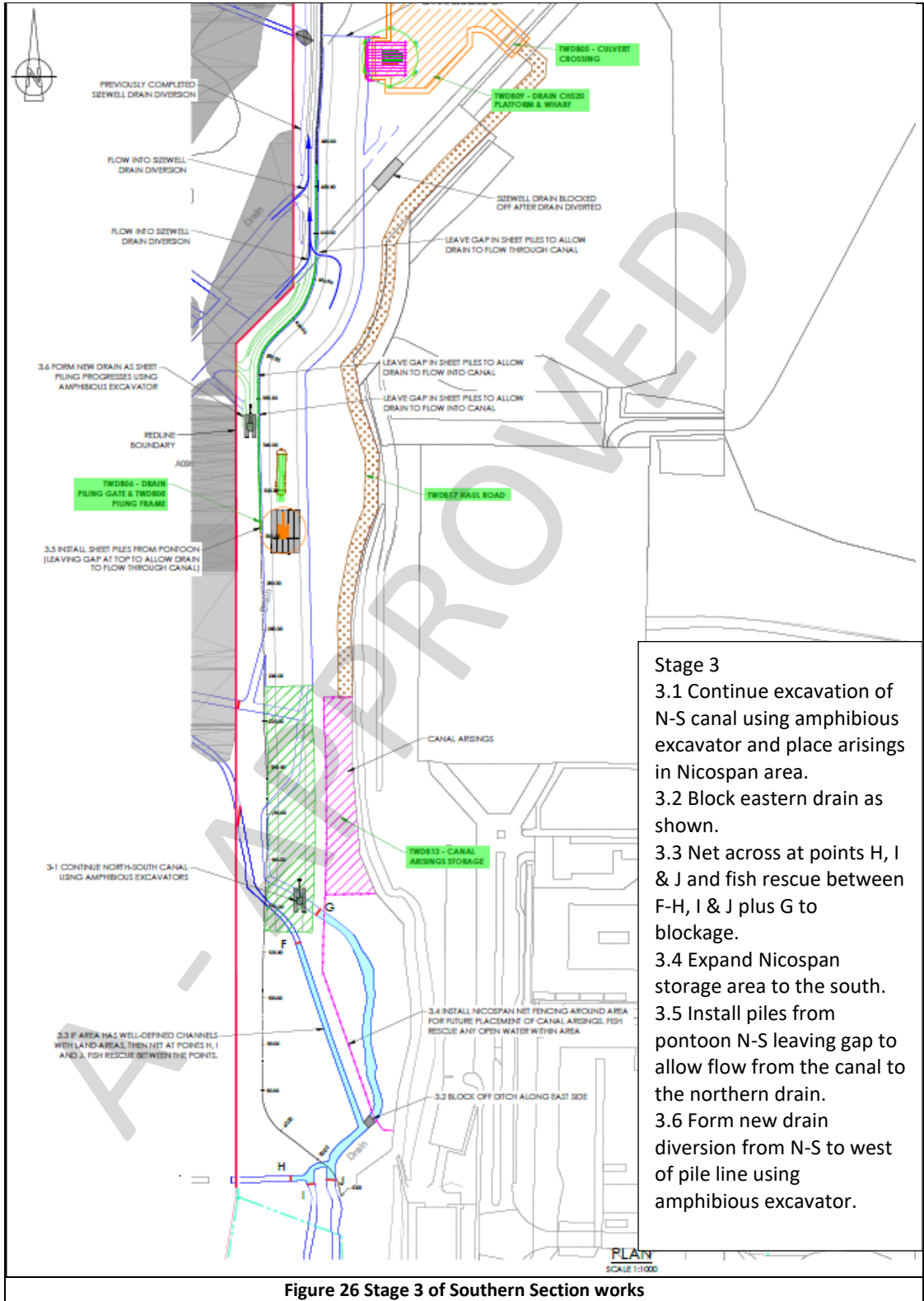
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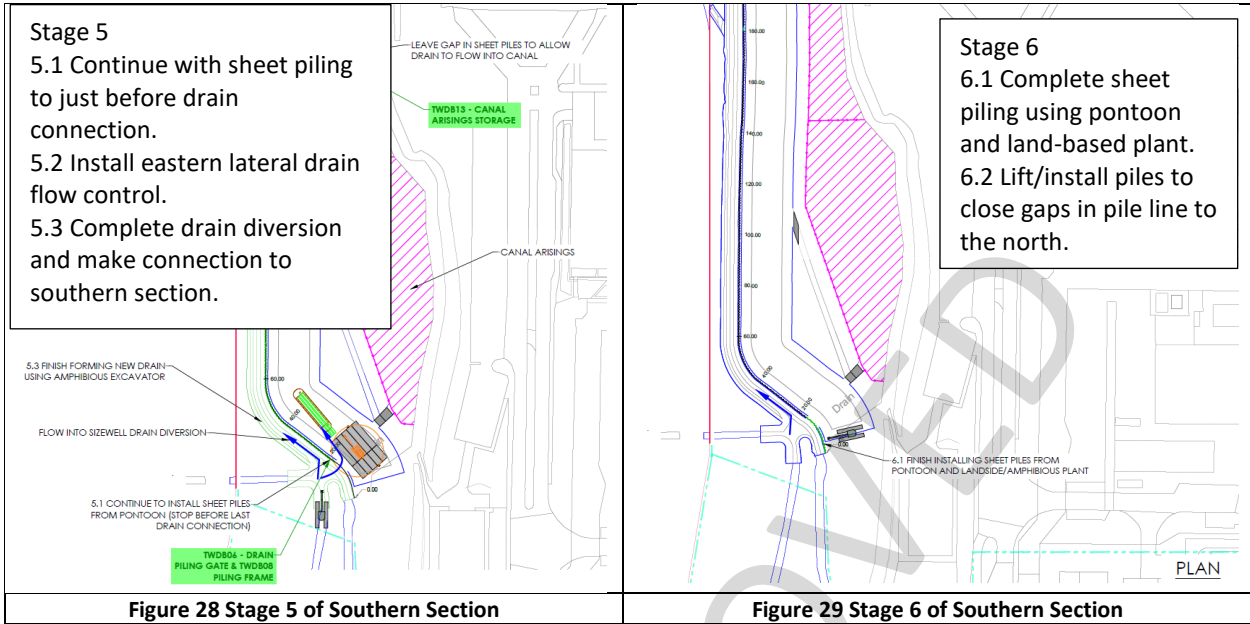
Stage 3

- 3.1 Continue excavation of N-S canal using amphibious excavator and place arisings in Nicospan area.
- 3.2 Block eastern drain as shown.
- 3.3 Net across at points H, I & J and fish rescue between F-H, I & J plus G to blockage.
- 3.4 Expand Nicospan storage area to the south.
- 3.5 Install piles from pontoon N-S leaving gap to allow flow from the canal to the northern drain.
- 3.6 Form new drain diversion from N-S to west of pile line using amphibious excavator.

