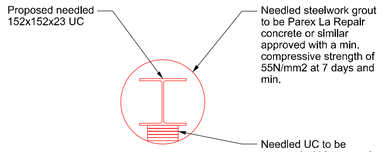
Drawing Number
161713-MAJ-DRG-ECV-000006

Bolt/Fixing	Grade/Type	Size	Total Number	Bolt Length
UC to PFC Fixings	8.8/HSFG	M12	16	55mm
PFC to Mast Fixings	8.8/HSFG	M12	16	55mm

MA0024 UP	Number required	Length (mm)	Approximate lifting weight (kg)
152x152x23 UC	4	1240	29
PFC	4	802	13

Hand tightened bolt torque values	
Bolt Size	Approximate Torque (Nm)
M12	70
Values are indicative of torque achieved when hand tightened using force of 250N.	



Section B-B Core Grouting Detail
Scale 1:10



UP Main Mast MA0024

Approved For Construction

Signed: [signature]

Name: N Ndlovu

Date: 22 August 2024

Suggested Construction Sequence

Works undertaken before to 'rules of the route possession'

1. Contractor to set up sit and safe system of work.
2. All damaged or missing masonry within 1m of proposed anchor locations to be repaired and repointed.
3. Core drilling through masonry to be undertaken at proposed steel locations.
4. Voids around steelwork to be grouted using 'letter box' method.
5. Testing to be undertaken in accordance with inspection and test plan
6. Steelwork shall not be loaded until grout has reached minimum design strength
7. PFC's to be fitted to universal column steelwork. Existing mast, PFC and Needle Holes to be marked out and drilled on site. Drill 16 No. 14 DIA holes.
8. Faying surfaces on existing and proposed steelwork to be cleaned to subsurface standard St3.
9. Proposed steelwork damaged from drilling to be treated using zinc rich cold galvanised paint. Existing mast to be treated with paint system.
10. All steelwork to be fastened with double lock nuts.
11. Steelwork interface points to be sealed to prevent moisture ingress.
12. Existing fixings to be checked. Fixings in poor condition to be removed.

Important CDM/H&S Note

The designers would draw the readers attention to the key residual Health and Safety risks that have not been eliminated from the designs shown on this drawing by the design process.

DRA REF:	Significant Designer's Identified Hazards
005	Working at height
009	Grout voids in core between proposed steelwork and masonry
011	Existing 3rd party wall mounted services and lights
012	Unknown buried services in bridge backfill
014	Damage of hot dipped galvanised elements
019	Restricted space available in front of mast
020	Area in front of mast blocked by adjacent property fence
021	Working adjacent to a highway/property access road

For more detailed information on the highlighted hazards, refer to the designer's risk assessment for this project

'Everyday' low risk hazards and those hazards which should be obvious to a competent contractor have not been indicated on this drawing

Should any additional hazards be identified during the course of the works, the contractor shall notify all relevant members of the project team.

Legend/Notes

1. All dimensions in millimetres unless otherwise stated.
2. All levels are in metres AOD unless otherwise stated.
3. This drawing is based on a Form 1 Drawing produced by ESL. No survey information is available, all dimensions are based based on drawing information provided in Form 001/002 Report 161713-AME-F01-ECV-000001 Rev 01.
4. Contractor shall undertake a survey to confirm all dimensions shown in this drawing prior to undertaking the works.
5. All open joints in the brickwork within 1m of any proposed anchor location shall be raked out and repointed raked out and repointed. All open joints in excess of 15mm or any brickwork which is loose and freeable or has crumbling mortar surround shall be raked out and repointed to a depth of 30mm. All repairs shall be undertaken in accordance with Network Rail Standard masonry repair details NR/SD/100 and Technical User Manual NR/CIV/TUM/101.
6. No C2 service search has been undertaken. Principal contractor to undertake 3rd party service search and to review any local services (which are not shown on C2 service searches) for adjacent buildings prior to undertaking the anchoring works.

Existing Steelwork:

7. All existing mast surfaces in contact with PFC and bolts shall be cleaned and painted with a single high build paint system compatible with the existing paint system (unless otherwise agreed with the project sponsor) in accordance with NR/L3/CIV/039 and NR/L3/CIV/040. Paint colour to be confirmed with the project sponsor.
8. The areas of surface preparation and paint treatment shall extend a minimum of 100mm beyond the proposed connection points such that future painting works are able to provide a 50mm lap with their paint system.
9. In accordance with NR/L3/CIV/039, all surfaces receiving a single high build paint system compatible with existing paint system shall be cleaned using power or hand tools to subsurface standard St3 in accordance with BS EN ISO 8501-1.
10. Existing fixings shall be inspected to review their condition. All existing fixings shall be cleaned to ST3 and treated with a single high build paint system compatible with the existing paint system.

