

GROUNDWATER MONITORING PLAN

Plots NT02, NT03 and NT04, Northern
Gateway, Dantzig Street

for

Far East Consortium



12/02/2024



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Far East Consortium

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1.0 INTRODUCTION

This Groundwater Monitoring Plan has been developed in response to the agreed Remediation Strategy (Ref: RSK 11834 R03) for sites Plot NT02, NT03 and NT04, Dantzic Street planning permission 136814/FO/2023.

This report sets out the frequency and ownership for ongoing monitoring of groundwater prior to site remediation, during remediation and subsequent to remediation. This is to ensure continuity and consistency of groundwater monitoring such that changes to groundwater quality during site remediation can be readily identified, and contingency enacted should evidence of mobilisation of groundwater contamination be identified.



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2.0 BACKGROUND

2.1 Ground Investigation

The site NT02, NT03 and NT04 has undergone a regime of ground investigation, report reference 4328-ROC-ZZ-XX-RP-ES-P2-101, which highlighted, among other typical brownfield contaminants, a hot spot of grossly contaminated soils and groundwater in the vicinity of Plot NT02. Trigger levels of TCE contamination were detected and have been targeted for specific remedial treatment as outlined in the Remediation Strategy (Ref: RSK 11834 R03). A number of remedial work activities including treatment of the TCE contamination are to be enacted during an Enabling Works Phase at the site. Anticipated remedial activities for the TCE contamination include removal of heavily contaminated soils and in-situ treatment of groundwater, removal of hardstanding to access contaminated soil will also be required.

During the course of the Enabling Work Phase there is perceived risk that activities could alter the groundwater flows and inadvertently mobilise groundwater contamination via increased filtration of soil contamination to groundwaters or mobilisation groundwater contamination due to increased or altered groundwater flows. This Monitoring Plan is developed in response to this risk to identify any changes in groundwater condition such that contingency plans can be implemented.

2.2 Requirements of the Remediation Strategy

During the course of ground investigation, a number of monitoring wells have been established on the site for the purpose of monitoring of groundwater. The Remediation Strategy recommends the retention of a number of these for ongoing monitoring. The location of the wells is recorded on drawing 4328-ROC-ZZ-XX-DR-ES-ES214, appended to this report for reference. The recommendations for well monitoring may be subject to adjustment pending the input from the specialist groundwater remediation contractor.

The remediation strategy sets out a minimum background requirement for ongoing monitoring of the boreholes to establish and maintain a baseline level of water data. With reference to section 7.10 of the remediation strategy a suggested background frequency of monthly groundwater gauging and quarterly quality sampling is to be maintained until commencement of the Enabling Works to maintain a background understanding of the groundwater at the site prior to remediation.



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Remediation of the site will be completed under an Enabling Works Phase. An agreed Phasing Plan has been established in response to Condition 4 of the planning conditions, which sets out a number of defined phases to the site remediation. It is appropriate that the groundwater monitoring frequencies adapt to the various activity scopes within each of the identified remediation phases. This is discussed in detail in section 4, but in summary the following defined monitoring periods are identified:

1. Baseline Case
2. Enabling Works / Remediation Phase
 - a. Remediation of Area A – typical brownfield soils
 - b. Remediation of Area B – soils suspected of TCE contamination
 - c. Remediation of Groundwater
3. Validation Monitoring

3.0 BACKGROUND MONITORING

The following monitoring wells are to be retained to support the design and validation of remediation works:

- BH501
- BH502
- BH203
- BH503
- BH504
- BH505
- BH305
- LKBH1

The locations of these wells are known and accompanying coordinates have been surveyed. Ongoing groundwater level gauging should be completed on these wells at monthly intervals up to issue of the Remediation Method Statement. The information obtained from these monitoring works should be documented in a brief letter report for distribution.

In addition to the monthly groundwater level gauging visits on these wells, it is proposed that water quality samples are obtained on a quarterly basis to support the design of groundwater remediation works prior to commencement of site construction works. This sampling will include for the analysis of the following determinands;

- Heavy Metals
- Poly Aromatic Hydrocarbons
- SVOC & VOC's
- TPHCWG
- Hardness, Dissolved Oxygen and pH values

Samples should be collected and dispatched to a suitably accredited UKAS testing facility with the results reported in a brief letter report. This report should also include a Tier 1 screen of water quality testing results against published UK DWS and EQS screening criteria, in line with assessment of water quality during previous investigation works. In the event the results of this sampling indicate a deterioration of water quality, it will be necessary to consider further likely causes and linkage to ongoing remediation activity. A contingency plan is in place to mitigate likely causes of mobilisation of groundwater contaminants, such as surface water management and temporarily covering exposed ground to reduce filtration.



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The frequency of water quality sampling will increase during the course of soil and groundwater remediation works, the scope of which is further elaborated upon within the Remediation Method Statement. Of particular note in this regard the results from water quality testing data during the soil and groundwater remediation phase, or following the removal of any hard standing, as it may indicate an increased mobility of contamination into the groundwater table that could require action.

Similarly, the monitoring wells indicated for retention and further monitoring / sampling have been agreed with the Environment Agency as part of the collation of this strategy. In the event that any of these wells are lost or damaged the contractor will be required to advise the Environment Agency of the damage and make good any associated repair or replacement.

4.0 MONITORING REGEME

Beyond the background level of monitoring, the below frequencies of monitoring will be adopted to suit changing site condition with respect to the phasing of the Enabling Works and remediation.