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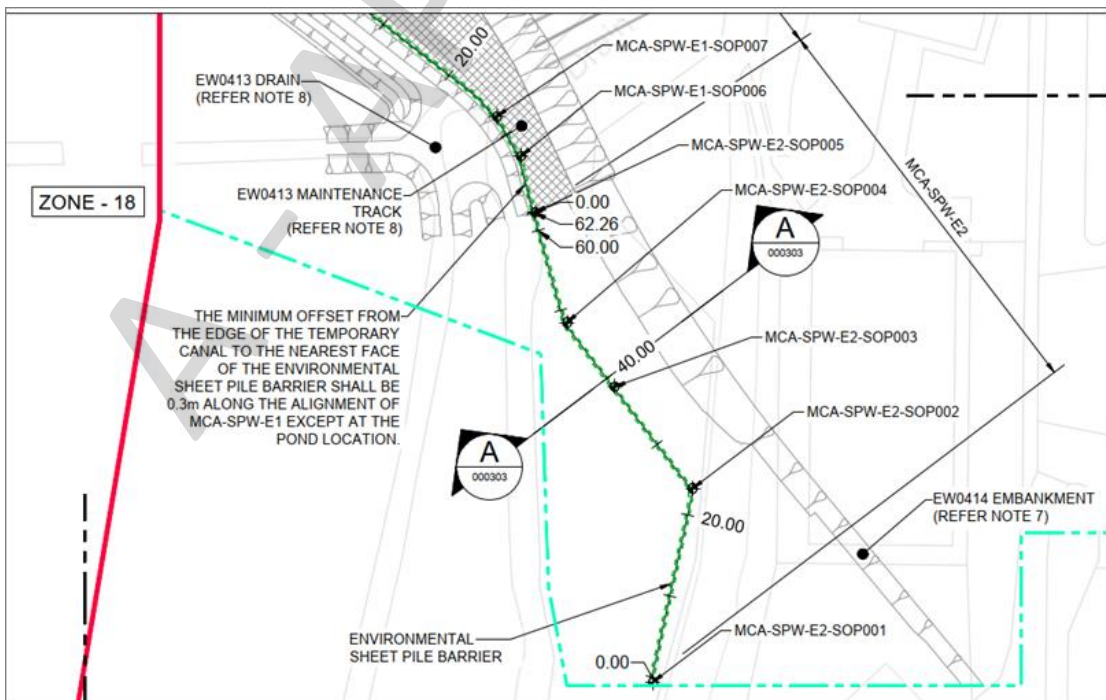


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**Southern Environmental Sheet Pile Barrier Extension**

- 3.3.3.15 There is a 62m plan length of environmental sheet pile barrier that extends southward from the drain diversion at Drain Chainage 0.0 (which is Chainage 62.26 for the sheet pile barrier extension) as shown in **Figure 30**.
- 3.3.3.16 The land rises to the south of Drain Chainage 0.0m and therefore the temporary canal methodology is not applicable and as the pile lengths are shorter at 11 – 12m, a land-based piling rig will be used to install the piles.



**Figure 30 Environmental Pile Barrier arrangement south of Drain Chainage zero**

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3.3.3.17 By the time this section of work is programmed to be carried out, the proposed pile line will have been cleared of vegetation and UXO allowing piling to commence from Drain Chainage 0.0m (62.26m) to the south. It is proposed that a piling mat is installed along the pile line and piles installed using a MOVAX tracked piling rig. Piles will be brought to the piling rig on trailers at which point the MOVAX can handle, pitch and drive the piles to the specified depth.

3.3.3.18 Once complete the MOVAX will track back to the main access road and be demobilised from site.

### 3.3.4 E-W Section: Sizewell Drain to SSSI Crossing

3.3.4.1 Whilst the tilting weir and eel pass are being installed, an amphibious excavator will extend the canal from the position of the previously driven piles to the east towards the SSSI Crossing transferring the arisings to the temporary stockpile to the south.

3.3.4.2 At the same time, the load-out area at Point A will be constructed including the sheet piled wharf as described in **Section 3.2** and as illustrated in **Figure 31**.

