Listed Building Consents – Ruislip

Project Programme	**PLU OPO – Listed Building Consents**

Stage	Detailed Design

Responsible	Project Manager	Joseph Benson
	Signature	Date

Accountable	Programme Manager	Steve Ristow
	Signature	Date

Product History	Version	Date	Summary of changes
	1	05/01/2023	V.01
	2	23/01/2023	V.02 updated CRMS route
	3	31/01/2023	V.03 Further explanation on penetration
	4	15/02/2023	V.04 Incorporation of LB Hillingdon Comment
	5		

Name	**Role**
Edmund Bird	LU Heritage Advisor
Ian Gilbert	LU Heritage Advisor
Lucas Prytherch	PLU OPO Project Manager
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CONTENTS

1. OPO Scope Summary

The Piccadilly Line Upgrade (PLU) remains a key element of the TfL Business Plan and is a priority for investment over the plan period and beyond. The TfL Business Plan describes the investment needed to transform London's transport infrastructure to meet the economic, employment and regeneration requirements of the Mayor's Transport Strategy (MTS).

The PLU will first upgrade the Piccadilly line to provide around a 60% increase in capacity through the introduction of new higher capacity trains and train control systems, enabling peak service levels to be raised to 33 trains per hour (or greater).

Platform Train Interface (PTI) is LU's top safety risk due to lack of physical separation between the passengers on the platforms and moving trains. Since the impact of this risk is possible passenger fatality, mitigations are carefully developed and prescribed in various LU standards.

The primary mitigation of the PTI risk during train dispatch is provision of clear and uninterrupted view of the complete critical area of the PTI under all conditions to the Train Operator. It is a safety requirement that the Train Operator must have a clear un-obstructed view of the complete platform critical area under all conditions during dwell and train dispatch.

Video images from designated platform cameras are combined and transmitted to trains and the images are displayed on monitors in the driver's cab(s) in near 'real – time'.

The functionality of the OPO CCTV system is critical to safe dispatch of the train, and therefore any failure of the system in operation leads to railway service disruptions.

The OPO CCTV system will be designed, installed, commissioned, and brought into use on the Piccadilly Line, with requirements of delivering the Off-Train Communications (OTC) equipment (stations only), and Platform Stopping Marker equipment (stations only), which are all within scope of the main OPO CCTV contract, with Alan Dick Communications (AD Comms).

Additional OPO scope includes other platform ancillary works such as the platform enabling works, platform end barriers, or other operational signage.

Due to the nature of the programme, there will be a migration phase where existing equipment associated with the 73Tube Stock (73TS) and new assets for the 24 Tube Stock (24TS) will coexist on platforms. This is vitally important and safety critical as the new Fleet of trains (24TS) is introduced to the Piccadilly Line so that the 73TS can still run until full delivery has been complete, not compromising quality of service or safety.

1.1. Town Planning Consents

Listed building consent will be required for work on the Grade 2 and Grade 2* structure. Listed building consents will not be required for locally listed stations, although changes to the stations will need to be discussed with LU Heritage Advisors.

Borough	Station	Listing
Hounslow	Hounslow West	Grade 2
	Osterley	Grade 2
	Boston Manor	Grade 2
Brent	Sudbury Town	Grade 2*
	Alperton	Locally Listed
Hillingdon	Uxbridge	Grade 2
	Ruislip	Grade 2
	Eastcote	Grade 2
	Ruislip Manor	Locally Listed
	Hillingdon	Locally Listed
Harrow	Rayners lane	Grade 2
	Sudbury Hill	Grade 2
	South Harrow	Locally Listed
Ealing	Northfields	Grade 2
	Park Royal	Grade 2
	North Ealing	Grade 2
	Ealing Common	Grade 2
	Acton Town	Grade 2
HS & Fulham	Barons Court	Grade 2
Kensington & Chelsea	Earls Court	Grade 2
	Gloucester Road	Grade 2
	South Kensington	Grade 2
Westminster	Piccadilly Circus	Grade 2
	Covent Garden	Grade 2
Camden	Russell Square	Grade 2
Hackney	Manor House	Locally Listed
Islington	Caledonian Road	Grade 2
	Holloway Road	Grade 2
	Arsenal	Locally Listed
Haringey	Turnpike Lane	Grade 2
	Wood Green	Grade 2
	Bounds Green	Grade 2
Enfield	Arnos Grove	Grade 2*
	Southgate	Grade 2*

	Oakwood	Grade 2*
	Cockfosters	Grade 2

1.2 Planning Statement (From Consents Officer)

Due to Ruislip Station being a Grade 2 Listed Building, any installation in the station area requires a Listed Building Consent submission. This details the One Person Operations (OPO) Projects intention of what we are installing, where we are installing this and when we will be installing these assets.

The OPO project sits within the Picadilly Line Upgrade (PLU) programme. The scope of the programme is to build new Picadilly Line trains to replace the 1973 Tube stock currently running on the line. To enable this, a number of facilitating projects are required. The OPO Projects scope is to upgrade the Track to Train CCTV System for the 2024 Tube Stock to allow for the Tube Driver to control dispatch.

As a Project, we are due to be installing assets on 36 Stations with either statutory listed or locally listed status to facilitate this upgrade. As a result, we engaged with conservation representatives on the 29th July 2021 to inform them of the project scope. This was a worthwhile exercise as it kickstarted the relationship and interface between the Boroughs and Project. In this meeting, we were able to openly discuss risks to gaining heritage approval.

For additional information regarding the heritage impacts on Ruislip Station, please see the Caldonian Road Heritage, Design and Access Statement October 2022.

1.3 CRMS Design Proposal

Ruislip

Use of existing CRMS:

Where possible, the OPO Project on behalf of the Piccadilly Line Upgrade will be reusing existing CRMS (Cable Route Management Systems) and only using and adding new CRMS where required. As per each station submission, the OPO project will consider the LU Heritage Features document when submitted the listed building consents document.

In relation to Ruislip, there is new CRMS being installed in the passenger realm / public areas / station areas or areas showcased within the LU Heritage Features document for Ruislip.

Where possible, it is planned for us to try and reuse any existing CRMS in public areas therefore not affecting any heritage assets.

NP		Node Power
NC		Node Comms
	yellow arrow	Direction
	dark blue line	New CRMS
	light blue line	Support brackets
	oval	Structural Penetration
	oval	CRMS Penetration

CRMS Hidden from public view = Dashed Lines

CRMS Visible= Solid Lines

All CRMS will be colour-coated to match the finish of the substrate to which it will be affixed in alignment with the LU Design Idiom.

Image 04 – CRMS leaving CER onto plat 2

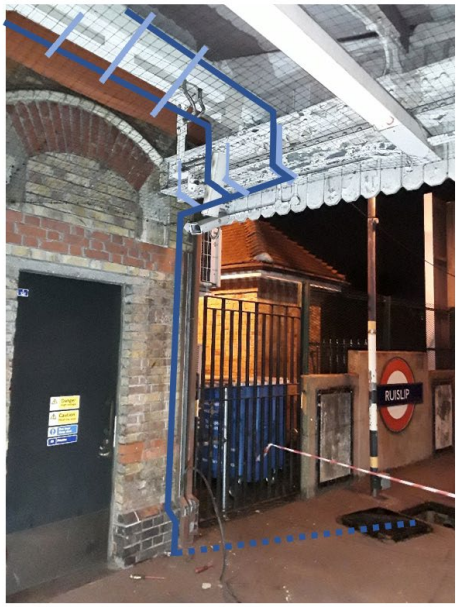
Dark blue represents the tray and trunking. Light blue represents the unistrut. All CRMS will be painted to match the colour of the walls. The 75x75mm trunking will come through the 275x175mm penetration and then transition to a 150mm tray. It will split across in two directions. The 275x175mm penetration is the minimum size that can be created to comply with LU Fire Standards S1085 & S1088.

Heading towards the head wall the tray will be 100mm and towards the tail wall it will be 150mm. 100mm tray coming out of the 275x175mm penetration and split across in both directions towards the HW and TW of platform 2. The tray will need to set up and over the 150mm tray running next to it to head towards the head wall.

Image 05 – Platform 2 (headwall) New OPO/OTC CRMS

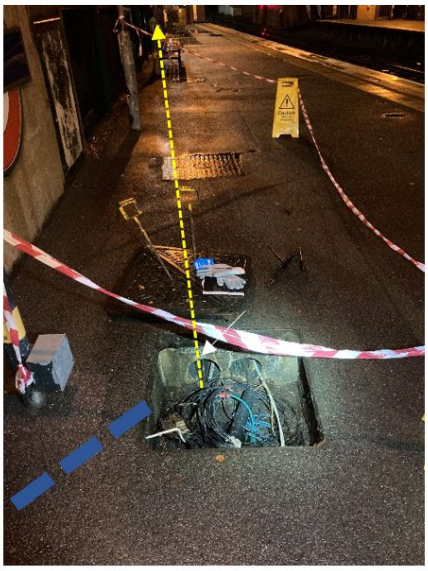
Dark blue represents the tray and trunking. Light blue represents the unistrut. All CRMS will be painted to match the colour of the walls.

Image 6– Platform 2 Head Wall IS box



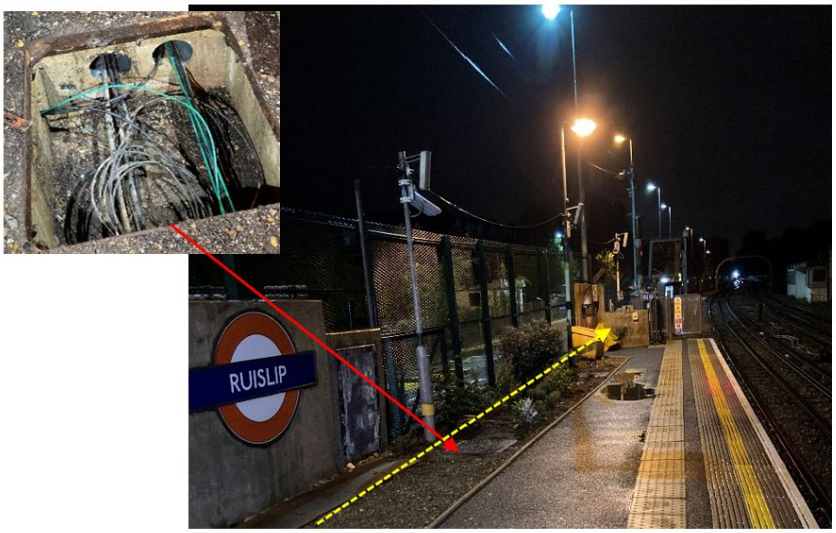
Dark blue represents the tray and trunking. Light blue represents the unistrut. All CRMS will be painted to match the colour of the walls. Both 100mm trays will come off the unistruts clamped to the girder, running vertical to the platform and connect under the girder running horizontally to the platform. One 100mm tray will come off the girder and onto the wall running down and stopping above the platform floor. The tray on the wall will be lidded. Then there will be a new 50mm duct route dug into the platform floor from the tray to the existing IC.

Image 7– Platform 2 Head Wall IS box



Once the new 50mm ducting has joined the existing IC, the route will continue down platform 2 in existing 170mm ductings towards the head wall where the IS box is located. As depicted, these will be in the voids on the platform and will not be visible.

