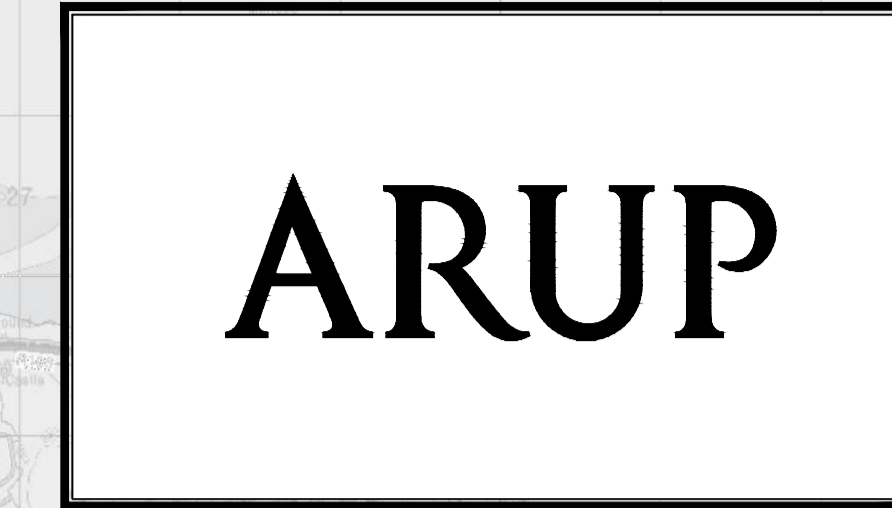




**Appendix B11**  
Proposed Surface Water  
Drainage Works



# BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

## TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME

### PROPOSED SURFACE WATER DRAINAGE WORKS

#### DRAWING SERIES NUMBER(S)

BCIDC-ARP-DNG\_IX-1012\_XX\_00-DR-CD-0001

BCIDC-ARP-DNG\_KP-1012\_XX\_00-DR-CD-0001

BCIDC-ARP-DNG\_RD-1012\_XX\_00-DR-CD-1001-1003

BCIDC-ARP-DNG\_RD-1012\_XX\_00-DR-CD-0001 to 0037

#### DRAWING SERIES DESCRIPTION

TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME. PROPOSED SURFACE WATER DRAINAGE WORKS. COVER SHEET

TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME. PROPOSED SURFACE WATER DRAINAGE WORKS. KEY PLAN

TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME. OVERALL CATCHMENT AREAS

TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME. PROPOSED SURFACE WATER DRAINAGE WORKS

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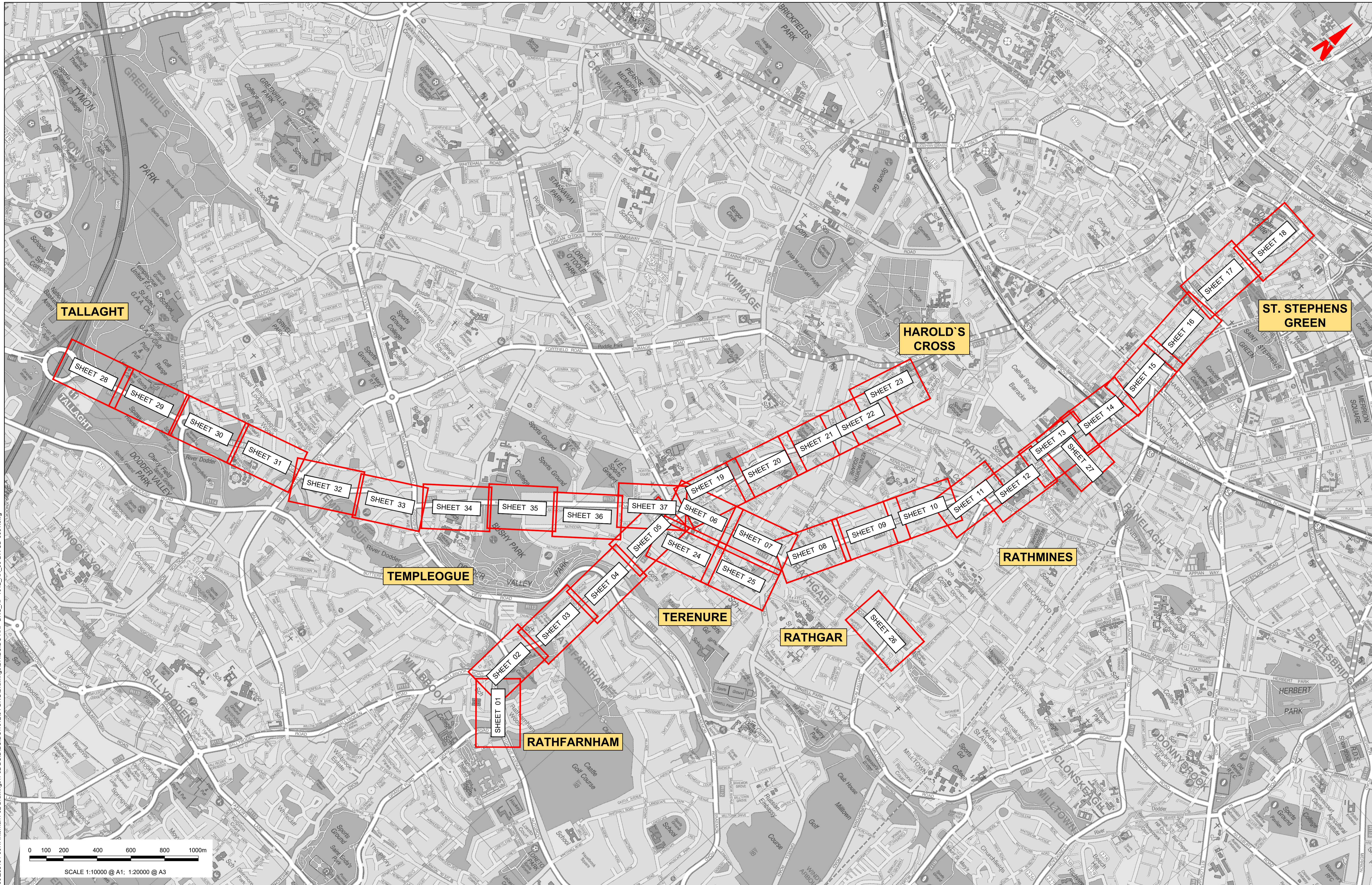


Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AG	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client <b>NTA</b> Údarás Náisiúnta Iompair National Transport Authority		Engineering Designer <b>ARUP</b>		
Date 27/01/2023	Scale N/A @ A1 N/A @ A3	Drawn AG	Checked MR	Approved DC
Project Code BCIDC	Originator Code ARP	QMS Code 268401-00		

Programme Title <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>				
Drawing Title TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS COVER SHEET				
Drawing File Name BCIDC-ARP-DNG_IX-1012_XX_00-DR-CD-0001	Sheet Number 01 of 01	Status A	Rev M01	

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 268401\04\Internal\4-02 BCIDC\DC\101204 DNG\Drawings\DR\BCIDC-ARP-DNG\_KP-1012\_XX\_00-DR-CD-0001.dwg

0 100 200 400 600 800 1000m  
 SCALE 1:10000 @ A1; 1:20000 @ A3

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Client  
**NTA**  
 Údarás Náisiúnta Iompair  
 National Transport Authority

Engineering Designer  
**ARUP**

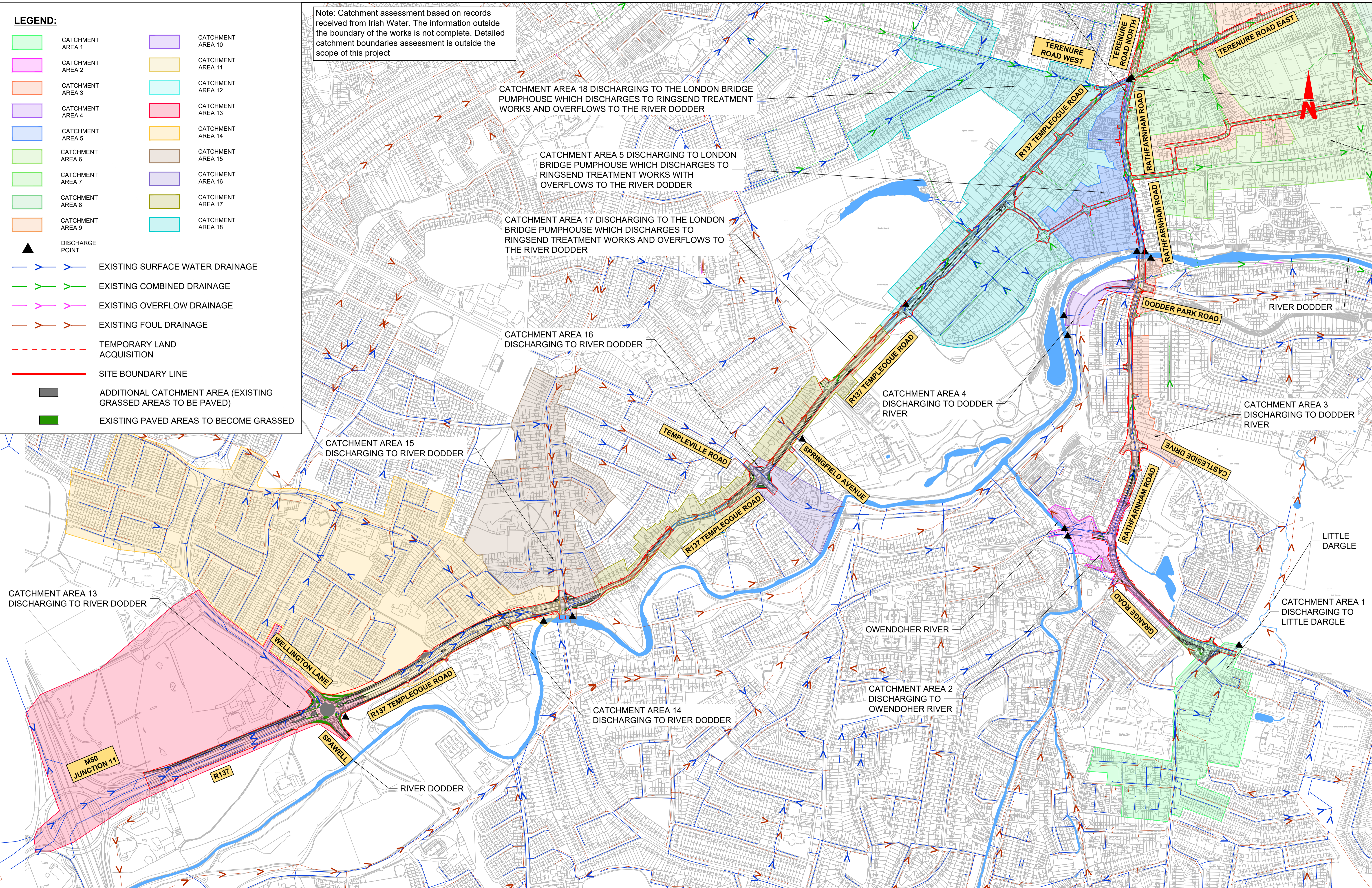
Programme Title		Drawing Title	
BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS		TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS KEY PLAN	
Drawing File Name	Sheet Number	Status	Rev
BCIDC-ARP-DNG_KP-1012_XX_00-DR-CD-0001	01 of 01	A	M01

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**LEGEND:**

	CATCHMENT AREA 1		CATCHMENT AREA 10
	CATCHMENT AREA 2		CATCHMENT AREA 11
	CATCHMENT AREA 3		CATCHMENT AREA 12
	CATCHMENT AREA 4		CATCHMENT AREA 13
	CATCHMENT AREA 5		CATCHMENT AREA 14
	CATCHMENT AREA 6		CATCHMENT AREA 15
	CATCHMENT AREA 7		CATCHMENT AREA 16
	CATCHMENT AREA 8		CATCHMENT AREA 17
	CATCHMENT AREA 9		CATCHMENT AREA 18
	DISCHARGE POINT		
	EXISTING SURFACE WATER DRAINAGE		
	EXISTING COMBINED DRAINAGE		
	EXISTING OVERFLOW DRAINAGE		
	EXISTING FOUL DRAINAGE		
	TEMPORARY LAND ACQUISITION		
	SITE BOUNDARY LINE		
	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREAS TO BE PAVED)		
	EXISTING PAVED AREAS TO BECOME GRASSED		

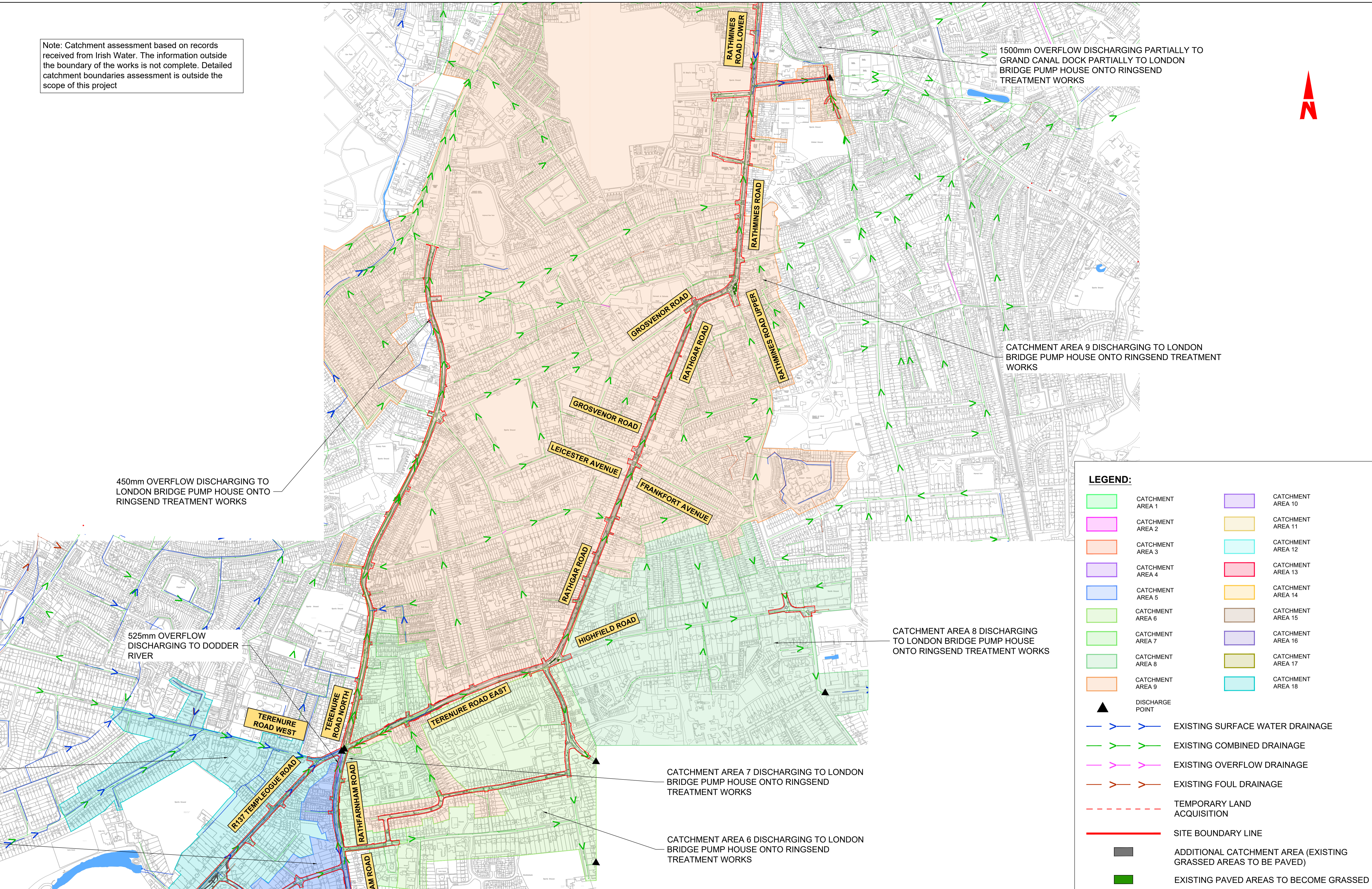
Note: Catchment assessment based on records received from Irish Water. The information outside the boundary of the works is not complete. Detailed catchment boundaries assessment is outside the scope of this project



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<p>Date: 27/01/2023</p> <p>Scale: 1:5000 @ A1, 1:10000 @ A3</p> <p>Project Code: BCIDC</p> <p>Originator Code: ARP</p>		<p>Drawn: AG</p> <p>Checked: MR</p> <p>Approved: DC</p> <p>QMS Code: 268401-00</p>		<p>Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-1001</p> <p>Sheet Number: 01 of 03</p> <p>Status: A</p> <p>Rev: M01</p>		<p>Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME OVERALL CATCHMENT AREAS</p>		<p>DO NOT SCALE USE FIGURED DIMENSIONS ONLY</p>	

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Note: Catchment assessment based on records received from Irish Water. The information outside the boundary of the works is not complete. Detailed catchment boundaries assessment is outside the scope of this project



450mm OVERFLOW DISCHARGING TO LONDON BRIDGE PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

1500mm OVERFLOW DISCHARGING PARTIALLY TO GRAND CANAL DOCK PARTIALLY TO LONDON BRIDGE PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

CATCHMENT AREA 9 DISCHARGING TO LONDON BRIDGE PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

525mm OVERFLOW DISCHARGING TO DODDER RIVER

CATCHMENT AREA 8 DISCHARGING TO LONDON BRIDGE PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

CATCHMENT AREA 7 DISCHARGING TO LONDON BRIDGE PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

CATCHMENT AREA 6 DISCHARGING TO LONDON BRIDGE PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

**LEGEND:**

	CATCHMENT AREA 1		CATCHMENT AREA 10
	CATCHMENT AREA 2		CATCHMENT AREA 11
	CATCHMENT AREA 3		CATCHMENT AREA 12
	CATCHMENT AREA 4		CATCHMENT AREA 13
	CATCHMENT AREA 5		CATCHMENT AREA 14
	CATCHMENT AREA 6		CATCHMENT AREA 15
	CATCHMENT AREA 7		CATCHMENT AREA 16
	CATCHMENT AREA 8		CATCHMENT AREA 17
	CATCHMENT AREA 9		CATCHMENT AREA 18

▲ DISCHARGE POINT

EXISTING SURFACE WATER DRAINAGE

EXISTING COMBINED DRAINAGE

EXISTING OVERFLOW DRAINAGE

EXISTING FOUL DRAINAGE

TEMPORARY LAND ACQUISITION

SITE BOUNDARY LINE

ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREAS TO BE PAVED)

EXISTING PAVED AREAS TO BECOME GRASSED

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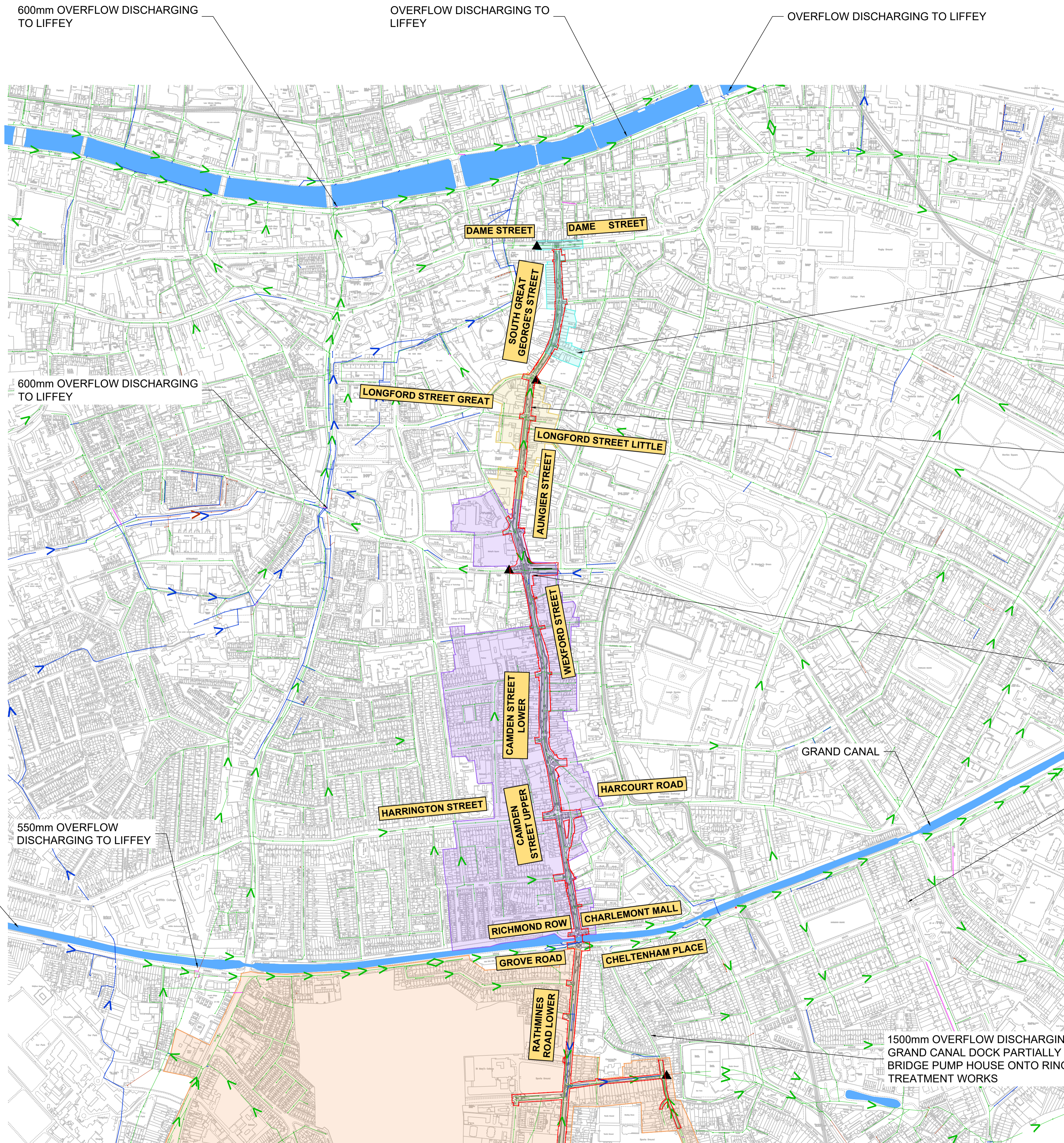
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27/01/2023	1:5000 @ A1 1:10000 @ A3	AG	MR	DC
Project Code	Originator Code	QMS Code		
BCIDC	ARP	268401-00		

<b>Programme Title</b> <b>BUSCONNECTS DUBLIN</b> <b>CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
<b>Drawing Title</b> TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME OVERALL CATCHMENT AREAS			
Drawing File Name	Sheet Number	Status	Rev
BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-1002	02 of 03	A	M01

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**LEGEND:**

- CATCHMENT AREA 1
- CATCHMENT AREA 2
- CATCHMENT AREA 3
- CATCHMENT AREA 4
- CATCHMENT AREA 5
- CATCHMENT AREA 6
- CATCHMENT AREA 7
- CATCHMENT AREA 8
- CATCHMENT AREA 9
- CATCHMENT AREA 10
- CATCHMENT AREA 11
- CATCHMENT AREA 12
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- CATCHMENT AREA 18
- DISCHARGE POINT
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- EXISTING COMBINED DRAINAGE
- EXISTING OVERFLOW DRAINAGE
- EXISTING FOUL DRAINAGE
- TEMPORARY LAND ACQUISITION
- SITE BOUNDARY LINE
- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREAS TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED



CATCHMENT AREA 12 DISCHARGING TO RINGSEND MAIN LIFT PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

CATCHMENT AREA 11 DISCHARGING TO RINGSEND MAIN LIFT PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

CATCHMENT AREA 10 DISCHARGING TO RINGSEND MAIN LIFT PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

1700mm OVERFLOW DISCHARGING PARTIALLY TO GRAND CANAL DOCK PARTIALLY TO LONDON BRIDGE PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

1500mm OVERFLOW DISCHARGING PARTIALLY TO GRAND CANAL DOCK PARTIALLY TO LONDON BRIDGE PUMP HOUSE ONTO RINGSEND TREATMENT WORKS

Note: Catchment assessment based on records received from Irish Water. The information outside the boundary of the works is not complete. Detailed catchment boundaries assessment is outside the scope of this project

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 Údarás Náisiúnta Iompair  
 National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:5000 @ A1, 1:10000 @ A3  
 Drawn: AG, Checked: MR, Approved: DC

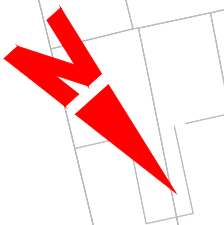
Project Code: BCIDC, Originator Code: ARP, QMS Code: 268401-00

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME OVERALL CATCHMENT AREAS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-1003	Sheet Number: 03 of 03	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3



Ch A0-058 to A0+024 (left hand side):

- Additional impermeable area = 447m<sup>2</sup>.
- Existing gullies connected to the surface water network. All new gullies to be therefore connected to the existing surface water network.
- The proposed raingarden will collect surface water from the footpath & cycle track through breaks in the kerbline.
- The raingarden will attenuate flows before discharging to the existing surface water network to replicate the existing situation.
- ADR: 11.3 l/s.
- Vol<sub>att</sub>: SuDS bio-retention area: 5.5 m<sup>3</sup>.

Ch A0+024 to A0+076 (left hand side):

- Additional impermeable area = 257m<sup>2</sup>.
- Additional grassed (permeable) area = 76m<sup>2</sup>.
- Net impermeable area to be attenuated = 181m<sup>2</sup>.
- Collection of surface water from the footpath, cycle track and carriageway through gullies.
- The gullies will be connected to the proposed filter drain.
- Filter drain to discharge to the proposed SuDS feature which will have a controlled discharge to the existing stormwater system
- ADR: 22.2 l/s.
- Vol<sub>att</sub>: SuDS Bio-retention area: 4.5 m<sup>3</sup> & DN225 filter drain, 54m long

Ch A0+162 to A0+347 (left hand side):

- Proposed new drainage network to collect the gullies.
- New network also added because the record drawings show that there is no existing surface water/combined networks in this area.
- Proposed network to discharge to existing surface water network.
- No increase in impermeable catchments.

Outlet pipe to tie into existing network

- DN225
- Ch A0+021
- CL: 49.250
- IL: 47.610

Outlet pipe to tie into existing network

- DN225
- Ch A0+076
- CL: 49.977
- IL: 48.830

Ch A0+162 to A0+333 (right hand side):

- Additional catchment area: 904m<sup>2</sup>.
- Collection of surface water from the footpath, cycle track and carriageway through gullies.
- The gullies will be connected to a system of tree pits interconnected through filter drains.
- Filter drains to discharge to the proposed surface water pipe.
- ADR: 12.4 l/s.
- Vol<sub>att</sub>: DN225 filter drain, 163m long; DN225 surface water pipe, 156m long.

Ch A0+076 to A0+162 (both sides):

- Additional catchment area: 260m<sup>2</sup>.
- Additional grassed (permeable) area = 10m<sup>2</sup>.
- Net impermeable area = 250m<sup>2</sup>.
- Collection of surface water from the footpath, cycle track and carriageway through gullies.
- The gullies will be connected to a system of tree pits interconnected through filter drains
- The filter drain will discharge to the proposed stormwater pipe.
- The proposed stormwater pipe will also provide attenuation to compensate for the additional impermeable area (41 m<sup>2</sup>) located at Ch 0-058 to 0+076.
- Total additional impermeable area to be attenuated = 291m<sup>2</sup>.
- ADR: 21.4 l/s.
- Vol<sub>att</sub>: DN225 filter drain, 20m long & DN225 surface water pipe, 127m long.

Ch A0-058 to A0+076 (right hand side)

- Existing gullies connected to the Ø225mm surface water network. All gullies to be therefore connected to the existing surface water network.
- Depth to soffit of existing surface water network varies from 2.26 to 2.68m.
- Additional impermeable catchment area = 41m<sup>2</sup>.
- The proposed surface water system located at Ch A0+076 to A0+162 will provide attenuation to compensate for this additional impermeable catchment area.

