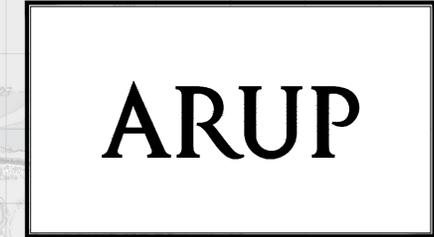


Appendix II
Proposed Surface
Water Drainage Works
Drawings



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

\\global\europa\dublin\jobs\268500020268401-004_Interna\4-02 Drawings\4-02 BCIDC\BCIDC_1012\04 DNG\Drawings\DR\BCIDC-ARP-DNG_IX-1012_XX_00-DR-CD-0001.dwg

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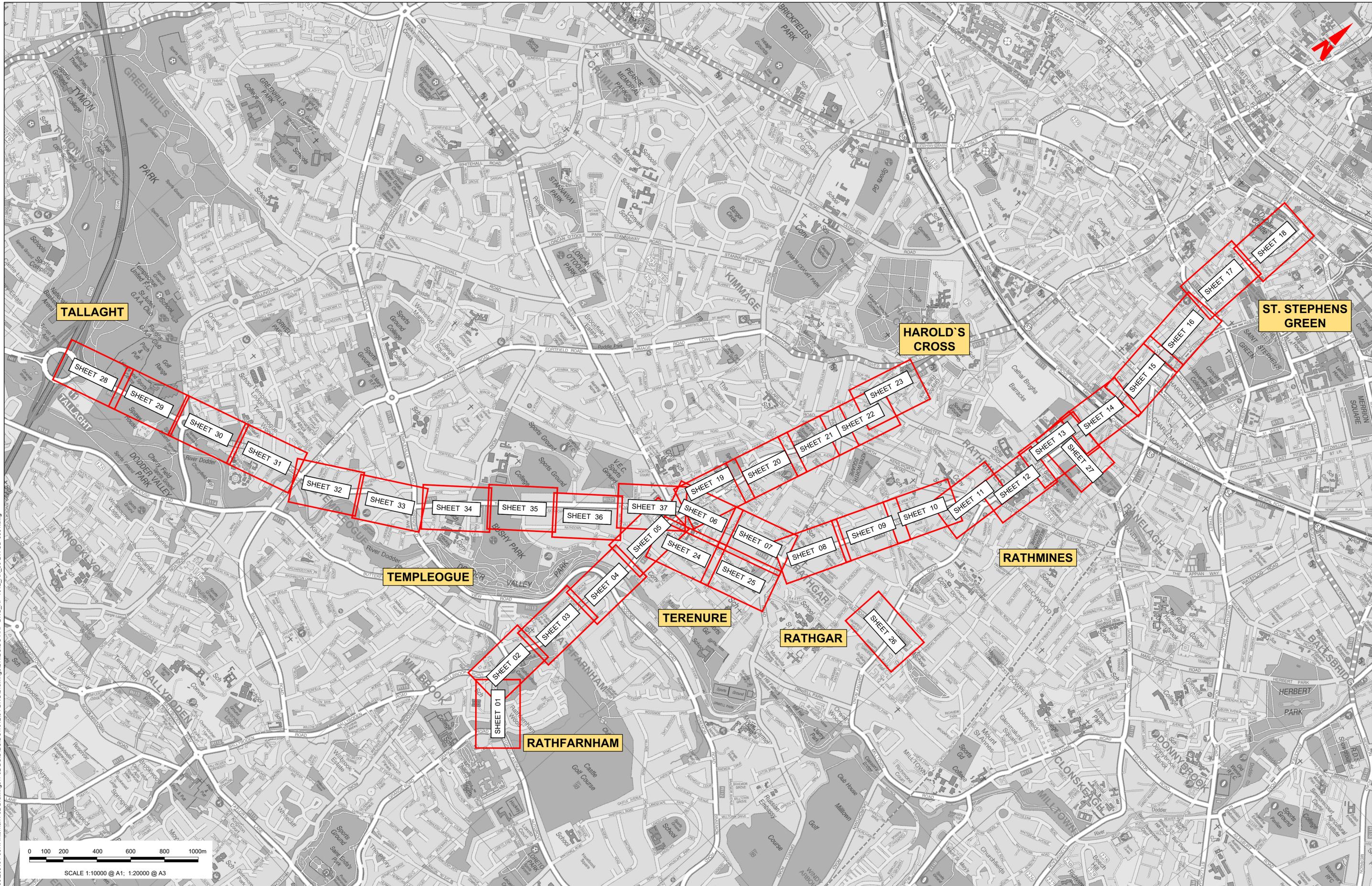


Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AG	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client NTA Údarás Náisiúnta Iompair National Transport Authority		Engineering Designer ARUP		
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 BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS				
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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 026840101204 Internal/4-02 BCIDC/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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M01	27/01/2023	AG	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client
NTA
 Údarás Náisiúnta Iompair
 National Transport Authority

Engineering Designer
ARUP

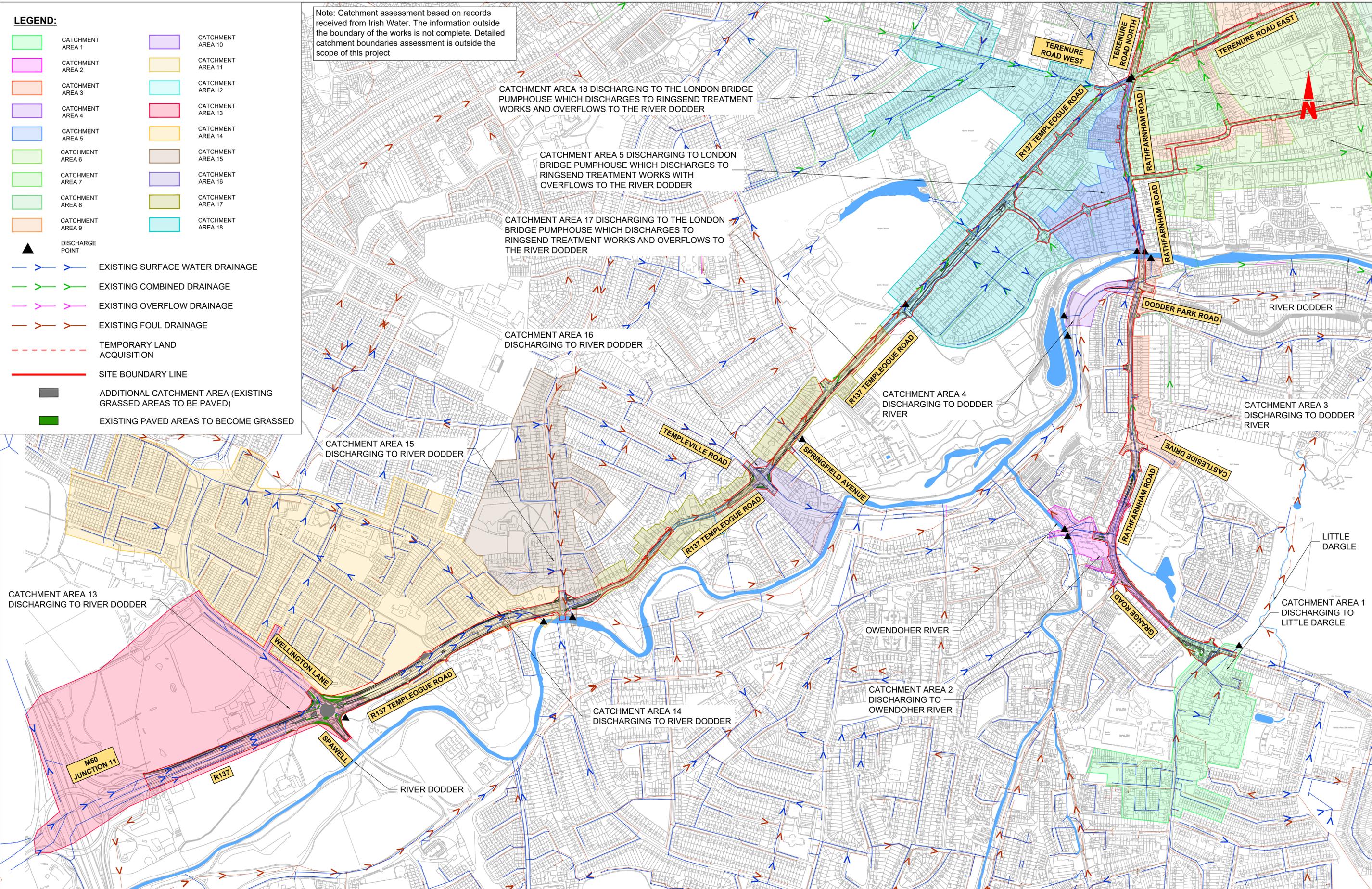
Programme Title		Drawing Title	
BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS		TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS KEY PLAN	
Drawing File Name	Sheet Number	Status	Rev
BCIDC-ARP-DNG_KP-1012_XX_00-DR-CD-0001	01 of 01	A	M01

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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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Project Ireland 2040
 Building Ireland's Future

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

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

Date: 27/01/2023
 Scale: 1:5000 @ A1
 1:10000 @ A3

Project Code: BCIDC
 Originator Code: ARP

Engineering Designer: **ARUP**

Drawn	Checked	Approved
AG	MR	DC

QMS Code: 268401-00

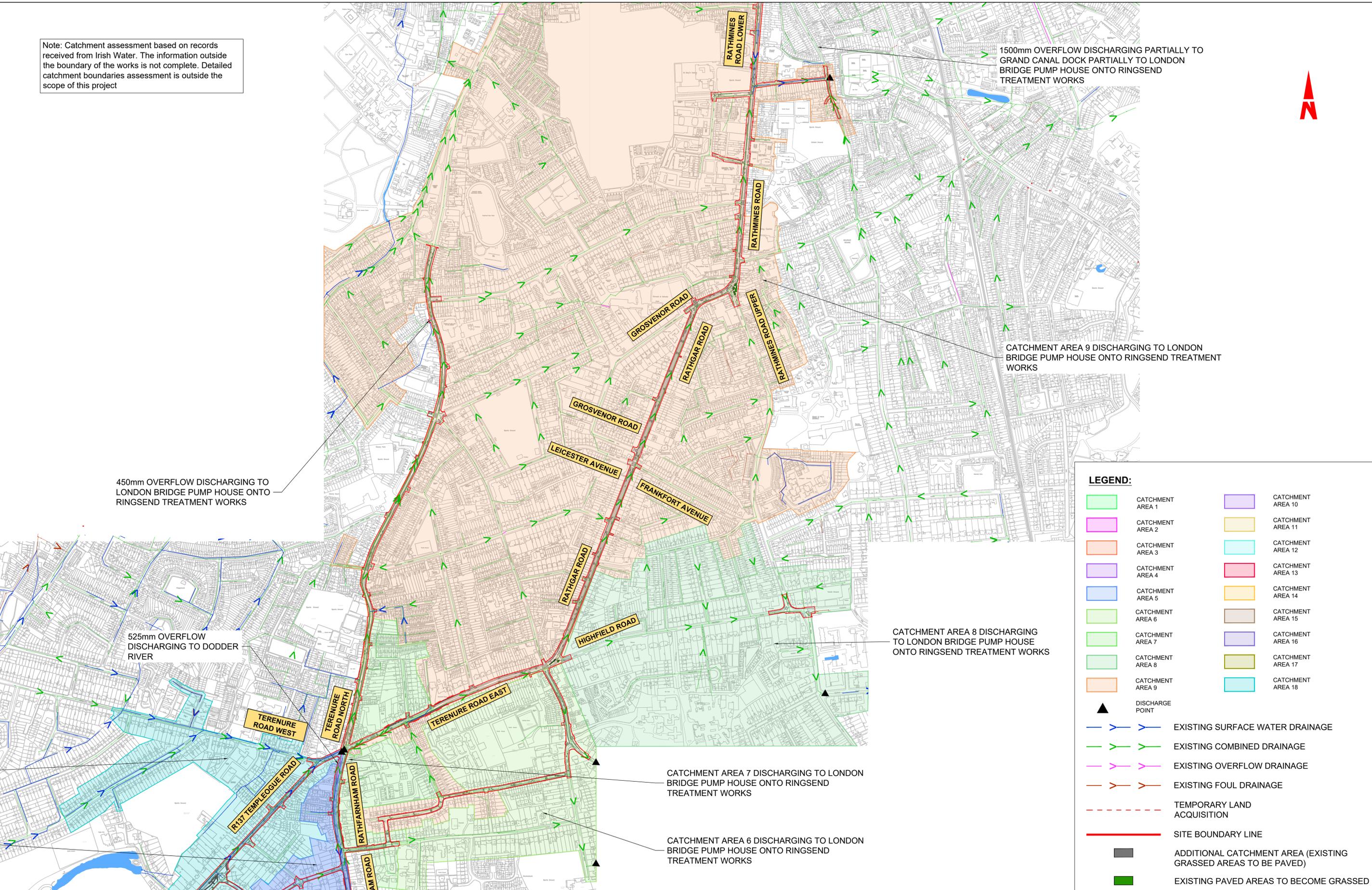
Programme Title: **BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

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-1001
 Sheet Number: 01 of 03
 Status: A
 Rev: M01

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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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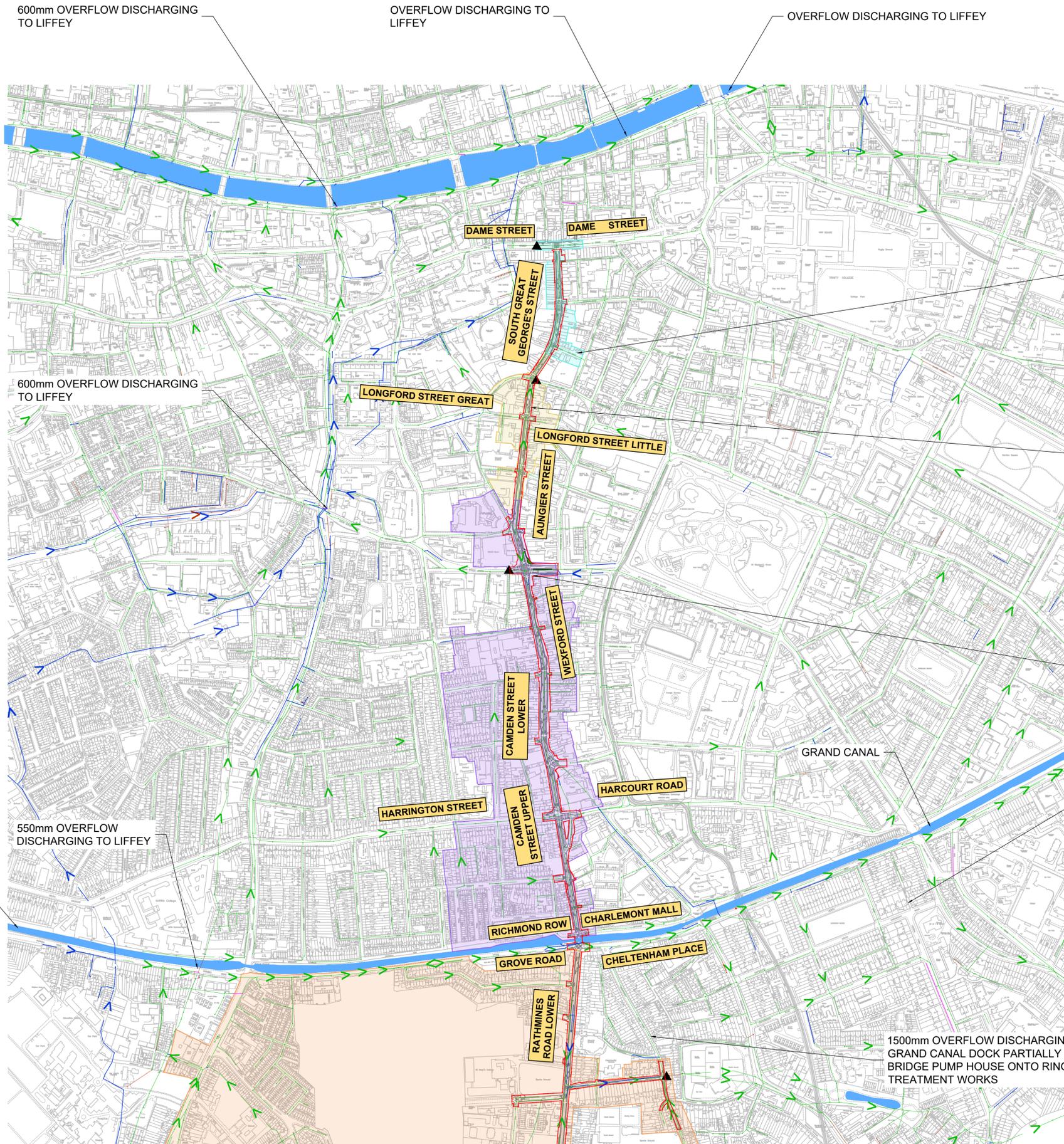
 Údarás Náisiúnta Iompair National Transport Authority		Engineering Designer 		
Date	Scale	Drawn	Checked	Approved
27/01/2023	1:5000 @ A1 1:10000 @ A3	AG	MR	DC
Project Code	Originator Code	QMS Code		
BCIDC	ARP	268401-00		

Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
Drawing Title 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
- CATCHMENT AREA 13
- CATCHMENT AREA 14
- CATCHMENT AREA 15
- CATCHMENT AREA 16
- CATCHMENT AREA 17
- 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



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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Client: **NTA**
 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: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
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

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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 = 447m².
- 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_{att}: SuDS bio-retention area: 5.5 m³.

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

- Additional impermeable area = 257m².
- Additional grassed (permeable) area = 76m².
- Net impermeable area to be attenuated = 181m².
- 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_{att}: SuDS Bio-retention area: 4.5 m³ & 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

Tie into Existing

PROPOSED SCHEME

LORETO TERRACE

PROPOSED SCHEME

Proposed flow control structure

Outlet pipe to tie into existing network

- DN450
- Ch 0-7
- CL: 48.690
- IL: 46.470

Outlet pipe to tie into existing network

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

Existing culvert to be extended

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

- Additional catchment area: 904m².
- 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_{att}: DN225 filter drain, 163m long; DN225 surface water pipe, 156m long.

