



**Appendix II**  
Proposed Surface  
Water Drainage Works  
Drawings



# BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS

## TALLAGHT/CLONDALKIN TO CITY CENTRE CORE BUS CORRIDOR SCHEME

### PROPOSED SURFACE WATER DRAINAGE WORKS

DRAWING SERIES NUMBER(S)	DRAWING SERIES DESCRIPTION
BCIDA-ACM-DNG_IX-0809_XX_00-DR-CD-0001	TALLAGHT/CLONDALKIN TO CITY CENTRE. PROPOSED SURFACE WATER DRAINAGE WORKS. COVER SHEET
BCIDA-ACM-DNG_KP-0809_XX_00-DR-CD-0001	TALLAGHT/CLONDALKIN TO CITY CENTRE. PROPOSED SURFACE WATER DRAINAGE WORKS. KEY PLAN
BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0001 to 0056	TALLAGHT/CLONDALKIN TO CITY CENTRE. PROPOSED SURFACE WATER DRAINAGE WORKS
BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-1001 to 1004	TALLAGHT/CLONDALKIN TO CITY CENTRE. OVERALL CATCHMENT AREAS

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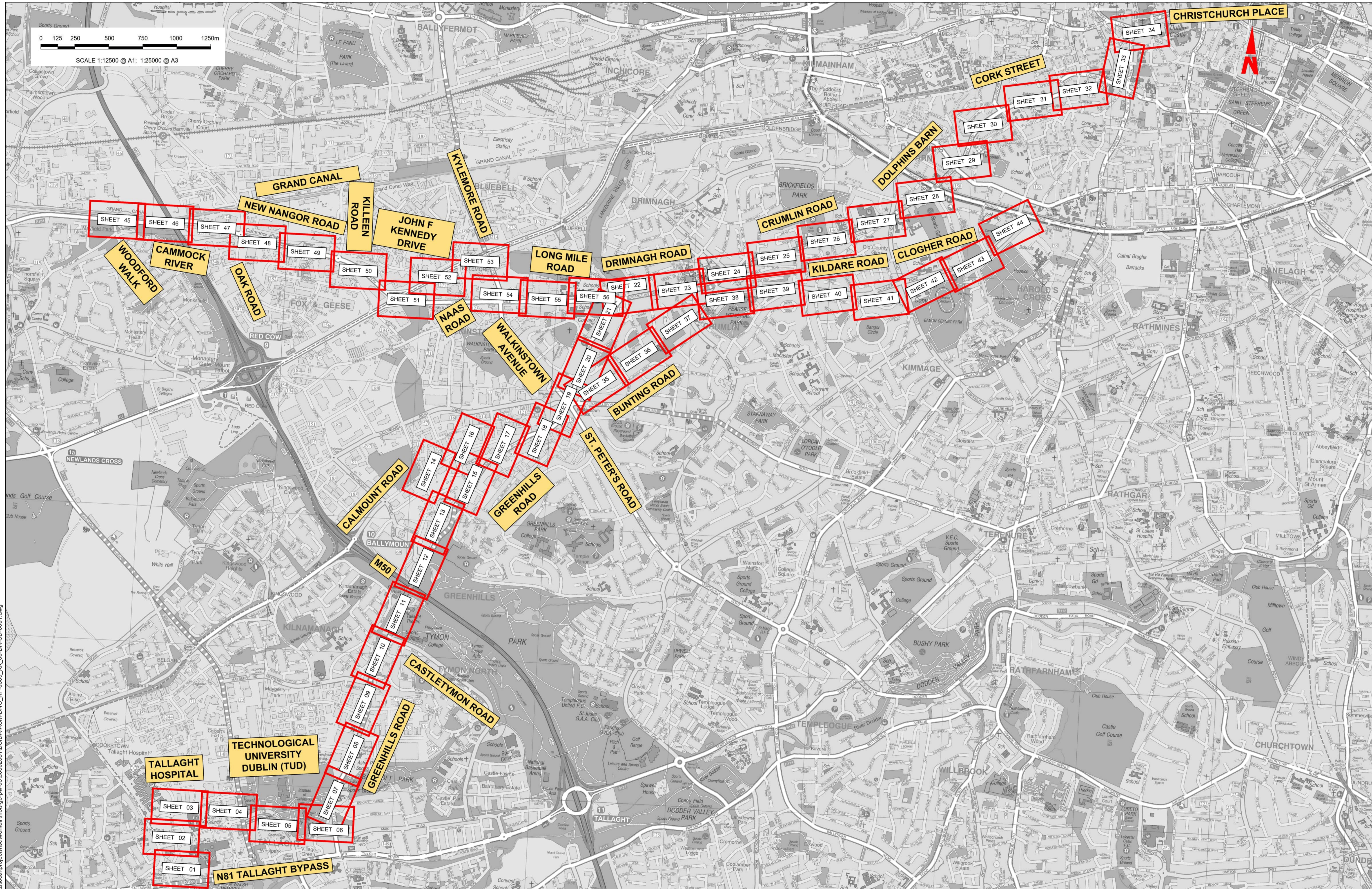
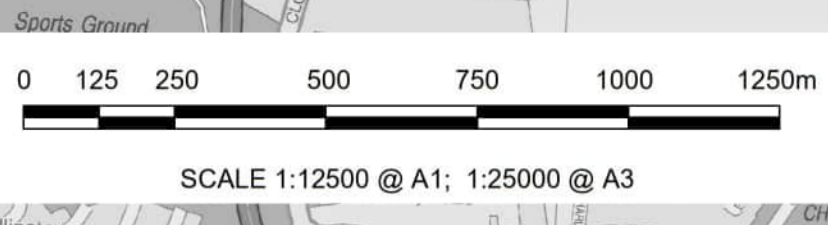


Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

<p>Údarás Náisiúnta Iompair National Transport Authority</p>			
Date	28/03/23	Scale	N/A
Project Code	BCIDA	Originator Code	ACM
Drawn	A.FLEMING	Checked	R.LOUGH
Approved	C.ACTON	QMS Code	

<b>Programme Title</b> BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS			
<b>Drawing Title</b> TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS COVER SHEET			
Drawing File Name	BCIDA-ACM-DNG_IX-0809_XX_00-DR-CD-0001	Sheet Number	01 of 01
Status	A	Rev	M01

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

Engineering Designer: **AECOM** **MOTT MACDONALD**

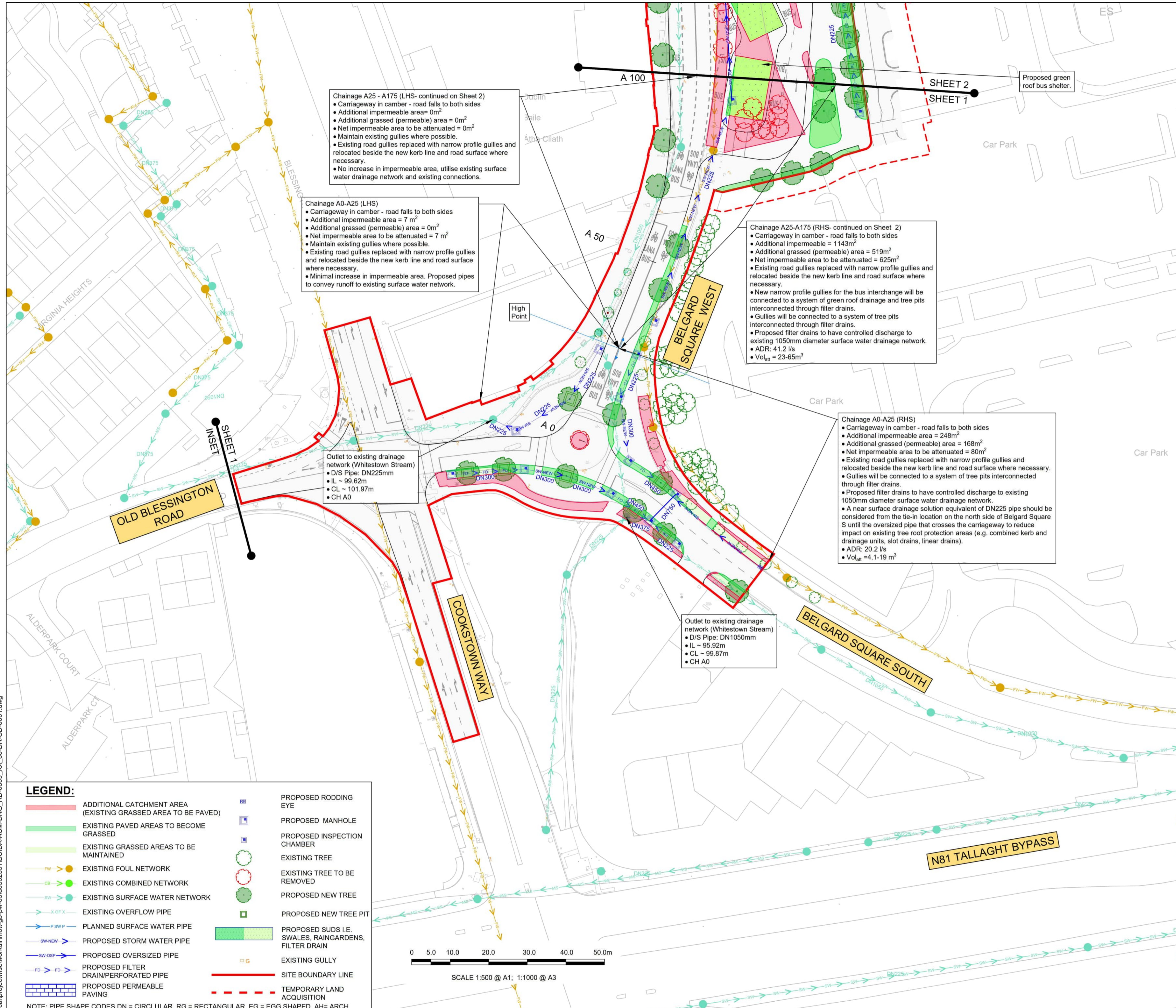
Date: 28/03/23  
 Scale: 1:12500 @ A1, 1:25000 @ A3

Project Code: BCIDA  
 Originator Code: ACM

Drawn: A.FLEMING  
 Checked: R.LOUGH  
 Approved: C.ACTON

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS KEY PLAN</b>			
Drawing File Name: BCIDA-ACM-DNG_KP-0809_XX_00-DR-CD-0001	Sheet Number: 01 of 01	Status: A	Rev: M01

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Chainage A25 - A175 (LHS - continued on Sheet 2)

- Carriageway in camber - road falls to both sides
- Additional impermeable area = 0m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 0m<sup>2</sup>
- Maintain existing gullies where possible.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- No increase in impermeable area, utilise existing surface water drainage network and existing connections.

Chainage A0-A25 (LHS)

- Carriageway in camber - road falls to both sides
- Additional impermeable area = 7 m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 7 m<sup>2</sup>
- Maintain existing gullies where possible.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Minimal increase in impermeable area. Proposed pipes to convey runoff to existing surface water network.

Chainage A25-A175 (RHS - continued on Sheet 2)

- Carriageway in camber - road falls to both sides
- Additional impermeable = 1143m<sup>2</sup>
- Additional grassed (permeable) area = 519m<sup>2</sup>
- Net impermeable area to be attenuated = 625m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- New narrow profile gullies for the bus interchange will be connected to a system of green roof drainage and tree pits interconnected through filter drains.
- Gullies will be connected to a system of tree pits interconnected through filter drains.
- Proposed filter drains to have controlled discharge to existing 1050mm diameter surface water drainage network.
- ADR: 41.2 l/s
- Vol<sub>att</sub> = 23-65m<sup>3</sup>

Chainage A0-A25 (RHS)

- Carriageway in camber - road falls to both sides
- Additional impermeable area = 248m<sup>2</sup>
- Additional grassed (permeable) area = 168m<sup>2</sup>
- Net impermeable area to be attenuated = 80m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Gullies will be connected to a system of tree pits interconnected through filter drains.
- Proposed filter drains to have controlled discharge to existing 1050mm diameter surface water drainage network.
- A near surface drainage solution equivalent of DN225 pipe should be considered from the tie-in location on the north side of Belgard Square S until the oversized pipe that crosses the carriageway to reduce impact on existing tree root protection areas (e.g. combined kerb and drainage units, slot drains, linear drains).
- ADR: 20.2 l/s
- Vol<sub>att</sub> = 4.1-19 m<sup>3</sup>

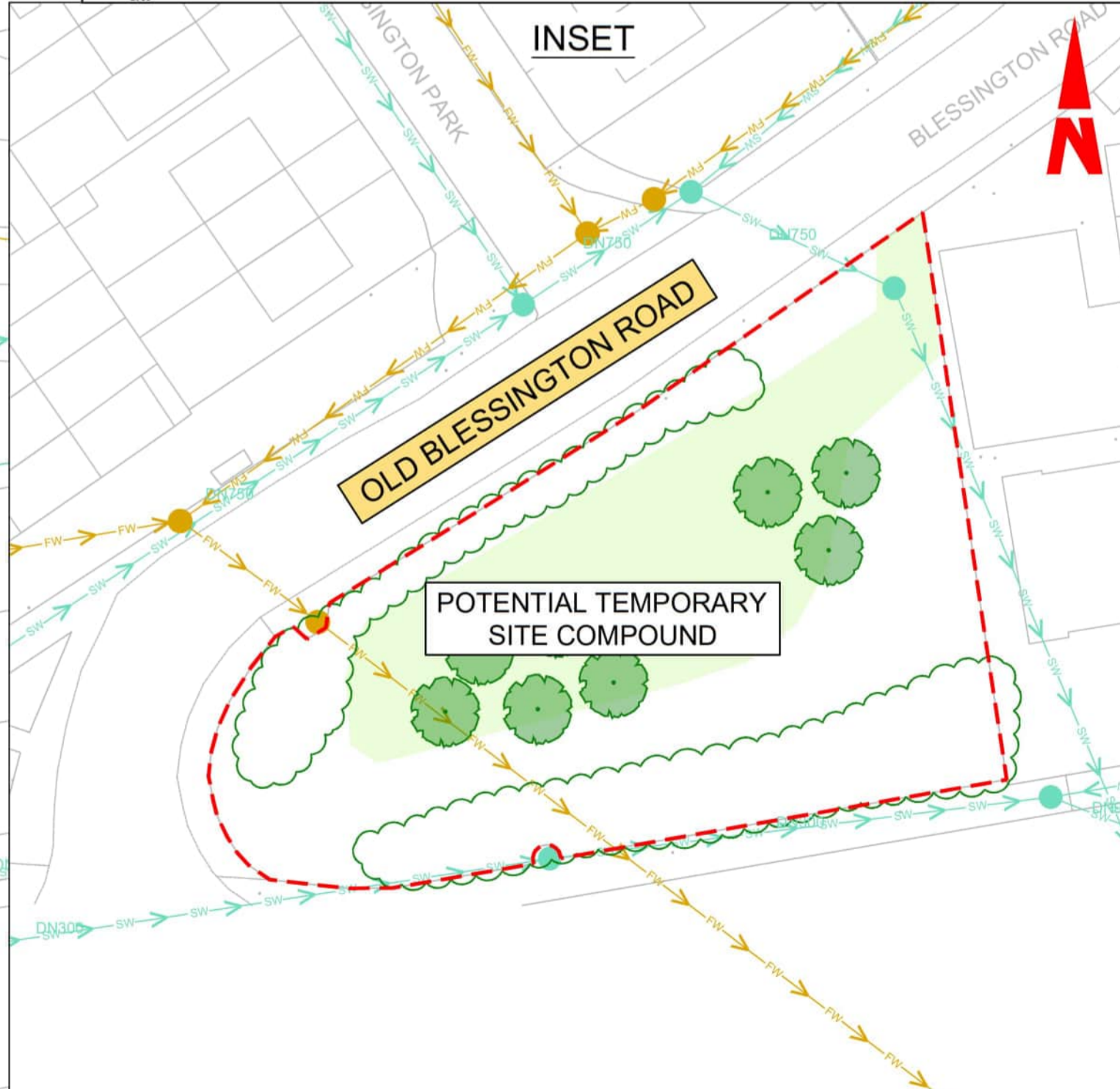
Outlet to existing drainage network (Whitestown Stream)

- D/S Pipe: DN225mm
- IL ~ 99.62m
- CL ~ 101.97m
- CH A0

Outlet to existing drainage network (Whitestown Stream)

- D/S Pipe: DN1050mm
- IL ~ 95.92m
- CL ~ 99.87m
- CH A0

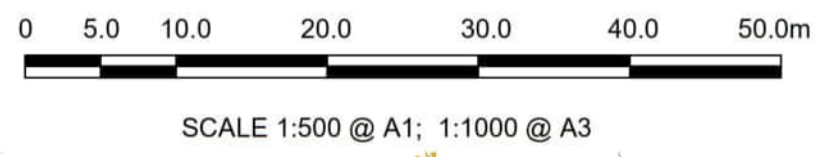
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  3. STORMWATER DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS AND/OR THE DRAINAGE DESIGN BASIS REPORT FOR CBC BUSCONNECTS.
  4. ALL LEVELS ARE IN METRES ABOVE ORDINANCE DATUM (MALIN HEAD DATUM), SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
  5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS SHALL 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. 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
  11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.
- ABBREVIATIONS:**
- ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION



**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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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Date: 28/03/23 | Scale: 1:500 @ A1, 1:1000 @ A3

Drawn: A.FLEMING | Checked: R.LOUGH | Approved: C.ACTON

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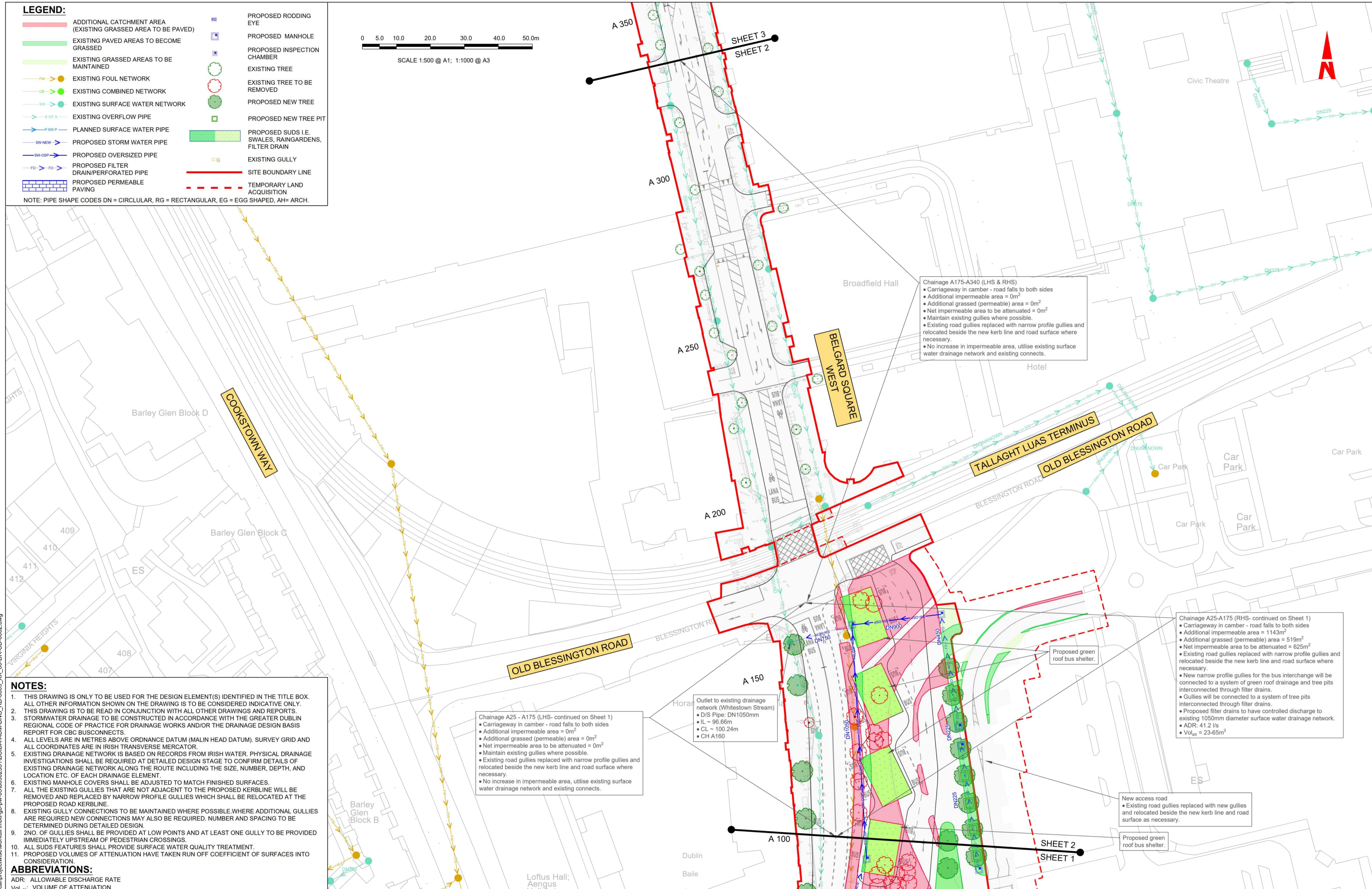
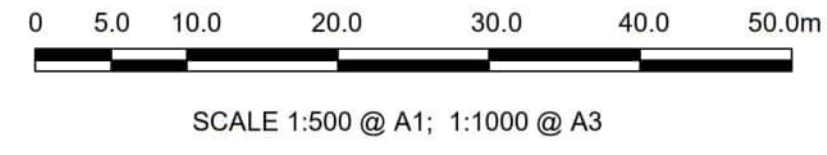
Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0001	Sheet Number: 01 of 56	Status: A	Rev: M01

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**LEGEND:**

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	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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.



Chainage A175-A340 (LHS & RHS)

- Carriageway in camber - road falls to both sides
- Additional impermeable area = 0m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 0m<sup>2</sup>
- Maintain existing gullies where possible.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- No increase in impermeable area, utilise existing surface water drainage network and existing connects.

Chainage A25 - A175 (LHS - continued on Sheet 1)

- Carriageway in camber - road falls to both sides
- Additional impermeable area = 0m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 0m<sup>2</sup>
- Maintain existing gullies where possible.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- No increase in impermeable area, utilise existing surface water drainage network and existing connects.

Chainage A25-A175 (RHS - continued on Sheet 1)

- Carriageway in camber - road falls to both sides
- Additional impermeable area = 1143m<sup>2</sup>
- Additional grassed (permeable) area = 519m<sup>2</sup>
- Net impermeable area to be attenuated = 625m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- New narrow profile gullies for the bus interchange will be connected to a system of green roof drainage and tree pits interconnected through filter drains.
- Gullies will be connected to a system of tree pits interconnected through filter drains.
- Proposed filter drains to have controlled discharge to existing 1050mm diameter surface water drainage network.
- ADR: 41.2 I/s
- Vol<sub>att</sub> = 23.65m<sup>3</sup>

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

**ABBREVIATIONS:**

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

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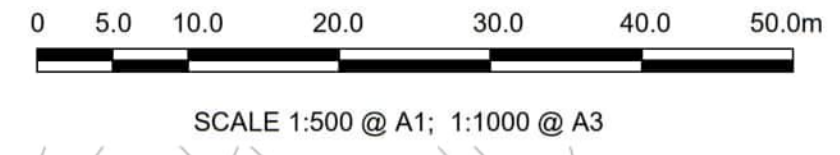
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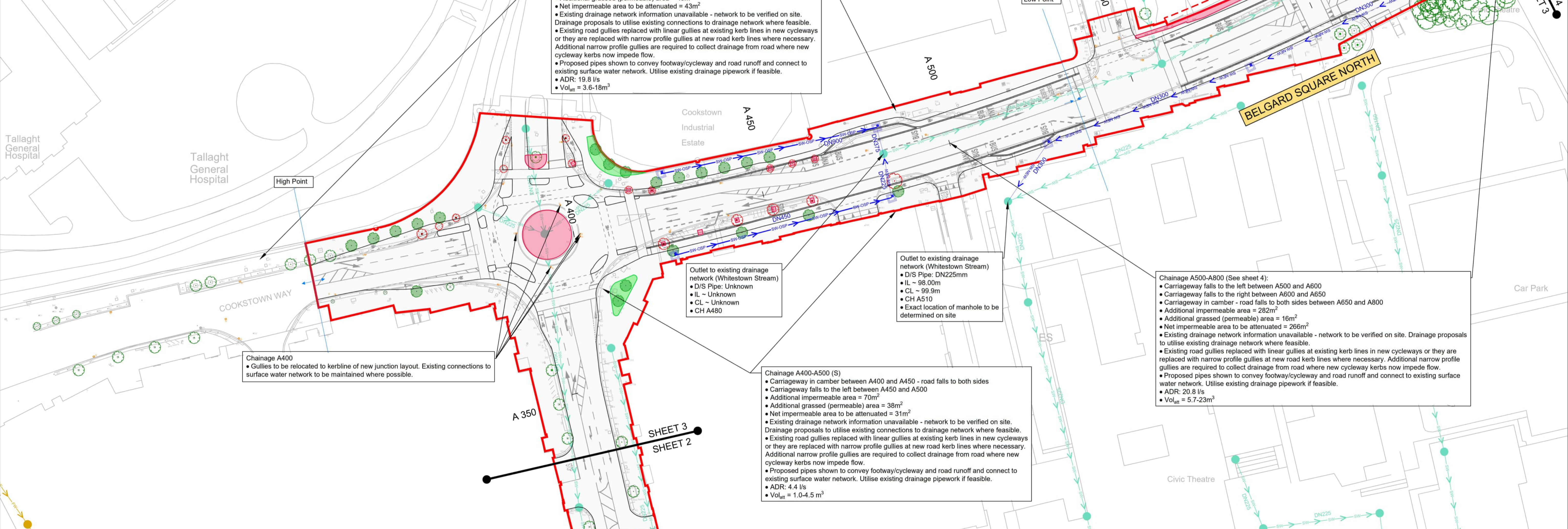
**LEGEND:**

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- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- PLANNED SURFACE WATER PIPE
- PROPOSED STORM WATER PIPE
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- PROPOSED RODDING EYE
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- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

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  - EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS SHALL 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.
  - 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  - ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
  - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.
- ABBREVIATIONS:**
- ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION



**HOSPITAL ENTRANCE**

Chainage A400-A500 (N)

- Carriageway in camber between A400 and A450 - road falls to both sides
- Carriageway falls to the left between A450 and A500
- Additional impermeable area = 86m<sup>2</sup>
- Additional grassed (permeable) area = 43m<sup>2</sup>
- Net impermeable area to be attenuated = 43m<sup>2</sup>
- Existing drainage network information unavailable - network to be verified on site. Drainage proposals to utilise existing connections to drainage network where feasible.
- Existing road gullies replaced with linear gullies at existing kerb lines in new cycleways or they are replaced with narrow profile gullies at new road kerb lines where necessary. Additional narrow profile gullies are required to collect drainage from road where new cycleway kerbs now impede flow.
- Proposed pipes shown to convey footway/cycleway and road runoff and connect to existing surface water network. Utilise existing drainage pipework if feasible.
- ADR: 19.8 l/s
- Vol<sub>att</sub> = 3.6-18m<sup>3</sup>

Outlet to existing drainage network (Whitestown Stream)

- D/S Pipe: Unknown
- IL - Unknown
- CL - Unknown
- CH A480

Chainage A500-A800 (See sheet 4):

- Carriageway falls to the left between A500 and A600
- Carriageway falls to the right between A600 and A650
- Carriageway in camber - road falls to both sides between A650 and A800
- Additional impermeable area = 282m<sup>2</sup>
- Additional grassed (permeable) area = 16m<sup>2</sup>
- Net impermeable area to be attenuated = 266m<sup>2</sup>
- Existing drainage network information unavailable - network to be verified on site. Drainage proposals to utilise existing drainage network where feasible.
- Existing road gullies replaced with linear gullies at existing kerb lines in new cycleways or they are replaced with narrow profile gullies at new road kerb lines where necessary. Additional narrow profile gullies are required to collect drainage from road where new cycleway kerbs now impede flow.
- Proposed pipes shown to convey footway/cycleway and road runoff and connect to existing surface water network. Utilise existing drainage pipework if feasible.
- ADR: 20.8 l/s
- Vol<sub>att</sub> = 5.7-23m<sup>3</sup>

Chainage A400-A500 (S)

- Carriageway in camber between A400 and A450 - road falls to both sides
- Carriageway falls to the left between A450 and A500
- Additional impermeable area = 70m<sup>2</sup>
- Additional grassed (permeable) area = 38m<sup>2</sup>
- Net impermeable area to be attenuated = 31m<sup>2</sup>
- Existing drainage network information unavailable - network to be verified on site. Drainage proposals to utilise existing connections to drainage network where feasible.
- Existing road gullies replaced with linear gullies at existing kerb lines in new cycleways or they are replaced with narrow profile gullies at new road kerb lines where necessary. Additional narrow profile gullies are required to collect drainage from road where new cycleway kerbs now impede flow.
- Proposed pipes shown to convey footway/cycleway and road runoff and connect to existing surface water network. Utilise existing drainage pipework if feasible.
- ADR: 4.4 l/s
- Vol<sub>att</sub> = 1.0-4.5 m<sup>3</sup>

Chainage A400

- Gullies to be relocated to kerblines of new junction layout. Existing connections to surface water network to be maintained where possible.

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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM**, **MOTT MACDONALD**

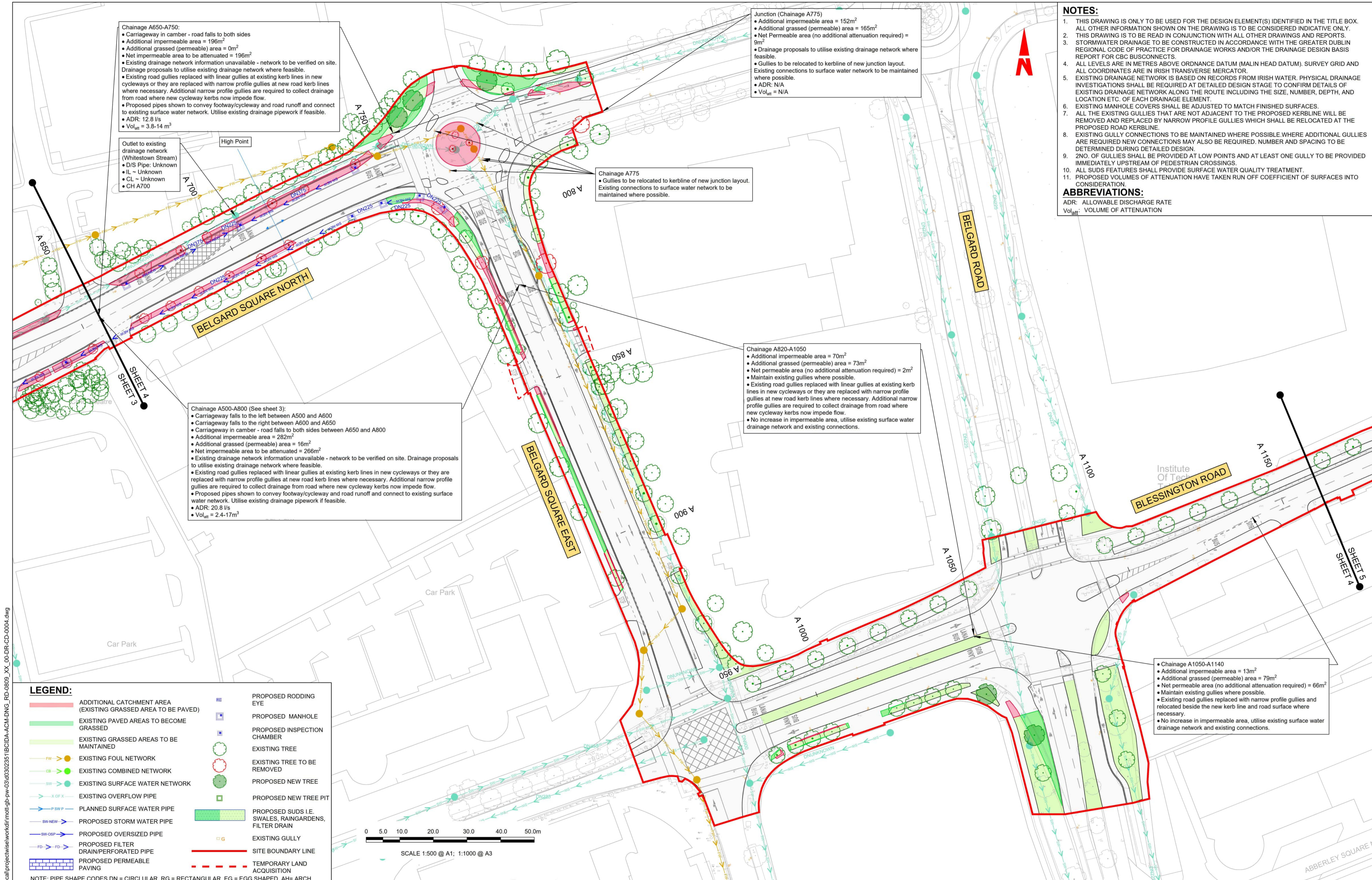
Date: 28/03/23 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDA Originator Code: ACM

Drawn: A.FLEMING Checked: R.LOUGH Approved: C.ACTON

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0003	Sheet Number: 03 of 56	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



**Chainage A650-A750:**

- Carriageway in camber - road falls to both sides
- Additional impermeable area = 196m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 196m<sup>2</sup>
- Existing drainage network information unavailable - network to be verified on site.
- Drainage proposals to utilise existing drainage network where feasible.
- Existing road gullies replaced with linear gullies at existing kerb lines in new cycleways or they are replaced with narrow profile gullies at new road kerb lines where necessary. Additional narrow profile gullies are required to collect drainage from road where new cycleway kerbs now impede flow.
- Proposed pipes shown to convey footway/cycleway and road runoff and connect to existing surface water network. Utilise existing drainage pipework if feasible.
- ADR: 12.8 l/s
- Vol<sub>att</sub> = 3.8-14 m<sup>3</sup>

**Outlet to existing drainage network (Whitestown Stream)**

- D/S Pipe: Unknown
- IL - Unknown
- CL - Unknown
- CH A700

**Junction (Chainage A775)**

- Additional impermeable area = 152m<sup>2</sup>
- Additional grassed (permeable) area = 165m<sup>2</sup>
- Net Permeable area (no additional attenuation required) = 9m<sup>2</sup>
- Drainage proposals to utilise existing drainage network where feasible.
- Gullies to be relocated to kerbline of new junction layout. Existing connections to surface water network to be maintained where possible.
- ADR: N/A
- Vol<sub>att</sub> = N/A

**Chainage A775**

- Gullies to be relocated to kerbline of new junction layout. Existing connections to surface water network to be maintained where possible.

**Chainage A820-A1050**

- Additional impermeable area = 70m<sup>2</sup>
- Additional grassed (permeable) area = 73m<sup>2</sup>
- Net permeable area (no additional attenuation required) = 2m<sup>2</sup>
- Maintain existing gullies where possible.
- Existing road gullies replaced with linear gullies at existing kerb lines in new cycleways or they are replaced with narrow profile gullies at new road kerb lines where necessary. Additional narrow profile gullies are required to collect drainage from road where new cycleway kerbs now impede flow.
- No increase in impermeable area, utilise existing surface water drainage network and existing connections.

**Chainage A500-A800 (See sheet 3):**

- Carriageway falls to the left between A500 and A600
- Carriageway falls to the right between A600 and A650
- Carriageway in camber - road falls to both sides between A650 and A800
- Additional impermeable area = 282m<sup>2</sup>
- Additional grassed (permeable) area = 16m<sup>2</sup>
- Net impermeable area to be attenuated = 266m<sup>2</sup>
- Existing drainage network information unavailable - network to be verified on site. Drainage proposals to utilise existing drainage network where feasible.
- Existing road gullies replaced with linear gullies at existing kerb lines in new cycleways or they are replaced with narrow profile gullies at new road kerb lines where necessary. Additional narrow profile gullies are required to collect drainage from road where new cycleway kerbs now impede flow.
- Proposed pipes shown to convey footway/cycleway and road runoff and connect to existing surface water network. Utilise existing drainage pipework if feasible.
- ADR: 20.8 l/s
- Vol<sub>att</sub> = 2.4-17m<sup>3</sup>

**Chainage A1050-A1140**

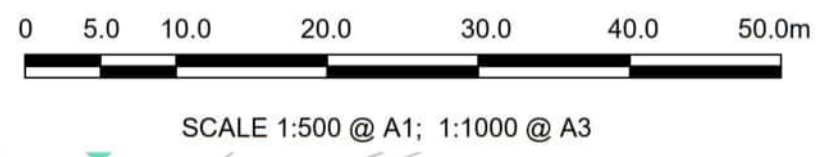
- Additional impermeable area = 13m<sup>2</sup>
- Additional grassed (permeable) area = 79m<sup>2</sup>
- Net permeable area (no additional attenuation required) = 66m<sup>2</sup>
- Maintain existing gullies where possible.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- No increase in impermeable area, utilise existing surface water drainage network and existing connections.

- NOTES:**
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  5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS SHALL 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. 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
  11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.
- ABBREVIATIONS:**
- ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION

**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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 = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.

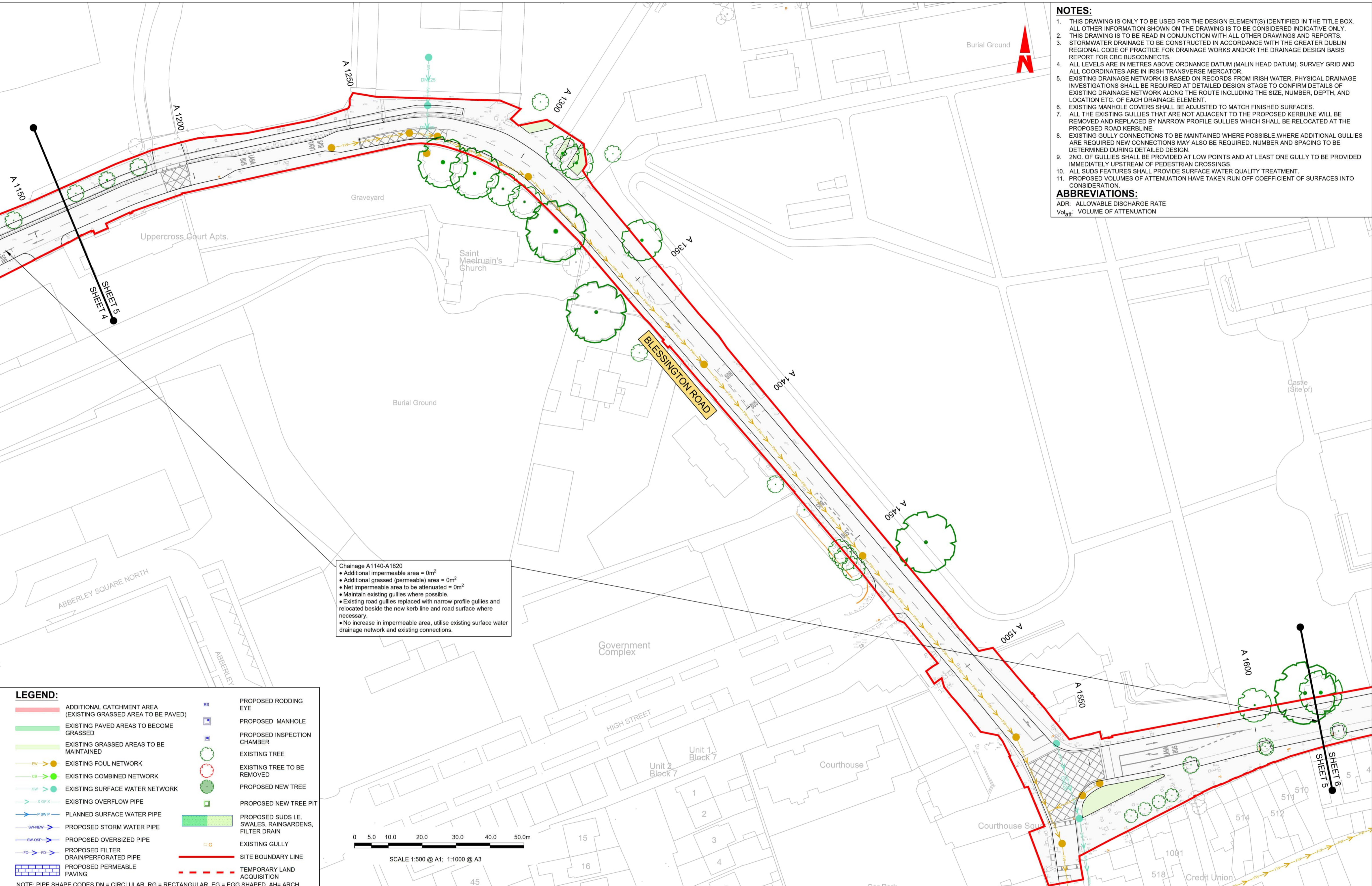


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<p>Date 28/03/23 Scale 1:500 @ A1 1:1000 @ A3 Drawn A.FLEMING Checked R.LOUGH Approved C.ACTON</p>					<p>Project Code BCIDA Originator Code ACM QMS Code</p>					<p>Drawing Title <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b></p>		<p>Drawing File Name BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0004 Sheet Number 04 of 56 Status A Rev M01</p>			

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



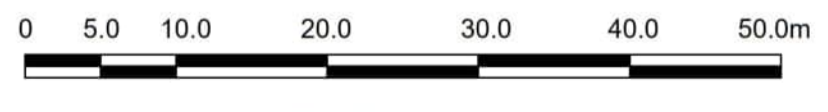
Chainage A1140-A1620

- Additional impermeable area = 0m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 0m<sup>2</sup>
- Maintain existing gullies where possible.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- No increase in impermeable area, utilise existing surface water drainage network and existing connections.

