

Waterford City Public Infrastructure Project Flood Defences West

.....
Appropriate Assessment - Volume 2
Natura Impact Statement | October 2021
.....

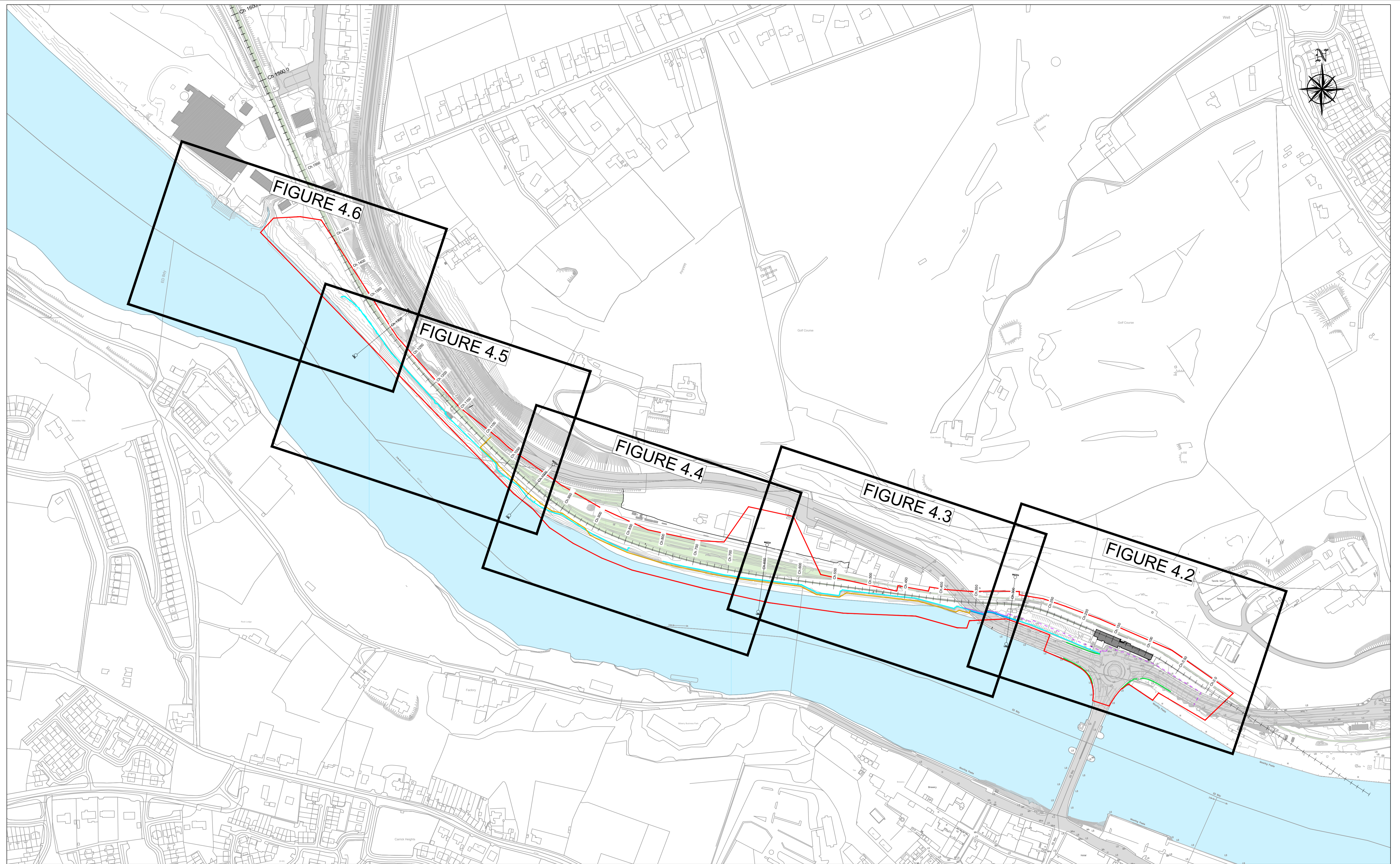


.....

Appendix D

Proposed Development Drawings

.....



Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountryCouncil. © Ordnance Survey Ireland and Government of Ireland.



Consulting Engineers
Civil - Structural - Transportation - Environmental

Arena House, Arena Road, Sandford, Dublin 18, Ireland
t +353 (0) 1 294 0800
f +353 (0) 1 294 0820
www.rod.ie

Project Title
**WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT
FLOOD DEFENCES WEST**

NATURA IMPACT STATEMENT

Drawing Title:
Proposed Extents of Structural Works Sheet - Key Plan

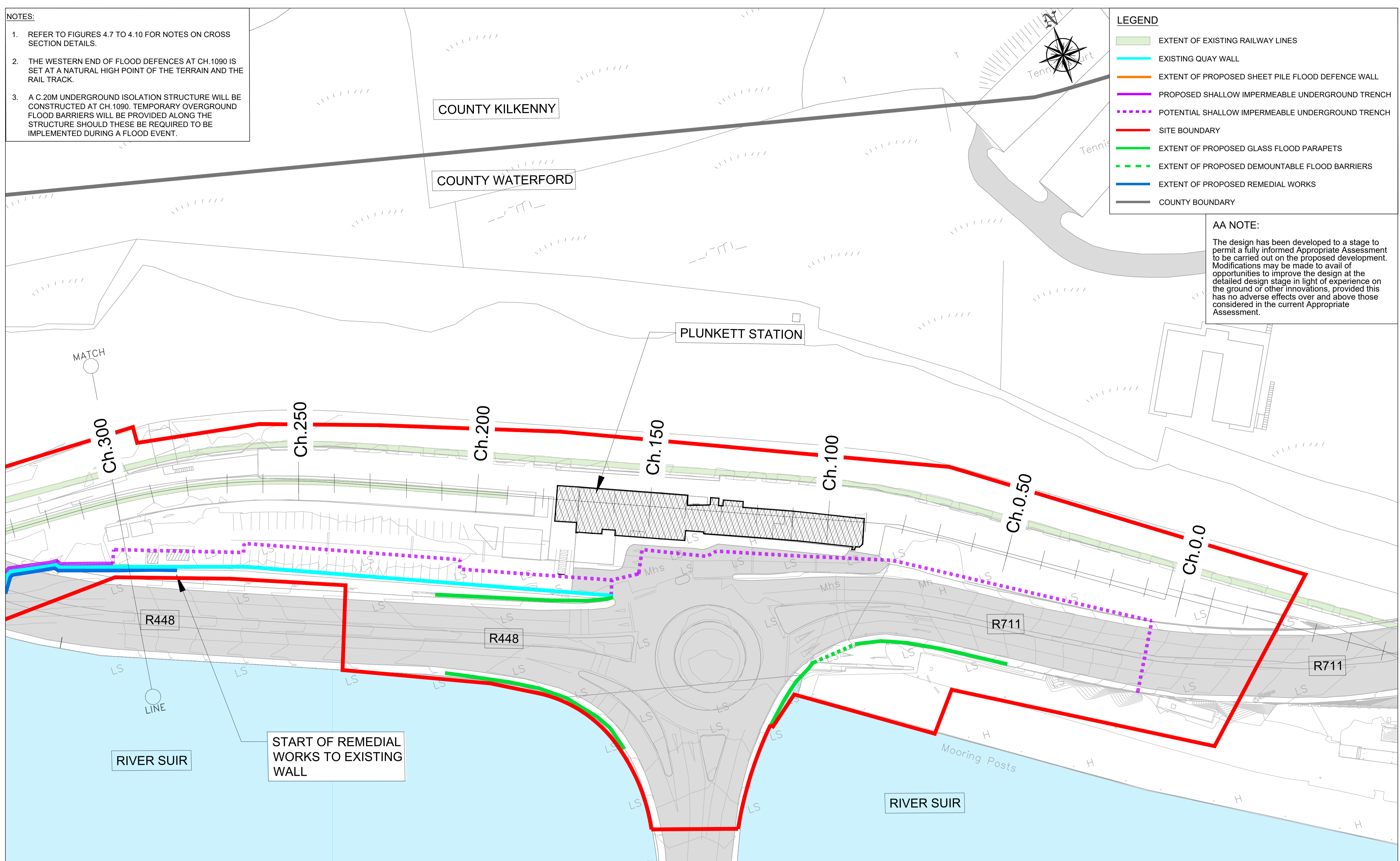
Designed: YB	File:	Status: N.I.S.
Drawn: IM	Job No: 18.141	
Checked: BC	Scale: 1:2500 (@ A3)	Drawing No: FIG 4.1
Approved: TD	Date: OCTOBER 2021	Rev: -

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

- NOTES:**
1. REFER TO FIGURES 4.7 TO 4.10 FOR NOTES ON CROSS SECTION DETAILS.
 2. THE WESTERN END OF FLOOD DEFENCES AT CH.1090 IS SET AT A NATURAL HIGH POINT OF THE TERRAIN AND THE RAIL TRACK.
 3. A C.20M UNDERGROUND ISOLATION STRUCTURE WILL BE CONSTRUCTED AT CH.1090. TEMPORARY OVERGROUND FLOOD BARRIERS WILL BE PROVIDED ALONG THE STRUCTURE SHOULD THESE BE REQUIRED TO BE IMPLEMENTED DURING A FLOOD EVENT.

- LEGEND**
- EXTENT OF EXISTING RAILWAY LINES
 - EXISTING QUAY WALL
 - EXTENT OF PROPOSED SHEET PILE FLOOD DEFENCE WALL
 - PROPOSED SHALLOW IMPERMEABLE UNDERGROUND TRENCH
 - POTENTIAL SHALLOW IMPERMEABLE UNDERGROUND TRENCH
 - SITE BOUNDARY
 - EXTENT OF PROPOSED GLASS FLOOD PARAPETS
 - EXTENT OF PROPOSED DEMOUNTABLE FLOOD BARRIERS
 - EXTENT OF PROPOSED REMEDIAL WORKS
 - COUNTY BOUNDARY

AA NOTE:
 The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.



Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountyCouncil. © Ordnance Survey Ireland and Government of Ireland.

 Consulting Engineers Civil - Structural - Transportation - Environmental	Arena House, Arena Road, Sandyford, Dublin 18, Ireland t +353 (0) 1 294 0800 f +353 (0) 1 294 0820 www.rod.ie	Project Title: WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST	Drawing Title: Proposed Extents of Structural Work Sheet 1 of 5										
		NATURA IMPACT STATEMENT	<table border="1"> <tr> <td>Designed: YB</td> <td>File:</td> <td>Status: N.I.S.</td> </tr> <tr> <td>Drawn: IM</td> <td>Job No: 18.141</td> <td></td> </tr> <tr> <td>Checked: BC</td> <td>Scale: 1:500 (@ A3)</td> <td>Drawing No: FIG 4.2</td> </tr> <tr> <td>Approved: TD</td> <td>Date: OCTOBER 2021</td> <td>Rev: -</td> </tr> </table>	Designed: YB	File:	Status: N.I.S.	Drawn: IM	Job No: 18.141		Checked: BC	Scale: 1:500 (@ A3)	Drawing No: FIG 4.2	Approved: TD
Designed: YB	File:	Status: N.I.S.											
Drawn: IM	Job No: 18.141												
Checked: BC	Scale: 1:500 (@ A3)	Drawing No: FIG 4.2											
Approved: TD	Date: OCTOBER 2021	Rev: -											

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

NOTES:

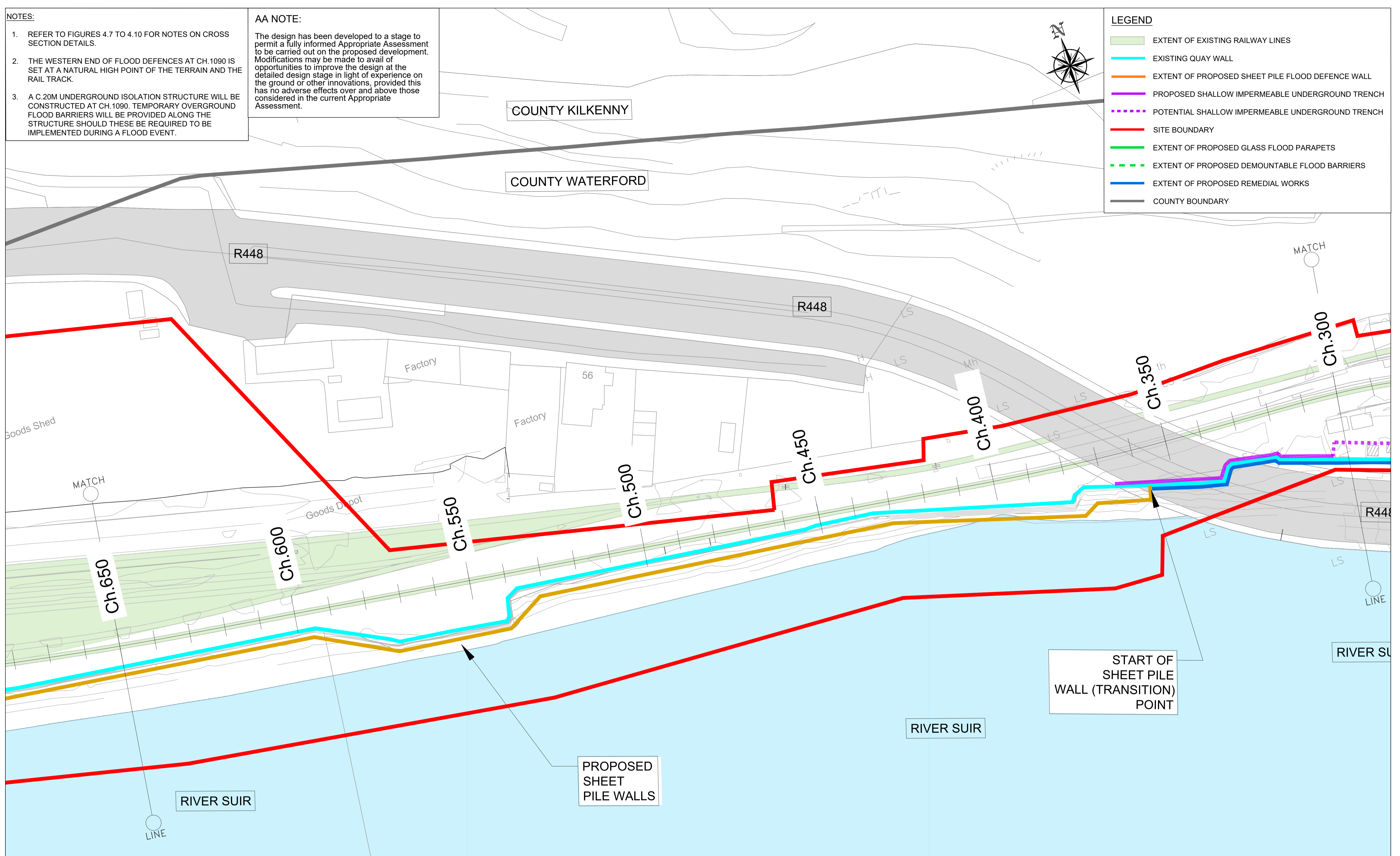
1. REFER TO FIGURES 4.7 TO 4.10 FOR NOTES ON CROSS SECTION DETAILS.
2. THE WESTERN END OF FLOOD DEFENCES AT CH.1090 IS SET AT A NATURAL HIGH POINT OF THE TERRAIN AND THE RAIL TRACK.
3. A C.20M UNDERGROUND ISOLATION STRUCTURE WILL BE CONSTRUCTED AT CH.1090. TEMPORARY OVERGROUND FLOOD BARRIERS WILL BE PROVIDED ALONG THE STRUCTURE SHOULD THESE BE REQUIRED TO BE IMPLEMENTED DURING A FLOOD EVENT.

AA NOTE:

The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.

LEGEND

- EXTENT OF EXISTING RAILWAY LINES
- EXISTING QUAY WALL
- EXTENT OF PROPOSED SHEET PILE FLOOD DEFENCE WALL
- PROPOSED SHALLOW IMPERMEABLE UNDERGROUND TRENCH
- - - POTENTIAL SHALLOW IMPERMEABLE UNDERGROUND TRENCH
- SITE BOUNDARY
- EXTENT OF PROPOSED GLASS FLOOD PARAPETS
- - - EXTENT OF PROPOSED DEMOUNTABLE FLOOD BARRIERS
- EXTENT OF PROPOSED REMEDIAL WORKS
- COUNTY BOUNDARY



Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountryCouncil. © Ordnance Survey Ireland and Government of Ireland.



Consulting Engineers
Civil - Structural - Transportation - Environmental

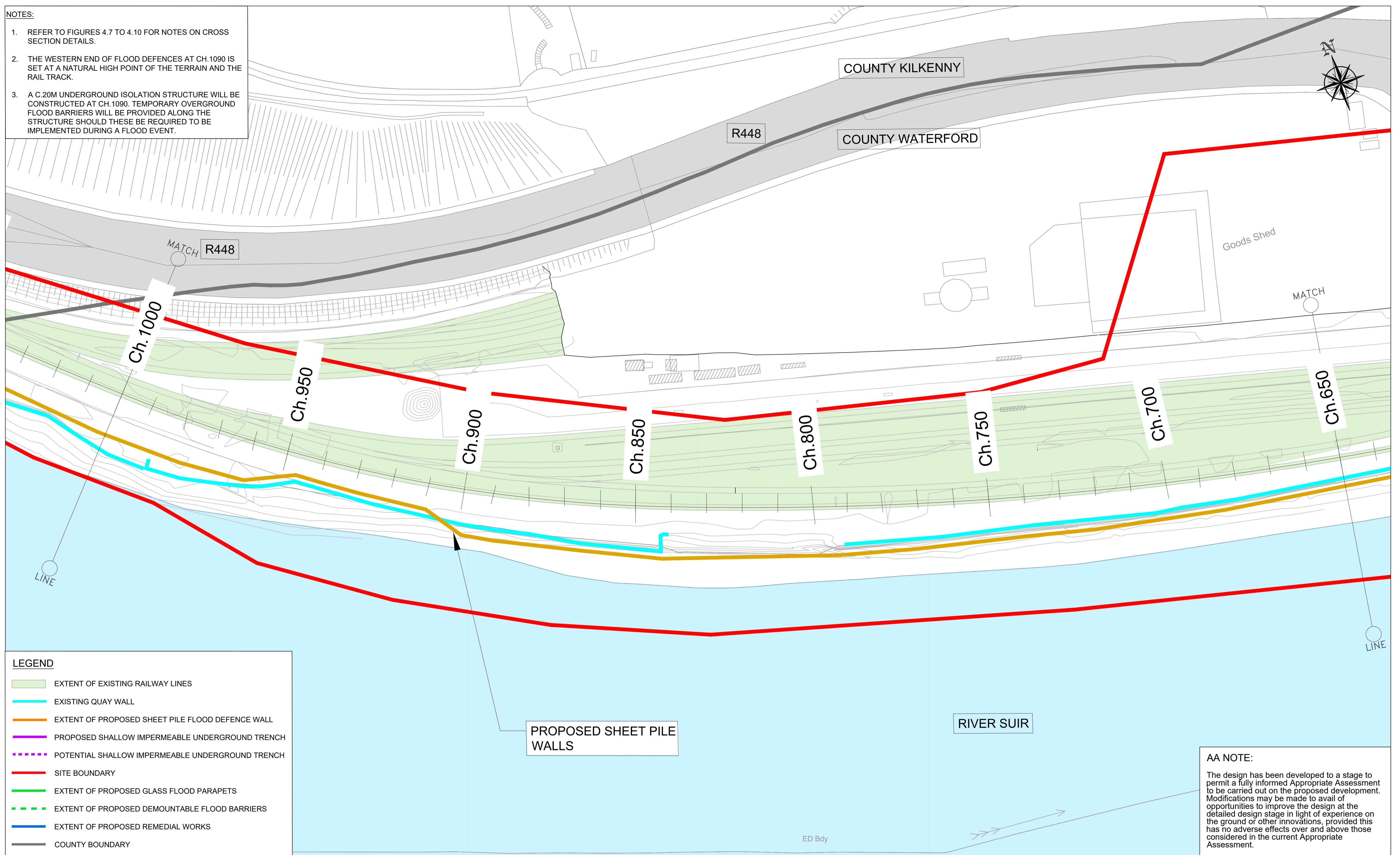
Arena House, Arena Road, Sandyford, Dublin 18, Ireland
t +353 (0) 1 294 0800
f +353 (0) 1 294 0820
www.rod.ie

Project Title	WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST	
	NATURA IMPACT STATEMENT	

Drawing Title:			
Proposed Extents of Structural Works Sheet 2 of 5			
Designed: YB	File:	Status: N.I.S.	
Drawn: IM	Job No: 18.141		
Checked: BC	Scale: 1:500 (@ A3)	Drawing No: FIG 4.3	Rev: -
Approved: TD	Date: OCTOBER 2021		

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

- NOTES:**
- REFER TO FIGURES 4.7 TO 4.10 FOR NOTES ON CROSS SECTION DETAILS.
 - THE WESTERN END OF FLOOD DEFENCES AT CH.1090 IS SET AT A NATURAL HIGH POINT OF THE TERRAIN AND THE RAIL TRACK.
 - A C.20M UNDERGROUND ISOLATION STRUCTURE WILL BE CONSTRUCTED AT CH.1090. TEMPORARY OVERGROUND FLOOD BARRIERS WILL BE PROVIDED ALONG THE STRUCTURE SHOULD THESE BE REQUIRED TO BE IMPLEMENTED DURING A FLOOD EVENT.