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

- Additional catchment area: 260m².
- Additional grassed (permeable) area = 10m².
- Net impermeable area = 250m².
- 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 m²) located at Ch 0-058 to 0+076.
- Total additional impermeable area to be attenuated = 291m².
- ADR: 21.4 l/s.
- Vol_{att}: 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 = 41m².
- 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.
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 SUDES 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_{att}: VOLUME OF ATTENUATION

Client: NTA
Udárás Náisiúnta Iompair
National Transport Authority

Engineering Designer: ARUP

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

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		Drawing File Name	BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0001	
Sheet Number	01 of 37	Status	A	Rev	M01				

Project Ireland 2040
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Rev | **Date** | **Drm** | **Chk'd** | **App'd** | **Description**

M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING
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Client: NTA
Engineering Designer: ARUP

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

Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0001 | **Sheet Number:** 01 of 37 | **Status:** A | **Rev:** M01

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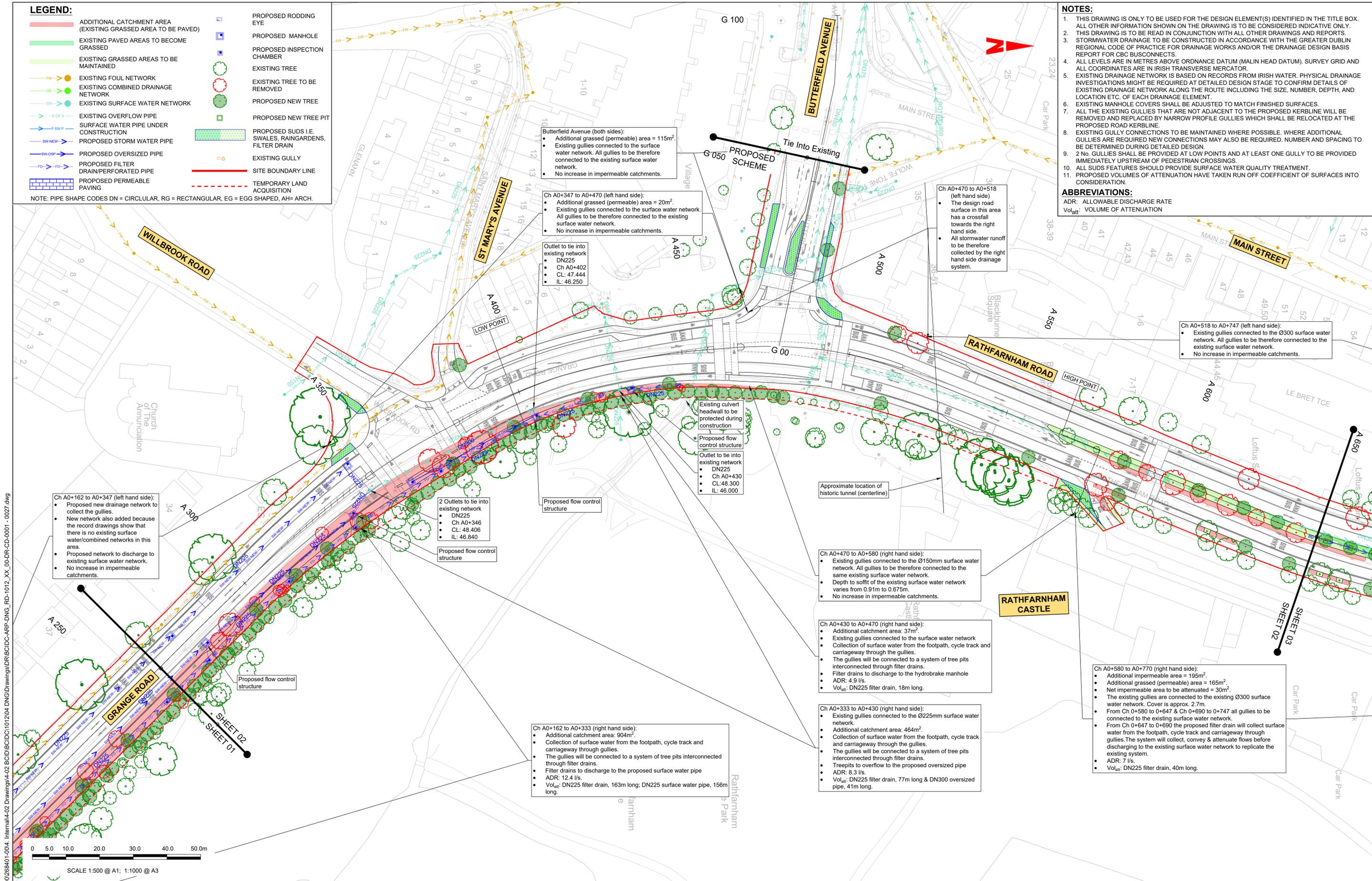
- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
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NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.

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

ABBREVIATIONS:
 ADR: ALLOWABLE DISCHARGE RATE
 Vol_{att}: VOLUME OF ATTENUATION



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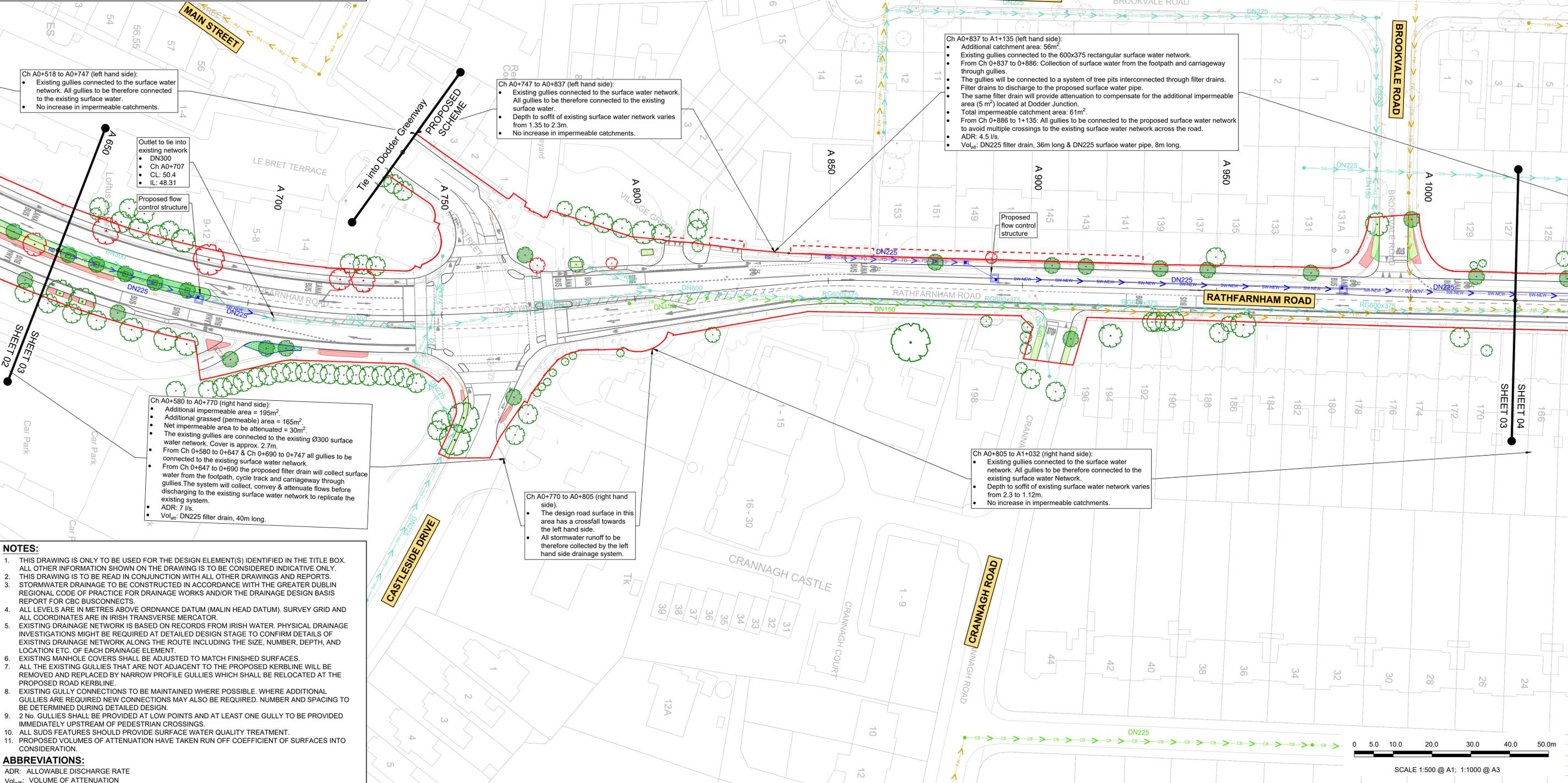
<p>Rev M01 Date 27/01/2023 Dm AF Chk'd MR App'd DC Description ISSUE FOR PHASE 4: PLANNING</p>					<p>Client NTA Údarás Náisiúnta Iompair National Transport Authority</p>			<p>Engineering Designer ARUP</p>			<p>Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</p>		
<p>Scale 1:500 @ A1 1:1000 @ A3</p>					<p>Date 27/01/2023</p>			<p>Drawn AF</p>			<p>Checked MR</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-0002</p>		
<p>Scale 1:500 @ A1; 1:1000 @ A3</p>					<p>Sheet Number 02 of 37</p>			<p>Status A</p>			<p>Rev M01</p>		

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Ch A0+518 to A0+747 (left hand side):

- Existing gullies connected to the surface water network. All gullies to be therefore connected to the existing surface water.
- No increase in impermeable catchments.

Ch A0+747 to A0+837 (left hand side):

- Existing gullies connected to the surface water network. All gullies to be therefore connected to the existing surface water.
- Depth to soffit of existing surface water network varies from 1.35 to 2.3m.
- No increase in impermeable catchments.

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

- Additional catchment area: 56m².
- 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 m²) located at Dodder Junction.
- Total impermeable catchment area: 61m².
- 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_{att}: DN225 filter drain, 36m long & DN225 surface water pipe, 8m long.

Outlet to tie into existing network

- DN300
- Ch A0+707
- CL: 50.4
- IL: 48.31

Ch A0+580 to A0+770 (right hand side):

- Additional impermeable area = 195m².
- Additional grassed (permeable) area = 165m².
- Net impermeable area to be attenuated = 30m².
- The existing gullies are connected to the existing Ø300 surface water network. Cover is approx. 2.7m.
- From Ch 0+580 to 0+647 & Ch 0+690 to 0+747 all gullies to be connected to the existing surface water network.
- From Ch 0+647 to 0+690 the proposed filter drain will collect surface water from the footpath, cycle track and carriageway through gullies. The system will collect, convey & attenuate flows before discharging to the existing surface water network to replicate the existing system.
- ADR: 7 l/s.
- Vol_{att}: DN225 filter drain, 40m long.

Ch A0+770 to A0+805 (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 A0+805 to A1+032 (right hand side):

- Existing gullies connected to the 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 2.3 to 1.12m.
- No increase in impermeable catchments.

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ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE
Vol_{att}: 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**
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

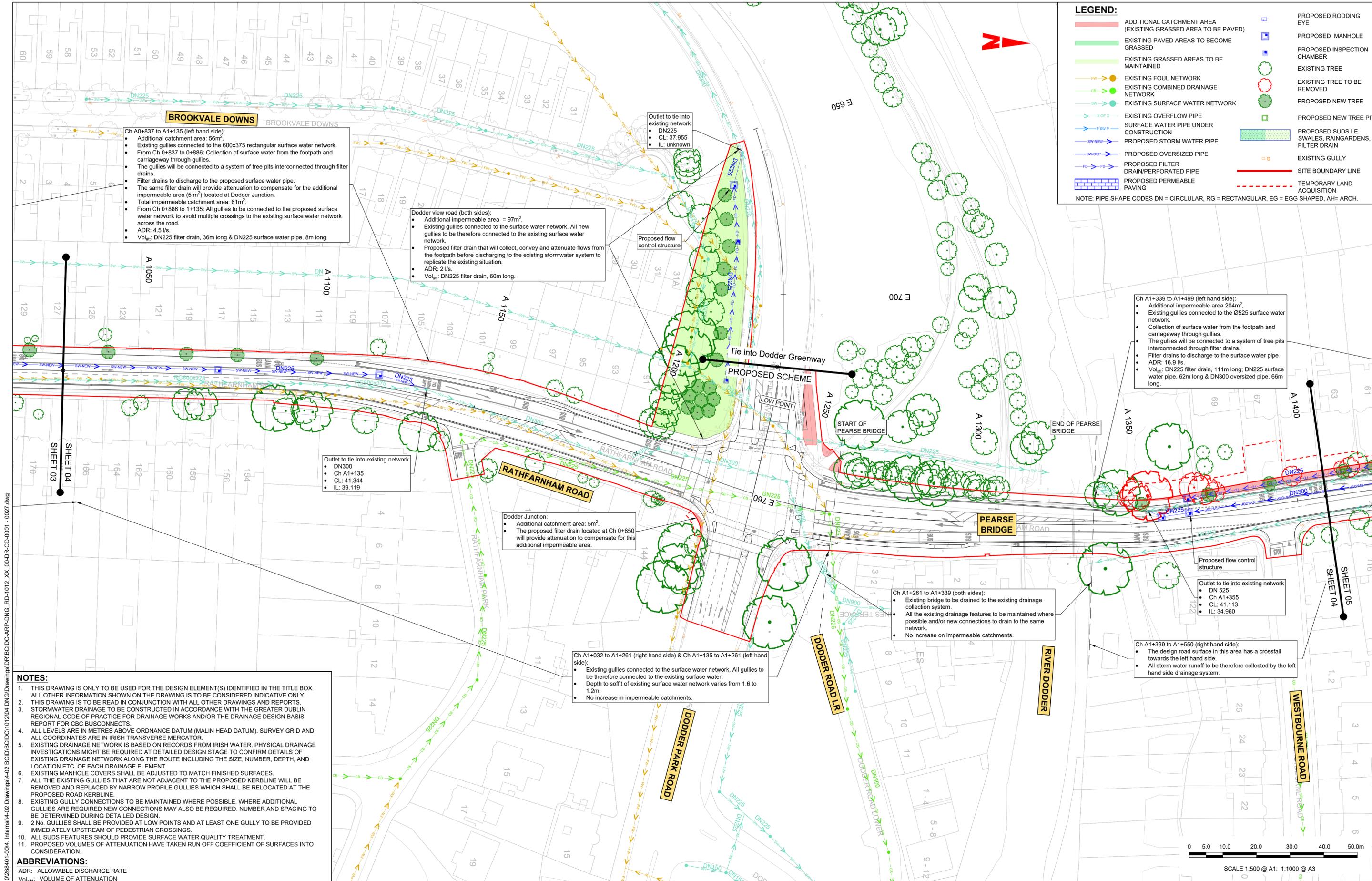
Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

Programme Title: **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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LEGEND:

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

- Additional catchment area: 56m².
- 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 m²) located at Dodder Junction.
- Total impermeable catchment area: 61m².
- 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_{att}: DN225 filter drain, 36m long & DN225 surface water pipe, 8m long.

Dodder view road (both sides):

- Additional impermeable area = 97m².
- 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_{att}: DN225 filter drain, 60m long.

Outlet to tie into existing network:

- DN300
- Ch A1+135
- CL: 41.344
- IL: 39.119

Dodder Junction:

- Additional catchment area: 5m².
- The proposed filter drain located at Ch 0+850 will provide attenuation to compensate for this additional impermeable area.

Ch A1+032 to A1+261 (right hand side) & Ch A1+135 to A1+261 (left hand side):

- Existing gullies connected to the surface water network. All gullies to be therefore connected to the existing surface water.
- Depth to soffit of existing surface water network varies from 1.6 to 1.2m.
- No increase in impermeable catchments.

Ch A1+261 to A1+339 (both sides):

- Existing bridge to be drained to the existing drainage collection system.
- All the existing drainage features to be maintained where possible and/or new connections to drain to the same network.
- No increase on impermeable catchments.

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

- Additional impermeable area 204m².
- 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_{att}: DN225 filter drain, 111m long; DN225 surface water pipe, 62m long & DN300 oversized pipe, 66m long.

Outlet to tie into existing network:

- DN 525
- Ch A1+355
- CL: 41.113
- IL: 34.960

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 storm water runoff to be therefore collected by the left hand side drainage system.

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National Transport Authority

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

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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**

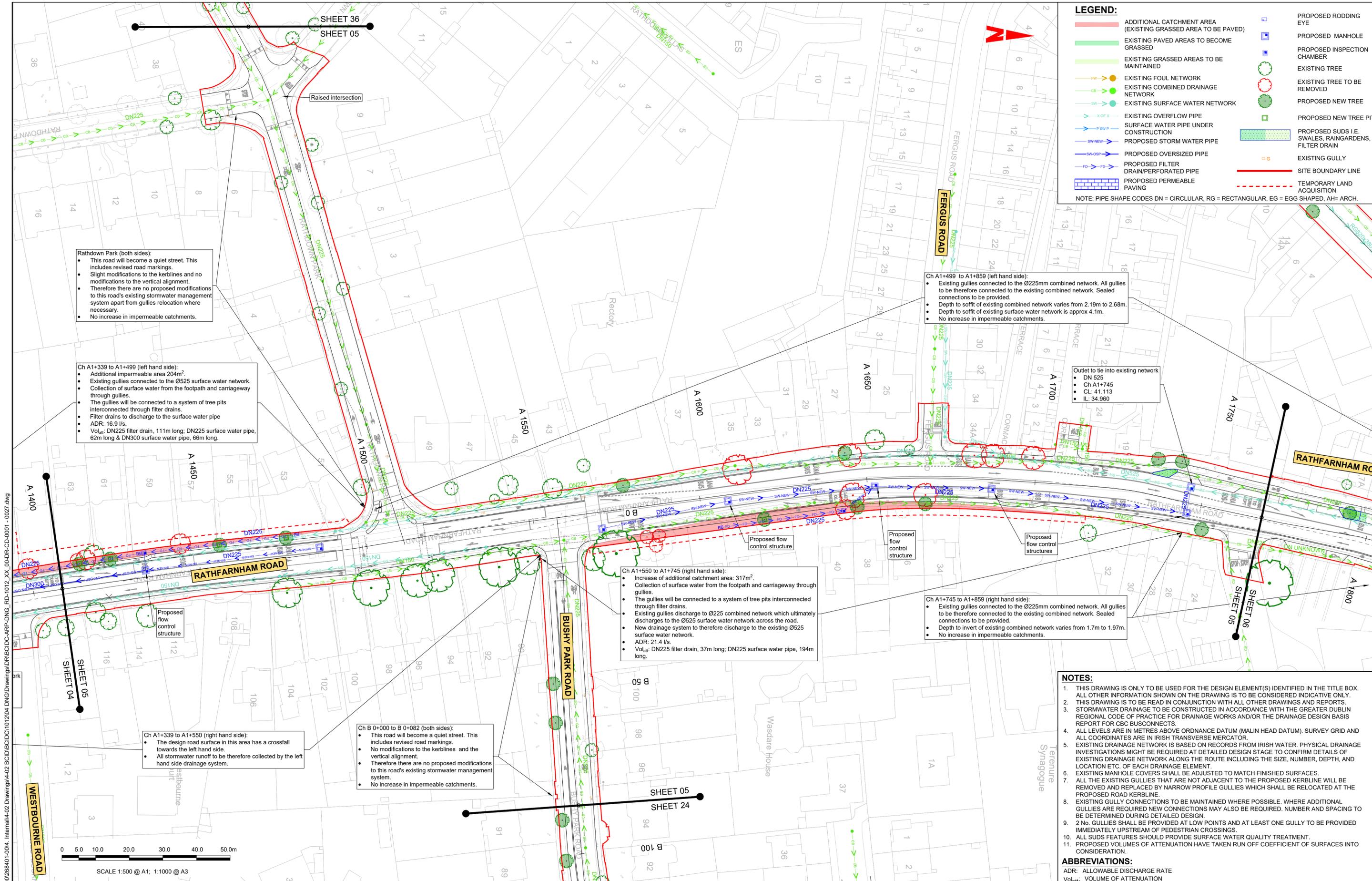
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0004

Sheet Number: 04 of 37

Status: A

Rev: M01

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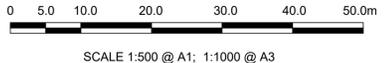
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<p>Date</p> <p>27/01/2023</p> <p>Scale</p> <p>1:500 @ A1 1:1000 @ A3</p> <p>Project Code</p> <p>BCIDC</p> <p>Originator Code</p> <p>ARP</p> <p>QMS Code</p> <p>268401-00</p>	<p>Drawn</p> <p>AF</p> <p>Checked</p> <p>MR</p> <p>Approved</p> <p>DC</p>	<p>Drawing Title</p> <p>TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</p>	<p>Drawing File Name</p> <p>BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0005</p> <p>Sheet Number</p> <p>05 of 37</p> <p>Status</p> <p>A</p> <p>Rev</p> <p>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