The below is summarised in a Water Monitoring Plan diagram and Anticipated Programme appended to this report in appendix C and D respectively.

4.1 Background Monitoring

As set out in Section 3.0 a background level of monitoring is to be completed by the Environmental Consultant.

Frequency

- Level - 1/month
- Quality - 1/quarter

4.2 Enabling Works/Remediation Phase Monitoring

4.2.1 Remediation of Area A

Summary description of remediation – brownfield soil remediation and general earthworks outside of the area of suspected TCE contamination. Risk to TCE contamination plume considered low as works occur outside of the area of contamination.

This phase also includes installation of a contiguous piled retaining wall and removal of material known as the Network Rail mound. Due to the potential for the below ground piles to locally adjust groundwater flows, increased quality monitoring is suggested from the point of pile installation, although being outside the zone of identified TCE groundwater contamination this risk of mobilising contamination is considered low. Risk to ground water will be considered as part of the piling risk assessment to be completed in pursuit of discharge of planning condition 20 and this monitoring plan will be updated should a change in monitoring frequency be recommended.

Monitoring completed by – Environmental Consultant.

Frequency

- Level - 1/month
- Quality - 1/quarterly – Increasing to monthly on installation of the piled retaining wall

4.2.2 Remediation of Area B

Summary description of remediation – Removal of hard standing and removal of soil at risk of TCE contamination. Removal of hardstanding increases the rate of surface water filtration, increasing risk of further contamination leaching, and increased mobility of groundwater. Further, excavation of contaminated soils has potential to increase and concentrate surface water, further increasing the potential of surface water filtration.

Monitoring completed by – Environmental Consultant

Frequency

- Level - 2/month
- Quality - 2/month

4.2.3 Remediation of Groundwater

Summary description of remediation – Groundwater remediation via in-situ chemical reduction (ISCR). Changes to groundwater due to in-situ treatment increases risk of mobilisation of contaminants, thus increased frequency of testing is appropriate. The frequency is to be determined by the specialist groundwater remediation contractor such that it reflects their remediation design and working method. The level of testing required will be confirmed in the remediation contractors Detailed Remediation Implementation Strategy, submitted in pursuit of planning discharge of condition 17 for the Ground Water remediation phase.

Monitoring completed by – Specialist Remediation Contractor.

The testing strategy is to be agreed between specialist and the Environmental Consultant. Results are to be shared with Environmental Consultant for consistency of records and validation reporting. Testing will not be replicated by the Environmental Consultant due to potential to conflict with well replenishment times.

Frequency

- Level - TBC
- Quality - TBC

It is noted that the remediation contractor may wish to commence monitoring for a period up front of the groundwater remediation phase, to establish their own background readings. This will need to be agreed between the Environmental Consultant and the Remediation Contractor to ensure continuity of monitoring and avoid conflict in well replenishment.



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4.3 Subsequent Validation Monitoring

A period of monitoring will need to extend beyond the completion of the groundwater remediation, to validate effectiveness of the remediation. This period and frequency will be determined by the Specialist Remediation Contractor and reviewed and confirmed by the Environmental Consultant. The level of testing required will be confirmed in the remediation contractors Detailed Remediation Implementation Strategy, submitted in pursuit of planning discharge of condition 17 for the Ground Water remediation phase.

Subsequent to this, monitoring of groundwater will extend into the Construction Phase, with enhanced monitoring during substructure activities (piling and foundations) and background monitoring beyond this.

4.4 Groundwater remediation validation period

Monitoring completed by – Specialist Remediation Contractor. The level of testing required will be confirmed in the remediation contractors Detailed Remediation Implementation Strategy, submitted in pursuit of planning discharge of condition 17 for the Ground Water remediation phase.

Frequency

- Level - TBC
- Quality - TBC

4.5 Main works substructure activities

Monitoring completed by – Environmental Consultant.

Frequency

- Level - 1/month
- Quality - 1/month

4.6 Main works background monitoring

Monitoring completed by – Environmental Consultant.

Frequency

- Level - 1/month
- Quality - 1/quarter

5.0 TRIGGER VALUES

The intent of ongoing water monitoring is to highlight the presence of mobilised groundwater contamination. This would manifest itself primarily as an increase in contaminant concentration in a borehole under observation. For a monitoring well that has no previous record of contamination a simple trigger value would be a move from nothing to a positive identification of any given contaminant, but for others with a historic variation in values there is no guarantee that the maximum background level of contaminant has been recorded.

As a general guide an increase in contaminant concentration of 10% could be viewed as evidence of mobilisation, but if considered against a well recording a significant historic variation this could be conservative limit and trigger unnecessary action of contingency plans.

For example, borehole RBH203 records levels of Carbon Tetrachloride of 84µg/l min and 265µg/l maximum an increase of 315%, thus a 10% increase from the highest report value, a value of 291µg/l, may simply be a natural fluctuation in the background concentration.

In order to deal with historic variance in quality reading it is recommended that monitoring trigger values are split into 2 suggested values as tabulated below. A 'watch' value and a 'trigger' value.

A 'watch' value may be viewed as a natural increase in the background reading and is not seen as a concern in isolation, but if viewed in combination with a number of other 'watch' values is viewed as evidence that ground water contamination is being mobilised and consideration should be given to implementation of a contingency plan.

A watch value being 10% increase of the maximum recorded value, or a minimum of 1µg/l.

A 'trigger' value may be sufficient if viewed in isolation as evidence of mobilisation of groundwater contamination and consideration should be given to implementation of a contingency plan.