Image 8– Platform 2 Head Wall IS box



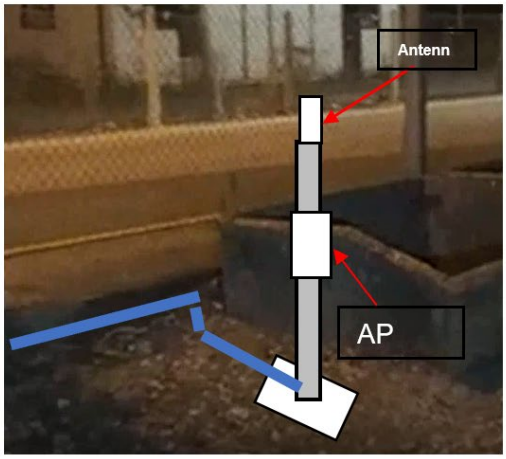
The route will continue down platform 2 in existing 170mm ductings towards the head wall where the IS box is located. These ICs have all had the routes proven.

Image 9– Platform 2 Head Wall IS box

Dark blue represents the tray. Light blue represents the unistrut. Dotted dark blue represents ducting buried underground. All CRMS will be painted to match the colour of the walls. In this location after the barrier on the head wall of platform 2 the IS box will be mounted on the wall with the isolator next to it. Both assets will be mounted on unistrut. There will be two new 32mm ductings coming out of the IC and across to the wall. One 75mm tray will run up the wall mounted on 41x41mm unistrut to the bottom of the IS box. The SWA cable will come out of the ducting and be cleated to the wall and into the bottom of the isolator.

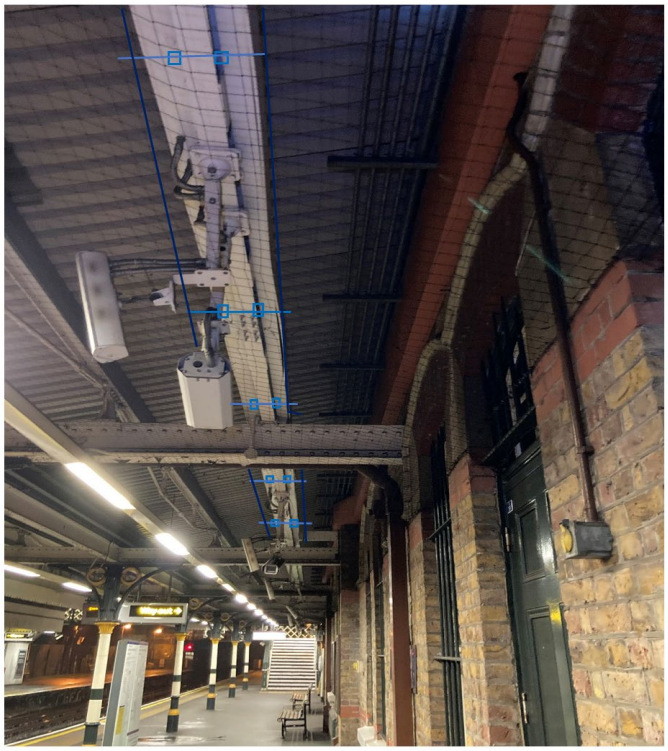
A 25mm conduit will link the isolator to the IS box. another conduit will come from the IS box, down the wall and set off onto cantilever arms fixed to the floor. The IS box will be coloured as galvanised steel to match the existing assets.

Image 10– OTC – Access Point (AP) box location Platform 2 Headwall



25mm conduit mounted onto the side of the wall low level across to the antenna and AP box. when opposite it will go into a 32mm ducting and into the new post. In these images, the antenna will be visible to the public eye, although the CRMS will not be.

Image 11 – New OPO/OTC CRMS plat 2 towards footbridge (Tailwall)



Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure.

The 100mm and 150mm trays will continue down platform 2 on unistrut clamped to the beam.

Image 12 – New OPO/OTC CRMS plat 2 towards footbridge (Tailwall)

dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. The 100mm and 150mm trays will continue down platform 2 on unistrut clamped to the beam.

Image 13– New OPO/OTC CRMS plat 2 towards footbridge (Tailwall)

dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. The 100mm and 150mm trays will continue down platform 2 on unistrut clamped to the beam.

Image 14 – New OPO/OTC CRMS plat 2 footbridge

dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. The 100mm and 150mm trays will continue down platform 2 on unistrut clamped to the beam.

Both are to be inverted and fixed to window brackets off the main steel beam. Bridge formation jumps will need to be formed to pass over the steel sections which cross the path of the trays.

Image 15 – New OPO/OTC CRMS plat 2 footbridge

dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure.

The 100mm and 150mm trays will continue down platform 2 on unistrut clamped to the beam. Setting down to continue up the staircase across to platform 1.

Image 16- Platform 2 Tail Wall IS room 1/401

Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. From the primary CRMS that will pass onto the footbridge the comms and power will set off onto 100mm tray and set down onto the wall from the girder with an inside rolling 90 tray bend. Once past the existing junction box the trays will with a flat 90-degree bends set across the wall to the opening.

Image17- Platform 2 Tail Wall IS room 1/401

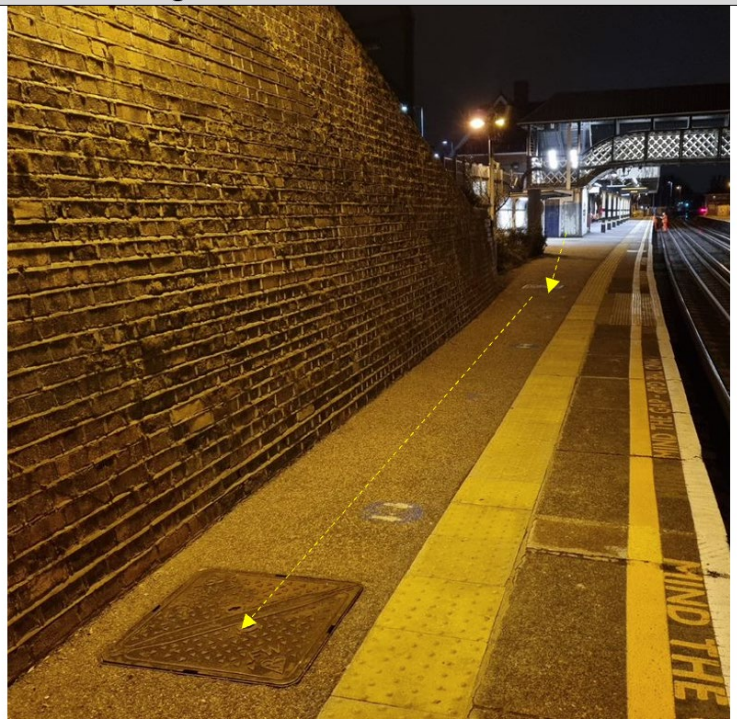
Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the existing station structure.

New 100mm tray and across the outside wall. It will then using a flat 90 degree bend set down the wall. The tray will be lidded.

Image18- Platform 2 Tail Wall IS room 1/401

Dark blue represents the trays. Light blue represents the unistrut. Dotted dark blue represents ducting under the floor. All CRMS will be painted to match the colour of the structure. The 100mm lidded tray will run down the wall and stop 100mm above the floor. Two new 32mm ducting routes will come from through the floor and the comms and power will come off the tray and through the ducting that will continue across the pavement and into room 1/401 where the IS box is located.

Image20- Platform 2 Tail Wall IS room 1/401



Using the existing ducting route along the platform towards the tail wall of platform2.

As mentioned above, the CRMS will be underneath the platform in the voids.

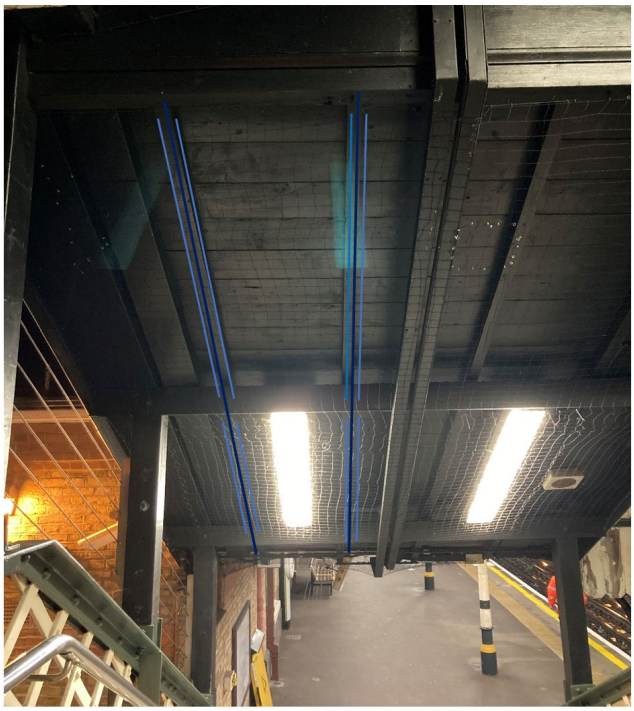
Image 21 – OTC – Access Point (AP) box location Platform 2 Tailwall

Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the existing structure. New ducting from the IC will run under the floor across to the wall where a 75mm tray will run up the wall next to the existing conduits. It will go in two directions. One section of the 75mm tray will go across the wall at high level towards the ramp and the other will continue up the wall then across to the existing OTX. The tray will be

Image 23 – New OPO/OTC CRMS plat 2 footbridge

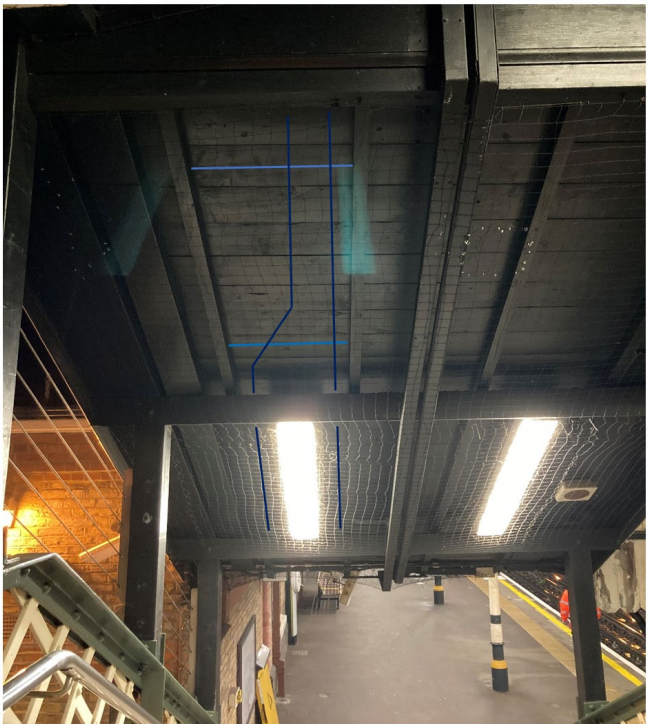
Continues From Image 15. Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. The 150mm tray will reduce to a 100mm tray in this location. Now two 100mm trays will run up the staircase on unistruts fixed to the structure.

