Dyfi Junction Trestle Replacement

Initial Environmental Appraisal

CPF7096

Document Control Sheet

Document Title:	Initial Environmental Appraisal
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Project Ref / Title:	CPF7096 – Dyfi Junction Trestle Replacement
Project Manager:	Bethan Moseley

Revision History

Date	Version No.	Summary of Changes
14/01/2020	0.01	Initial draft version
	0.02	Draft version following review
	0.03	Draft revision following comments from project sponsor
	0.04	Final draft to project sponsor for acceptance

Reviews

Name	Title	Date	Version
Rhys Meilyr Thomas	Senior Environment Officer	14/01/2020	0.02

Approvals

Name	Title	Date	Version
Owain E Griffiths	Group Environment Officer	14/01/2020	0.02

Distribution

Name	Title	Date	Version
Steve Richardson	Contracts Manager Rail	15/01/2020	0.02
Mark Skellon	Environmental Advisor	15/01/2020	0.02

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Background:

YGC have been commissioned to complete the Environmental Appraisal, HRA and Marine Licence for Alun Griffiths Contractors on behalf of Network Rail.
The location(s) of the construction phase is the River Dovey Viaduct Number 1, which carries a single line DJP at 79 miles 375 yards, grid reference SN6946397890 over the tidal River Dovey or Afon Dyfi.
Dovey Junction Viaduct No1. DJP, 79 m, 352yds

Project Summary:

The viaduct is approximately 110m long and has eleven timber trestles on the north side and four on the south. The main section has four composite steel spans and girders. The structure sits on the Cambrian railway line between Dovey Junction & Penhelig Stations.
The works consist of replacing failing timber piles and existing steel clamps. The work is expected to start on 09/03/2020 and will last until 14th April 2020.

Appraisal Method:

A walkover survey was completed on 14/02/19 with Sion Edwards Alun Griffiths Project Manager to identify environmental features within the study area. Gwynedd Council's Map Gwynedd GIS was used to identify statutory and non-statutory designated sites and watercourses. BIS historical records centre search was obtained to identify any protected species records within 1km of the works.

Environmental Topic, Observations & Recommendation

EIA Screening Requirement

Observations	Recommendations
The proposals are located on the Railway Network. The proposed works can be defined strictly as maintenance (as defined) and therefore do not constitute a Schedule 1 or Schedule 2 development under the Infrastructure Planning (EIA) Regulations 2017. The proposals are therefore not subject to the EIA process.	N/A

Air Quality

Observations	Recommendations
No significant air quality impacts are considered likely due to the nature and scale of the proposals. The cutting of track and woodwork could potentially cause airborne dust emissions.	**Design:** Consider avoiding or minimising the need to generate dust and aerial emissions via the design. **Tendering:** Consider requesting a method statement from the contractor detailing what mitigation measures will be put in place to mitigate against airborne dust. **Construction:** Implement working practices that avoid or minimise aerial emissions. Dust suppression measures should be implemented if working in dry weather.
Relevant compliance obligations (if applicable): • Environmental Protection Act 1990, Part III, Section 80	

Cultural Heritage

Observations	Recommendations
There are no listed buildings or schedule ancient monuments in the area of Dyfi Junction Bridge 1. No other features associated with cultural heritage was found on site during the site visit.	**Design:** N/A **Tendering:** N/A **Construction:** N/A
Relevant compliance obligations (if applicable): Planning (Listed Buildings and Conservation Areas) Act 1990 Ancient Monuments and Archaeological Areas Act 1979 Historic Environment (Wales) Act 2016	

Landscape[1]

Observations	Recommendations
There are no Landscape Designations within the area of the works. As mentioned above, Snowdonia National Park is located immediately west of the site. The work is strictly maintenance therefore there will be no impact on the landscape character of the National Park. There are no Conservation Areas or Tree Preservation Orders within the area of the works.	**Design:** N/A **Tendering:** N/A **Construction:** N/A
Relevant compliance obligations (if applicable): The Countryside Act, 1949	

[1] Including any TPO's and built environment designations such as 'Conservation Areas'

Biodiversity

	Observations	Recommendations
Protected and Notable Species (e.g. European, National, Section 7 and LBAP)	The land adjacent to the railway line is an estuary and the Main River Afon Dyfi flows under Bridge 1 out to the estuary. No tree removal is associated with this work. The area under span 1 of the viaduct was bare soil with very little grass. There are no Tree Preservation Order at this location. The project manager stated that the works were not affecting trees. All the work is confined to the railway line and the whole bridge will be covered with a sealed unit that catches all materials during the work. European protected Species There are records of otters and bats within the 1km search area but none within the site itself. The habitat on site was not suitable for otters or bats because of the high water level under the bridge. Even so a check for roosting bats should be completed before the work starts. Nesting birds There are Cofnod records of numerous birds recorded 71m west of the site including black redstart, lesser spotted woodpecker, osprey, oystercatcher, snow bunting, water rail and yellow hammer. No vegetation removal is associated with this work.	Design: N/A Tendering: N/A Construction: Should any of the protected species discussed in this report be observed on site during the proposed works, works should cease and an ecologist contacted for support. To protect the protected sites and sensitive costal habitat and river the contractor must adhere to the conditions and recommendations listed in the FRAP, Marine Licence and section 28h consent. The area of the works will be protected from pollution incidents by adhering GPP 5 Works and Maintenance in or near water. A licenced bat worker should check for roosting bat under bridge before the work starts.

	Nesting birds are not likely to be within the area of the works because of the high water level underneath the bridge. **Badgers** The area adjacent to the bridge was not suitable for badgers. **Dormouse** One Cofnod historical record of dormouse is available recorded 901m southeast from the works. There was no suitable habitat for dormouse within the area of the works. **Reptiles and amphibians** There are no cofnod historical record of reptiles or amphibians within the search area. There are records of common frog, common lizard, common toad, grass snake, palmate newt 868m northeast of the site. There was no suitable habitat for reptile or amphibians within the area of the works. The work of replacing timber trestles in the river is not likely to affect reptiles or amphibians.	
Protected and Notable Habitats (e.g. European, National, Section 7 and LBAP)	The work will be in the river, and adjacent to costal habitat. Dyfi/Cors Fochno is listed on SNPA Local Biodiversity Action Plan and is also listed on the UK BAP. The BAP intends to protect the costal habitat and make sure that is it not affected by construction pollution.	
Relevant compliance obligations (if applicable): • The Wildlife and Countryside Act 1981, as amended • The Conservation of Habitats and Species Regulations 2017 • Protection of Badgers Act 1992 • The Countryside and Rights of Way Act 2000		

• The Environmental Wales Act 2016	

Nature Conservation Sites

Observations		Recommendations
International Sites[2]	Pen Llyn a'r Sarnau SAC is located on site. A method statement needs to be submitted to NRW to allow them to decide whether a HRA is required in relation to Protected Site. Dyfi Estuary/Aber Dyfi SPA is located on site. A method statement needs to be submitted to NRW to allow them to decide whether a HRA is required for work within the SPA. Cors Fochno and Dyfi RAMSAR is located directly south of bridge 1. A method statement needs to be submitted to NRW to allow them to decide whether a HRA is required for work within the RAMSAR. The site is also within Dyfi Biosphere, the site is important on a world level of importance, which makes the site extremely special. The proposals should not detrimentally effect the integrity or special character of the Biosphere area.	**Design:** Complete stage 1 screening for all European designated sites. Complete a HRA for Aber Dyfi SPA particularly the overwintering Greenland white fronted Geese. NRW may require further HRA to be carried out on the other sites identified. Apply for Section 28 consent for works within Dyfi SSSI. **Tendering:** **Construction:** Agreement with NRW for Gareth Thomas the ecologist/ornithologist recommended by NRW to monitor the Greenland White Fronted Geese.
National Sites[3]	Dyfi SSSI is located on site. A method statement should be sent to NRW as regards to possible effects on the SSSI. Dyfi National nature Reserve is also located on site and any constraints regarding the NNR will be dealt with the SSSI	

[2] Natura 2000 and Ramsar sites within 2km of the proposal, and 25km and 30km respectively for Otters and Lesser Horseshoe Bats (if these species are likely to be affected)
[3] Nationally designated sites within 500m of the proposal, extending to 2km dependant on features of interest *i.e.* wetlands

	consent mentioned above. Snowdonia National Park is located west of the site.	
Local Sites (within 500m)[4]	There are no local sites within the area of the works.	
Relevant compliance obligations (if applicable): • The Conservation of Habitats and Species Regulations 2010, as amended • The Countryside and Rights of Way Act 2000 • The Wildlife and Countryside Act 1981, as amended		

Invasive Non-Native Species[5]

Observations	Recommendations
There are no cofnod records of invasive species in the area of the works. No native invasive species were present on site during the site walkover.	**Design:** N/A **Tendering:** N/A **Construction:** N/A
Relevant compliance obligations (if applicable): The Wildlife and Countryside Act 1981, Schedule 9, as Amended. Additional Sources of Information:	

Geology & Soils

Observations	Recommendations
There are no designated geological sites within the scheme footprint.	**Design:** N/A

[4] E.g Local Wildlife Sites, Local Nature Reserves and Ancient Semi-Natural Woodland

[5] Those listed on Schedule 9 of the Wildlife and Countryside Act 1981, as amended.

Relevant compliance obligations (if applicable): The Town and Country Planning Act 1990.	**Tendering:** N/A **Construction:** N/A

Materials (including Life Cycle considerations)

Observations	Recommendations
Any materials should be disposed of in accordance with the relevant legislation. The timber trestles are tropical hardwood and treated as timber only.	**Design:** N/A **Tendering:** N/A **Construction:** • Retain and re-use site-won materials identified during the design and tender stages. • Dispose of any surplus materials to a suitably licensed waste facility and retain all relevant transfer documentation.
Relevant compliance obligations (if applicable): Any materials should be disposed of in accordance with the relevant legislation. Relevant compliance obligations (if applicable): • The Waste (England and Wales) Regulations 2011 • Towards Zero Waste, Welsh Government, 2012 • Construction and Demolition (C&D) Sector Plan, Welsh Government, 2012 • Planning Policy Wales, Chapter 4, edition 9, Welsh Government, 2016 • Hazardous waste	

Noise & Vibration

Observations	Recommendations
There are no residential properties within 100m of the works.	**Design:** N/A

Relevant compliance obligations (if applicable): • Environmental Protection Act 1990, Part III, Section 80 • BS5228:2009 Noise and Vibration Control on Construction and Open Sites (+A1:2014 Part 1 Noise (BS5228-1)	**Tendering:** N/A **Construction:** N/A

Population & Human Health[6]

Observations	Recommendations
The work of replacing timber trestles at Dyfi Junction are not likely to have an impact of the human population or the population's health because of the nature and scale of the works. It is believed that the work is essential for the future safety of the rail network and all rail users. Rail closure will be during the 8 day possession during which time a rail replacement bus service will be in place.	**Design:** **Tendering:** **Construction:** The contractor will inform the local residents and rail users of the replacement bus service during the 8 day possession.
Relevant compliance obligations (if applicable): •	

Drainage and the Water Environment

Observations	Recommendations
There Main River Afon Dyfi is present on site and flows beneath the structure. The details of the work and method statement need to be sent to NRW for consultation and a FRAP would need to be applied for.	**Design:** Consult with NRW regarding application for a FRAP. **Tendering:**
Relevant compliance obligations (if applicable): • The Water Resources Act, 1991	**Construction:**

[6] *Including; private property, community assets, development land, agricultural land, walkers, cyclists and horse riders, health outcomes.*

• The Flood and Water Management Act 2010 • The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 • The Water Environment (Water Framework Directive) (England and Wales) (Amendments) Regulations 2015 • GPP5 Works and Maintenance in or near water	The contractor should adhere to the recommendations and conditions of the FRAP. The contractor should adhere to GPP5 Works and Maintenance in or near water during the works.