Proposed Steelwork:

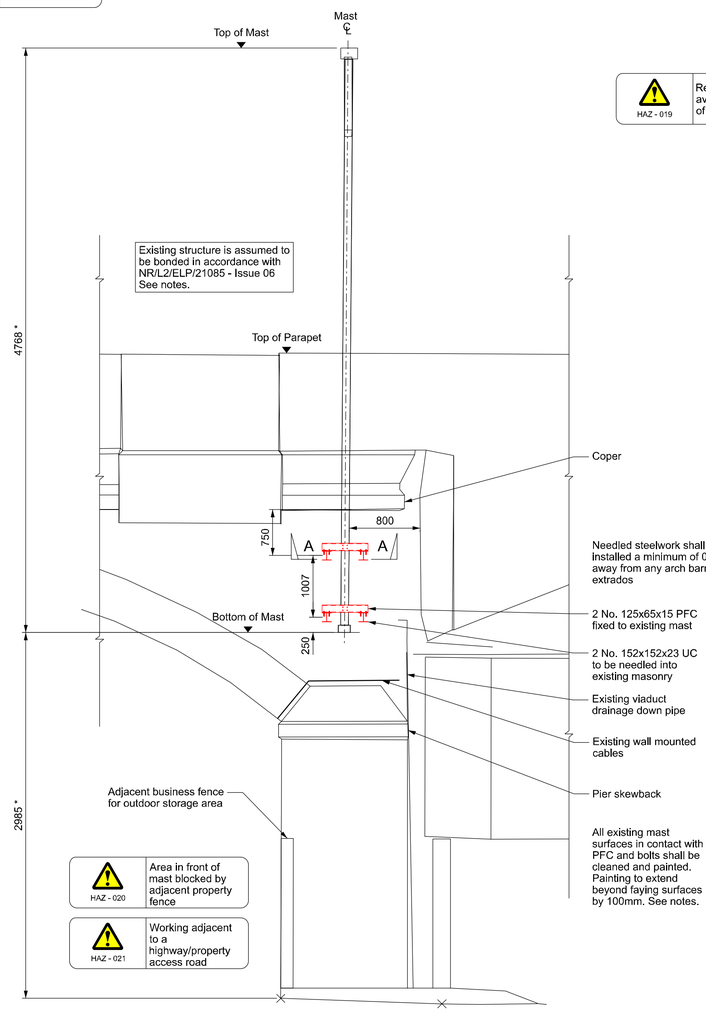
11. All proposed steelwork to be S275 or better, unless stated otherwise.
12. All proposed steelwork to have a protective treatment to BS EN 100240 hot dipped galvanised steel in accordance with BS EN ISO 1461 to mitigate risk of bimetallic corrosion. Hot dipped galvanised steel elements shall have sufficient nominal coating thickness for a 30-year design life.
13. Areas of galvanised steel damaged during drilling or installation shall be repaired using galvafroid or zinc rich cold galvanised paint in line with M31 paint system requirements in accordance with NR/L3/CIV/039 and NR/L3/CIV/040.
14. Design has been based on core information taken for Castlefield corridor improvements scheme (GI Factual Report No. J18182/CCI/FR/V2).
15. Grounted steel needles shall not be connected to existing masts before grout has achieved its minimum 3 day design strength (i.e Tensile strength of 1.25N/mm2 and Compressive strength of 30N/mm2).
16. Approximate core void size 0.048m3 per core.
17. Proposed steelwork will be fixed to existing OLE mast which is assumed to be already bonded in accordance with NR/L2/ELP/21085 Issue 07. Proposed fixings shall provide electrical continuity across the final permanent structure, therefore, the new connected fixings will be bonded by extension of the existing OLE masts.

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
C02	08/08/24	AFC - Updated for Client Comment	WB	WH	LR
C01	26/07/24	AFC	WB	WH	LR
B02	15/07/24	Revised for client comments	WB	WH	LR
B01	03/05/24	Issue for Approval	WB	WH	LR
P02	29/04/24	IDC	WB	WH	LR

HAZ - 005 Working at height

HAZ - 011 Existing 3rd party wall mounted services and lights

HAZ - 012 Unknown buried services in bridge backfill



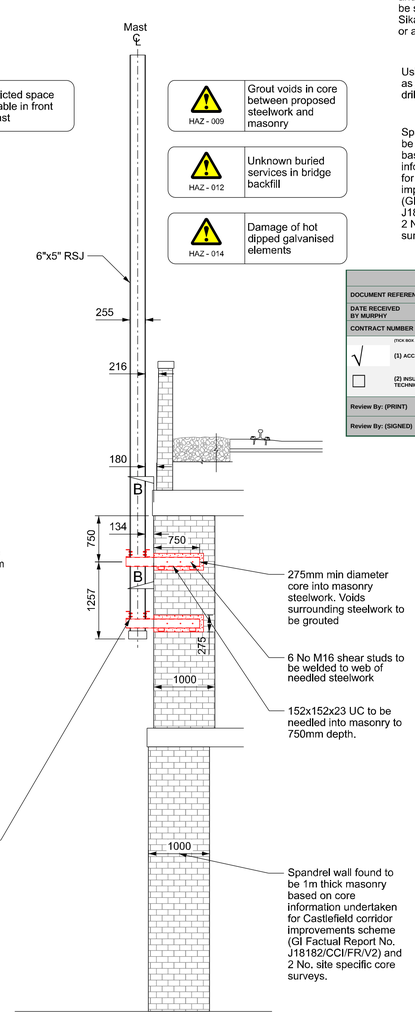
Proposed North Elevation
Mast MA0024 UP
Scale 1:50

