Environment Agency

Site Specific Pack

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| Project name | Cowley Bridge Gauging Station Sensor Upgrades |
| Project SOP reference | ENV0003258C |
| Contract reference |  |
| Site | Cowley Bridge Gauging Station |
| Date | 25/02/2022 |
| Version number | 1 |
| Author | Greg Sterling |

Revision history

|  |  |  |
| --- | --- | --- |
| Revision date | Summary of changes | Version number |
| 25/02/2022 | First issue | 1 |

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| **Non-returnable Documents**  **NEC4 Engineering and Construction Short Contract** | **Site Specific Pack** |

This Site Specific Pack shall be read alongside the over-arching Contract Data and Scope.

**Contents List**

1. **Contract Data**
2. **Scope**
3. **Site Information**

SSP 100 Contract Data

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| --- | --- | --- |
| The *works* are | Cowley Bridge Gauging Station Sensor Upgrades | |
|  | | |
| The *site* is | Site Name: Cowley Bridge Gauging Station  Location: Langford Road and Newbridge Hill Junction, Exeter, Devon EX5 5AF.  NGR: SX 90054 96743 | |
|  | | |
| The starting date is |  | |
|  | | |
| The completion date is |  | |
|  | | |
| The delay damages are | £200 | Per day |
|  | | |
| The retention is | nil | % |
|  | | |
| The defects date is | 52 | weeks after Completion |
|  | | |
| The defects correction period is | 4 | weeks |

SSP 200 Scope

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| SECTION | SCOPE |
| S100 | Description of the *works* |
| S200 | Drawings |
| S300 | Specifications |
| S400 | Constraints on how the Contractor Provides the Works |
| S500 | Requirements of the programme |
| S600 | Services and other things provided by the Client |

**S100 Description of the *works***

Background

The River Creedy flows under New Bridge which carries Langford road over the river. There is an existing gauging station owned by the environment agency at which is called Cowley Bridge Gauging Station, the gauging hut is accessed by a steep narrow steel staircase over the embankment between road and river levels.

The embankment is steeply sloping and overgrown with dense vegetation.

The difference between road and river levels is approximately 11m, the only available access to the lower level of the site being a steel staircase.

New Bridge is a multi-span arched structure understood to be owned by Network Rail. The carried road traffic over both the River Creedy and the adjacent Railway.

The project will provide detailed Flood Warning Data which is vital to the protection of assets downstream of this site.

Figure 1: View from Downstream showing the location of the in river sensor array.



**S102 Description of the *works***

Below is a detailed description of the following sections of the *works*

* PREPARATORY WORKS AND PROTECTION
* INSTALLATION OF DUCTWORK AND ENABLING WORKS TO SUPPORT CABLE PATHS.
* INSTALLATION OF A NEW KIOSK AND POST AND RAIL FENCE AMENDMENTS.
* IN RIVER/CHANNEL WORKS TO INSTALL/SECURE THE NEW BASE BOARD TO THE BRIDGE ABUTMENT.
* INSTALLATION OF CONDUIT AND HIGH-LEVEL SENSOR ON COWLEY BRIDGE.
* FINISHING WORKS

S102.1 - PREPARATORY WORKS AND PROTECTION

TEMPORARY SUPPORT:

Provide, maintain, alter and adapt temporary supports and scaffolding of adequate strength for access to, and to ensure the stability and safety of the structure, retaining structures and of any nearby services during the *works*.

The *contractor* shall be responsible for the design of all temporary works.

SITE CLEARANCE AND PROTECTION:

Provide screens and sheeting to protect the existing structures and pavings/grassed surfaces during the *Works*. Accept responsibility for any damage caused by lack of protection.

Parking is limited on site, see PCI for site parking and welfare arrangements.

Ensure adequate cordons are in place around the working area to prevent unauthorised access onto the site and compound.

ROAD CLOSURE:

Allow for completing necessary paperwork to apply for a temporary and partial road closure over New Bridge. It will be necessary to close one lane of the carriageway to execute the *works*.

