Method Statement

Method Statement Title: **Construction of Discharge Chamber**		Scheme Title: Cardigan (Lower Town) SPS Upgrade		
		RA/MS Number:- xxxx		
		Start Date: September 2020		
Prepared by: Sarah Eynon	Job title: Site Agent	Company: Morgan Sindall	Signed: 	Date 04/05/20
Checked by: Kevin James	Job title: Project Manager	Company: Morgan Sindall	Signed: 	Date: 04/0420
Issued by: Alyssa Morgan	Job title: Document Controller	Issue: Revision 0	Status For construction	Issue Date:
Review Process: (This method statement accepted as current working document)	Name (Print)	Signed:	Status	1st Review Date:
	Name (Print)	Signed:	Status	2nd Review Date:
Issued to:	Job title:	Please acknowledge receipt of your copy of this MS by signing and returning the transmittal note.		Transmittal date:

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Control sheet:

Risk Assessment / Method statement – Tracking Sheet

Name	Job title	Signature	Status	Comments
Kevin James	Project Manager			
Mike Sellers	SHE Manager			

Review process

No	Prompt List	Yes	No	In Part	N/A
1.	Unique project specific number and title identified for the document?	✓			
2.	Does the method statement / risk assessment include suitable arrangements if sub-contractors are involved?	✓			
3.	Authorisation and distribution personnel identified?	✓			
4.	Brief overview including location and duration of the works described?	✓			
5.	Specific Risk Assessment † attached and satisfactory? Are all the hazards/environmental impacts identified? Have all the risks been evaluated and controls identified?	✓			
6.	High risk/safety critical / COSHH activities identified / controls specified? (Controls e.g. – Statutory permits/ licences, Security, Testing / commissioning / special training)	✓			
7.	Scope of works identifying / listing all activities? Philosophy identified? Are all parameters identified / listed?	✓			
8.	Temporary Works schemes identified? Philosophy identified? Temporary work drawings listed including relevant calculations? Permits required? Interfaces identified?	✓			
9.	Names / titles / contact details of key personnel / supervisors responsible?	✓			
10.	Resources identified e.g. personnel, supervision, equipment, plant, materials? Craneage – lifting plan in place? Lifting equipment – plan / certificates in place? Access / scaffolding requirements clearly set out?	✓			
11.	Induction / training / permit requirements identified? Permit issue authorisation regime identified? Daily briefing and toolbox talk regime identified?	✓			
12.	General site requirements identifying access / egress / traffic measures? Details of services / works isolation? PPE / evacuation requirements identified? Welfare / first aid facilities identified?	✓			
13.	Monitoring & compliance Monitoring by whom Enforcement – how by whom- equipment (meters / sampling)	✓			
14.	Interfaces / security of the client / public / other contractors identified?	✓			
15.	Environmental controls / Waste Controller / ECCoP identified?	✓			

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16.	QC monitoring and inspection / testing regime identified? I&T Plans refs	✓			
17.	Contingency plan e.g. emergency / fire / rescue / spill response identified?	✓			
18.	Any special conditions identified e.g.	✓			
19.	Management of Change – process in place to identify change requirements	✓			
20.	Review date as required	✓			
21.	Approvals statement incorporated?	✓			
22.	Confirmation of Operatives briefing / Operatives induction sheet incorporated?	✓			
23.	Any other (specify)?				

† Any Risk Assessment shall be amended / confirmed as site specific.
* Status
- A Work can proceed as described
- B Work can proceed when comments are incorporated
- C Resubmit and agree before work can proceed

Comments

Note
Clearance to proceed with this Method Statement does not relieve the Subcontractor of their contractual obligations, including safety, structural integrity or any implications to permanent works arising from these proposals.

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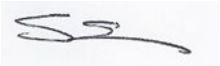
Scheme Title	**Cardigan (Lower Town) SPS**
Contractor	**Morgan Sindall**

This method statement has been developed further to the completion of the following references risk assessments:

Risk Assessment Number	Title
Included in RAMS	**Upgrading of Existing Access Track**

Section 1 – General Details

Scope of Works:
The purpose of this method statement is to detail the sequence and methodology for the works involved in the construction of the discharge chamber for the Cardigan SPS outfall pipe. Works involve: • Working adjacent to Afon Teifi with tidal working hours • Excavation for new chamber and headwall • Placement of Outfall Pipe • Construction of new chamber and headwall • Placement of rock mattresses • Backfill of area

Prepared by:	Sarah Eynon		
Position held:	Site Agent		
Signed:		**Date:**	04/05/20
Review date:	04/05/21		

Work Supervisor(s);	Sarah Eynon (Site Agent)
Refer to Method Statement Tracking and Content Sheet	

Section 2 – Programme of Operations

Start date / time:	September 2020
Preceding Works to be Completed:	Site clearance to area of new structure
Duration:	6 weeks
Permit required:	

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Permit to Work (General)	☐	**Permit to Enter (Confined Spaces)**	☒	**Permit to Dig**	☒
Hot Work Permit	☒	**Out of Hours Work Permit**	☐	**Other (specify)Permit to Lift, AF01 and TAC part 1 and part 2**	☒
All required Permits will be issued by the Morgan Sindall designated person prior to the works commencing.					

Section 3 – Personnel

Include details of all personnel involved in the task and any special training, skills or qualifications required

The designated site personnel will have experience in the activities that they will be undertaking that are covered by this method statement and risk assessment.