- LEGEND**
- EXTENT OF EXISTING RAILWAY LINES
 - EXISTING QUAY WALL
 - EXTENT OF PROPOSED SHEET PILE FLOOD DEFENCE WALL
 - PROPOSED SHALLOW IMPERMEABLE UNDERGROUND TRENCH
 - POTENTIAL SHALLOW IMPERMEABLE UNDERGROUND TRENCH
 - SITE BOUNDARY
 - EXTENT OF PROPOSED GLASS FLOOD PARAPETS
 - EXTENT OF PROPOSED DEMOUNTABLE FLOOD BARRIERS
 - EXTENT OF PROPOSED REMEDIAL WORKS
 - COUNTY BOUNDARY

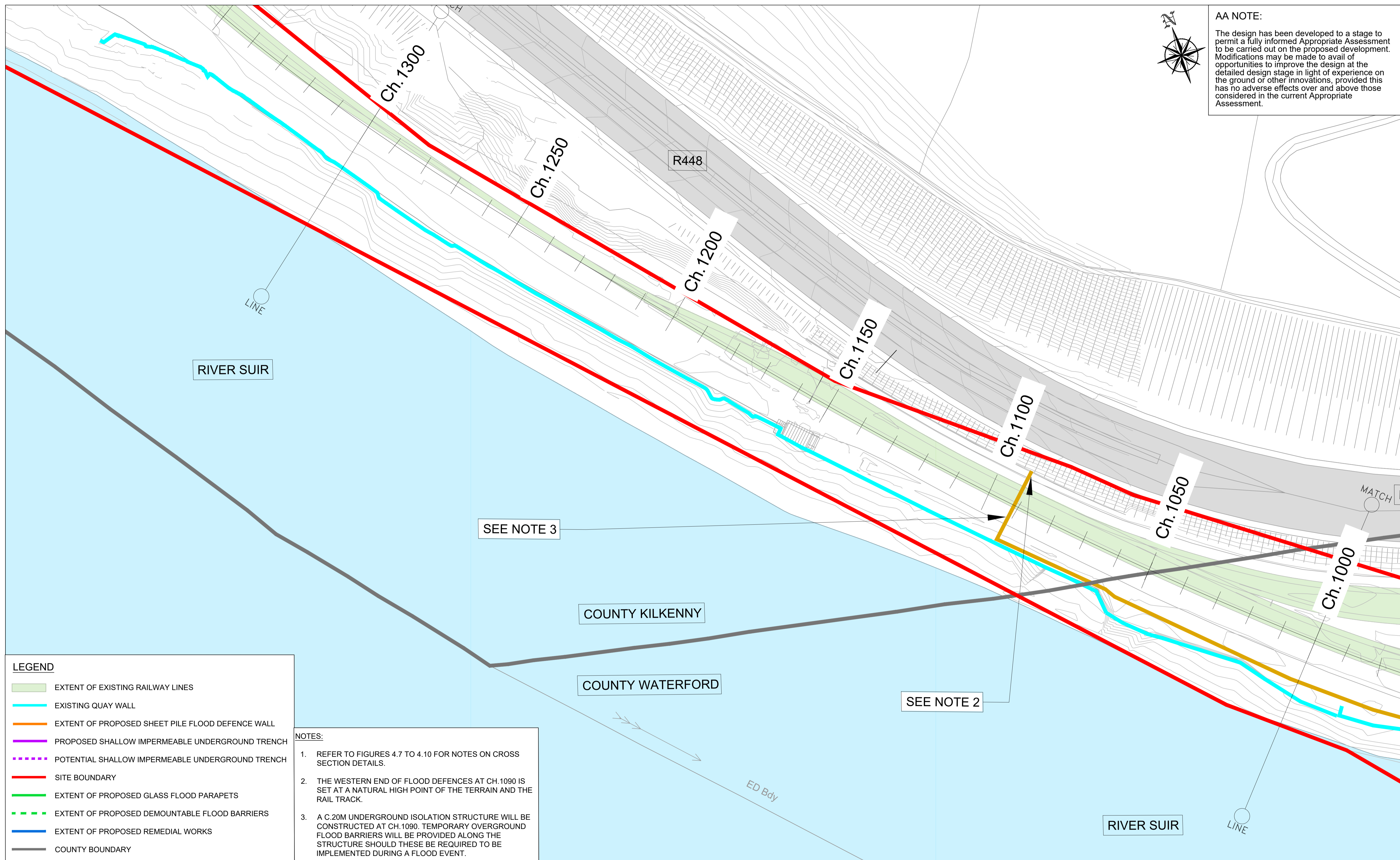
AA NOTE:

The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.

Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountryCouncil. © Ordnance Survey Ireland and Government of Ireland.

					Arena House, Arena Road, Sandyford, Dublin 18, Ireland t +353 (0) 1 294 0800 f +353 (0) 1 294 0820 www.rod.ie	WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST	Drawing Title: Proposed Extents of Structural Works Sheet 3 of 5		
				NATURA IMPACT STATEMENT			Designed: YB Drawn: IM Checked: BC Approved: TD	File: Job No: 18.141 Scale: 1:500 (@ A3) Date: OCTOBER 2021	Status: N.I.S. Drawing No: FIG 4.4 Rev: -

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



AA NOTE:
 The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.

LEGEND

- EXTENT OF EXISTING RAILWAY LINES
- EXISTING QUAY WALL
- EXTENT OF PROPOSED SHEET PILE FLOOD DEFENCE WALL
- PROPOSED SHALLOW IMPERMEABLE UNDERGROUND TRENCH
- POTENTIAL SHALLOW IMPERMEABLE UNDERGROUND TRENCH
- SITE BOUNDARY
- EXTENT OF PROPOSED GLASS FLOOD PARAPETS
- EXTENT OF PROPOSED DEMOUNTABLE FLOOD BARRIERS
- EXTENT OF PROPOSED REMEDIAL WORKS
- COUNTY BOUNDARY

NOTES:

1. REFER TO FIGURES 4.7 TO 4.10 FOR NOTES ON CROSS SECTION DETAILS.
2. THE WESTERN END OF FLOOD DEFENCES AT CH.1090 IS SET AT A NATURAL HIGH POINT OF THE TERRAIN AND THE RAIL TRACK.
3. A C.20M UNDERGROUND ISOLATION STRUCTURE WILL BE CONSTRUCTED AT CH.1090. TEMPORARY OVERGROUND FLOOD BARRIERS WILL BE PROVIDED ALONG THE STRUCTURE SHOULD THESE BE REQUIRED TO BE IMPLEMENTED DURING A FLOOD EVENT.

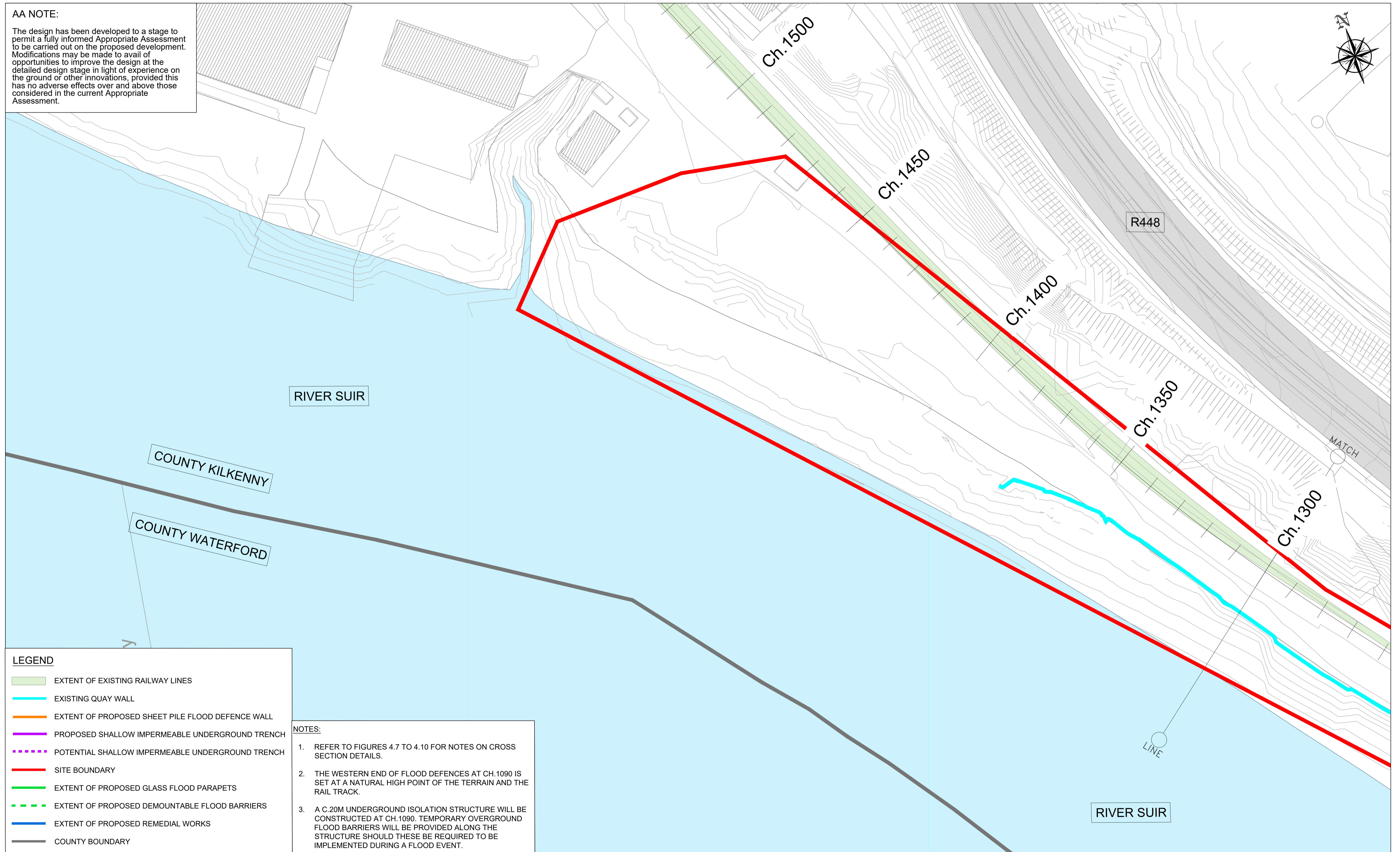
Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountyCouncil. © Ordnance Survey Ireland and Government of Ireland.

				<p>Consulting Engineers Civil - Structural - Transportation - Environmental</p>	<p>Arena House, Arena Road, Sandyford, Dublin 18, Ireland t +353 (0) 1 294 0800 f +353 (0) 1 294 0820 www.rod.ie</p>	<p>WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST</p>	<p>NATURA IMPACT STATEMENT</p>	<p>Project Title: WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST</p>	<p>Drawing Title: Proposed Extents of Structural Works Sheet 4 of 5</p>												
								<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Designed: YB</td> <td>File:</td> <td>Status: N.I.S.</td> </tr> <tr> <td>Drawn: IM</td> <td>Job No: 18.141</td> <td></td> </tr> <tr> <td>Checked: BC</td> <td>Scale: 1:500 (@ A3)</td> <td>Drawing No: FIG 4.5</td> </tr> <tr> <td>Approved: TD</td> <td>Date: OCTOBER 2021</td> <td>Rev: -</td> </tr> </table>		Designed: YB	File:	Status: N.I.S.	Drawn: IM	Job No: 18.141		Checked: BC	Scale: 1:500 (@ A3)	Drawing No: FIG 4.5	Approved: TD	Date: OCTOBER 2021	Rev: -
Designed: YB	File:	Status: N.I.S.																			
Drawn: IM	Job No: 18.141																				
Checked: BC	Scale: 1:500 (@ A3)	Drawing No: FIG 4.5																			
Approved: TD	Date: OCTOBER 2021	Rev: -																			

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

AA NOTE:

The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.



LEGEND

- EXTENT OF EXISTING RAILWAY LINES
- EXISTING QUAY WALL
- EXTENT OF PROPOSED SHEET PILE FLOOD DEFENCE WALL
- PROPOSED SHALLOW IMPERMEABLE UNDERGROUND TRENCH
- POTENTIAL SHALLOW IMPERMEABLE UNDERGROUND TRENCH
- SITE BOUNDARY
- EXTENT OF PROPOSED GLASS FLOOD PARAPETS
- EXTENT OF PROPOSED DEMOUNTABLE FLOOD BARRIERS
- EXTENT OF PROPOSED REMEDIAL WORKS
- COUNTY BOUNDARY

NOTES:

1. REFER TO FIGURES 4.7 TO 4.10 FOR NOTES ON CROSS SECTION DETAILS.
2. THE WESTERN END OF FLOOD DEFENCES AT CH.1090 IS SET AT A NATURAL HIGH POINT OF THE TERRAIN AND THE RAIL TRACK.
3. A C.20M UNDERGROUND ISOLATION STRUCTURE WILL BE CONSTRUCTED AT CH.1090. TEMPORARY OVERGROUND FLOOD BARRIERS WILL BE PROVIDED ALONG THE STRUCTURE SHOULD THESE BE REQUIRED TO BE IMPLEMENTED DURING A FLOOD EVENT.

Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountryCouncil. © Ordnance Survey Ireland and Government of Ireland.



Consulting Engineers
Civil - Structural - Transportation - Environmental

Arena House, Arena Road, Sandyford, Dublin 18, Ireland
t +353 (0) 1 294 0800
f +353 (0) 1 294 0820
www.rod.ie

Project Title
**WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT
FLOOD DEFENCES WEST**

NATURA IMPACT STATEMENT

Drawing Title:
**Proposed Extents of Structural Works
Sheet 5 of 5**

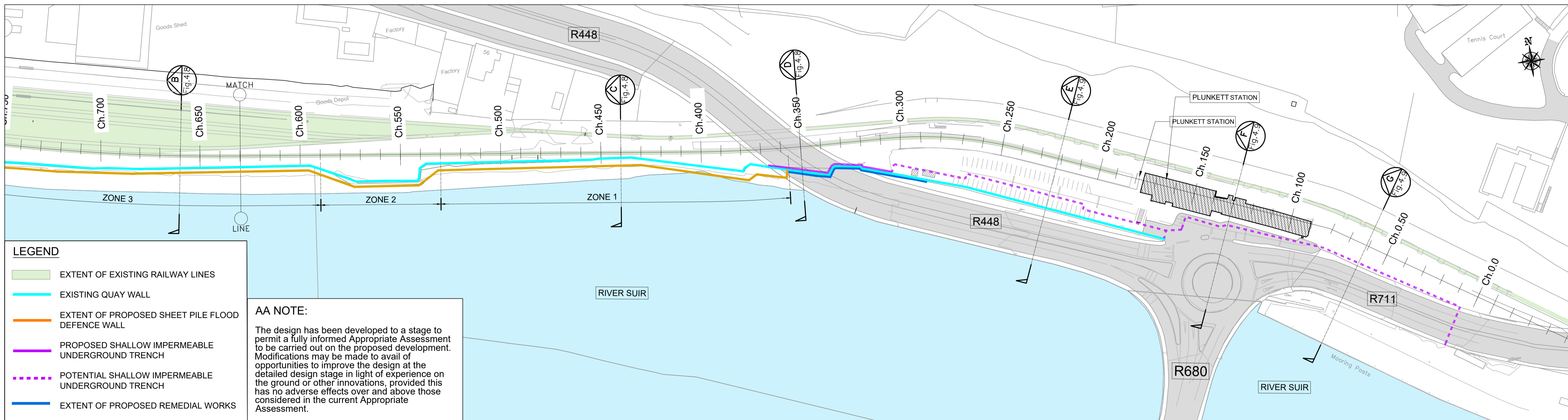
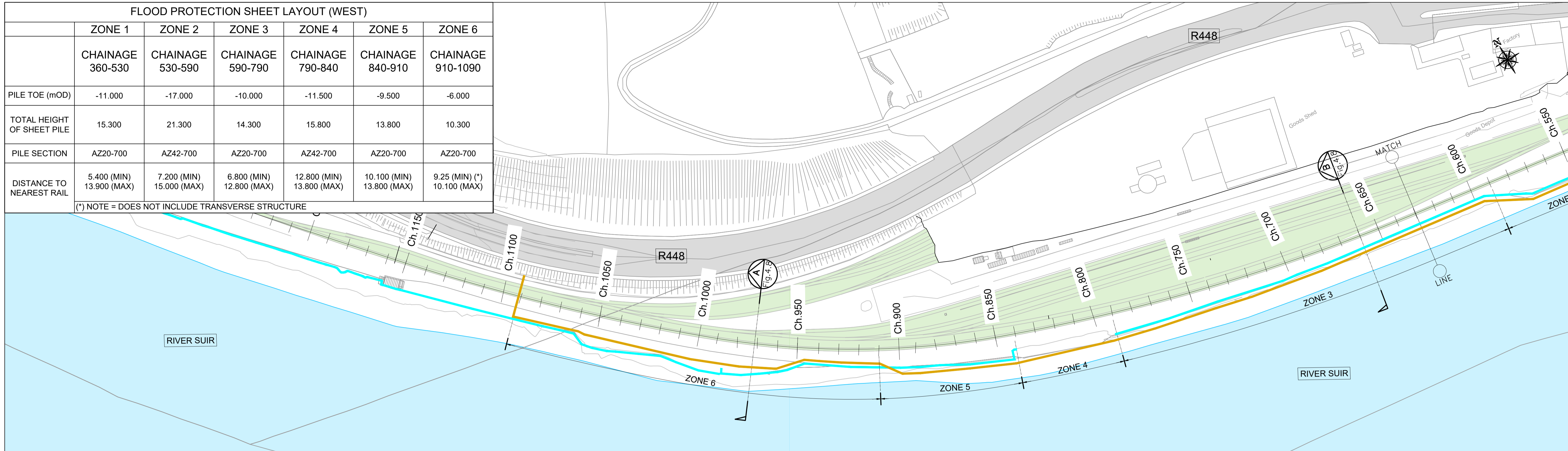
Designed: YB	File:	Status: N.I.S.
Drawn: IM	Job No: 18.141	Drawing No: FIG 4.6
Checked: BC	Scale: 1:500 (@ A3)	Rev: -
Approved: TD	Date: OCTOBER 2021	

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

FLOOD PROTECTION SHEET LAYOUT (WEST)

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
CHAINAGE	360-530	530-590	590-790	790-840	840-910	910-1090
PILE TOE (mOD)	-11.000	-17.000	-10.000	-11.500	-9.500	-6.000
TOTAL HEIGHT OF SHEET PILE	15.300	21.300	14.300	15.800	13.800	10.300
PILE SECTION	AZ20-700	AZ42-700	AZ20-700	AZ42-700	AZ20-700	AZ20-700
DISTANCE TO NEAREST RAIL	5.400 (MIN) 13.900 (MAX)	7.200 (MIN) 15.000 (MAX)	6.800 (MIN) 12.800 (MAX)	12.800 (MIN) 13.800 (MAX)	10.100 (MIN) 13.800 (MAX)	9.25 (MIN) (*) 10.100 (MAX)

(*) NOTE = DOES NOT INCLUDE TRANSVERSE STRUCTURE



- LEGEND**
- EXTENT OF EXISTING RAILWAY LINES
 - EXISTING QUAY WALL
 - EXTENT OF PROPOSED SHEET PILE FLOOD DEFENCE WALL
 - PROPOSED SHALLOW IMPERMEABLE UNDERGROUND TRENCH
 - - - POTENTIAL SHALLOW IMPERMEABLE UNDERGROUND TRENCH
 - EXTENT OF PROPOSED REMEDIAL WORKS

AA NOTE:
The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.

Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountyCouncil. © Ordnance Survey Ireland and Government of Ireland.



Consulting Engineers
Civil - Structural - Transportation - Environmental

Arena House, Arena Road, Sandford, Dublin 18, Ireland
t +353 (0) 1 294 0800
f +353 (0) 1 294 0820
www.rod.ie

Project Title
**WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT
FLOOD DEFENCES WEST**

NATURA IMPACT STATEMENT

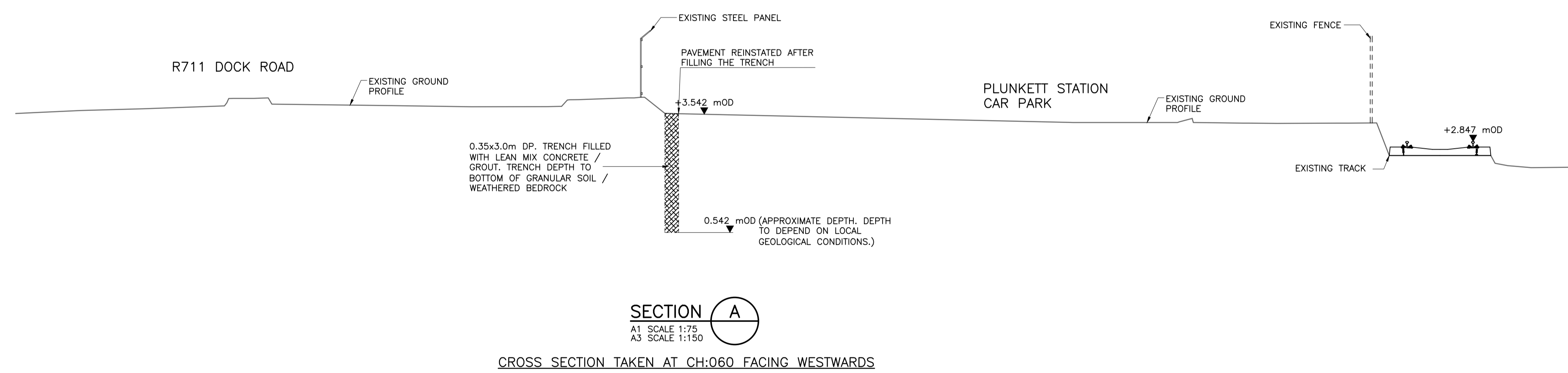
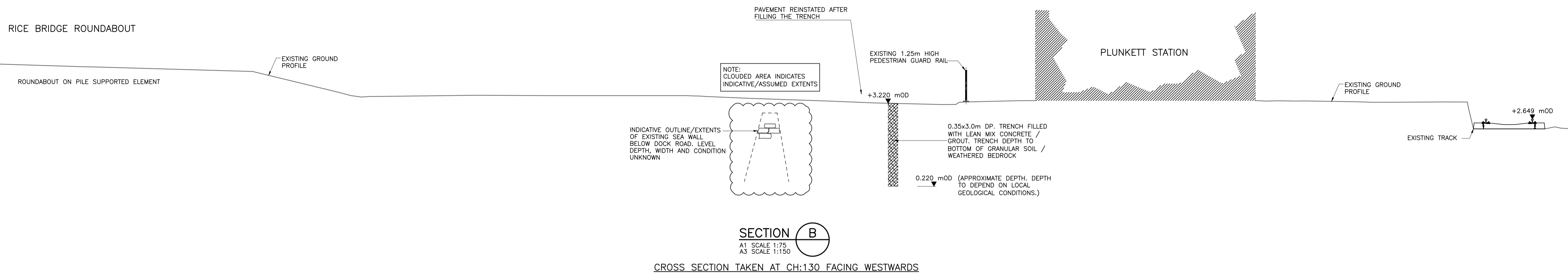
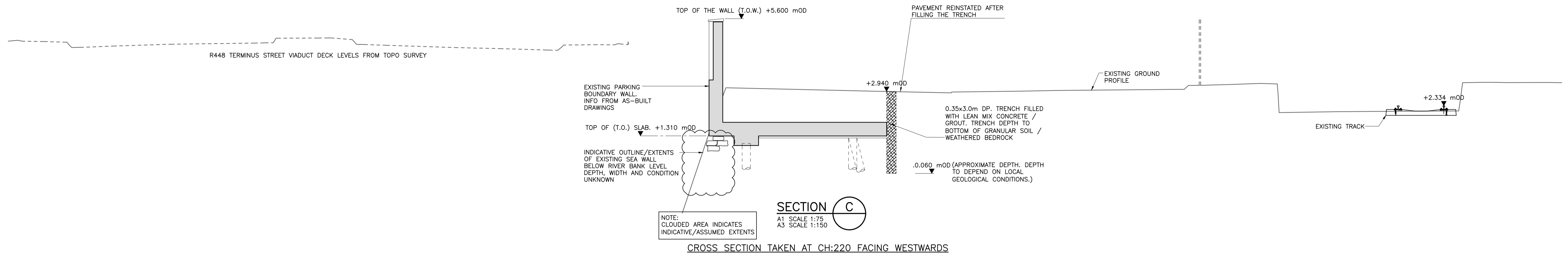
Drawing Title:
Indicative Cross Sections of Structural Works - Key Plan

Designed: YB	File:	Status: N.I.S.
Drawn: IM	Job No: 18.141	
Checked: BC	Scale: 1:2000 (@ A3)	Drawing No: FIG 4.7
Approved: TD	Date: OCTOBER 2021	Rev: -

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

NOTES:

1. HAND DIGGING TO BE EMPLOYED AROUND UTILITIES TO ADEQUATELY PROTECT SERVICES AND UTILITIES.
2. TRENCH TO BE CONSTRUCTED IN SHORT SECTIONS TO MINIMISE THE TIME TRENCH IS LEFT OPEN.



AA NOTE:

The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.

Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountyCouncil. © Ordnance Survey Ireland and Government of Ireland.

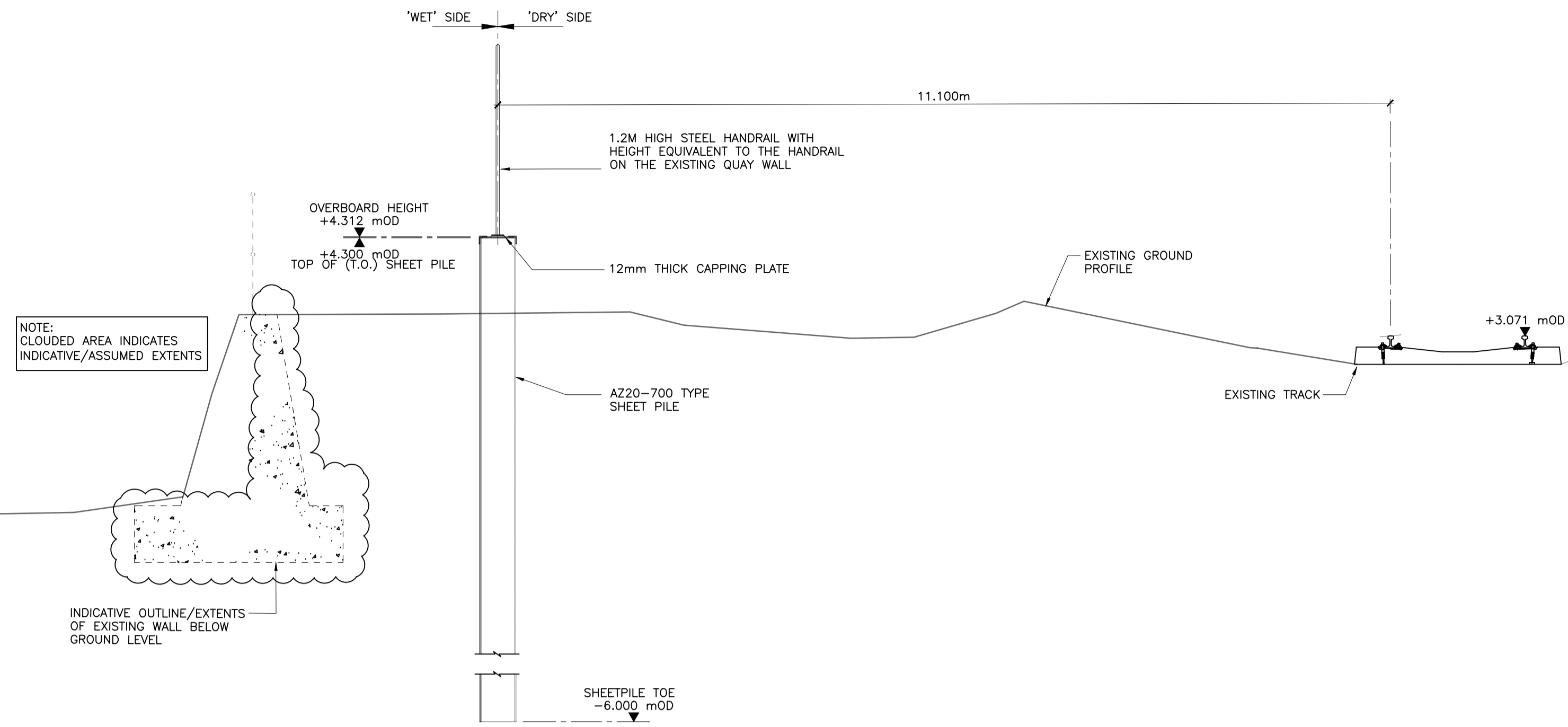


Consulting Engineers
Civil - Structural - Transportation - Environmental

Arena House, Arena Road, Sandyford, Dublin 18, Ireland
t +353 (0) 1 294 0800
f +353 (0) 1 294 0820
www.rod.ie

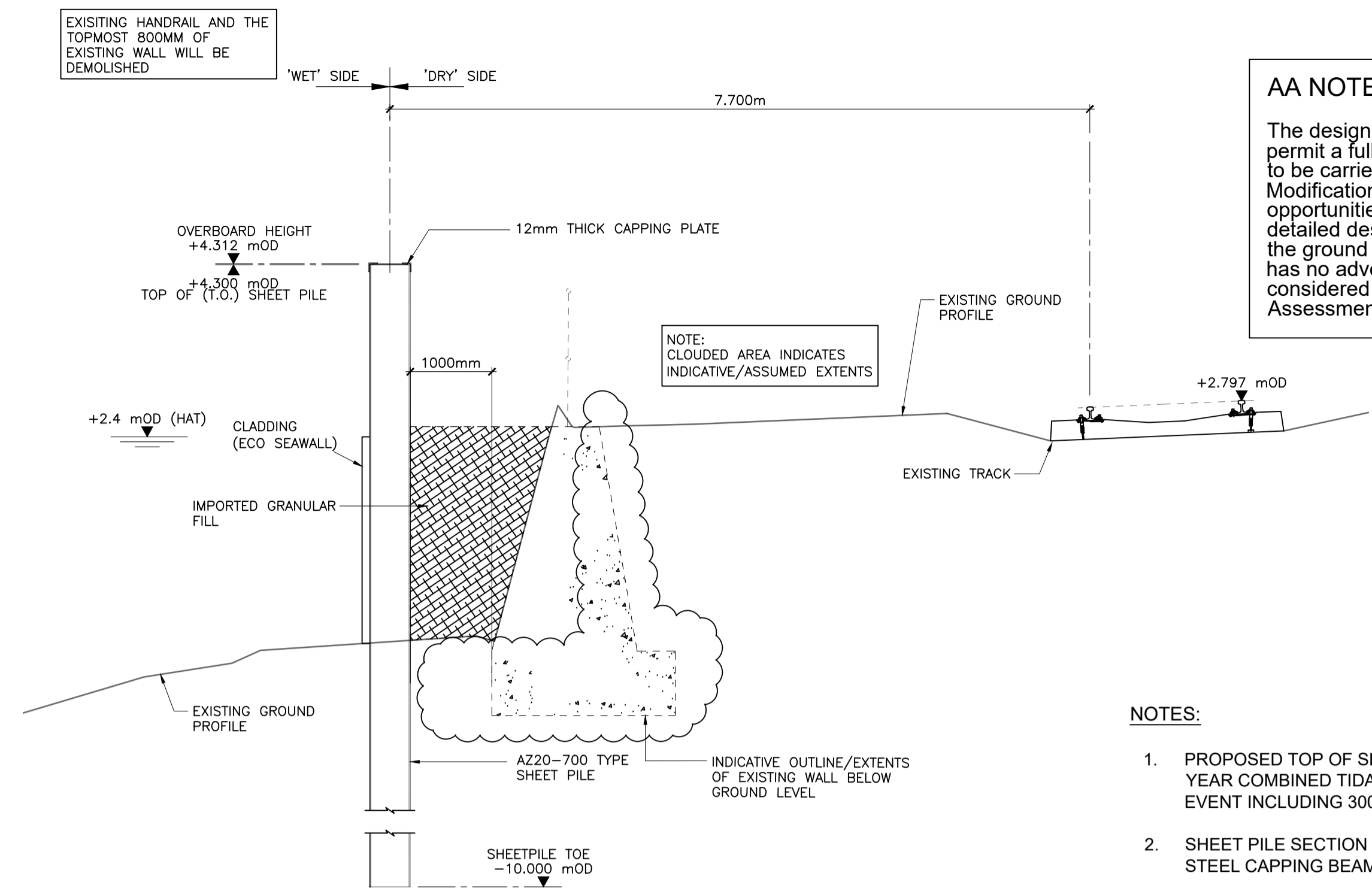
Project Title		Drawing Title:	
WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST		Indicative Cross Sections of Structural Works - Sheet 1 of 2	
Designed: YB	File:	Status:	E.I.A.R.
Drawn: IM	Job No: 18.141		
Checked: BC	Scale: AS SHOWN	Drawing No:	FIG 4.8
Approved: TD	Date: OCTOBER 2021	Rev:	-

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



SECTION G
A1 SCALE 1:50
A3 SCALE 1:100

SECTION TAKEN AT CH:970 FACING WESTWARDS

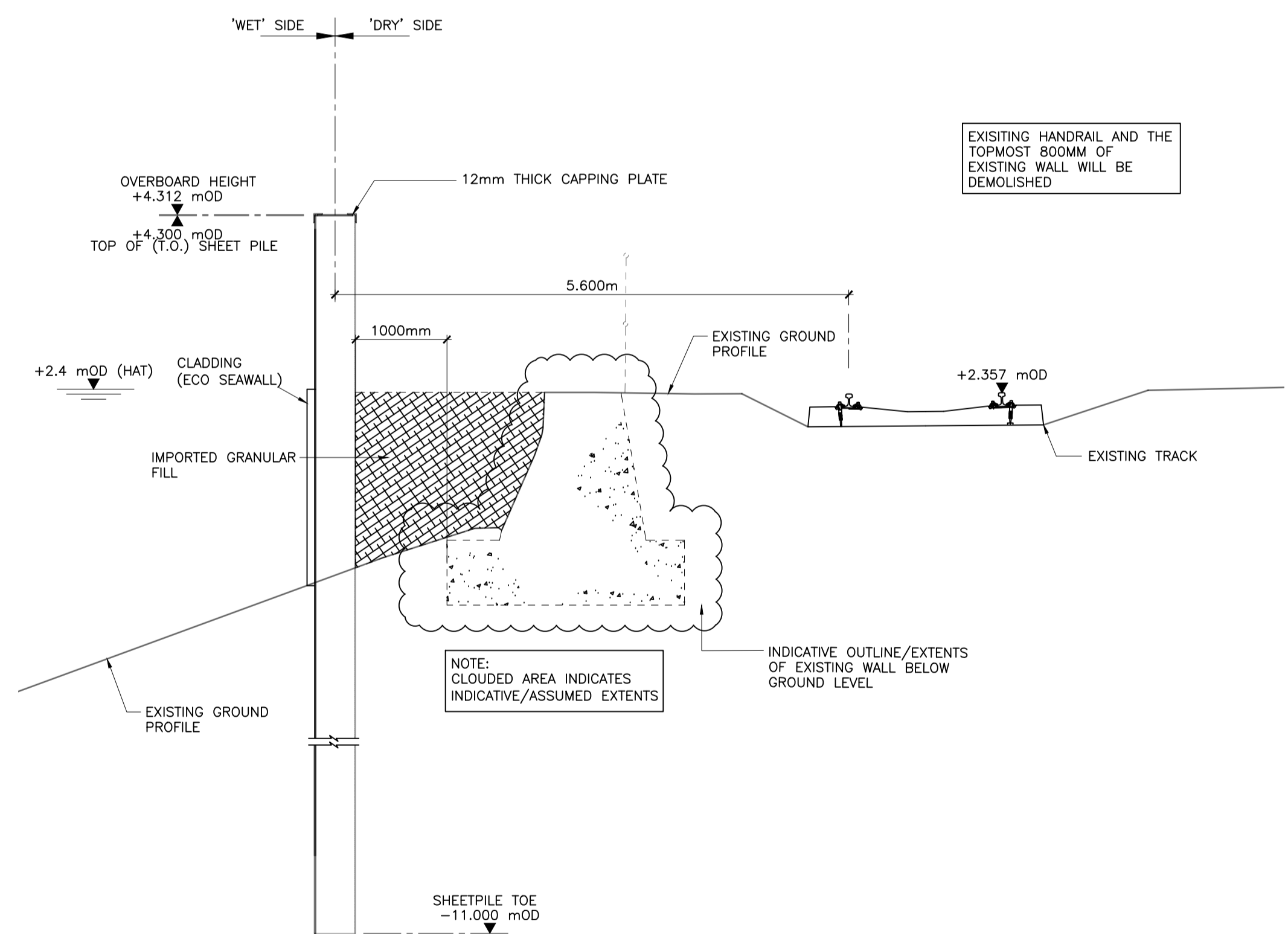


SECTION F
A1 SCALE 1:50
A3 SCALE 1:100

SECTION TAKEN AT CH:660 FACING WESTWARDS

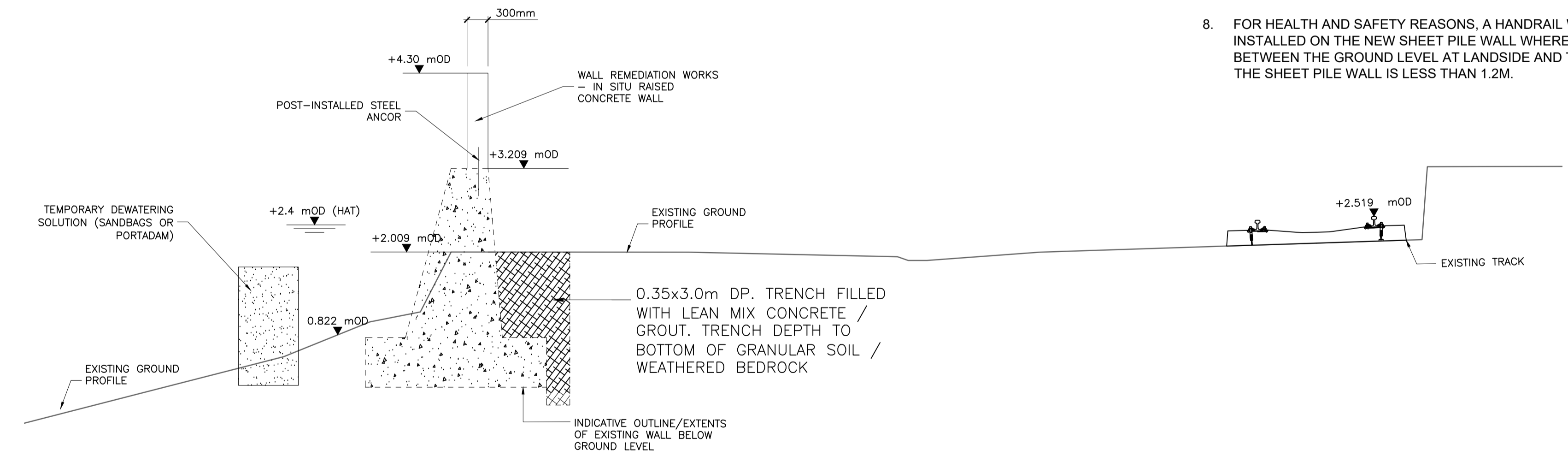
AA NOTE:
The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.

