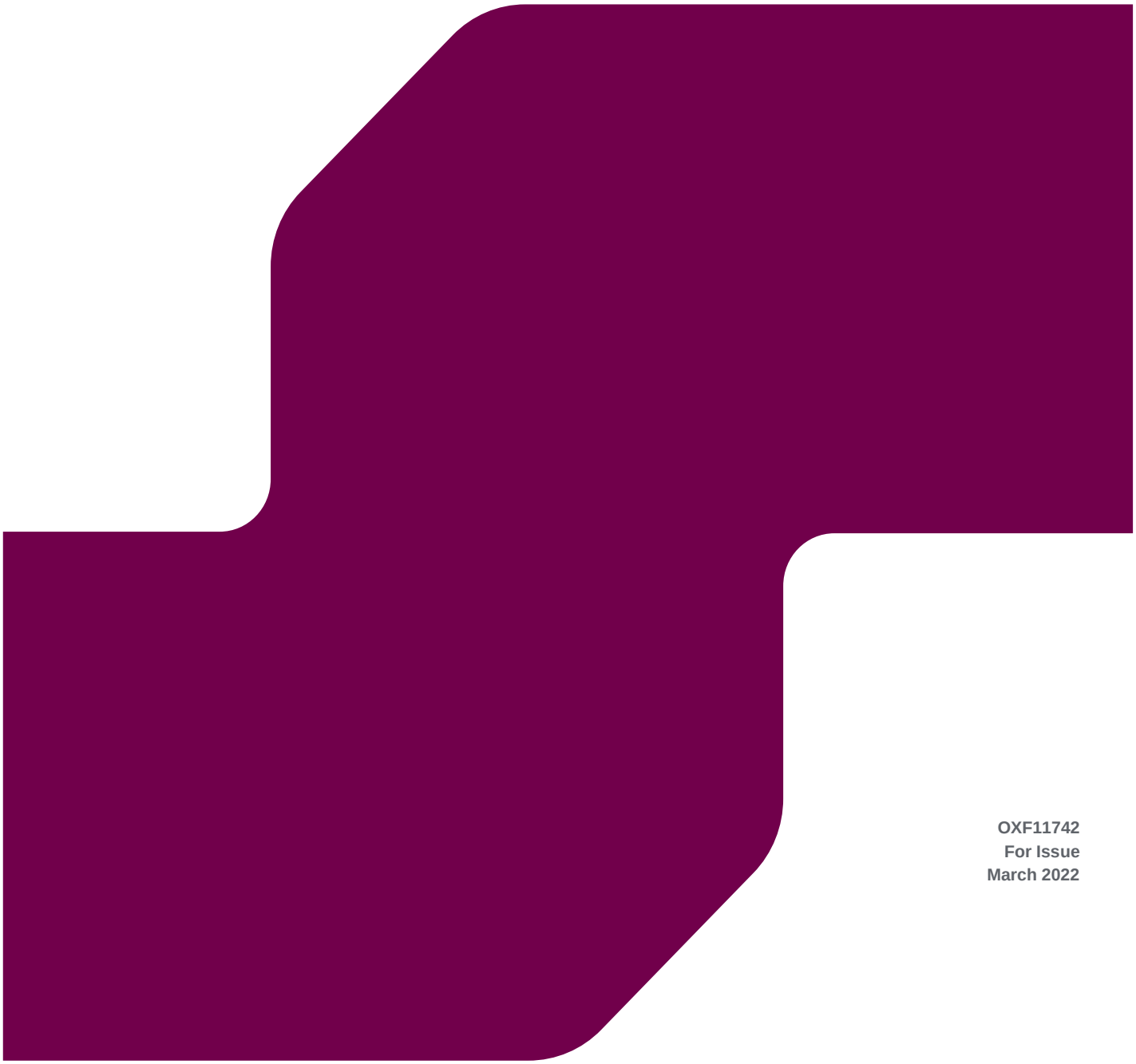
COALBURN ENERGY STORAGE FACILITY

EIA Report Appendix 10.1 Part A: Transport Assessment



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1 INTRODUCTION

1.1 This Transport Assessment (TA) has been prepared by RPS on behalf of Alcemi Storage Developments Ltd ('Alcemi') to support the development of the proposed Coalburn Energy Storage Facility (referred to in this report as 'the Project').

1.2 The Project site is located on land west of the M74 to the east of Coalburn, south of Motherwell and east of Kilmarnock. The Project would comprise a battery storage facility and related infrastructure.

1.3 The site comprises approximately 16.4 hectares of land within the administrative area of South Lanarkshire. The site location plan is attached at **Annex A.**

The Project

1.4 The Project comprises an energy storage facility with a capacity of up to 500 MW of electricity.

1.5 As described in Section 3, at the time of submission it is not possible to confirm the exact layout, location and design of the Project as the number and size of batteries and the type of energy storage technology may vary depending on the technology provider and other technical considerations, such as technological improvements. The final selection of technology will not progress until after consent has been granted

1.6 It is proposed that a new road access from the B7078 will be provided for use during construction and the operational phase.

Scope of Assessment

1.7 This TA has been prepared in line with National Planning Framework (NPF), Scottish Planning Policy (SPP), and Transport Assessment Guidance by Transport Scotland (2012). Local planning policies have also been considered.

1.8 An EIA Scoping Report was submitted and responses were received from Transport Scotland and South Lanarkshire Council. Although this scoping exercise was related to the Environmental Impact Assessment, the scoping responses are relevant to the proposals and has therefore informed the TA.

1.9 A separate consultation exercise was undertaken with South Lanarkshire Council with regards to the proposed access in October 2020 and this has also informed this TA. This is detailed further in Section 3.

1.10 When the Project is operational, there would not be any full-time employees associated with the day to day operations of the site, and only occasional maintenance trips would be generated, As a result, this TA focusses on the construction phase of the Project.

1.11 This report details the transport considerations of the Project and is divided into the following sections:

- **Section 2** – Existing Situation - describes the existing conditions at the Project site and surrounding transport network. It focuses on the accessibility of the site by non-car modes and also describes the surrounding road network;
- **Section 3** – Development Proposals - outlines the Project;
- **Section 4** – Transport Related Policies - reviews the local and national transport planning policy;

- **Section 5** – Future Year Baseline Traffic Flows – details the traffic conditions without the addition of construction traffic flows;
- **Section 6** - Trip Generation, Mode Share and Assignment - outlines the number of daily and peak hour trips generated by the Project;
- **Section 7** – Transport Impact - assesses the net trip generation generated by the Project and cumulative developments; and
- **Section 8**– Summary - summarises and concludes on the findings of the TA.