Name	Role	Competence Details
Sarah Eynon	Site Agent	CSCS – Civil Engineering Site Manager, Appointed Person Lifting Operations, Mines Rescue Confined Space Trained. NRSWA Supervisor. SMSTS, First Aid At Work, Temporary Works Co-ordinator
TBC	Senior Engineer	CSCS – Civil Engineering Site Manager, NRSWA Supervisor. SMSTS, First Aid At Work, Temporary Works Co-ordinator
TBC	Senior General Foreman	CSCS Supervisor, SMSTS Crane Supervisor. First Aid At Work. Mines Rescue Confined Space Trained. NRSWA Supervisor

Section 4 – Safe System of Work to be adopted

4.0 Introduction

4.0.1 This method statement (MS) outlines initial proposals for this activity. Where it is identified that there is a need to change the method of work due to unforeseen circumstances for example, then revision, authorisation and issue will follow the same procedure as the original. This method statement is only valid when the person who has prepared it and the person who has authorised it have signed the front sheet accordingly.

4.0.2 Task Statements (TS) will be developed for specific tasks required to carry out the works, as and when required. The MS and TS should be read in conjunction with the site specific plan and the construction programme. The MS and TS are “live” documents and will be updated as required, with newly identified risks.

4.0.3 The Responsible Person must be in possession of an approved method statement and task statement for the works. The Agent and Foreman / Supervisor shall ensure that the works proceed according to this approved method statement and subsequently developed task statements.

4.1 Risk Assessment

4.1.1 Template displayed in Appendix A.

4.2 Induction / Training

4.2.1 All site personnel will be familiarised with the site and made aware of any hazards, by way of a site specific induction.

4.2.2 All operatives working on the tasks described in this method statement, risk assessment and any associated task statement must be briefed on its contents. Operatives must sign the attached briefing attendance sheet to confirm that they have been briefed and understood the contents.

4.2.3 Daily briefings shall be given to the operatives prior to work commencing. Tool Box talks will be planned monthly and given to all operatives on a weekly basis. The Morgan Sindall designated person must be in possession of an approved MS and TS before issuing any permits. All operatives must be briefed on the requirements of the permit before work commences.

4.3 General Site Requirements

4.3.1 Access and Egress

The main welfare compound is situated within the existing Cardigan(Lower Town) SPS or suitable location. Access to the works and welfare compound will be via Morgan's street.

The discharge chamber is to be constructed adjacent to the Afon Teifi next to the Cardigan Bathroom Centre, off the Strand.

The existing pedestrian footpath will be diverted away from the working area. A temporary access will be created within the existing fence line to allow items of plant to access the working area. Traffic management in the form of one way traffic and single carrageway.

The site working hours will be between 07:30 and 17:30 Monday to Friday, however when works to the discharge chamber are underway exact working hours will be dictated by tide times although they will be within these hours.

No weekend work is envisaged but where it is required it will be approved and authorised by the Morgan Sindall Supervisor.

4.3.2 Safety of Services

With reference to the stats drawings and trial hole information, all known services will be sprayed on the ground. A cat scan will be carried out and a permit to excavate issued prior to carrying out excavations on site. Excavations carried out within 500mm of known services will be carried out by hand.

Overhead services will be protected by signage and goal posts where appropriate. Underground services will be clearly marked by using service drawings and a service locator device, and will be protected accordingly if required. A permit to excavate will be issued for all excavations prior to commencement of excavating.

No excavations can commence before a permit to dig has been issued.

No lifting operations can take place before a permit to lift has been issued.

4.3.3 Safety Works or Isolation Measures

Permits of isolation will be required before certain elements of works can take place. These operations will be covered by separate task statements and in conjunction with DCWW management.

There are no additional safety works or isolation methods within the scope of work outlined within this MS/RA other than those described. A task Statement will be produced to cover any such works if they arise.

4.3.4 **Site office, welfare and first aid facilities**

Full welfare facilities will be available within the site compound. These will include an open plan 32ft office and meeting room, 32ft canteen, 32ft drying room 2 plus 1 toilet block, and several 10ft stores. For further details please refer to the site specific plan.

4.4 Interface Issues

- *The following measures will be implemented to protect the Workers and Public:-*
- Meetings have been held with Welsh Water operations and a traffic/pedestrian plan has been agreed to ensure segregation for plant and personal during the works.
- An approved traffic management plan will be in place and accepted by Ceredigion council.
- Close liaison will be made with local residents and businesses before and during the works.
- A photographic pre-condition survey will be undertaken of the existing area and surrounding buildings.
- The working area is adjacent to the Afon Teifi, close liaison will be made with landowners and NRW (Natural Resources Wales) with a marine license in place prior to works starting.
- The following biosecurity measures will be implemented to help protect the local ecology during the works.
    1. All plant, machinery and equipment used in the works must be power washed prior to and following their use on site to remove all sediment and organic matter with particular emphasis on tyres, tracks and wheel arches.
    2. All plant will use bio-degradable oil.
    3. Thoroughly wash all external clothing and clean footwear and all equipment, tools etc used in the construction and associated works and allow time to dry. All sediment and organic matter must be removed
- Site working areas will be fenced off using heras style panels to ensure no unauthorised persons enter the area. The working area is subject to tidal inflows and as such tide times and heights will be closely monitored to ensure the safety of operatives and plant at all times.

4.5 Methodology

If any of the methodology or construction sequence detail below should change, STOP works immediately, make safe and report to the site supervision.

Preliminary Instructions

- Prior to any excavation work being undertaken a full CAT and Genny survey utilising the supplied STAT plans will be undertaken to identify any services located in the area and then a permit to excavate will be issued and authorised by the appropriate persons prior to any excavation. If required trial holes will be undertaken to find the location of any services.
- Main lifting on the project will primarily be undertaken by the on-site excavator. A valid lift plan will be compiled and completed by an authorised CPCS appointed person complete with a schedule of lifts. All slinging of equipment will be undertaken by a CPCS certified slinger/signaller. The excavator driver must also hold a valid CPCS card and be competent in the proposed works to be undertaken. All lifting chains and equipment will have current test certificates and shall display the current colour coded lifting tag. A copy of the test certificates will be held in the site file.