- NOTES:**
1. PROPOSED TOP OF SHEET PILE (+4.300MOD) TO PROVIDE 1:200 YEAR COMBINED TIDAL/ FLUVIAL PROTECTION DURING FLOOD EVENT INCLUDING 300MM FREEBOARD ALLOWANCE.
 2. SHEET PILE SECTION DEPTH OF 450mm ASSUMED. PRESSED STEEL CAPPING BEAM PROPOSED.
 3. A MINIMUM WIDTH 1000mm SHALL BE PROVIDED, WHERE FEASIBLE, BETWEEN THE FRONT AND BACK OF EXISTING QUAY WALL AND THE NEAREST FACE OF THE PROPOSED SHEET PILE TO MINIMIZE RISK OF CLASHES WITH THE EXISTING WALL.
 4. THE PROPOSED SHEET PILE WALL WILL NOT BE DESIGNED TO RESIST NOTIONAL IMPACT FORCES ARISING FROM A DERAILMENT.
 5. RIVERSIDE SHEET PILE WALL INSTALLATION WILL BE UNDERTAKEN FROM BARGE. BARGE IS EXPECTED TO BE SET-UP A MINIMUM OF 6M FROM THE FRONT OF FACE OF EXISTING MASONRY QUAY WALL.
 6. PRE-CAST CONCRETE CLADDING ("ECO-SEAWALL") WILL BE INSTALLED TO THE INTERTIDAL ZONE OF THE RIVERSIDE SHEET PILE WALL TO ENHANCE MARINE BIODIVERSITY.
 7. NO DRAINAGE WORKS ARE SHOWN ON THESE CROSS SECTIONS. REFER TO FIG. 4.11. TO 4.20 FOR DRAINAGE WORKS FIGURES.
 8. FOR HEALTH AND SAFETY REASONS, A HANDRAIL WILL BE INSTALLED ON THE NEW SHEET PILE WALL WHERE HEIGHT BETWEEN THE GROUND LEVEL AT LANDSIDE AND THE TOP OF THE SHEET PILE WALL IS LESS THAN 1.2M.



SECTION E
A1 SCALE 1:50
A3 SCALE 1:100

SECTION TAKEN AT CH:440 FACING WESTWARDS



SECTION D
A1 SCALE 1:50
A3 SCALE 1:100

SECTION TAKEN AT CH:350 FACING WESTWARDS

Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountryCouncil. © Ordnance Survey Ireland and Government of Ireland.



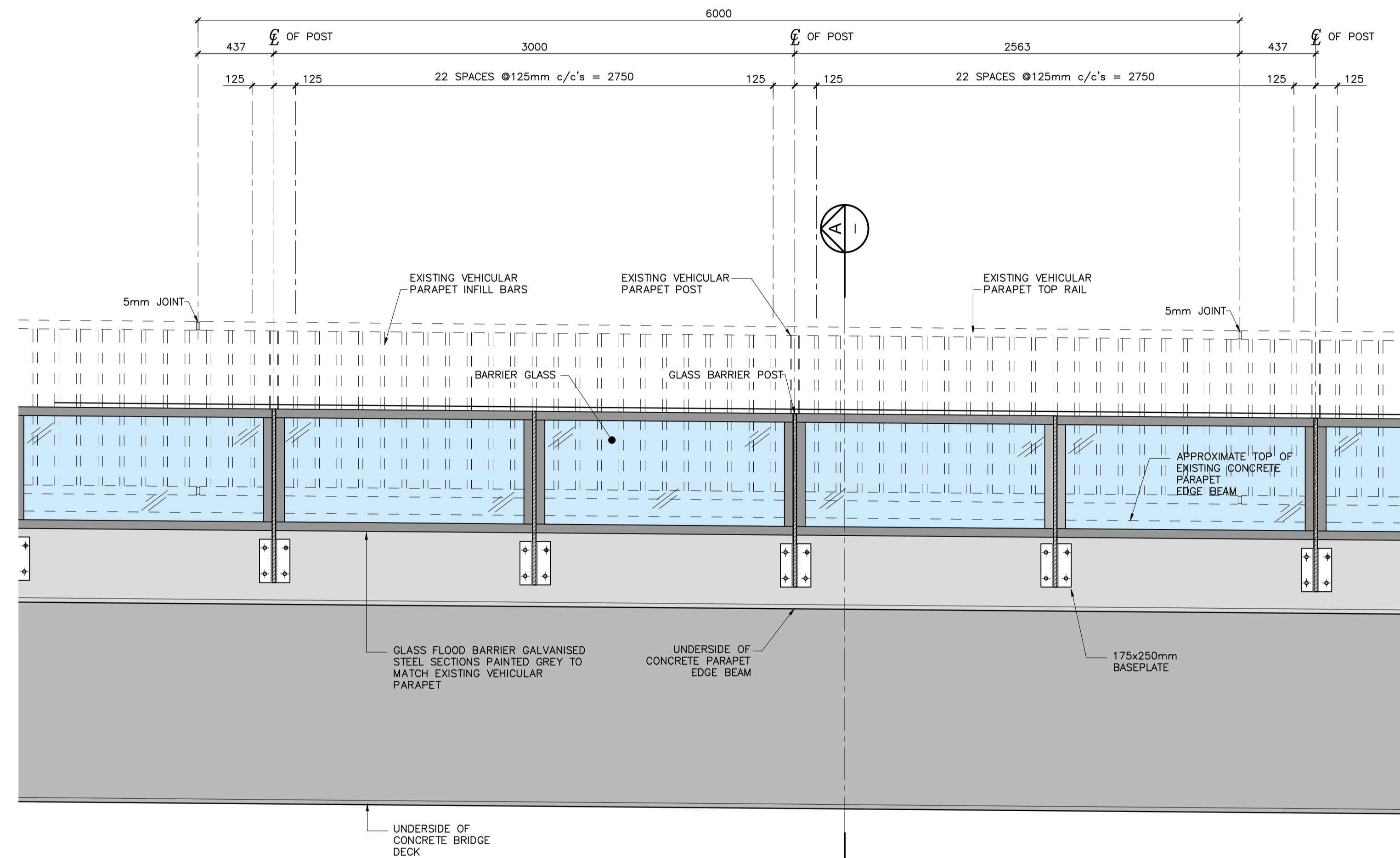
Arena House, Arena Road, Sandyford, Dublin 18, Ireland
t +353 (0) 1 294 0800
f +353 (0) 1 294 0820
www.rod.ie

Project Title		WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST	
Drawing Title		Indicative Cross Sections of Structural Works - Sheet 2 of 2	
Designed: YB	File:	Status:	E.I.A.R.
Drawn: IM	Job No: 18.141	Checked: BC	Scale: AS SHOWN
Approved: TD	Date: OCTOBER 2021	Rev:	FIG 4.9

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

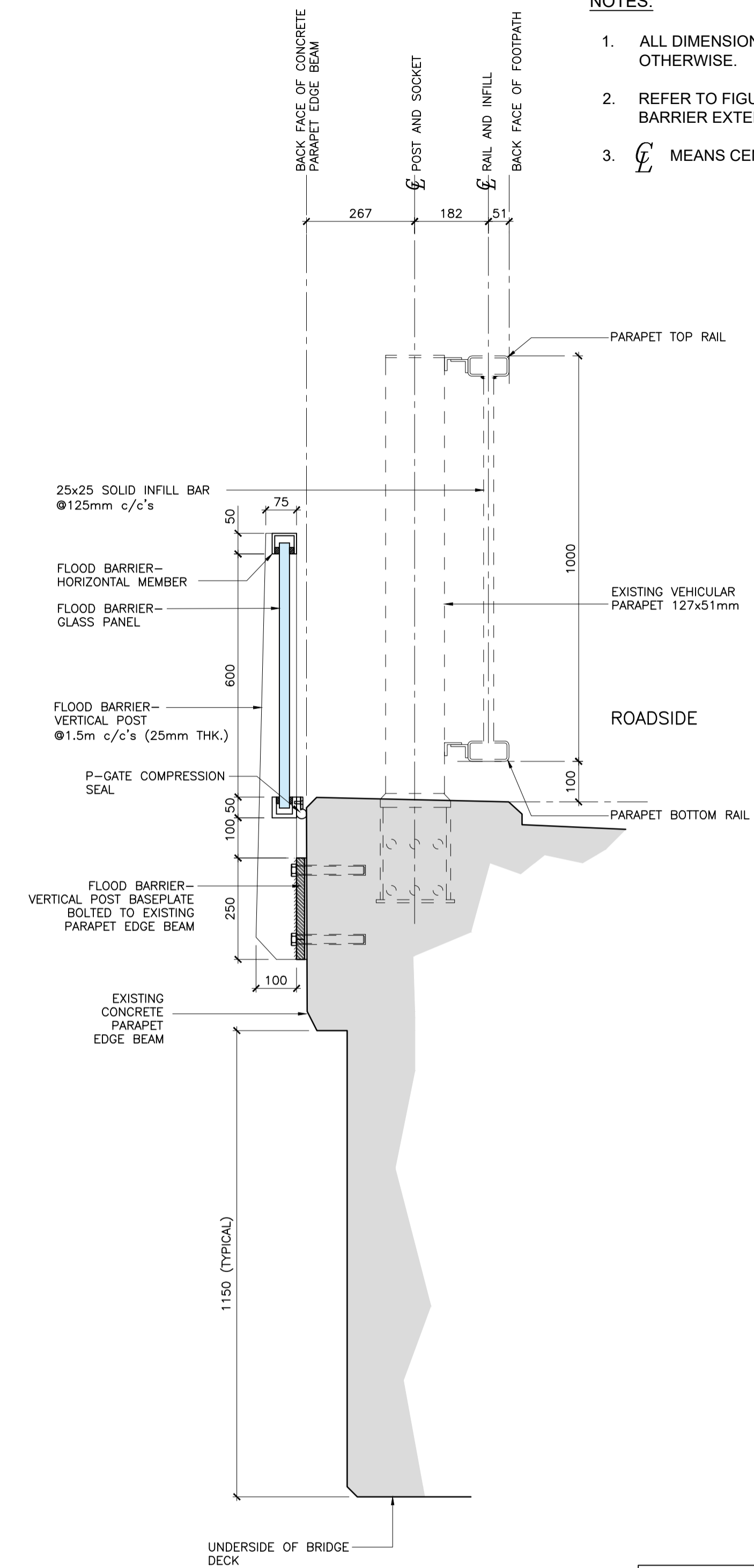
NOTES:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. REFER TO FIGURES 4.1 & 4.2 FOR PROPOSED GLASS FLOOD BARRIER EXTENTS.
3. C MEANS CENTRE LINE



ELEVATION—TYPICAL GLASS FLOOD BARRIER ARRANGEMENT

A1 SCALE 1:20
A3 SCALE 1:40



SECTION A
A1 SCALE 1:10
A3 SCALE 1:20

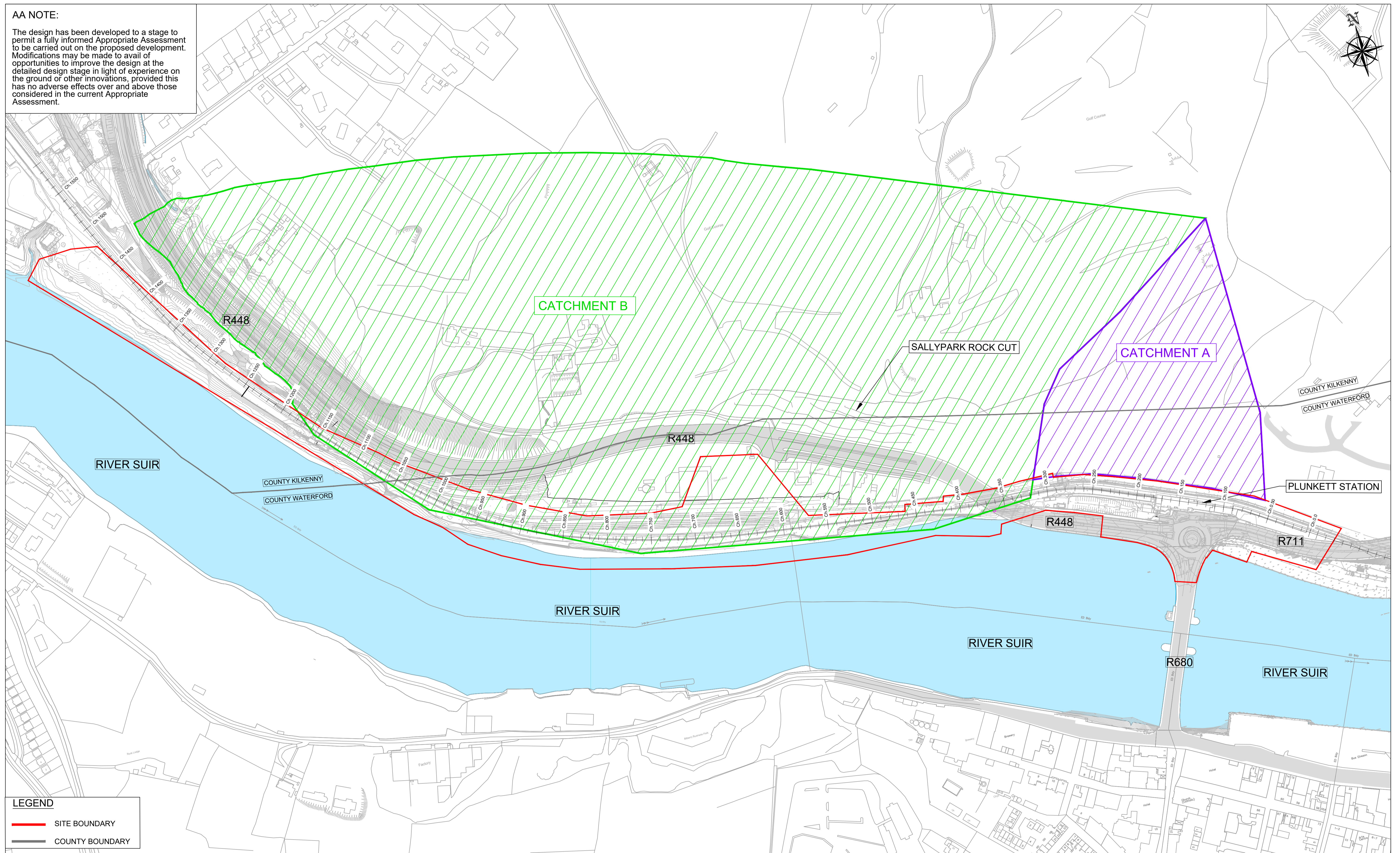
AA NOTE:

The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.

Project Title WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST		Drawing Title: Indicative Elevation & Section of Glass Flood Barriers	
Project Title NATURA IMPACT STATEMENT		Designed: CS	File: N.I.S.
		Drawn: AR	Job No: 18.141
		Checked: BC	Scale: AS SHOWN
		Approved: TD	Date: OCTOBER 2021
		Drawing No: FIG 4.10	Rev:

AA NOTE:

The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.



LEGEND

	SITE BOUNDARY
	COUNTY BOUNDARY

Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountryCouncil. © Ordnance Survey Ireland and Government of Ireland.

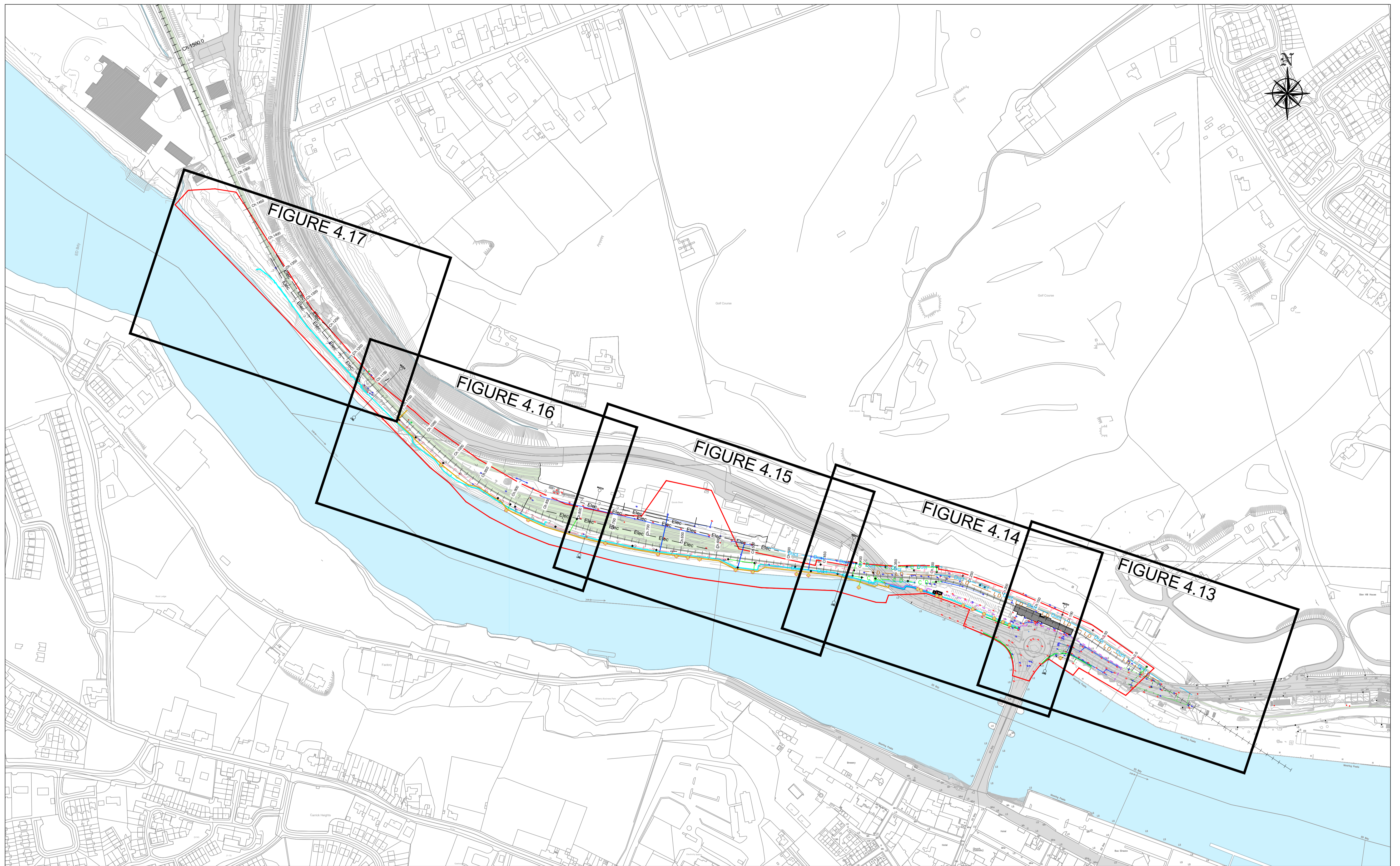


Consulting Engineers
Civil - Structural - Transportation - Environmental

Arena House, Arena Road, Sandford, Dublin 18, Ireland
t +353 (0) 1 294 0800
f +353 (0) 1 294 0820
www.rod.ie

Project Title		Drawing Title:	
WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST		Existing Drainage Catchments	
NATURA IMPACT STATEMENT		Designed: CD	File:
		Drawn: SC	Job No: 18.141
		Checked: CD	Scale: 1:2000 (@ A3)
		Approved:	Date: OCTOBER 2021
		Status: N.I.S.	Rev: -
		Drawing No: FIG 4.11	

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountryCouncil. © Ordnance Survey Ireland and Government of Ireland.