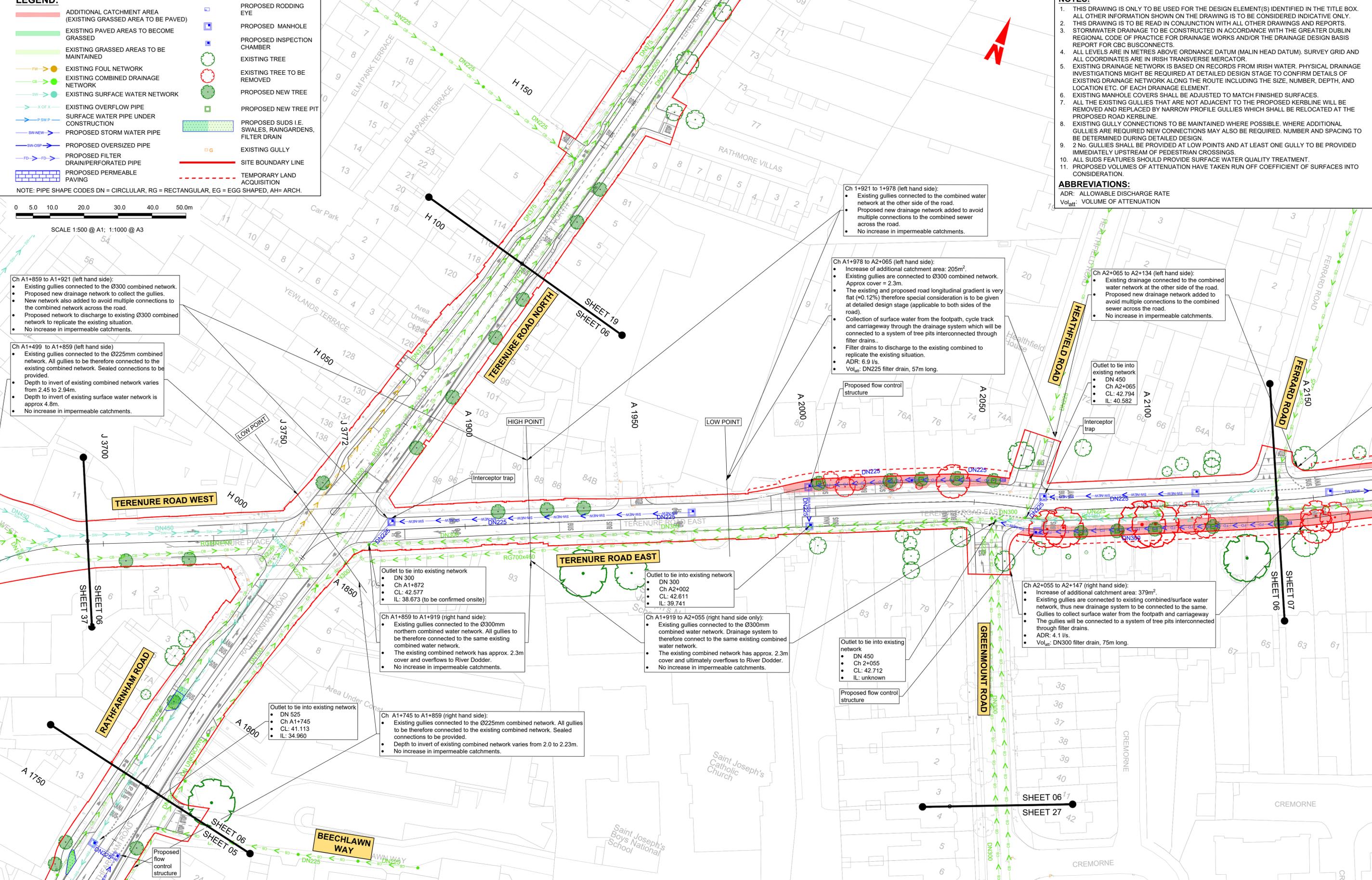
NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.



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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_{att}: 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: 205m².
- 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_{att}: 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: 379m².
- 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_{att}: 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.

<p>Rev M01 Date 27/01/2023 Dm AF Chk'd MR App'd DC Description ISSUE FOR PHASE 4: PLANNING</p>					<p>Client NTA Údaráis Náisiúnta Iompair National Transport Authority</p>			<p>Engineering Designer ARUP</p>			<p>Programme Title BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</p>		
<p>Project Code BCIDC Originator Code ARP QMS Code 268401-00</p>					<p>Date 27/01/2023 Scale 1:500 @ A1 1:1000 @ A3 Drawn AF Checked MR Approved DC</p>			<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0006 Sheet Number 06 of 37 Status A Rev M01</p>					

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LEGEND:

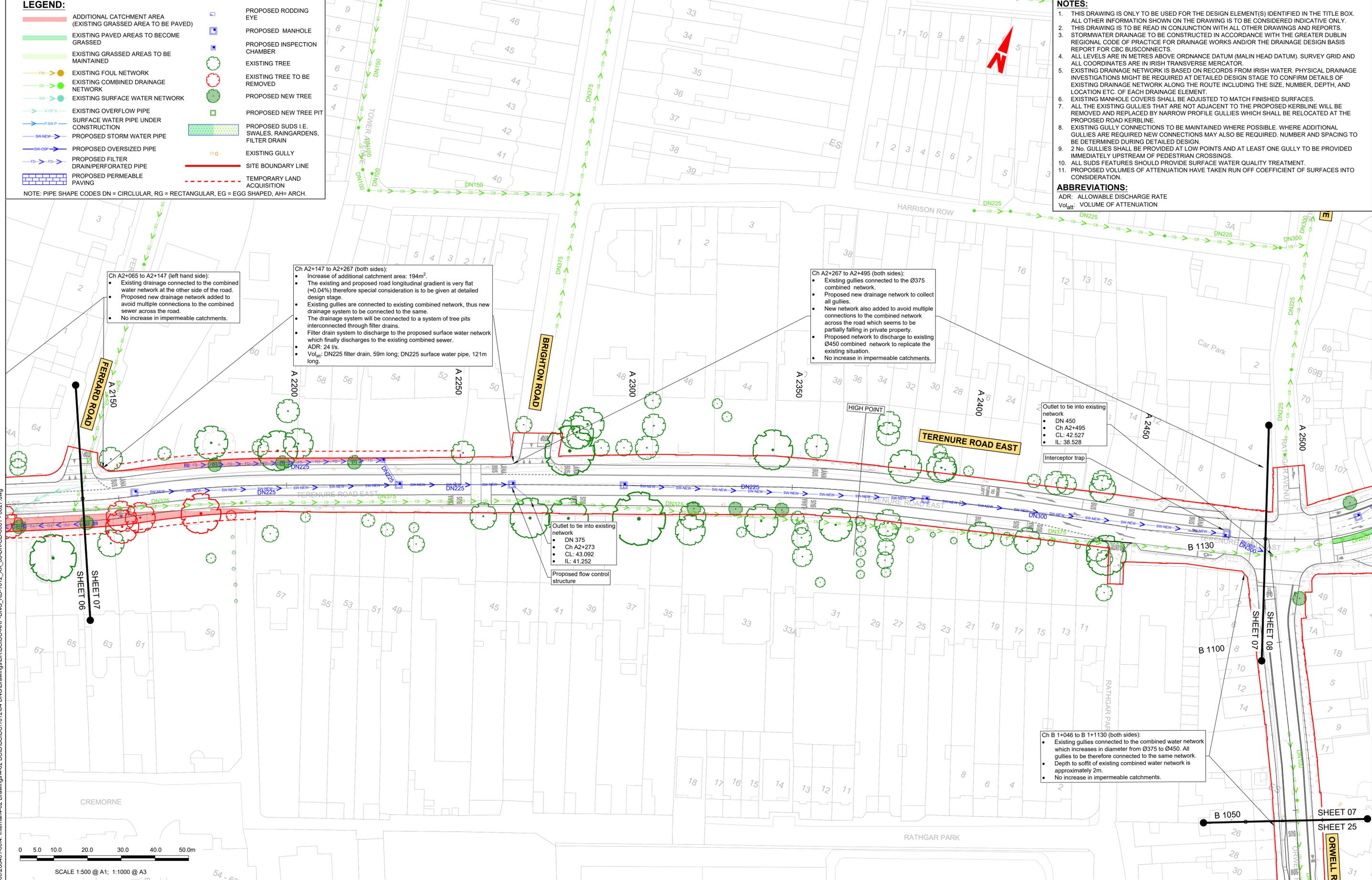
	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE 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
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ABBREVIATIONS:
ADR: ALLOWABLE DISCHARGE RATE
Vol_{att}: 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: 194m².
- 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_{att}: 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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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	Scale	Drawn	Checked	Approved
27/01/2023	1:500 @ A1 1:1000 @ A3	AF	MR	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-0007

Sheet Number: 07 of 37

Status: A

Rev: M01

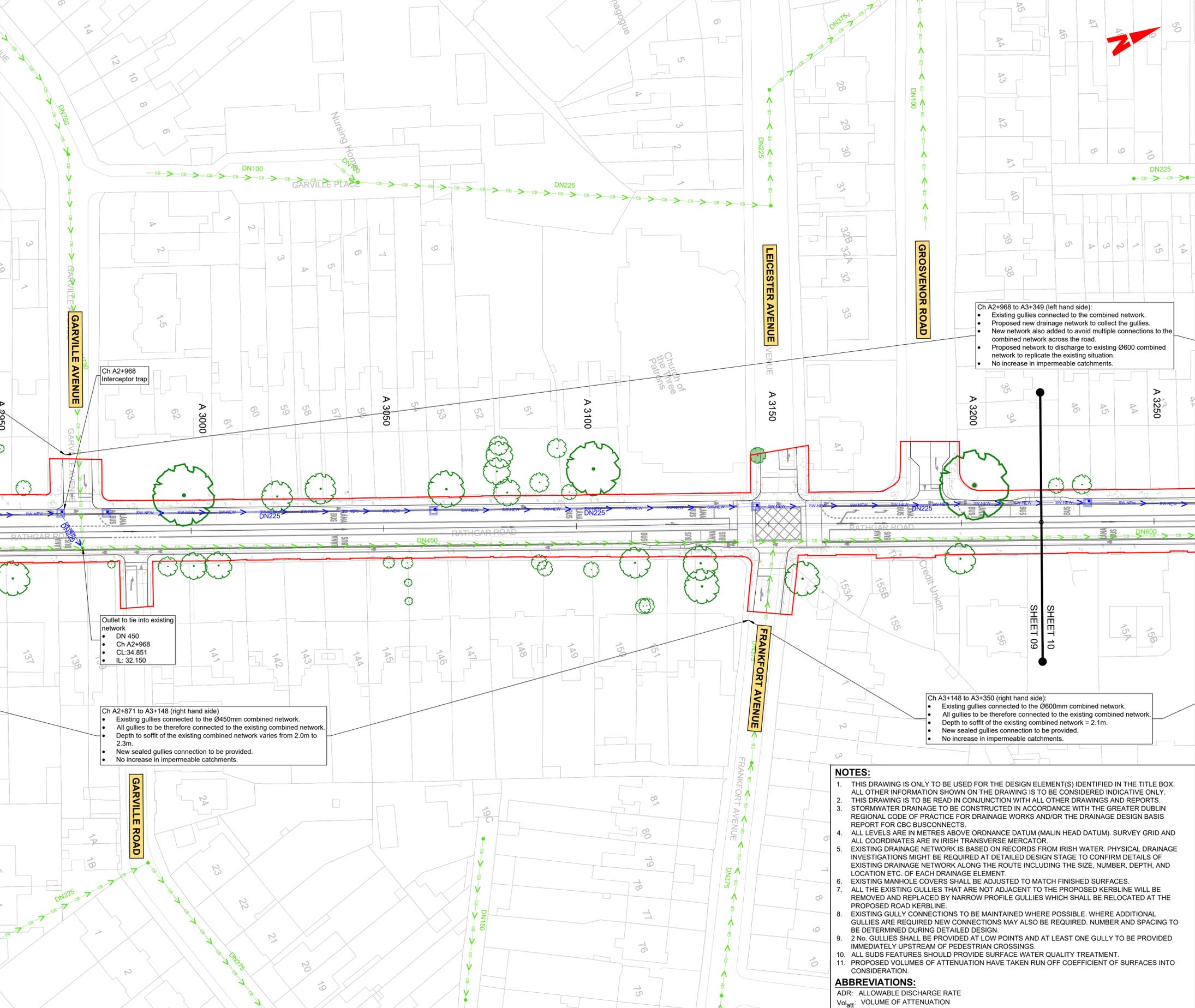
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Ch A2+717 to A2+968 (left hand side):

- 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 Interceptor trap

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.

Outlet to tie into existing network

- DN 450
- Ch A2+968
- CL: 34.851
- IL: 32.150

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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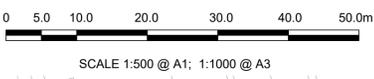
Client: NTA
Engineering Designer: ARUP

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-0009
Sheet Number: 09 of 37
Status: A
Rev: M01

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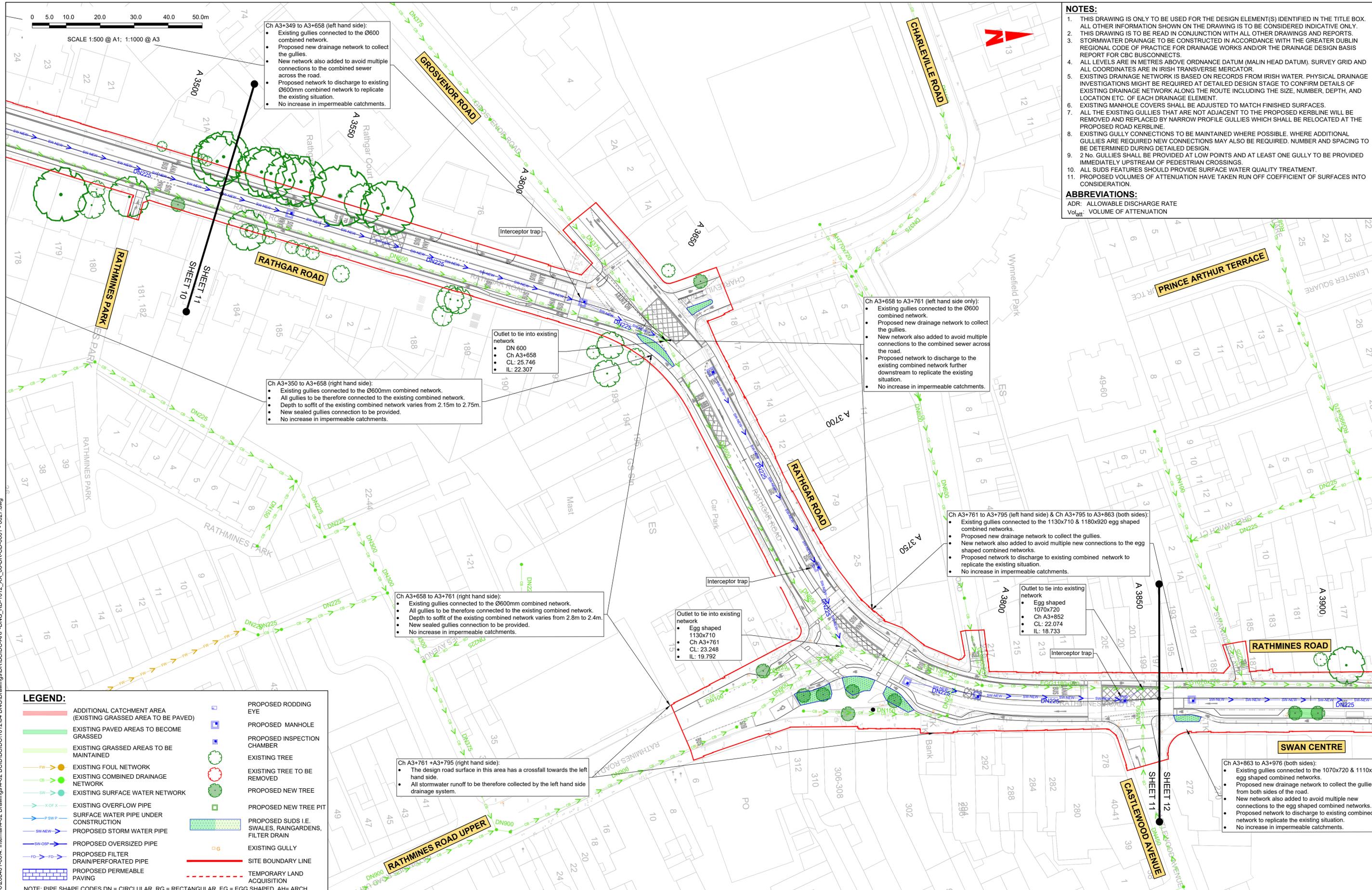
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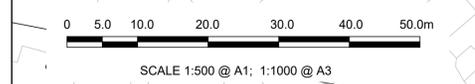
Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

Client NTA 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		

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 - 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_{att}: VOLUME OF ATTENUATION



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+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.

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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d. Information concerning the position of apparatus shown on this drawing is based on drawings supplied by the utility owners and/or the utility works contractor, whilst every care has been taken in the preparation of this drawing, positions should be taken as approximate and are intended for general guidance only and no representation is made by the NTA as to the accuracy, completeness, sufficiency or otherwise of this drawing and the position of the apparatus. The information contained herein does not purport to be comprehensive or final as the apparatus is subject to being altered and/or superseded. Recipients should not rely on this information. Any liabilities are hereby expressly disclaimed.

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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

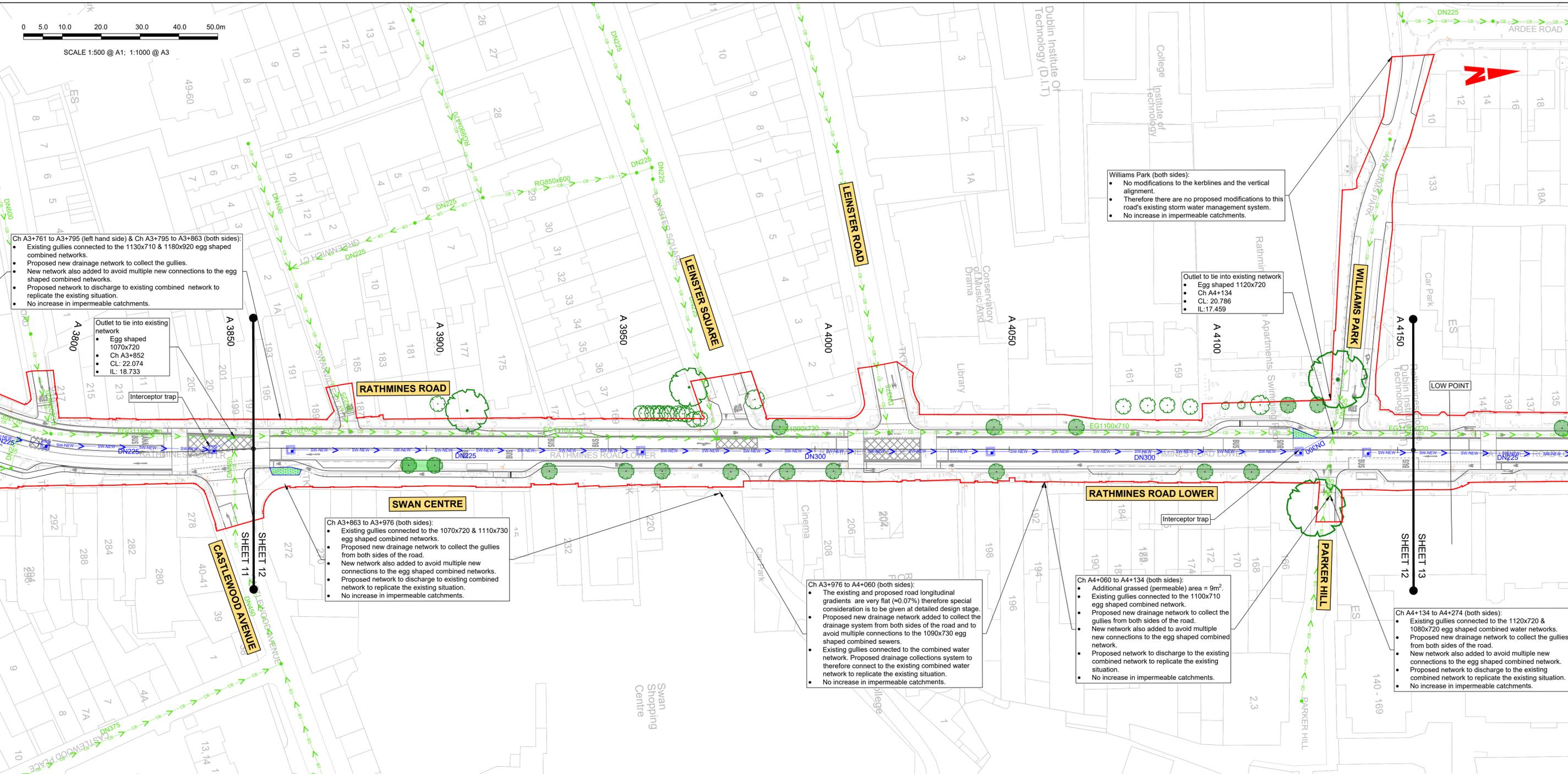
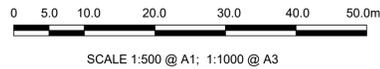
Project Code: BCIDC Originator Code: ARP QMS Code: 268401-00

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-0011 Sheet Number: 11 of 37 Status: A Rev: M01



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

Interceptor trap

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 = 9m².
- 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.