The road closure will be required for the following activities:

1. Loading and unloading of scaffolding at the site.

2. Installation of high-level sensor and associated wiring/conduit installation.

In addition to the above the *contractor* may consider it necessary to extend the partial road closure to allow use of the carriageway as siting for a welfare unit.

Allow for all costs associated with making an application to Devon County Council for a partial road closure under the Road Traffic Regulation Act 1984, include all costs associated with traffic management provisions necessary for the *works*.

SCAFFOLD:

The scaffolding shall be designed and erected in the river Creedy and secure to the existing bridge abutment wall with tie bars as determined by design.

Accept responsibility for damage caused by lack of protection during the *Works*.

Safe access will be required for the *works*, including appropriate edge protection around the scaffold perimeter. This will involve erection of scaffold under New Bridge to provide access to install the newly designed UMHW-PE base boards and sensor array.

The scaffold shall be designed and/or altered to provide lifts suitable for executing the *works*.

Arrange and allow for scaffold design, erection, and certification by specialist supplier, for continuing charges from the time of erection including inspections and hire charges, for maintaining and if necessary, altering and adapting temporary supports and scaffold for access, and for stripping and removing the scaffold when no longer required.

Allow for all costs associated with submitting scaffold design direct to Network Rail for approval prior to erection/commencement.

The scaffold design shall be completed by a competent person and carried out in accordance with the following standards:

• NASC TG20:13 BS EN 12811-1

• BS 5975: Falsework

• BS EN 1991 – 1-3: 2003 Snow Loads

• BS EN 1991 – 1-4: 2005 Wind Actions

• Scaffold tube shall be taken as BS EN 39 Type 4 “as new” condition.

• Hydraulic loading equivalent to the 70% exceedance flow rate of 0.792 m3/s plus appropriate safety factor.

Include details with design for tying of the scaffold to the main structure of the bridge.

Regular scaffold inspections by scaffold installer to be completed through the *works* to satisfy both:

1. Periodic inspection and certification requirements (weekly).
2. Inspections following exceptional weather events.

All inspections shall be carried out by persons holding a valid and current Construction Industry Scaffolders Record Scheme (CISRS) Advanced Scaffold Inspection card.

End caps to be installed to all tubes to prevent damage to the bridge abutment walling.

The scaffolding will be in a river, fixing to the existing bridge abutment will be required to provide stability and resist the flow of water.

Submit scaffold design to *Client* prior to commencement of the *works*.

Allow for the cost of the scaffolding for the duration of the *works*.

Coordinate with items B50/010, B50/20 below, do not erect scaffold before taking delivery of materials for the in river *works*, allow period for NIVUS to install sensor array and commission.

Submit Risk Assessment and Method Statement for this activity, to include moving scaffolding to and from the workface.

Allow for the proposed use of in River scaffold as access for the installation of the base boards and follow on sensor array installation by Nivus at below

S102.2 - INSTALLATION OF DUCTWORK AND ENABLING WORKS TO SUPPORT CABLE PATHS.

INSTALL DUCT TYPE A

Allow for minimal local clearance of vegetation to permit overland duct installation. Install new 110mmØ Rigicoil twin wall utility duct, allow for laying duct in straight lines, to level and to present straight tidy runs.

Stake duct in position at 1.5m centres with pre bent 10mmØ stainless steel enforcement stakes.

Allow for working on steep embankment slope, employ scaffolding to provide guard rails and fall protection where works are required adjacent to bridge walling with associated potential falls from height.

Submit Risk Assessment and Method Statement for this activity.

INSTALL DUCT TYPE B

Fix duct type B to bridge parapet walling as Conduit Fixing Detail on Drawing 22-018-0-CB-102.

Install proprietary Grade 316 M20 cable conduit system on grade 316 stainless saddle claps welded to Grade 316 50mm x 3mm thick flat bar at maximum 600mm centres, each conduit bracket to be secured to top of parapet wall with 2 number M8 anchors. Terminate conduit at M20 grade 316 flexible stainless steel conduit hose, turned down and into 110∅ duct laid overland

Coordinate *works* with partial road closure and traffic management.

