Appendix E

CEMP Review, Legal Requirements, Training & Site Monitoring Tables

Table E-1 - CEMP Review Table

Review Tracker					Reviewed By	
Review period	Due Date of Review	Actual Date of Review	Sections Amended	CEMP Issue Number	Project Manager	Environmental Manager

Table E-2 - Training Undertaken

Name of Training	Details of Training	Date Undertaken

Table E-3 - Site Monitoring Sheet

Details of Complaint	Date of Complaint	Details of Resolution	Date of Resolution

Table E-4 – Environmental Legal and Other Requirements Register

Legislation / Requirement	Regulator	Application to the Scheme	Control Measures	Responsible Person	Timeframe for Review

Appendix F

Environmental Aspects and Impacts Register

KEY:

- No risk — or (grey)
- (yellow) — Generic risk
- X — No risk this site
- y — Site specific risk

Activities	Aspects																																											
	Input							Outputs/Releases/Pollution																						Physical Changes				Abnormal condition/ Emergency							“Wins”			
								Air			Land			Water					Wastes				Nuisance							Landscape			Relics	Abnormal			Emergency							
	Raw Materials	Manufactured Goods	Electricity	Diesel/Petrol/Oils	Timber	Tap Water	River/Borehole Water	Dust	Gas/fumes/smoke	Asbestos/Fibres	Dust	Litter/Waste	Oils/Fuels	Oils/Fuels	Seepage to Groundwater	Sewage	Silt/Chemicals/Waste	Solids	Office and canteen	Construction	Hazardous	Effluents	Dust	Mud	Transport, traffic, deliveries	Rights-of-Way	Noise	Vibration	Visual Pollution	Natural Habitats	Protected habitats/Species	Agricultural Land	Archaeology	Late Working Hours	Relocating/moving Equipt.	Filling/Refuelling	Equipment Failure	Fire	Flood	Major Spill	Habitat Creation	Training/Educatn.	Recycling/Reuse	Sustainability Promotion
General storage																																												
Site clearance																															y	y	y											
Site office - management																																												
Site office set-up																																												
Trenching - services																																	y											
Traffic management																																												
Waste mgmt (Constr.)																																												
Falsework/formwork																																												
Fencing																																												
Fuel and oil stores/mgmt				y																	y									y	y	y								y				
Pavement and kerbing																																												
Piling - Sheet																																												
Service relocation																																												
Structural concrete																																												
Sub-base & capping																																												
Surfacing																																												
Topsoil strip																														y	y	y												
Topsoil storage																																												
Drainage																																												

Stakeholder (or stakeholder group)	Contact Person	Interest in project	Address	e-mail address	Phone	Preferred method of communication	Dates for formal comms	Com type
Barratt Homes Northern Developer;								
Southern Consortium			The Southern Consortium (formed by The Church Commissioners for England and Hanbury Properties)					
Folly Foot Farm			Follyfoot Farm, Fontwell Avenue, Eastergate, Chichester, PO20 3RU		0203 582 3007			
Folly Foot House								
Car body repair facility (Halo			Fordingbridge Site, Barnham Rd, Barnham, Bognor Regis PO22 0HD		01243 544500			
Fleurie Nursery;			Church La, Chichester PO20 3XD		01243 543251			
Springfield Garden Nursery			Barnham Rd, PO22 0ER Bognor Regis, West Sussex		01243 552006 – Found in google			
Wandleys Lane Caravan Park;			Wandleys Lane, Eastergate, Chichester PO20 3SE		01243 543384			
Northfields Country House			Northfields Country House, Level Mare Lane, Eastergate, Chichester PO20 3SA		01243 544478			
Claremont Lodge Care Home			Claremont Lodge, Fontwell Avenue, Chichester PO20 3RY		0845 125 6166			
Lou's Carpet Tiles			Jbs eastergate lane, Eastergate PO20 3SJ		01243 542344			
Swallowfield Nursey			Eastergate Lane, Eastergate, CHICHESTER, PO20 3SJ		01243 543427			
Fontwell & Southbourne Physiotherapy & Hydrotherapy			The Wolds, Fontwell Ave, Chichester PO20 3RU		01243 544333			
SRC Recycling			Fontwell Ave, Eastergate, Chichester PO20 3RU		01243 542380			
SPR Centre Pet Shop			Greenfields Farm, Fontwell Avenue,, Eastergate,, Chichester PO20 3RU		01243 542815			
Kings Carpets Warehouse			Fontwell Ave, Eastergate, Chichester P020 3RU		01243 885 115			
English Heritage;								
West Sussex County Council, Mid Sussex District Council, Arun District Council;								
West Sussex County Council, - Road space team								
Environment Agency;								
Sussex Police;								
Public Transport Operators;								
Emergency Services;								
Southern Water;								
BT Openreach;								
Southern Gas Network;								
SSE.								
Barnham Primary School;			Barnham, Bognor Regis PO22 0HW		01243 552197			
St Philip Howard Catholic School.			The Bosco Trust, at:St Philip Howard Catholic School, Elm Grove South, Barnham, West Sussex, PO22 0EN		01243 552 055			
Goodwood motor and horse racing					01243 755055 - Found in google			
Fontwell Park								
Aqua Sparkle Pools Ltd			JBS yard Eastergate Lane, Chichester PO20 3SJ		7584609632	Found on google		
Fontwell & Southbourne Physiotherapy & Hydrotherapy			The Wolds, Fontwell Ave, Chichester PO20 3RU		1243544333	Found on google		
Executive Cars Taxi Service			5 Wandleys Dr, Fontwell, Chichester PO20 3SF		7787557190	Found on google		
Shell Garage			Arundel Rd, Walberton, Arundel BN18 0SB		1243543714	Found on google		
KFC Fontwell			Arundel Rd, Walberton, Arundel BN18 0SB		1243542262	Found on google		
Travelodge Arundel Fontwell			A27/A29, Fontwell, Walberton, Arundel BN18 0SB		8719846014	Found on google		
Sussex Recovery			1 Fontwell Ave, Eastergate, Chichester PO20 3JT		1243543546	Found on google		
The Croft Surgery			Barnham Rd, Barnham, Eastergate, Chichester PO20 3RP		1243543240	Found on google		
Eastmere Training Stables			Melcroft/Eastergate La, Chichester PO20 3SJ		1243543863	Found on google		
Eastergate Post Office			Nyton Rd, Eastergate, Chichester PO20 3UP		1243542117	Found on google		
Eastergate Parish Hall			Eastergate, Chichester PO20 3RP		7849356097	Found on google		
Travelodge Arundel Fontwell Park			Fontwell Park, Fontwell Ave, Fontwell, Arundel BN18 0SY		8715591801	Found on google		
Ormiston Six Villages Academy			Lime Ave, Westergate, Chichester PO20 3UE		1243546800	Found on google		
Eastergate C.E. Primary School			Church Ln, Eastergate, Chichester PO20 3UT		1243542297	Found on google		
Fontwell Park Racing & Events			Park Racecourse, Fontwell Ave, Fontwell, Arundel BN18 0SY		1243543335	Found on google		
Barnham Manor			150 Barnham Rd, Barnham, Bognor Regis PO22 0EH		1243551190	Found on google		
Esso Westergate garage			Nyton Rd, Westergate, Chichester PO20 3UN		1243542823	Found on google		
Aldingbourne Community Sports Centre			Olivers Meadow, Westergate, Chichester PO20 3YA		1243940138	Found on google		

Environmental Hazard (Aspects) Register

No:	**S0031**
Date:	**15/03/2021**
Revision Number	**A**

Risk Rating **R** (1 → 100) = Likelihood **L** (1 → 10) x Severity **S** (1 → 10)