**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 NETWORK	EXISTING TREE TO BE REMOVED
EXISTING SURFACE WATER NETWORK	PROPOSED NEW TREE
EXISTING OVERFLOW PIPE	PROPOSED NEW TREE PIT
PLANNED SURFACE WATER PIPE	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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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM** **MOTT MACDONALD**

Date: 28/03/23 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDA Originator Code: ACM

Drawn: A.FLEMING Checked: R.LOUGH Approved: C.ACTON

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0005	Sheet Number: 05 of 56	Status: A	Rev: M01

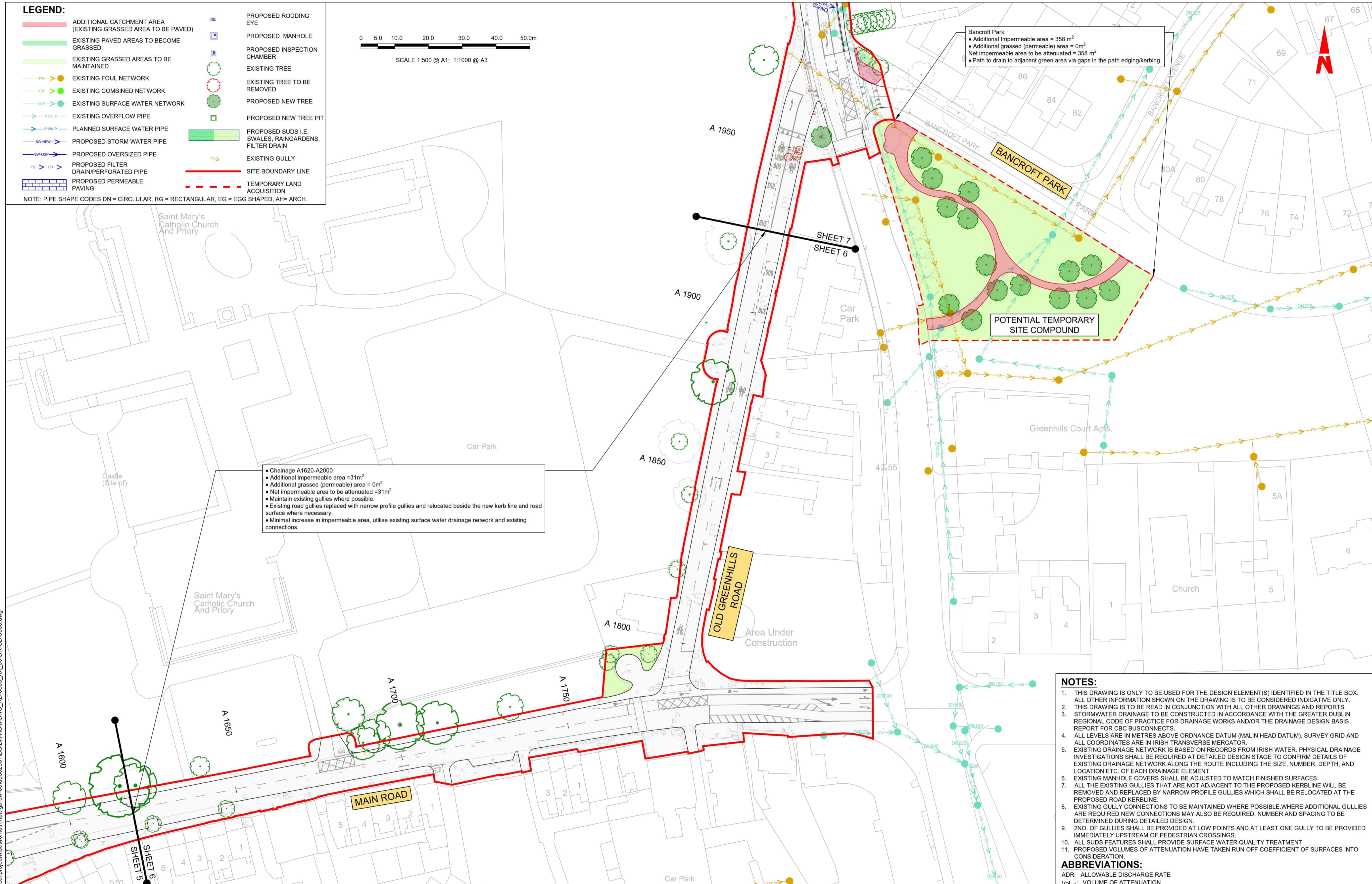
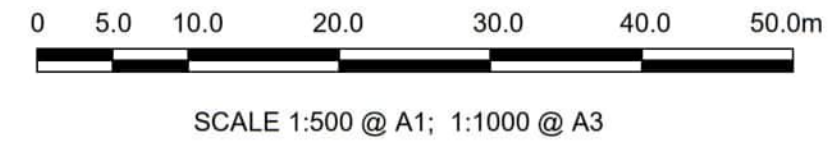
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**LEGEND:**

- 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 NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- PLANNED SURFACE WATER PIPE
- 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.



- Chainage A1620-A2000
- Additional impermeable area = 31m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 31m<sup>2</sup>
- Maintain existing gullies where possible.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Minimal increase in impermeable area, utilise existing surface water drainage network and existing connections.

**Bancroft Park**

- Additional Impermeable area = 358 m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 358 m<sup>2</sup>
- Path to drain to adjacent green area via gaps in the path edging/kerbing.

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  - EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS SHALL BE REQUIRED AT DETAILED DESIGN STAGE TO CONFIRM DETAILS OF EXISTING DRAINAGE NETWORK ALONG THE ROUTE INCLUDING THE SIZE, NUMBER, DEPTH, AND LOCATION ETC. OF EACH DRAINAGE ELEMENT.
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  - 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.
  - 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  - ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
  - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

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

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

Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM**, **MOTT MACDONALD**

Date: 28/03/23  
 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDA  
 Originator Code: ACM

Drawn: A.FLEMING  
 Checked: R.LOUGH  
 Approved: C.ACTON

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

Drawing Title: **TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS**

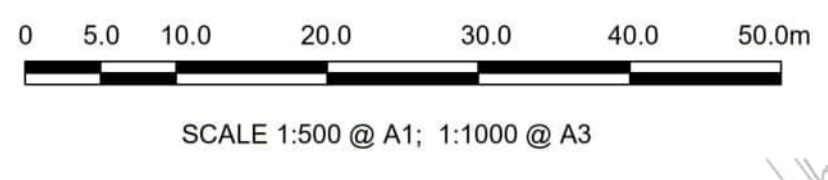
Drawing File Name: BCIDA-ACM-DNG\_RD-0809\_XX\_00-DR-CD-0006

Sheet Number: 06 of 56  
 Status: A  
 Rev: M01

**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 NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- PLANNED SURFACE WATER PIPE
- 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.



TECHNOLOGICAL UNIVERSITY DUBLIN

Chainage A2000-A2100

- Carriageway falls to the right.
- No changes to impermeable area.
- Existing drainage network to be maintained.
- Existing gullies to be maintained where feasible, otherwise to be replaced with narrow profile gullies and realigned with new kerb line where required.
- New linear gullies to collect runoff from footway and cycleway.
- Proposed pipes to convey footway and cycleway runoff on the west side of the road and connect to existing surface water network.
- A near surface drainage solution equivalent of DN225 pipe should be considered between chainage A2020 to A2080 to reduce impact on existing tree root protection areas (e.g. combined kerb and drainage units, slot drains, linear drains). Linear gullies to collect drainage from footway and cycleway where possible outside the root protection area section.

Bancroft Park

- Additional Impermeable area = 358 m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 358 m<sup>2</sup>
- Path to drain to adjacent green area via gaps in the path edging/kerbing.

Outlet to existing drainage network (River Poddle)

- D/S Pipe: Unknown
- IL ~ 86.07
- CL ~ 88.95
- CH A2000

EXISTING I.T. ENTRANCE JUNCTION UPGRADE BY OTHERS

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**ABBREVIATIONS:**  
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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM** MOTT MACDONALD

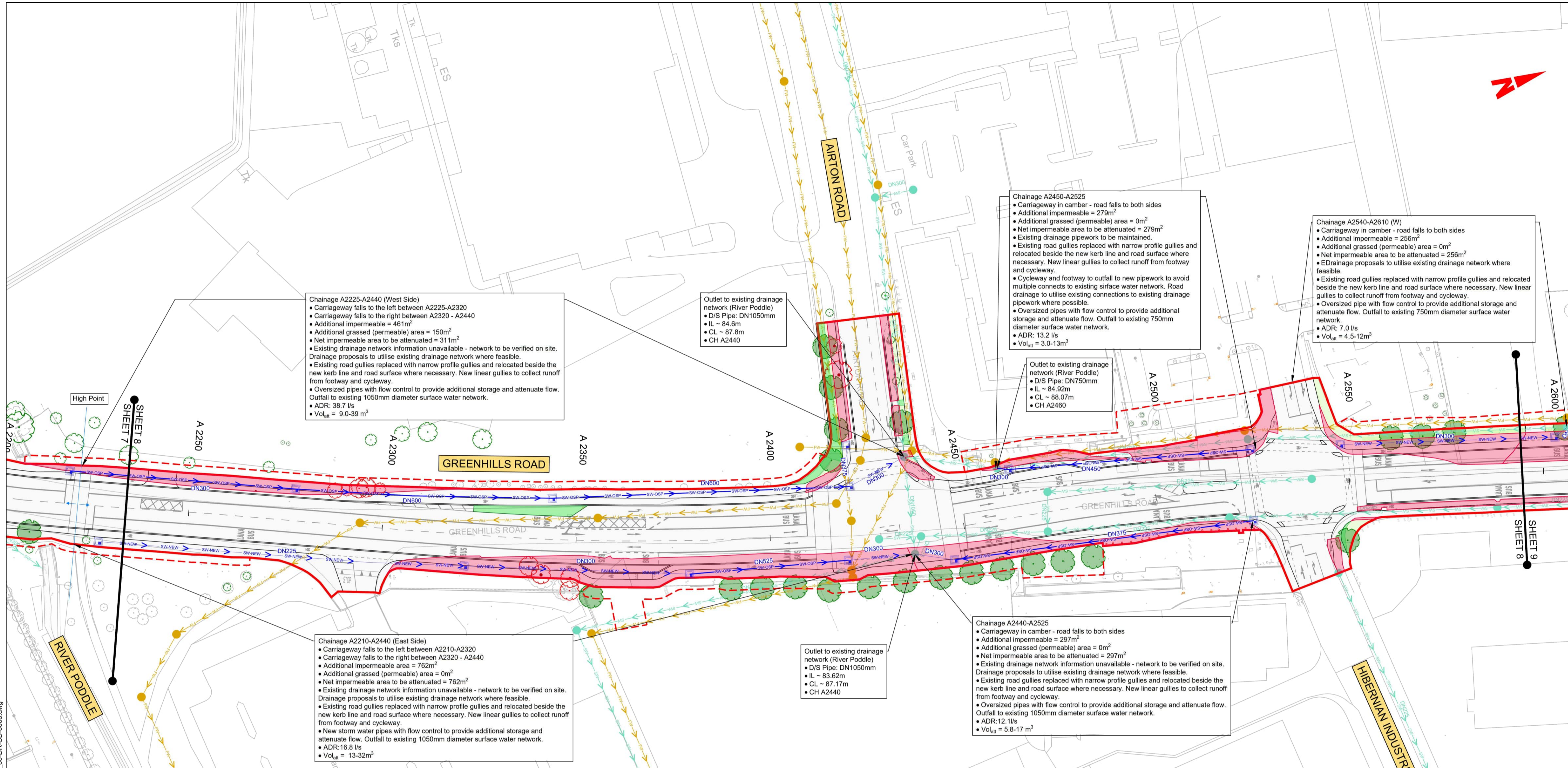
Date: 28/03/23 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDA Originator Code: ACM

Drawn: A.FLEMING Checked: R.LOUGH Approved: C.ACTON

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0007	Sheet Number: 07 of 56	Status: A	Rev: M01

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**Chainage A2225-A2440 (West Side)**

- Carriageway falls to the left between A2225-A2320
- Carriageway falls to the right between A2320 - A2440
- Additional impermeable = 461m<sup>2</sup>
- Additional grassed (permeable) area = 150m<sup>2</sup>
- Net impermeable area to be attenuated = 311m<sup>2</sup>
- Existing drainage network information unavailable - network to be verified on site. Drainage proposals to utilise existing drainage network where feasible.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary. New linear gullies to collect runoff from footway and cycleway.
- Oversized pipes with flow control to provide additional storage and attenuate flow. Outfall to existing 1050mm diameter surface water network.
- ADR: 38.7 l/s
- Vol<sub>att</sub> = 9.0-39 m<sup>3</sup>

**Outlet to existing drainage network (River Puddle)**

- D/S Pipe: DN1050mm
- IL ~ 84.6m
- CL ~ 87.8m
- CH A2440

**Chainage A2450-A2525**

- Carriageway in camber - road falls to both sides
- Additional impermeable = 279m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 279m<sup>2</sup>
- Existing drainage pipework to be maintained.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary. New linear gullies to collect runoff from footway and cycleway.
- Cycleway and footway to outfall to new pipework to avoid multiple connects to existing surface water network. Road drainage to utilise existing connections to existing drainage pipework where possible.
- Oversized pipes with flow control to provide additional storage and attenuate flow. Outfall to existing 750mm diameter surface water network.
- ADR: 13.2 l/s
- Vol<sub>att</sub> = 3.0-13m<sup>3</sup>

**Outlet to existing drainage network (River Puddle)**

- D/S Pipe: DN750mm
- IL ~ 84.92m
- CL ~ 88.07m
- CH A2460

**Chainage A2540-A2610 (W)**

- Carriageway in camber - road falls to both sides
- Additional impermeable = 256m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 256m<sup>2</sup>
- Existing drainage proposals to utilise existing drainage network where feasible.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary. New linear gullies to collect runoff from footway and cycleway.
- Oversized pipe with flow control to provide additional storage and attenuate flow. Outfall to existing 750mm diameter surface water network.
- ADR: 7.0 l/s
- Vol<sub>att</sub> = 4.5-12m<sup>3</sup>

**Chainage A2210-A2440 (East Side)**

- Carriageway falls to the left between A2210-A2320
- Carriageway falls to the right between A2320 - A2440
- Additional impermeable area = 762m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 762m<sup>2</sup>
- Existing drainage network information unavailable - network to be verified on site. Drainage proposals to utilise existing drainage network where feasible.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary. New linear gullies to collect runoff from footway and cycleway.
- New storm water pipes with flow control to provide additional storage and attenuate flow. Outfall to existing 1050mm diameter surface water network.
- ADR: 16.8 l/s
- Vol<sub>att</sub> = 13-32m<sup>3</sup>

**Outlet to existing drainage network (River Puddle)**

- D/S Pipe: DN1050mm
- IL ~ 83.62m
- CL ~ 87.17m
- CH A2440

**Chainage A2440-A2525**

- Carriageway in camber - road falls to both sides
- Additional impermeable = 297m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 297m<sup>2</sup>
- Existing drainage network information unavailable - network to be verified on site. Drainage proposals to utilise existing drainage network where feasible.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary. New linear gullies to collect runoff from footway and cycleway.
- Oversized pipes with flow control to provide additional storage and attenuate flow. Outfall to existing 1050mm diameter surface water network.
- ADR: 12.1 l/s
- Vol<sub>att</sub> = 5.8-17 m<sup>3</sup>

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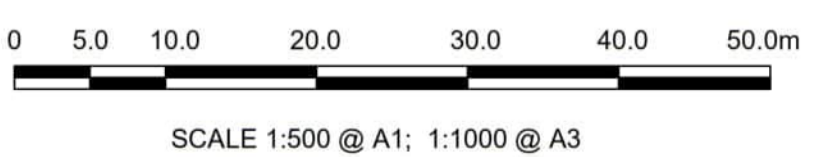
**ABBREVIATIONS:**

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

**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE CHAMBER
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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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Client: **NTA**  
Údaráis Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **AECOM** **MOTT MACDONALD**

Date: 28/03/23  
Scale: 1:500 @ A1, 1:1000 @ A3

Drawn: A.FLEMING  
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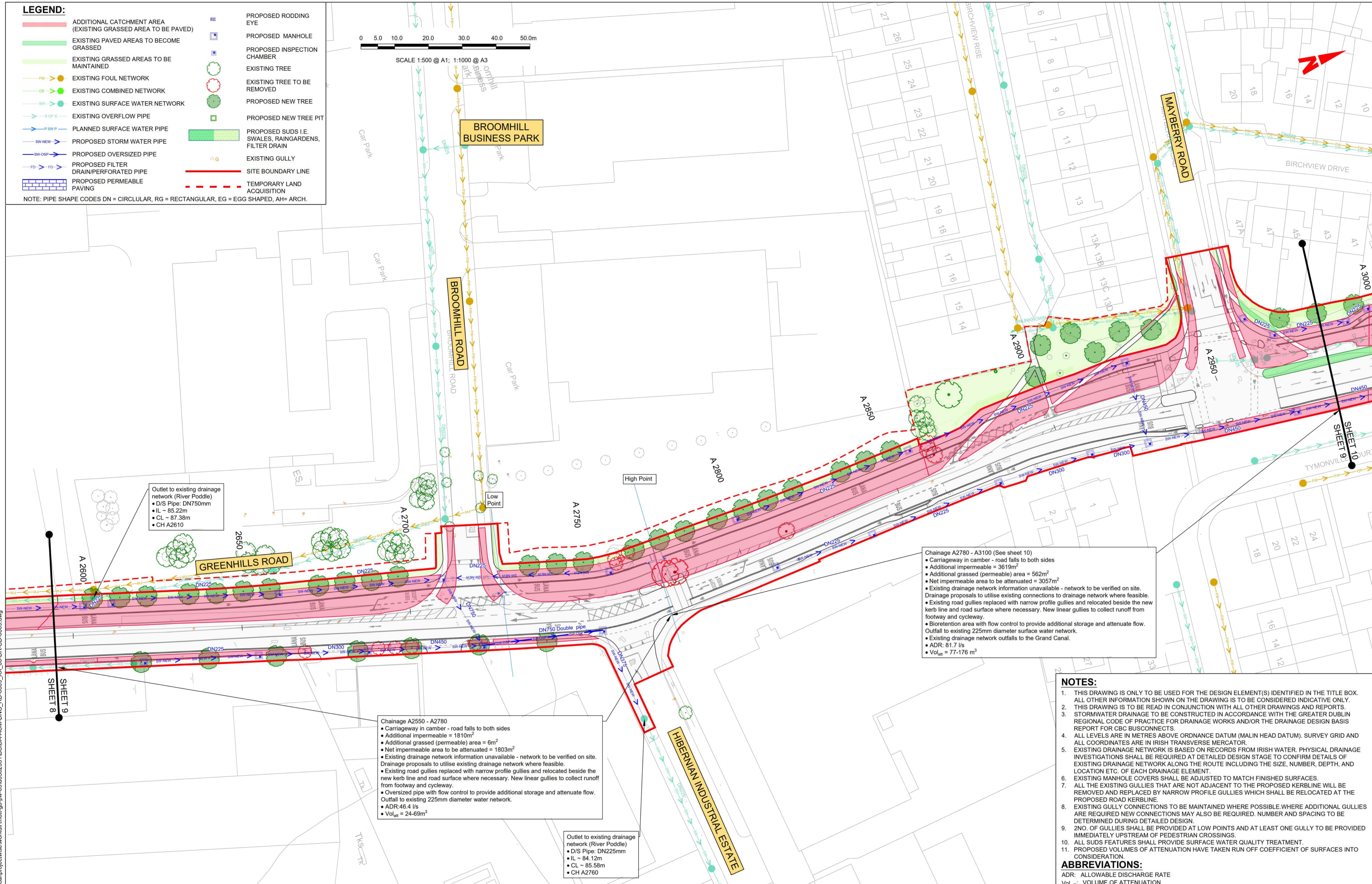
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Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0008	Sheet Number: 08 of 56	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY

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Outlet to existing drainage network (River Poddle)

- D/S Pipe: DN750mm
- IL - 85.22m
- CL - 87.38m
- CH A2610

Chainage A2780 - A3100 (See sheet 10)

- Carriageway in camber - road falls to both sides
- Additional impermeable = 3619m<sup>2</sup>
- Additional grassed (permeable) area = 562m<sup>2</sup>
- Net impermeable area to be attenuated = 3057m<sup>2</sup>
- Existing drainage network information unavailable - network to be verified on site.
- Drainage proposals to utilise existing connections to drainage network where feasible.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary. New linear gullies to collect runoff from footway and cycleway.
- Bioretention area with flow control to provide additional storage and attenuate flow.
- Outfall to existing 225mm diameter surface water network.
- Existing drainage network outfalls to the Grand Canal.
- ADR: 81.7 l/s
- Vol<sub>att</sub> = 77-176 m<sup>3</sup>

Chainage A2550 - A2780

- Carriageway in camber - road falls to both sides
- Additional impermeable = 1810m<sup>2</sup>
- Additional grassed (permeable) area = 6m<sup>2</sup>
- Net impermeable area to be attenuated = 1803m<sup>2</sup>
- Existing drainage network information unavailable - network to be verified on site.
- Drainage proposals to utilise existing drainage network where feasible.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary. New linear gullies to collect runoff from footway and cycleway.
- Oversized pipe with flow control to provide additional storage and attenuate flow.
- Outfall to existing 225mm diameter water network.
- ADR: 46.4 l/s
- Vol<sub>att</sub> = 24-69m<sup>3</sup>

Outlet to existing drainage network (River Poddle)

- D/S Pipe: DN225mm
- IL - 84.12m
- CL - 85.58m
- CH A2760

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

**ABBREVIATIONS:**

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

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

Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM**, **MOTT MACDONALD**

Date: 28/03/23  
Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDA  
Originator Code: ACM

Drawn: A.FLEMING  
Checked: R.LOUGH  
Approved: C.ACTON

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

Drawing Title: **TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS**

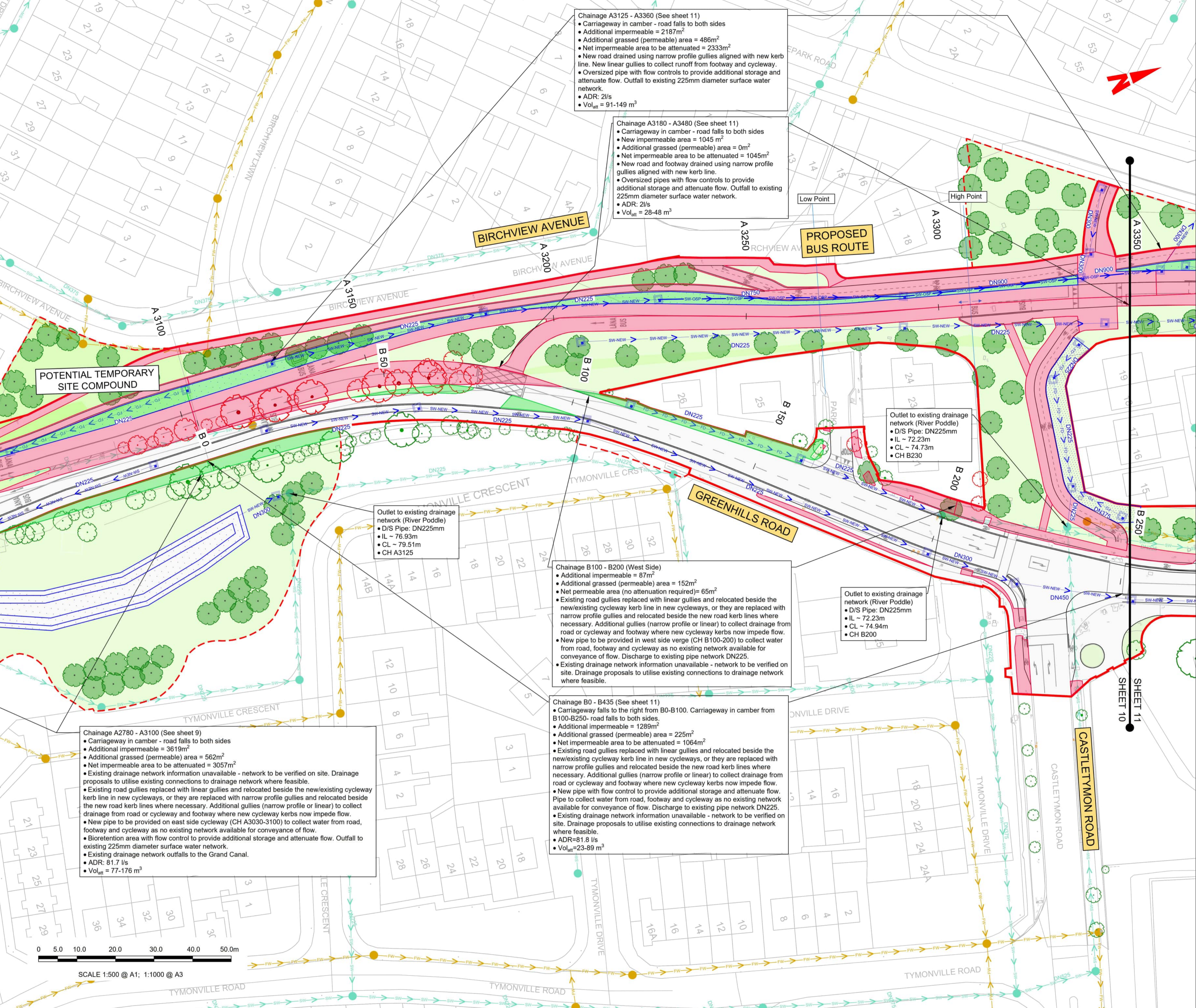
Drawing File Name: BCIDA-ACM-DNG\_RD-0809\_XX\_00-DR-CD-0009

Sheet Number: 09 of 56  
Status: A  
Rev: M01

**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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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**Chainage A3125 - A3360 (See sheet 11)**

- Carriageway in camber - road falls to both sides
- Additional impermeable = 2187m<sup>2</sup>
- Additional grassed (permeable) area = 486m<sup>2</sup>
- Net impermeable area to be attenuated = 2333m<sup>2</sup>
- New road drained using narrow profile gullies aligned with new kerb line. New linear gullies to collect runoff from footway and cycleway.
- Oversized pipe with flow controls to provide additional storage and attenuate flow. Outfall to existing 225mm diameter surface water network.
- ADR: 2/s
- Vol<sub>att</sub> = 91-149 m<sup>3</sup>

**Chainage A3180 - A3480 (See sheet 11)**

- Carriageway in camber - road falls to both sides
- New impermeable area = 1045 m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 1045m<sup>2</sup>
- New road and footway drained using narrow profile gullies aligned with new kerb line.
- Oversized pipes with flow controls to provide additional storage and attenuate flow. Outfall to existing 225mm diameter surface water network.
- ADR: 2/s
- Vol<sub>att</sub> = 28-48 m<sup>3</sup>

**Chainage B100 - B200 (West Side)**

- Additional impermeable = 87m<sup>2</sup>
- Additional grassed (permeable) area = 152m<sup>2</sup>
- Net permeable area (no attenuation required) = 65m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New pipe to be provided in west side verge (CH B100-200) to collect water from road, footway and cycleway as no existing network available for conveyance of flow. Discharge to existing pipe network DN225.
- Existing drainage network information unavailable - network to be verified on site. Drainage proposals to utilise existing connections to drainage network where feasible.

**Chainage B0 - B435 (See sheet 11)**

- Carriageway falls to the right from B0-B100. Carriageway in camber from B100-B250 - road falls to both sides.
- Additional impermeable = 1289m<sup>2</sup>
- Additional grassed (permeable) area = 225m<sup>2</sup>
- Net impermeable area to be attenuated = 1064m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New pipe with flow control to provide additional storage and attenuate flow. Pipe to collect water from road, footway and cycleway as no existing network available for conveyance of flow. Discharge to existing pipe network DN225.
- Existing drainage network information unavailable - network to be verified on site. Drainage proposals to utilise existing connections to drainage network where feasible.
- ADR=81.8 l/s
- Vol<sub>att</sub>=23-89 m<sup>3</sup>

**Chainage A2780 - A3100 (See sheet 9)**

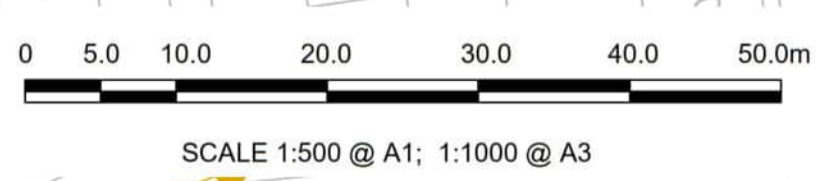
- Carriageway in camber - road falls to both sides
- Additional impermeable = 3619m<sup>2</sup>
- Additional grassed (permeable) area = 562m<sup>2</sup>
- Net impermeable area to be attenuated = 3057m<sup>2</sup>
- Existing drainage network information unavailable - network to be verified on site. Drainage proposals to utilise existing connections to drainage network where feasible.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New pipe to be provided on east side cycleway (CH A3030-3100) to collect water from road, footway and cycleway as no existing network available for conveyance of flow.
- Bioretention area with flow control to provide additional storage and attenuate flow. Outfall to existing 225mm diameter surface water network.
- Existing drainage network outfalls to the Grand Canal.
- ADR: 81.7 l/s
- Vol<sub>att</sub> = 77-176 m<sup>3</sup>

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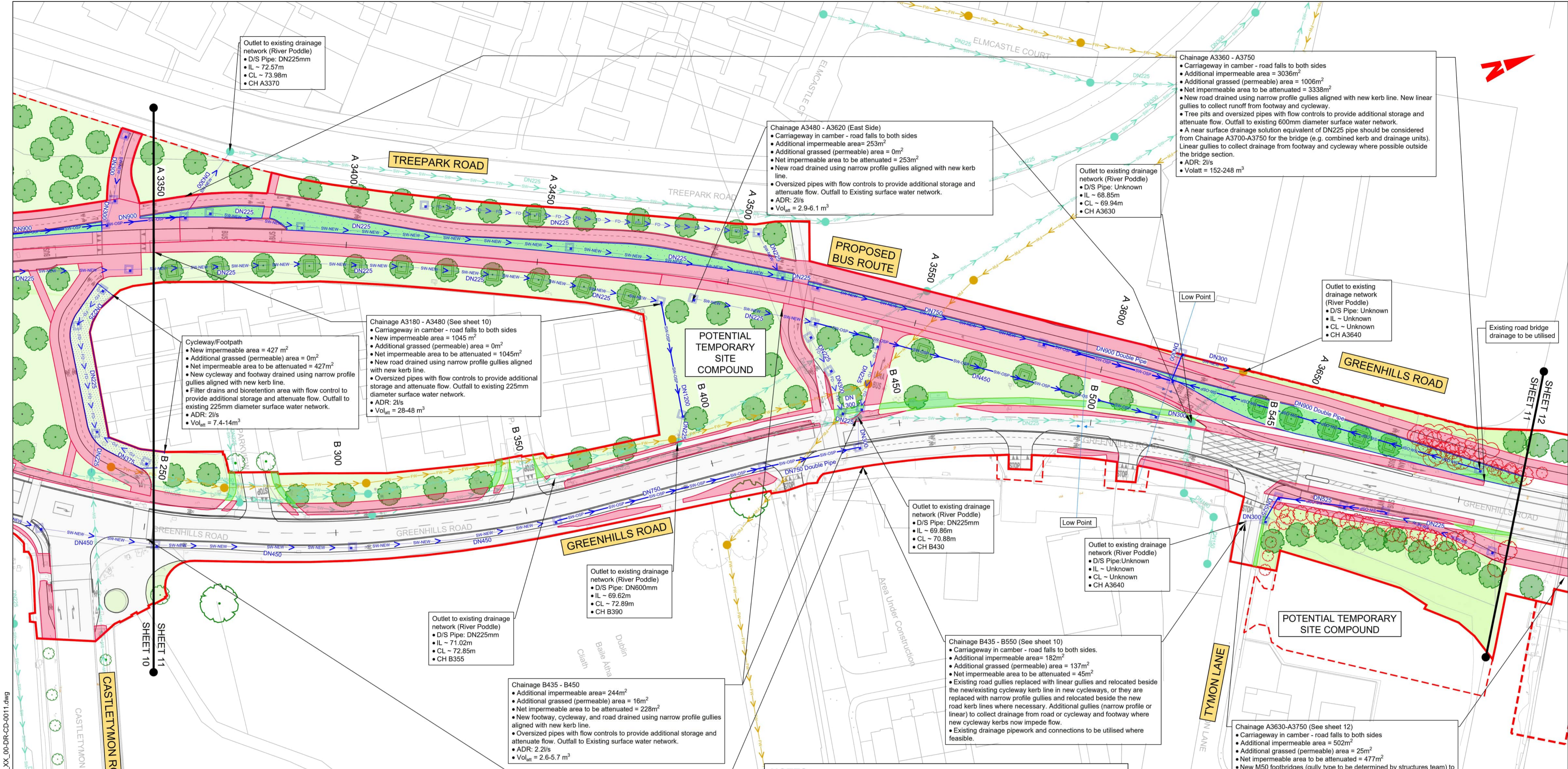
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Rev	Date	Drn	Chk'd	App'd	Description	Client	Engineering Designer	Programme Title				
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING	<b>NTA</b> Údaráis Náisiúnta Iompair National Transport Authority	<b>AECOM</b> <b>MOTT MACDONALD</b>	<b>BUSCONNECTS DUBLIN</b> <b>CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>				
						Date: 28/03/23	Scale: 1:500 @ A1 1:1000 @ A3	Drawn: A.FLEMING	Checked: R.LOUGH	Approved: C.ACTON		
						Project Code: BCIDA	Originator Code: ACM	QMS Code:	Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0010	Sheet Number: 10 of 56	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 NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- PLANNED SURFACE WATER PIPE
- 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 CODING DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

**Chainage B0 - B435 (See sheet 10)**

- Carriageway in camber - road falls to both sides.
- Additional impermeable area= 1289m<sup>2</sup>
- Additional grassed (permeable) area = 225m<sup>2</sup>
- Net impermeable area to be attenuated = 1064m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New pipe with flow control to provide additional storage and attenuate flow. Outfall to Existing surface water network.
- ADR: 2.2/s
- Vol<sub>att</sub> = 2.6-5.7 m<sup>3</sup>

**Chainage A3180 - A3480 (See sheet 10)**

- Carriageway in camber - road falls to both sides
- New impermeable area = 1045 m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 1045m<sup>2</sup>
- New road drained using narrow profile gullies aligned with new kerb line.
- Oversized pipes with flow controls to provide additional storage and attenuate flow. Outfall to existing 225mm diameter surface water network.
- ADR: 2/s
- Vol<sub>att</sub> = 28-48 m<sup>3</sup>

**Chainage A3350 - A3750**

- Carriageway in camber - road falls to both sides
- Additional impermeable area = 3036m<sup>2</sup>
- Additional grassed (permeable) area = 1006m<sup>2</sup>
- Net impermeable area to be attenuated = 3338m<sup>2</sup>
- New road drained using narrow profile gullies aligned with new kerb line. New linear gullies to collect runoff from footway and cycleway.
- Tree pits and oversized pipes with flow controls to provide additional storage and attenuate flow. Outfall to existing 600mm diameter surface water network.
- A near surface drainage solution equivalent of DN225 pipe should be considered from Chainage A3700-A3750 for the bridge (e.g. combined kerb and drainage units). Linear gullies to collect drainage from footway and cycleway where possible outside the bridge section.
- ADR: 2/s
- Vol<sub>att</sub> = 152-248 m<sup>3</sup>

**Chainage A3480 - A3620 (East Side)**

- Carriageway in camber - road falls to both sides
- Additional impermeable area= 253m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 253m<sup>2</sup>
- New road drained using narrow profile gullies aligned with new kerb line.
- Oversized pipes with flow controls to provide additional storage and attenuate flow. Outfall to Existing surface water network.
- ADR: 2/s
- Vol<sub>att</sub> = 2.9-6.1 m<sup>3</sup>

**Chainage A3630 - A3750 (See sheet 12)**

- Carriageway in camber - road falls to both sides
- Additional impermeable area = 502m<sup>2</sup>
- Additional grassed (permeable) area = 25m<sup>2</sup>
- Net impermeable area to be attenuated = 477m<sup>2</sup>
- New M50 footbridges (gully type to be determined by structures team) to outfall to proposed surface water pipe at location shown. Existing road bridge to outfall as per existing.
- New road drained using narrow profile gullies aligned with new kerb line and new linear gullies to collect runoff from footway and cycleway off new bridge structure.
- Oversized pipe with flow control to provide additional storage and attenuate flow. Outfall to existing surface water network.
- A near surface drainage solution equivalent of DN225 pipe should be considered from Chainage A3680-A3750 for the bridge and to reduce impact on existing tree root protection areas (e.g. combined kerb and drainage units, slot drains, linear drains). Linear gullies to collect drainage from footway and cycleway where possible outside root protection area section.
- ADR: 5.8/s
- Vol<sub>att</sub> = 7.0-15m<sup>3</sup>

**Chainage B435 - B450 (See sheet 10)**

- Carriageway in camber - road falls to both sides.
- Additional impermeable area= 182m<sup>2</sup>
- Additional grassed (permeable) area = 137m<sup>2</sup>
- Net impermeable area to be attenuated = 45m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Existing drainage pipework and connections to be utilised where feasible.

**Chainage B435 - B450**

- Additional impermeable area= 244m<sup>2</sup>
- Additional grassed (permeable) area = 16m<sup>2</sup>
- Net impermeable area to be attenuated = 228m<sup>2</sup>
- New footway, cycleway, and road drained using narrow profile gullies aligned with new kerb line.
- Oversized pipes with flow controls to provide additional storage and attenuate flow. Outfall to Existing surface water network.
- ADR: 2.2/s
- Vol<sub>att</sub> = 2.6-5.7 m<sup>3</sup>

**Chainage B435 - B450 (See sheet 10)**

- Carriageway in camber - road falls to both sides.
- Additional impermeable area= 1289m<sup>2</sup>
- Additional grassed (permeable) area = 225m<sup>2</sup>
- Net impermeable area to be attenuated = 1064m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New pipe with flow control to provide additional storage and attenuate flow. Outfall to Existing surface water network.
- ADR: 2.2/s
- Vol<sub>att</sub> = 2.6-5.7 m<sup>3</sup>

**Chainage B0 - B435 (See sheet 10)**

- Carriageway in camber - road falls to both sides.
- Additional impermeable area= 1289m<sup>2</sup>
- Additional grassed (permeable) area = 225m<sup>2</sup>
- Net impermeable area to be attenuated = 1064m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New pipe with flow control to provide additional storage and attenuate flow. Outfall to Existing surface water network.
- ADR: 2.2/s
- Vol<sub>att</sub> = 2.6-5.7 m<sup>3</sup>

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

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

**Engineering Designer:** AECOM, MOTT MACDONALD

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

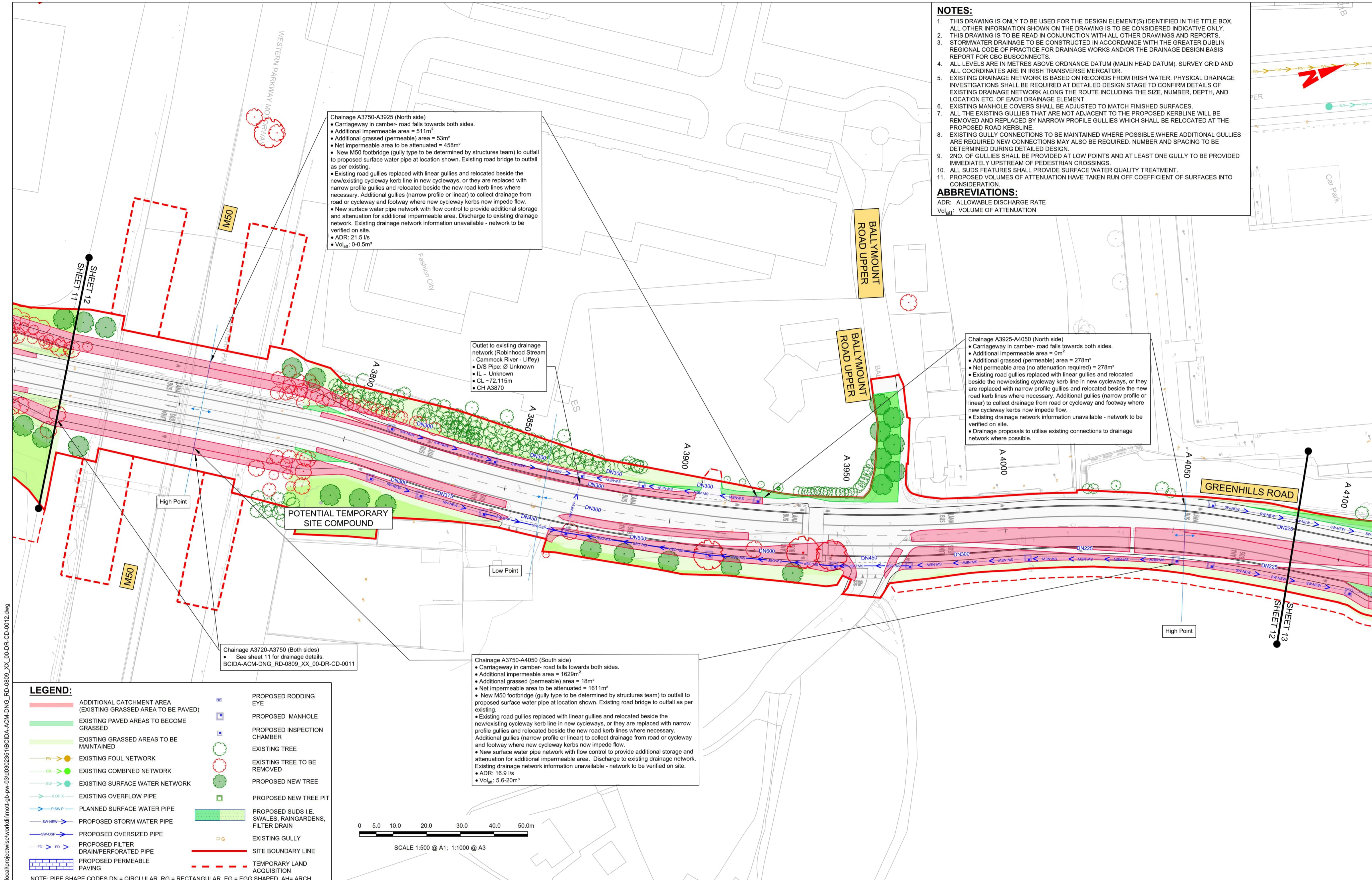
**Drawing Title:** TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME  
PROPOSED SURFACE WATER DRAINAGE WORKS

**Drawing File Name:** BCIDA-ACM-DNG\_RD-0809\_XX\_00-DR-CD-0011

**Sheet Number:** 11 of 56

**Status:** A

**Rev:** M01



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

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

Chainage A3750-A3925 (North side)

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 511m<sup>2</sup>
- Additional grassed (permeable) area = 53m<sup>2</sup>
- Net impermeable area to be attenuated = 458m<sup>2</sup>
- New M50 footbridge (gully type to be determined by structures team) to outfall to proposed surface water pipe at location shown. Existing road bridge to outfall as per existing.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network. Existing drainage network information unavailable - network to be verified on site.
- ADR: 21.5 l/s
- Vol<sub>att</sub>: 0-0.5m<sup>3</sup>

Outlet to existing drainage network (Robinhood Stream - Cammock River - Liffey)

- D/S Pipe: Ø Unknown
- IL - Unknown
- CL -72.115m
- CH A3870

Chainage A3925-A4050 (North side)

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 0m<sup>2</sup>
- Additional grassed (permeable) area = 278m<sup>2</sup>
- Net permeable area (no attenuation required) = 278m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Existing drainage network information unavailable - network to be verified on site.
- Drainage proposals to utilise existing connections to drainage network where possible.