1.12 The report concludes that there are no transport related reasons for not permitting the Project.

2 EXISTING SITUATION

Introduction

2.1 This section considers the current site use, location and transport network. This includes the walking, cycling and public transport facilities available within proximity of the Project site. It also assesses the local road network and Personal Injury Accidents (PIA) on the road network for the last five years.

Site Location and Surroundings

2.2 The Project site occupies approximately 16.4 hectares of agricultural land located within the administrative boundary of South Lanarkshire Council. The M74 borders the site to the east while the B7078 Carlisle Road borders it to the west. Immediately to the west of the site (on the opposite side of the B7078) is the Coalburn Moss Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC).

2.3 To the south of the Project site lies a complex of warehouses and associated hardstanding storage at Birkhill Commercial Park, occupied by Harbro Limited. To the north of the Project site, located adjacent to the B7078 is the TPA Temporary Access Solutions facility.

Site History

2.4 The Project site has been the subject of previous development proposals for energy related development which to date have been approved but not implemented. Those that are close to or partially overlap the Project site boundary include the following.

- Planning permission granted in 2016 for two 98.14 metre high wind turbines within the site (Ref: CL/16/0090). This application was granted for a further 3 years in January 2020 (Ref: P/19/0363).
- Planning permission in principle granted in May 2020 for the erection of data centre (Class 4 Business) and associated 12 MW Solar farm and 7.5 MW gas turbine with light industrial (Class 5) area and associated infrastructure under reference P/19/0896.

Road Network

B7078

2.5 The Project site would be accessed via the B7078 which is a de-restricted single carriageway road subject to the national speed limit of 60 mph with no street lighting. There is a combined footway / cycleway on the eastern side of the B7078 which forms part of the National Cycle Network 74 (NCN74) and is segregated from the main carriageway.

2.6 The B7078 routes south to Junction 11 of the M74 which is accessed via a grade separated junction. Junction 11 has northbound facing entry and exit sliproads only onto the M74.

2.7 The B7078 continues southeast, parallel to the M74 where it becomes a dual carriageway road with central reservation and intermittent street lighting. There is a footway present on the eastern side of the carriageway which continues along the length of the B7078.

2.8 South of the Cairn Lodge Services, the B7078 continues as a dual carriageway road until its junction with the M74 Junction 12 via a grade separated junction. Junction 12 has southbound facing entry and exit sliproads only onto the M74.

2.9 The B7078 continues to route broadly southeast parallel to the M74 where it terminates at Junction 13.

M74

2.10 The M74 routes broadly northwest to southeast between Glasgow and Abington, south of which it continues to Carlisle as the A74(M), then becomes the M6 at the England / Scotland border.

Sustainable Travel Provision

Pedestrian Infrastructure

2.11 A combined foot/cycleway is located on the eastern side of the B7078 which routes north into Lesmahagow and its residential streets. There are no other local roads which lead to residential areas within the vicinity of the site.

Cycle Infrastructure

2.12 National Cycle Network 74 (NCN74) is located on the eastern side of the B7078 and is segregated from the main carriageway. National Route 74 connects Gretna and Glasgow following the same transport corridor as the main rail and road routes.

Bus Service Provision

2.13 The two nearest bus stops are located approximately 800m south of the site, located on the B7078 Carlisle Road. Services 8A and X50 operate from these bus stops:

- Service 8A operates between Glespin and Lanark on Sundays only; and
- Service X50 operates between Glespin and Lesmahagow with one service in each direction each day.

Traffic Flows

2.14 In order to establish baseline traffic flows, traffic flow data has been obtained from Department for Transport traffic counts at the following locations:

- M74 north of Junction 11; and
- M74 South of Junction 12.

2.15 These datasets provide year on year Annual Average Daily Flow figures, with the most recent years' worth of data being 2019.

2.16 Additional traffic flow data was obtained from nearby planning applications:

- Planning application CL/17/0157 undertook classified junction surveys on Thursday 7th February 2017 and provided AM and PM peak hour traffic flows as part of its planning application; and
- Planning application P/19/1636 commissioned Automatic Traffic Count (ATC) surveys in June 2018, and provided weekday traffic flows at each count site, summarised into cars and Light Goods Vehicles (LGV) and HGVs.

2.17 It should be noted that the traffic surveys undertaken as part of planning application CL/17/0157 determined the AM and PM peak hours along the local road network to be 07:15 to 08:15 and 16:15 to 17:15 respectively.

2.18 Based on the above, data for the following links was obtained:

- B7078 between J11 and J12;
- B7078 between the J11 exit sliproad and site access;
- M74 south of J12;
- M74 north of J11; and
- B7078 between the M74 Junction 11 roundabout and M74 Junction 11 exit sliproad.

2.19 The traffic flows along each link are summarised in **Table 2.1**. These traffic flows were surveyed during the periods 2018 to 2019 and use of such traffic data that is a few years old is an acceptable practice within the transport industry and in accordance with guidance. In this particular instance, Covid-19 related travel restrictions were in place at the time of preparing this ES whereby traffic flows on the road network were not representative of typical conditions. Indeed, 2018 and 2019 were the immediate periods before Covid-19 related restrictions were imposed and are thus the latest available traffic flow data which is representative of typical traffic flow conditions and patterns.

Table 2.1: Observed Traffic Flows

Location	Source	Year	Daily Vehicle Movements	HGVs
B7078 between J11 and J12	P/19/1636	2018	6679	1946
B7078 between J11 exit sliproad and site access	P/19/1636	2018	1622	429
M74 south of J12	DfT	2019	34428	7557
M74 north of J11	DfT	2019	34090	8175
B7078 between M74 roundabout and M74 exit sliproad	P/19/1636	2018	4465	580

Road Safety

2.20 PIA data was obtained from Crashmap for the most recent five-year period for the surrounding road network within the vicinity of the site. The area for which data was obtained for the B7078 between the site and the M74 junction 12.