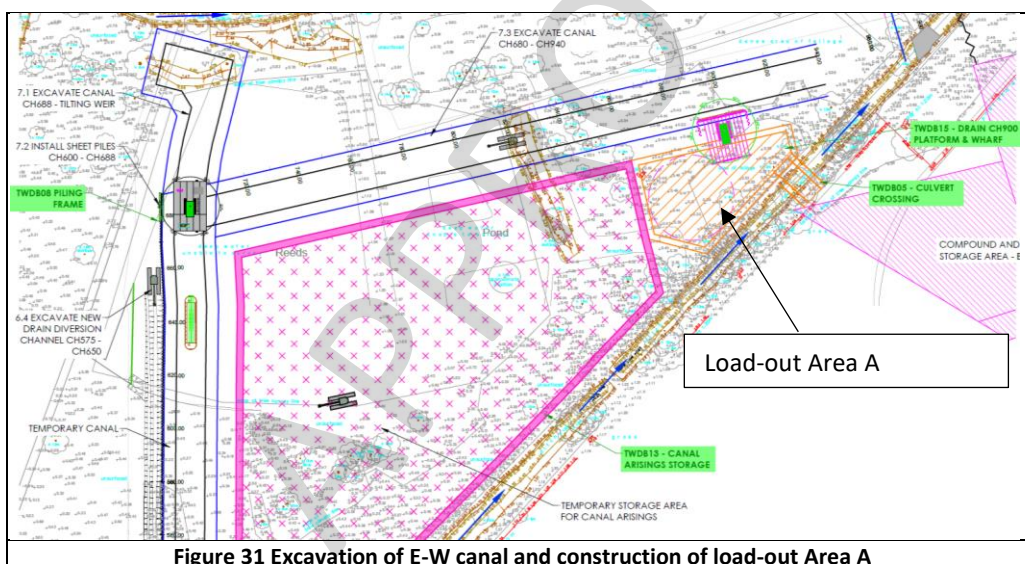


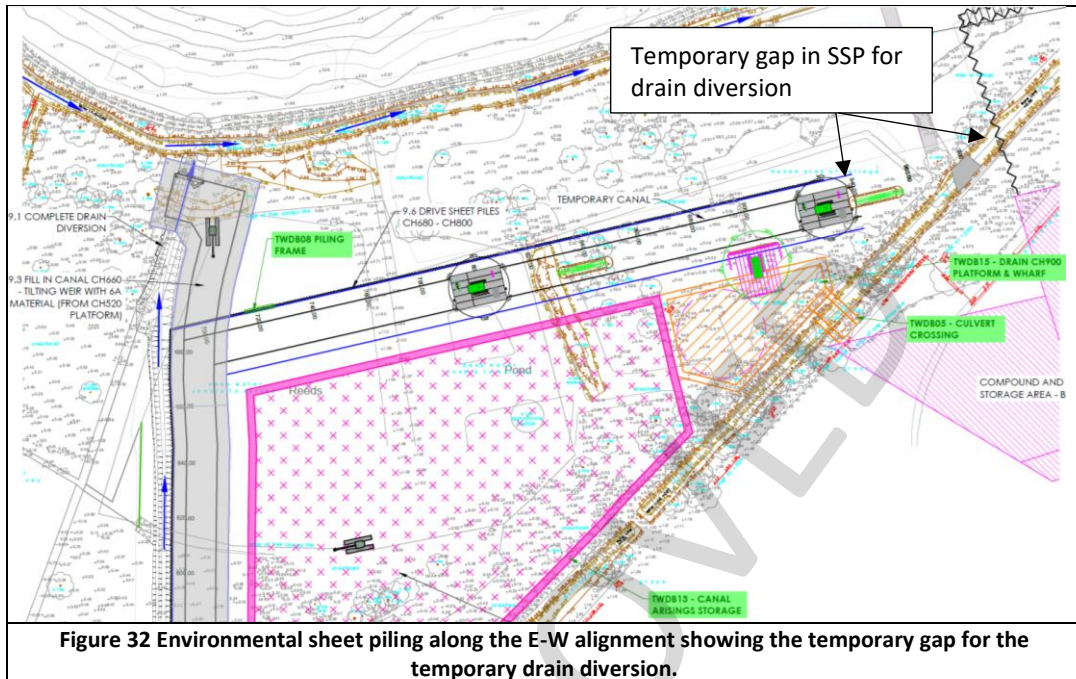
Figure 31 Excavation of E-W canal and construction of load-out Area A

3.3.4.3 Once the construction of the tilting weir structure has been completed, the piling barge will be pushed along the new canal to Load-out area A where sheet piles can be loaded onto the barge and piling commenced from the east to the west joining the northern end of the previously installed sheet piles. Piles will be loaded out into the Olympic hoppers at Point A to feed the piling barge as required. Piling will commence at approximate Sheet Pile Barrier Chainage 940 leaving a temporary gap between here and the SSSI Crossing piles for the temporary Sizewell Drain diversion required for the construction of the SSSI Crossing as indicated in **Figure 32**. This gap in the sheet piling will be completed once the permanent connection of the Sizewell Drain into the Leiston Drain has been completed as described in **Section 3.3.2** and the temporary diversion no longer required.

3.3.4.4 Once the pile line has been connected to the sheet piles surrounding the west face of the SSSI Crossing southern abutment, the piling rig and pontoon can be demobilised or relocated elsewhere on the site.

3.3.4.5 Upon completion of the above works and the load-out area is redundant, the temporary sheet piles and anchors will be removed, and the platform left to be absorbed within the main construction platform.

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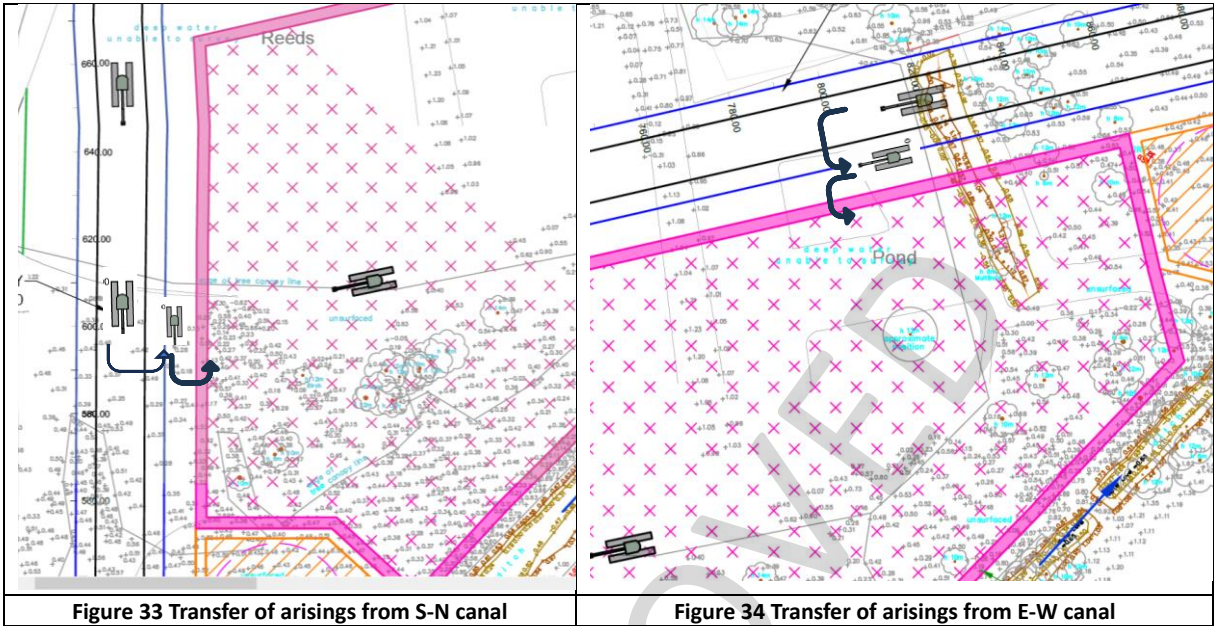