1 → 9	Insignificant
10 → 24	Tolerable
25 → 39	Undesirable
40 → 100	Unacceptable

Aspect / Hazard System inputs (materials used)	Activity(ies)	Material (s) / Impacts	Risk L	Risk S	Risk R	Control(s)	Emergency Respons plan neede? Y	Residual RL	Residual RS	Residual RR
Raw Materials	N/A									0
Manufactured Goods	(See timber)									0
Electricity	Not planned this phase									0
Diesel/Petrol/Oils	Site Clearance Traffic Management Site Establishment	Diesel / Use of non-renewable resource, emissions (CO2, CO, NOx and PM10), climate change, health risks.	6	5	30	○ Power generation by generator supported by battery (hybrid system) ○ Right sized plant, well maintained, modern engines ○ No idling policy		5	3	15
Timber / timber products	Site Establishment	Possible use of timber pegs for setting out / Illegal timber used.	5	5	25	All timber to be sustainably resourced PEFC/FSC		2	5	10
Tap Water	Site Establishment	Cabins using potable water / embodied carbon in water, environmental cost to purification process. (low usage)	10	2	20	Sigange to encourage switch off policy, low volume taps.		5	3	15
River/Borehole Water	None				0					0
Other	N/A				0					0

Pollution & Nuisance	Risk: Source(s) (activity, material or service)	Risk: Pathway(s)	Receptor(s) / Impacts	L	S	R	Control(s)		RL	RS	RR
Dust	Site Clearance Traffic Management Site Establishment	Airborne	Workforce & neighbours / silicosis, nuisance	2	4	8	Low likelihood weather dependant. Dust suppression units to be used during demolition and damping down.		2	4	8
Gas/fumes/smoke	All fossil fuel powered equipment	Airborne	Workforce, local popullation, global climate impacts / Health risk from CO, Nox and PM10s, climate change from CO2	4	7	28	○ Machinery to be inspected at the beginning of each shift ○ Faulty machinery to be reported and taken out of use ○ no idling - Look to utilise electric powered plant where possible. ○ logistics to avoid adding to congestion		2	7	14
Asbestos/Fibres	Demolition of residental & commercial buildings possible asbestos.	Airborne	Workforce / public, wildlife	10	3	30	Asbestos surveyies to establish possible contamination	**Y**	2	7	14
Oils & fuels	Site Clearance Traffic Management Site Establishment	Oil Spills	Local drainage system, balancing ponds / Pollution	6	5	30	Spill Kits to b available at all refuelling points Drip trays or Plant Nappys to be used under all plant	**Y**	5	3	15
Sewage or effluents	Site Establishment, mobile welfare units	Soils or drains	Aquatic systems, groundwater / nutrification, purification costs	4	6	24	Main compound to have direct Sewage from site offices to be a direct connection. Mobile units sewage is contained in an integral septic tank. Regular emptying of septic tank as required		2	5	10

Chemicals & Hazardous Materials	Excavations, locating pockets of waste during works - storage of materials COSHH	Overland flows due to inclement weather	Wildlife, water courses	5	5	25	Wac testing prior to and during site excavations. Bunding for contaminated areas - COSHH lockable containers - data sheets		2	2	4
Silt	Excavations, drainage works	Overland flows due to inclement weather	Wildlife, water courses	5	5	25	Wac testing prior to site excavations. Bunding for contaminated areas		3	3	9
Waste	Refer to SWMP										0
Hazardous Waste											0
Litter	Site Compound Generally around the site	Dropped Items by workforce and general public	Local environment, workforce / visual and if plastics, micro-plastics in aquatic environment	5	4	20	Segregated skips available for site rubbish - skips labelled for each specific type of waste generated		3	4	12
Mud	Site set up & Main works	Mud transfer from vehicles to the carriageway & surrounding areas	Local environment / nuisance, car damage, slips.	6	6	36	Wheel washing facilities at main site entrance and exit for plant and lorries. Road Brush to be deployed as required - Road sweeper on call		3	5	15
Noise	Main Works	Audible	Local residents, Workforce / nuisance, hearing loss	6	6	36	○ Wokring hours to be adhered to ○ Noise protection zones to be established as required, appropriate PPE to be worn		3	5	15
Vibration	Main Works	Handheld tools / vibratory plant - Rollers - compaction of carriageway construction	Workforce only hand tools / health risk noise nuisence to local residents - possible structural damage to adjacent properties	4	5	20	Covered by ISO 18001, PMP and RAMs - Baseline noise monitoring to be established prior to start on site to form baseline to measure off of.		2	5	10
Light	Residents, general public, vehicular users	Lighting towers	Light nuisence	5	5	25	Ensure night working is kept to a minimum. When using lighting towers angle the light source to the point of work. Record LUM levels add blinkers where necessary		1	5	5
Invasive species / pathogens	N/A					0					0
Physical Changes	**Source(s) (activity, material or service)**		**Receptor(s) / Impacts**	**L**	**S**	**R**	**Control(s)**		**RL**	**RS**	**RR**
Natural Habitats	Site Clearance / main works		Trees, shrubs, grassland and ponds. / Loss of natural habitat	5	5	25	○ Refer to CEMP and other environmental documentation see WSP Ecological and Tree plans. ○ Ecologist to be present during the site clearance works ○ Only vegetation marked to be cleared ○ Clearly demarcate working area		3	5	15
Protected habitats/Species	Site Clearance / Main works		Potential to encounter GCN, bats, reptiles, badger and dormice / legal issues if habitat (incl. refuges, foraging areas, migration routes and hibernacular) are damaged	4	10	40	○ Refer to CEMP and other documentation see WSP Protected species mitigation information ○ TBT on process to follow if any species encountered to be given to all workers in advance ○ Ecologist to be present during the site clearance works - Badger re locating works completed		2	8	16
Ecology	Site Clearance Site Establishment - Main Works		Potential to interfere with natural habitats	6	4	24	As above		3	4	12
Rights-of-Way	Site Clearance / main works		Potential for need to close public right of way / Nuisance	6	6	36	Right of way to be maintained where possible. Alternative diversion route to be agreed		3	6	18
Agricultural Land	Temporary Site Establishment - main works		Large areas of agricultural land to be used for main works. All agreements to be in place prior to start on site	7	3	21	Only the areas agreed with the land owners to be used and reinstated landscaped after completion of works.		3	3	9
Listed Buildings	N/A					0					0
Archaeology	N/A					0					0
Opportunities	**Description**										
Habitat Creation	A new Badger sett has been constructed at the Northern Section of the works. A Hedgehog tunnel will also be constructed to allow unhindered movement of the existing wildlife between the Northern and Southern sections of the carriageway construction.										

Training/Educatn.	Potenial to visit local schools and colleges to give a STEM lecture regarding working in the Construction Industry
Recycling/Reuse	Where possible all materials will be re used on site. Where this is not possible recycled materials will be imported and placed.
Sustainability Promotion	All excavated materials will be stockpiled and reused to provide appropriate bunding to the new carriageway and form swales for drainage purposes. All topsoil will be reused for landscaping purposes.

KEY:

Key	
No risk	or (grey)
(yellow)	Generic risk
X	No risk this site
y	Site specific risk

Aspects

Activities	Input							Outputs/Releases/Pollution																							Physical Changes				Abnormal condition/ Emergency							"Wins"			
								Air			Land			Water						Wastes				Nuisance							Landscape			Relics	Abnormal			Emergency							
	Raw Materials	Manufactured Goods	Electricity	Diesel/Petrol/Oils	Timber	Tap Water	River/Borehole Water	Dust	Gas/fumes/smoke	Asbestos/Fibres	Dust	Litter/Waste	Oils/Fuels	Oils/Fuels	Seepage to Groundwater	Sewage	Chemicals & Haz Materials	Silt or Waste	Solids	Office and canteen	Construction	Hazardous	Effluents	Dust	Mud	Rights-of-Way	Noise	Transport, traffic, deliveries	Vibration	Visual Pollution	Natural Habitats	Protected habitats/Species	Agricultural Land	Archaeology	Late Working Hours	Relocating/moving Equipt.	Filling/Refuelling	Equipment Failure	Fire	Flood	Major Spill	Habitat Creation	Training/Educatn.	Recycling/Reuse	Sustainability Promotion
Chemical storage																						X																			X				
Drainage		x																			X	Y	X				X			X			X	X	X			X		X					Y
Falsework/formwork																			X																X										
Fencing																										X					X	X													
Fuel and oil stores/mgmt														Y								Y								X	X						Y				Y				
General storage									X									X	X																					x					
Pavement and kerbing																		X																											
Piling - Sheet																		X																											
Service relocation																																													
Site clearance																																	x	x						x					
Site office - management		x																																											
Site office set-up		x																															x	x						x					
Structural concrete	x					x																																							
Sub-base & capping																																													
Surfacing																																													
Trenching - services										X																							x	x						x					
Topsoil storage																																	x												
Topsoil strip																																	x	x						x					
Traffic management																																													
Waste mgmt (Constr.)																																													
Waste mgmt (Office/canteen)																																													