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

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

ABBREVIATIONS:

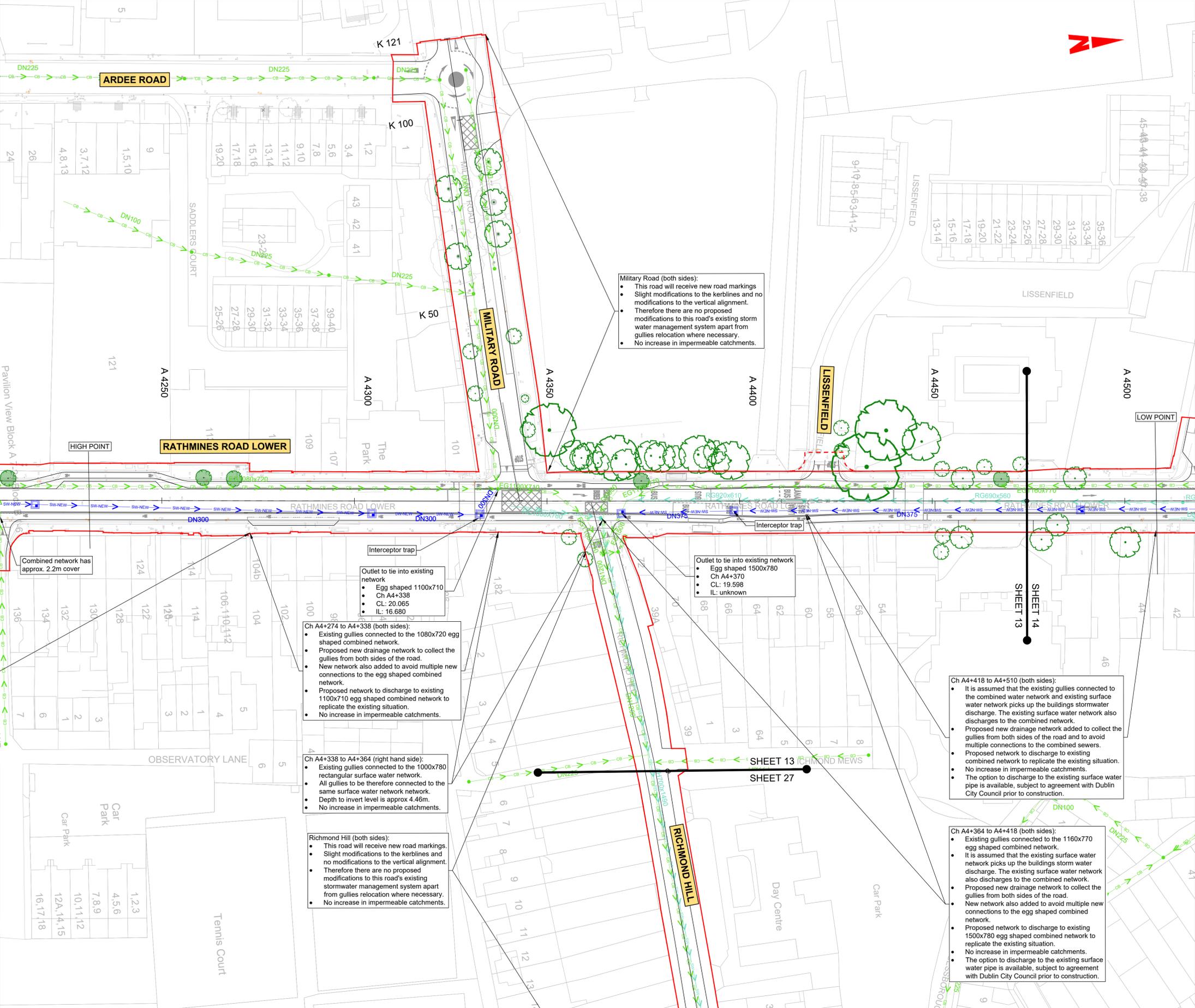
ADR: ALLOWABLE DISCHARGE RATE
Vol_{att}: VOLUME OF ATTENUATION

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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-0012</p>		<p>Sheet Number 12 of 37 Status A 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

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



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

ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE
Vol_{att}: 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**

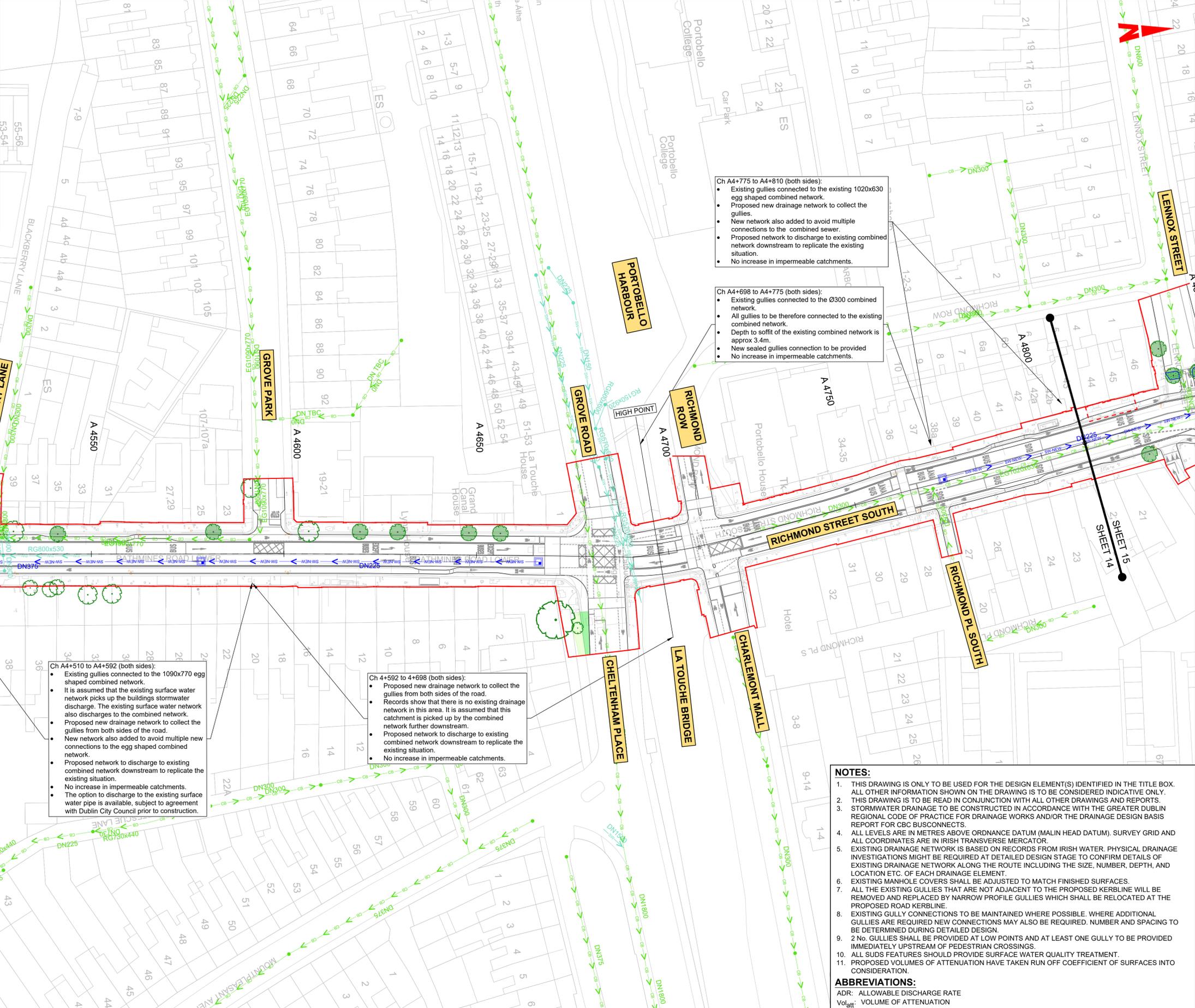
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0013	Sheet Number: 13 of 37	Status: A	Rev: M01
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DO NOT SCALE USE FIGURED DIMENSIONS ONLY

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 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.

NOTES:

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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_{att}: VOLUME OF ATTENUATION



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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

NTA
Udárás Náisiúnta Iompair
National Transport Authority

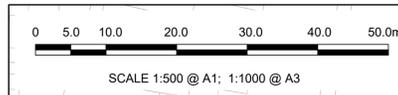
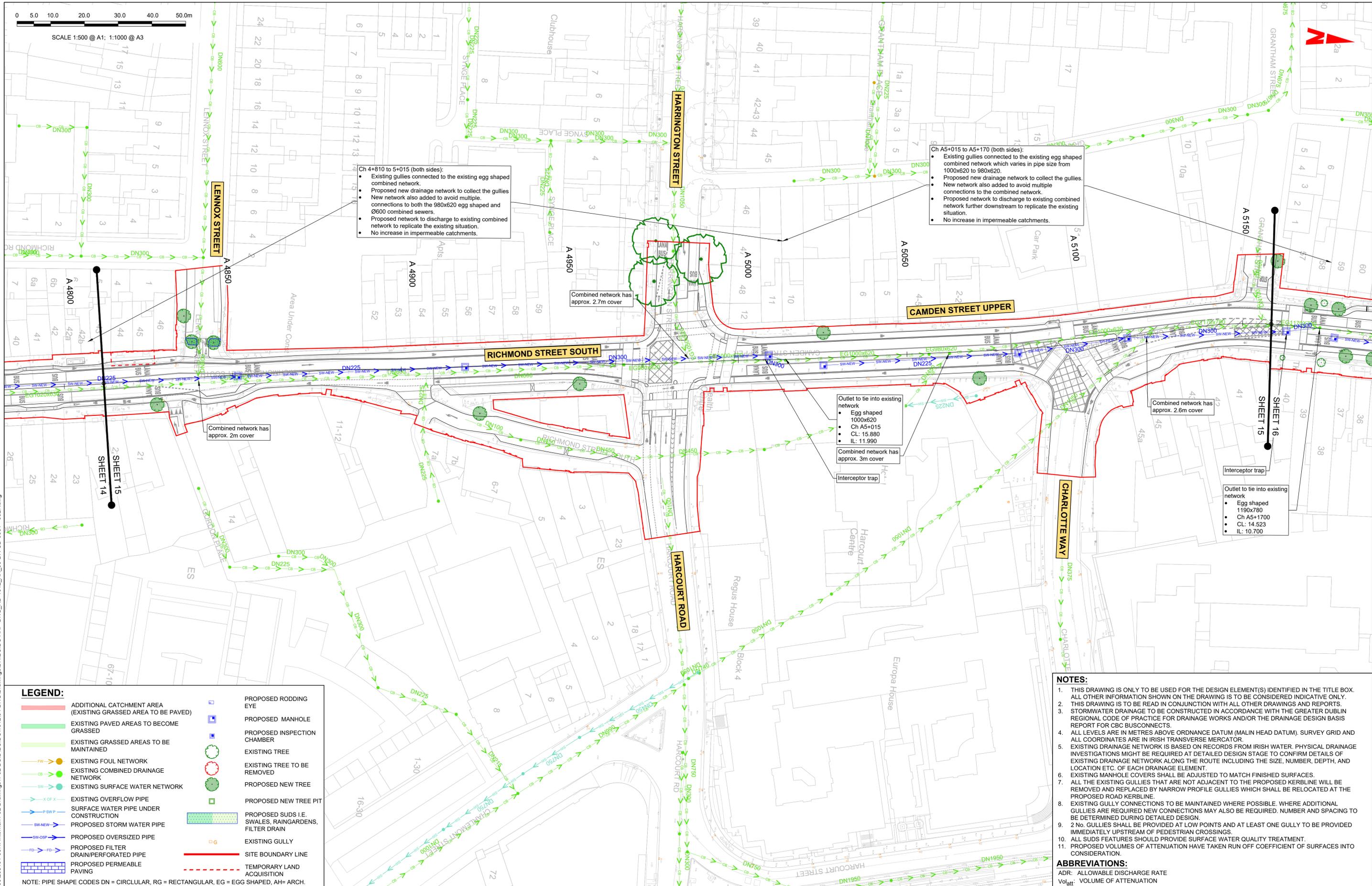
ARUP

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

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



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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- 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_{att}: 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: 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-0015	Sheet Number: 15 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

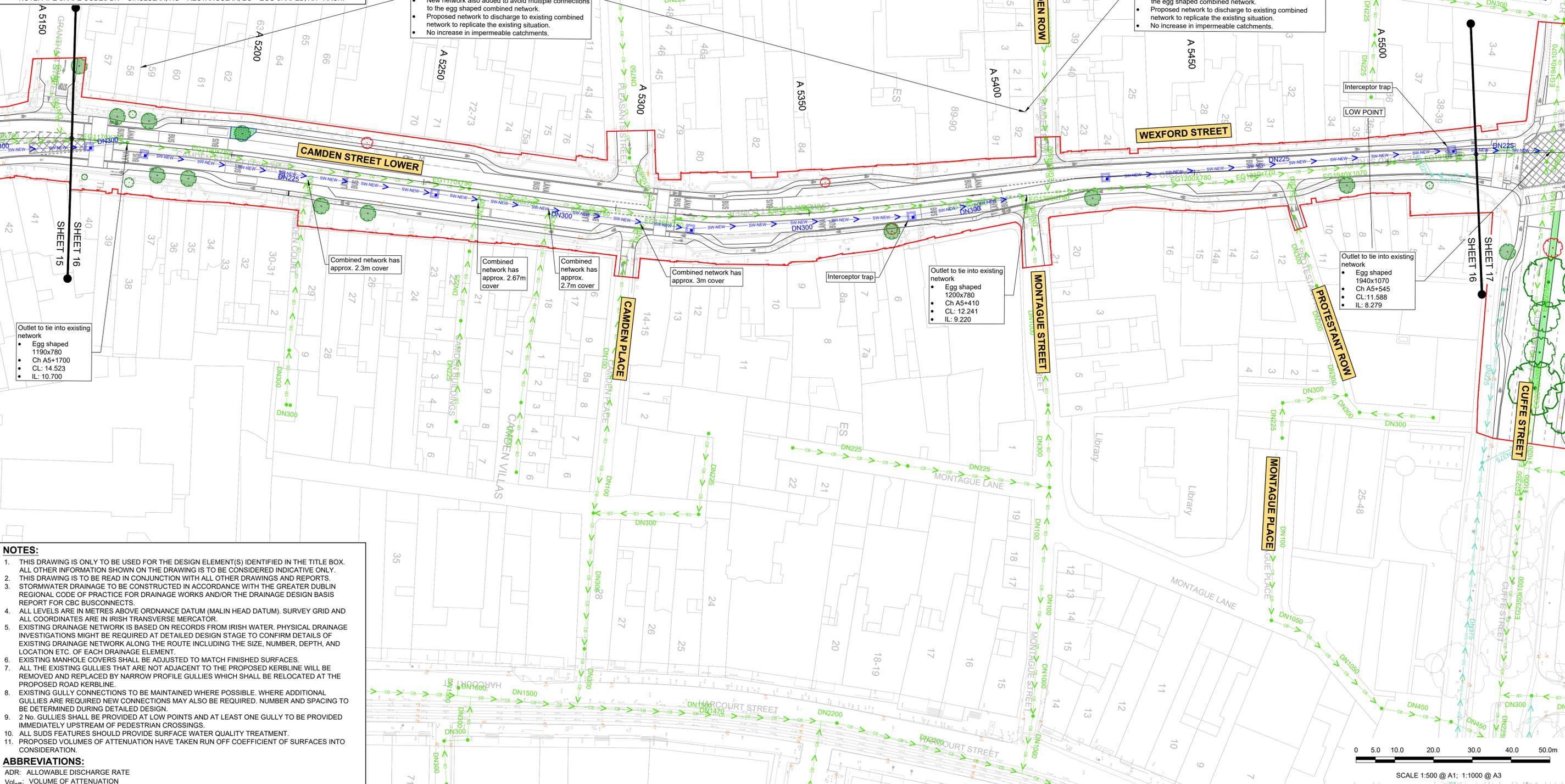
NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.