2.21 Crashmap updates its database after receiving the official data from the Department for Transport. This occurs annually and provisional data is available until June 2020; however provisional data is subject to change and does not form a comprehensive record. Based on this, Crashmap data for the five year period from January 2015 to December 2019 has been analysed below.

2.22 There were two injury accidents which occurred within the five-year period, both of which resulted in only slight injury. There were no serious or fatal injury accidents.

2.23 Both injury accidents occurred at different locations, as described below:

- One injury accident occurred on the B7078 between the M74 junction 11 and 12 junctions, adjacent to the Cairn Lodge Services. The accident involved a collision between two vehicles and resulted in three casualties; and

- One injury accident occurred on the circulatory carriageway of the B7078 / Ayr Road / M74 junction 12 entry slip road roundabout. The accident involved one vehicle who lost control whilst navigating the roundabout.

2.24 From the analysis undertaken, there are a low number of injury accidents with all occurring at different locations, which suggests there are no aspects with the local road network that contributes to a road safety issue.

Air Quality Management Areas

2.25 The Department for Environment, Food and Rural Affairs website (https://uk-air.defra.gov.uk/aqma/maps/) confirms that there are no Air Quality Management Areas (AQMAs within the vicinity of the Project Site.

3 THE PROJECT

3.1 The Project involves the use of energy storage technology, which can import or export large amounts of electricity with no time lag, which will:

- assist National Grid with the balancing market (balancing transmission requirements as large generation and consumption sources come on- or off-line);
- assist the energy market (by sorting excess generation until it is needed); and
- maintain the narrow frequency range around 50 Hz required for safe transmission network operation.

3.2 In overview, the Project comprises the construction and/or operation of:

- cut and fill earthworks to provide suitable topography for development, landscape and drainage purposes;
- a compound for the relevant transmission licensee (RTL);
- security fencing and CCTV;
- access from the adopted road (B7078), internal access and circulation roads;
- drainage infrastructure, landscape, and ecological planting;
- creation of 'platform(s)' to support the energy storage infrastructure;
- energy storage systems and associated infrastructure consisting of:
  - energy storage modules;
  - heating, ventilation and air conditioning (HVAC) equipment;
  - fire suppression equipment;
  - cooling plant;
  - control and protection apparatus;
  - switchgear apparatus;
  - inverters or power conversion systems;
  - transformers;
  - metering equipment;
  - cabling and connection to the RTL compound; and
  - welfare facilities.

3.3 Due to ongoing uncertainties such as technological advances and the commercial sensitivities associated with the procurement process regarding a technology provider and other technical considerations, it is not possible to finalise the exact layout, location and design of the Project prior to applying for consent.

3.4 Some limited flexibility in the design of buildings and plant is therefore required for the Project because the number and size of batteries, the building design and the extent of external equipment required may vary depending on the technology provider and other technical considerations.

3.5 Therefore, construction techniques, buildings and plant design are based on current understanding of existing projects and information provided by potential market suppliers. The

design parameters derived for the purposes of this assessment to enable this flexibility are described in Chapter 2 Project Description of the Environmental Impact Assessment Report (EIA Report). Three example indicative plans are provided in **Annex B**. The actual method of construction, operation and maintenance may deviate from what is described; however, any deviation from that described will be within the design parameters of the "Rochdale Envelope" for the Project. Further details on the Rochdale Envelope approach are detailed in Chapter 4 : Environmental Assessment Methodology of the EIA Report.

3.6 As set out in Section 5, the peak traffic generation of the Project which has informed the assessments contained within this TA is based upon the cut and fill exercise at the start of the construction process. The final selection of technology does not affect this, therefore, from a transport perspective, the flexibility built into the Project technology does not affect the assessment.

Access and Parking

3.7 Initial consultation with South Lanarkshire Council on access for the Project was undertaken in October 2020. At that time, there were no other development proposals in the immediate vicinity of the Project site and a new simple priority junction was envisaged from the eastern side of the B7078 that would serve both the construction and operational phases of the Project.

3.8 Advice from South Lanarkshire Council was that the proposed new access onto the B7078 was acceptable in principle, that visibility splays of 2.4m x 215m in each direction would be required and that minimum junction spacing of 100m to existing junctions would be required.

3.9 Since that consultation, an application has been submitted to South Lanarkshire Council (application reference P/21/0311) for a hydrogen facility on land adjacent to the Project site. The application was granted consent in and the hydrogen facility will take access onto the B7078 in a location that is within 100m of that which was envisaged for the Project and which was the subject of consultation with South Lanarkshire Council, above.

3.10 As a result, a shared access is now proposed whereby the Project will utilise the access junction that is proposed by the hydrogen facility for both its construction and operational phases. A new internal road will be provided from the hydrogen facility internal access road to the Project. The Site Masterplan is attached at **Annex B** which shows the access junction and the internal access road to the Project.

3.11 This arrangement would enable both proposals to be developed together without one compromising the other and enabling one shared access junction to be delivered that accords with design standards and in accordance with the advice from South Lanarkshire Council.

3.12 In that regard, the access junction consented by the hydrogen facility, and to be utilised by the Project, has visibility splays of 9m x 215m in both directions, has junction spacings in excess of 100m to other existing junctions and has geometries capable of accommodating turning HGV movements in a safe and efficient manner. The access junction has been subject to a detailed technical design for which all relevant consultees have been consulted with, including South Lanarkshire Council and The British Horse Society, as requested during the Scoping Response.

3.13 If, for whatever reason, the hydrogen facility has not been developed before construction of the Project, then the Project would deliver the access junction as proposed by the hydrogen facility and the internal access road to the Project.

3.14 There would be minimal access for traffic required during normal operation, as the facility would have no full time equivalent (FTE) employees based on the site during its operation. Only occasional visits for inspection and maintenance etc. would be required during normal operation,

approximately monthly or once per quarter. Up to six car parking spaces would be provided within the Project site for this purpose.

3.15 The access would also be used in the event that any part of the facility required replacement during the operational life of the Project. During the normal course of operations, no HGVs or Abnormal Indivisible Loads (AIL) are anticipated to be required.

Abnormal Indivisible Loads – Construction

3.16 There would be Abnormal Indivisible Loads (AILs) generated by the transportation of five Transformers (i.e. five AIL movements to the Project site). The transformers are expected to have transportation properties in the order of 4m high, 3m wide, 8m long and 106 tonnes in weight. It is expected that the transportation of the AILs will be under Special Types General Order (STGO), 2003, and be classified as STGO Category 3. It is expected that the AILs will not require a Special Order.

