



Haigh Huddleston & Associates

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Our Ref: E20/7766/MD/004

Date: 23 February 2026

FAO Ilyas Bhamji

ilyas@hbfoodsltd.co.uk

Dear Sir,

**Re: Remediation Method Statement for Proposed development at Vulcan Works,
Vulcan Road, Eightlands, Dewsbury**

1. INTRODUCTION

- 1.1 Haigh Huddleston & Associates have been requested by HB Foods Ltd to provide a remediation statement for the proposed development off Main Street, Methley.
- 1.2 The purpose of the document is to specify the remediation philosophy for the site and to specify the fill materials that are required for the controlled backfilling and capping of the site.
- 1.3 Site investigation works have previously been undertaken by HH&A and are detailed in their report ref: E20/7766/R001 dated May 2021, with subsequent gas monitoring detailed in letter ref: E20/7766/JF/02 dated 20th August 2021 and preliminary remediation proposals put forward in letter reference E20/7766/MD/03 dated 6th December 2023. These reports and correspondence have been utilised to compile this Remediation Statement.

2. RESULTS OF THE INVESTIGATION

- 2.1 The site investigation works proved up to 1.1m of made ground overlying clays with a mudstone bedrock encountered at 1.7-2.0m in the northern half of the site. In the southernmost trial pits, the clay strata extended to the base of the trial pits, with the boreholes proving mudstone bedrock at 2.5-2.8m below existing ground level.
- 2.2 Two coal seams, or a single coal seam that split as it outcropped, were encountered in the boreholes in the south of the site. The upper coal seam was 0.6-1.0m thick and encountered at depths of 1.5-3.8m below existing ground levels in three of the boreholes undertaken. The lower coal seam was 0.4-0.8m thick and encountered at depths of 6.0-7.0m below existing ground levels. There was no evidence of either coal seam having been worked.
- 2.3 Due to the location of stockpiled material on site, it was not possible to undertake trial trenching to locate the fault line recorded crossing the southern quarter of the site from west to east.

- 2.4 In the original SI Report it stated that there was an elevated level of Arsenic of 48 mg/kg within TP05. However, the tier 1 trigger level for Arsenic for commercial use is 640 mg/kg, so this is not considered a risk to future site users. No elevated levels of contaminants with regards to the SGV levels for commercial use were recorded in the samples taken from site.
- 2.5 The made ground in TP01A and TP05 proved positive for asbestos in the form of Amosite and Chrysotile bundles respectively.
- 2.6 On site, no methane was detected. Carbon dioxide values were found between 0.1 and 8.7% with oxygen levels between 6.9 and 20.9%. A maximum steady flow rate of 2.7 l/hr was recorded during the gas monitoring. Based on the maximum concentrations of carbon dioxide recorded, the gas regime found on this site can be currently classified as CS2 by BS 8485:2015 +A1:2019 Table 2.
- 2.7 In addition to the risk to future site users from the elevated carbon dioxide, there is a low risk to construction works within confined spaces due to the depleted oxygen concentrations recorded. This should be risk assessed on site.

2.8 REVISED CONCEPTUAL MODEL

- 2.8.1 In HHA Report E20/7766/R001 dated May 2021 it was noted that there had been little previous historical use of the site that was likely to have caused contamination.
- 2.8.2 Site investigation works have proved asbestos within the made ground on site, shallow coal seams and elevated levels of PAH contaminants and asbestos within the ashy made ground in TP02 on the eastern boundary. Elevated levels of carbon dioxide have been detected in the made ground to the south of the site.
- 2.8.3 The development of the site therefore exposes the developers and future site users to the following risks:
- i) Asbestos within the made ground on site.
 - ii) Ground gas migration from made ground and shallow coal.
 - iii) Risk of combustion of shallow coal on site.
 - iv) Possible mining features associated with the shallow coal on site.
 - v) Fault line in southern quarter of the site.
- The risk to the developers and future site residents is therefore considered to be low/medium and remediation measures will be required to address there.