Ch 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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 - 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.
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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_{att}: VOLUME OF ATTENUATION

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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

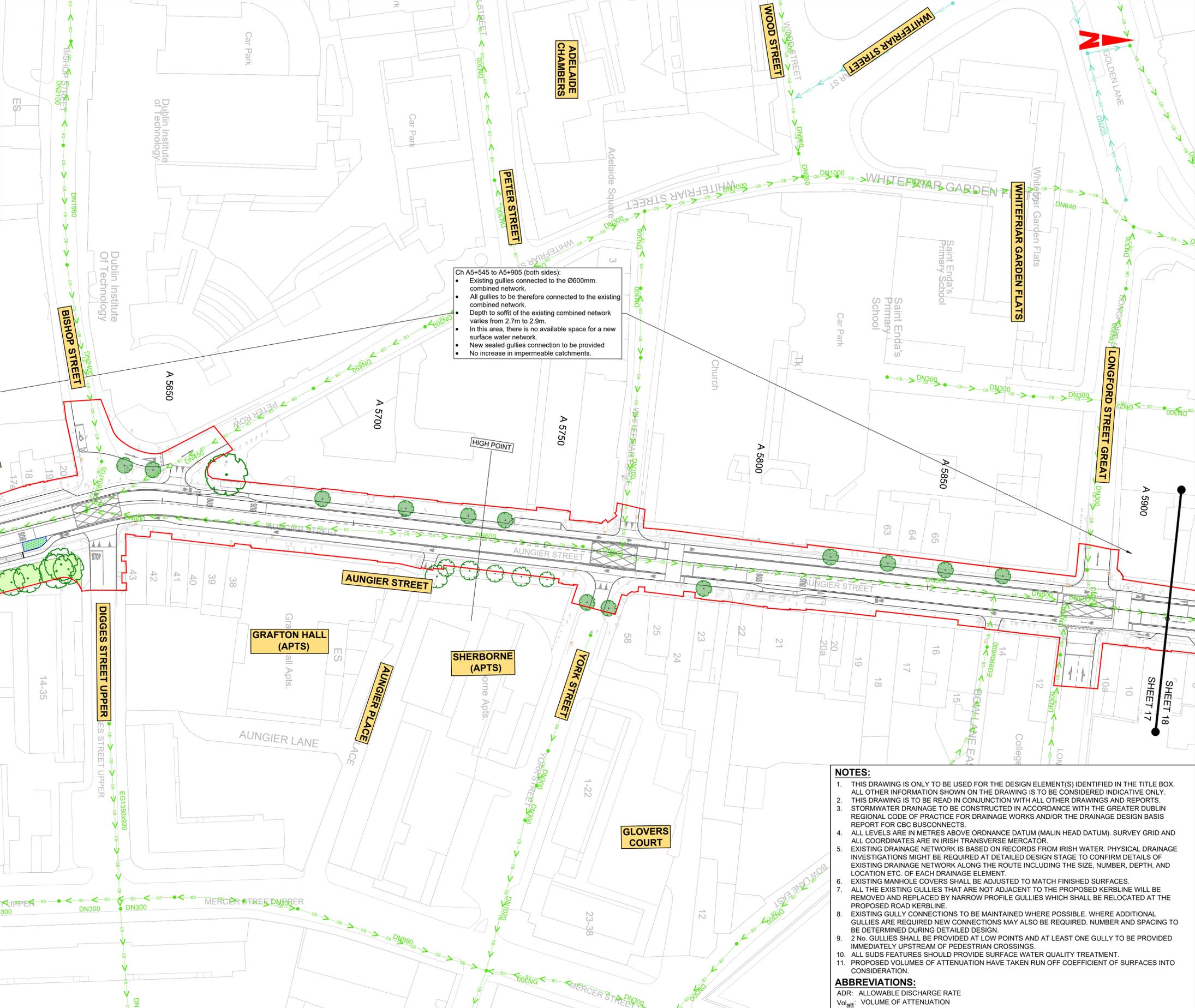
Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0016 Sheet Number: 16 of 37 Status: A Rev: M01

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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
- 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+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_{att}: VOLUME OF ATTENUATION



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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: 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-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
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- 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+905 to A5+975 (both sides):

- Existing gullies connected to the Ø600mm combined network.
- All gullies to be therefore connected to the existing combined network.
- Depth to invert of the existing combined network varies from 2.9m to 2.6m.
- 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.

Ch A6+190 to A6+285 (both sides):

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

Ch A5+980 to A6+190 (Both sides):

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

Outlet to tie into existing network

- 2020x1030 egg shaped
- Ch A5+980
- CL: 9.544
- IL: 8.190

Outlet to tie into existing network

- Egg shaped 2130x1050
- Ch A6+190
- CL: 9.347
- IL: 5.710

Outlet to tie into existing network

- 2020x1030 egg shaped
- Ch 6+285

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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_{att}: VOLUME OF ATTENUATION

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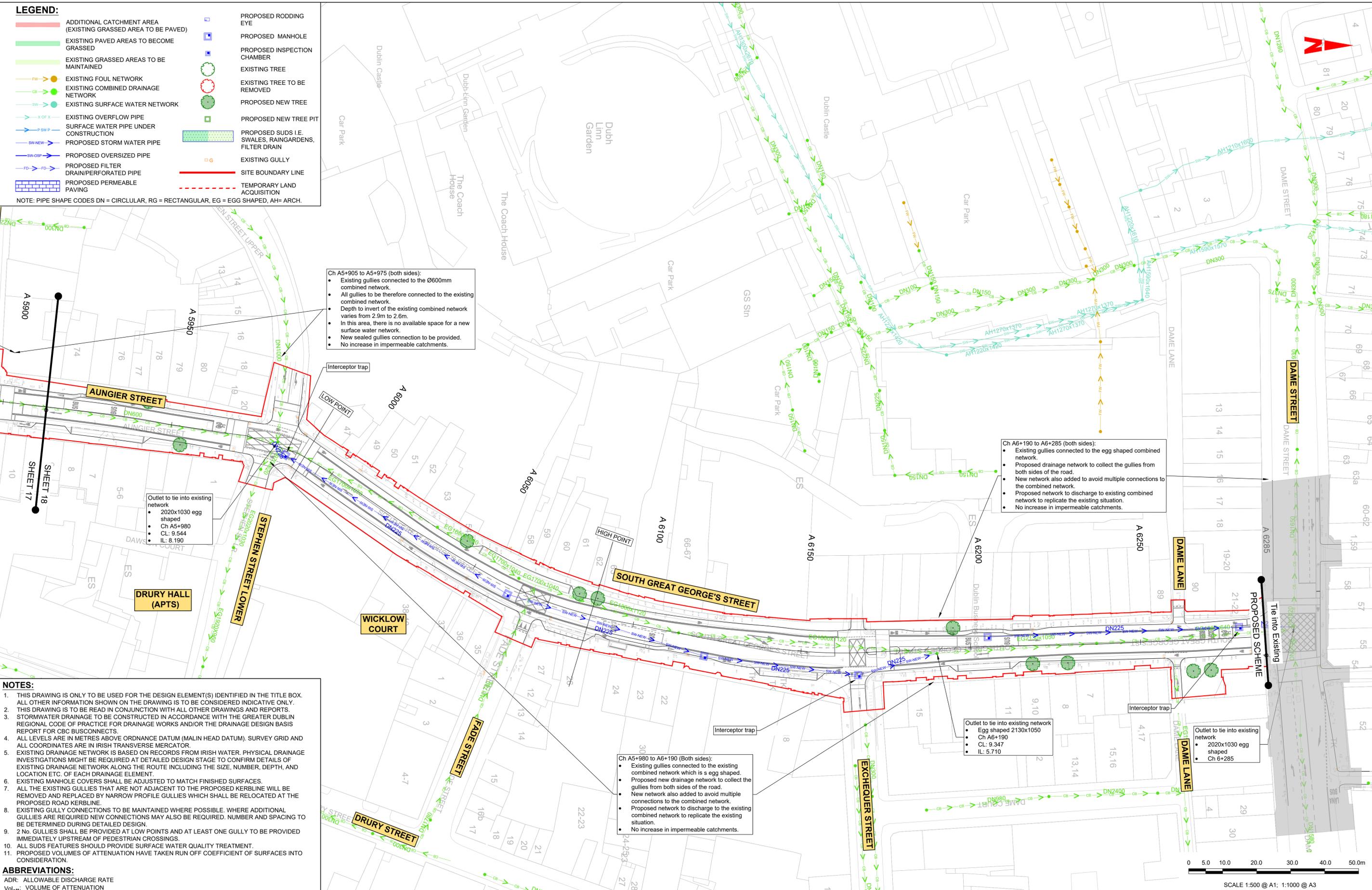
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Rev	Date	Drn	Chk'd	App'd	Description
M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING

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

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: 26840-00

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-0018

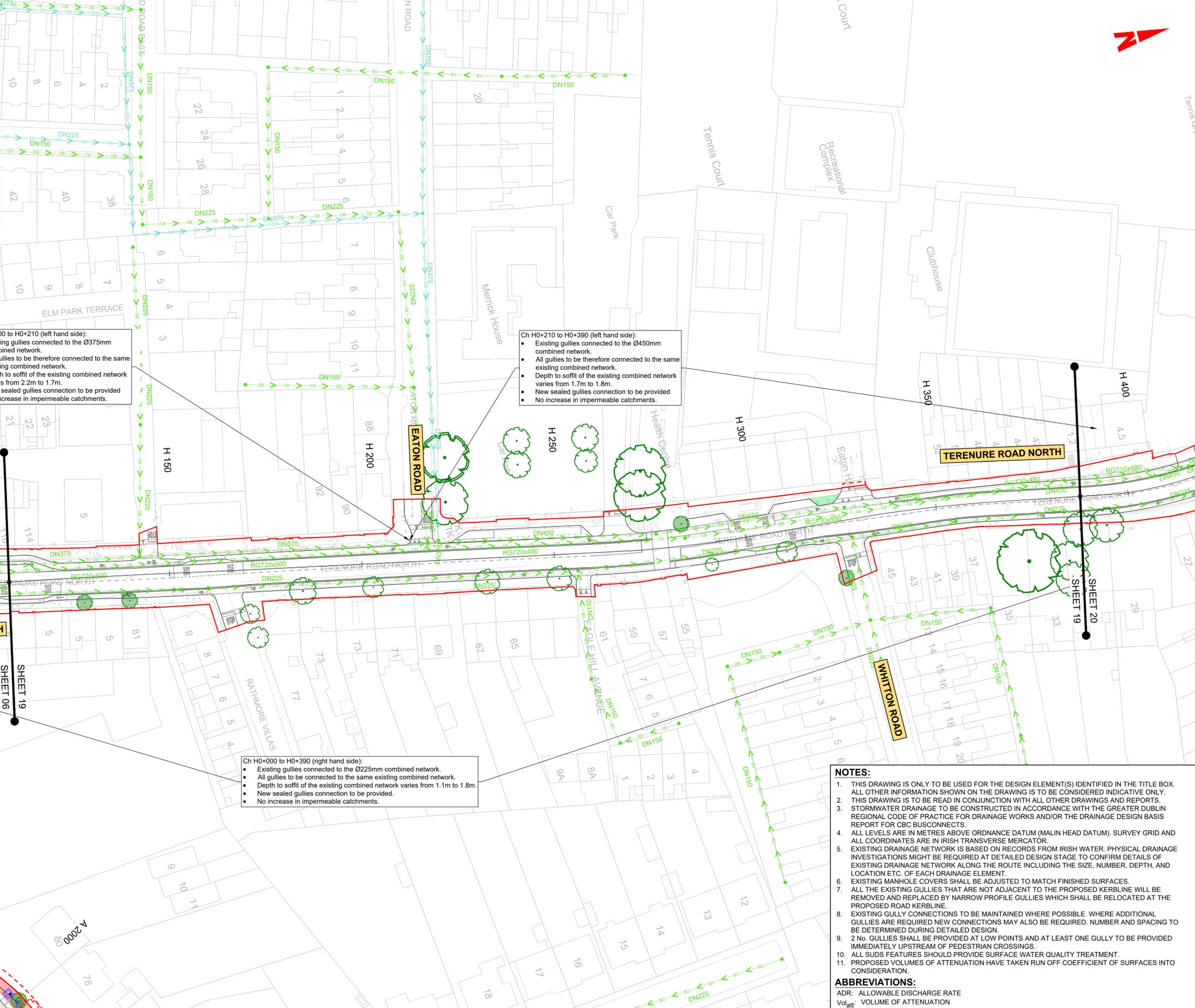
Sheet Number: 18 of 37, Status: A, Rev: M01

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



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ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE
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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

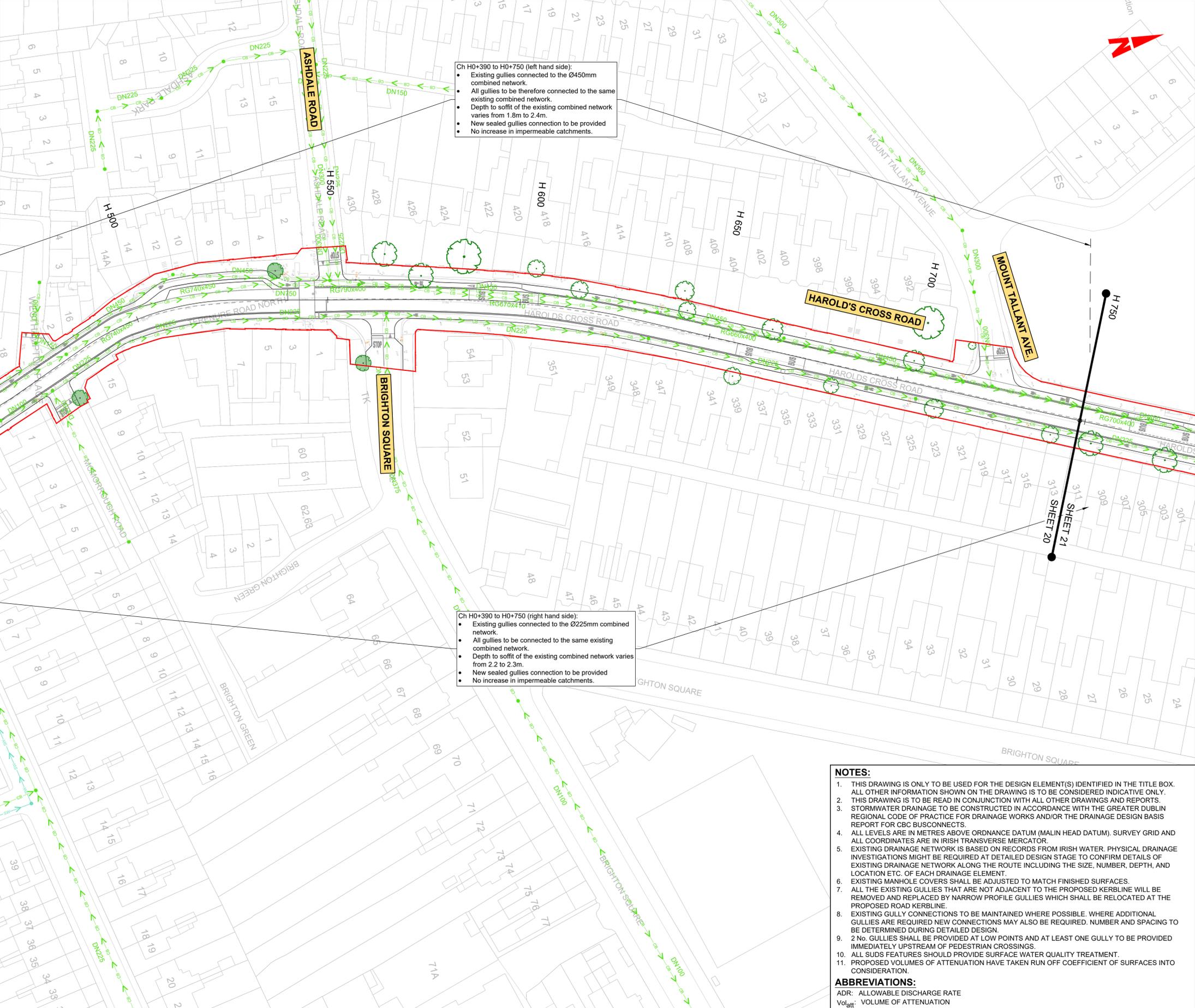
Project Code: BCIDC | Originator Code: ARP | QMS Code: 268401-00

Programme Title: 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-0019	Sheet Number: 19 of 37	Status: A	Rev: M01

LEGEND:

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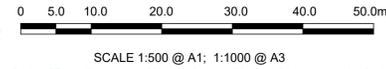
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ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE
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Rev	Date	Drn	Chk'd	App'd	Description
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Client: **NTA**
Udarás 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

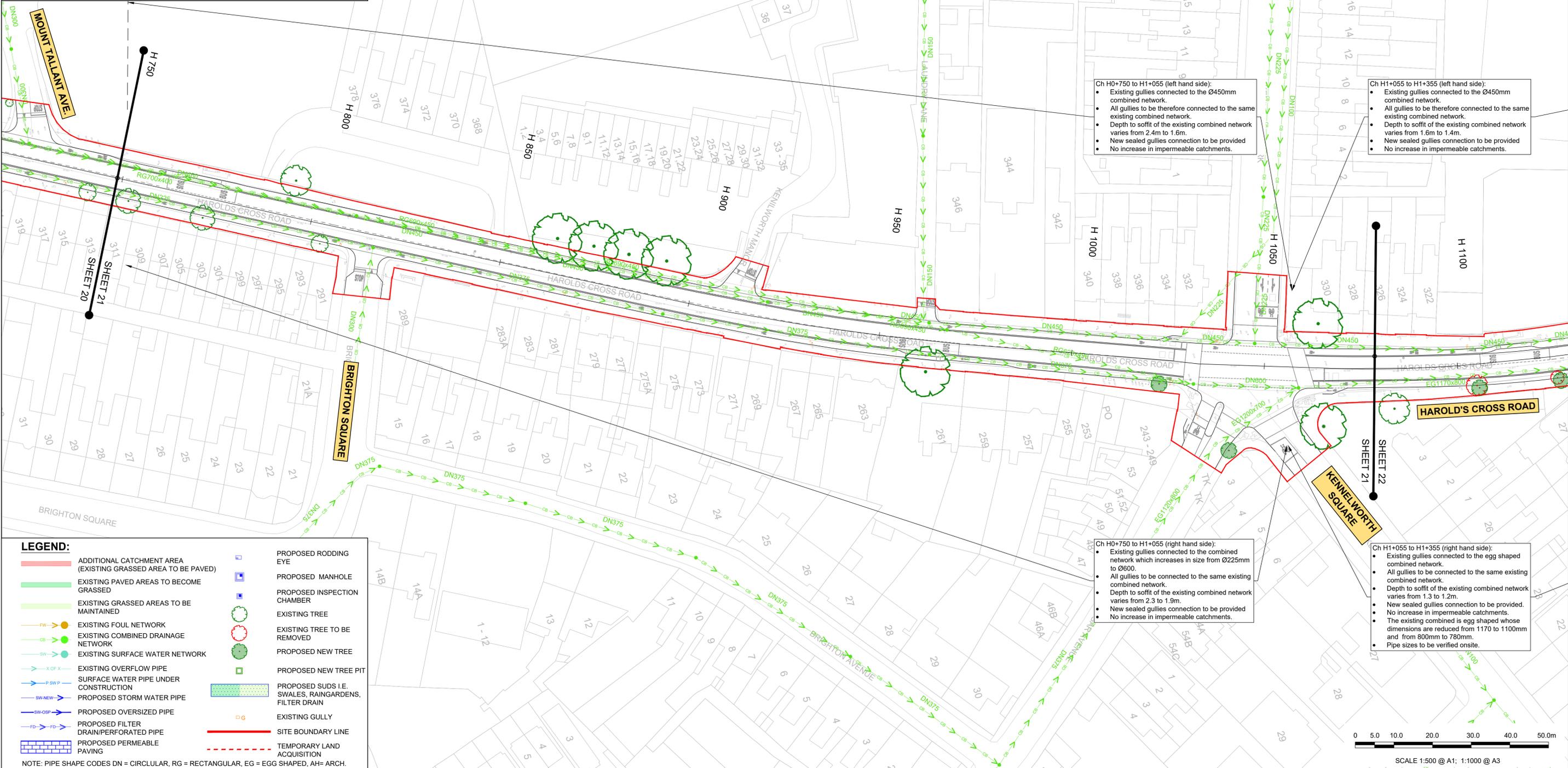
Project Code: BCIDC
Originator Code: ARP
QMS Code: 268401-00