**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	SURFACE WATER PIPE UNDER CONSTRUCTION		PROPOSED SUDES I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
	PROPOSED OVERSIZED PIPE		SITE BOUNDARY LINE
	PROPOSED FILTER DRAIN/PERFORATED PIPE		TEMPORARY LAND ACQUISITION
	PROPOSED PERMEABLE PAVING		

NOTE: PIPE SHAPE CODES DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

**NOTES:**

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2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND REPORTS.
3. STORMWATER DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS AND/OR THE DRAINAGE DESIGN BASIS REPORT FOR CBC BUSCONNECTS.
4. ALL LEVELS ARE IN METRES ABOVE ORDINANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
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11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION

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**LEGEND:**

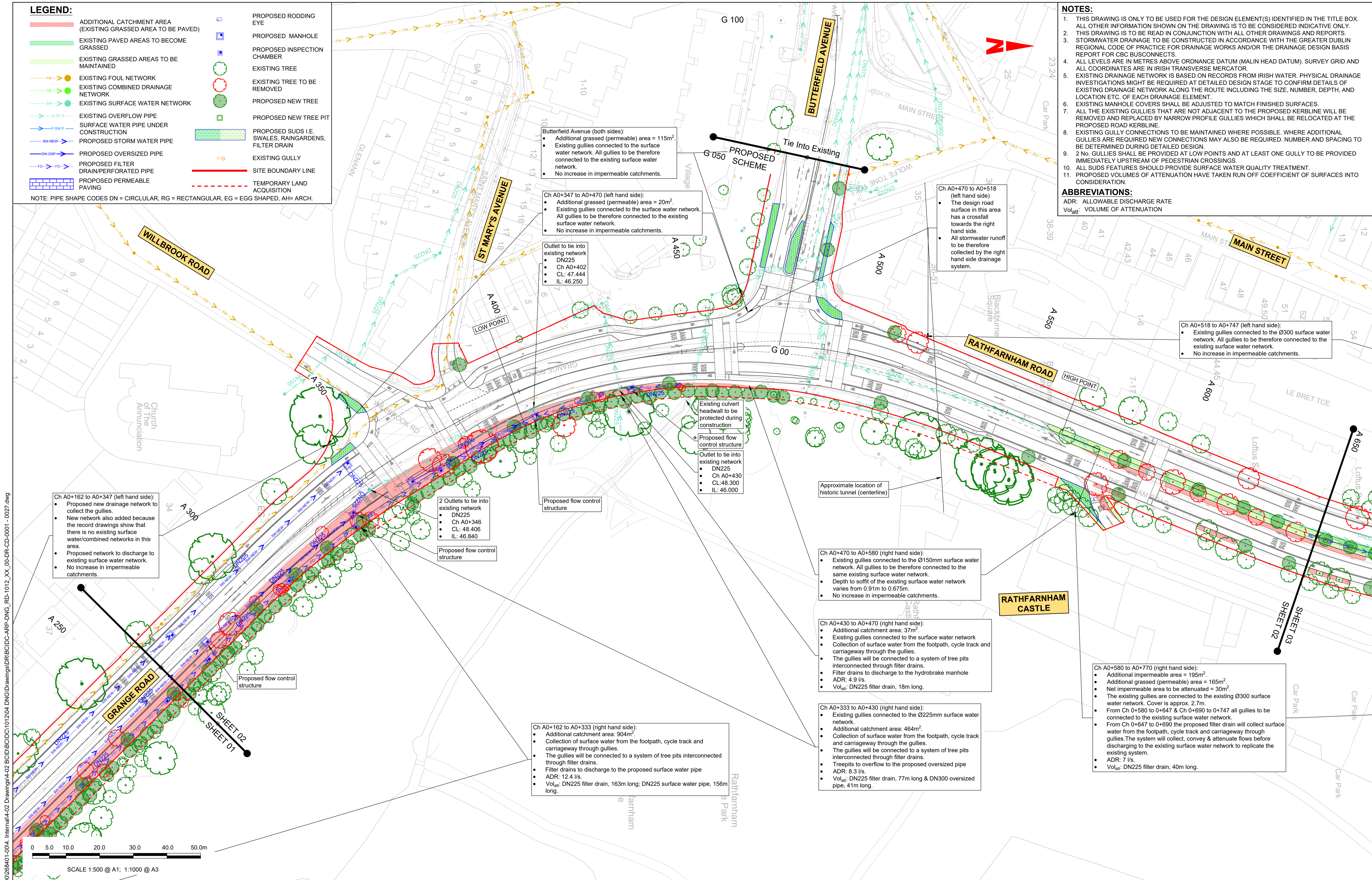
	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	SURFACE WATER PIPE UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
	PROPOSED OVERSIZED PIPE		SITE BOUNDARY LINE
	PROPOSED FILTER DRAIN/PERFORATED PIPE		TEMPORARY LAND ACQUISITION
	PROPOSED PERMEABLE PAVING		

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**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
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 0 5.0 10.0 20.0 30.0 40.0 50.0m  
 SCALE 1:500 @ A1; 1:1000 @ A3

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<p>Date 27/01/2023 Scale 1:500 @ A1 1:1000 @ A3 Drawn AF Checked MR Approved DC</p>					<p>Project Code BCIDC Originator Code ARP QMS Code 268401-00</p>			<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0002 Sheet Number 02 of 37 Status A Rev M01</p>						

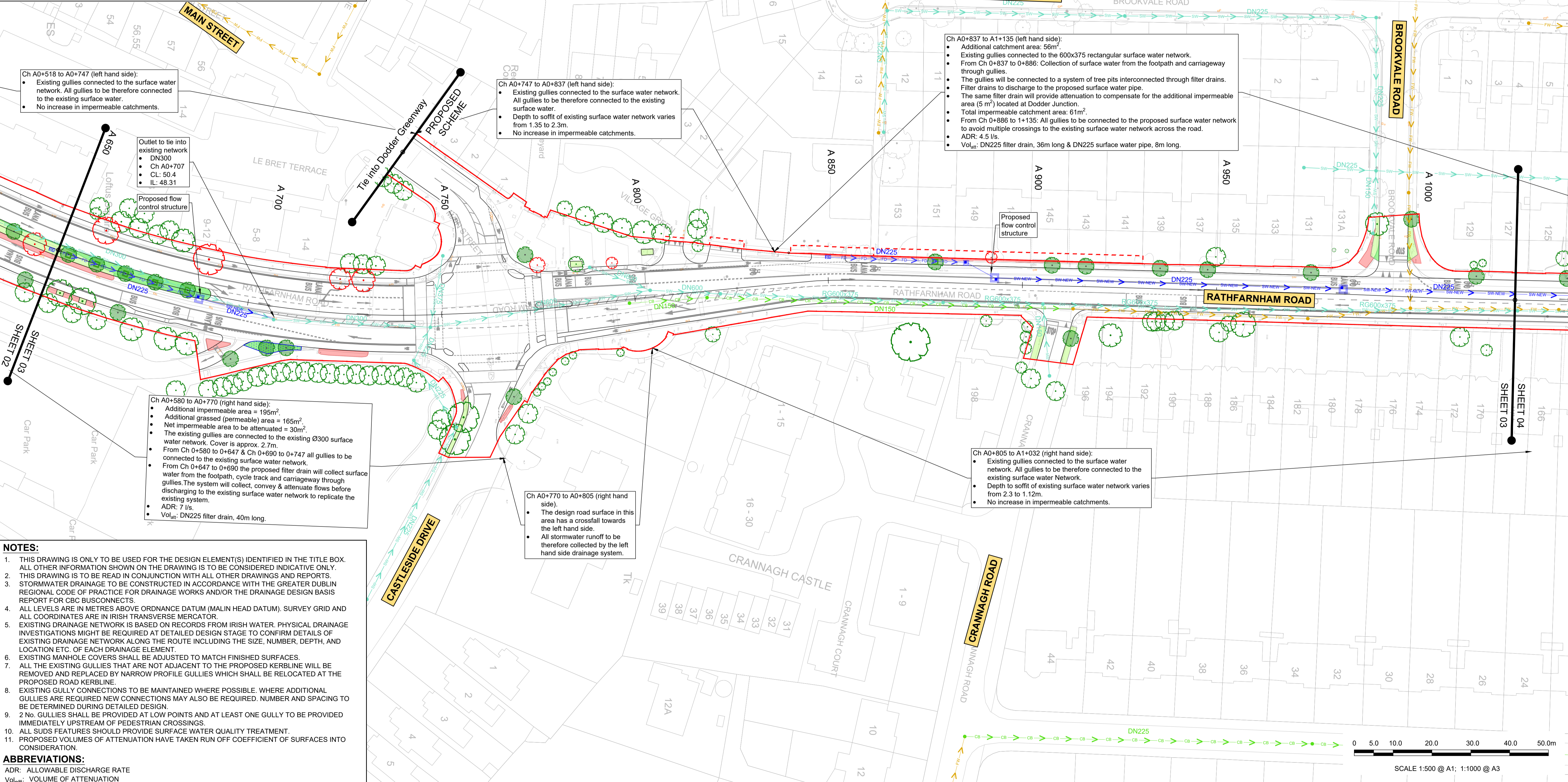
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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
Udárás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023  
Scale: 1:500 @ A1  
1:1000 @ A3

Drawn: AF  
Checked: MR  
Approved: DC

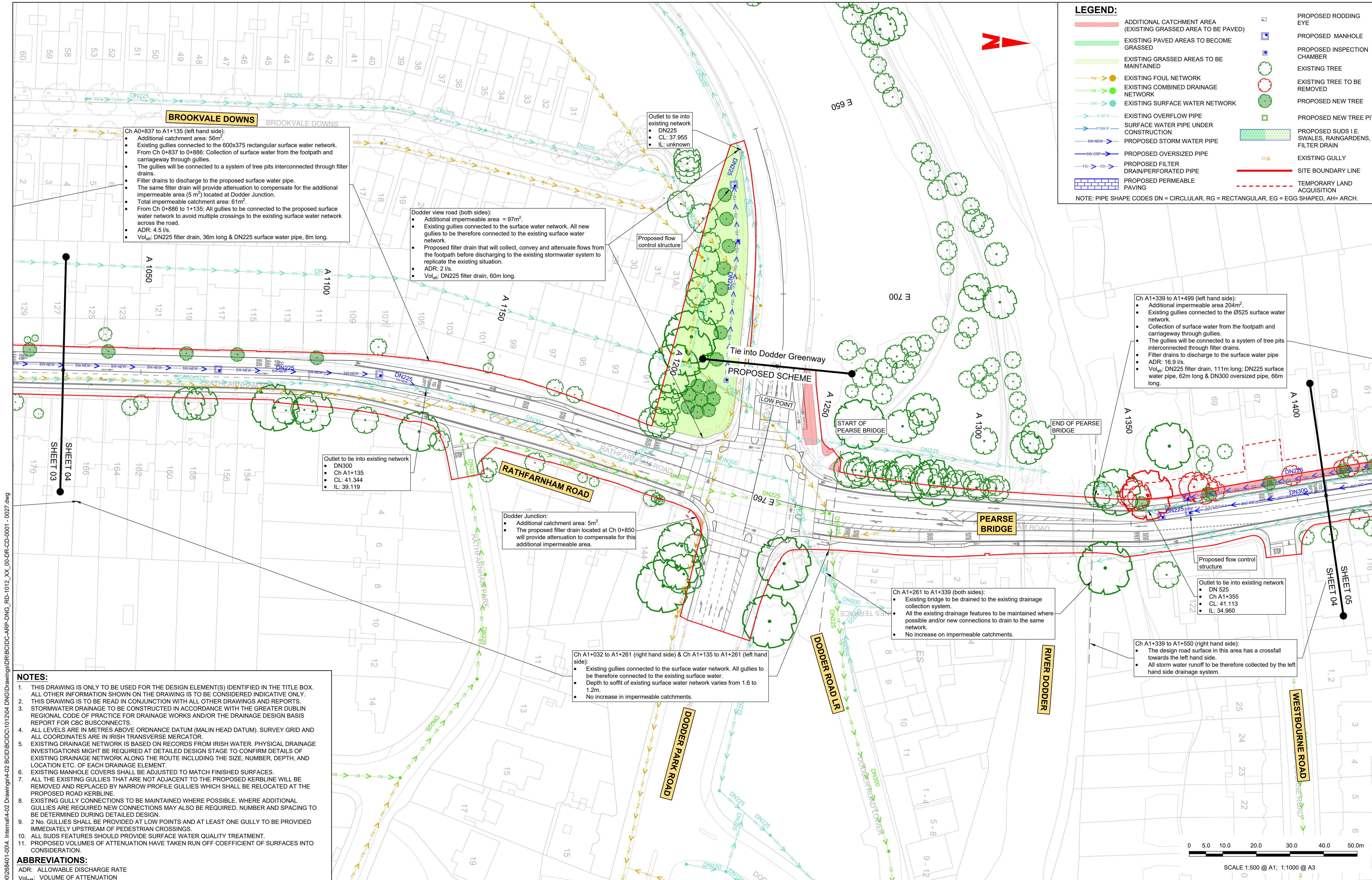
Project Code: BCIDC  
Originator Code: ARP  
QMS Code: 268401-00

Programme Title: **BUSCONNECTS DUBLIN**  
**CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

Drawing Title: **TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME**  
**PROPOSED SURFACE WATER DRAINAGE WORKS**

Drawing File Name: BCIDC-ARP-DNG\_RD-1012\_XX\_00-DR-CD-0003  
Sheet Number: 03 of 37  
Status: A  
Rev: M01

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**Ch A0+837 to A1+135 (left hand side):**

- Additional catchment area: 56m<sup>2</sup>.
- Existing gullies connected to the 600x375 rectangular surface water network.
- From Ch 0+837 to 0+886: Collection of surface water from the footpath and carriageway through gullies.
- The gullies will be connected to a system of tree pits interconnected through filter drains.
- Filter drains to discharge to the proposed surface water pipe.
- The same filter drain will provide attenuation to compensate for the additional impermeable area (5 m<sup>2</sup>) located at Dodder Junction.
- Total impermeable catchment area: 61m<sup>2</sup>.
- From Ch 0+886 to 1+135: All gullies to be connected to the proposed surface water network to avoid multiple crossings to the existing surface water network across the road.
- ADR: 4.5 l/s.
- Vol<sub>att</sub>: DN225 filter drain, 36m long & DN225 surface water pipe, 8m long.

**Dodder view road (both sides):**

- Additional impermeable area = 97m<sup>2</sup>.
- Existing gullies connected to the surface water network. All new gullies to be therefore connected to the existing surface water network.
- Proposed filter drain that will collect, convey and attenuate flows from the footpath before discharging to the existing stormwater system to replicate the existing situation.
- ADR: 2 l/s.
- Vol<sub>att</sub>: DN225 filter drain, 60m long.

**Ch A1+339 to A1+499 (left hand side):**

- Additional impermeable area 204m<sup>2</sup>.
- Existing gullies connected to the Ø525 surface water network.
- Collection of surface water from the footpath and carriageway through gullies.
- The gullies will be connected to a system of tree pits interconnected through filter drains.
- Filter drains to discharge to the surface water pipe
- ADR: 16.9 l/s.
- Vol<sub>att</sub>: DN225 filter drain, 111m long; DN225 surface water pipe, 62m long & DN300 oversized pipe, 66m long.

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**Project Ireland 2040**  
Building Ireland's Future

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Udarás Náisiúnta Iompair  
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Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3  
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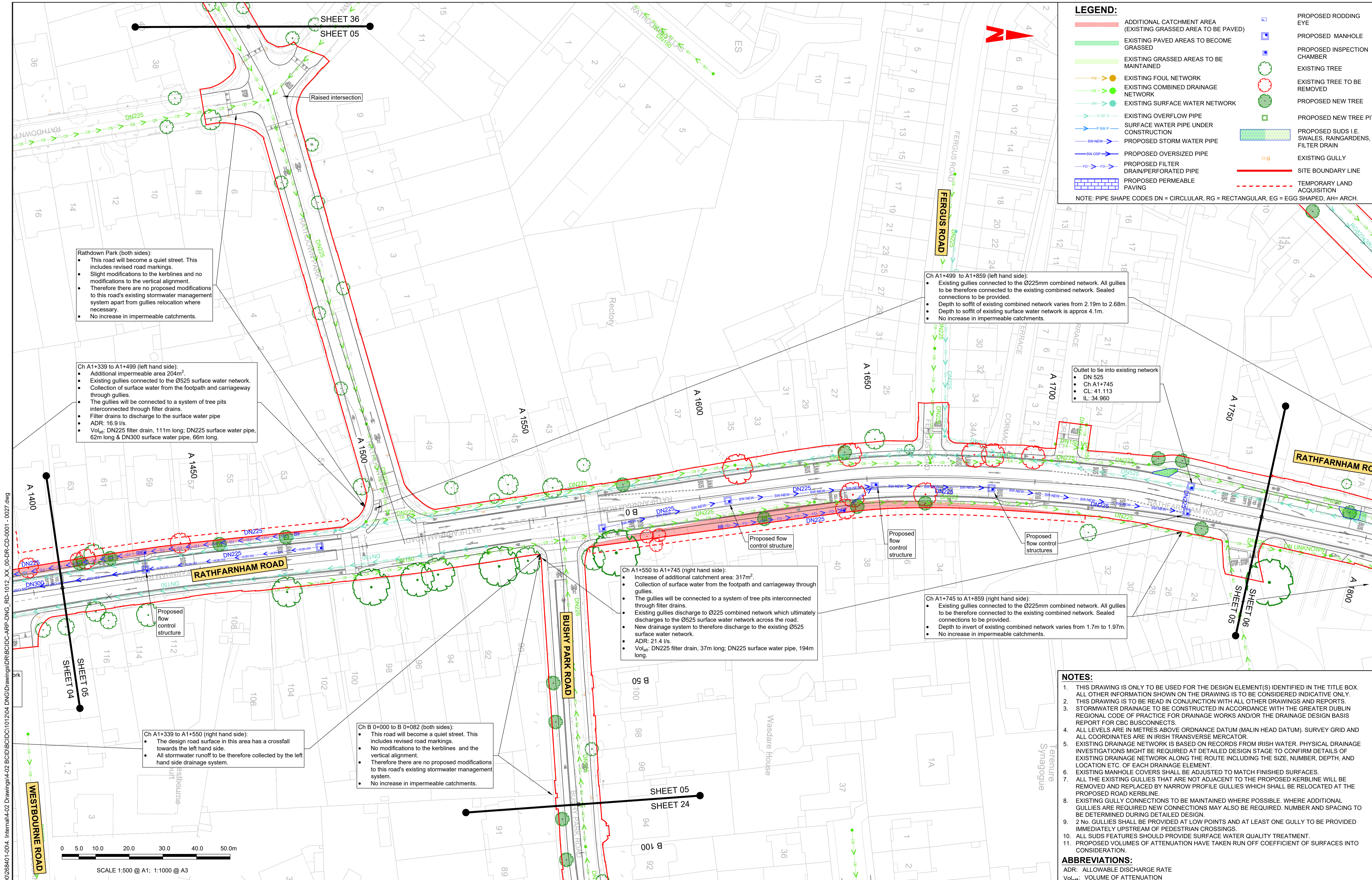
Programme Title: **BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

Drawing Title: **TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS**

Drawing File Name: BCIDC-ARP-DNG\_RD-1012\_XX\_00-DR-CD-0004, Sheet Number: 04 of 37, Status: A, Rev: M01

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**Rathdown Park (both sides):**

- This road will become a quiet street. This includes revised road markings.
- Slight modifications to the kerblines and no modifications to the vertical alignment.
- Therefore there are no proposed modifications to this road's existing stormwater management system apart from gullies relocation where necessary.
- No increase in impermeable catchments.

**Ch A1+339 to A1+499 (left hand side):**

- Additional impermeable area 204m<sup>2</sup>.
- Existing gullies connected to the Ø525 surface water network.
- Collection of surface water from the footpath and carriageway through gullies.
- The gullies will be connected to a system of tree pits interconnected through filter drains.
- Filter drains to discharge to the surface water pipe
- ADR: 16.9 l/s.
- Vol<sub>att</sub>: DN225 filter drain, 111m long; DN225 surface water pipe, 62m long & DN300 surface water pipe, 66m long.

**Ch A1+499 to A1+859 (left hand side):**

- Existing gullies connected to the Ø225mm combined network. All gullies to be therefore connected to the existing combined network. Sealed connections to be provided.
- Depth to soffit of existing combined network varies from 2.19m to 2.68m.
- Depth to soffit of existing surface water network is approx 4.1m.
- No increase in impermeable catchments.

**Outlet to tie into existing network**

- DN 525
- Ch A1+745
- CL: 41.113
- IL: 34.960

**Ch A1+550 to A1+745 (right hand side):**

- Increase of additional catchment area: 317m<sup>2</sup>.
- Collection of surface water from the footpath and carriageway through gullies.
- The gullies will be connected to a system of tree pits interconnected through filter drains.
- Existing gullies discharge to Ø225 combined network which ultimately discharges to the Ø525 surface water network across the road.
- New drainage system to therefore discharge to the existing Ø525 surface water network.
- ADR: 21.4 l/s.
- Vol<sub>att</sub>: DN225 filter drain, 37m long; DN225 surface water pipe, 194m long.

**Ch A1+745 to A1+859 (right hand side):**

- Existing gullies connected to the Ø225mm combined network. All gullies to be therefore connected to the existing combined network. Sealed connections to be provided.
- Depth to invert of existing combined network varies from 1.7m to 1.97m.
- No increase in impermeable catchments.

**Ch A1+339 to A1+550 (right hand side):**

- The design road surface in this area has a crossfall towards the left hand side.
- All stormwater runoff to be therefore collected by the left hand side drainage system.

**Ch B 0+000 to B 0+082 (both sides):**

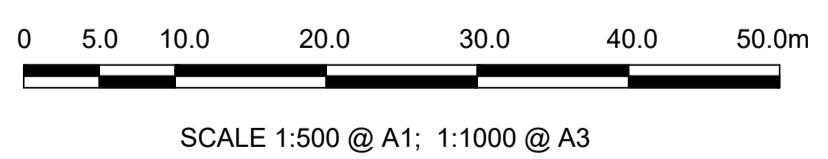
- This road will become a quiet street. This includes revised road markings.
- No modifications to the kerblines and the vertical alignment.
- Therefore there are no proposed modifications to this road's existing stormwater management system.
- No increase in impermeable catchments.

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- EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
- EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
- ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
- EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
- 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
- ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
- PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION



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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
Udárás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

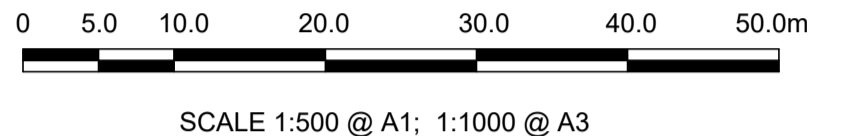
Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0005	Sheet Number: 05 of 37	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

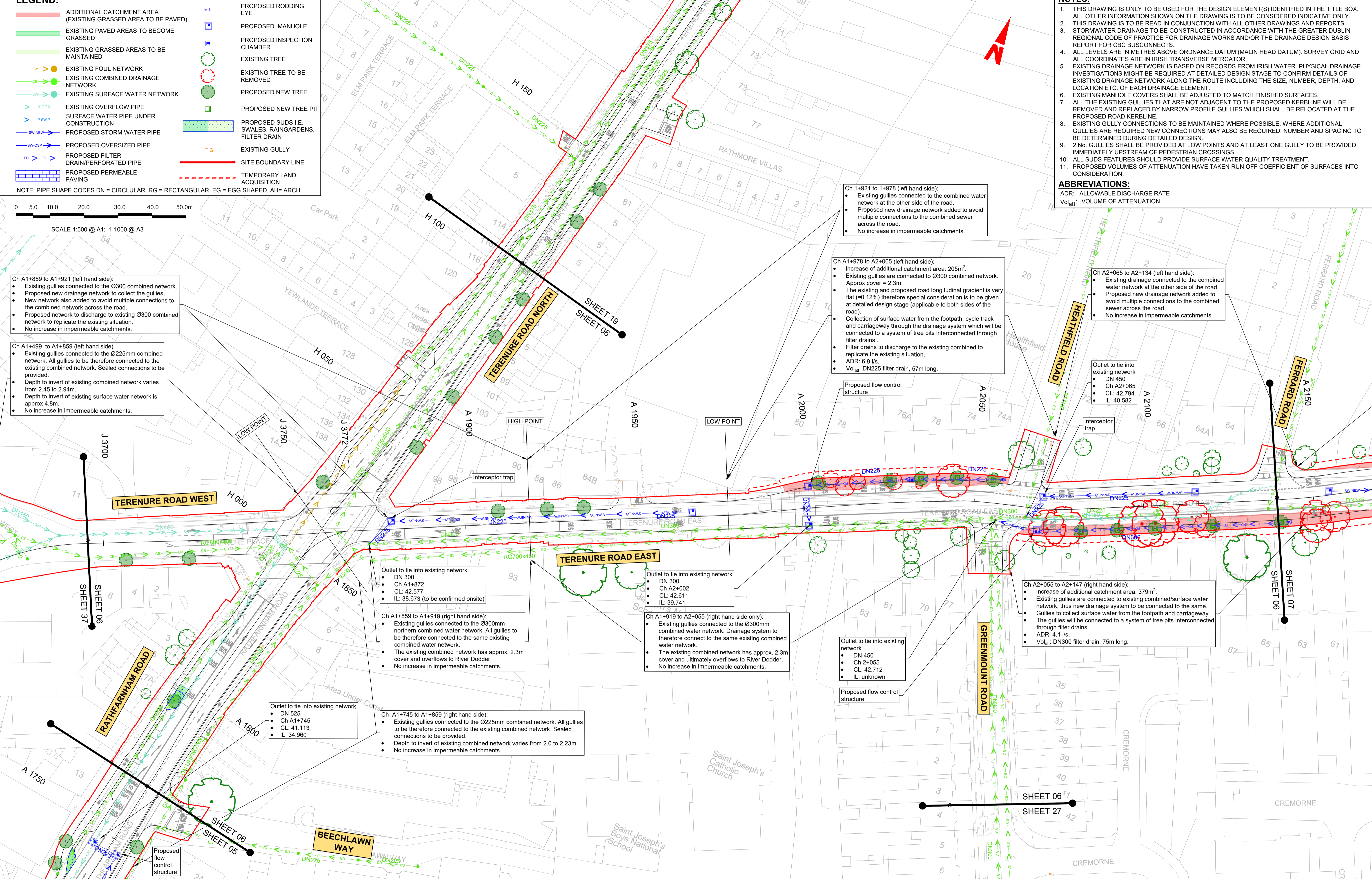
NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.



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- EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
- ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
- EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
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- ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
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**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 Vol<sub>att</sub>: VOLUME OF ATTENUATION



Ch A1+859 to A1+921 (left hand side):

- Existing gullies connected to the Ø300 combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined network across the road.
- Proposed network to discharge to existing Ø300 combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A1+499 to A1+859 (left hand side):

- Existing gullies connected to the Ø225mm combined network. All gullies to be therefore connected to the existing combined network. Sealed connections to be provided.
- Depth to invert of existing combined network varies from 2.45 to 2.94m.
- Depth to invert of existing surface water network is approx 4.8m.
- No increase in impermeable catchments.

Ch 1+921 to 1+978 (left hand side):

- Existing gullies connected to the combined water network at the other side of the road.
- Proposed new drainage network added to avoid multiple connections to the combined sewer across the road.
- No increase in impermeable catchments.

Ch A1+978 to A2+065 (left hand side):

- Increase of additional catchment area: 205m<sup>2</sup>.
- Existing gullies are connected to Ø300 combined network. Approx cover = 2.3m.
- The existing and proposed road longitudinal gradient is very flat (=0.12%) therefore special consideration is to be given at detailed design stage (applicable to both sides of the road).
- Collection of surface water from the footpath, cycle track and carriageway through the drainage system which will be connected to a system of tree pits interconnected through filter drains.
- Filter drains to discharge to the existing combined to replicate the existing situation.
- ADR: 6.9 l/s.
- Vol<sub>att</sub>: DN225 filter drain, 57m long.

Ch A2+065 to A2+134 (left hand side):

- Existing drainage connected to the combined water network at the other side of the road.
- Proposed new drainage network added to avoid multiple connections to the combined sewer across the road.
- No increase in impermeable catchments.

Outlet to tie into existing network

- DN 450
- Ch A2+065
- CL: 42.794
- IL: 40.582

Ch A2+055 to A2+147 (right hand side):

- Increase of additional catchment area: 379m<sup>2</sup>.
- Existing gullies are connected to existing combined/surface water network, thus new drainage system to be connected to the same.
- Gullies to collect surface water from the footpath and carriageway through filter drains.
- The gullies will be connected to a system of tree pits interconnected through filter drains.
- ADR: 4.1 l/s.
- Vol<sub>att</sub>: DN300 filter drain, 75m long.

Outlet to tie into existing network

- DN 300
- Ch A1+872
- CL: 42.577
- IL: 38.673 (to be confirmed onsite)

Ch A1+859 to A1+919 (right hand side):

- Existing gullies connected to the Ø300mm northern combined water network. All gullies to be therefore connected to the same existing combined water network.
- The existing combined network has approx. 2.3m cover and overflows to River Dodder.
- No increase in impermeable catchments.

Outlet to tie into existing network

- DN 300
- Ch A2+002
- CL: 42.611
- IL: 39.741

Ch A1+919 to A2+055 (right hand side only):

- Existing gullies connected to the Ø300mm combined water network. Drainage system to therefore connect to the same existing combined water network.
- The existing combined network has approx. 2.3m cover and ultimately overflows to River Dodder.
- No increase in impermeable catchments.

Outlet to tie into existing network

- DN 525
- Ch A1+745
- CL: 41.113
- IL: 34.960

Ch A1+745 to A1+859 (right hand side):

- Existing gullies connected to the Ø225mm combined network. All gullies to be therefore connected to the existing combined network. Sealed connections to be provided.
- Depth to invert of existing combined network varies from 2.0 to 2.23m.
- No increase in impermeable catchments.