2.9 REMEDIATION OBJECTIVES

- 2.9.1 From the above, the remediation works required can be stated as follows:
- Contamination pathway to asbestos containing material to be severed
 - Site strip to determine presence of potential surface mining features and recorded fault line
 - Shallow coal to be made safe from potential combustion risk
 - Validation of gas protection measures

3. REMEDIAL PROPOSALS

3.1 SEVERING OF CONTAMINATION PATHWAY

- 3.1.1 Outside the footprint of the proposed industrial unit is to be tarmacked hardstanding, which will effectively sever the contaminant pathways from the made ground to future site users.
- 3.1.2 Where possible, made ground should be relocated beneath the footprint of the proposed building, or under the hardstanding away from any buried utilities. Priority should be given to relocating the asbestos containing material identified on site at the base of any infilling.
- 3.1.3 Where made ground cannot be accommodated beneath the proposed building or hard standing, it should be excavated and stockpiled on site to allow testing of the material prior to removal from site. Should the material prove positive for asbestos, consideration should be given to asbestos quantification testing to determine whether the material is considered hazardous.
- 3.1.4 Waste transfer tickets and analysis results for all material removed from site should be kept to confirm the material has been safely disposed of from site.

3.2 FURTHER INVESTIGATION WORKS

- 3.2.1 During site clearance works, the southern third of the site should be stripped to the underlying natural clays to allow the exposed strata to be inspected for discolouration/signs of surface features indicating the shallow coal may have been worked beneath the site.
- 3.2.2 In addition to the site scrape, trial trenches should be undertaken to determine the presence of the fault line recorded crossing the site from west to east in the southern quarter of the site. If the fault line is located, the foundations should be designed to accommodate potential movement associated with the fault line.
- 3.2.3 The location of the site scrape and the approximate location of the recorded fault line are indicated on the plan to the rear of this report.

3.3 SHALLOW COAL

- 3.3.1 If the coal strata is encountered within the foundation, service or drainage excavations, the coal seam should be immediately sealed to prevent spontaneous combustion via a 250mm thick sacrificial concrete barrier across the entire exposed face of the seam. All trenches to be infilled with inert material. Any foundations should be taken beneath the coal seam to the underlying natural strata.
- 3.3.2 Due to the potential of combustion, a minimum of 1m clean inert cover should be provided to the shallow coal seams where they are encountered on site. If the final proposed levels do not allow for 1m cover to be provided, the coal should be excavated to a minimum of 1m below proposed ground levels for at least 2m outside the building footprint prior to clean capping being installed.

- 3.3.3 Waste transfer tickets for any material removed from site to accommodate the proposed inert capping layer should be kept to confirm the material has been safely disposed of from site.

3.4 GAS PROTECTION MEASURES

3.4.1 When consulting BS 8485:2015 Table 2 the site can be characterised as CS2 for Type D buildings (any small rooms within the proposed development such as W/C's are categorized as Type C). Furthermore, when consulting table 4, a score of 1.5 is suggested for Type D buildings and 2.5 for Type C buildings. Consulting tables 5 - 7 we would recommend the following to achieve a score of 2.5 (based off a worst case scenario) due to the potential for long term build-up of gases beneath the ground floor slab:

- | | |
|---|-------------------|
| - Cast in situ ground-bearing floor slab with only nominal mesh reinforcement. | 0.5 Points |
| - Fully vented minimum 150mm deep void below suspended slab. To be increased to 250mm where the proximity of trees affect the foundation construction. | 0 Points |
| - Continuous membrane across the cavity/party walls. | 0 Points |
| - Cavity tray in the external walls. | 0 Points |
| - Fully sealed service entries and ducts to manufactures specification. | 0 Points |
| - A Suitable Gas Barrier meeting all of the following criteria: | 2.0 Points |
| <ul style="list-style-type: none"> • Sufficiently impervious to gasses with a methane gas Transmission rate <40.0ml/day/m²/atm (average) for sheets and joints (tested in accordance with BS ISO 15105-1 manometric method). • Sufficiently durable to remain serviceable for the anticipated life of the building and duration of gas Emissions. • Sufficiently strong to withstand in-service stresses (eg. Settlement if placed below a flood slab). • Sufficiently strong to withstand the installation process And following trades until covered (eg. Penetrations From steel fibres in fibre reinforced concrete, Penetration from reinforcement ties, tearing due to Working above it, dropping tools etc.) • Capable, after installation, of providing a complete Barrier to the entry of the relevant gas. | |
| - Verified in accordance with CIRIA C735 [N1] | |
| Total | 2.5 Points |

- 3.4.2 No Radon Protective Measures are necessary for the development. However, a number of warranty providers consider it good practice to provide basic radon protective measures as standard and they should be consulted at an early stage to confirm their requirements.
- 3.4.3 Due to the depleted levels of oxygen recorded on site there is a risk to construction and maintenance workers on the site within confined spaces such as excavations and manhole chambers. A confined spaces risk assessment should be carried out prior to working in any buried structures or excavations.