Consulting Engineers
Civil - Structural - Transportation - Environmental

Arena House, Arena Road, Sandyford, Dublin 18, Ireland
t +353 (0) 1 294 0800
f +353 (0) 1 294 0820
www.rod.ie

Project Title
**WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT
FLOOD DEFENCES WEST**

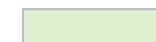













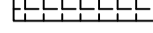
NATURA IMPACT STATEMENT

Drawing Title:
Proposed Drainage Layout - Key Plan

Designed: YB	File:	Status: N.I.S.
Drawn: IM	Job No: 18.141	
Checked: BC	Scale: 1:2500 (@ A3)	Drawing No: FIG 4.12
Approved: TD	Date: OCTOBER 2021	Rev: -

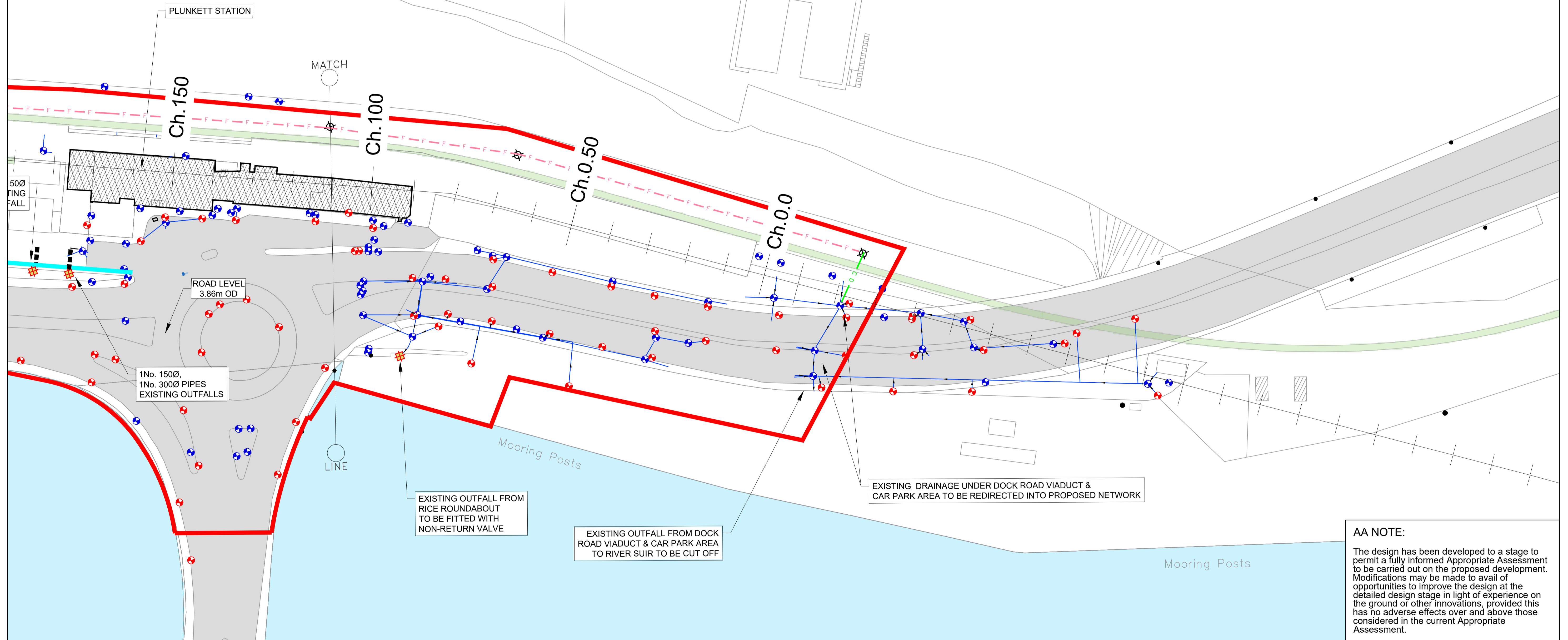
DO NOT SCALE USE FIGURED DIMENSIONS ONLY

LEGEND

 EXTENT OF RAILWAY LINES	 EXISTING QUAY WALL	 PROPOSED FILTER DRAIN
 SITE BOUNDARY	 EXISTING STORM WATER DRAIN	 PROPOSED CARRIER DRAIN
 PROPOSED SHEET PILE WALL	 EXISTING MANHOLE/INSPECTION CHAMBER	 PROPOSED SURFACE WATER CARRIER DRAIN
 PROPOSED WALL - REMEDIAL WORKS	 EXISTING GULLY	 PROPOSED MANHOLE
	 EXISTING DRAINAGE OUTFALL IDENTIFIED BY VISUAL INSPECTION (exact location & invert level to be confirmed)	 PROPOSED NON-RETURN VALVE
		 PROPOSED CLASS 1- BY-PASS SEPARATOR

NOTES:

- SEE FIGURES 4.18 AND 4.19 FOR PUMPING STATION DETAILS.
- SEE FIGURE 4.20 FOR OUTFALL STRUCTURE DETAILS.
- A C.20M UNDERGROUND ISOLATION STRUCTURE WILL BE CONSTRUCTED AT CH.1090. TEMPORARY OVERGROUND FLOOD BARRIERS WILL BE PROVIDED ALONG THE STRUCTURE SHOULD THESE BE REQUIRED TO BE IMPLEMENTED DURING A FLOOD EVENT.



Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountryCouncil. © Ordnance Survey Ireland and Government of Ireland.



Consulting Engineers
Civil - Structural - Transportation - Environmental

Arena House, Arena Road, Sandycroft, Dublin 18, Ireland
t +353 (0) 1 294 0800
f +353 (0) 1 294 0820
www.rod.ie

Project Title		Drawing Title:	
WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST		PROPOSED DRAINAGE LAYOUT SHEET 1 OF 5	
Designed: CD	File:	Status:	N.I.S.
Drawn: SC	Job No: 18.141		
Checked: CD	Scale: 1:500 (@ A3)	Drawing No:	FIG 4.13
Approved:	Date: OCTOBER 2021	Rev:	-

NATURA IMPACT STATEMENT

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

LEGEND

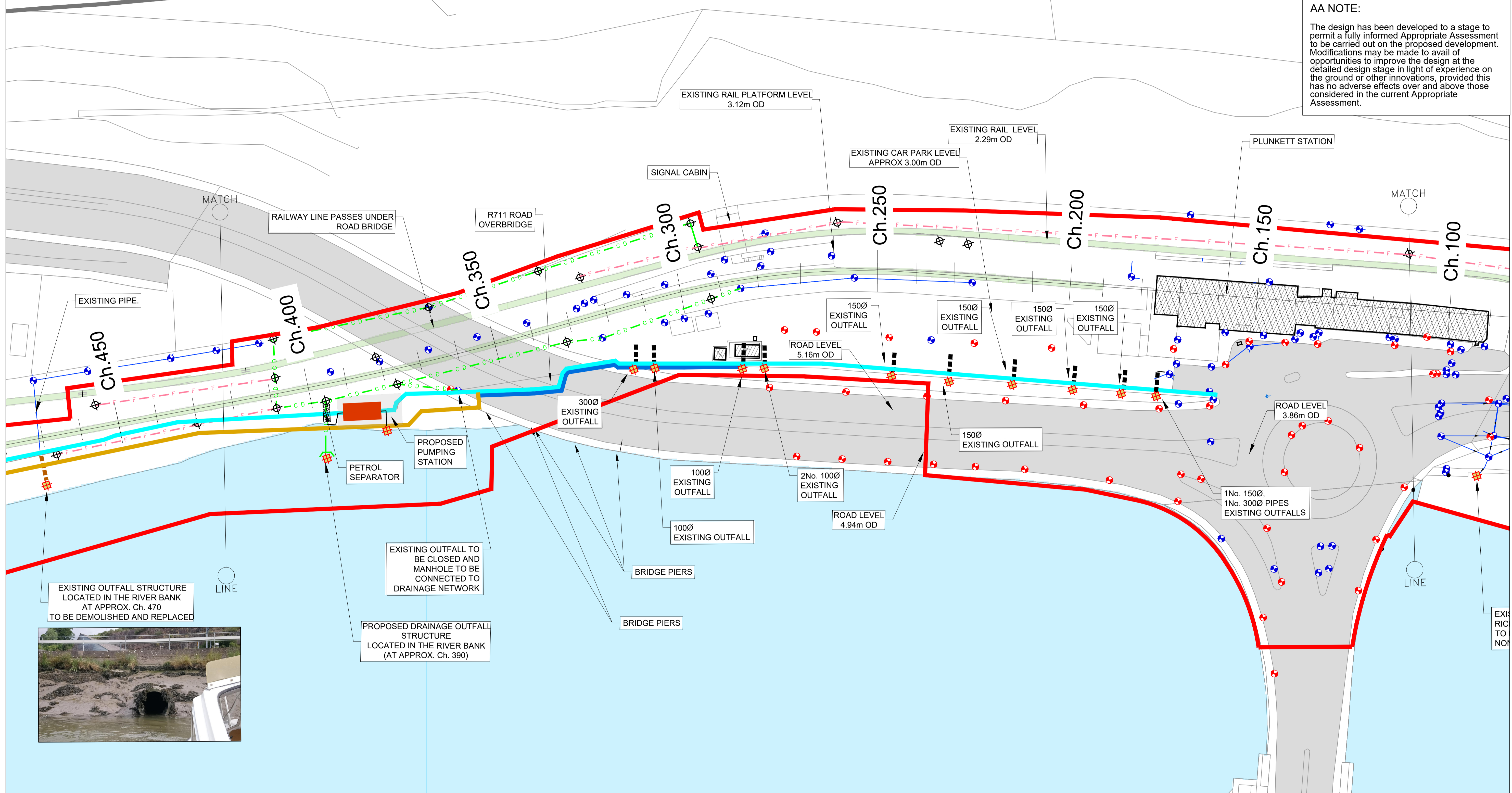
EXTENT OF RAILWAY LINES	EXISTING QUAY WALL	PROPOSED FILTER DRAIN
SITE BOUNDARY	EXISTING STORM WATER DRAIN	PROPOSED CARRIER DRAIN
PROPOSED SHEET PILE WALL	EXISTING MANHOLE/INSPECTION CHAMBER	PROPOSED SURFACE WATER CARRIER DRAIN
PROPOSED WALL - REMEDIAL WORKS	EXISTING GULLY	PROPOSED MANHOLE
	EXISTING DRAINAGE OUTFALL IDENTIFIED BY VISUAL INSPECTION (exact location & invert level to be confirmed)	PROPOSED NON-RETURN VALVE
		PROPOSED CLASS 1- BY-PASS SEPARATOR

NOTES:

- SEE FIGURES 4.18 AND 4.19 FOR PUMPING STATION DETAILS.
- SEE FIGURE 4.20 FOR OUTFALL STRUCTURE DETAILS.
- A C.20M UNDERGROUND ISOLATION STRUCTURE WILL BE CONSTRUCTED AT CH.1090. TEMPORARY OVERGROUND FLOOD BARRIERS WILL BE PROVIDED ALONG THE STRUCTURE SHOULD THESE BE REQUIRED TO BE IMPLEMENTED DURING A FLOOD EVENT.

AA NOTE:

The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.



PROPOSED DRAINAGE OUTFALL STRUCTURE LOCATED IN THE RIVER BANK (AT APPROX. Ch. 390)

Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountryCouncil. © Ordnance Survey Ireland and Government of Ireland.

					Arena House, Arena Road, Sandyford, Dublin 18, Ireland t +353 (0) 1 294 0800 f +353 (0) 1 294 0820 www.rod.ie	Project Title:	Drawing Title:	
						WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST	PROPOSED DRAINAGE LAYOUT SHEET 2 OF 5	
NATURA IMPACT STATEMENT						Designed: CD Drawn: SC Checked: CD Approved: TD	File: Job No: 18.141 Scale: 1:500 (@ A3) Date: OCTOBER 2021	Status: N.I.S. Drawing No: FIG 4.14 Rev: -

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

LEGEND

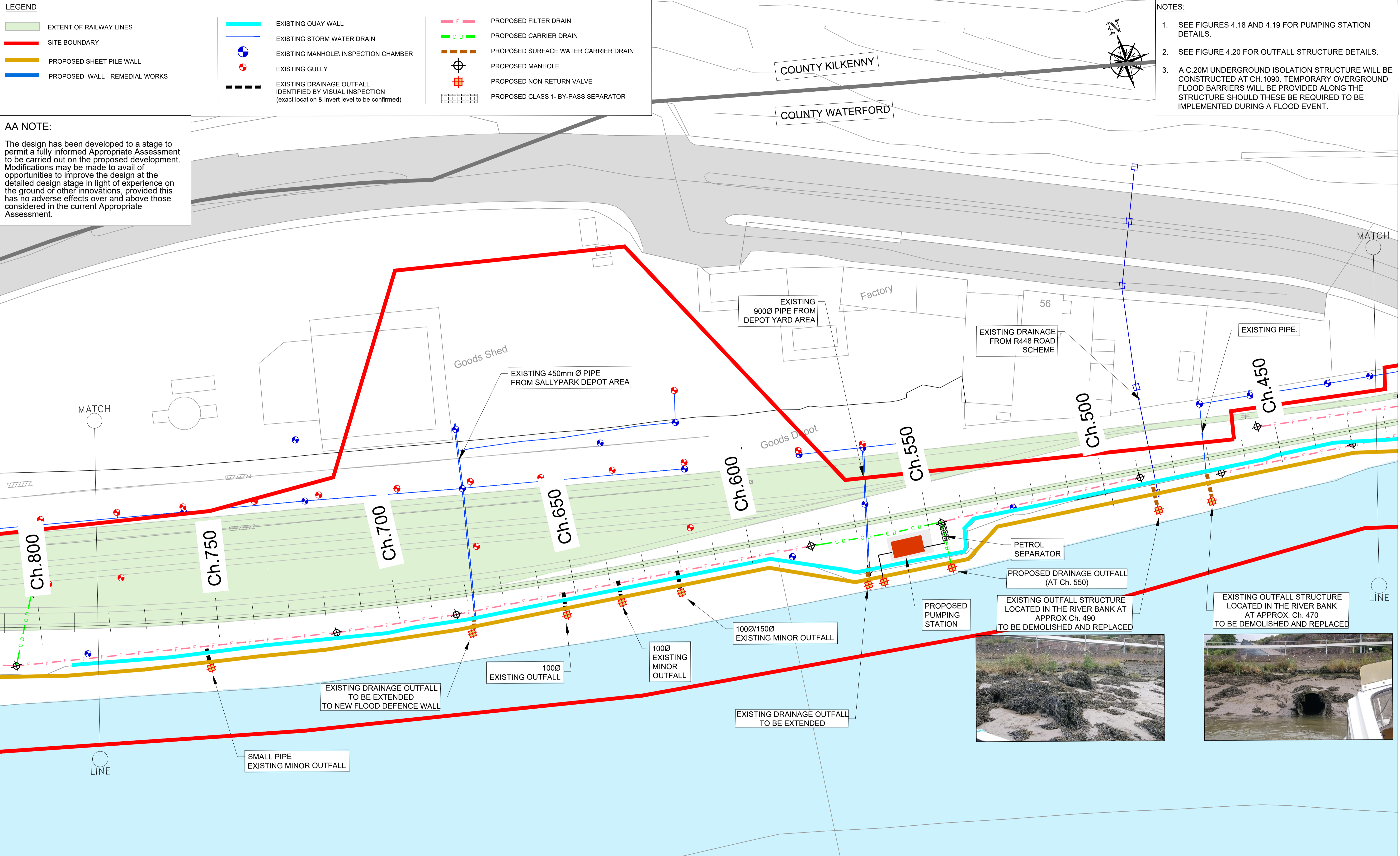
- EXTENT OF RAILWAY LINES
- SITE BOUNDARY
- PROPOSED SHEET PILE WALL
- PROPOSED WALL - REMEDIAL WORKS
- EXISTING QUAY WALL
- EXISTING STORM WATER DRAIN
- EXISTING MANHOLE/INSPECTION CHAMBER
- EXISTING GULLY
- EXISTING DRAINAGE OUTFALL IDENTIFIED BY VISUAL INSPECTION (exact location & invert level to be confirmed)
- PROPOSED FILTER DRAIN
- PROPOSED CARRIER DRAIN
- PROPOSED SURFACE WATER CARRIER DRAIN
- PROPOSED MANHOLE
- PROPOSED NON-RETURN VALVE
- PROPOSED CLASS 1- BY-PASS SEPARATOR

AA NOTE:

The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.

NOTES:

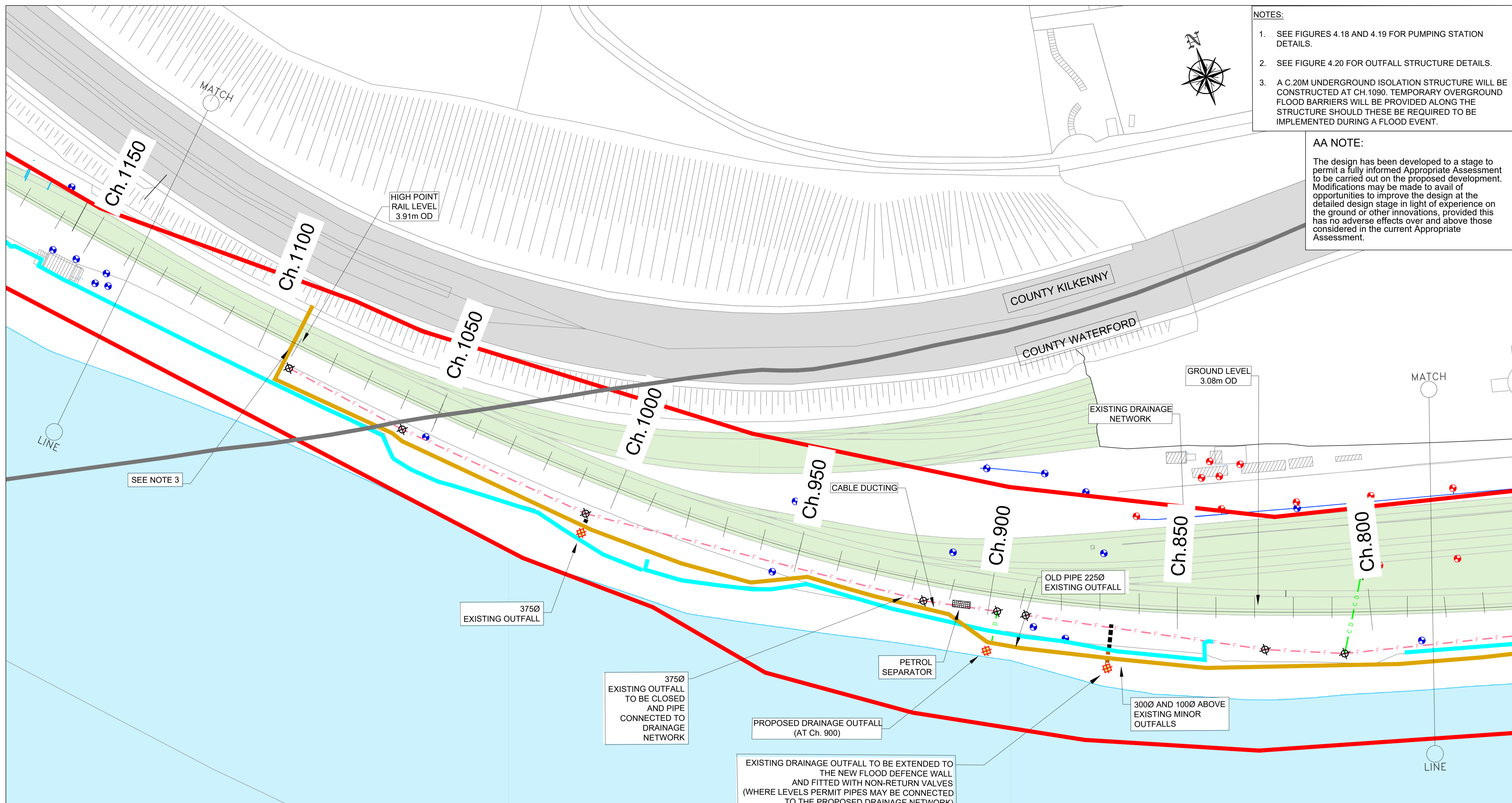
1. SEE FIGURES 4.18 AND 4.19 FOR PUMPING STATION DETAILS.
2. SEE FIGURE 4.20 FOR OUTFALL STRUCTURE DETAILS.
3. A C.20M UNDERGROUND ISOLATION STRUCTURE WILL BE CONSTRUCTED AT CH.1090. TEMPORARY OVERGROUND FLOOD BARRIERS WILL BE PROVIDED ALONG THE STRUCTURE SHOULD THESE BE REQUIRED TO BE IMPLEMENTED DURING A FLOOD EVENT.



Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountryCouncil. © Ordnance Survey Ireland and Government of Ireland.

				<p>ROD ROUGHAN & O'DONOVAN</p> <p>Arena House, Arena Road, Sandycroft, Dublin 18, Ireland t +353 (0) 1 294 0800 f +353 (0) 1 294 0820 www.rod.ie</p>	<p>Project Title</p> <p>WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST</p>	<p>Drawing Title:</p> <p>PROPOSED DRAINAGE LAYOUT SHEET 3 OF 5</p>												
<p>NATURA IMPACT STATEMENT</p>				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Designed: CD</td> <td>File:</td> <td>Status: N.I.S.</td> </tr> <tr> <td>Drawn: SC</td> <td>Job No: 18.141</td> <td></td> </tr> <tr> <td>Checked: CD</td> <td>Scale: 1:500 (@ A3)</td> <td>Drawing No: FIG 4.15</td> </tr> <tr> <td>Approved: TD</td> <td>Date: OCTOBER 2021</td> <td>Rev: -</td> </tr> </table>			Designed: CD	File:	Status: N.I.S.	Drawn: SC	Job No: 18.141		Checked: CD	Scale: 1:500 (@ A3)	Drawing No: FIG 4.15	Approved: TD	Date: OCTOBER 2021	Rev: -
Designed: CD	File:	Status: N.I.S.																
Drawn: SC	Job No: 18.141																	
Checked: CD	Scale: 1:500 (@ A3)	Drawing No: FIG 4.15																
Approved: TD	Date: OCTOBER 2021	Rev: -																

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



- NOTES:**
- SEE FIGURES 4.18 AND 4.19 FOR PUMPING STATION DETAILS.
 - SEE FIGURE 4.20 FOR OUTFALL STRUCTURE DETAILS.
 - A C.20M UNDERGROUND ISOLATION STRUCTURE WILL BE CONSTRUCTED AT CH.1090. TEMPORARY OVERGROUND FLOOD BARRIERS WILL BE PROVIDED ALONG THE STRUCTURE SHOULD THESE BE REQUIRED TO BE IMPLEMENTED DURING A FLOOD EVENT.

AA NOTE:
 The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.

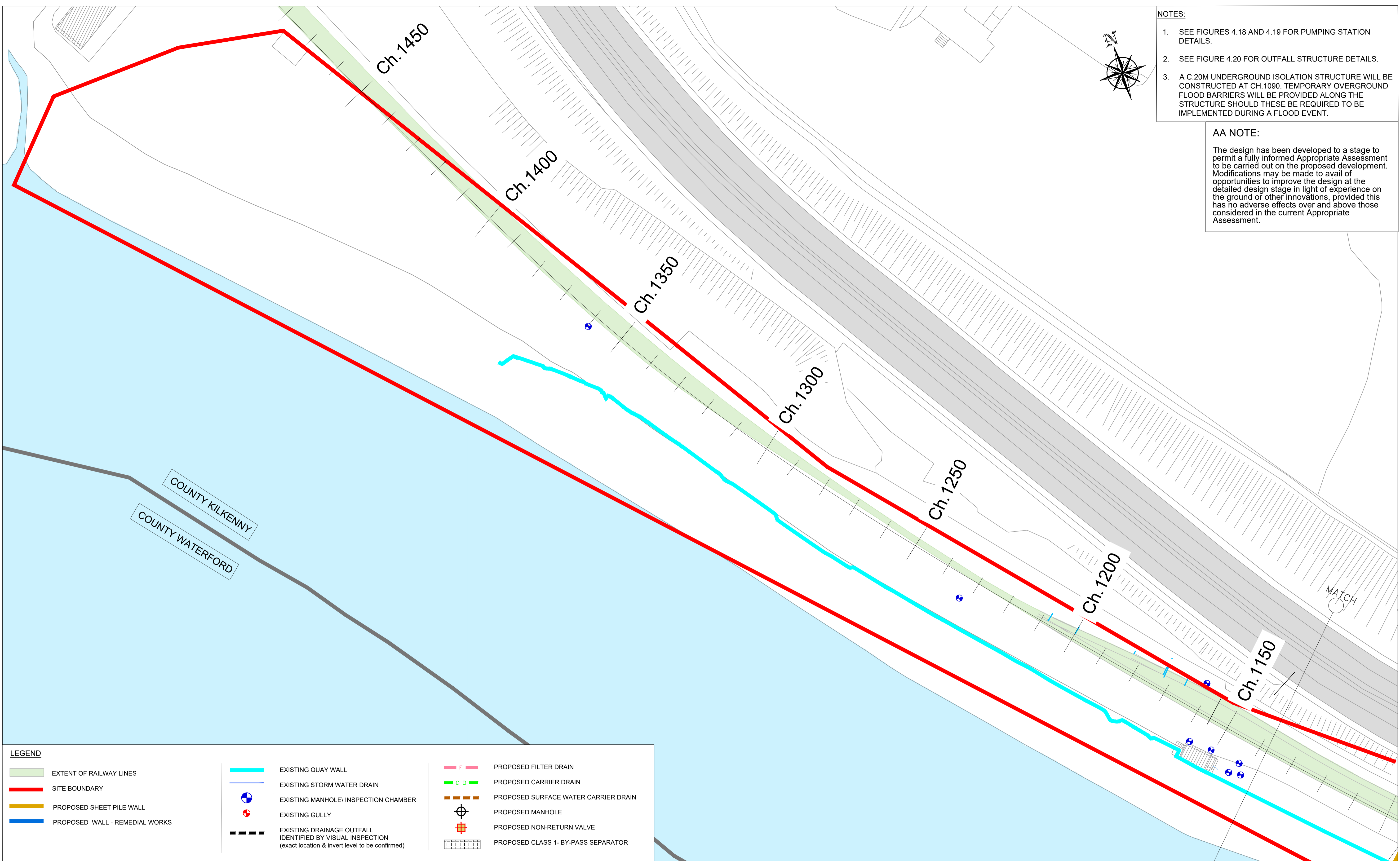
LEGEND

EXTENT OF RAILWAY LINES	EXISTING QUAY WALL	PROPOSED FILTER DRAIN
SITE BOUNDARY	EXISTING STORM WATER DRAIN	PROPOSED CARRIER DRAIN
PROPOSED SHEET PILE WALL	EXISTING MANHOLE/INSPECTION CHAMBER	PROPOSED SURFACE WATER CARRIER DRAIN
PROPOSED WALL - REMEDIAL WORKS	EXISTING GULLY	PROPOSED MANHOLE
	EXISTING DRAINAGE OUTFALL IDENTIFIED BY VISUAL INSPECTION (exact location & invert level to be confirmed)	PROPOSED NON-RETURN VALVE
		PROPOSED CLASS 1- BY-PASS SEPARATOR

Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountryCouncil. © Ordnance Survey Ireland and Government of Ireland.

					Arena House, Arena Road, Sandycroft, Dublin 18, Ireland t +353 (0) 1 294 0800 f +353 (0) 1 294 0820 www.rod.ie	Project Title: WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST	Drawing Title: PROPOSED DRAINAGE LAYOUT SHEET 4 OF 5						
						Project Title: NATURA IMPACT STATEMENT	<table border="1"> <tr> <td>Designed: CD</td> <td>File:</td> <td>Status: N.I.S.</td> </tr> <tr> <td>Drawn: SC</td> <td>Job No: 18.141</td> <td></td> </tr> <tr> <td>Checked: CD</td> <td>Scale: 1:500 (@ A3)</td> <td>Drawing No: FIG 4.16</td> </tr> <tr> <td>Approved: TD</td> <td>Date: OCTOBER 2021</td> <td>Rev: -</td> </tr> </table>	Designed: CD	File:	Status: N.I.S.	Drawn: SC	Job No: 18.141	
Designed: CD	File:	Status: N.I.S.											
Drawn: SC	Job No: 18.141												
Checked: CD	Scale: 1:500 (@ A3)	Drawing No: FIG 4.16											
Approved: TD	Date: OCTOBER 2021	Rev: -											

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



- NOTES:**
- SEE FIGURES 4.18 AND 4.19 FOR PUMPING STATION DETAILS.
 - SEE FIGURE 4.20 FOR OUTFALL STRUCTURE DETAILS.
 - A C.20M UNDERGROUND ISOLATION STRUCTURE WILL BE CONSTRUCTED AT CH.1090. TEMPORARY OVERGROUND FLOOD BARRIERS WILL BE PROVIDED ALONG THE STRUCTURE SHOULD THESE BE REQUIRED TO BE IMPLEMENTED DURING A FLOOD EVENT.

AA NOTE:

The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.

LEGEND

EXTENT OF RAILWAY LINES	EXISTING QUAY WALL	PROPOSED FILTER DRAIN
SITE BOUNDARY	EXISTING STORM WATER DRAIN	PROPOSED CARRIER DRAIN
PROPOSED SHEET PILE WALL	EXISTING MANHOLE/ INSPECTION CHAMBER	PROPOSED SURFACE WATER CARRIER DRAIN
PROPOSED WALL - REMEDIAL WORKS	EXISTING GULLY	PROPOSED MANHOLE
	EXISTING DRAINAGE OUTFALL IDENTIFIED BY VISUAL INSPECTION (exact location & invert level to be confirmed)	PROPOSED NON-RETURN VALVE
		PROPOSED CLASS 1- BY-PASS SEPARATOR

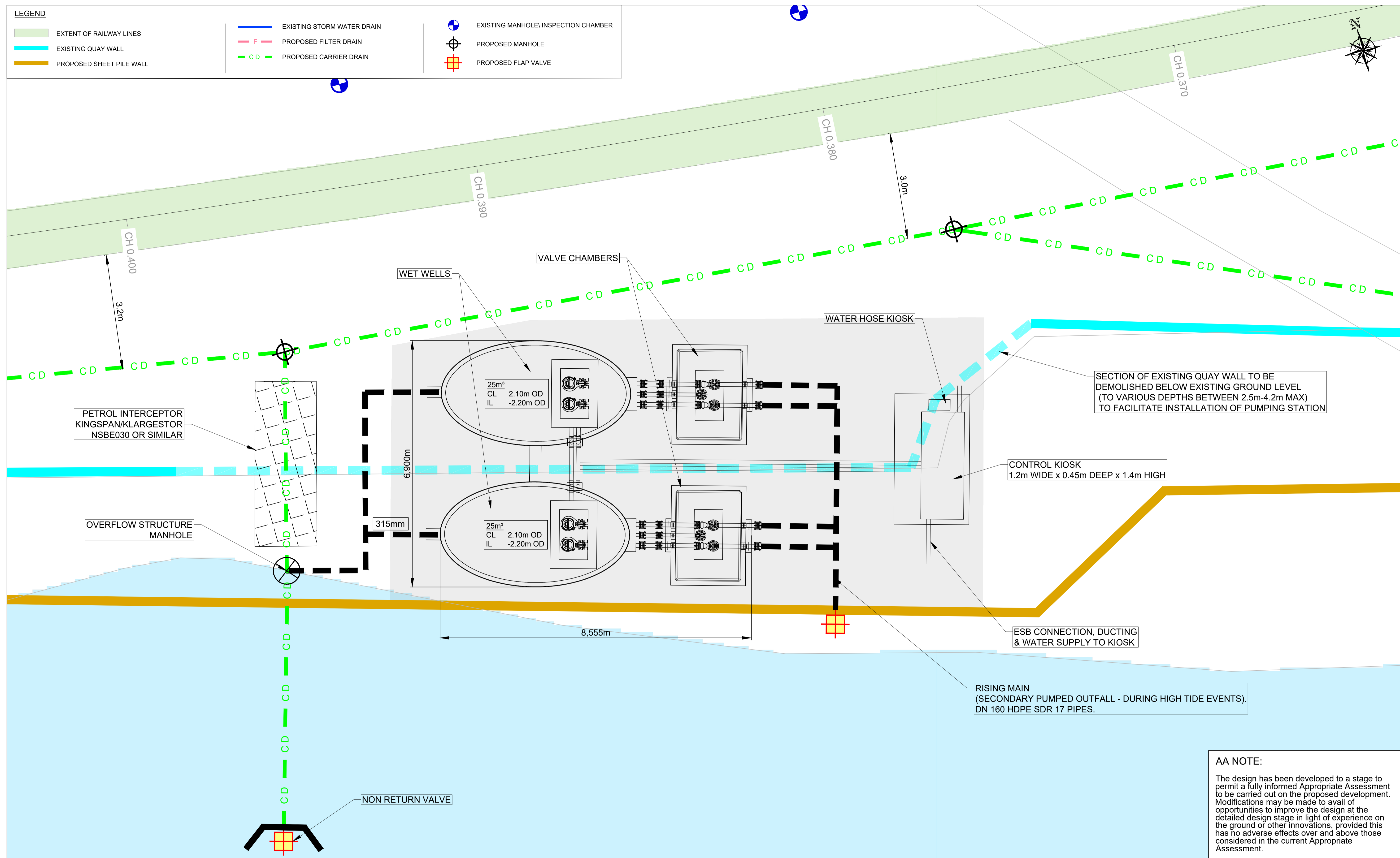
Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountryCouncil. © Ordnance Survey Ireland and Government of Ireland.

<p>Arena House, Arena Road, Sandycroft, Dublin 18, Ireland t +353 (0) 1 294 0800 f +353 (0) 1 294 0820 www.rod.ie</p> <p>Consulting Engineers Civil - Structural - Transportation - Environmental</p>	<p>Project Title</p> <p>WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST</p>	<p>Drawing Title:</p> <p>PROPOSED DRAINAGE LAYOUT SHEET 5 OF 5</p>											
	<p>NATURA IMPACT STATEMENT</p>	<table border="1"> <tr> <td>Designed: CD</td> <td>File:</td> <td>Status: N.I.S.</td> </tr> <tr> <td>Drawn: SC</td> <td>Job No: 18.141</td> <td></td> </tr> <tr> <td>Checked: CD</td> <td>Scale: 1:500 (@ A3)</td> <td>Drawing No: FIG 4.17</td> </tr> <tr> <td>Approved: TD</td> <td>Date: OCTOBER 2021</td> <td>Rev: -</td> </tr> </table>	Designed: CD	File:	Status: N.I.S.	Drawn: SC	Job No: 18.141		Checked: CD	Scale: 1:500 (@ A3)	Drawing No: FIG 4.17	Approved: TD	Date: OCTOBER 2021
Designed: CD	File:	Status: N.I.S.											
Drawn: SC	Job No: 18.141												
Checked: CD	Scale: 1:500 (@ A3)	Drawing No: FIG 4.17											
Approved: TD	Date: OCTOBER 2021	Rev: -											

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

LEGEND

	EXTENT OF RAILWAY LINES		EXISTING STORM WATER DRAIN		EXISTING MANHOLE/ INSPECTION CHAMBER
	EXISTING QUAY WALL		PROPOSED FILTER DRAIN		PROPOSED MANHOLE
	PROPOSED SHEET PILE WALL		PROPOSED CARRIER DRAIN		PROPOSED FLAP VALVE



SECTION OF EXISTING QUAY WALL TO BE DEMOLISHED BELOW EXISTING GROUND LEVEL (TO VARIOUS DEPTHS BETWEEN 2.5m-4.2m MAX) TO FACILITATE INSTALLATION OF PUMPING STATION

CONTROL KIOSK
1.2m WIDE x 0.45m DEEP x 1.4m HIGH

ESB CONNECTION, DUCTING & WATER SUPPLY TO KIOSK

RISING MAIN
(SECONDARY PUMPED OUTFALL - DURING HIGH TIDE EVENTS).
DN 160 HDPE SDR 17 PIPES.

AA NOTE:
The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.

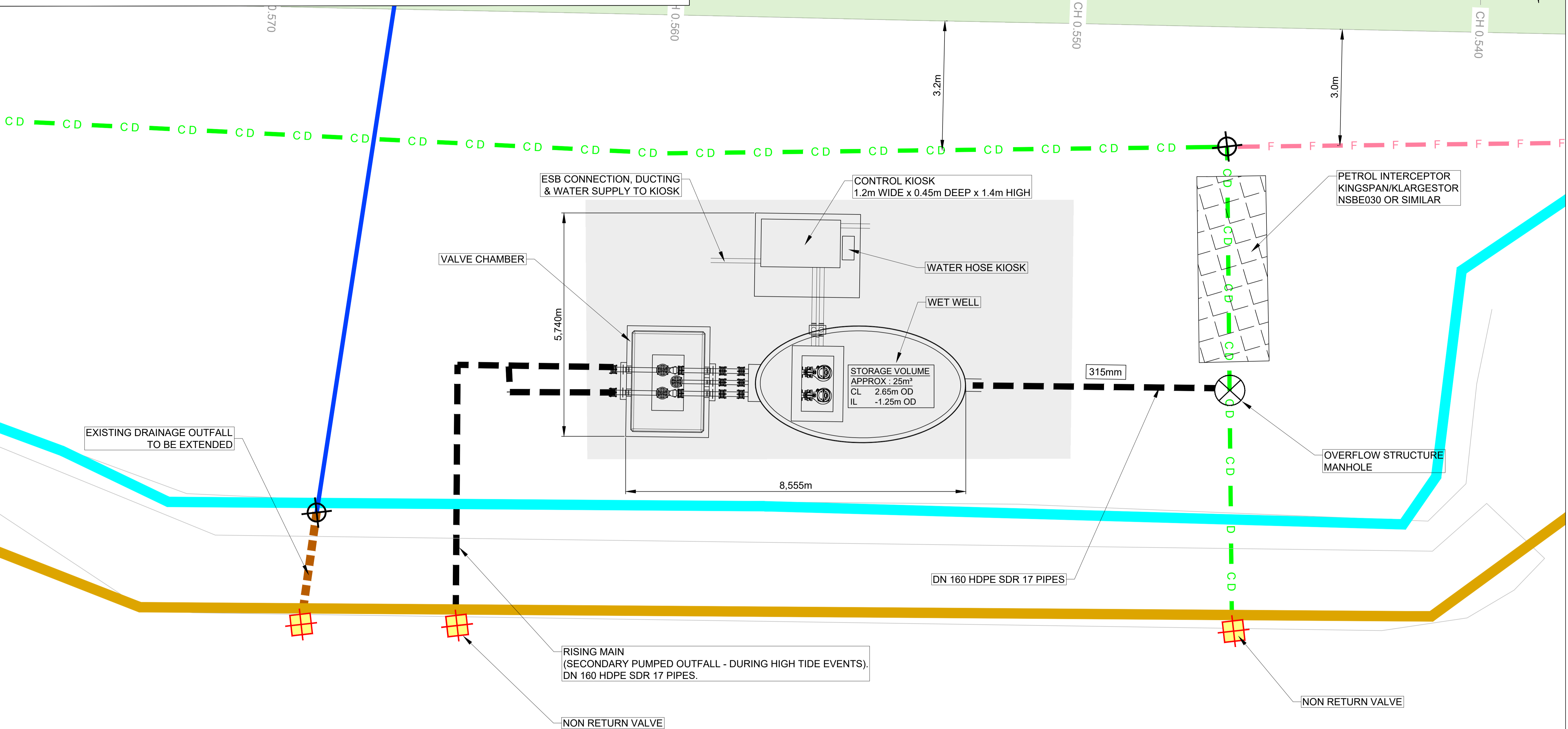
Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountyCouncil. © Ordnance Survey Ireland and Government of Ireland.