Cumulative Effects

Observations	Recommendations
There are no other works scheduled in the area of Dyfi Junction during March and April 2020.	Consult with NRW/Gwynedd Council/SNPA re works during March to April.

Summary of Recommendations & Actions

Below is a provisional list of environmental actions and recommendations highlighted at this early stage. As the scheme develops and on completion of any recommended actions (e.g. surveys and consultations), this list will need to be updated and included as an Environmental Action Plan for the tender and construction stage. All conditions stipulated in any required consents and licences will need to be incorporated into the Action Plan.

Action		Responsibility
Design Stage		**Designer / Client/ Contractor**
	Consider avoiding or minimising the need to generate dust and aerial emissions via the design.	Network Rail/Alun Griffiths Contractor
	Complete stage 1 screening for all Protected Sites.	YGC

	Complete a HRA for Aber Dyfi SPA particularly the overwintering Greenland white fronted geese. Apply for Section 28 consent for works within Dyfi SSSI.	
	Consult with NRW regarding application for a FRAP.	YGC
Tendering Stage		**Designer / Client / Contractor**
	Consider requesting a method statement from the contractor detailing what mitigation measures will be put in place to mitigate against airborne dust.	Network Rail/Alun Griffiths Contractor

		Designer / Client / Contractor
	Implement working practices that avoid or minimise aerial emissions. Dust suppression measures should be implemented if working in dry weather.	Network Rail/Alun Griffiths Contractor
	Should any of the protected species discussed in this report be observed on site during the proposed works, works should cease and an ecologist contacted for support.	Network Rail/Alun Griffiths Contractor
	A licenced bat worker should check for roosting bat under bridge before the work starts.	YGC
	Contact Gareth to monitor the Greenland White Fronted Geese.	YGC
Construction Stage	To protect the protected sites and sensitive costal habitat and river the contractor must adhere to the conditions and recommendations listed in the FRAP, Marine Licence and section 28h consent. The area of the works will be protected from pollution incidents by adhering GPP 5 Works and Maintenance in or near water.	Network Rail/Alun Griffiths Contractor
	Retain and re-use site-won materials identified during the design and tender stages. Dispose of any surplus materials to a suitably licensed waste facility and retain all relevant transfer documentation.	Network Rail/Alun Griffiths Contractor
	The contractor will inform the local residents and rail users of the replacement bus service during the 8 day possession.	Network Rail/Alun Griffiths Contractor
	The contractor should adhere to the recommendations and conditions of the FRAP. The contractor should adhere to GPP5 Works and Maintenance in or near water during the works.	Network Rail/Alun Griffiths Contractor

Appendix

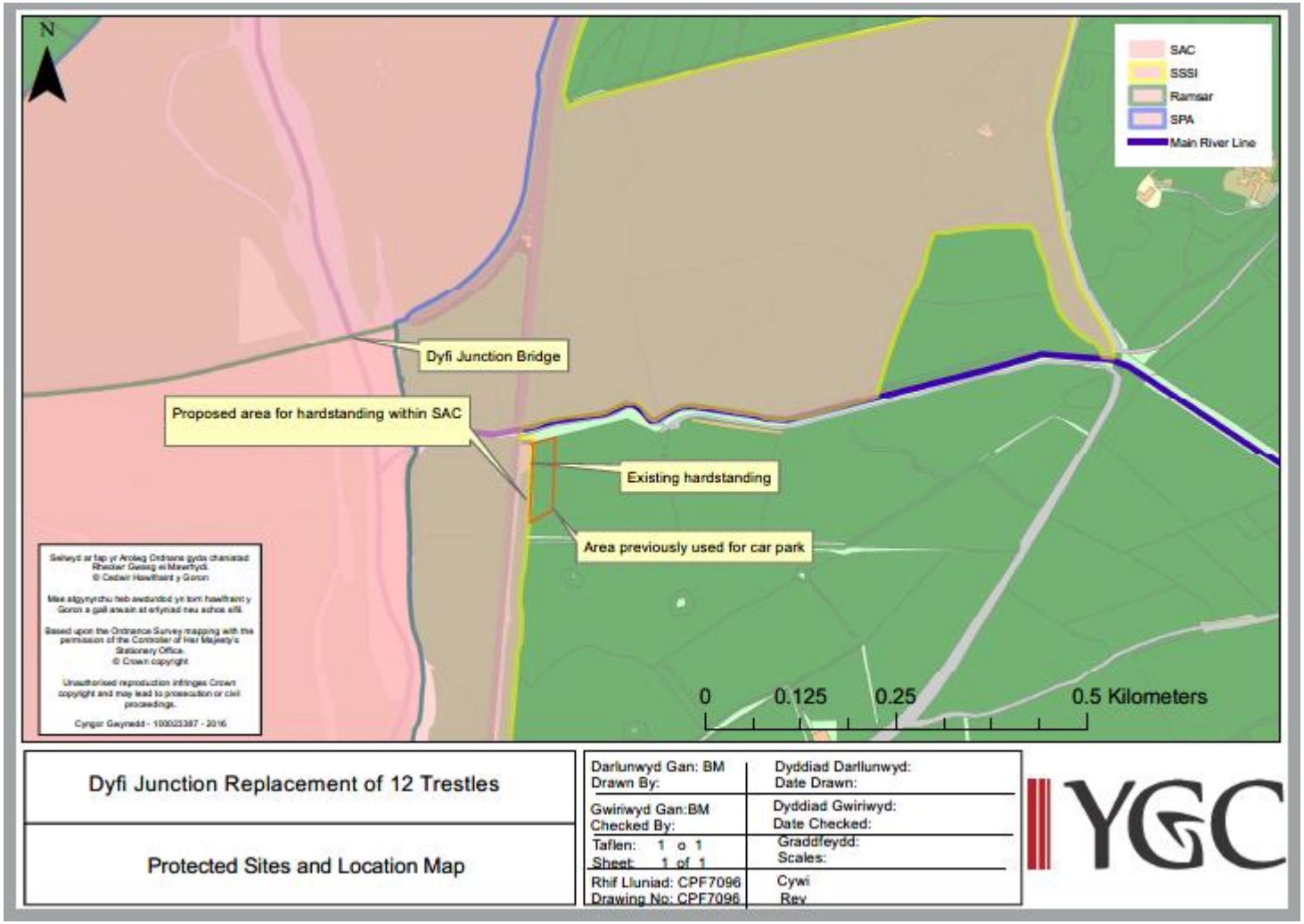
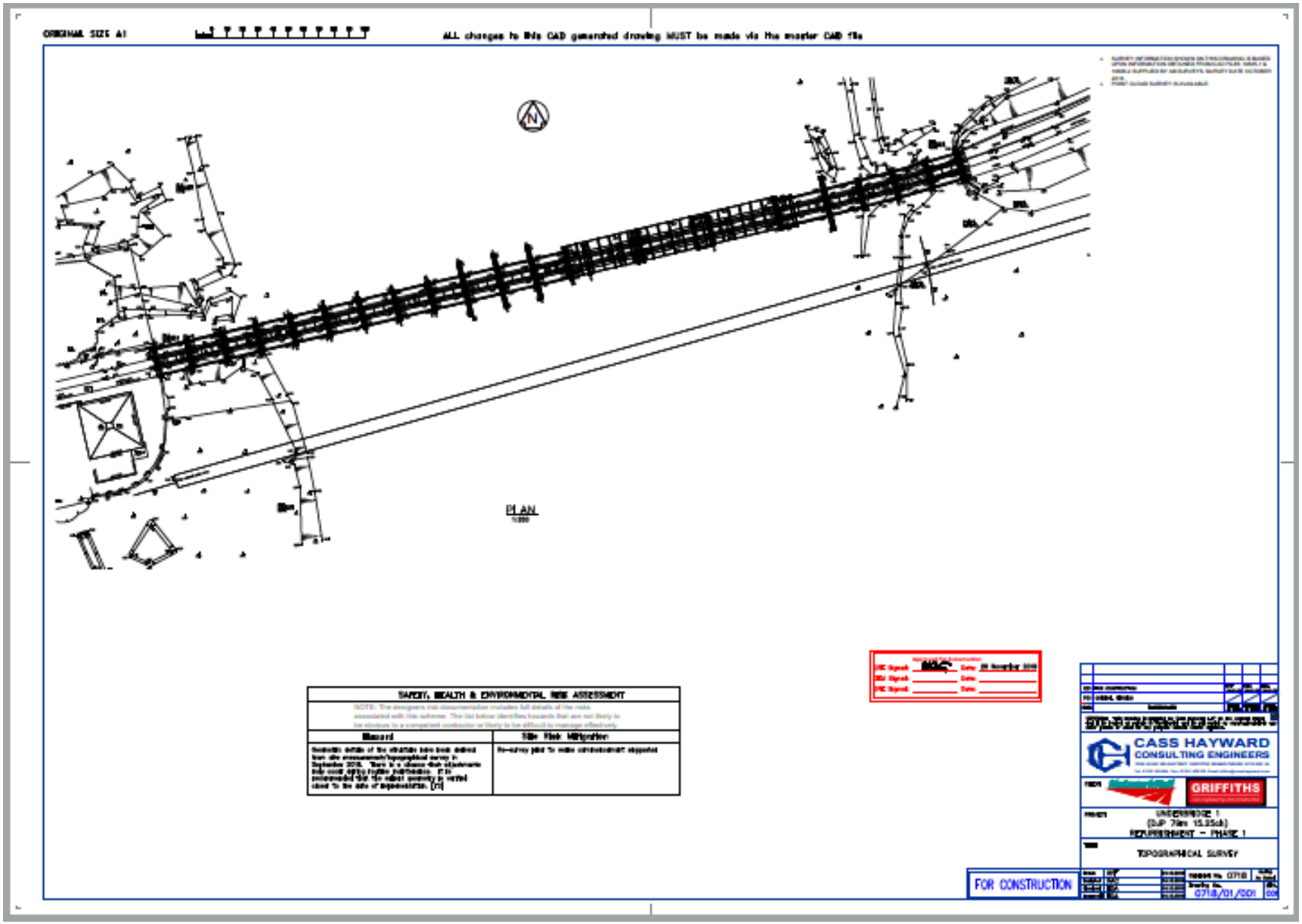