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<p>Date 27/01/2023 Scale 1:500 @ A1 1:1000 @ A3</p>		<p>Drawn AF Checked MR Approved DC</p>		<p>Project Code BCIDC Originator Code ARP QMS Code 268401-00</p>			<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0006</p>			<p>Sheet Number 06 of 37 Status A Rev M01</p>	

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- EXISTING OVERFLOW PIPE
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- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

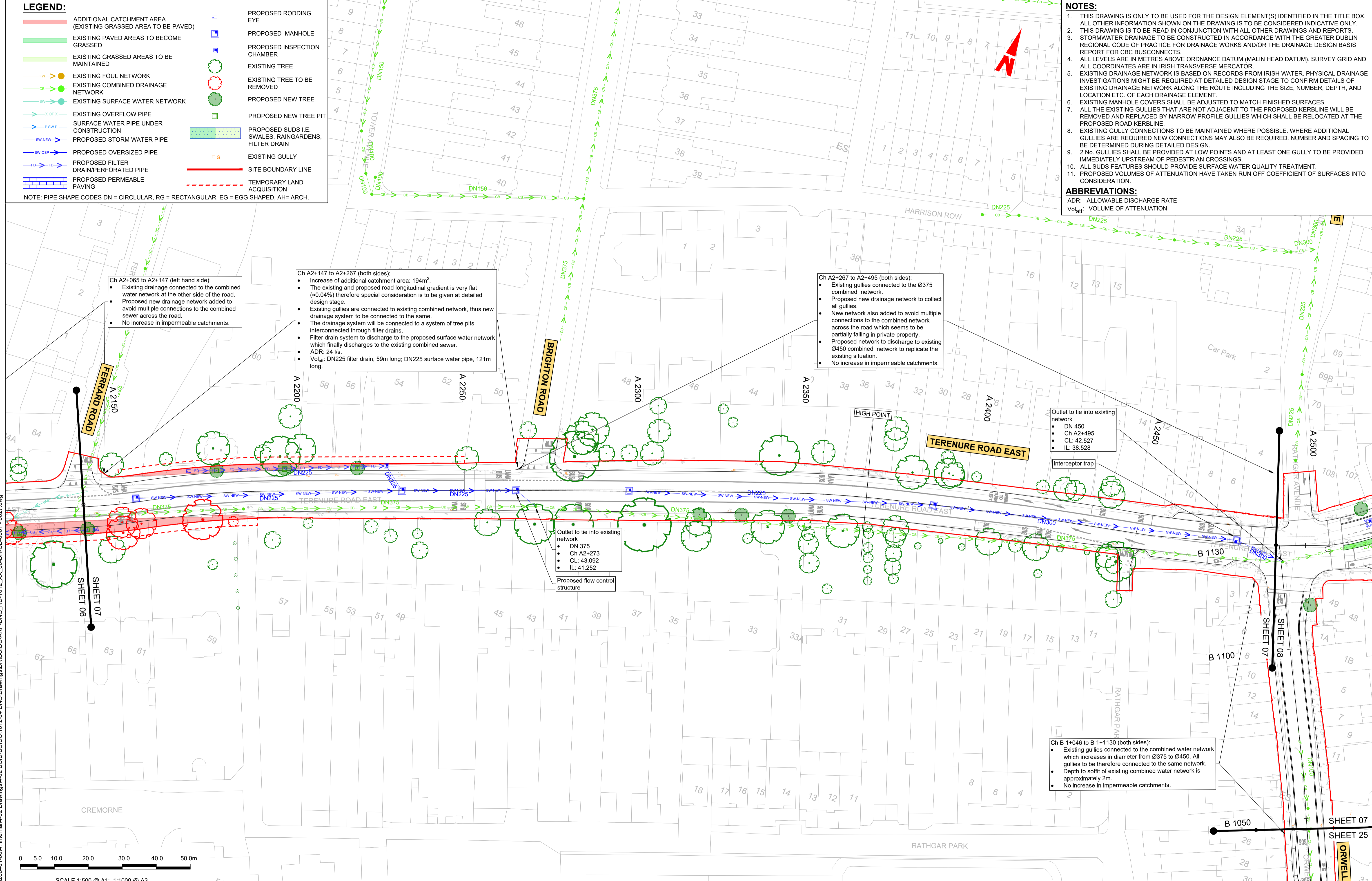
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- ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
- PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION



Ch A2+065 to A2+147 (left hand side):

- Existing drainage connected to the combined water network at the other side of the road.
- Proposed new drainage network added to avoid multiple connections to the combined sewer across the road.
- No increase in impermeable catchments.

Ch A2+147 to A2+267 (both sides):

- Increase of additional catchment area: 194m<sup>2</sup>.
- The existing and proposed road longitudinal gradient is very flat (≈0.04%) therefore special consideration is to be given at detailed design stage.
- Existing gullies are connected to existing combined network, thus new drainage system to be connected to the same.
- The drainage system will be connected to a system of tree pits interconnected through filter drains.
- Filter drain system to discharge to the proposed surface water network which finally discharges to the existing combined sewer.
- ADR: 24 l/s.
- Vol<sub>att</sub>: DN225 filter drain, 59m long; DN225 surface water pipe, 121m long.

Ch A2+267 to A2+495 (both sides):

- Existing gullies connected to the Ø375 combined network.
- Proposed new drainage network to collect all gullies.
- New network also added to avoid multiple connections to the combined network across the road which seems to be partially falling in private property.
- Proposed network to discharge to existing Ø450 combined network to replicate the existing situation.
- No increase in impermeable catchments.

Outlet to tie into existing network

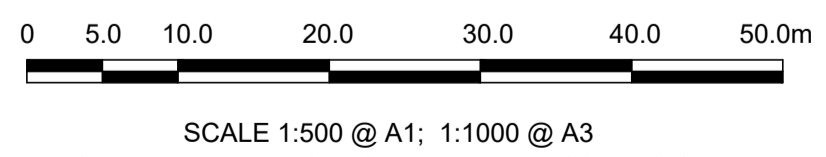
- DN 450
- Ch A2+495
- CL: 42.527
- IL: 38.528

Outlet to tie into existing network

- DN 375
- Ch A2+273
- CL: 43.092
- IL: 41.252

Ch B 1+046 to B 1+1130 (both sides):

- Existing gullies connected to the combined water network which increases in diameter from Ø375 to Ø450. All gullies to be therefore connected to the same network.
- Depth to soffit of existing combined water network is approximately 2m.
- No increase in impermeable catchments.



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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA** Údarás Náisiúnta Iompair National Transport Authority

Engineering Designer: **ARUP**

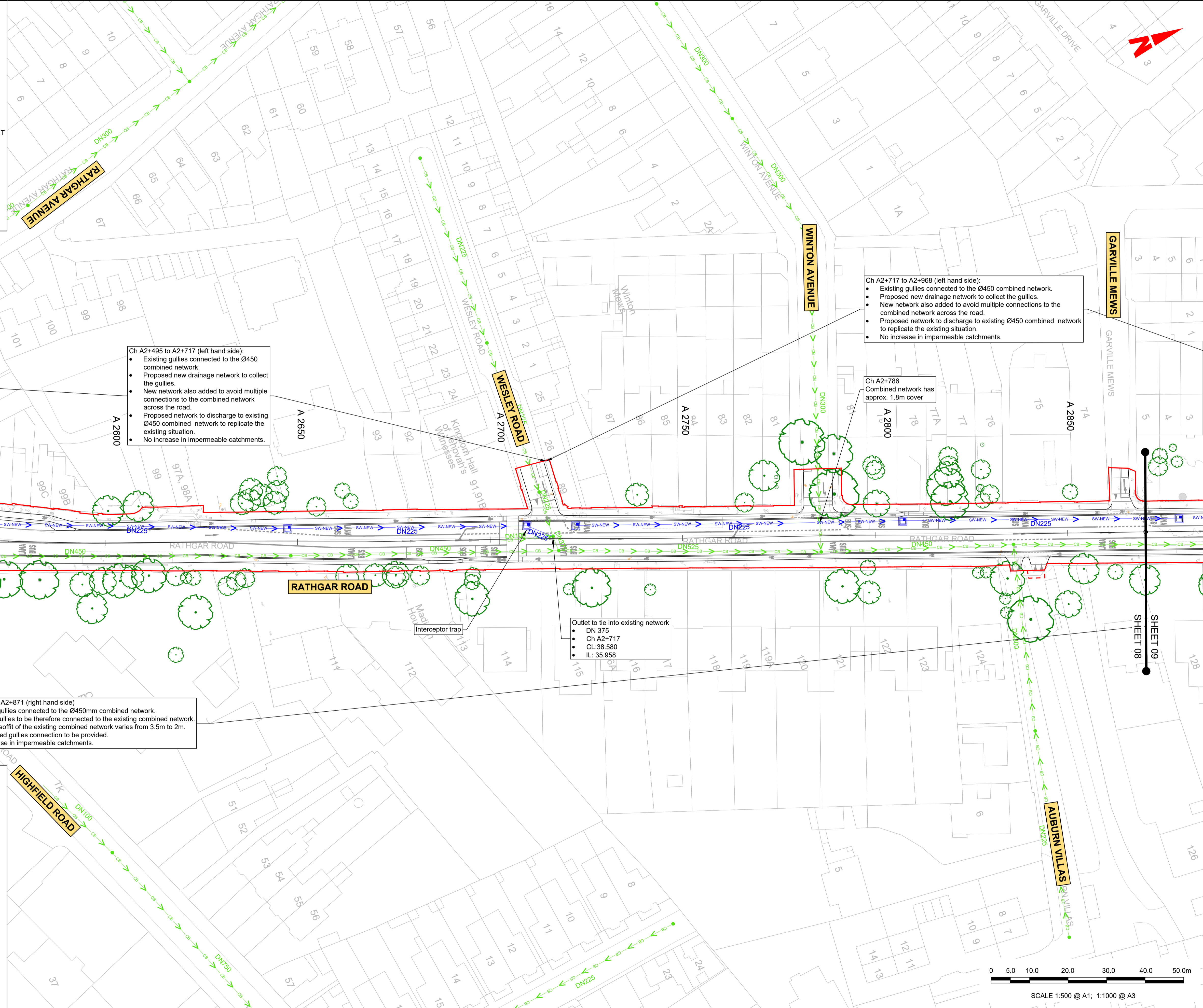
Date: 27/01/2023 Scale: 1:500 @ A1 1:1000 @ A3 Drawn: AF Checked: MR Approved: DC

Project Code: BCIDC Originator Code: ARP QMS Code: 268401-00

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0007	Sheet Number: 07 of 37	Status: A	Rev: M01

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  - EXISTING PAVED AREAS TO BECOME GRASSED
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  - EXISTING OVERFLOW PIPE
  - SURFACE WATER PIPE UNDER CONSTRUCTION
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  - PROPOSED FILTER DRAIN/PERFORATED PIPE
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  - PROPOSED RODDING EYE
  - PROPOSED MANHOLE
  - PROPOSED INSPECTION CHAMBER
  - EXISTING TREE
  - EXISTING TREE TO BE REMOVED
  - PROPOSED NEW TREE
  - PROPOSED NEW TREE PIT
  - PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
  - EXISTING GULLY
  - SITE BOUNDARY LINE
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- NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.



Interceptor trap to provided in manhole

Outlet to tie into existing network

- DN 450
- Ch 2+495
- CL: 42.527
- IL: 38.528

Ch A2+495 to A2+717 (left hand side):

- Existing gullies connected to the Ø450 combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined network across the road.
- Proposed network to discharge to existing Ø450 combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A2+717 to A2+968 (left hand side):

- Existing gullies connected to the Ø450 combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined network across the road.
- Proposed network to discharge to existing Ø450 combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A2+786 Combined network has approx. 1.8m cover

Outlet to tie into existing network

- DN 375
- Ch A2+717
- CL: 38.580
- IL: 35.958

Ch A2+495 to A2+871 (right hand side)

- Existing gullies connected to the Ø450mm combined network.
- All new gullies to be therefore connected to the existing combined network.
- Depth to soffit of the existing combined network varies from 3.5m to 2m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

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  - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
  - ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
  - EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
  - 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  - ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
  - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE

Vol<sub>att</sub>: VOLUME OF ATTENUATION

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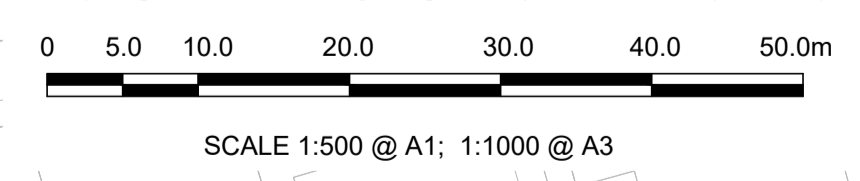
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HIGHFIELD ROAD



Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
Udarás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDC Originator Code: ARP

QMS Code: 268401-00

Drawn: AF, Checked: MR, Approved: DC

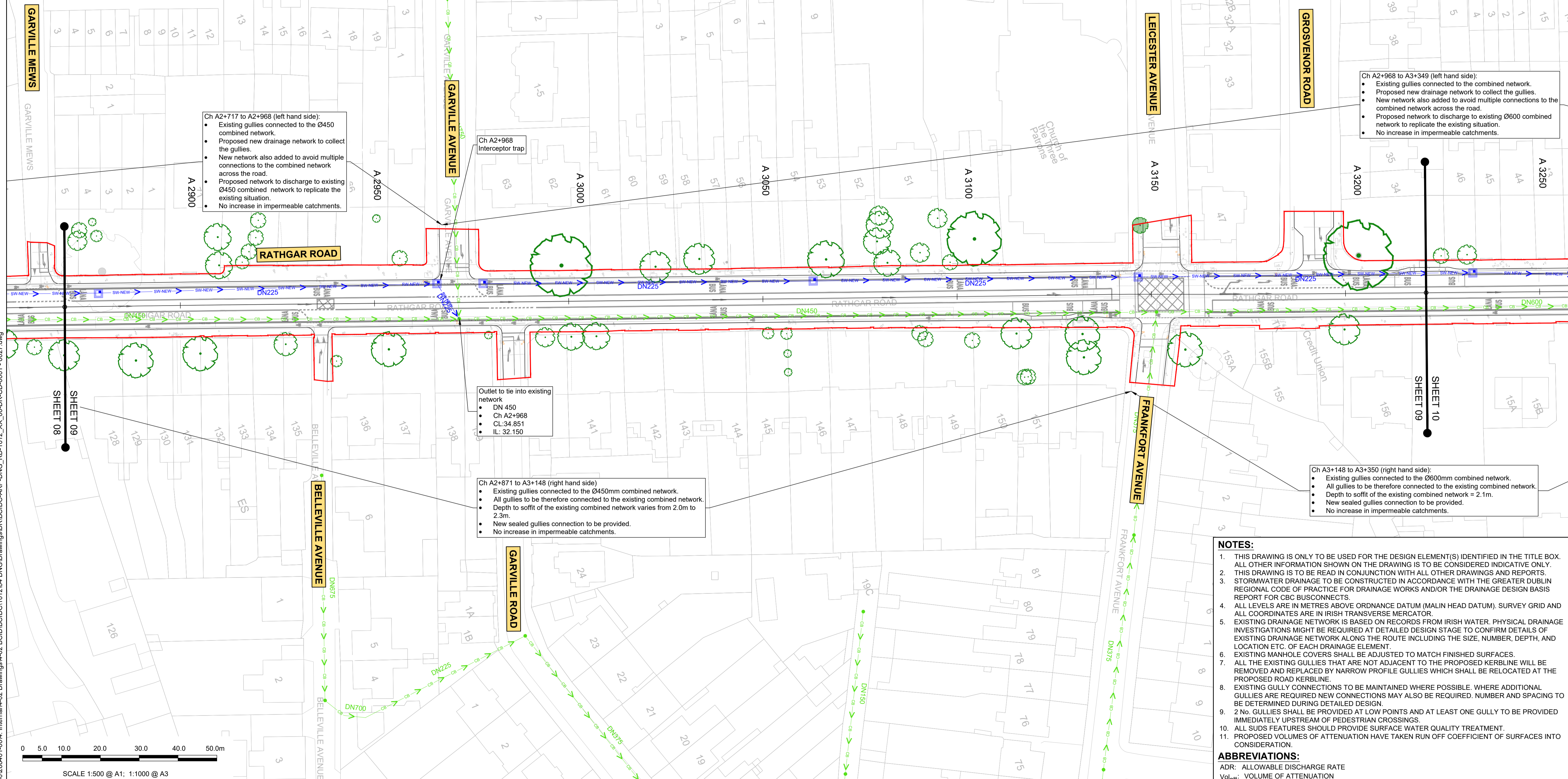
Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0008	Sheet Number: 08 of 37	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	SURFACE WATER PIPE UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
	PROPOSED OVERSIZED PIPE		SITE BOUNDARY LINE
	PROPOSED FILTER DRAIN/PERFORATED PIPE		TEMPORARY LAND ACQUISITION
	PROPOSED PERMEABLE PAVING		

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.



Ch A2+717 to A2+968 (left hand side):

- Existing gullies connected to the Ø450 combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined network across the road.
- Proposed network to discharge to existing Ø450 combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A2+968 to A3+349 (left hand side):

- Existing gullies connected to the combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined network across the road.
- Proposed network to discharge to existing Ø600 combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A2+871 to A3+148 (right hand side):

- Existing gullies connected to the Ø450mm combined network.
- All gullies to be therefore connected to the existing combined network.
- Depth to soffit of the existing combined network varies from 2.0m to 2.3m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch A3+148 to A3+350 (right hand side):

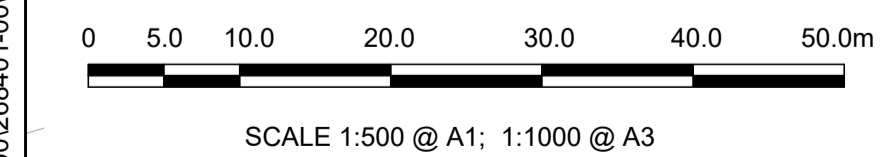
- Existing gullies connected to the Ø600mm combined network.
- All gullies to be therefore connected to the existing combined network.
- Depth to soffit of the existing combined network = 2.1m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

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- PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**  
ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION

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**Project Ireland 2040**  
Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
Udarás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **ARUP**

Date	Scale	Drawn	Checked	Approved
27/01/2023	1:500 @ A1 1:1000 @ A3	AF	MR	DC

Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

Programme Title: **BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

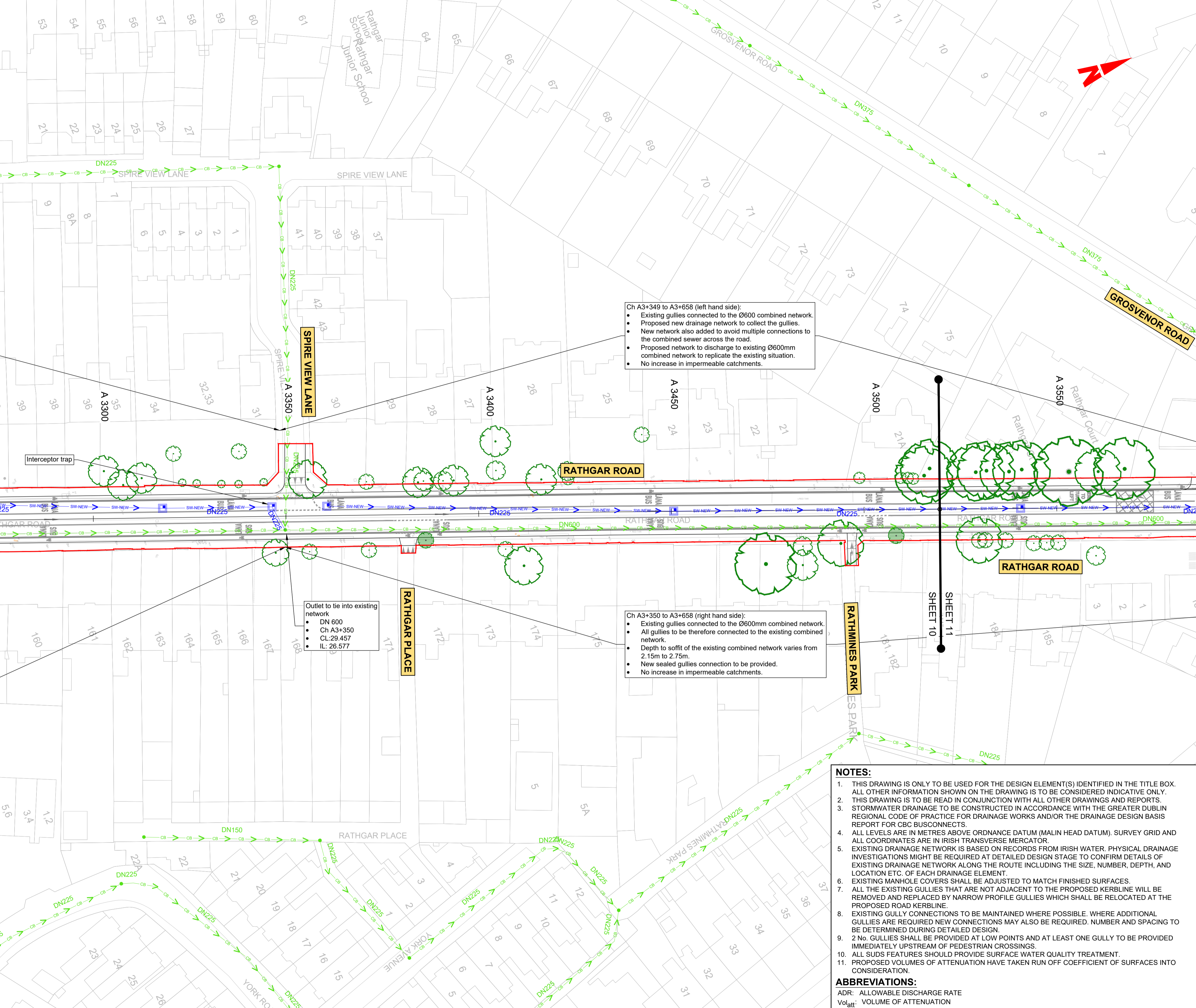
Drawing File Name	Sheet Number	Status	Rev
BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0009	09 of 37	A	M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
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- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
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- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.



Ch A2+968 to A3+349 (left hand side):

- Existing gullies connected to the combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined sewer across the road.
- Proposed network to discharge to existing Ø600 combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A3+349 to A3+658 (left hand side):

- Existing gullies connected to the Ø600 combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined sewer across the road.
- Proposed network to discharge to existing Ø600mm combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A3+350 to A3+658 (right hand side):

- Existing gullies connected to the Ø600mm combined network.
- All gullies to be therefore connected to the existing combined network.
- Depth to soffit of the existing combined network varies from 2.15m to 2.75m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch A3+148 to A3+350 (right hand side):

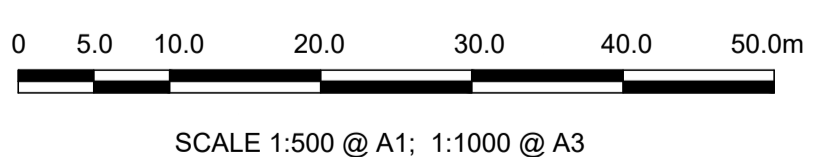
- Existing gullies connected to the Ø600mm combined network.
- All gullies to be therefore connected to the existing combined network.
- Depth to soffit of the existing combined network = 2.1m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Outlet to tie into existing network

- DN 600
- Ch A3+350
- CL: 29.457
- IL: 26.577

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**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 Vol<sub>att</sub>: VOLUME OF ATTENUATION



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Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
 Údaráis Náisiúnta Iompair  
 National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

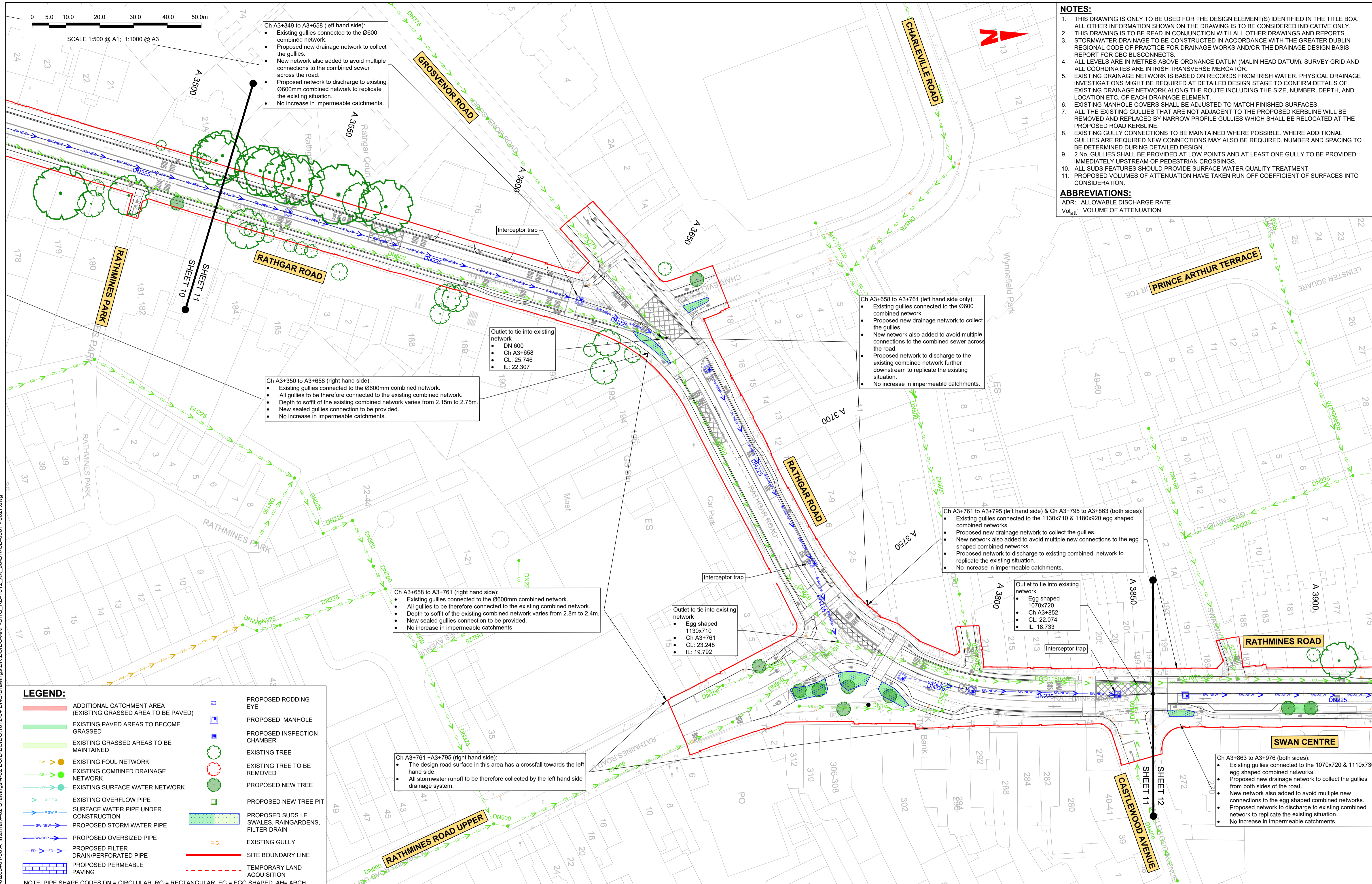
Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0010	Sheet Number: 10 of 37	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3



Ch A3+349 to A3+658 (left hand side):

- Existing gullies connected to the Ø600 combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined sewer across the road.
- Proposed network to discharge to existing Ø600mm combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A3+350 to A3+658 (right hand side):

- Existing gullies connected to the Ø600mm combined network.
- All gullies to be therefore connected to the existing combined network.
- Depth to soffit of the existing combined network varies from 2.15m to 2.75m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Outlet to tie into existing network

- DN 600
- Ch A3+658
- CL: 25.746
- IL: 22.307

Ch A3+658 to A3+761 (left hand side only):

- Existing gullies connected to the Ø600 combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined sewer across the road.
- Proposed network to discharge to the existing combined network further downstream to replicate the existing situation.
- No increase in impermeable catchments.

Ch A3+658 to A3+761 (right hand side):

- Existing gullies connected to the Ø600mm combined network.
- All gullies to be therefore connected to the existing combined network.
- Depth to soffit of the existing combined network varies from 2.8m to 2.4m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Outlet to tie into existing network

- Egg shaped
- 1130x710
- Ch A3+761
- CL: 23.248
- IL: 19.792

Ch A3+761 to A3+795 (left hand side) & Ch A3+795 to A3+863 (both sides):

- Existing gullies connected to the 1130x710 & 1180x920 egg shaped combined networks.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple new connections to the egg shaped combined networks.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

Outlet to tie into existing network

- Egg shaped
- 1070x720
- Ch A3+852
- CL: 22.074
- IL: 18.733

Ch A3+761 to A3+795 (right hand side):

- The design road surface in this area has a crossfall towards the left hand side.
- All stormwater runoff to be therefore collected by the left hand side drainage system.

Ch A3+863 to A3+976 (both sides):

- Existing gullies connected to the 1070x720 & 1110x730 egg shaped combined networks.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple new connections to the egg shaped combined networks.
- Proposed network to discharge to existing combined network to replicate the existing situation.
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- ABBREVIATIONS:**
- ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION

**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE CHAMBER
	EXISTING GRASSED AREAS TO BE MAINTAINED		EXISTING TREE
	EXISTING FOUL NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING COMBINED DRAINAGE NETWORK		PROPOSED NEW TREE
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE PIT
	EXISTING OVERFLOW PIPE		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	SURFACE WATER PIPE UNDER CONSTRUCTION		EXISTING GULLY
	PROPOSED STORM WATER PIPE		SITE BOUNDARY LINE
	PROPOSED OVERSIZED PIPE		TEMPORARY LAND ACQUISITION
	PROPOSED FILTER DRAIN/PERFORATED PIPE		
	PROPOSED PERMEABLE PAVING		

NOTE: PIPE SHAPE CODING DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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**Project Ireland 2040**  
Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
Udárás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **ARUP**

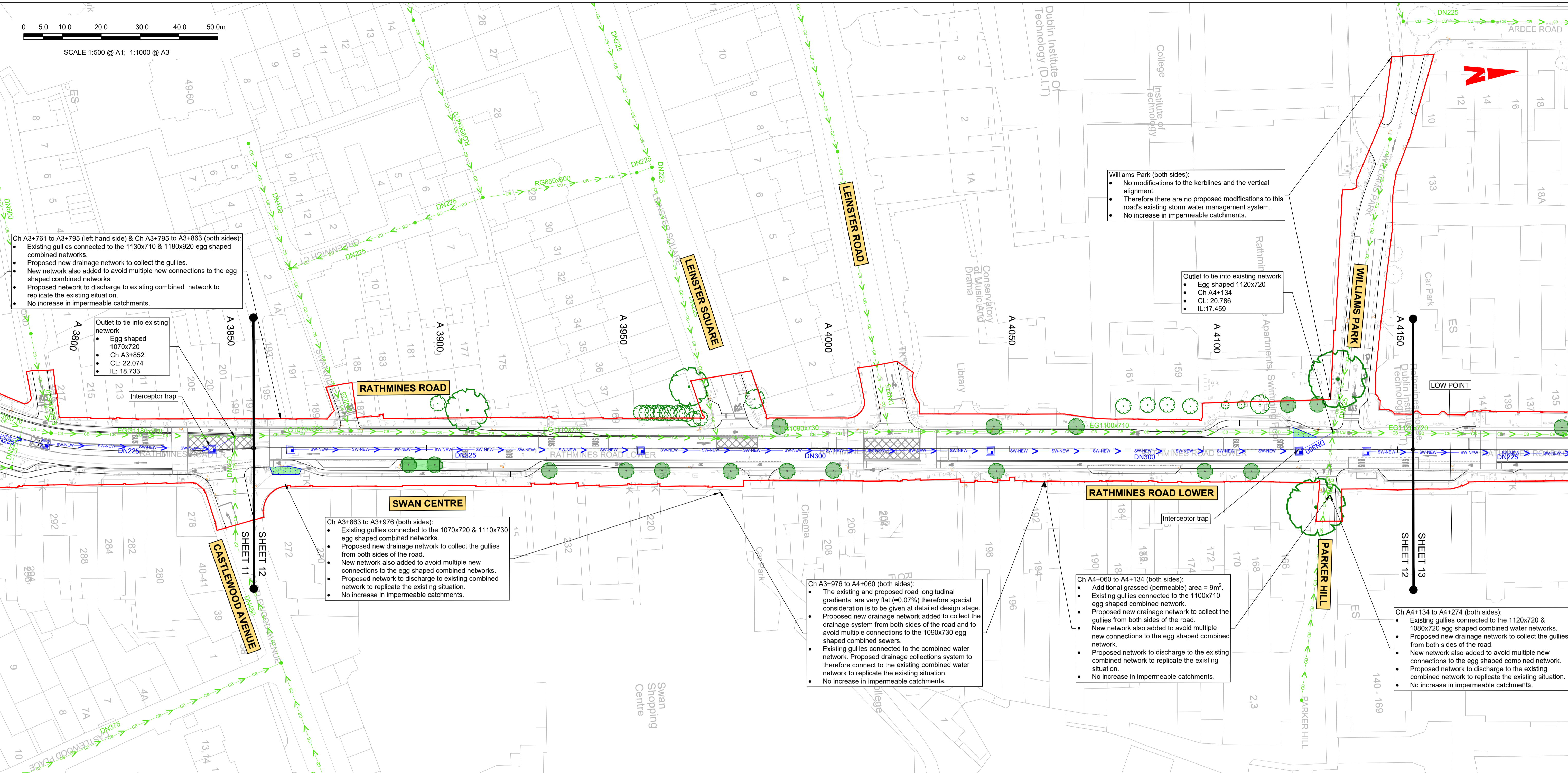
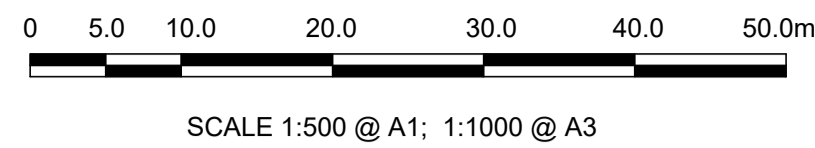
Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3

Drawn: AF, Checked: MR, Approved: DC

Project Code: BCIDC, Originator Code: ARP, QMS Code: 268401-00

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0011	Sheet Number: 11 of 37	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



Ch A3+761 to A3+795 (left hand side) & Ch A3+795 to A3+863 (both sides):

- Existing gullies connected to the 1130x710 & 1180x920 egg shaped combined networks.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple new connections to the egg shaped combined networks.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

Williams Park (both sides):

- No modifications to the kerblines and the vertical alignment.
- Therefore there are no proposed modifications to this road's existing storm water management system.
- No increase in impermeable catchments.