Image 24 – New OPO/OTC CRMS plat 2 footbridge



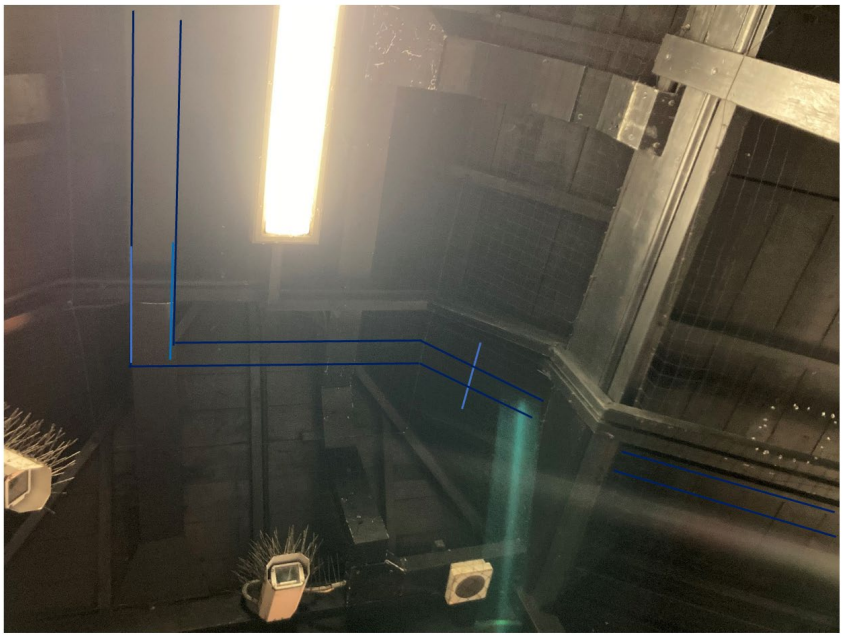
Two 100mm Trays to be installed to 21mm uni strut which will be fixed to the roof framework via angle brackets and bolts.

Image 25 – New OPO/OTC CRMS plat 2 footbridge



When past the light the two 100mm trays continue to be installed to 21mm unistrut strut which will be fixed to the roof framework via angle brackets and bolts.

Image 26 – New OPO/OTC CRMS plat 2 footbridge



Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. The two 100mm trays will now set across and along the foot bridge.

Image 27 – New OPO/OTC CRMS across footbridge

Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. 100mm trays will be fixed to unistruts which are to be clamped round the timber cross sections. Both 100mm Trays are still inverted and lidded.

Image 28 – New OPO/OTC CRMS across footbridge

Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. 100mm trays will be fixed to unistruts which are to be clamped round the timber cross sections. Both 100mm Trays are still inverted and lidded.

Image 29 – New OPO/OTC CRMS plat 1 footbridge

Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. 100mm trays will be fixed to unistruts which are to be clamped round the timber cross sections. Both 100mm Trays are still inverted and lidded. Now turning and heading down the staircase to platform1.

Image30- Platform 1 IS box room 1/481

Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. 100mm trays will be fixed to unistruts which are to be clamped round the timber cross sections. Both 100mm Trays are still inverted and lidded. There will be an additional 100mm tray running down the outside of the column facing away from the footbridge. This will also be lidded.

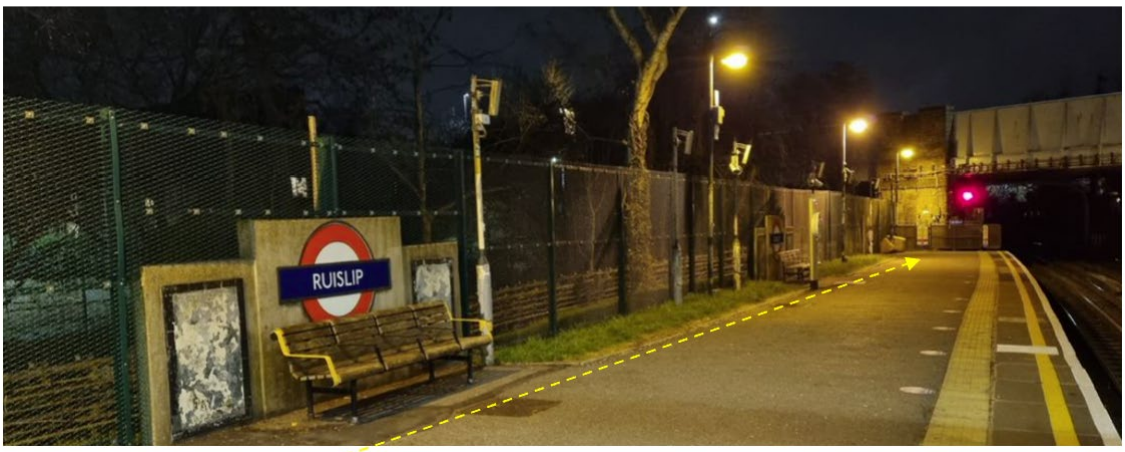
Image31- Platform 1 IS box room 1/481

Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. The 100mm tray will come down the wooden beam and using an extra-long adjustable riser bend the tray will set over the lip and onto the white panelling. From here the power and comms will pass through the wooden panel with a new penetration entering room 1/481.

Image 33 – OTC – CRMS route exit from Room 1/481 to platform duct route to Platform 1 (Headwall)

Yellow lines shown existing duct route. The route will come through the junction box into the trunking and through the existing ducting route outside.

Image 34 – OTC – CRMS route exit from Room 1/481 to platform duct route to Platform 1 (Headwall)

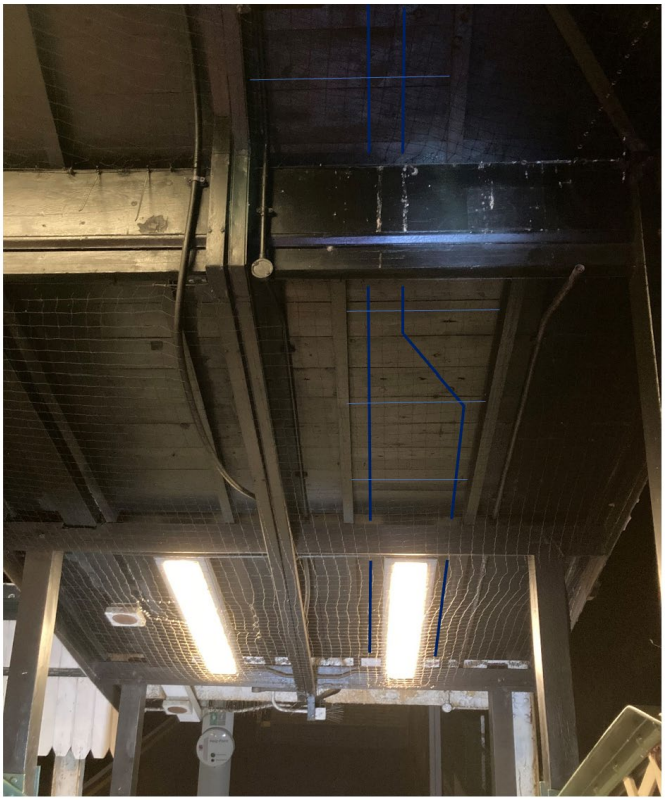


Continue down the platform in the existing ducting route in the platform voids. Yellow lines shown existing duct route

Image 35 – OTC – Platform 1 Headwall

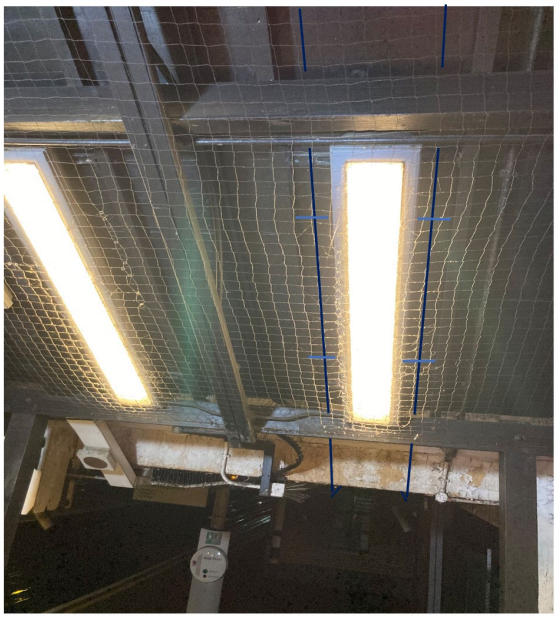
Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. When past the barrier a new 50mm Ducting will be installed from the IC to the wall. 75mm lidded tray will run up the wall and split across in both directions, on the left it will set around the wall and up & on the right the 75mm lidded tray will round the corner down the ramp. All 75mm tray will be mounted on unistrut.

Image 38 – New OPO/OTC CRMS plat 1 footbridge



Continues from Image 29. Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. Two 100mm trays continue down the staircase around the existing light fitting onto platform 1 canopy.

Image 39 – New OPO/OTC CRMS plat 1 footbridge



Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. Two 100mm trays continue down the staircase around the existing light fitting onto platform 1 canopy. The 100mm trays to be installed on 21mm uni strut which will be fixed to the roof framework via angle brackets and bolts

Image 40 - New OPO/OTC CRMS plat 1

Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. Two 100mm trays passing under the steel beam and into the canopy. Once under the steel, both100mm trays be fixed to power arms that will be installed on vertical pieces of uni strut which span the web of the steel.

Both trays will then set around the beam and up onto another beam within the platform canopy. The two 100mm trays will be fixed to unistrut clamped around the beam and sitting to the side of the beam to allow for future maintenance purposes of all existing the assets.

Image 41 - New OPO/OTC CRMS plat 1

Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. Two 100mm trays travelling from the back to the front of the canopy from. The two 100mm trays will be fixed to unistrut clamped around the beam and sitting to the side of the beam to allow for future maintenance purposes of all existing the assets.

Image 42 – New OPO/OTC CRMS plat 1 towards headwall

Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. The two 100mm trays will then come onto new cantilever arms that will be fixed to the existing plates on the beam.

Image 43 – New OPO/OTC CRMS plat 1 towards headwall

Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. The two 100mm trays will continue on the new cantilever arms that will be fixed to the existing plates on the beam and continue down the canopy.

Image 44 – General overview plat 1 canopy

Dark blue represents the trays. Light blue represents the unistrut. All CRMS will be painted to match the colour of the structure. The two 100mm trays will then come onto new cantilever arms that will be fixed to the existing plates on the beam.

Image 45 - New OPO/OTC CRMS plat 1 towards headwall

Two 100mm trays travelling to the end of the canopy. Once at the end of the steel beam, the trays will turn via internal tray bends, then flat 90° tray bends to then make their way across to the right as shown in the image. Once at the brick column on the right, the two 100mm trays will turn up at 45° to allow the cabling to pass over the top of the steel beam. This is the end of the primary CRMS on platform 1.

Image46 Platform 1 Tail Wall IS box

The tray will with a flat 90-degree bend set down the inside of the I beam to the floor. Then two ducting's one for power one for comms will be installed from the base of the I beam across to the existing IC.

The 100mm tray will be supported on unistrut that will be fixed using expander brackets.

Image 47- Platform 1 Tail Wall IS box

The power and comms route will continue down the platform towards the TW in the existing duct route.

Image 48- Platform 1 Tail Wall IS box

The power and comms route will continue down the platform towards the TW in the existing duct route. that continues to the final IS box behind the end wall of the platform.

The yellow line shows the direction of the existing underground duct. IS box behind the wall out of sight.

1.4 Lifecycle of OPO Project on Platform – Ruislip

This section provides augmented reality imagery of the platforms in the below phases.

- In their current state with 73 Tube Stock (TS) equipment alone
- Mid-way through with both 73TS and 24TS equipment on the platform
- End of the project's lifecycle, where 73TS has been removed and 24TS Stands alone

The images solely showcase the changes in Cameras and bracketry and no other platform changes.

Images for every camera to be attached showing Current, Migration and End states. Ruislip Station images are attached as an example only.