Chainage A3720-A3750 (Both sides)

- See sheet 11 for drainage details.
- BCIDA-ACM-DNG\_RD-0809\_XX\_00-DR-CD-0011

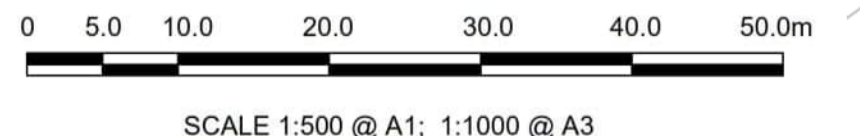
Chainage A3750-A4050 (South side)

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 1629m<sup>2</sup>
- Additional grassed (permeable) area = 18m<sup>2</sup>
- Net impermeable area to be attenuated = 1611m<sup>2</sup>
- New M50 footbridge (gully type to be determined by structures team) to outfall to proposed surface water pipe at location shown. Existing road bridge to outfall as per existing.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network. Existing drainage network information unavailable - network to be verified on site.
- ADR: 16.9 l/s
- Vol<sub>att</sub>: 5.6-20m<sup>3</sup>

**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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 PAVING
	PROPOSED PERMEABLE PAVING		

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



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<p>Date 28/03/23 Scale 1:500 @ A1 1:1000 @ A3</p>		<p>Drawn A.FLEMING Checked R.LOUGH Approved C.ACTON</p>		<p>Project Code BCIDA Originator Code ACM QMS Code</p>		<p>Drawing Title TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</p>		<p>Drawing File Name BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0012 Sheet Number 12 of 56 Status A Rev M01</p>	

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

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

**Chainage A4375-A4475 (North side)**

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 236m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 236m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Oversized pipes with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network DN1500. (Location shown on sheet 14)
- Potential tree pits interconnected through a series of filter drains
- ADR: 2.0 l/s
- Vol<sub>att</sub>: 1.6-3.9m<sup>3</sup>

**Chainage A4060-A4375 (North side)**

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 2402m<sup>2</sup>
- Additional grassed (permeable) area = 277m<sup>2</sup>
- Net impermeable area to be attenuated = 2125m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Oversized pipes with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network DN1500.
- Potential tree pits interconnected through a series of filter drains
- ADR: 15.0 l/s
- Vol<sub>att</sub>: 14-32m<sup>3</sup>

**Chainage A4060-A4500 (South side)**

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 3902m<sup>2</sup>
- Additional grassed (permeable) area = 390m<sup>2</sup>
- Net impermeable area to be attenuated = 3512m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Oversized pipes with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network DN1350. (Location shown on sheet 14)
- ADR: 23.0 l/s
- Vol<sub>att</sub>: 26-56m<sup>3</sup>

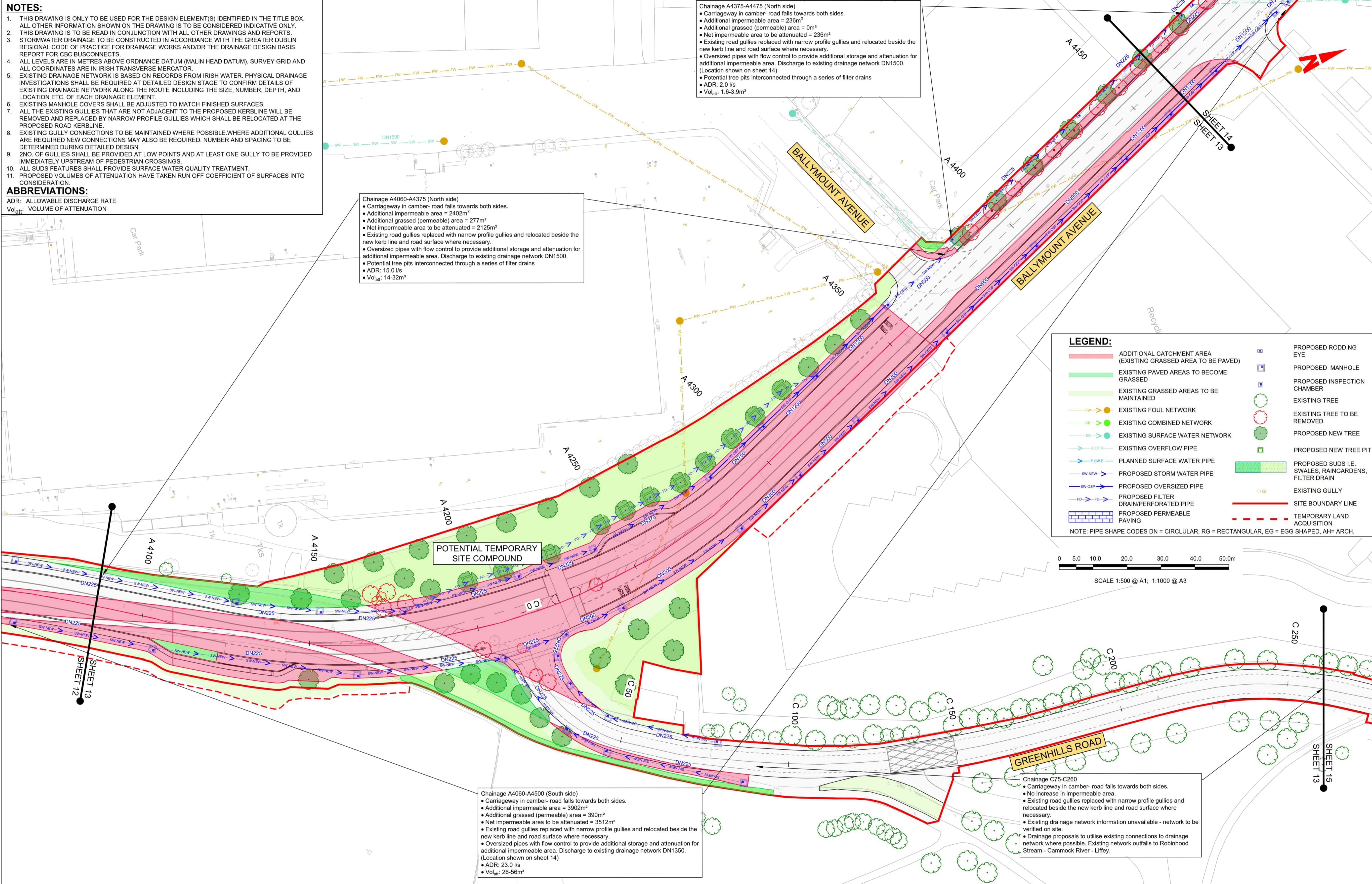
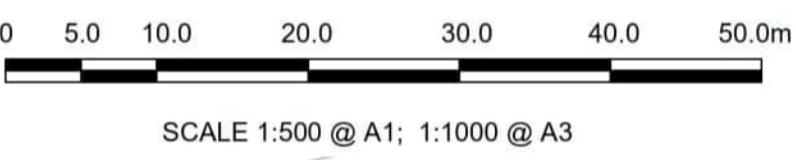
**Chainage C75-C260**

- Carriageway in camber- road falls towards both sides.
- No increase in impermeable area.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Existing drainage network information unavailable - network to be verified on site.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Robinhood Stream - Cammock River - Liffey.

**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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 = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.



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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

Date	28/03/23	Scale	1:500 @ A1 1:1000 @ A3	Drawn	A.FLEMING
Project Code	BCIDA	Originator Code	ACM	Checked	R.LOUGH
Client			Engineering Designer		
Programme Title	<b>BUSCONNECTS DUBLIN          CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>				
Drawing Title	<b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME          PROPOSED SURFACE WATER DRAINAGE WORKS</b>				
Drawing File Name	BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0013	Sheet Number	13 of 56	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 NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- PLANNED SURFACE WATER PIPE
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

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Chainage A4490-A4850 (North side)

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 1858m<sup>2</sup>
- Additional grassed (permeable) area = 122m<sup>2</sup>
- Net impermeable area to be attenuated = 1736m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary.
- Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Oversized pipes with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network. Existing drainage network information unavailable - network to be verified on site.
- ADR: 60 l/s
- Vol<sub>att</sub>: 0-6.2m<sup>3</sup>

Chainage A4520-A4850 (South side)

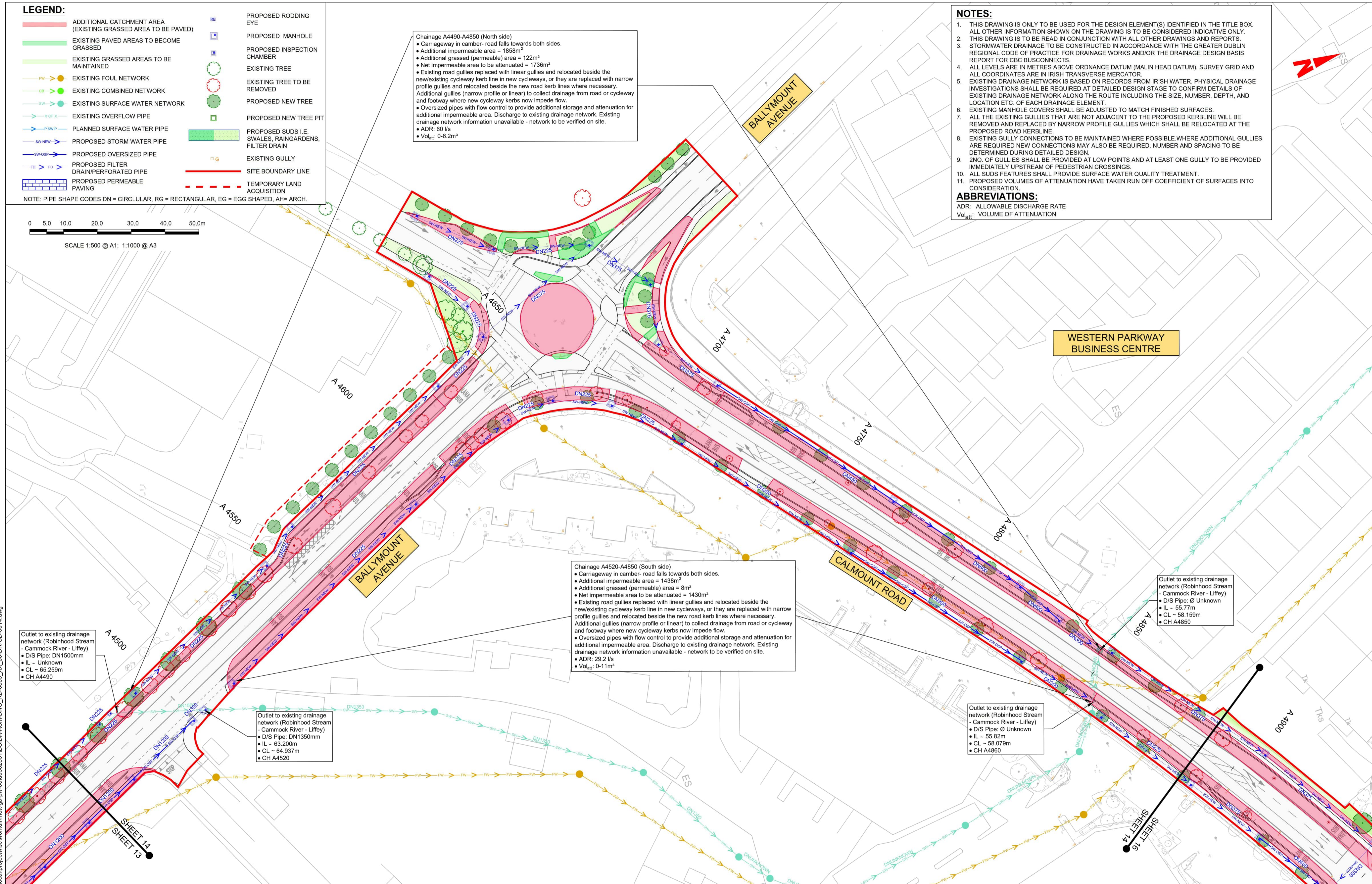
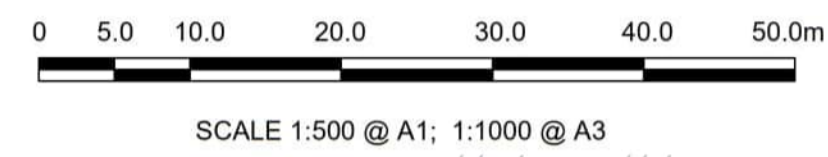
- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 1438m<sup>2</sup>
- Additional grassed (permeable) area = 8m<sup>2</sup>
- Net impermeable area to be attenuated = 1430m<sup>2</sup>
- Existing road gullies replaced with linear gullies, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary.
- Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Oversized pipes with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network. Existing drainage network information unavailable - network to be verified on site.
- ADR: 29.2 l/s
- Vol<sub>att</sub>: 0-11m<sup>3</sup>

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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.
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**ABBREVIATIONS:**

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



Outlet to existing drainage network (Robinhood Stream - Cammock River - Liffey)

- D/S Pipe: DN1500mm
- IL - Unknown
- CL - 65.259m
- CH A4490

Outlet to existing drainage network (Robinhood Stream - Cammock River - Liffey)

- D/S Pipe: DN1350mm
- IL - 63.200m
- CL - 64.937m
- CH A4520

Outlet to existing drainage network (Robinhood Stream - Cammock River - Liffey)

- D/S Pipe: Ø Unknown
- IL - 55.82m
- CL - 58.079m
- CH A4860

Outlet to existing drainage network (Robinhood Stream - Cammock River - Liffey)

- D/S Pipe: Ø Unknown
- IL - 55.77m
- CL - 58.159m
- CH A4850

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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM** **MOTT MACDONALD**

Date: 28/03/23 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDA Originator Code: ACM

Drawn: A.FLEMING Checked: R.LOUGH Approved: C.ACTON

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0014	Sheet Number: 14 of 56	Status: A	Rev: M01

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

**ABBREVIATIONS:**

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

**Chainage C375-C450 (South)**

- Carriage in camber- road falls towards both sides.
- Additional impermeable area = 695m<sup>2</sup>
- Additional grassed (permeable) area = 105m<sup>2</sup>
- Net impermeable area to be attenuated = 590m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network. Existing drainage network information unavailable - network to be verified on site.
- ADR: 4.8 l/s
- Vol<sub>att</sub>: 6.8-14m<sup>3</sup>

**Outlet to existing drainage network (Robinhood Stream - Cammock River - Liffey)**

- D/S Pipe: Ø Unknown
- IL - Unknown
- CL - Unknown

**Outlet to existing drainage network (Robinhood Stream - Cammock River - Liffey)**

- D/S Pipe: Ø Unknown
- IL - Unknown
- CL - Unknown

**Chainage C375-C450 (North)**

- Carriage in camber- road falls towards both sides.
- Additional impermeable area = 756m<sup>2</sup>
- Additional grassed (permeable) area = 22m<sup>2</sup>
- Net impermeable area to be attenuated = 734m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Linear gullies to collect drainage from access ramp and stairs and outfall to proposed surface water pipework (Linear drainage and gullies not shown).
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network. Existing drainage network information unavailable - network to be verified on site.
- ADR: 3.7 l/s
- Vol<sub>att</sub>: 12-22-14m<sup>3</sup>

**Chainage C260-C350**

- Carriageway in camber- road falls towards both sides.
- No increase in impermeable area.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Existing drainage network information unavailable - network to be verified on site.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Robinhood Stream - Cammock River - Liffey.

**Chainage C350-C470 (South)**

- Carriage in camber- road falls towards both sides.
- Additional impermeable area = 10m<sup>2</sup>
- Additional grassed (permeable) area = 487m<sup>2</sup>
- Net permeable area (no attenuation required) = 477m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Existing drainage network information unavailable - network to be verified on site.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Robinhood Stream - Cammock River - Liffey.

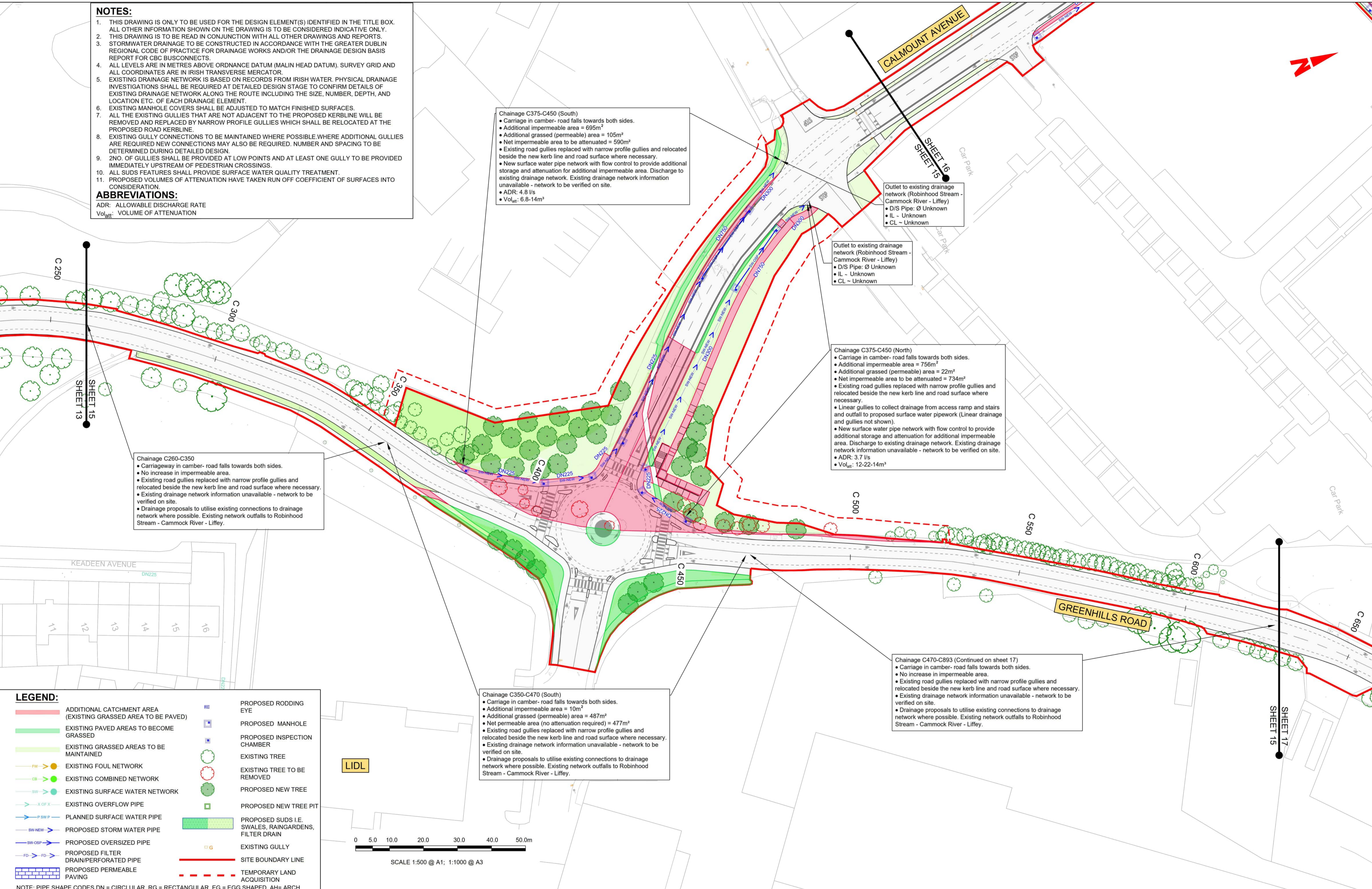
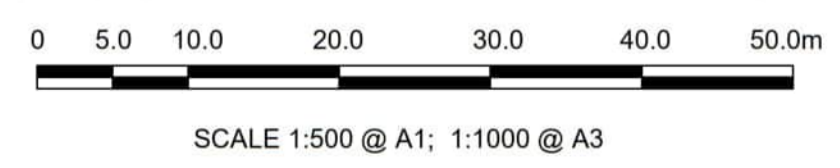
**Chainage C470-C893 (Continued on sheet 17)**

- Carriage in camber- road falls towards both sides.
- No increase in impermeable area.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Existing drainage network information unavailable - network to be verified on site.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Robinhood Stream - Cammock River - Liffey.

**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 NETWORK                                     |  | PROPOSED NEW TREE                                    |
|  | EXISTING SURFACE WATER NETWORK                                |  | PROPOSED NEW TREE PIT                                |
|  | EXISTING OVERFLOW PIPE  |  | PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN |
|  | PLANNED SURFACE WATER PIPE                                    |  | 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.



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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 superceded. Recipients should not rely on this information. Any liabilities are hereby expressly disclaimed.

e. The information contained herein has been provided by the NTA but does not purport to be comprehensive or final. Recipients should not rely on the information. Neither the NTA nor any of its directors, officers, employees, agents, stakeholders or advisers make any representation or warranty as to, or accept any liability or responsibility in relation to, the adequacy, accuracy, reasonableness or completeness of the information provided as part of this document or any matter on which the information is based (including but not limited to loss or damage arising as a result of reliance by recipients on the information or any part of it). Any liabilities are hereby expressly disclaimed.

Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM** **MOTT MACDONALD**

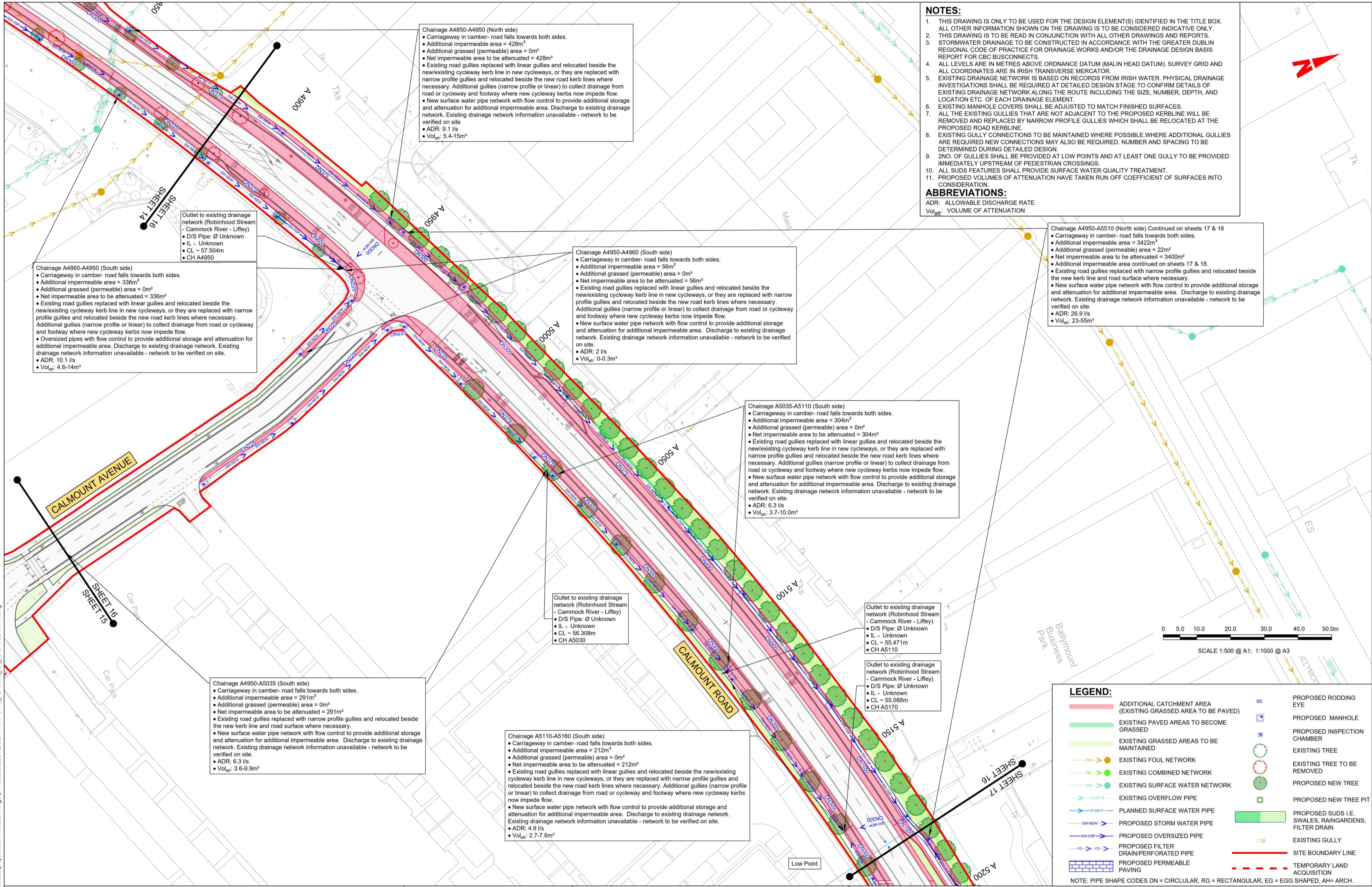
Date: 28/03/23  
Scale: 1:500 @ A1, 1:1000 @ A3

Drawn: A.FLEMING  
Checked: R.LOUGH  
Approved: C.ACTON

Project Code: BCIDA  
Originator Code: ACM

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0015	Sheet Number: 15 of 56	Status: A	Rev: M01

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

**ABBREVIATIONS:**

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

**Chainage A4850-A4950 (North side)**

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 428m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 428m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network. Existing drainage network information unavailable - network to be verified on site.
- ADR: 9.1 l/s
- Vol<sub>att</sub>: 5.4-15m<sup>3</sup>

**Outlet to existing drainage network (Robinhood Stream - Cammock River - Liffey)**

- D/S Pipe: Ø Unknown
- IL - Unknown
- CL - 57.504m
- CH A4950

**Chainage A4860-A4950 (South side)**

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 336m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 336m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Oversized pipes with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network. Existing drainage network information unavailable - network to be verified on site.
- ADR: 10.1 l/s
- Vol<sub>att</sub>: 4.6-14m<sup>3</sup>

**Chainage A4950-A4960 (South side)**

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 56m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 56m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network. Existing drainage network information unavailable - network to be verified on site.
- ADR: 2 l/s
- Vol<sub>att</sub>: 0-0.3m<sup>3</sup>

**Chainage A4950-A5510 (North side) Continued on sheets 17 & 18**

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 3422m<sup>2</sup>
- Additional grassed (permeable) area = 22m<sup>2</sup>
- Net impermeable area to be attenuated = 3400m<sup>2</sup>
- Additional impermeable area continued on sheets 17 & 18.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network. Existing drainage network information unavailable - network to be verified on site.
- ADR: 26.9 l/s
- Vol<sub>att</sub>: 23-55m<sup>3</sup>

**Chainage A5035-A5110 (South side)**

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 304m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 304m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network. Existing drainage network information unavailable - network to be verified on site.
- ADR: 6.3 l/s
- Vol<sub>att</sub>: 3.7-10.0m<sup>3</sup>

**Outlet to existing drainage network (Robinhood Stream - Cammock River - Liffey)**

- D/S Pipe: Ø Unknown
- IL - Unknown
- CL - 56.308m
- CH A5030

**Outlet to existing drainage network (Robinhood Stream - Cammock River - Liffey)**

- D/S Pipe: Ø Unknown
- IL - Unknown
- CL - 55.471m
- CH A5110

**Outlet to existing drainage network (Robinhood Stream - Cammock River - Liffey)**

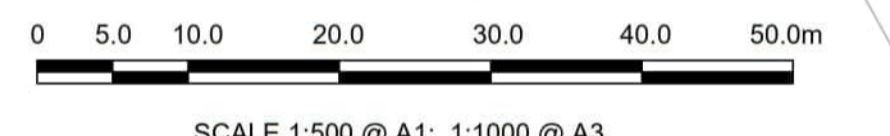
- D/S Pipe: Ø Unknown
- IL - Unknown
- CL - 55.088m
- CH A5170

**Chainage A4950-A5035 (South side)**

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 291m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 291m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network. Existing drainage network information unavailable - network to be verified on site.
- ADR: 6.3 l/s
- Vol<sub>att</sub>: 3.6-9.9m<sup>3</sup>

**Chainage A5110-A5160 (South side)**

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 212m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 212m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network. Existing drainage network information unavailable - network to be verified on site.
- ADR: 4.9 l/s
- Vol<sub>att</sub>: 2.7-7.6m<sup>3</sup>



**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 NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- PLANNED SURFACE WATER PIPE
- 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 CODE DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.

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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

Client: **NTA** (National Transport Authority)

Engineering Designer: **AECOM**, **MOTT MACDONALD**

Date: 28/03/23 | Scale: 1:500 @ A1, 1:1000 @ A3

Drawn: A.FLEMING | Checked: R.LOUGH | Approved: C.ACTON

Project Code: BCIDA | Originator Code: ACM | QMS Code:

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

Drawing Title: **TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS**

Drawing File Name: BCIDA-ACM-DNG\_RD-0809\_XX\_00-DR-CD-0016 | Sheet Number: 16 of 56 | Status: A | Rev: M01

Outlet to existing drainage network (Robinhood Stream - Cammock River - Liffey)

- D/S Pipe: Ø Unknown
- IL - Unknown
- CL - 55.088m
- CH A5170

Chainage A5160-A5470 (South side)

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 2850m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 2850m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary.
- Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Linear gullies to collect drainage from access ramp and stairs and outfall to proposed surface water pipework (Linear drainage and gullies not shown).
- Oversized pipes with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network. Existing drainage network information unavailable - network to be verified on site.
- ADR: 9.0 l/s
- Vol<sub>att</sub>: 35-64m<sup>3</sup>

Chainage C625-C893

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 65m<sup>2</sup>
- Additional grassed (permeable) area = 383m<sup>2</sup>
- Net permeable area (no attenuation required) = 318m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Existing drainage network information unavailable - network to be verified on site.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Robinhood Stream - Cammock River - Liffey.

Chainage A5340-A5350 (North side)

- Additional impermeable area = 324m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 324m<sup>2</sup>
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Proposed road access to discharge into existing car park drainage.
- Existing car park drainage network information unavailable - network to be verified on site.
- ADR: 2.1 l/s
- Vol<sub>att</sub>: 0m<sup>3</sup>
- Existing Drainage network outfall unknown.

Chainage A5180-A5450 (North side)

- See sheet 16 for drainage details.
- BCIDA-ACM-DNG\_RD-0809\_XX\_00-DR-CD-0016

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  3. STORMWATER DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS AND/OR THE DRAINAGE DESIGN BASIS REPORT FOR CBC BUSCONNECTS.
  4. ALL LEVELS ARE IN METRES ABOVE ORDNANCE 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 SHALL 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. 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
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  11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

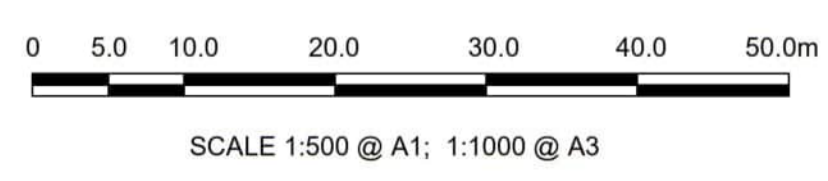
**ABBREVIATIONS:**

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

**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 NETWORK		PROPOSED NEW TREE
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE PIT
	EXISTING OVERFLOW PIPE		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PLANNED SURFACE WATER PIPE		EXISTING GULLY
	PROPOSED STORM WATER PIPE		SITE BOUNDARY LINE
	PROPOSED OVERSIZED PIPE		TEMPORARY LAND ACQUISITION PAVING
	PROPOSED FILTER DRAIN/PERFORATED PIPE		
	PROPOSED PERMEABLE PAVING		

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



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Rev	Date	Drm	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM** **MOTT MACDONALD**

Date: 28/03/23  
Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDA  
Originator Code: ACM

Drawn: A.FLEMING  
Checked: R.LOUGH  
Approved: C.ACTON

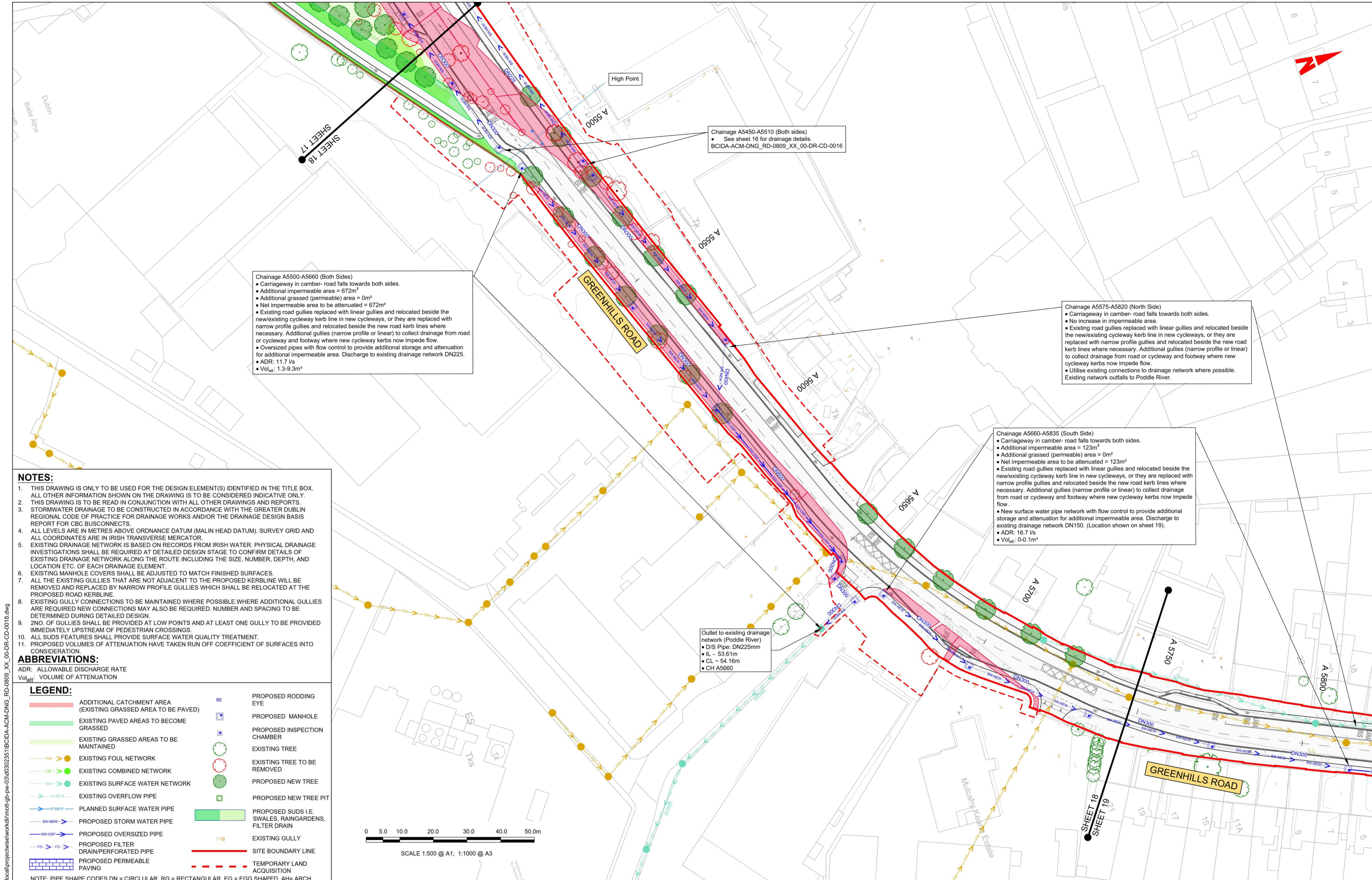
Programme Title: **BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS**

Drawing Title: **TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS**

Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0017	Sheet Number: 17 of 56	Status: A	Rev: M01
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**Chainage A5500-A5660 (Both Sides)**

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 672m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 672m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Oversized pipes with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network DN225.
- ADR: 11.7 l/s
- Vol<sub>att</sub>: 1.3-9.3m<sup>3</sup>

**Chainage A5450-A5510 (Both Sides)**

- See sheet 16 for drainage details.
- BCIDA-ACM-DNG\_RD-0809\_XX\_00-DR-CD-0016

**Chainage A5575-A5820 (North Side)**

- Carriageway in camber- road falls towards both sides.
- No increase in impermeable area.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing connections to drainage network where possible. Existing network outfalls to Poddle River.

**Chainage A5660-A5835 (South Side)**

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 123m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 123m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network DN150. (Location shown on sheet 19).
- ADR: 16.7 l/s
- Vol<sub>att</sub>: 0-0.1m<sup>3</sup>

**Outlet to existing drainage network (Poddle River)**

- D/S Pipe: DN225mm
- IL - 53.61m
- CL - 54.16m
- CH A5660

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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 ORDNANCE 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 SHALL 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. 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
  11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

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

**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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 = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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

Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

Údarás Náisiúnta Iompair  
 National Transport Authority

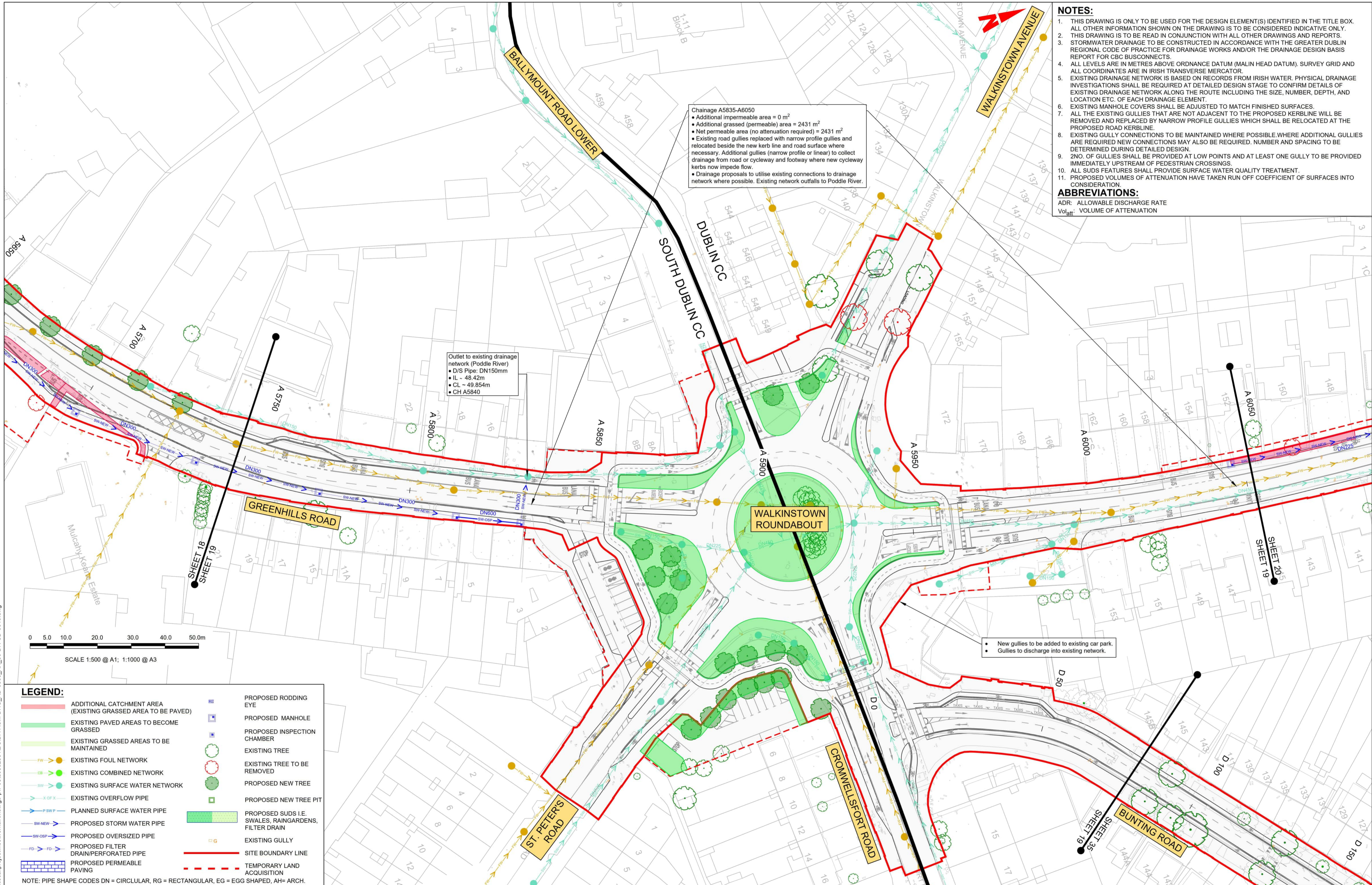
MOTT  
 MACDONALD

Date: 28/03/23		Scale: 1:500 @ A1, 1:1000 @ A3		Drawn: A.FLEMING		Checked: R.LOUGH		Approved: C.ACTON	
Project Code: BCIDA		Originator Code: ACM		QMS Code:		Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0018		Sheet Number: 18 of 56	

Client: <b>NTA</b> Údarás Náisiúnta Iompair National Transport Authority		Engineering Designer: <b>AECOM</b> MOTT MACDONALD		Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>	
Drawing Title: TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS		Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0018		Status: A	
Rev: M01		Rev: M01		Rev: M01	

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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 SHALL 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.
  - 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  - ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
  - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.
- ABBREVIATIONS:**
- ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION

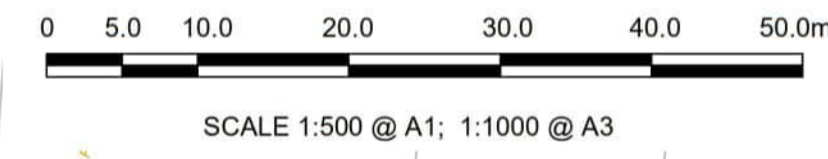
Chainage A5835-A6050

- Additional impermeable area = 0 m<sup>2</sup>
- Additional grassed (permeable) area = 2431 m<sup>2</sup>
- Net permeable area (no attenuation required) = 2431 m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Poddle River.

Outlet to existing drainage network (Poddle River)

- D/S Pipe: DN150mm
- IL - 48.42m
- CL - 49.854m
- CH A5840

- New gullies to be added to existing car park.
- Gullies to discharge into existing network.