Appendix G

Register of Consents, Undertakings and Assurances

Table -6 - Register of Consents, Undertakings and Assurances

Environmental Topic	Consent/License/Permit Type	Description	Consent Granting Body	Responsibility	Date Required	Programme Risk	Further Comments
Noise and Vibration	Section 61 – Noise Consent (Control of Pollution Act 1974) – if required following discussions and agreement with both WSCC and Arun District Council	Section 61 of the Control of Pollution Act 1974 regulates prior consent for work on construction sites. It is commonly referred to when a contractor applies to the Local Authority for consent to carry out works which are likely to have a significant impact on the local community due to the generation of noise and vibration on site.	Local Authority	JCE Project Manager	Prior to main works.	The Local Authority has twenty-eight days to grant consent based on the application submitted.	It is important note that if any works have been carried out prior to the submission of the application, excluding any minor site preparation, the application will not be approved.
Air Quality	Section 80 – the Environmental Protection Act	Where a statutory nuisance is shown to exist, the local authority must serve an abatement notice. Failure to comply with an abatement notice is an offence and if necessary, the local authority may abate the nuisance and recover expenses.	Local Authority	JCE Project Manager	Prior to main works.		There are no statutory limit values for dust deposition above which 'nuisance' is deemed to exist. Nuisance is a subjective concept and its perception is highly dependent upon the existing conditions and the change which has occurred.

Environmental Topic	Consent/License/Permit Type	Description	Consent Granting Body	Responsibility	Date Required	Programme Risk	Further Comments
Ecology	European Protected Species: mitigation licence	A mitigation licence is required for work that will have an impact on European protected species that would otherwise be illegal (i.e. GCN or bats).	Natural England	JCE Environment Manager with WSCC	TBC (if European protected species found on site)	Allow for at least 30 working days for a licensing decision to be made.	
Ecology	The Protection of Badgers Act 1992	A licence is required if the work will have an impact on badgers that would otherwise be illegal	Natural England	JCE Environment Manager with WSCC	Prior to main works.	Allow for at least 30 working days for a licensing decision to be made.	
Ecology	The Hedgerow Regulations 1997	Anyone proposing to remove a hedgerow, or part of a hedgerow, covered by these regulations, must first notify the local planning authority by submitting a Hedgerow Removal Notice.	Natural England	JCE Environment Manager	Prior to main works.		
Water Resources and Flood Risk	Land Drainage Act 1994	Consent must be given for any permanent or temporary works that could affect the flow within an ordinary watercourse under Land	Local Authorities and Internal Drainage Boards	JCE Project Manager	Prior to main works.		

Environmental Topic	Consent/License/Permit Type	Description	Consent Granting Body	Responsibility	Date Required	Programme Risk	Further Comments
		Drainage Authorities jurisdiction to ensure that local flood risk is not increased.					
Water Resources and Flood Risk	The Environmental Permitting (England and Wales) Regulations 2016	It is an offence to cause or knowingly permit a water discharge activity, including the discharge of polluting materials to freshwater, coastal waters, relevant territorial waters or groundwater, unless complying with an exemption or an environmental permit. The Regulations also assist in the management of flood risk and any activity which has the potential to impact on a main river will require a Flood Risk Activities Permit (FRAP).	Environment Agency	JCE Project Manager	Prior to main works.		

Appendix H

Emergency Procedures & Contact Details

Jackson	**EMERGENCY RESPONSE PLAN**	No: /**ERP**/
		Issue:
Contract: **A29 Realignment Scheme**		Date:

Distribution: Site ☐ HO ☐	Originated by Name: Signature:	Approved by Name: Signature:

Nature of Emergency:	Frequency of Testing:
	Date of first/next test:

CONTACT NUMBERS

EMERGENCY CONDITIONS

Materials/contaminants:	
Item or area affected:	
Quantity or extent:	Site drainage plan attached: Yes ☐ No ☐

EMERGENCY ARRANGEMENTS

Preventive Measures Taken:

Equipment/Training Required:

Emergency Action Required:

TO BE COMPLETED ONCE CONSTRUCTION TEAM DETERMIED

Jackson	**CONTACTS**	No: /**CON**/
		Issue:
Contract: **A29 Realignment Scheme**		Date:

Organisation/Position	Contact Name	Telephone Number

Appendix I

Scheme Specific Social Value & KPI Targets

A29 Realignment Project **Jackson Project KPIs**

Objective	Lead/lag	Measurement Criteria	Accountable	Reporting frequency	Target
Safety					
Accident frequency	lag	Number of accident book entries	Site Manager	Monthly	< 2 per month
Observations	lead	'Share It' reports	Site Manager	Weekly	> 5 per wk
Implementation of observation actions	lag	Close out of 'Share it' reports	Site Manager	Weekly	90%
Safety leadership	lead	Safety inspections	Contracts manager Site Manager	Monthly Monthly	1 per quarter 2 per month
Communication	lead	Tool box talks	General Foreman	Monthly	1 per week
Environment					
Preventing incidents	lead	Environment inspections	Sub Agent	Monthly	2 per month
Reducing waste to landfill	lag	Volume of waste reused or recycled	Sub Agent	Monthly	> 75 % recycled
Quality					
Quality observations	lead	Quality inspections	Site Manager	weekly	1 per wk
NCR management	lag	NCR's closed out on time	Site Manager	Monthly	90%
Programme					
Programme management	lead	PFA issued every 4 weeks	Site Manager	Monthly	100%
Compliance with programme	lag	Number of activities completed as planned	Planner	Monthly	70%
Collaboration					
Project satisfaction	Lead/lag	360 Feedback	Contracts Manager/Employer PM	2 monthly	Score > 7/10
Considerate Constructor	lag	Code of Conduct	Site manager	Each visit	Score > 40/50
Social Value/Community Relations					
School visits	lead	Talks/Visits to local schools	PLO	6 monthly	2 per annum
Dealing with complaints/comments	lag	Complaints register	PLO	Monthly	90% response within 48 hrs

Ref No.	Employment and Skills Areas	Measured by	Method	Contractor Target
1				
1.1	Work Experience over 16 years	No. of Individuals	The Contractor shall approach local secondary schools and colleges local to the site to offer work experience placements for students interested in a career in Civil Engineering, subject to any H&S requirements being met.	1
2				
2.1	Visits to Primary Schools	No. of Visits	The Contractor shall approach local primary schools to offer a visit from members of the site team. Activities will be dependent on the requirements of the individual school but may include a safety talk/ assembly or classroom activity relating to civil engineering and specifically relating to the scheme.	1
2.2	Visits to Secondary School/Colleges	No. of Visits	The Contractor shall approach the local secondary schools and colleges to offer a visit from members of the site team and/or a visit to the site. Activities will be dependent on the requirements of the individual school or college but may include a safety talk/assembly or classroom activity relating to civil engineering and specifically relating to the scheme.	2
2.3	Secondary School/College Visits to site	No. of Visits	The Contractor shall approach local secondary schools/colleges to offer a visit for students who are interested in civil engineering or construction.	1
3				
3.1	Number of opportunities created for local people	No. of individuals appointed	The Contractor is encouraged to make job opportunities available for local people throughout the period of the Contract and all vacancies arising from the project should be advertised locally. The Contractor shall work with the Council, local Job Centre Plus and local employment agencies to ensure that they are capitalising on local provision.	1
4				
4.1	Number of opportunities created	No. of Individuals	The Contractor is encouraged to employ trainees, apprentices or graduates during the period of the contract.	1
4.2	Weeks on site	Weeks on site per new trainee, apprentice or graduate	The Contractor is encouraged to employ trainees, apprentices or graduates during the period of the contract.	4
5				
5.1	Use of local SME's	No. of Local SME's	The Contractor shall use the locally based sources to employ local SME's (based within WSCC or within 12.5 mile beyond WSCC boundary) for the supply of materials, services and resources for the project, where appropriate.	4
5.2	Use of local Third Sector Organisation (TSO's)	No. of Local TSO's	The Contractor shall use the locally based sources to employ local TSO's (based within WSCC or within 12.5 mile beyond WSCC boundary) for the supply of materials, services and resources for the project.	1
6				
6.1	Volunteering Events	No. of volunteering person days	During the period of the contract the Contractor shall arrange volunteering days (can be split into part days) to support the local community. This should involve the Client team as well as Contractor's staff.	2
6.2	Community Projects	No. of Projects	The Contractor shall engage with the local community to identify opportunities and implement projects/works that would enhance the local community and/or the local environment.	1

Appendix J

Construction Stage Drainage Strategy

Introduction

This document captures a diagrammatic view of the upfront proposed drainage works to deal with surface water run-off and site generated ground water for the A29 Realignment Scheme – Phase 1.