Coordinate *works* to ensure site below the work area is secured and access prevented.

Submit Risk Assessment and Method Statement for this activity.

INSTALL DUCT TYPE C

Install proprietary twin wall 110mmØ rigid duct, secure to bridge abutment wall with Stainless Steel rubber lined P clips at maximum 900mm centres.

Allow for scaffolding to provide safe access.

Submit Risk Assessment and Method Statement for this activity.

DUCT ROPE

Install continuous length of 6mm blue polypropylene duct rope from high- and low-level sensor locations through the duct network back to the telemetry kiosk ready to pull in sensor cables.

Note M20 duct along bridge parapet to be left empty, no duct rope required.

On completion of the installation the duct ropes shall be located within the duct network in addition to the sensor cables to facilitate pulling of additional cable in the future.

S102.3 - INSTALLATION OF A NEW KIOSK AND POST AND RAIL FENCE AMENDMENTS.

NEW KIOSK BASE

Cat scan identify and mark services.

Excavate base for new kiosk by hand, blind excavation with GEN1 concrete. Set up shuttering and long radius bend cable ducts. Place fibre reinforced concrete and trowel finish.

INSTALL GRP TELEMETRY KIOSK

The *Client* will free issue to the contractor a GRP telemetry kiosk, the contractor will identify the date for delivery of the kiosk to site on the *works* programme.

Install a GRP enclosure on the newly formed concrete base.

S102.4 - IN RIVER/CHANNEL WORKS TO INSTALL/SECURE THE NEW BASE BOARD TO THE BRIDGE ABUTMENT.

INSTALLATION OF NEW BASE BOARD

Arrange special order and fabrication of new UHMW-PE sectional base board as shown.

Obtain and deliver to site base boards and Renderroc, primer and fixings prior to erection of the scaffold in the river.

preparation of bridge abutment to remove loose material, form neat vertical saw cuts and scabble to remove loose material.

Using laser plumb, identify alignment of new baseboards and build out abutment with Renderoc to form plumb continuous firm backing for new base boards. Finish Renderoc base to be plumb to +/- 1mm tolerance.

Set square tapped stainless-steel plates (captive nuts) into recess in baseboards and temporarily hold in place with expanding foam, Duct Tape or adhesive.

Set out levels for baseboard working from BM at gauging hut (17.22 mAOD), drill and secure baseboards to abutment walling to achieve a level tolerance of +/-5mm.

Allow for locally trimming bed level to accommodate bottom of base board, trim bed levels by hand allowing for removal of local silt and river deposits.

Submit Risk Assessment and Method Statement for this activity.

Identify procedures for prevention of pollution of the watercourse.

INSTALLATION OF SENSOR ARRAY, CABLING, TELEMETRY EQUIPMENT AND COMMISSIONING BY NIVUS

Allow for all costs associated with maintaining safe access under New Bridge and accommodating the Environment Agencies sensor system supplier.

The *Client* will under separate contract pay their supplier (NIVUS GmbH) to supply and install the in-river sensors, cabling and telemetry equipment.

It is planned that the sensors will be supplied to site already installed on the Polypropylene channel by others shown on drawing 22-018-0-CB-102.

NIVUS operatives will need access to the scaffold to install the sensor array, pull cables though the preinstalled ductwork from the sensor location to the telemetry cabinet.

NIVUS operatives will install the telemetry equipment within the kiosk, connect and terminate the sensor array and commission the sensors prior to removal of the in-river scaffold.

Allow for all costs associated with providing site attendance to NIVUS and maintaining the scaffold on *site* following completion of the *works* at B50/20 above for a period of 5 Days to allow NIVUS to complete their installation and commissioning works.

Identify *site* rules and hazards to NIVUS in advance of their attendance.

The *Client* will forward the PCI to NIVUS and obtain Risk Assessments and Method Statements from NIVUS in advance of their attendance on *site*, the documents will be supplied to the *contractor* for information and coordination purposes.