- Plant shall be taken to the working area via the temporary access and large items such as dumpers and excavators will remain within the traffic management on the Strand when not in use.
- A Delivery Lifting Plan & Lorry Loader Checking Form must be completed prior to any delivery offloading on site and the supplier must also have a safe system of work for off-loading.
- Prior to any construction work being undertaken a level survey will be required of the existing assets/manholes to confirm that the levels proposed are accurate and true of the design.
- At the end of every shift all loose materials and tools will be removed from the tidal area to prevent washing out into the estuary and the working area left secured. All plant will be removed to the main site compound.

4.5.1 Excavation for discharge chamber and headwall

- Construction of the discharge chamber will be carried out at low tide periods. Morgan Sindall will excavate a temporary working platform from which to carry out all excavation works adjacent to the area where the chamber is to be built. Plant will access the working area through an opening in traffic management placed on the Strand. The existing pedestrian footpath on the Afon Teifi side of the road will temporarily be diverted throughout the duration of the works to the opposite side of the carriageway.
- The existing stone wall will be demolished by hand the and the stones removed to the main site compound for later re-use upon reinstatement.
- A full CAT scan survey utilising the STAT drawings will be undertaken in the vicinity of the works and services will be marked on the surface.
- A permit to break ground will then be signed and issued for the specified excavation area. All operatives involved in this operation will be briefed on the known location of any services in the area.
- In the area marked out a sand bag bund will be created by lifting in several jumbo bags to form a perimeter bund adjacent to the water's edge. The bund will not encroach on the existing water course. These bags and infill materials will be cleaned and washed prior to use. The bags will stay in place until the works are complete.
- Where required edge protection will be formed by driving scaffold tubes into the ground using the excavator and then attaching guard rails at the appropriate levels.
- Whilst the chamber and associated works are being constructed an oil absorbent boom and silt curtain will sit within the bund to minimise the risk of pollution from the construction activities.
- Groundwater from within the excavation if encountered it will be pumped via a settlement tank into an adjacent sewer in agreement with DCWW or if suitable back into the water course.
- Surface water run-off from the excavated area is not expected as the works will take place during dry weather were possible, if encountered the surface water will be channelled into the sump area where it will be pumped via a settlement tank, to the existing surface water gullies.
- To minimise the potential for surface water run-off, the working corridor will be kept to an absolute minimum.
- The excavation for the pre-cast headwall and discharge chamber will begin; working to the levels as set out by the engineer.
- The spoil will be loaded into a dumper positioned behind the excavator, the dumper will then take the spoil to the main compound so that it can be bunded appropriately to be re-used for reinstatement or surplus removed from site.
- In front of the toe of the headwall, the ground will be excavated a further 250mm and soft ground removed. Pre-filled rock mattresses will be placed by the excavator.
- Once excavation has reached formation level a bed of lean mix marine concrete C20 will be laid to provide a level foundation. The concrete will be delivered to the main compound and transferred to the worksite by the 6t swivel dumper.

- Once the formation is complete, the toe of the precast headwall will be lifted into place using the 21t excavator as per the site lift plan.
- Once the head wall toe is in position, the pre-cast base and vertical components will be placed using the excavator.
- After the head wall has been constructed the new twin 600mm outfall pipes will be placed by Morgan Sindall operatives, being lifted into position by the excavator under the guidance of a slinger/signaller. The pipes will be connected to the headwall. Marine grade timber shuttering shall be used to create the required profile to cast the pipe into the headwall and provide suitable concrete surround to the pipes. The shuttering will be secured into the concrete blinding using resin anchors to prevent movement or flotation from the tide. Sandbags may be used to seal the bottom of the shutters.
- Marine grade concrete will be used to surround the pipe and shall be delivered to site in concrete skips using dumpers from the main compound. The excavator shall than lift the skip to carry out the pour with compaction by a vibrating poker. Finishing of the concrete shall be carried out using hand tools such as steel floats. All equipment will be washed at the main compound.

4.5.2 **Construction of discharge chamber**

- Excavation procedures will be as outlined in section 4.5.1. Where required temporary works will be installed according to the approved temporary works design. Operatives carrying out the installation of the temporary work will be competent an abide by instructions given to them by the temporary works supervisor.
- The excavation is circa 1.8m deep from existing ground level at the existing footpath. It is intended to use a proprietary manhole support box for the chamber excavation which shall be lifted using the excavator. Access into the excavation will be from a suitably restrained ladder. Barriers and/or scaffold system will be provided around the top perimeter of the excavation to prevent anyone or any plant from falling into the dig.
- Temporary works equipment, aggregate, plant and materials will be lowered into the excavation by use of the excavator under the guidance of a slinger/signaller.
- Once the formation level for the chamber has been reached an initial 100mm blinding layer will be placed followed by a 300mm reinforced concrete base. Concrete will be either placed by machine bucket or concrete skip and vibrated using a suitable poker. Operatives placing concrete will wear the appropriate and mandatory PPE and be made aware of the hazards of working with concrete.
- The incoming 600m ductile iron pipe and bell mouth will be pre-assembled above ground in the working area. Once fully assembled it will be lowered into the excavation by the excavator and set to levels by the site engineer on the concrete base. Following a sufficient curing period, the shutters shall be stripped and the site engineer will inspect the post pour finish o the concrete.
- The first concrete pre-cast chamber ring which would have been pre-cut to sit over the chamber pipework shall then be placed using the excavator. Once all pipework is completed and set it its final position, carpenters shall erect timber shutters around the pipework to cast the pipes into the pre-cast rings Upon a satisfactory inspection, the concrete shall be placed to the cast ins and the site engineer shall record the relevant checks have been made by completing the appropriate QA form. Concrete shall be placed using the excavator and/or concrete skip.
- Concrete shall be used initially for the majority of the benching and shall have a granolithic screed of 20mm minimum thickness applied by hand to the surface. All materials shall be lowered into the structure carelly by the excavator under the guidance of a slinger/signaller. The granolithic topping will be mixed on site and will be lowered into the chamber by a suitably tied bucket. In any case where materials are being lowered into any excavation/chamber, operatives are to remain outside of the chamber/excavation whilst items are big lowered.
- All benching works with the manhole will now be completed to avoid the need to work in a confined space at a later date.
- On completion of the benching, the remaining pre-cast rings and pre-cast cover slab with a pre-fitted sealed cover will be placed to complete the manhole. A 150mm concrete surround will then be added to surround the chamber and create using a propriety shutter

erected around the shaft. Concrete shall then be poured within the shutter to create a concrete wrap. The concrete will be compacted by means of a vibrating poker.