Key:

Existing bracketry & cameras = 

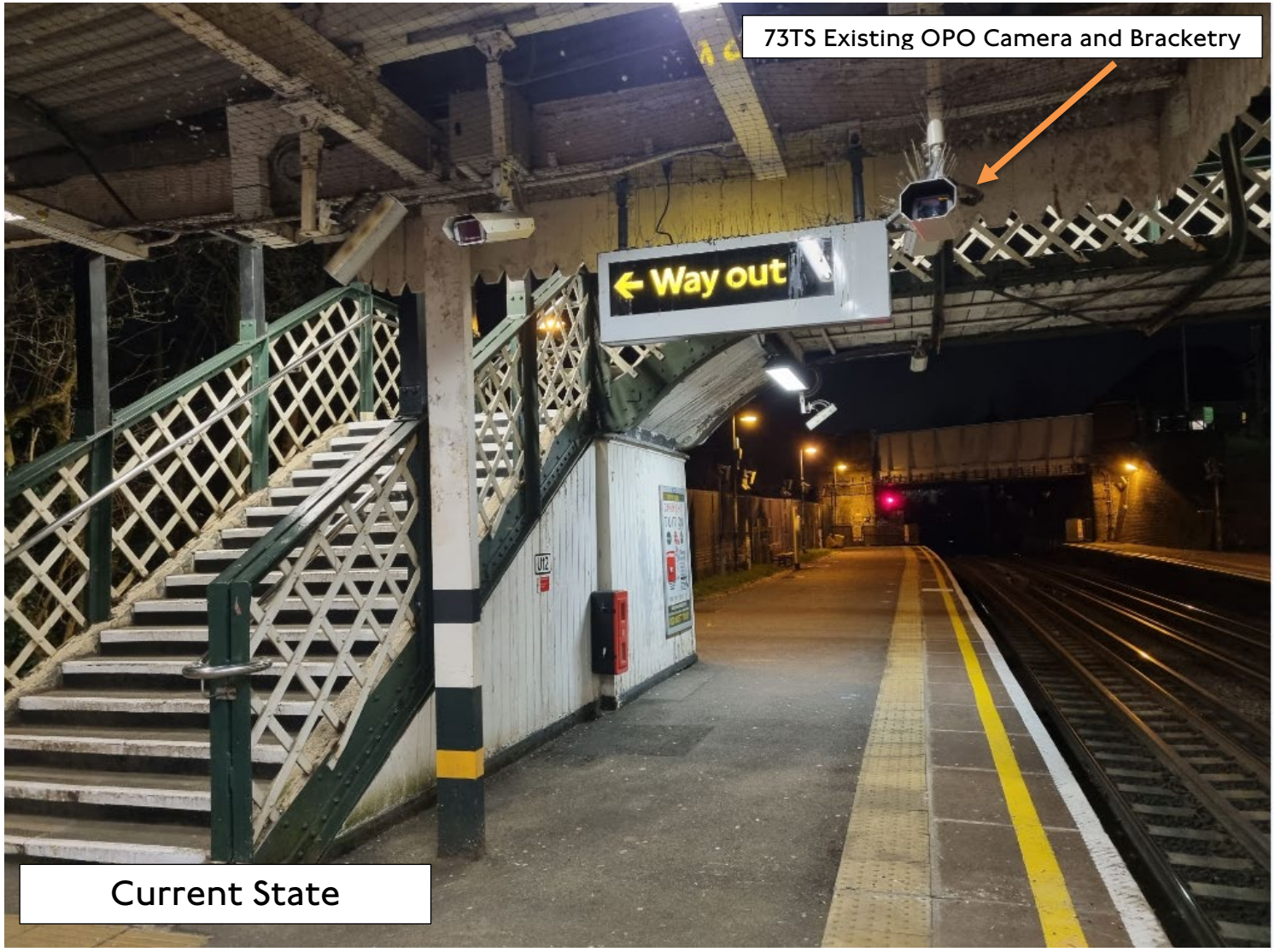
New bracketry & cameras = 

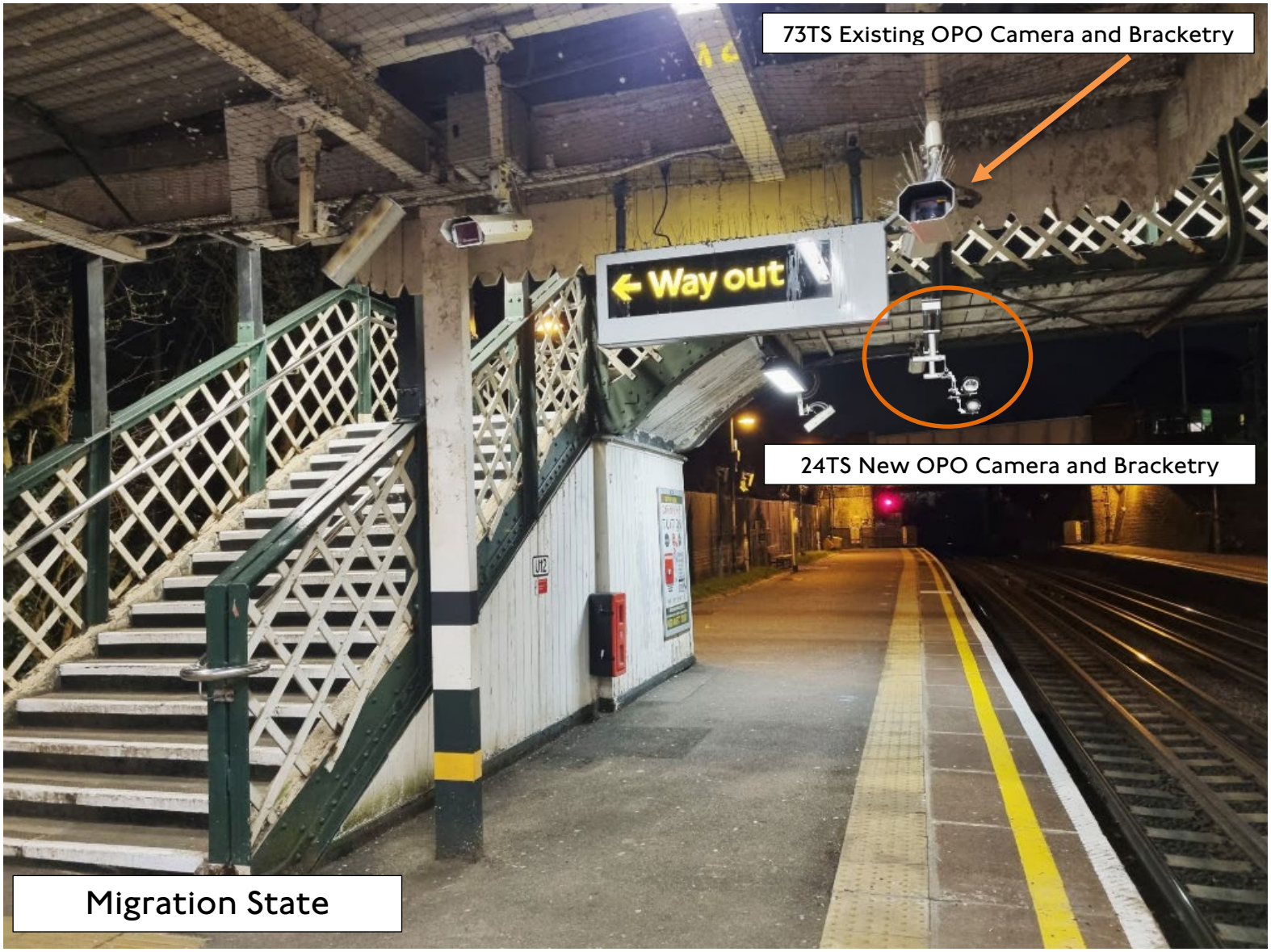
Platform 1 –

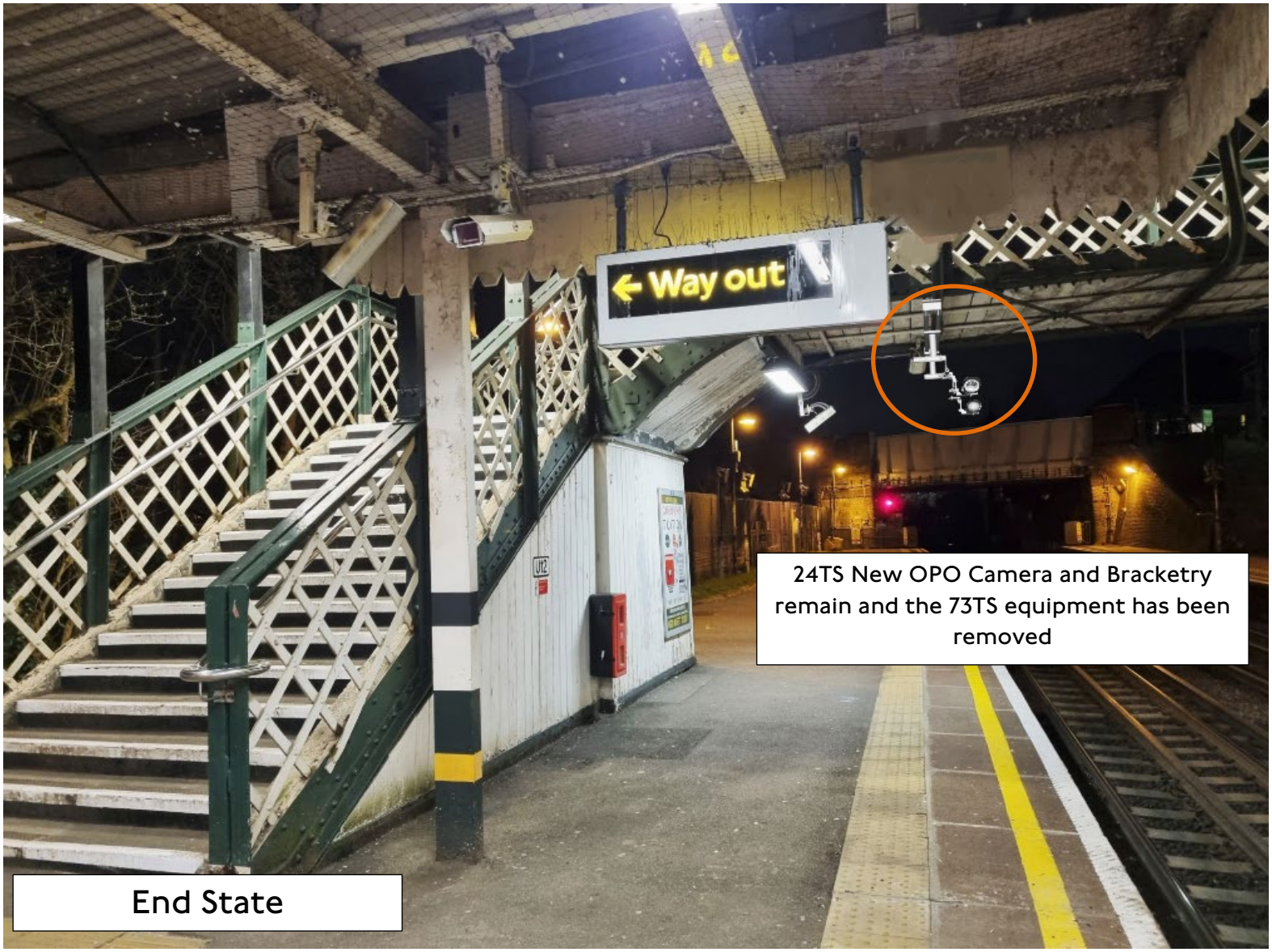

24TS New OPO Camera and Bracketry
73TS Existing OPO Camera and Bracketry
Migration State


24TS New OPO Camera and Bracketry remain and the 73TS equipment has been removed
End State