Outlet to tie into existing network

- Egg shaped 1120x720
- Ch A4+134
- CL: 20.786
- IL: 17.459

Ch A3+863 to A3+976 (both sides):

- Existing gullies connected to the 1070x720 & 1110x730 egg shaped combined networks.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple new connections to the egg shaped combined networks.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A3+976 to A4+060 (both sides):

- The existing and proposed road longitudinal gradients are very flat ( $\approx 0.07\%$ ) therefore special consideration is to be given at detailed design stage.
- Proposed new drainage network added to collect the drainage system from both sides of the road and to avoid multiple connections to the 1090x730 egg shaped combined sewers.
- Existing gullies connected to the combined water network. Proposed drainage collections system to therefore connect to the existing combined water network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A4+060 to A4+134 (both sides):

- Additional grassed (permeable) area = 9m<sup>2</sup>.
- Existing gullies connected to the 1100x710 egg shaped combined network.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple new connections to the egg shaped combined network.
- Proposed network to discharge to the existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A4+134 to A4+274 (both sides):

- Existing gullies connected to the 1120x720 & 1080x720 egg shaped combined water networks.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple new connections to the egg shaped combined network.
- Proposed network to discharge to the existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	SURFACE WATER PIPE UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
	PROPOSED OVERSIZED PIPE		SITE BOUNDARY LINE
	PROPOSED FILTER DRAIN/PERFORATED PIPE		TEMPORARY LAND ACQUISITION
	PROPOSED PERMEABLE PAVING		

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- ALL LEVELS ARE IN METRES ABOVE ORDINANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
- EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
- EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
- ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
- EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
- 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
- ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
- PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

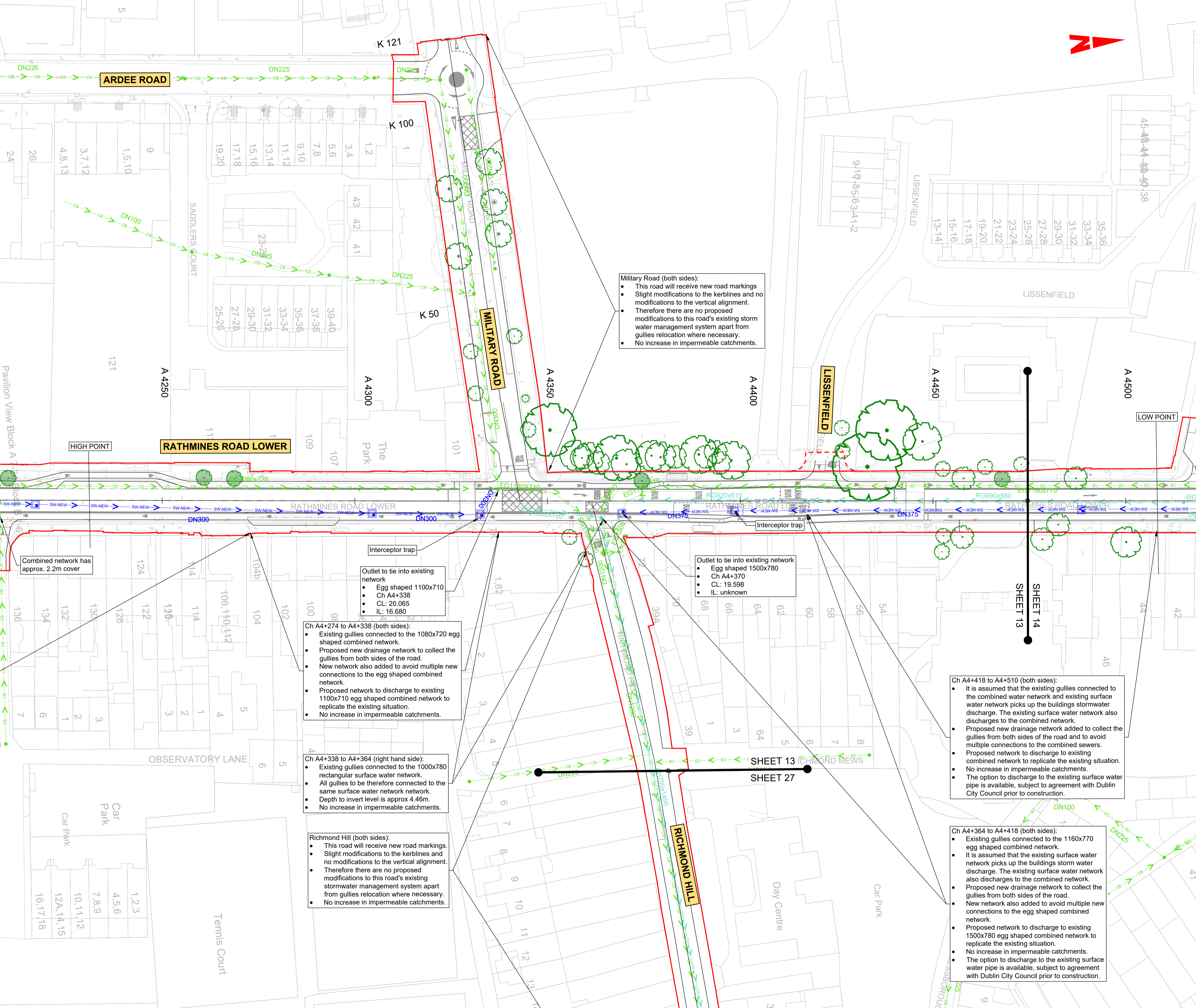
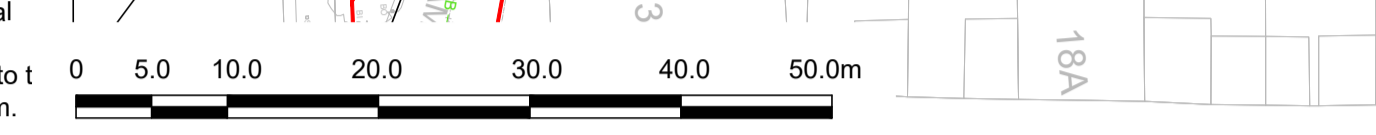
ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION

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<p>Date 27/01/2023 Scale 1:500 @ A1 1:1000 @ A3</p>		<p>Drawn AF</p>		<p>Checked MR</p>		<p>Approved DC</p>		<p>Drawing Title</p> <p>TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</p>		
<p>Project Code BCIDC</p>		<p>Originator Code ARP</p>		<p>QMS Code 268401-00</p>		<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0012</p>		<p>Sheet Number 12 of 37</p>		
<p>Project Code BCIDC</p>		<p>Originator Code ARP</p>		<p>QMS Code 268401-00</p>		<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0012</p>		<p>Status A</p>		
<p>Project Code BCIDC</p>		<p>Originator Code ARP</p>		<p>QMS Code 268401-00</p>		<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0012</p>		<p>Rev M01</p>		

**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

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**Military Road (both sides):**

- This road will receive new road markings
- Slight modifications to the kerblines and no modifications to the vertical alignment.
- Therefore there are no proposed modifications to this road's existing storm water management system apart from gullies relocation where necessary.
- No increase in impermeable catchments.

**Ch A4+134 to A4+274 (both sides):**

- Existing gullies connected to the 1120x720 & 1080x720 egg shaped combined water networks.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple new connections to the egg shaped combined network.
- Proposed network to discharge to the existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

**Ch A4+274 to A4+338 (both sides):**

- Existing gullies connected to the 1080x720 egg shaped combined network.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple new connections to the egg shaped combined network.
- Proposed network to discharge to existing 1100x710 egg shaped combined network to replicate the existing situation.
- No increase in impermeable catchments.

**Ch A4+338 to A4+364 (right hand side):**

- Existing gullies connected to the 1000x780 rectangular surface water network.
- All gullies to be therefore connected to the same surface water network.
- Depth to invert level is approx 4.46m.
- No increase in impermeable catchments.

**Richmond Hill (both sides):**

- This road will receive new road markings.
- Slight modifications to the kerblines and no modifications to the vertical alignment.
- Therefore there are no proposed modifications to this road's existing stormwater management system apart from gullies relocation where necessary.
- No increase in impermeable catchments.

**Outlet to tie into existing network**

- Egg shaped 1500x780
- Ch A4+370
- CL: 19.598
- IL: unknown

**Ch A4+418 to A4+510 (both sides):**

- It is assumed that the existing gullies connected to the combined water network and existing surface water network picks up the buildings stormwater discharge. The existing surface water network also discharges to the combined network.
- Proposed new drainage network added to collect the gullies from both sides of the road and to avoid multiple connections to the combined sewers.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.
- The option to discharge to the existing surface water pipe is available, subject to agreement with Dublin City Council prior to construction.

**Ch A4+364 to A4+418 (both sides):**

- Existing gullies connected to the 1160x770 egg shaped combined network.
- It is assumed that the existing surface water network picks up the buildings stormwater discharge. The existing surface water network also discharges to the combined network.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple new connections to the egg shaped combined network.
- Proposed network to discharge to existing 1500x780 egg shaped combined network to replicate the existing situation.
- No increase in impermeable catchments.
- The option to discharge to the existing surface water pipe is available, subject to agreement with Dublin City Council prior to construction.

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**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION

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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
Udárás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

Programme Title: **BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

Drawing Title: **TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS**

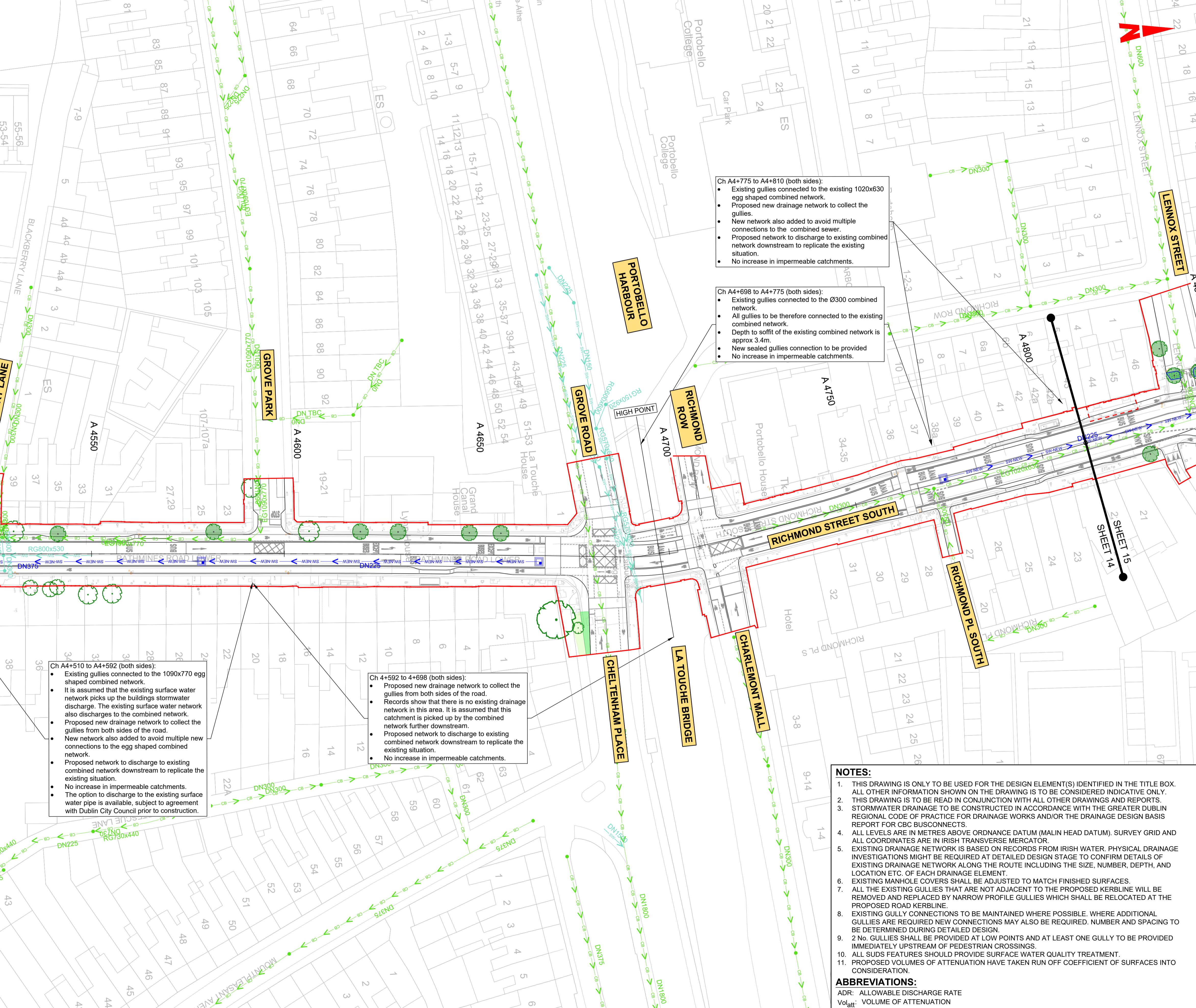
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0013	Sheet Number: 13 of 37	Status: A	Rev: M01
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**LEGEND:**

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- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
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- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.



Ch A4+418 to A4+510 (both sides):

- It is assumed that the existing gullies connected to the combined water network and existing surface water network picks up the buildings stormwater discharge. The existing surface water network also discharges to the combined network.
- Proposed new drainage network added to collect the gullies from both sides of the road and to avoid multiple connections to the combined sewers.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.
- The option to discharge to the existing surface water pipe is available, subject to agreement with Dublin City Council prior to construction.

Ch A4+510 to A4+592 (both sides):

- Existing gullies connected to the 1090x770 egg shaped combined network.
- It is assumed that the existing surface water network picks up the buildings stormwater discharge. The existing surface water network also discharges to the combined network.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple new connections to the egg shaped combined network.
- Proposed network to discharge to existing combined network downstream to replicate the existing situation.
- No increase in impermeable catchments.
- The option to discharge to the existing surface water pipe is available, subject to agreement with Dublin City Council prior to construction.

Ch 4+592 to 4+698 (both sides):

- Proposed new drainage network to collect the gullies from both sides of the road.
- Records show that there is no existing drainage network in this area. It is assumed that this catchment is picked up by the combined network further downstream.
- Proposed network to discharge to existing combined network downstream to replicate the existing situation.
- No increase in impermeable catchments.

Ch A4+775 to A4+810 (both sides):

- Existing gullies connected to the existing 1020x630 egg shaped combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined sewer.
- Proposed network to discharge to existing combined network downstream to replicate the existing situation.
- No increase in impermeable catchments.

Ch A4+698 to A4+775 (both sides):

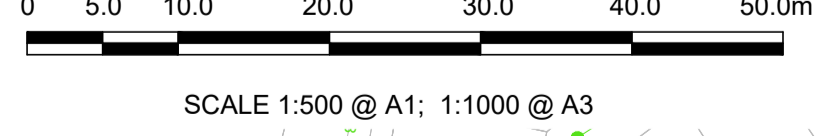
- Existing gullies connected to the Ø300 combined network.
- All gullies to be therefore connected to the existing combined network.
- Depth to soffit of the existing combined network is approx 3.4m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

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- EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
- EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
- ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
- EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
- 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
- ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
- PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION



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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
Udárás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDC Originator Code: ARP

QMS Code: 268401-00

Drawn: AF, Checked: MR, Approved: DC

Programme Title: **BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

Drawing Title: **TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS**

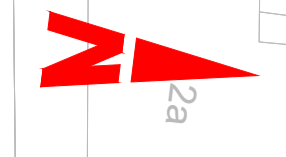
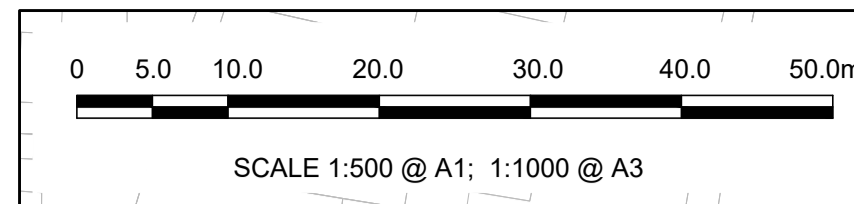
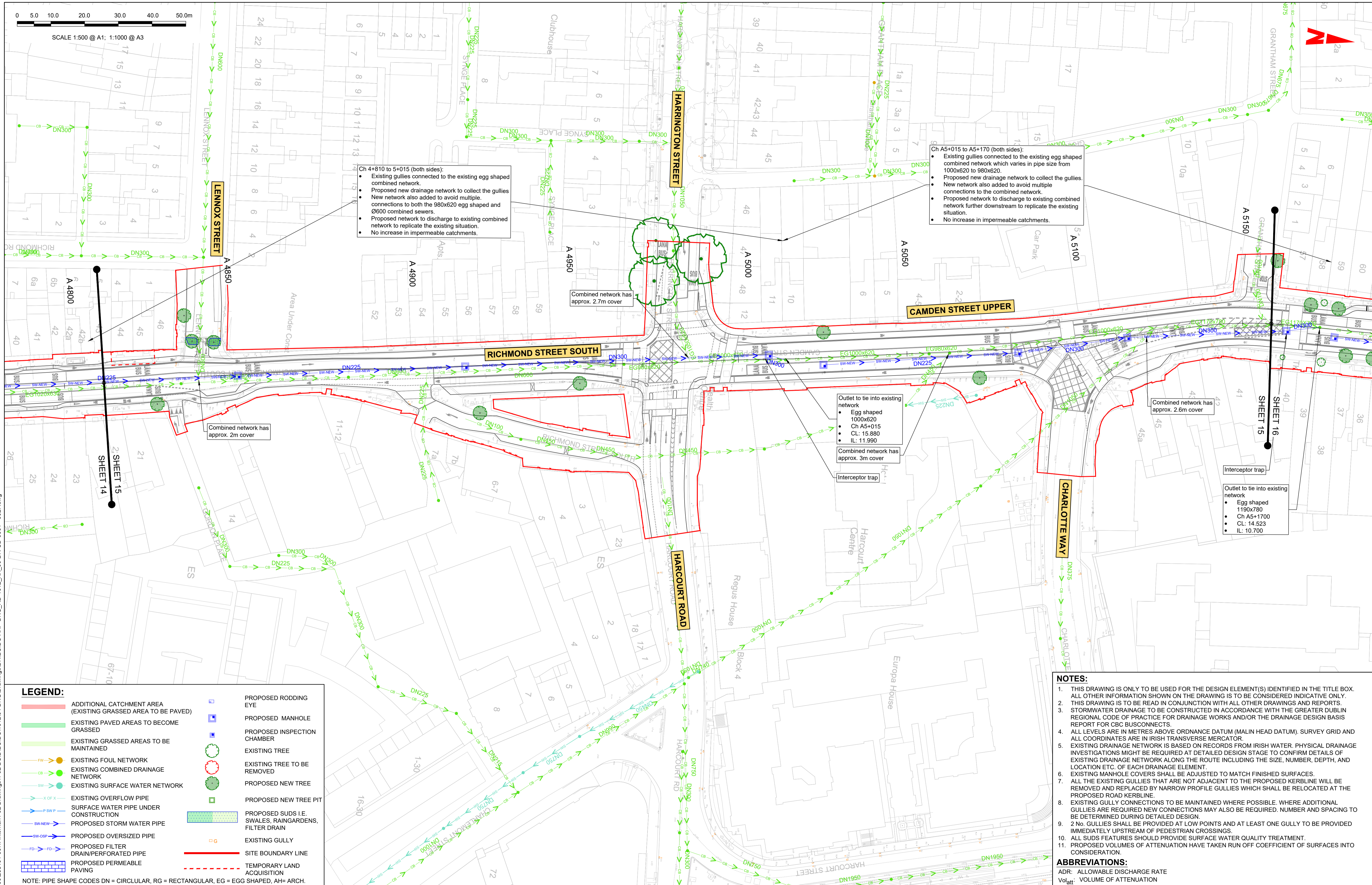
Drawing File Name: BCIDC-ARP-DNG-RD-12\_XX\_00-DR-CD-0014

Sheet Number: 14 of 37

Status: A

Rev: M01

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Ch 4+810 to 5+015 (both sides):

- Existing gullies connected to the existing egg shaped combined network.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to both the 980x620 egg shaped and Ø600 combined sewers.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A5+015 to A5+170 (both sides):

- Existing gullies connected to the existing egg shaped combined network which varies in pipe size from 1000x620 to 980x620.
- Proposed new drainage network to collect the gullies.
- New network also added to avoid multiple connections to the combined network.
- Proposed network to discharge to existing combined network further downstream to replicate the existing situation.
- No increase in impermeable catchments.

Combined network has approx. 2m cover

Combined network has approx. 2.7m cover

Outlet to tie into existing network

- Egg shaped 1000x620
- Ch A5+015
- CL: 15.880
- IL: 11.990

Combined network has approx. 3m cover

Interceptor trap

Combined network has approx. 2.6m cover

Outlet to tie into existing network

- Egg shaped 1190x780
- Ch A5+1700
- CL: 14.523
- IL: 10.700

Interceptor trap

**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	SURFACE WATER PIPE UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
	PROPOSED OVERSIZED PIPE		SITE BOUNDARY LINE
	PROPOSED FILTER DRAIN/PERFORATED PIPE		TEMPORARY LAND ACQUISITION
	PROPOSED PERMEABLE PAVING		

NOTE: PIPE SHAPE CODING DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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- STORMWATER DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS AND/OR THE DRAINAGE DESIGN BASIS REPORT FOR CBC BUSCONNECTS.
- ALL LEVELS ARE IN METRES ABOVE ORDINANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
- EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
- EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
- ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
- EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
- 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
- ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
- PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION

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**Project Ireland 2040**  
Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
Udárás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1  
1:1000 @ A3

Drawn: AF Checked: MR Approved: DC

Project Code: BCIDC Originator Code: ARP QMS Code: 268401-00

Programme Title <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name BCIDC-ARP-DNG-RD-12_XX_00-DR-CD-0015	Sheet Number 15 of 37	Status A	Rev M01

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**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

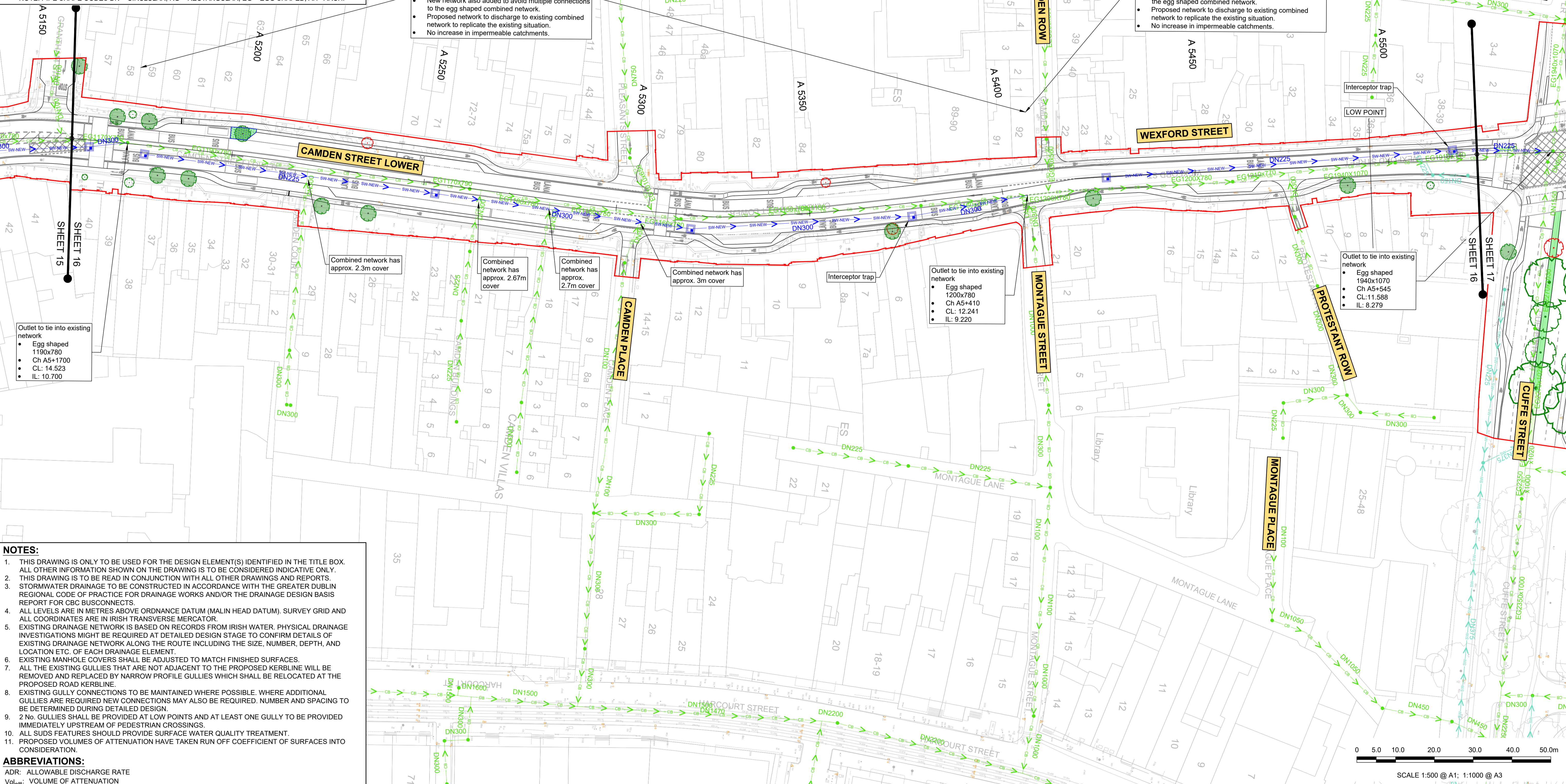
NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.

Ch A5+170 to A5+410 (both sides):

- Existing gullies connected to the existing egg shaped combined network which varies in pipe size from 1170x780 to 1150x780.
- Proposed new drainage network to collect the gullies
- New network also added to avoid multiple connections to the egg shaped combined network.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.

Ch A5+410 to A5+545 (both sides):

- Existing gullies connected to the existing egg shaped combined network which varies in pipe size from 1200x780 to 1940x1070.
- Proposed new drainage network to collect the gullies from both sides of the road.
- New network also added to avoid multiple connections to the egg shaped combined network.
- Proposed network to discharge to existing combined network to replicate the existing situation.
- No increase in impermeable catchments.