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

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ABBREVIATIONS:
 ADR: ALLOWABLE DISCHARGE RATE
 Vol_{att}: 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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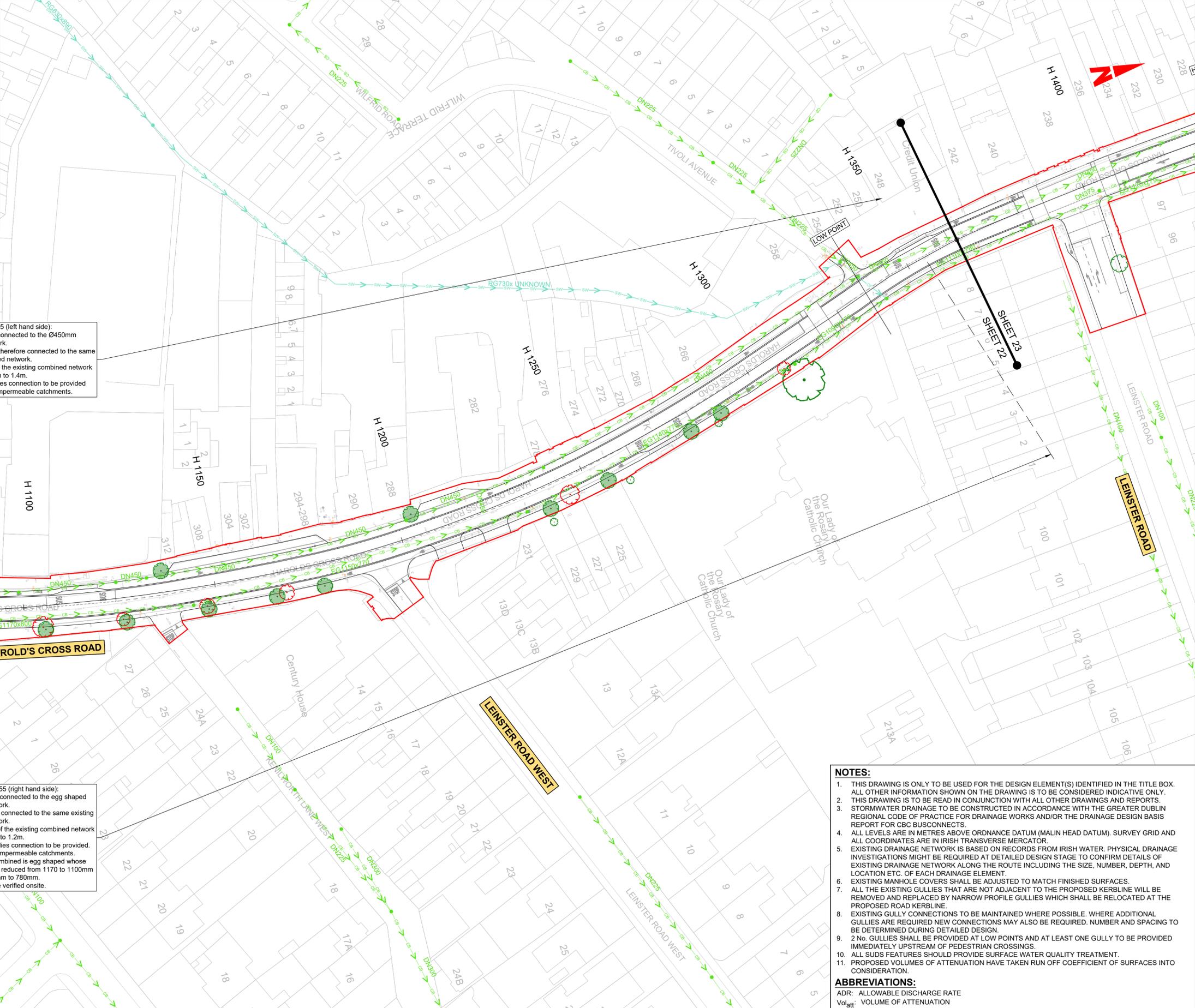
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<p>Date 27/01/2023 Scale 1:500 @ A1 1:1000 @ A3</p>		<p>Drawn AF Checked MR Approved DC</p>		<p>Project Code BCIDC Originator Code ARP QMS Code 268401-00</p>		<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0021 Sheet Number 21 of 37 Status A Rev M01</p>					

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- 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.

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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_{att}: 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: 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-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
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- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- SURFACE WATER PIPE UNDER CONSTRUCTION
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- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
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- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

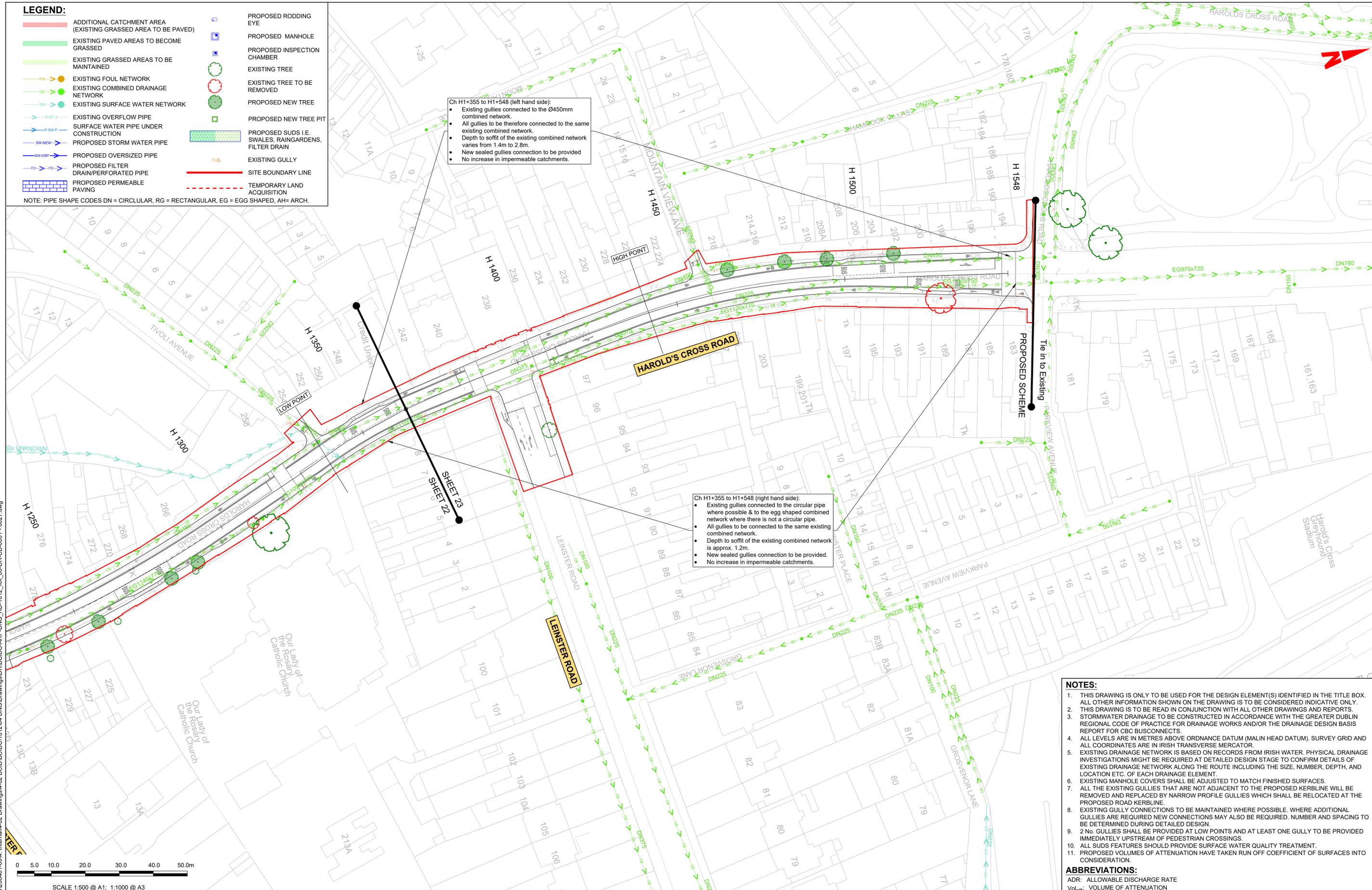
NOTE: PIPE SHAPE CODES DN = CIRCLULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

Ch 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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ABBREVIATIONS:
 ADR: ALLOWABLE DISCHARGE RATE
 Vol_{att}: 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: 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-0023	Sheet Number: 23 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
- PROPOSED OVERSIZED PIPE
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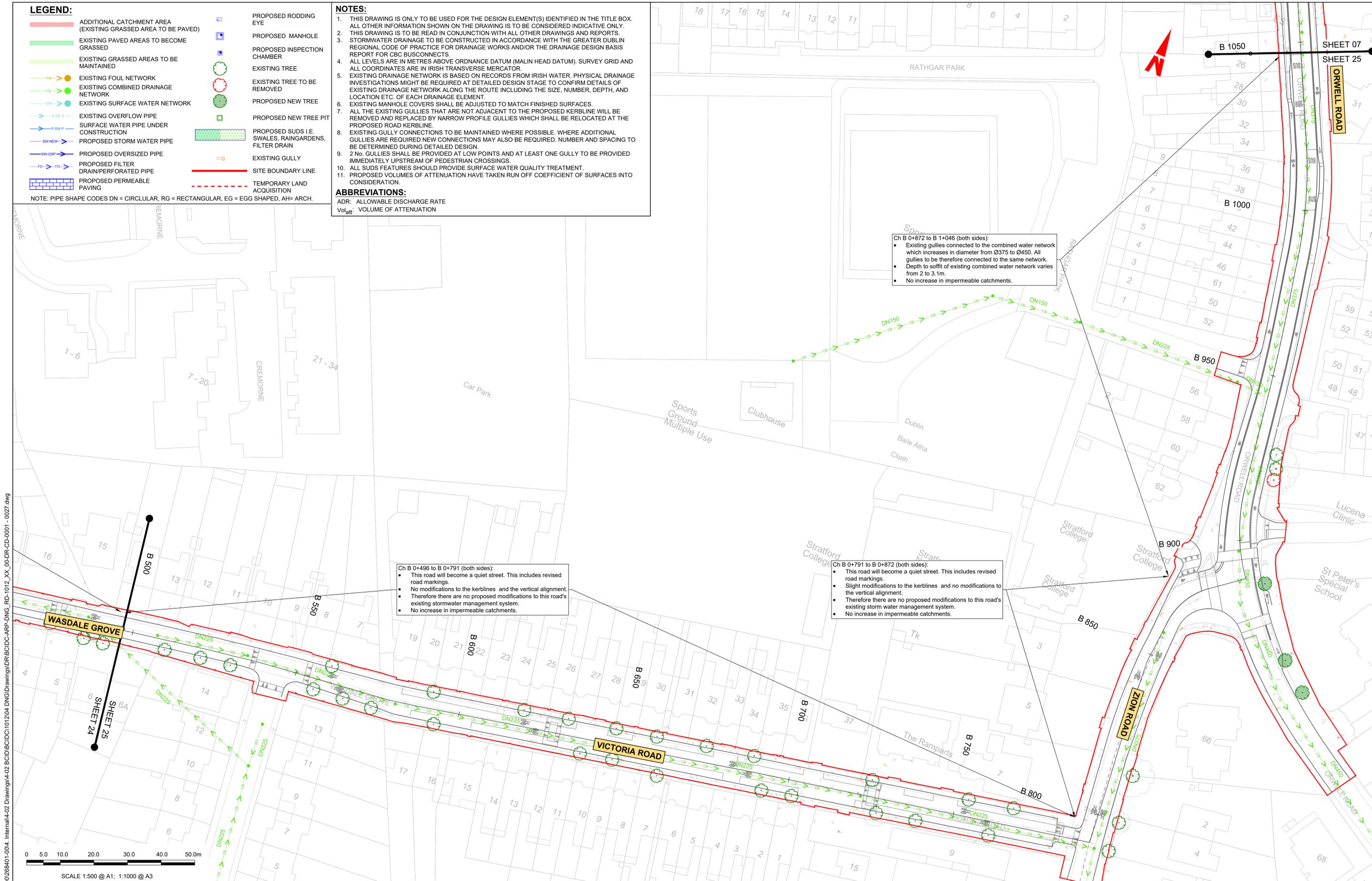
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ABBREVIATIONS:

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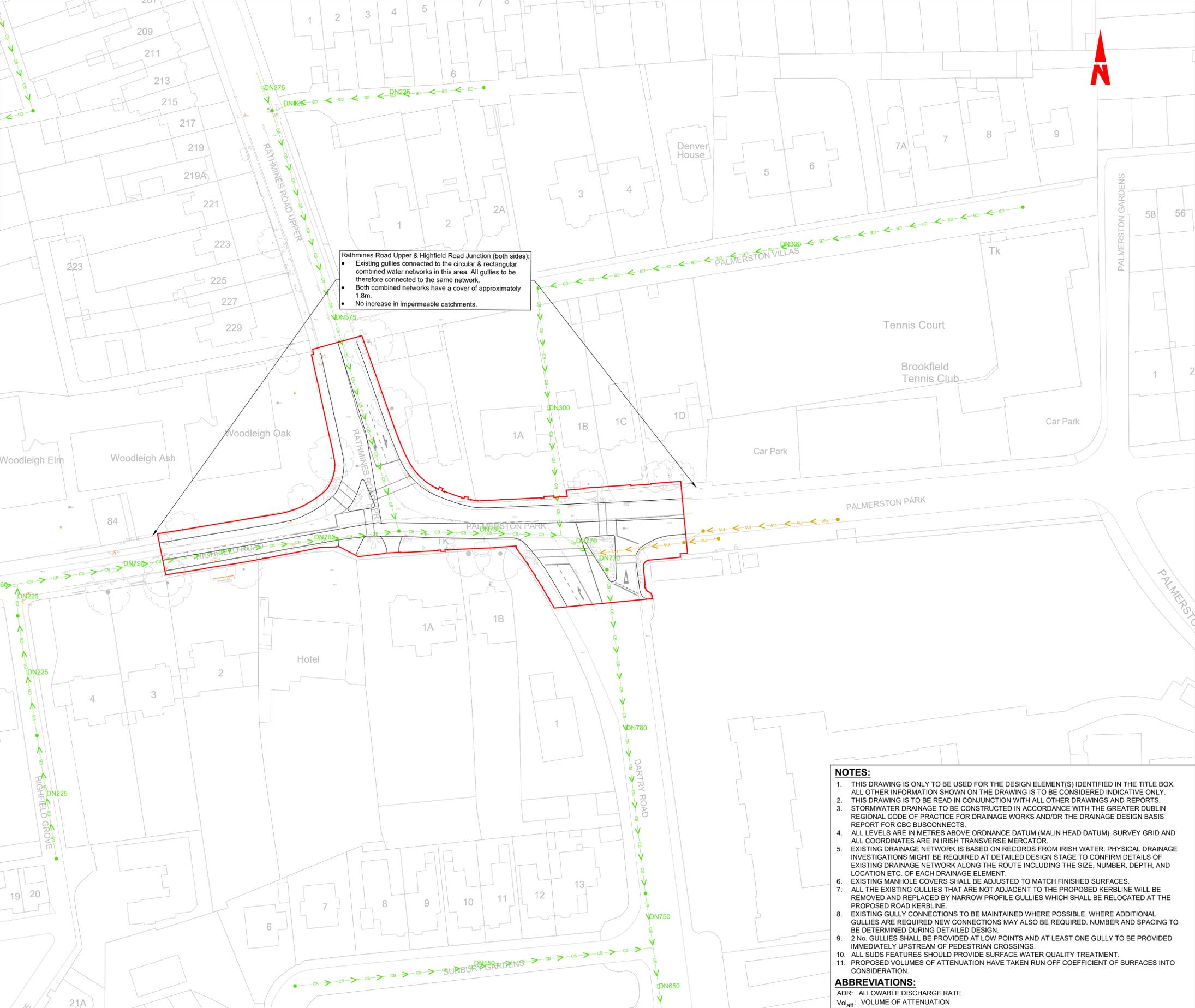
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<p>Date 27/01/2023 Scale 1:500 @ A1 1:1000 @ A3 Drawn AF Checked MR Approved DC</p>		<p>Project Code BCIDC Originator Code ARP QMS Code 26840-00</p>		<p>Drawing File Name BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0025 Sheet Number 25 of 37 Status A Rev M01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

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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.

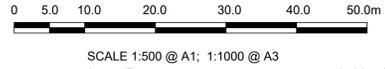
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ABBREVIATIONS:

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Client

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

Engineering Designer

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-0026	Sheet Number 26 of 37	Status A	Rev M01

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LEGEND:

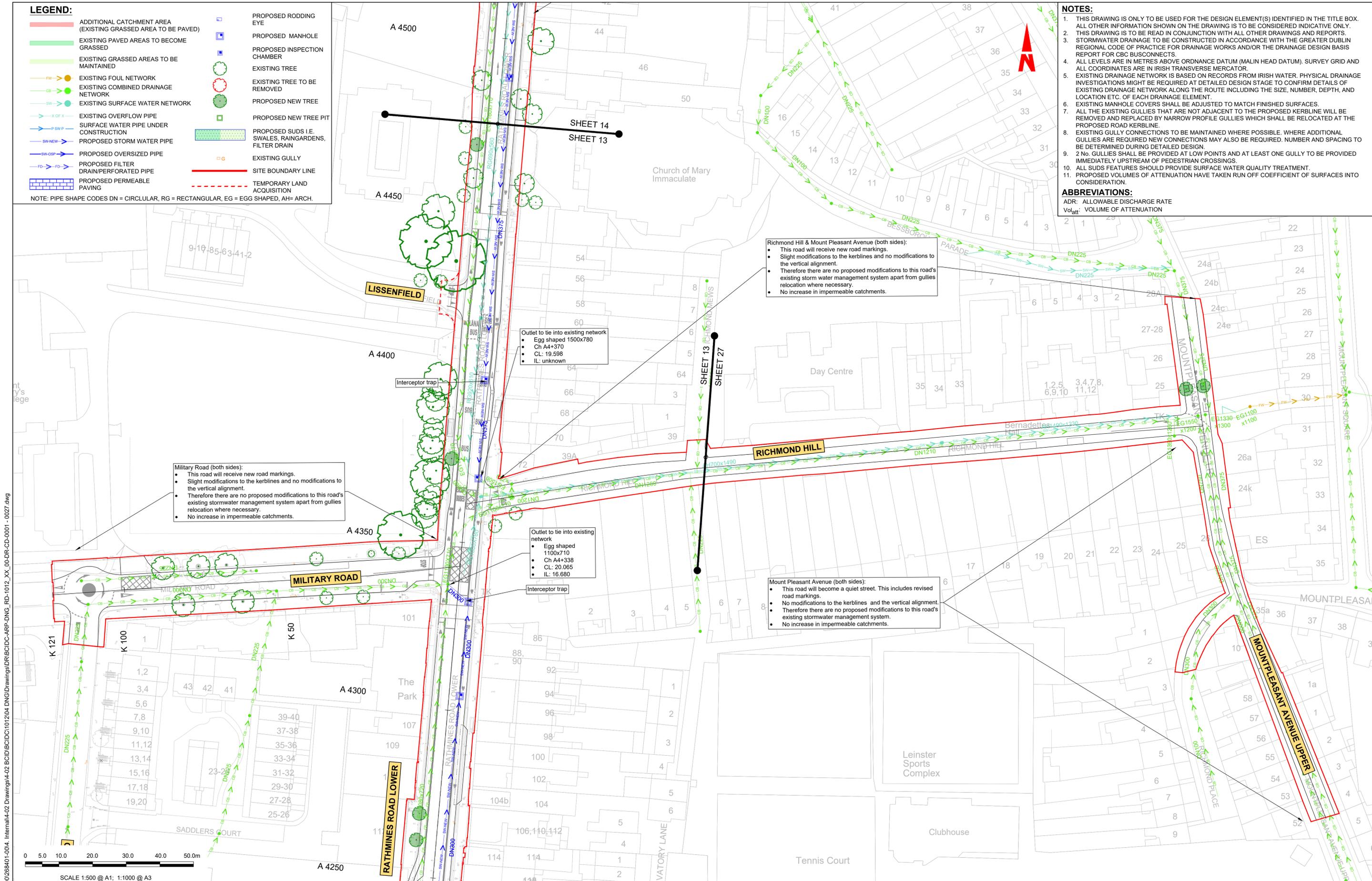
	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED DRAINAGE NETWORK		EXISTING TREE 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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- 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 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_{att}: 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.