HAZ - 019 Restricted space available in front of mast

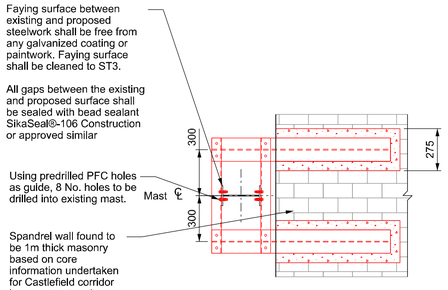
HAZ - 009 Grout voids in core between proposed steelwork and masonry

HAZ - 012 Unknown buried services in bridge backfill

HAZ - 014 Damage of hot dipped galvanised elements



Proposed North Side Elevation
Mast MA0024 UP
Scale 1:50



Section A-A
Scale 1:20

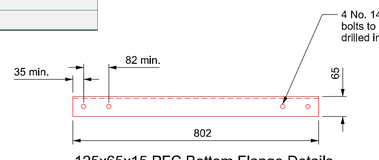
MURPHY GROUP DOCUMENT REVIEW DECAL (CLIENT ISSUED DRAWINGS / SPECIFICATIONS / CONTRACT DOCUMENTS)	
DOCUMENT REFERENCE	Cornbrook AFC Drawings
DATE RECEIVED BY MURPHY	9th August 2024
CONTRACT NUMBER	OP161713- JMS 1002-001513

(TICK BOX AS APPROPRIATE)
√ (1) ACCEPTED
☐ (2) INSUFFICIENT FOR CONSTRUCTION. - TECHNICAL QUERIES TO BE RAISED
☐ (3) REVIEW NOT REQUIRED

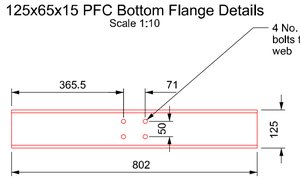
Digitally signed by N Ndlovu
DN: cn=N Ndlovu, o=Murphy and Sons, ou=M1 - Rail Renewals, email=nkosindiso@murphygroup.co.uk
Reason: I am approving this document
Location: Cornbrook- AFC

N Ndlovu

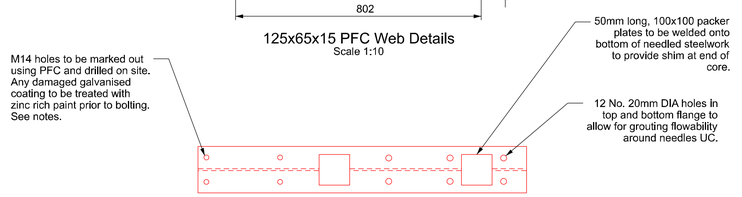
Review By: (PRINT)	N Ndlovu	Title:	CEM
Review By: (SIGNED)	[signature]	Date:	22.08.2024



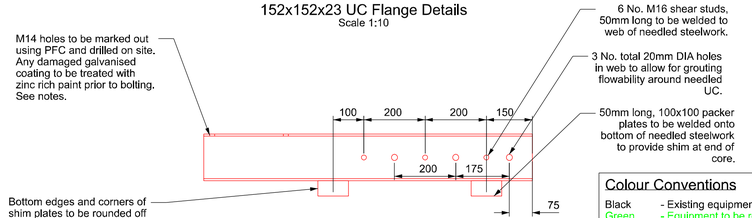
125x65x15 PFC Bottom Flange Details
Scale 1:10



125x65x15 PFC Web Details
Scale 1:10



152x152x23 UC Flange Details
Scale 1:10



152x152x23 UC Web Details
Scale 1:10

Colour Conventions

Black - Existing equipment
Green - Equipment to be removed
Red - New equipment
Blue - Existing equipment in new position / modified
Future - Future / by others

Status: Approved for Construction
Suitability: A1

Client: Network Rail

Contractor(s)

InoRail Ltd
14 The Parks
Haydock
WA12 0JQ

TEL: +44 (0) 161 667 1553
www.inorail.co.uk

MURPHY WORLD-CLASS INFRASTRUCTURE

Project
CORNBROOK VIADUCT OLE STRUCTURE STRENGTHENING
-
-

Drawing Title
PROPOSED MAST MA0024 UP SUPPORT AND LATERAL STRENGTHENING
-

Designed	L.Ratchford	Signed	Date 08/08/24
Drawn	W.Bradshaw	Signed	Date 08/08/24
Checked	W.Holly	Signed	Date 08/08/24
Approved	L.Ratchford	Signed	Date 08/08/24

Scale(s): AS SHOWN
ELR & Mileage: MAJ 33m 1063yds
Alternative Reference: P-432-148-CIV-DRG-0006
Sheet: 1 of 1
Drawing Number: 161713-MAJ-DRG-ECV-000006
Revision: C02

Sheet Size A1 594 x 841