Outlet to tie into existing network

- Egg shaped 1190x780
- Ch A5+1700
- CL: 14.523
- IL: 10.700

Combined network has approx. 2.3m cover

Combined network has approx. 2.67m cover

Combined network has approx. 2.7m cover

Combined network has approx. 3m cover

Outlet to tie into existing network

- Egg shaped 1200x780
- Ch A5+410
- CL: 12.241
- IL: 9.220

Outlet to tie into existing network

- Egg shaped 1940x1070
- Ch A5+545
- CL: 11.588
- IL: 8.279

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  - ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
  - EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS SHOULD BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
  - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
  - ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
  - EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
  - 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  - ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
  - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION

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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
Udaráis Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

Programme Title: **BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS

Drawing File Name: BCIDC-ARP-DNG\_RD-1012\_XX\_00-DR-CD-0016 | Sheet Number: 16 of 37 | Status: A | Rev: M01

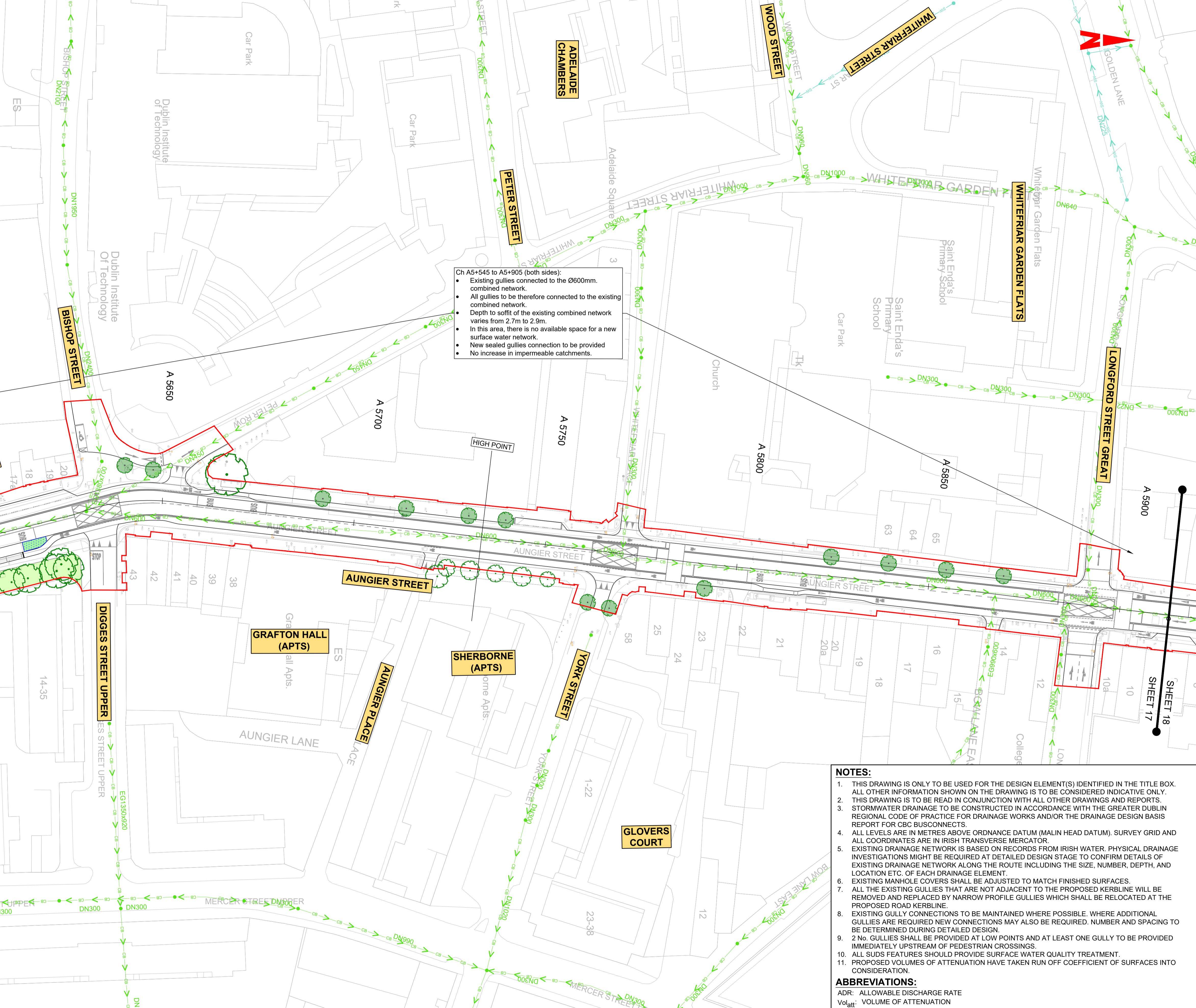
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**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
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- PROPOSED MANHOLE
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- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.

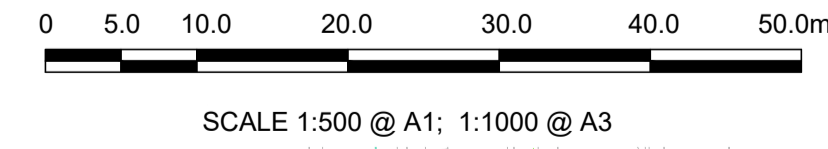


Ch A5+545 to A5+905 (both sides):

- Existing gullies connected to the Ø600mm. combined network.
- All gullies to be therefore connected to the existing combined network.
- Depth to soffit of the existing combined network varies from 2.7m to 2.9m.
- In this area, there is no available space for a new surface water network.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

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**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 Vol<sub>att</sub>: VOLUME OF ATTENUATION



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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client

Date: 27/01/2023  
 Scale: 1:500 @ A1, 1:1000 @ A3

Engineering Designer

Drawn: AF, Checked: MR, Approved: DC

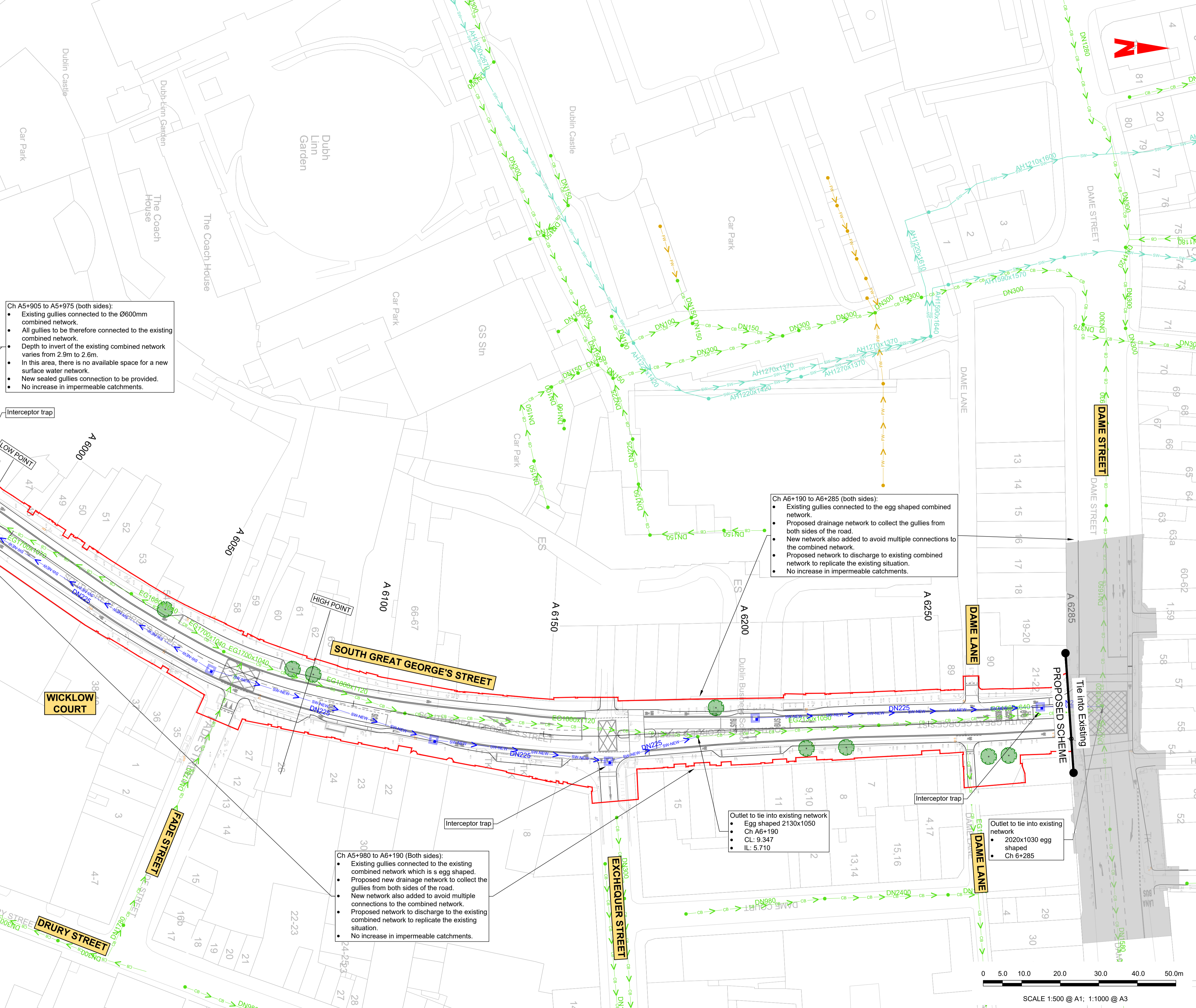
Programme Title <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0017	Sheet Number 17 of 37	Status A	Rev M01

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**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
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- ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
- EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
- EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
- ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
- EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
- 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
- ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
- PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION

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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
Udárás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDC Originator Code: ARP QMS Code: 268401-00

Drawn: AF Checked: MR Approved: DC

Programme Title: **BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

Drawing Title: **TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS**

Drawing File Name: BCIDC-ARP-DNG\_RD-1012\_XX\_00-DR-CD-0018 Sheet Number: 18 of 37 Status: A Rev: M01

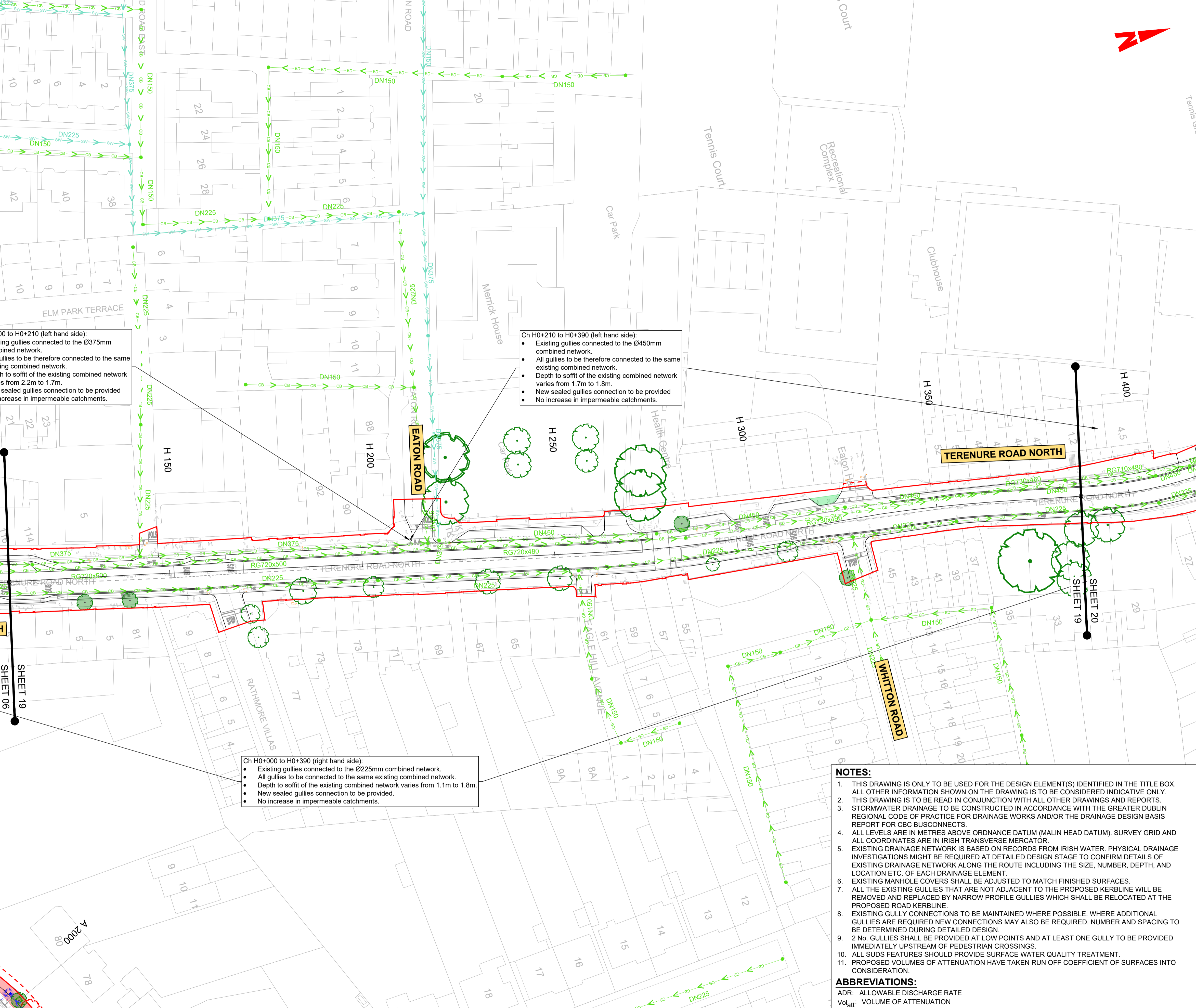
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**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.



Ch H0+000 to H0+210 (left hand side):

- Existing gullies connected to the Ø375mm combined network.
- All gullies to be therefore connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 2.2m to 1.7m.
- New sealed gullies connection to be provided
- No increase in impermeable catchments.

Ch H0+210 to H0+390 (left hand side):

- Existing gullies connected to the Ø450mm combined network.
- All gullies to be therefore connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 1.7m to 1.8m.
- New sealed gullies connection to be provided
- No increase in impermeable catchments.

Ch H0+000 to H0+390 (right hand side):

- Existing gullies connected to the Ø225mm combined network.
- All gullies to be connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 1.1m to 1.8m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

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  - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
  - ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
  - EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
  - 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  - ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
  - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 Vol<sub>att</sub>: VOLUME OF ATTENUATION

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**Project Ireland 2040**  
 Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
 Údarás Náisiúnta Iompair  
 National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

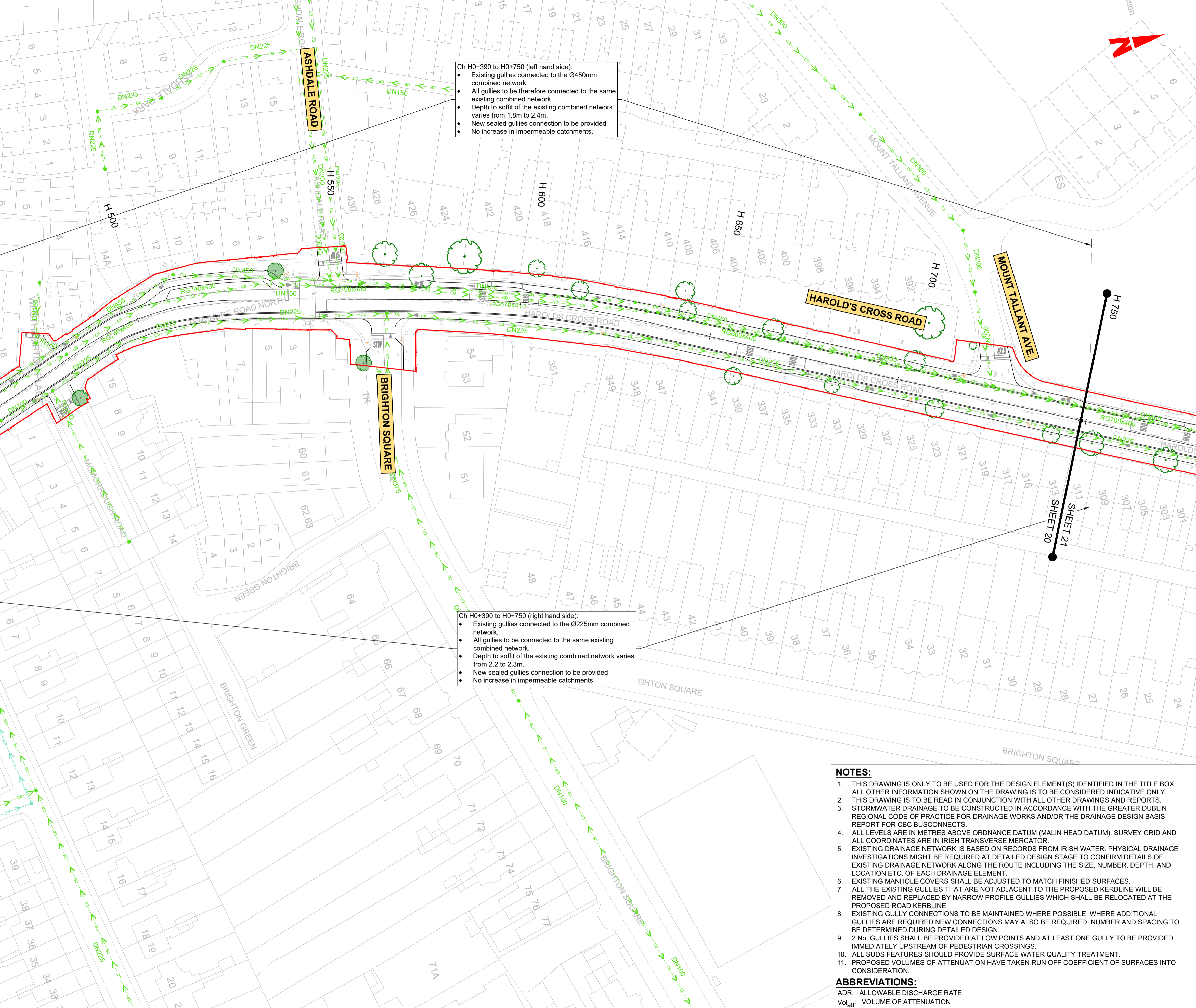
Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0019	Sheet Number: 19 of 37	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.



Ch H0+390 to H0+750 (left hand side):

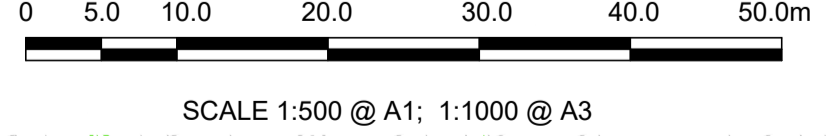
- Existing gullies connected to the Ø450mm combined network.
- All gullies to be therefore connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 1.8m to 2.4m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch H0+390 to H0+750 (right hand side):

- Existing gullies connected to the Ø225mm combined network.
- All gullies to be connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 2.2 to 2.3m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

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  - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
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  - 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  - ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
  - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 VolAtt: VOLUME OF ATTENUATION



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M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
 Údarás Náisiúnta Iompair  
 National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

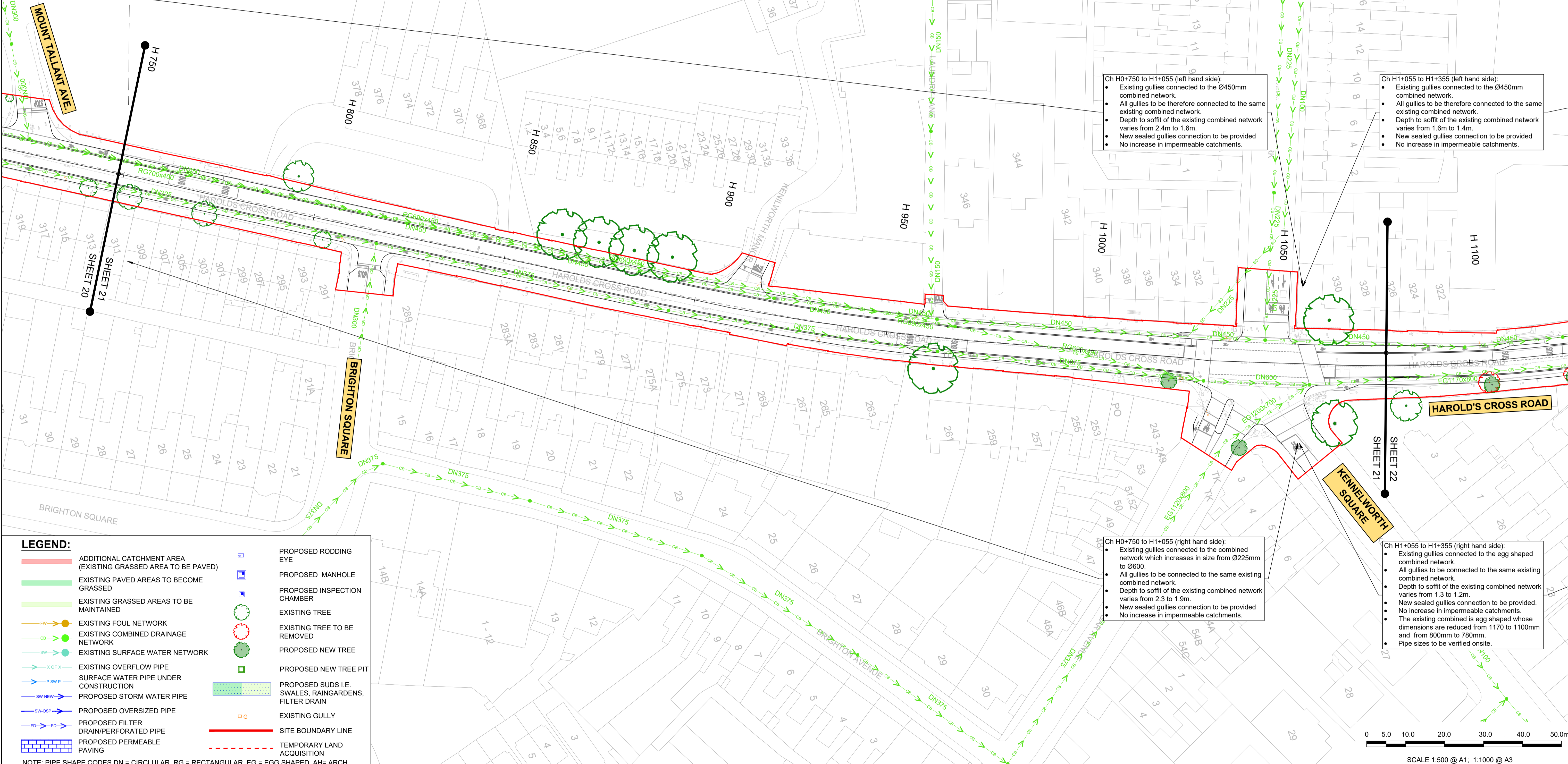
Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0020	Sheet Number: 20 of 37	Status: A	Rev: M01

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  - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
  - ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
  - EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
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**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 Vol<sub>att</sub>: VOLUME OF ATTENUATION



Ch H0+750 to H1+055 (left hand side):

- Existing gullies connected to the Ø450mm combined network.
- All gullies to be therefore connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 2.4m to 1.6m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch H1+055 to H1+355 (left hand side):

- Existing gullies connected to the Ø450mm combined network.
- All gullies to be therefore connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 1.6m to 1.4m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch H0+750 to H1+055 (right hand side):

- Existing gullies connected to the combined network which increases in size from Ø225mm to Ø600.
- All gullies to be connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 2.3 to 1.9m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch H1+055 to H1+355 (right hand side):

- Existing gullies connected to the egg shaped combined network.
- All gullies to be connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 1.3 to 1.2m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.
- The existing combined is egg shaped whose dimensions are reduced from 1170 to 1100mm and from 800mm to 780mm.
- Pipe sizes to be verified onsite.

**LEGEND:**

ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)	PROPOSED RODDING EYE
EXISTING PAVED AREAS TO BECOME GRASSED	PROPOSED MANHOLE
EXISTING GRASSED AREAS TO BE MAINTAINED	PROPOSED INSPECTION CHAMBER
EXISTING FOUL NETWORK	EXISTING TREE
EXISTING COMBINED DRAINAGE NETWORK	EXISTING TREE TO BE REMOVED
EXISTING SURFACE WATER NETWORK	PROPOSED NEW TREE
EXISTING OVERFLOW PIPE	PROPOSED NEW TREE PIT
SURFACE WATER PIPE UNDER CONSTRUCTION	PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
PROPOSED STORM WATER PIPE	EXISTING GULLY
PROPOSED OVERSIZED PIPE	SITE BOUNDARY LINE
PROPOSED FILTER DRAIN/PERFORATED PIPE	TEMPORARY LAND ACQUISITION
PROPOSED PERMEABLE PAVING	

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**Project Ireland 2040**  
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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
 Údarás Náisiúnta Iompair  
 National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

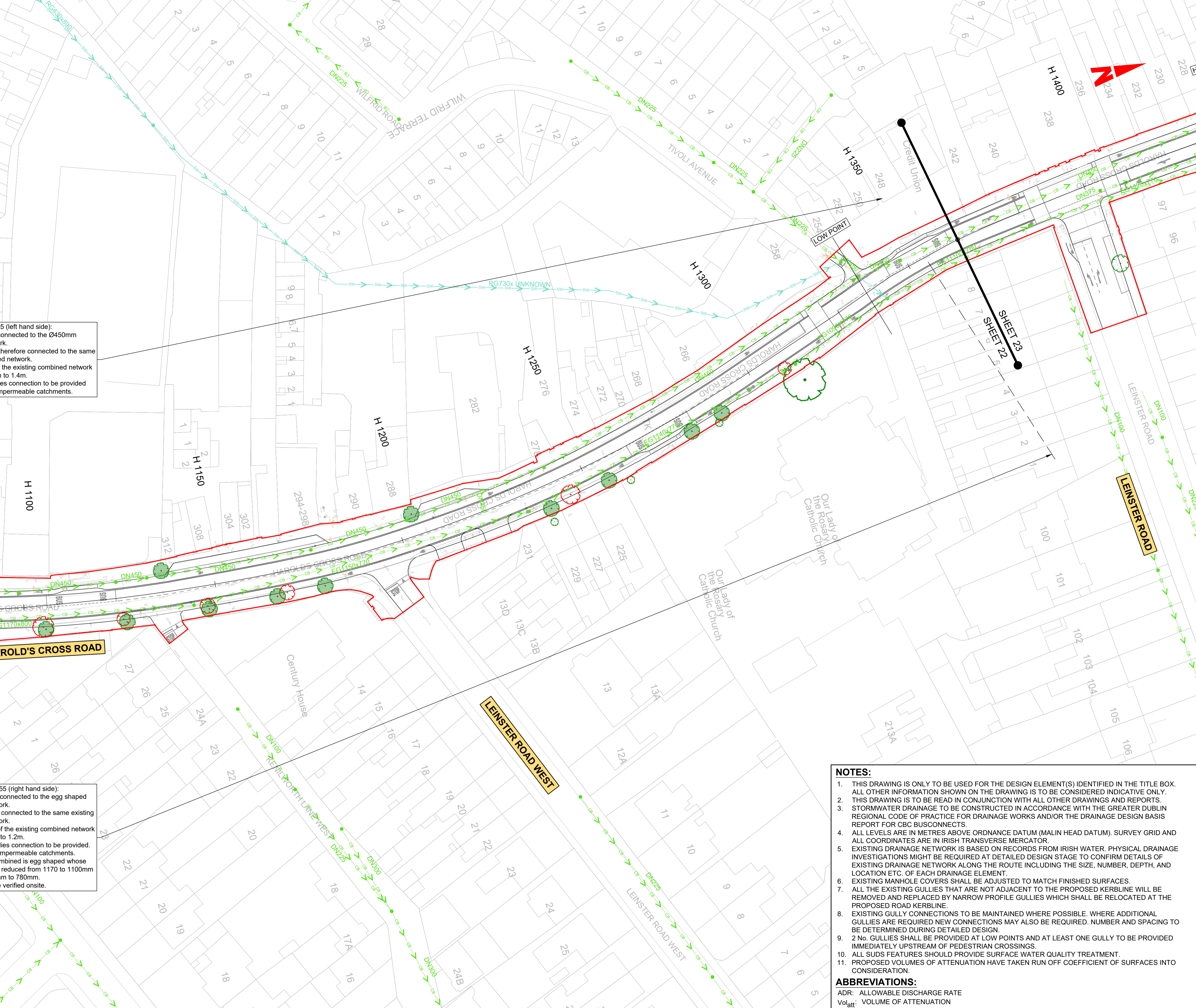
Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0021	Sheet Number: 21 of 37	Status: A	Rev: M01

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**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.



Ch H0+750 to H1+055 (left hand side):

- Existing gullies connected to the Ø450mm combined network.
- All gullies to be therefore connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 2.4m to 1.6m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch H1+055 to H1+355 (left hand side):

- Existing gullies connected to the Ø450mm combined network.
- All gullies to be therefore connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 1.6m to 1.4m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch H0+750 to H1+055 (right hand side):

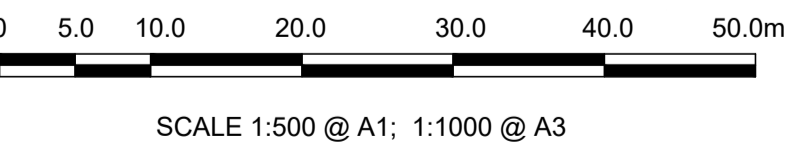
- Existing gullies connected to the combined network which increases in size from Ø225mm to Ø600.
- All gullies to be connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 2.3 to 1.9m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch H1+055 to H1+355 (right hand side):

- Existing gullies connected to the egg shaped combined network.
- All gullies to be connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 1.3 to 1.2m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.
- The existing combined is egg shaped whose dimensions are reduced from 1170 to 1100mm and from 800mm to 780mm.
- Pipe sizes to be verified onsite.