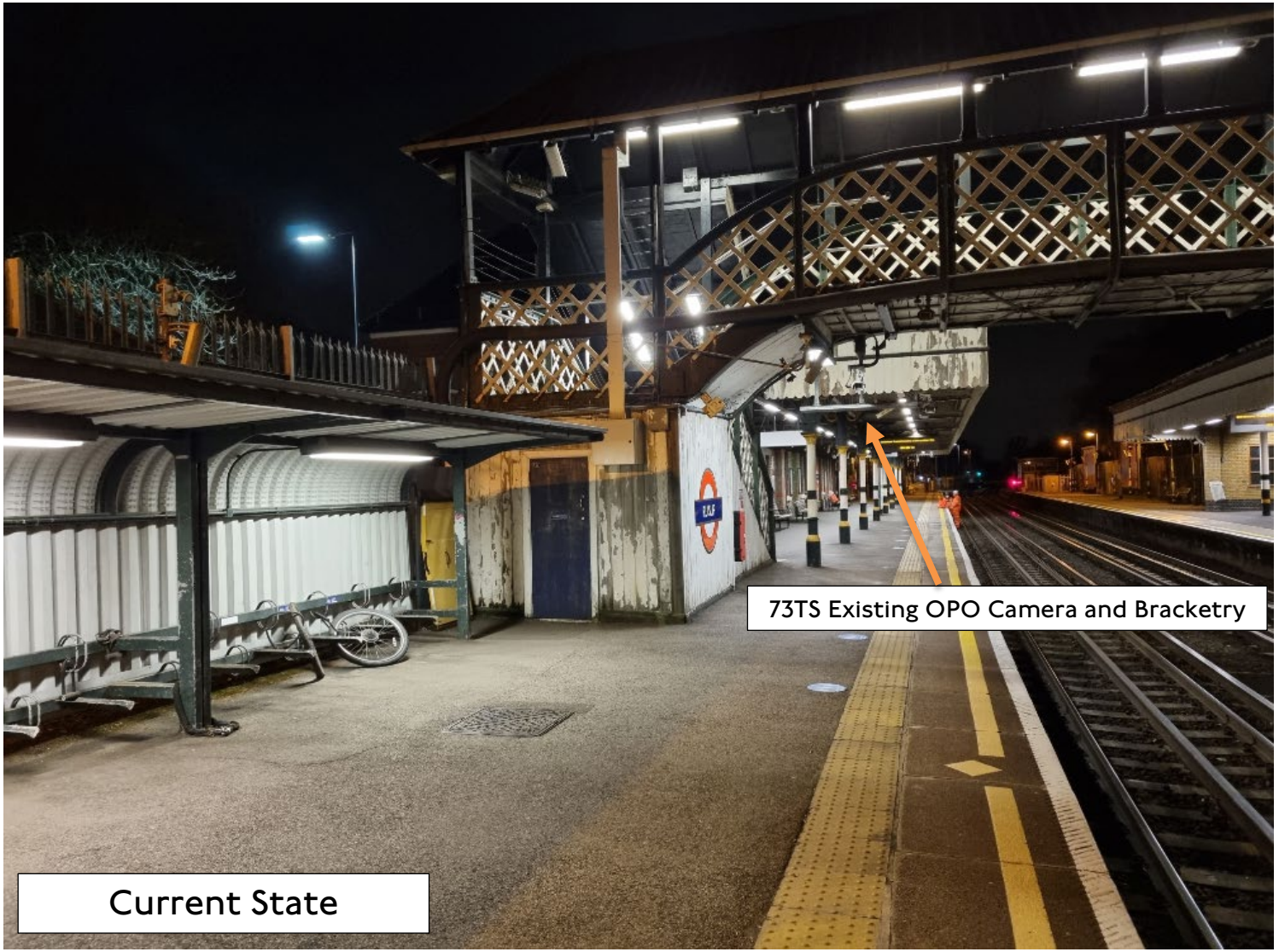
Platform 1


73TS Existing OPO Camera and Bracketry
Way out
Current State


73TS Existing OPO Camera and Bracketry
Way out
24TS New OPO Camera and Bracketry
Migration State


Way out
24TS New OPO Camera and Bracketry remain and the 73TS equipment has been removed
End State