4. REMEDIATION VALIDATION

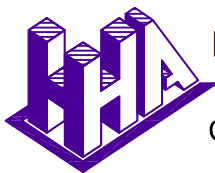
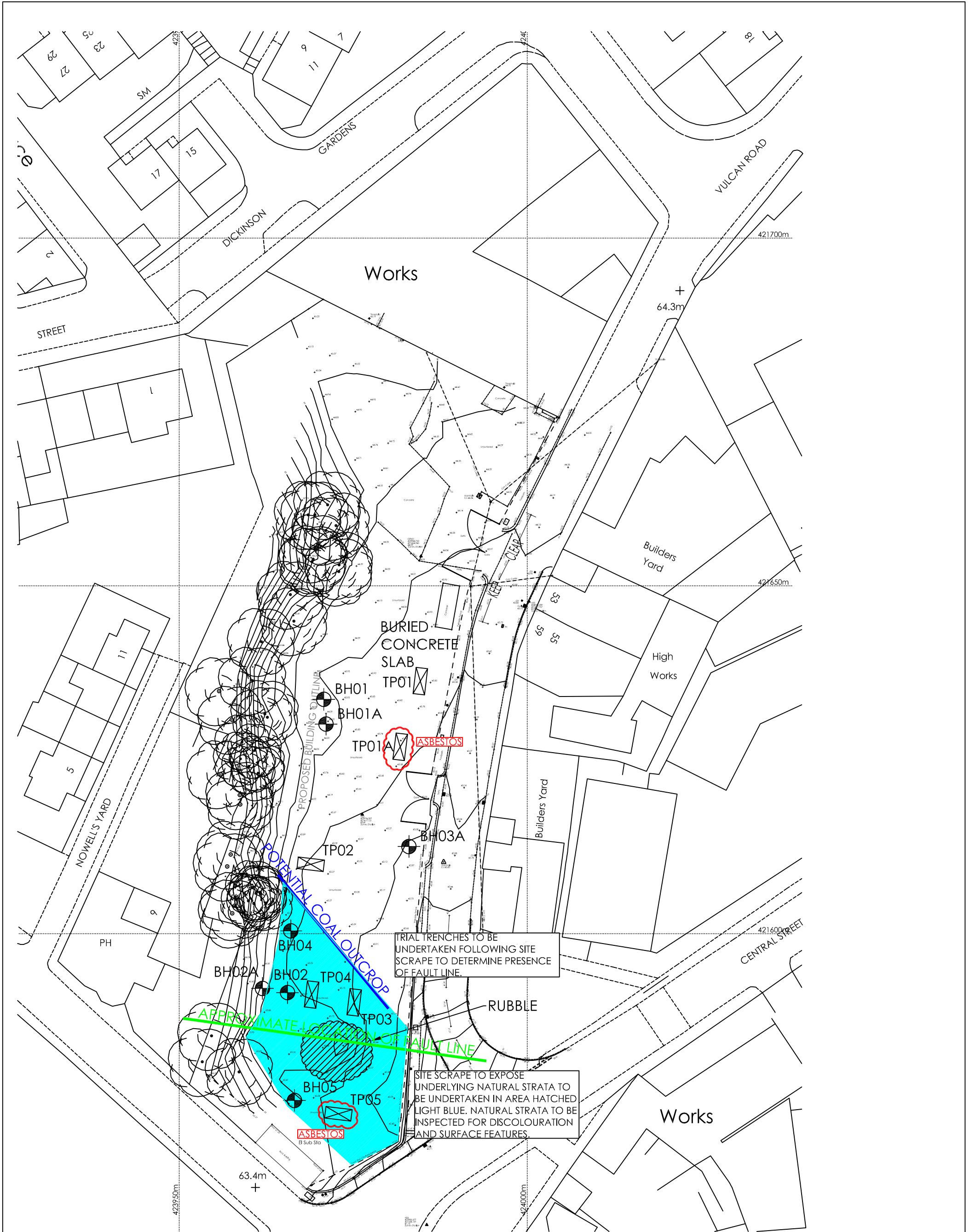
- 4.1 Photographic evidence to be recorded of the excavation of all contaminated made ground and waste transfer tickets provided and submitted to the local authority and warranty provider confirming the completion of the works.
- 4.2 Photographic evidence to be recorded of the exposed natural strata and the depth to the underlying coal strata to confirm that a minimum depth of 1m of inert capping has been provided to the coal seam.
- 4.3 If suspected contaminated material is found during remediation works, the independent consultant must be contacted and the extent of it must be established by further testing. All contaminated material must be relocated beneath the building footprint, or beneath the hardstanding away from buried utilities. Where this is not possible, the material should be removed from site to a licensed waste facility site and replaced by equivalent uncontaminated material.
- 4.4 Installation of the gas protection measures to be inspected and validated by an independent engineer to ensure the installed measures are suitable and in accordance with the above proposals.
- 4.5 All imported certified material should be placed immediately. If this is not possible, or the material is not certified and sampling is to be carried out prior to being laid, it should be securely stored on site prior to use to prevent possible contamination from any materials on site.
- 4.6 All site records of material removed from and imported to site should be consolidated into a validation report. The report shall be completed in accordance with 'Yorkshire and Lincolnshire Pollution Advisory Group: Verification Requirements For Cover Systems'.
- 4.7 Clean material imported should be visually inspected to confirm it doesn't contain unsuitable materials (i.e. glass, brick, etc)