A trigger value being the maximum of

- 10% increase from the maximum recorded value
- 10% increase from the maximum recorded value, plus 10% of the variation range
- Minimum of 10µg/l

Ultimately it will be down to the Environmental Consultant to interpret the monitoring results and consider when evidence of mobilisation has occurred and when to implement a contingent approach.

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Trigger values will be reviewed and updated with all subsequent background monitoring tests up to the point of remediation implementation commencing with Phase area B, or the piled retaining wall (start of enhanced water monitoring).

	LKBH01	LKBH01 (Duplicate)	LKBH01			
Date	27/03/2022	27/03/2022	19/01/2023			
Trichloroethene	2	2	2			
<i>trans</i>	430	435	623			
Vinyl Chloride	16	15	11			
Carbon Tetrachloride	<1	<1	3			
Chloroform	<1	<1	2			

	RBH203	RBH203	RBH203	RBH203	RBH203	RBH203
Date	27/03/2022	04/10/2022	19/01/2023	04/05/2022	10/05/2023	13/11/2023
Trichloroethene	480	572	418	214	200	215
<i>trans</i>	2	2	4	4	3	4
Vinyl Chloride	<1	<1	<1	<1	<1	<1
Carbon Tetrachloride	95	104	265	164	107	84
Chloroform	54	77	195	163	121	59

	RBH305	RBH305	RBH305			
Date	04/05/2022	11/05/2023	13/11/2023			
Trichloroethene	3	<1	<1			
<i>trans</i>	<1	<1	<1			
Vinyl Chloride	<1	<1	<1			
Carbon Tetrachloride	2	<1	<1			
Chloroform	3	2	<1			

	RBH501					
Date	13/11/2023					
Trichloroethene	27					
<i>trans</i>	2					
Vinyl Chloride	<1					
Carbon Tetrachloride	17					
Chloroform	40					

	RBH502 P1					
Date	13/11/2023					
Trichloroethene	3					
<i>trans</i>	<1					
Vinyl Chloride	<1					
Carbon Tetrachloride	24					
Chloroform	21					

	RBH503					
Date	13/11/2023					
Trichloroethene	<1					
<i>trans</i>	200					
Vinyl Chloride	44					
Carbon Tetrachloride	<1					
Chloroform	<1					

	RBH505 P1					
Date	13/11/2023					
Trichloroethene	<1					
<i>trans</i>	<1					
Vinyl Chloride	<1					
Carbon Tetrachloride	<1					
Chloroform	<1					

	RBH505 P2					
Date	13/11/2023					
Trichloroethene	<1					
<i>trans</i>	<1					
Vinyl Chloride	<1					
Carbon Tetrachloride	<1					
Chloroform	1					

	RBH504					
Date	13/11/2023					
Trichloroethene	17					
<i>trans</i>	151					
Vinyl Chloride	<1					
Carbon Tetrachloride	14					
Chloroform	13					



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APPENDIX A – BOREHOLE RETENTION PLAN

GROUNDWATER MONITORING WELLS

BH I.D.	Easting	Northing	Response zone from (mOD)	Response zone to (mOD)	Lithology at response zone
RBH505 P1	384588.94	399458.10	26.91	19.61	CF
RBH505 P2	384588.94	399458.10	18.41	16.91	MM
RBH504	384644.07	399415.75	29.54	22.09	CF
RBH503	384612.61	399439.30	26.65	21.65	CF
RBH502 P1	384599.85	399394.37	28.09	15.29	CF
RBH502 P2	384599.85	399394.37	14.29	13.29	MM
RBH501	384638.99	399388.87	29.09	18.59	CF
RBH403	384717.73	399423.13	31.98	26.53	RD
RBH401	384697.40	399411.32	32.02	26.57	RD
RBH301	384576.68	399444.27	27.41	21.41	CF
RBH302	384608.42	399383.57	28.59	21.59	CF
RBH303	384640.07	399422.36	28.01	23.01	CF
RBH304	384680.66	399402.07	29.66	25.66	Terrace Deposits
RBH305	384636.01	399469.21	27.15	23.15	CF
RBH306	384692.00	399446.81	24.73	22.73	MM
RBH307	384749.15	399493.27	30.84	19.84	MM
RBH201	384597.08	399455.18	10.40	6.40	MM
RBH202	384638.05	399446.26	11.76	7.76	MM
RBH203	384619.36	399403.83	23.59	18.59	CF
RBH205	384721.68	399517.64	11.38	6.38	MM
RBH206	384701.70	399491.17	11.00	7.00	MM
RBH207	384797.90	399510.73	16.17	11.17	MM
RBH208	384757.48	399461.38	23.00	18.00	MM
RBH209	384796.49	399492.29	28.46	23.46	MM
RBH210	384845.14	399489.02	21.38	16.38	MM
LKBH01	384593.48	399443.85	26.41	16.41	CF & MM
LKBH03	384634.56	399391.59	30.59	13.59	CF & MM

ALL GROUNDWATER MONITORING WELLS ARE TO BE RETAINED UNTIL THE GROUNDWATER REMEDIATION DESIGN IS FINALISED BY THE REMEDIATION CONTRACTOR

RETAINED MONITORING WELLS ARE TO HAVE RAISED COVERS FITTED TO PROVIDE ADDITIONAL PROTECTION DURING DEMOLITION WORKS.

DECOMMISSIONING OF WELLS IS TO BE UNDERTAKEN IN ACCORDANCE WITH ENVIRONMENT AGENCY SC020093 "GUIDANCE ON THE DESIGN AND INSTALLATION OF GROUNDWATER QUALITY MONITORING POINTS".