For further scheme specific details please refer to the Construction Environment Management Plan.

Below are drawings and annotated sketches showing the extents of the scheme and highlighting areas of site where there is an unusually high ground water table. It also shows areas that could be cut off from existing drainage ditches and drainage systems once the main earthworks begin. These obviously need consideration so to maintain continuity of existing overland flow routes during our construction works.

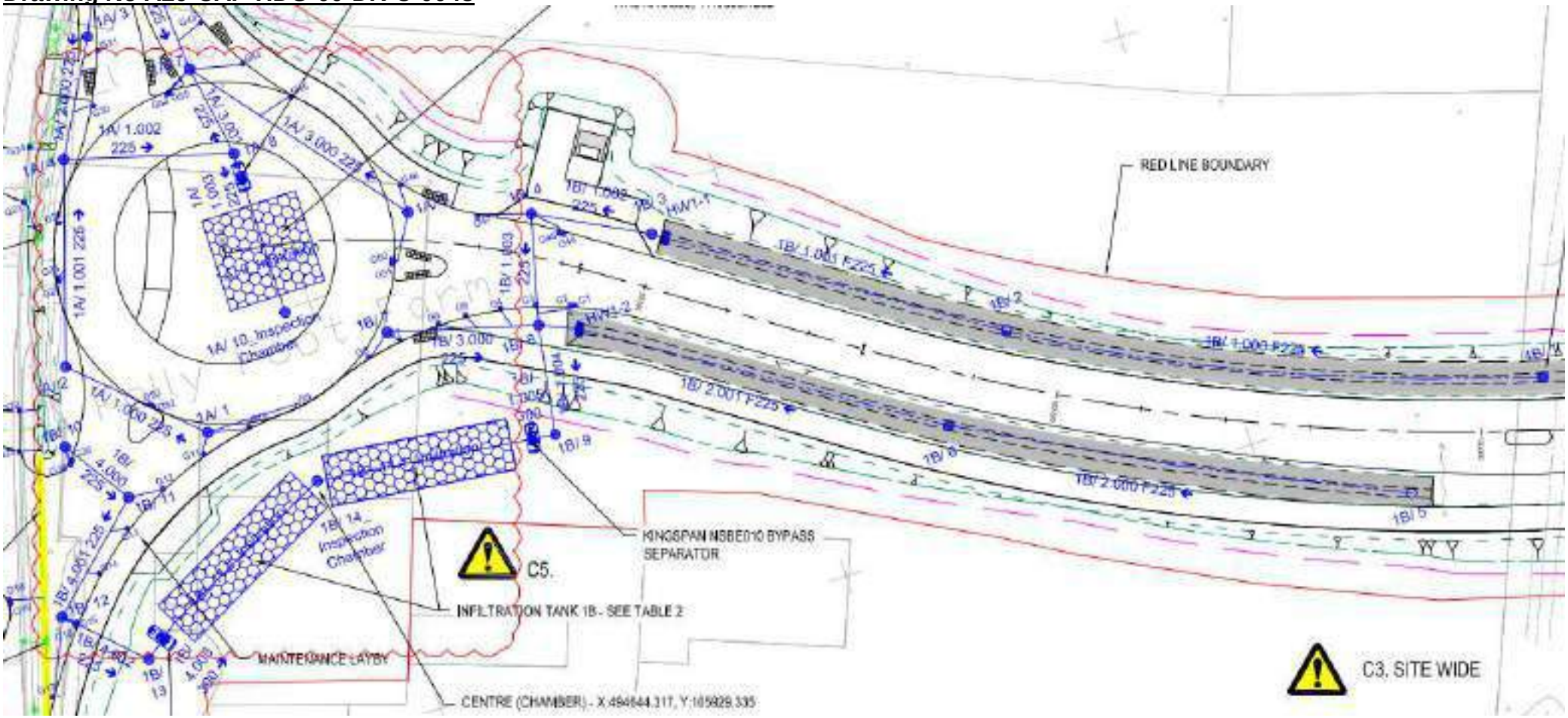
In general, JCE will utilise the proposed new drainage network as far as is practicable during the construction works, whilst providing suitable additional control measures to compliment in the form of silt and oil traps. Permanent perimeter filter drains will be installed early prior to the construction of any embankments. During the construction of the above it may be necessary to temporarily discharge ground water into the existing highway drainage or to ground. All necessary temporary discharge consents and permissions will be obtained from the relevant body, be it WSCC, Arun DC, or the Environment Agency, having held initial discussions with them to agree temporary drainage (including treatment) solutions.

The proposed three new drainage basins, swales and associated pipework are planned to be constructed as early as practically possible in the first instance to direct, polish and store surplus generated water. The permanent oil separators will be installed to provide some treatment but, additional temporary silt and oil traps will be adopted where required as detailed below.

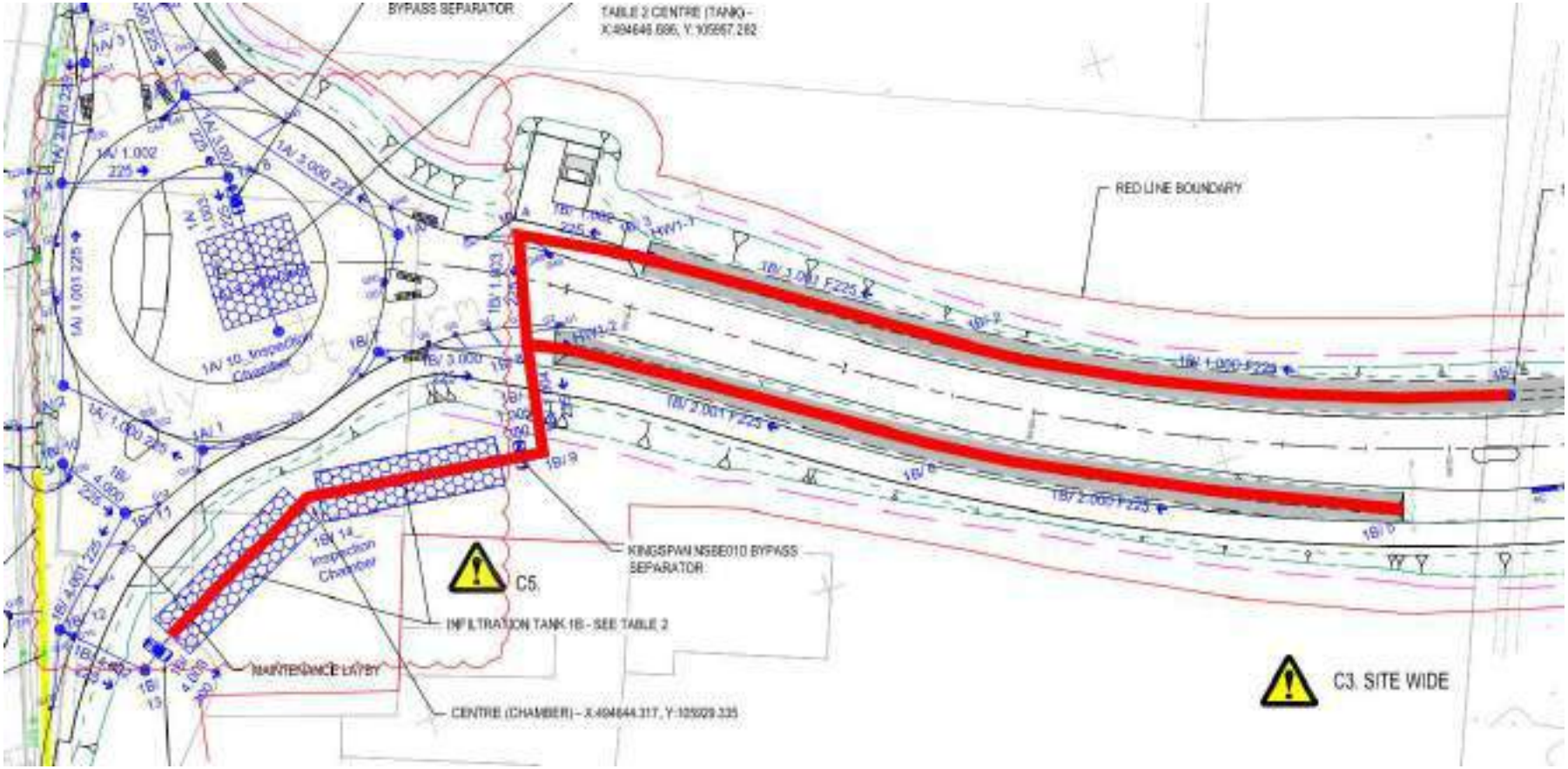
New land drains will be installed and connected to the relevant ponds to drain the land locally. This will prevent the new embankment creating a ‘run off dam’ during the road construction.