3.17 It is expected that AILs would route to the Project site via the M74 junction 11 arriving from the north and travel along the B7078 to the site. There are no known restrictions on the trunk road network to the M74 junction 11 for STGO Category 3 AILs. A visual inspection and assessment has been undertaken of the local road network between the M74 Junction 11 and the Project site and concluded that there are no restrictions for the AILs.

4 TRANSPORT RELATED POLICIES

Context

4.1 This section summarises the relevant national and local transport policy which sets the policy context for the report.

National Policy

The National Planning Framework (NPF) for Scotland (Scottish Government, 2014a)

4.2 The National Planning Framework (NPF) is a long-term strategy for Scotland. It is the spatial expression of the Government Economic Strategy and plans for development and investment in infrastructure. The NPF identifies national developments and other strategically important development opportunities in Scotland. It is accompanied by an Action Programme which identifies how it is to be implemented, by whom, and when. Statutory development plans must have regard to the NPF, and Scottish Ministers expect planning decisions to support its delivery.

Our Fourth National Planning Framework Draft (Scottish Government, 2021)

4.3 The fourth National Planning Framework (NPF4) (Scottish Government, 2021) draft document is due to supersede NPF3. This places an emphasis on the roles that walking and cycling can play as main modes of transport, or as part of a longer journey by public transport.

Scottish Planning Policy (SPP) (Scottish Government, 2014b)

4.4 The purpose of the Scottish Planning Policy (SPP) is to set out national planning policies which reflect Scottish Ministers' priorities for operation of the planning system and for the development and use of land. The SPP promotes consistency in the application of policy across Scotland whilst allowing sufficient flexibility to reflect local circumstances.

4.5 Paragraph 28 states that the planning system should support economically, environmentally and socially sustainable places by enabling development that balances the costs and benefits of a proposal over the longer term. The aim is to achieve the right development in the right place; it is not to allow development at any cost.

4.6 Paragraph 29 states that planning policies and decisions should support sustainable development. For the purposes of this policy, to assess whether a policy or proposal supports sustainable development, the development should support the delivery of infrastructure, for example transport, education, energy, digital and water.

4.7 Paragraph 106 states the following:

> *"Efficient handling of planning applications should be a key priority, particularly where jobs and investment are involved. To assist with this, pre-application discussions are strongly encouraged to determine the information that should be submitted to support applications. Such information should be proportionate and relevant to the development and sufficient for the planning authority requirements on matters such as the number of jobs to be created, hours of working, transport requirements, environmental effects, noise levels and the layout and design of buildings."*

Local Policy

South Lanarkshire Local Development Plan 2 (LDP2) - South Lanarkshire Council, adopted January 2021

4.8 The South Lanarkshire Local Development Plan 2 builds on the first South Lanarkshire Local Development Plan.

4.9 Policy 5: Development Management and Placemaking states the following:

> *"In order to ensure that development takes account of the principles of sustainable development, all proposals require to be well designed and integrated with the local area. Proposals should have no unacceptable significant adverse impacts on the local community and the environment. Where appropriate, proposals should include measures to enhance the environment and address the six qualities of placemaking. Further detail is included in supporting planning guidance on Design and Placemaking.*
>
> *When assessing development proposals, the Council will ensure that, where appropriate;*
>
> - *There is no unacceptable significant adverse impact on adjacent buildings or streetscape in terms of layout, scale, massing, design, external materials or amenity;*
> - *The development shall not have an unacceptable significant adverse impact on the amenity of any nearby residential properties in terms of overshadowing, overlooking or other loss of residential amenity as a result of light, noise, odours, dust or particulates or other emissions;*
> - *The proposed development provides suitable access, parking and connection to public transport, encourages active travel, has no adverse implications for public safety and incorporates inclusive access for all people, regardless of disability, age or gender;*
> - *Sustainability issues are addressed through carbon reduction measures and energy efficient design, layout, site orientation and building practices, including provision for heat network infrastructure and safeguarding space for future pipework/piperuns and energy centres;*
> - *Risks to new development from unstable land resulting from past mining activities are fully assessed and, where necessary, mitigated prior to development;*
> - *The development will have no unacceptable significant impact on the natural or historic environment and no adverse effect on the integrity of any Natura 2000 sites;*
> - *The development does not result in, or can mitigate against, any unacceptable significant adverse impact on quiet areas, the water environment, air quality or soil quality; and*
> - *The proposal includes appropriate: utility and roads infrastructure open space, green infrastructure and landscape provision water management (including foul drainage) and Sustainable Drainage Systems (SuDS) including the provision of SuDS during construction of the development."*

Summary

4.10 It is concluded that the proposals are consistent with policies relating to transport and roads at the national and local levels.

5 FUTURE YEAR BASELINE TRAFFIC FLOWS

5.1 Subject to being granted consent and subsequent Final Investment Decision, the earliest date that construction could start will be in 2022. Advance enabling works that do not require consents or licences may be required to establish the conditions (e.g. through grass mix planting) for providing land for habitat creation. There may also be a further period of preliminary works to undertake further enabling activities such as geo-environmental and archaeological excavations.

5.2 The duration of the construction phase is anticipated to be approximately 24 months. Connection to the grid is anticipated to be by 2025.

Future Assessment Year

5.3 Assuming construction starts in 2022, 2023 is anticipated to be the first full year of construction within which both the maximum total daily construction traffic flows and the maximum peak hour construction traffic flows may be expected. On this basis, 2023 has been selected as the assessment year for construction traffic.

5.4 The future year scenario of 2023 has been created by applying traffic growth rates to the observed traffic flows set out in Section 2, then adding in the traffic flows of 'committed developments' i.e. developments that have planning consent but are not yet generating traffic on the network.

5.5 National Road Traffic Forecast (NRTF) low growth rates were applied to the surveyed traffic movements. The growth rates are set out in **Table 5.1.**

Table 5.1: NRTF Growth Rates

Years	Annual Growth Rate
2016-2021	1.19%
2021-2026	0.91%

Committed Developments and Cumulative Developments

5.6 As part of the assessments and the establishment of a future year baseline, committed development sites and cumulative development sites are also considered.