 Project Ireland 2040 Building Ireland's Future	 Comhairle Cathrach & Contae Phort Láirge Waterford City & County Council	 Údarás Náisiúnta Iompair National Transport Authority	 Iarnród Éireann Irish Rail	 ROUGHAN & O'DONOVAN Consulting Engineers Civil - Structural - Transportation - Environmental	Arena House, Arena Road, Sandyford, Dublin 18, Ireland t +353 (0) 1 294 0800 f +353 (0) 1 294 0820 www.rod.ie	Project Title WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST	Drawing Title: PROPOSED PUMPING STATION CH0+380 SHEET 1 OF 2						
						Designated: NATURA IMPACT STATEMENT	<table border="1"> <tr> <td>Designed: CD</td> <td>File:</td> <td>Status: N.I.S.</td> </tr> <tr> <td>Drawn: SC</td> <td>Job No: 18.141</td> <td></td> </tr> <tr> <td>Checked: CD</td> <td>Scale: 1:500 (@ A3)</td> <td>Drawing No: FIG 4.18</td> </tr> <tr> <td>Approved: TD</td> <td>Date: OCTOBER 2021</td> <td>Rev: -</td> </tr> </table>	Designed: CD	File:	Status: N.I.S.	Drawn: SC	Job No: 18.141	
Designed: CD	File:	Status: N.I.S.											
Drawn: SC	Job No: 18.141												
Checked: CD	Scale: 1:500 (@ A3)	Drawing No: FIG 4.18											
Approved: TD	Date: OCTOBER 2021	Rev: -											

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

LEGEND

	EXTENT OF RAILWAY LINES		EXISTING STORM WATER DRAIN		EXISTING MANHOLE/ INSPECTION CHAMBER
	EXISTING QUAY WALL		PROPOSED FILTER DRAIN		PROPOSED MANHOLE
	PROPOSED SHEET PILE WALL		PROPOSED CARRIER DRAIN		PROPOSED FLAP VALVE

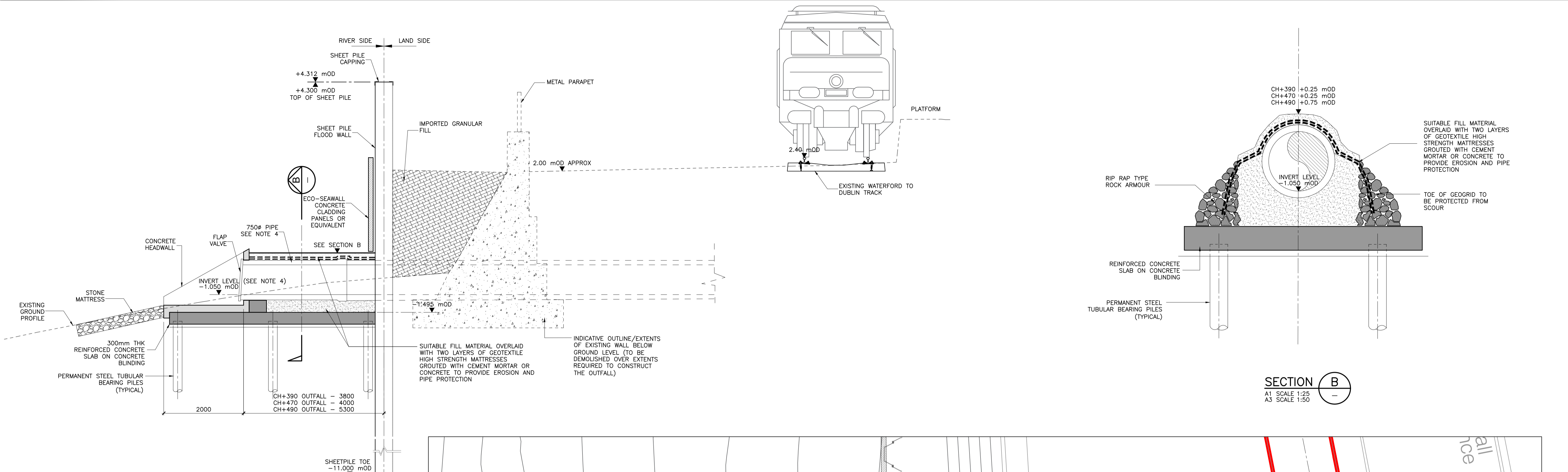


AA NOTE:
 The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.

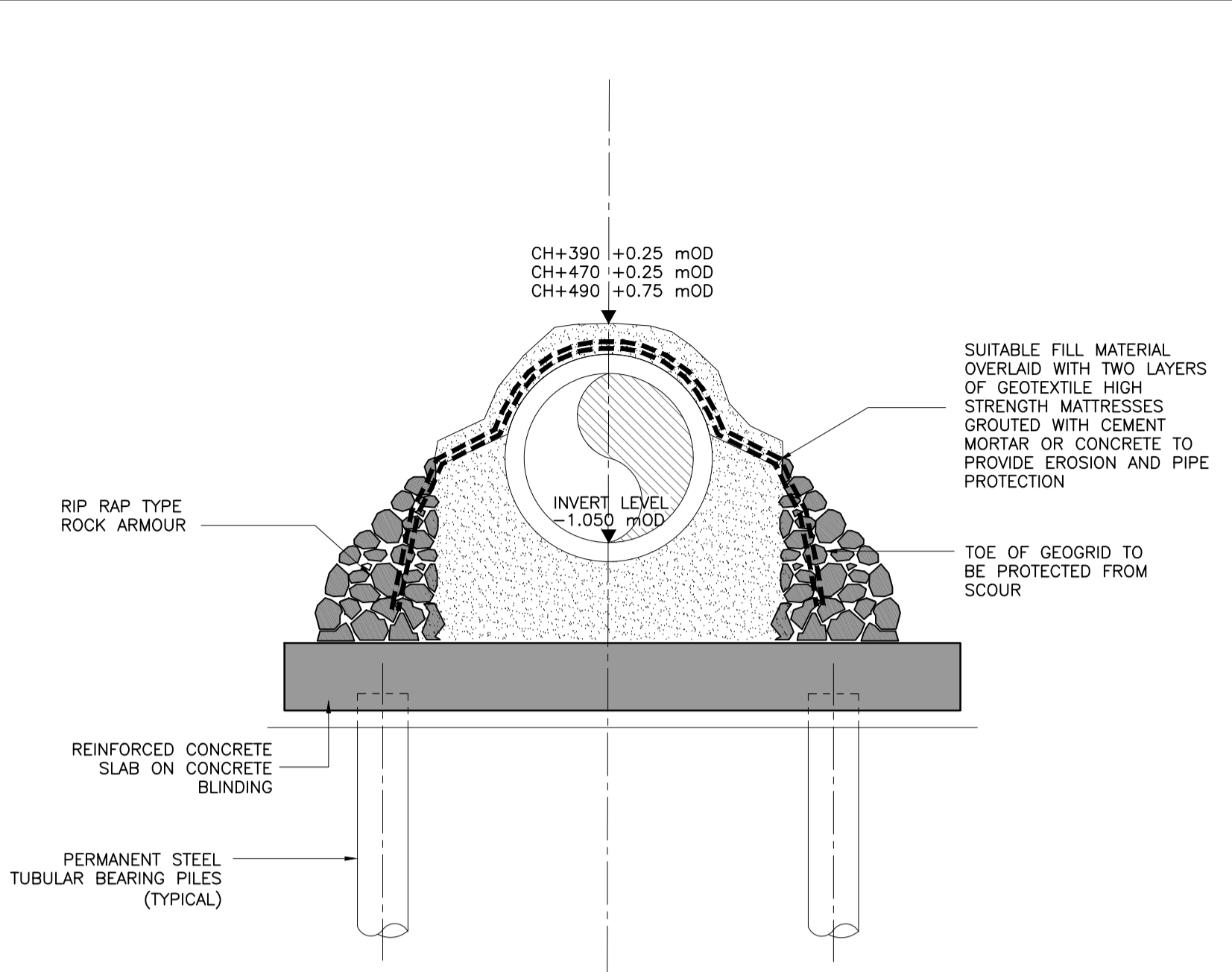
Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountryCouncil. © Ordnance Survey Ireland and Government of Ireland.

 	 Consulting Engineers <i>Civil - Structural - Transportation - Environmental</i>	Arena House, Arena Road, Sandycove, Dublin 18, Ireland t +353 (0) 1 294 0800 f +353 (0) 1 294 0820 www.rod.ie	Project Title: WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST	Drawing Title: PROPOSED PUMPING STATION CH0+550 SHEET 2 OF 2									
			NATURA IMPACT STATEMENT	<table border="1"> <tr> <td>Designed: CD</td> <td>File:</td> <td>Status: N.I.S.</td> </tr> <tr> <td>Drawn: SC</td> <td>Job No: 18.141</td> <td></td> </tr> <tr> <td>Checked: CD</td> <td>Scale: 1:500 (@ A3)</td> <td>Drawing No: FIG 4.19</td> </tr> <tr> <td>Approved: TD</td> <td>Date: OCTOBER 2021</td> <td>Rev: -</td> </tr> </table>	Designed: CD	File:	Status: N.I.S.	Drawn: SC	Job No: 18.141		Checked: CD	Scale: 1:500 (@ A3)	Drawing No: FIG 4.19
Designed: CD	File:	Status: N.I.S.											
Drawn: SC	Job No: 18.141												
Checked: CD	Scale: 1:500 (@ A3)	Drawing No: FIG 4.19											
Approved: TD	Date: OCTOBER 2021	Rev: -											

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



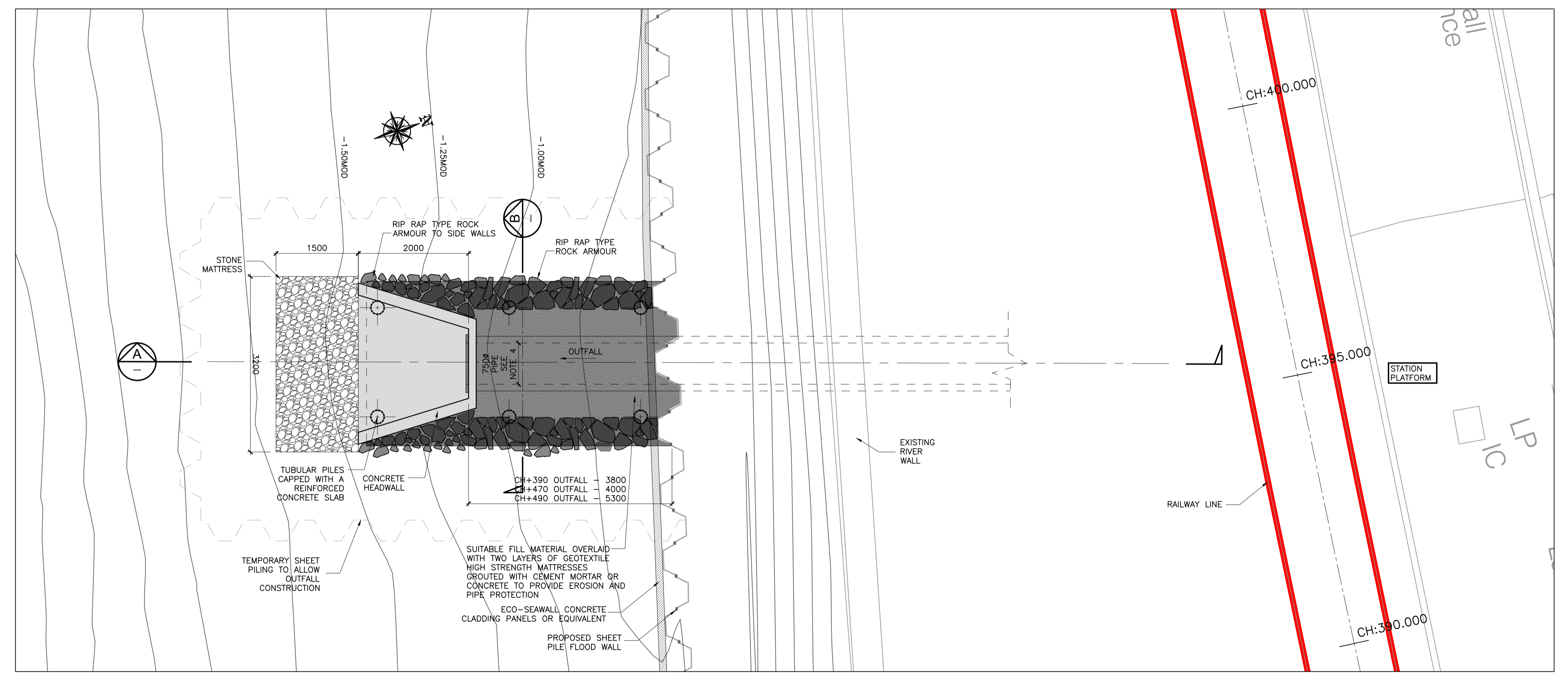
SECTION A
A1 SCALE 1:50
A3 SCALE 1:100
SECTION TAKEN AT CH:390



SECTION B
A1 SCALE 1:25
A3 SCALE 1:50

AA NOTE:
The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.

- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETRES (MM) AND ALL LEVELS ARE IN METERS (M) UNLESS NOTED OTHERWISE.
 - DO NOT SCALE FROM DRAWING.
 - ALL LEVELS ARE TO ORDNANCE DATUM MALIN HEAD.
 - NEW OUTFALL AT CH+390 DETAILED ON THE DRAWING. EXISTING OUTFALLS WITHIN THE RIVER WHICH WILL BE DEMOLISHED AND REPLACED BY NEW OUTFALL STRUCTURES ARE AS OUTLINED BELOW;
 - CH+470 - EXISTING 750MM DIAMETER PIPE - PIPE INVERT LEVEL AT OUTFALL -0.5mOD (ESTIMATED BASED ON AVAILABLE SURVEY DATA & VISUAL RECORDS (LEVELS TO BE CONFIRMED ON SITE))
 - CH+490 EXISTING 600MM DIAMETER PIPE - PIPE INVERT LEVEL AT OUTFALL -0.800mOD

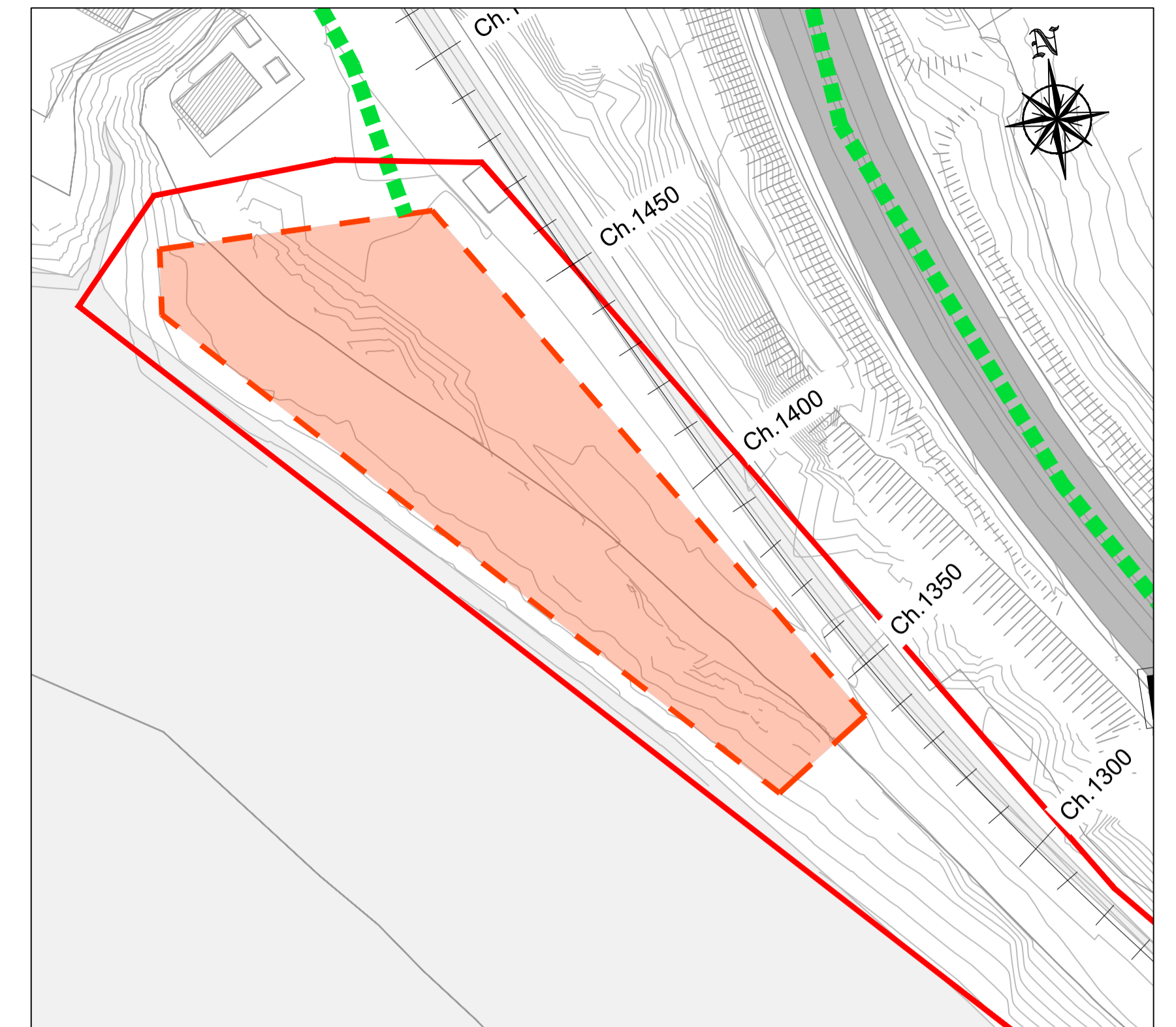
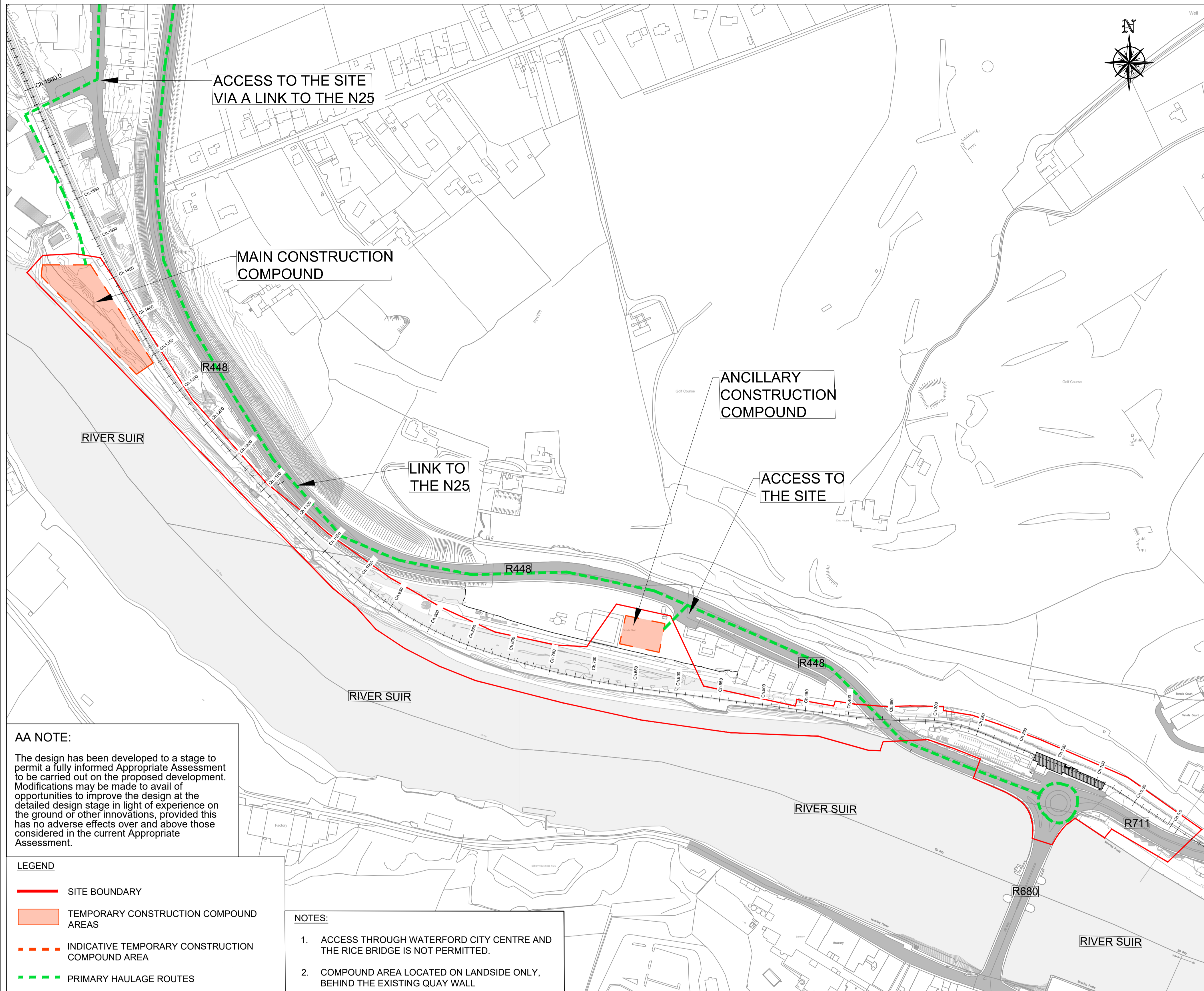