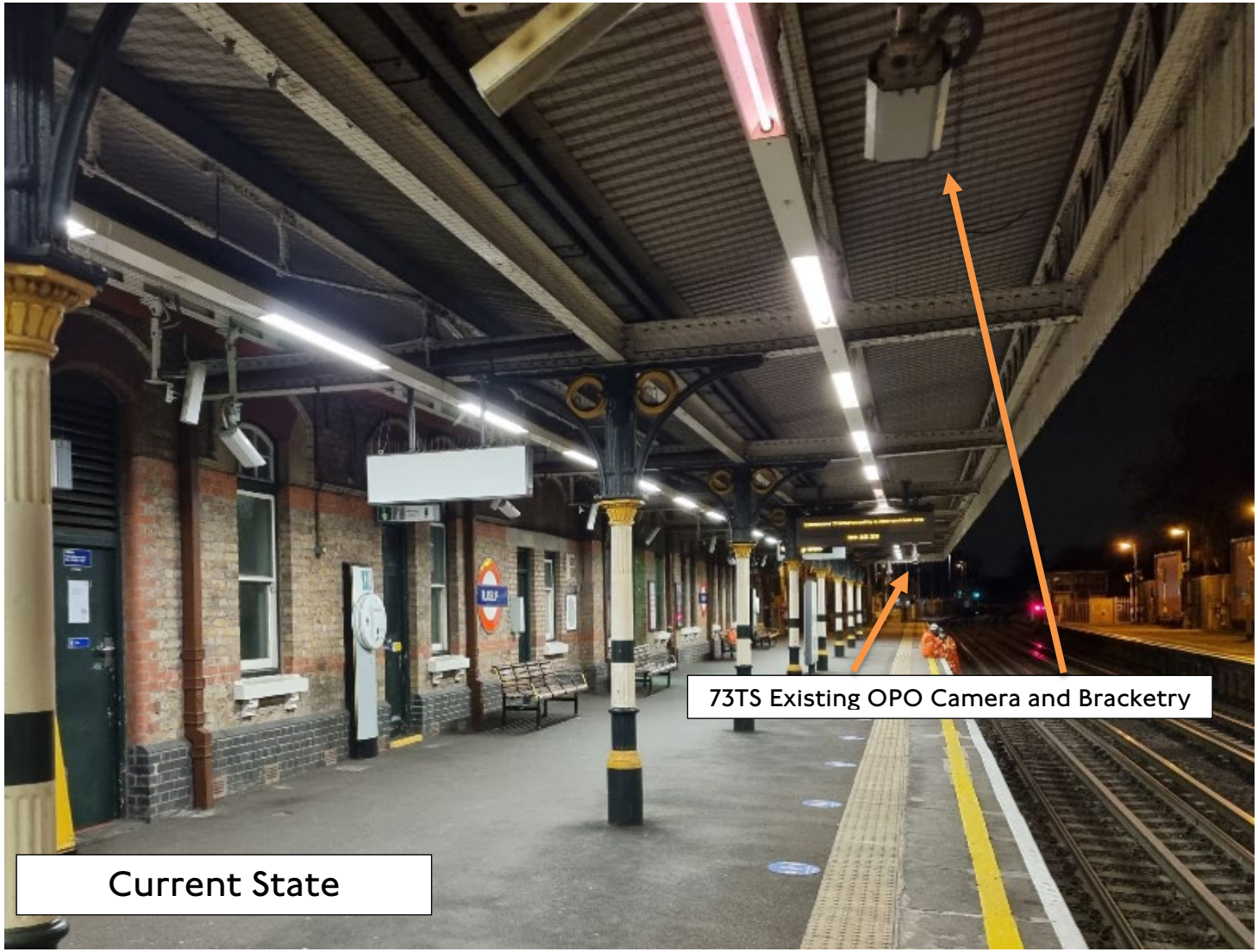
Platform 2

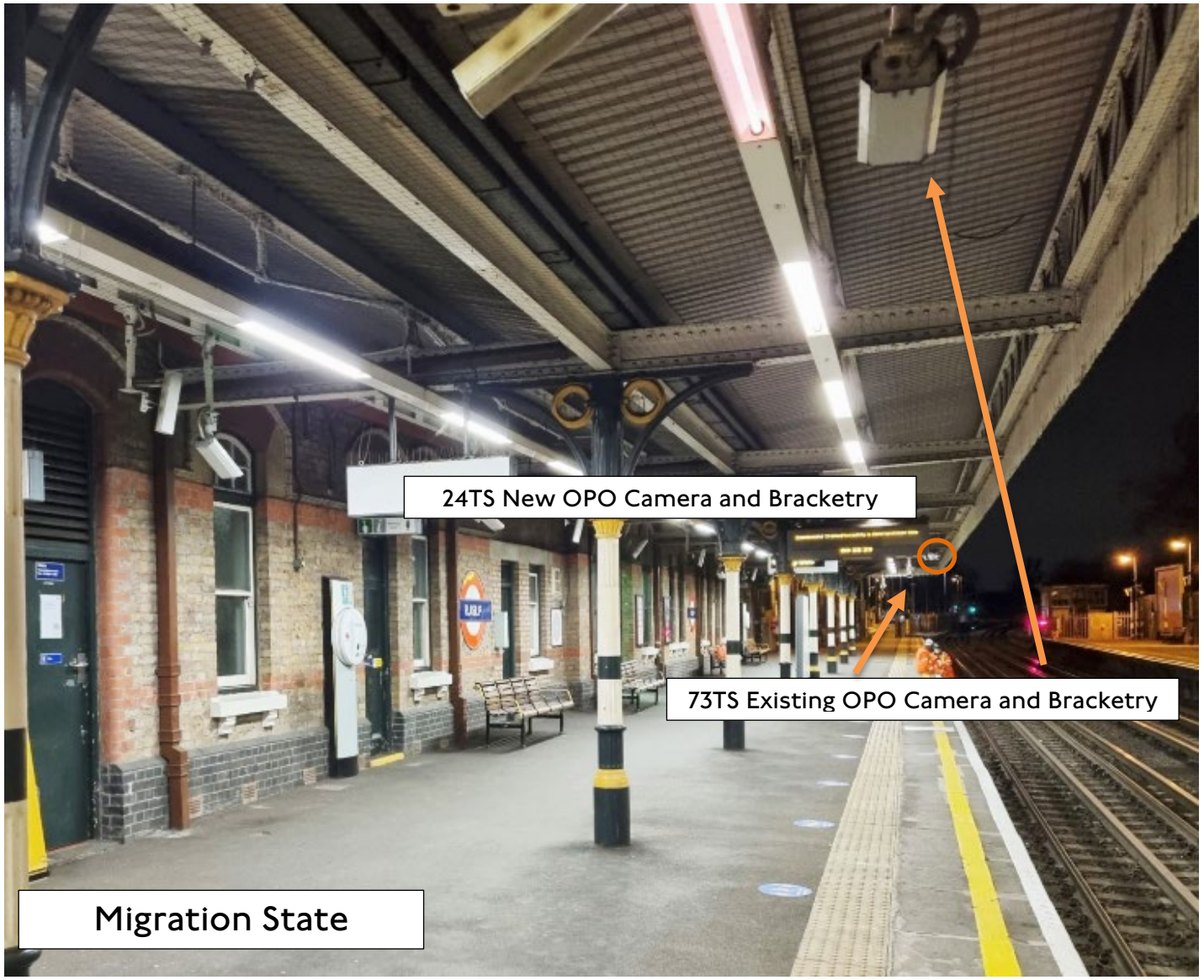


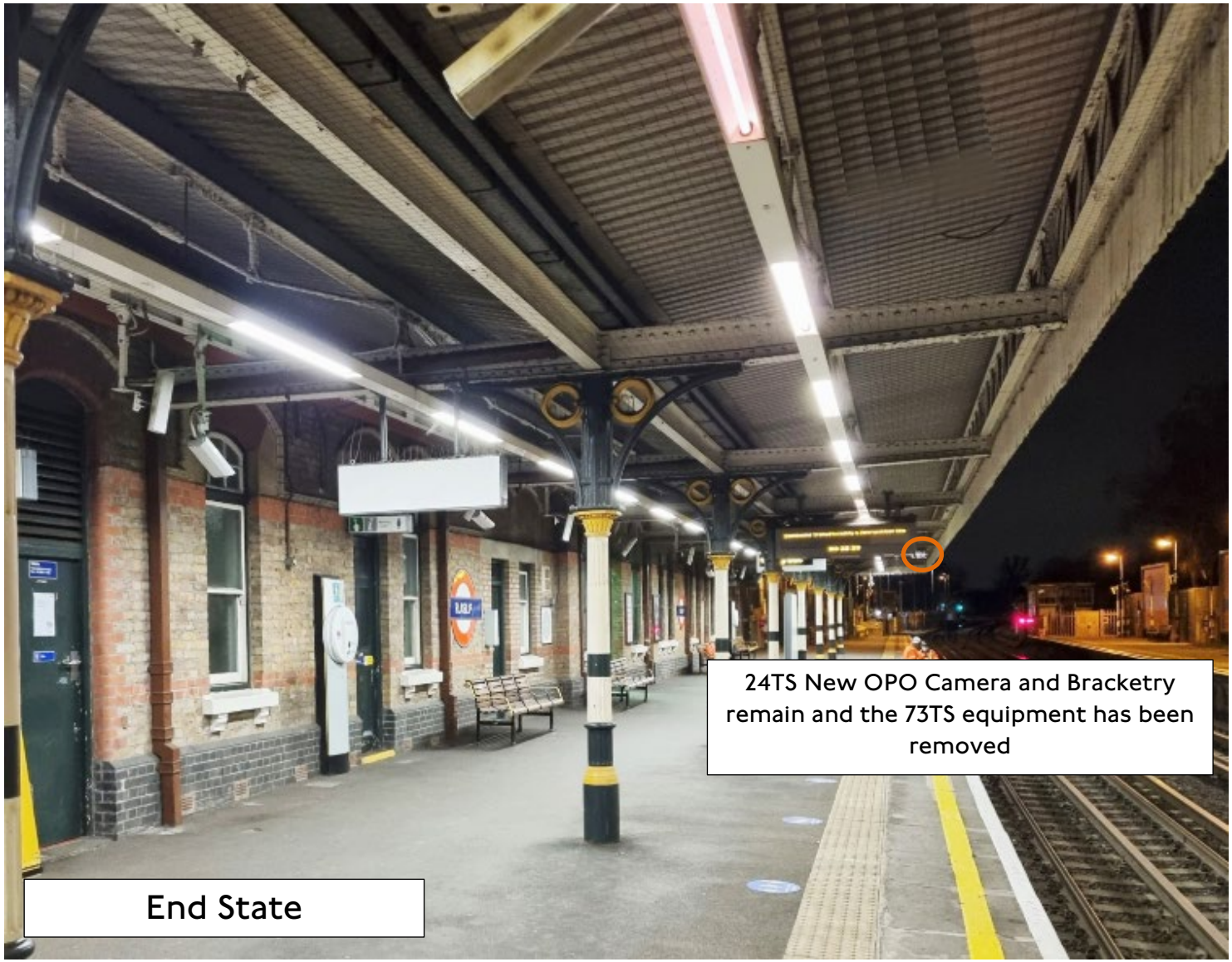

24TS New OPO Camera and Bracketry
73TS Existing OPO Camera and Bracketry
Migration State


24TS New OPO Camera and Bracketry remain and the 73TS equipment has been removed
End State

Platform 2



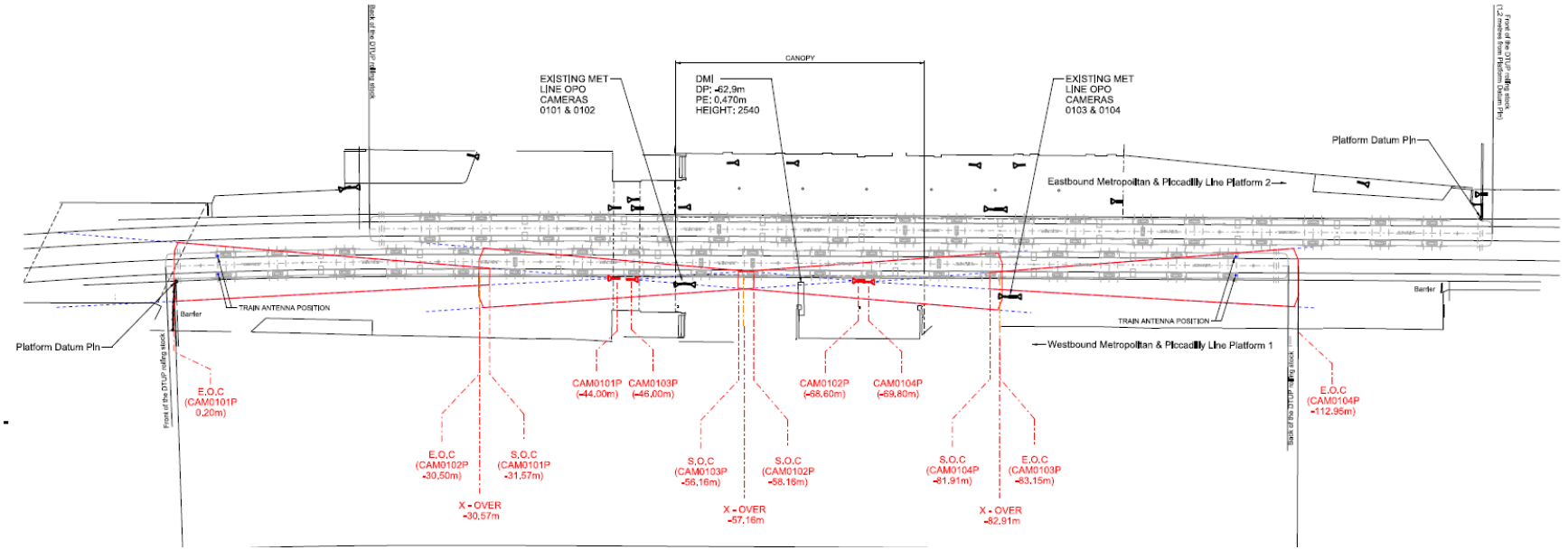

24TS New OPO Camera and Bracketry
73TS Existing OPO Camera and Bracketry
Migration State


24TS New OPO Camera and Bracketry remain and the 73TS equipment has been removed
End State

Key	
Red	New OPO Cameras
Black	Existing OPO Cameras

1.5 Camera positions – Ruislip

Platform 1



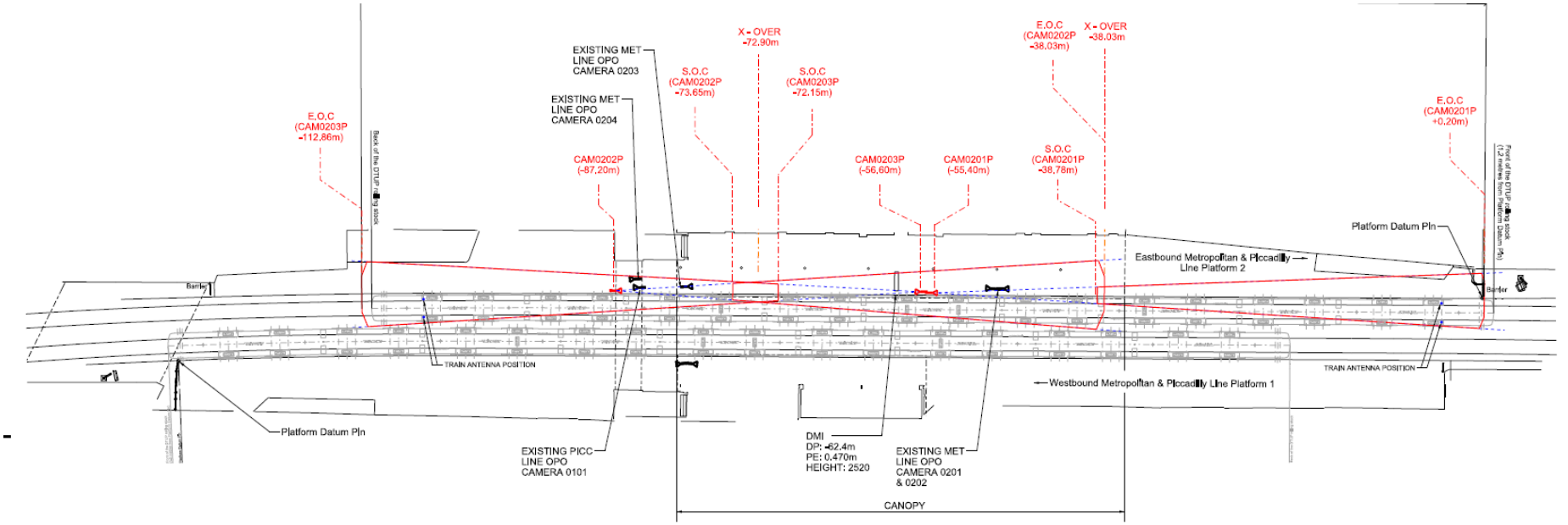
New Cameras: CAM0101P – CAMO103P – CAMO102P – CAMO104P

SOC = Start of Coverage (This is the start of coverage for the new OPO Camera)

EOC = End of Coverage (This is the end of coverage for the new OPO Camera)

X-Over = Overlap Marker (This is where the coverage of the cameras overalps)

Platform 2



New Cameras: CAMO202P – CAMO203P - CAMO201

SOC = Start of Coverage (This is the start of coverage for the new OPO Camera)

EOC = End of Coverage (This is the end of coverage for the new OPO Camera)

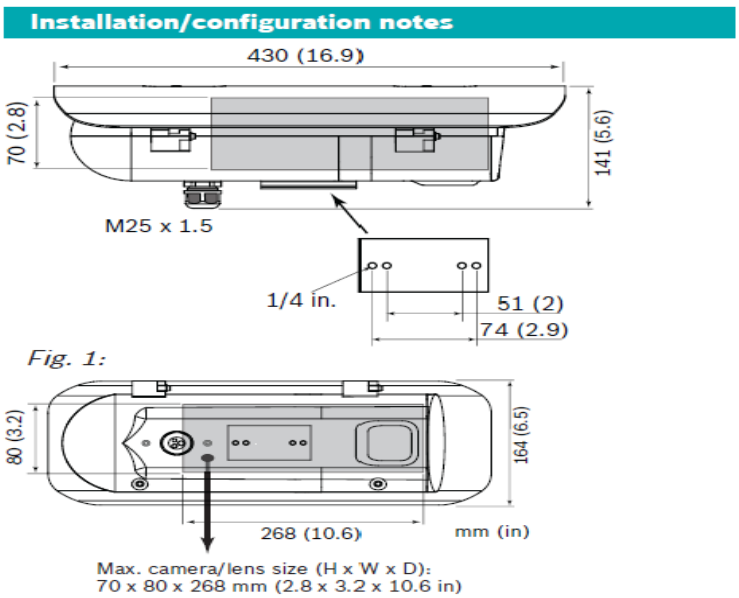
X-Over = Overlap Marker (This is where the coverage of the cameras overalps)

1.6 Camera Housing

Please see the below imagery of the Camera Housing we have selected. The First image is of the Camera Housing itself and the second image prescribes the dimensions. Although the Camera within the housing is smaller, for safety critical purposes, it is vital to have sturdy housing to ensure the risk to damage and environmental impact is as minimal as possible + ancillary equipment. The Camera Housing will come in a standard grey as per the below image.