5.7 Developments that already have planning consent have already been through that process and have identified any road and transport improvements that may or may not be necessary to mitigate their impact. There is no further opportunity for these developments to provide additional road or transport mitigation and so these developments and their road and transport schemes are treated as committed within any future year scenarios.

5.8 For this reason, those developments (traffic flows and their road and transport mitigation schemes) form part of a future transport baseline scenario for any other developments that follow. In doing that, the impact of development proposals that follow consented developments is able to be determined in the knowledge of what has already been consented in transport and road terms along with the need for any additional road and transport improvements that may be necessary.

5.9 Other developments that emerge at the same time are treated together and are cumulatively assessed against the baseline scenario described above to determine their cumulative impact and their cumulative road and transport mitigation requirements (if required).

5.10 A detailed assessment has been undertaken of all planning applications in the surrounding area. From a transport perspective, their status (i.e. consented, awaiting determination or allocated), traffic generation, their study area and the study area of this TA have all been analysed to determine how they have been considered within this TA.

5.11 A full list along with comments are attached at **Annex C**. In summary, there are six sites that have planning consent that would generate a significant level of traffic onto the study area of this TA that need to be considered as a committed development and form part of the future year baseline scenario. These are summarised in **Table 5.2.**

Table 5.2: Committed Developments

Type of Application	Distance from Site	Description	Planning Reference
Wind Farm	3.6km to main site	Erection of 13 wind turbines (maximum height to tip 149.9m), access tracks, substation and other associated infrastructure, and increase export capacity to 49MW (Section 42 application to vary conditions 1, 27, 37 and 45 of planning permission CL/15/0273 to revise wind farm layout, increase turbine height and export capacity, and deletion of conditions 17 - 21 of Wood Fuel Drying Facility)	CL/17/0477 / CL/15/0273
Mixed Use Employment	3.2km to main site	Mixed use development comprising of Class 4 (Business), 5 (General Industrial) and 6 (Storage and distribution) with associated landscaping, service facilities, internal roadways, SUDS and other ancillary work (Planning permission in principle)	CL/17/0157
Wind Farm	150 metres	Erection of 10 wind turbines (149.9m to tip height) and associated infrastructure including access tracks, cabling and transformer equipment	P/19/1636
Hydrogen Facility	Adjacent to site	Erection of hydrogen production facility (Class 5) for 25 year period (matters specified by condition application P/19/0896). Formation of vehicular access (P/21/0438)	P/21/0311
Mixed Use Residential	3.40 km to main site	Planning application related to CL/14/0413. (Mixed use development comprising of residential, hotel, holiday chalets, and associated access arrangements, landscaping and formation of open space (Planning permission in principle)).	CL/14/0413 / P/21/2019
Wind Farm	4.2km	Erection of 14 wind turbines (12 no. with a 149.9m maximum height to tip and 2 no. with a 180m maximum height to tip) with a maximum output of up to 50MW and associated infrastructure including substation, control building, crane hardstandings, underground cabling, transformer enclosures, temporary construction compounds, borrow pits, permanent wind monitoring mast and new and upgrading of existing access tracks	P/18/1540

5.12 There are two sites identified in **Table 5.3** with potential for cumulative effects. These do not form part of the future year baseline scenario but will be included as a cumulative assessment in Section 7.

Table 5.3: Cumulative Developments

Planning Reference	Status	Type of Application	Distance from Site	Description
N/A	N/A	Grid Connection	At site boundary	Anticipated buried cable route from the Coalburn Energy Storage Project to Coalburn substation.
P/20/0600	Registered	Employment	2.1km (north west)	Erection of nine business units (Classes 4, 5 and 6) and formation of seven yards (Classes 4, 5 and 6) and associated landscaping, amenity space, access road and car parking.

5.13 A grid connection to Coalburn Substation will be required; however, the connection will be consented separately. The construction of the grid connection would only generate a small number of daily construction movements per day and would occur later on in the construction programme. Indeed, it is necessary for the cut and fill exercise to be undertaken as the first stage of the construction works and it is only after this that any other works can be undertaken. It is the cut and fill stage of the construction works that generate the peak construction traffic flows.

5.14 Thus, although the grid connection works may overlap with the wider construction works, it would not overlap with the period of the construction that generates the peak construction traffic flows. Thus, it is the peak construction phase that remains the peak cumulative phase in the context of this application plus the grid connection application. On this basis, although the grid connection is scoped in as a cumulative development, it does not generate any traffic as part of the assessment of cumulative developments.

5.15 The 2023 Baseline daily traffic flows are set out in **Table 5.4.**

Table 5.4: 2023 Baseline Daily Traffic Flows

Location	2023 Baseline (Daily) Total Vehicle Movements	2023 Baseline (Daily) HGV Movements
B7078 between J11 and J12	12620	2232
B7078 between J11 exit sliproad and site access	2033	512
M74 south of J12	41345	7983
M74 north of J11	39057	8617
B7078 between M74 roundabout and M74 exit sliproad	7521	728

6 TRIP GENERATION, MODE SHARE AND ASSIGNMENT

6.1 This section details the estimated construction trip generation and assignment onto the local road network.

Construction HGV Movements

6.2 Normal construction working hours will be Monday to Friday 08:00-18:00 and Saturday 08:00-13:00. No Sunday, bank holiday or night working is proposed save as described below.

6.3 Up to an hour before and after the normal construction working hours, the following activities may be undertaken:

- Arrival and departure of the workforce at the site and movement around the Project site that does not require the use of plant;
- Site inspections and safety checks; and
- Site housekeeping that does not require the use of plant.

6.4 Estimates of the potential construction vehicle movements across the anticipated 24-month construction period are set out in **Table 6.1** and set out in **Annex D.**

6.5 At the start of the construction process, there will be a cut and fill exercise and the building construction works. These works generate the highest number of daily HGV movements over the construction process. After this, daily HGV numbers decrease but the number of construction staff and contractors on site (i.e. light vehicle movements) increase. The cut and fill exercise is estimated over a three month period and an overlap of building construction works has been assumed. Although unlikely in practice, this maximises the number of daily construction HGV movements and thus results in a very robust assessment.