3.3.5 Temporary Storage of Excavation Arisings

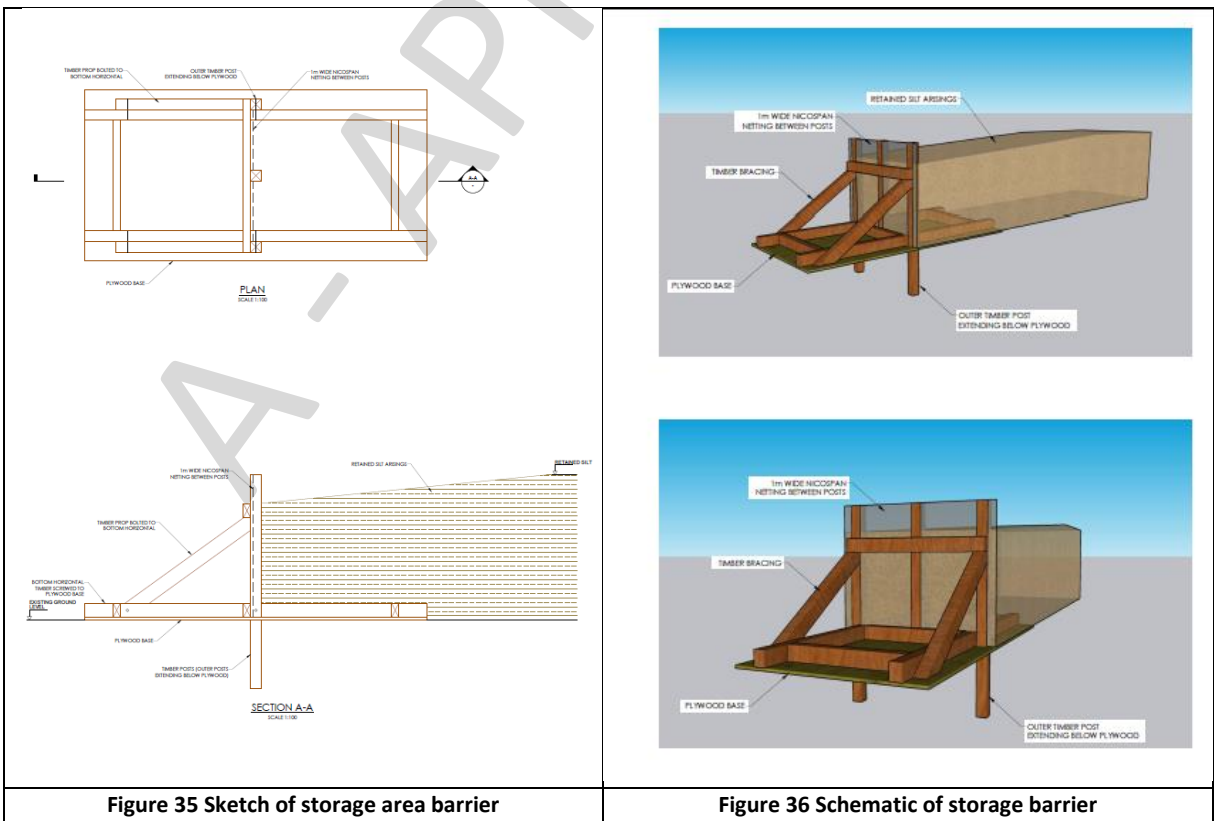
- 3.3.5.1 The majority of the arisings from the excavation of the temporary canals and the drain diversion will be transferred to the temporary storage area inside the pink line as shown in **Figure 31** to **Figure 34**.
- 3.3.5.2 The maximum volume of material to be excavated from the temporary canals and drain diversion has been calculated as 20,000m<sup>3</sup>, assuming an immediate 20% water loss, (likely to be more in practice). The make-up of the excavated material will be soft silts and organic material such as leaves, roots and fallen twigs etc. and when spread over the area inside the pink boundary line in the figures in this section, the depth of pre-consolidated stored material will be 1.3m. However, allowing for the consolidation of the material underneath the arisings, consolidation of the excavated material itself and areas of ground within the storage area being below ground water level, it is anticipated that the resulting post-consolidated depth of the stored material will be less than 1.0m.
- 3.3.5.3 The pink line in the referenced figures is a maximum extent of the silt barriers for the stockpile and not necessarily the final location of the barriers. The storage area will be managed by a combination of controlled deposition and barrier installation. Material will be transferred to the central area initially and pushed up into a pile no more than 2.0m high. A note will be made of the approximate area and date of each deposition as additional material is added. As work progresses, records of the settlement, apparent increase in density and any drainage from the area will be made and once settlement has slowed, any remaining high areas levelled to a height of 1.0m.
- 3.3.5.4 When the stockpile nears the perimeter ditches or areas of open water, permeable barriers will be erected to retain the sediment whilst allowing water to drain through. These barriers will be erected no closer than 3.0m to any open water body or defined water course.



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3.3.5.5 The construction of the proposed perimeter barrier is illustrated in **Figure 35** and **Figure 36**. The main frame is made from timber supporting the retaining material which is Nicospan netting fabric. The design height of the retaining section is 1.0m but it is proposed that the maximum height of the retained sediment is 800mm as shown in the **Figure 35** and **Figure 36**. These units can be made up in advance of the works, are relatively light and able to be lifted manually if necessary and are easy to install, move and remove as required. They can also be bolted together to create a stable barrier at the required positions on the site.



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- 3.3.5.6 Excavated material from the S – N canal will be side cast to the eastern bank and transferred into the storage area using a second amphibious excavator. The material within the temporary storage area will then be transferred to the central area and spread over the area as detailed above using a third amphibious excavator.
- 3.3.5.7 A similar arrangement will be used for the E-W canal to the north of the site as seen in **Figure 34**.
- 3.3.5.8 Excavated material from the initial length of the Southern Section will also be transferred to the temporary storage area using dumpers as described in **Figure 25**, Stage 2 of **Section 3.3.3.6**.
- 3.3.5.9 The material stored within the temporary storage area will be left to drain and consolidate and inspected and tested for an increase in density and strength over a period of time. If considered suitable it will be used to backfill selected sections of the canal and redundant sections of the Sizewell Drain. It may also be left as fill material beneath the construction platform.