Length = 16.9 Inches

Depth = 5.6 Inches



1.7 Camera bracket types

4.b. Overview of visible subsystems - **OPO CCTV cameras – Canopy Mount Bracket**

At Ruislip we will be installing Canopy Mount Brackets, as per images at section 1.4

1.8 OTC broadband equipment

Platform 1 tail wall – Current State

Platform 1 tail wall – End State – OTC Box installed

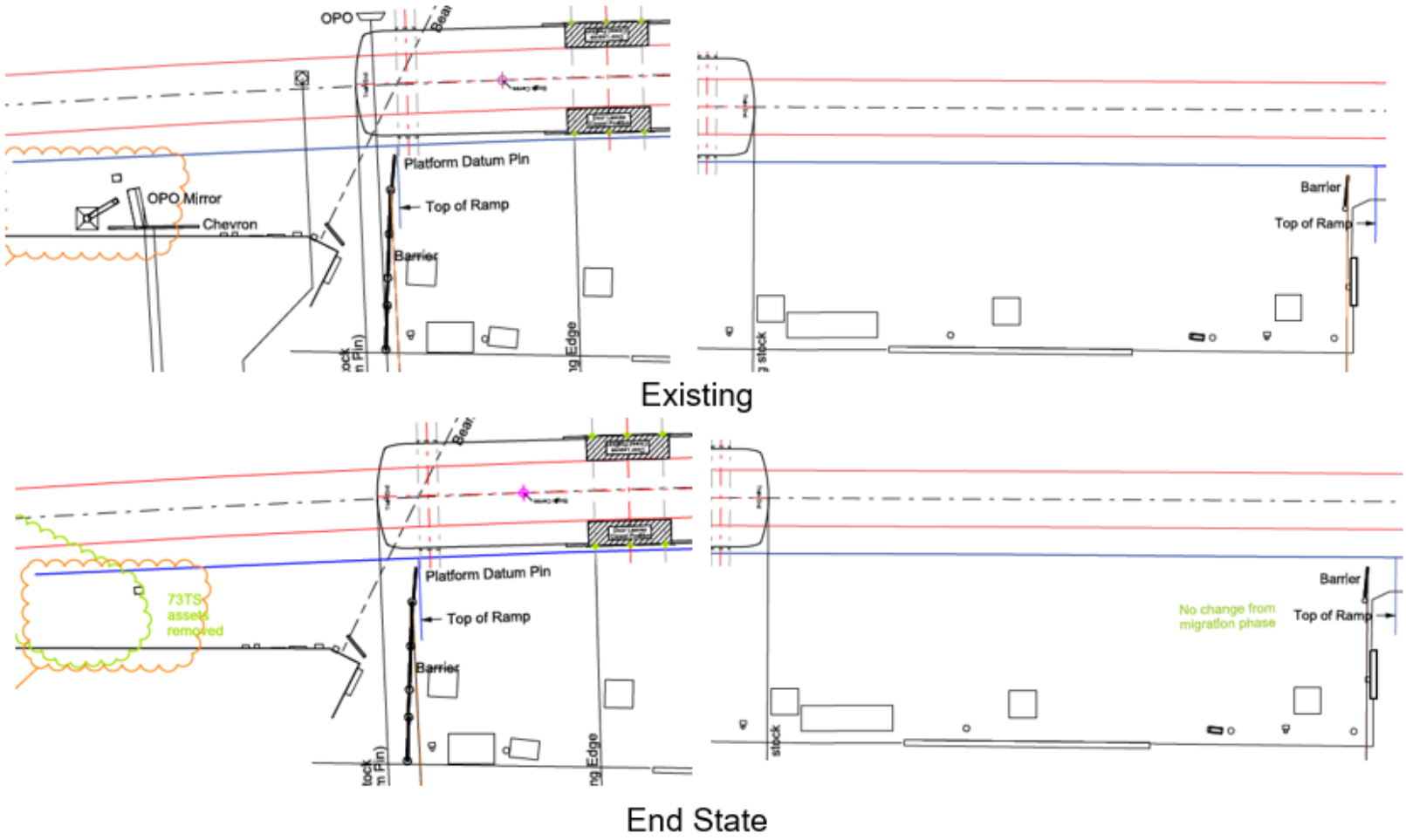
Platform 2 head wall – Current State

Platform 2 head wall – End State – IS Box Installed

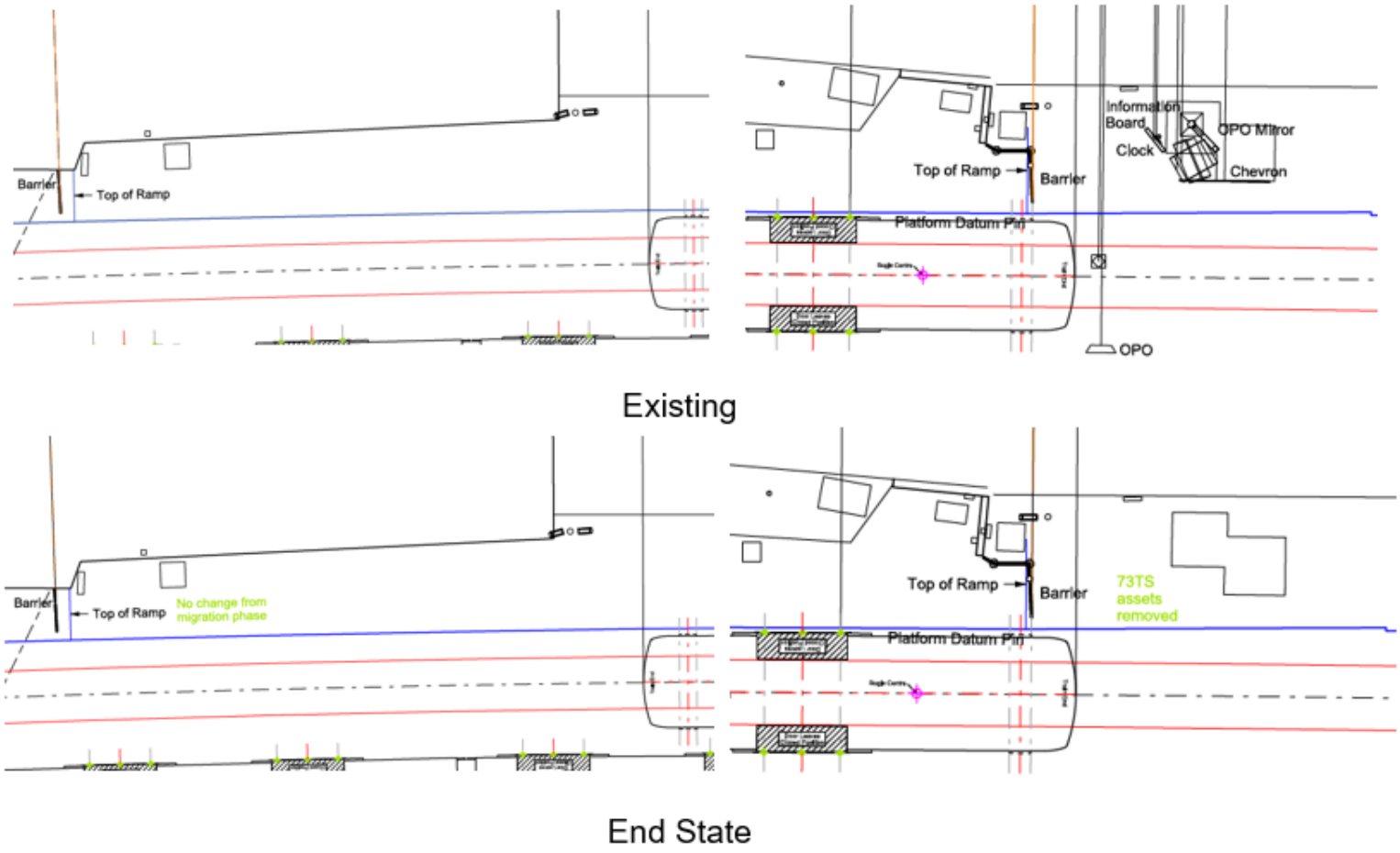
1.9 Platform End Barriers (PEB)

No change at Ruislip for Platform End Barriers

Platform 1:


OPO
Platform Datum Pin
Top of Ramp
OPO Mirror
Chevron
Barrier
Barrier
Top of Ramp
Existing
Platform Datum Pin
Top of Ramp
73TS assets removed
Barrier
No change from migration phase
Barrier
Top of Ramp
End State

Platform 2:

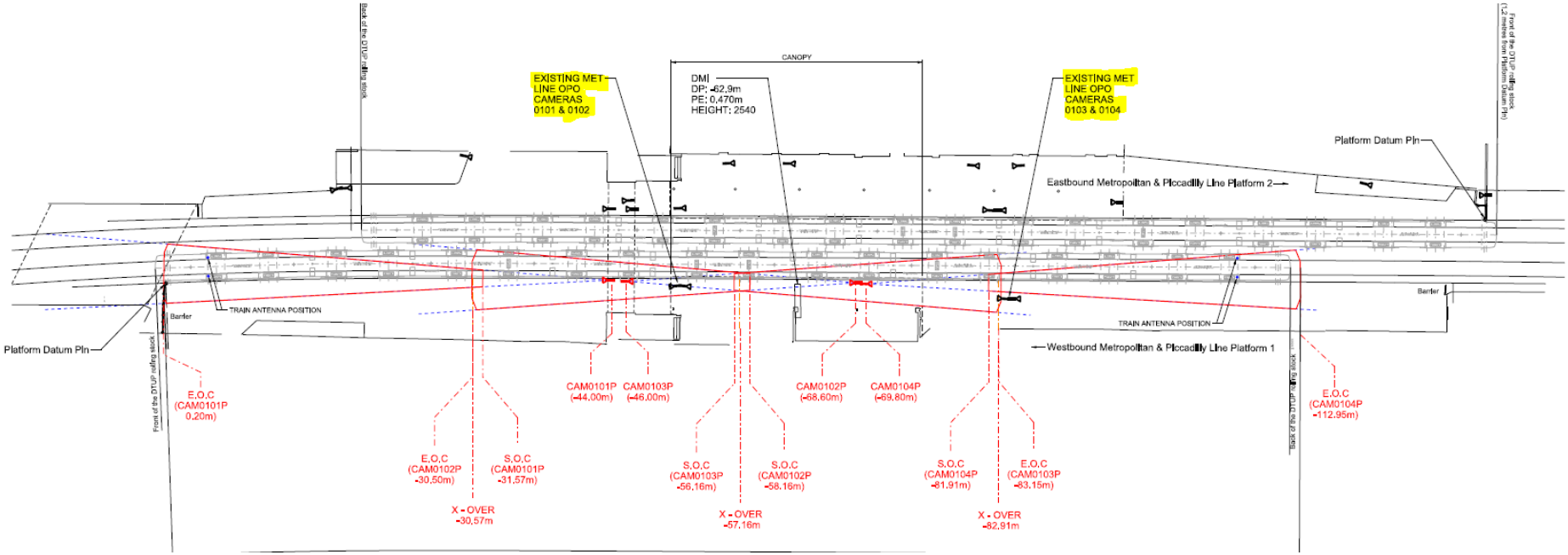

Barrier
Top of Ramp
Information Board
OPO Mirror
Clock
Chevron
Top of Ramp
Barrier
Platform Datum Pin
OPO
Existing
Barrier
Top of Ramp
No change from migration phase
Top of Ramp
Barrier
73TS assets removed
Platform Datum Pin
End State