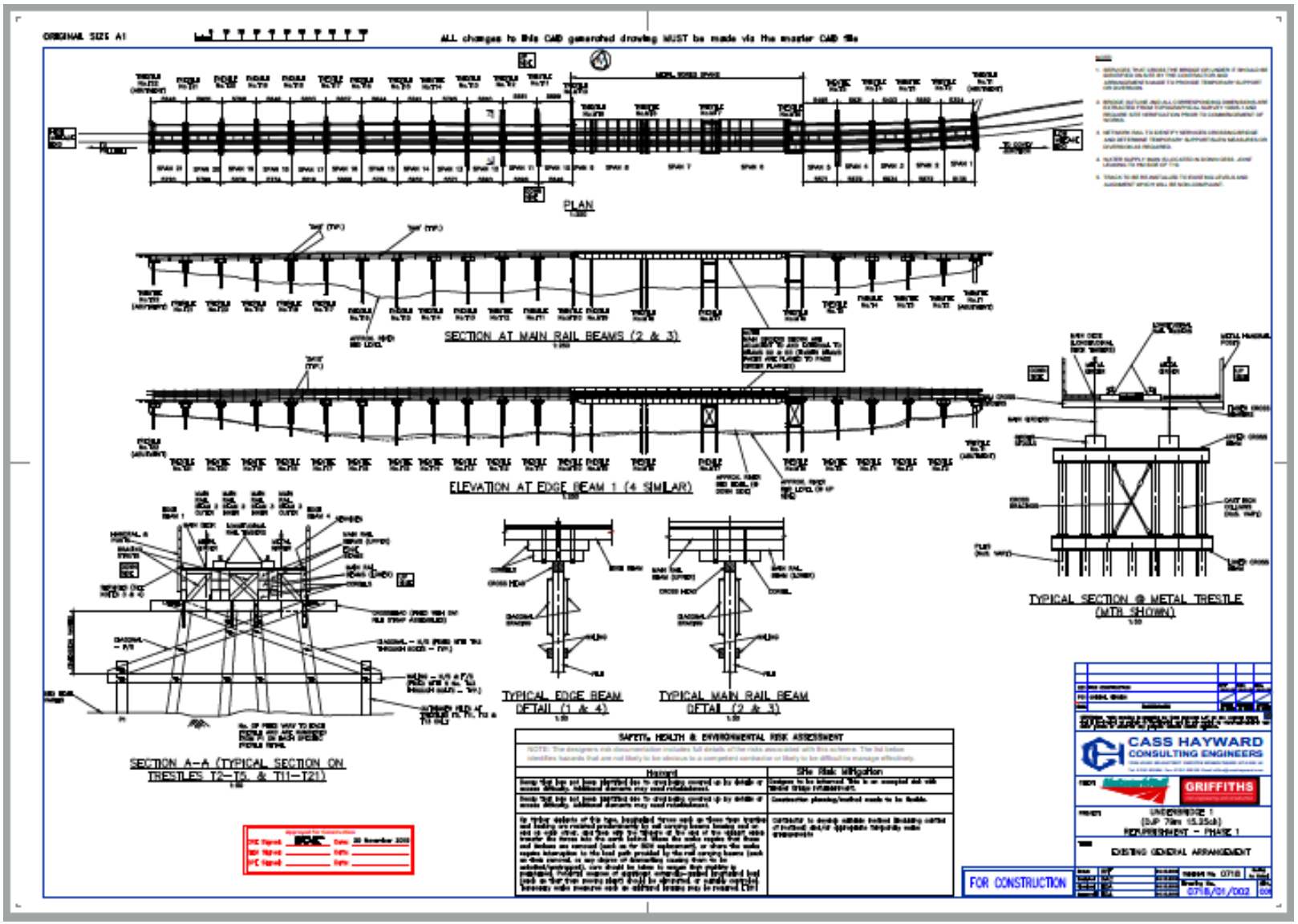
Figure 1 - Protected Sites Map and Location Map

Photographs

Site Photographs No 1 – View of area adjacent to bridge and bridge in the distance.

Site Photograph No 2 – View of existing hardstanding


ORIGINAL SIZE A1
ALL changes to this CAD generated drawing MUST be made via the master CAD file
PLAN
SAFETY, HEALTH & ENVIRONMENTAL RISK ASSESSMENT
Hazard
Risk Mitigation
Re-survey prior to major reinstatement required
CASS HAYWARD
CONSULTING ENGINEERS
GRIFFITHS
TOPOGRAPHICAL SURVEY
FOR CONSTRUCTION
0718/01/001


ORIGINAL SIZE A1
ALL changes to this CAD generated drawing MUST be made via the master CAD file
PLAN
SECTION AT MAIN RAIL BEAMS (2 & 3)
ELEVATION AT EDGE BEAM 1 (4 SIMILAR)
TYPICAL SECTION @ METAL TRESTLE (MTR SHOWN)
SECTION A-A (TYPICAL SECTION ON TRESTLES T2-T5 & T11-T21)
TYPICAL EDGE BEAM DETAIL (1 & 4)
TYPICAL MAIN RAIL BEAM DETAIL (2 & 3)
SAFETY, HEALTH & ENVIRONMENTAL RISK ASSESSMENT
Hazard
Site Risk Mitigation
CASS HAYWARD CONSULTING ENGINEERS
GRIFFITHS
EXISTING GENERAL ARRANGEMENT
FOR CONSTRUCTION

ORIGINAL SIZE A1

ALL changes to this CAD generated drawing MUST be made via the master CAD file

Steel notes

1. New timbers are to be fixed with new metalwork. All metalwork removed to facilitate timber repairs is to be replaced by new.
2. Dimensions & quantities of all metalwork requirements to be verified by the contractor having taken cognisance of his construction method prior to the works commencing.

   Steelwork quantities given are based on new timber location requirements and an assessment of construction method. Additional numbers may be required if method of construction requires further dismantling, or for contingency purposes.

   Listed 'Metal Requirements' relate to principal rail/edge beam/pile straps, clamps and fixings only. Metal requirements for ancillary works such as lateral stability restraints, deck planks and handrail/parapet requirements are not listed and can be determined from generic information.
3. All steel plates and bars are to be to Stainless Steel BS EN 10088-2:2005 grade 1.4404 (316L to AMS,ASTM) or equivalent/greater.
4. All bolts,nuts & washers to be Stainless Steel and shall comply with steel Grade A4 and property class 80 to BS EN ISO 3506-1 and BS EN 3506-2 and washers with steel designation 1.4401 or 1.4436 in the softened condition, to BS EN 10029, BS EN 10048, BS EN 10051, BS EN 10258 and BS EN 10259. All fixings to be fitted with with locking nuts or equivalent locking devices. A minimum of 2 No. full threads should project beyond nuts.
5. Where straps pass over differing widths of timbers, timbers shall either be planed (where mis-match is created by timber cutting tolerances) or packs may be introduced and securely fixed/clamped with strap bolts. Packs may be from Greenheart, Ekki or Purpleheart.
6. All new fixings to be fitted with locking nuts or equivalent locking devices and to be 'hand tightened'. Where 'hand tightened' is referred to, tradition within the UK is to use podger spanners to ensure that the nut does not come loose in building construction. In other words, when an average erector fully tightens an ordinary bolt using a podger spanner, the bolt is correctly tightened. There is no specified minimum torque values required as such - however, there is a table included in a number of guides which indicates torques. This table is reproduced in Fig. 3.
7. Where bolts need to be replaced within a trestle this should be done on a '1 out 1 in' basis. Two trestles can be worked on simultaneously, provided that they are not adjacent to each other.
8. Where the removal of stainless steel fixings is required for re-use, ensure that threads/fixings are not damaged in the process.
9. Unless noted otherwise all coach screws should achieve 100mm minimum embedment.
10. All existing steel straps and through bolt fixings to be inspected and tightened as necessary. Where possible, and where threads are in suitable condition, all existing steel straps and through bolt fixings shall be retro-fitted with locking devices at all positions where they are not presently fitted.
11. Where bolts need to be replaced within a trestle this should be done on a '1 out 1 in' basis. Two trestles can be worked on simultaneously, provided that they are not adjacent to each other.

Live load limitations

All works shall be carried out under full rail possession with no live load, unless agreed otherwise. Where two diagonals/wailings are to be replaced on a single trestle it is admissible to replace one under possession and the other under rail live loading conditions providing: a safe method of working can be implemented; the operation is carried out under limited <10m/s wind conditions; live load is limited to Sprinters (no freight); both the remaining diagonal, wailing and the crosshead are in good condition and are hardwood; work is completed in one shift such that trestles are not left unattended without both diagonals and wailings in place. Where fixings have been loosened/removed to facilitate removal they shall be reinstated using hardwood block spacers to achieve tightening of connections.

Torque testing

1. All existing TA1, TA2 and TA3 fixings at or below the high tide waterline are to be integrity tested by application of a torque of 387Nm to an existing nut at one end, whilst the nut at the other end is held. If the nut turns the test should stop and the nut locked with a locknut. The torque test should then be repeated. If the nut doesn't turn then the nut and bolt are deemed acceptable. If the fixing breaks (eg due to waisted shank) the fixing should be replaced.
2. Should the existing nuts be corroded to such an extent that use of a torque wrench is not possible, fixing location shall be noted and reported to Network Rail to enable consideration of replacement.
3. See also Drg. No. 0718/01/018.

BOLT SIZE	D	L	Approximate Torque (Nm)	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	

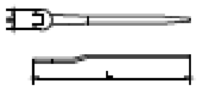


Fig. 3.

SAFETY, HEALTH & ENVIRONMENTAL RISK ASSESSMENT	
Hazard	Site Risk Mitigation
Potential for bimetallic corrosion.	[illegible]

FOR CONSTRUCTION

CASS HAYWARD LLP

GRIFFITHS

UNDERBRIDGE 1 (DJP 79m 15.35ch) REFURBISHMENT - PHASE 1

GENERAL NOTES SHEET 2 of 2

Job No. 0718

Drawing No. 0718/01/020

ORIGINAL SIZE A1

ALL changes to this CAD generated drawing MUST be made via the master CAD file

Steel notes

1. New timbers are to be fixed with new metalwork. All metalwork removed to facilitate timber repairs is to be replaced by new.

2. Dimensions & quantities of all metalwork requirements to be verified by the contractor having taken cognisance of his construction method prior to the works commencing.

   Steelwork quantities given are based on new timber location requirements and an assessment of construction method. Additional numbers may be required if method of construction requires further dismantling, or for contingency purposes.

   Listed 'Metal Requirements' relate to principal railedge beam/pile straps, clamps and fixings only. Metal requirements for ancillary works such as lateral stability restraints, deck planks and handrail/parapet requirements are not listed and can be determined from generic information.

3. All steel plates and bars are to be to Stainless Steel BS EN 10088-2:2005 grade 1.4404 (316L to AMS,ASTM) or equivalent/greater.

4. All bolts,nuts & washers to be Stainless Steel and shall comply with steel Grade A4 and property class 80 to BS EN ISO 3506-1 and BS EN 3506-2 and washers with steel designation 1.4401 or 1.4436 in the softened condition, to BS EN 10029, BS EN 10048, BS EN 10051, BS EN 10258 and BS EN 10259. All fixings to be fitted with with locking nuts or equivalent locking devices. A minimum of 2 No. full threads should project beyond nuts.

5. Where straps pass over differing widths of timbers, timbers shall either be planed (where mis-match is created by timber cutting tolerances) or packs may be introduced and securely fixed/clamped with strap bolts. Packs may be from Greenheart, Ekki or Purpleheart.

6. All new fixings to be fitted with locking nuts or equivalent locking devices and to be 'hand tightened'. Where 'hand tightened' is referred to, tradition within the UK is to use podger spanners to ensure that the nut does not come loose in building construction. In other words, when an average erector fully tightens an ordinary bolt using a podger spanner, the bolt is correctly tightened. There is no specified minimum torque values required as such - however, there is a table included in a number of guides which indicates torques. This table is reproduced in Fig. 3.

7. Where bolts need to be replaced within a trestle this should be done on a '1 out 1 in' basis. Two trestles can be worked on simultaneously, provided that they are not adjacent to each other.

8. Where the removal of stainless steel fixings is required for re-use, ensure that threads/fixings are not damaged in the process.

9. Unless noted otherwise all coach screws should achieve 100mm minimum embedment.

10. All existing steel straps and through bolt fixings to be inspected and tightened as necessary. Where possible, and where threads are in suitable condition, all existing steel straps and through bolt fixings shall be retro-fitted with locking devices at all positions where they are not presently fitted.

11. Where bolts need to be replaced within a trestle this should be done on a '1 out 1 in' basis. Two trestles can be worked on simultaneously, provided that they are not adjacent to each other.

Live load limitations

All works shall be carried out under full rail possession with no live load, unless agreed otherwise.