Identify procedures for coordination of access, Health, Safety and Welfare arrangements with NIVUS in construction phase plan.

S102.5 - INSTALLATION OF CONDUIT AND HIGH-LEVEL SENSOR ON NEW BRIDGE.

INSTALLATION OF VEGA SENSOR, CABLING, TELEMETRY EQUIPMENT AND COMMISSIONING STONBURY LTD.

Maintain safe access over New Bridge and coordinate installation with partial road closure of Langford Road and associated traffic management.

The *Client* will under separate contract pay their supplier (Stonbury Ltd) to supply and connect a new Vega C21 Radar Unit, cabling and telemetry installation.

Stonbury will free issue the radar unit, complete with welded stainless steel parapet wall capping/mounting bracket and immediate cabling to the *contactor* for installation. The radar unit will be supplied with a single length of cable suitable to allow its installation centrally over the River and cabling back to the telemetry kiosk.

Allow for all costs associated with installation of the sensor on the parapet wall working from road level. The *contractor* shall allow for pulling cables though the preinstalled ductwork from the sensor location to the telemetry cabinet.

Stonbury operatives will install the telemetry equipment within the kiosk, connect and terminate the radar unit and commission the system.

Provide *site* attendance to Stonbury to allow Stonbury to complete their installation and commissioning works.

Identify *site* rules and hazards to Stonbury in advance of their attendance.

The *Client* will forward the PCI to Stonbury and obtain Risk Assessments and Method Statements from Stonbury in advance of their attendance on *site*, the documents will be supplied to the *contractor* for information and coordination purposes.

Identify procedures for coordination of access, Health, Safety and Welfare arrangements with Stonbury in construction phase plan.

Submit Risk Assessment and Method Statement for activity to identify and mitigate hazards associated with risk of falling and falling objects.

Coordinate *works* with partial road closure and traffic management.

S102.6 - FINISHING WORKS

REMOVE SCAFFOLD AND TEMPORARY WORKS

Remove all temporary works used to facilitate *works* (slides/chutes, etc.)

Remove all arisings from *site*

EXISTING POST AND RAIL FENCE

Make good existing post and rail fence either side of kiosk.

Replacement handrailing generally IAW BS 1722-7.

GROUND REINSTATEMENT AND CLEARANCE:

On completion clear all debris from working area, highway, verge and bridge and remove arisings to tip. Leave *site* clean and tidy.

**S103 Contractor’s design responsibility ECSC 20.2**

The *Contractor* is responsible

* for carrying out detailed design to deliver the preferred option by the *Client*. The *Client* retains responsibility and liability of the outline design.
* for carrying out the detailed design of any temporary *works* including
  + a method for safely moving materials from the roadside to the river embankment
  + a method for safely gaining access to the bridge abutment to install the array of 9 sensors. A suggested method of scaffolding has been posed in the design but other options should be explored.
  + a method for safely accessing the bridge parapet to install the high level sensor and ductwork.

**S104 Design submission procedures and acceptance criteria ECSC 20.2**

The *contractor* will submit their designs to the *Client*.

The *contractors* design must meet the Environment Agency’s Minimum Technical Requirements

**S105 Design Approvals for others**

The *contractor* will be required to apply to the local council for any traffic management required on the highways.

The *contractor* will be required to submit their Temporary Works design to Network Rail for final sign off before any in river *works* are allowed to take place. This will be communicated through the Environment Agency’s Liaison Officer.

**S200 Drawings**

The *Client* has provided their preferred option through the provision of an outline design in Appendix A.