Further details are included below.

Drawing No A29-CAP-HDG-00-DR-C-0048

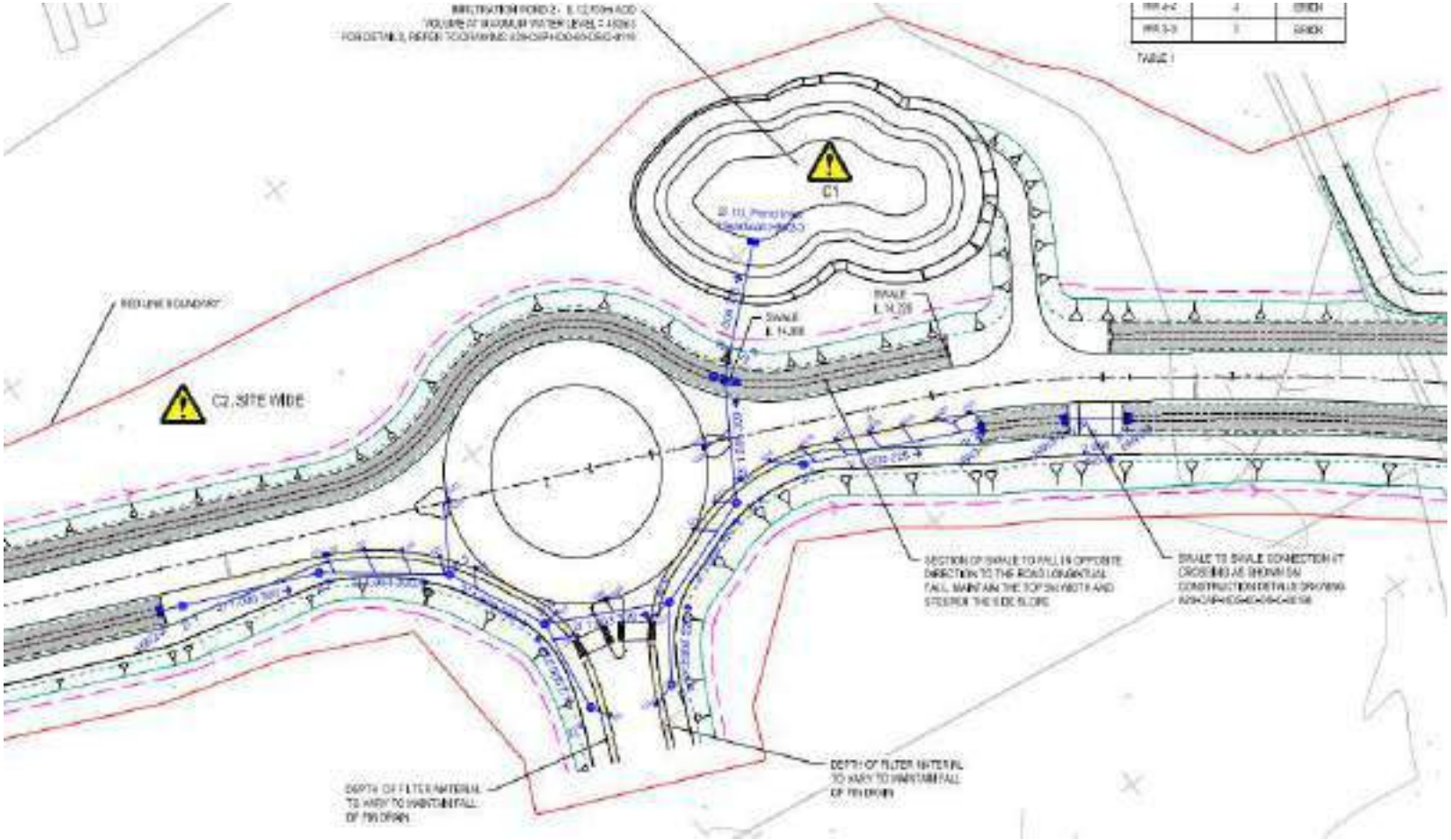


1. Excavate and install filter drains beneath proposed swale footprints as per permanent works design – construct chambers 1B/1, 1B/2, 1B/3, and 1B4 lay associated pipework.
2. Excavate and install filter drains to swales – construct 1B/5, 1B/6, 1B/8, 1B/9
3. Excavate and install SUDS infiltration tanks 1B.
4. Excavate chambers 1B/13, 1B/14.