**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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 = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM**, **MOTT MACDONALD**

Date: 28/03/23  
Scale: 1:500 @ A1, 1:1000 @ A3

Drawn: A.FLEMING, Checked: R.LOUGH, Approved: C.ACTON

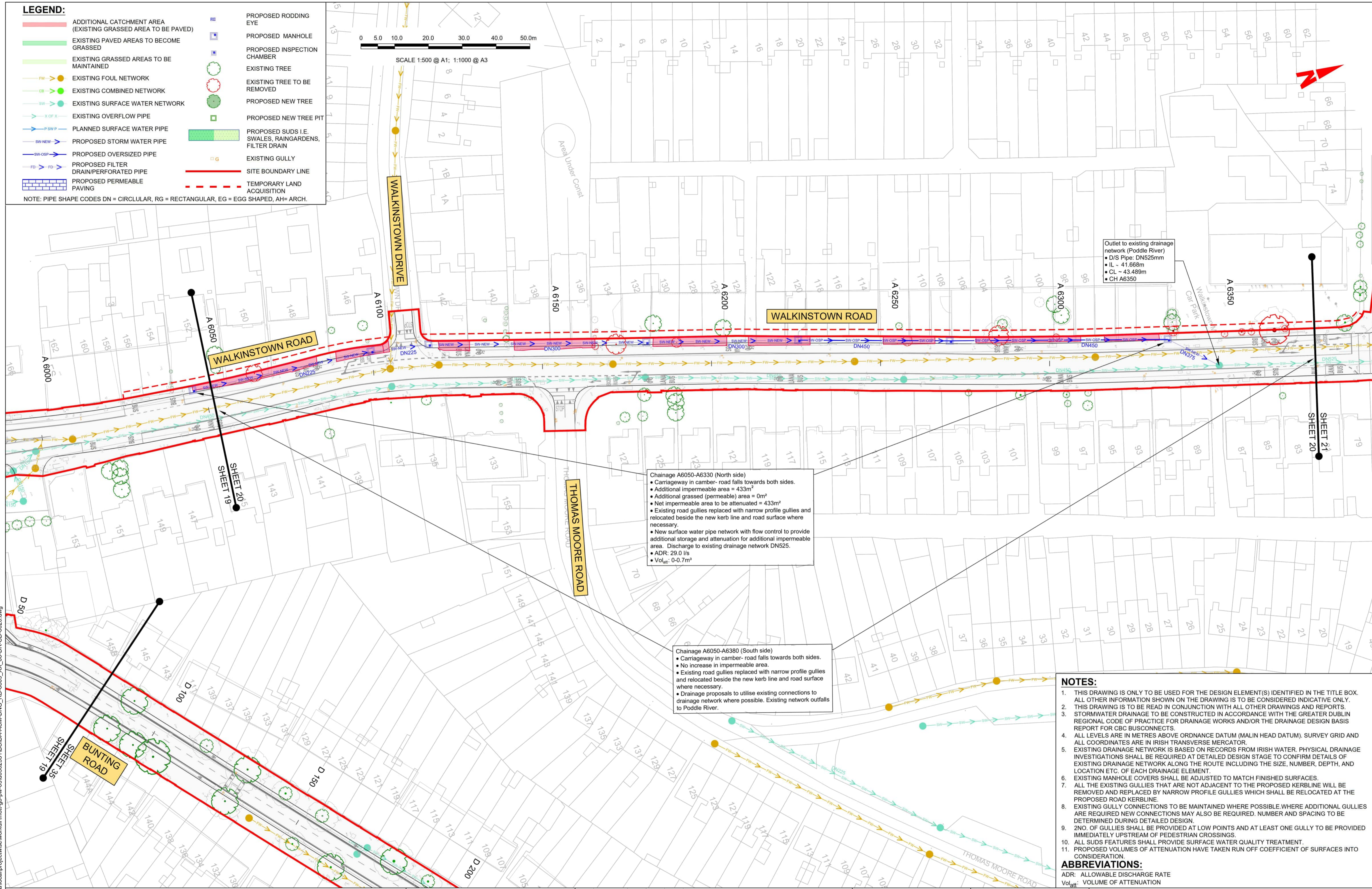
Project Code: BCIDA, Originator Code: ACM, QMS Code:

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0019	Sheet Number: 19 of 56	Status: A	Rev: M01

**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 NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- PLANNED SURFACE WATER PIPE
- 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.



Chainage A6050-A6330 (North side)

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 433m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 433m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network DN525.
- ADR: 29.0 l/s
- Vol<sub>att</sub>: 0-0.7m<sup>3</sup>

Chainage A6050-A6380 (South side)

- Carriageway in camber- road falls towards both sides.
- No increase in impermeable area.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Poddle River.

Outlet to existing drainage network (Poddle River)

- D/S Pipe: DN525mm
- IL - 41.668m
- CL - 43.489m
- CH A6350

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

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

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

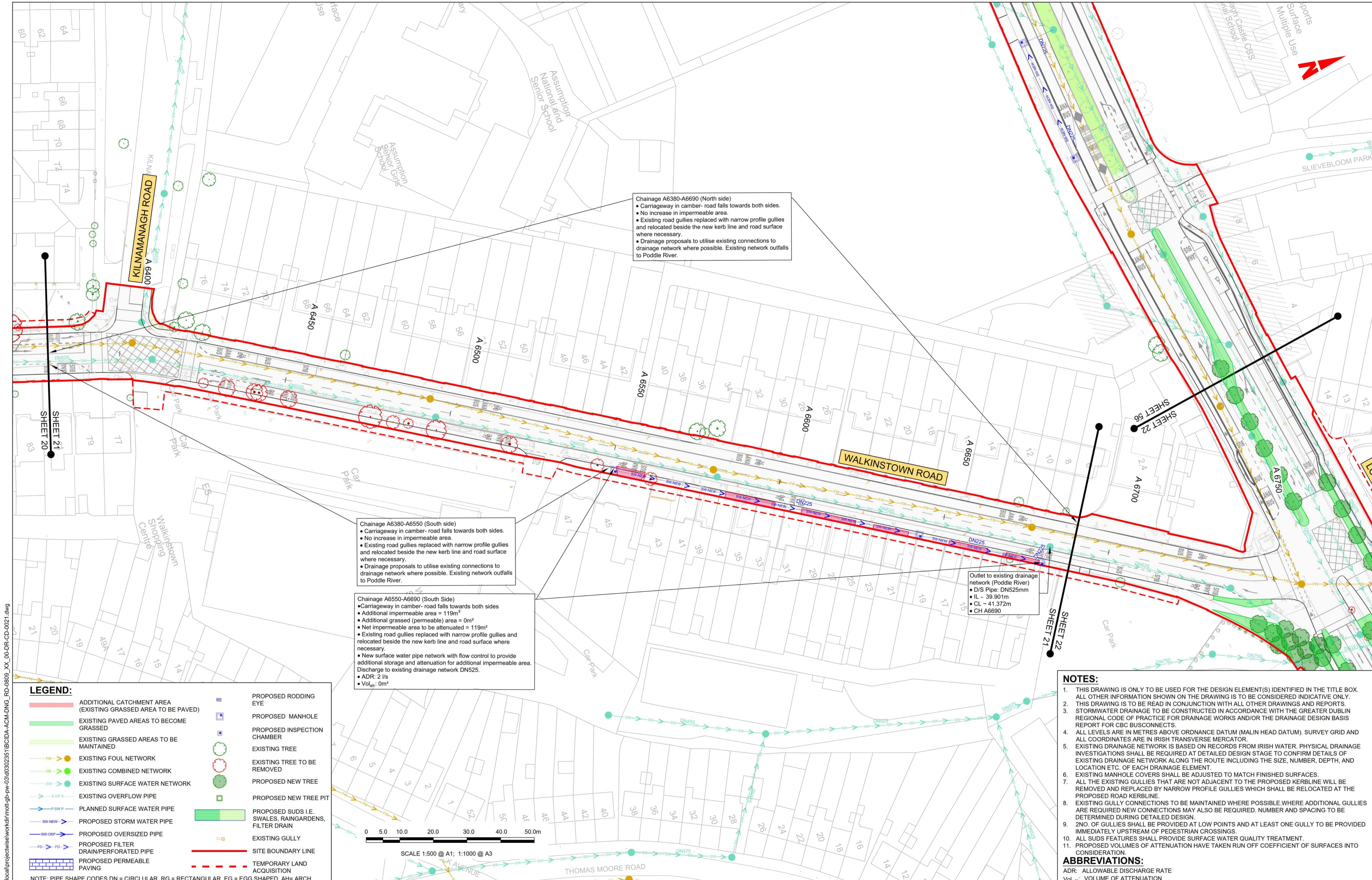
Engineering Designer: **AECOM** **MOTT MACDONALD**

Date: 28/03/23 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDA Originator Code: ACM

Drawn: A.FLEMING Checked: R.LOUGH Approved: C.ACTON

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0020	Sheet Number: 20 of 56	Status: A	Rev: M01



Chainage A6380-A6690 (North side)

- Carriageway in camber- road falls towards both sides.
- No increase in impermeable area.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Poddle River.

Chainage A6380-A6550 (South side)

- Carriageway in camber- road falls towards both sides.
- No increase in impermeable area.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Poddle River.

Chainage A6550-A6690 (South Side)

- Carriageway in camber- road falls towards both sides
- Additional impermeable area = 119m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 119m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network DN525.
- ADR: 2 l/s
- Vol<sub>att</sub>: 0m<sup>3</sup>

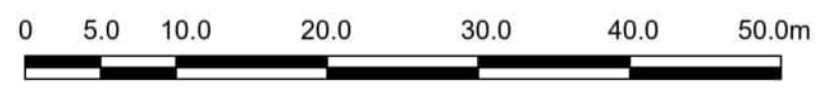
Outlet to existing drainage network (Poddle River)

- D/S Pipe: DN525mm
- IL - 39.901m
- CL - 41.372m
- CH A6690

**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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 = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.



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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 SHALL 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. 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

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

C:\users\landrew.fleming\appdata\local\projectwise\work\mott\p-w-03\030235\BCIDA-ACM-DNG\_RD-0809\_XX\_00-DR-CD-0021.dwg

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<p>Date 28/03/23 Scale 1:500 @ A1 1:1000 @ A3</p> <p>Project Code BCIDA Originator Code ACM</p>					<p>Drawn A.FLEMING Checked R.LOUGH Approved C.ACTON</p>		<p>Drawing Title TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</p>		<p>Drawing File Name BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0021 Sheet Number 21 of 56 Status A Rev M01</p>			

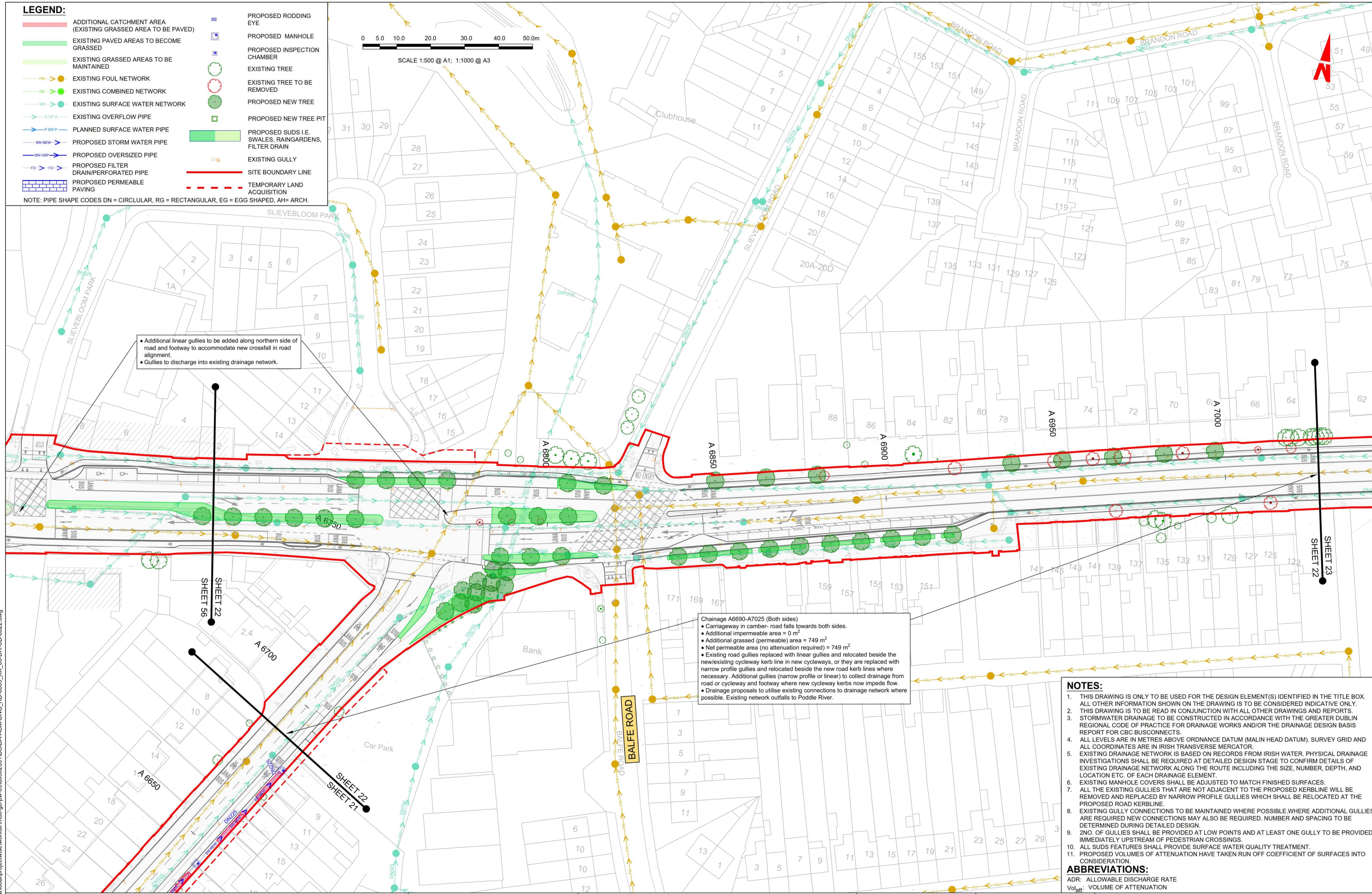
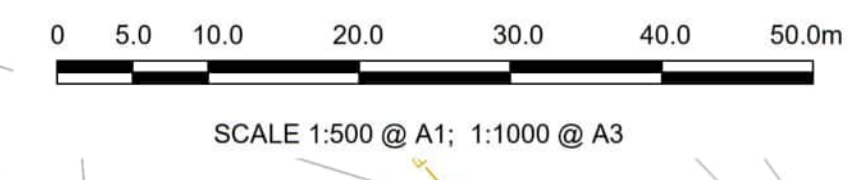
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**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
- EXISTING GRASSED AREAS TO BE MAINTAINED
- EXISTING FOUL NETWORK
- EXISTING COMBINED NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- PLANNED SURFACE WATER PIPE
- 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.



Additional linear gullies to be added along northern side of road and footway to accommodate new crossfall in road alignment.  
Gullies to discharge into existing drainage network.

Chainage A6690-A7025 (Both sides)  
 • Carriageway in camber- road falls towards both sides.  
 • Additional impermeable area = 0 m<sup>2</sup>  
 • Additional grassed (permeable) area = 749 m<sup>2</sup>  
 • Net permeable area (no attenuation required) = 749 m<sup>2</sup>  
 • Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.  
 • Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Poddle River.

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

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

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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

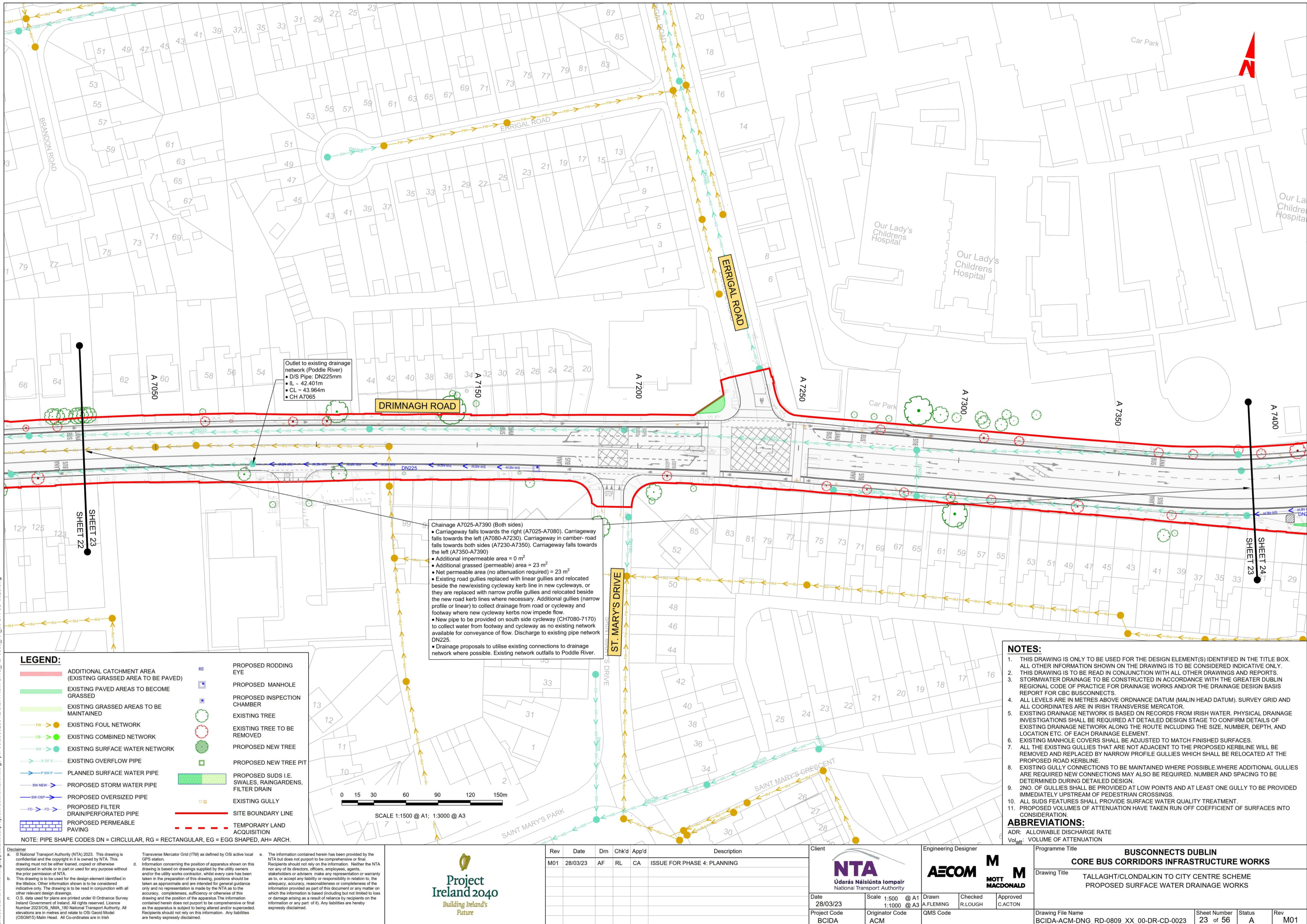
Engineering Designer: **AECOM**, **MOTT MACDONALD**

Date: 28/03/23  
 Scale: 1:500 @ A1, 1:1000 @ A3  
 Drawn: A.FLEMING, Checked: R.LOUGH, Approved: C.ACTON

Project Code: BCIDA, Originator Code: ACM, QMS Code:

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0022	Sheet Number: 22 of 56	Status: A	Rev: M01

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Outlet to existing drainage network (Poddlie River)  
 • D/S Pipe: DN225mm  
 • IL - 42.401m  
 • CL - 43.964m  
 • CH A7065

Chainage A7025-A7390 (Both sides)  
 • Carriageway falls towards the right (A7025-A7080). Carriageway falls towards the left (A7080-A7230). Carriageway in camber-road falls towards both sides (A7230-A7350). Carriageway falls towards the left (A7350-A7390)  
 • Additional impermeable area = 0 m<sup>2</sup>  
 • Additional grassed (permeable) area = 23 m<sup>2</sup>  
 • Net permeable area (no attenuation required) = 23 m<sup>2</sup>  
 • Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.  
 • New pipe to be provided on south side cycleway (CH7080-7170) to collect water from footway and cycleway as no existing network available for conveyance of flow. Discharge to existing pipe network DN225.  
 • Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Poddlie River.

- 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 NETWORK
  - EXISTING SURFACE WATER NETWORK
  - EXISTING OVERFLOW PIPE
  - PLANNED SURFACE WATER PIPE
  - PROPOSED STORM WATER PIPE
  - PROPOSED OVERSIZED PIPE
  - PROPOSED FILTER DRAIN/PERFORATED PIPE
  - PROPOSED PERMEABLE PAVING
  - PROPOSED RODDING EYE
  - PROPOSED MANHOLE
  - PROPOSED INSPECTION CHAMBER
  - EXISTING TREE
  - EXISTING TREE TO BE REMOVED
  - PROPOSED NEW TREE
  - PROPOSED NEW TREE PIT
  - PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
  - EXISTING GULLY
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  - TEMPORARY LAND ACQUISITION
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**ABBREVIATIONS:**  
 ADR: ALLOWABLE DISCHARGE RATE  
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M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM** and **MOTT MACDONALD**

Date: 28/03/23  
 Scale: 1:500 @ A1, 1:1000 @ A3

Drawn: A.FLEMING  
 Checked: R.LOUGH  
 Approved: C.ACTON

Project Code: BCIDA  
 Originator Code: ACM

Programme Title <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0023	Sheet Number 23 of 56	Status A	Rev M01

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

**ABBREVIATIONS:**

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

**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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.



Chainage A7700-A7800 (North Side) Continued on sheet 25

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 177m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 177m<sup>2</sup>
- Additional impermeable area continued on sheet 25.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network DN300. (Location shown on sheet 25).
- ADR: 2.2 l/s
- Vol<sub>att</sub>: 0-1.2m<sup>3</sup>

Chainage A7390-A7700 (North side)

- Carriageway falls towards the left (A7390-A7490). Carriageway in camber- road falls towards both sides (A7490-A7700).
- No increase in impermeable area.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing Drainage network outfalls to Poddle River.

Chainage A7390-A7490 (South side)

- Additional impermeable area = 68m<sup>2</sup>
- Additional grassed (permeable) area = 112m<sup>2</sup>
- Net permeable area (no additional attenuation required) = 44m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New pipes to be provided on south side cycleway to collect water from footway and cycleway as no existing network available for conveyance of flow. Discharge to existing pipe network DN150.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Poddle River.

Chainage A7490-A7800 (South side)

- Carriageway in camber- road falls towards both sides.
- No increase in impermeable area.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Poddle River.

Outlet to existing drainage network (Poddle River)

- D/S Pipe: DN150mm
- IL - 43.826m
- CL - 45.564m
- CH A7390

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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

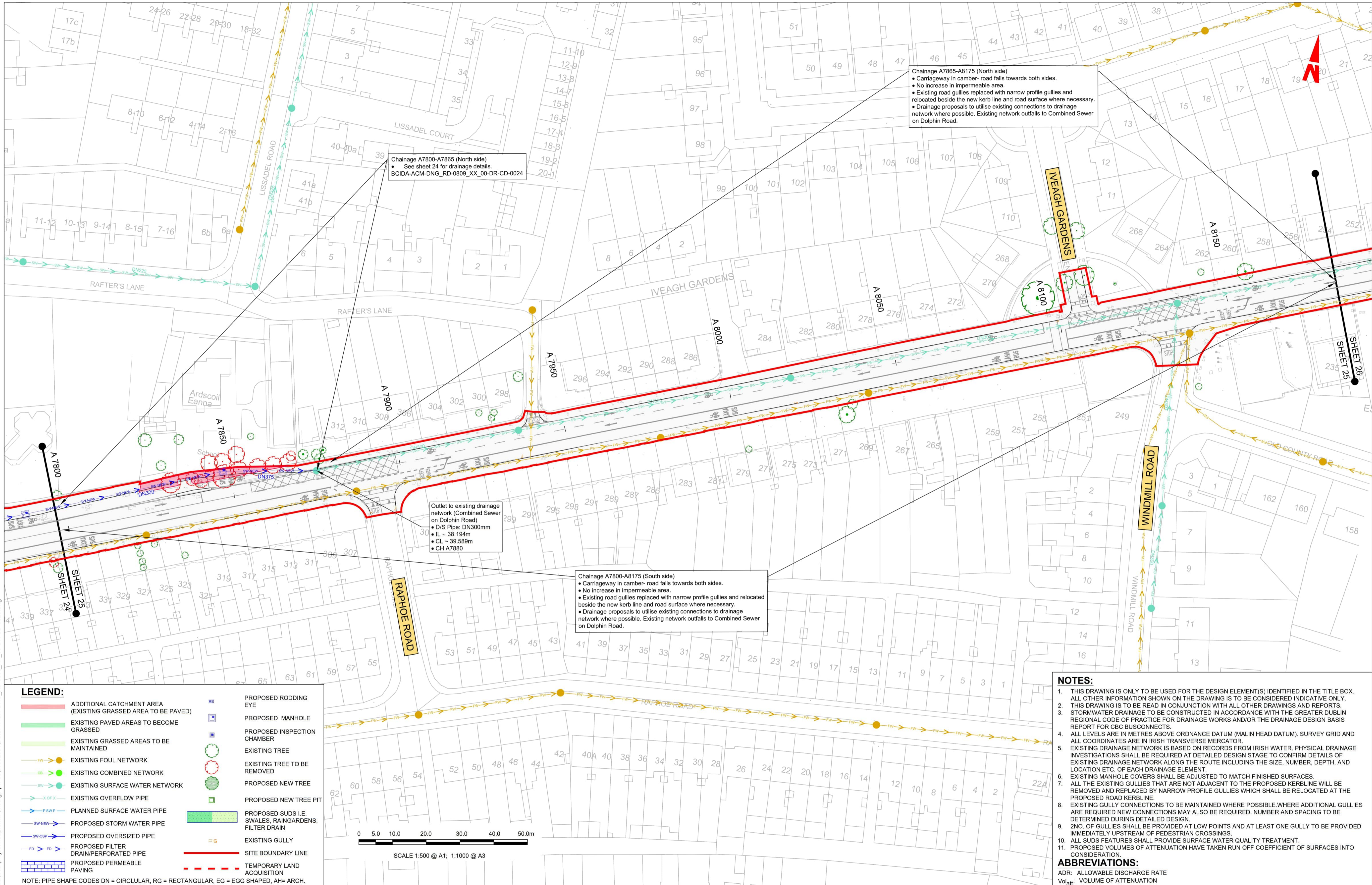
Engineering Designer: **AECOM** **MOTT MACDONALD**

Date: 28/03/23 Scale: 1:500 @ A1, 1:1000 @ A3

Drawn: A.FLEMING Checked: R.LOUGH Approved: C.ACTON

Project Code: BCIDA Originator Code: ACM QMS Code:

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0024	Sheet Number: 24 of 56	Status: A	Rev: M01



Chainage A7865-A8175 (North side)

- Carriageway in camber- road falls towards both sides.
- No increase in impermeable area.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Dolphin Road.

Chainage A7800-A7865 (North side)

- See sheet 24 for drainage details.
- BCIDA-ACM-DNG\_RD-0809\_XX\_00-DR-CD-0024

Outlet to existing drainage network (Combined Sewer on Dolphin Road)

- D/S Pipe: DN300mm
- IL - 38.194m
- CL - 39.589m
- CH A7880

Chainage A7800-A8175 (South side)

- Carriageway in camber- road falls towards both sides.
- No increase in impermeable area.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Dolphin Road.

**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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 = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

**NOTES:**

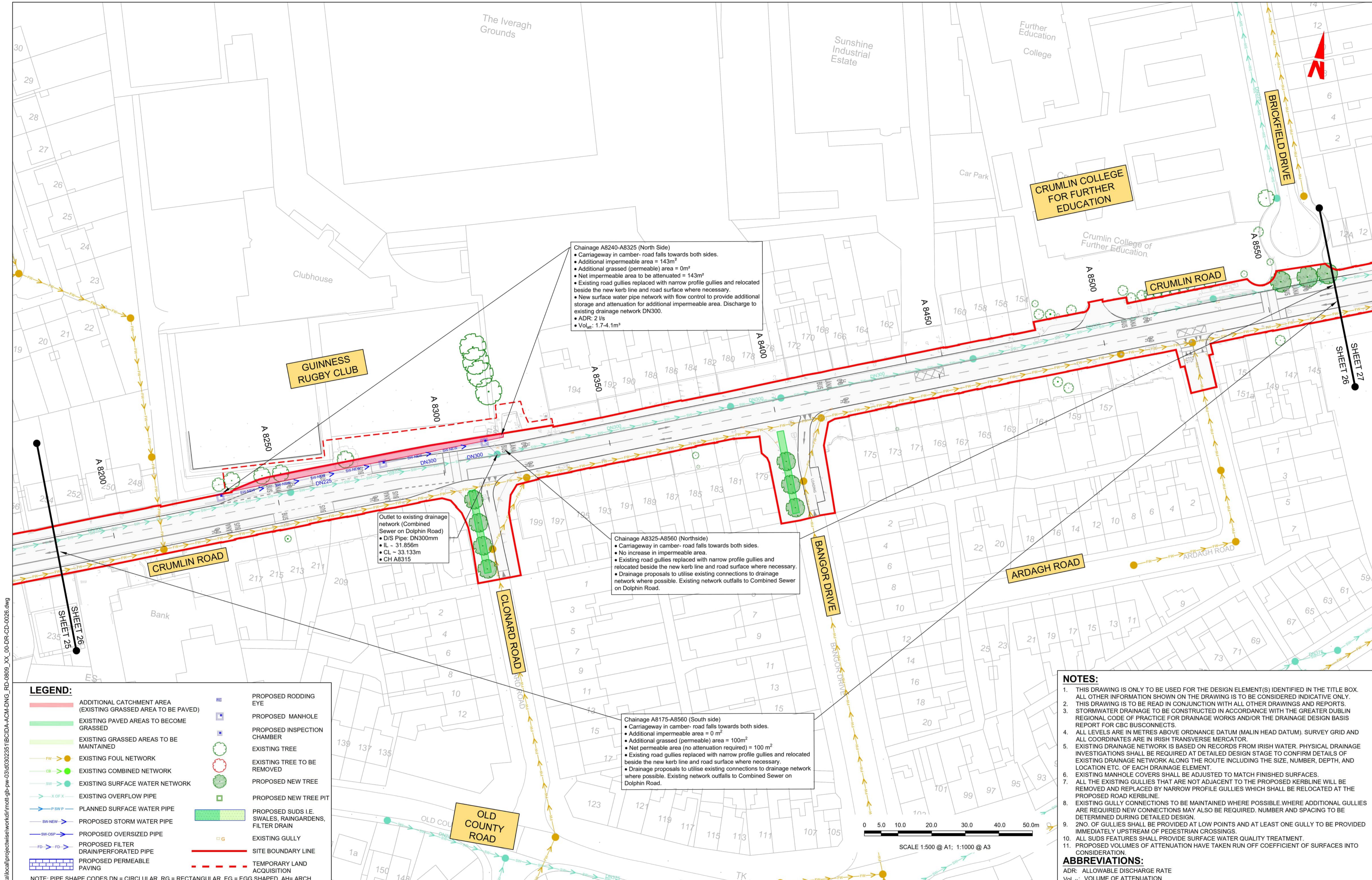
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6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD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

**ABBREVIATIONS:**

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

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<p>Date 28/03/23 Scale 1:500 @ A1 1:1000 @ A3</p>		<p>Drawn A.FLEMING Checked R.LOUGH Approved C.ACTON</p>		<p>Project Code BCIDA Originator Code ACM QMS Code</p>		<p>Drawing Title TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</p>		<p>Drawing File Name BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0025 Sheet Number 25 of 56 Status A Rev M01</p>	

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Chainage A8240-A8325 (North Side)

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 143m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 143m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network DN300.
- ADR: 2 l/s
- Vol<sub>att</sub>: 1.7-4.1m<sup>3</sup>

Outlet to existing drainage network (Combined Sewer on Dolphin Road)

- DIS Pipe: DN300mm
- IL - 31.856m
- CL - 33.133m
- CH A8315

Chainage A8325-A8560 (Northside)

- Carriageway in camber- road falls towards both sides.
- No increase in impermeable area.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Dolphin Road.

Chainage A8175-A8560 (South side)

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 0 m<sup>2</sup>
- Additional grassed (permeable) area = 100m<sup>2</sup>
- Net permeable area (no attenuation required) = 100 m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Dolphin Road.

**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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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10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

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

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

**Drawing Title**  
TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME  
PROPOSED SURFACE WATER DRAINAGE WORKS

**Drawing File Name**  
BCIDA-ACM-DNG\_RD-0809\_XX\_00-DR-CD-0026

**Sheet Number**  
26 of 56

**Status**  
A

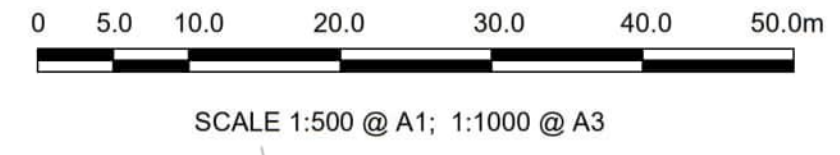
**Rev**  
M01

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<p><b>Project Ireland 2040</b> Building Ireland's Future</p>				<p>DO NOT SCALE USE FIGURED DIMENSIONS ONLY</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 NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- PLANNED SURFACE WATER PIPE
- 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.



Chainage A8570-A8975 (North side)

- Carriageway in camber- road falls towards both sides (A8570-A8900). Road falls towards the right (A8900-A8975).
- Additional impermeable area = 0 m<sup>2</sup>
- Additional grassed (permeable) area = 210 m<sup>2</sup>
- Net permeable area (no attenuation required) = 210 m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Dolphin Road.

**CRUMLIN SHOPPING CENTRE**

Outlet to existing drainage network (Combined Sewer on Dolphin Road)

- D/S Pipe: DN300mm
- IL - 27.463m
- CL - 29.591m
- CH A8750

Chainage A8610-A8700 (South Side)

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 114m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 114m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network DN300.
- ADR: 4.9 l/s
- Vol<sub>att</sub>: 0m<sup>3</sup>

Chainage A8700-A8975 (South side)

- Carriageway in camber- road falls towards both sides (A8700-A8900). Road falls towards the right (A8900-A8975).
- No increase in impermeable area.
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Dolphin Road.

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

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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM** **MOTT MACDONALD**

Date: 28/03/23 Scale: 1:500 @ A1, 1:1000 @ A3

Drawn: A.FLEMING, Checked: R.LOUGH, Approved: C.ACTON

Project Code: BCIDA, Originator Code: ACM, QMS Code:

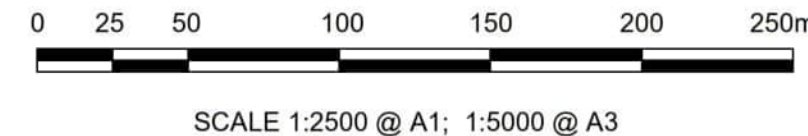
Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0027	Sheet Number: 27 of 56	Status: A	Rev: M01

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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
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Chainage A8975-A9350 (Both sides)

- Carriageway in camber- road falls towards both sides.
- No increase in impermeable area
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Parnell Road.

POTENTIAL TEMPORARY SITE COMPOUND

**NOTES:**

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

**ABBREVIATIONS:**

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

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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM** **MOTT MACDONALD**

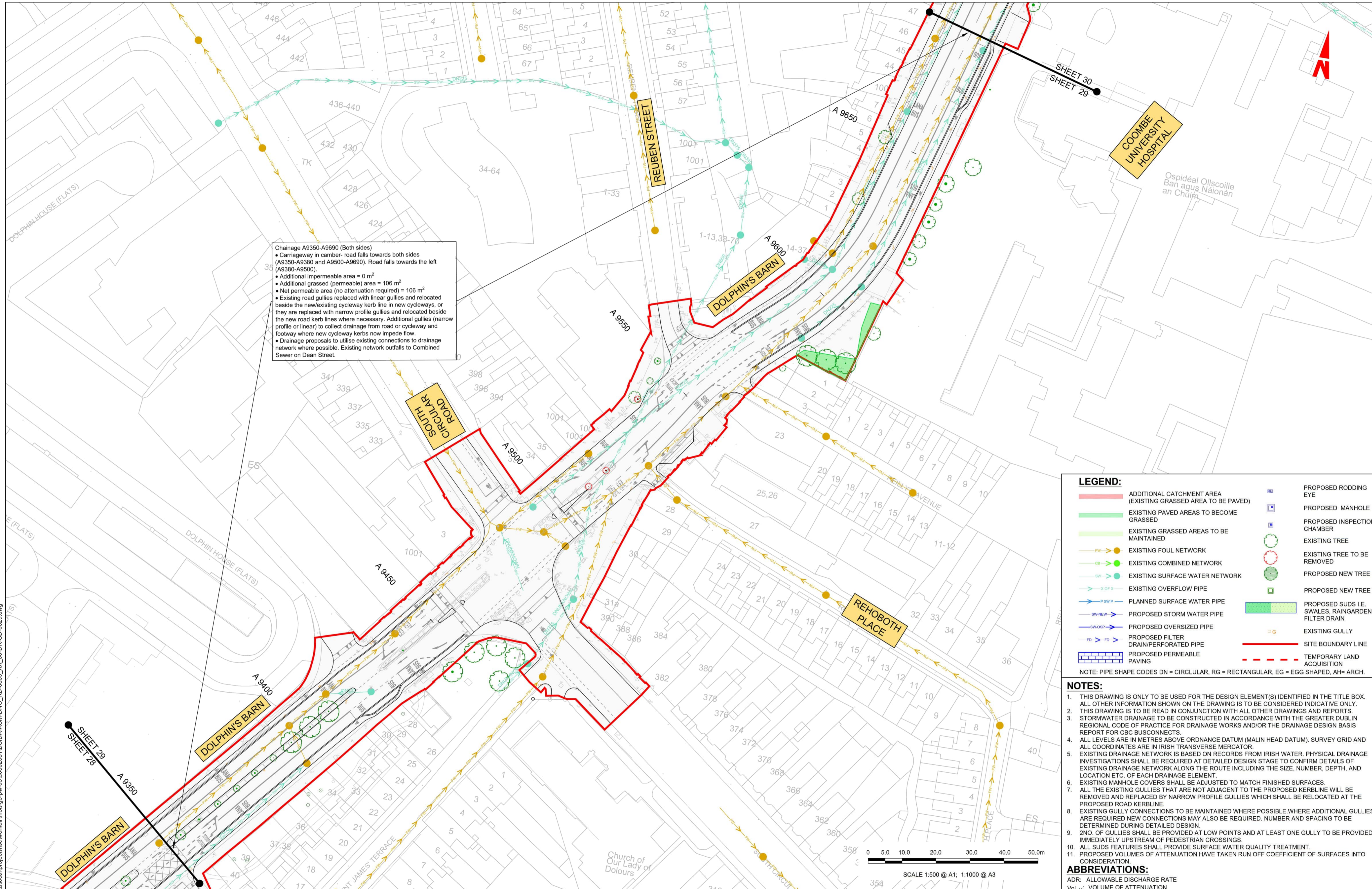
Date: 28/03/23 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDA Originator Code: ACM

Drawn: A.FLEMING Checked: R.LOUGH Approved: C.ACTON

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0028	Sheet Number: 28 of 56	Status: A	Rev: M01

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**Chainage A9350-A9690 (Both sides)**

- Carriageway in camber- road falls towards both sides (A9350-A9380 and A9500-A9690). Road falls towards the left (A9380-A9500).
- Additional impermeable area = 0 m<sup>2</sup>
- Additional grassed (permeable) area = 106 m<sup>2</sup>
- Net permeable area (no attenuation required) = 106 m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Dean Street.

**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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 = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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  4. ALL LEVELS ARE IN METRES ABOVE ORDINANCE DATUM (MALIN HEAD DATUM), SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
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  6. EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
  7. ALL THE EXISTING GULLIES THAT ARE NOT ADJACENT TO THE PROPOSED KERBLINE WILL BE REMOVED AND REPLACED BY NARROW PROFILE GULLIES WHICH SHALL BE RELOCATED AT THE PROPOSED ROAD KERBLINE.
  8. EXISTING GULLY CONNECTIONS TO BE MAINTAINED WHERE POSSIBLE. WHERE ADDITIONAL GULLIES ARE REQUIRED NEW CONNECTIONS MAY ALSO BE REQUIRED. NUMBER AND SPACING TO BE DETERMINED DURING DETAILED DESIGN.
  9. 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
  11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

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

Client	Engineering Designer	Programme Title
NTA Údarás Náisiúnta Iompair National Transport Authority	AECOM MOTT MACDONALD	<b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>
Date 28/03/23	Scale 1:500 @ A1 1:1000 @ A3	Drawing Title TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS
Project Code BCIDA	Originator Code ACM	Drawing File Name BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0029
Rev M01	Date 28/03/23	Sheet Number 29 of 56
Drn AF	Chk'd RL	Status A
App'd CA	Description ISSUE FOR PHASE 4: PLANNING	Rev M01

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Building Ireland's Future

Scale: 1:500 @ A1, 1:1000 @ A3

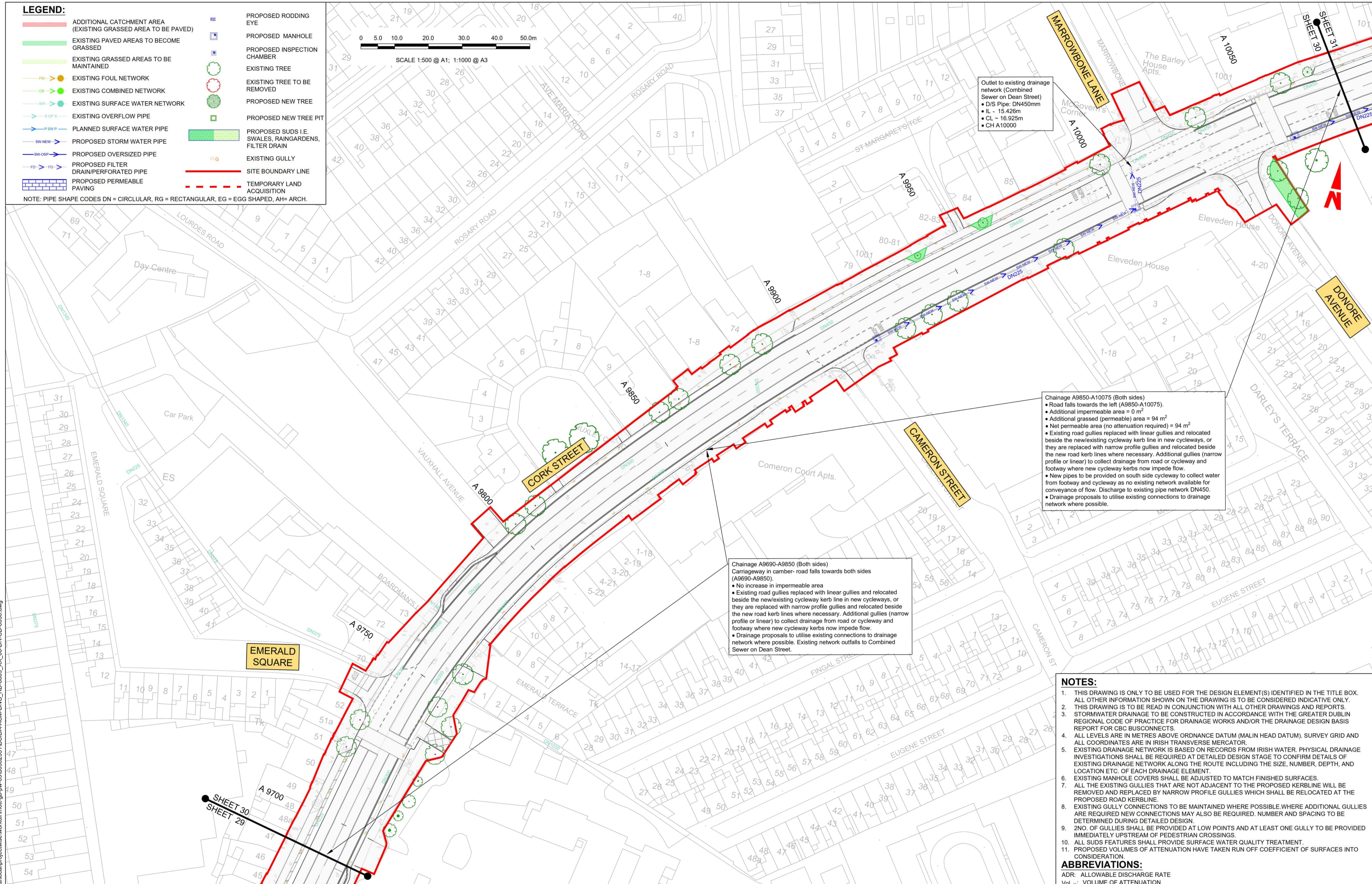
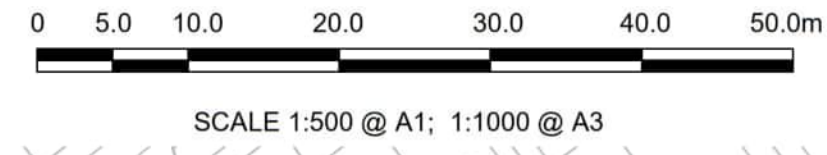
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**LEGEND:**

- 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 NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- PLANNED SURFACE WATER PIPE
- 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.