* NIV-4320-42060924 - A Section View Cowley Bridge Layout
* NIV-4321-42060924 - A Sensor Rack Cowley Bridge Layout
* NIV-4322-42060924 - A Front View Layout Cowley Bridge La
* 5945CB100D – Existing Site Plan
* 5945CB101D – Proposed Site Plan
* 5945SL50A – Site Location Plan
* 5945CB102E – Sections and Details
* 5945AB101 A – Proposed indicative in river Scaffold Design

**S300 Specifications**

**S301 Specifications**

LIT 13258 – Minimum Technical Requirements

LIT 16559 – Safety, Health, Environment and Wellbeing Code of Practice

Framework Deed of Agreement Section 6 – Lot 1 Specification

Environment Agency Blockage Management Guide (Gov.uk)

**S302 Tests and inspections, ECSC 40.1, ECSC 60.1(5)**

The stability of the bridge parapet cap stone is to be assessed before the installation of the parapet sensor and any strengthening requirements agreed with the *Client*.

**S307 Final Clean**

On completion clear all debris from working area, highway, verge and bridge and remove arisings to tip. Leave site clean and tidy.

**S308 Security**

Site security and preventing unauthorised persons entering the site area is of paramount importance. To achieve this, the *Client* expects the minimum standard of security to include the following:

• Access to the main *site* is via the existing access gate off Langford Road.

• *Site* boundary will be locked and secured after each working day and weekends.

• Appropriate *site* fencing to prevent unauthorised access in compliance with 677\_15 Safety Health Environment and Wellbeing Code of Practice (SHEW COP) Section 4.6

**S309 Correcting Defects**

Defects will be reported to the *contractor* at any point with the 12 months defects liability period. The *contractor* is to liaise with the *Client* to arrange access to rectify the defect within 4 weeks of notification.

**S310 Deleterious and hazardous materials**

Any Deleterious and Hazardous Materials that are to be used are to be notified to and approved by the *Client*.

**S400 General Constraints**

The *site* is not to be used for any other purpose than the completion of the *works* detailed within.

The access date for this *site* is to be confirmed at contract award after the *contractor* provides a detailed programme.

Existing access to the *Site* is via a narrow access pedestrian gate and steep narrow steel staircase. The *site* is accessed from a pedestrian gate beside Langford Road, the gate is close to road junction of Langford Road and the A377. The vertical curve of Langford Road over New Bridge limits visibility of the site entrance and oncoming traffic, the bridge can be seen in the distance of the photo below, the *site* access is the Huntsman gate in the timber post and rail fence on the right-hand side of the photo. The *contractor* will be required to arrange closure of one lane of Langford Road to facilitate the *works*. Submit tender stage method statement confirming proposals for access, parking arrangements, and construction activities, following a tender stage inspection to ascertain *site* conditions. Work is required in the River Creedy at the base of and under New Bridge, the following photos are included to provide *site* perspective:

The Employer’s Estates team will identify landowners and carry out landowner negotiations

Design of *works* and access should take into consideration the presence of protected species as below.

* An Environment Agency Ecologist will be required to carry out a nesting bird check of the riverbank and cable route within 1 week of the *works* starting (and in advance of the scaffolding being put in place).
* The potential of otters in the area.

**S405 Protection of existing structures and services**

The *contractor* is to provide a load-spreading trackway to be placed along the level areas between the bottom of the steps and as close to bank top as safely possible. (To prevent compaction – the ground is quite soft – and to protect ground flora).

**S408 Traffic Management**

The *contractor* is to allow for completing necessary paperwork to apply for a temporary and partial road closure over New Bridge. It will be necessary to close one lane of the carriageway to execute the *works.*

The road closure will be required for the following activities:

1. Loading and unloading of scaffolding at the *site*.

2. Installation of high-level sensor and associated wiring/conduit installation.

In addition to the above the *contractor* may consider it necessary to extend the partial road closure to allow use of the carriageway as siting for a welfare unit. This is to be agreed with the *Client* before the application is submitted.

Make an application to Devon County Council for a partial road closure under the Road Traffic Regulation Act 1984, include all costs associated with traffic management provisions necessary for the *works*.

**S409 Conditions Survey**

The *contractor* is to conduct a condition survey of the site. Any damage to the fencing, staircase, ground or flora is to be remedied before final handover to the *client*.