### 3.4 Drain Diversions and Connections

#### 3.4.1 Drain Diversion at Point D1

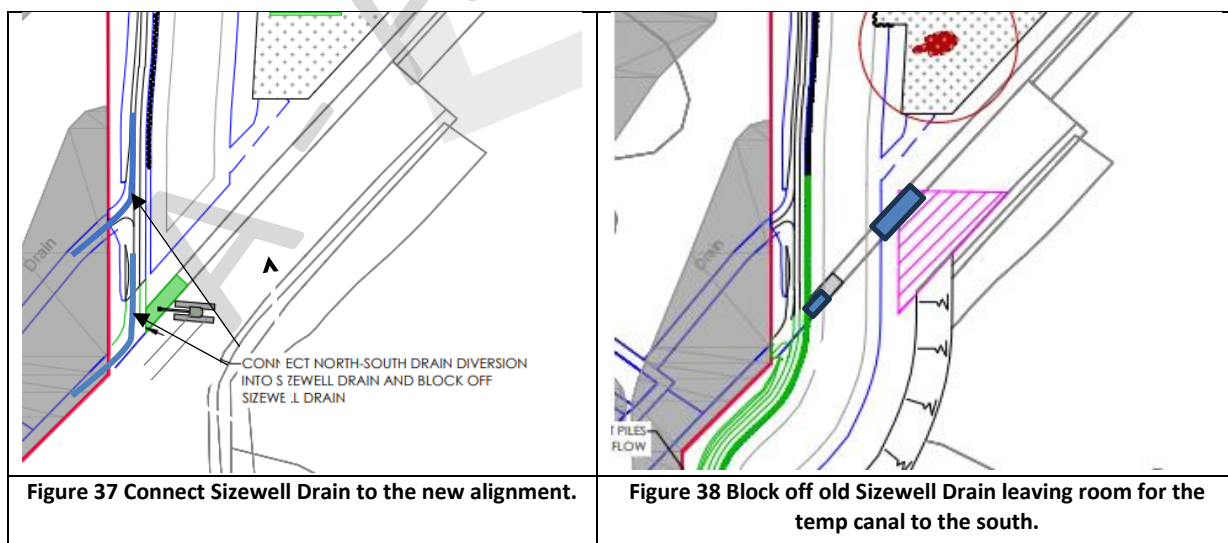
3.4.1.1 This drain diversion (at D1 on **Figure 4**) will form part of the FRAP and LDC applications for the SSSI crossing (SZC Refs. MCA/FRA/2 and MCA/LDC/1).

#### 3.4.2 Drain Diversion at Point D2

3.4.2.1 The diversion of the Sizewell Drain at Point D2 (refer to **Figure 4**) will be carried out after the new drain alignment has been completed into the Leiston Drain connection at Point D3 as described below:

- ensure the existing channels are connected to the new drain diversion as shown in **Figure 37**;
- import Class 1A material (or as otherwise specified) and block the Sizewell Drain either side of the proposed temporary canal position – **Figure 38**; and
- install bank protection as specified.

3.4.2.2 The short section of new canal can then be extended across the old drain followed by the installation of the environmental piles as described in **Section 3.3.3**.



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3.4.3 Drain Diversion at Point D3

3.4.3.1 This drain connection occurs just north of the new tilting weir and would be a simple breakthrough of the new drain into the existing Leiston Drain, having checked that the water levels and channel depths are similar. The temporary placement of a silt curtain across the Leiston Drain will be considered should significant sediment disturbance take place.

3.4.3.2 Once created, the drain will have scour protection and bank vegetation placed on the drain bed and banks downstream of the tilting weir as specified.

3.4.4 Drain Diversion at Point D4

3.4.4.1 The diversion of the water at D4 will be from its temporary routing along the canal into the newly excavated drain as follows (see **Figure 39**, **Figure 28** and **Figure 29**):

- ensure the new diversion channel extends into the existing collection point of the three drains flowing from the south;
- close off the flow into the canal by completing the sheet piling to Drain Chainage 0.0; and
- install bank protection to any newly formed banks.

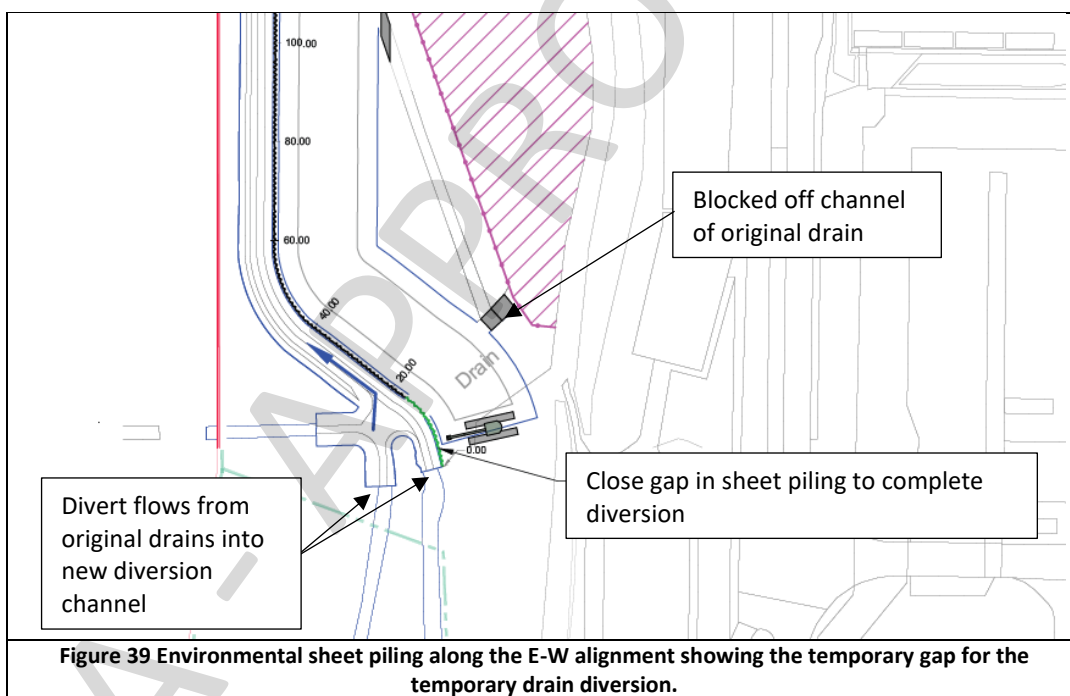


Figure 39 Environmental sheet piling along the E-W alignment showing the temporary gap for the temporary drain diversion.