1. TO BE READ IN CONJUNCTION WITH ROC CONSULTING PHASE 1 DESKTOP STUDY REF: 4328-ROC-ZZ-XX-RP-ES-PH1DTS AND PHASE 2 SITE INVESTIGATION REPORT REF: 4328-ROC-ZZ-XX-RP-ES-P2-101.
2. EXPLORATORY HOLE LOCATIONS SHOWN AT APPROXIMATE EXTENTS.
3. EXISTING SITE LEVEL INFORMATION TAKEN FROM PARAGON SURVEYS TOPOGRAPHICAL SURVEY REF: PS-2158-T5--00
4. ROC CONSULTING ACCEPTS NO RESPONSIBILITY FOR ANY DAMAGES OR LOSS ARISING AS A RESULT OF THE USE OF THIS DRAWING

DRAWN RM	DATE JAN 24	SCALES 1:500
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APPENDIX B – PHASING PLAN



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Plots NT02, NT03, NT04 Enabling Works

Phasing Plan

1.0 Introduction

This phasing plan has been developed in response to Condition 4 of planning application 136814/FO/2023, Land bound by Dantzic Street, Dalton Street and the Railway Line known as Plots NT02, NT03 and NT04.

This note describes the phasing and outline scope of works to be completed within the defined Enabling Works, specifically in relation to site remediation. This note should be read in conjunction with appended drawings RDB-ROC-XX-XX-DR-C-PP01 and PP02 which defines the areas of the Enabling Works Phases as summarised below. The main intent of the phasing is to differentiate areas of the site into that which requires soil and ground water remediation owing to the presence of TCE contamination, and that which does not.

2.0 Prior works

In accordance with Condition 4 attached to 136814/FO/2023, the scope of works prior to the Enabling Works Phase includes:

- Vegetation Clearance
- Site Setup
- Above ground demolition
- Services disconnection (approx. 10 number private electric, water, comms and gas connections to the at back of footpath of Dantzic Street and Dalton Street)

3.0 Soil Remediation Phase

The scope of the Soil Remediation Phase is defined on drawing RDB-ROC-XX-XX-DR-C-PP01. The objective of the Enabling Works Soil Remediation Phase is to complete site clearance, below ground demolition, bulk earthworks, and material selection in preparation for the following Construction Phase. The Soil Remediation Phase also includes installation of a contiguous piled retaining wall to allow partial removal of an earthworks mound supporting the adjacent Network Rail land, known as the NR Mound. Following completion of the new retaining wall the residual mound will be removed as part of the general earthworks under this phase.



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The Soil Remediation Phase has been separated into two areas. Area A is defined as soils without TCE contamination. Whereas Area B is defined as soils potentially containing elevated levels of TCE contamination that need further consideration from a remediation perspective.

In accordance with the requirements of condition 17 attached to 136814/FO/2023 a remedial strategy addressing the full scope of remedial works required for the proposed development has produced and will be submitted for formal approval in due course. A summary of the scope of work anticipated for the soils remediation 'enabling phase' (taken from the wider remedial strategy) is presented below:

- Identify and protect bore holes retained for testing
- Ground water monitoring via existing wells to continue
- Soil scrape and removal from Area A
- Removal of hardstanding from Area A
- Turnover and removal of obstructions
- Select and sort material for reuse or export
- Excavate and removal of soils from Area A (formation of basement excavations)
- Formation of piling platform using site won material
- Installation of piled retaining wall
- Removal of NR mound
- Removal of hardstanding from Area B
- Removal of contaminated soils from Area B and replacement with selected fill
- Interim verification of soil screening and remediation

The medium pressure gas main will be diverted after the soil remediation phase.

Installation of the piled retaining wall shall be subject to submission and agreement to a piling risk assessment in accordance with condition 20 of application 136814/FO/2023.

3.1 Area B

The distinction of Area B is that the underlying made ground has been identified as being at risk of elevated levels of TCE contamination. In accordance with the requirements of condition 17 attached to 136814/FO/2023 a remedial strategy addressing the full scope of remedial works required for the proposed development has produced and will be submitted for formal approval in due course. The remediation strategy will be capture screening criteria for the remediation of the contaminated soils and ground water at risk of TCE contamination specific to Area B.



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The current hardstanding in Area B, including existing building slabs, is considered to offer some level of protection to prevent leaching of the TCE contamination to ground waters. Hardstanding areas in Area B are not to be removed as part of wider site clearance and must remain in place until immediately prior to remediation of the soils (maximum of 8 weeks).

An ongoing regime of groundwater monitoring is to be implemented as set out in the remediation strategy. This will monitor for changes in ground water contamination as a result of changes in site condition, notably slab removal, soil remediation and any intervening period between this and subsequent ground water remediation.

In the event that ground water contamination is seen to be mobilised as a result of changing site conditions a contingency plan is to be implemented.

3.2 Contingency Plan

Should the monitoring of ground water highlight mobilisation of ground water contamination, prior, during or subsequent to the Soil Remediation Phase a contingency plan needs to be implemented to prevent wider distribution of ground water contamination and risk to nearby receptors. The contingency plan is set out in the remediation strategy.

3.3 Gas Main Diversion

A medium pressure gas main diversion is to be implemented during the Enabling Works phase. The existing and proposed route is indicated on the Phasing Plan drawings RDB-ROC-XX-XX-DR-C-PP01 & PP02. The timing of the diversion is dependent on third party statutory contractors although it is envisaged to be completed subsequent to the soil remediation in Area B. On this basis, the new gas main will be installed within remediated soils.