We trust that the above is sufficient for your current requirements, however should you need any further information please do not hesitate to contact me direct.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'M Dean', with a stylized, cursive script.

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Client					
HB FOOD SERVICES Ltd					
Project					
VULCAN WORKS, VULCAN ROAD					
Detail					
PROPOSED REMEDIATION PLAN					
Scale	Dwn	Chkd	Date	Dwg No.	
1:500	MD		Feb'26	E20/7766/03/02	

TIER 1 SOIL GUIDANCE VALUES FOR USE IN COMMERCIAL PROPERTIES

<u>CONTAMINANT</u>	<u>ICRCL – TTV / DEFRA – SGV</u> <u>MG/KG</u>
Arsenic	640 (4)
Cadmium	220 (4)
Chromium	130 (2)
Lead	2300 (4)
Mercury	58 (1)
Selenium	12000 (1)
Copper	68000 (1)
Nickel	980 (1)
Zinc	730000 (1)
Cyanide (total)	25
Sulphate	0.24% (3)
Sulphide	250
Thiocyanate	50
PAH (Total)	40
TPH (Total)	500
Phenols	760 (1)
PH	6-8
Asbestos	No fibres present

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- (2) DEFRA CLR SGV's withdrawn used for initial comparison
- (3) BS 8110 1985 Table 6.1
- (4) Category 4 Screening Level

TIER 1 SOIL GUIDANCE VALUES FOR USE IN COMMERCIAL PROPERTIES
(SPECIATED PAH)

<u>CONTAMINANT</u>	<u>SCREENING CRITERIA FOR PAH</u>
Acenaphthlene	84000 (1)
Acenaphthylene	83000 (1)
Anthracene	520000 (1)
Benz[a]anthracene	170 (1)
Benzo(a)pyrene	77 (2)
Benzo[b]fluoranthene	44 (1)
Benzo[ghi]perylene	3900 (1)
Benzo[k]fluoranthene	1200 (1)
Chrysene	350 (1)
Dibenzo[ah]anthracene	3.5 (1)
Fluoranthene	23000 (1)
Fluorene	63000 (1)
Indeno[123-cd]pyrene	500 (1)
Naphthalene	190 (1)
Phenanthrene	22000 (1)
Pyrene	54000 (1)

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- (2) Category 4 Screening Level

LQM S4UL SCREENING VALUES FOR SPECIATED EPH
(COMMERCIAL 1% SOM)

Petroleum Hydrocarbons	LQM S4UL Screening Values
Aliphatics	
C5-C6	3200
C6-C8	7800
C8-C10	2000
C10-C12	9700
C12-C16	59000
C16-C35	1600000
Aromatics	
C5-C7	26000
C7-C8	56000
C8-C10	3500
C10-C12	16000
C12-C16	36000
C16-C21	28000
C21-C35	28000