- Following a curing period, the manhole shroud can be stripped and backfilling will commence alongside the removal of temporary works. The removal of the temporary works will be in accordance with the approved temporary works design.

4.5.3 **Reinstatement Works**

- Following the installation of the pipework and construction of the chamber. Morgan Sindall carpenters will form shutters behind the pre-cast headwall to the existing embankment that will be secured to the existing bedrock using mechanical anchors and resin fixings to prevent flotation. The excavator will then be used to pour benching to the shutter which will form a 45-degree shaped backfill. The concrete will be compacted by operatives using a poker.
- Following a sufficient curing period the timber shutters will be stripped and removed from the area.
- Morgan Sindall operatives will place a Bionet erosion control blanket over the concrete backfill and secure into position with resin anchors.
- Morgan Sindall carpenters will also form steps out of marine grade timber from the existing footpath to the top of the new discharge chamber and form an anchorage slab over the top of the outfall pipeline. Both areas will have concrete poured to them using the excavator and compacted using pokers.
- The existing stone wall will be reinstated using the stone originally removed at the enabling works stage.
- Specific reinstatement requirements will all be in agreement with NRW, Ceredigion council and landowners. All materials and tools will be removed from the area and the area left safe, neat and tidy. The traffic management on the strand will be removed and the pedestrian reopened.

4.6 Environmental Controls

4.6.1 Environmental controls will be those described in the Site-Specific Plan/ Site Specific Induction.

Regular weather checks shall be carried out to ensure conditions are favourable for working on the foreshore

All plant will be inspected for leaks prior to accessing the foreshore to help prevent any pollution incidents

All refuelling of plant will be carried out away from all watercourses. All fuels and chemicals will be kept to minimum on site and secured in either bunded bowsers or on suitable drip trays. COSHH will be kept in a lockable store.

A micro silica marine grade concrete shall be used to help prevent alkaline leachate and provide increased scour and washout protection. A specific concrete wash out location will be created on site for the cleaning of plant and delivery lorries to prevent contamination of the ground.

4.6.2 In the event of a spill on site no matter how minor, site personnel must firstly find the source of the spill and **Stop** it, then **Contain** it by using the equipment available in the Spill Response Kit. Then **Notify** the Agent, Foreman or Engineer of the details of the incident.

4.6.3 Pre and during environmental assessments will be undertaken by a qualified ecologist to the affected area to ensure there is no adverse impact.

4.7 Contingency Plans

4.7.1 In the event of injury to an operative, if safe to do so they shall be moved to safe place off the foreshore by assistance from other employees. Or with assistance of a stretcher that will be available on site. Where it is not safe to move an injured employee and there is time before the tide rises, the emergency services shall be summoned by calling 999.

In the event of an emergency on the foreshore, the coast guard must be called by telephoning 999.

4.7.2 First Aid kits are available in the Site cabins and are also kept by appointed First Aiders.

4.7.3 Damage to any statutory undertakers apparatus should be notified to relevant people using the following contact numbers:-

Statutory Undertaker	Additional Info.	Number
BT	Emergency & Dial before you dig	0800 9173993
WPD	Emergency	0800 052 0400
Wales and West Utilities	Emergency	0800 111 999
DCWW Pollution Helpline	Sewerage	08000 853968
DCWW Control Room	General Enquiries	08000 520130

Section 5 – Plant, Equipment

Match plant and equipment to qualified personnel and include any specific PPE details.

All plant will have bio degradable oil.

The following plant and equipment will be used at various times during this operation:-

Plant, equipment and lifting equipment will only be used by operators who are authorised, trained and have CPCS certification. The operator must inspect all plant and equipment before use and if any damage is found, then it shall be removed from service and the Foreman / Supervisor must be informed.

Plant and Equipment

Equipment description	Test Certificates in date (matched to equipment)	Operator details
Various sized 360 tracked Excavators		
6t Dumper		
Lifting Equipment Tagged and Tested		
Electric/Petrol Disc Cutter		
Cat and Genny		
BoMag 120 Roller		
Small Tools		

Personal Protective Equipment (PPE)

Equipment description	Specification (e.g. type, grade)	Training required
Fluorescent jackets or waistcoats	*(to BS EN 471 Class 2) (Class 3 on high speed roads))*	

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Safety glasses or goggles	*(to BS EN 166-F for general site work)*	
Safety helmets	*(to BS EN3 97)*	
Steel toe capped boots with steel midsole		
Gloves (appropriate for task)		

Receipt Acknowledgements

Supervisor in charge of the Work

I confirm that I have read and understand the requirements of this method statement and associated risk assessments and will ensure their communication to operatives under my control and to those who may be affected by its requirements

Signed		**Date**	
Print name		**Supervisor**	

Communication

Communicate the contents of the Method Statement to all those involved or affected by the works and record their details below.

The following personnel have been inducted in the procedures required to carry out the operations detailed in this Method Statement.

Note: please complete the original MS attendance sheet [copy to be kept in the on-site file original to be returned to Document Control]. Copies of the original MS are to be distributed to the MS holders.

Note to Contractor: whenever the method of work changes you must seek agreement from MORGAN SINDALL before proceeding. Remember to instruct all new starters and get them to sign below.