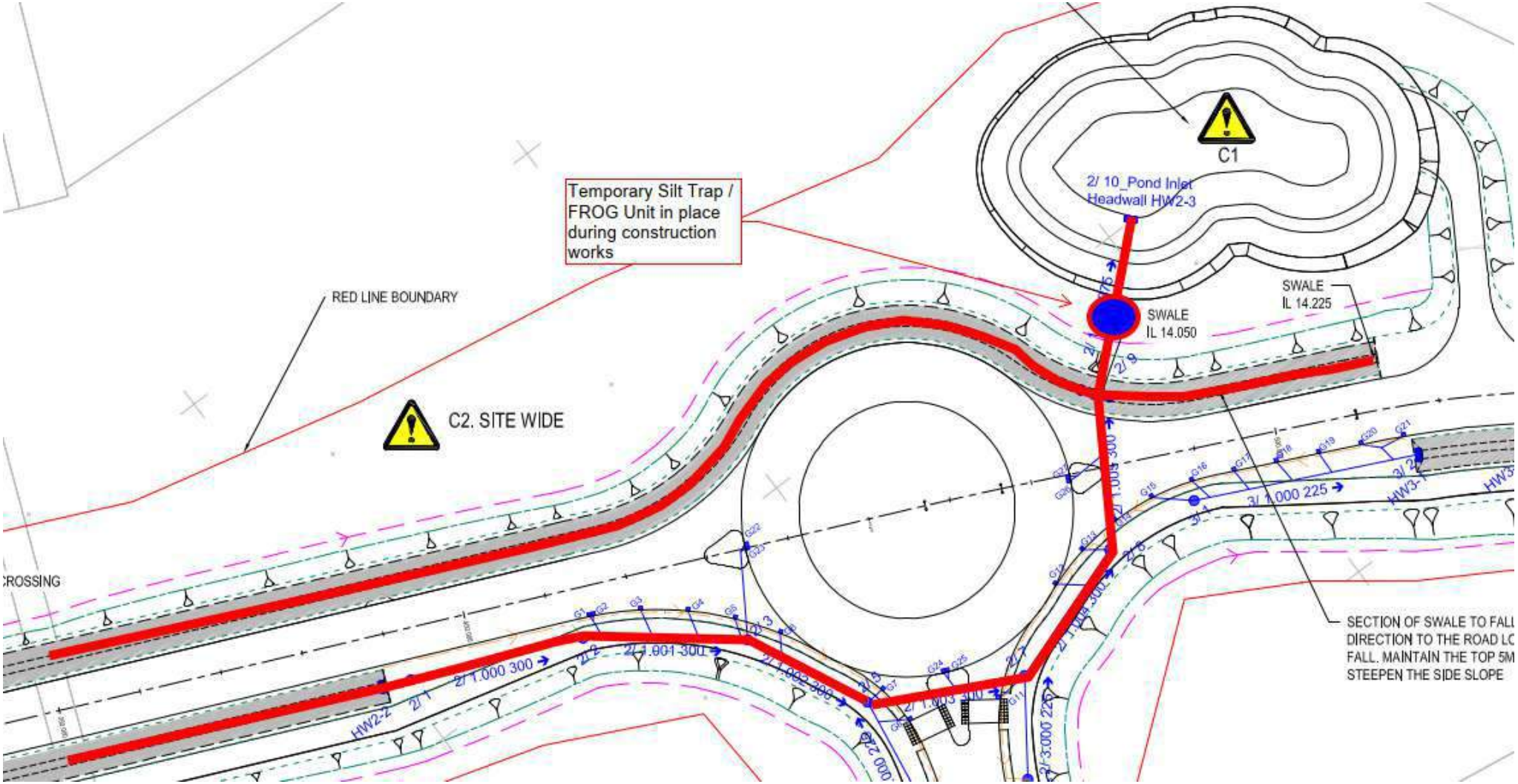


1. Excavate proposed swales north & south of carriageway as shown above. This will allow surface water run of to be captured. This run off will be polished removing suspended silts via the swales, as per the permanent design.
2. Filter drains installed below the swales will assist in keeping ground water levels as low as possible.
3. The water table is known to be low at this point, > 2m.
4. Excavate and install infiltration drainage crates.
5. Whilst the above is being constructed, if in the unlikely event that ground water is encountered in any excavations, discharge to ground via silt socks will be utilised in the temporary case. However this will be discussed and agreed with the LLFA along with all necessary temporary permitting requirements and testing.