Table 6.1: Estimated Construction Vehicle Movements

Month	Light Movements per Day	HGV Movements per Day	Total Vehicle Movements per Day
Month 1	10	88	98
Month 2	10	88	98
Month 3	10	88	98
Month 4	10	28	38
Month 5	10	4	14
Month 6	10	4	14
Month 7	10	1	11
Month 8	10	1	11
Month 9	27	1	28
Month 10	27	1	28
Month 11	27	1	28
Month 12	27	1	28
Month 13	35	0	35
Month 14	35	0	35
Month 15	35	0	35

Month	Light Movements per Day	HGV Movements per Day	Total Vehicle Movements per Day
Month 16	35	0	35
Month 17	18	0	18
Month 18	18	0	18
Month 19	18	0	18
Month 20	18	0	18
Month 21	7	0	7
Month 22	7	0	7
Month 23	7	0	7
Month 24	7	0	7

6.6 Based upon the above, the Project would generate a maximum of 98 total vehicle movements per day, comprising of 88 HGV movements per day and 10 light vehicle movements per day. This is calculated on the basis of two construction staff per car, and HGV movements being generated on weekdays and Saturday mornings only and excluding bank holidays.

6.7 Although this represents the maximum total construction vehicle movements per day, it does not represent the maximum AM peak hour construction vehicle movements. This is predicted during months 13 to 16 when the maximum number of construction staff are on site, when there would be 35 light vehicle movements per day (17 / 18 car / van arrivals per day plus 17 / 18 car / van departures per day). These vehicle movements would be staff arriving to the Project site between 07:00 and 08:00 and then departing the site between 18:00 and 19:00.

6.8 The network PM peak hour was identified in Section 2 as being 16:15 to 17:15. Therefore, construction staff would depart the site after the PM peak hour. The maximum number of construction vehicle movements generated during the PM peak hour would therefore consist of construction HGVs and would occur on days of the maximum total vehicle movements.

6.9 The weekday temporal distribution of HGV movements has been estimated based on HGV movements being evenly distributed across a working day whilst all staff have been assumed to arrive between 07:00 and 08:00 and then depart between 18:00 and 19:00. This has been applied to create two scenarios as set out in **Table 6.2.** The first scenario is months one to three when the maximum number of total daily and the maximum number of PM peak hour construction vehicle movements are predicted; the second scenario is months 13 to 16 when the maximum number of AM peak hour construction vehicle movements are predicted.

Table 6.2: Temporal Distribution of Construction Vehicle Movements

Hour Beginning	Scenario: Maximum Daily Total and PM Peak Hour Construction Vehicle Movements (months 1 to 3)		Scenario: Maximum AM Peak Hour Construction Vehicle Movements (months 13 to 16)	
	Total Movements	HGV Movements	Total Movements	HGV Movements
06:00	0	0	0	0
07:00	5	0	18	0
08:00	9	9	0	0
09:00	9	9	0	0
10:00	9	9	0	0
11:00	9	9	0	0

Hour Beginning	Scenario: Maximum Daily Total and PM Peak Hour Construction Vehicle Movements (months 1 to 3)		Scenario: Maximum AM Peak Hour Construction Vehicle Movements (months 13 to 16)	
	Total Movements	HGV Movements	Total Movements	HGV Movements
12:00	9	9	0	0
13:00	9	9	0	0
14:00	9	9	0	0
15:00	9	9	0	0
16:00	9	9	0	0
17:00	9	9	0	0
18:00	5	0	18	0
19:00	0	0	0	0
20:00	0	0	0	0
Total	**98**	**88**	**35**	**0**

Note: Summation differences due to figures rounded to the nearest whole number

6.10 It should be noted that there would be AILs generated by the transportation of five Transformers (i.e. five AIL movements to the Project site); however, these are considered to be 'one-off' vehicle movements which will not occur on a typical day of construction. On this basis, AIL movements have been excluded from **Table 6.1** and **Table 6.2**.

Staff and HGV Geographical Trip Distribution

6.11 All staff and HGV drivers will be instructed to travel to and from the south via the M74 Junction 11 and Junction 12, to avoid construction vehicles travelling through Lesmahagow.

6.12 For assessment purposes and to assess a worst case scenario, it is assumed 100% of construction vehicles would arrive to the site via the M74 junction 11, and 100% would also arrive to the site via M74 junction 12 (i.e. all movements have been assigned to / from the north on the M74 and also to / from the south on the M74).

Development Traffic Flow Scenarios

6.13 The construction traffic flows have been added to the 2023 base traffic flows to create the scenarios shown below:

- 2023 Baseline;
- 2023 Baseline + Project Construction.
- 2023 Baseline + Project Construction + Cumulative Sites

6.14 The traffic flows for each of these scenarios are set out and considered in Section 7.

7 TRANSPORT IMPACT

Introduction

7.1 To consider the effects of the traffic generated by construction of the Project, an assessment of daily and peak hour traffic flow increases has been undertaken.

Link Assessment – Daily Traffic (Construction Phase)

7.2 Section **6** detailed the trip generation of the construction vehicle movements generated by the Project. The construction traffic flows have been assessed against the 2023 Baseline traffic flows in **Table 7.1** and set out in **Annex E.**

Table 7.1: Project Construction Vehicle Movements Percentage Impact

Location	2023 Baseline (Daily)	2023 Baseline Daily HGVs	Construction Vehicles	Construction HGVs	Total Vehicles %age Impact	HGVs %age Impact
B7078 between J11 and J12	12620	2232	98	88	0.78%	3.96%
B7078 between J11 exit sliproad and site access	2033	512	98	88	4.84%	17.27%
M74 south of J12	41345	7983	98	88	0.24%	1.11%
M74 north of J11	39057	8617	98	88	0.25%	1.03%
B7078 between M74 roundabout and M74 exit sliproad	7521	728	98	88	1.31%	12.14%

7.3 As can be seen, the percentage increases in traffic along the road network as a result of construction vehicles is in the order of less than 2% and up to a maximum of 4.84%. These increases are negligible. Notwithstanding the low percentage increases, the baseline traffic flows demonstrate that traffic on the road network is low and well within its capacity. With the addition of the temporary construction traffic, total traffic flows along the road network would remain low and well within capacity.

Impact Assessment – Peak Hours (Construction Phase)

7.4 In addition to daily traffic flow increases, peak hour traffic flow increases have also been considered, in particular at the site access and the B7078 adjacent to the site access.