**S422 Sharing the Working Areas with others**

NIVUS Ltd are to be a sub-contractor managed by the Principal Contractor and will require access to the *site* for the installation and commissioning of the sensors. RAMS will be submitted to the Principal Contractor for approval.

The *Contractor* will be responsible for providing *site* inductions and overseeing the safety of NIVUS staff whilst on *site*.

**S424 and S425 Health and Safety Requirements and Method Statements**

The *Contractor* shall not commence any work on any of the *sites* until the *Client*, or their representative, has accepted the site specific method statements and risk assessments related to this contract

The *Contractor* is to prepare, for the *Client’s* acceptance, the Construction Phase Plan (CPP) and update the environmental plan prior to starting any construction work on any of the *sites*

**S426 Legal Requirements**

The *contractor* is to conduct the Principal Contractor role under the CDM Regulations 2015

**S428 Pre-Construction Information (UK specific, CDM Regulations 2015)**

The following sections of the Pre-Construction Information are to be considered as part of this Scope

* Section 2
* Section 4
* Section 5

**S500 Programme**

The in river works are able to start on the 16th of June are to be completed by 30th of September. Under an FRA6 exemption, which is to be applied for by the *Contractor* on Contract award, the in-river works are to be completed within 4 weeks. If this is not possible under the contractor’s programme. The *contractor* shall apply for a FRAP a minimum of 8 weeks in advance of *works* commencing.

The *Contractor* shall submit a programme with the Contractor’s Offer for acceptance. In the form of a Gantt chart, the *Contractor* shows on their overarching programme the following:

* Contract start
* Fabrication timescales
* Period required for mobilisation/ planning & post contract award
* Starting date
* Each of the activities listed within the Price List and respective duration
* Any key third party interfaces: lead in periods for materials and sub-Contractors; time required to obtain consents/waste permits; stated constraints; Contractor’s risks.
* The critical path
* The completion date (contract completion)

NOTE

The *Contractors* programme is to be reviewed and updated where required upon contract award, then further updated bi-weekly and provided to the *Client*.

For programming purposes the *Contractor* should allow a minimum 10 days for any *Client* / Principal Designer review.

**S600 Services and others things provided by the Client**

**S601 – Utilities Searches**

Services search results to inform CPP is to be provided upon contract award

NOTE

an updated services check will be provided 4 weeks prior to site mobilisation to inform the Contractor CPP

NOTE

the above services information does not remove the Principal Contractor or *Contractor’s* requirement to carry out safe working practices in relation to overhead and underground services.

**SSP 300 Site Information**

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| **SECTION** | **SCOPE** |
| SI100 | Site location |
| SI200 | Reports and surveys |
| SI300 | Public Information |
| SI400 | Buried pipes, services and other objects |
| SI500 | Buildings, structures and other things adjacent to the site |
| SI600 | Health and safety information |

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| --- | --- |
| Checklist | Description of possible content |
| SI100 Site location | |
| SI105 Site location | East of Langford Road and Newbridge Hill Junction, Exeter, Devon EX5 5AF.  NGR: SX 90054 96743 |
| SI200 Reports and surveys | |
| SI205 Report and surveys | Topographic Survey Report and drawings   * APLS-0975 Cowley Bridge GS Survey Report * APLS-0975 Cowley Gauging Station-APLS-0975-001 * APLS-0975 Cowley Gauging Station-APLS-0975-002 * APLS-0975 Cowley Gauging Station-APLS-0975-003 |
| SI300 Public Information | |
| SI305 Public information | No further public information is held by the Client that hasn’t already been provided. |
| SI400 Buried pipes, services and other objects | |
| SI405 Buried pipes, services or other objects | Utility searches will be performed upon contract award. |
| SI500 Buildings, structures and other things adjacent to the site | |
| SI505 Buildings, structures and other things adjacent to the site |  |
| SI600 Health and safety information | |
| SI605 Pre-Construction Information (UK specific, CDM regulations 2015) | The following sections of the Pre-Construction Information are deemed to be Site Information   * Section 1 * Section 3 |