Norfolk County Council

COLNEY:
NNUH ROUNDABOUT ALTERATIONS

STAGE 3 SAFETY AUDIT

REPORT REF: C183/004
February 2025

Report Prepared for: Infrastructure Development
Norfolk County Council

Report Author: EIR Reg 13 - Personal Data

Report Status:

Issue	Status	Purpose	Name/Signature	Date
1	Stage 3 Safety Audit Report	Client Issue	EIR Reg 13 - Personal Data	13 January 2025
2	Designer's Response	Designer response to Safety Issues raised	EIR Reg 13 - Personal Data	24 February 2025
Choose an item.	Choose an item.	Choose an item.	EIR Reg 13 - Personal Data EIR Reg 13 - Personal Data	26 February 2025

INTRODUCTION

This report contains the results of a Stage 3 Safety Audit carried out on the above scheme. The Audit was carried out at the request of Norfolk County Council Infrastructure Development.

The Audit Team membership was as follows:-

EIR Reg 13 - Personal Data	Project Engineer
(Audit Team Leader)	Network Safety
	Norfolk County Council
EIR Reg 13 - Personal Data	Engineer
(Audit Team Member)	Network Safety
	Norfolk County Council
EIR Reg 13 - Personal Data	Apprentice Engineer
(Audit Team Observer)	Network Safety
	Norfolk County Council

The Audit took place at the site on 5 February 2025. The audit comprised an examination of the supplied documentation (see Appendix A) and a site inspection by the Audit Team at 09:45 which lasted around 30 minutes. During the site visit the weather was fine and the road surface damp. Traffic flows were moderate and observed speeds were generally in line with the posted speed limit. A subsequent night site visit was carried out by the Audit Team Leader on 6 February 2025 at 18:30 during dry conditions, which lasted around 20 minutes. The Audit submission provided all necessary supporting information.

The terms of reference are as described in Community and Environmental Services Highways Service Manual Procedure SP03-07-P01. The Auditors have examined and reported only on the road safety implications of the scheme within the main report.

The audited scheme comprises capacity improvement to the southeast arm of the roundabout together with a new toucan crossing on the north arm and new shared use facility on the west side of the roundabout.

The auditors have reviewed the three year accident record for the location. There have been three (all slight) recorded personal injury accidents during this time. Two involved motor vehicle/cyclist collisions on the roundabout circulatory carriageway. The remaining accident

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involved a tail end collision between a car and a motorcyclist on the north arm of the roundabout. The scheme may reduce the likelihood of cyclist accidents as it provides improved off carriageway cycling facilities for negotiating the roundabout

A comments section has been included in Appendix B. The issues noted are not necessarily safety issues. They relate either to wider network implications, safety issues identified outside the scope of the audited scheme or suitability of a particular design choice.

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ITEMS RAISED AT PREVIOUS AUDIT

All issues raised at the previous audit (8 February 2017) have been resolved.

ITEMS RAISED AT THIS STAGE 3 AUDIT

1.0 General

1.1 Problem – Sideswipe collisions

Location – Southeast entry in to roundabout

Several drivers were observed using the incorrect traffic lane when negotiating the roundabout from the southeast arm. In particular the nearside (left only) lane for ahead manoeuvres and the central (ahead only) for right turns. Using the incorrect lane increases the risk of sideswipe collisions with traffic travelling alongside using the designated lane at a particular roundabout exit.

Recommendation -

Whilst two sets of lane arrows are provided on the carriageway, these will be prone to being hidden in queuing traffic conditions. They are also located quite close to the roundabout entry. It is recommended that the road markings are supplemented by a lane designation sign on the southeast arm of the roundabout.

Designer's Response:

We confirm this can be provided. Is an NCC standard detail available?

Can you advise where the sign is best located? The grass verge just before entry to the roundabout is clear aside from one other sign but this may be too late. Alternatively an area of verge exists next to the NNUH pumping station access.

See screenshot overleaf with two red crossed options.