Outlet to existing drainage network (Combined Sewer on Dean Street)

- D/S Pipe: DN450mm
- IL - 15.426m
- CL - 16.925m
- CH A10000

Chainage A9850-A10075 (Both sides)

- Road falls towards the left (A9850-A10075).
- Additional impermeable area = 0 m<sup>2</sup>
- Additional grassed (permeable) area = 94 m<sup>2</sup>
- Net permeable area (no attenuation required) = 94 m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New pipes to be provided on south side cycleway to collect water from footway and cycleway as no existing network available for conveyance of flow. Discharge to existing pipe network DN450.
- Drainage proposals to utilise existing connections to drainage network where possible.

Chainage A9690-A9850 (Both sides)

Carriageway in camber- road falls towards both sides (A9690-A9850).

- No increase in impermeable area
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Dean Street.

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

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

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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

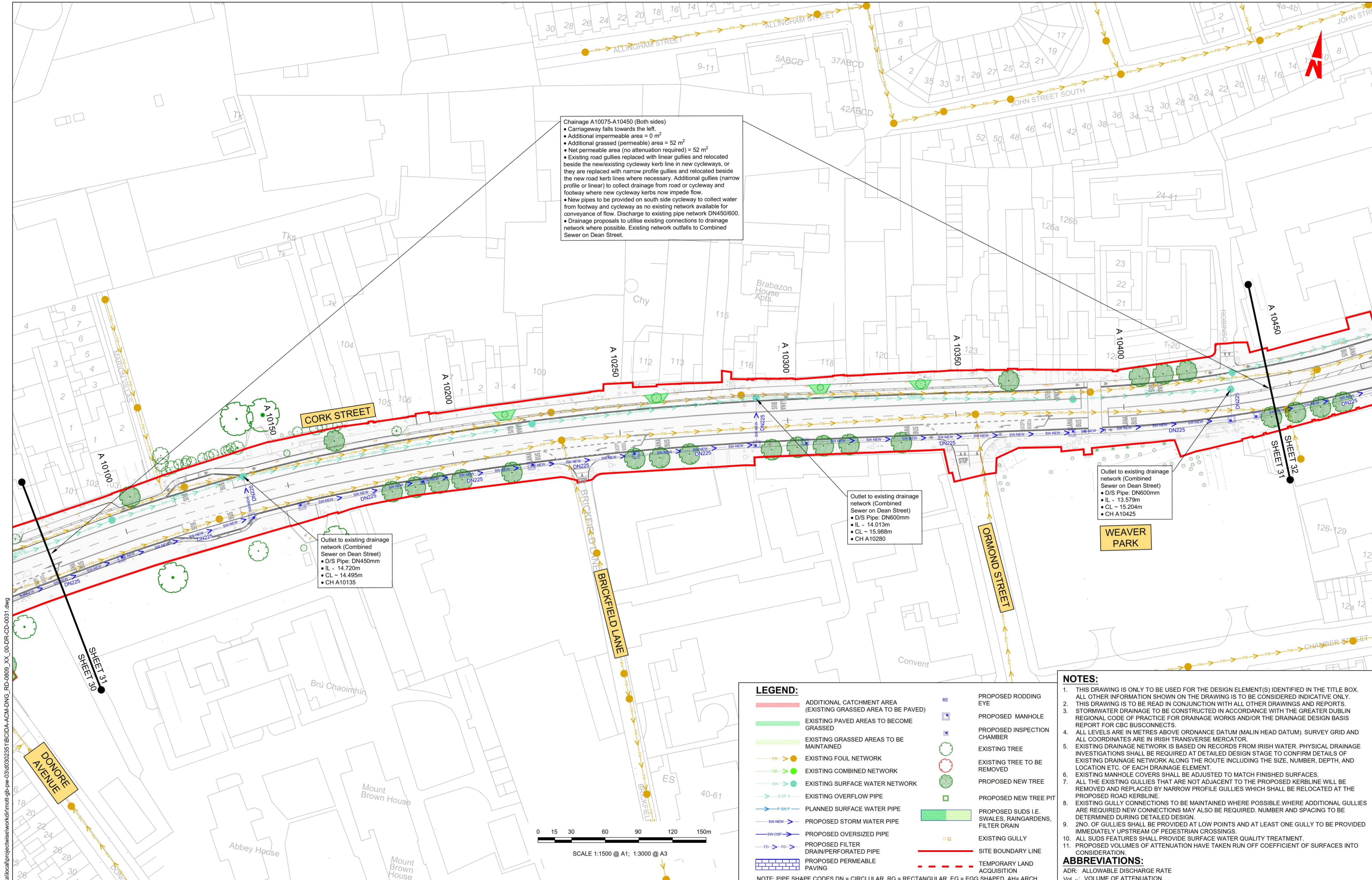
Engineering Designer: **AECOM** MOTT MACDONALD

Date: 28/03/23 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDA Originator Code: ACM

Drawn: A.FLEMING Checked: R.LOUGH Approved: C.ACTON

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0030	Sheet Number: 30 of 56	Status: A	Rev: M01



Chainage A10075-A10450 (Both sides)

- Carriageway falls towards the left.
- Additional impermeable area = 0 m<sup>2</sup>
- Additional grassed (permeable) area = 52 m<sup>2</sup>
- Net permeable area (no attenuation required) = 52 m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New pipes to be provided on south side cycleway to collect water from footway and cycleway as no existing network available for conveyance of flow. Discharge to existing pipe network DN450/600.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Dean Street.

Outlet to existing drainage network (Combined Sewer on Dean Street)

- D/S Pipe: DN450mm
- IL - 14.720m
- CL - 14.495m
- CH A10135

Outlet to existing drainage network (Combined Sewer on Dean Street)

- D/S Pipe: DN600mm
- IL - 14.013m
- CL - 15.988m
- CH A10280

Outlet to existing drainage network (Combined Sewer on Dean Street)

- D/S Pipe: DN600mm
- IL - 13.579m
- CL - 15.204m
- CH A10425

**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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 = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.

**NOTES:**

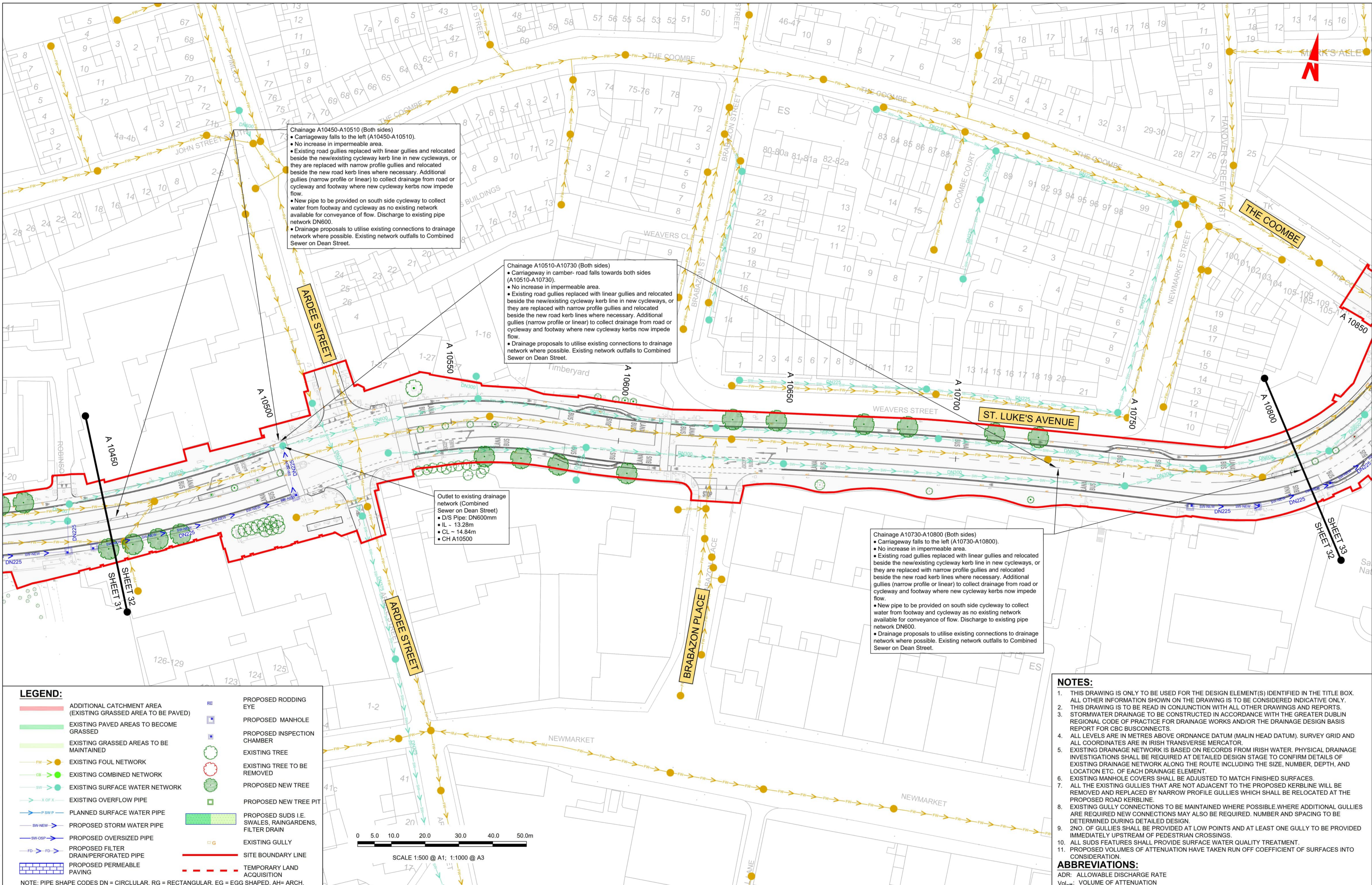
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		Rev	Date	Drn	Chk'd	App'd	Description										
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING												
<p>Date</p> <p>28/03/23</p> <p>Scale 1:500 @ A1 1:1000 @ A3</p> <p>Project Code</p> <p>BCIDA</p> <p>Originator Code</p> <p>ACM</p> <p>QMS Code</p>	<p>Drawn</p> <p>A.FLEMING</p> <p>Checked</p> <p>R.LOUGH</p> <p>Approved</p> <p>C.ACTON</p>	<p>Drawing Title</p> <p>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</p>															
<p>Drawing File Name</p> <p>BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0031</p>		<p>Sheet Number</p> <p>31 of 56</p>	<p>Status</p> <p>A</p>	<p>Rev</p> <p>M01</p>													

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



**Chainage A10450-A10510 (Both sides)**

- Carriageway falls to the left (A10450-A10510).
- No increase in impermeable area.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New pipe to be provided on south side cycleway to collect water from footway and cycleway as no existing network available for conveyance of flow. Discharge to existing pipe network DN600.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Dean Street.

**Chainage A10510-A10730 (Both sides)**

- Carriageway in camber-road falls towards both sides (A10510-A10730).
- No increase in impermeable area.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Dean Street.

**Outlet to existing drainage network (Combined Sewer on Dean Street)**

- D/S Pipe: DN600mm
- IL - 13.28m
- CL - 14.84m
- CH A10500

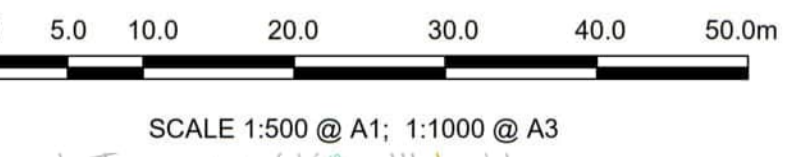
**Chainage A10730-A10800 (Both sides)**

- Carriageway falls to the left (A10730-A10800).
- No increase in impermeable area.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New pipe to be provided on south side cycleway to collect water from footway and cycleway as no existing network available for conveyance of flow. Discharge to existing pipe network DN600.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Dean Street.

**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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 = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.



**NOTES:**

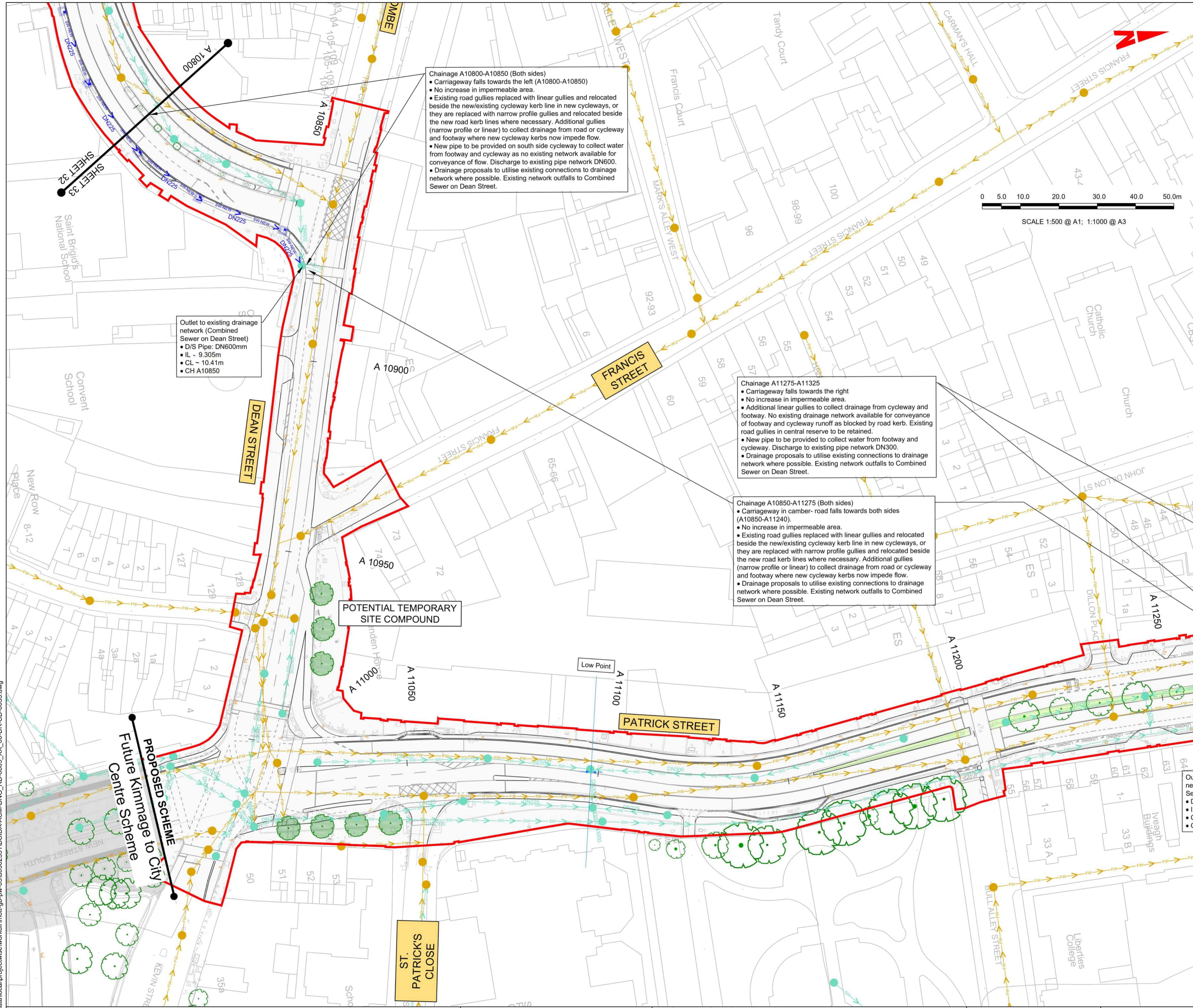
1. THIS DRAWING IS ONLY TO BE USED FOR THE DESIGN ELEMENT(S) IDENTIFIED IN THE TITLE BOX. ALL OTHER INFORMATION SHOWN ON THE DRAWING IS TO BE CONSIDERED INDICATIVE ONLY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND REPORTS.
3. STORMWATER DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE 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 SHALL 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. 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

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

<p><b>Project Ireland 2040</b> Building Ireland's Future</p>					<p>Client: <b>NTA</b> Údaráis Náisiúnta Iompair National Transport Authority</p>		<p>Engineering Designer: <b>AECOM</b> <b>MOTT MACDONALD</b></p>		<p>Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b></p>	
<p>Rev M01 Date 28/03/23 Dm AF Chk'd RL App'd CA Description ISSUE FOR PHASE 4: PLANNING</p>					<p>Date 28/03/23 Scale 1:500 @ A1 1:1000 @ A3 Drawn A.FLEMING Checked R.LOUGH Approved C.ACTON</p>		<p>Project Code BCIDA Originator Code ACM QMS Code</p>		<p>Drawing Title: TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</p>	
<p>Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0032</p>					<p>Sheet Number: 32 of 56</p>		<p>Status: A</p>		<p>Rev: M01</p>	

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**LEGEND:**

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

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

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  - 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 SHALL 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.
  - 2ND. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  - ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
  - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.
- ABBREVIATIONS:**  
ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION

Chainage A10800-A10850 (Both sides)  
 • Carriageway falls towards the left (A10800-A10850)  
 • No increase in impermeable area.  
 • Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.  
 • New pipe to be provided on south side cycleway to collect water from footway and cycleway as no existing network available for conveyance of flow. Discharge to existing pipe network DN600.  
 • Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Dean Street.

Outlet to existing drainage network (Combined Sewer on Dean Street)  
 • D/S Pipe: DN600mm  
 • IL - 9.305m  
 • CL - 10.41m  
 • CH A10850

Chainage A11275-A11325  
 • Carriageway falls towards the right  
 • No increase in impermeable area.  
 • Additional linear gullies to collect drainage from cycleway and footway. No existing drainage network available for conveyance of footway and cycleway runoff as blocked by road kerb. Existing road gullies in central reserve to be retained.  
 • New pipe to be provided to collect water from footway and cycleway. Discharge to existing pipe network DN300.  
 • Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Dean Street.

Chainage A10850-A11275 (Both sides)  
 • Carriageway in camber- road falls towards both sides (A10850-A11240).  
 • No increase in impermeable area.  
 • Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.  
 • Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Dean Street.

Outlet to existing drainage network (Combined Sewer on Dean Street)  
 • D/S Pipe: DN300mm  
 • IL - 8.438m  
 • CL - 9.789m  
 • CH A11275

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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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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM** **MOTT MACDONALD**

Date: 28/03/23  
 Scale: 1:500 @ A1, 1:1000 @ A3

Drawn: A.FLEMING  
 Checked: R.LOUGH  
 Approved: C.ACTON

Project Code: BCIDA  
 Originator Code: ACM

QMS Code:

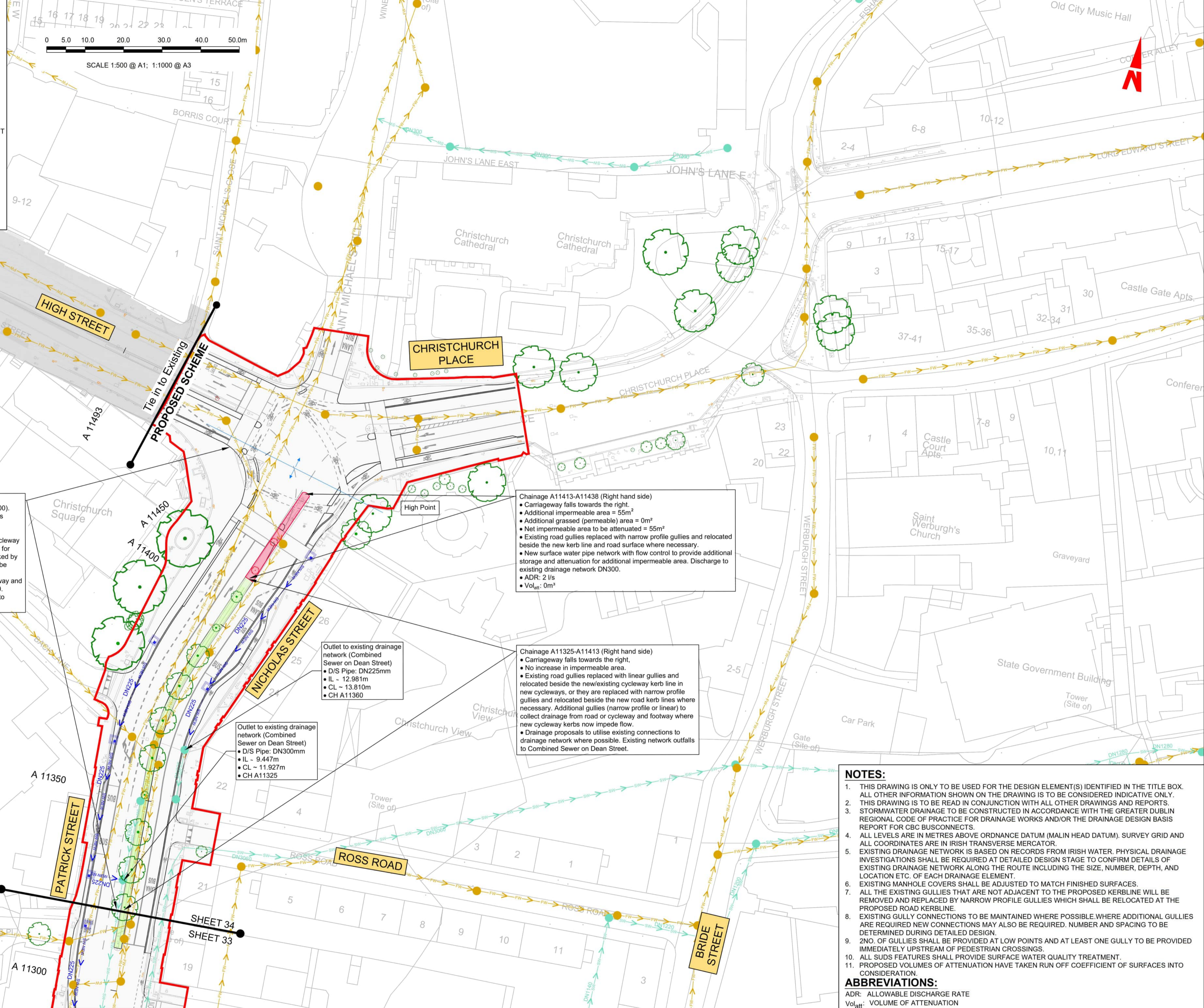
Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0033	Sheet Number: 33 of 56	Status: A	Rev: M01

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 NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- PLANNED SURFACE WATER PIPE
- 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.



Chainage A11325-A11438 (Left hand side)

- Carriageway falls towards the right (A11325-A11400). Carriageway in camber- road falls towards both sides (A11400-A11438).
- No increase in impermeable area.
- Additional linear gullies to collect drainage from cycleway and footway. No existing drainage network available for conveyance of footway and cycleway runoff as blocked by road kerb. Existing road gullies in central reserve to be retained.
- New pipe to be provided to collect water from footway and cycleway. Discharge to existing pipe network DN300.
- Drainage proposals to utilise existing connections to drainage network where possible.

Chainage A11413-A11438 (Right hand side)

- Carriageway falls towards the right.
- Additional impermeable area = 55m<sup>2</sup>
- Additional grassed (permeable) area = 0m<sup>2</sup>
- Net impermeable area to be attenuated = 55m<sup>2</sup>
- Existing road gullies replaced with narrow profile gullies and relocated beside the new kerb line and road surface where necessary.
- New surface water pipe network with flow control to provide additional storage and attenuation for additional impermeable area. Discharge to existing drainage network DN300.
- ADR: 2 l/s
- Vol<sub>att</sub>: 0m<sup>3</sup>

Chainage A11325-A11413 (Right hand side)

- Carriageway falls towards the right.
- No increase in impermeable area.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Dean Street.

Outlet to existing drainage network (Combined Sewer on Dean Street)

- D/S Pipe: DN225mm
- IL - 12.981m
- CL - 13.810m
- CH A11360

Outlet to existing drainage network (Combined Sewer on Dean Street)

- D/S Pipe: DN300mm
- IL - 9.447m
- CL - 11.927m
- CH A11325

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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.
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- EXISTING MANHOLE COVERS SHALL BE ADJUSTED TO MATCH FINISHED SURFACES.
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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.
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- ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
- PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

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

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

Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM** **MOTT MACDONALD**

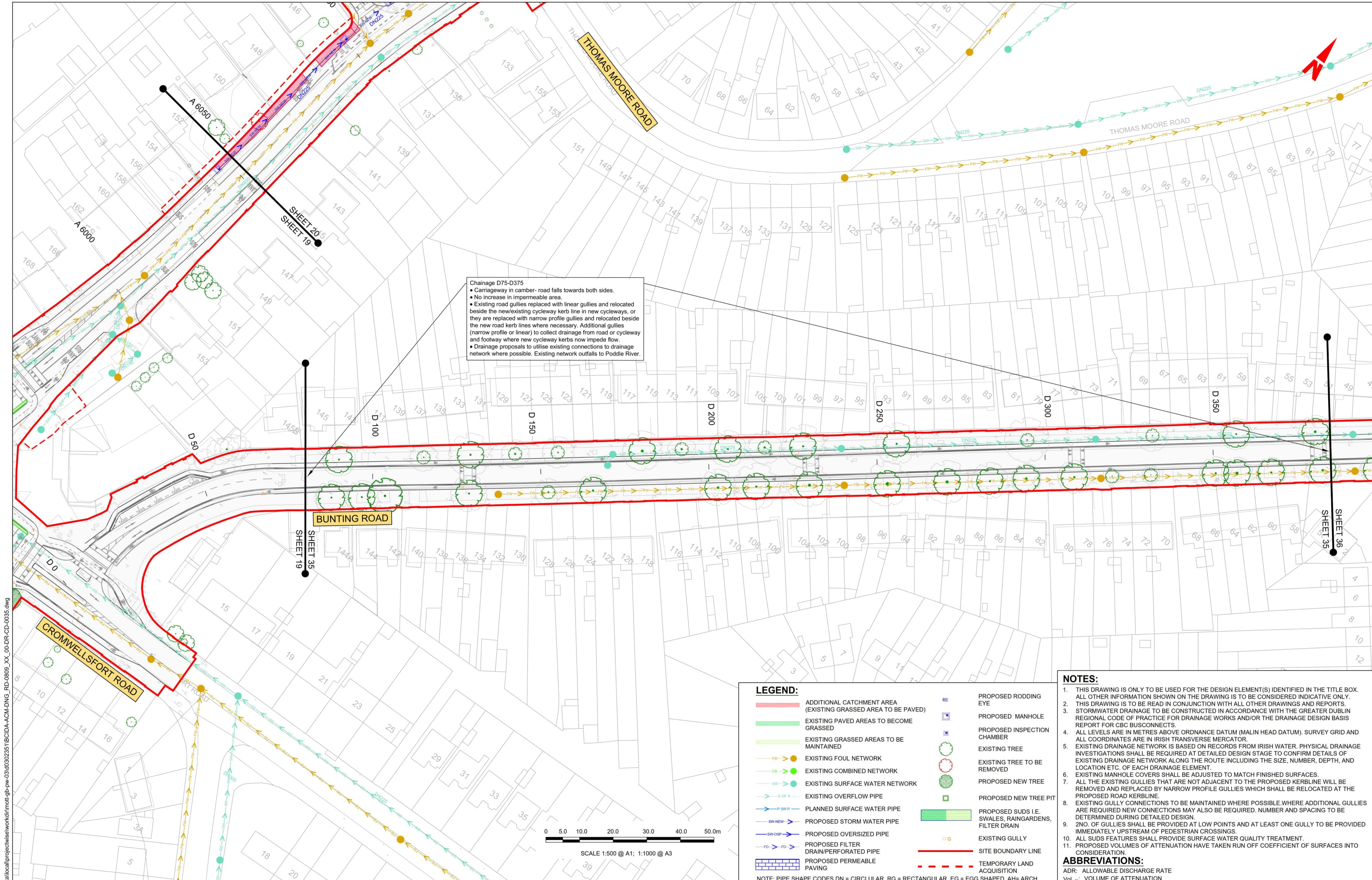
Date: 28/03/23 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDA Originator Code: ACM

Drawn: A.FLEMING Checked: R.LOUGH Approved: C.ACTON

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0034	Sheet Number: 34 of 56	Status: A	Rev: M01

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**Chainage D75-D375**

- Carriageway in camber- road falls towards both sides.
- No increase in impermeable area.
- Existing road gullies replaced with linear gullies and relocated beside the new existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Poddle River.

**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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 = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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4. ALL LEVELS ARE IN METRES ABOVE ORDNANCE 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 SHALL 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.
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10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

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

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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

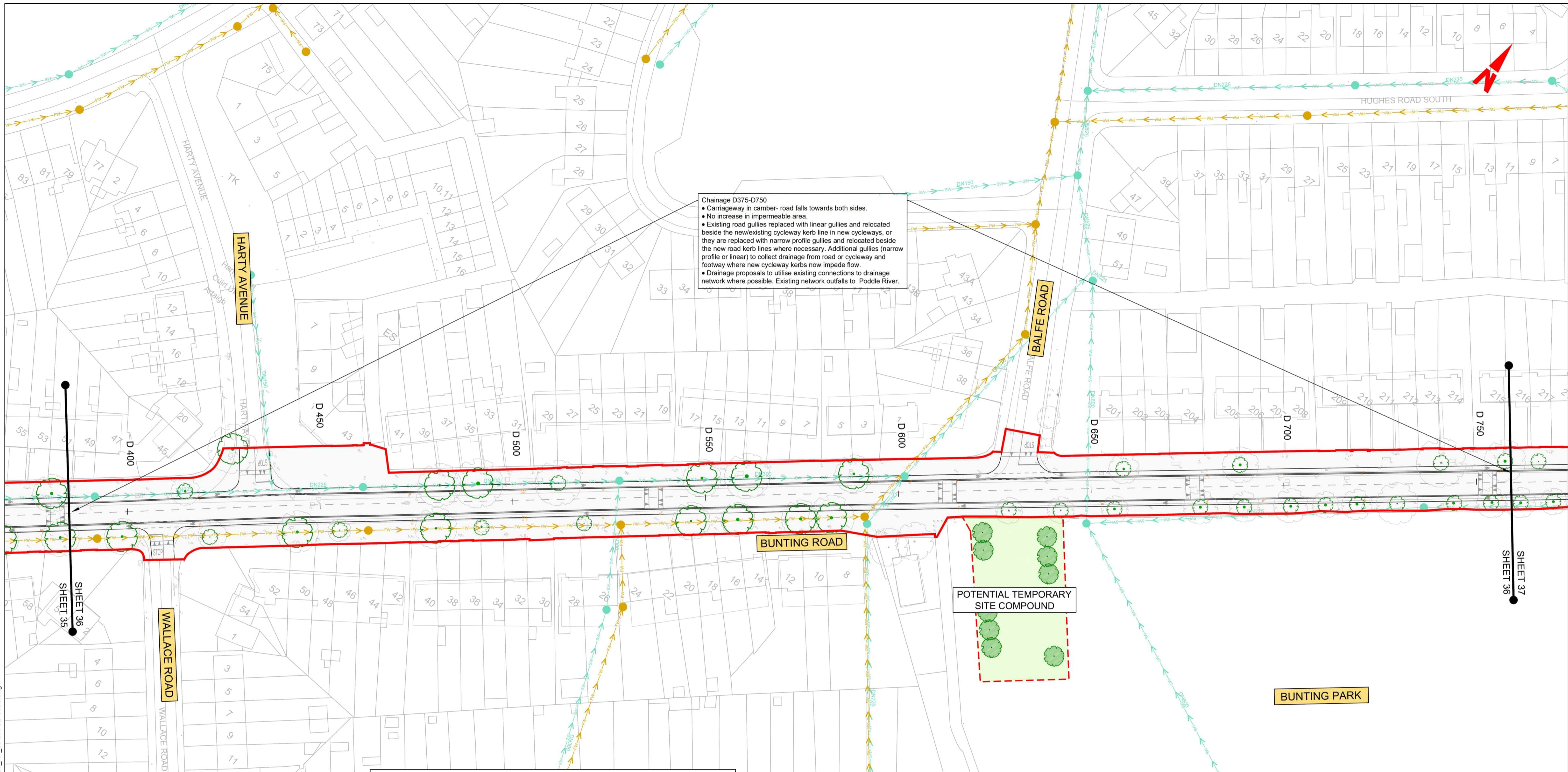
Engineering Designer: **AECOM** (MOTT MACDONALD)

Date: 28/03/23 | Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDA | Originator Code: ACM

Drawn: A.FLEMING | Checked: R.LOUGH | Approved: C.ACTON

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0035	Sheet Number: 35 of 56	Status: A	Rev: M01



Chainage D375-D750

- Carriageway in camber road falls towards both sides.
- No increase in impermeable area.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Poddle River.

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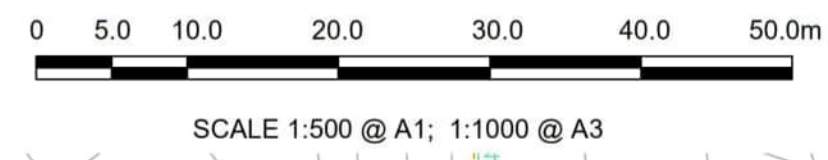
**ABBREVIATIONS:**

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

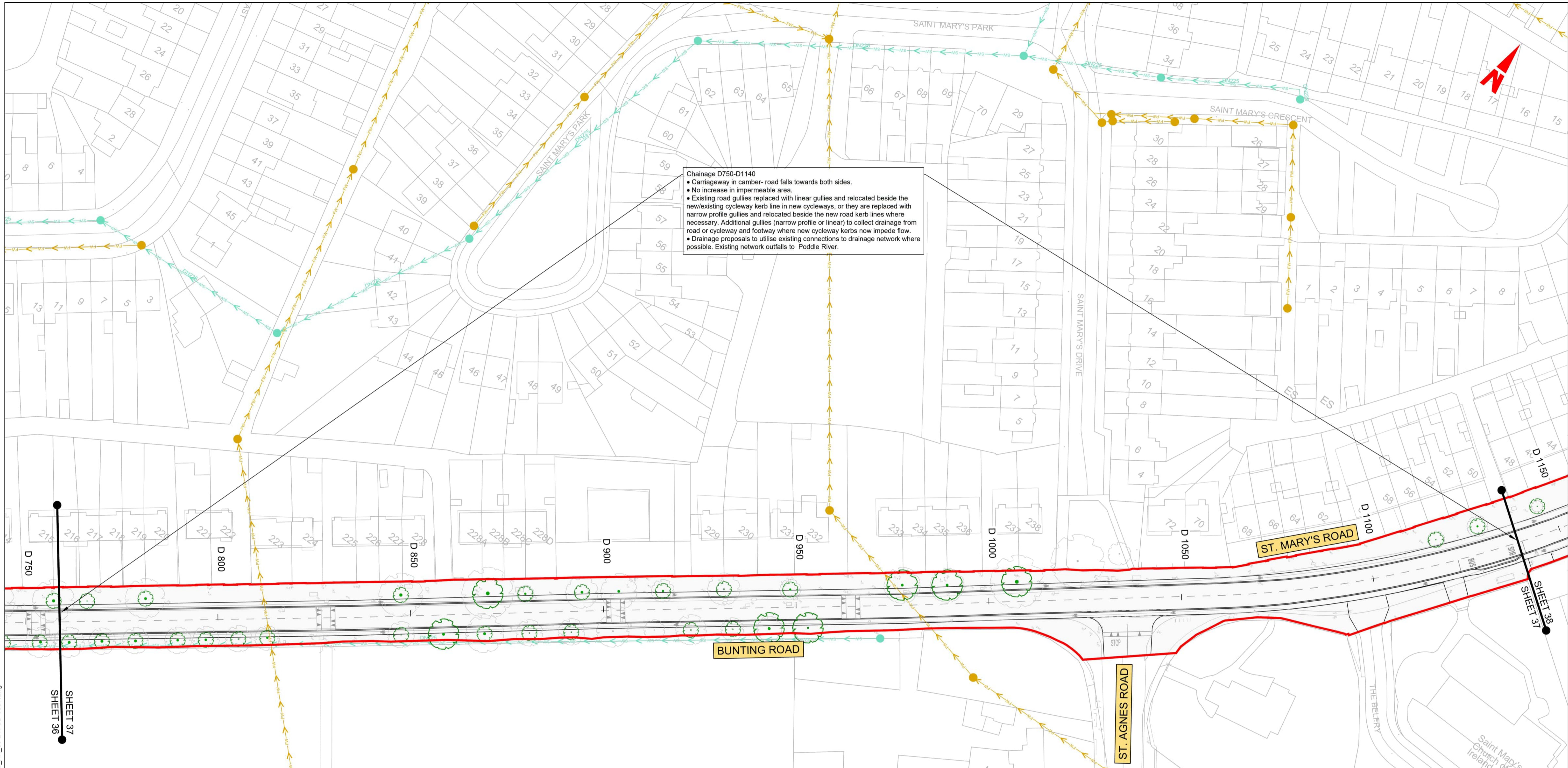
**LEGEND:**

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

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



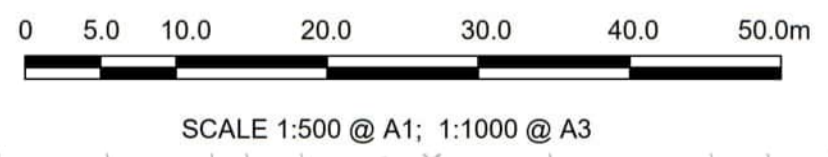
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<p>Date 28/03/23 Scale 1:500 @ A1 1:1000 @ A3</p> <p>Project Code BCIDA Originator Code ACM</p>		<p>Drawn A.FLEMING Checked R.LOUGH Approved C.ACTON</p>	<p>Drawing File Name BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0036</p>	<p>Sheet Number 36 of 56 Status A Rev M01</p>	



**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
	PROPOSED OVERSIZED PIPE		SITE BOUNDARY LINE
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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM** **MOTT MACDONALD**

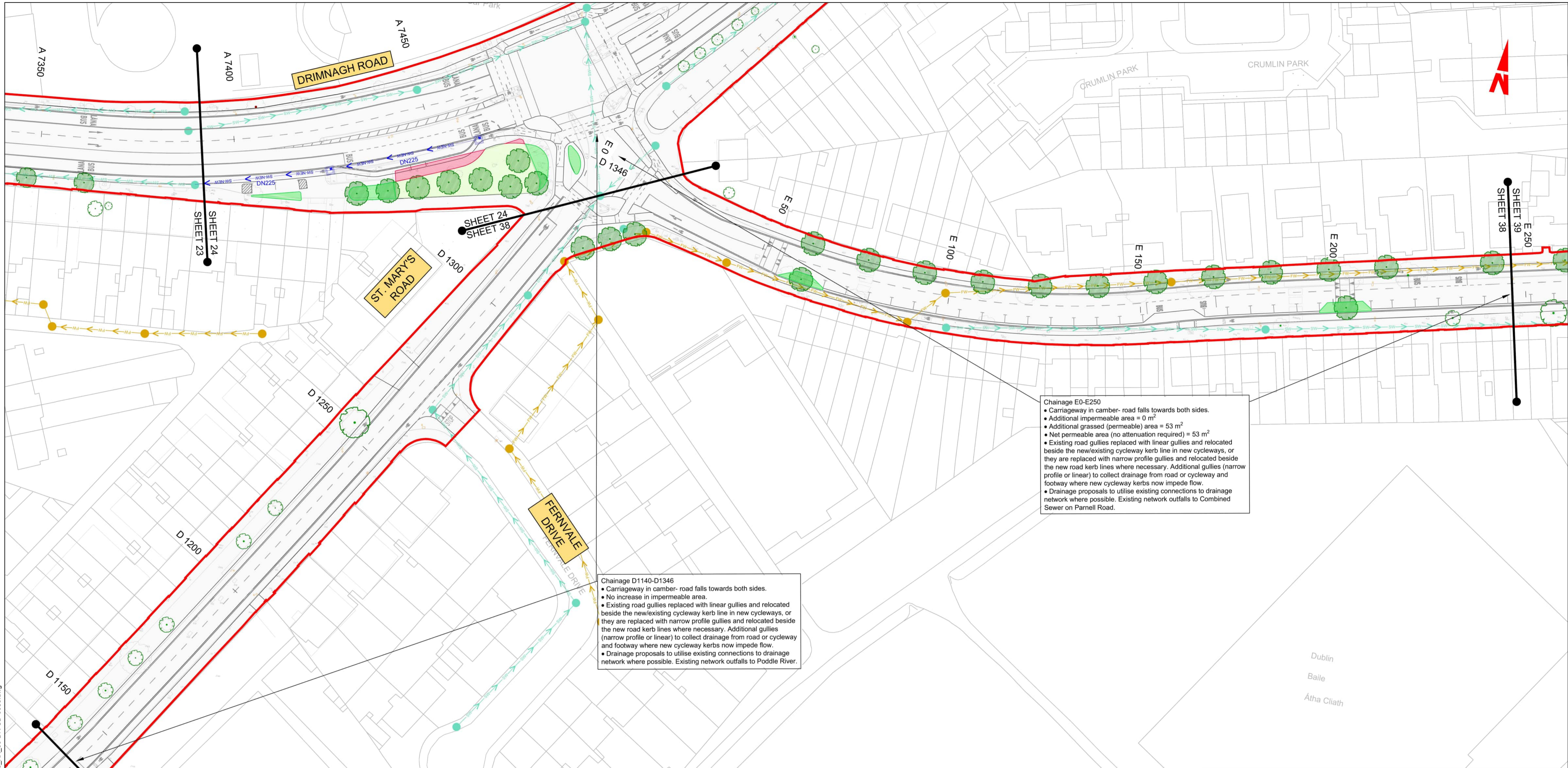
Date: 28/03/23 Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDA Originator Code: ACM

Drawn: A.FLEMING Checked: R.LOUGH Approved: C.ACTON

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0037	Sheet Number: 37 of 56	Status: A	Rev: M01





**Chainage E0-E250**

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 0 m<sup>2</sup>
- Additional grassed (permeable) area = 53 m<sup>2</sup>
- Net permeable area (no attenuation required) = 53 m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
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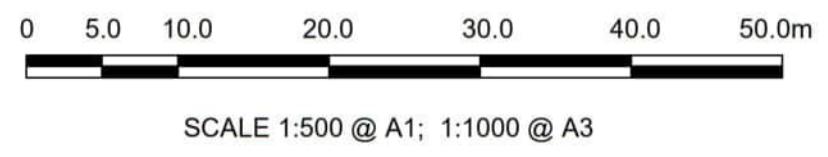
**Chainage D1140-D1346**

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	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
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M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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Date: 28/03/23 Scale: 1:500 @ A1, 1:1000 @ A3

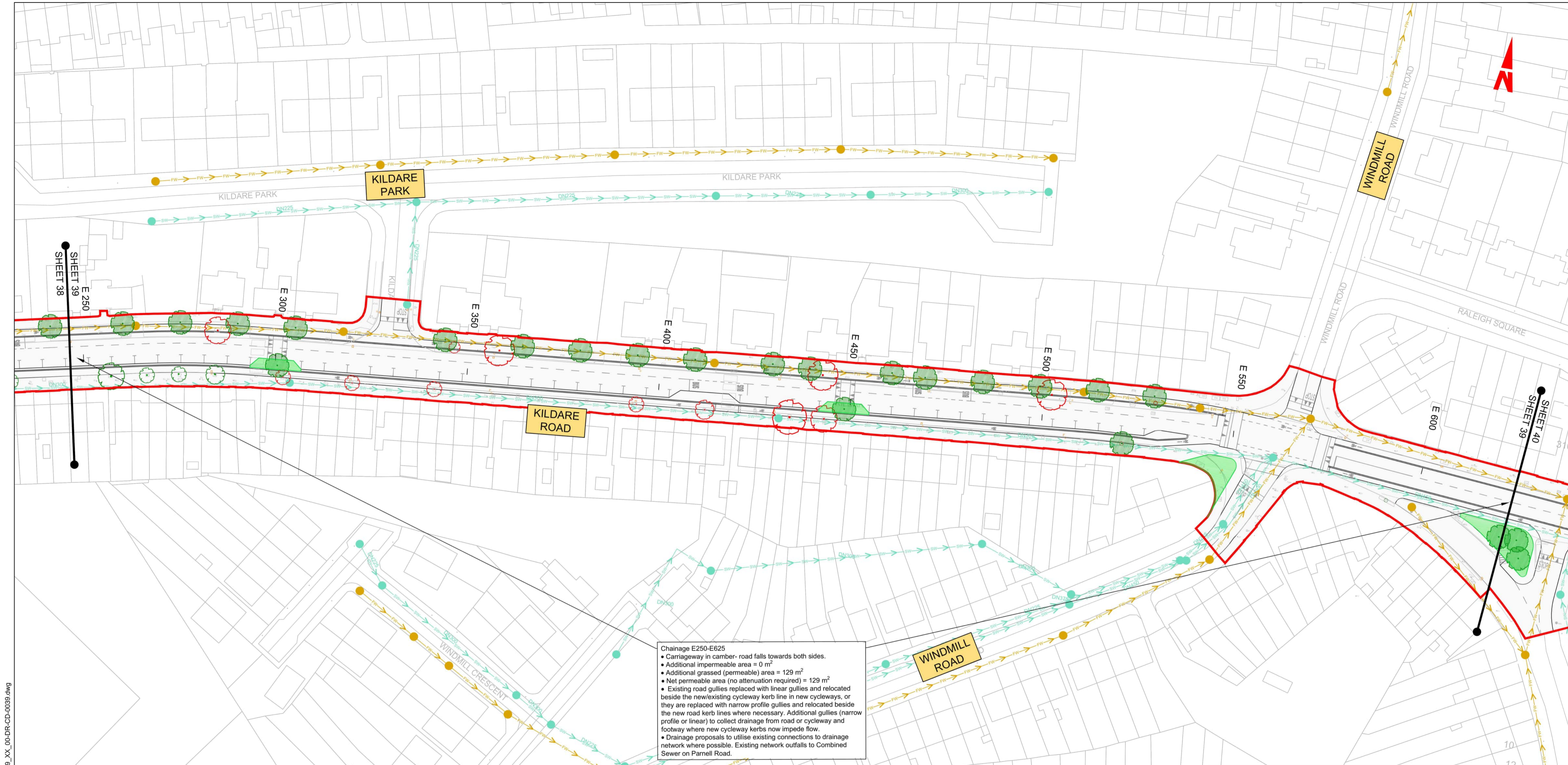
Engineering Designer: **AECOM** **MOTT MACDONALD**

Drawn: A.FLEMING Checked: R.LOUGH Approved: C.ACTON

Project Code: BCIDA Originator Code: ACM QMS Code:

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0038	Sheet Number: 38 of 56	Status: A	Rev: M01

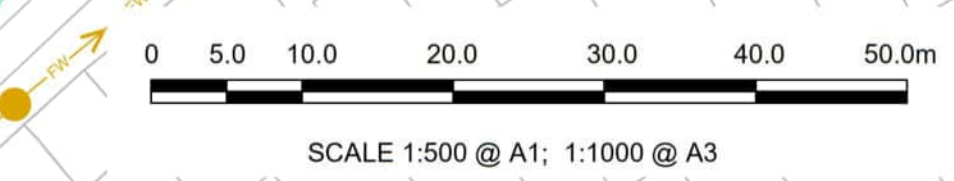
DO NOT SCALE USE FIGURED DIMENSIONS ONLY



Chainage E250-E625

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- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
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  - PLANNED SURFACE WATER PIPE
  - PROPOSED STORM WATER PIPE
  - PROPOSED OVERSIZED PIPE
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  - PROPOSED PERMEABLE PAVING
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  - PROPOSED MANHOLE
  - PROPOSED INSPECTION CHAMBER
  - EXISTING TREE
  - EXISTING TREE TO BE REMOVED
  - PROPOSED NEW TREE
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  - PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
  - EXISTING GULLY
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  - TEMPORARY LAND ACQUISITION
- NOTE: PIPE SHAPE CODES DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.