- NOTES:**
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  - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND REPORTS.
  - STORMWATER DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS AND/OR THE DRAINAGE DESIGN BASIS REPORT FOR CBC BUSCONNECTS.
  - ALL LEVELS ARE IN METRES ABOVE ORDINANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
  - EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
  - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
  - ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
  - EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
  - 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  - ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
  - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 Vol<sub>att</sub>: VOLUME OF ATTENUATION



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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
 Údarás Náisiúnta Iompair  
 National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0022	Sheet Number: 22 of 37	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

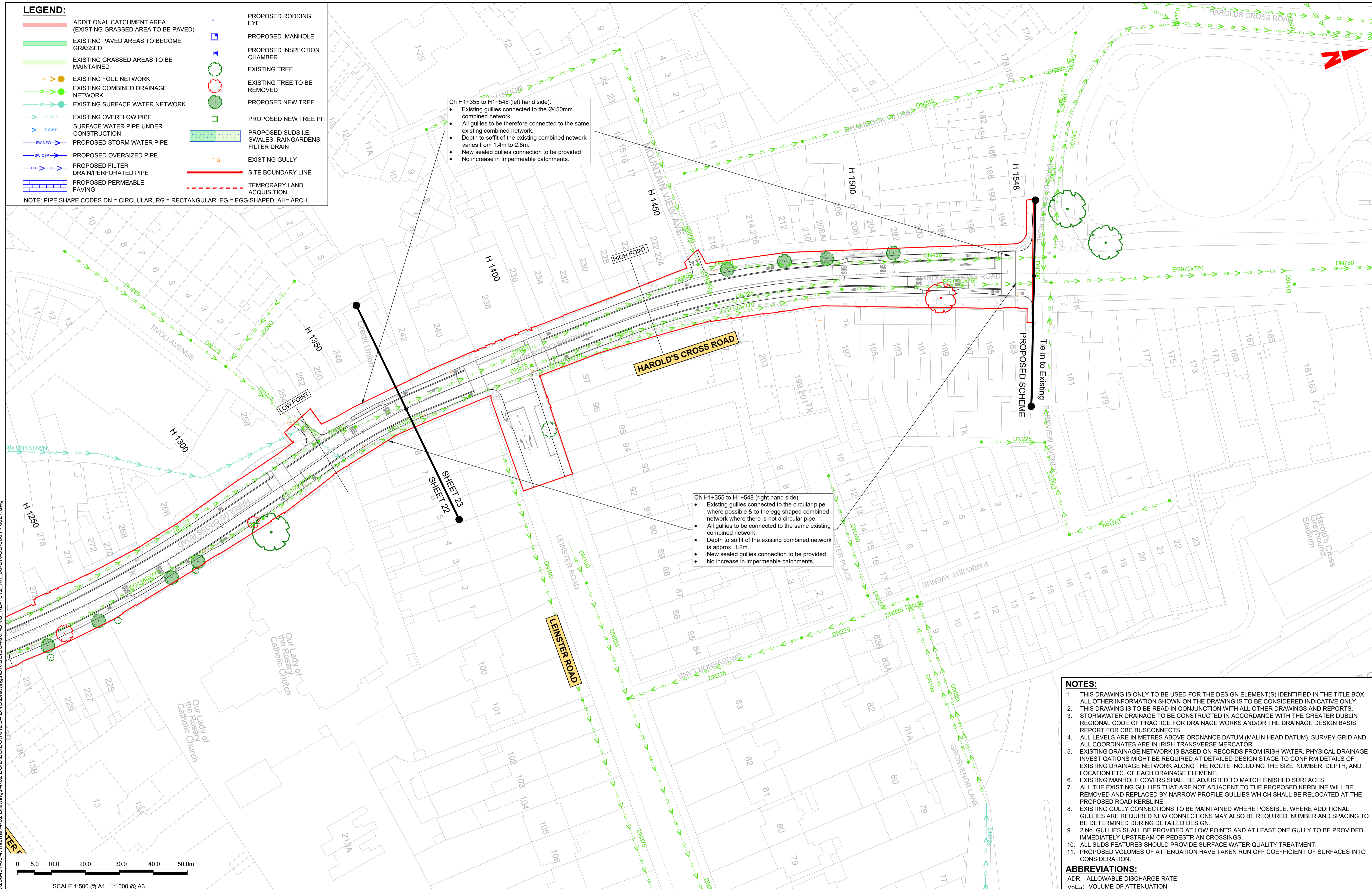
NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

Ch H1+355 to H1+548 (left hand side):

- Existing gullies connected to the Ø450mm combined network.
- All gullies to be therefore connected to the same existing combined network.
- Depth to soffit of the existing combined network varies from 1.4m to 2.8m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.

Ch H1+355 to H1+548 (right hand side):

- Existing gullies connected to the circular pipe where possible & to the egg shaped combined network where there is not a circular pipe.
- All gullies to be connected to the same existing combined network.
- Depth to soffit of the existing combined network is approx. 1.2m.
- New sealed gullies connection to be provided.
- No increase in impermeable catchments.



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  - ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
  - EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
  - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
  - ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
  - EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
  - 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  - ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
  - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 Vol<sub>att</sub>: VOLUME OF ATTENUATION

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**Project Ireland 2040**  
Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
Udarás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

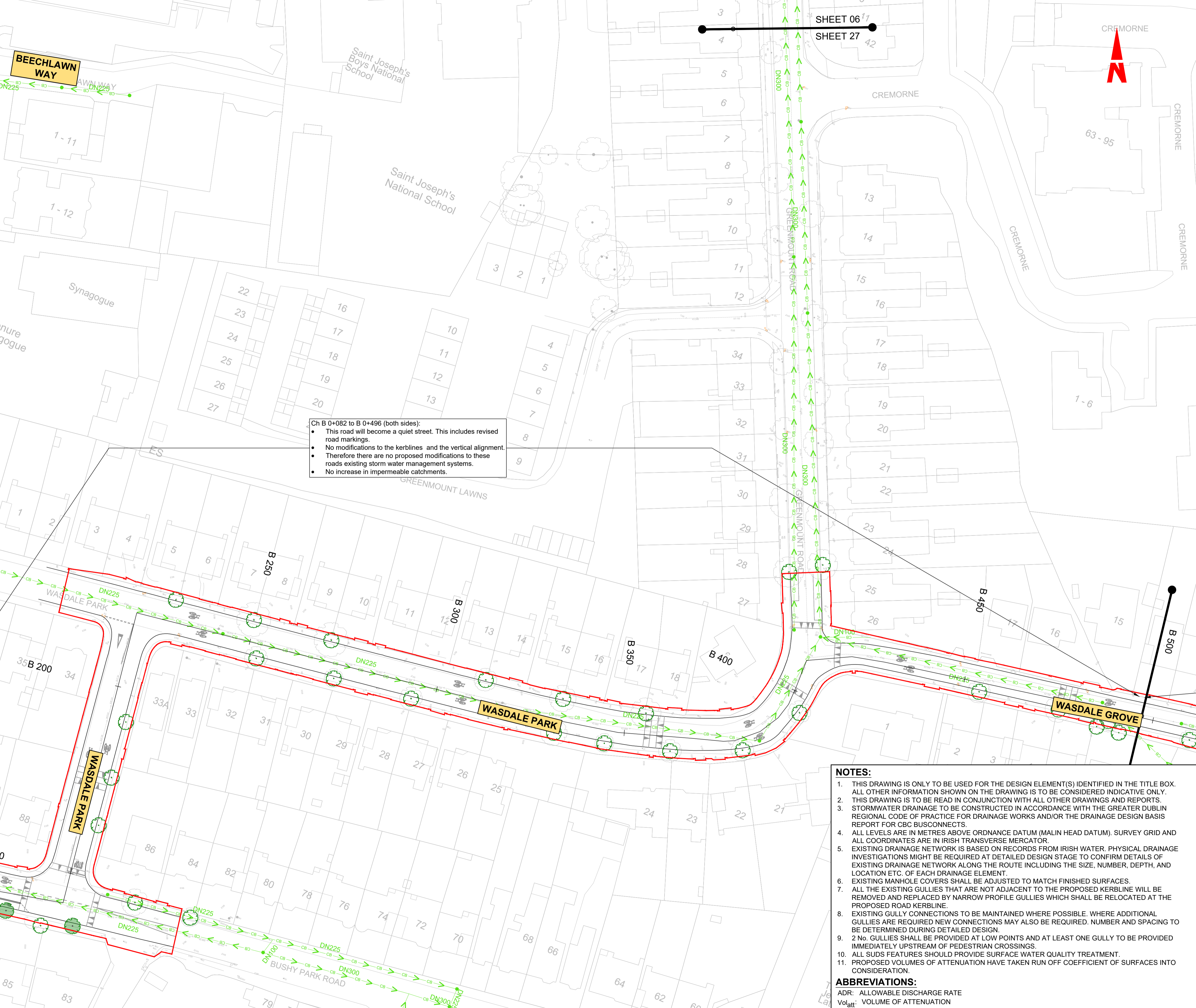
Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0023	Sheet Number: 23 of 37	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.



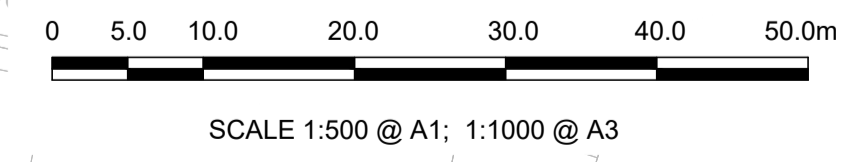
Ch B 0+082 to B 0+496 (both sides):

- This road will become a quiet street. This includes revised road markings.
- No modifications to the kerblines and the vertical alignment.
- Therefore there are no proposed modifications to these roads existing storm water management systems.
- No increase in impermeable catchments.

- NOTES:**
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  - 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
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  - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 Vol<sub>att</sub>: VOLUME OF ATTENUATION

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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
 Údarás Náisiúnta Iompair  
 National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0024	Sheet Number: 24 of 37	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
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- TEMPORARY LAND ACQUISITION

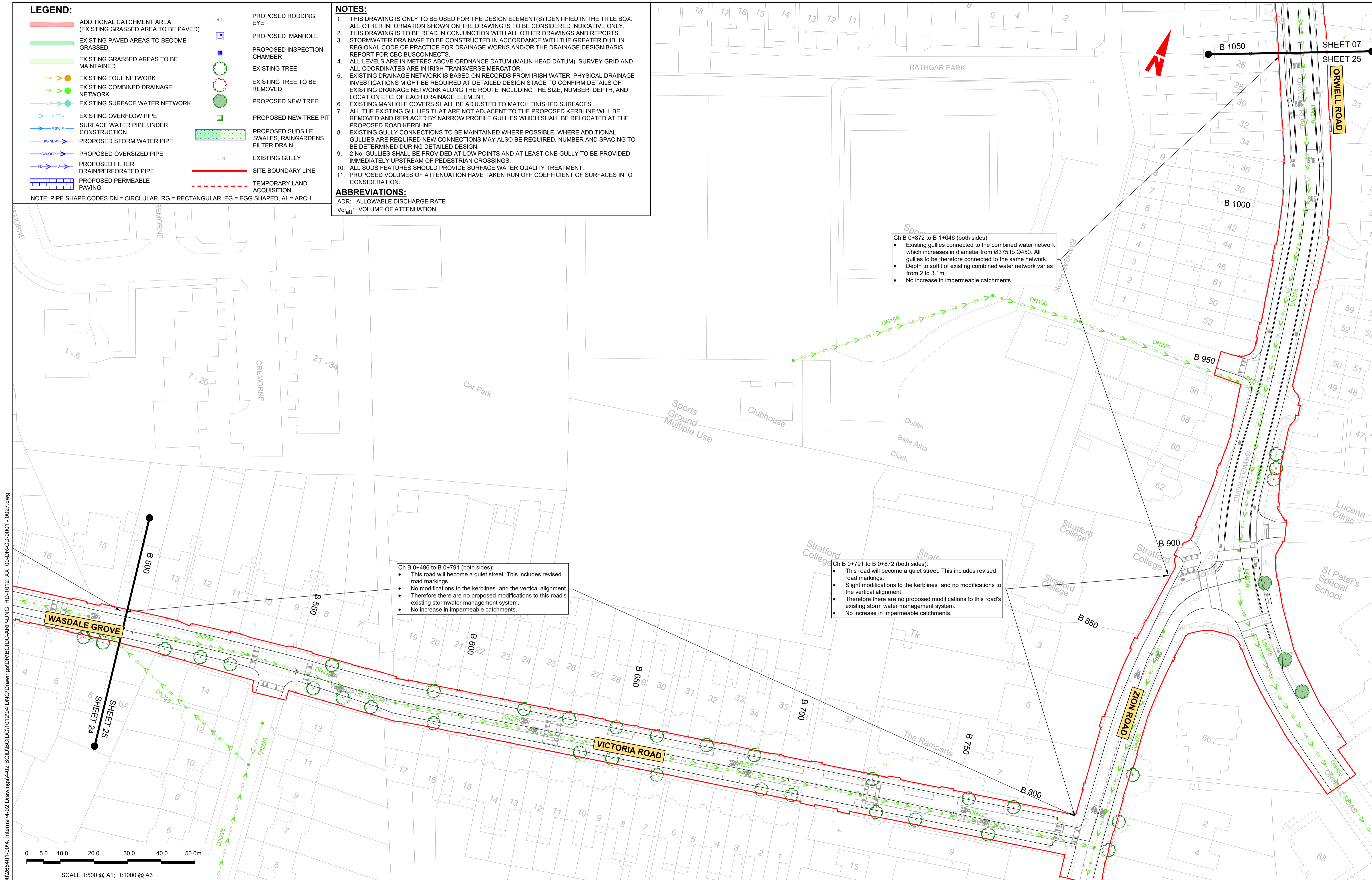
NOTE: PIPE SHAPE CODES DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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- EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
- EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
- ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
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- ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
- PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION



Ch B 0+872 to B 1+046 (both sides):

- Existing gullies connected to the combined water network which increases in diameter from Ø375 to Ø450. All gullies to be therefore connected to the same network.
- Depth to soffit of existing combined water network varies from 2 to 3 fm.
- No increase in impermeable catchments.

Ch B 0+496 to B 0+791 (both sides):

- This road will become a quiet street. This includes revised road markings.
- No modifications to the kerblines and the vertical alignment.
- Therefore there are no proposed modifications to this road's existing stormwater management system.
- No increase in impermeable catchments.

Ch B 0+791 to B 0+872 (both sides):

- This road will become a quiet street. This includes revised road markings.
- Slight modifications to the kerblines and no modifications to the vertical alignment.
- Therefore there are no proposed modifications to this road's existing stormwater management system.
- No increase in impermeable catchments.

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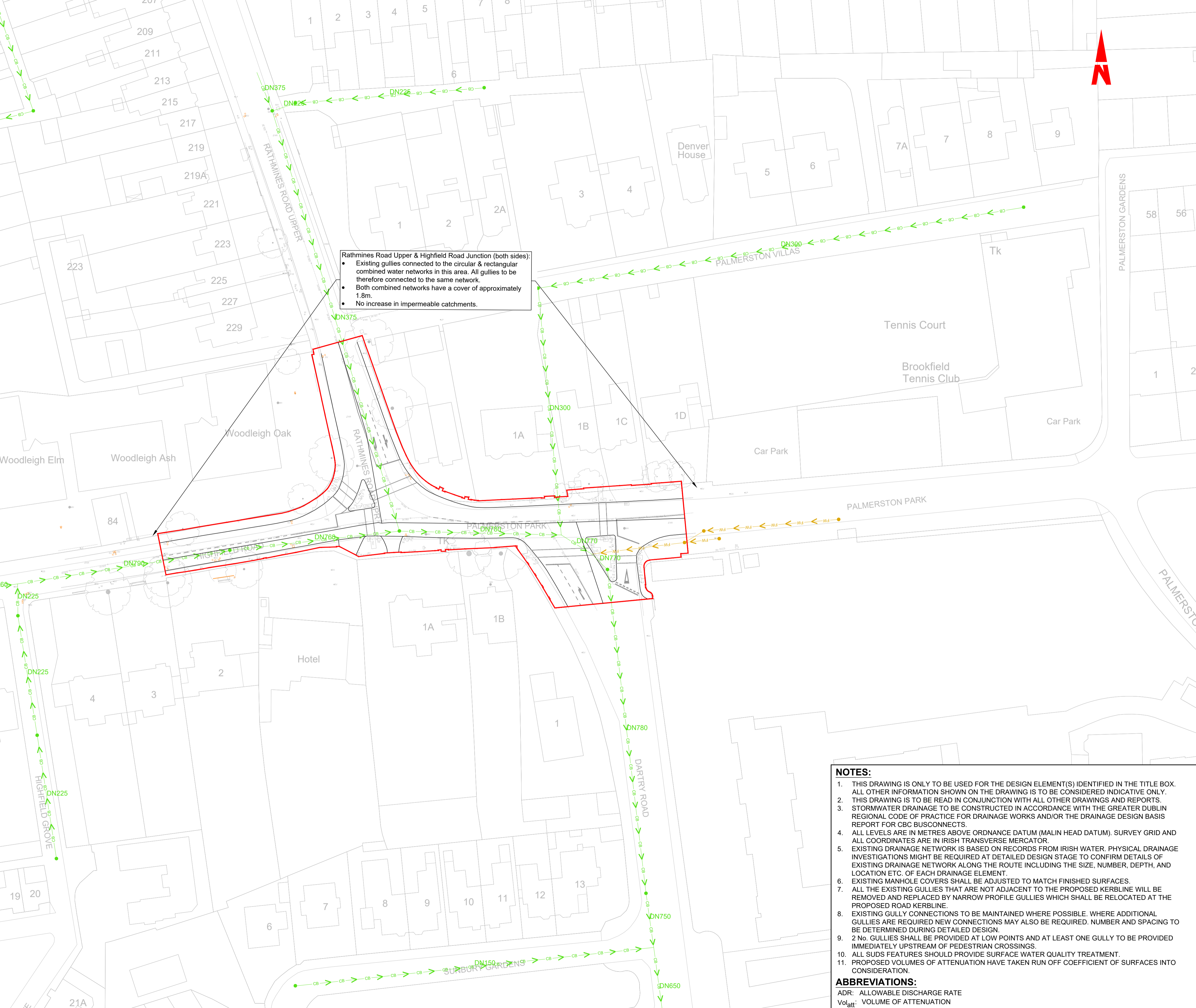
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<p>Date 27/01/2023 Scale 1:500 @ A1 1:1000 @ A3</p>		<p>Drawn AF Checked MR Approved DC</p>		<p>Project Code BCIDC Originator Code ARP</p>		<p>QMS Code 26840-00</p>			<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0025 Sheet Number 25 of 37 Status A Rev M01</p>			

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**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.



Rathmines Road Upper & Highfield Road Junction (both sides):

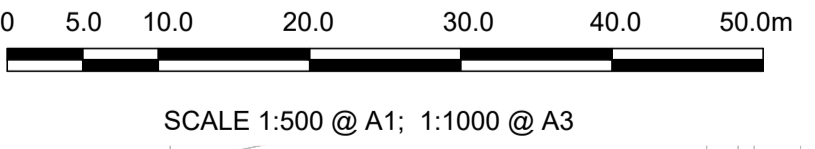
- Existing gullies connected to the circular & rectangular combined water networks in this area. All gullies to be therefore connected to the same network.
- Both combined networks have a cover of approximately 1.8m.
- No increase in impermeable catchments.

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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION



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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
Udárás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

Programme Title <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0026	Sheet Number 26 of 37	Status A	Rev M01

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**LEGEND:**

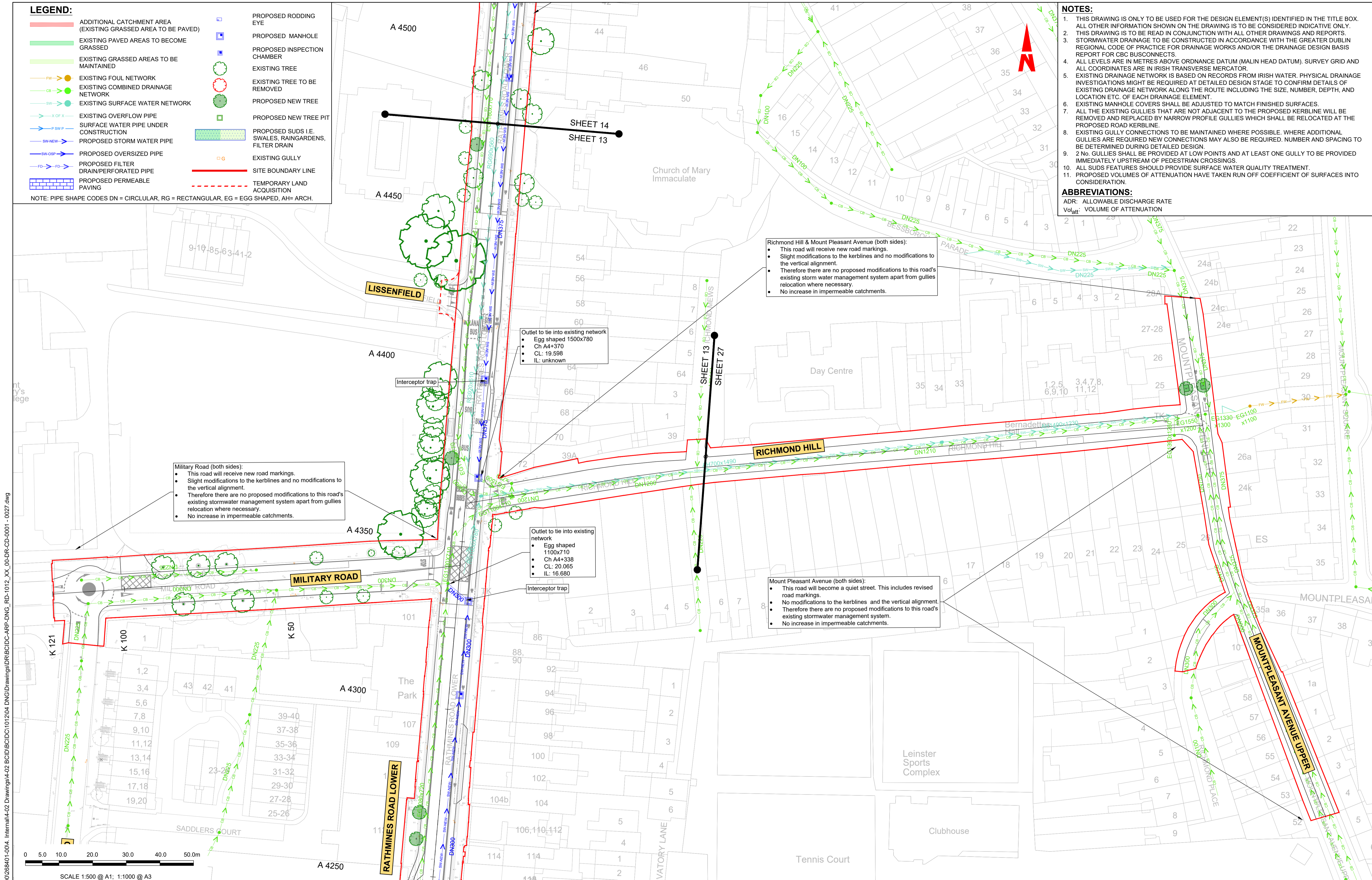
	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	SURFACE WATER PIPE UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
	PROPOSED OVERSIZED PIPE		SITE BOUNDARY LINE
	PROPOSED FILTER DRAIN/PERFORATED PIPE		TEMPORARY LAND ACQUISITION
	PROPOSED PERMEABLE PAVING		

NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.

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- ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
- EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
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- ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
- PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 Vol<sub>att</sub>: VOLUME OF ATTENUATION



**Military Road (both sides):**

- This road will receive new road markings.
- Slight modifications to the kerblines and no modifications to the vertical alignment.
- Therefore there are no proposed modifications to this road's existing stormwater management system apart from gullies relocation where necessary.
- No increase in impermeable catchments.

**Richmond Hill & Mount Pleasant Avenue (both sides):**

- This road will receive new road markings.
- Slight modifications to the kerblines and no modifications to the vertical alignment.
- Therefore there are no proposed modifications to this road's existing stormwater management system apart from gullies relocation where necessary.
- No increase in impermeable catchments.

**Mount Pleasant Avenue (both sides):**

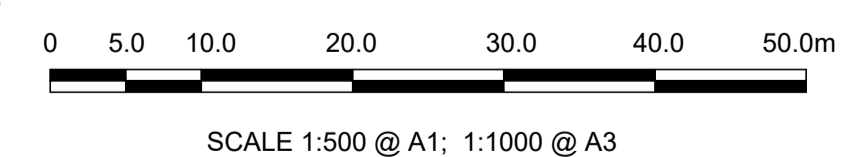
- This road will become a quiet street. This includes revised road markings.
- No modifications to the kerblines and the vertical alignment.
- Therefore there are no proposed modifications to this road's existing stormwater management system.
- No increase in impermeable catchments.

**Outlet to tie into existing network**

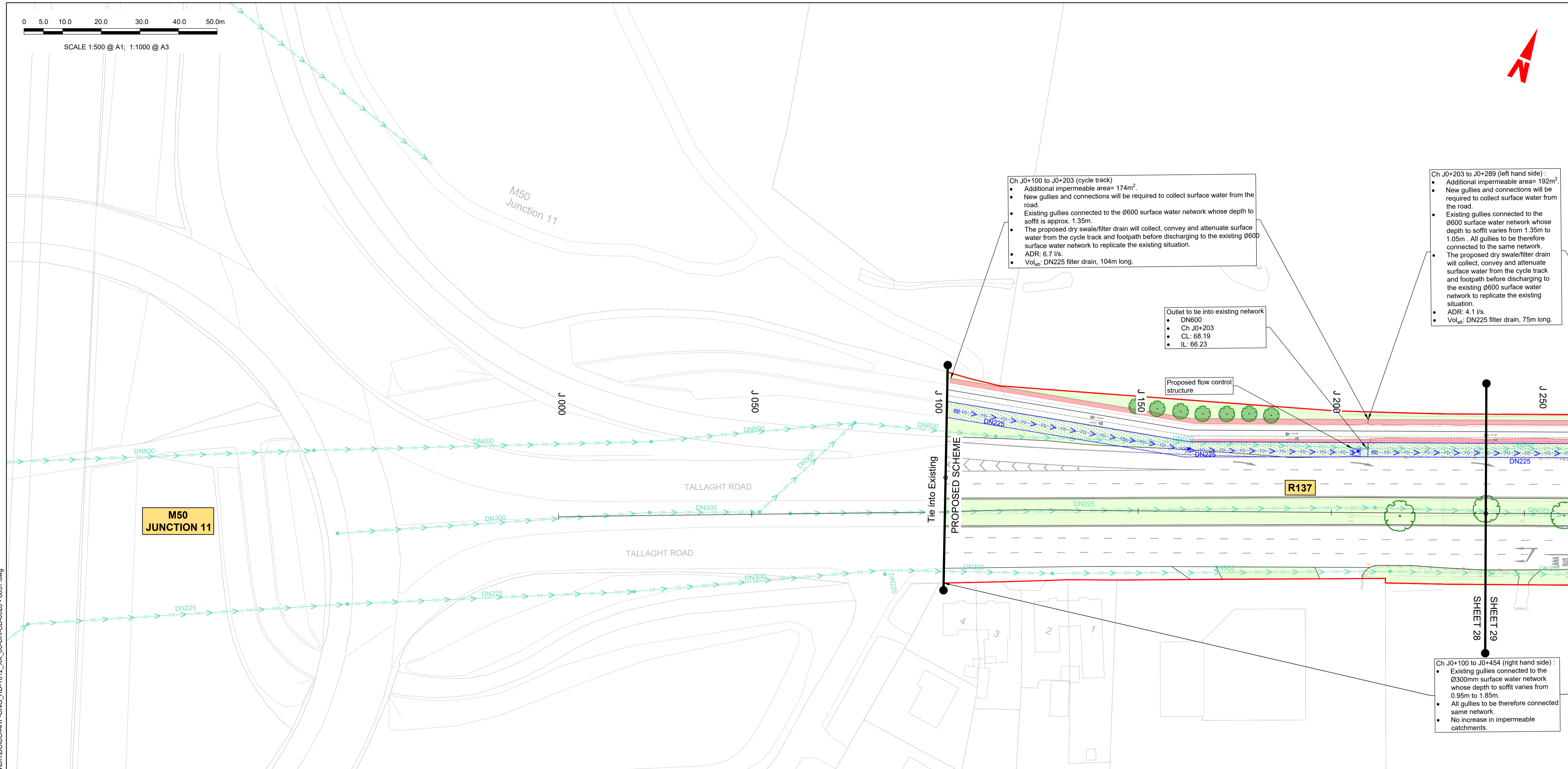
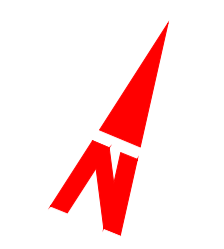
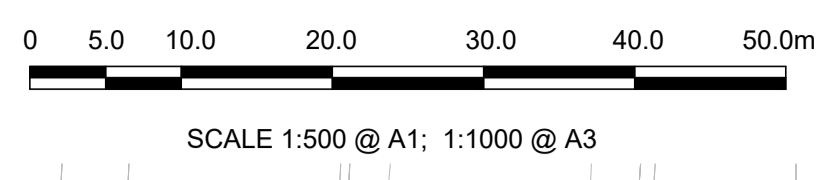
- Egg shaped 1500x780
- Ch A4+370
- CL: 19.598
- IL: unknown

**Outlet to tie into existing network**

- Egg shaped 1100x710
- Ch A4+338
- CL: 20.065
- IL: 16.680



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<p>Date 27/01/2023 Scale 1:500 @ A1 1:1000 @ A3 Drawn AF Checked MR Approved DC</p>		<p>Project Code BCIDC Originator Code ARP QMS Code 268401-00</p>			<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0027 Sheet Number 27 of 37 Status A Rev M01</p>						



**Ch J0+100 to J0+203 (cycle track)**

- Additional impermeable area= 174m<sup>2</sup>.
- New gullies and connections will be required to collect surface water from the road.
- Existing gullies connected to the Ø600 surface water network whose depth to soffit is approx. 1.35m.
- The proposed dry swale/filter drain will collect, convey and attenuate surface water from the cycle track and footpath before discharging to the existing Ø600 surface water network to replicate the existing situation.
- ADR: 6.7 l/s.
- Vol<sub>att</sub>: DN225 filter drain, 104m long.

**Outlet to tie into existing network**

- DN600
- Ch J0+203
- CL: 68.19
- IL: 66.23

**Ch J0+203 to J0+289 (left hand side)**

- Additional impermeable area= 192m<sup>2</sup>.
- New gullies and connections will be required to collect surface water from the road.
- Existing gullies connected to the Ø600 surface water network whose depth to soffit varies from 1.35m to 1.05m. All gullies to be therefore connected to the same network.
- The proposed dry swale/filter drain will collect, convey and attenuate surface water from the cycle track and footpath before discharging to the existing Ø600 surface water network to replicate the existing situation.
- ADR: 4.1 l/s.
- Vol<sub>att</sub>: DN225 filter drain, 75m long.