3.4.5 Pipe Dam Connections

3.4.5.1 There are four lateral drain connections with pipe dams to be constructed along the new drain alignment and the outline design of these is presented in **Figure 40**. It is important to realise that site conditions may vary considerably at each of these connection locations and adaptations may be necessary for their successful construction and function.

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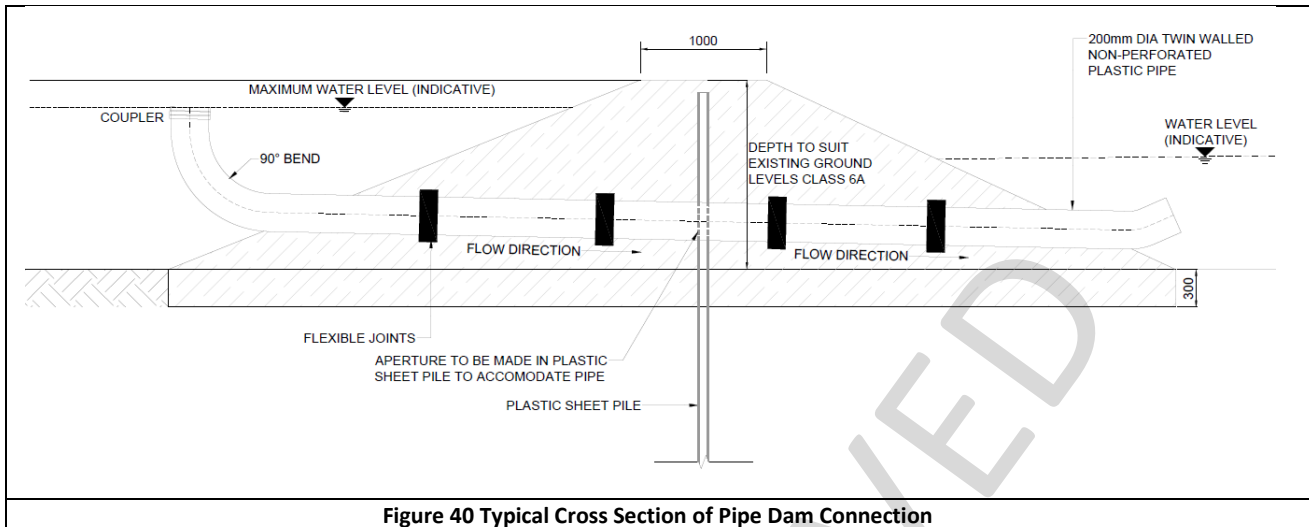


Figure 40 Typical Cross Section of Pipe Dam Connection

3.4.5.2 The sequence for the construction of the pipe-dams will be as follows:

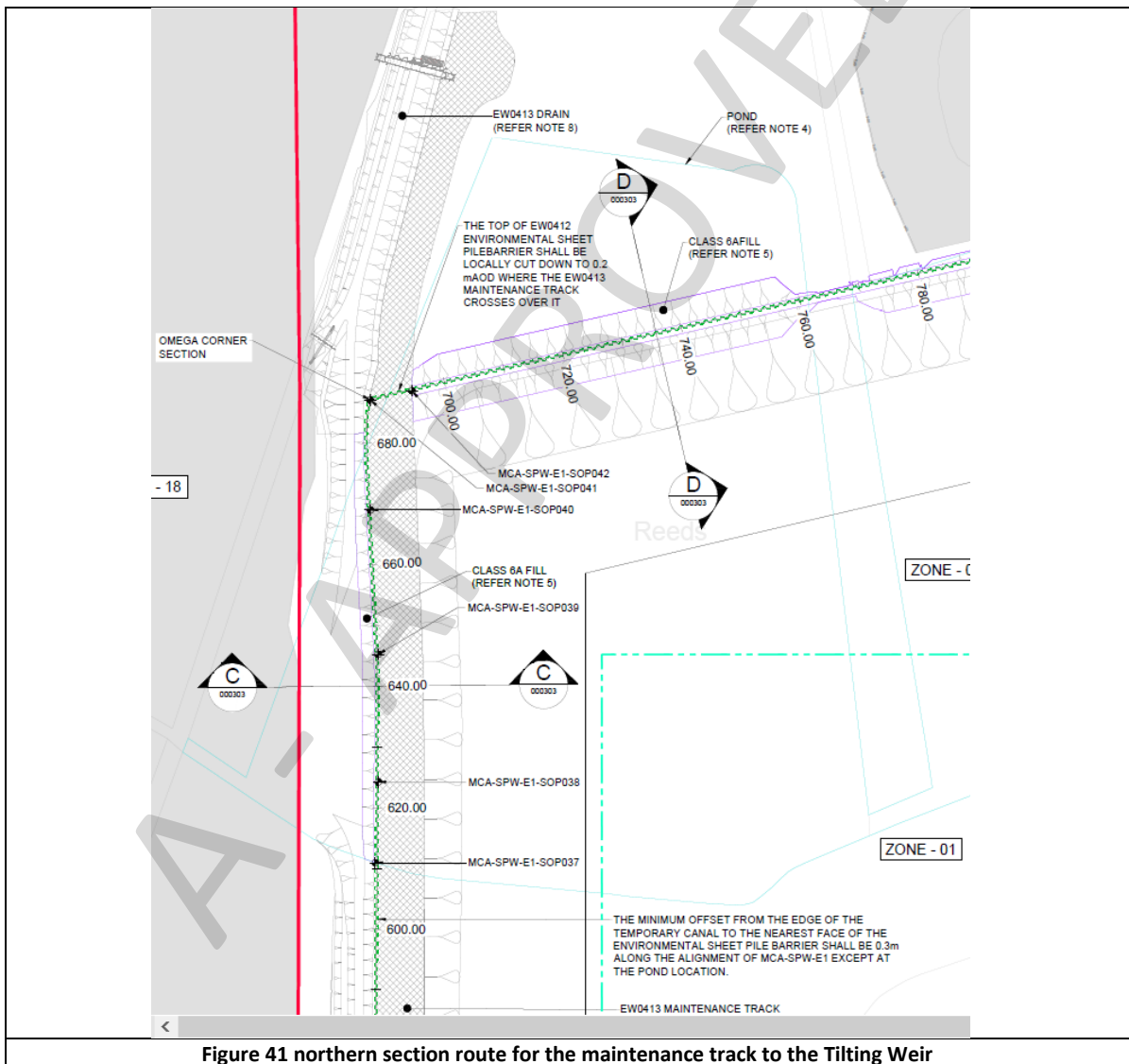
1. Establish and agree the length of the plastic piles and required level of the retained upstream water with the project engineer. Hence determine the height and width of the dam.
2. Construction will be carried out using an amphibious excavator, firstly preparing the access and area by clearing and making a safe working platform using timber and/or connecting spreader mats.
3. Excavate the area of the proposed pipe-dam and trim to the required level.
4. Drive or push the plastic piles along the specified cut-off line to the required level. It may be necessary at this point to create a temporary diversion, or over pump the drain to prevent it backing up and flooding the construction area. Depending upon the ground conditions and water level it may be preferred to cut a hole in one of the piles and insert a section of twin walled pipe before pushing the pile into place.
5. Cut the Sandex 5000 GSL (or similar) into lengths and lay either side of the plastic piles extending it up to ground level. Sandex 5000 GSL is a porous non-woven geotextile with a quartz sand filling that enables it to be placed under water without floating, whilst still providing a high-performance separation layer between the soft underlying ground and the specified fill above.
6. Place Class 6A material over the Sandex either side of the plastic piles up to the underside of the twin walled pipe.
7. If not already cut, cut a hole in the plastic piles at the required position, and thread the twin walled pipe through it, adding the specified sections and supporting the pipe as necessary at the required angle. Seal the annulus in the plastic piles with Densotape, or similar.
8. Place the remaining Class 6A material to form the dam, trimming the slopes to the specified gradients.
9. Remove any drain diversion or over pumping and demobilise from the site.