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- ADR: ALLOWABLE DISCHARGE RATE  
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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM**, **MOTT MACDONALD**

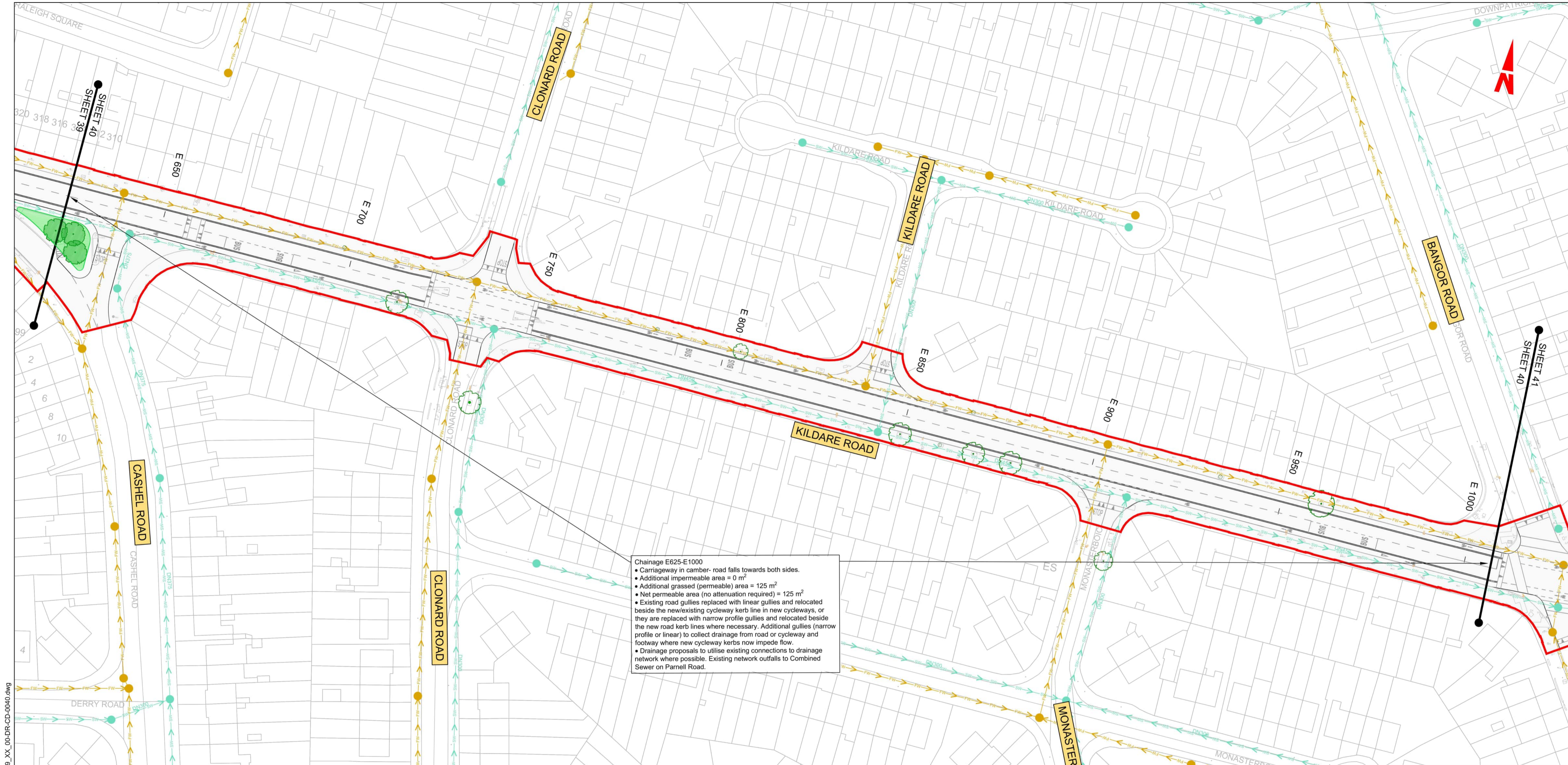
Date: 28/03/23  
Scale: 1:500 @ A1, 1:1000 @ A3

Drawn: A.FLEMING, Checked: R.LOUGH, Approved: C.ACTON

Project Code: BCIDA, Originator Code: ACM, QMS Code:

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0039	Sheet Number: 39 of 56	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



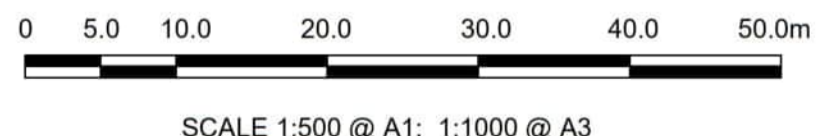
Chainage E625-E1000

- Carriageway in camber- road falls towards both sides.
- Additional impermeable area = 0 m<sup>2</sup>
- Additional grassed (permeable) area = 125 m<sup>2</sup>
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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
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	EXISTING COMBINED NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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
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M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

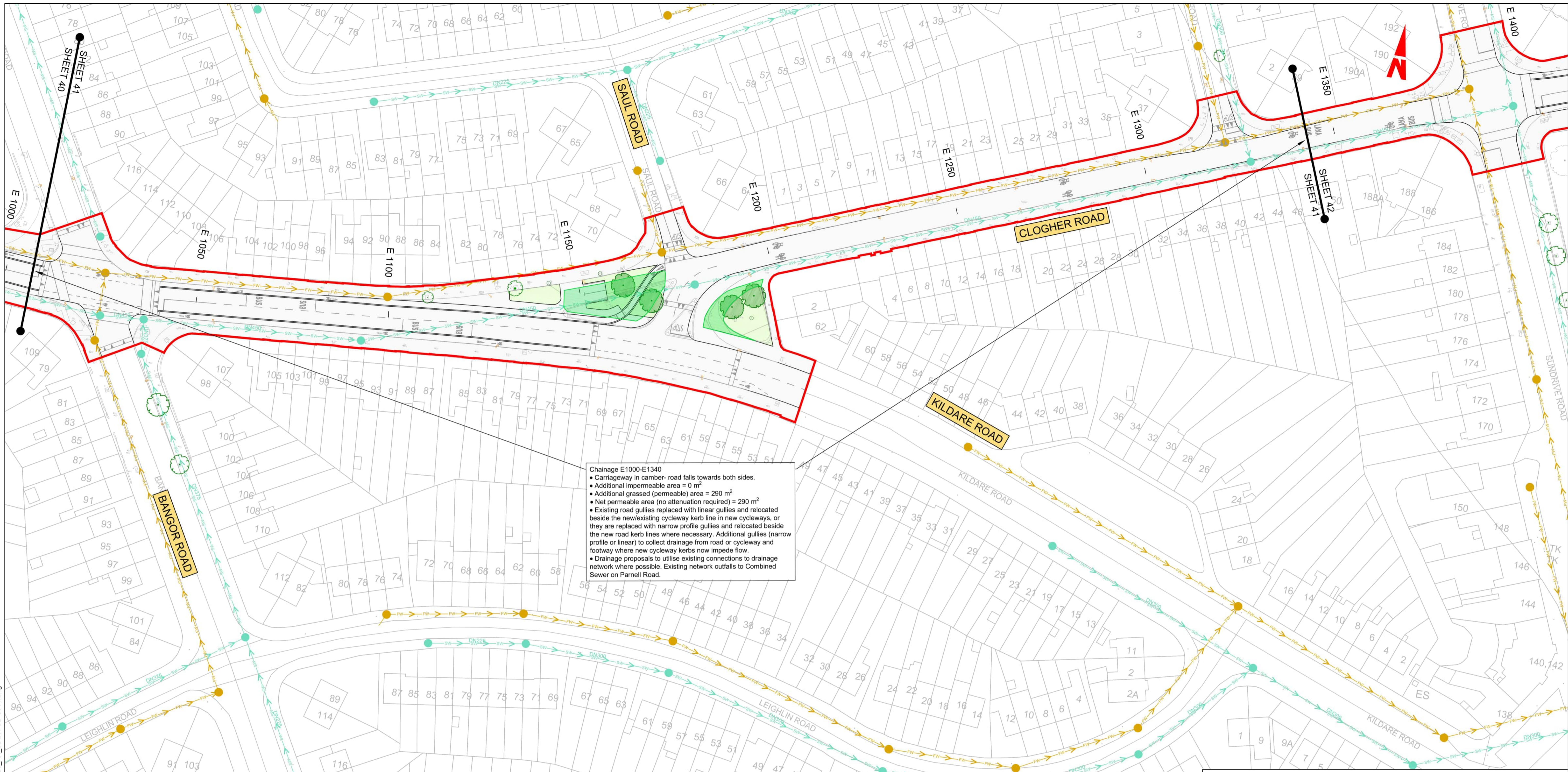
Engineering Designer: **AECOM**, **MOTT MACDONALD**

Date: 28/03/23  
Scale: 1:500 @ A1, 1:1000 @ A3

Drawn: A.FLEMING, Checked: R.LOUGH, Approved: C.ACTON

Project Code: BCIDA, Originator Code: ACM, QMS Code:

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0040	Sheet Number: 40 of 56	Status: A	Rev: M01



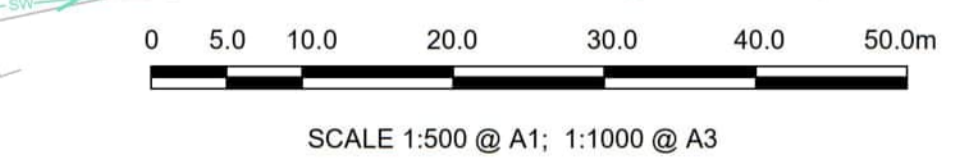
Chainage E1000-E1340

- Carriageway in camber- road falls towards both sides.
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Client: **NTA**  
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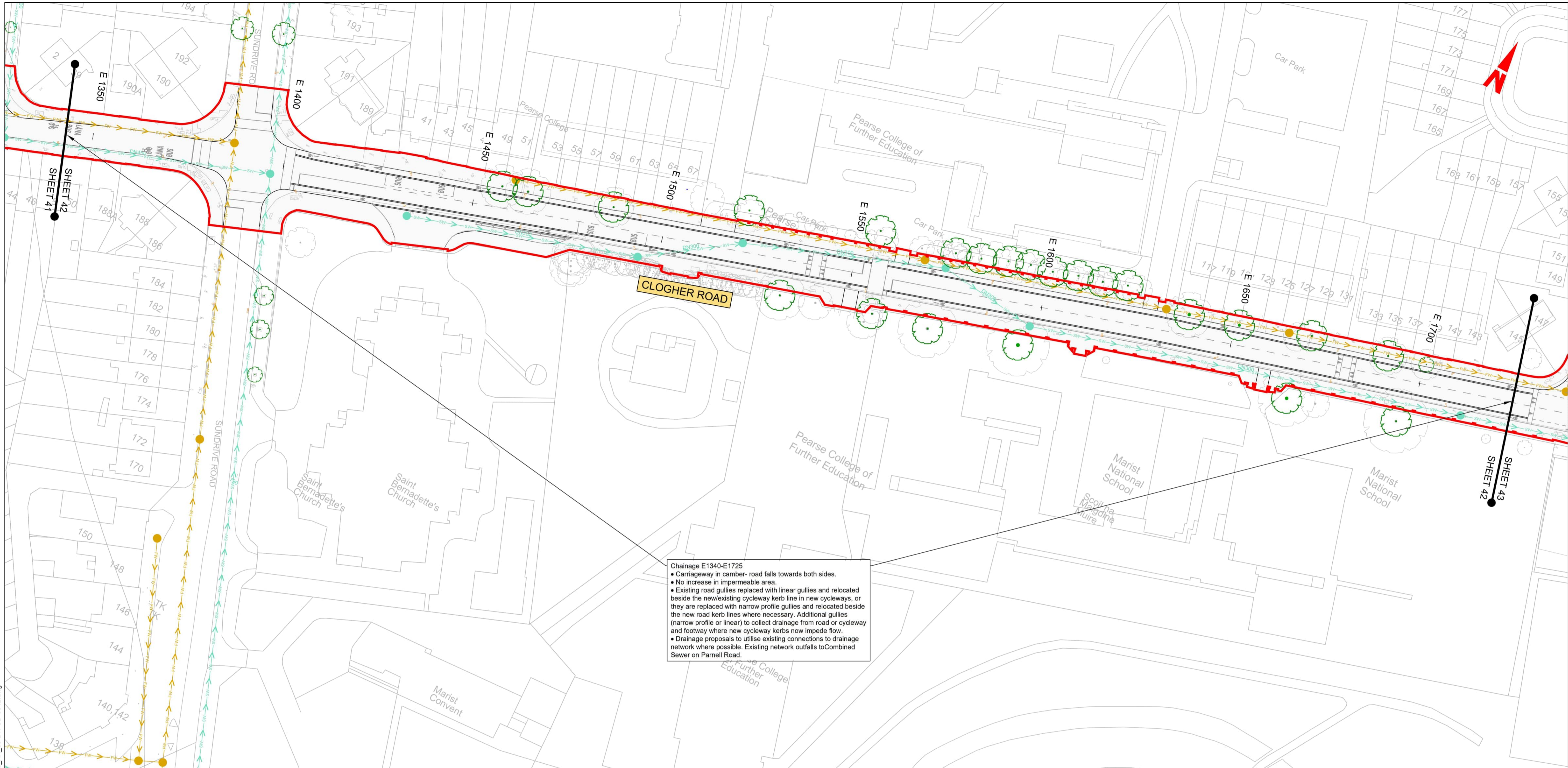
Engineering Designer: **AECOM**, **MOTT MACDONALD**

Date: 28/03/23 | Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDA | Originator Code: ACM

Drawn: A.FLEMING | Checked: R.LOUGH | Approved: C.ACTON

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0041	Sheet Number: 41 of 56	Status: A	Rev: M01



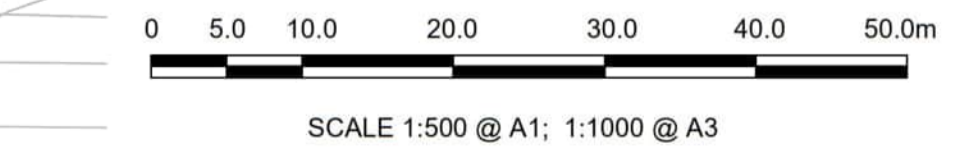
**Chainage E1340-E1725**

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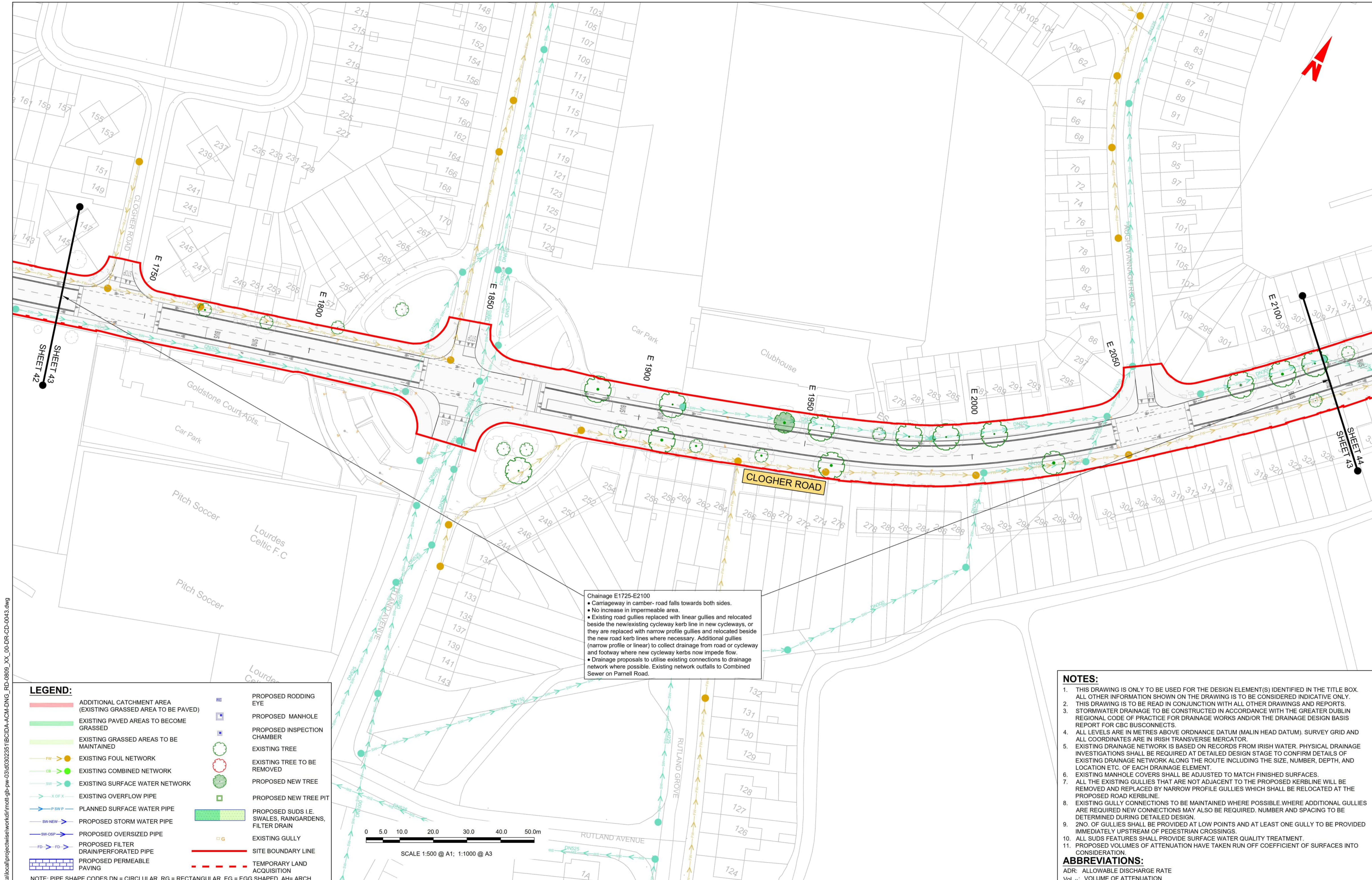
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Chainage E1725-E2100

- Carriageway in camber- road falls towards both sides.
- No increase in impermeable area.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Parnell Road.

**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSSED		PROPOSED MANHOLE
	EXISTING GRASSSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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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- PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

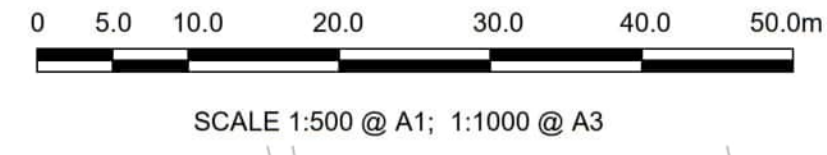
ADR: ALLOWABLE DISCHARGE RATE  
Vol<sub>att</sub>: VOLUME OF ATTENUATION

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<p>Date</p> <p>28/03/23</p> <p>Project Code</p> <p>BCIDA</p>	<p>Scale</p> <p>1:500 @ A1 1:1000 @ A3</p> <p>Originator Code</p> <p>ACM</p>	<p>Drawn</p> <p>A.FLEMING</p> <p>Checked</p> <p>R.LOUGH</p> <p>Approved</p> <p>C.ACTON</p>	<p>Drawing Title</p> <p>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</p>	<p>Drawing File Name</p> <p>BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0043</p>	<p>Sheet Number</p> <p>43 of 56</p>	<p>Status</p> <p>A</p>	<p>Rev</p> <p>M01</p>										

**LEGEND:**

- ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)
- EXISTING PAVED AREAS TO BECOME GRASSED
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- EXISTING SURFACE WATER NETWORK
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- PROPOSED STORM WATER PIPE
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- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

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Chainage E2100-E2447  
 • Carriageway in camber road falls towards both sides.  
 • No increase in impermeable area.  
 • Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.  
 • Drainage proposals to utilise existing connections to drainage network where possible. Existing network outfalls to Combined Sewer on Parnell Road.

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

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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

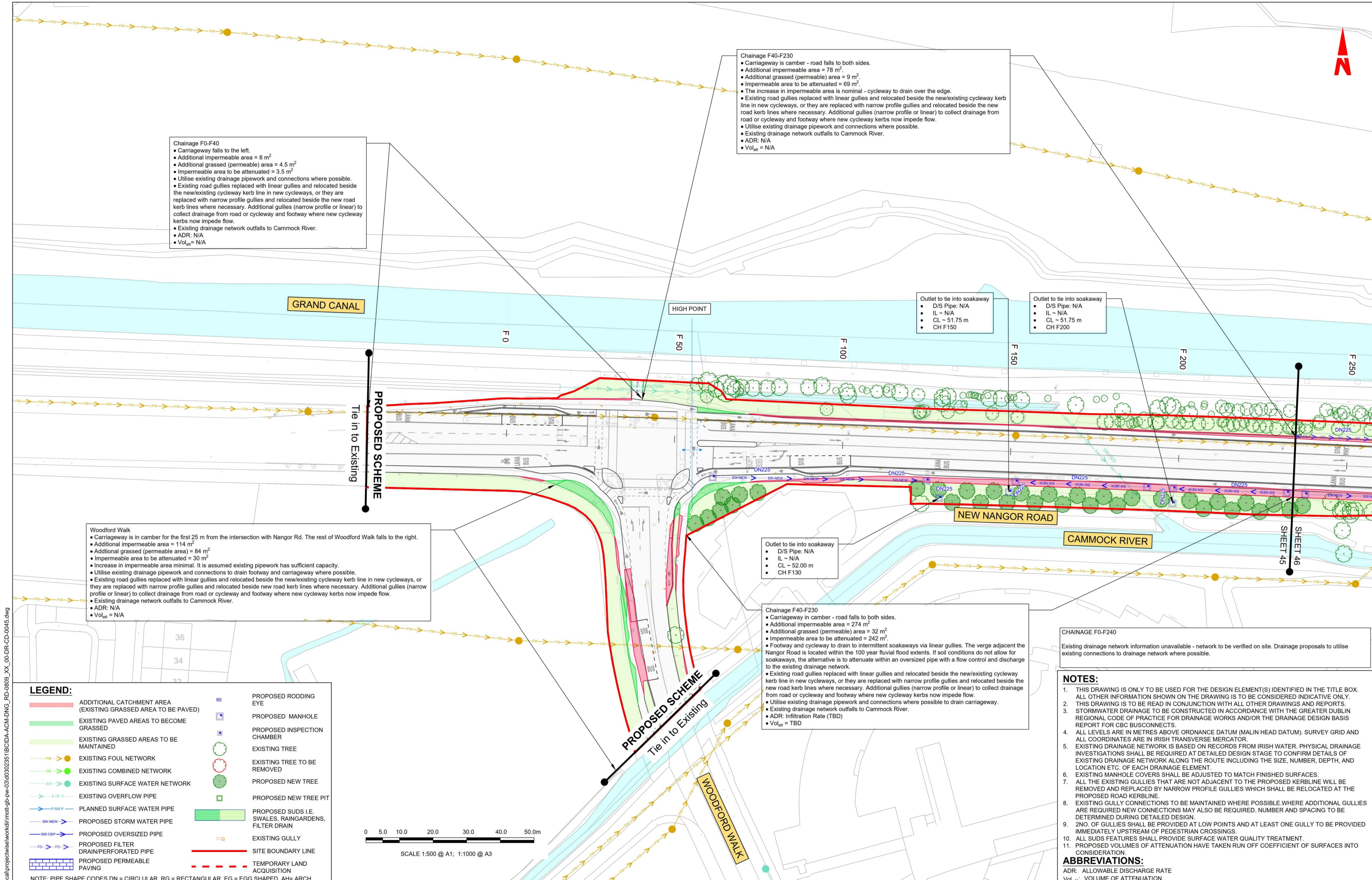
Engineering Designer: **AECOM**, **MOTT MACDONALD**

Date: 28/03/23 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: A.FLEMING | Checked: R.LOUGH | Approved: C.ACTON

Project Code: BCIDA | Originator Code: ACM | QMS Code:

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0044	Sheet Number: 44 of 56	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



**Chainage F0-F40**

- Carriageway falls to the left.
- Additional impermeable area = 8 m<sup>2</sup>
- Additional grassed (permeable) area = 4.5 m<sup>2</sup>
- Impermeable area to be attenuated = 3.5 m<sup>2</sup>
- Utilise existing drainage pipework and connections where possible.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Existing drainage network outfalls to Cammock River.
- ADR: N/A
- Vol<sub>att</sub> = N/A

**Chainage F40-F230**

- Carriageway is camber - road falls to both sides.
- Additional impermeable area = 78 m<sup>2</sup>.
- Additional grassed (permeable) area = 9 m<sup>2</sup>.
- Impermeable area to be attenuated = 69 m<sup>2</sup>.
- The increase in impermeable area is nominal - cycleway to drain over the edge.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing drainage pipework and connections where possible.
- Existing drainage network outfalls to Cammock River.
- ADR: N/A
- Vol<sub>att</sub> = N/A

**Outlet to tie into soakaway**

- D/S Pipe: N/A
- IL ~ N/A
- CL ~ 51.75 m
- CH F150

**Outlet to tie into soakaway**

- D/S Pipe: N/A
- IL ~ N/A
- CL ~ 51.75 m
- CH F200

**Outlet to tie into soakaway**

- D/S Pipe: N/A
- IL ~ N/A
- CL ~ 52.00 m
- CH F130

**Chainage F40-F230**

- Carriageway in camber - road falls to both sides.
- Additional impermeable area = 274 m<sup>2</sup>
- Additional grassed (permeable) area = 32 m<sup>2</sup>
- Impermeable area to be attenuated = 242 m<sup>2</sup>.
- Footway and cycleway to drain to intermittent soakways via linear gullies. The verge adjacent the Nangor Road is located within the 100 year fluvial flood extents. If soil conditions do not allow for soakways, the alternative is to attenuate within an oversized pipe with a flow control and discharge to the existing drainage network.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing drainage pipework and connections where possible to drain carriageway.
- Existing drainage network outfalls to Cammock River.
- ADR: Infiltration Rate (TBD)
- Vol<sub>att</sub> = TBD

**CHAINAGE F0-F240**

Existing drainage network information unavailable - network to be verified on site. Drainage proposals to utilise existing connections to drainage network where possible.

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**ABBREVIATIONS:**

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

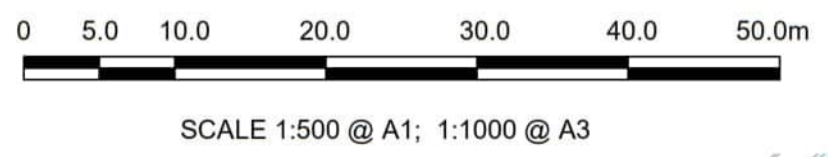
**Woodford Walk**

- Carriageway is in camber for the first 25 m from the intersection with Nangor Rd. The rest of Woodford Walk falls to the right.
- Additional impermeable area = 114 m<sup>2</sup>
- Additional grassed (permeable) area = 84 m<sup>2</sup>
- Impermeable area to be attenuated = 30 m<sup>2</sup>
- Increase in impermeable area minimal. It is assumed existing pipework has sufficient capacity.
- Utilise existing drainage pipework and connections to drain footway and carriageway where possible.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Existing drainage network outfalls to Cammock River.
- ADR: N/A
- Vol<sub>att</sub> = N/A

**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
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**Project Ireland 2040**

Building Ireland's Future

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**Client**

**NTA**  
Údaráis Náisiúnta Iompair  
National Transport Authority

**Engineering Designer**

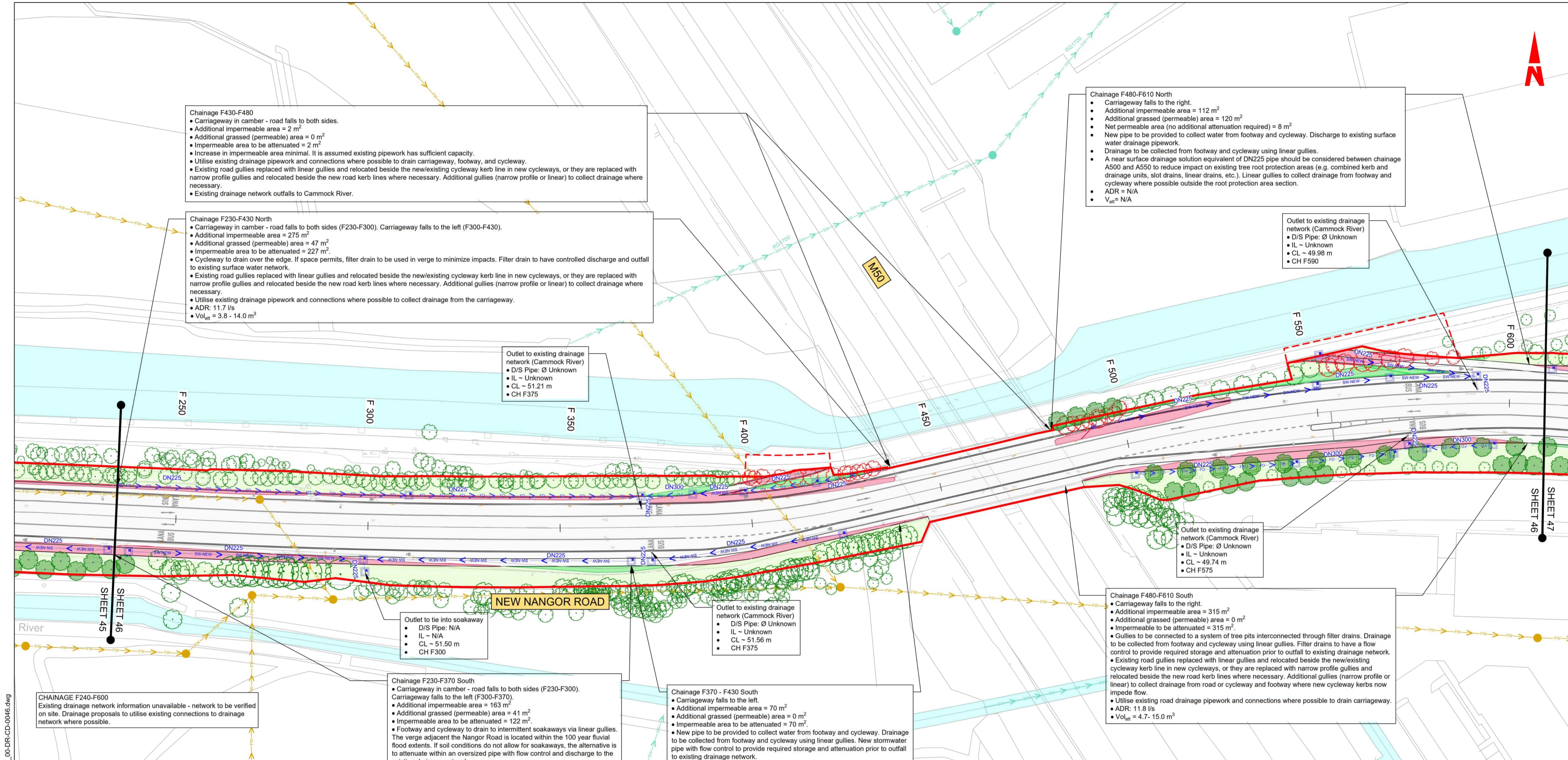
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MOTT MACDONALD

Date: 28/03/23  
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Drawing File Name BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0045	Sheet Number 45 of 56	Status A	Rev M01





**Chainage F430-F480**

- Carriageway falls to the right.
- Additional impermeable area = 2 m<sup>2</sup>
- Additional grassed (permeable) area = 0 m<sup>2</sup>
- Impermeable area to be attenuated = 2 m<sup>2</sup>
- Increase in impermeable area minimal. It is assumed existing pipework has sufficient capacity.
- Utilise existing drainage pipework and connections where possible to drain carriageway, footway, and cycleway.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage where necessary.
- Existing drainage network outfalls to Cammock River.

**Chainage F230-F430 North**

- Carriageway in camber - road falls to both sides (F230-F300). Carriageway falls to the left (F300-F430).
- Additional impermeable area = 275 m<sup>2</sup>
- Additional grassed (permeable) area = 47 m<sup>2</sup>
- Impermeable area to be attenuated = 227 m<sup>2</sup>
- Cyclway to drain over the edge. If space permits, filter drain to be used in verge to minimize impacts. Filter drain to have controlled discharge and outfall to existing surface water network.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage where necessary.
- Utilise existing drainage pipework and connections where possible to collect drainage from the carriageway.
- ADR: 11.7 l/s
- Vol<sub>att</sub> = 3.8 - 14.0 m<sup>3</sup>

**Chainage F480-F610 North**

- Carriageway falls to the right.
- Additional impermeable area = 112 m<sup>2</sup>
- Additional grassed (permeable) area = 120 m<sup>2</sup>
- Net permeable area (no additional attenuation required) = 8 m<sup>2</sup>
- New pipe to be provided to collect water from footway and cycleway. Discharge to existing surface water drainage pipework.
- Drainage to be collected from footway and cycleway using linear gullies.
- A near surface drainage solution equivalent of DN225 pipe should be considered between chainage A500 and A550 to reduce impact on existing tree root protection areas (e.g. combined kerb and drainage units, slot drains, linear drains, etc.). Linear gullies to collect drainage from footway and cycleway where possible outside the root protection area section.
- ADR = N/A
- Vol<sub>att</sub> = N/A

**Outlet to existing drainage network (Cammock River)**

- D/S Pipe: Ø Unknown
- IL - Unknown
- CL - 49.98 m
- CH F590

**Outlet to existing drainage network (Cammock River)**

- D/S Pipe: Ø Unknown
- IL - Unknown
- CL - 51.21 m
- CH F375

**Outlet to existing drainage network (Cammock River)**

- D/S Pipe: Ø Unknown
- IL - Unknown
- CL - 49.74 m
- CH F575

**Outlet to existing drainage network (Cammock River)**

- D/S Pipe: Ø Unknown
- IL - Unknown
- CL - 51.56 m
- CH F375

**Outlet to tie into soakaway**

- D/S Pipe: N/A
- IL - N/A
- CL - 51.50 m
- CH F300

**Chainage F230-F370 South**

- Carriageway in camber - road falls to both sides (F230-F300). Carriageway falls to the left (F300-F370).
- Additional impermeable area = 163 m<sup>2</sup>
- Additional grassed (permeable) area = 41 m<sup>2</sup>
- Impermeable area to be attenuated = 122 m<sup>2</sup>
- Footway and cycleway to drain to intermittent soakaways via linear gullies. The verge adjacent the Nangor Road is located within the 100 year fluvial flood extents. If soil conditions do not allow for soakaways, the alternative is to attenuate within an oversized pipe with flow control and discharge to the existing drainage network.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing drainage pipework and connections where possible to drain carriageway.
- Existing drainage network outfalls to Cammock River
- ADR: Infiltration Rate (TBD)
- Vol<sub>att</sub> = TBD

**Chainage F370 - F430 South**

- Carriageway falls to the left.
- Additional impermeable area = 70 m<sup>2</sup>
- Additional grassed (permeable) area = 0 m<sup>2</sup>
- Impermeable area to be attenuated = 70 m<sup>2</sup>
- New pipe to be provided to collect water from footway and cycleway. Drainage to be collected from footway and cycleway using linear gullies. New stormwater pipe with flow control to provide required storage and attenuation prior to outfall to existing drainage network.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing drainage pipework and connections where possible to drain carriageway.
- ADR: 2.9 l/s
- Vol<sub>att</sub> = 1.0 - 3.6 m<sup>3</sup>

**Chainage F480-F610 South**

- Carriageway falls to the right.
- Additional impermeable area = 315 m<sup>2</sup>
- Additional grassed (permeable) area = 0 m<sup>2</sup>
- Impermeable to be attenuated = 315 m<sup>2</sup>
- Gullies to be connected to a system of tree pits interconnected through filter drains. Drainage to be collected from footway and cycleway using linear gullies. Filter drains to have a flow control to provide required storage and attenuation prior to outfall to existing drainage network.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing road drainage pipework and connections where possible to drain carriageway.
- ADR: 11.8 l/s
- Vol<sub>att</sub> = 4.7 - 15.0 m<sup>3</sup>

**CHAINAGE F240-F600**  
Existing drainage network information unavailable - network to be verified on site. Drainage proposals to utilise existing connections to drainage network where possible.

**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 NETWORK		PROPOSED NEW TREE
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE PIT
	EXISTING OVERFLOW PIPE		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PLANNED SURFACE WATER PIPE		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.