Name	Job Description	Signature	Date	Employer	Inductor

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NOTE:

1. If you have any doubt about any information given or contained in this Method Statement – ASK FOR CLARIFICATION.

MORGAN SINDALL

Safety, Health and Environment Risk Assessment

Project title and contract no.	Cardigan (Lower town)	**Risk assessment no.**	01
Activity	Construction of discharge chamber	**Location**	Cardigan
Person conducting assessment	Sarah Eynon	**Date**	04/05/20
Person supervising work	Sarah Eynon	**Date**	04/05/20

Persons exposed							
Employees	x	**Other workers**	x	**Public/ visitors**	x	**Young persons**	
New / expectant mothers				**Disabled**		**Others**	
Estimated total number of persons at risk				10			

	Hazards (what might cause harm?)	**S**	**H**	**E**			**S**	**H**	**E**
1	Adverse Weather Conditions	√		√	**17**	Loading/Unloading	√	√	
2	Cold	√	√		**18**	Materials	√	√	√
3	Electricity	√	√		**19**	Moving Parts of Machinery	√	√	
4	Excavation	√			**20**	Proximity to Water	√	√	√
5	Fire/Flammable Atmosphere	√	√		**21**	Scaffold	√	√	
6	Floor/Ground Conditions	√	√		**22**	Sharp Objects	√	√	
7	Flying Particle/Dust	√	√		**23**	Stairs/Steps	√	√	
8	Hand or Power Tool	√	√		**24**	Static Equipment/Machinery			
9	Hazardous Substance	√	√	√	**25**	Structure	√	√	
10	Heat/Hot Work	√			**26**	Temporary Works	√	√	√
11	Lack of Experience	√	√		**27**	Vehicle/Mobile Equipment	√	√	
12	Lack of Training	√	√		**28**	Working Hours/Fatigue	√	√	
13	Lack of/too much Oxygen	√	√	√	**29**	Workstation Design			
14	Access	√	√		**30**	Work at Height	√	√	
15	Lifting Equipment Appliances	√	√		**31**	Other			
16	Lighting	√	√						

Risk Factor

Risk Quantity	No injury, damage or environment impact	Minor injury, damage or environment impact	Major injury, damage or environment impact	Fatality, building loss, catastrophic environment impact
Almost no probability	A	A	A	U
A small probability	A	A	U	U
A small probability	A	U	U	U
Almost certain	A	U	U	U
	Acceptable		Unacceptable	

Risk Level	**Action**
Insignificant	No action required and no documentary records need to be kept.
Acceptable	No further preventative action. Consideration shall be given to more cost effective solutions or improvements that impose no additional cost burden. Monitoring required to ensure that controls in place are properly maintained.
Unacceptable	Work shall not be started or continued until the risk level has been reduced to an acceptable risk level. While the control measures selected shall be cost-effective, legally there is an absolute duty to reduce the risk, this means that if it is not possible to reduce the risk even with unlimited resources, then the work shall not be started or shall remain prohibited.

Notes:

1. Physical Hazards are the nature of issues that may cause harm. Tick box for hazard.
2. Preventative / Control Measures are the actions that will stop it going wrong.
3. Control measures are to ensure that residual risks are reduced to a minimum. Where controls fail to reduce the risk to an acceptable level then refer assessment to your line manager.
4. If the operations are likely to affect the public or the safe operation of a public infrastructure or transport system, the control measures must reduce the likelihood of significant harm to the level that existed before our work commenced.
5. Where young persons or expectant mothers are involved in the activity, ensure that any additional controls are put in place in accordance with local procedures.
6. In addition to the above, consideration must be given to other individuals' susceptibility due to pre-existing health conditions, e.g. bad back, poor hearing. Additional 'human factors' such as ergonomics, workplace design, etc. should also be considered.

	7. Where a hazard is identified that is not listed in the Physical Hazards list, enter the hazard description followed by other in brackets i.e. (Other).

Hazard no. (from page 1)	Nature of risk (What might go wrong?)	Risk before controls U / A	Control measures (How do you stop it going wrong?)	Control measure implemented by (name)	Risk after controls U / A
4, 20	**Working near water** Drowning due to working in tidal area	U	• Works to be carried out at low tide. • Tide times to be monitored to ensure work area cleared ahead of incoming tide. • Weather forecast to be monitored. • Rescue stretcher on site for excavating injured personnel. • Life buoy to be kept at working rea	Site Supervisors/ Operatives	A
4, 20, 23	**Working on construction sites** • Slips, trips, fall. • Sprains, strains, broken limbs.	U	• Ensure good housekeeping of working areas. • All personnel to have received a specific project and site induction. • Suitable edge protection. • Signage as necessary. • Seal and close chambers when work not being carried out.	Site Supervisors/ Operatives	A
17, 19, 27	**Working with construction plant** • Noise and vibration • Ear damage • Environmental impact i.e. nuisance noise and damage to properties from vibration • Dust/debris blown into eyes, off cuts of tying wire flying into eyes. • Catching hands on sharp or rough surfaces. • Injuries to eyes, possible blindness. Cuts, lacerations to hands and fingers.	U	• Ensure all plant has noise reduction measures in place and working correctly i.e. baffles acoustic jackets. • PPM scheme to ensure plant working correctly. • Correct PPE issue and training. • CPCS trained plant operatives. (or similar approved) • Switch off all plant when not in use. • Vibration and noise monitoring during certain operations. • Pre-condition surveys carried out on surrounding properties.	Site Supervisors/ Operatives	A