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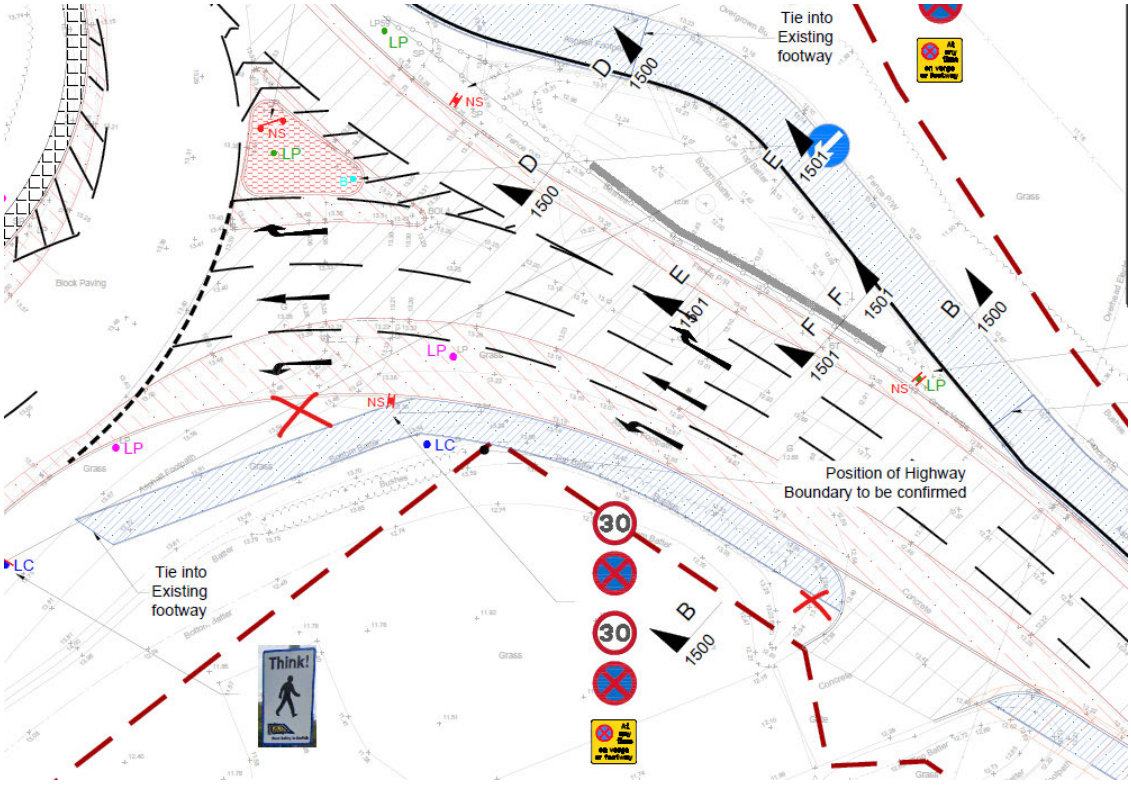

Network Management Decision:

There is no Norfolk County Council standard sign, but it should conform with guidance prescribed within Chapter 7 of the Traffic Signs Manual. See extract below but you will need to change the text and arrow markings to match the situation at the NNUH roundabout. The sign should be black text/arrows on a white background. It is recommended that the most easterly red 'X' location is used, however, designer to check that sign will be sufficiently visible for oncoming drivers given curvature of the road.

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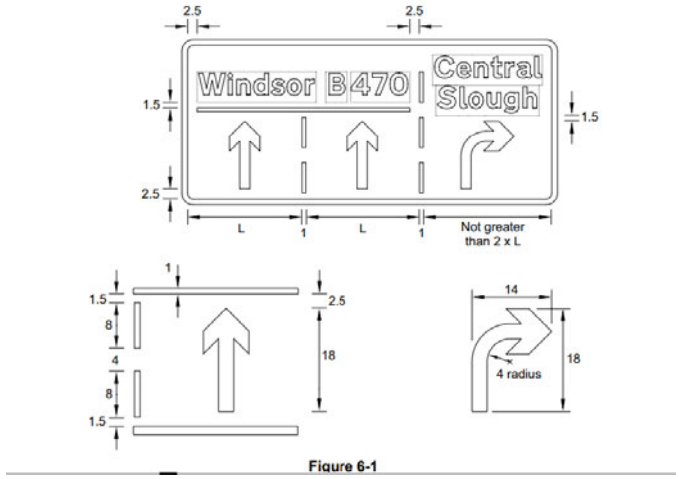

Figure 6-1

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2.0 Alignment

2.1 No comment

3.0 Junctions

3.1 No comment

4.0 Non-motorised Users

4.1 Problem – Pedestrian trip hazard

Location – Colney Lane north arm of roundabout, western crossing point

A new toucan crossing has been provided on the north arm of the roundabout. The kerb line at the western crossing point has an upstand of around 25mm. The upstand will make it difficult or impossible for wheelchair users to access the western shared use at the crossing point and represents a tripping hazard for able bodied pedestrians.