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3. STORMWATER DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS AND/OR THE DRAINAGE DESIGN BASIS REPORT FOR CBC BUSCONNECTS.
4. ALL LEVELS ARE IN METRES ABOVE ORDINANCE DATUM (MALIN HEAD DATUM), SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS SHALL 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. 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

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

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<p>Date 28/03/23 Scale 1:500 @ A1 1:1000 @ A3 Drawn A.FLEMING Checked R.LOUGH Approved C.ACTON</p>		<p>Project Code BCIDA Originator Code ACM QMS Code</p>		<p>Drawing File Name BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0046</p>		<p>Drawing Title TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</p>		<p>Sheet Number 46 of 56 Status A Rev M01</p>	

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**Chainage F610-F720 North**

- Carriageway falls to the right (F600-F700). Carriageway in camber - road falls to both sides (F700-F720).
- Additional impermeable area = 312 m<sup>2</sup>
- Additional grassed (permeable) area = 0 m<sup>2</sup>
- Impermeable area to be attenuated = 312 m<sup>2</sup>
- New pipe to be provided to collect water from footway and cycleway. Drainage to be collected from footway and cycleway using linear gullies.
- Oversized pipe with flow control to provide required storage and attenuation prior to discharge to existing drainage network.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing pipework and connections where possible to drain carriageway.
- ADR: 5.5 l/s
- Vol<sub>att</sub> = 3.8 - 9.7 m<sup>3</sup>

**Chainage F720-F1000 North**

- Carriageway in camber - road falls to both sides.
- Additional impermeable area = 744 m<sup>2</sup>
- Additional grassed (permeable) area = 16 m<sup>2</sup>
- Impermeable area to be attenuated = 728 m<sup>2</sup>
- Drainage from footway to be collected over the edge and into a filter drain if possible. If not, linear gullies to be connected to filter drain to drain both footway and cycleway.
- Filter drains, oversized pipe, tree pits, and bio-retention areas with a flow control to provide required storage and attenuation prior to outfall to existing surface water network.
- Proposed pipes and manholes to be laid in cycleway from chainage A800 to A820 to reduce impact to existing tree root protection areas.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing road drainage pipework and connections where possible to drain carriageway.
- ADR: 31.1 l/s
- Vol<sub>att</sub> = 11.0 - 39.0 m<sup>3</sup>

**Outlet to existing drainage network (Cammock River)**

- D/S Pipe: Ø Unknown
- IL - Unknown
- CL - 48.92 m
- CH F710

**Outlet to existing drainage network (Cammock River)**

- D/S Pipe: Ø Unknown
- IL - Unknown
- CL - 48.49 m
- CH F820

**Outlet to existing drainage network (Cammock River)**

- D/S Pipe: Ø Unknown
- IL - Unknown
- CL - 49.04 m
- CH F725

**Outlet to existing drainage network (Cammock River)**

- D/S Pipe: Ø Unknown
- IL - Unknown
- CL - 48.54 m
- CH F825

**Chainage F610-F720 South**

- Carriageway falls to the right (F600-F700). Carriageway in camber - road falls to both sides (F700-F720).
- Additional impermeable area = 146 m<sup>2</sup>
- Additional grassed (permeable) area = 27 m<sup>2</sup>
- Impermeable area to be attenuated = 119 m<sup>2</sup>
- New pipe to be provided to collect water from footway and cycleway. Drainage to be collected from footway and cycleway using linear gullies. Gullies to be connected to a system of tree pits interconnected by a filter drain. Filter drain to have flow control to provide required storage and attenuation prior to outfall to existing drainage network.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing road drainage pipework and connections where possible to drain footway, cycleway, and carriageway.
- ADR: 3.2 l/s
- Vol<sub>att</sub> = 1.6 - 4.7 m<sup>3</sup>

Existing culvert to be extended. To be designed in conjunction with River Cammock Flood Alleviation Scheme.

**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 NETWORK		PROPOSED NEW TREE
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE PIT
	EXISTING OVERFLOW PIPE		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
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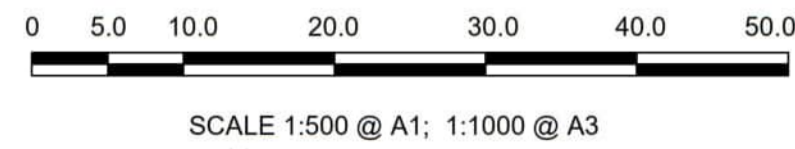
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**ABBREVIATIONS:**

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



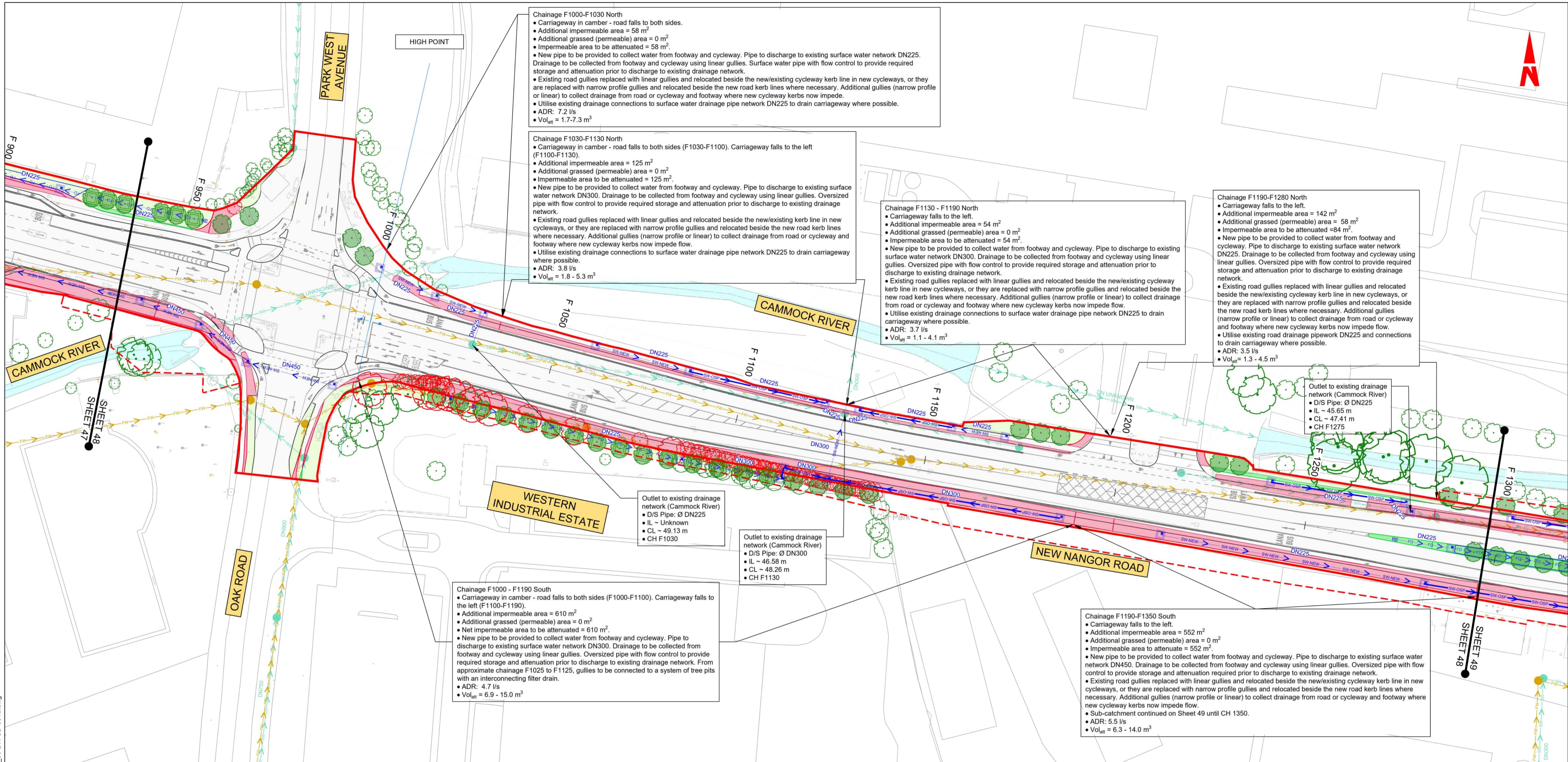
**CHAINAGE F600-F1000**

Existing drainage network information unavailable - network to be verified on site. Drainage proposals to utilise existing connections to drainage network where possible.

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**Chainage F1000-F1030 North**

- Carriageway in camber - road falls to both sides.
- Additional impermeable area = 58 m<sup>2</sup>
- Additional grassed (permeable) area = 0 m<sup>2</sup>
- Impermeable area to be attenuated = 58 m<sup>2</sup>
- New pipe to be provided to collect water from footway and cycleway. Pipe to discharge to existing surface water network DN225. Drainage to be collected from footway and cycleway using linear gullies. Surface water pipe with flow control to provide required storage and attenuation prior to discharge to existing drainage network.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede.
- Utilise existing drainage connections to surface water drainage pipe network DN225 to drain carriageway where possible.
- ADR: 7.2 l/s
- Vol<sub>att</sub> = 1.7-7.3 m<sup>3</sup>

**Chainage F1030-F1130 North**

- Carriageway in camber - road falls to both sides (F1030-F1100). Carriageway falls to the left (F1100-F1130).
- Additional impermeable area = 125 m<sup>2</sup>
- Additional grassed (permeable) area = 0 m<sup>2</sup>
- Impermeable area to be attenuated = 125 m<sup>2</sup>
- New pipe to be provided to collect water from footway and cycleway. Pipe to discharge to existing surface water network DN300. Drainage to be collected from footway and cycleway using linear gullies. Oversized pipe with flow control to provide required storage and attenuation prior to discharge to existing drainage network.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing drainage connections to surface water drainage pipe network DN225 to drain carriageway where possible.
- ADR: 3.8 l/s
- Vol<sub>att</sub> = 1.8 - 5.3 m<sup>3</sup>

**Chainage F1130 - F1190 North**

- Carriageway falls to the left.
- Additional impermeable area = 54 m<sup>2</sup>
- Additional grassed (permeable) area = 0 m<sup>2</sup>
- Impermeable area to be attenuated = 54 m<sup>2</sup>
- New pipe to be provided to collect water from footway and cycleway. Pipe to discharge to existing surface water network DN300. Drainage to be collected from footway and cycleway using linear gullies. Oversized pipe with flow control to provide required storage and attenuation prior to discharge to existing drainage network.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing drainage connections to surface water drainage pipe network DN225 to drain carriageway where possible.
- ADR: 3.7 l/s
- Vol<sub>att</sub> = 1.1 - 4.1 m<sup>3</sup>

**Chainage F1190-F1280 North**

- Carriageway falls to the left.
- Additional impermeable area = 142 m<sup>2</sup>
- Additional grassed (permeable) area = 84 m<sup>2</sup>
- Impermeable area to be attenuated = 84 m<sup>2</sup>
- New pipe to be provided to collect water from footway and cycleway. Pipe to discharge to existing surface water network DN225. Drainage to be collected from footway and cycleway using linear gullies. Oversized pipe with flow control to provide required storage and attenuation prior to discharge to existing drainage network.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing road drainage pipework DN225 and connections to drain carriageway where possible.
- ADR: 3.5 l/s
- Vol<sub>att</sub> = 1.3 - 4.5 m<sup>3</sup>

**Outlet to existing drainage network (Cammock River)**

- D/S Pipe: Ø DN225
- IL - 45.65 m
- CL - 47.41 m
- CH F1275

**Outlet to existing drainage network (Cammock River)**

- D/S Pipe: Ø DN225
- IL - Unknown
- CL - 49.13 m
- CH F1030

**Outlet to existing drainage network (Cammock River)**

- D/S Pipe: Ø DN300
- IL - 46.58 m
- CL - 48.26 m
- CH F1130

**Chainage F1000 - F1190 South**

- Carriageway in camber - road falls to both sides (F1000-F1100). Carriageway falls to the left (F1100-F1190).
- Additional impermeable area = 610 m<sup>2</sup>
- Additional grassed (permeable) area = 0 m<sup>2</sup>
- Net impermeable area to be attenuated = 610 m<sup>2</sup>
- New pipe to be provided to collect water from footway and cycleway. Pipe to discharge to existing surface water network DN300. Drainage to be collected from footway and cycleway using linear gullies. Oversized pipe with flow control to provide required storage and attenuation prior to discharge to existing drainage network. From approximate chainage F1025 to F1125, gullies to be connected to a system of tree pits with an interconnecting filter drain.
- ADR: 4.7 l/s
- Vol<sub>att</sub> = 6.9 - 15.0 m<sup>3</sup>

**Chainage F1190-F1350 South**

- Carriageway falls to the left.
- Additional impermeable area = 552 m<sup>2</sup>
- Additional grassed (permeable) area = 0 m<sup>2</sup>
- Impermeable area to be attenuated = 552 m<sup>2</sup>
- New pipe to be provided to collect water from footway and cycleway. Pipe to discharge to existing surface water network DN450. Drainage to be collected from footway and cycleway using linear gullies. Oversized pipe with flow control to provide storage and attenuation required prior to discharge to existing drainage network.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Sub-catchment continued on Sheet 49 until CH 1350.
- ADR: 5.5 l/s
- Vol<sub>att</sub> = 6.3 - 14.0 m<sup>3</sup>

**NOTES:**

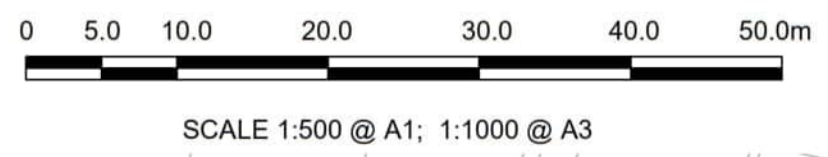
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4. ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM (MALIN HEAD DATUM). SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
5. EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS SHALL BE REQUIRED 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. 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

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

**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 NETWORK		PROPOSED NEW TREE
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE PIT
	EXISTING OVERFLOW PIPE		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PLANNED SURFACE WATER PIPE		EXISTING GULLY
	PROPOSED STORM WATER PIPE		SITE BOUNDARY LINE
	PROPOSED OVERSIZED PIPE		TEMPORARY LAND ACQUISITION
	PROPOSED FILTER DRAIN/PERFORATED PIPE		EXISTING PERMEABLE PAVING

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

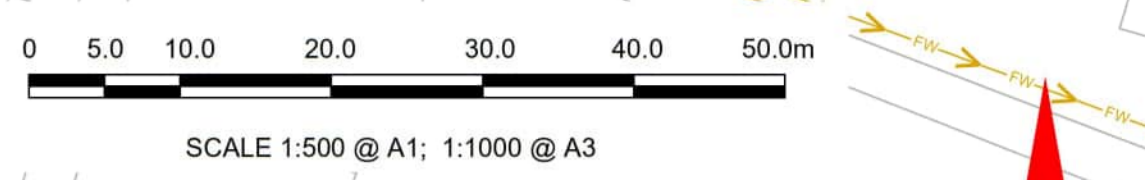
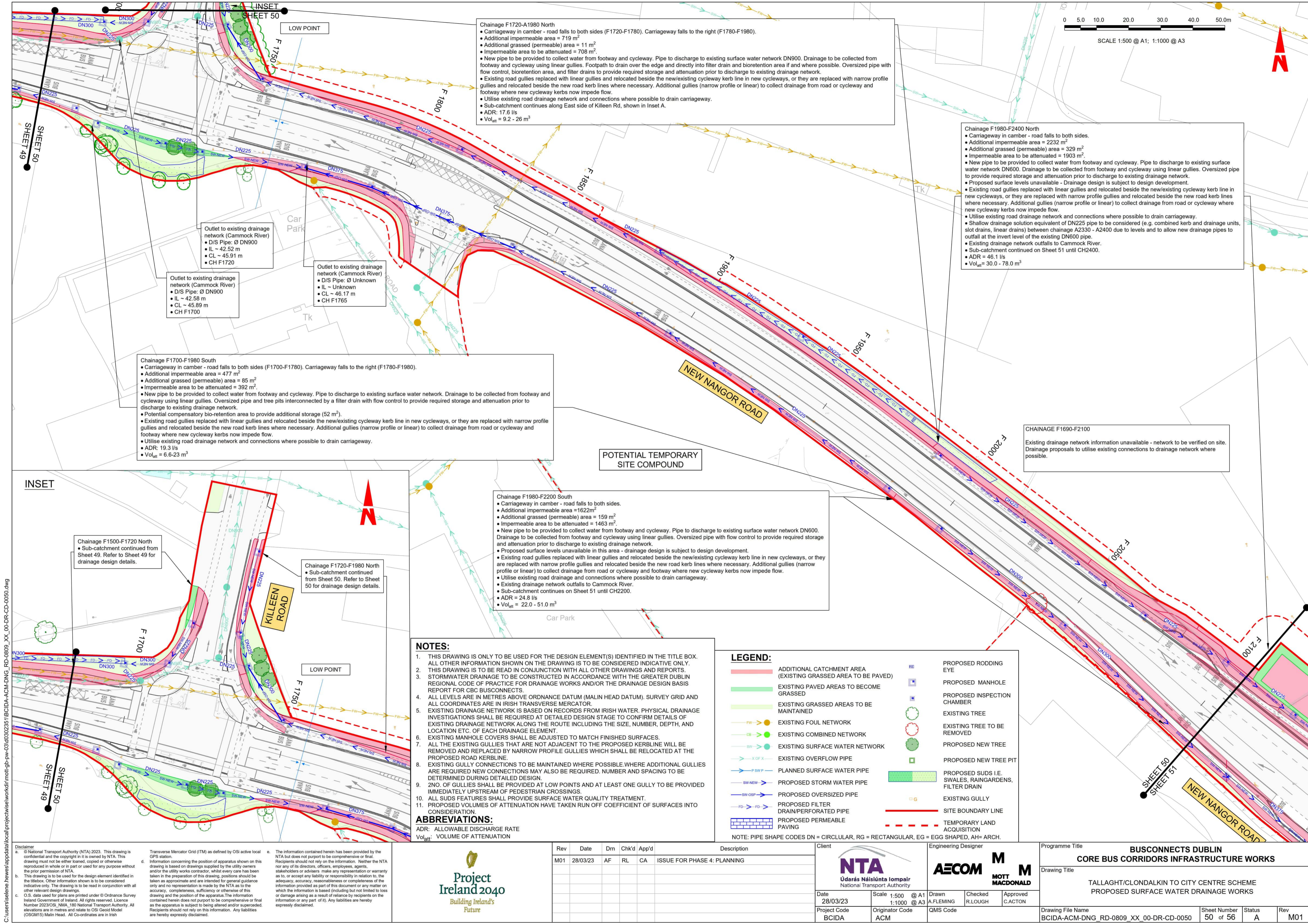


<p><b>Rev</b>   <b>Date</b>   <b>Drm</b>   <b>Chk'd</b>   <b>App'd</b>   <b>Description</b></p> <table border="1"> <tr> <td>M01</td> <td>28/03/23</td> <td>AF</td> <td>RL</td> <td>CA</td> <td>ISSUE FOR PHASE 4: PLANNING</td> </tr> </table>		M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING	<p><b>Client</b></p> <p>Údarás Náisiúnta Iompair National Transport Authority</p>		<p><b>Engineering Designer</b></p> <p>MOTT MACDONALD</p>		<p><b>Programme Title</b></p> <p>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</p>	
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING								
<p><b>Date</b>   <b>Scale</b>   <b>Drawn</b>   <b>Checked</b>   <b>Approved</b></p> <p>28/03/23   1:500 @ A1   A.FLEMING   R.LOUGH   C.ACTON</p>		<p><b>Project Code</b>   <b>Originator Code</b>   <b>QMS Code</b></p> <p>BCIDA   ACM  </p>		<p><b>Drawing File Name</b>   <b>Sheet Number</b>   <b>Status</b>   <b>Rev</b></p> <p>BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0048   48 of 56   A   M01</p>									

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**Chainage F1720-A1980 North**

- Carriageway in camber - road falls to both sides (F1720-F1780). Carriageway falls to the right (F1780-F1980).
- Additional impermeable area = 719 m<sup>2</sup>
- Additional grassed (permeable) area = 11 m<sup>2</sup>
- Impermeable area to be attenuated = 708 m<sup>2</sup>
- New pipe to be provided to collect water from footway and cycleway. Pipe to discharge to existing surface water network DN900. Drainage to be collected from footway and cycleway using linear gullies. Footpath to drain over the edge and directly into filter drain and bioretention area if and where possible. Oversized pipe with flow control, bioretention area, and filter drains to provide required storage and attenuation prior to discharge to existing drainage network.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing road drainage network and connections where possible to drain carriageway.
- Sub-catchment continues along East side of Killeen Rd, shown in Inset A.
- ADR: 17.6 l/s
- Vol<sub>att</sub> = 9.2 - 26 m<sup>3</sup>

**Chainage F1980-F2400 North**

- Carriageway in camber - road falls to both sides.
- Additional impermeable area = 2232 m<sup>2</sup>
- Additional grassed (permeable) area = 329 m<sup>2</sup>
- Impermeable area to be attenuated = 1903 m<sup>2</sup>
- New pipe to be provided to collect water from footway and cycleway. Pipe to discharge to existing surface water network DN600. Drainage to be collected from footway and cycleway using linear gullies. Oversized pipe to provide required storage and attenuation prior to discharge to existing drainage network.
- Proposed surface levels unavailable - Drainage design is subject to design development.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway where new cycleway kerbs now impede flow.
- Utilise existing road drainage network and connections where possible to drain carriageway.
- Shallow drainage solution equivalent of DN225 pipe to be considered (e.g. combined kerb and drainage units, slot drains, linear drains) between chainage A2330 - A2400 due to levels and to allow new drainage pipes to outfall at the invert level of the existing DN600 pipe.
- Existing drainage network outfalls to Cammock River.
- Sub-catchment continued on Sheet 51 until CH2400.
- ADR = 46.1 l/s
- Vol<sub>att</sub> = 30.0 - 78.0 m<sup>3</sup>

**Chainage F1700-F1980 South**

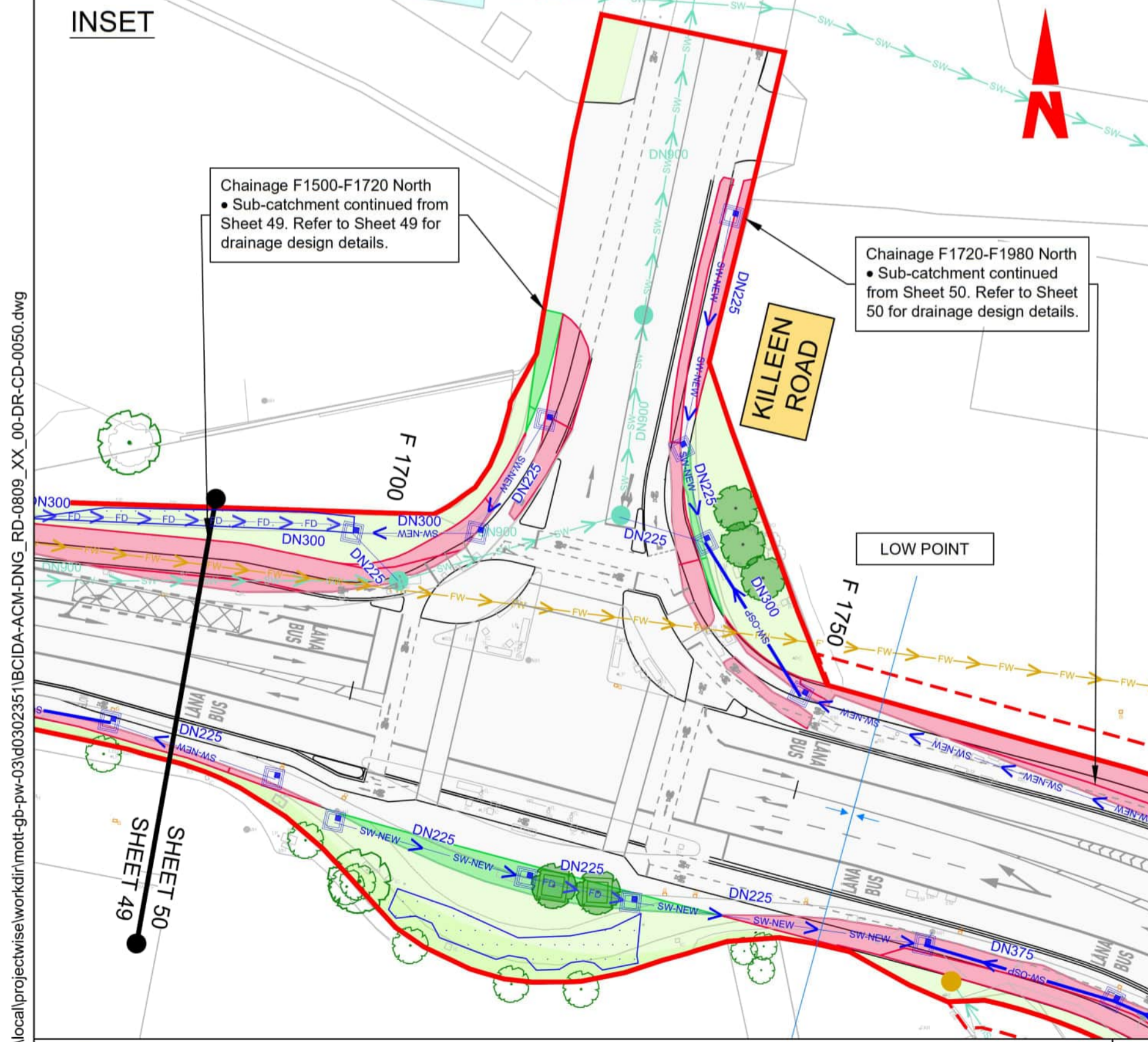
- Carriageway in camber - road falls to both sides (F1700-F1780). Carriageway falls to the right (F1780-F1980).
- Additional impermeable area = 477 m<sup>2</sup>
- Additional grassed (permeable) area = 85 m<sup>2</sup>
- Impermeable area to be attenuated = 392 m<sup>2</sup>
- New pipe to be provided to collect water from footway and cycleway. Pipe to discharge to existing surface water network. Drainage to be collected from footway and cycleway using linear gullies. Oversized pipe and tree pits interconnected by a filter drain with flow control to provide required storage and attenuation prior to discharge to existing drainage network.
- Potential compensatory bio-retention area to provide additional storage (52 m<sup>2</sup>).
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing road drainage network and connections where possible to drain carriageway.
- ADR: 19.3 l/s
- Vol<sub>att</sub> = 6.6-23 m<sup>3</sup>

**Chainage F1980-F2200 South**

- Carriageway in camber - road falls to both sides.
- Additional impermeable area = 1622 m<sup>2</sup>
- Additional grassed (permeable) area = 159 m<sup>2</sup>
- Impermeable area to be attenuated = 1463 m<sup>2</sup>
- New pipe to be provided to collect water from footway and cycleway. Pipe to discharge to existing surface water network DN600. Drainage to be collected from footway and cycleway using linear gullies. Oversized pipe with flow control to provide required storage and attenuation prior to discharge to existing drainage network.
- Proposed surface levels unavailable in this area - drainage design is subject to design development.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing road drainage and connections where possible to drain carriageway.
- Existing drainage network outfalls to Cammock River.
- Sub-catchment continues on Sheet 51 until CH2200.
- ADR = 24.8 l/s
- Vol<sub>att</sub> = 22.0 - 51.0 m<sup>3</sup>

**CHAINAGE F1690-F2100**

Existing drainage network information unavailable - network to be verified on site. Drainage proposals to utilise existing connections to drainage network where possible.



**INSET**

Chainage F1500-F1720 North  
• Sub-catchment continued from Sheet 49. Refer to Sheet 49 for drainage design details.

Chainage F1720-F1980 North  
• Sub-catchment continued from Sheet 50. Refer to Sheet 50 for drainage design details.

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**ABBREVIATIONS:**

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

**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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 = 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	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

**Client**

**NTA**  
Údarás Náisiúnta Iompair  
National Transport Authority

**Engineering Designer**

**AECOM** **MOTT MACDONALD**

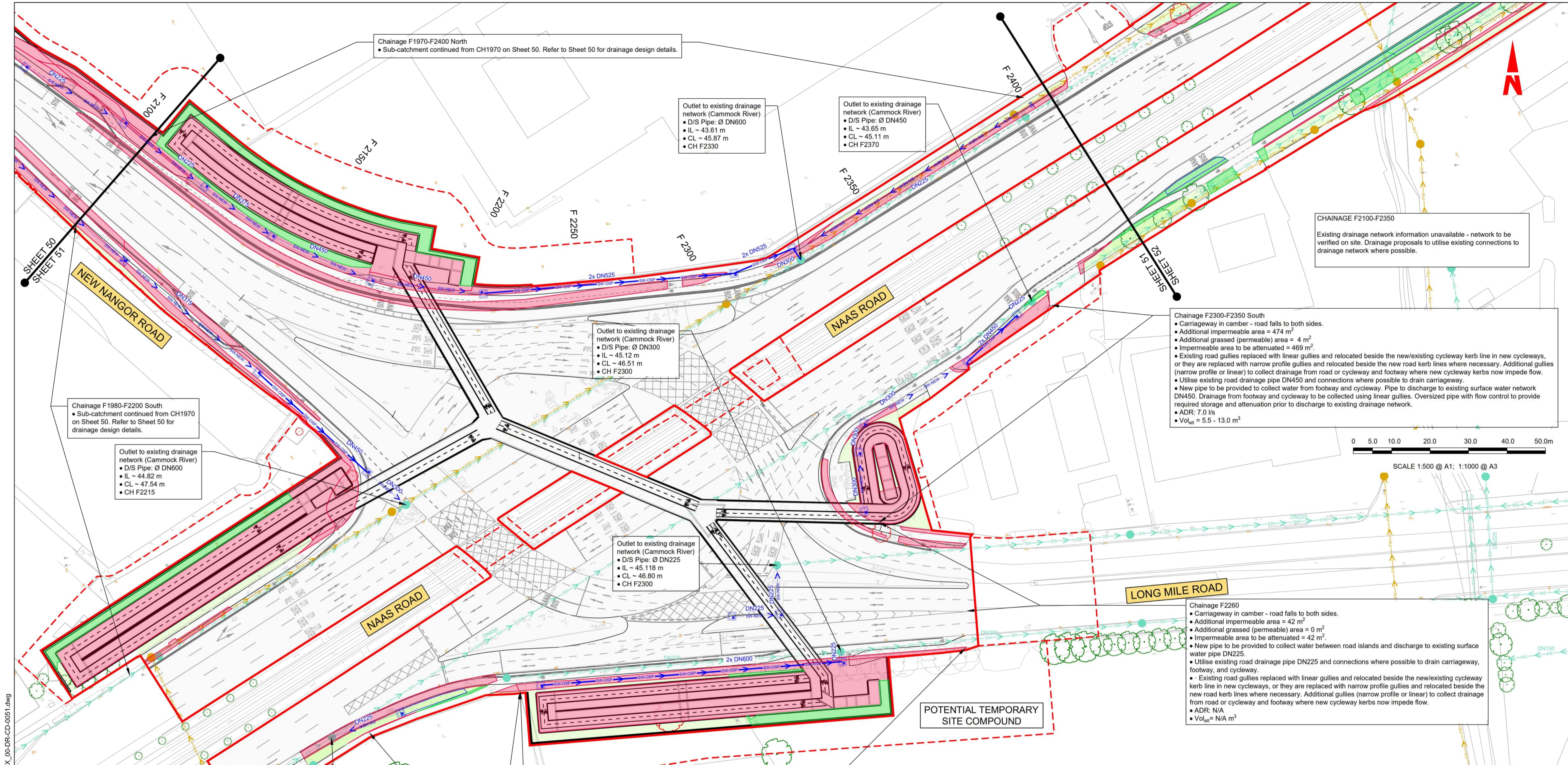
Date: 28/03/23 Scale: 1:500 @ A1, 1:1000 @ A3  
Drawn: A.FLEMING Checked: R.LOUGH Approved: C.ACTON

Project Code: BCIDA Originator Code: ACM QMS Code:

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

**Drawing Title**  
TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME  
PROPOSED SURFACE WATER DRAINAGE WORKS

Drawing File Name	Sheet Number	Status	Rev
BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0050	50 of 56	A	M01



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

**LEGEND:**

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	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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  
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Building Ireland's Future

Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM**, **MOTT MACDONALD**

Date: 28/03/23 | Scale: 1:500 @ A1, 1:1000 @ A3 | Drawn: A.FLEMING | Checked: R.LOUGH | Approved: C.ACTON

Project Code: BCIDA | Originator Code: ACM | QMS Code:

Programme Title <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS			
Drawing File Name BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0051	Sheet Number 51 of 56	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 NETWORK
- EXISTING SURFACE WATER NETWORK
- EXISTING OVERFLOW PIPE
- PLANNED SURFACE WATER PIPE
- PROPOSED STORM WATER PIPE
- PROPOSED OVERSIZED PIPE
- PROPOSED FILTER DRAIN/PERFORATED PIPE
- PROPOSED PERMEABLE PAVING
- PROPOSED RODDING EYE
- PROPOSED MANHOLE
- PROPOSED INSPECTION CHAMBER
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- PROPOSED NEW TREE
- PROPOSED NEW TREE PIT
- PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
- EXISTING GULLY
- SITE BOUNDARY LINE
- TEMPORARY LAND ACQUISITION

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**Chainage F2700 - F2850 North**

- Carriageway in camber - road falls to both sides.
- Additional impermeable area = 454 m<sup>2</sup>
- Additional grassed (permeable) area = 67 m<sup>2</sup>
- Impermeable area to be attenuated = 387 m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing drainage pipework DN600 & DN225 where possible to drain carriageway.
- Cycleway and footway to be drained using linear gullies and a filter drain running through a potential bio-retention area (60 m<sup>2</sup>). Oversized pipe with flow control to provide required storage and attenuation prior to discharge to existing drainage network DN600.
- Sub-catchment continues on Sheet 53 until CH2850.
- ADR: 13.3 l/s
- Vol<sub>att</sub> = 5.6 - 18.0 m<sup>3</sup>

**Chainage F2400-F2700 North**

- Carriageway in camber - road falls to both sides.
- Additional impermeable area = 475 m<sup>2</sup>
- Additional grassed (permeable) area = 454 m<sup>2</sup>
- Impermeable area to be attenuated = 20 m<sup>2</sup>
- Cycleway from CH2500-2700 to be drained directly by a series of filter drains that connect into existing gully connections.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing drainage pipework DN600 & DN225 where possible to drain carriageway.
- ADR: N/A l/s
- Vol<sub>att</sub> = N/A m<sup>3</sup>

Outlet to existing drainage network (Cammock River) via existing gully tails

- D/S Pipe: RG2700x1800
- IL ~ 39.6 m
- CL ~ 42.68 m
- CH F2500-F2700

Outlet to existing drainage network (Cammock River) via existing gully tails

- D/S Pipe: RG2700x1800
- IL ~ 39.6 m
- CL ~ 42.68 m
- CH F2500-F2700

Outlet to existing drainage network (Cammock River) via existing gully tails

- D/S Pipe: DN600
- IL ~ 40.204
- CL ~ 42.83
- CH F2500

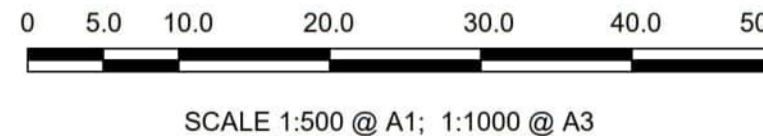
**Chainage F2300-F2750 South**

- Carriageway in camber - road falls to both sides.
- Additional impermeable area = 286 m<sup>2</sup>
- Additional grassed (permeable) area = 747 m<sup>2</sup>
- Net permeable area (no additional attenuation required) = 462 m<sup>2</sup>
- Utilise existing road drainage network DN225, DN375, DN450 and connections where possible to drain footway, cycleway, and carriageway.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Linear gullies required to collect drainage from cycleway and footway.
- Potential compensatory bio-retention areas (242 m<sup>2</sup> & 25 m<sup>2</sup>) in green areas.
- Existing drainage network discharges to Cammock River.
- ADR: N/A
- Vol<sub>att</sub> = N/A

- NOTES:**
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  - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS AND REPORTS.
  - STORMWATER DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS AND/OR THE DRAINAGE DESIGN BASIS REPORT FOR CBC BUSCONNECTS.
  - ALL LEVELS ARE IN METRES ABOVE ORDINANCE DATUM (MALIN HEAD DATUM), SURVEY GRID AND ALL COORDINATES ARE IN IRISH TRANSVERSE MERCATOR.
  - EXISTING DRAINAGE NETWORK IS BASED ON RECORDS FROM IRISH WATER. PHYSICAL DRAINAGE INVESTIGATIONS SHALL 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.
  - 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
  - ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
  - PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

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



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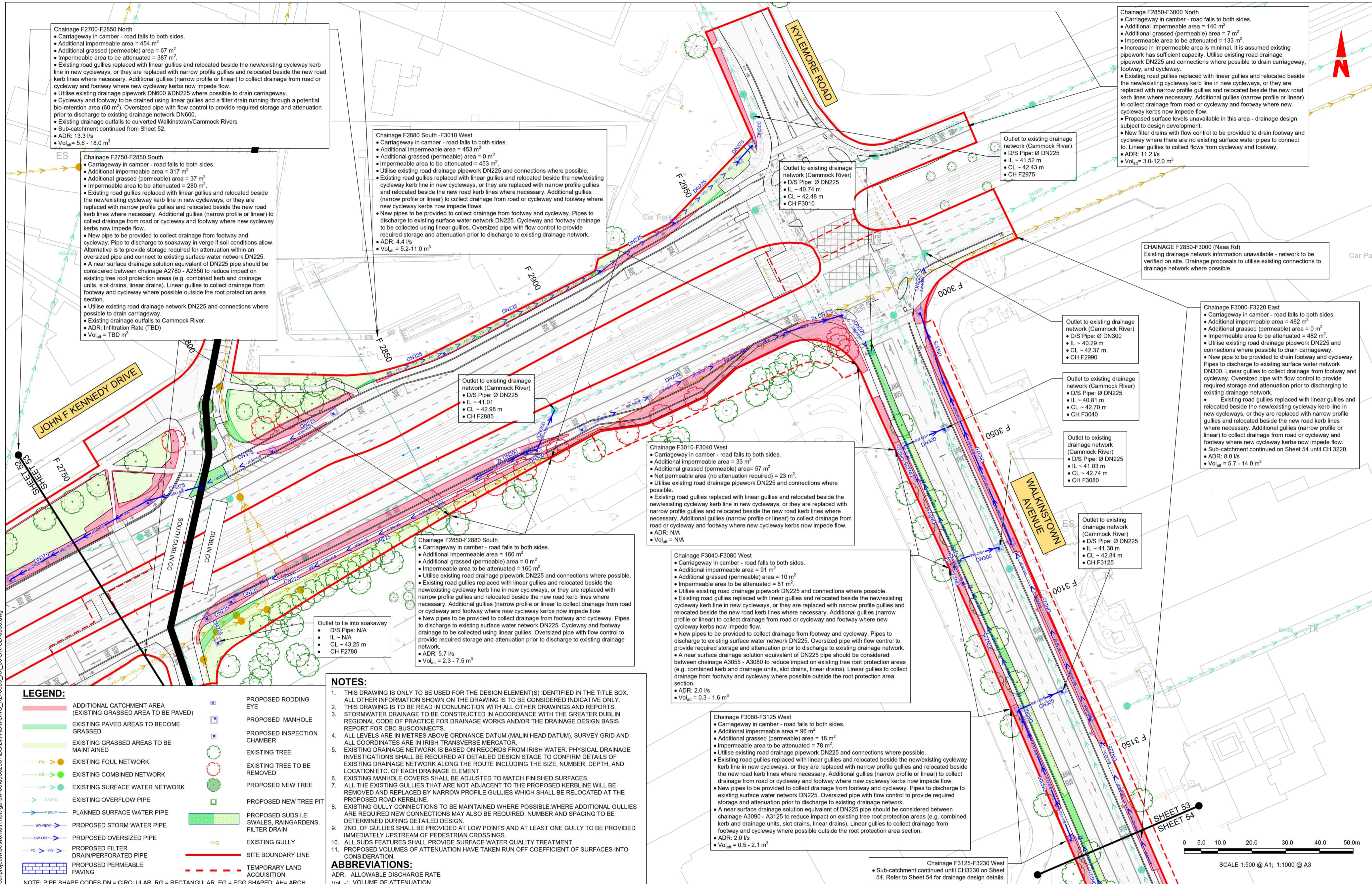
Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM**, **MOTT MACDONALD**

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0052	Sheet Number: 52 of 56	Status: A	Rev: M01

DO NOT SCALE USE FIGURED DIMENSIONS ONLY



**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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 CODE DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.

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

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BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0053	53 of 56	A	M01																																															



**Chainage F3125-F3230 West**

- Carriageway in camber - road falls to both sides.
- Additional impermeable area = 158 m<sup>2</sup>
- Additional grassed (permeable) area = 87 m<sup>2</sup>
- Impermeable area to be attenuated = 71 m<sup>2</sup>.
- Utilise existing road drainage pipework DN225 and connections where possible.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New pipes to be provided to collect drainage from footway and cycleway. Pipes to discharge to existing surface water network DN225. Oversized pipe with flow control to provide required storage and attenuation prior to discharge to existing drainage network.
- A near surface drainage solution equivalent of DN225 pipe should be considered between chainage A3170-A3230 to reduce impact on existing tree root protection areas (e.g. combined kerb and drainage units, slot drains, linear drains). Linear gullies to collect drainage from footway and cycleway where possible outside the root protection area section.
- Sub-catchment continued from CH 3125 on Sheet 53
- ADR: 3.0 l/s
- Vol<sub>att</sub> = 1.1 - 3.7 m<sup>3</sup>

**Chainage F3230 - F3290 West**

- Carriageway falls to the right.
- Additional impermeable area = 140 m<sup>2</sup>
- Additional grassed (permeable) area = 15 m<sup>2</sup>
- Impermeable area to be attenuated = 126 m<sup>2</sup>
- Utilise existing road drainage pipework DN225 and connections where possible.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- New pipes to be provided to collect drainage from footway and cycleway. Pipes to discharge to existing surface water network DN225. Oversized pipe with flow control to provide required storage and attenuation prior to discharge to existing drainage network.
- A near surface drainage solution equivalent of DN225 pipe should be considered between chainage A3230 to A3250 to reduce impact on existing tree root protection areas (e.g. combined kerb and drainage units, slot drains, linear drains). Linear gullies to collect drainage from footway and cycleway where possible outside the root protection area section.
- ADR: 2.0 l/s
- Vol<sub>att</sub> = 1.4 - 3.6 m<sup>3</sup>

**Chainage F3290-F3330 West**

- Carriageway falls to the right.
- Additional impermeable area = 88 m<sup>2</sup>
- Additional grassed (permeable) area = 5 m<sup>2</sup>
- Impermeable area to be attenuated = 83 m<sup>2</sup>.
- New pipe to be provided to collect flows from footway and cycleway. Pipe to discharge to existing surface water network DN225. Linear gullies to collect drainage from footway and cycleway. Oversized pipe with flow control to provide required storage and attenuation prior to discharge to existing drainage network.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing drainage pipework and connections where possible to drain carriageway.
- ADR: 2.1 l/s
- Vol<sub>att</sub> = 1.1 - 3.1 m<sup>3</sup>

**Chainage West of F3330 North**

- Carriageway in camber - road falls to both sides.
- Additional impermeable area = 0 m<sup>2</sup>
- Additional grassed (permeable) area = 113 m<sup>2</sup>
- Net permeable area (no attenuation required) = 113 m<sup>2</sup>
- Utilise existing drainage pipework DN225 and connections where possible to drain footway, cycleway, and carriageway.
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Linear gullies to collect flow from cycleway and footway and discharge into existing DN225 pipe.
- Potential compensatory bio-retention area (20 m<sup>2</sup>) in verge.
- ADR: N/A
- Vol<sub>att</sub> = N/A

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

**LEGEND:**

	ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREA TO BE PAVED)		PROPOSED RODDING EYE
	EXISTING PAVED AREAS TO BECOME GRASSED		PROPOSED MANHOLE
	EXISTING GRASSED AREAS TO BE MAINTAINED		PROPOSED INSPECTION CHAMBER
	EXISTING FOUL NETWORK		EXISTING TREE
	EXISTING COMBINED NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PROPOSED STORM WATER PIPE		EXISTING GULLY
	PROPOSED OVERSIZED PIPE		SITE BOUNDARY LINE
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NOTE: PIPE SHAPE CODES DN = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH = ARCH.