7.5 It should be noted that the manual traffic counts undertook as part of planning application CL/17/0157 determined the AM peak hour to be 07:15 to 08:15, and the PM peak hour to be 16:15 and 17:15.

7.6 Normal construction working hours will be Monday to Friday 08:00-18:00 and Saturday 08:00-13:00. There would therefore be staff arrivals during the AM peak hour, and HGV movements during the PM Peak hour.

7.7 The AM peak hour traffic flows along the access route are set out in **Table 7.2.**

Table 7.2: 2023 AM Peak Hour Traffic Flows

Location	2023 AM Baseline Vehicles	2023 AM Baseline HGVs	Construction Vehicles	Construction HGVs	Total Vehicles %age Impact	HGVs %age Impact
B7078 between J11 and J12	880	63	18	0	2.01%	0.00%
B7078 between J11 exit sliproad and site access	201	23	18	0	9.17%	0.00%
M74 south of J12	2614	409	18	0	0.67%	0.00%
M74 north of J11	2770	443	18	0	0.63%	0.00%
B7078 between M74 roundabout and M74 exit sliproad	514	47	18	0	3.47%	0.00%

7.8 It can be seen from **Table 7.2** that the maximum percentage increases in traffic along the road network during the AM peak hour as a result of construction is in the order of 1% to 4%.

7.9 A 9.17% increase is predicted on the B7078 between the site access and M74 J11 exit sliproad; however, this is as a result of low baseline traffic flows (201 vehicle movements increasing to 219 vehicle movements). This represents one vehicle movement on average every 17 seconds increasing to one vehicle movement on average every 16 seconds.

7.10 With regards to the Project site access junction, there would be 18 total vehicle movements (nine arrivals plus nine departures) turning through it during the AM peak hour, all of which would be cars / vans. This represents one vehicle having to give way to oncoming traffic on average every 6.67 minutes.

7.11 Such levels of traffic are well within the capacity of the road network and provide ample gaps for vehicles turning through the Project site access junction to do so in a safe and efficient manner.

7.12 No capacity concerns are predicted during the AM peak hour as a result of the temporary construction vehicle movements.

7.13 The PM peak hour traffic flows along the access route are set out in **Table 7.3.**

Table 7.3: 2023 PM Peak Hour Traffic Flows

Location	2023 PM Baseline Vehicles	2023 PM Baseline HGVs	Construction Vehicles	Construction HGVs	Total Vehicles %age Impact	HGVs %age Impact
B7078 between J11 and J12	902	75	9	9	0.98%	11.83%
B7078 between J11 exit sliproad and site access	215	20	9	9	4.10%	43.56%
M74 south of J12	2630	520	9	9	0.34%	1.70%
M74 north of J11	2759	562	9	9	0.32%	1.57%
B7078 between M74 roundabout and M74 exit sliproad	701	37	9	9	1.26%	23.69%

7.14 It can be seen from **Table 7.3** that the maximum percentage increases in traffic along the road network during the PM peak hour as a result of construction is in the order of 2%.

7.15 A 4.1% increase is predicted on the B7078 between the Project site access and M74 J11 exit sliproad; however, this is a result of low baseline traffic flows (215 vehicle movements increasing to 224 vehicle movements). This represents one vehicle movement on average every 16.7 seconds increasing to one vehicle movement on average every 16.1 seconds.

7.16 With regards to the Project site access junction, there would be 21 total vehicle movements (10 to 11 arrivals plus 10 to 11 departures) turning through it during the PM peak hour, nine of which would be HGVs. This represents one vehicle having to give way to oncoming traffic on average every five to six minutes.

7.17 Such levels of traffic are well within the capacity of the road network and provide ample gaps for vehicles turning through the site access junction to do so in a safe and efficient manner.

7.18 No capacity concerns are predicted during the PM peak hour as a result of the temporary construction vehicle movements.

Cumulative Link Assessment – Daily Traffic (Construction Phase)

7.19 Section 5 detailed the cumulative sites which have been incorporated into the cumulative assessment. The construction and cumulative traffic flows have been assessed against the 2023 Baseline traffic flows in **Table 7.4** and are set out in **Annex F.**

Table 7.4: Construction and Cumulative Movements Percentage Impact

Location	2023 Daily Vehicles	2023 Daily HGVs	Construction + Cumulative Vehicles	Construction + Cumulative HGVs	Total Vehicles %age Impact	HGVs %age Impact
B7078 between J11 and J12	12620	2232	270	88	2.14%	3.96%
B7078 between J11 exit sliproad and site access	2033	512	270	88	13.26%	17.27%
M74 south of J12	41345	7983	270	88	0.65%	1.11%
M74 north of J11	39057	8617	98	88	0.25%	1.03%
B7078 between M74 roundabout and M74 exit sliproad	7521	728	270	88	3.58%	12.14%

7.20 It can be seen from **Table 7.4** that the percentage increases in traffic along the road network as a result of construction and cumulative traffic is generally in the order of 1% to 4% and up to a maximum of 13.26%. These increases are negligible. Notwithstanding the low percentage increases, the baseline traffic flows demonstrate that traffic on the road network is low and well within its capacity. With the addition of the temporary construction traffic and cumulative traffic, total traffic flows along the road network will remain low and well within capacity.

7.21 The AM peak hour cumulative and construction traffic flows along the access route are set out in **Table 7.5.**

Table 7.5: 2023 AM Peak Hour Cumulative + Construction Traffic Flows

Location	2023 AM Baseline Vehicles	2023 AM Baseline HGVs	Construction + Cumulative Vehicles	Construction + Cumulative HGVs	Total Vehicles %age Impact	HGVs %age Impact
B7078 between J11 and J12	870	63	30	0	3.39%	0.00%
B7078 between J11 exit sliproad and site access	191	23	30	0	15.47%	0.00%
M74 south of J12	2604	409	30	0	1.13%	0.00%
M74 north of J11	2760	443	18	0	0.63%	0.00%
B7078 between M74 roundabout and M74 exit sliproad	504	47	30	0	5.85%	0.00%

7.22 It can be seen from **Table 7.5** that the maximum percentage increases in traffic along the road network during the AM peak hour as a result of construction and cumulative traffic is in the order of 2% to 10%.