DRAINAGE OUTFALL - PLAN
A1 SCALE 1:50
A3 SCALE 1:100

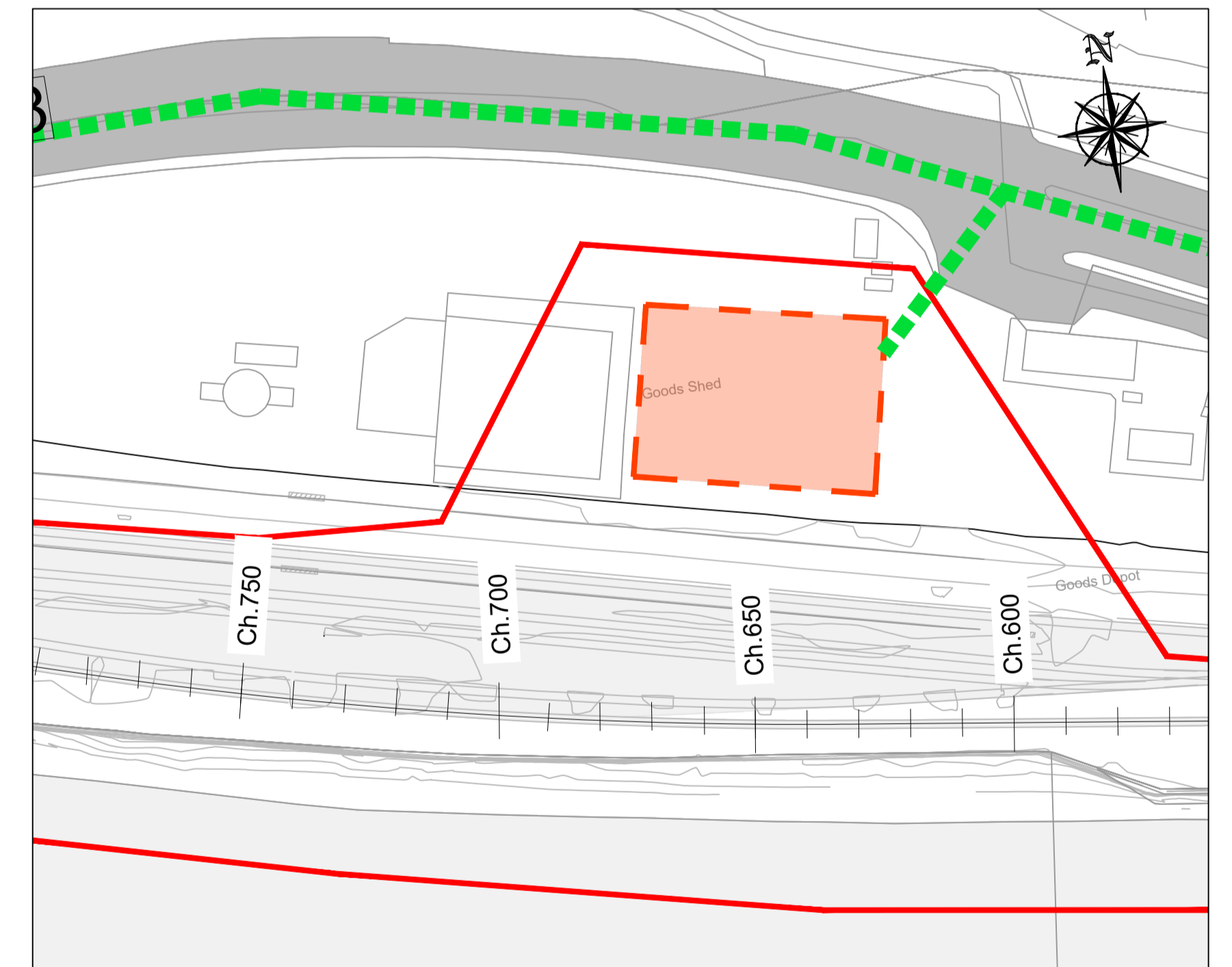
Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountryCouncil. © Ordnance Survey Ireland and Government of Ireland.

					Arena House, Arena Road, Sandyford, Dublin 18, Ireland t +353 (0) 1 294 0800 f +353 (0) 1 294 0820 www.rod.ie	Project Title WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST	Drawing Title: Proposed Surface Water Outfall Structures						
						Project Title NATURA IMPACT STATEMENT	<table border="1"> <tr> <td>Designed: CD/CS</td> <td>File:</td> <td>Status: N.I.S.</td> </tr> <tr> <td>Drawn: AR</td> <td>Job No: 18.141</td> <td></td> </tr> <tr> <td>Checked: BC</td> <td>Scale: AS SHOWN</td> <td>Drawing No: FIG 4.20</td> </tr> <tr> <td>Approved: TD</td> <td>Date: OCTOBER 2021</td> <td>Rev: -</td> </tr> </table>	Designed: CD/CS	File:	Status: N.I.S.	Drawn: AR	Job No: 18.141	
Designed: CD/CS	File:	Status: N.I.S.											
Drawn: AR	Job No: 18.141												
Checked: BC	Scale: AS SHOWN	Drawing No: FIG 4.20											
Approved: TD	Date: OCTOBER 2021	Rev: -											

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



MAIN CONSTRUCTION COMPOUND AT CH. 1340



ANCILLARY CONSTRUCTION COMPOUND AT CH. 620

Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountryCouncil. © Ordnance Survey Ireland and Government of Ireland.



Consulting Engineers
Civil - Structural - Transportation - Environmental

Arena House, Arena Road, Sandford, Dublin 18, Ireland
t +353 (0) 1 294 0800
f +353 (0) 1 294 0820
www.rod.ie

Project Title
**WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT
FLOOD DEFENCES WEST**

NATURA IMPACT STATEMENT

Drawing Title: Location of Temporary Construction Compound Areas			
Designed: YB	File:	Status: N.I.S.	
Drawn: IM	Job No: 18.141		
Checked: BC	Scale: 1:2500 @A3	Drawing No: FIG 4.21	Rev: -
Approved: TD	Date: OCTOBER 2021		

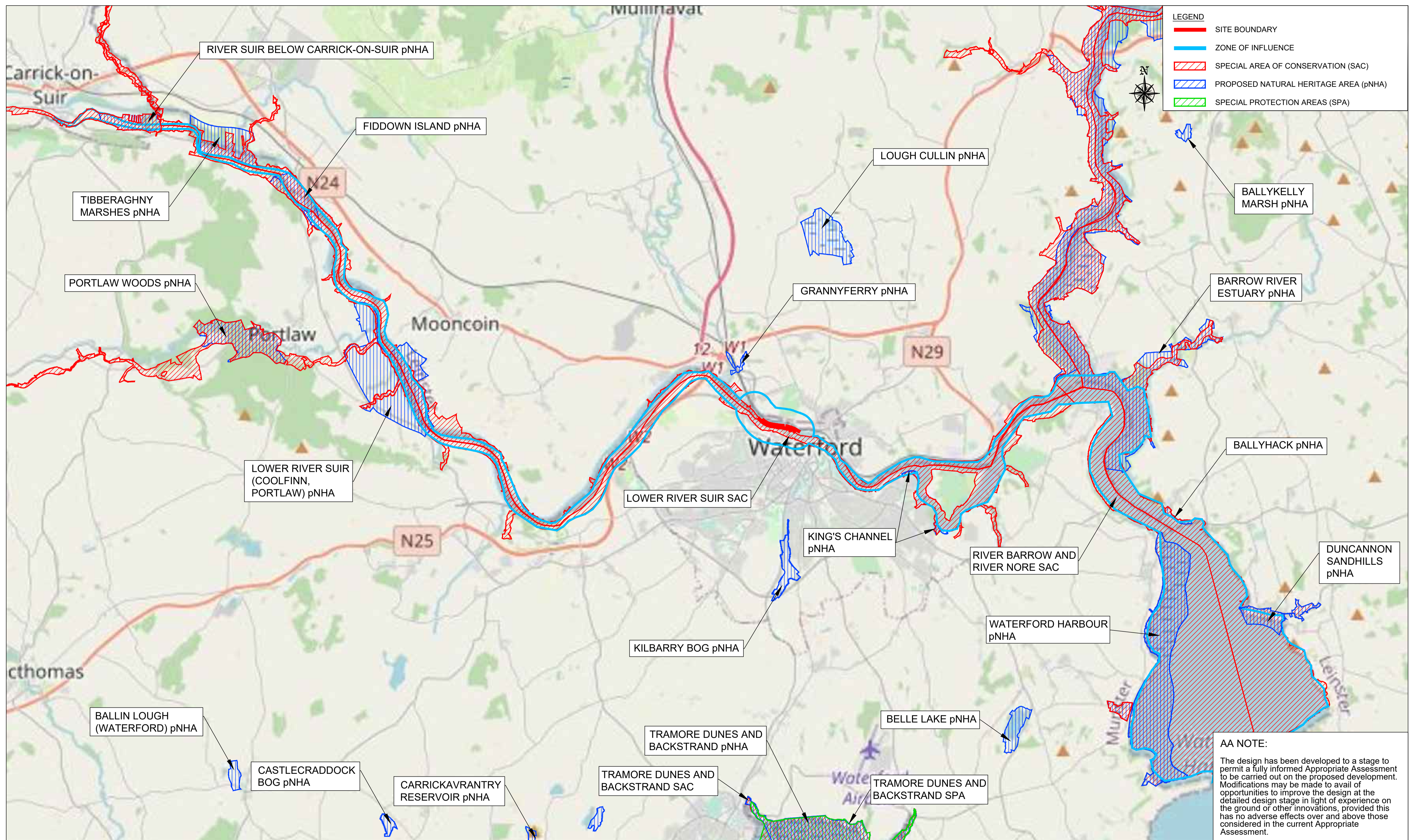
DO NOT SCALE USE FIGURED DIMENSIONS ONLY

.....

Appendix E

Designated Sites

.....



Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountyCouncil. © Ordnance Survey Ireland and Government of Ireland.

	Arena House, Arena Road, Sandycroft, Dublin 18, Ireland t +353 (0) 1 294 0800 f +353 (0) 1 294 0820 www.rod.ie	Project Title: WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST	Drawing Title: Location of Designated Sites										
		Project Title: NATURA IMPACT STATEMENT	<table border="1"> <tr> <td>Designed: KTS</td> <td>File:</td> <td>Status: N.I.S.</td> </tr> <tr> <td>Drawn: IM</td> <td>Job No: 18.141</td> <td></td> </tr> <tr> <td>Checked: OOK</td> <td>Scale: 1:50,000 @A3</td> <td>Drawing No: FIG 7.1</td> </tr> <tr> <td>Approved: TD</td> <td>Date: OCTOBER 2021</td> <td>Rev: -</td> </tr> </table>	Designed: KTS	File:	Status: N.I.S.	Drawn: IM	Job No: 18.141		Checked: OOK	Scale: 1:50,000 @A3	Drawing No: FIG 7.1	Approved: TD
Designed: KTS	File:	Status: N.I.S.											
Drawn: IM	Job No: 18.141												
Checked: OOK	Scale: 1:50,000 @A3	Drawing No: FIG 7.1											
Approved: TD	Date: OCTOBER 2021	Rev: -											

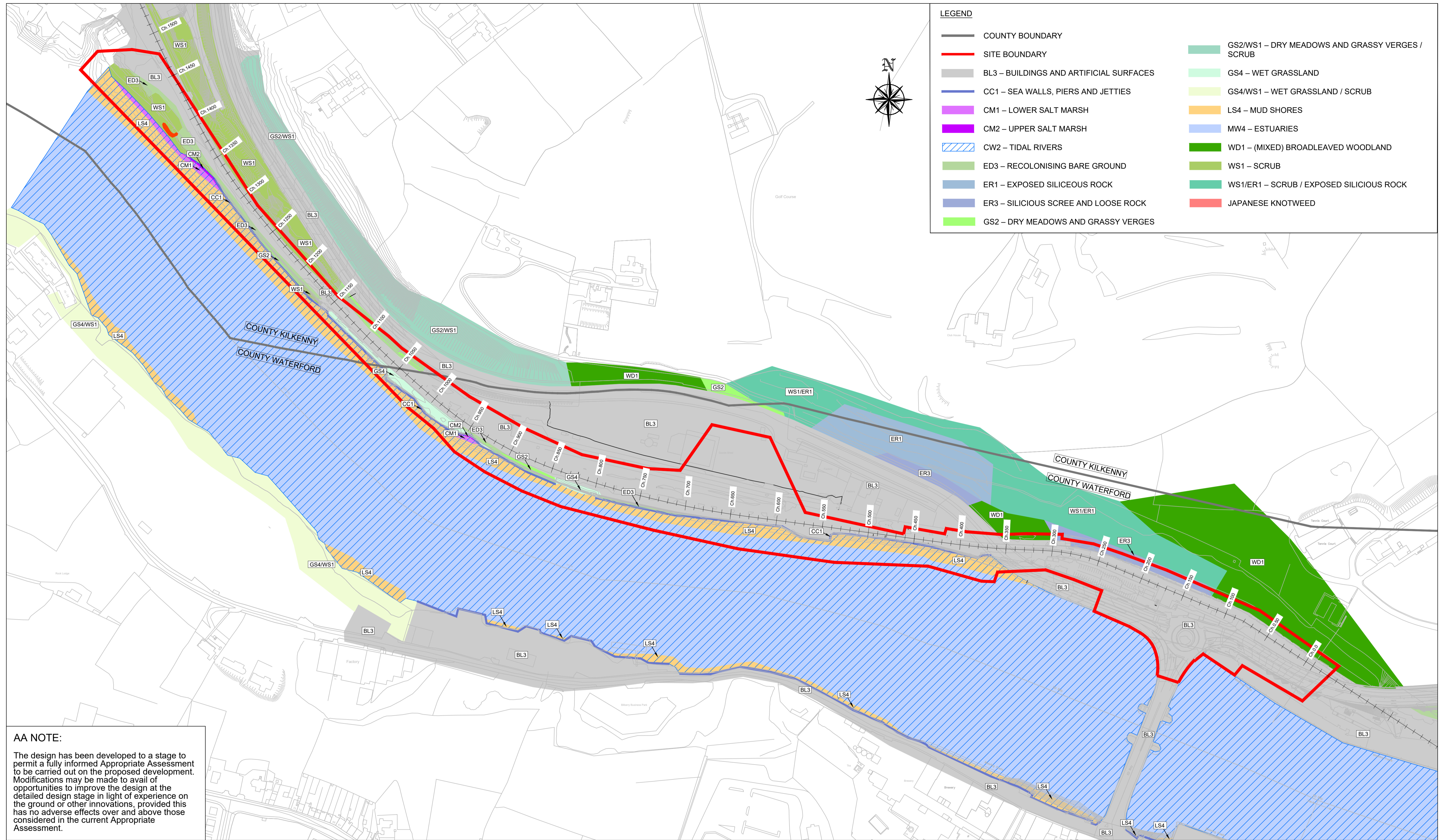
DO NOT SCALE USE FIGURED DIMENSIONS ONLY

.....

Appendix F

Habitat Mapping

.....



LEGEND

— COUNTY BOUNDARY	GS2/WS1 – DRY MEADOWS AND GRASSY VERGES / SCRUB
— SITE BOUNDARY	GS4 – WET GRASSLAND
BL3 – BUILDINGS AND ARTIFICIAL SURFACES	GS4/WS1 – WET GRASSLAND / SCRUB
CC1 – SEA WALLS, PIERS AND JETTIES	LS4 – MUD SHORES
CM1 – LOWER SALT MARSH	MW4 – ESTUARIES
CM2 – UPPER SALT MARSH	WD1 – (MIXED) BROADLEAVED WOODLAND
CW2 – TIDAL RIVERS	WS1 – SCRUB
ED3 – RECOLONISING BARE GROUND	WS1/ER1 – SCRUB / EXPOSED SILICIOUS ROCK
ER1 – EXPOSED SILICIOUS ROCK	JAPANESE KNOTWEED
ER3 – SILICIOUS SCREE AND LOOSE ROCK	
GS2 – DRY MEADOWS AND GRASSY VERGES	

AA NOTE:
 The design has been developed to a stage to permit a fully informed Appropriate Assessment to be carried out on the proposed development. Modifications may be made to avail of opportunities to improve the design at the detailed design stage in light of experience on the ground or other innovations, provided this has no adverse effects over and above those considered in the current Appropriate Assessment.

Ordnance Survey Ireland License Number 2015/18/CCMA/WaterfordCity&CountryCouncil. © Ordnance Survey Ireland and Government of Ireland.

					Arena House, Arena Road, Sandyford, Dublin 18, Ireland t +353 (0) 1 294 0800 f +353 (0) 1 294 0820 www.rod.ie	Project Title WATERFORD CITY PUBLIC INFRASTRUCTURE PROJECT FLOOD DEFENCES WEST	Drawing Title: Habitat Map						
						NATURA IMPACT STATEMENT	<table border="1"> <tr> <td>Designed: OOK</td> <td>File:</td> <td>Status: N.I.S.</td> </tr> <tr> <td>Drawn: IM</td> <td>Job No: 18.141</td> <td></td> </tr> <tr> <td>Checked: OOK</td> <td>Scale: 1:2000 @A3</td> <td>Drawing No: FIG 7.2</td> </tr> <tr> <td>Approved: TD</td> <td>Date: OCTOBER 2021</td> <td>Rev: -</td> </tr> </table>	Designed: OOK	File:	Status: N.I.S.	Drawn: IM	Job No: 18.141	
Designed: OOK	File:	Status: N.I.S.											
Drawn: IM	Job No: 18.141												
Checked: OOK	Scale: 1:2000 @A3	Drawing No: FIG 7.2											
Approved: TD	Date: OCTOBER 2021	Rev: -											

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



CONTACT

ROUGHAN & O'DONOVAN CONSULTING ENGINEERS

Arena House
Arena Road
Sandyford
Dublin 18
D18 V8P6
Ireland

Phone +353 1 294 0800