			• Flashing beacons on all plant. • Plant equipment to hold all up to date tests/certificates.		
11,12,17,1,8,19,27	**Trapped/crushed by overturning plant**	U	• Control of lifting operations permit and delivery wagon offloading form. • All plant access routes to be inspected for suitability of use and maintained regularly. • Competent banks man to control plant movements. • Clear signals between banks man and plant operator.	Site supervisors/operatives	A
11, 12, 14	**Interaction with public** • Non Morgan Sindall employees gaining access to the site causing injury to themselves. • Possible death or injury due to falling, tripping and other accidents due to ignorance of the danger on construction sites.	U	• Take all practicable measures to ensure that pedestrians cannot gain access to work areas during day or night. • Secure site with 2m high Heras panels. • Provide signs to highlight the dangers present. • Mobile Security cameras to be installed on the main site compound area. • Liaise and agree access requirements with DCWW for shared access to site. AF01 and TAC1/TAC2 to be completed ahead of works.	Operatives, Public	A
15,17,26,18	**Lifting operations**		• All lifts to be controlled by trained/competent slinger/signaller. • Lift plan to be completed by crane appointed person and plant certificates to be in place. • No personnel to stand under or near to suspended loads. • Operator's certification in place and up to date. • Use of suitable and sufficient in date lifting chains connected to correct lifting points. • Area to be kept clear of non-essential personnel, No loads to be swung over the head of personnel/pedestrians.	Appointed person, machine operator, slinger/signaller, Site Supervisors.	A

			• Ground to be checked for stability and out riggers to be fully deployed prior to lifting. • Test lift to be carried out. All lifts to be controlled by trained/competent slinger/signaller. • Lift plan to be completed by crane appointed person and plant certificates to be in place. • Loads not to be slewed over the heads of pedestrians and personnel. • No un-authorised access to the works area – only essential personnel. • All lifting accessories and equipment to have correct in date certification and be fit for purpose. All lifts to be controlled by trained/competent slinger/signaller. •		
11, 12, 18, 19, 28, 15	**Unloading of materials** • Operatives falling off the bed of delivery vehicles whilst assisting with the unloading of materials/plant resulting in serious injury/fatality.	U	• Delivery vehicles to be fitted with integral edge protection barriers. • Under no circumstances are operatives to access the bed of a lorry unless a safe system of work is in place and agreed by the site management. • Hiab offloading form to be completed and authorised.	Site Supervisors, Operatives.	A
11, 12, 18, 19, 28, 15	**Use of construction plant.** • Possible crushing of operatives and pedestrians	U	• All mobile plant must only be operated by suitably licensed and trained operators i.e. CPCS cards. • Operatives to wear high visibility clothing • Banks man to be appointed to supervise works • Segregated pedestrian and vehicle access.	Plant operator, site personnel, banks man. Site supervisors.	A
11, 12, 18, 19, 28, 15	**Collision with operatives and other plant.** • Working in restricted access areas	U	• All moving plant to be controlled by the nominated banks man • Flashing beacons on moving plant. • 5mph speed limit. • Traffic management in place for works	Plant operator, site personnel, banks man. Site supervisors.	A

1,6,7,9,18, 20	**Contact with sewage** • Weils disease • Waterborne pollutants and bacteria causing death or serious injury.	U	• PPE to include safety boots/wellingtons, hard hat, glasses, hi-viz, gloves, disposable overalls/oil skins, waders and face mask. • Maintain good personal hygiene practices • Avoid breathing in sewage dust or spray – dust mask/face masks should be worn • Clean contaminated equipment onsite, do not take contaminated equipment home for washing • Wash down areas with hose pipe prior to undertaking work and over pump into live section	All operatives, Supervisors	A
11,12, 14, 21,23,26,3 0	**Working at Height** • Falls into trenches/temporary works/leading edge/ working platforms resulting in broken limbs, paralysis and possible fatality.	U	• Personnel training in working at height. • Ensure working platforms have suitable hand rails. Provision of edge protection of minimum height 950mm at all times. Provision of fall restraint systems (as last resort under hierarchy of control). • Where possible avoid work at height e.g. fit covers to slabs before lifting. Suitable edge protection in place at all times, visual inspection of hand railing periodically. • Personnel to be attached to tripod winch and wearing harness whilst entering chambers. • Scaffold access doors to be closed when not in use and ladders removed from area. • No leading edges during excavation works. Excavations to be protected by use of suitable barriers.	Site Supervisors, Trained and Competent Scaffolder.	A
19,27, 11, 12	**Noise:** • Noise level too high and affecting hearing • Disturbance to residents	U	• Noise to be reduced by engineering means wherever practicable, e.g. use of noise reducing blades, purchasing of silenced equipment, maintenance of equipment to	Site Supervision	A

			manufacturers specification to avoid worsening noise, e.g. ensure rotating parts are checked for balance and replace if necessary. • Control of Noise at work regulations 2005 to apply • Where noise level is above the 1st action level, currently 80dB(A), hearing protection to be provided on request. • Where noise level is at or above the second action level, currently 85dB(A), appropriate PPE must be worn. • Operatives to be supplied and wear ear defenders to provide protection at 500-2000Hz frequency. Standard Noise Reduction (SNR) - 28-32dB - Approved to EN 352-2.		
7	**Use of Abrasive Wheels:** • Injury to user and other personnel from flying debris or incorrect use of wheel	U	• Use of goggles (to BS2092) • Wear mandatory PPE inclusive of ear defenders • Tool box talks • Ensure all necessary guards are in place • PPM scheme • Competent person only to change the blade ensuring speed match. • Do not use side of blade for any use • Ensure operatives have received abrasive wheel training.	Site Staff, Operatives	A
7	**Contact with flying particles**: • Injury from cutting/grinding operations	U	• Use dust suppression as required • Wear safety spectacles/goggles suitable for the task being carried out • Ensure the manufacturer's recommended/provided guards are present and set correctly on all tools	Site staff, operatives	A