Where two diagonals/walings are to be replaced on a single trestle it is admissible to replace one under possession and the other under rail live loading conditions providing: a safe method of working can be implemented; the operation is carried out under limited <10m/s wind conditions; live load is limited to Sprinters (no freight); both the remaining diagonal, waling and the crosshead are in good condition and are hardwood; work is completed in one shift such that trestles are not left unattended without both diagonals and walings in place. Where fixings have been loosened/removed to facilitate removal they shall be reinstated using hardwood block spacers to achieve tightening of connections.

Torque testing

1. All existing TA1, TA2 and TA3 fixings at or below the high tide waterline are to be integrity tested by application of a torque of 387Nm to an existing nut at one end, whilst the nut at the other end is held. If the nut turns the test should stop and the nut locked with a locknut. The torque test should then be repeated. If the nut doesn't turn then the nut and bolt are deemed acceptable. If the fixing breaks (eg due to waisted shank) the fixing should be replaced.

2. Should the existing nuts be corroded to such an extent that use of a torque wrench is not possible, fixing location shall be noted and reported to Network Rail to enable consideration of replacement.

3. See also Drg. No. 0718/01/018.

NUT SIZE	[illegible]	L	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	[illegible]	[illegible]	

Fig. 3.

SAFETY, HEALTH & ENVIRONMENTAL RISK ASSESSMENT	
NOTE: The designers risk documentation includes full details of the risks associated with this scheme. The list below identifies hazards that are not likely to be obvious to a competent contractor or likely to be difficult to manage effectively.	
Hazard	**Site Risk Mitigation**
[illegible]	[illegible]

FOR CONSTRUCTION

CASS HAYWARD LLP

GRIFFITHS

UNDERBRIDGE 1
REFURBISHMENT – PHASE 1

GENERAL NOTES
SHEET 2 of 2

0718/01/020

Method Statement

1. Summary

Please provide a brief summary of the application including location of the works (coordinates - lat/long, decimal degrees). For activities that cover a large area please provide coordinates of the approximate extent of works.

The location(s) of the construction phase is the River Dovey Viaduct Number 1, which carries a single line DJP at 79 miles 375 yards, grid reference SN6946397890 over the tidal River Dovey or Afon Dyfi. The viaduct is approximately 110m long and has eleven timber trestles on the north side and four on the south. The main section has four composite steel spans and girders. There is a bridge keeper's house at the western end. The structure sits on the Cambrian railway line between Dovey Junction & Penhelig Stations.
Dovey Junction Viaduct No1. DJP, 79 m, 352yds

Site Access Address: Unnamed Road, Off A487 at Glandyfi, SY20 8SU.

Grid Ref: SN 69460 97892

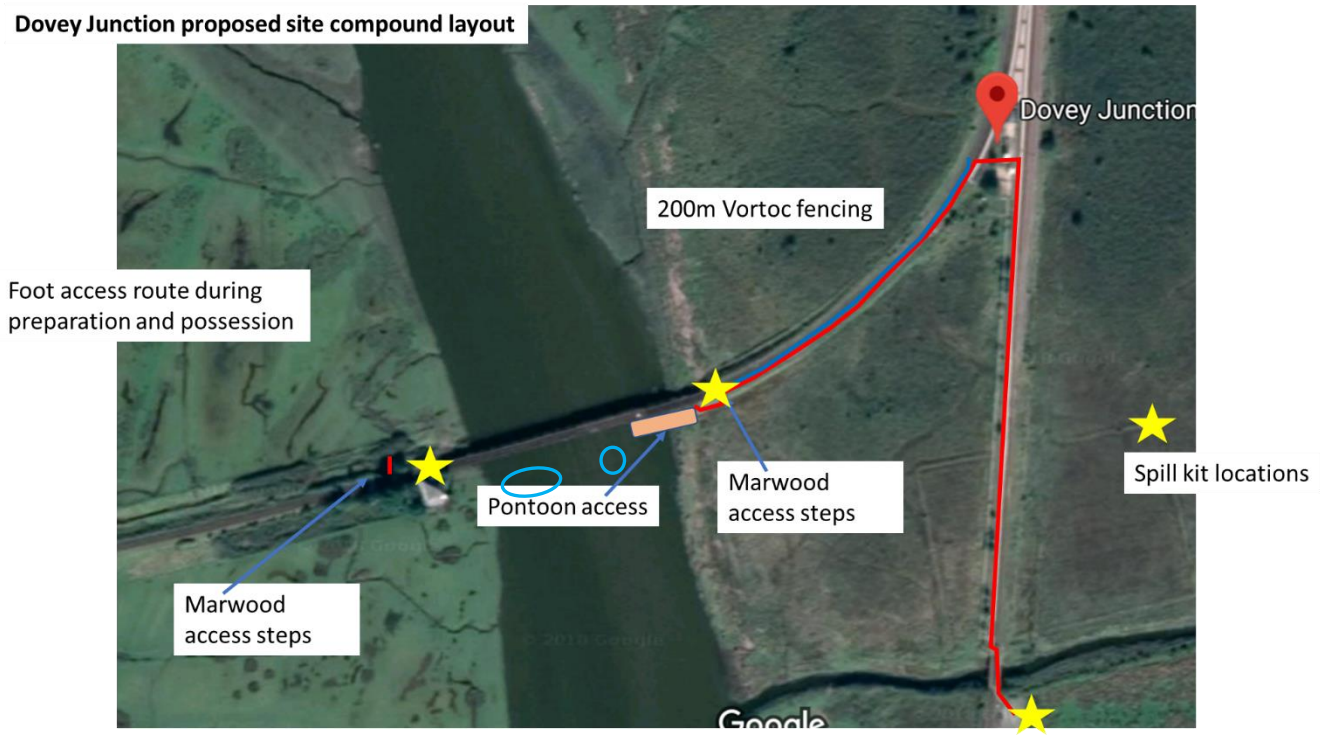


Figure 1: Site Layout

2. Scope of Works

Please provide a full description of all proposed works including:

This method statement details the works at Aberdovey viaduct number 1 which consist of the following repairs:

Work type	Carried out:
Trestle 2 Installation of crosshead to diagonal stainless steel connection plate	Dayshift
Trestle 4 Installation of crosshead to diagonal stainless steel connection plate	Dayshift
Trestle 5 Pack splice to piles 3 and 4 including new stainless steel clamps	Dayshift low tide
Trestle 11 Replacement of piles 2, 3, 4, 6 and 7	Within blockade day or night
Trestle 12 Replacement of piles 4, 6, 7, 8 and Low Mileage diagonal	Within blockade day or night
Trestle 14 Replacement of packs to top of piles 3 and 5 and steelwork to Pile 6	Dayshift
Trestle 15 Replacement of piles to 2,5,7 and installation of short term pile splice assembly to pile 6	Within blockade day or night
Trestle 16 Installation of short term pile of short term pile splice assembly to pile 6	Within blockade day or night
Trestle 18 Replacement of Beam 3 inner corbel and installation of short term splice assembly to piles 2, 3 and 5	Within blockade day or night
Trestle 20 Installation of short term connection between cross head and diagonal	Dayshift
Trestle 21 Replacement of both diagonals and installation of short term connection between cross head and diagonal	Within blockade day or night
Trestle 22 Temporary holding repairs to back of wall timbers	Dayshift
Scaffold access and temporary works	Dayshift
Delivery of scaffold materials and work materials	Saturday nightshift

Mobilisation – 2nd to 13th March 2020 – dayshift working

A site compound will be set up on NR land at the location in figure 1. Welfare facilities will consist of office, canteen, drying room and toilet block.

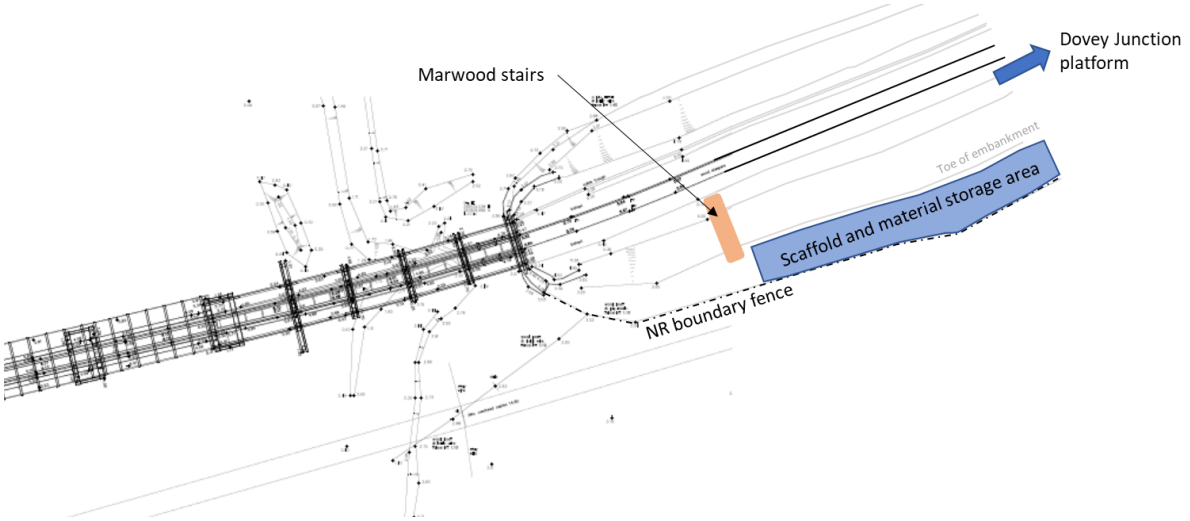
Vortok fencing will be set up from Dovey Junction Station to the east side of the viaduct and grass will be cut within the railway cess to create a safe access route for site access on foot.

Underwater clearance and survey, 16th to 27th March 2020 – dayshift working

Underwater examination of piles including clearing of debris (tree branches etc) to allow replacement of timber piles and installation of new stainless-steel splice clamps. This work is carried out from pontoons with dive equipment located on them. Small boats are used for rescue cover and to move pontoons, manpower and equipment. Equipment will taken to site using trolleys on the track in line blocks during the day.