The gas main is to be installed at a depth of circa 900mm meaning it will lie within remediated made ground deposits. The installation will not impact on or prevent future remediation of contaminated ground waters. The new gas main route will be recorded such that it can be acknowledged and incorporated within any subsequent ground water remediation design.

4.0 Ground Water Remediation Phase

The scope of the Ground Water Remediation Phase is defined on drawing RDB-ROC-XX-XX-DR-C-PP02.

An area of TCE contamination has been identified in the south west of the site, focused around the area of the existing warehouse on plot NT02. Remediation requirements



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have been outlined in the remediation strategy produced in response to Planning Condition 17.

As noted in the Soil Remediation Phase, hardstanding areas will remain in place until soil remediation activities are ready to proceed to minimise risk of contamination mobilisation due to surface water filtration.

On completion of the soil remediation, ground water monitoring will continue during the intervening period between soil remediation and ground water remediation to monitor for any increase in mobilisation of ground water contamination.

In the event that ground water contamination is seen to be mobilised as a result of changing conditions, a contingency plan is to be implemented. The contingency plan is as set out in the remediation strategy.

An interim remediation verification report will be completed recording implementation of the ground water remediation.

5.0 Verification

In accordance with the requirements of condition 18, a remedial verification report will be completed at completion of the Enabling Works phase. This 'Interim' verification report will record and report on remediation measures implemented during the Enabling Works phase (Soil Remediation Phase and Ground Water Remediation Phase) as recommended by the remediation strategy.

The detail of this verification is captured in the remediation strategy, but in summary this interim verification will capture, selection and removal of soil, removal of TCE contaminated soils, implementation of ground water remediation.

As per the wording of condition 18 attached to 136814/FO/2023, it is noted that following the commencement of the Construction Phase but prior to occupation, it will be necessary to submit further verification reporting confirming the successful conclusion of site remedial efforts, to capture installation of human health requirements for capping and membrane systems as identified in the remediation strategy. A verification report will be issued for each of the construction phases identified in the Construction Phase Plan, submitted under Condition 11, drawing upon and incorporating the interim verification report.

The construction phase will need to be reflective of the special extents of remediation requirements set out in the remediation strategy and the ground remediation completed in the Enabling Works phase.

6.0 Sequencing



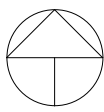
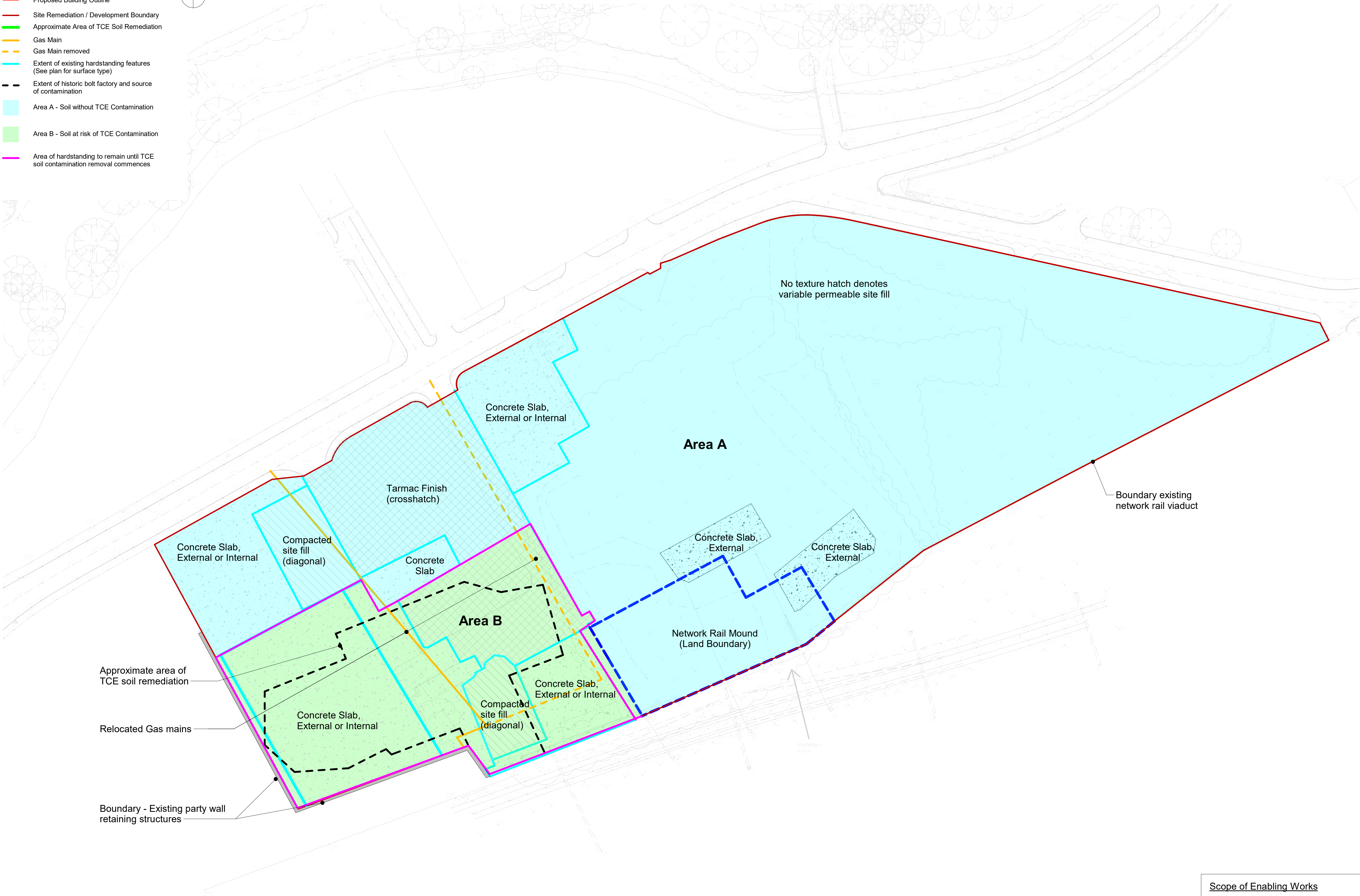
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Although the phasing of the site remediation is not intended to be interdependent, ie the soil remediation and ground water remediation phase, the following sequence of work is envisaged.