			• Ensure a clear area around operation before commencing • Heat resistant clothing • Only trained/competent operatives to use equipment • When using disc cutters always cut away from other operatives and inform anybody in the immediate area that cutting will soon commence		
18	**Material Storage:** • Improper storage/stacking of materials which could overturn/topple resulting in serious injury/fatality to nearby site personnel.	U	• An designated storage area will be fenced off using pedestrian barriers • Good housekeeping must be maintained at all times. • Visual check on lifting points to ensure integrity • Materials to be stacked on firm level ground. • Sheet piles are not to be stacked above 500mm in height • Timbers are to be used to separate each stack of sheet piles. • Materials to be stored as per manufacturer's recommendations. • Earth and spoil to be battered as per engineers specifications.	Site Supervisors, Operatives	A
11, 12, 18, 19, 28, 15	**Use of Quick Hitch** • Risk of operatives being struck by a falling excavator bucket or attachment as a result of incorrect attachment or missing locking pins, resulting in death or major injury. • Bucket Failure/Falling whilst digging/grading causing death, major injury	U	• CPCS Trained and Certified machine drivers/Operatives. • Operatives are prohibited from working beneath excavators • Machine operators must be trained and deemed competent to operate the type of quick hitch system fitted to their machine. NB: Operators must demonstrate competence by a	Site Management, Operatives & Operators	A

	• Risk of serious injury to the excavator driver when changing attachments to the quick hitch mechanism. Incorrect attachment change not in accordance with operators manual resulting in death, major injury to persons within the operating area of the machine • Failure of Quick Hitch or Attachments due to incorrect fitting. • Failure of Quick Hitch or Attachments due to crowding.		change of bucket in the presence of Site Supervisors. • Semi-Automatic and Automatic Single locking Quick Hitches are banned on all Morgan Sindall Sites. Quick hitches must be either then Fully Automatic Double Locking or of the Manual type. • Machine operators must sign a declaration at induction to confirm that they have been trained in the use of the machine quick hitch (Quick Hitch Equipment Pre – Start Arrival Check Form) and that they have read and understood the operator's manual specific to that quick hitch. • In date certificate of thorough examination or certificate of conformity for all excavators. • Manufactures installation and operation manuals for all types of Quick Hitches must be kept within the excavator and not removed from the cab. • PPM's on all plant to include quick hitch checks. • Visual / physical inspection to be carried out on quick hitch system at the start of each shift or when attachment is changed to ensure the safety pin / latch or clamp connection is in place and secure. NB: Operators must physically get out of the cab to check this – Mandatory Instruction) • Manual quick hitch lever - to be inspected by driver after change of bucket without fail to ensure it is in its locked position. • Buckets and other attachments & "Shake Rattle Roll tests" shall be changed in a safe area away from operatives/third parties.		

			• "Shake, Rattle, Roll" test of the fitted attachment, or placing the bucket flat on the ground then trying to un-crowd the bucket so that the bucket tries to disengage from the QH. Test to be carried out when a bucket is changed and at the start of every shift. • Bucket to be removed prior to any lifting operation by the excavator • Any excessive movement of bucket connected via a quick hitch to be reported to site supervisor immediately for investigation of working mechanism of the quick hitch. • Any visual indication of hydraulic leak near to quick hitch mechanism to be reported immediately, stop work immediately and do not commence work until authorised to do so by site supervisor. • Special care to be taken when using quick hitch systems: • Manual: This requires the winding of a screw or the use of a bar to open a spring actuated latch. • Automatic: This is operated entirely from the cab of the excavator and usually has an independent locking system which functions automatically and does not rely on hydraulic pressure to hold the latch in the closed position. The operator must ensure the locking system has completed before proceeding with work. • Ensure that the correct size of excavator has been chosen to adequately carry out the task.		
4,11, 12, 14, 30	**Excavation works** • Poor ground conditions	U	• Use of suitable temporary works as detailed by the Temporary Works Designer.	TW co-ordinator, engineer,	A

	• Adverse weather conditions causing ground rotation • Ingress of ground water causing undermining • Crushing and /or burial of operatives at the work face. Possible ingress of plant and other operatives due to the surface effect. Usual effect of collapse is multiple fatalities. • Damage to properties due to poor ground conditions. • Striking buried services • Possible death by electric shock/ disconnection of services to surrounding properties/structures • Existing contaminated materials in the ground • Ingestion • Skin irritation • Falls into excavations. • Serious injury or death due to fall from height. • Falling onto sharp or awkward objects		• Regular inspection of temporary works and ground conditions • Arisings suitably stored away from excavations at least 45deg from depth • Excavation area to be isolated with fence and scaffold guardrails if required. • Stop works if ground conditions change and notify site staff • Pre-condition surveys of existing structures. • All excavations will be covered by a permit to excavate. • Prior to issue of the permit all service drawings are to be studied and a thorough C.A.T scan performed. • All services known and found to be marked on site. • Excavation to be carried out by hand when 500mm or less from a known service. • Trench dig to be supervised by a competent trained and experienced person • If unknown service is found, stop and report it to the site management team. • Existing services to owner. • Overhead warning goal posts to be present to warn of overhead power lines • Examination of site investigation information. • Identification of materials encountered by competent person. • If materials are uncovered and not identifiable then works are to cease and seek advice from site management team. Material tests may be required to be undertaken. • COSHH assessment • Good hygiene • Tool box talks	operatives, site management team	

			• Welfare facilities to include hot and cold running water • Issue PPE & train in use • Solid barrier to physically prevent falling into excavations • Suitable signage to be erected		
4,11,12,15,14,17,26	**Temporary Works** • Failure of equipment • Contact with plant resulting in crushing injuries/amputation	U	• 6 and 12 month lifting certificates required for all lifting apparatus involved. • Visual check on site by competent operatives/staff prior to use and completion of daily PPM's • Temporary works to be inspected by temporary works supervisor and permit to load issued. • Temp works installed as per approved design.	Site operatives	A
4,20, 23	**Falls on same level** • Trip over • Fall onto sharp objects • Land on uneven surface • Fall into existing chambers • Fall into open sewage/storm channels	U	• Good Housekeeping, ensure clean and tidy work spaces • Ensure all materials are stacked as per manufacturers recommendations • Place waste material in the designated areas • Designated walkways to segregate operatives and materials • Suitable edge protection will be erected around the perimeter of the pumping station chambers • Signage as necessary	Site personnel	A
7,8,11, 12	**Use of small tools:** • Injury due to faulty equipment • HAV's exposure limits exceeded	U	• All guards are to be in place as per manufacturers recommendations • Tool box talks on safe use of equipment etc. • Remove any faulty tools/equipment etc. from service immediately and inform your supervisor • PAT testing all portable electrical equipment • Use of correct PPE to suit equipment being used	Operatives, Site Supervisor	A