Scaffold erection, 23rd March to 3rd April 2020 – dayshift working

Due to limited access to the area Scaffold equipment will be delivered to the bottom of the embankment (NR land) during Saturday night possessions 21/3/20 and 28/3/20 see plan below. The scaffoldoing will then be moved by hand and pontoon to required locations



Scaffolding (shown in green and blue in fig 2) will be erected to the specific trestles and spans with manpower accessing on foot from the compound via Dovey Platform

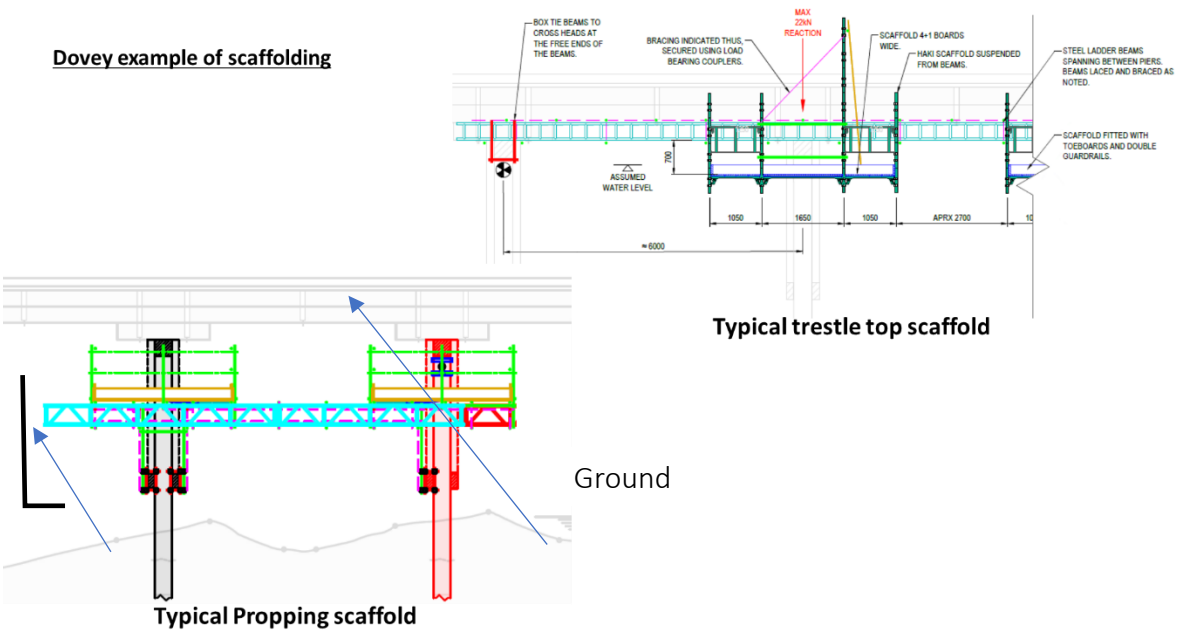


Figure 2: Scaffold prop arrangement in advance of deck removal

Main Works within 8 day blockade of line, 3rd April to 12th April 2020 – 24hour working

A road rail crane and two trailers loaded with temporary work and one trailer loaded with timber will travel to site from the RRAP at Paddy's Crossing at the start of the blockade.

The temporary works will be set up above required trestle /spans in order to lift the weight from the trestle and allow replacement of piles. See fig 3 for example of temp work

The crane will be used to lift new and replaced timbers between track level and pontoons on river.

The timbers will be replaced as per table in section 1 below is typical pile replacement (replaced items are shown in red.

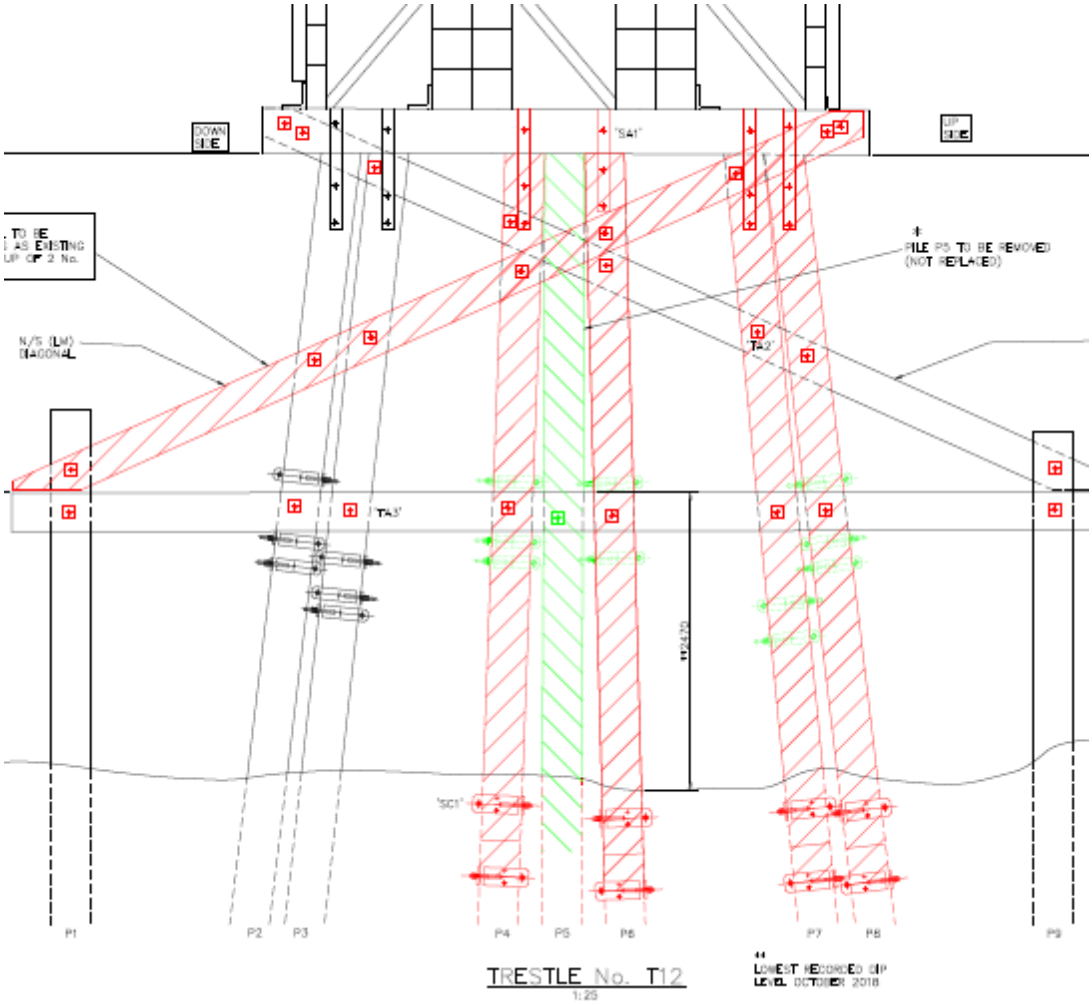


Figure 3: Example of timber pile replacement

3. Access and working areas

Please provide details of access to the site and working areas. This should include:

- *Attached map of the access/egress route and working areas (annotated aerial image and/or OS map)*
- *Predicted plant/vehicle movements*
- *Storage areas for plant, equipment and materials (if required)*
- *Risks to navigation*

See *Figure 1: Site Layout* for access and egress route

All plant, labour and materials will access the viaduct from the railway line. Vortok fencing will be set up from Dovey Junction Station to the east side of the viaduct and grass will be cut within the railway cess to create a safe access route for site access on foot. A temporary stairway will be installed down the embankment and a short section of fence taken down to facilitate pedestrian access to waters edge as shown in appendix. The pontoons are made of modular components and will be carried along this route and assembled at the rivers edge.

The road rail monster crane will travel along the railway track from Tywyn direction, having accessed the line at Paddy's Crossing.

Materials will be stored on the railway embankment, track trailers or pontoons. Materials will not be stored where river levels could affect them

- We have contacted the Maritime & Coastguard Agency and await their formal response;

however the river is not navigable at this location and previously, the risk to navigation has been assessed as low by the Maritime & Coastguard Agency. We will comply with the following advice

- Notify local marine users, noting the number of recreational craft at Aberdovey Marina. Contacting the local Harbour Master (address and telephone number available on Google) would be advised. – 01654 767626, 07879 433148
- Ensure suitable bunding, storage facilities are employed to prevent the release of fuel oils, lubricating fluids associated with the plant and equipment into the marine environment.
- Ensure that the works are sufficiently marked, and that adequate precautions are taken to secure any objects/personnel from the bridge so that they do not pose a hazard to any marine users transiting below.

4. Environmental mitigation

Please list appropriate mitigation measures to minimise impacts on the marine environment these may include:

- *Pollution prevention and control procedure (guidance available at: http://www.netregs.org.uk/media/1304/gpp-5-works-and-maintenance-in-or-near-water.pdf)*
- *Spill response kits*
- *Minimise plant traffic*
- *Designated access and egress routestorage of materials (fuel, chemicals, construction waste)*
- *Biosecurity (guidance available at http://www.snh.gov.uk/docs/A1294630.pdf)*

Note: To assist you, the following mitigation statements will be used as conditions within the licence. By signing this method statement you will be agreeing to adhere to these restrictions. If you are unable to do this, the application will not qualify as Band 1.

- ✓ All equipment, temporary structures, access tracks, waste and/or debris associated with the works will be removed on completion of the works.

- ✓ Bunding, storage facilities and spill kits will be employed to contain and prevent the release of fuel, oils and chemicals associated with the plant, refuelling and construction equipment into the marine environment.

- ✓ Plant, vehicles and machinery will not be refuelled on the foreshore.

- ✓ Coatings and treatments will be suitable for use in the marine environment and are used in accordance with best environmental practice.

- ✓ All equipment, materials, machinery and PPE used will be in a clean condition prior to their arrival on site, and upon removal from site, to minimise risk of introducing non-native species into the marine environment.

- ✓ In the event of removal of any sensitive species or habitat designated by NRW under Schedule 7 of the Environment (Wales) Act 2016, no further removals will occur at that location or within 20m of that location.

Please list your bespoke mitigations here:

- ✓ Location of spill kits shown on **Error! Reference source not found.**.
- ✓ All plant to be checked for oil leaks before use.
- ✓ Trained and competent personnel and supervision will be employed.
- ✓ All refuelling to be carried out at a designated point, sited at least 10m away from any watercourse.
- ✓ All plant will run on biodegradable hydraulic oils, and the biodegradable chainsaw chain bar lubricant will be used.
- ✓ Emergency response clean up contractor on standby – Bremar Howells 01202 653558.

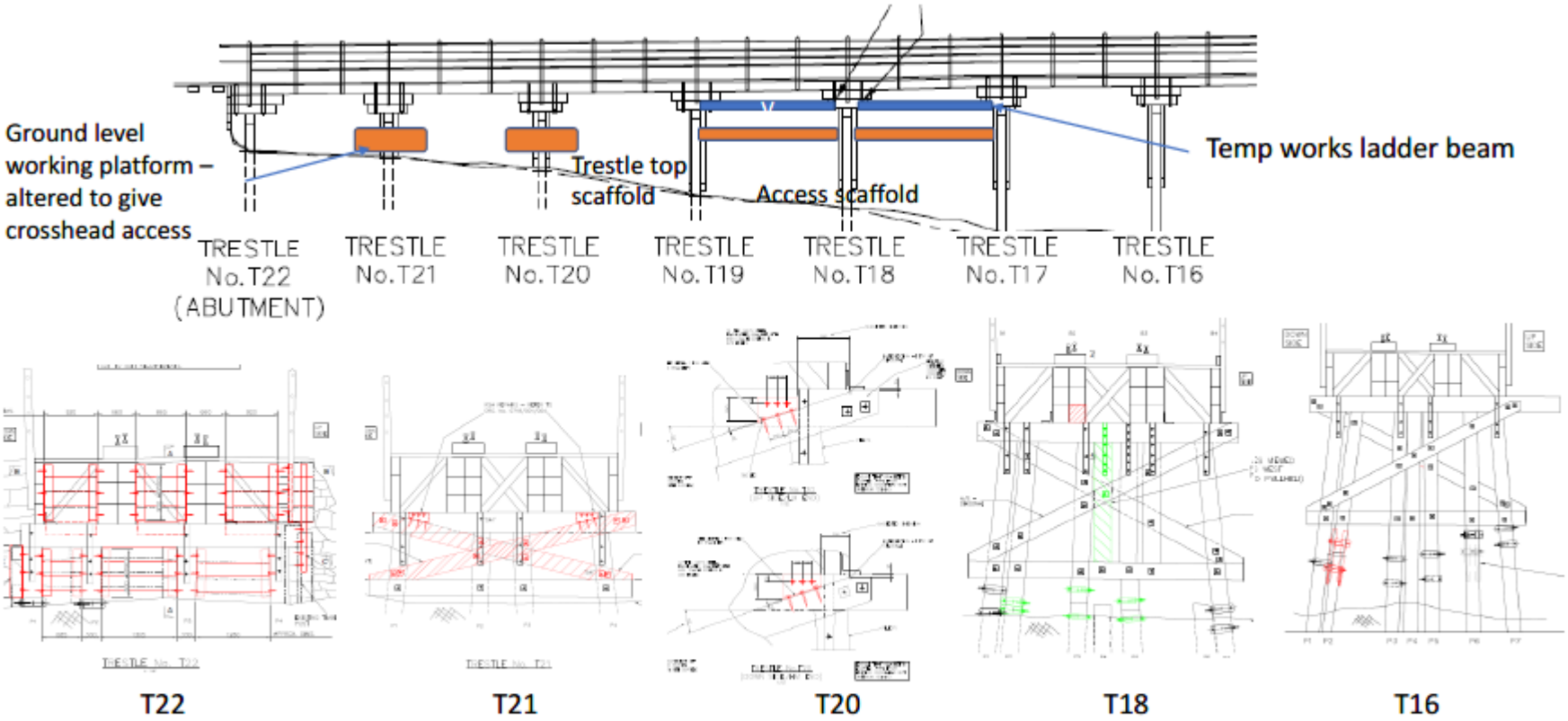
5. additional Information

Please list any additional information that may help with the application:

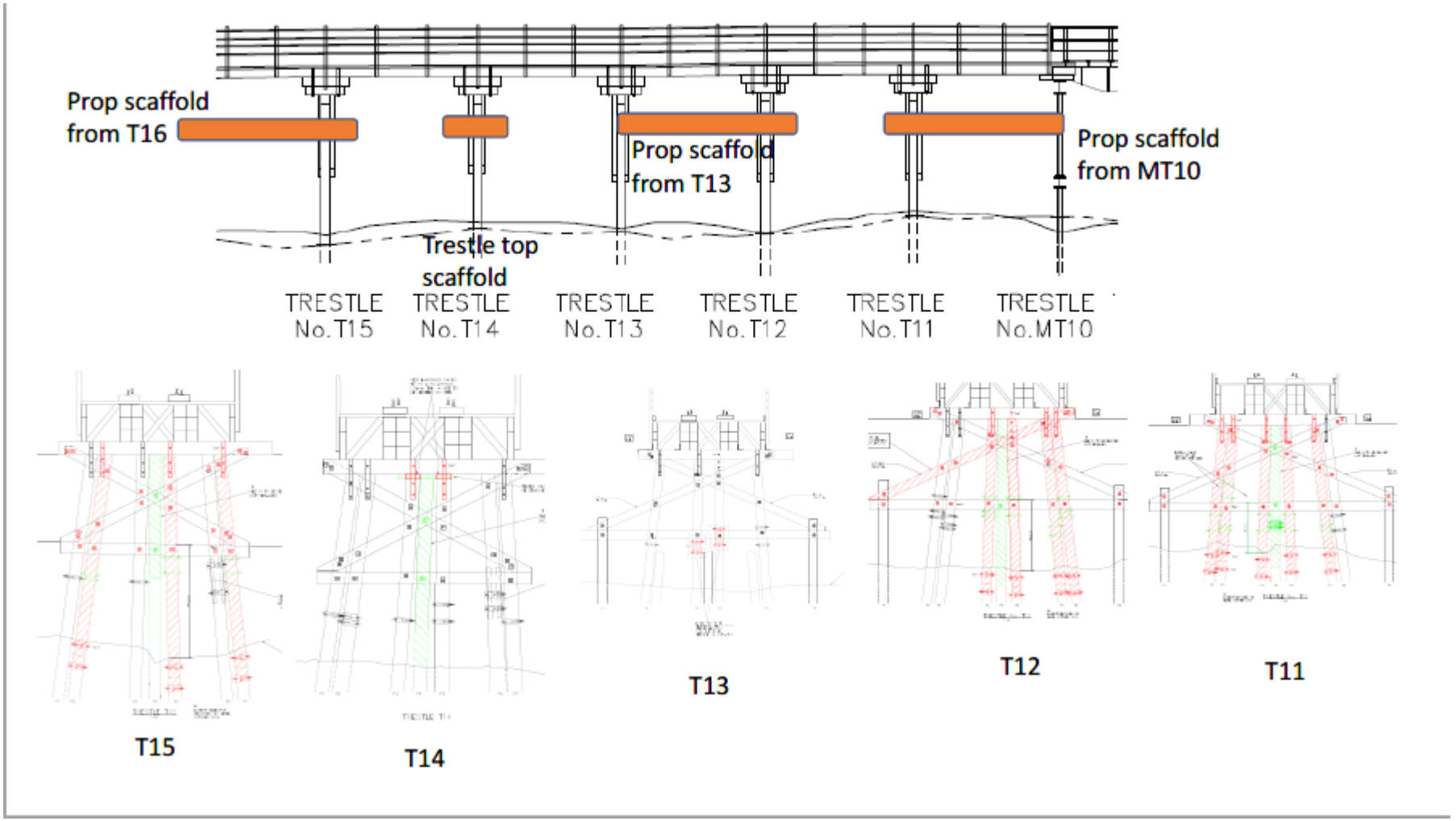
- *Consents/permissions required*
- *List of plans or drawings attached to method statement*
- *Emergency procedures*
- *Contact details*

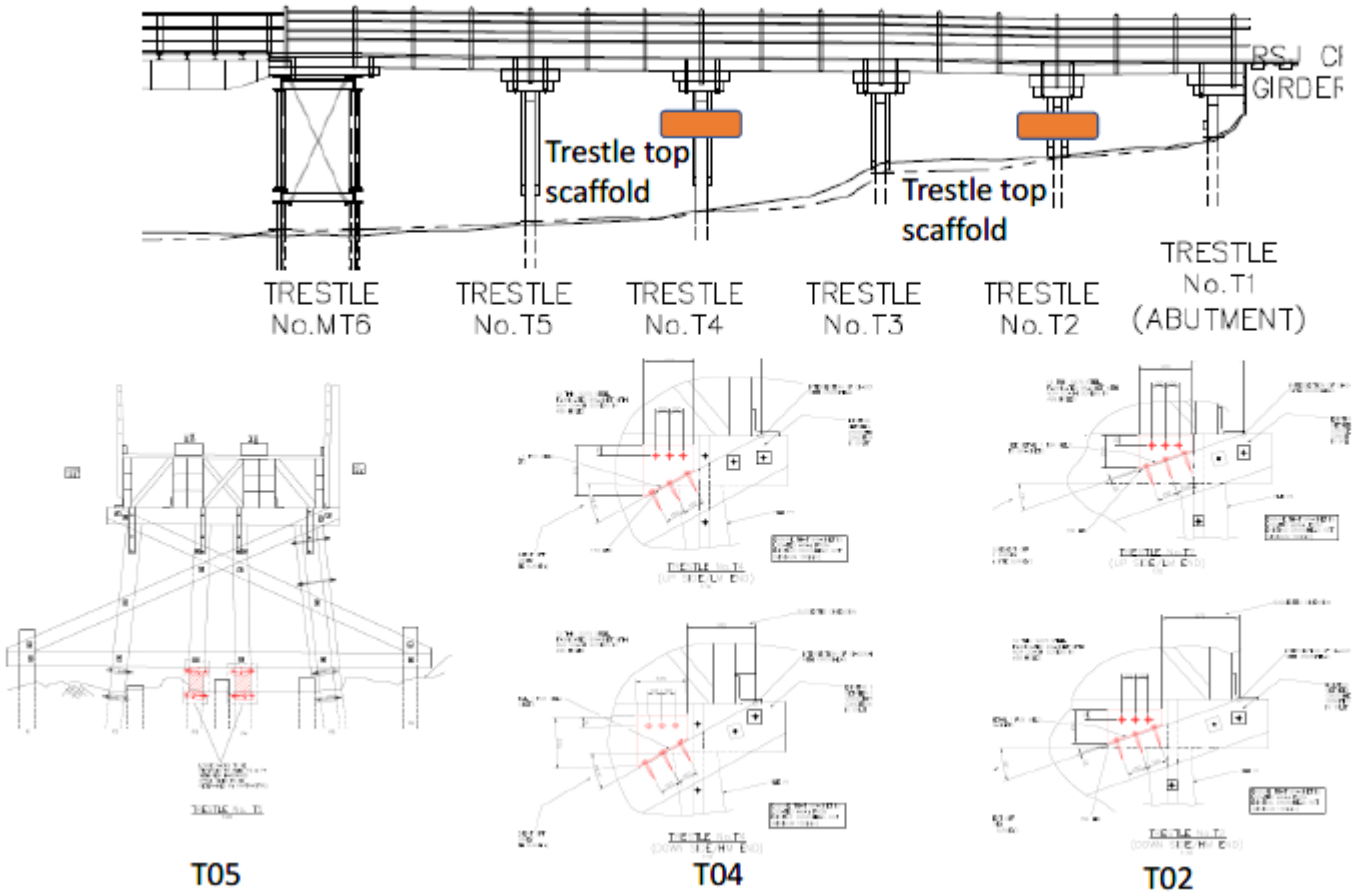
Dovey Junction timber works

Work required	Restrictions
• Trestle 2 – Install short term cross head – diagonal connection.	Outside of possession from scaffold
• Trestle 4 – Install short term cross head – diagonal connection.	Outside of possession from scaffold
• Trestle 5 – Pack pile splice on Piles 3 and 4.	Outside of possession in line blocks at low tide
• Trestle 11 – Replacement of Piles 2, 3, 4, 6 and 7.	Within blockade
• Trestle 12 - Replacement of Piles 4, 6, 7, 8 and LM diagonal.	Within blockade
• Trestle 13 – Pack pile splice on Piles 3 and 4.	Outside of possession in line blocks
• Trestle 14 – Replace pack at head of Pile 3, 5 and installation of short-term pile splice assembly to pile No 6.	Within blockade
• Trestle 15 - Replacement of Piles 2, 5, 7 and installation of short-term pile splice assembly to pile No 6.	Within blockade
• Trestle 16 - Installation of short-term pile splice assembly to pile No 2 and 6.	Within blockade – or rules possession
• Trestle 18 - Replacement of Beam 3 Inner corbel and installation of short-term pile splice assembly to pile No 2, 3 and 5.	Within blockade – or rules possessions
• Trestle 20 - Installation of short-term connection between cross-head and diagonal.	Within blockade – or rules possessions
• Trestle 21 - Replacement of both diagonals and installation of short-term connection between cross-head and diagonal.	Within blockade
• Trestle 22 – Temporary holding repairs to the Back of Wall timbers.	Within blockade
• The permanent way across the structure shall be reinstated back to it's original geometry or betterment.	Within blockade
• All the above works are to include replacement of the associated metallic fixings with stainless steel fixings.	Within blockade