2. Removal of redundant equipment

The existing assets are highlighted in yellow on the drawings below

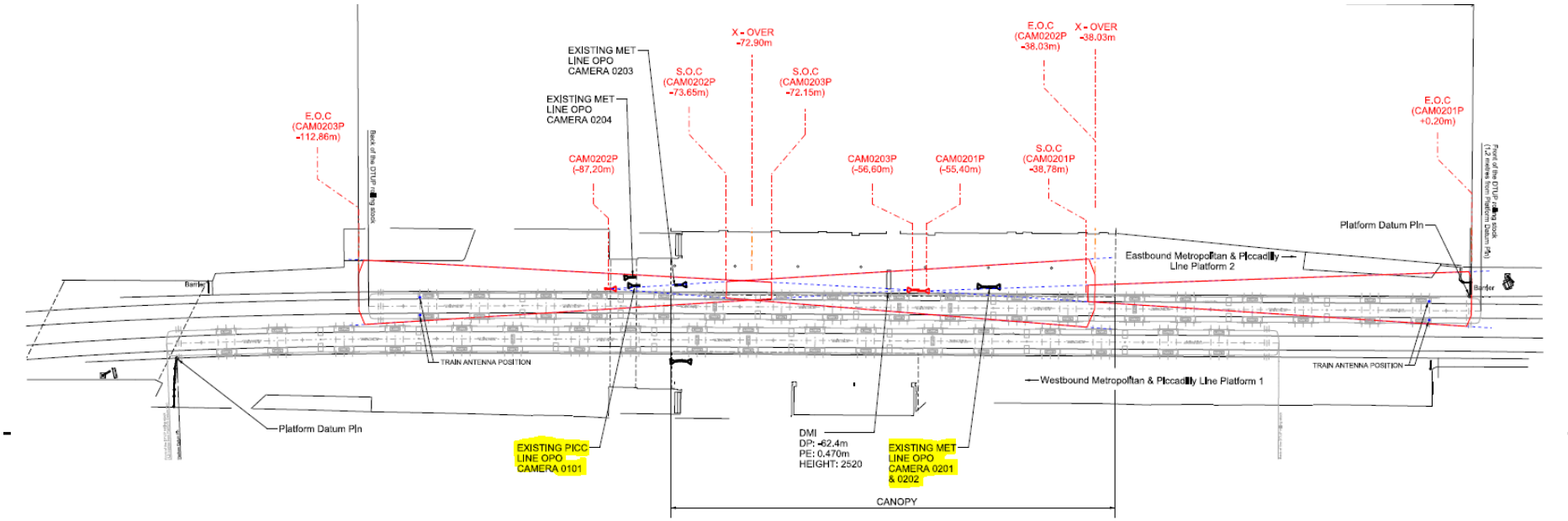
Key	
Red	New OPO Cameras
Yellow	Existing OPO Cameras to be removed

Platform 1;



Cameras being removed – 0101, 0102, 0103, 0104

Platform 2;



Cameras being removed – 0101, 0201, 0202

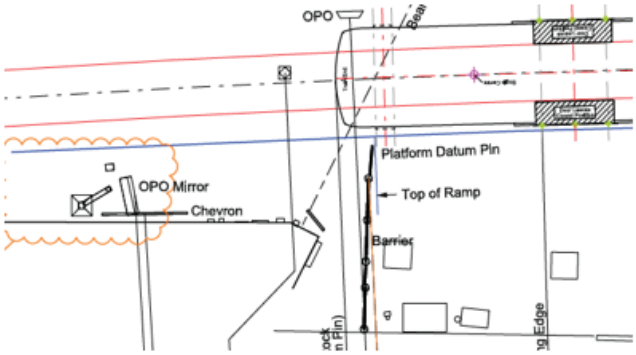
2.1 Platform End Removals - Example Ruislip

Leading End = The end of the platform corresponding to the front of the train in the normal direction of travel.

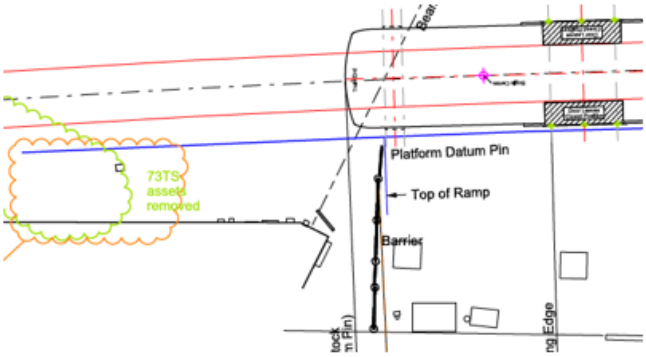
Trailing End = The end of the platform corresponding to the rear of the train in the normal direction of travel.

Platform 1:

- Platform 1 (Leading End)
  - Removal - OPO Mirror
  - Installation – Stopping Marker (Chevron)

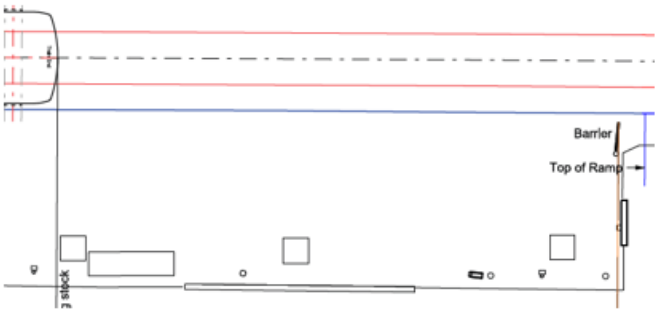


Existing

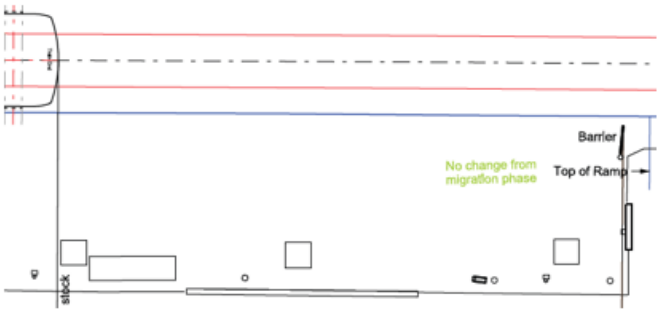


End State

- Platform 1 (Trailing End)
  - Removal – N/A
  - Installation – N/A



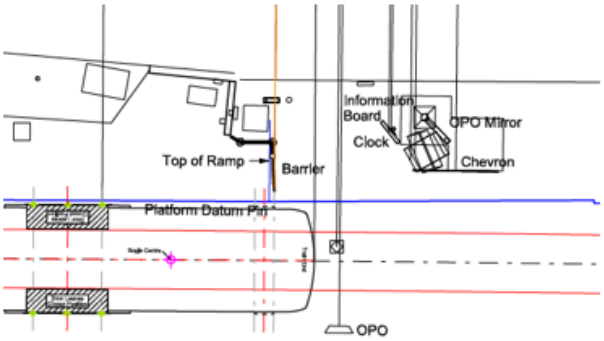
Existing



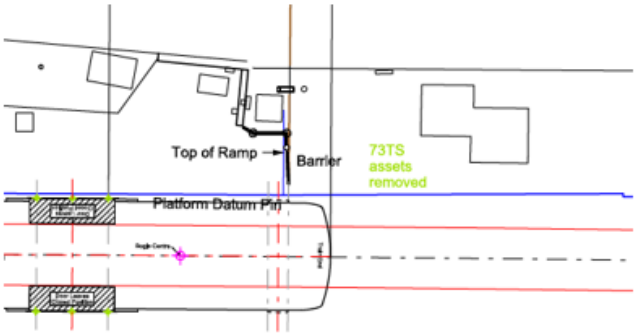
End State (No Change)

Platform 2

- Platform 2 (Leading End)
  - Removal - OPO Screens & Mirror, Drivers Notice Board, Clock
  - Installation – Stopping Marker (Chevron)

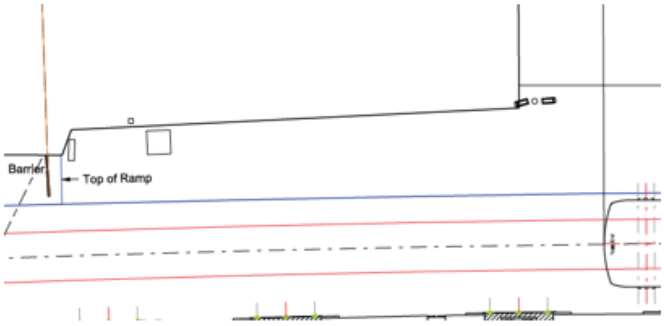


Existing

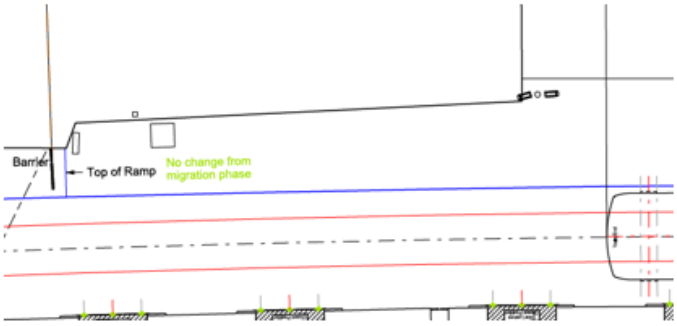


End State

- Platform 2 (Trailing End)
  - Removal – N/A
  - Installation – N/A



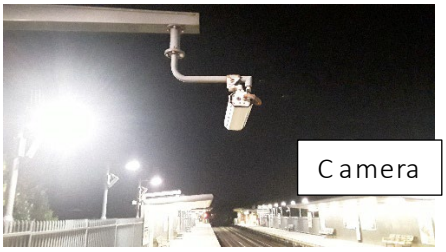
Existing



End State (No Change)

3.0 Assets to be removed at End of Fleet Migration

Photos of legacy assets –


Camera


Mirror


Driver Notice Board


OPO screens

Existing Camera assets will be removed alongside the removal of the old 73ts at Migration State 5 by 2027 (Current projection)

Glossary of terms:

CRMS: Cable Route Management System

OPO: One Person Operations

PLU: Piccadilly Line Upgrade

PEB: Platform End Barriers

PSM: Platform Stopping Marker

Leading End: The end of the platform corresponding to the front of the train in the normal direction of travel.

Trailing End: The end of the platform corresponding to the rear of the train in the normal direction of travel.

24TS: 2024 Tube Stock

73TS: 1973 Tube Stock

EB: Eastbound

WB: Westbound

PTI: Platform Train Interface

CER: Communications Equipment Room

IS Box – Intermediate Switch Box

OTC – Off Train Communication

AP Box – Access Point

IC – Inspection chamber

SOC: Start of coverage

EOC: End of coverage

X-Over: Overlap Marker

Unistrut: Metal Framing System