1. Soil Remediation Phase – Area A
 - This allows bulk earthworks to be mobilised, screened and sorted. Releasing site won made ground material allowed for follow on works including construction of the piling platform for the NR mound works and stockpiling of screened material for replacement of contaminated soils removed in Area B
2. Network Rail Retaining Wall
3. Soil Remediation Phase – Area B
 - This will commence with removal of all hardstanding within Area B, which is only to commence at the point which soil remediation is ready to start. The soil remediation will precede ground water remediation and ground of the following:
 - o Allows for removal of hardstanding and obstructions to assist water remediation by means of penetrative methods
 - o Removes contamination source from soils to reduce further leaching of contamination to remediated ground waters
 - o Clears soils ahead of the gas main diversion
 - o The ground water remediation will introduce a further network of monitoring points which could not be maintained while bulk earthworks take place
4. Gas Mian Diversion
5. Ground Water Remediation
6. Verification

REMEDATION LEGEND

- Proposed Building Outline
- Site Remediation / Development Boundary
- Approximate Area of TCE Soil Remediation
- Gas Main
- Gas Main removed
- Extent of existing hardstanding features (See plan for surface type)
- Extent of historic bolt factory and source of contamination
- Area A - Soil without TCE Contamination
- Area B - Soil at risk of TCE Contamination
- Area of hardstanding to remain until TCE soil contamination removal commences



00 ENABLING WORKS - PHASING PLAN
1 : 500

Scope of Enabling Works

Earthworks and Ground Remediation

- Soil scrape and remove
- Break out hardstanding (Area A)
- Turnover and remove obstructions
- Select and sort material for reuse/export
- Excavation and removal of soils excluding TCE contamination (Area A)
- Formation of piling platform using site won material
- Installation of piled retaining wall
- Removal of Network Rail mound
- Removal of hardstanding (Area B)
- Removal of TCE contaminated soil and replace with selected site won material (Area B)
- Diversion of existing gas main

Prior Works

- Vegetation clearance
- Above ground demolition
- Services disconnection

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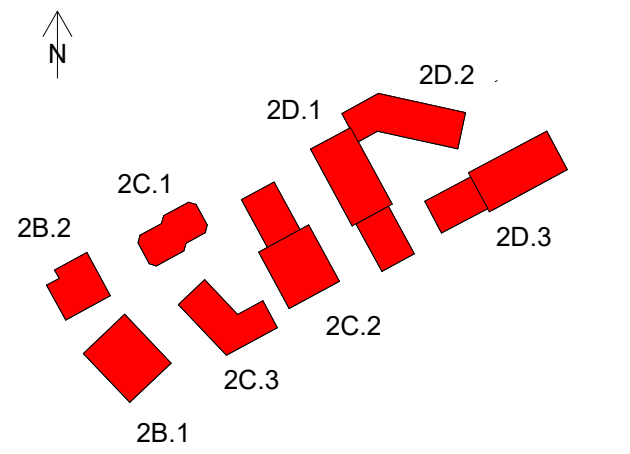
WORK IN PROGRESS

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NOTES

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5. All levels are in metres above Ordnance Datum unless noted otherwise.
6. For Concrete Grades and RC Estimates see general notes drg 8050.
7. This drawing is to be read in conjunction with general notes drg 8050.
8. For Loading Information refer to Drg 8080+

VOLUME / BLOCK PLAN



P02	24.11.2023	SCOPE OF ENABLING WORKS & GROUND WATER REMEDIATION	SJB	MJN	
P01	31.10.2023	INITIAL ISSUE	EGP	IMN	
REV	DATE	DETAILS	DRN	CHK	

PRELIMINARY
STAGE 3

R&C

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DRAWN EGP	DATE 02.11.2023	SCALES As indicated
CHECKED MN	DATE 02.11.2023	THE ABOVE SCALES APPLY WHEN PLOTTED AT A1 SIZE -DO NOT SCALE-
APPRVD MN	DATE 02.11.2023	EMAIL FOR DRAWINGS: info@roconsulting.com