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Recommendation -

It is recommended that the kerb line/tactile paving is lowered, in line with Norfolk County Council specification for pedestrian crossing points (i.e. 0-6mm vertical upstand).

Designer's Response:

These kerbs have now been removed and re-laid as required.

Network Management Decision:

Response accepted. EIR Reg 13 - Personal Data

5.0 Signs, Lighting and Markings

5.1 Problem – Roundabout overshoot/failure to give way

Location – Colney Lane (southeast) approach to roundabout

Turn left/chevron signing on the central island of the roundabout is well offset to the nearside for drivers approaching on the southeast arm. This means that drivers do not see the signs until they are almost entering the roundabout. The signs are also rotated away from approaching drivers which means that are not fully retro-reflective in dark conditions. Both issues reduce roundabout conspicuity, increasing the risk of overshoot or failure to give way collisions.

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Recommendation -

It is recommended that the chevrons and turn left sign to diagram 606 are relocated towards the north, such that they are viewed square on by a driver approaching on the southeast arm at stopping sight distance (90m for a 30mph design speed). The chevron signs also to be rotated such that they provide optimum retro-reflectivity.

Designer's Response:

Our concern is the signs would then be too far to the offside when vehicles are at the give way line. We could provide additional signage as an alternative to relocating the existing if this would be agreeable. Is a lit turn left sign required as per that already installed or can it be left unlit?

Network Management Decision:

Our preference would be for the chevron board/turn left sign to be relocated to the offside such that it is visible at stopping sight distance (90m at 30mph) and orientated to face oncoming traffic (at present it is angled away). The turn left sign must be externally illuminated. EIR Reg 13 - Personal Data

5.2 Problem – Collisions between pedestrians and cyclists

Location – South and west sides of roundabout

It is understood that shared use cycling facilities are present around the south and west sides of the roundabout. There is no signing present to inform Non-Motorised

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Users (NMUs) of this. There are, however, some sign posts without signs which may be for this purpose. Without signing, pedestrians in particular may not be expecting cyclists, increasing the risk of conflict. It was also noted that an historic 'CYCLISTS DISMOUNT' sign is present for cyclists crossing the south arm from east to west. With cycling now being permitted on the west side of the roundabout, this sign is incorrect.



Recommendation -

It is recommended that shared use signing to diagram 967 is provided on all shared use links to inform NMUs that both pedestrians and cyclists may be present. It would also be beneficial to provide a left turn arrow and cycle symbol on the south east arm where northbound cyclists can join the shared use on the south side of the roundabout. It is recommended that the 'CYCLISTS DISMOUNT' sign is removed.

Designer's Response:

Shared use signage to diagram 956 has been provided generally. Do you require the 'cyclist dismount' sign to be replaced with diagram 956?

Can you please mark up a drawing showing exactly where the turn left arrow / cycle symbol are required? Struggling to confirm the exact position from the description provided.

Can you advise anywhere else that diagram 956 signage is required? The photo taken of the post has been fitted with shared use signage on each side.

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Network Management Decision: New provision of shared use signing to diagram 956 is accepted. CYCLIST DISMOUNT SIGN to be removed – there is already a diagram 956 on the rear of this sign which is appropriate. The cycle marking/arrow should be on the Colney Lane (east arm) of the roundabout where the dropped kerb allows cyclist access. Suggest the dropped kerb crossing point as shown below.



Further shared use signing to diagram 956 should be provided at the start of shared use facilities or where they meet a footway. Appropriate locations would be Colney Lane (east) where cyclists join the shared use and the hospital access road where the footway meets shared use. EIR Reg 13 - Personal Data