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

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 storm water management system apart from gullies relocation where necessary.
- No increase in impermeable catchments.

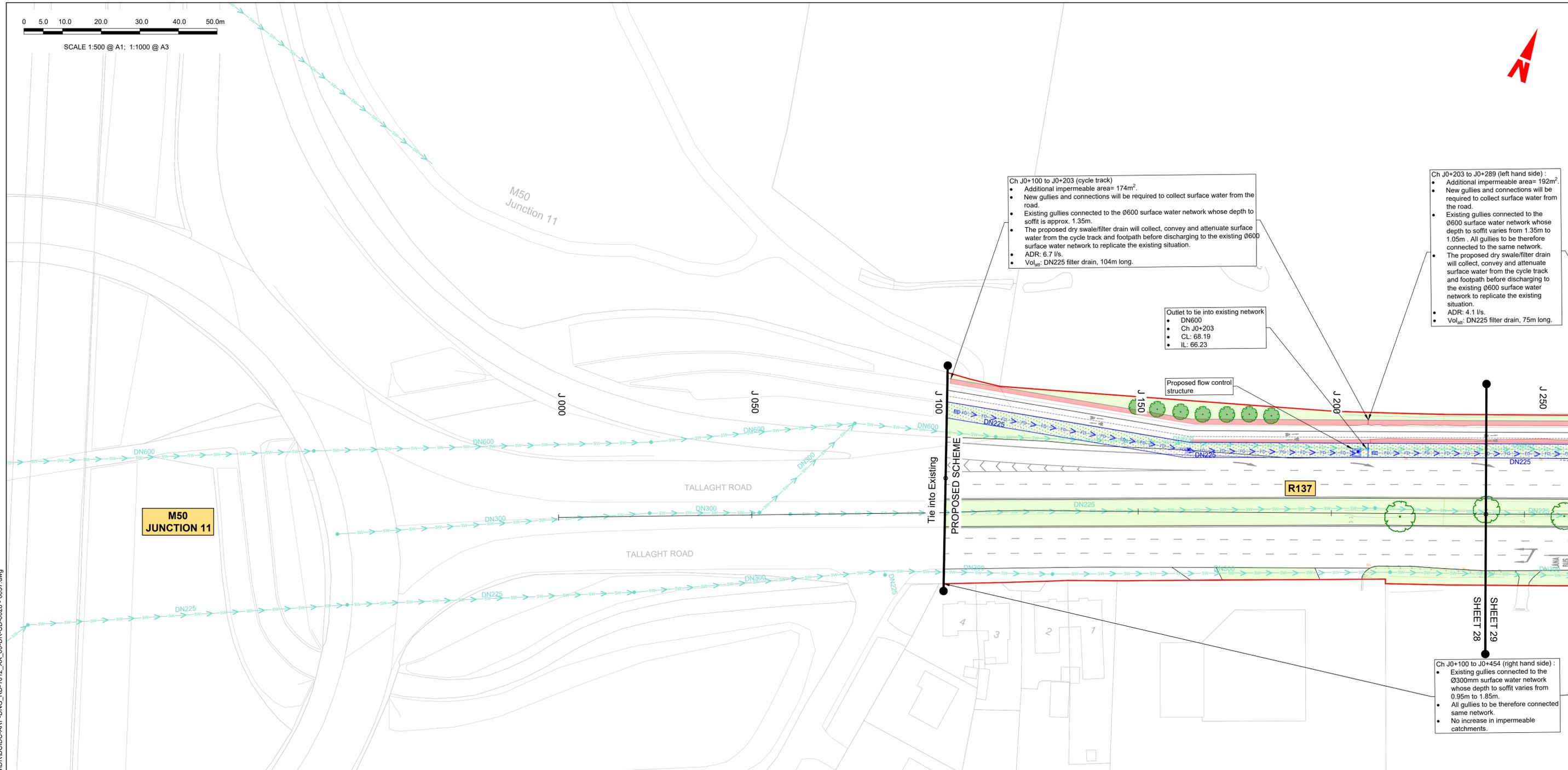
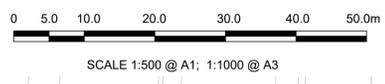
Mount Pleasant Avenue (both sides):

- 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.

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-0027 Sheet Number 27 of 37 Status A Rev M01</p>						

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



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

- Additional impermeable area= 174m².
- 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_{att}: 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= 192m².
- 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_{att}: 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
	PROPOSED OVERSIZED PIPE		SITE BOUNDARY LINE
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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_{att}: 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: 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-0028	Sheet Number: 28 of 37	Status: A	Rev: M01



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

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

- Additional impermeable area= 192m².
- 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_{att}: DN225 filter drain, 75m long.

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

- Additional impermeable area= 214m².
- 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_{att}: DN225 filter drain, 88m long.

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

- Additional impermeable area= 494m².
- 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_{att}: 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 = 755m².
- Additional grassed (permeable) area = 381m².
- Net impermeable area to be attenuated = 374m².
- 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

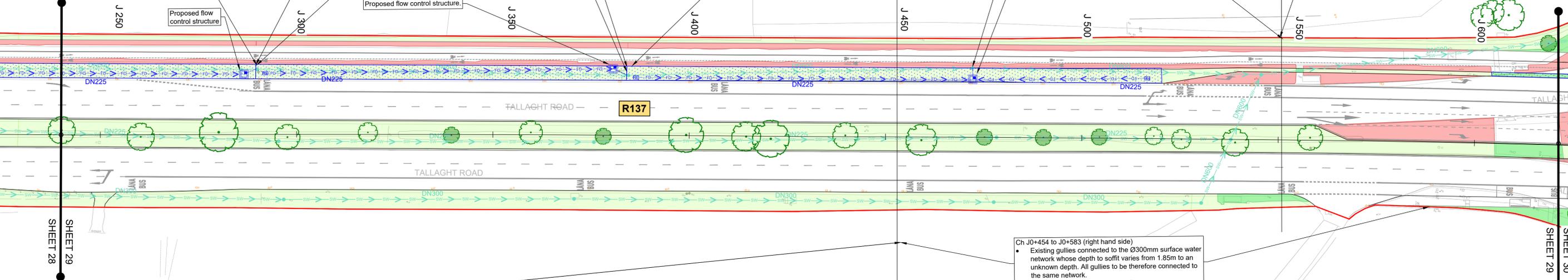
- DN600
- Ch J0+289
- CL: 67.660
- IL: 65.820

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
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- 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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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 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-0029	Sheet Number 29 of 37	Status A	Rev M01	

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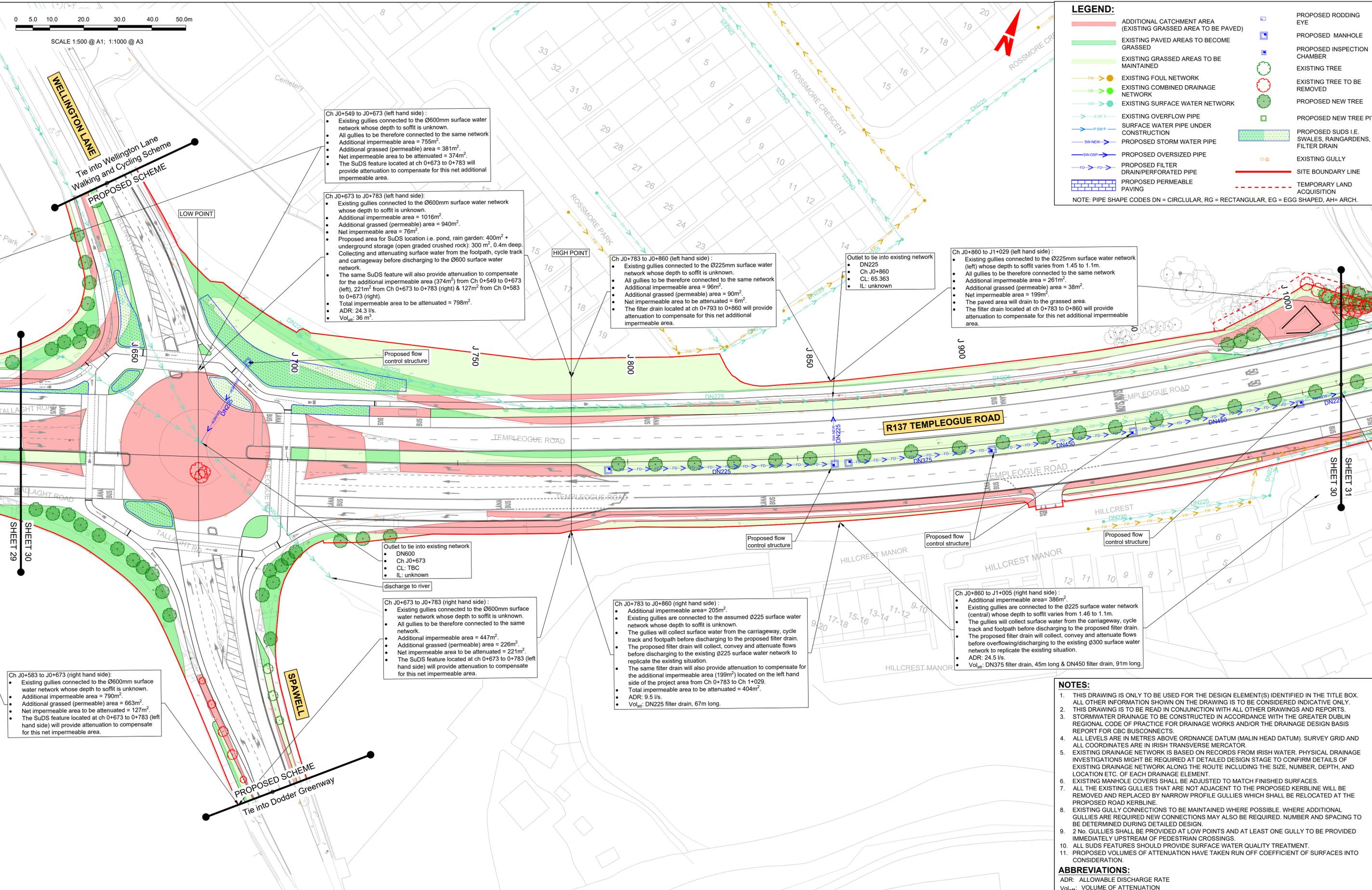
0 5.0 10.0 20.0 30.0 40.0 50.0m

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

LEGEND:

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
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- EXISTING FOUL NETWORK
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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 = 755m².
- Additional grassed (permeable) area = 381m².
- Net impermeable area to be attenuated = 374m².
- 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 = 1016m².
- Additional grassed (permeable) area = 940m².
- Net impermeable area = 76m².
- Proposed area for SuDS location i.e. pond, rain garden: 400m² + underground storage (open graded crushed rock): 300 m², 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 (374m²) from Ch 0+549 to 0+673 (left), 221m² from Ch 0+673 to 0+783 (right) & 127m² from Ch 0+583 to 0+673 (right).
- Total impermeable area to be attenuated = 798m².
- ADR: 24.3 l/s.
- Vol_{att}: 36 m³.

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 = 96m².
- Additional grassed (permeable) area = 90m².
- Net impermeable area to be attenuated = 6m².
- 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 = 261m².
- Additional grassed (permeable) area = 38m².
- Net impermeable area = 199m².
- 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.

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 = 790m².
- Additional grassed (permeable) area = 663m².
- Net impermeable area to be attenuated = 127m².
- 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+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 = 447m².
- Additional grassed (permeable) area = 226m².
- Net impermeable area to be attenuated = 221m².
- 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 = 205m².
- 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 (199m²) located on the left hand side of the project area from Ch 0+783 to Ch 1+029.
- Total impermeable area to be attenuated = 404m².
- ADR: 9.5 l/s.
- Vol_{att}: DN225 filter drain, 67m long.

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

- Additional impermeable area = 386m².
- 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_{att}: 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.
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 - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

ABBREVIATIONS:
 ADR: ALLOWABLE DISCHARGE RATE
 Vol_{att}: VOLUME OF ATTENUATION

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b. This drawing is to be used for the design element identified in the title box. Other information shown is to be considered indicative only. The drawing is to be read in conjunction with all other relevant design drawings.

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d. Information concerning the position of apparatus shown on this drawing is based on drawings supplied by the utility owners and/or the utility works contractor, whilst every care has been taken in the preparation of this drawing, positions should be taken as approximate and are intended for general guidance only and no representation is made by the NTA as to the accuracy, completeness, sufficiency or otherwise of this drawing and the position of the apparatus. The information contained herein does not purport to be comprehensive or final as the apparatus is subject to being altered and/or superseded. Recipients should not rely on this information. Any liabilities are hereby expressly disclaimed.

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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**
 Údaráis Náisiúnta Iompair
 National Transport Authority

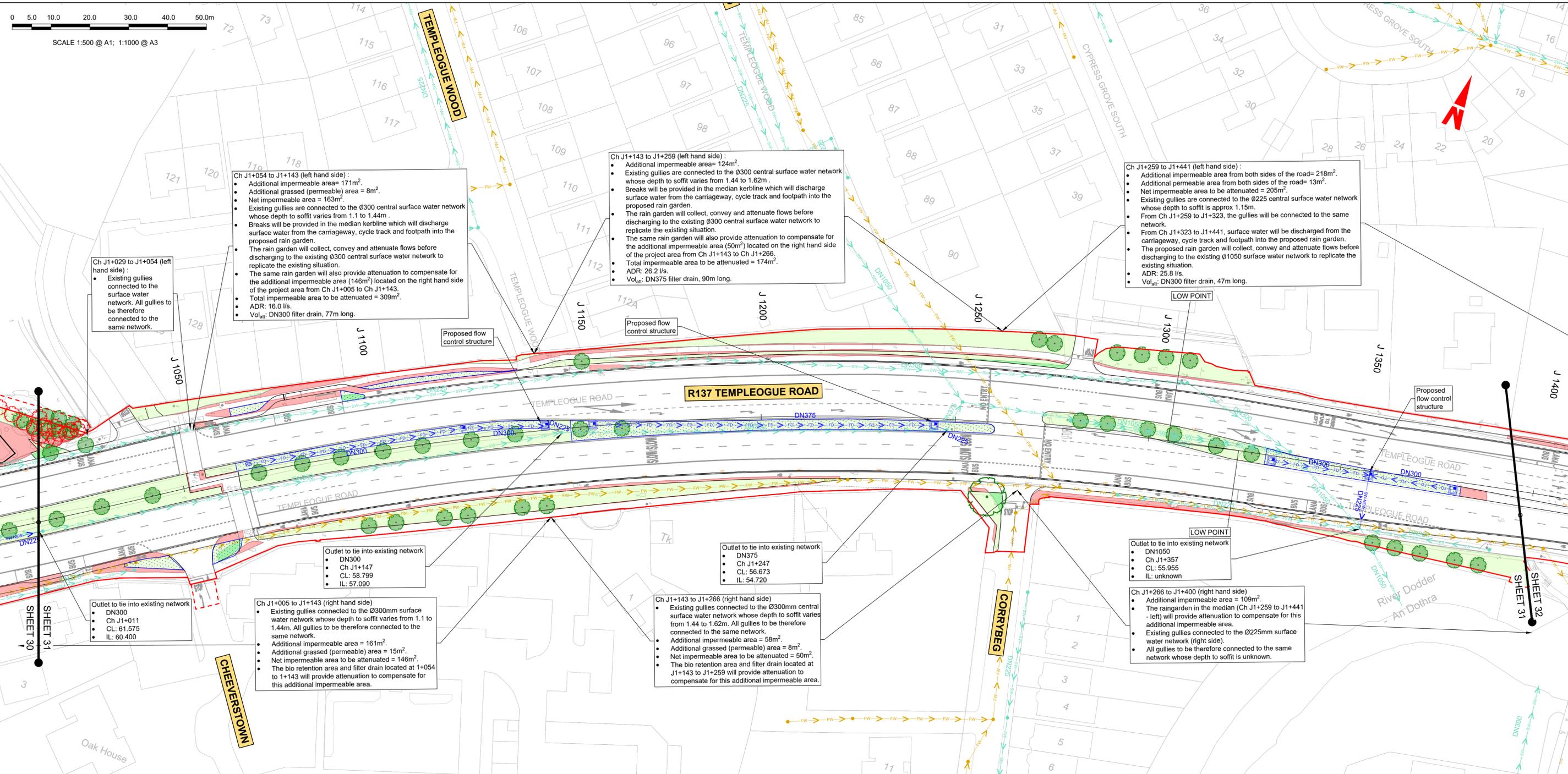
Engineering Designer: **ARUP**

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: 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-0030	Sheet Number: 30 of 37	Status: A	Rev: M01

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

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.

Ch J1+054 to J1+143 (left hand side):
• Additional impermeable area = 171m².
• Additional grassed (permeable) area = 8m².
• Net impermeable area = 163m².
• 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 (146m²) located on the right hand side of the project area from Ch J1+005 to Ch J1+143.
• Total impermeable area to be attenuated = 309m².
• ADR: 16.0 l/s.
• Vol_{att}: DN300 filter drain, 77m long.

Ch J1+143 to J1+259 (left hand side):
• Additional impermeable area = 124m².
• 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 (50m²) located on the right hand side of the project area from Ch J1+143 to Ch J1+266.
• Total impermeable area to be attenuated = 174m².
• ADR: 26.2 l/s.
• Vol_{att}: DN375 filter drain, 90m long.

Ch J1+259 to J1+441 (left hand side):
• Additional impermeable area from both sides of the road = 218m².
• Additional permeable area from both sides of the road = 13m².
• Net impermeable area to be attenuated = 205m².
• 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_{att}: DN300 filter drain, 47m long.

Outlet to tie into existing network:
• DN300
• Ch J1+147
• CL: 61.575
• 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:
• DN300
• Ch J1+011
• CL: 61.575
• IL: 60.400

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 = 161m².
• Additional grassed (permeable) area = 15m².
• Net impermeable area to be attenuated = 146m².
• The bio retention area and filter drain located at J1+054 to J1+143 will provide attenuation to compensate for this additional impermeable area.

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 = 58m².
• Additional grassed (permeable) area = 8m².
• Net impermeable area to be attenuated = 50m².
• The bio retention area and filter drain located at J1+143 to J1+259 will provide attenuation to compensate for this additional impermeable area.

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 = 109m².
• 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.

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.