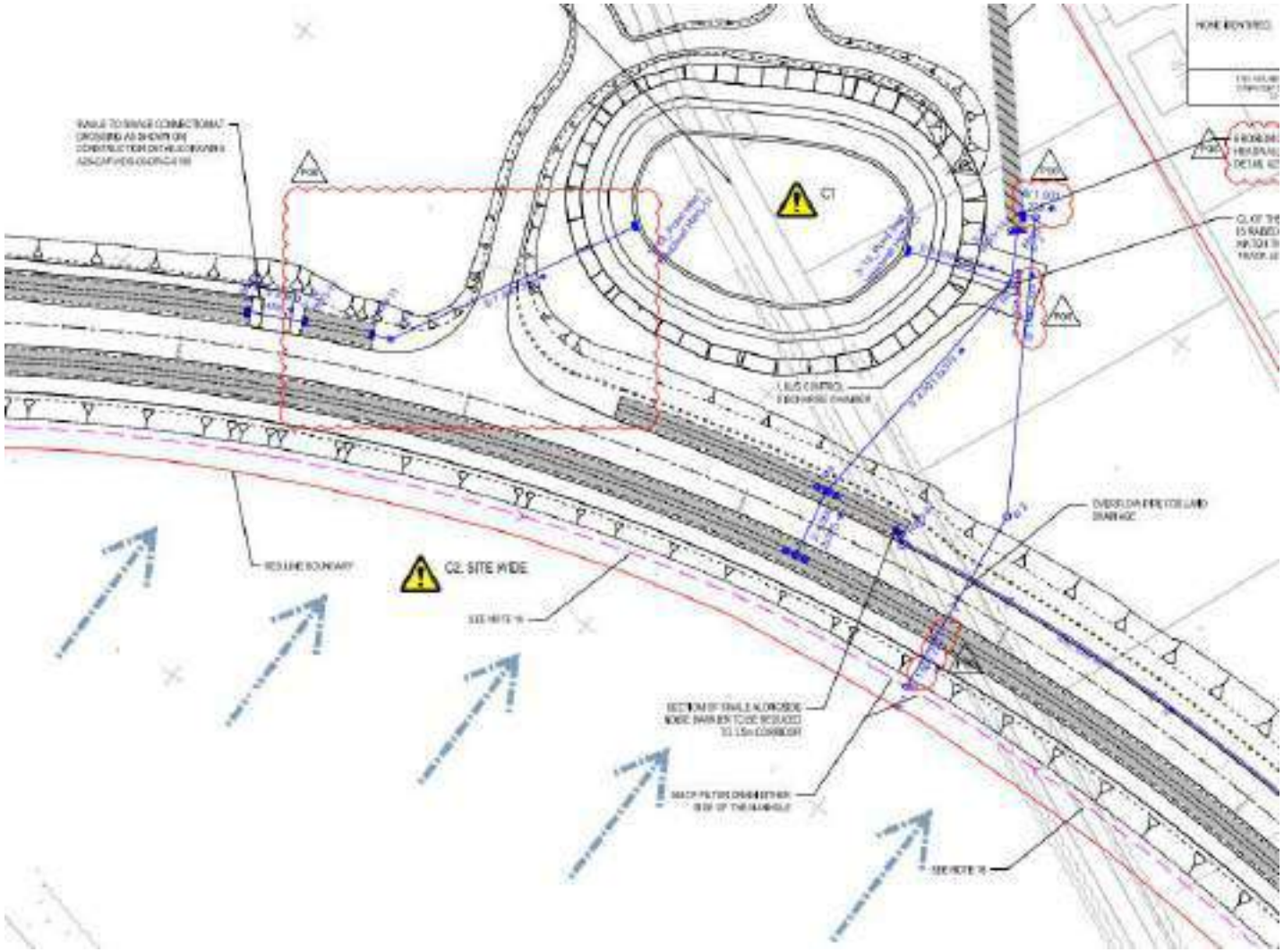
Drawing No A29-CAP-HDG-00-DR-C-0049



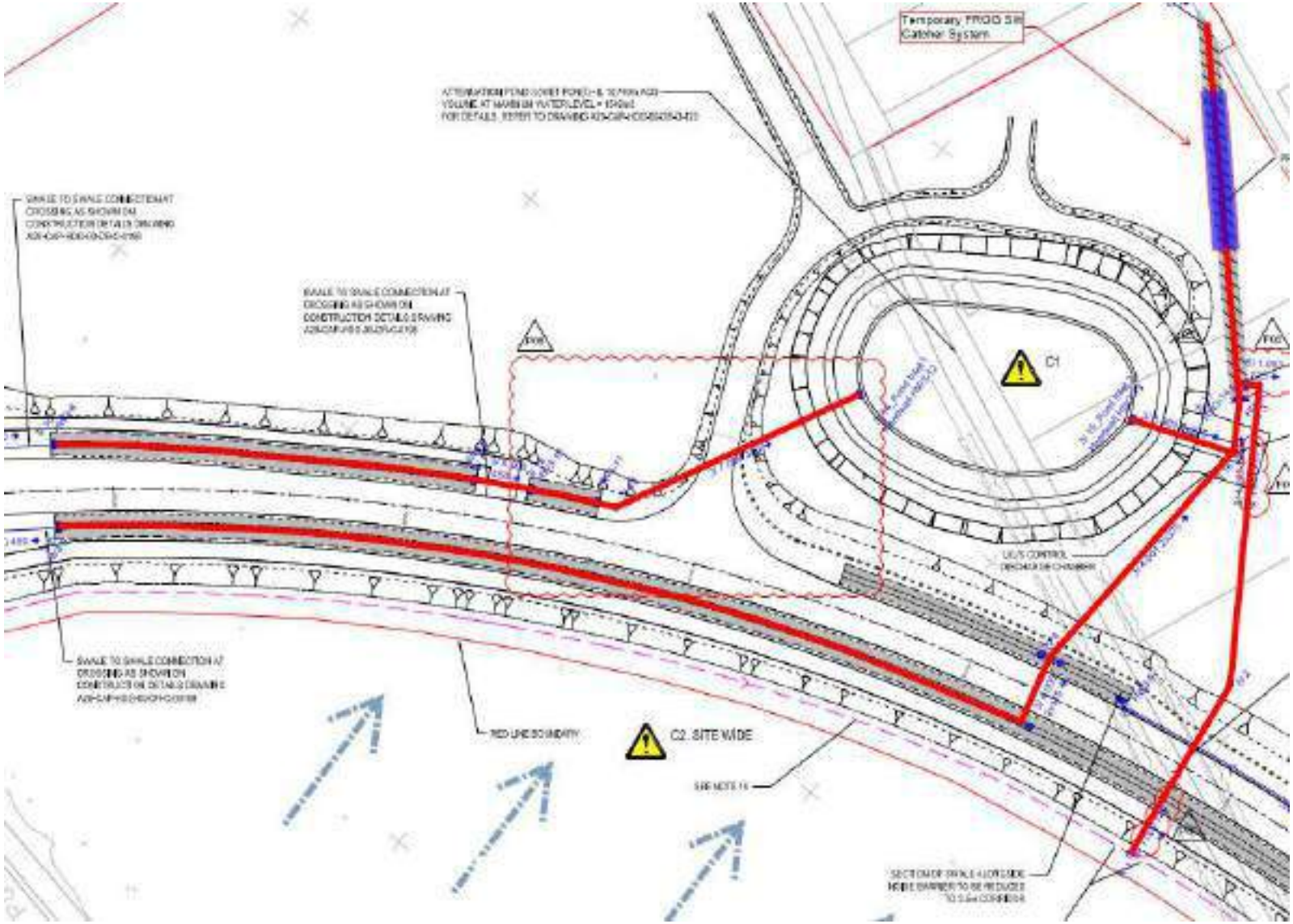
1. Excavate and construct pond 2.
2. Excavate and construct swales.
3. Excavate and construct manholes 2/5, 2/7, 2/8, 2/9 and associated pipework discharging into pond 2.
4. Construct temporary silt trap at pond 2 inlet to ensure all secondary silts are captured and allow access for disposal.
5. Water table is known to be approximately 1.5m below existing ground level in this area.
6. Whilst the above is being constructed, in the event that ground water is encountered in any excavations, discharge to ground via silt socks will be utilised in the temporary case. However this will be discussed and agreed with the LLFA along with all necessary temporary permitting requirements and testing.


C1
2/ 10_Pond Inlet
Headwall HW2-3
Temporary Silt Trap /
FROG Unit in place
during construction
works
RED LINE BOUNDARY
SWALE
IL 14.225
SWALE
IL 14.050
C2. SITE WIDE
2/ 1.000 300
2/ 1.001 300
2/ 1.000 300
2/ 1.003 300
3/ 1.000 225
HW2-2
HW3-1
SECTION OF SWALE TO FALL
DIRECTION TO THE ROAD LO
FALL. MAINTAIN THE TOP 5M
STEEPEN THE SIDE SLOPE