			• PPM's for each item to be completed by a competent person • Keep hands warm during colder weather • Limit "trigger" time for equipment being used and rotate workforce • Exercise hands to increase blood flow		
9	**Contact with/exposure to hazardous substances:** • Injury/Poisoning/Ingestion of COSHH items • Concrete Burns • Weils Disease	U	• Use alternative less harmful substances • Complete COSHH assessment and brief operatives accordingly • Training as required • Wear appropriate PPE • Only authorised personnel to use substances • Tool box talks (COSHH) • Disposal to designated COSHH skips and further disposal to licensed tip ensuring a waste transfer note has been completed. • Do not use materials until fully aware of the associated risks • Wash off any concrete/mortar splashes as soon as possible • Report any burns to your supervisor – do not ignore burning "sensations" check them out. • Good Hygiene – wash any area that came into contact with substances thoroughly	Supervisors/Operatives	A
1,6,7,9,18, 20	**Contact with sewage** • Weils disease • Waterborne pollutants and bacteria causing death or serious injury	U	• PPE in include safety boots/wellingtons, hard hat, glasses, hi-viz, gloves, disposable overalls/oil skin, waders and face mask. • Maintain good personal hygiene practices. • Avoid breathing in sewage dust or spray - dust masks/face masks should be work when working in or near live chambers. • Clean contaminated equipment on site - do not take contaminated equipment home for washing.	Supervisors/operatives	A

20, 27, 6,7,9	**Working with concrete** • Concrete pours • Concrete connection with skin • Burns to skin and eyes • Damage to environment	U	• Cover bare skin prior to placing/working with concrete • Wear appropriate PPE i.e PVC coated gloves, goggles etc. • Wash off any concrete splashes as soon as possible • Report any burns to your supervisor - do not ignore “burning sensations” • Concrete wagons to wash out in designated area at main compound • Use of marine grade concrete to reduce risj of alkaline washout		
6, 20, 27	**Environmental Threat:** • Contamination • Spills	U	• COSHH assessments for all COSHH items • Dispose of all waste materials to designated skips etc. • Emergency spill kits are to be maintained at every work location or be easily accessible at all times from a centralised location • Equipment to be stored on designated drip trays/ bundied areas • The works will proceed in after the weather forecast has been checked and there is no heavy rain expected. • The works will take place above water level. The ground water level is expected to be lower than construction formation level. • A bund will be created using jumbo bags of sand adjacent to the water’s edge a sump area will be created in front of the bund to retain any soils that come loose during the excavation. • Ensure there is free flow of water at all times to prevent flooding	Site staff, operatives	A

			• A spill kit will be on the excavator at all times and the excavator will be checked before and after the operation and on a daily basis for leaks and faults. • No refuelling will take place at the worksite. Refuelling will take place in the designated area within the site compound. • Pre-inspection of working and during for signs of ecological and environmental issues that may need to get addressed. • Designated ecologist to be on site periodically during works to inspect. • Refuelling will take place in the designated area within the site compound. • All plant and machinery to use biodegradable oil in that is working within vicinity of the water course.		
11, 12, 17, 18, 28	**Manual Handling:** • Operatives suffering muscoskeletal injuries • Damaging items being lifted	U	• Provide regular manual handling training/toolbox talks • Assess load to be lifted and use mechanical means of lifting if possible • Complete MH risk assessment if mechanical lift is not possible • Break down load to a more manageable size • More than 1 op to complete lift if load is awkward or irregular in shape • Carry out task specific manual handling risk assessment • Assess the load and decide if it needs to be lifted • Utilise craneage on site wherever possible • Beanie blocks to be lifted into position by mechanical means. • Kerb lifter to be used for laying kerbs.	Site staff, operatives	A

3,4,11,12,31	**Contact with services** • Injury from faulty power tools • Buried services	U	• All portable electric equipment to have current PAT test. • Use of PPM scheme • Obtain service drawings • Carry out CAT/genny survey using information provided • Locations of buried services to be suitably marked using visual aids/signage. • Excavate trial holes by hand as required to prove location of services. • Permit to break ground in place prior to any works. • Always treat services as live until proven otherwise.	Site supervisors/operatives	A
18,19,11,12,14	**Interaction with public** • Non Morgan sindall employee gaining access to the site causing injury to themselves. • Possible death or injury due to falling, tripping and other accidents due to ignorance on construction sites	U	• Take all practicable measures to ensure that pedestrians cannot gain access to work areas during day or night. • Secure site with 2m high heras panels. • Provide signs to highlight the dangers present. • Mobile security cameras to be installed throughout site.		

Method Statement required?	Yes	X	No		**Method Statement number:**	4364

Additional Risk Assessment (Tick box as required)						**PPE (Tick box as required)**							
Noise		COSHH	x	Handling		Helmet	x	Respiratory		Boots	x	High Vis	x
Asbestos		Lead		Radiation		Hearing	x	Eye	x	Harness	x	Others	

	Name	**Signature**	**Date**

Safety, Health and Environment Risk Assessment

Person completing the assessment:	Sarah Eynon		04/05/20
Person reviewing the assessment:	Kevin James		04/05/20
Date to be reviewed:	04/05/21		