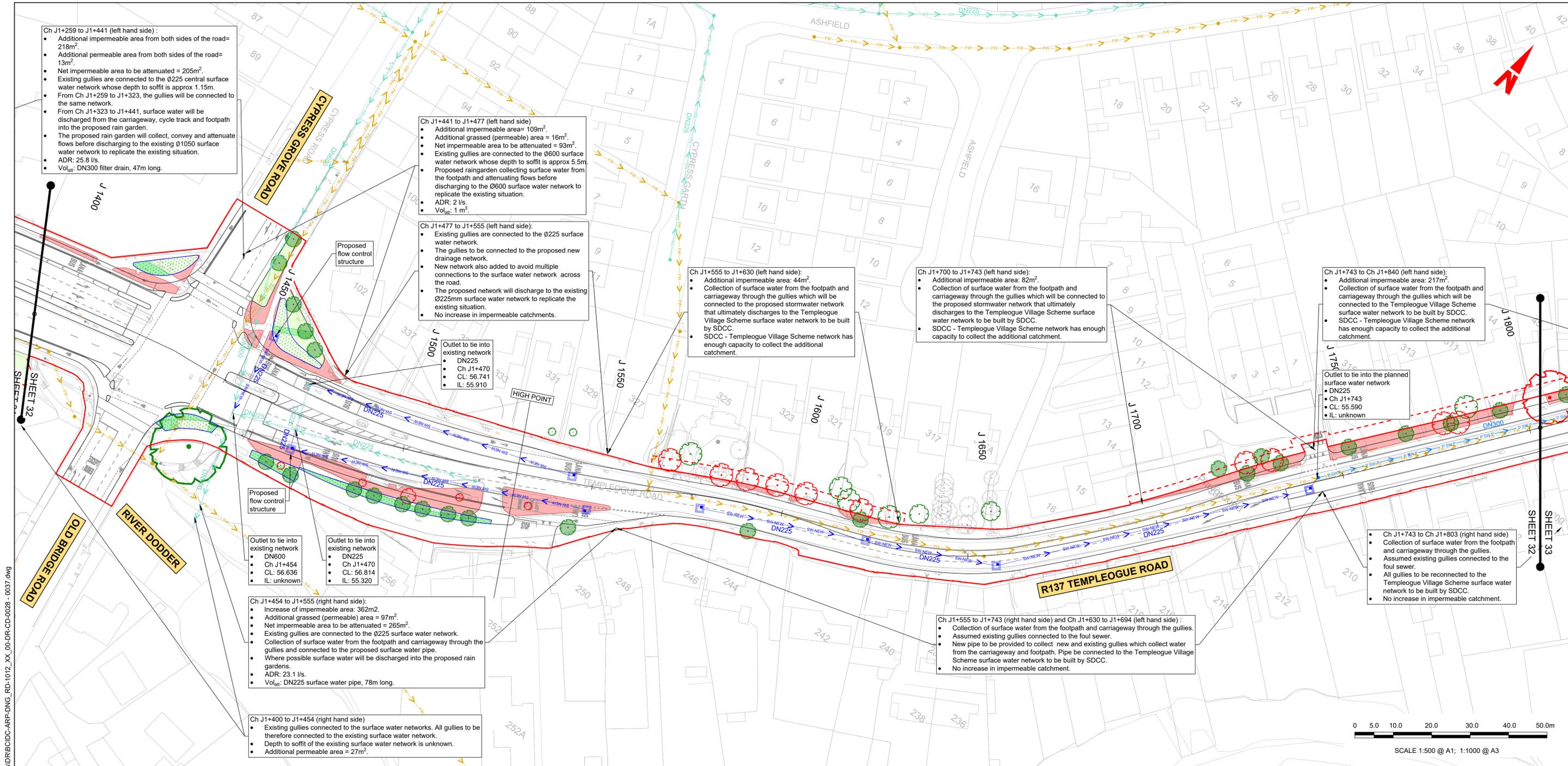
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ABBREVIATIONS:
ADR: ALLOWABLE DISCHARGE RATE
Vol_{att}: VOLUME OF ATTENUATION

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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>					

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

- Additional impermeable area from both sides of the road= 218m².
- Additional permeable area from both sides of the road= 13m².
- Net impermeable area to be attenuated = 205m².
- 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_{att}: DN300 filter drain, 47m long.

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

- Additional impermeable area= 109m².
- Additional grassed (permeable) area = 16m².
- Net impermeable area to be attenuated = 93m².
- 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_{att}: 1 m³.

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: 44m².
- 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: 82m².
- 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: 217m².
- 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: 362m².
- Additional grassed (permeable) area = 97m².
- Net impermeable area to be attenuated = 265m².
- 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_{att}: DN225 surface water pipe, 78m long.

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

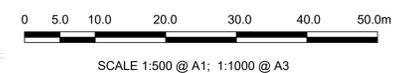
- Existing gullies connected to the surface water networks. All gullies to be therefore connected to the existing surface water network.
- Depth to soffit of the existing surface water network is unknown.
- Additional permeable area = 27m².

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		

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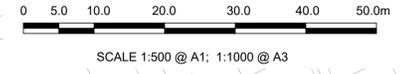
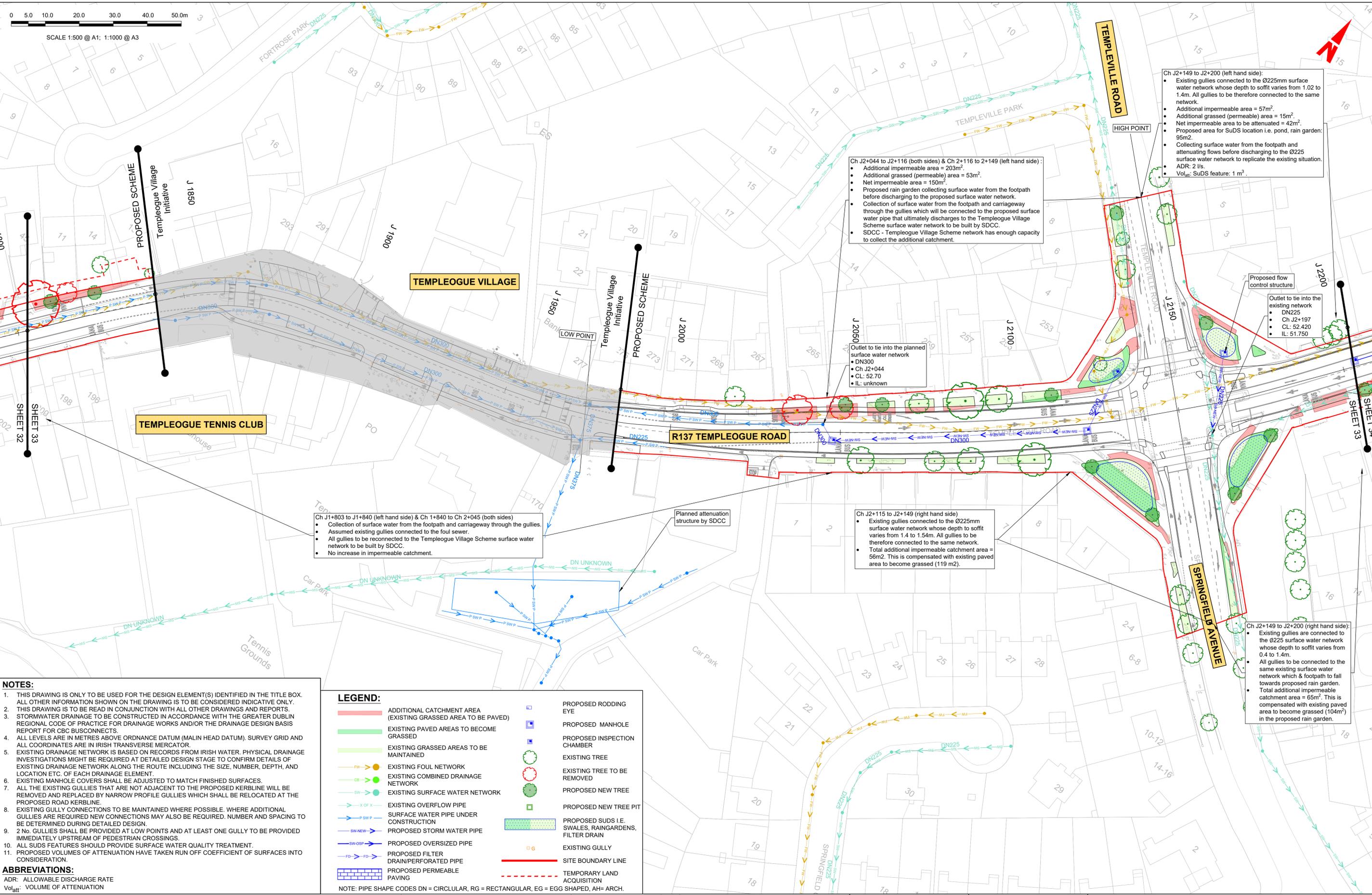
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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
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ABBREVIATIONS:

ADR: ALLOWABLE DISCHARGE RATE
Vol_{att}: 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														
<p>Date: 27/01/2023 Scale: 1:500 @ A1, 1:1000 @ A3</p> <p>Project Code: BCIDC Originator Code: ARP QMS Code: 268401-00</p>						<table border="1"> <thead> <tr> <th>Drawn</th> <th>Checked</th> <th>Approved</th> </tr> </thead> <tbody> <tr> <td>AF</td> <td>MR</td> <td>DC</td> </tr> </tbody> </table>	Drawn	Checked	Approved	AF	MR	DC	<p>Drawing Title</p> <p>TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME</p> <p>PROPOSED SURFACE WATER DRAINAGE WORKS</p>						
Drawn	Checked	Approved																	
AF	MR	DC																	
<p>Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0032</p>						<table border="1"> <thead> <tr> <th>Sheet Number</th> <th>Status</th> <th>Rev</th> </tr> </thead> <tbody> <tr> <td>32 of 37</td> <td>A</td> <td>M01</td> </tr> </tbody> </table>	Sheet Number	Status	Rev	32 of 37	A	M01							
Sheet Number	Status	Rev																	
32 of 37	A	M01																	



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 = 57m².
- Additional grassed (permeable) area = 15m².
- Net impermeable area to be attenuated = 42m².
- Proposed area for SuDS location i.e. pond, rain garden: 95m².
- 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_{att}: SuDS feature: 1 m³.

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

- Additional impermeable area = 203m².
- Additional grassed (permeable) area = 53m².
- Net impermeable area = 150m².
- 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 = 56m². This is compensated with existing paved area to become grassed (119 m²).

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 = 65m². This is compensated with existing paved area to become grassed (104m²) in the proposed rain garden.

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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 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_{att}: 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		
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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 Udárás Náisiúnta Iompair National Transport Authority	
Date	27/01/2023	Scale: 1:500 @ A1 1:1000 @ A3
Project Code	BCIDC	Originator Code: ARP

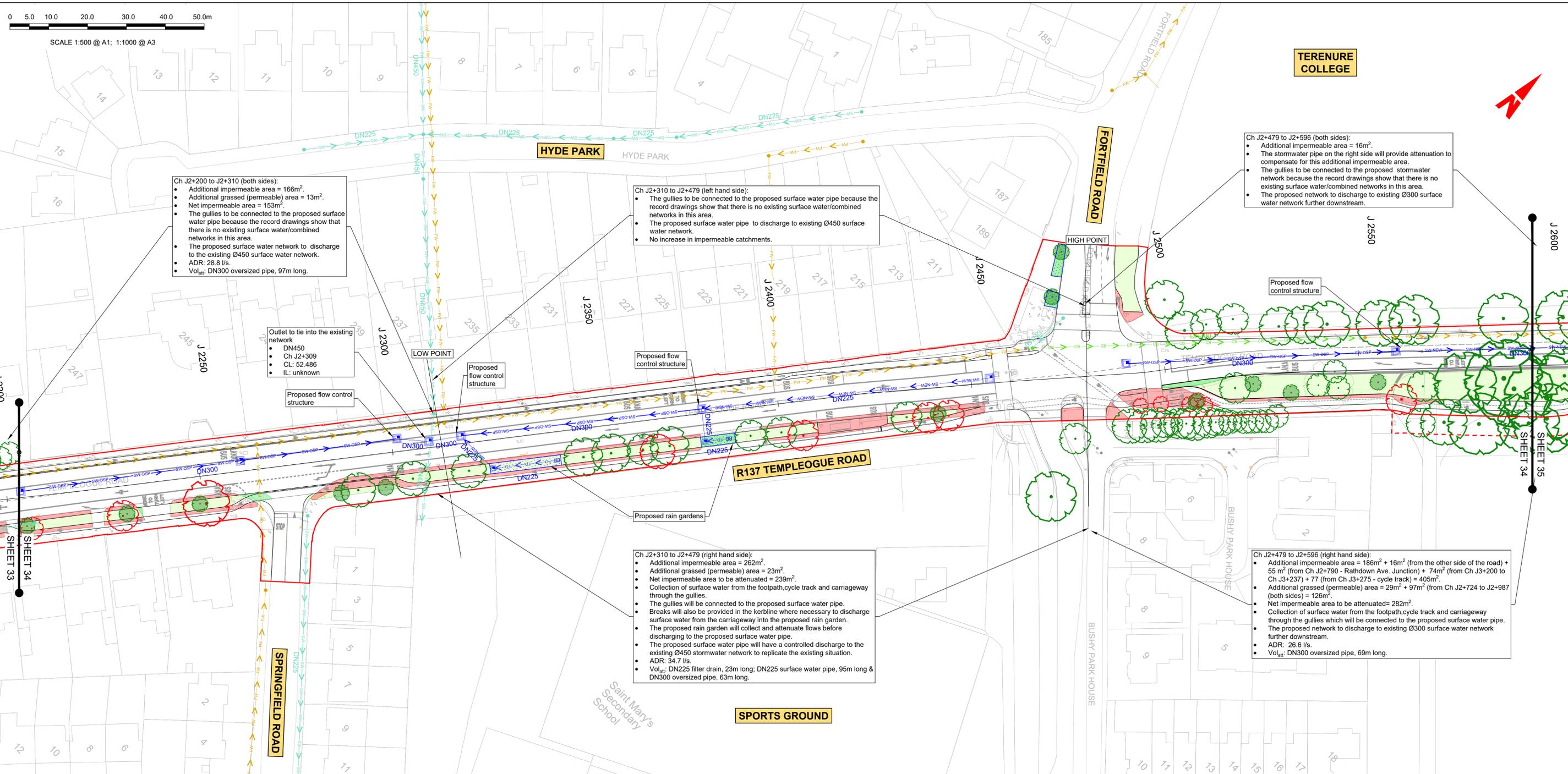
Engineering Designer	ARUP		
Drawn	AF	Checked	MR
Approved	DC		
QMS Code	268401-00		

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-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 = 166m².
- Additional grassed (permeable) area = 13m².
- Net impermeable area = 153m².
- 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_{att}: 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 = 16m².
- 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 = 262m².
- Additional grassed (permeable) area = 23m².
- Net impermeable area to be attenuated = 239m².
- 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_{att}: 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 = 186m² + 16m² (from the other side of the road) + 55 m² (from Ch J2+790 - Rathdown Ave. Junction) + 74m² (from Ch J3+200 to Ch J3+237) + 77 (from Ch J3+275 - cycle track) = 405m².
- Additional grassed (permeable) area = 29m² + 97m² (from Ch J2+724 to J2+987 (both sides)) = 126m².
- Net impermeable area to be attenuated = 282m².
- 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_{att}: 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		

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<p>Building Ireland's Future</p>		<table border="1"> <tr> <th>Rev</th> <th>Date</th> <th>Drn</th> <th>Chk'd</th> <th>App'd</th> <th>Description</th> </tr> <tr> <td>M01</td> <td>27/01/2023</td> <td>AF</td> <td>MR</td> <td>DC</td> <td>ISSUE FOR PHASE 4: PLANNING</td> </tr> </table>	Rev	Date	Drn	Chk'd	App'd	Description	M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING
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M01	27/01/2023	AF	MR	DC	ISSUE FOR PHASE 4: PLANNING									

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

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

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



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 = 97m².
- 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: 55m².
- 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
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Project Ireland 2040
Building Ireland's Future

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	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 BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0035	Sheet Number 35 of 37	Status A	Rev M01

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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 = 131m².
- 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): 74m².
- 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: 77m².
- 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.

- 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 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 MAY 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_{att}: 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 CODES DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.

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		Engineering Designer		Programme Title	
NTA Udárás Náisiúnta Iompair National Transport Authority		ARUP		BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS	
Date	Scale	Drawn	Checked	Approved	Drawing Title
27/01/2023	1:500 @ A1 1:1000 @ A3	AF	MR	DC	TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS
Project Code	Originator Code	QMS Code	Drawing File Name		Sheet Number
BCIDC	ARP	268401-00	BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0036		36 of 37
					Status
					A
					Rev
					M01

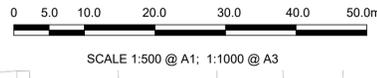
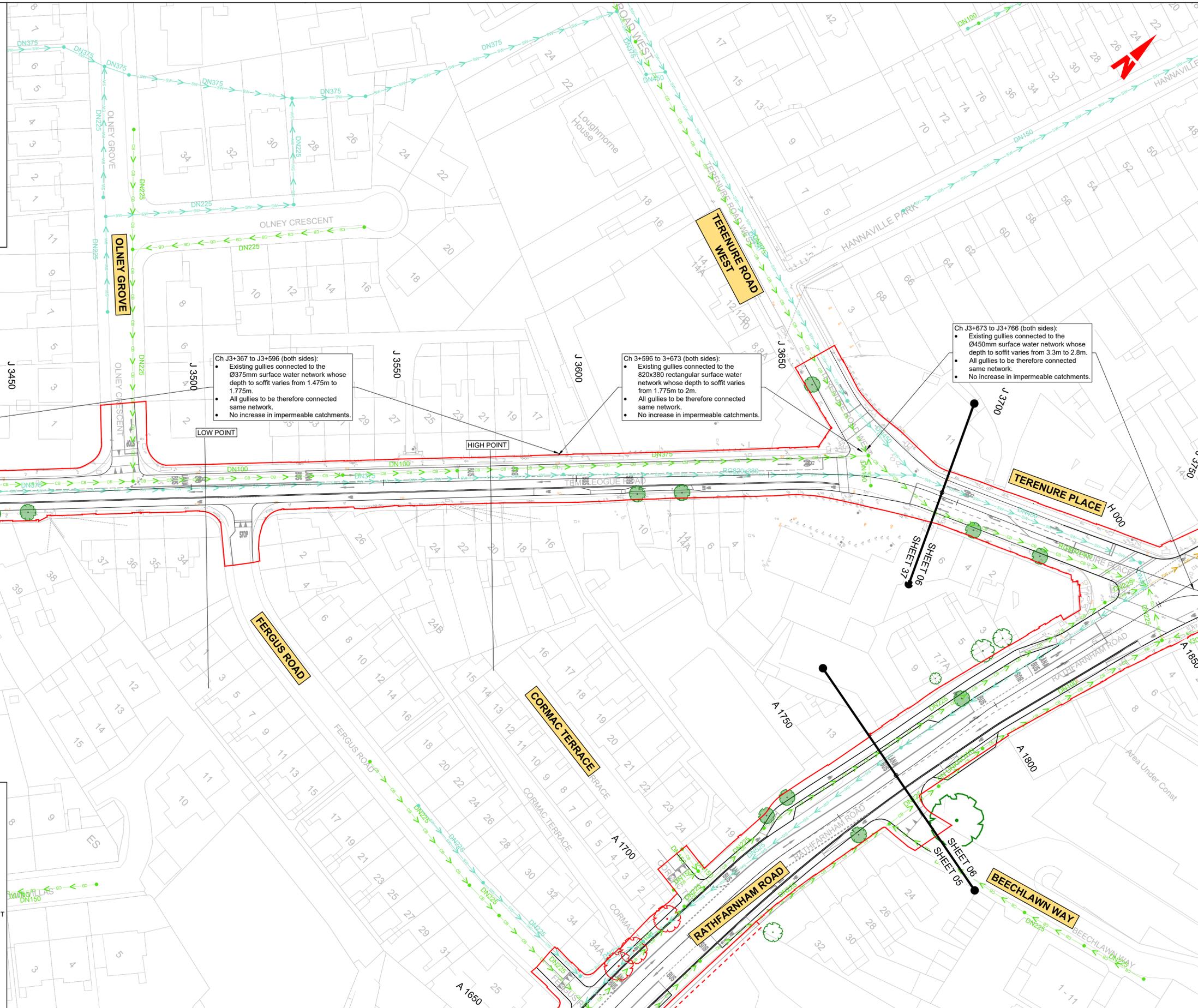
Client: NTA
 Engineering Designer: ARUP
 Programme Title: BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS
 Drawing Title: TEMPLEOGUE / RATHFARNHAM TO CITY CENTRE CORE BUS CORRIDOR SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS
 Drawing File Name: BCIDC-ARP-DNG_RD-1012_XX_00-DR-CD-0036
 Sheet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

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	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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	SURFACE WATER PIPE UNDER CONSTRUCTION		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
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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

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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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