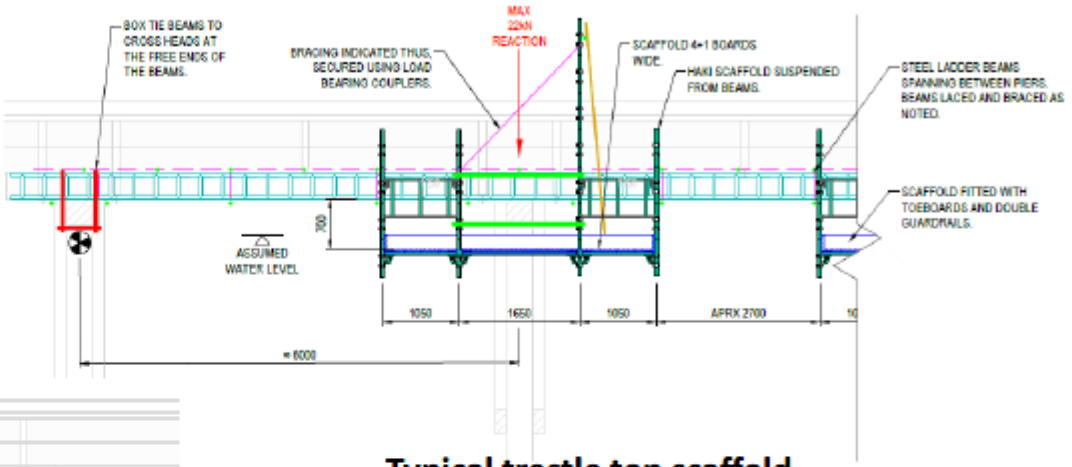


Red items indicate items to be replaced or added

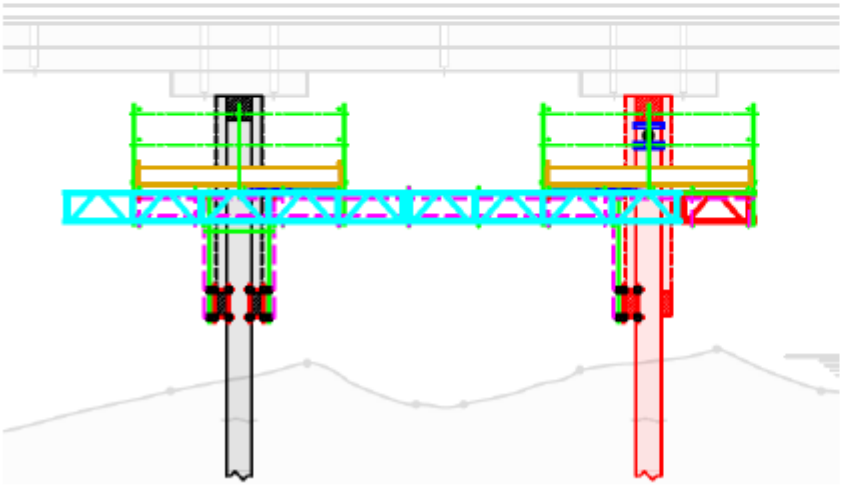

Prop scaffold from T16
Prop scaffold from T13
Prop scaffold from MT10
Trestle top scaffold
TRESTLE No.T15
TRESTLE No.T14
TRESTLE No.T13
TRESTLE No.T12
TRESTLE No.T11
TRESTLE No.MT10
T15
T14
T13
T12
T11


Trestle top scaffold
Trestle top scaffold
TRESTLE No.MT6
TRESTLE No.T5
TRESTLE No.T4
TRESTLE No.T3
TRESTLE No.T2
TRESTLE No.T1 (ABUTMENT)
T05
T04
T02