3.4.5.3 Additional lateral connections, where pipe dams are not to be constructed, will be formed with an open connection into the new drain with bank protection and vegetation transferred as specified on the design drawings.

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### 3.5 Maintenance Track to Tilting Weir

- 3.5.1.1 **Figure 41** indicates the northern section route for the maintenance track to the tilting weir. **Figure 42** and **Figure 43** show cross sections through the track at Drain Chainages 640 and 716, with Chainage 640 being adjacent to the Environmental Sheet Pile Barrier and Chainage 716 being north of the pile line.
- 3.5.1.2 The line of the proposed maintenance track will follow the line of the temporary canal. Prior to the construction of the maintenance track, this will have been backfilled with Class 6A material as detailed in **Sections 3.3.1** and **3.3.2**. The section south of the pile line at Drain Chainage 690 will have undergone a programme of ground improvement as part of the construction platform works which is outside the scope of this permit application. This improvement work will be completed prior to the placement of Class 6F3 material for the maintenance track construction.



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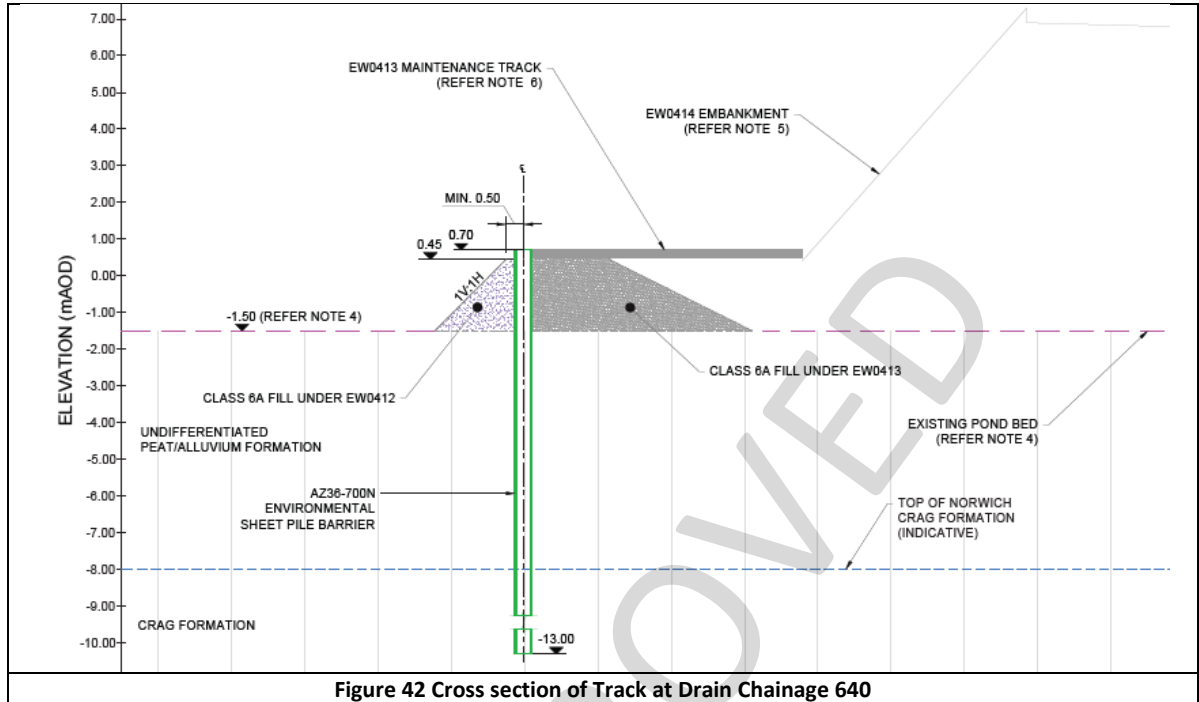


Figure 42 Cross section of Track at Drain Chainage 640

- 3.5.1.3 The placing of the Class 6A material will be commenced from the site access road at Drain Chainage 420, transporting and placing the material in dumpers, then spreading and tracking it in with an excavator, ensuring the material is compacted right up to the sheet piles. The works can commence both to the north and south at the same time depending upon the availability of materials and resources.
- 3.5.1.4 Construction of the Class 6A material forming the subbase to the track will continue, working over the previously placed track, and noting the different track widths specified on the construction drawings, until Drain Chainage zero is reached in a southerly direction and Drain Chainage 690 in a northerly direction, leaving the finished Class 6A level at +0.5m AOD.