CLIENT
FEC

PROJECT TITLE
RED BANK DEVELOPMENT

DRAWING TITLE
**BLOCK XX
ENABLING WORKS SOIL
REMEDATION
PHASING PLAN**

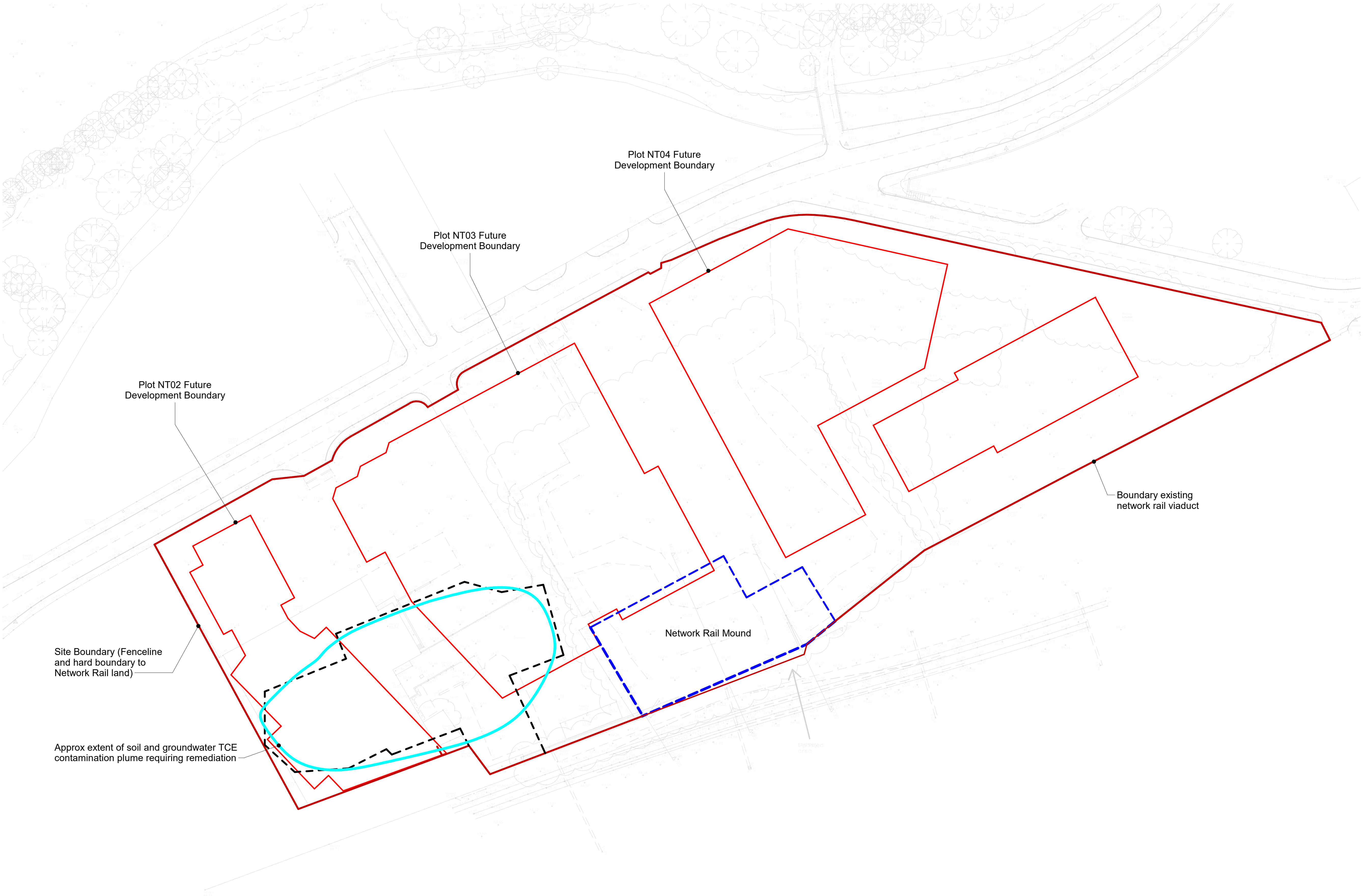
DRAWING No. RDB-ROC-XX-XX-DR-C-PP01	REV. P02
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REMEDIATION LEGEND

- Site Remediation / Development Boundary
- Approximate Area of TCE Ground Water Remediation
- Extent of historic bolt factory and source of contamination

NOTES

1) Assumed soil & groundwater TCE plume extents taken from model input parameters used in the Level 2 and Level 3 DQRA modelling assessment (see RSK Geosciences report ref :11847 R01(01) dated December 2023 for further information). Actual spatial extent may vary on site and the extents shown on this plan should be considered as indicative.



1

GROUND WATER REMEDIATION PLAN
1 : 500

Scope of Ground Water Remediation

- TCE ground water remediation

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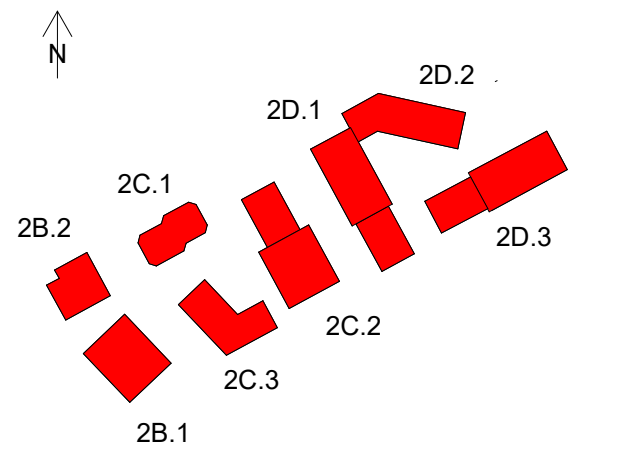
WORK IN PROGRESS

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VOLUME / BLOCK PLAN



P02	21.12.2023	SCOPE OF GROUND WATER REMEDIATION	SJB	MJN	
P01	24.11.2023	SCOPE OF ENABLING WORKS & GROUND WATER REMEDIATION	SJB	MJN	
REV	DATE	DETAILS	DRN	CHK	