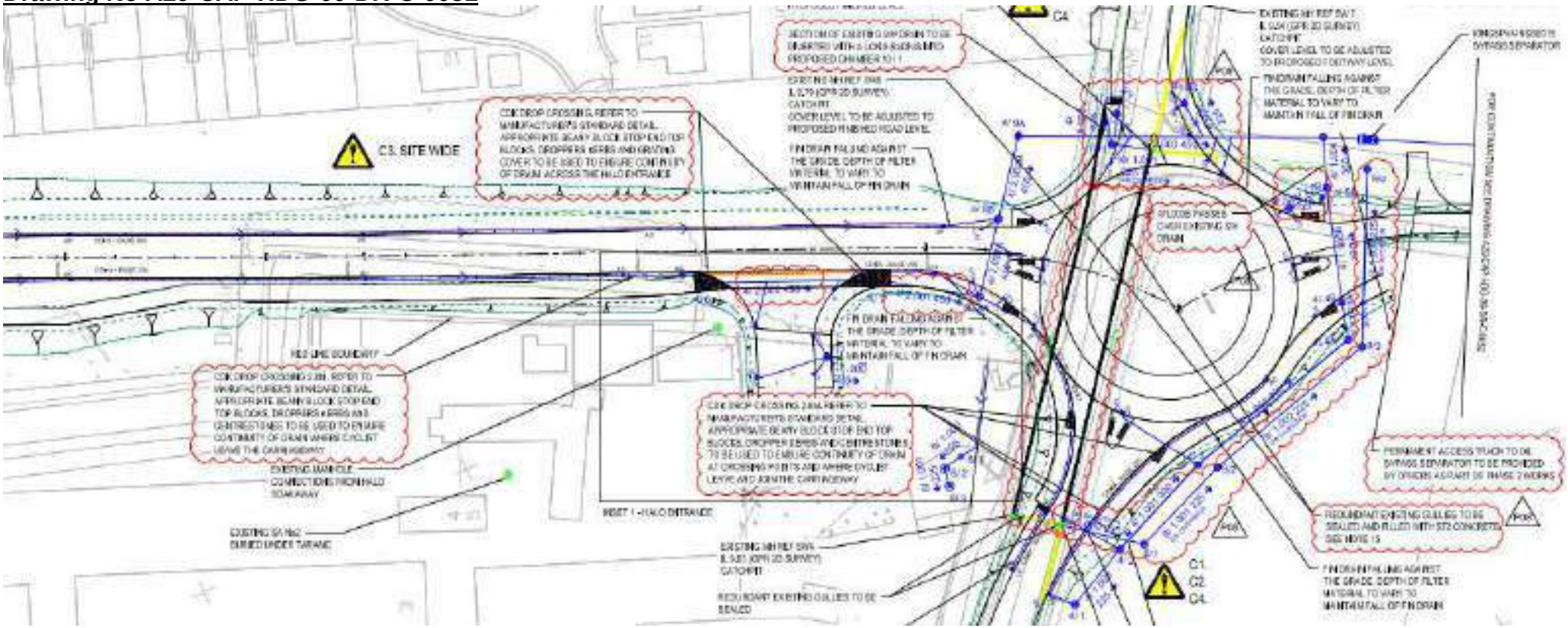
Drawing No A29-CAP-HDG-00-DR-C-0050



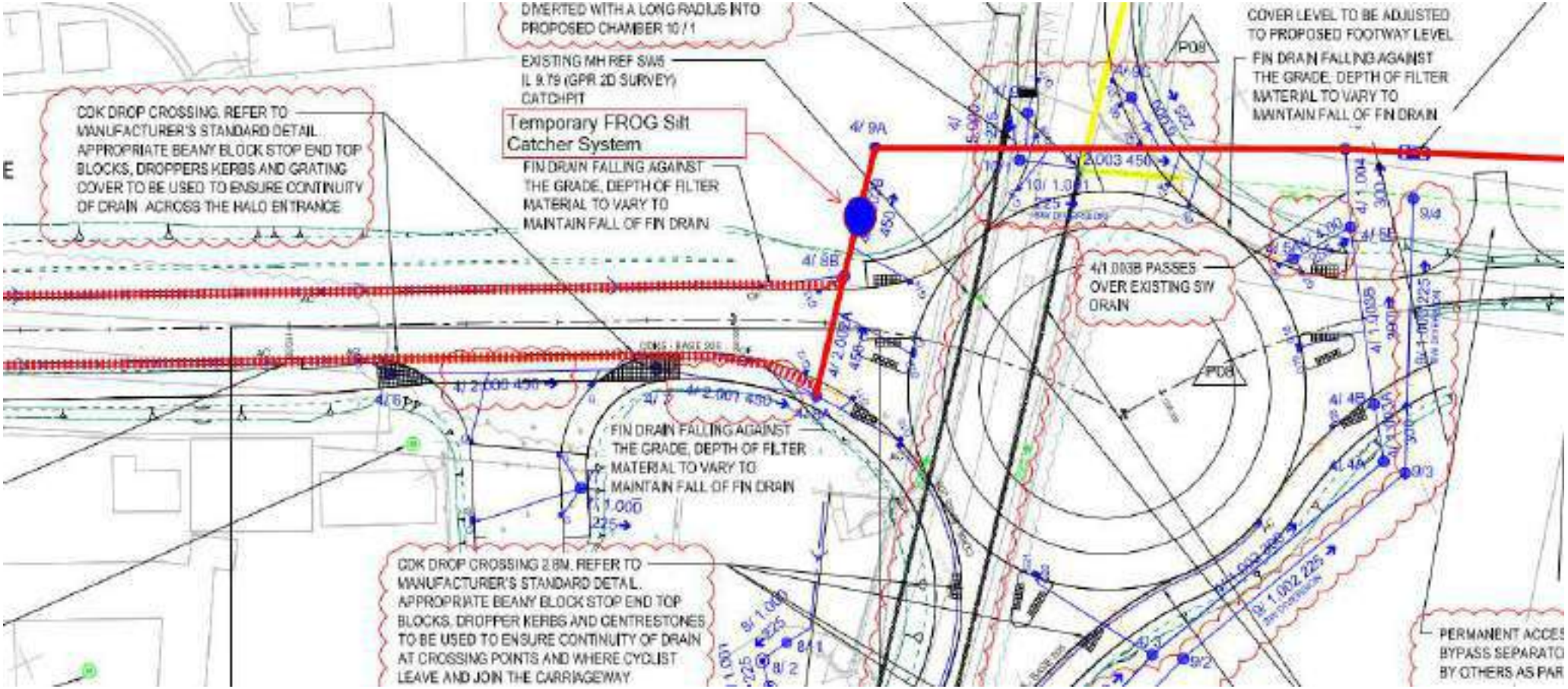
1. Excavate and construct Attenuation pond 3.
2. Construct chamber 6/1, 6/2, 6/3 and associated pipework.
3. Excavate and lay 300mm diameter land drains to perimier / western side of new embankment so to capture existing overland flows.
4. Excavate and construct chambers 3/13, 3/14 and lay associated pipework. Construct outfall HW3-12 allowing water captured via the Northern swales and filter drains to enter attenuation pond 3.
5. Excavate and construct HW3-13 and chamber 3/16 and associated pipework to headwall HW6-1 to allow outfall into new ditch.
6. Excavate new drainage ditch out discharging into the existing Rife ditch via new bagged headwall.
7. Install FROG silt catcher polishing system within proposed drainage ditch to remove any remmaining silts and polutants.
8. Excavate install filter drains.
9. Whilst the above is being constructed, it is likely that ground water is encountered. Temporary discharge to the existing Barnham Rife Ditch via temporary FROG silt catcher system will be utilised in the temporary case. However, this will be discussed and agreed with the Environment Agency along with all necessary temporary permitting requirements and testing.


Temporary FROG Silt Catcher System
C1
C2. SITE WIDE
RED LINE BOUNDARY

Drawing No A29-CAP-HDG-00-DR-C-0051

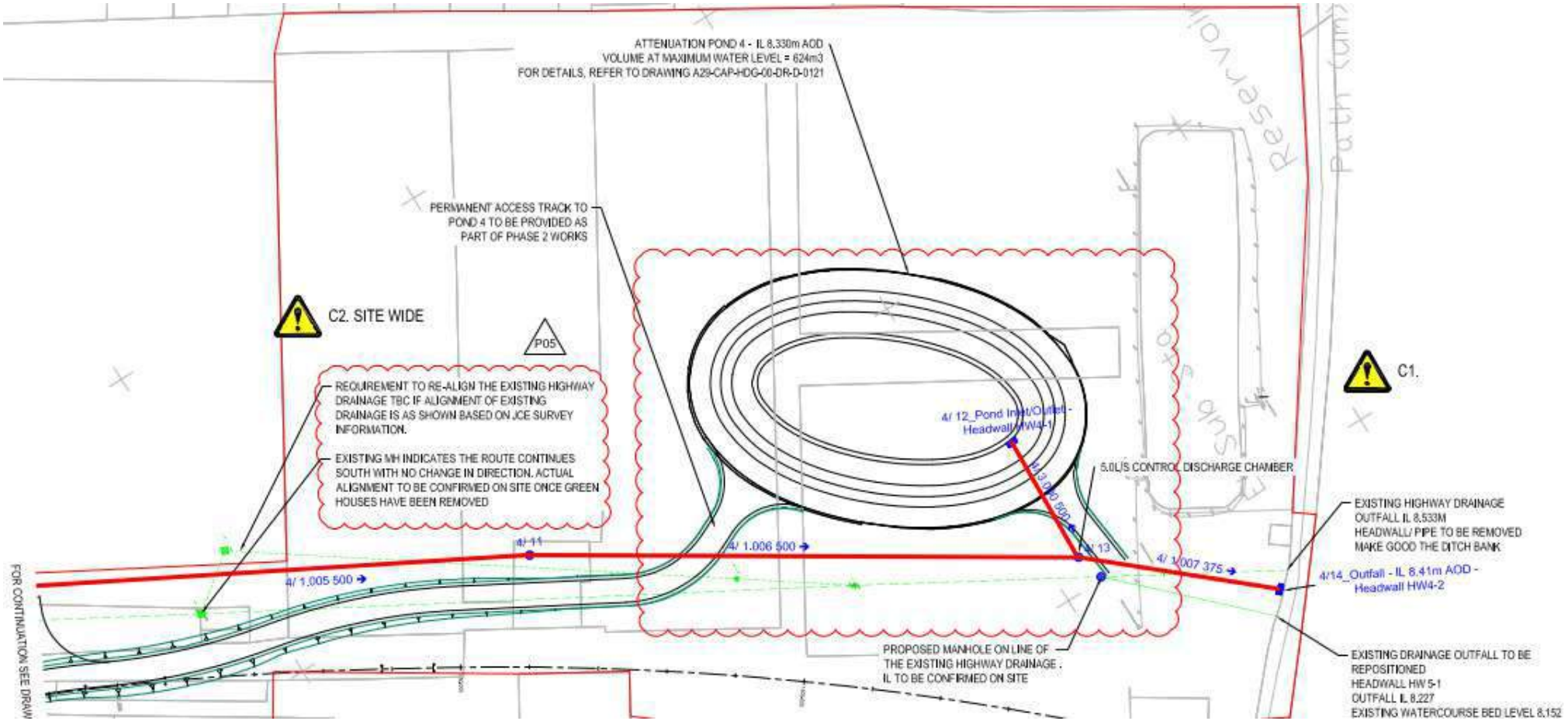


1. Pond 4 and the outfall up to and including manhole 4/9A installed first.
2. Install manhole 4/8A & 4/8B with corresponding pipework to 4/9A.
3. Manhole 4/9A will therefore become the temporary surface water drainage outfall during the construction works.
4. Install new permanent perimeter fin drains either side of the new embankment to capture any surface water run-off as the new embankment is constructed.
5. FROG silt catcher polishing system to be installed upstream of manhole 4/9A to remove any silts and polutants prior to discharging into manhole 4/9A.



6. Do to the very high ground water levels in this area, its highly likely that at times during the construction of the above the need will arrise to discharge ground water into the existing highway drainage system along Barnham Road. If this is requried, then JCE will liaise direct with both WSCC and Arun DC (as the LLFA) to agree the necessary controls, final solutions, temporary discharge permitting requirements and seek formal permissions to do so.

Drawing No A29-CAP-HDG-00-DR-C-0052



1. All works to the drainage system here will be carried out during the summer months in dry weather as the water table is known to be very high in this area.
2. The works shown on this drawing will be the first drainage works carried out as part of the scheme, so to provide the permanent drainage outfall that will be utilised in the temporary case during the construction works. The temporary FROG silt catcher unit will be in place upstream of the pond (as shown above) to capture any silts / contaminents before they enter into the new pond.