Dovey example of scaffolding

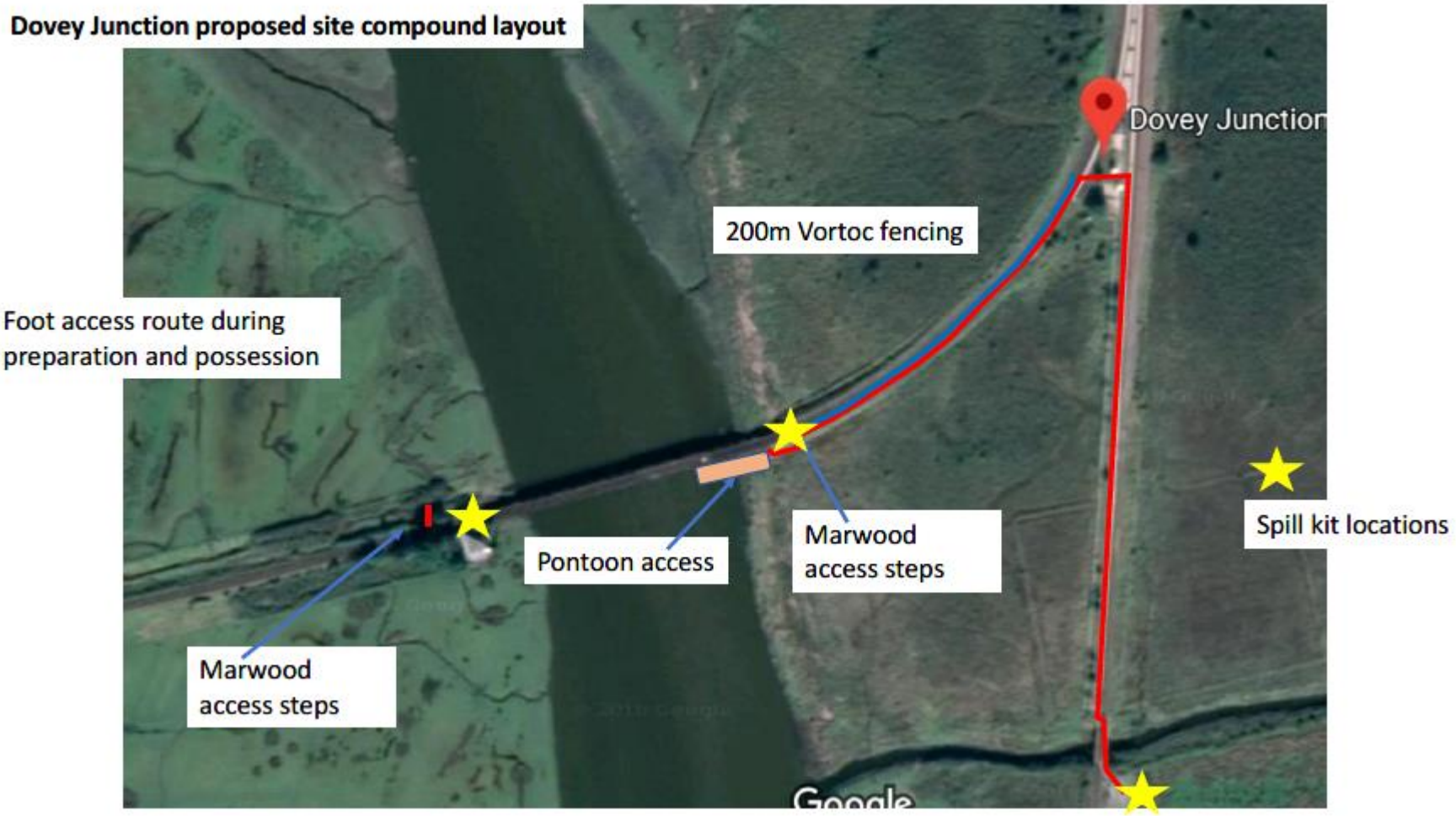


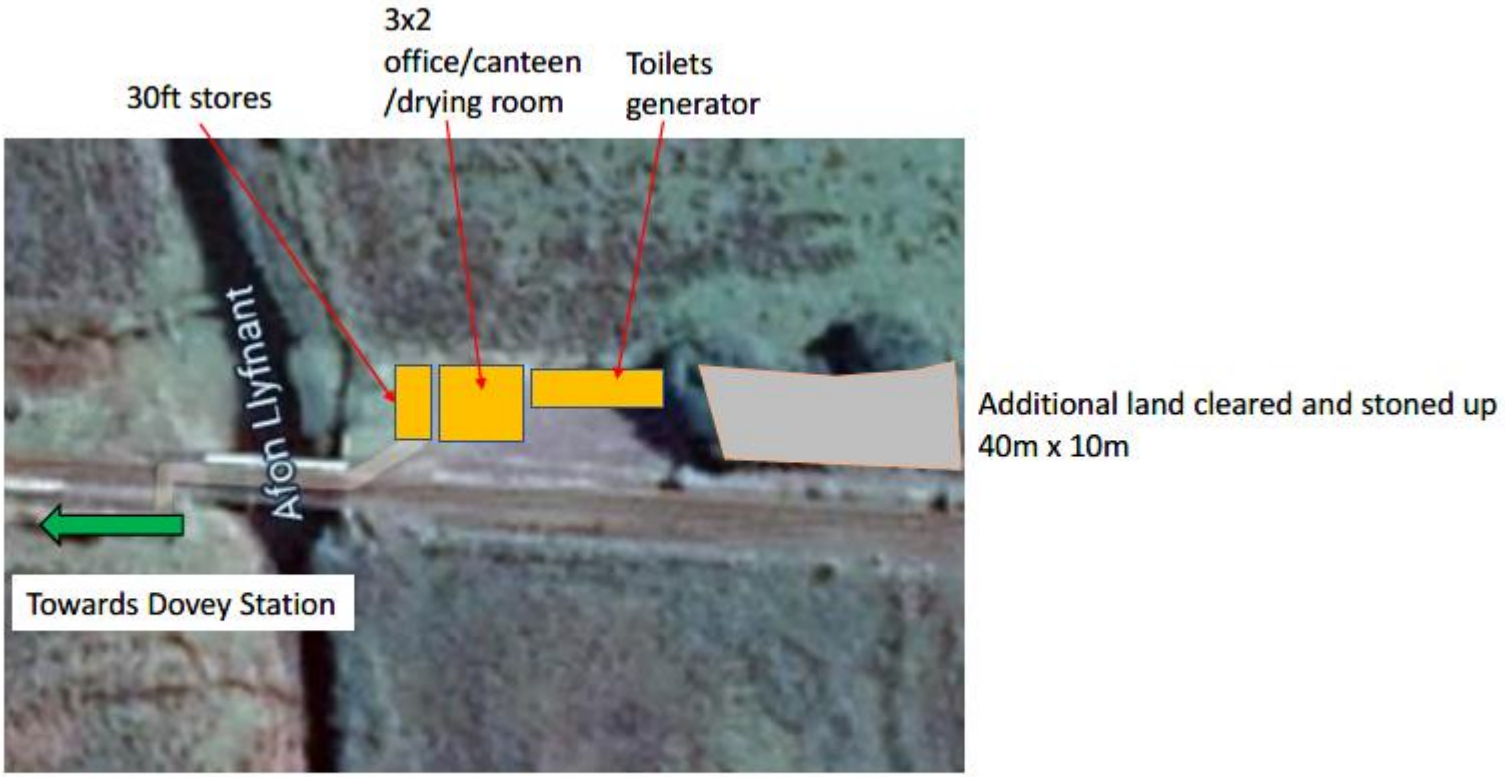
Typical trestle top scaffold



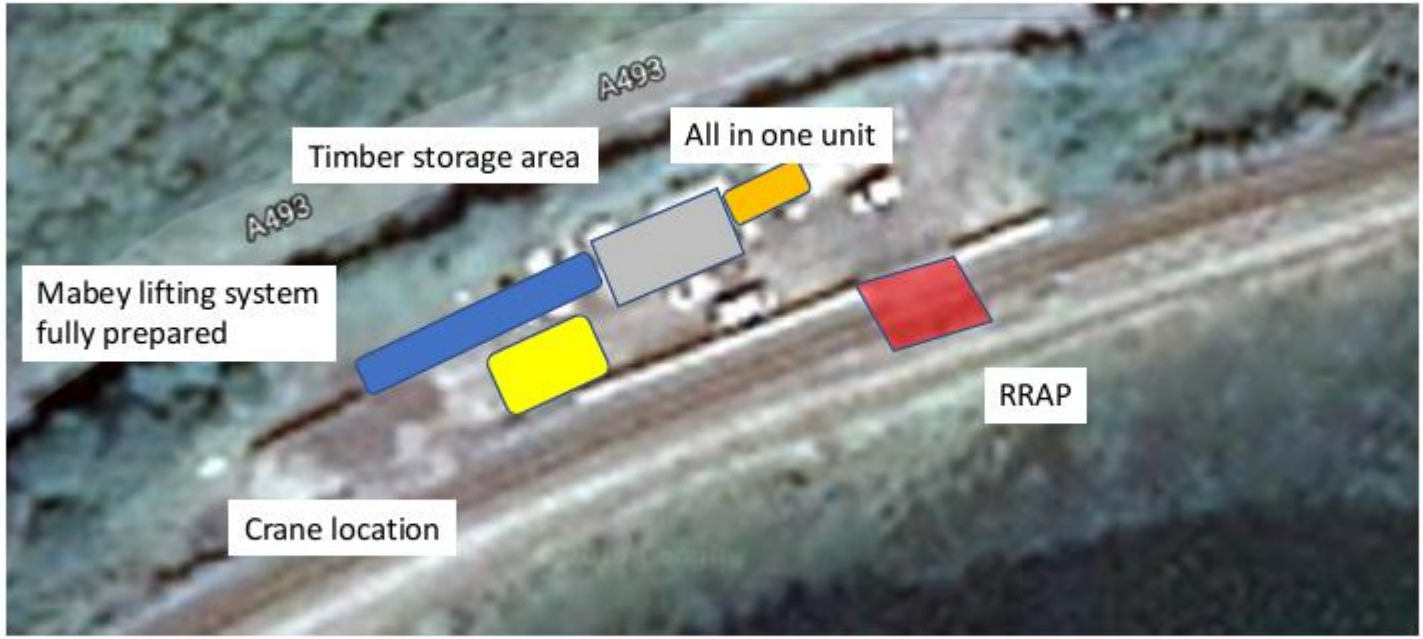
Typical Propping scaffold

Dovey Junction proposed site compound layout

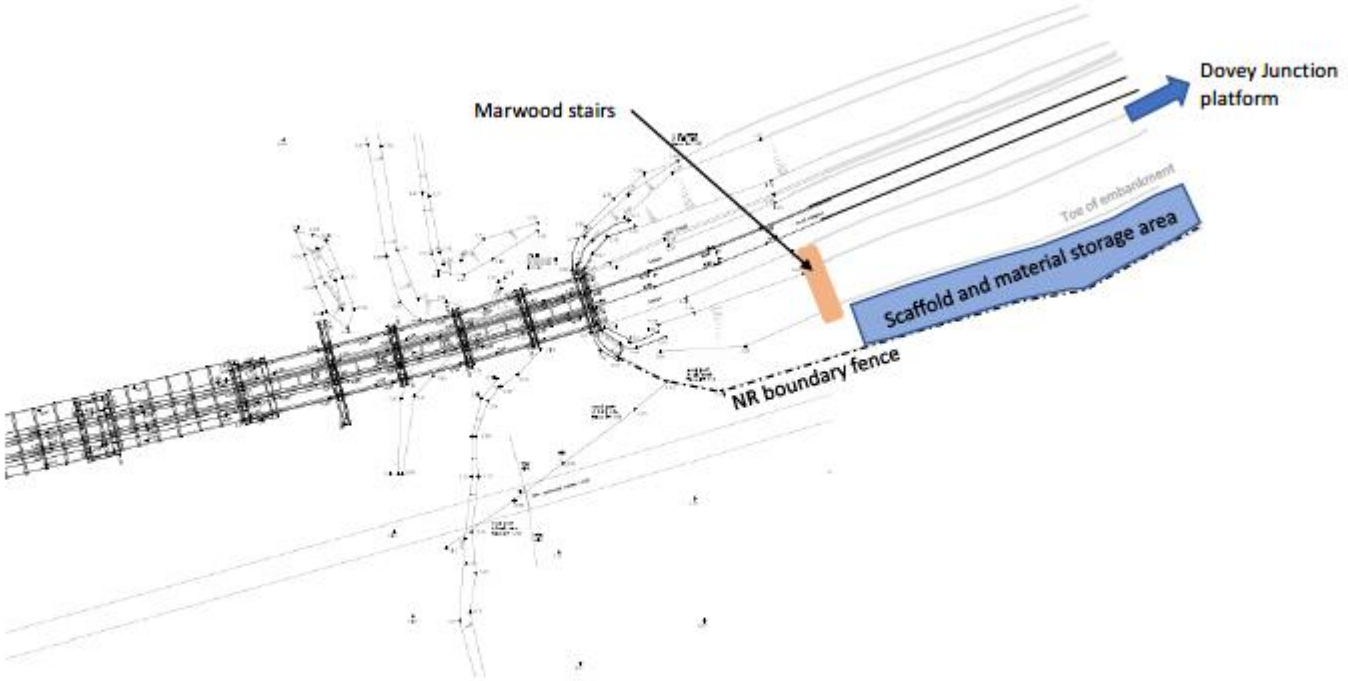




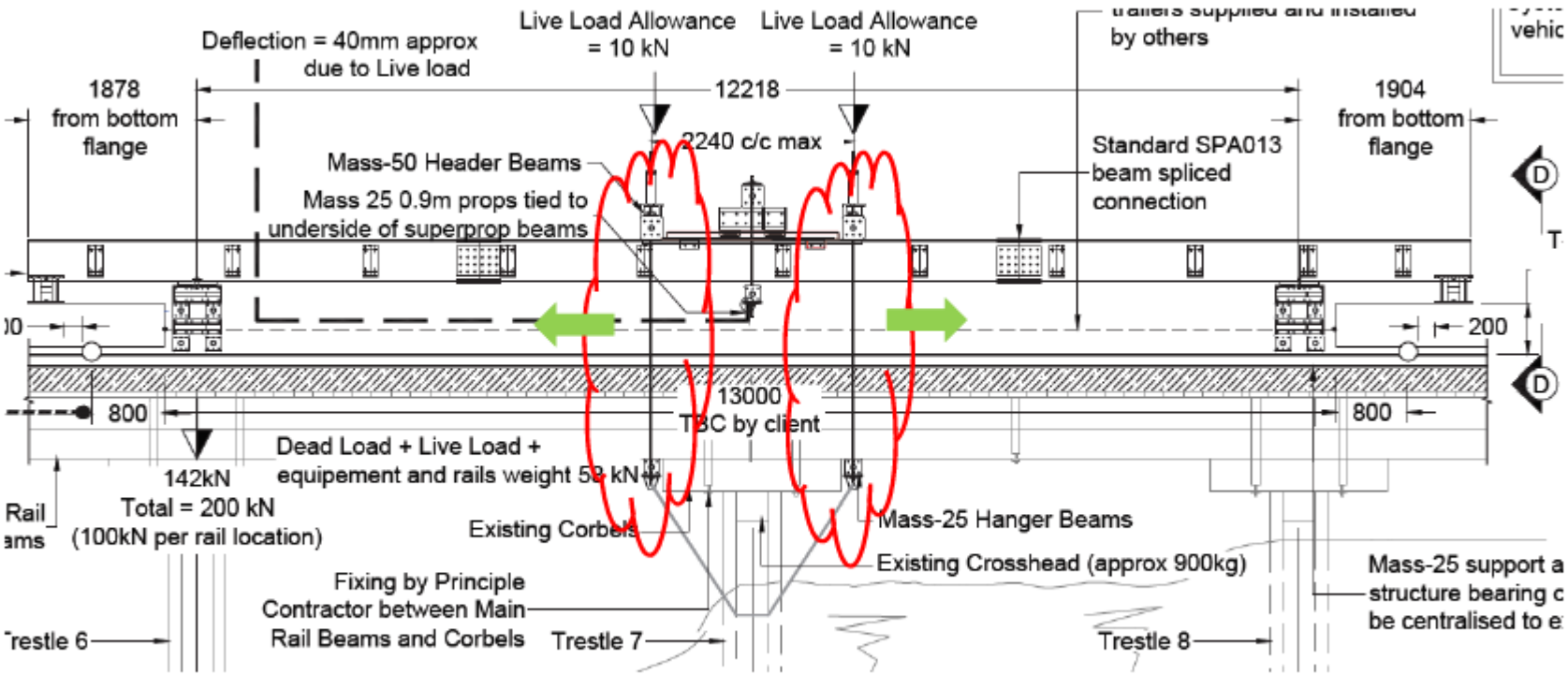
Typical site layout at Dovey Junction Station



Paddies Yard set up


Marwood stairs
Dovey Junction platform
Toe of embankment
Scaffold and material storage area
NR boundary fence

Mabey system alterations



Support location moved to allow greater movement of crosshead to allow scaffold access both sides of trestle

Scaffold requirements

Design of trestle top, propping and general access scaffolds including Form 002/003 based on Afon Artro designs

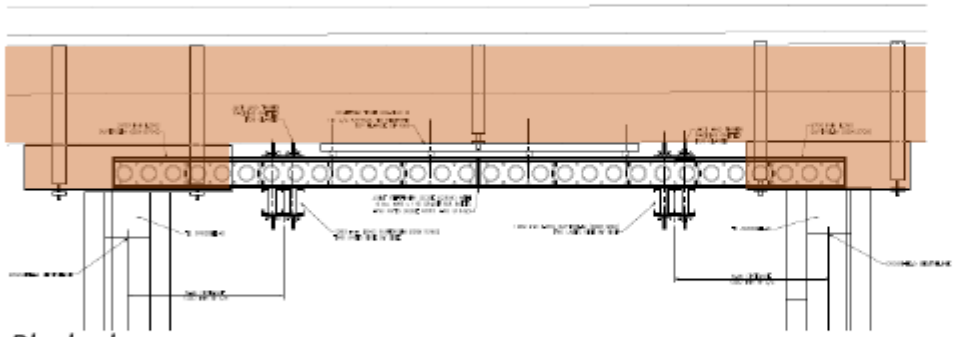
Trestle top scaffold to T2, T4, T14, T20 and T21
Propping scaffold – to include access both sides of Trestle. Spans 10, 12 and 15
Access scaffold to spans 18 and 19 also around T21 initially to change diagonals
All installed 16/3/20 to 27/3/20
Dismantled 27/4/20 to 8/5/20

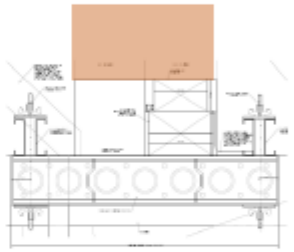
Blockade. 3/4/20 to 12/4/20
Advance scaffolder and scaffolder 24hr/day cover

Temporary work requirements

Design alteration for Mabey system to allow greater movement of crosshead in both directions.

Span 18 and 19 'ladder' beam to lift / support main beams to enable removal of corbel to T18





Pre-Blockade.
Set up full system at Paddies yard using crane (with slew restrictor) such that it can be lifted in as one unit on the blockade
System to be lifted off at end of blockade.

Blockade. 3/4/20 to 12/4/20
Crane to lift full system onto RRV trailers as a single unit
Mabey system 24hr/day cover

Pontoon/safety boat requirements

Pre and post possession. 9/3/20 to 3/4/20 and 14/4/20 to 8/5/20
Pontoon access from T01to approx. T05– 30m x 2m
3No pontoons 6x5m for scaffold erection/dismantling
2No boats (1 No safety boat 1No boat to move pontoons and manpower
3No staff to cover above.

Blockade. 3/4/20 to 12/4/20
Pontoon access from T22 to approx. T17 – 30m x 2m
4No pontoons 6x5m for storage and working
2No boats (1 No safety boat 1No boat to move pontoons and manpower
3No staff to cover above for 3No shifts per 24hr

Possessions: 21/3/20, 28/3/20, 18/4/20 & 25/4/20
Pontoon access from T22 to approx. T17 – 30m x 2m
2No pontoons 6x5m for storage and working
1No boat 1No boat to move pontoons and manpower then act as rescue boat)
2No staff to cover above 22:00 Sat – 10:00 Sun


PILE REMOVAL
GRIFFITHS
Network Rail