**Ch J0+100 to J0+454 (right hand side)**

- Existing gullies connected to the Ø300mm surface water network whose depth to soffit varies from 0.95m to 1.85m.
- All gullies to be therefore connected same network.
- No increase in impermeable catchments.

**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	SURFACE WATER PIPE UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
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**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE  
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<p>Date 27/01/2023 Scale 1:500 @ A1 1:1000 @ A3 Drawn AF Checked MR Approved DC</p>		<p>Project Code BCIDC Originator Code ARP QMS Code 268401-00</p>		<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0028</p>		<p>Sheet Number 28 of 37 Status A Rev M01</p>		<p>Drawing Title TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</p>		

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SCALE 1:500 @ A1; 1:1000 @ A3

Ch J0+203 to J0+289 (left hand side) :

- Additional impermeable area= 192m<sup>2</sup>.
- New gullies and connections will be required to collect surface water from the road.
- Existing gullies connected to the Ø600 surface water network whose depth to soffit varies from 1.35m to 1.05m. All gullies to be therefore connected to the same network.
- The proposed dry swale/filter drain will collect, convey and attenuate surface water from the cycle track and footpath before discharging to the existing Ø600 surface water network to replicate the existing situation.
- ADR: 4.1 l/s.
- Vol<sub>att</sub>: DN225 filter drain, 75m long.

Ch J0+289 to J0+384 (left hand side)

- Additional impermeable area= 214m<sup>2</sup>.
- New gullies and connections will be required to collect surface water from the road.
- Existing gullies connected to the Ø600 surface water network whose depth to soffit varies from 1.05 to 0.65m. All gullies to be therefore connected to the same network.
- The proposed dry swale/filter drain will collect, convey and attenuate surface water from the cycle track and footpath before discharging to the existing Ø600 surface water network to replicate the existing situation.
- ADR: 4.8 l/s.
- Vol<sub>att</sub>: DN225 filter drain, 88m long.

Ch J0+384 to J0+549 (left hand side) :

- Additional impermeable area= 494m<sup>2</sup>.
- New gullies and connections will be required to collect surface water from the road.
- Existing gullies connected to the Ø600 surface water network whose depth to soffit is approx. 0.65m. All gullies to be therefore connected to the same network.
- The proposed dry swale/filter drain will collect, convey and attenuate surface water from the cycle track and footpath before discharging to the existing Ø600 surface water network to replicate the existing situation.
- ADR: 8.1 l/s.
- Vol<sub>att</sub>: DN225 filter drain, 131m long.

Ch J0+549 to J0+673 (left hand side) :

- Existing gullies connected to the Ø600mm surface water network whose depth to soffit is unknown.
- All gullies to be therefore connected to the same network.
- Additional impermeable area = 755m<sup>2</sup>.
- Additional grassed (permeable) area = 381m<sup>2</sup>.
- Net impermeable area to be attenuated = 374m<sup>2</sup>.
- The SuDS feature located at ch 0+673 to 0+783 will provide attenuation to compensate for this net additional impermeable area.

Outlet to tie into existing network

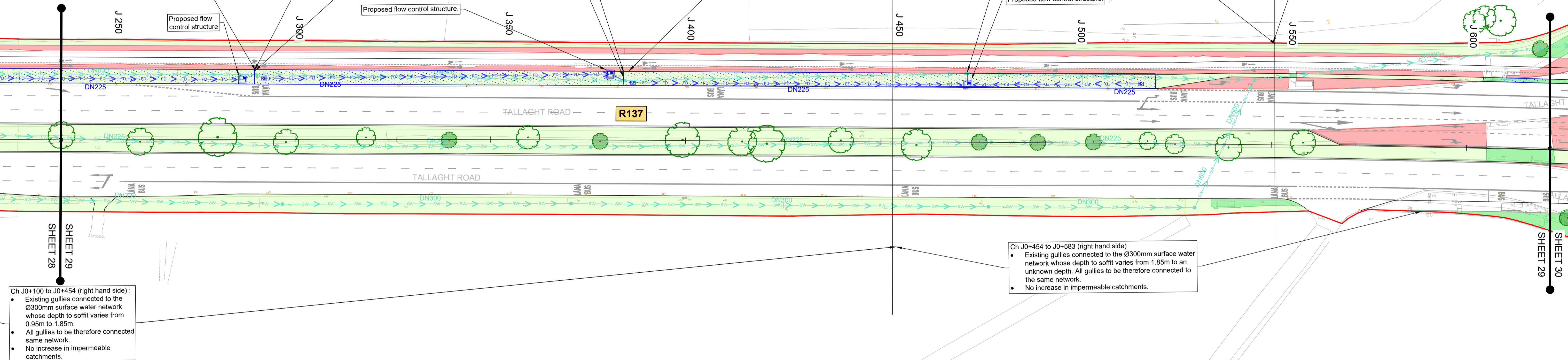
- DN600
- Ch J0+289
- CL: 67.660
- IL: 65.820

Outlet to tie into existing network

- DN600
- Ch J0+384
- CL: 66.662
- IL: 65.300

Outlet to tie into existing network

- DN600
- Ch J0+471
- CL: 66.300
- IL: 64.820



Ch J0+100 to J0+454 (right hand side) :

- Existing gullies connected to the Ø300mm surface water network whose depth to soffit varies from 0.95m to 1.85m.
- All gullies to be therefore connected same network.
- No increase in impermeable catchments.

Ch J0+454 to J0+583 (right hand side)

- Existing gullies connected to the Ø300mm surface water network whose depth to soffit varies from 1.85m to an unknown depth. All gullies to be therefore connected to the same network.
- No increase in impermeable catchments.

**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

NOTE: PIPE SHAPE CODES DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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- EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
- EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
- ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
- EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
- 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
- ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
- PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION

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Rev	Date	Drm	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
Udarás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

Programme Title <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0029	Sheet Number 29 of 37	Status A	Rev M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

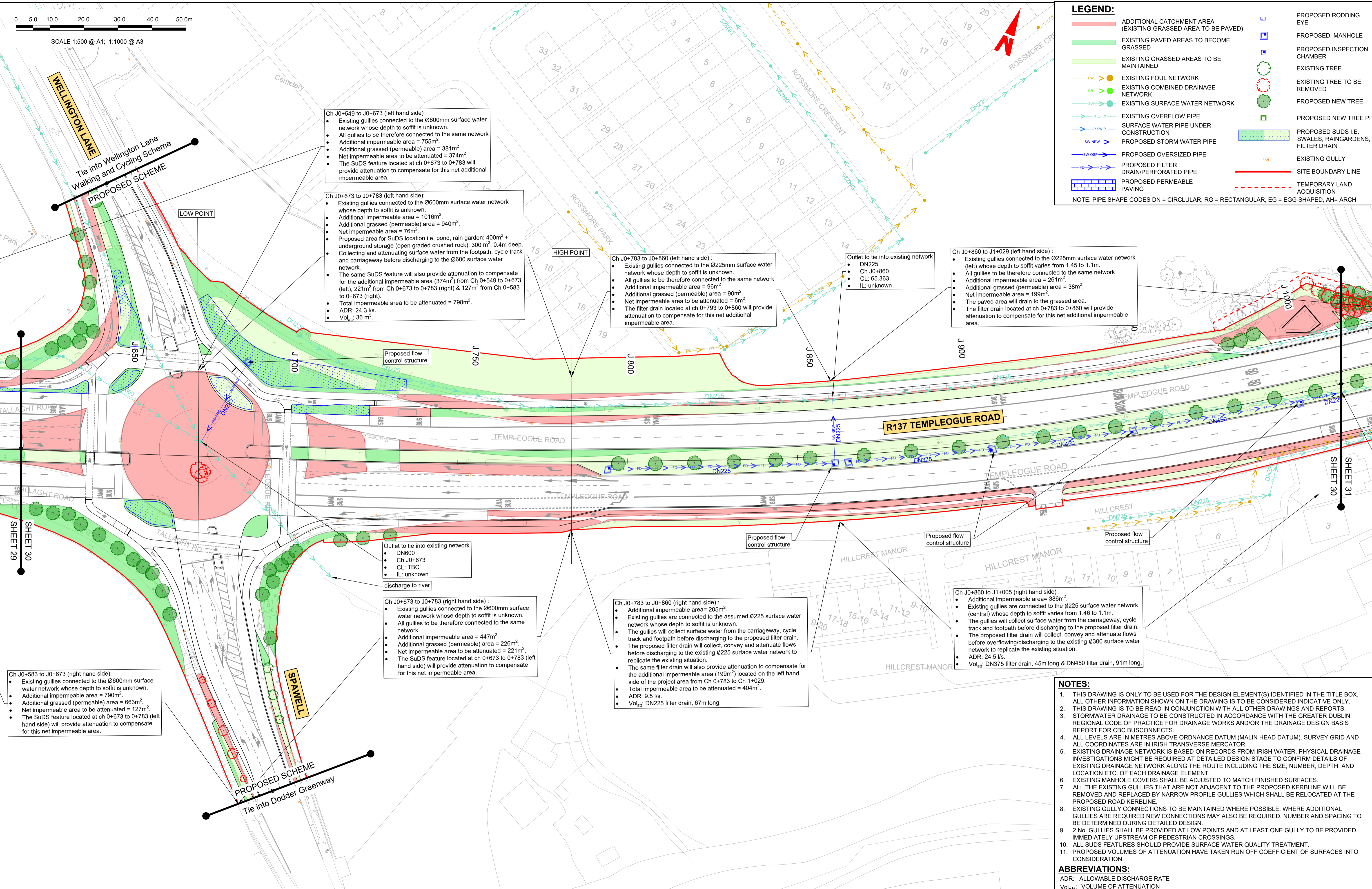
0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED DRAINAGE NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
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- EXISTING GULLY
- SITE BOUNDARY LINE
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NOTE: PIPE SHAPE CODES DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.



**Ch J0+583 to J0+673 (right hand side):**

- Existing gullies connected to the Ø600mm surface water network whose depth to soffit is unknown.
- Additional impermeable area = 790m<sup>2</sup>.
- Additional grassed (permeable) area = 663m<sup>2</sup>.
- Net impermeable area to be attenuated = 127m<sup>2</sup>.
- The SuDS feature located at ch 0+673 to 0+783 (left hand side) will provide attenuation to compensate for this net impermeable area.

**Ch J0+549 to J0+673 (left hand side):**

- Existing gullies connected to the Ø600mm surface water network whose depth to soffit is unknown.
- All gullies to be therefore connected to the same network.
- Additional impermeable area = 755m<sup>2</sup>.
- Additional grassed (permeable) area = 381m<sup>2</sup>.
- Net impermeable area to be attenuated = 374m<sup>2</sup>.
- The SuDS feature located at ch 0+673 to 0+783 will provide attenuation to compensate for this net additional impermeable area.

**Ch J0+673 to J0+783 (left hand side):**

- Existing gullies connected to the Ø600mm surface water network whose depth to soffit is unknown.
- Additional impermeable area = 1016m<sup>2</sup>.
- Additional grassed (permeable) area = 940m<sup>2</sup>.
- Net impermeable area = 76m<sup>2</sup>.
- Proposed area for SuDS location i.e. pond, rain garden: 400m<sup>2</sup> + underground storage (open graded crushed rock): 300 m<sup>2</sup>, 0.4m deep.
- Collecting and attenuating surface water from the footpath, cycle track and carriageway before discharging to the Ø600 surface water network.
- The same SuDS feature will also provide attenuation to compensate for the additional impermeable area (374m<sup>2</sup>) from Ch 0+549 to 0+673 (left), 221m<sup>2</sup> from Ch 0+673 to 0+783 (right) & 127m<sup>2</sup> from Ch 0+583 to 0+673 (right).
- Total impermeable area to be attenuated = 798m<sup>2</sup>.
- ADR: 24.3 l/s.
- Vol<sub>att</sub>: 36 m<sup>3</sup>.

**Ch J0+783 to J0+860 (left hand side):**

- Existing gullies connected to the Ø225mm surface water network whose depth to soffit is unknown.
- All gullies to be therefore connected to the same network.
- Additional impermeable area = 96m<sup>2</sup>.
- Additional grassed (permeable) area = 90m<sup>2</sup>.
- Net impermeable area to be attenuated = 6m<sup>2</sup>.
- The filter drain located at ch 0+793 to 0+860 will provide attenuation to compensate for this net additional impermeable area.

**Outlet to tie into existing network**

- DN225
- Ch J0+860
- CL: 65.363
- IL: unknown

**Ch J0+860 to J1+029 (left hand side):**

- Existing gullies connected to the Ø225mm surface water network (left) whose depth to soffit varies from 1.45 to 1.1m.
- All gullies to be therefore connected to the same network.
- Additional impermeable area = 261m<sup>2</sup>.
- Additional grassed (permeable) area = 38m<sup>2</sup>.
- Net impermeable area = 199m<sup>2</sup>.
- The paved area will drain to the grassed area.
- The filter drain located at ch 0+783 to 0+860 will provide attenuation to compensate for this net additional impermeable area.

**Outlet to tie into existing network**

- DN600
- Ch J0+673
- CL: TBC
- IL: unknown

discharge to river

**Ch J0+673 to J0+783 (right hand side):**

- Existing gullies connected to the Ø600mm surface water network whose depth to soffit is unknown.
- All gullies to be therefore connected to the same network.
- Additional impermeable area = 447m<sup>2</sup>.
- Additional grassed (permeable) area = 226m<sup>2</sup>.
- Net impermeable area to be attenuated = 221m<sup>2</sup>.
- The SuDS feature located at ch 0+673 to 0+783 (left hand side) will provide attenuation to compensate for this net impermeable area.

**Ch J0+783 to J0+860 (right hand side):**

- Additional impermeable area = 205m<sup>2</sup>.
- Existing gullies are connected to the assumed Ø225 surface water network whose depth to soffit is unknown.
- The gullies will collect surface water from the carriageway, cycle track and footpath before discharging to the proposed filter drain.
- The proposed filter drain will collect, convey and attenuate flows before discharging to the existing Ø225 surface water network to replicate the existing situation.
- The same filter drain will also provide attenuation to compensate for the additional impermeable area (199m<sup>2</sup>) located on the left hand side of the project area from Ch 0+783 to Ch 1+029.
- Total impermeable area to be attenuated = 404m<sup>2</sup>.
- ADR: 9.5 l/s.
- Vol<sub>att</sub>: DN225 filter drain, 67m long.

**Ch J0+860 to J1+005 (right hand side):**

- Additional impermeable area = 386m<sup>2</sup>.
- Existing gullies are connected to the Ø225 surface water network (central) whose depth to soffit varies from 1.46 to 1.1m.
- The gullies will collect surface water from the carriageway, cycle track and footpath before discharging to the proposed filter drain.
- The proposed filter drain will collect, convey and attenuate flows before overflowing/discharging to the existing Ø300 surface water network to replicate the existing situation.
- ADR: 24.5 l/s.
- Vol<sub>att</sub>: DN375 filter drain, 45m long & DN450 filter drain, 91m long.

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  - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
  - ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
  - EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
  - 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  - ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
  - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
Údaráis Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3

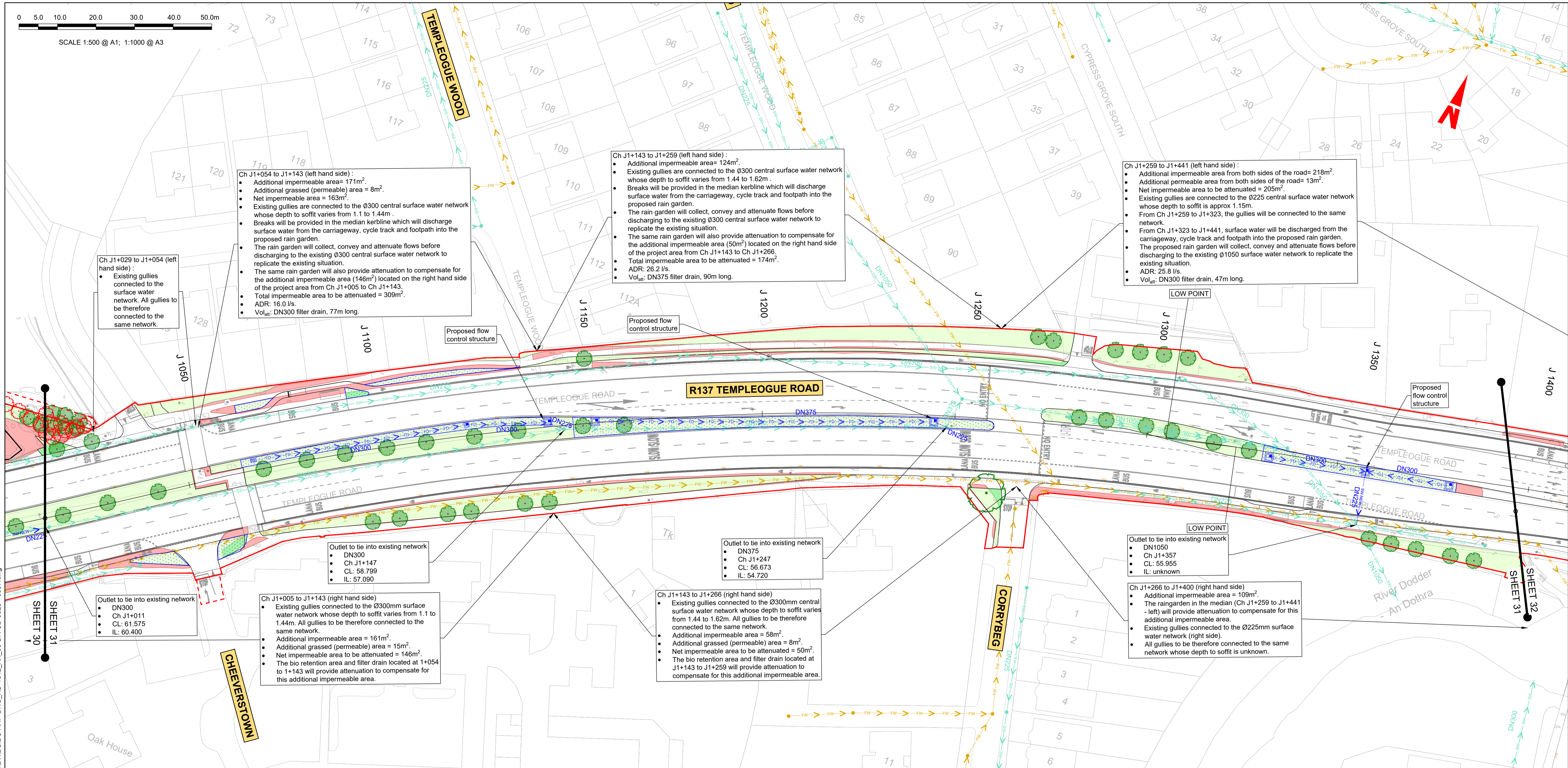
Project Code: BCIDC Originator Code: ARP

QMS Code: 268401-00

Drawn: AF Checked: MR Approved: DC

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0030	Sheet Number: 30 of 37	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



0 5.0 10.0 20.0 30.0 40.0 50.0m  
 SCALE 1:500 @ A1; 1:1000 @ A3

Ch J1+259 to J1+441 (left hand side):

- Additional impermeable area from both sides of the road= 218m<sup>2</sup>.
- Additional permeable area from both sides of the road= 13m<sup>2</sup>.
- Net impermeable area to be attenuated = 205m<sup>2</sup>.
- Existing gullies are connected to the Ø225 central surface water network whose depth to soffit is approx 1.15m.
- From Ch J1+259 to J1+323, the gullies will be connected to the same network.
- From Ch J1+323 to J1+441, surface water will be discharged from the carriageway, cycle track and footpath into the proposed rain garden.
- The proposed rain garden will collect, convey and attenuate flows before discharging to the existing Ø1050 surface water network to replicate the existing situation.
- ADR: 25.8 l/s.
- Vol<sub>att</sub>: DN300 filter drain, 47m long.

Ch J1+143 to J1+259 (left hand side):

- Additional impermeable area= 124m<sup>2</sup>.
- Existing gullies are connected to the Ø300 central surface water network whose depth to soffit varies from 1.44 to 1.62m.
- Breaks will be provided in the median kerbline which will discharge surface water from the carriageway, cycle track and footpath into the proposed rain garden.
- The rain garden will collect, convey and attenuate flows before discharging to the existing Ø300 central surface water network to replicate the existing situation.
- The same rain garden will also provide attenuation to compensate for the additional impermeable area (50m<sup>2</sup>) located on the right hand side of the project area from Ch J1+143 to Ch J1+266.
- Total impermeable area to be attenuated = 174m<sup>2</sup>.
- ADR: 26.2 l/s.
- Vol<sub>att</sub>: DN375 filter drain, 90m long.

Ch J1+054 to J1+143 (left hand side):

- Additional impermeable area= 171m<sup>2</sup>.
- Additional grassed (permeable) area = 8m<sup>2</sup>.
- Net impermeable area = 163m<sup>2</sup>.
- Existing gullies are connected to the Ø300 central surface water network whose depth to soffit varies from 1.1 to 1.44m.
- Breaks will be provided in the median kerbline which will discharge surface water from the carriageway, cycle track and footpath into the proposed rain garden.
- The rain garden will collect, convey and attenuate flows before discharging to the existing Ø300 central surface water network to replicate the existing situation.
- The same rain garden will also provide attenuation to compensate for the additional impermeable area (146m<sup>2</sup>) located on the right hand side of the project area from Ch J1+005 to Ch J1+143.
- Total impermeable area to be attenuated = 309m<sup>2</sup>.
- ADR: 16.0 l/s.
- Vol<sub>att</sub>: DN300 filter drain, 77m long.

Ch J1+029 to J1+054 (left hand side):

- Existing gullies connected to the surface water network. All gullies to be therefore connected to the same network.

Outlet to tie into existing network

- DN300
- Ch J1+147
- CL: 58.799
- IL: 57.090

Outlet to tie into existing network

- DN375
- Ch J1+247
- CL: 56.673
- IL: 54.720

Outlet to tie into existing network

- DN1050
- Ch J1+357
- CL: 55.955
- IL: unknown

Ch J1+266 to J1+400 (right hand side):

- Additional impermeable area = 109m<sup>2</sup>.
- The raingarden in the median (Ch J1+259 to J1+441 - left) will provide attenuation to compensate for this additional impermeable area.
- Existing gullies connected to the Ø225mm surface water network (right side).
- All gullies to be therefore connected to the same network whose depth to soffit is unknown.

Ch J1+143 to J1+266 (right hand side):

- Existing gullies connected to the Ø300mm central surface water network whose depth to soffit varies from 1.44 to 1.62m. All gullies to be therefore connected to the same network.
- Additional impermeable area = 58m<sup>2</sup>.
- Additional grassed (permeable) area = 8m<sup>2</sup>.
- Net impermeable area to be attenuated = 50m<sup>2</sup>.
- The bio retention area and filter drain located at J1+143 to J1+259 will provide attenuation to compensate for this additional impermeable area.

Ch J1+005 to J1+143 (right hand side):

- Existing gullies connected to the Ø300mm surface water network whose depth to soffit varies from 1.1 to 1.44m. All gullies to be therefore connected to the same network.
- Additional impermeable area = 161m<sup>2</sup>.
- Additional grassed (permeable) area = 15m<sup>2</sup>.
- Net impermeable area to be attenuated = 146m<sup>2</sup>.
- The bio retention area and filter drain located at J1+054 to J1+143 will provide attenuation to compensate for this additional impermeable area.

Outlet to tie into existing network

- DN300
- Ch J1+011
- CL: 61.575
- IL: 60.400

**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	SURFACE WATER PIPE UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
	PROPOSED OVERSIZED PIPE		SITE BOUNDARY LINE
	PROPOSED FILTER DRAIN/PERFORATED PIPE		TEMPORARY LAND ACQUISITION
	PROPOSED PERMEABLE PAVING		

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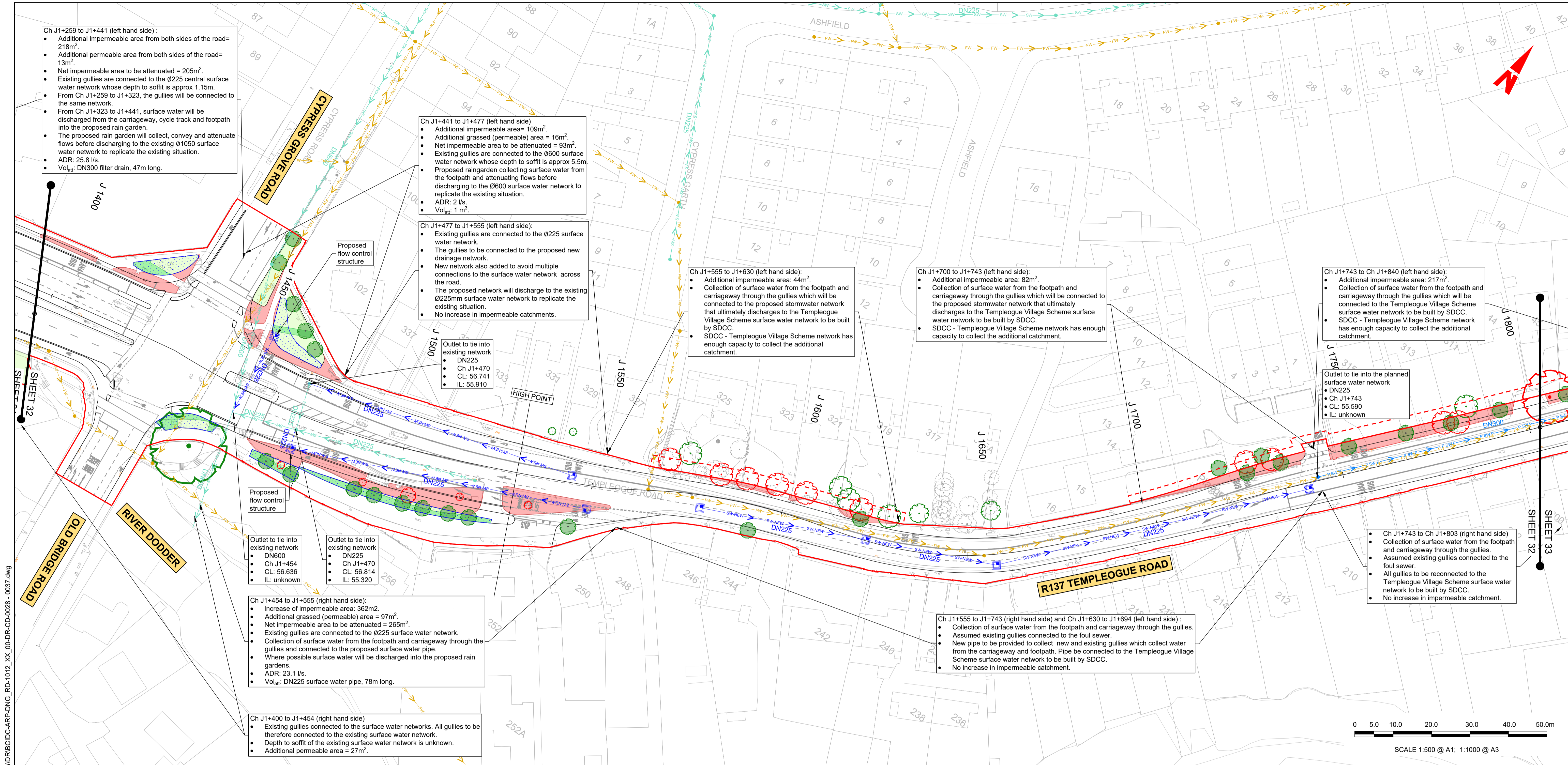
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7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
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10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 Vol<sub>att</sub>: VOLUME OF ATTENUATION

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<p>Date 27/01/2023</p> <p>Scale 1:500 @ A1          1:1000 @ A3</p> <p>Project Code BCIDC</p> <p>Originator Code ARP</p> <p>QMS Code 268401-00</p>					<p>Drawn AF</p> <p>Checked MR</p> <p>Approved DC</p>			<p>Drawing Title</p> <p>TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME          PROPOSED SURFACE WATER DRAINAGE WORKS</p>						
<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0031</p>					<p>Sheet Number 31 of 37</p>		<p>Status A</p>		<p>Rev M01</p>					

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



Ch J1+259 to J1+441 (left hand side):

- Additional impermeable area from both sides of the road= 218m<sup>2</sup>.
- Additional permeable area from both sides of the road= 13m<sup>2</sup>.
- Net impermeable area to be attenuated = 205m<sup>2</sup>.
- Existing gullies are connected to the Ø225 central surface water network whose depth to soffit is approx 1.15m.
- From Ch J1+259 to J1+323, the gullies will be connected to the same network.
- From Ch J1+323 to J1+441, surface water will be discharged from the carriageway, cycle track and footpath into the proposed rain garden.
- The proposed rain garden will collect, convey and attenuate flows before discharging to the existing Ø1050 surface water network to replicate the existing situation.
- ADR: 25.8 l/s.
- Vol<sub>att</sub>: DN300 filter drain, 47m long.

Ch J1+441 to J1+477 (left hand side):

- Additional impermeable area= 109m<sup>2</sup>.
- Additional grassed (permeable) area = 16m<sup>2</sup>.
- Net impermeable area to be attenuated = 93m<sup>2</sup>.
- Existing gullies are connected to the Ø600 surface water network whose depth to soffit is approx 5.5m.
- Proposed raingarden collecting surface water from the footpath and attenuating flows before discharging to the Ø600 surface water network to replicate the existing situation.
- ADR: 2 l/s.
- Vol<sub>att</sub>: 1 m<sup>3</sup>.

Ch J1+477 to J1+555 (left hand side):

- Existing gullies are connected to the Ø225 surface water network.
- The gullies to be connected to the proposed new drainage network.
- New network also added to avoid multiple connections to the surface water network across the road.
- The proposed network will discharge to the existing Ø225mm surface water network to replicate the existing situation.
- No increase in impermeable catchments.