DRAWING STATUS
PRELIMINARY

RIBA STAGE
STAGE 3

ROC

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APPRVD MJN	DATE 11.2023	EMAIL FOR DRAWINGS: info@roconsulting.com

CLIENT
FEC

PROJECT TITLE
RED BANK
DEVELOPMENT

DRAWING TITLE
BLOCK XX
GROUND WATER
REMEDIATION PHASE
PLAN

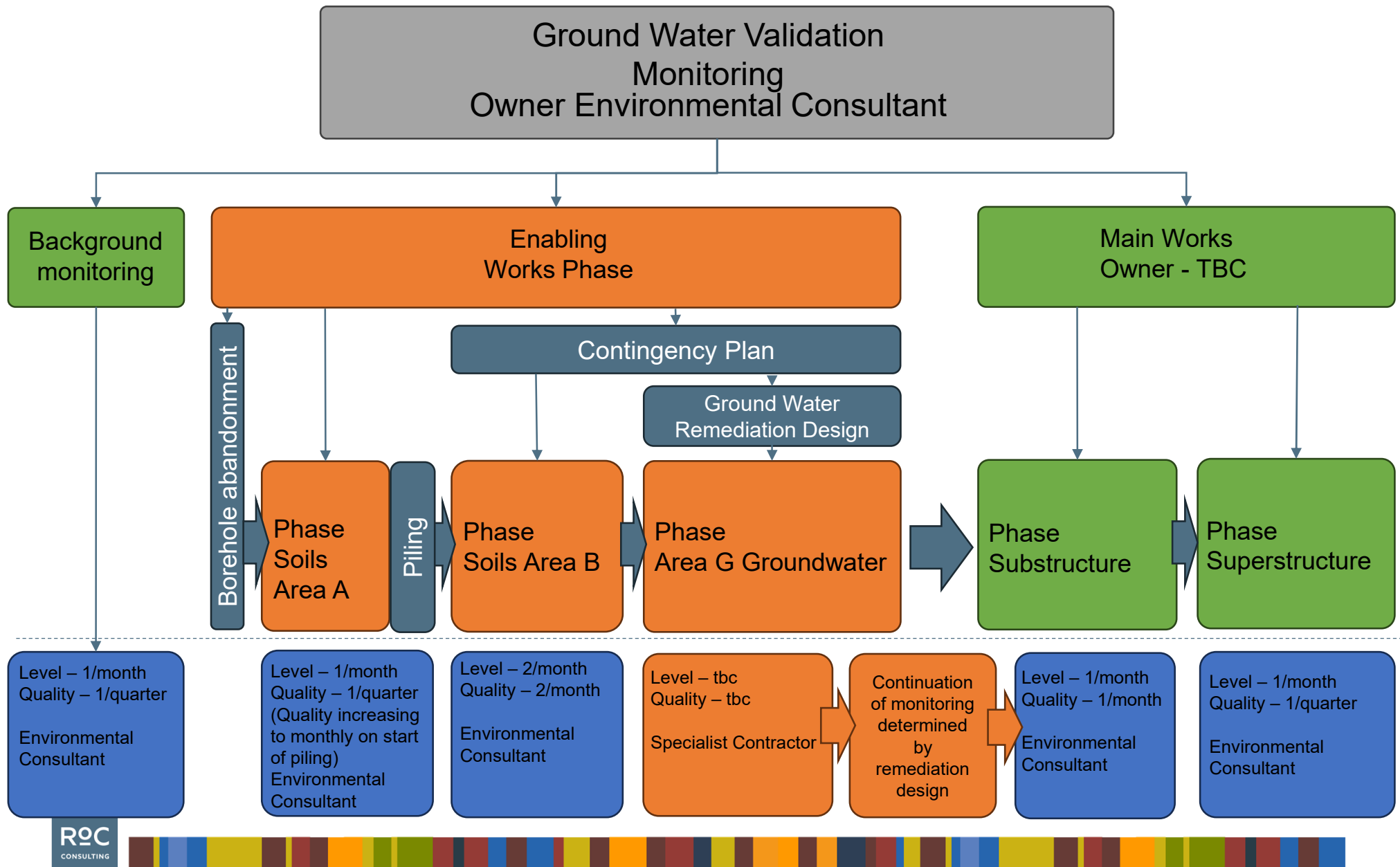
DRAWING No. RDB-ROC-XX-XX-DR-C-PP02	REV. P02
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**COMPLEX CHALLENGES ...
MADE SIMPLE**

APPENDIX C - WATER MONITORING PLAN

Ground Water Monitoring Plan

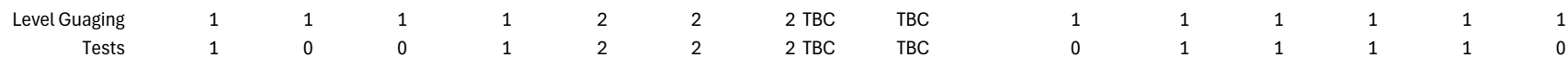




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APPENDIX D – ANTICIPATED MONITORING PROGRAMME

Month	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Ongoing



Key

Background monitoring
Enhanced monitoring
Verification monitoring



STRATEGIC LAND



EARTH SCIENCES



CIVIL ENGINEERING



STRUCTURAL ENGINEERING



SPECIAL PROJECTS



COMPLIANCE MONITORING

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