7.23 A 15.47% increase is predicted on the B7078 between the Project site access and M74 J11 exit sliproad; however, this is as a result of low baseline traffic flows (191 vehicle movements increasing to 221 vehicle movements). This represents one vehicle movement on average every 18 seconds increasing to one vehicle movement on average every 16 seconds.

7.24 With regards to the Project site access junction, there would be 30 total vehicle movements (15 arrivals plus 15 departures) turning through it during the AM peak hour, all of which would be cars / vans. This represents one vehicle having to give way to oncoming traffic on average every four minutes.

7.25 Such levels of traffic are well within the capacity of the road network and provide ample gaps for vehicles turning through the site access junction to do so in a safe and efficient manner.

7.26 No capacity concerns are predicted during the AM peak hour as a result of the temporary construction and cumulative vehicle movements.

7.27 The PM peak hour cumulative and construction traffic flows along the access route are set out in **Table 7.6.**

Table 7.6: 2023 PM Peak Hour Cumulative + Construction Traffic Flows

Location	2023 PM Baseline Vehicles	2023 PM Baseline HGVs	Construction + Cumulative Vehicles	Construction + Cumulative HGVs	Total Vehicles %age Impact	HGVs %age Impact
B7078 between J11 and J12	902	75	20	9	2.20%	11.83%
B7078 between J11 exit sliproad and site access	215	20	20	9	9.21%	43.56%
M74 south of J12	2630	520	20	9	0.75%	1.70%
M74 north of J11	2759	562	9	9	0.32%	1.57%
B7078 between M74 roundabout and M74 exit sliproad	701	37	20	9	2.83%	23.69%

7.28 It can be seen from **Table 7.6** that the maximum percentage increases in traffic along the road network during the PM peak hour as a result of construction and cumulative traffic is in the order of 1% to 3%.

7.29 A 9.21% increase is predicted on the B7078 between the Project site access and M74 J11 exit sliproad; however, this is a result of low baseline traffic flows (215 vehicle movements increasing to 235 vehicle movements). This represents one vehicle movement on average every 16 seconds increasing to one vehicle movement on average every 15 seconds. With regards to the Project site access junction, there would be 21 total vehicle movements (10 to 11 arrivals plus 10 to 11 departures) turning through it during the PM peak hour, nine of which would be HGVs. This represents one vehicle having to give way to oncoming traffic on average every five to six minutes.

7.30 Such levels of traffic are well within the capacity of the road network and provide ample gaps for vehicles turning through the site access junction to do so in a safe and efficient manner.

7.31 No capacity concerns are predicted during the PM peak hour as a result of the temporary construction vehicle movements and the addition of cumulative traffic.

Road Safety

7.32 Section 2 sets out that there are no existing road safety issues within the vicinity of the site on the B7078. The construction phase of the Project would generate cars and HGVs in a similar way to the current road users in the vicinity and would use the B7078 to access the wider road network.

7.33 Therefore, there is nothing to suggest that the Project would alter the injury accident rates within the vicinity of the site. It is therefore considered that the Project would not result in an unacceptable impact on road safety.

Summary

7.34 The above has set out that the construction phase would result in a maximum increase of 98 daily vehicle movements per day. This is well within what would typically be considered to be day-to-day variations in traffic flows.

7.35 The base traffic flows have no capacity issues and this would remain the case with the inclusion of the Project traffic flows. No capacity or road safety concerns would arise from the Project.

7.36 The analysis based on the assessment work has demonstrated that the Project would not result in any capacity or road safety concerns.

8 SUMMARY AND CONCLUSIONS

8.1 This Transport Assessment has been prepared by RPS on behalf of Alcemi Storage Developments Ltd ('Alcemi') to support the development of the proposed Coalburn Energy Storage Facility (referred to in this report as 'the Project').

8.2 The Project site is located on land west of the M74 to the east of Coalburn, south of Motherwell and east of Kilmarnock. The site comprises approximately 16.4 hectares of land within the administrative area of South Lanarkshire.

8.3 The current design of the Project would provide a minimum storage and generation capacity of approximately 500 MW across five development platforms.

8.4 The assessment of the Project traffic flows upon baseline traffic flows demonstrate the predicted increases are negligible and within expected day-to-day variances in traffic flow. Increases during the weekday peak hours, when traffic flows are at their highest and most sensitive to change would be negligible.

8.5 It is therefore concluded that the impact of the Project on the local road network would not result in any capacity or safety concerns.

8.6 There are therefore no transport or roads related reasons for not permitting the development.

REFERENCES

Scottish Government (2014a) National Planning Framework for Scotland.

Scottish Government (2014b) Scottish Planning Policy.

Scottish Government (2021) Scotland 2045 Our Fourth National Planning Framework Draft

South Lanarkshire Council (2021) South Lanarkshire Local Development Plan 2.

Transport Scotland et al (2020) Design Manual for Roads and Bridges (DMRB), LA 104 Environmental Impact Assessment and Monitoring.

Annexes

Annex A – Site Location

Notes
1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
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Legend

Project Site Boundary

Rev	Description	By	CB	Date

RPS MAKING COMPLEX EASY

20 Western Avenue, Milton Park, Abingdon, Oxfordshire, OX14 4SH
T: +(0)1235 821 888 **E:** rpsox@rpsgroup.com

Client: Alcemi Storage Developments Ltd

Project: Coalburn Energy Storage Facility

Title: Site Location Plan
(10K mapping)

Status	Drawn By	PM/Checked by
FINAL	AJC	CLC

Job Ref	Scale @ A1	Date Created
OXF11742	1:10,000	March 2022

RPS Drawing/Figure Number: Figure 1.1

Rev: -

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Scale Bar 1:10,000 @ A1

0m 50m 100m 250m

N

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Legend

Project Site Boundary

Rev	Description	By	CB	Date

RPS MAKING COMPLEX EASY

20 Western Avenue, Milton Park, Abingdon, Oxfordshire, OX14 4SH
T: +(0)1235 821 888 E: rpsox@rpsgroup.com

Client: Alcemi Storage Developments Ltd

Project: Coalburn Energy Storage Facility

Title: Site Location Plan

Status	Drawn By	PM/Checked by
FINAL	AJC	CLC

Job Ref	Scale @ A1	Date Created
OXF11742	1:2500	March 2022

RPS Drawing/Figure Number: Figure 3.1

Rev: -

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Scale Bar 1:2500 @ A1
0m 50m 100m 250m

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