Ch J1+555 to J1+630 (left hand side):

- Additional impermeable area: 44m<sup>2</sup>.
- Collection of surface water from the footpath and carriageway through the gullies which will be connected to the proposed stormwater network that ultimately discharges to the Templeogue Village Scheme surface water network to be built by SDCC.
- SDCC - Templeogue Village Scheme network has enough capacity to collect the additional catchment.

Ch J1+700 to J1+743 (left hand side):

- Additional impermeable area: 82m<sup>2</sup>.
- Collection of surface water from the footpath and carriageway through the gullies which will be connected to the proposed stormwater network that ultimately discharges to the Templeogue Village Scheme surface water network to be built by SDCC.
- SDCC - Templeogue Village Scheme network has enough capacity to collect the additional catchment.

Ch J1+743 to Ch J1+840 (left hand side):

- Additional impermeable area: 217m<sup>2</sup>.
- Collection of surface water from the footpath and carriageway through the gullies which will be connected to the Templeogue Village Scheme surface water network to be built by SDCC.
- SDCC - Templeogue Village Scheme network has enough capacity to collect the additional catchment.

Outlet to tie into the planned surface water network

- DN225
- Ch J1+743
- CL: 55.590
- IL: unknown

Outlet to tie into existing network

- DN600
- Ch J1+454
- CL: 56.638
- IL: unknown

Outlet to tie into existing network

- DN225
- Ch J1+470
- CL: 56.814
- IL: 55.320

Ch J1+454 to J1+555 (right hand side):

- Increase of impermeable area: 362m<sup>2</sup>.
- Additional grassed (permeable) area = 97m<sup>2</sup>.
- Net impermeable area to be attenuated = 265m<sup>2</sup>.
- Existing gullies are connected to the Ø225 surface water network.
- Collection of surface water from the footpath and carriageway through the gullies and connected to the proposed surface water pipe.
- Where possible surface water will be discharged into the proposed rain gardens.
- ADR: 23.1 l/s.
- Vol<sub>att</sub>: DN225 surface water pipe, 78m long.

Ch J1+400 to J1+454 (right hand side)

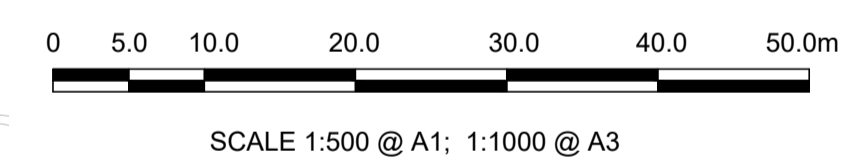
- Existing gullies connected to the surface water networks. All gullies to be therefore connected to the existing surface water network.
- Depth to soffit of the existing surface water network is unknown.
- Additional permeable area = 27m<sup>2</sup>.

Ch J1+555 to J1+743 (right hand side) and Ch J1+630 to J1+694 (left hand side):

- Collection of surface water from the footpath and carriageway through the gullies.
- Assumed existing gullies connected to the foul sewer.
- New pipe to be provided to collect new and existing gullies which collect water from the carriageway and footpath. Pipe to be connected to the Templeogue Village Scheme surface water network to be built by SDCC.
- No increase in impermeable catchment.

Ch J1+743 to Ch J1+803 (right hand side)

- Collection of surface water from the footpath and carriageway through the gullies.
- Assumed existing gullies connected to the foul sewer.
- All gullies to be reconnected to the Templeogue Village Scheme surface water network to be built by SDCC.
- No increase in impermeable catchment.



**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	SURFACE WATER PIPE UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
	PROPOSED OVERSIZED PIPE		SITE BOUNDARY LINE
	PROPOSED FILTER DRAIN/PERFORATED PIPE		TEMPORARY LAND ACQUISITION
	PROPOSED PERMEABLE PAVING		

NOTE: PIPE SHAPE CODING DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

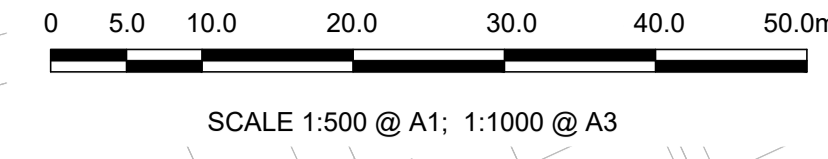
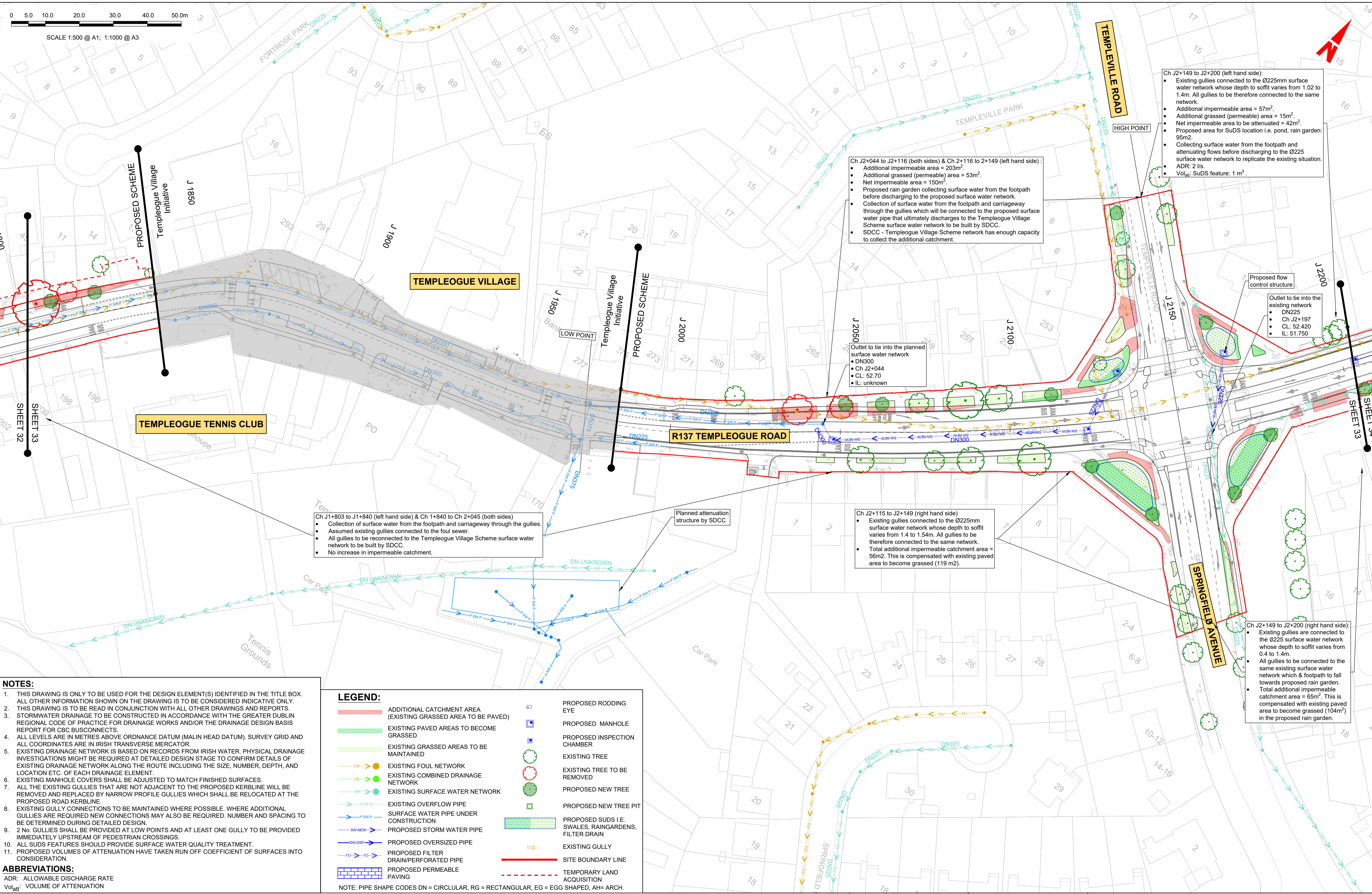
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3. STORMWATER DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS AND/OR THE DRAINAGE DESIGN BASIS REPORT FOR CBC BUSCONNECTS.
4. ALL LEVELS ARE IN METRES ABOVE ORDINANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
9. 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION

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<p>Date 27/01/2023</p> <p>Scale 1:500 @ A1</p> <p>1:1000 @ A3</p>		<p>Drawn AF</p> <p>Checked MR</p> <p>Approved DC</p>		<p>Project Code BCIDC</p> <p>Originator Code ARP</p> <p>QMS Code 268401-00</p>		<p>Drawing File Name</p> <p>BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0032</p>		<p>Sheet Number 32 of 37</p> <p>Status A</p> <p>Rev M01</p>		



Ch J2+149 to J2+200 (left hand side):

- Existing gullies connected to the Ø225mm surface water network whose depth to soffit varies from 1.02 to 1.4m. All gullies to be therefore connected to the same network.
- Additional impermeable area = 57m<sup>2</sup>.
- Additional grassed (permeable) area = 15m<sup>2</sup>.
- Net impermeable area to be attenuated = 42m<sup>2</sup>.
- Proposed area for SuDS location i.e. pond, rain garden: 95m<sup>2</sup>.
- Collecting surface water from the footpath and attenuating flows before discharging to the Ø225 surface water network to replicate the existing situation.
- ADR: 2 l/s.
- Vol<sub>att</sub>: SuDS feature: 1 m<sup>3</sup>.

Ch J2+044 to J2+116 (both sides) & Ch 2+116 to 2+149 (left hand side):

- Additional impermeable area = 203m<sup>2</sup>.
- Additional grassed (permeable) area = 53m<sup>2</sup>.
- Net impermeable area = 150m<sup>2</sup>.
- Proposed rain garden collecting surface water from the footpath before discharging to the proposed surface water network.
- Collection of surface water from the footpath and carriageway through the gullies which will be connected to the proposed surface water pipe that ultimately discharges to the Templeogue Village Scheme surface water network to be built by SDCC.
- SDCC - Templeogue Village Scheme network has enough capacity to collect the additional catchment.

Outlet to tie into the planned surface water network

- DN300
- Ch J2+044
- CL: 52.70
- IL: unknown

Ch J1+803 to J1+840 (left hand side) & Ch 1+840 to Ch 2+045 (both sides):

- Collection of surface water from the footpath and carriageway through the gullies.
- Assumed existing gullies connected to the foul sewer.
- All gullies to be reconnected to the Templeogue Village Scheme surface water network to be built by SDCC.
- No increase in impermeable catchment.

Ch J2+115 to J2+149 (right hand side):

- Existing gullies connected to the Ø225mm surface water network whose depth to soffit varies from 1.4 to 1.54m. All gullies to be therefore connected to the same network.
- Total additional impermeable catchment area = 56m<sup>2</sup>. This is compensated with existing paved area to become grassed (119 m<sup>2</sup>).

Ch J2+149 to J2+200 (right hand side):

- Existing gullies are connected to the Ø225 surface water network whose depth to soffit varies from 0.4 to 1.4m.
- All gullies to be connected to the same existing surface water network which & footpath to fall towards proposed rain garden.
- Total additional impermeable catchment area = 65m<sup>2</sup>. This is compensated with existing paved area to become grassed (104m<sup>2</sup>) in the proposed rain garden.

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  - EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS MIGHT BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
  - EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
  - ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
  - EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
  - 2 No. GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  - ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
  - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
 Vol<sub>att</sub>: VOLUME OF ATTENUATION

**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE CHAMBER
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	SURFACE WATER PIPE UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
	PROPOSED OVERSIZED PIPE		TEMPORARY LAND ACQUISITION
	PROPOSED FILTER DRAIN/PERFORATED PIPE		
	PROPOSED PERMEABLE PAVING		

NOTE: PIPE SHAPE CODES DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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Rev	Date	Drm	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
 Údarás Náisiúnta Iompair  
 National Transport Authority

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3

Engineering Designer: **ARUP**

Drawn: AF, Checked: MR, Approved: DC

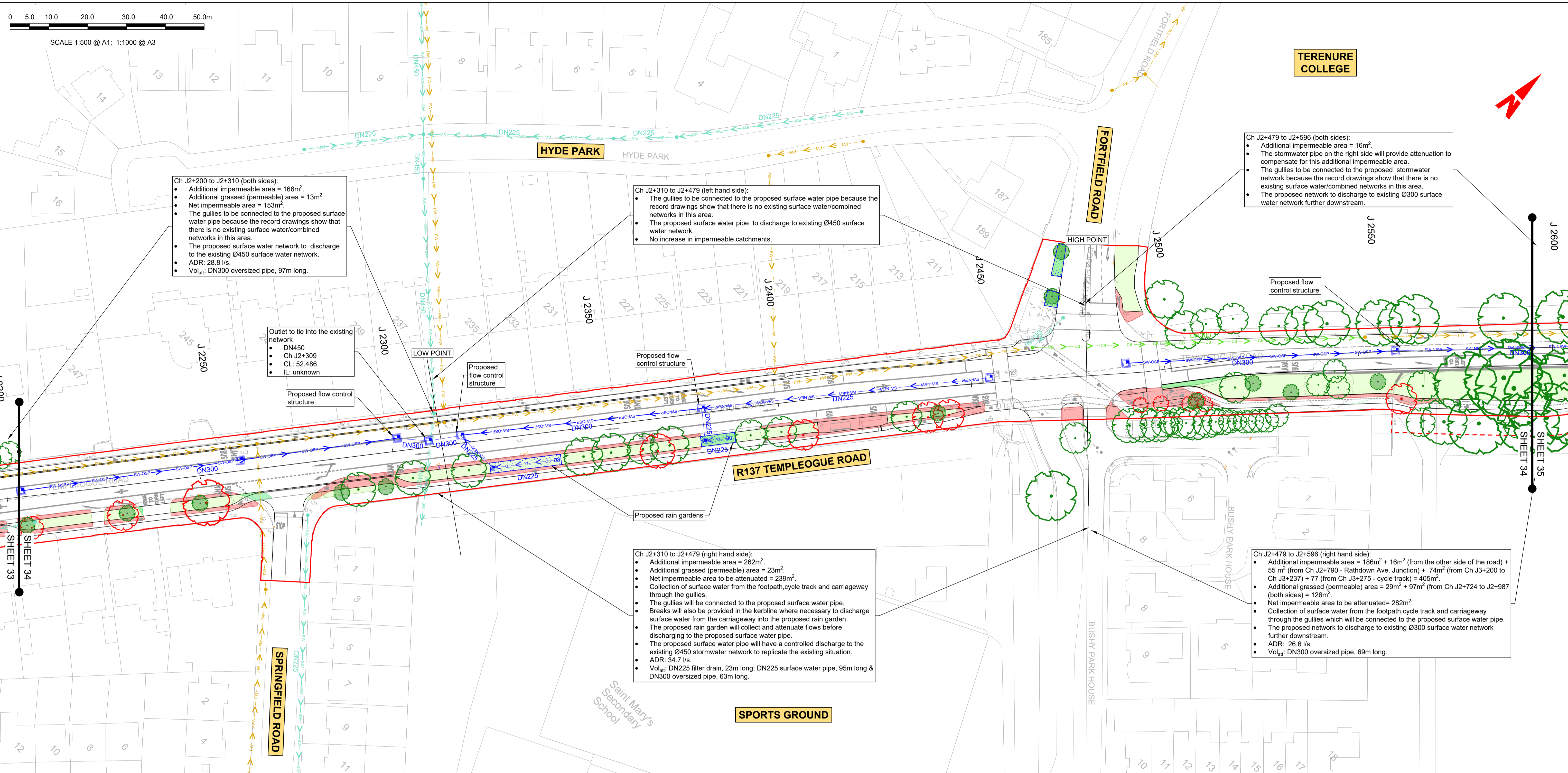
Project Code: BCIDC, Originator Code: ARP, QMS Code: 268401-00

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0033	Sheet Number: 33 of 37	Status: A	Rev: M01



SCALE 1:500 @ A1; 1:1000 @ A3

TERENURE COLLEGE



Ch J2+200 to J2+310 (both sides):

- Additional impermeable area = 166m<sup>2</sup>.
- Additional grassed (permeable) area = 13m<sup>2</sup>.
- Net impermeable area = 153m<sup>2</sup>.
- The gullies to be connected to the proposed surface water pipe because the record drawings show that there is no existing surface water/combined networks in this area.
- The proposed surface water network to discharge to the existing Ø450 surface water network.
- ADR: 28.8 l/s.
- Vol<sub>att</sub>: DN300 oversized pipe, 97m long.

Ch J2+310 to J2+479 (left hand side):

- The gullies to be connected to the proposed surface water pipe because the record drawings show that there is no existing surface water/combined networks in this area.
- The proposed surface water pipe to discharge to existing Ø450 surface water network.
- No increase in impermeable catchments.

Ch J2+479 to J2+596 (both sides):

- Additional impermeable area = 16m<sup>2</sup>.
- The stormwater pipe on the right side will provide attenuation to compensate for this additional impermeable area.
- The gullies to be connected to the proposed stormwater network because the record drawings show that there is no existing surface water/combined networks in this area.
- The proposed network to discharge to existing Ø300 surface water network further downstream.

Outlet to tie into the existing network:

- DN450
- Ch J2+309
- CL: 52.486
- IL: unknown

Ch J2+310 to J2+479 (right hand side):

- Additional impermeable area = 262m<sup>2</sup>.
- Additional grassed (permeable) area = 23m<sup>2</sup>.
- Net impermeable area to be attenuated = 239m<sup>2</sup>.
- Collection of surface water from the footpath, cycle track and carriageway through the gullies.
- The gullies will be connected to the proposed surface water pipe.
- Breaks will also be provided in the kerbline where necessary to discharge surface water from the carriageway into the proposed rain garden.
- The proposed rain garden will collect and attenuate flows before discharging to the proposed surface water pipe.
- The proposed surface water pipe will have a controlled discharge to the existing Ø450 stormwater network to replicate the existing situation.
- ADR: 34.7 l/s.
- Vol<sub>att</sub>: DN225 filter drain, 23m long; DN225 surface water pipe, 95m long & DN300 oversized pipe, 63m long.

Ch J2+479 to J2+596 (right hand side):

- Additional impermeable area = 186m<sup>2</sup> + 16m<sup>2</sup> (from the other side of the road) + 55 m<sup>2</sup> (from Ch J2+790 - Rathdown Ave. Junction) + 74m<sup>2</sup> (from Ch J3+200 to Ch J3+237) + 77 (from Ch J3+275 - cycle track) = 405m<sup>2</sup>.
- Additional grassed (permeable) area = 29m<sup>2</sup> + 97m<sup>2</sup> (from Ch J2+724 to J2+987 (both sides)) = 126m<sup>2</sup>.
- Net impermeable area to be attenuated = 282m<sup>2</sup>.
- Collection of surface water from the footpath, cycle track and carriageway through the gullies which will be connected to the proposed surface water pipe.
- The proposed network to discharge to existing Ø300 surface water network further downstream.
- ADR: 26.6 l/s.
- Vol<sub>att</sub>: DN300 oversized pipe, 69m long.

**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	SURFACE WATER PIPE UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
	PROPOSED OVERSIZED PIPE		SITE BOUNDARY LINE
	PROPOSED FILTER DRAIN/PERFORATED PIPE		TEMPORARY LAND ACQUISITION
	PROPOSED PERMEABLE PAVING		

NOTE: PIPE SHAPE CODING DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
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10. ALL SUDS FEATURES SHOULD PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION

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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
Udárás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: AF | Checked: MR | Approved: DC

Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0034	Sheet Number: 34 of 37	Status: A	Rev: M01

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SCALE 1:500 @ A1; 1:1000 @ A3



**TERENURE COLLEGE**

Ch J2+596 to J2+724 (Templeogue Road both sides):

- Gullies to be connected to the proposed stormwater network because the record drawings show that there is no existing surface water/combined networks in this area.
- The proposed network to discharge to existing Ø300 surface water network.
- No increase in impermeable catchments.

Outlet to tie into the existing network

- DN300
- Ch J2+724
- CL: 49.287
- IL: 47.706

Ch J2+724 to J2+987 (both sides):

- Additional grassed (permeable) area = 97m<sup>2</sup>.
- Existing gullies connected to the Ø300mm surface water network whose depth to soffit varies from 1.1m to 1.67m.
- All gullies to be therefore connected same network.
- No increase in impermeable catchments.

Junction: Rathdown Avenue (left hand side)

- Increase of impermeable area: 55m<sup>2</sup>.
- The proposed surface water pipe located at Ch J2+479 to J2+596 (right) will provide attenuation to compensate for this additional impermeable area.

Ch 2+596 to 2+798 (right hand side) - cycle track:

- The existing footpath drains to the grassed area where the runoff infiltrates into the ground.
- There is no outlet to the existing surface water/combined networks.
- Therefore, no additional stormwater management techniques are being proposed for this area.

Ch J2+798 to J2+987 (cycle track & footpath):

- The proposed permeable paving will promote infiltration into the ground and therefore has not been considered as additional impermeable area.
- Existing gullies connected to the Ø225mm surface water network whose depth to soffit varies from 2m to 1.31m.
- Rathdown Drive will become a quiet street. This includes revised road markings & no modifications to the kerblines and the vertical alignment.
- Therefore there are no proposed modifications to Rathdown Drive's existing stormwater management system.

**BUSHY PARK**

**LEGEND:**

- |  |   |  |  |
|--|---|--|--|
|  | ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED) |  | PROPOSED RODDING EYE                                 |
|  | EXISTING PAVED AREAS TO BECOME GRASSED                        |  | PROPOSED MANHOLE                                     |
|  | EXISTING GRASSED AREAS TO BE MAINTAINED                       |  | PROPOSED INSPECTION CHAMBER                          |
|  | EXISTING FOUL NETWORK   |  | EXISTING TREE  |
|  | EXISTING COMBINED DRAINAGE NETWORK                            |  | EXISTING TREE TO BE REMOVED                          |
|  | EXISTING SURFACE WATER NETWORK                                |  | PROPOSED NEW TREE                                    |
|  | EXISTING OVERFLOW PIPE  |  | PROPOSED NEW TREE PIT                                |
|  | SURFACE WATER PIPE UNDER CONSTRUCTION                         |  | PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN |
|  | PROPOSED STORM WATER PIPE                                     |  | EXISTING GULLY                                       |
|  | PROPOSED OVERSIZED PIPE                                       |  | SITE BOUNDARY LINE                                   |
|  | PROPOSED FILTER DRAIN/PERFORATED PIPE                         |  | TEMPORARY LAND ACQUISITION                           |
|  | PROPOSED PERMEABLE PAVING                                     |  |  |

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**ABBREVIATIONS:**

- ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION

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Rev	Date	Drm	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client <b>NTA</b> Údarás Náisiúnta Iompair National Transport Authority		Engineering Designer <b>ARUP</b>		
Date 27/01/2023	Scale 1:500 @ A1 1:1000 @ A3	Drawn AF	Checked MR	Approved DC
Project Code BCIDC	Originator Code ARP	QMS Code 268401-00		

Programme Title <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0035	Sheet Number 35 of 37	Status A	Rev M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

0 5.0 10.0 20.0 30.0 40.0 50.0m

SCALE 1:500 @ A1; 1:1000 @ A3

LAKELANDS PARK

Ch J2+987 to J3+367 (both sides):  
• Existing gullies connected to the surface water network (dia varies from 300mm to 375mm). Cover varies from 1.67m to 1.475m.  
• All gullies to be therefore connected same network.  
• No increase in impermeable catchments.

Ch J3+200 to Ch J3+237 (Templeogue Road & Rathdown Circle):  
• Additional impermeable area =131m<sup>2</sup>.  
• The proposed surface water pipe located at Ch J2+479 to J2+596 (right) will provide attenuation to compensate for this additional impermeable area.

Ch J2+987 to J3+237 (cycle track & footpath):  
• Increase of impermeable area (footpath): 74m<sup>2</sup>.  
• The proposed surface water pipe located at Ch J2+479 to J2+596 (right) will provide attenuation to compensate for this additional impermeable area.  
• The proposed permeable paving will promote infiltration into the ground and therefore has not been considered as additional impermeable area.  
• Existing gullies connected to the Ø225mm surface water network whose depth to soffit varies from 1.31m to 1.7m.  
• Rathdown Drive will become a quiet street. This includes revised road markings & no modifications to the kerblines and the vertical alignment.  
• Therefore there are no proposed modifications to Rathdown Drive's existing stormwater management system.

Cycle track:  
• Increase of impermeable area: 77m<sup>2</sup>.  
• The proposed surface water pipe located at Ch J2+479 to J2+596 (right) will provide attenuation to compensate for this additional impermeable area.

Rathdown Park (both sides):  
• This road will become a quiet street. This includes revised road markings.  
• No modifications to the kerblines and the vertical alignment.  
• Therefore there are no proposed modifications to this road's existing stormwater management system.  
• No increase in impermeable catchments.

Rathdown Park (both sides):  
• This road will become a quiet street. This includes revised road markings.  
• No modifications to the kerblines and the vertical alignment.  
• Therefore there are no proposed modifications to this road's existing stormwater management system.  
• No increase in impermeable catchments.

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**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
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**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE CHAMBER
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
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0 5.0 10.0 20.0 30.0 40.0 50.0m  
 BAR SCALE

Rev	Date	Drm	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client: **NTA**  
 Údarás Náisiúnta Iompair  
 National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3  
 Drawn: AF, Checked: MR, Approved: DC

Project Code: BCIDC, Originator Code: ARP, QMS Code: 268401-00

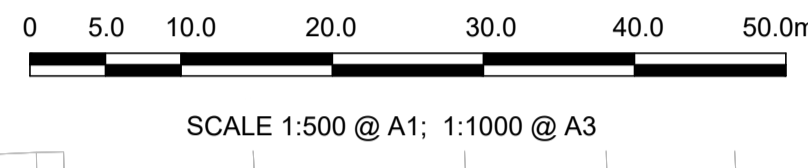
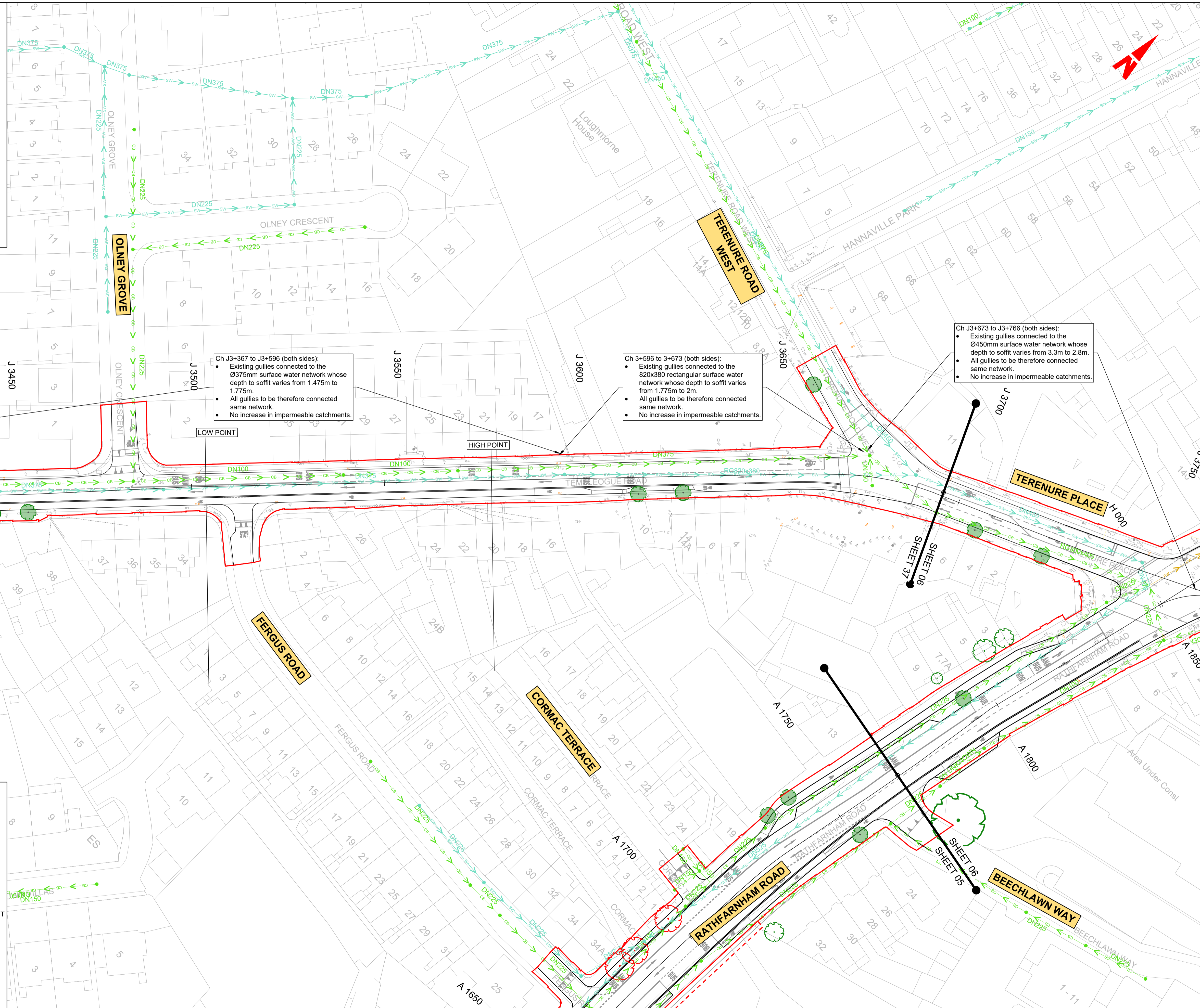
Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0036	Sheet Number: 36 of 37	Status: A	Rev: M01

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**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
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	EXISTING FOUL NETWORK		EXISTING TREE
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**Project Ireland 2040**  
Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description
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Client: **NTA**  
Udárás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **ARUP**

Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3

Drawn: AF, Checked: MR, Approved: DC

Project Code: BCIDC, Originator Code: ARP, QMS Code: 268401-00

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0037	Sheet Number: 37 of 37	Status: A	Rev: M01

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