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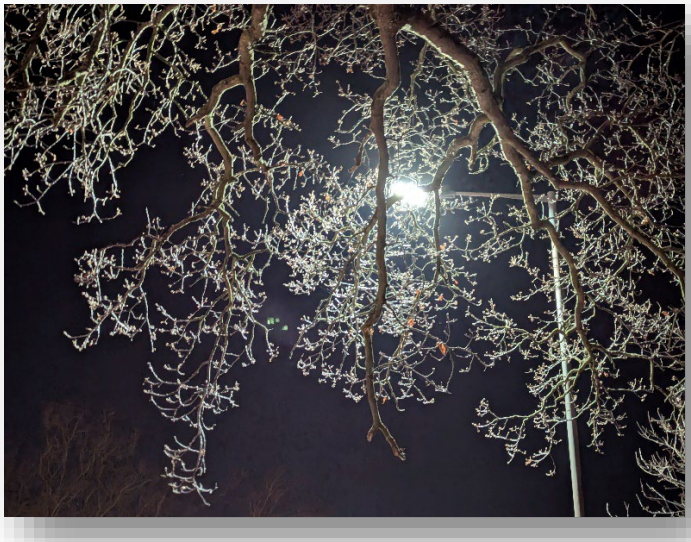
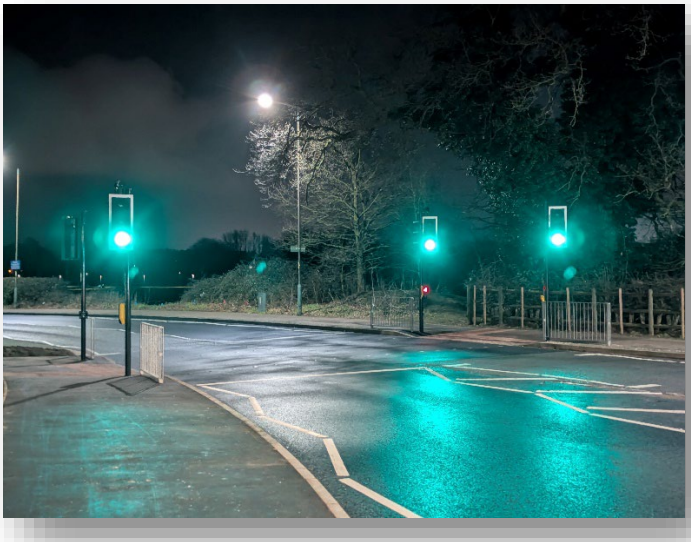
5.3 Problem – Collisions between NMUs and motor traffic

Location – New toucan crossing on north arm of roundabout

The lighting column on the east side of the toucan crossing has substantial tree branches directly beneath it. Whilst the toucan crossing appeared to be adequately illuminated at present, shadows of the branches were observed on the road surface. The auditors are concerned that illumination of the crossing may be adversely affected once the tree greens up in spring. Inadequate illumination of the crossing increases the risk of drivers not seeing pedestrians stepping out in dark conditions, with consequent risk of collision.





Recommendation -

It is recommended that the crossing is inspected by a street lighting engineer in spring/summer to assess whether illumination of the crossing continues to be adequate. Branches to be cut back as required.

Designer's Response:

Noted (note this is part of the NCC Funded Works).

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Network Management Decision:

Response accepted. EIR Reg 13 - Personal Data

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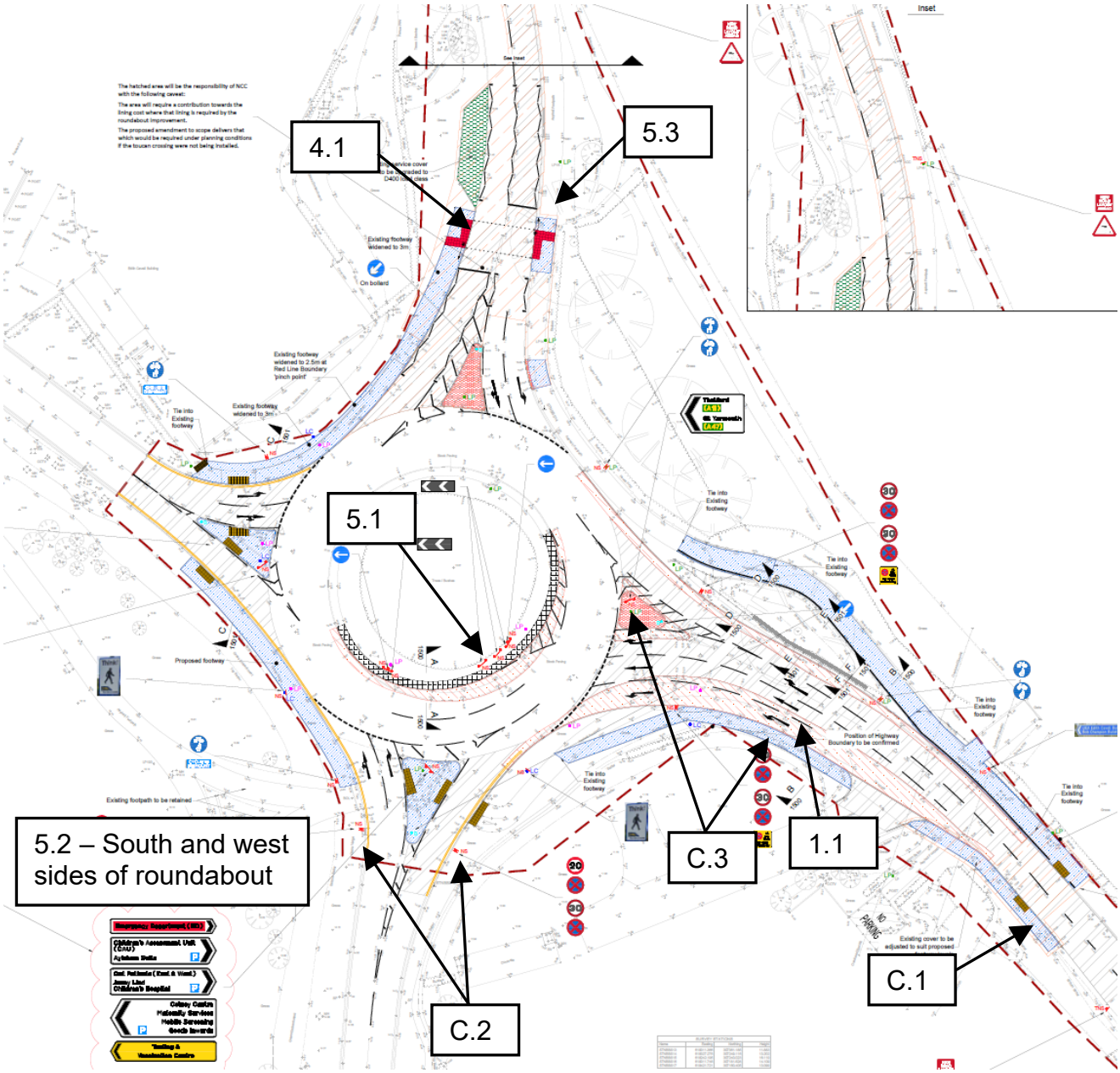
6.0 Problem Location Plan



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AUDIT TEAM STATEMENT

We certify that this audit has been carried out in accordance with Norfolk County Council Community and Environmental Procedure SP03-07-P01

Signed (ATL)	EIR Reg 13 - Personal Data
Dated	10 February 2025
Signed	EIR Reg 13 - Personal Data
Dated	10/02/2025

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APPENDIX A: Audit Brief

The following documents were submitted for this Road Safety Audit:

Document Ref.	Scale (if applicable)	Title
60712988-ACM-RD-XX-DR-CE-40-0001	*1:200@A0*	*NNUH Roundabout S278 General Arrangement*

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APPENDIX B: Comments

C.1 It was noted during the site visit that a northbound bus on the southeast arm of the roundabout waited some 10m or so north of the bus stop flag sign. It is recommended that further information is gained from bus operators about their stopping/wating preference at the bus stop. To better inform bus patrons where to wait, it is recommended that the bus stop flag sign is relocated as required.



Designer's Response:

We assume NCC will lead on this and let us know if the sign requires relocating (note this is part of the NCC Funded Works).

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C.2 On the south arm of the roundabout it was noted that two pairs of 30/20mph terminal signs are present. This duplication is not necessary. It is recommended that the Traffic Regulation Order for the speed limits is checked and the incorrectly located pair of signs removed.



Designer's Response:

The farthest signs in the above photo should've been removed as part of the works. The closer signs are new. We will arrange for the older signs to be removed and disposed off site.

C.3 A complaint has been received from a member of staff at NNUH concerning the loss of the splitter island crossing point on the Colney Lane (southeast) arm of the roundabout, and that it is detrimental to cyclist access in the vicinity of the hospital/research park. The crossing point has been removed as, during scheme design, it was considered unsafe for NMU's to cross 3 lanes of northbound traffic at an uncontrolled facility. Whilst it is accepted that, removal of this crossing point is a loss, substantial gains have been made for NMU's in the shape of a new controlled toucan crossing on the north arm and new shared use facilities on the west side of the roundabout. Hence, there are now cycling facilities around more of the roundabout than was previously the case. It is also acknowledged that there is around 40m length of shared use facility on the south side of the southeast arm which is narrower at around 2.0m. Whilst desirable, it was not possible to provide a wider facility due to

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third party land constraints. Nevertheless, a width of 2.0m conforms with minimum design requirements for shared use facilities where there are less than 200 users per hour (see *CD143 Designing for walking, cycling and horse-riding*).

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