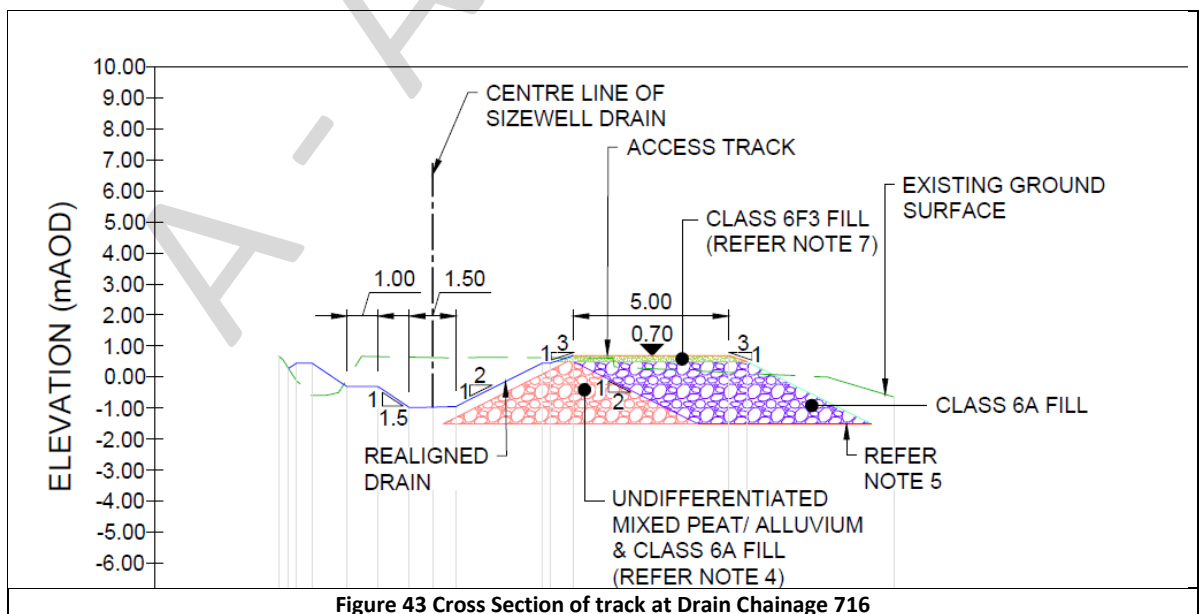


Figure 43 Cross Section of track at Drain Chainage 716

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- 3.5.1.5 No ground improvement will have taken place north of the pile line at Drain Chainage 690 and the Class 6A fill will therefore be placed on the Class 6A canal backfill, tracking it in and forming the 1:3 slope on the eastern side as shown in **Figure 43**.
- 3.5.1.6 Construction will continue northward until the turning circle at the tilting weir is reached and created, finishing the top of the Class 6A fill at +0.5m AOD.
- 3.5.1.7 Following the placement of the Class 6A material along the Maintenance Track, a check of the level of the track should be made and any settled areas built back up to the required level.
- 3.5.1.8 A layer of geotextile (Tensor TriAx TX190L-Geogrid or similar) will then be placed over the Class 6A followed by a 200mm thick layer of 6F3 capping material, having been delivered to the site, tipped and spread over the Class 6A with an excavator and as shown on the above figures leaving the finished level at +0.7m AOD.

### 3.6 Demobilisation

- 3.6.1.1 Once the piling barge works are complete, it will be pushed back to the nearest load-out area and demobilised, tracking off the piling rig/crane and lifting off the other plant items using a suitably sized mobile crane. The pontoon will then be disassembled, and the modular units lifted out onto their lorries for onward transportation along with the tugs, work boats and Olympic hoppers.
- 3.6.1.2 The amphibious excavator(s) can track out of the working area where the tracks will be cleaned and made ready for transport on a low-bed lorry.
- 3.6.1.3 The mobile site offices, welfare units and stores will be demobilised last leaving the platforms to be incorporated into the main working platform for the main power station construction having removed the sheet piles and anchors.

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## 4 PRINCIPAL RISK ACTIVITIES

### 4.1 Health and Safety

4.1.1.1 Separate detailed method statements will be provided by the contractor for the various operations involved with this element of the project which will detail health and safety risks and their mitigations. These will include:

- working over water or in soft ground;
- working with heavy equipment;
- working near vehicular movement;
- lifting operations;
- unexploded ordnance;
- hot works;
- slips, trips and falls;
- manual handling;
- noise and vibration; and
- working in inclement weather.

### 4.2 Environmental

4.2.1.1 A high-level CEMP has been issued for all work required for the Sizewell C enabling works with a more detailed EMP for this particular element (which forms the basis of the Environmental Risk Assessment presented in **Section 6 of Appendix B**). The main risks identified for which mitigation is provided within the EMP are as follows:

Emissions to air:	Noise & vibration, Dust & odours,
Waste & by products:	Excavations, Storage of hazardous materials (COSHH)
Releases to water:	Fuel spillages, Suspended solids in water, Flood risk,
Releases to land:	Waste products including fuel, Loss/damage of habitat,
Ecology:	Loss/damage to vegetation,  The effect of the works on the following species or their habitat:  Amphibians, reptiles, invertebrates, terrestrial mammals, bats, birds, fish and eels.



APPENDIX E: METHODOLOGY FOR THE ENVIRONMENTAL SHEET PILING, TILTING WEIR & DRAIN DIVERSION

Invasive species.

Archaeology:

Possible loss of archaeological artifacts.

4.2.1.2 It should be noted that a significant number of ecological surveys have already been carried out and mitigation against habitat loss and the translocation of the species at risk have been completed. Thus, the risks identified in the EMP are those remaining following these initial mitigation works.

A - APPROVED