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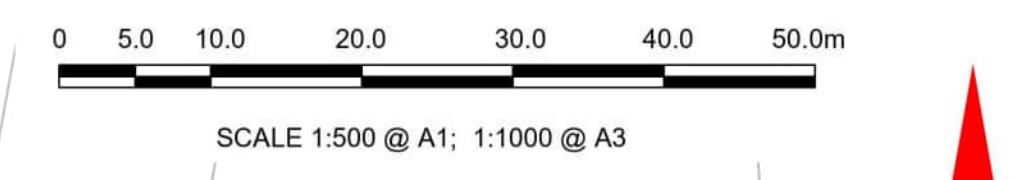
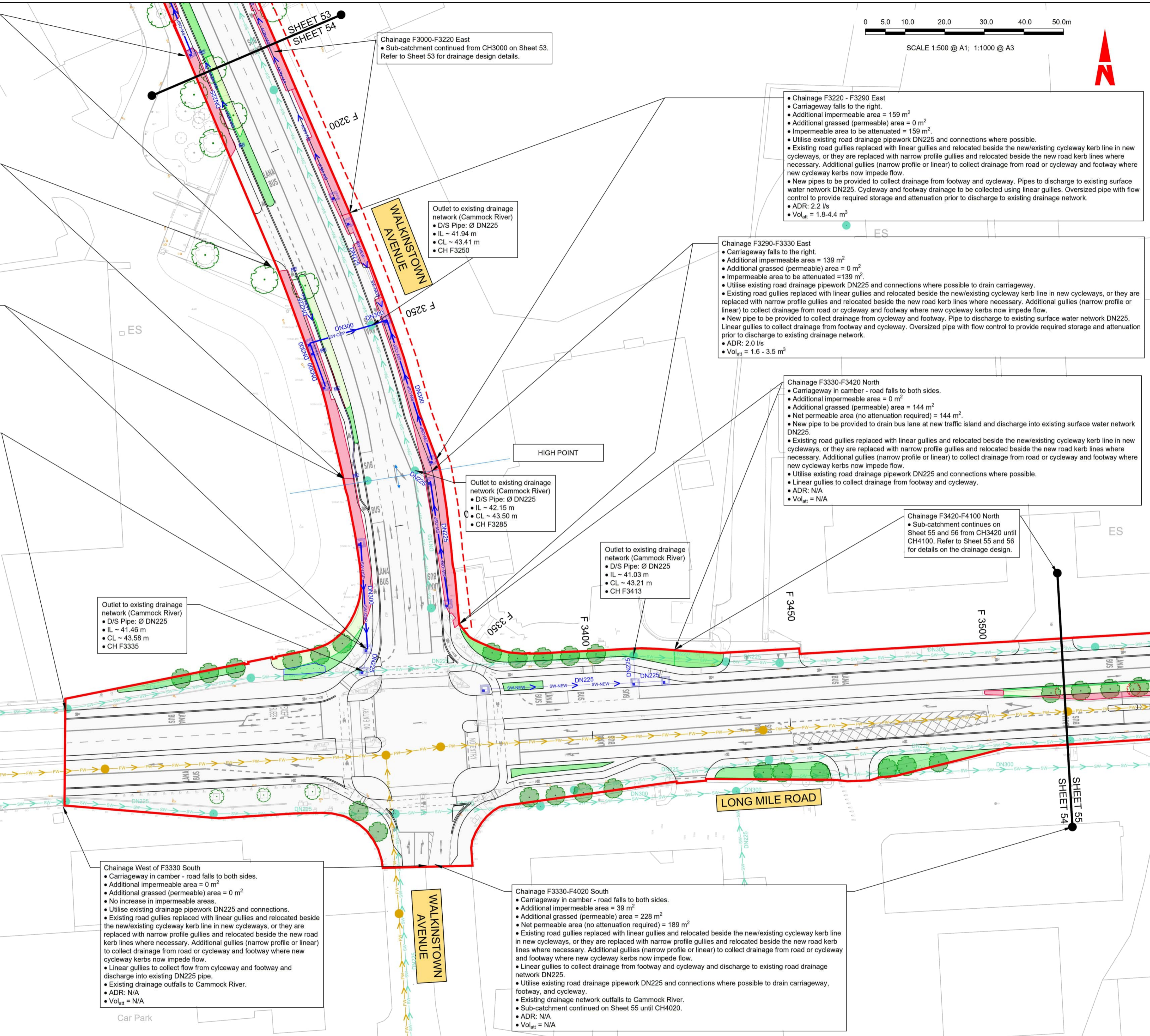
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<p>Rev M01 Date 28/03/23 Dm AF Chk'd RL App'd CA Description ISSUE FOR PHASE 4: PLANNING</p>		<p>Client <b>NTA</b> Údaráis Náisiúnta Iompair National Transport Authority</p>		<p>Engineering Designer <b>AECOM</b> <b>MOTT MACDONALD</b></p>		<p>Programme Title <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b></p>	
<p>Date 28/03/23 Scale 1:500 @ A1 1:1000 @ A3</p>		<p>Drawn A.FLEMING</p>		<p>Checked R.LOUGH</p>		<p>Approved C.ACTON</p>	
<p>Project Code BCIDA</p>		<p>Originator Code ACM</p>		<p>QMS Code</p>		<p>Drawing File Name BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0054</p>	
<p>Sheet Number 54 of 56</p>		<p>Status A</p>		<p>Rev M01</p>		<p>Drawing Title TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</p>	

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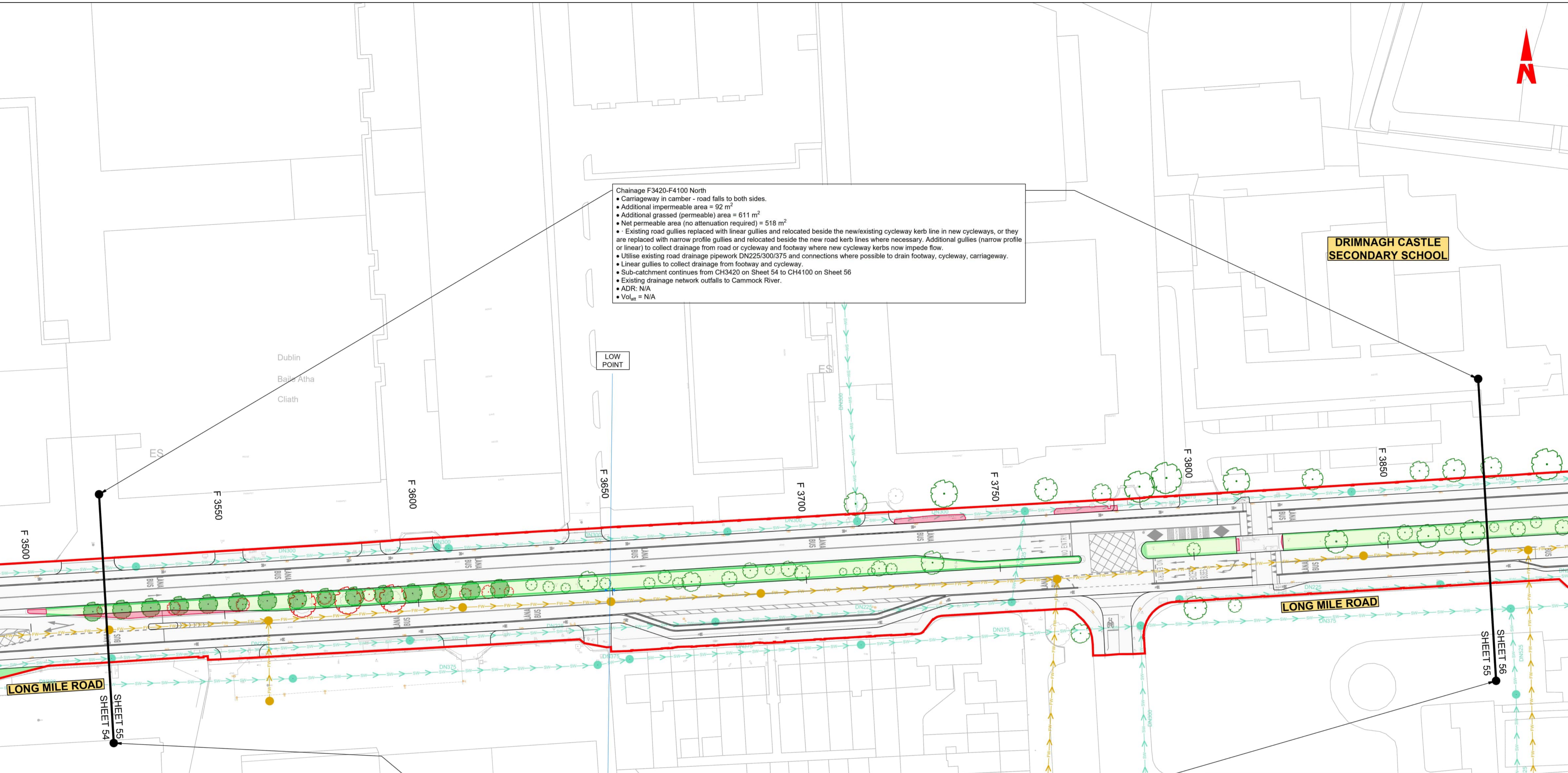
DRIMNAGH CASTLE  
SECONDARY SCHOOL

**Chainage F3420-F4100 North**

- Carriageway in camber - road falls to both sides.
- Additional impermeable area = 92 m<sup>2</sup>
- Additional grassed (permeable) area = 611 m<sup>2</sup>
- Net permeable area (no attenuation required) = 518 m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing road drainage pipework DN225/300/375 and connections where possible to drain footway, cycleway, carriageway.
- Linear gullies to collect drainage from footway and cycleway.
- Sub-catchment continues from CH3420 on Sheet 54 to CH4100 on Sheet 56
- Existing drainage network outfalls to Cammock River.
- ADR: N/A
- Vol<sub>att</sub> = N/A

**Chainage F3330-F4020 South**

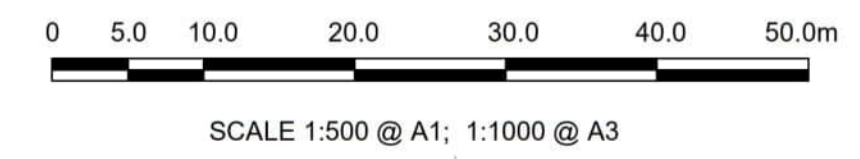
- Carriageway in camber - road falls to both sides.
- Additional impermeable area = 39 m<sup>2</sup>
- Additional grassed (permeable) area = 228 m<sup>2</sup>
- Net permeable area (no attenuation required) = 189 m<sup>2</sup>
- Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.
- Utilise existing road drainage pipework DN225 and connections where possible to drain carriageway, footway, and cycleway.
- Existing drainage network outfalls to Cammock River.
- Sub-catchment continued from Sheet 54 and continues on Sheet 56.
- ADR: N/A
- Vol<sub>att</sub> = N/A



**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 NETWORK		PROPOSED NEW TREE
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE PIT
	EXISTING OVERFLOW PIPE		PROPOSED SUDS I.E. SWALES, RAINGARDENS, FILTER DRAIN
	PLANNED SURFACE WATER PIPE		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.



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3. STORMWATER DRAINAGE TO BE CONSTRUCTED IN ACCORDANCE WITH THE GREATER DUBLIN REGIONAL CODE OF PRACTICE FOR DRAINAGE WORKS AND/OR THE DRAINAGE DESIGN BASIS REPORT FOR CBC BUSCONNECTS.
4. ALL LEVELS ARE IN METRES ABOVE ORDNANCE 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 SHALL 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. 2NO. OF GULLIES SHALL BE PROVIDED AT LOW POINTS AND AT LEAST ONE GULLY TO BE PROVIDED IMMEDIATELY UPSTREAM OF PEDESTRIAN CROSSINGS.
10. ALL SUDS FEATURES SHALL PROVIDE SURFACE WATER QUALITY TREATMENT.
11. PROPOSED VOLUMES OF ATTENUATION HAVE TAKEN RUN OFF COEFFICIENT OF SURFACES INTO CONSIDERATION.

**ABBREVIATIONS:**

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

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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM** **MOTT MACDONALD**

Date: 28/03/23  
Scale: 1:500 @ A1, 1:1000 @ A3

Project Code: BCIDA  
Originator Code: ACM

Drawn: A.FLEMING  
Checked: R.LOUGH  
Approved: C.ACTON

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0055	Sheet Number: 55 of 56	Status: A	Rev: M01

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



Chainage F3420-F4100 North  
 • Carriageway falls to the left.  
 • Additional impermeable area = 92 m<sup>2</sup>  
 • Additional grassed (permeable) area = 611 m<sup>2</sup>  
 • Net permeable area (no attenuation required) = 518 m<sup>2</sup>  
 • Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.  
 • Utilise existing road drainage pipework DN225/300/375 and connections where possible to drain footway, cycleway, carriageway.  
 • Linear gullies to collect drainage from footway and cycleway.  
 • Sub-catchment continues from CH3420 on Sheet 54.  
 • ADR: N/A  
 • Vol<sub>att</sub> = N/A

Outlet to existing drainage network (Cammock River)  
 • D/S Pipe: Ø DN225  
 • IL ~ 39.64 m  
 • CL ~ 41.19 m  
 • CH F4045

Chainage F4020-F4100 South  
 • Carriageway falls to the left.  
 • Additional impermeable area = 0 m<sup>2</sup>  
 • Additional grassed (permeable) area = 0 m<sup>2</sup>  
 • No change in impermeable area  
 • New pipe to be provided to collect drainage from footway and cycleway. Pipe to discharge to existing surface water network DN225.  
 • Existing road gullies replaced with linear gullies and relocated beside the new/existing cycleway kerb line in new cycleways, or they are replaced with narrow profile gullies and relocated beside the new road kerb lines where necessary. Additional gullies (narrow profile or linear) to collect drainage from road or cycleway and footway where new cycleway kerbs now impede flow.  
 • Linear gullies to collect drainage from footway and cycleway.  
 • Utilise existing road drainage pipework DN225 and connections where possible.  
 • ADR: N/A  
 • Vol<sub>att</sub> = N/A

Chainage F3330-F4020 South  
 • Sub-catchment continues from CH3330 on Sheet 56. Refer to Sheet 55 for drainage design details.

**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 NETWORK		EXISTING TREE TO BE REMOVED
	EXISTING SURFACE WATER NETWORK		PROPOSED NEW TREE
	EXISTING OVERFLOW PIPE		PROPOSED NEW TREE PIT
	PLANNED SURFACE WATER PIPE		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 = CIRCULAR, RG = RECTANGULAR, EG = EGG SHAPED, AH= ARCH.

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

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

DRIMNAGH CASTLE SECONDARY SCHOOL

DRIMNAGH CASTLE PRIMARY SCHOOL

SLIEVEBLOOM PARK

LONG MILE ROAD

ASSUMPTION PRIMARY AND SECONDARY SCHOOLS

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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM** MOTT MACDONALD

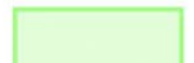








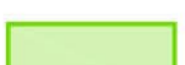

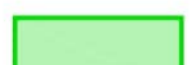







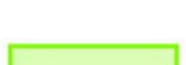








Date: 28/03/23 Scale: 1:500 @ A1, 1:1000 @ A3  
 Drawn: A.FLEMING, Checked: R.LOUGH, Approved: C.ACTON

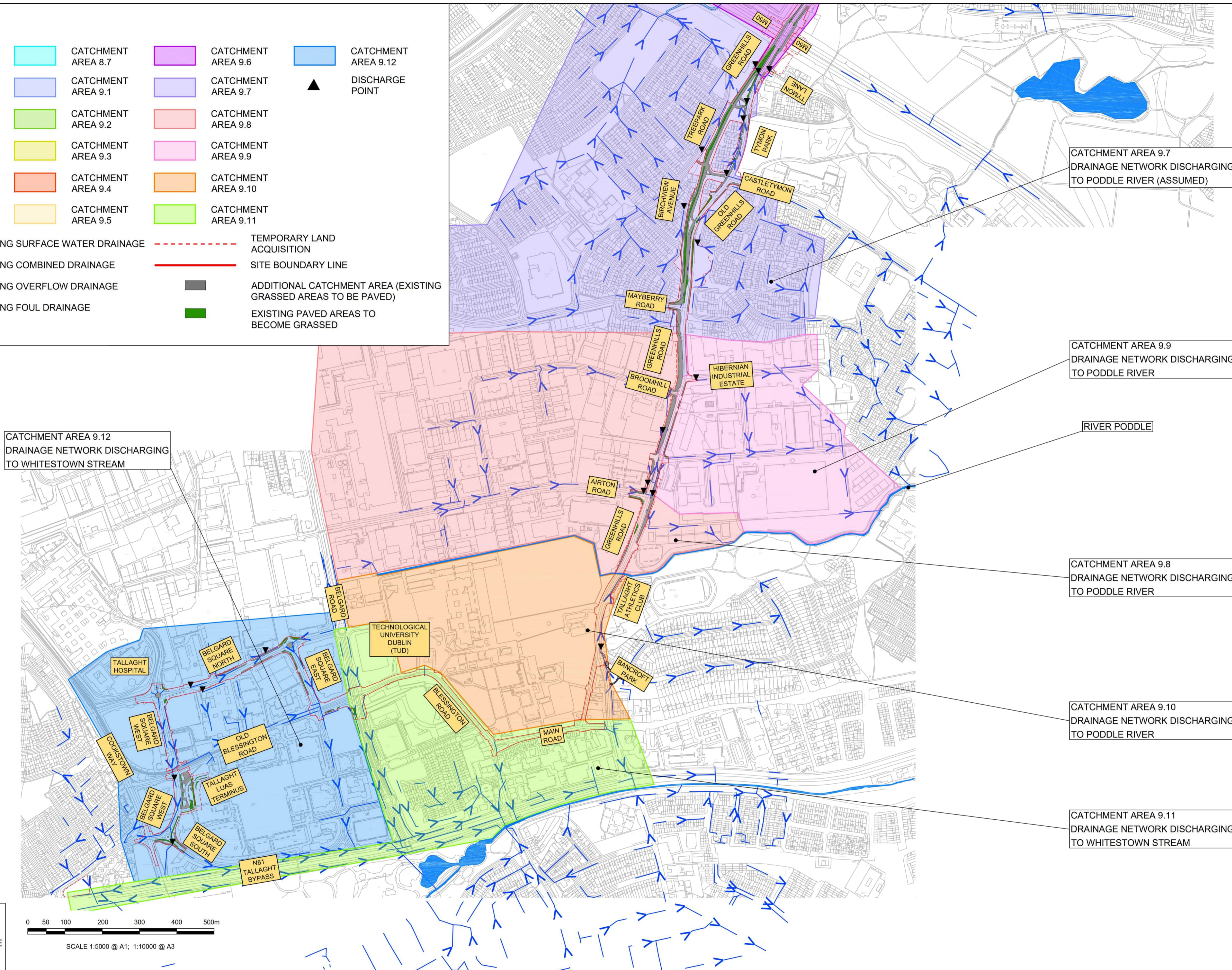
Project Code: BCIDA, Originator Code: ACM, QMS Code:

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: <b>TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME PROPOSED SURFACE WATER DRAINAGE WORKS</b>			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-0056	Sheet Number: 56 of 56	Status: A	Rev: M01

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**LEGEND:**

- |   |  |   |   |
|---|--|---|---|
|  CATCHMENT AREA 8.1 |  CATCHMENT AREA 8.7 |  CATCHMENT AREA 9.6  |  CATCHMENT AREA 9.12 |
|  CATCHMENT AREA 8.2 |  CATCHMENT AREA 9.1 |  CATCHMENT AREA 9.7  |  DISCHARGE POINT     |
|  CATCHMENT AREA 8.3 |  CATCHMENT AREA 9.2 |  CATCHMENT AREA 9.8  |   |
|  CATCHMENT AREA 8.4 |  CATCHMENT AREA 9.3 |  CATCHMENT AREA 9.9  |   |
|  CATCHMENT AREA 8.5 |  CATCHMENT AREA 9.4 |  CATCHMENT AREA 9.10 |   |
|  CATCHMENT AREA 8.6 |  CATCHMENT AREA 9.5 |  CATCHMENT AREA 9.11 |   |
- 
- |  |  |
|--|--|
|  EXISTING SURFACE WATER DRAINAGE |  TEMPORARY LAND ACQUISITION                                     |
|  EXISTING COMBINED DRAINAGE      |  SITE BOUNDARY LINE   |
|  EXISTING OVERFLOW DRAINAGE      |  ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREAS TO BE PAVED) |
|  EXISTING FOUL DRAINAGE          |  EXISTING PAVED AREAS TO BECOME GRASSED                         |



CATCHMENT AREA 9.12  
DRAINAGE NETWORK DISCHARGING TO WHITESTOWN STREAM

CATCHMENT AREA 9.7  
DRAINAGE NETWORK DISCHARGING TO PODDLE RIVER (ASSUMED)

CATCHMENT AREA 9.9  
DRAINAGE NETWORK DISCHARGING TO PODDLE RIVER

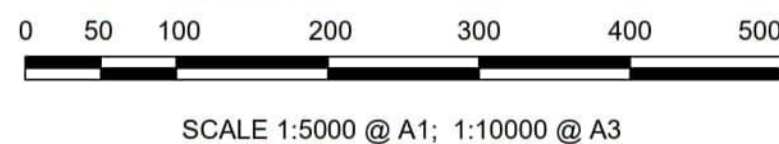
RIVER PODDLE

CATCHMENT AREA 9.8  
DRAINAGE NETWORK DISCHARGING TO PODDLE RIVER

CATCHMENT AREA 9.10  
DRAINAGE NETWORK DISCHARGING TO PODDLE RIVER

CATCHMENT AREA 9.11  
DRAINAGE NETWORK DISCHARGING TO WHITESTOWN STREAM

**NOTE: WHERE NO SPECIFIC INFORMATION ABOUT NETWORK IS AVAILABLE, THE DISCHARGE LOCATIONS HAVE BEEN ASSUMED BASED ON TERRAIN SLOPE**



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

Date: 28/03/23  
 Scale: 1:5000 @ A1, 1:10000 @ A3

Project Code: BCIDA  
 Originator Code: ACM

Engineering Designer  
**AECOM** **MOTT MACDONALD**

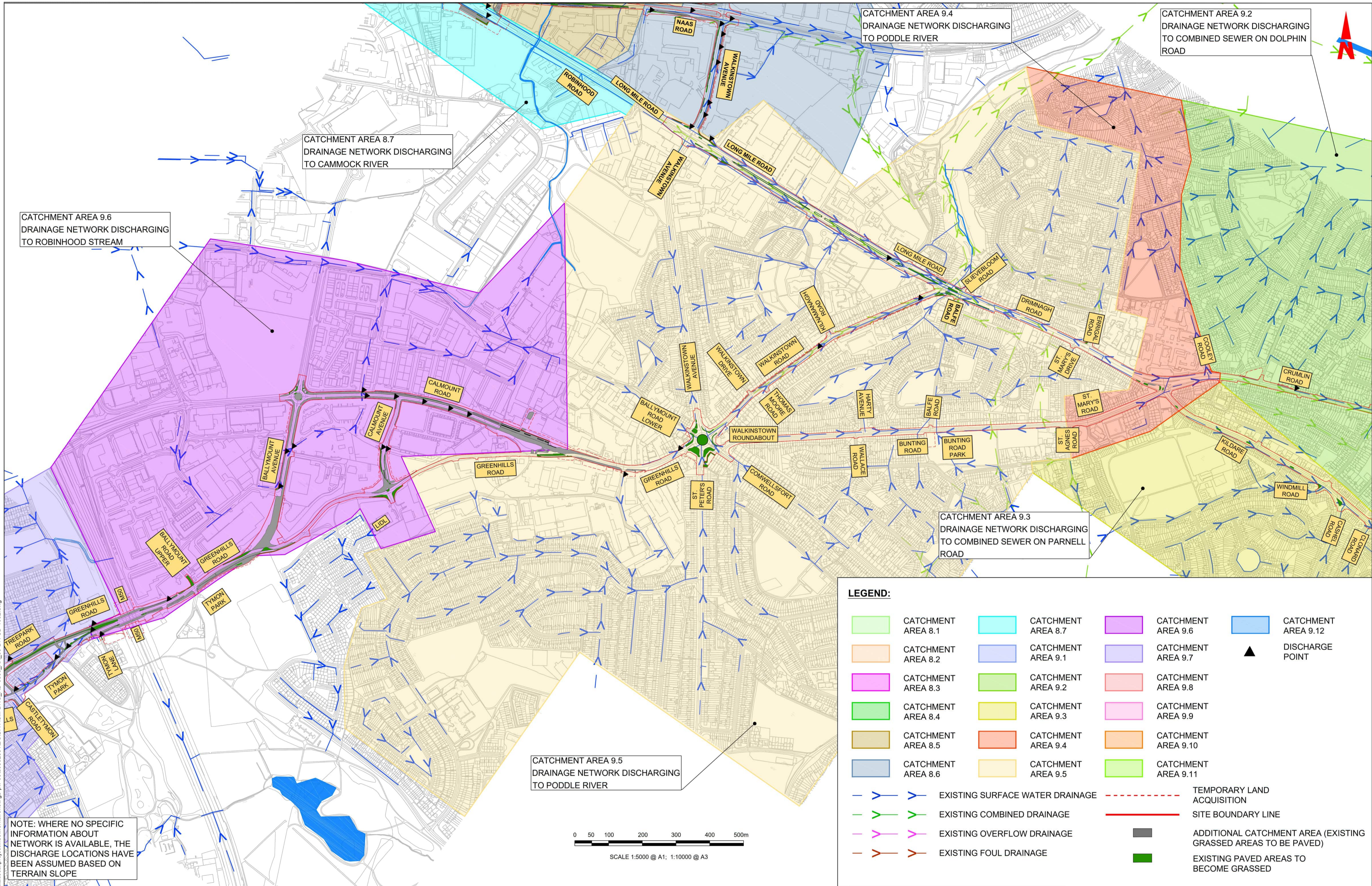
Drawn: A.FLEMING  
 Checked: R.LOUGH  
 Approved: C.ACTON

QMS Code

Programme Title <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME OVERALL CATCHMENT AREAS SHEET 1 OF 4			
Drawing File Name BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-1001	Sheet Number 1 of 4	Status A	Rev M01

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CATCHMENT AREA 9.6  
DRAINAGE NETWORK DISCHARGING  
TO ROBINHOOD STREAM

CATCHMENT AREA 8.7  
DRAINAGE NETWORK DISCHARGING  
TO CAMMOCK RIVER

CATCHMENT AREA 9.4  
DRAINAGE NETWORK DISCHARGING  
TO PODDLE RIVER

CATCHMENT AREA 9.2  
DRAINAGE NETWORK DISCHARGING  
TO COMBINED SEWER ON DOLPHIN  
ROAD

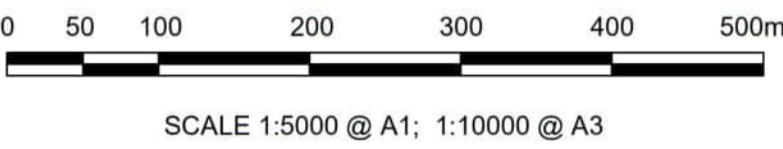
CATCHMENT AREA 9.3  
DRAINAGE NETWORK DISCHARGING  
TO COMBINED SEWER ON PARNELL  
ROAD

CATCHMENT AREA 9.5  
DRAINAGE NETWORK DISCHARGING  
TO PODDLE RIVER

NOTE: WHERE NO SPECIFIC  
INFORMATION ABOUT  
NETWORK IS AVAILABLE, THE  
DISCHARGE LOCATIONS HAVE  
BEEN ASSUMED BASED ON  
TERRAIN SLOPE

**LEGEND:**

- |  |                    |  |                    |  |                     |  |                     |
|--|--------------------|--|--------------------|--|---------------------|--|---------------------|
|  | CATCHMENT AREA 8.1 |  | CATCHMENT AREA 8.7 |  | CATCHMENT AREA 9.6  |  | CATCHMENT AREA 9.12 |
|  | CATCHMENT AREA 8.2 |  | CATCHMENT AREA 9.1 |  | CATCHMENT AREA 9.7  |  | DISCHARGE POINT     |
|  | CATCHMENT AREA 8.3 |  | CATCHMENT AREA 9.2 |  | CATCHMENT AREA 9.8  |  |                     |
|  | CATCHMENT AREA 8.4 |  | CATCHMENT AREA 9.3 |  | CATCHMENT AREA 9.9  |  |                     |
|  | CATCHMENT AREA 8.5 |  | CATCHMENT AREA 9.4 |  | CATCHMENT AREA 9.10 |  |                     |
|  | CATCHMENT AREA 8.6 |  | CATCHMENT AREA 9.5 |  | CATCHMENT AREA 9.11 |  |                     |
- 
- |  |                                 |  |  |
|--|---------------------------------|--|--|
|  | EXISTING SURFACE WATER DRAINAGE |  | TEMPORARY LAND ACQUISITION                                     |
|  | EXISTING COMBINED DRAINAGE      |  | SITE BOUNDARY LINE   |
|  | EXISTING OVERFLOW DRAINAGE      |  | ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREAS TO BE PAVED) |
|  | EXISTING FOUL DRAINAGE          |  | EXISTING PAVED AREAS TO BECOME GRASSED                         |



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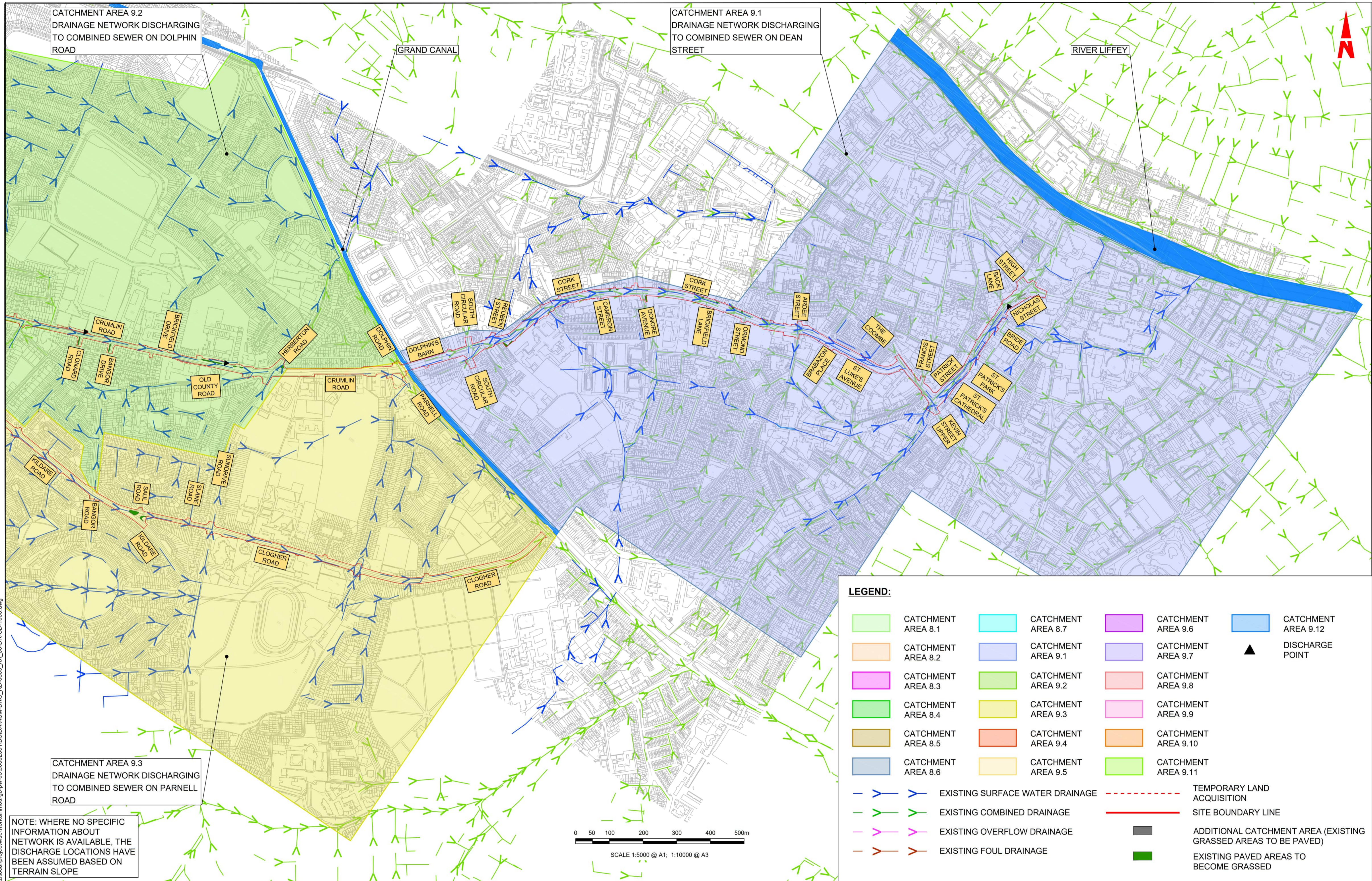
Client: **NTA**  
Údarás Náisiúnta Iompair  
National Transport Authority

Engineering Designer: **AECOM** **MOTT MACDONALD**

Date: 28/03/23 | Scale: 1:5000 @ A1, 1:10000 @ A3 | Drawn: A.FLEMING | Checked: R.LOUGH | Approved: C.ACTON

Project Code: BCIDA | Originator Code: ACM | QMS Code:

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME OVERALL CATCHMENT AREAS SHEET 2 OF 4			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-1002	Sheet Number: 2 of 4	Status: A	Rev: M01



CATCHMENT AREA 9.2  
DRAINAGE NETWORK DISCHARGING  
TO COMBINED SEWER ON DOLPHIN  
ROAD

CATCHMENT AREA 9.1  
DRAINAGE NETWORK DISCHARGING  
TO COMBINED SEWER ON DEAN  
STREET

RIVER LIFFEY

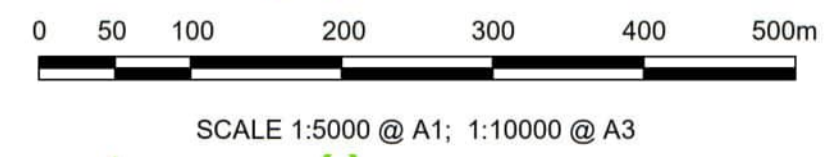
GRAND CANAL

CATCHMENT AREA 9.3  
DRAINAGE NETWORK DISCHARGING  
TO COMBINED SEWER ON PARNELL  
ROAD

NOTE: WHERE NO SPECIFIC  
INFORMATION ABOUT  
NETWORK IS AVAILABLE, THE  
DISCHARGE LOCATIONS HAVE  
BEEN ASSUMED BASED ON  
TERRAIN SLOPE

**LEGEND:**

- CATCHMENT AREA 8.1
- CATCHMENT AREA 8.2
- CATCHMENT AREA 8.3
- CATCHMENT AREA 8.4
- CATCHMENT AREA 8.5
- CATCHMENT AREA 8.6
- CATCHMENT AREA 8.7
- CATCHMENT AREA 9.1
- CATCHMENT AREA 9.2
- CATCHMENT AREA 9.3
- CATCHMENT AREA 9.4
- CATCHMENT AREA 9.5
- CATCHMENT AREA 9.6
- CATCHMENT AREA 9.7
- CATCHMENT AREA 9.8
- CATCHMENT AREA 9.9
- CATCHMENT AREA 9.10
- CATCHMENT AREA 9.11
- CATCHMENT AREA 9.12
- DISCHARGE POINT
- 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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Rev	Date	Drn	Chk'd	App'd	Description
M01	28/03/23	AF	RL	CA	ISSUE FOR PHASE 4: PLANNING

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

Engineering Designer: **AECOM**, **MOTT MACDONALD**

Date: 28/03/23  
Scale: 1:10000 @ A1, 1:10000 @ A3

Project Code: BCIDA  
Originator Code: ACM

Drawn: A.FLEMING  
Checked: R.LOUGH  
Approved: C.ACTON

Programme Title: <b>BUSCONNECTS DUBLIN CORE BUS CORRIDORS INFRASTRUCTURE WORKS</b>			
Drawing Title: TALLAGHT/CLONDALKIN TO CITY CENTRE SCHEME OVERALL CATCHMENT AREAS SHEET 3 OF 4			
Drawing File Name: BCIDA-ACM-DNG_RD-0809_XX_00-DR-CD-1003	Sheet Number: 3 of 4	Status: A	Rev: M01



CATCHMENT AREA 8.1  
DRAINAGE NETWORK DISCHARGING TO CAMMOCK RIVER

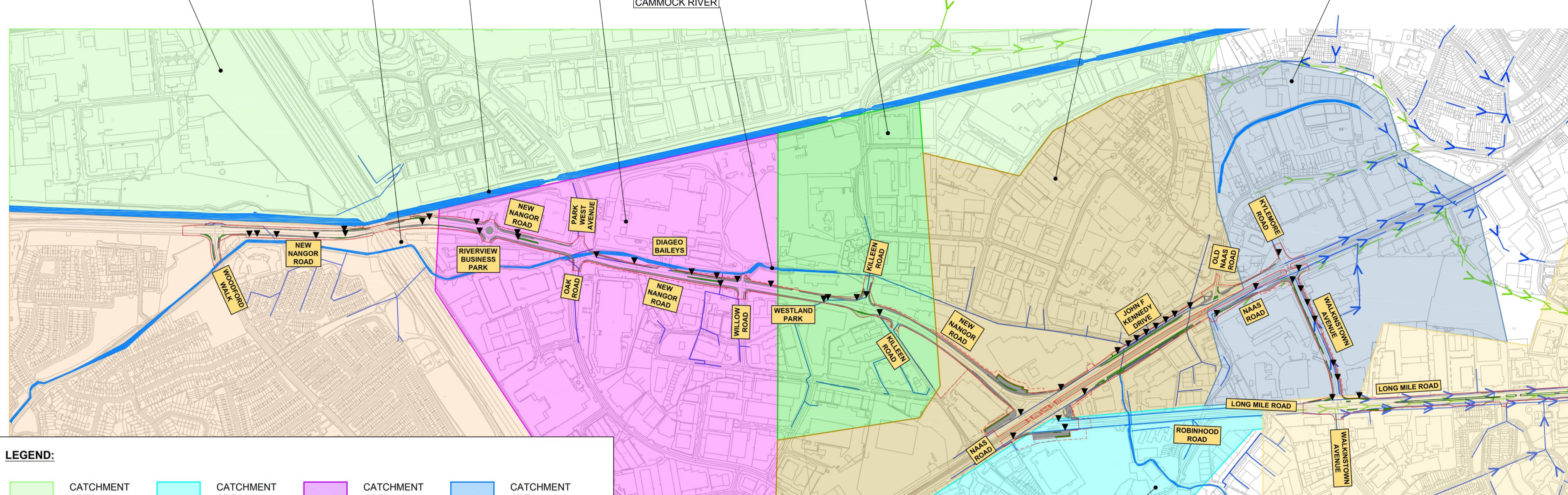
CATCHMENT AREA 8.2  
DRAINAGE NETWORK DISCHARGING TO CAMMOCK RIVER

CATCHMENT AREA 8.3  
DRAINAGE NETWORK DISCHARGING TO CAMMOCK RIVER

CATCHMENT AREA 8.4  
DRAINAGE NETWORK DISCHARGING TO CAMMOCK RIVER

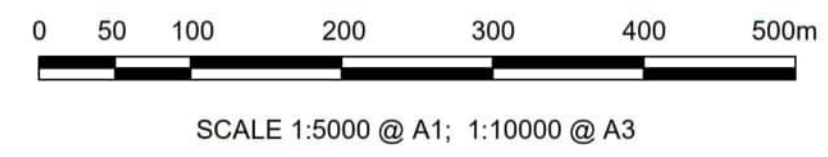
CATCHMENT AREA 8.5  
DRAINAGE NETWORK DISCHARGING TO CAMMOCK RIVER

CATCHMENT AREA 8.6  
DRAINAGE NETWORK DISCHARGING TO CAMMOCK RIVER



**LEGEND:**

	CATCHMENT AREA 8.1		CATCHMENT AREA 8.7		CATCHMENT AREA 9.6		CATCHMENT AREA 9.12
	CATCHMENT AREA 8.2		CATCHMENT AREA 9.1		CATCHMENT AREA 9.7		DISCHARGE POINT
	CATCHMENT AREA 8.3		CATCHMENT AREA 9.2		CATCHMENT AREA 9.8		
	CATCHMENT AREA 8.4		CATCHMENT AREA 9.3		CATCHMENT AREA 9.9		
	CATCHMENT AREA 8.5		CATCHMENT AREA 9.4		CATCHMENT AREA 9.10		
	CATCHMENT AREA 8.6		CATCHMENT AREA 9.5		CATCHMENT AREA 9.11		
	EXISTING SURFACE WATER DRAINAGE		TEMPORARY LAND ACQUISITION		SITE BOUNDARY LINE		
	EXISTING COMBINED DRAINAGE		ADDITIONAL CATCHMENT AREA (EXISTING GRASSED AREAS TO BE PAVED)		EXISTING PAVED AREAS TO BECOME GRASSED		
	EXISTING OVERFLOW DRAINAGE						
	EXISTING FOUL DRAINAGE						



CATCHMENT AREA 8.7  
DRAINAGE NETWORK DISCHARGING TO CAMMOCK RIVER

CATCHMENT AREA 9.5  
DRAINAGE NETWORK DISCHARGING TO CAMMOCK RIVER

CATCHMENT AREA 9.6  
DRAINAGE NETWORK DISCHARGING TO ROBINHOOD STREAM

NOTE: WHERE NO SPECIFIC INFORMATION ABOUT NETWORK IS AVAILABLE, THE DISCHARGE LOCATIONS HAVE BEEN ASSUMED BASED ON TERRAIN SLOPE

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